GURPS®

Fourth Edition

BASIC SET

CHARACTERS

Steve Jackson Sean Punch David Pulver

STEVE JACKSON GAMES

GURPS®

Fourth Edition

Basic Set: Characters

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Introduction

GURPS stands for "Generic Universal RolePlaying System." It was originally a joke . . . a code word to describe the game while we looked for a "real" name. Years went by – literally! – as the game developed. We never found a better name, and now that the Fourth Edition is in your hands, the name is more appropriate than ever.

"Generic." Some people like quick, fast-moving games, where the referee makes lots of decisions to keep things moving. Others want ultimate detail, with rules for every contingency. Most of us fall somewhere in between. ***GURPS*** starts with simple rules, and – especially in the combat system – builds up to as much *optional* detail as you like. But it's still the same game. You may all use it differently, but your campaigns will all be compatible.

"Universal." I've always thought it was silly for game companies to publish one set of rules for fantasy, another one for Old West, another one for science fiction, and another one for super powers. ***GURPS*** is *one* set of rules that's comprehensive enough to let you use *any* background. There are worldbooks and supplements that "fine-tune" the generic system for any game world you want. But they *are* still compatible. If you want to take your Wild West gunslinger and your WWII commando fortune hunting in Renaissance Italy . . . go for it! And because that's exactly the kind of game that so many of our fans play, the Fourth Edition adds an overarching background created to support just such campaigns.

"RolePlaying." This is not just a hack-and-slash game. The rules are written to make true roleplaying possible – and, in fact, to encourage it. ***GURPS*** is a game in which you take on the persona of another character – and pretend, for a little while, to *be* that character.

"System." It really is. Most other RPGs started out as a simple set of rules, and then were patched and modified, ad infinitum. That makes them hard to play. ***GURPS,*** more than ever in the Fourth Edition, is a unified whole. We've gone to a great deal of effort to make sure that it all works together, and it all *works*. ***GURPS*** will let you create any character you can imagine, and do anything you can think of . . . and it all makes sense.

GURPS has been in print now for nearly 20 years. It was not designed in a vacuum; every game builds on the ones that came before. We learn from our successes – and from the successes of others. I think the best games are those that are simple, clear and easy to read, and I've tried hard to make ***GURPS*** "friendly." One important influence was Hero Games' ***Champions,*** for the flexibility of its character-creation system. Another was Flying Buffalo's ***Tunnels & Trolls,*** for its appeal to solitaire gamers. Finally, M.A.R. Barker's ***Empire of the Petal Throne*** remains noteworthy, even after decades of competition and imitation, for the detail and richness of its alien game world.

But there's more to ***GURPS*** than trying to repeat past success. The failures of earlier systems are important, too. In ***GURPS***, I've tried to achieve several things I think earlier designs missed.

First and foremost, of course, is the *flexibility* of a "universal" system. Others have tried this, but have fallen into the twin traps of watered-down combat (where a lightning bolt is just like a .45 pistol) or incompatibility (where players have to learn so many alternate rules for each new game and characters don't easily cross over). ***GURPS*** presents a single, unified system that allows for great diversity without losing its coherence. This Fourth Edition incorporates dozens of rules that originally appeared in supplements published for the Third Edition. They seemed important enough to bring into the ***Basic Set*** – so here they are.

Second is *organization.* Every gamer has had the experience of hunting frantically through one book after another, looking for a rule . . . and not finding it. ***GURPS*** is extensively cross-referenced, with a Table of Contents, an Index, and a Glossary of terms used in the game.

Third is *ease of play.* In ***GURPS***, most of the detailed calculations are done before you start play . . . they are entered on the character sheet, and saved until you need them. Once play actually begins, it should not be complex. I've tried to make ***GURPS*** as fast-moving yet realistic as possible. It's up to you to decide whether I succeeded.

Most roleplaying systems depend for their success on a continual flow of "official" supplements and adventures. ***GURPS*** is different. True, we've released a lot of material already, and we plan to do much more; a totally universal system offers great leeway, and we've got a supplement list as long as your arm. But ***GURPS*** is designed to be as compatible as possible with supplements written for *different* games. The reason? Simple. Suppose that you're a ***GURPS*** player. You're at the hobby shop, and you see a really interesting supplement package. But it's by another publisher, for another game.

No problem. The ***GURPS*** system breaks everything down into plain English and simple numbers. Distances are given in feet and miles, rather than arbitrary units; times are given in minutes and seconds. That's what makes it generic. That also makes it easy to translate. If you see an interesting supplement for another game, go right ahead and get it. You can use it as a sourcebook for ***GURPS.***

Likewise, if your gaming group favors other systems . . . you can still use your ***GURPS*** adventures. As long as that other game uses units that you can translate into feet, minutes, and other plain-English terms, you can import your ***GURPS*** adventures.

When ***GURPS*** was launched, we dreamed of its becoming the "standard" roleplaying system. The hobby has grown hugely since then! There will never be a single standard . . . but ***GURPS*** is *one* of the standards, and that's fine. We have never tried to drive others out of the market, or even to force them to conform to us. Instead, *we* are conforming to *them* – by producing a system that will work with *any* clearly written adventure.

At any rate, here it is. I'm satisfied that ***GURPS*** is the most realistic, flexible, and "universal" system ever developed. This Fourth Edition is the culmination of 18 years of continuous development and two years of concerted revision. I hope you like it.

In closing, I want to acknowledge and thank the two revisors of this edition. Sean Punch, the ***GURPS*** line editor, and David Pulver spent two years collating feedback, experimenting with variant systems, and knitting a decade and a half of rules material into a coherent whole. It would not have happened without them.

– Steve Jackson

Notes on the Fourth Edition

This edition represents a leap forward in more ways than just rules. As the hobby has grown, standards have become higher. You expect more from a roleplaying game than you did a decade ago; it's our job to deliver. So . . .

- *The book is bigger.* Future ***GURPS*** releases will also be large . . . most will be over 200 pages . . . and they'll be hardback. Feedback has been clear on this point; most people want more material in each book, and they want the durability and looks of hardcover.
- *The art is better.* It's full-color throughout, and it's treated as an integral part of the book, not as filler material. Many will find this the most dramatic change in the new edition!
- *Regular support will continue.* We plan to release one high-quality hardcover sourcebook every month . . . indefinitely. As I write this in April of 2004, we're already scheduled more than three years out.

Holding this book, you might ask, "Why does this edition of the ***Basic Set*** come in *two* volumes? Why not one *big* book, like **the** Third Edition and lots of other RPGs?" The answer involves a bit of history . . .

The first two editions of ***Basic Set*** – released in 1986 and 1987 – were boxed sets containing cardboard figures, combat maps, dice, and *two* rulebooks (sound familiar?). ***Book 1: Characters*** was aimed mainly at players, while ***Book 2: Adventuring*** was more of a GM's guide. This was a logical division of content for a RPG, and quite common in the '80s.

By the time of the third edition (1988), gamers had come to prefer economical all-in-one rulebooks to expensive boxed sets. We decided to dispense with the box and release ***Basic Set,*** *Third Edition* as a single book. We managed to shoehorn everything into one volume. We continued to call it the ***Basic Set*** – even though it was not a boxed set – so that retailers and customers would know that it was the same game.

By 1995, we had published over 100 titles for ***GURPS.*** However, it just wasn't feasible to keep them all in print, so it became progressively harder to find certain supplements. Meanwhile, gamers with large ***GURPS*** libraries were finding it increasingly difficult to locate specific rules. To solve these problems, we compiled the most frequently used rules from all of ***GURPS*** into two expansion volumes: ***Compendium I: Character Creation*** and ***Compendium II: Combat and Campaigns.***

Most ***GURPS*** supplements written between 1996 and 2003 required one or both of the ***Compendia.*** The basic rules had effectively spread to *three* books. In the process, several internal inconsistencies became evident – the almost-inevitable result of growth by agglomeration.

Basic Set, *Fourth Edition* addresses the inconsistencies by recasting ***Basic Set,*** *Third Edition* and the two ***Compendia*** as a unified system. It occupies two volumes not because we think we will make more money that way, but because condensing three books into one proved impossible – there was too much material! But these two volumes contain the best of *18 years* of ***GURPS*** development, making *Fourth Edition comprehensive* in a way that few other RPGs are.

About the Authors

Steve Jackson

Steve Jackson has been playing games for entirely too many years, and designing them professionally since 1977. His other game-design credits include ***Ogre*** and ***G.E.V.,*** the award-winning ***Illuminati,*** the best-selling ***Car Wars***, the atrocious ***Munchkin*** and its offshoots, and many others. He has served as an officer and volunteer for various industry associations, and was the youngest person ever inducted into the Origins "Hall of Fame."

He is the founder of Steve Jackson Games, in Austin, Texas.

Steve is an active member of the Science Fiction Writers of America. He is a semi-retired science fiction *fan,* and once spent a great deal of time writing for various zines and helping to run conventions. He now enjoys reading others' writing and attending others' cons. So it goes.

His other hobbies include surfing the net, playing with Lego and rolling-ball toys, gardening (especially water lilies), and tropical fish.

David L. Pulver

David L. Pulver grew up in Canada, England, and New Zealand. He has been a science fiction fan for most of his life, an avid gamer since 1978, and a professional author since 1988. ***GURPS Ultra-Tech*** was his first book. He has since written over 50 RPGs and supplements, among them ***Transhuman Space, GURPS Bio-Tech,*** and ***Big Eyes, Small Mouth,*** *Second Edition.* He lives in Victoria, British Columbia.

Sean M. Punch

Sean "Dr. Kromm" Punch set out to become a particle physicist and ended up as the ***GURPS*** Line Editor. Since 1995, he has compiled the two-volume ***GURPS Compendium*** and ***GURPS Lite,*** written ***GURPS Wizards*** and ***Undead,*** edited or revised more than 20 other ***GURPS*** books, and masterminded the rules behind dozens more.

Sean has been a fanatical gamer since 1979. His nongaming interests include cinema, computers, and wine. He lives in Montréal, Québec, with his wife, Bonnie. They have three cats and one bird.

And because this edition's ***Basic Set*** is comprehensive, there is no need to "bolt on" extra rules that will come to be seen as mandatory. This should put the brakes on growth by agglomeration The ***Basic Set*** is truly all you need to run nearly any kind of game: fantasy, science fiction, supers, horror . . . *anything.* We believe that's a big win, and we think you will agree!

– Sean Punch

What Is Roleplaying?

In a roleplaying game (RPG), each player takes the part of a "character" participating in a fictional adventure. A referee, called the Game Master (GM), chooses the adventure. He determines the background and plays the part of the other people the characters meet during their adventure. The adventure may have a fixed objective – save the Princess, find the treasure, stop the invasion – or it may be open-ended, with the characters moving from one escapade to the next. A roleplaying "campaign" can be open-ended, lasting for *years,* as characters (and players) come and go. It's all up to the GM and the players.

No game board is necessary for a roleplaying game – although some systems, including ***GURPS,*** include optional "boardgame" rules for combat situations. Instead, the game is played *verbally.* The GM describes the situation and tells the players what their characters see and hear. The players then describe what they are doing to meet the challenge. The GM describes the results of these actions . . . and so on. Depending on the situation, the GM may determine what happens arbitrarily (for the best possible story), by referring to specific game rules (to decide what is realistically possible), or by rolling dice (to give an interesting random result).

Part of the object of a roleplaying game is to have each player meet the situation as his *character* would. A roleplaying game can let a player take the part of a stern Japanese samurai, a medieval jester, a wise priest, a stowaway gutter kid on her first star-trip . . . or absolutely anyone else. In a given situation, all those characters would react differently. And that's what roleplaying is about! Thus, good roleplaying teaches cooperation among the players, and broadens their viewpoints.

But roleplaying is not purely educational. It's also one of the most creative possible entertainments. Most entertainment is passive: the audience just sits and watches, without taking part in the creative process. In roleplaying, the "audience" joins in the creation. The GM is the chief storyteller, but the players are responsible for portraying their characters. If they want something to happen in the story, they *make* it happen, because they're in the story. Other types of media are mass-produced to please the widest possible audience, but each roleplaying adventure is an individual gem, crafted by those who take part in it. The GM provides the raw material, but the final polish comes from the players themselves.

Mini-Glossary

Below are a few important terms used in this book. The complete glossary appears on pp. 563-565.

advantage: A useful *trait* that gives you an "edge" over another person with comparable *attributes* and *skills.* See Chapter 2.

attributes: Four numbers – *Strength, Dexterity, Intelligence,* and *Health* – that rate a character's most basic abilities. Higher is always better! See pp. 14-15.

cinematic: A style of play where the needs of the story outweigh those of realism, even when that would produce improbable results. See p. 488.

d: Short for "dice." "Roll 3d" means "roll three ordinary six-sided dice and add them up." See p. 9.

Dexterity (DX): An *attribute* that measures agility and coordination. See p. 15.

disadvantage: A problem that renders you less capable than your other *traits* would indicate. See Chapter 3.

enhancement: An extra capability added to a *trait.* This increases the *point* cost of the trait by a percentage. See pp. 102-109.

Fatigue Points (FP): A measure of resistance to exhaustion. See p. 16.

Health (HT): An *attribute* that measures physical grit and vitality. See p. 15.

Hit Points (HP): A measure of ability to absorb punishment. See p. 16.

Intelligence (IQ): An *attribute* that measures brainpower. See p. 15.

limitation: A restriction on the use of a *trait.* This reduces the *point* cost of the trait by a percentage. See pp. 110-117.

point: The unit of "currency" spent to buy *traits* for a character. The more points you have, the more capable you are. Point costs for traits are often written in brackets; e.g., "Combat Reflexes [15]" means the Combat Reflexes trait costs 15 points. See p. 10.

prerequisite: A *trait* you must have to qualify for another trait. If the prerequisite is a *skill,* you must have at least one *point* in it. See p. 169.

skill: A number defining your trained ability in an area of knowledge or broad class of tasks. See Chapter 4.

Strength (ST): An *attribute* that measures physical muscle and bulk. See p. 14.

trait: An *advantage, attribute, disadvantage, skill,* or other character "building block" that affects game play and costs *points* to add, modify, or remove.

Materials Needed for Play

- ***GURPS Basic Set Characters.*** Everyone will need access to this book in order to create characters and look up character abilities. A large group will find it handy to have *several* copies available, especially during character creation.
- ***GURPS Basic Set Campaigns.*** The GM will need a copy of this book, which contains rules for success rolls, physical feats, combat, injury, animals, and vehicles, as well as advice on how to run the game and design a campaign.
- *Character sheets.* Each player will need a copy of the Character Sheet (pp. 335-336) on which to record his PC's statistics. You may make as many copies as you like for your own use (but *not* for resale).
- *Three six-sided dice.* A set of three dice for each player, and another set for the GM, is even better.
- *Pencils and scratch paper.* For taking notes, sketching maps, etc.

The other important thing about roleplaying is that it doesn't have to be competitive. In most roleplaying situations, the party will succeed or fail as a group, depending on how well they cooperate. The greatest rewards of good roleplaying come not in "winning," but in *character development*. The more successfully a player portrays his character (as judged by the GM), the more that character will gain in ability.

When it's all said and done, the GM and the players will have created a story . . . the story of how the characters met, learned to work together, encountered a challenge, and (we hope) triumphed!

How to Learn *GURPS*

If you have some experience with roleplaying games already, you should find ***GURPS*** easy to pick up. But if this is your first RPG, you'll have a little more to learn. Relax – if you got this far, you'll be fine!

Don't be alarmed by the physical size of the game. There's a lot of material here – two thick books – but we've done our best to make it easy to use.

The tables of contents (pp. 3-4 and 339-341) and the index (pp. 329-334 or 570-575) are as detailed as we could manage.

We've also added several features to make the rules easier to learn. The *Quick-Start* (below) and *Conventions* (p. 9) sections cover the most important game concepts. The *Glossary* (pp. 563-565) defines the terms used in the game – and an abridged version (see *Mini-Glossary*, p. 7) appears here so you can understand the *Quick Start* rules without flipping pages.

The best way to learn ***GURPS*** is to join a group of friends who already play. If you're starting out on your own, here's what we recommend:

1. Quickly skim this book, just to get the flavor of the game. Don't worry about the details yet.
2. Read the *Mini-Glossary* (p. 7) to learn the basic terminology.
3. Read the *Quick-Start* and *Conventions* sections to learn the basic game concepts.
4. Read *Creating a Character* (pp. 10-12) to get an idea of the different things characters can do.
5. Read the rest of the rules in detail, as your time permits.

GURPS Lite may also be useful to you. It's a 32-page distillation of the basic system; you can download it free at **www.sjgames.com/gurps/lite/**.

Once you have absorbed the rules, you can be the GM for your friends, and help *them* learn the game. You can do whatever you want . . . that's the whole point of the system.

Most important: Have fun!

Quick Start

This section is a brief guide to the whole ***GURPS*** game system. The ***Basic Set*** spans two thick volumes, but most of that is detail, "color," and special cases. The game system is actually *easy.*

GURPS is designed to be "friendly," both for the player and the Game Master. The rulebooks include a lot of detail, but they're indexed and cross-referenced to make things easy to find. And all the detail is optional – use it only when it makes the game more fun.

There are only three basic "game mechanics" in ***GURPS***. Learn these and you can start to play.

(1) *Success Rolls.* A "success roll" is a die roll made when you need to "test" one of your skills or attributes. For instance, you might test, or *roll against,* your Strength to stop a heavy door from closing, or against your Guns skill to hit an enemy with your pistol.

The only dice used in ***GURPS*** are six-sided ones. Roll three dice for a success roll. If your roll is *less than* or *equal to* the skill or ability you are testing, you succeeded. Otherwise, you failed. For example, if you are rolling against Strength, and your ST level is 12, a roll of 12 or less succeeds.

Sometimes you will have *modifiers* to a roll. For instance, if you were trying to stop a *very heavy* door from closing, you might have to roll against Strength at -2 (or ST-2, for short). In that case, with a Strength of 12, you would need to roll a 10 or less to succeed. Rolling a 10 or less is harder than rolling a 12 or less, just as stopping a heavy door is harder than stopping an ordinary one.

For an especially easy task, you would get a *bonus* to your attempt. You might roll "Animal Handling+4" to make friends with a very friendly dog. If your Animal Handling skill were 12, a roll of 16 or less would succeed. Making a roll of 16 or less is easier than making the base skill roll of 12 or less, because a friendly dog is easy to deal with.

For details on success rolls, see pp. 343-361.

(2) *Reaction Rolls.* A "reaction roll" is a roll made by the Game Master (or GM) to determine how his nonplayer characters (NPCs) react to the player characters. This roll is always optional; the GM may predetermine reactions.

But sometimes it's more fun to let the dice control the reactions.

To check reactions, the GM rolls 3 dice and consults the *Reaction Table* (pp. 560-561). The higher his roll, the better the NPCs will react, and the better the treatment they will give the PCs.

Many traits give *reaction modifiers* that add to or subtract from reaction rolls. If you have a +2 reaction due to your good looks, the GM will add 2 to any reaction roll made by someone who can see you. This is likely to improve the way they behave toward you!

For details on reaction rolls, see p. 494.

(3) *Damage Rolls.* A "damage roll" is a roll made in a fight, to see how much harm you did to your foe. Damage rolls use the "dice+adds" system (see *Dice,* below).

Many things can affect the final injury inflicted by your attack. Armor reduces the damage received by the wearer. Certain attacks do extra damage if they get through armor. "Critical hits" can do extra damage. All these things are explained in the combat rules – see Chapters 11-13. But the combat system is "modular"; you can use *all* the rules for a complex, detailed, realistic combat simulation – or just those in Chapter 11 for a quick game.

There's another important system – but you don't need to know it to start with. It's the *character creation* system. The GM will give each player a number of points to spend on his character. High attribute levels cost points, as do advantages and skills. Disadvantages, such as Greed and Berserk, are also available; these give you *extra* points. Details appear in Chapters 1-4.

These rules let you do all your calculations *before* play starts, and enter them on the Character Sheet (p. 13). That way, you don't have to bother with calculations during play!

Got all that? Good. Now you can play ***GURPS.*** The rest is just detail. Have fun.

Conventions

GURPS uses the following mathematical conventions.

Dice

GURPS uses six-sided dice only. All "success rolls," and most other rolls, require you to throw three dice ("3d") at once, add up the number of pips, and compare the total to a "target number."

To figure combat damage, and for many other things, ***GURPS*** uses the "dice+adds" system. If a weapon does "4d+2" damage, this is shorthand for "roll 4 dice and add 2 to the total." Likewise, "3d-3" means "roll 3 dice and subtract 3 from the total."

If you see just "2d," that means "roll two dice." For instance, if an adventure says, "The base is guarded by 5d human soldiers and 2d+1 robots," that's short for, "Roll five dice for the number of human guards at the base. Then roll two dice, and add 1, for the number of robots."

For really huge numbers, dice can be multiplied. For instance, "2d×10" means "roll 2 dice and multiply by 10."

Rounding

A mathematical formula is often the best way to ensure that a rule is fair, realistic, or universal. But formulas sometimes yield inconvenient fractions. Except where instructed otherwise, round off fractions as follows:

*Round **up** for point costs.* When you modify a point cost by a percentage, or multiply it by a factor, round all fractions *up.* For instance, a 25% enhancement to a 15-point ability would result in 18.75 points, which would round to 19 points. For negative numbers, "up" means "in the positive direction"; e.g., if you multiply -7 points by 1/2 to get -3.5 points, round the result to -3 points.

*Round **down** for character feats and combat results.* When you do math to determine what a character can do – how much he can lift, how far he can jump, etc. – or to calculate injury or other combat results, round all fractions *down.* For instance, for an attack that inflicts 3 points of injury with a 50% damage bonus, round down from 4.5 to 4 points.

Exceptions and special cases (such as "round to the nearest whole number" or "do not round off") are noted explicitly with the relevant rule.

Metric Conversions

GURPS uses the old imperial units of measurement, rather than metric, because most of our readers are Americans who use the old system. But not all! Every year, more and more people in the rest of the world start ***GURPS*** campaigns. And outside the U.S., people think in metric. We can't afford to do two editions of everything, but we *can* provide this conversion table.

Note that there are two conversion columns. The first column is an approximation, easy to do in your head, and good enough for gaming. The second column is the *real* metric equivalent, for those times when you want to be exact.

Imperial	*Game Metric*	*Real Metric*
1 inch (in.)	2.5 cm	2.54 cm
1 foot (ft.)	30 cm	30.48 cm
1 yard (yd.)	1 meter	0.914 meters
1 mile (mi.)	1.5 km	1.609 km
1 pound (lb.)	0.5 kg	0.454 kg
1 ton	1 metric ton	0.907 metric tons
1 gallon (gal.)	4 liters	3.785 liters
1 quart (qt.)	1 liter	0.946 liters
1 ounce (oz.)	30 grams	28.349 grams
1 cubic inch (ci)	16 cubic cm	16.387 cu. cm
1 cubic yard (cy)	0.75 cubic m	0.765 cubic m

Temperature: When dealing with changes in temperature, one Fahrenheit degree is 5/9 the size of a degree Celsius. So a change of 45°F is equal to a change of 25°C. To convert actual thermometer readings, subtract 32 from the Fahrenheit temperature and multiply the result by 5/9. So 95°F is 5/9 of (95-32), or 5/9 of 63, or 35°C.

Chapter One
Creating a Character

When you roleplay, you take the part of another person – a "character" that you create. ***GURPS*** lets you decide exactly what kind of hero you will become. Asteroid miner? Wizard? Professional time-traveler? You can take your inspiration from a fictional hero or heroine, or create your new "self" from the ground up. Once you know what role you want to play, it's time to bring that character to life!

The GM (Game Master – the person "running" the game) will give you a number of *character points* with which to "buy" your abilities. For instance, the stronger you want to be, the more points it will cost. You can also buy advantageous social traits, such as wealth, and special abilities called *advantages* (see Chapter 2).

If you want more abilities than you can afford on the budget given to you by your GM, you can get extra points by accepting below-average strength, appearance, wealth, social status, etc., or by taking *disadvantages* – specific handicaps such as bad vision or fear of heights (see Chapter 3).

Advanced players can fine-tune these traits by adding *enhancements* and *limitations;* see pp. 101-117. Such modifiers will raise or lower the basic point cost of the modified trait.

Start with a character sheet (see p. 13) and fill it in as you go along, keeping track of the points you spend. We have included examples at each stage to illustrate the process.

Character Points

Character points are the "currency" of character creation. Anything that improves your abilities *costs* character points: you must spend points equal to the listed price of an ability to add that ability to your character sheet and use it in play. Anything that reduces your capabilities has a negative cost – that is, it *gives you back* some points. For instance, if you start with 125 points, buy 75 points of advantages, and take -15 points of disadvantages, you have 125 - 75 + 15 = 65 points remaining.

Starting Points

The GM decides how many character points the player characters (PCs) – the heroes – start with. This depends on how capable he wants them to be, and can range from under 25 points (small children) to 1,000 points or more (godlike beings), with 100-200 points being typical for career adventurers.

This beginning point level is sometimes referred to as the *power level* of the campaign (see *Power Level,* p. 487). This is not the same as the "stakes" of the campaign! Heroes with abilities that let them overcome even the toughest opposition in an optimistic fantasy campaign might face mortal danger in a dark horror scenario.

In most campaigns, all the PCs start at the same power level. This is simple and fair. However, not all people are equally capable in real life, and it is common in fiction for one character to be obviously superior. If everyone agrees, some players might play "lead protagonists,"

worth more points than the other PCs, or "sidekicks," worth fewer points.

Disadvantage Limit

A *disadvantage* is anything with a negative cost, including low attributes, reduced social status, and all the specific disabilities listed in Chapter 3. In theory, you could keep adding disadvantages until you had enough points to buy whatever advantages and skills you wanted. In practice, most GMs will want to set a limit on the disadvantage points a PC may have.

The purpose of a disadvantage limit is to keep the game from becoming a circus, with the PCs' troubles stealing the spotlight from the setting, the adventure, and everything else the GM has created. Most GMs find it difficult to run an *engaging* game if the PCs are completely dysfunctional – e.g., clumsy, one-eyed, alcoholic outlaws who are afraid of the dark.

A disadvantage cap serves another purpose as well: it restricts the abilities available to starting characters, allowing the GM to set an upper limit on the capabilities of the PCs. A good rule of thumb is to hold disadvantages to 50% of starting points – for instance, -75 points in a 150-point game – although this is entirely up to the GM.

However, if the GM rules that all PCs *must* have certain disadvantages (e.g., all the PCs are spies, with a Duty to their agency), these "campaign disadvantages" should not count against the disadvantage limit. Disadvantages that are part of your racial makeup (your "racial template"; see p. 260) are also exempt.

Character Points in Play

Your character's starting point total is only relevant when he first enters play. Shortly thereafter, he will start to change. The GM will sometimes reward you with extra points to spend, or even new abilities . . . but you might *lose* capabilities, too. All of these things will change your point total.

Eventually, your PC will be worth more or fewer points than those of your companions, even though you all started out equal. Don't worry about it! Develop the habit of regarding your point total as a useful measure of your capability *at this time* – not as a gauge of overall campaign power level, or of your personal success or importance relative to the other players or PCs.

For more on character evolution, see Chapter 9.

Character Concept

The two most important things to know about your character are *who he is* and *what role you want him to play in his adventures.* Find out what kind of game the GM plans to run and what kinds of characters he intends to allow. Then start filling in the details. There are several ways to approach this.

You can choose the abilities you want, spend your character points, and work out a character concept that fits the abilities. A good character is much more than a collection of abilities, but "shopping" for abilities can be a great inspiration.

You might instead decide on your character's focal qualities first – the handful of things that *define* him, such as personal history, appearance, behavior, aptitudes, and skills. Think about how he acquired those qualities, then spend your points on features that go with these traits. (You might find it useful to work out a biography first, as described below.)

Finally, you might find it helpful to answer some basic questions about your character, using the answers to develop a biography before you spend *any* points. For instance:

- Where was he born and where did he grow up? Where does he live now?
- Who were his parents? (Does he know?) Are they still alive? If not, what became of them? If so, does he get along with them?
- What training does he have? Was he an apprentice? A student? Or is he self-taught?
- What is his current occupation? What other jobs has he held?
- What social class does he belong to? How wealthy is he?
- Who are his friends? His enemies? His closest professional associates?
- What were the most important moments of his life?
- What are his likes and dislikes? Hobbies and interests? Morals and beliefs?
- What are his motivations? Plans for the future?

You can answer such questions in your head, on paper, or in an interview with the GM. You can even discuss them with the other players (but you will want to keep *some* secrets, even from your friends). Or you might prefer to answer them by writing a life history.

How GURPS Works: Realism and Game Balance

Character design in ***GURPS*** is intended to give a *balanced* hero, someone whose strengths and weaknesses more or less cancel each other out.

In real life, of course, being super-strong doesn't necessarily mean you have to give up something else. And being weak in body doesn't mean you'll automatically be good at something else. A totally realistic system would be one in which a character's strength (for instance) was determined randomly, with no relationship to his intelligence or social status . . . and so on for all his other capabilities.

But random choices aren't really satisfactory for *heroes.* You might end up with a superman . . . or a weak, stupid, boring clod. You avoid people like that in real life; why would you want to become one, even for a minute, in a game?

In ***GURPS,*** two characters built on the same number of points start off "equal," but not the *same*. You can design the type of character you want while leaving room for growth and improvement.

Life Histories

To really solidify your character concept, you can write your character's life history, or "character story." You don't *have* to write a character story – but it's recommended. If you do, then you should show this story to the GM, but not necessarily to the other players. This can serve as a great aid to roleplaying, and can help the GM integrate your character into his campaign world.

As your character adventures and gains experience, his "story" will get longer and more detailed. Not only will you have the adventures themselves to remember . . . the more you play your character, the more you'll work out his background, history, and motivations.

Characterization Bonus

Writing a life history amounts to roleplaying a character before the campaign begins. The GM might choose to reward players who write detailed character stories with a few extra character points for good roleplaying (see p. 498) – perhaps 1 to 5 points. The story need not be a literary masterpiece to merit bonus points, but it should be more than just a token effort, and should attempt to answer all of the questions listed under *Character Concept* that are relevant to the character.

Example of Character Creation: Dai Blackthorn

To illustrate character creation, we present Dai Blackthorn, thief extraordinaire! Dai hails from the Infinite Worlds setting in Chapter 20.

Dai's career started on Yrth, a medieval fantasy world populated by descendants of Crusades-era folk pulled from Earth by a dimensional rift. He remembers nothing of his birth or early childhood; he was a street kid. When he was about seven, he was taken in by an old thief who taught him to be a pickpocket and second-story man, and Dai learned well. But the Thieves' Guild didn't like the competition, and when Dai was 15, the Guild set fire to the old man's house, and picked off the fleeing occupants with crossbows. Only Dai escaped.

At the time, he thought that he had made a terror-fueled leap from the burning building's roof to the next one. Later he realized that that jump had been impossible. Something else had happened. In fact, the fear of death had unlocked his psionic gift of teleportation, though it took time before he realized the truth and gained control of his abilities. When he did, he became a master thief indeed, living in quiet comfort and reveling in the marketplace talk of "impossible robberies" that no lock and no wizard could stop.

Then Dai crossed paths, and swords, with an equally formidable rival . . . a world-jumping criminal using stolen technology to loot Yrth's treasures. Matters were complicated further by the arrival of an ISWAT team pursuing the world-jumper. When the dust had settled, two of the agents owed their lives to the little thief . . . but he knew too much. They couldn't just let him go.

So they recruited him. After all, a good teleport is hard to find. As for Dai, he was ready for new challenges . . .

We'll create Dai as a full member of ISWAT. As an established hero, he'll have a base of 250 points.

Character Types

A character can have any combination of abilities he can afford, provided the GM agrees. (Players of other RPGs take note: this means that ***GURPS*** does not use character classes.) However, all of his abilities should paint a picture consistent with his character concept. Some inspirations from heroic fiction:

Exotic. An alien, angel, robot, "super" (a comic-book superhuman), or other hero *defined* by his unusual powers or nature. Most of his starting points should go toward high attributes, exotic or supernatural advantages (see p. 32), or a racial template (see p. 260). As a result, he probably has fewer mundane abilities than his fellow adventurers.

Jack-of-All-Trades. A many-skilled hero: mercenary, bush pilot, reporter, etc. DX and IQ are most important. Advantages such as Talent and Versatile can help. Pick one or two skills from those suggested for each of the other character types. A Jack-of-All-Trades isn't as good as a dedicated expert, but he has *some* skill in many areas.

Mouthpiece. A bard, con man, or other person who exploits wit and charm. IQ is crucial. Charisma, Cultural Familiarity, Rapier Wit, Voice, and a good appearance are all useful. Most important are skills that emphasize social interaction: Carousing, Fast-Talk, Merchant, Public Speaking, and so on.

Sage. A "wise man" – priest, professor, scientist, etc. High IQ is essential. Classic advantages are Eidetic Memory, Intuition, Language Talent, and Languages (and, in some campaigns, Illuminated!). He needs several *related* IQ/Hard skills in obscure fields (Expert Skills are especially suitable), as well as Research, Teaching, and Writing.

Scout. A seasoned outdoorsman or "ranger." All attributes are equally important; some extra Basic Move and Perception can be extremely useful. The archetypal scout advantage is Absolute Direction. Valuable skills include Area Knowledge, Camouflage, Naturalist, Navigation, Survival, and Tracking.

Sneak. Thieves and spies need high DX and IQ, as well as good Perception. Helpful advantages include High Manual Dexterity and Night Vision. Many skills are appropriate – Acting, Current Affairs, Disguise, and Savoir-Faire suit a worldly spy, while a fantasy thief should pick Climbing, Lockpicking, Pickpocket, and Traps. Stealth skill is universal!

Specialist. An expert at *one* skill. His knowledge runs deep and narrow; he is

the opposite of the Jack-of-All-Trades. His skill is *very* high (at least 18), with a good score in the attribute it is based on. Any advantage that gives a skill bonus is helpful – *especially* Talent.

Tinkerer. An engineer, inventor, technician, or other mechanical genius. IQ is vital; DX is useful. Any kind of technological skill fits this sort of character (see *Skills for Design, Repair, and Use,* p. 190), and Scrounging skill is *de rigueur.* Cinematic inventors should also have High TL, Gadgeteer, and Gizmos.

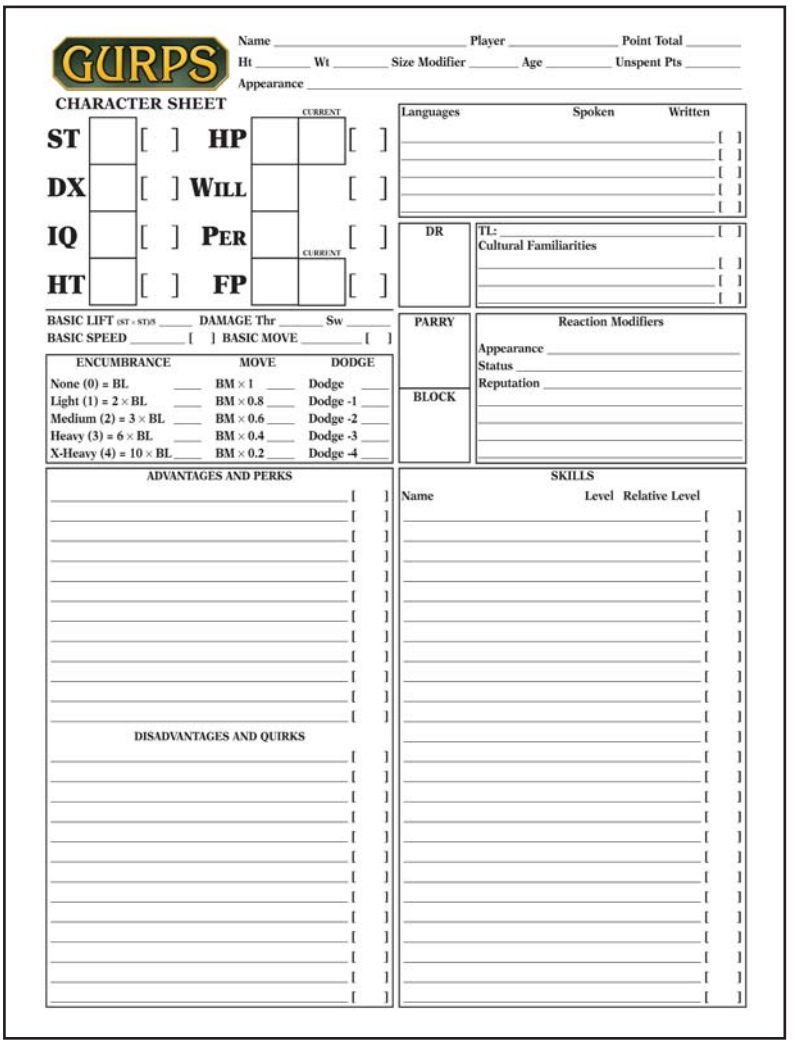
Warrior. A professional fighter needs high ST, DX, and HT, and might wish to buy up Hit Points and Basic Speed. Useful advantages include Combat Reflexes, Hard to Kill, and High Pain Threshold; cinematic warriors should also consider Extra Attack and Weapon Master. Combat skills are a must, and Leadership, Strategy, and Tactics can help. Modern commandos should add skills such as Explosives, Forward Observer, and Parachuting.

Wizard. IQ and Magery are crucial. Extra Fatigue Points are useful for powering magic. Of course, a wizard needs spells – as many as he can afford! Although wizards are most common in magical worlds, the "surprise value" of a mage on a low-magic world can compensate for his reduced effectiveness.

Character Creation Checklist

Be sure to visit *all* of the following sections during character creation:

- *Basic Attributes* (p. 14) and *Secondary Characteristics* (p. 15). These affect almost everything else on your character sheet, so pick them first.
- *Build* (p. 18) and *Age and Beauty* (p. 20). These sections describe the in-game effects of height, weight, age, looks, etc.
- *Social Background* (p. 22), *Wealth and Influence* (p. 25), *Friends and Foes* (p. 31), and *Identities* (p. 31). Determine what kind of society you are from, where you stand in the game world, how others regard you, and who you can count on for support – or for a knife in the back!


GURPS

CHARACTER SHEET

Name _____ Player _____ Point Total _____

Ht _____ Wt _____ Size Modifier _____ Age _____ Unspent Pts _____

Appearance _____

ST [ ] HP [ ] CURRENT

DX [ ] Will [ ]

IQ [ ] Per [ ]

HT [ ] FP [ ] CURRENT

Languages | Spoken | Written

DR

TL: [ ]

Cultural Familiarities

BASIC LIFT (ST × ST/5) _____ DAMAGE Thr _____ Sw _____

BASIC SPEED _____ [ ] BASIC MOVE _____ [ ]

PARRY

BLOCK

Reaction Modifiers

Appearance _____

Status _____

Reputation _____

ENCUMBRANCE	MOVE	DODGE
None (0) = BL	BM × 1	Dodge
Light (1) = 2 × BL	BM × 0.8	Dodge -1
Medium (2) = 3 × BL	BM × 0.6	Dodge -2
Heavy (3) = 6 × BL	BM × 0.4	Dodge -3
X-Heavy (4) = 10 × BL	BM × 0.2	Dodge -4

ADVANTAGES AND PERKS

DISADVANTAGES AND QUIRKS

SKILLS

Name | Level | Relative Level

See pp. 335-336 for a full-sized, two-page character sheet which you may copy for your own use. This and other ***GURPS*** forms may also be downloaded at **www.sjgames.com/gurps/resources/**.

Things Not Shown on the Character Sheet

There are several things you *might* want to keep track of separately:

Job Details. It can be important to know what you do for a living when you're not adventuring (unless adventuring is your job – lucky you!) and how long you spend doing it. This determines your income and on-the-job training opportunities. Military characters should keep a service record.

Life History. If you write down your character story, keep it in a separate file so you can easily expand it as your adventures unfold.

Spells. Wizards often know *dozens* of spells – more than easily fit on a character sheet. If you wish, you can just note the total point cost of *all* your spells under "Skills" and write out your full spell list on a separate "grimoire" or "spellbook" sheet.

Vital Statistics. If you think your parents' names, your place and date of birth (or zodiacal birth sign), your bloodline (or *race* – in some settings, you might need to specify that you are an ordinary human!), and similar traits are likely to matter, keep a separate "personnel file" on yourself that contains such details.

- *Advantages* (p. 32). Chapter 2 lists dozens of special talents and powers. *Perks* (p. 100) are special "mini-advantages" that can help individualize your character.
- *Disadvantages* (p. 119). Chapter 3 lists a wide variety of negative traits, from inconvenient to crippling. Mental disadvantages and *Quirks* (p. 162), special mini-disadvantages, can help you define your personality.
- *Skills* (p. 167) and *Techniques* (p. 229). The abilities in Chapter 4 describe what you can actually *do*. Be sure to match your skills to your occupation and character type.

Aside from attributes, which you should normally select first, the order you work through these sections makes little difference . . . start with the one most important to you, and work from there.

Basic Attributes

Four numbers called "attributes" define your basic abilities: Strength (ST), Dexterity (DX), Intelligence (IQ), and Health (HT).

A score of 10 in any attribute is *free*, and represents the human average. Higher scores cost points: 10 points to raise ST or HT by one level, 20 points to raise DX or IQ by one level. Similarly, scores lower than 10 have a negative cost: -10 points per level for ST or HT, -20 points per level for DX or IQ. (Remember – negative point values mean you get those points back to spend on something else!)

Most characters have attributes in the 1-20 range, and most normal humans have scores in the 8-12 range. Scores above 20 are possible but typically reserved for godlike beings – ask the GM before buying such a value. The exception is ST, which can range significantly beyond 20 even for normal humans. At the other end of the scale, a score of 0 is defined in special cases, but 1 is the minimum score for a human. No one may have a *negative* score.

How to Select Basic Attributes

The basic attributes you select will determine your abilities – your strengths and weaknesses – throughout the game. Choose wisely.

6 or less: *Crippling.* An attribute this bad severely constrains your lifestyle.

7: *Poor.* Your limitations are immediately obvious to anyone who meets you. This is the lowest score you can have and still pass for "able-bodied."

8 or 9: *Below average.* Such scores are limiting, but within the human norm. The GM may forbid attributes below 8 to active adventurers.

10: *Average.* Most humans get by just fine with a score of 10!

11 or 12: *Above average.* These scores are superior, but within the human norm.

13 or 14: *Exceptional.* Such an attribute is immediately apparent – as bulging muscles, feline grace, witty dialog, or glowing health – to those who meet you.

15 or more: *Amazing.* An attribute this high draws constant comment and probably guides your career choices.

All of the above assumes a *human*. For nonhumans, read each point above or below the human norm of 10 as a 10% deviation from the racial norm instead.

Strength (ST)

±10 points/level

Strength measures physical power and bulk. It is crucial if you are a warrior in a primitive world, as high ST lets you dish out *and absorb* more damage in hand-to-hand combat. Any adventurer will find ST useful for lifting and throwing things, moving quickly with a load, etc. ST directly determines Basic Lift (p. 15), basic damage (p. 15), and Hit Points (p. 16), and affects your character's Build (p. 18).

Lifting capacity is proportional to the *square* of ST. Compared to the average human adult (ST 10 – 10×10 = 100), ST 14 is about twice as strong (14×14 = 196), ST 17 is roughly three times as strong (17×17 = 289), and ST 20 is four times as strong (20×20 = 400 = 4×100). Likewise, ST 7 is about half as strong (7×7 = 49), ST 6 is approximately 1/3 as strong (6×6 = 36), and ST 5 is only 1/4 as strong (5×5 = 25 = 100/4).

Handedness

Decide whether you are right-handed or left-handed. Whenever you try to do anything significant with the other hand, you are at -4 to skill. This does not apply to things you *normally* do with your "off" hand, like using a shield.

GURPS assumes you are right-handed unless you decide otherwise or buy Ambidexterity (p. 39). If you choose to be left-handed, any combat result that would damage your right hand affects your left instead, and vice versa. Left-handedness is a feature worth 0 points.

Strength is more "open-ended" than other attributes; scores greater than 20 are common among beings such as large animals, fantasy monsters, and robots. Even a human could have a ST over 20 – record-setting weightlifters can be *very* strong!

Those with nonhuman physiologies may, with the GM's permission, purchase their ST with one or both of the *limitations* below. You may not reduce a point cost by more than 80% through limitations; treat any total over -80% as -80%. (For more on limitations, see p. 110.)

Special Limitations

No Fine Manipulators: If you have either level of the disadvantage No Fine Manipulators (p. 145), you may purchase ST more cheaply. -40%.

Size: Large creatures may purchase ST more cheaply; see p. 19 for details. -10% × Size Modifier, to a maximum limitation of -80% (for Size Modifier +8 or higher).

Dexterity (DX)

±20 points/level

Dexterity measures a combination of agility, coordination, and fine motor ability. It controls your basic ability at most athletic, fighting, and vehicle-operation skills, and at craft skills that call for a delicate touch. DX also helps determine Basic Speed (a measure of reaction time, p. 17) and Basic Move (how fast you run, p. 17).

How GURPS Works: IQ, Sentience, and Sapience

Sentience is self-awareness. Any being with a ***GURPS*** IQ of at least 1 is sentient by definition. To create nonsentient beings – plants, brainless clone bodies, etc. – take IQ 0, for -200 points. Nonsentient creatures cannot learn skills or have any purely mental traits.

Sapience is defined as the ability to use tools and language. In ***GURPS,*** this requires at least IQ 6. Those with IQ 5 or less cannot learn technological skills (see p. 168) or possess Languages (see p. 23) – not even the initial Language that most characters get for free. They can still communicate primitive concepts (such as hunger or danger) through gesture or vocalization, and may be trained to respond to a few commands (see *Pets and Trained Animals,* p. 458).

Those with nonhuman physiologies may, with the GM's permission, purchase their DX with the following limitation.

Special Limitations

No Fine Manipulators: If you have either level of the disadvantage No Fine Manipulators (p. 145), you may purchase DX more cheaply. -40%.

Intelligence (IQ)

±20 points/level

Intelligence broadly measures brainpower, including creativity, intuition, memory, perception, reason, sanity, and willpower. It rules your basic ability with all "mental" skills – sciences, social interaction, magic, etc. Any wizard, scientist, or gadgeteer needs a high IQ first of all. The secondary characteristics of Will (p. 16) and Perception (p. 16) are based on IQ.

Health (HT)

±10 points/level

Health measures energy and vitality. It represents stamina, resistance (to poison, disease, radiation, etc.), and basic "grit." A high HT is good for anyone – but it is *vital* for low-tech warriors. HT determines Fatigue Points (p. 16), and helps determine Basic Speed (p. 17) and Basic Move (p. 17).

Secondary Characteristics

"Secondary characteristics" are quantities that depend directly on your attributes. You can raise or lower these scores by adjusting your attributes. You can modify some of them directly: start with the value calculated from your attributes and spend the required points to adjust it away from that base level. This does not affect the related attribute scores.

Damage (Dmg)

see Striking ST (p. 88)

Your ST determines how much damage you do in unarmed combat or with a melee weapon. Two types of damage derive from ST:

Thrusting damage (abbreviated "thrust" or "thr") is your basic damage with a punch, kick, or bite, or an attack with a thrusting weapon such as a spear or a rapier.

Swinging damage (abbreviated "swing" or "sw") is your basic damage with a swung weapon, such as an axe, club, or sword – anything that acts as a lever to multiply your ST.

Consult the *Damage Table* (p. 16) for your basic damage. This is given in "dice+adds" format; see *Dice* (p. 9). Note that specific attack forms and weapons can modify this!

Add 1d to both thrust and swing damage per full 10 points of ST above 100.

Damage is often abbreviated "Dmg." On your character sheet, list thrust followed by swing, separated by a slash; e.g., if you had ST 13, you would list "Dmg 1d/2d-1."

Basic Lift (BL)

see Lifting ST (p. 65)

Basic Lift is the maximum weight you can lift over your head with *one* hand in *one* second. It is equal to (ST×ST)/5 lbs. If BL is 10 lbs. or more, round to the nearest whole number; e.g., 16.2 lbs. becomes 16 lbs. The average human has ST 10 and a BL of 20 lbs.

Doubling the time lets you lift 2×BL overhead in one hand. Quadrupling the time, and using *two* hands, you can lift 8×BL overhead.

Damage Table

ST	Thrust	Swing
1	1d-6	1d-5
2	1d-6	1d-5
3	1d-5	1d-4
4	1d-5	1d-4
5	1d-4	1d-3
6	1d-4	1d-3
7	1d-3	1d-2
8	1d-3	1d-2
9	1d-2	1d-1
10	1d-2	1d
11	1d-1	1d+1
12	1d-1	1d+2
13	1d	2d-1
14	1d	2d
15	1d+1	2d+1
16	1d+1	2d+2
17	1d+2	3d-1
18	1d+2	3d
19	2d-1	3d+1
20	2d-1	3d+2
21	2d	4d-1
22	2d	4d
23	2d+1	4d+1
24	2d+1	4d+2
25	2d+2	5d-1
26	2d+2	5d
27	3d-1	5d+1
28	3d-1	5d+1
29	3d	5d+2
30	3d	5d+2
31	3d+1	6d-1
32	3d+1	6d-1
33	3d+2	6d
34	3d+2	6d
35	4d-1	6d+1
36	4d-1	6d+1
37	4d	6d+2
38	4d	6d+2
39	4d+1	7d-1
40	4d+1	7d-1
45	5d	7d+1
50	5d+2	8d-1
55	6d	8d+1
60	7d-1	9d
65	7d+1	9d+2
70	8d	10d
75	8d+2	10d+2
80	9d	11d
85	9d+2	11d+2
90	10d	12d
95	10d+2	12d+2
100	11d	13d

The amount of equipment you can carry – armor, backpacks, weapons, etc. – is derived from BL. For more on this, as well as a ST-to-BL table, see *Encumbrance and Move* (p. 17).

Hit Points (HP)

±2 points per ±1 HP

Hit Points represent your body's ability to sustain injury. By default, you have HP equal to your ST. For instance, ST 10 gives 10 HP.

You can increase HP at the cost of 2 points per HP, or reduce HP for -2 points per HP. In a realistic campaign, the GM should not allow HP to vary by more than ±30% of ST; e.g., a ST 10 character could have between 7 and 13 HP. Nonhumans and supers are not subject to this limit.

You can temporarily lose HP to physical attacks (such as swords), energy attacks (such as lasers), supernatural attacks, disease, poison, hazards, and anything else that can injure or kill. You can also "burn" HP to power certain supernatural abilities. If you lose enough HP, you will eventually fall unconscious; if you lose too many HP, you will *die*. Lost HP do *not* reduce ST, despite being based on ST.

Injury is often compared to a multiple of your HP; e.g., "2×HP" or "HP/2." Where this is the case, use your *basic* HP score in the formula, not your *current* HP total.

For information on the effects of injury and on recovering lost HP, see pp. 418-425.

Those with nonhuman physiologies may, with the GM's permission, buy additional HP with the following limitation.

Special Limitations

Size: Large creatures may purchase HP more cheaply; see p. 19 for details. -10% × Size Modifier, to a maximum limitation of -80% (for Size Modifier +8 or higher).

Will

±5 points per ±1 Will

Will measures your ability to withstand psychological stress (brainwashing, fear, hypnotism, interrogation, seduction, torture, etc.) and your resistance to supernatural attacks (magic, psionics, etc.). By default, Will is equal to IQ. You can increase it at the cost of 5 points per +1, or reduce it for -5 points per -1. You cannot raise Will past 20, or lower it by more than 4, without GM permission.

Note that Will does not represent *physical* resistance – buy HT for that!

Perception (Per)

±5 points per ±1 Per

Perception represents your general alertness. The GM makes a "Sense roll" against your Per to determine whether you notice something (see *Sense Rolls*, p. 358). By default, Per equals IQ, but you can increase it for 5 points per +1, or reduce it for -5 points per -1. You cannot raise Per past 20, or lower it by more than 4, without GM permission.

Fatigue Points (FP)

±3 points per ±1 FP

Fatigue Points represent your body's "energy supply." By default, you have FP equal to your HT. For instance, HT 10 gives 10 FP.

You can increase FP at the cost of 3 points per FP, or reduce FP for -3 points per FP. In a realistic campaign, the GM should not allow FP to vary by more than ±30% of HT; e.g., a HT 10 character could have between 7 and

Machines and Fatigue

Those with the Machine meta-trait (p. 263) should list FP as "N/A," regardless of HT. They can neither buy extra FP nor reduce FP to save points. This is both an advantage and a disadvantage: machines do not fatigue, but they cannot spend FP to use extra effort or fuel special abilities. When a machine operates beyond its normal limits, it risks lasting structural damage. This takes the form of reduced HT, not lost FP. A character with the Machine meta-trait should buy up HT to be more tolerant of being "redlined."

Overall, this is a 0-point feature (see *Features and Taboo Traits*, p. 261).

13 FP. Nonhumans and supers are not subject to this limit. Also, while HT is usually limited to 20, there is no such limit on FP.

You burn FP gradually during strenuous activity. Disease, heat, hunger, missed sleep, and the like can also sap FP. You can deliberately "spend" FP to fuel extra effort (see p. 356) and supernatural powers (e.g., magic spells). As well, some attacks cause FP damage instead of or in addition to HP damage. If you lose enough FP, you will slow down or fall unconscious – and if you lose too many, you risk death from overexertion! Lost FP do *not* reduce HT, despite being based on HT.

Fatigue is often compared to some multiple of your FP; e.g., "2×FP" or "FP/2." Where this is the case, use your *basic* FP score in the formula, not your *current* FP total.

For more on losing and recovering FP, see pp. 426-427.

Basic Speed

±5 points per ±0.25 Speed

Your Basic Speed is a measure of your reflexes and general physical quickness. It helps determine your running speed (see *Basic Move*, below), your chance of dodging an attack, and the order in which you act in combat (a high Basic Speed will let you "out-react" your foes).

To calculate Basic Speed, add your HT and DX together, and then divide the total by 4. *Do not round it off.* A 5.25 is better than a 5!

You can increase Basic Speed for 5 points per +0.25, or reduce it for -5 points per -0.25. In a realistic campaign, the GM should not allow characters to alter Basic Speed by more than 2.00 either way. Nonhumans and supers are not subject to this limit.

Dodge: Your Dodge defense (see *Dodging*, p. 374) equals Basic Speed + 3, dropping all fractions. For instance, if your Basic Speed is 5.25, your Dodge is 8. Encumbrance reduces Dodge; see *Encumbrance and Move* (below). You must roll under your Dodge on 3d to duck or sidestep an attack.

Basic Move

±5 points per ±1 yard/second

Your Basic Move is your ground speed in yards per second. This is how fast you can run – or roll, slither, etc. – *without encumbrance* (although you can go a little faster if you "sprint" in a straight line; see p. 354).

Basic Move starts out equal to Basic Speed, less any fractions; e.g., Basic Speed 5.75 gives Basic Move 5. An average person has Basic Move 5; therefore, he can run about 5 yards per second if unencumbered.

You can increase Basic Move for 5 points per yard/second or reduce it for -5 points per yard/second. For normal humans, training or a sleek build can justify up to 3 yards/second of increased Basic Move, while disability or poor fitness can explain up to 3 yards/second of reduced Basic Move. Nonhumans and supers are not subject to these limits. Races and supers who can move *very* fast should see *Enhanced Move* (p. 52).

Your Move score in combat is your Basic Move modified for your encumbrance level; see *Encumbrance and Move* (below).

Encumbrance and Move

"Encumbrance" is a measure of the total weight you are carrying, *relative to your ST*. The effects of encumbrance are divided into five "encumbrance levels." All but the lowest level will reduce your actual Move to a fraction of your Basic Move and give a penalty to Dodge, as follows:

No Encumbrance (0): Weight up to Basic Lift. Move = Basic Move. Full Dodge.

Light Encumbrance (1): Weight up to 2×BL. Move = Basic Move × 0.8. Dodge -1.

Medium Encumbrance (2): Weight up to 3×BL. Move = Basic Move × 0.6. Dodge -2.

Heavy Encumbrance (3): Weight up to 6×BL. Move = Basic Move × 0.4. Dodge -3.

Extra-Heavy Encumbrance (4): Weight up to 10×BL. Move = Basic Move × 0.2. Dodge -4.

Drop all fractions. Encumbrance can never reduce Move or Dodge below 1.

Note that these levels are numbered from 0 to 4. When a rule tells you to add or subtract your encumbrance level from a die roll, this is the number to use. For instance, encumbrance gives a penalty to Climbing, Stealth, and Swimming skills.

Home Gravity

Gravity is measured in "Gs." Earth's gravity is 1G. Note the gravity of your home world if it differs from 1G; e.g., "1.2G" for a world with 1.2

Basic Lift and Encumbrance Table

This table summarizes Basic Lift and encumbrance levels for ST 1-20.

ST	BL	Encumbrance Levels (lbs.)				
(lbs.)		None (0)	Light (1)	Medium (2)	Heavy (3)	Extra-Heavy (4)
1	0.2	0.2	0.4	0.6	1.2	2
2	0.8	0.8	1.6	2.4	4.8	8
3	1.8	1.8	3.6	5.4	10.8	18
4	3.2	3.2	6.4	9.6	19.2	32
5	5	5	10	15	30	50
6	7.2	7.2	14.4	21.6	43.2	72
7	9.8	9.8	19.6	29.4	58.8	98
8	13	13	26	39	78	130
9	16	16	32	48	96	160
10	20	20	40	60	120	200
11	24	24	48	72	144	240
12	29	29	58	87	174	290
13	34	34	68	102	204	340
14	39	39	78	117	234	390
15	45	45	90	135	270	450
16	51	51	102	153	306	510
17	58	58	116	174	348	580
18	65	65	130	195	390	650
19	72	72	144	216	432	720
20	80	80	160	240	480	800

times Earth's gravity. All weights are multiplied by local gravity, so to function like someone with a given BL on Earth, multiply the desired BL by your home gravity and buy the ST corresponding to the adjusted BL. For instance, to operate in 1.2G as if you were a ST 10 person in 1G, start with BL for ST 10, which is 20 lbs., and multiply by 1.2 for gravity to get a BL of 24 lbs. This BL corresponds to ST 11, so you'd need ST 11 in 1.2G to function as well as a ST 10 person in 1G.

Move in Other Environments

Water Move is normally Basic Move/5, rounded down. You can increase water Move directly for 5 points per yard/second, or reduce it for -5 points per yard/second. Members of land-dwelling races must have Swimming skill (p. 224) to increase water Move, and cannot buy more than +2 yards/second. If you're Amphibious (p. 40), both water and ground Move equal Basic Move, and changes to Basic Move adjust *both* scores. If you're Aquatic (p. 145), water move equals Basic Move and ground Move is 0.

Air Move is 0 without special advantages. If you have Flight (p. 56), air Move equals Basic Speed × 2 (*not* Basic Move × 2). You can increase air Move directly for 2 points per yard/second, or reduce it for -2 points per yard/second. If you have Walk on Air (p. 97), your air Move equals your ground Move, because the air is like solid ground beneath your feet.

Example of Character Creation (cont'd)

Dai is on the small side: ST 8 (-20 points). A "thief extraordinaire" should have catlike grace, so we give him an *amazing* DX 15 (100 points). Dai is also cunning and tough enough to survive on the street; therefore, we take IQ 12 (40 points) and HT 12 (20 points) – above average without being extreme.

Now we look at the secondary characteristics these choices give:

ST 8 gives a thrust damage of 1d-3, a swing damage of 1d-2, a Basic Lift of 13 lbs., and 8 HP. But Dai is tough, and no easier to kill than the average man, so we raise HP to 10 (4 points).

IQ 12 gives Dai a Will and Perception of 12. Since a talented thief must be able to spot traps and pursuers, we increase Per to 15 (15 points) – amazing, and a match for his DX!

HT 12 gives Dai 12 FP, but Dai prefers to *avoid* fatiguing labor in the first place, so we lower FP to 10 (-6 points), which is average.

Dai's Basic Speed is (15 + 12)/4 = 6.75. To get Dodge 10 and Basic Move 7 – useful for evading enemies when his teleportation fails – we raise Basic Speed to an even 7.00 (5 points).

Adding everything up, these traits cost Dai 158 points.

Build

You are free to select any height and weight the GM deems reasonable for a member of your race. These choices *do* occasionally matter in play – for instance, when you attempt to impersonate an enemy, wear someone else's armor, cross a rickety bridge, reach a high ledge, or hide behind cover.

If you are lighter or heavier than usual for your ST, you may qualify for a build-related disadvantage. The following table gives the thresholds for these disadvantages for normal humans.

The extremes of each weight range usually match the extremes of the associated height range. Overlaps are *intentional.* Consider two ST 10 men who stand 5'8" and weigh 175 lbs.: one might be big-boned and lean, the other fine-boned and chubby. Depending on muscle tone, a 160-lb. man could have any ST from 9 to 13 and claim "Average" build.

Regardless of weight, you never *have* to take a build-related disadvantage. If you want to be ST 9, 5'1," and 250 lbs. with "Average" build, the GM should allow it.

Build-related disadvantages are described below. In some settings, the GM may require you to take reaction modifiers if you select these traits, but this is not automatic.

Skinny

-5 points

You have approximately 2/3 the average weight for your ST. This gives you -2 to ST when you resist

Build Table

ST	Height Range	Weight Range by Build				
		Skinny	Average	Overweight	Fat	Very Fat
6 or less	4'4"-5'2"	40-80 lbs.	60-120 lbs.	80-160 lbs.	90-180 lbs.	120-240 lbs.
7	4'7"-5'5"	50-90 lbs.	75-135 lbs.	100-175 lbs.	115-205 lbs.	150-270 lbs.
8	4'10"-5'8"	60-100 lbs.	90-150 lbs.	120-195 lbs.	135-225 lbs.	180-300 lbs.
9	5'1"-5'11"	70-110 lbs.	105-165 lbs.	140-215 lbs.	160-250 lbs.	210-330 lbs.
10	5'3"-6'1"	80-120 lbs.	115-175 lbs.	150-230 lbs.	175-265 lbs.	230-350 lbs.
11	5'5"-6'3"	85-130 lbs.	125-195 lbs.	165-255 lbs.	190-295 lbs.	250-390 lbs.
12	5'8"-6'6"	95-150 lbs.	140-220 lbs.	185-290 lbs.	210-330 lbs.	280-440 lbs.
13	5'11"-6'9"	105-165 lbs.	155-245 lbs.	205-320 lbs.	235-370 lbs.	310-490 lbs.
14 or more	6'2"-7'	115-180 lbs.	170-270 lbs.	225-355 lbs.	255-405 lbs.	340-540 lbs.

knockback. You get -2 to Disguise – or to Shadowing, if you are trying to follow someone in a crowd. Your HT may not be above 14.

Overweight

-1 point

You have approximately 130% the average weight for your ST. You get -1 to Disguise – or to Shadowing, if you are trying to follow someone in a crowd. However, your extra fat gives you +1 to Swimming rolls, and +1 to ST when you resist knockback.

Fat

-3 points

You have approximately 150% the average weight for your ST. You get -2 to Disguise – or to Shadowing, if you are trying to follow someone in a crowd. However, your extra fat gives you +3 to Swimming rolls, and +2 to ST when you resist knockback. Your HT may not be above 15.

Very Fat

-5 points

You have approximately *twice* the average weight for your ST. You get -3 to Disguise – or to Shadowing, if you are trying to follow someone in a crowd. However, the extra fat gives you +5 to Swimming rolls, and +3 to ST when you resist knockback. Your HT may not be above 13.

Size Modifier Table

Longest Dimension	*Size Modifier*
0.05 yard (1.8")	-10
0.07 yard (2.5")	-9
0.1 yard (3.5")	-8
0.15 yard (5")	-7
0.2 yard (7")	-6
0.3 yard (10")	-5
0.5 yard (18")	-4
0.7 yard (2')	-3
1 yard (3')	-2
1.5 yards (4.5')	-1
2 yards (6')	0
3 yards (9')	+1
5 yards (15')	+2
7 yards (21')	+3
10 yards (30')	+4
15 yards (45')	+5
20 yards (60')	+6
30 yards (90')	+7
50 yards (150')	+8
70 yards (210')	+9
100 yards (300')	+10
150 yards (450')	+11

Size Modifier (SM)

Size Modifier rates a person or object's most significant dimension: length, width, or height. It is a modifier to rolls to hit you in combat and to Vision rolls made to spot you. Thus, it is a bonus for large creatures, a penalty for small ones. Although large creatures are easier targets, a positive SM qualifies them to buy ST and HP more cheaply by taking the "Size" limitation.

Most humans – and humanoids, robots, etc. that can pass for human – have SM 0, and can ignore this rule. Nonhumans use the SM on their racial template. However, your SM may deviate from racial average if you are not full-grown, or if you are a genetic dwarf or giant.

When creating a creature that is larger or smaller than a human, find its SM by looking up its *longest* dimension – height for upright creatures such as giants, length for horizontal creatures such as cats and dragons, diameter for blobs – on the *Size Modifier Table* (above).

If a creature's longest dimension falls between two entries on the table, base its SM on the higher value. Box-, sphere-, or blob-shaped characters add +2 to SM; *elongated* boxes, like most ground vehicles, add +1.

It is neither an advantage nor a disadvantage to have a nonzero SM – the benefits and drawbacks tend to cancel out. The exceptions are genetic dwarfism and gigantism, as these conditions affect bodily proportions (notably relative arm and leg length) and have social ramifications (you stand out in a crowd).

Dwarfism (-1 SM)

-15 points

You are abnormally short for your species. Regardless of ST, your height falls below the lowest value on the Build Table – under 4'4," for a human. This gives you Size Modifier -1. Choose your weight from the first line of the Build Table and reduce it by 15%.

You have -1 to Basic Move (short legs). In combat, your reach is reduced by 1 yard. This is partly because you have short arms and partly because you must use scaled-down weapons (regardless of your ST, your arms lack the leverage to control full-sized weapons).

You get -2 to Disguise – or to Shadowing, if your are trying to follow someone in a crowd. In backward settings, the GM may require you to take a Social Stigma if you suffer from Dwarfism.

*How **GURPS** Works: ST, Mass, and Move*

It would be more realistic to calculate Basic Move from ST-to-mass ratio; for instance, a Fat character would move slower than one of Average build. If you want to simulate this, buy +1 Basic Move if your PC is Skinny, -1 if he is Overweight, -2 if he is Fat, or -3 if he is Very Fat, all at the usual point cost.

Women are on average lighter and weaker than men. You can simulate this by buying -1 or -2 to ST for the usual point cost. Choose a weight appropriate to this lower ST.

The GM should never *require* either of the above options. Most players prefer to choose ST, height, weight, and sex without being penalized!

GURPS handles mass considerations descriptively for nonhumans; e.g., a race that stumbles along under excess body weight will have a racial penalty to Basic Move.

Shopping for the Big, Tall, Thin, and Small

If you are Skinny, Fat, or Very Fat, or have Dwarfism or Gigantism, clothing and armor tailored for average folk will not fit you! A shop in a city or large town, especially at TL6+, *might* have a selection that fits. Otherwise, you will have to pay an extra 10% or 20% for Gigantism or Very Fat – to have something made for you. This premium almost always applies to medieval/fantasy armor.

A member of *any* race may be a dwarf. Scale down height by a factor of 0.75 from the racial average, and modify racial SM by -1. Otherwise, the rules remain the same.

Gigantism (+1 SM)

0 points

You are abnormally tall for your species. Regardless of ST, your height falls above the highest value on the Build Table – over 7', for a human. This gives you Size Modifier +1 and +1 to Basic Move (long legs), and qualifies you to buy ST and HP at a discount. Choose your weight from the last line of the Build Table and increase it by 10%.

You get -2 to Disguise – or to Shadowing, if you are trying to follow someone in a crowd. On the other hand, height often provides a bonus to Intimidation skill (see p. 202). In backward settings, the GM may require you to take a Social Stigma if you suffer from Gigantism.

A member of *any* race may be a giant. Scale your height up by a factor of 1.25 from the racial average, and modify racial SM by +1. Otherwise, the rules remain the same.

Age and Beauty

Age and physical appearance play a major role in how others perceive you. Choose carefully! Except in settings with magic or advanced biotechnology, you will be unable to change your mind after the game begins.

Age

You are free to pick any age the GM agrees is within the usual lifespan for your race. Adventurers usually fall somewhere between "young adult" and "old" – 18 to 70 years, for humans – but fiction is full of heroic youths and sharp 90-year-old veterans.

Children

In many game worlds, especially those based on cartoons and fairy-tales, children are just small adults. By real-world standards, such children would be exceptional. However, even in a realistic campaign, those who wish to roleplay "heroic" children do not have to play less-capable characters – they can create their characters normally.

Players interested in complete realism are welcome to make children smaller and less capable than adults. To create a believable child, decide what his attributes will be when he is full-grown, reduce them, and purchase the reduced values *instead of* the full values.

A human infant has 30% of his adult ST score, 40% of his adult DX, 50% of his adult IQ, and Size Modifier -3. A 5-year-old has 60% of his adult ST, 70% of his adult DX and IQ, and SM -2. A 10-year-old has 80% of his adult ST, 90% of his adult DX and IQ, and SM -1. A 15-year-old has adult scores. Interpolate between these values for children in other age groups. HT is usually unaffected by age, but young children might be at -1 or so relative to their adult HT. Note that there is no point cost for Size Modifier; this is merely a special effect.

For nonhumans, use the above rules, but adjust the age categories upward or downward in proportion to the race's rate of development. For instance, a race that reaches adulthood at age 36 instead of age 18 doubles the age thresholds given above. Size Modifier is equal to the sum of the SM given for a human child and the racial SM.

In many societies, children are subject to social restrictions. A child generally is Dead Broke (see p. 25), worth -25 points, and has Social Stigma (Minor) (see p. 155), for -5 points. These traits are usually balanced against Patron (Parents; 15 or less), worth 30 points – see *Patrons* (p. 72).

As a child grows up, he should gradually improve his attributes toward their full adult values, reduce the appearance roll for his Patron (and eventually get rid of it altogether), increase his wealth, and buy off his Social Stigma. These changes have their usual point costs.

The Elderly

If you age *in play,* you will eventually have to make HT rolls to avoid attribute loss (see *Age and Aging,* p. 444). These rolls start at the first "aging threshold" for your race, becoming more frequent at the second threshold and again at the third. These thresholds are 50, 70, and 90 years for humans.

If you *start* at an advanced age, you have no special disadvantages. Not everyone ages well, but heroes are exceptional, and you are free to make elderly characters as fit and as capable as you wish. There are plenty of examples of this kind of person in fiction – and in real life!

To create a character who *has* declined with age, first decide what his attributes were before he got old. Reduce his ST, DX, and HT by 10% at the second aging threshold, or reduce ST, DX, and HT by 20% and IQ by 10% at the third aging threshold. Then purchase the reduced values instead of the values he had in his prime.

Note that in many societies, the elderly enjoy great respect. Represent this by taking Social Regard (Venerated) – see p. 86.

Physical Appearance

Appearance is mostly a "special effect" – you may choose any physical appearance you like. At minimum, note the color of your skin, hair, and eyes (or other features appropriate to your race: scales, feathers, paint job, etc.). However, certain traits count as advantages or disadvantages.

Appearance Levels

Appearance is rated in levels. Most people have "Average" appearance, for 0 points. Good looks give a reaction bonus; this is an advantage and costs points. Unappealing looks give a reaction penalty; this is a disadvantage, and gives you back points. These reaction modifiers only affect those who can see you! Those who cannot see you might have to make a new reaction roll upon first meeting you in person (GM's option).

Reaction modifiers due to appearance only affect members of your own race, a very similar race, or a dissimilar race that finds your race attractive (for whatever reason). In all cases, the GM's word is final; humans are "very similar" to elves, but bug-eyed monsters are unlikely to care about a human's appearance except in a silly campaign.

Horrific: You are indescribably monstrous or unspeakably foul, and cannot interact with normal mortals. This gives -6 on reaction rolls. The GM may decide that this trait is supernatural and unavailable to normal characters. *-24 points.*

Monstrous: You are hideous *and* clearly unnatural. Most people react to you as a monster rather than a sapient being. This gives -5 on reaction rolls. Again, this trait might not be appropriate for normal characters. *-20 points.*

Hideous: You have any sort of disgusting looks you can come up with: a severe skin disease, wall-eye . . . preferably several things at once. This gives -4 on reaction rolls. *-16 points*.

Ugly: As above, but not so bad – maybe only stringy hair and snaggle teeth. This gives -2 on reaction rolls. *-8 points*.

Unattractive: You look vaguely unappealing, but it's nothing anyone can put a finger on. This gives -1 on reaction rolls. *-4 points*.

Average: Your appearance gives you no reaction modifiers either way; you can blend easily into a crowd. A viewer's impression of your looks depends on your behavior. If you smile and act friendly, you will be remembered as pleasant-looking; if you frown and mutter, you will be remembered as unattractive. *0 points.*

Attractive: You don't enter beauty contests, but are definitely good-looking. This gives +1 on reaction rolls. *4 points.*

Handsome (or Beautiful): You *could* enter beauty contests. This gives +4 on reaction rolls made by those attracted to members of your sex, +2 from everyone else. *12 points*.

Very Handsome (or Very Beautiful): You could *win* beauty contests – regularly. This gives +6 on reaction rolls made by those attracted to members of your sex, +2 from others. *Exception:* Members of the same sex with reason to dislike you (more than -4 in reaction penalties, regardless of bonuses) *resent* your good looks, and react at -2 instead. As well, talent scouts, friendly drunks, slave traders, and other nuisances are liable to become a problem for you. *16 points*.

Transcendent: You are an "ideal specimen." This gives +8 (!) on reaction rolls made by those attracted to members of your sex, +2 from others, and all the troublesome side effects of Very Handsome. The GM is free to reserve this trait for angels, deities, and the like. Such entities frequently possess Charisma (p. 41) or Terror (p. 93) as well. *20 points*.

Special Options

The following options are available for above-average appearance, and do not affect point costs:

Androgynous: If your appearance is Handsome (Beautiful) or better, you may specify that your looks appeal equally to both sexes. You get a flat reaction modifier instead of a sex-dependent bonus: +3 for Handsome, +4 for Very Handsome, or +5 for Transcendent.

Impressive: If you are Attractive or better, you can specify that you have exceptional physical presence that doesn't manifest as sexual magnetism. This is typical of tigers and aged royalty. If your appearance is Handsome (Beautiful) or above, use the "flat" reaction bonuses given for Androgynous.

Special Enhancements

Universal: Your reaction modifier applies to *everyone* who can see you, regardless of race. If your appearance is Handsome (Beautiful) or above, use the "flat" reaction bonuses given for Androgynous. This modifier is most common for Hideous or worse monsters and for Attractive or better gods, faeries, and the like. The GM may deem it off-limits to normal mortals. +25%.

Special Limitations

Off-the-Shelf Looks: You can apply this to any appearance better than Attractive. Through ultra-tech or magic, your looks are a variation on a standard type or famous person. You're as beautiful as ever, but you get *half* the usual reaction bonus with people from your own culture, because they've seen it all before. ("Oh, look! Another Mr. Universe 2003!") -50%.

Other Physical Features

There is more to appearance than good (or not-so-good) looks. You may take any combination of the following traits in conjunction with *any* appearance level.

Fashion Sense

5 points

Your look is always one step ahead of the crowd. You have the ability to create a fashion statement out of the cheapest and most nondescript materials. This gives +1 to reaction rolls in social situations when you have a chance to plan your attire in advance. You can also give *someone else* a +1 reaction bonus when you put together the outfit.

Mistaken Identity

-5 points

You are often mistaken for someone else. Your "double's" allies approach you and tell you things you don't want to know, and his acquaintances will treat you in strange and irritating ways. His enemies are after

you, too! You might eventually get things straightened out, but not without some effort.

If *every* member of your race looks the same, your race qualifies for a bizarre feature (see *Features and Taboo Traits*, p. 261), but you do not have Mistaken Identity.

Odious Personal Habits

-5, -10, or -15 points

You usually or always behave in a fashion repugnant to others. An Odious Personal Habit (OPH) is worth -5 points for every -1 to reaction rolls made by people who notice your problem. Specify the behavior when you create your character, and work out the point value with the GM.

Examples: Body odor, constant scratching, or tuneless humming would give -1 to reactions, and are worth -5 points apiece. Constant bad puns or spitting on the floor would give -2 to reactions, worth -10 points apiece. We leave -15-point habits (-3 to reactions) to the imagination of those depraved enough to want them!

The reaction penalty for an OPH applies only to members of your race. It is up to the GM to handle the reactions of other races. A constant drool will irritate other humans, but a Martian might not even notice – and a troll might think it was cute! Of course, an entire *race* can behave in a manner repugnant to most other races. These "Odious Racial Habits" are priced identically to OPHs.

Pitiable

5 points

Something about you makes people pity you and want to take care of you. You get +3 on all reaction rolls from those who consider you to be in a position of helplessness, weakness, or need (which *never* includes those with the Callous disadvantage). Taken in conjunction with above-average looks, Pitiable means you are "cute" instead of "sexy"; in combination with below-average looks, it means you are "appealingly homely," like a basset hound.

Unnatural Features

-1 point/level

You are superficially "normal" but have one or more disturbing cosmetic features. To qualify for points, these must be unnatural *for your race*. Pointed ears and eyes like hot coals would be unnatural for a human, but not for a demon from Hell! You *must* specify the origin of your Unnatural Features: magical curse, ultra-tech surgery, rare disease, etc.

Unnatural Features need not be unattractive (if they are, you can also claim points for below-average appearance), but they make it easy for others to identify you and hard for you to blend into a crowd. Each level, to a maximum of five levels, gives -1 to your Disguise and Shadowing skills and +1 to others' attempts to identify or follow you (including *their* Observation and Shadowing rolls), unless almost everyone else in the crowd happens to share your features.

Example of Character Creation (cont'd)

We want Dai to look *unremarkable* – thieves who stand out don't last long! So we choose an Average build. For ST 8, this suggests a height between 4'10" and 5'8," and a weight of 90 to 150 lbs. We pick 5'6" and 115 lbs. We make Dai's appearance Average as well. Since Dai is average in all respects, he pays 0 points. His point total remains at 158 points.

Social Background

The next few sections discuss your society's level of technological development, cultures, and languages. It is an advantage to be technologically advanced, culturally literate, or linguistically talented. *Inadequacy* in these areas can be a crippling disadvantage.

Technology Level (TL)

"Technology level" (or "tech level") is a number that rates technological development. The more advanced the society, the higher its TL; see *Tech Level and Starting Wealth* (p. 27) for examples from Earth's history. The GM will tell you the TL of his world. Be sure to note this, as it affects your access to certain traits – notably skills – and equipment.

Characters *also* have a TL, equal to that of the technology with which they are most familiar. Unless you are especially primitive or advanced, you should record the TL of your game world as your personal TL and move on.

In some game worlds, your personal TL may differ from the campaign average. A world might be TL8 on average, but the citizens of one advanced nation might be TL9 while those from an underdeveloped region might be TL7. And the TL of a space, time, or dimension traveler might differ radically from that of his current surroundings.

Being from a higher TL than the campaign norm is an advantage; being from a lower TL is a disadvantage.

Low TL

-5 points/TL below campaign TL

Your personal TL is below that of the campaign world. You start with *no* knowledge (or default skill) relating to equipment above your personal TL. You will be able to learn DX-based technological skills (pertaining to vehicles, weapons, etc.) in play, if you can find a teacher, but fundamental differences in thinking prevent you from learning IQ-based technological skills. To overcome this limitation, you must buy off this trait, increasing your personal TL. This usually requires a lengthy period of re-education (see Chapter 9).

High TL

5 points/TL above campaign TL

Your personal TL is above that of the campaign world. You may enter play with skills relating to equipment up to your personal TL. This is most useful if you also have access to high-TL equipment (see *Tech Level and Equipment,* p. 27), but the knowledge of a high-tech doctor or scientist can be very useful in a low-tech setting, even without specialized equipment!

Culture

You are automatically familiar with the social peculiarities of one major culture of your choice. You suffer no skill penalties when interacting with people from that culture. The GM will provide a list of cultures to choose from (or let you invent your own – many GMs appreciate players' contributions to the game world!).

When dealing with an *unfamiliar* culture, you have -3 to use any skill with a significant cultural component, including Carousing, Connoisseur, Criminology, Dancing, Detect Lies, Diplomacy, Fast-Talk, Games, Gesture, Heraldry, Intimidation, Leadership, Merchant, Poetry, Politics, Psychology, Public Speaking, Savoir-Faire, Sex Appeal, Sociology, Streetwise, and Teaching. To get rid of this penalty, buy the following advantage:

Cultural Familiarity

1 or 2 points/culture

You are familiar with cultures other than your own, and do not suffer the -3 penalty for unfamiliarity. This costs 1 point per culture of the same (or very similar) race, or 2 points per alien culture.

To prevent point-cost inflation, the GM should use broad definitions of culture: East Asian, Muslim, Western, etc. A single nation would have to be *very* different to merit its own Cultural Familiarity. In fantasy worlds, the GM might wish to have one culture per race; in a futuristic setting, an entire planet or even a galactic empire might have a single, monolithic culture.

See *Cultural Adaptability* (p. 46) for additional options.

Language

GURPS assumes that most characters can read and write their "native" language. This ability costs no points, but you should note your native language on your character sheet; e.g., "English (Native) [0]."

The rest of this section is only important if you can communicate in more than one language (an advantage) or have difficulty with your native tongue (a disadvantage).

Sapience and Language

The *Language* rules are for *sapient* characters. You must have at least IQ 6 to receive a native tongue for free and be able to learn new languages. Sapience does not guarantee the physical capacity for speech, though – you might need to rely on sign language.

Those with IQ 5 or less *do not get a native tongue for free* and *cannot learn languages*. They can only communicate basic concepts. They can be taught a few commands, however – see Chapter 16.

Comprehension Levels

The point cost to learn an additional language depends on your "comprehension level": a measure of how well you function in that language overall. There are four comprehension levels:

None: You are *completely* incapable of functioning in the language. If you do not spend points on a non-native language, this comprehension level is assumed – there is no need to note it for *every* language you don't know! *0 points/language.*

Broken: You can recognize important words and understand simple sentences if they are spoken slowly. You have -3 when using skills that depend on language, such as Fast-Talk, Public Speaking, Research, Speed-Reading, Teaching, and Writing. This doubles to -6 for artistic skills that rely on the beauty of the language (Poetry, Singing, etc.). In stressful situations – e.g., encounters involving combat or reaction rolls – you must roll against IQ to understand or make yourself understood in the language. On a failure, you convey no information, but you may try again. Critical failure means you convey the *wrong* information! For hurried speech, bad phone connections, etc., this roll is at -2 to -8! Native speakers who already dislike foreigners (see *Intolerance,* p. 140) react to you at an extra -1. *2 points/language.*

Accented: You can communicate clearly, even under stress. However, your speech and writing are idiosyncratic, and it is obvious that this is not your native language. You have -1 when using skills that depend on language, doubled to -2 for artistic skills. You receive no reaction penalty from native speakers, but you will be unable to pass for a native (this can be a major problem for would-be spies!). *4 points/language.*

Native: You have full mastery of the language, including idioms. You can *think* in the language. You have no penalty to use skills that depend on language. You start with one language at this level for free. If you buy Native comprehension in a foreign tongue, you can pass for a native speaker. *6 points/language.*

Exceptional Competence and Incompetence

Great orators, writers, and other masters of the language should start with Native-level comprehension, then learn skills such as Public Speaking and Writing at very high levels.

Poorly educated individuals who can barely get by in their *native* tongue should take the point difference between their actual level and Native level as a disadvantage. For instance, someone who has his native tongue at Broken level has a -4-point disadvantage.

Spoken vs. Written Language

The point costs above assume that you read/write and speak the language equally well. If your written and spoken ability differ, select separate spoken and written comprehension levels and pay *half* cost for each. For instance, if you learned to write French from a book, you might have "French: Spoken (None)/Written (Native) [3]."

Literacy

Your written comprehension level determines your degree of literacy in that language:

Literacy is a written comprehension of Accented or better. You can read and write competently and at full speed.

Semi-literacy is a written comprehension of Broken. A semi-literate person would require three minutes to read this sentence, and would have to make an IQ roll to understand the full meaning! Many words are always unintelligible to a semi-literate person, including some in this paragraph.

Illiteracy is a written comprehension of None. If this is the case, *you really can't read!* Signs, scrolls, books, and names on maps (though not the maps themselves) are completely incomprehensible to you. The *player* may pass secret notes to the GM (and vice versa), but the *character* cannot read *anything*.

At TL4 and below, it is quite possible to go all your life without *needing* to read. In settings like this, illiteracy or semi-literacy is the norm. Most people have a spoken comprehension level of Native, but their written comprehension is Broken or None.

Illiteracy in your native tongue – Spoken (Native)/Written (None) – is a disadvantage worth -3 points. Semi-literacy – Spoken (Native)/Written

Accents

If your spoken comprehension is Broken or better, you can attempt to fake a regional accent. To fool someone, you must *win* a Quick Contest of Acting (p. 174) or Mimicry (Speech) (p. 210) vs. his IQ. You are at -6 for Broken comprehension, or -2 for Accented . . . but a non-Native *listener* has similar penalties to his IQ roll!

Each accent is a separate familiarity (see p. 169) for Acting or Mimicry. To memorize a new accent, you must listen to that accent used in conversation for at least one hour and make a successful roll against the higher of IQ or Linguistics, at +5 for Eidetic Memory or +10 for Photographic Memory (see *Eidetic Memory,* p. 51).

Broken to Broken

If you and the person with whom you are speaking both have a comprehension level of Broken, conversation will be difficult. This is definitely a "stressful situation"! Each of you must roll against IQ once per piece of information; all the usual modifiers apply. If you both succeed, you get the point across. If one of you fails, you just fail to communicate. But if *both* of you fail, the listener gets the wrong idea. This could be embarrassing or dangerous – possibly for both of you. The GM should be creative!

Example of Character Creation (cont'd)

Dai is from a TL3 (medieval) world, but that's "background color" – his ISWAT trainers corrected this deficiency. He currently functions at TL8, which is *standard* in the Infinite Worlds setting. The cost to be at the campaign-average tech level is 0 points.

Dai is familiar with Yrth's culture and knows one of its languages: Anglish. This costs 0 points; *everybody* gets a culture and a language for free. But Dai is *also* familiar with the culture of ISWAT's world, Homeline, and has passable English. Cultural Familiarity (Homeline) is 1 point, while English (Accented) is another 4 points.

Dai pays a total of 5 points for his social background. This makes his current point total 163 points.

(Broken) – is worth -2 points. The GM should not count these points against the disadvantage limit if illiteracy is the norm in the game world.

Sign Language

A true sign language – e.g., American Sign Language – is complex, stylized, and can communicate almost any concept. Treat it as any other language, with one important difference: a sign language has *one* form (signed) instead of two (spoken and written). As a result, sign languages costs half as much: 1 point for Broken, 2 points for Accented, and 3 points for Native comprehension.

Characters with the Deafness (p. 129) or Mute (p. 125) disadvantages start with one sign language and *written* ability in one regular language – both at Native level – *instead of* spoken and written ability in one language. Those who are illiterate, or incompetent at sign language, can buy down their language abilities using the usual rules.

Learning Languages

To learn a new language, use the rules for learning skills (p. 292): 200 hours of learning gives you one point to spend. Note that language study is *four times as hard* without a teacher!

If you live in another country and speak its language at all times, that is the automatic equivalent of 4 hours/day of training; there is no need to allocate specific study time unless you want to get more than this default. Thus, every 50 days, you get a character point to spend in that language.

Wealth and Influence

Now you need to determine your position in your society: How much money do you have, what privileges do you enjoy, and how do others react to you?

Wealth

Wealth is relative. A middle-class American lives in more luxury than a medieval king, though he may have fewer gold coins in his basement. It all depends on the game world – see *Tech Level and Starting Wealth* (p. 27). In most worlds, the range of standard starting wealth and income is relatively great, and your skills determine your job and income; see *Economics* (p. 514) for more information.

Personal wealth is rated in "wealth levels." A level of "Average" costs no points, and lets you support an average lifestyle for your game world. The rest of these rules apply if you are unusually poor or wealthy, have a source of income that does not require you to work, or are in debt.

Wealth

Variable

Above-average Wealth is an advantage; it means you start with two or more times the average starting wealth of your game world. Below-average Wealth is a disadvantage; it means you start with only a fraction of average starting wealth. The precise meaning of each wealth level in a particular game world will be defined in the associated worldbook.

Dead Broke: You have no job, no source of income, no money, and no property other than the clothes you are wearing. Either you are unable to work or there are no jobs to be found. *-25 points.*

Poor: Your starting wealth is only 1/5 of the average for your society. Some jobs are not available to you, and no job you find pays very well. *-15 points.*

Struggling: Your starting wealth is only 1/2 of the average for your society. Any job is open to you (you *can* be a Struggling doctor or movie actor), but you don't earn much. This is appropriate if you are, for instance, a 21st-century student. *-10 points.*

Average: The default wealth level, as explained above. *0 points.*

Comfortable: You work for a living, but your lifestyle is better than most. Your starting wealth is twice the average. *10 points.*

Wealthy: Your starting wealth is five times average; you live very well indeed. *20 points.*

Very Wealthy: Your starting wealth is 20 times the average. *30 points.*

Filthy Rich: Your starting wealth is 100 times average. You can buy almost anything you want without considering the cost. *50 points.*

Multimillionaire: "Filthy rich" doesn't even begin to describe your wealth! For every 25 points you spend beyond the 50 points to be Filthy Rich, increase your starting wealth by another factor of 10: Multimillionaire 1 costs 75 points and gives 1,000 times average starting wealth, Multimillionaire 2 costs 100 points gives 10,000 times starting wealth, and so on. *50 points + 25 points/level of Multimillionaire.*

Wealth and Status

In some game worlds, Status (see p. 28) is closely tied to Wealth. In a setting like this, if you are Wealthy or better, you get +1 Status for free. This bonus increases to +2 at Multimillionaire 1 and to +3 at Multimillionaire 2. No one may claim more than +3 Status from Wealth.

Independent Income

1 point/level

You have a source of income that does not require you to work: stock portfolio, trust fund, rental property, royalties, pension, etc. Your monthly income is 1% of your starting wealth (adjusted for wealth level) per level of this trait, to a maximum of 20%. If your income derives from investments, you need not specify their value; this trait assumes that you cannot or will not invade your capital.

This trait is unrelated to wealth level. A Filthy Rich heiress has Independent Income . . . but so do an Average pensioner and a Poor welfare recipient.

Independent Income most often means your occupation is something like dilettante, retiree, or welfare recipient – not an actual "job." However, you can have Independent Income *and* a job; just add the income from both sources. If you are wealthy, this allows you to work less than full time (e.g., 10 hours per week instead of 40, for 1/4 the usual salary) and still make a good living.

Debt

-1 point/level

You owe money. This could represent a loan, back taxes, child support, or alimony . . . or "hush money" paid to blackmailers . . . or "protection money" extorted by gangsters. You must make a monthly payment equal to 1% of your starting wealth (adjusted for wealth level) per level of this trait, to a maximum of 20%. Debt can accompany any wealth level above Dead Broke; plenty of multimillionaires owe significant amounts of money!

Your monthly payment is deducted from your monthly earnings at your job. If your job cannot cover your Debt, you have to pay out of your cash reserves, take a second job, or *steal.*

If you cannot pay – or *choose* not to pay – there will be trouble. For bank loans, this means repossession of your worldly goods. For alimony, child support, fines, or taxes, this means a court date. And if you owe money to the mob, you might end up being strong-armed into criminal activities . . . or staring down the barrel of a shotgun. The GM should be creative!

It is assumed that you cannot easily rid yourself of this obligation. It takes more than money to buy off Debt – you must pay off the points and work out a logical in-game explanation with the GM.

Starting Wealth

"Starting wealth" covers both money and property. Start with the amount of money your wealth level entitles you to for your game world. Buy the possessions you want to start with (see Chapter 8, or consult the equipment list in the relevant worldbook). Any unspent money is your "bank account."

Realistically, if you have a settled lifestyle, you should put 80% of your starting wealth into home, clothing, etc., which leaves only 20% for "adventuring" gear. If you are a wanderer (pioneer, knight-errant, Free Trader, etc.), or Poor or worse, the GM might allow you to spend *all* your starting wealth on movable possessions.

The GM should not allow wealthy PCs to bankroll their poorer associates. This makes below-average Wealth little more than "free points." The GM might allow rich characters to *hire* poor ones. If so, he should make it obvious – through such means as NPC reactions ("Oh, so you're the hired help?") – that the poorer PC is earning his disadvantage points by giving up some of his independence.

Trading Points for Money

If you need a *little* extra money, you may trade character points for it – either at the time of creation or in play. Each point yields 10% of the campaign's average starting wealth. Money obtained this way can be saved, invested, gambled, spent on equipment, etc. You are free to spend as many points as you wish, but if you plan to spend more than 10 points, you would be better off just buying Wealth!

Unlike Wealth, points traded for money do not appear on your character sheet – they are *gone.* If you exercise this option during character creation, you are worth fewer points than your associates (but you are better equipped!).

You can also spend points on specific *equipment,* if it's key to your character concept. See *Signature Gear,* p. 85.

Later Earnings

You can depend on your adventures to bring in money . . . or you can get a job (see p. 516). Remember that in many worlds, unemployment is cause for grave suspicion and bad reaction rolls.

If a poor PC becomes wealthy, the GM should require the player to "buy off" the disadvantage with character points – see p. 121.

Reputation

It is possible to be so well-known that your reputation becomes an advantage or a disadvantage. This affects reaction rolls made by NPCs (see p. 494). A reputation has four elements: *Details, Reaction Modifier, People Affected,* and *Frequency of Recognition.*

Details

The details of your reputation are entirely up to you; you can be known for bravery, ferocity, eating green

snakes, or whatever you want. However, you *must* give specifics. Reputation is, by definition, something noteworthy; there is no such thing as a "generic" reputation.

Reaction Modifier

Specify the reaction-roll modifier that you get from people who recognize you. This determines the base cost of your reputation. For every +1 bonus to reaction rolls (up to +4), the cost is 5 points. For every -1 penalty (up to -4), the cost is -5 points.

People Affected

The size of the group of people who might have heard of you modifies the base cost:

Almost everyone in your game world (but *not* those from other universes – at least, not until they have met you!): ×*1*.

Almost everyone in your game world *except* one large class (everyone but the French, everyone but Elves, everyone but offworld visitors): ×*2/3 (round down)*.

Large class of people (all people of a particular faith, all mercenaries, all tradesmen, etc.): ×*1/2 (round down)*.

Small class of people (all priests of Wazoo, all literate people in 12th-century England, all mages in modern Alabama): ×*1/3 (round down)*.

If the class of people affected is so small that, in the GM's opinion, you would not meet even one in the average adventure, your reputation isn't worth points. This depends on the setting; for instance, mercenary soldiers are rare in some game worlds, common in others.

Frequency of Recognition

Either your name or your face is enough to trigger a "reputation roll" to see if the people you meet have heard of you. Roll once for each person or small group you meet. For a large group, the GM may roll more than once if he likes. The frequency with which you are recognized modifies the cost of your reputation:

Tech Level and Starting Wealth

Tech level (p. 22) determines starting wealth, as technologically advanced societies tend to be richer. Below is a comparison of TLs and suggested starting wealth.

TL0	Stone Age (Prehistory and later). $250.
TL1	Bronze Age (3500 B.C.+). $500.
TL2	Iron Age (1200 B.C.+). $750.
TL3	Medieval (600 A.D.+). $1,000.
TL4	Age of Sail (1450+). $2,000.
TL5	Industrial Revolution (1730+). $5,000.
TL6	Mechanized Age (1880+). $10,000.
TL7	Nuclear Age (1940+). $15,000.
TL8	Digital Age (1980+). $20,000.
TL9	Microtech Age (2025+?). $30,000.
TL10	Robotic Age (2070+?). $50,000.
TL11	Age of Exotic Matter. $75,000.
TL12+	Whatever the GM likes! $100,000.

GURPS gives wealth and prices in "$" for convenience. The $ can stand for "dollars," "credits," "pennies," or even units of barter. In a contemporary setting, $1 is a modern U.S. dollar. In other periods, $1 equates roughly with the amount of local currency needed to buy a loaf of bread or equivalent staple – *not* with historical U.S. dollars.

For example, in a high medieval society, each $ might be a copper farthing. In WWII-era America, each $ would convert to $0.10 in deflated 1940s-era dollars. And in a cyberpunk world with hyperinflation, each $ might equal $1,000 in grossly devalued 2030-era dollars! The ***GURPS*** $ is a constant, however. Variations in starting wealth by TL reflect increased prosperity due to civilization's progress – not inflation.

Worldbooks might give starting wealth, wages, and prices in local currency – historical U.S. dollars, British pounds, pieces of eight, etc. In such cases, they will always give a conversion factor to constant $.

Tech Level and Equipment

You enter play with "starting wealth" appropriate to the *campaign* TL. If you are from a higher TL, you may start with access to the equipment of your *personal* TL. However, *the price of an item of equipment is doubled for every TL by which its TL exceeds that of the campaign!*

For instance, a TL8 character in a TL3 game world starts with the same $1,000 as everyone else at TL3. If he wants a TL8 assault rifle that normally costs $1,500, it costs him 32 times as much (five TLs of difference results in five doublings, or a factor of 32) – or $48,000 – since the rifle is *far* more valuable in a low-tech setting. He'd need to start with some Wealth!

There is no guarantee that high-TL adventurers will *continue* to have access to high-tech gear in play. If you want a piece of gear, then you should buy it when you start out. If your TL8 adventurer is dropped into a TL3 world with 100 rounds of ammunition for his assault rifle, then he had better use it wisely. Once it's gone, it's gone . . .

Classless Meritocracies

In many societies, especially feudal ones, Status is the primary form of social rank. However, some societies, notably modern and futuristic ones, claim to be "classless." This does not mean that social rank doesn't exist! It just means that merit – most often in the form of wealth, education, or public service – replaces entitlement or birthright as the determiner of relative social position.

In a classless society, the GM may wish to limit the amount of Status that PCs can buy *directly* to only two levels. This represents some combination of higher education, professional license (such as in law or medicine), respected family name, and cultural achievements (anything from "rock star" to "poet laureate"). The only way to obtain higher Status is to get it for "free" from high Wealth (p. 25) or Rank (p. 29).

In a society where some form of Rank – not Status – is the official yardstick of power, it takes finesse to turn high Status to your advantage. For instance, you might come from a "good" family and have a decent education, allowing you to buy Status 2 outright. You might also be rich (Multimillionaire 1) for +2 Status and hold local office (Administrative Rank 3) for +1 Status. This would give you Status 5 in total. To overrule a senior bureaucrat with Administrative Rank 6 and Status 2, though, you'll have to use your social connections. You might have more clout in high society (Status 5 vs. Status 2), but he outranks you in the eyes of the law (Rank 6 vs. Rank 3)!

All the time: ×*1*.

Sometimes (roll of 10 or less): ×*1/2 (round down)*.

Occasionally (roll of 7 or less): ×*1/3 (round down)*.

Of course, your reputation extends only within a certain area. If you travel far enough away, the GM may require you to "buy off" the disadvantage points you received for a bad reputation. (There is no corresponding bonus for losing a good reputation.)

Multiple Reputations

You may have more than one reputation, and your reputations can overlap. The GM should check each one before determining how an NPC reacts to you. Your total reaction modifier from reputations cannot be better than +4 or worse than -4 in a given situation.

Multifaceted Reputations

A single reputation can give different reaction modifiers with different groups, provided the groups do not overlap. Set the reaction modifier for each group, modify the cost for the size of the group, and then add up the resulting costs. Modify this total for frequency of recognition. The reputation is an advantage if the net point cost is positive, a disadvantage if negative. The final point cost may be 0, but you should still record it on your character sheet!

Example 1: Sir Anacreon has a reputation for fearless monster-slaying. This earns him a +2 reaction from those who recognize him. Everyone has heard of him (no modifier), and he is recognized on a roll of 10 or less (×1/2). He has a 5-point advantage.

Example 2: The Green Dragon has a reputation as a crimefighter. He gets +3 reactions from honest citizens – which is almost everyone except the large class of *dishonest* citizens (×2/3) – for 10 points. He receives a -4 reaction from the underworld – a large group (×1/2) – for -10 points. The net point cost for his reputation is 0 points. If his player wished, he could specify a frequency of recognition, but the final cost would still be 0 points.

Importance

Your formally recognized *place* in society is distinct from your personal fame and fortune. To influence others through established channels (as opposed to relying on popularity or bribery), you must purchase one or more types of social rank, each of which has unique benefits and drawbacks.

Status

5 points/level

Status is a measure of social standing. In most game worlds, Status levels range from -2 (serf or street person) to 8 (powerful emperor or god-king), with the average man being Status 0 (freeman or ordinary citizen). If you do not specifically buy Status, you have Status 0. Status costs 5 points per level. For instance, Status 5 costs 25 points, while Status -2 is -10 points. Status also costs money to maintain (see p. 516).

Status is not the same as personal popularity (see *Reputation,* p. 26) or the popularity of your racial or ethnic group (see *Social Regard,* p. 86, and *Social Stigma,* p. 155). Status can sometimes influence others' reactions, but its main effect is to spell out where you stand in the social pecking order. In short, Status represents *power.*

High Status

Status greater than 0 means you are a member of the ruling class in your culture. Your family may be hereditary nobles (e.g., Plantagenet, Windsor), successful businessmen or politicians (Rockefeller, Kennedy), or some other type of big shots. You may even have achieved Status by your own efforts. As a result, others *in your culture only* defer to you, giving you a bonus on all reaction rolls.

High Status carries various privileges, different in every game world; your GM will give you this information. Note that any high-Status person is a likely target for kidnappers and social climbers, and that some criminal types *hate* "the ruling class."

Low Status

Status less than 0 means you are a serf or a slave, or simply very poor. This is not the same thing as Social Stigma (p. 155). In medieval Japan, for instance, a woman could have high Status, but still get a -1 on reactions due to the Social Stigma of being female. A modern-day criminal could theoretically have *any* level of Status

in conjunction with the Social Stigma of a criminal record.

The interaction of Status, Social Stigma, and Reputation can give interesting results. For instance, a person who is obviously from a lower social class, or even a disdained minority group, might earn such a reputation as a hero that others react well to him.

Status as a Reaction Modifier

When the GM makes a reaction roll (see p. 494), the relative Status of the characters involved can affect the reaction. The GM can roleplay NPCs as he likes, of course, but here are some general guidelines:

Higher Status usually gives a reaction bonus. When dealing with a social inferior, apply the difference between your Status levels as a reaction bonus – except, of course, when dealing with someone who resents Status. For instance, if you have Status 3, those of Status 1 react to you at +2, and those of Status 0 react at +3.

Lower Status may give a penalty. If you are dealing with a higher-Status NPC who is basically friendly, your Status doesn't matter (as long as it's positive). After all, the king has a far higher Status than his knights, but he reacts well to them . . . most of the time. But if the NPC is neutral or already angry, lower Status makes it worse ("How dare you, a mere knight, tell me my battle plan is foolish?"). Again, apply the difference in Status levels as a reaction modifier, but in this case it gives a penalty.

Negative Status usually gives a penalty. If your Status is so low as to be negative, those of higher Status *always* react badly to you. Apply the difference between your Status and the NPC's as a reaction penalty, but no worse than -4.

Recognizing Status

Status only affects reaction rolls if it is obvious to those around you. In some settings, your bearing, dress, and speech communicate your Status. Indeed, if you have very high Status, your *face* may be easily recognized – or perhaps the gaggle of servants that surrounds you gets the message across.

In other societies, you will have to produce physical proof (ID cards, signet rings, etc.), pass a test, or submit to ultra-tech or magical scans before you will be recognized. Status costs no fewer points in such societies; you may get fewer reaction bonuses, but you can also live a normal life, and it is far more difficult for someone to impersonate you.

Rank

5 or 10 points/level

Specific sectors of society – e.g., the civil service, the military, and certain powerful religions – often have internal ranking systems, distinct from Status. If an organization like this has significant social influence, or access to useful resources, then its members must pay points for their rank within the organization.

Rank comes in levels. Each Rank has authority over those of lower Rank – regardless of personal ability. In most cases, there are six to eight levels of Rank. The GM should determine the highest Rank available to starting characters, usually Rank 3-5.

Unlike Status, Rank costs no money to maintain. On the other hand, almost all forms of Rank come with a Duty (see p. 133). Rank often has stringent prerequisites, too – typically one of the traits given under *Privilege* (p. 30) or a minimum skill level. These things have their own point costs, not included in the cost of the Rank.

In a given society, there are usually *several* systems of Rank; the precise varieties depend on the game world. In most cases, you may hold more than one kind of Rank, although the GM is free to rule that holding one sort of Rank precludes holding another.

Rank may coexist with Status. If so, then high Rank grants additional Status at no extra cost: +1 to Status at Rank 2-4, +2 to Status at Rank 5-7, and +3 to Status at Rank 8 or higher. This represents society's respect for senior members of important social institutions. If you hold multiple types of Rank, then you may claim a Status bonus for each of them.

Alternatively, one form of Rank might replace Status; for instance, Religious Rank in a theocracy. In societies like this, Status *does not exist.* Each level of Rank gives all its usual benefits *plus* the effect of an equivalent level of Status.

Special Rules for Rank

A number of special situations might arise in play for those with Rank.

Temporary Rank

Those of higher Rank may *temporarily* increase your Rank for a predetermined amount of time – until the end of a project, battle, etc. This process is called *brevetting* in the case of Military Rank. To keep temporary Rank, you must meet all the usual requirements and pay the appropriate point cost.

Courtesy Rank

Those who have formerly held Rank may retain that Rank as "Courtesy Rank" for only 1 point per level. Those who *currently* hold a title that carries little real authority may also take Courtesy Rank. Courtesy Rank is for social situations only; it gives you a fancier title.

Rank for Spies

Officers of national intelligence services often possess a special category of Military Rank, distinct from that of line soldiers. Employees of civilian intelligence agencies usually possess some variety of Administrative Rank instead. Finally, some counterintelligence officers are actually police, and hold Police Rank. Those playing spies should consult with the GM before purchasing Rank of any kind!

Rank is worth 5 points per level if it coexists with Status, or 10 points per level if it replaces Status. Common varieties of Rank include:

Administrative Rank: Position within a governmental bureaucracy. When dealing with other administrators, differences in Rank work just like differences in Status (see p. 28). At TL5 and higher, a large bureaucracy might have *several* varieties of Rank: one per government department, and possibly extra categories for the senate, judiciary, etc. (Defense or law-enforcement officials use Military or Police Rank instead.) Note this on your character sheet; e.g., Administrative Rank (Judiciary).

Merchant Rank: Position within a national or transnational organization of merchants. This could be anything from the mercantile culture of the Aztecs (where Merchant Rank verged on being Status) to the "merchant marine" of a modern or futuristic society (where Merchant Rank often parallels Military Rank during wartime).

Military Rank: Position within a military organization. Each organization is structured differently. In general, personnel that are not specifically leaders will be Rank 0-2, while low-level officers and senior enlisted men will be Rank 3-4. Rank 5 and higher is normally limited to major commands and duties where the officer is responsible for extremely valuable or rare resources. Limited-duty officers, specialists, and personnel with little *actual* responsibility or command authority have a lower Rank in ***GURPS*** terms, despite possibly possessing titles identical to those of a higher Rank; represent this with one or more levels of Courtesy Rank (see *Courtesy Rank*, p. 29)

Police Rank: Position in a police force. Each agency has its own variety of Rank. You must buy Legal Enforcement Powers (p. 65) before you can buy Police Rank; this is the difference between a patrol officer (Police Rank 0, for 0 points) and an ordinary citizen (*no* Police Rank, also 0 points). Note that in a police state, there is no difference between Police Rank and Military Rank.

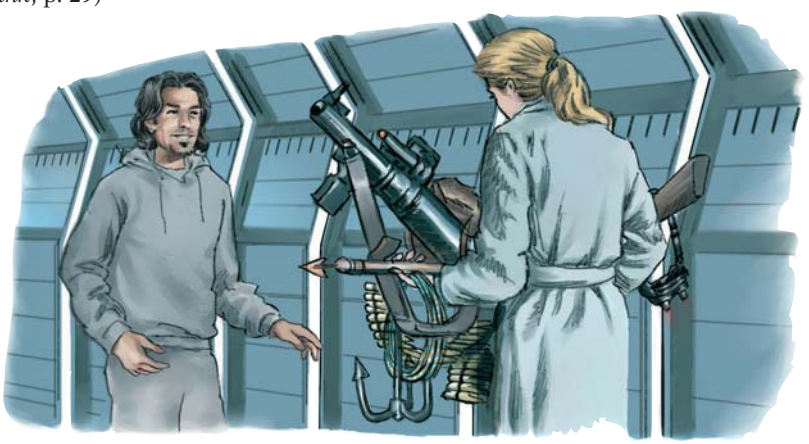
Religious Rank: Position in a religious hierarchy. Each religion has its own variety of Rank. You must buy Clerical Investment (p. 43) before you can buy Religious Rank; this is the difference between a novice (Religious Rank 0, for 0 points) and a layperson (*no* Religious Rank, also 0 points). Other common requirements include a minimum level of Theology skill and being of a particular sex or race. Differences in Rank work just like differences in Status (see p. 28) when dealing with co-religionists and those who respect your faith.

Example of Character Creation (cont'd)

ISWAT feeds and clothes Dai, and issues him the equipment he needs on a mission, but does *not* let him fetch his loot from Yrth. Thus, he does not *personally* own much. We give him Wealth (Poor), for -15 points. This gives 1/5 starting wealth for TL8, or $4,000. Still, by Yrth standards (starting wealth at TL3 is only $1,000), he lives in more luxury than he knew as a master thief!

Looking at the traits listed under *Privilege* and *Social Restraints,* we choose two to reflect Dai's job. ISWAT is *powerful,* and its agents' Legal Enforcement Powers (p. 65) reach across time and space, for 15 points. But these powers come with a Duty (p. 133), which occurs on 15 or less and is extremely hazardous, for -20 points.

Dai's wealth and influence are worth a net -20 points. This lowers his running point total to 143 points.



Privilege

You may buy special privileges within your society – e.g., a hard-to-obtain license, an "in" with an influential social group, or an exemption from certain laws – that allow you more latitude in your actions. Such advantages are not directly linked to Rank or Status. For instance, a spy with low Rank might have a "license to kill," while his commander, a bureaucrat with much higher Rank, is bound by all the rules of polite society.

Privileges include the advantages of Claim to Hospitality (p. 41), Clerical Investment (p. 43), Legal Enforcement Powers (p. 65), Legal Immunity (p. 65), Security Clearance (p. 82), Social Regard (p. 86), and Tenure (p. 93).

Social Restraints

Your social situation can instead *deprive* you of freedom. This can take many forms: an onerous obligation; the need to hide your deeds or lifestyle in order to avoid persecution; or widespread disdain for your cultural group, occupation, or social class. Such traits are considered disadvantages – see Duty (p. 133), Secret (p. 152), and Social Stigma (p. 155). All of these traits are externally imposed. If you are limited by your *values,* see *Self-Imposed Mental Disadvantages* (p. 121) instead.

Friends and Foes

You can *claim* to know just about anyone – and maybe you really do! Your life history should include at least some details about your relationships – good, neutral, or bad – with other people in the game world.

It costs points to have associates you can rely on for assistance during an adventure. Likewise, individuals who complicate your life or *actively* seek to thwart you, personally, are worth points as disadvantages. Note that these NPCs need not be *people*– they might be spirits, animal sidekicks, or robots.

Associated NPCs

Some friends and foes physically enter play when they appear. These "Associated NPCs" have personalities, life histories, and character sheets, just like PCs. In each case, the GM will interview you regarding the attitude, character story, and general abilities of the NPC, and then use this information to create a character sheet.

Character sheets for Associated NPCs – like those of all NPCs – are for the GM's eyes only. You will *not* have access to them! When these NPCs become involved in the game, the GM plays their roles and control their actions. Thus, even your closest associates are never 100% predictable.

Buy advantageous Associated NPCs as Allies (p. 36) or Patrons (p. 72). Disadvantageous ones include Dependents (p. 131) and Enemies (p. 135). The GM's word is final in all cases. The GM is free to forbid an Associated NPC that he feels would be disruptive, unbalanced, or inappropriate. He might even choose to forbid entire classes of NPCs – Dependents, Enemies, Patrons, etc. – if he feels they would unduly disrupt the flow of the game.

Contacts

You may also have associates who provide useful information or very minor favors, but who do not become physically involved in dangerous adventures. They appear only for long enough to help out, and then quickly depart. The GM will roleplay them and give them personalities, but since they are no more likely than any other friendly NPC to get involved in the action, they do not require full character sheets. Purchase such NPCs as Contacts (p. 44) or Contact Groups (p. 44).

Identities

By now, you should have a good idea of what you look like and who you are . . . but this might be only one of several faces that you show the world. Most people have just one identity – but a criminal, spy, super, or vigilante might have multiple identities.

A *functional* alternate identity costs points; see *Alternate Identity* (p. 39). On the other hand, keeping your identity a secret can be troublesome and expensive enough to qualify as a Secret Identity disadvantage (p. 153). And if you have *no* legal identity, you are Zeroed (p. 100).

Pseudonyms

In many countries – including the present-day United States – it is legal to use a false name for privacy as long as you do not attempt to defraud or interfere with public records. You can rent an apartment as "Mr. Smith," paying cash, without problems. But you can't get a driver's license, etc., legally. This sort of "weak identity" costs no points, and is popular with rock stars and actors (who often use a "stage name"), writers (in the form of a *nom de plume*), and traveling royalty.

Temporary Identities

Anyone can have a hasty or low-quality Alternate Identity (p. 39). While useful, such a false identity will eventually be noticed and eliminated (and the user sought after!). This kind of identity is not considered an advantage, and costs no points; buy it with cash.

A standard Temporary Identity is guaranteed to be good for one week. At the end of that week, the GM rolls 3d. On a roll of 8 or less, the authorities have discovered the false records. Otherwise, the identity holds up for another week and the process repeats itself, but the "discovery roll" is at a cumulative +1 for every week past the first (9 or less at the end of the second week, 10 or less at the end of the third week, and so on).

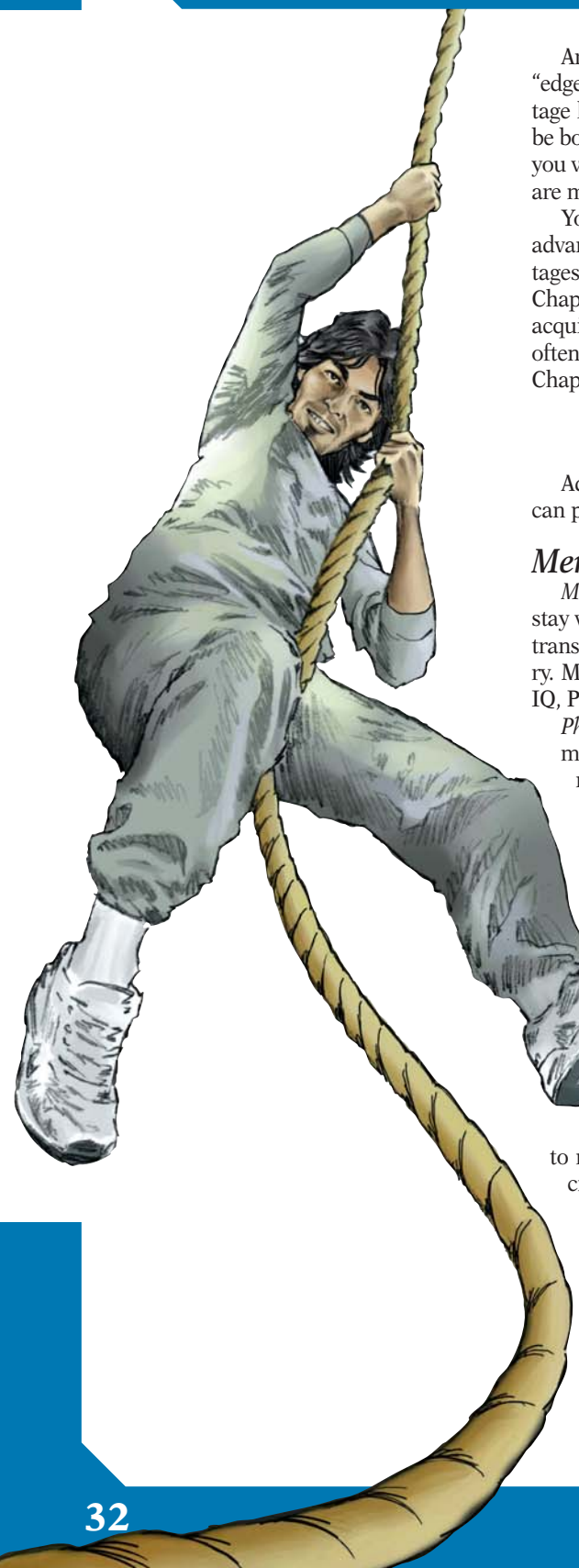
The price of a Temporary Identity is negotiable, and depends on your contacts, skills, and the setting. The cheaper the identity, the more frequently the GM will roll – a really cheap one might only be good for a *day*, with rolls every day! More expensive identities, lasting longer or starting at a lower number, might also be available.

Someone who is Zeroed (p. 100) *can* use a Temporary Identity.

Alternate Identity vs. Secret Identity

A Secret Identity (p. 153) isn't the same as an Alternate Identity (p. 39). If there are no false records to back up a Secret Identity, it doesn't count as an Alternate Identity. And if you use an Alternate Identity only to hold a secret bank account (for instance), and never try to "live" that persona, it isn't a Secret Identity.

Chapter Two
Advantages



An "advantage" is a useful trait that gives you a mental, physical, or social "edge" over someone else who otherwise has the same abilities as you. Each advantage has a cost in character points. This is fixed for some advantages; others can be bought in "levels," at a cost per level (e.g., Acute Vision costs 2 points/level, so if you want Acute Vision 6, you must pay 12 points). Advantages with "Variable" cost are more complicated; read the advantage description for details.

You can start out with many advantages as you can afford – although some advantages are forbidden to certain kinds of characters. You can also add advantages in play, if the GM permits. For instance, all the beneficial social traits in Chapter 1 (Status, Wealth, etc.) are advantages, and you could realistically acquire any of these in the course of the game. Magic and high technology can often grant advantages as well. For information on adding advantages in play, see Chapter 9.

Types of Advantages

Advantages fall into several broad categories, each of which has affects who can possess those advantages and how they work in play.

Mental, Physical, and Social

Mental advantages originate from your mind, or perhaps even your *soul.* They stay with you even if your mind ends up in a new body due to possession, a brain transplant, etc. Magical, psionic, and spiritual traits usually fall into this category. Most mental advantages work automatically, but a few require a roll against IQ, Perception, or Will to use. Mental advantages are marked .

Physical advantages are part of your body. You lose these traits if your mind moves to a new body – and if another mind takes over *your* body, the body's new owner gains your physical advantages. Advantages provided by bionics and similar implants usually fall into this category. Make a HT roll to activate any physical advantage that does not work automatically. Physical advantages are marked .

Social advantages are associated with your identity. Whether identity is a facet of mind or of body depends on the game world. In a fantasy setting, a demon might possess a duke and "become" a respected noble instead of a feared demon, while in a far-future society, people might routinely "upload" into new bodies with no effect on social standing. As with all things, the GM's word is final. Note that this category includes Rank, Status, Wealth, and related traits from Chapter 1. Social advantages are marked .

Many exotic and supernatural advantages (see below) could belong to more than one of these categories. This is noted (e.g., as /) where especially appropriate. The GM has the final say. The , , and markers are meant to assist GM judgment, not replace it.

Exotic, Supernatural, and Mundane

Exotic advantages are traits that ordinary humans cannot have without ultra-tech body modification or similar tampering; for instance, extra arms or death-ray vision. Nonhumans will often have exotic advantages on a racial basis, but this does *not* entitle them to add such traits freely. You need the GM's permission to add exotic traits that do not appear on your racial template (see Chapter 7). Exotic advantages are marked .

Supernatural advantages are impossible in nature and cannot be justified by science – or even "super-science." They rely on divine intervention, magic, psionics, etc. The classic example is magical talent (see *Magery,* p. 66). Supernatural traits differ from exotic ones in that *anyone* might be supernaturally gifted – even a "normal" human, if the GM permits. Having a trait like this does not automatically mark you as an alien or a mutant. Supernatural advantages are marked .

Mundane advantages are inborn or learned edges and knacks that anyone might have. There are normally no restrictions on who may possess a mundane advantage. Mundane advantages are not specially marked – if you don't see or , the advantage is mundane and available to anyone *with the GM's permission.* This last point is important! Some mundane traits are intended for cinematic campaigns (see *The Cinematic Campaign,* p. 488); the GM may forbid them in realistic games. Cinematic traits are always clearly indicated in the text.

Advantage Origins

When you select exotic or supernatural advantages, you must also choose an in-game justification for those abilities: biology, high technology, a divine gift, etc. Explaining your capabilities in terms that have meaning in the game world will give you a better "feel" for your character and give the GM some additional "adventure hooks."

Origins are usually just special effects. For instance, if you can sprout claws, they use the rules under Claws (p. 42) whether they are natural, cybernetic, or a gift from the Tiger God. Sometimes, though, you will encounter things that can only affect or be affected by a specific class of abilities. Furthermore, the GM may rule that talents with certain origins are more or less effective in a particular situation. In those cases, it is important to know *how your advantage works.*

Most characters have only one origin for all of their abilities, but you may choose a separate origin for each of your advantages if you wish, subject to GM approval. The GM sets the origins available in his campaign. Examples include:

Biological: Inborn features (unique to you or part of your racial makeup) and mutations. Medical science can detect and analyze these traits, and – at higher tech levels – add or remove them through genetic engineering, implants, or surgery.

Chi: Powers that originate from the "inner strength" of martial artists and yoga masters (also known as *ki* and *prana*). Disease and similar afflictions can sometimes weaken such abilities – for instance, by throwing your *yin* and *yang* out of balance.

Cosmic: Abilities that emanate from the universe itself or otherwise defy explanation. This is reserved for gods, powerful spirits, supers, etc. If your ability produces effects that *only* other cosmic powers can counteract, this is an enhancement; see *Cosmic* (p. 103).

Divine: Gifts from the gods (if *you* are a god, use Cosmic). In areas of low "sanctity" for your god – e.g., the temple of a rival god, or a foreign land where your god is unknown – you might find your abilities reduced or unavailable.

Potential Advantages

You will sometimes see an advantage you would like to have but that would not make sense at the start of your career – or that you cannot afford on your starting points! Or you might just want to start your adventuring career with unrealized potential, like countless fictional heroes. In either situation, the GM may choose to let you set aside 50% of the cost of an advantage as a "down payment" against acquiring the advantage later on.

When you take a *potential advantage* like this, sit down with the GM and work out the in-game conditions under which you will acquire the desired trait. When these conditions are met, you must use bonus character points to pay the other half of the price as soon as possible; see *Improvement Through Adventure* (p. 290). The GM is free to assess partial or uncontrollable benefits befitting the trait until you finish paying for the full, controllable advantage.

Examples of potential advantages include:

Heir: You stand to inherit wealth or a title. The GM decides when you will come into your inheritance. At that time, you acquire Status, Wealth, or other social privileges worth twice the points set aside for this trait. Until then, you enjoy extra money, reaction modifiers, etc. equal to *half* what you stand to gain. For instance, if you stood to inherit +2 to Status [10] and Comfortable wealth [10], Heir would cost 10 points, and give +1 to Status and a 50% bonus to starting wealth.

Schrödinger's Advantage: You can specify that at some critical juncture in an adventure, just when all seems lost, you will suddenly discover a new ability – worth twice the points you have set aside – that will help you out of trouble. You must immediately pay the remaining points to use your new ability. This is a *powerful* option. To keep things fair, points set aside this way provide no benefit until you discover your hidden talent.

Secret Advantage: You have an advantage *you don't know about!* The GM picks an advantage or set of advantages worth twice the points you have set aside . . . but he will not tell you what it is, or even give you a clue! The GM will reveal the truth at a suitably dramatic moment. Until then, the advantage provides the usual benefits – but it isn't under your control, so you won't be able to rely on it. The advantage functions normally once revealed and paid for.

What's Allowed

The GM determines which exotic and supernatural traits are allowed – and to whom – in his campaign. In a futuristic "transhuman" game world, the GM might declare that it is possible to add specific exotic advantages via surgery or genetic modification, but rule that supernatural advantages simply do not exist. In a 1920s horror game, the GM might allow many supernatural abilities, but no exotic ones. And in a supers campaign, the GM could let the players buy anything they have points for, vetting troublesome traits on a case-by-case basis. Players should develop the habit of reading and as "requires GM permission."

High-Tech: Nonbiological implants in biological characters, as well as *all* abilities of cyborgs, robots, and vehicles. Sensors can detect and analyze such traits, and certain high-tech countermeasures might be able to neutralize them.

Magic: Talents that draw upon magical energy, or *mana*. You need not be a wizard yourself; this category includes such lasting sorcerous effects as personal enchantments. If your gifts do not function at all in areas without mana, and function at -5 to die rolls in low mana (like spells; see p. 235), then this is a limitation (see p. 110): Mana Sensitive, -10%.

Psionic: Advantages that originate from the power of the mind. In most settings where psi powers exist, there are drugs, gadgets, and specialized anti-psi powers that can detect and defeat them. As a result, they are bought with a special limitation; see Chapter 6.

Spirit: Abilities enabled by invoking spirits. You only *seem* to be the focus of the effects; in reality, invisible supernatural beings are doing your bidding. Obviously, if the spirits cannot reach you, your abilities do not work.

Turning Advantages Off and On

An advantage that never inconveniences you (e.g., Intuition), that has to be on at all times to be of benefit (e.g., Resistant), or that reflects a permanent trait of your species (e.g., Extra Arms) is *always on.* You cannot turn it off.

Most other advantages are *switchable:* you can turn them off and on at will. To do so requires a one-second Ready maneuver, with activation or deactivation occurring as soon as you execute the maneuver. Unlike certain skills and magic spells, this does not require concentration; switching an advantage is second nature, and cannot be "interrupted." The default condition (while sleeping, unconscious, etc.) is "on."

Attacks – notably Affliction (p. 35), Binding (p. 40), and Innate Attack (p. 61) – are only "on" while you are attacking. An advantage like this requires a one-second Attack maneuver to use; you *cannot* switch it on continuously without a special enhancement.

Exceptions to these guidelines are noted explicitly.

Advantage List

360° Vision

25 points

You have a 360° field of vision. You have *no* penalty to defend against attacks from the sides or rear. You can attack foes to your sides or rear without making a Wild Swing, but you are at -2 to hit due to the clumsy angle of attack (note that some Karate techniques do not suffer this penalty). Finally, you are at +5 to detect Shadowing attempts, and are never surprised by a danger that comes from behind, unless it also is concealed from sight.

Extra eyes are merely a special effect of this trait – you can have any number of eyes, but the point cost remains the same.

3D Spatial Sense

see *Absolute Direction,* below

Absolute Direction /

5 or 10 points

You have an excellent sense of direction. This ability comes in two levels:

Absolute Direction: You always know which way is north, and you can always retrace a path you have followed within the past month, no matter how faint or confusing. This ability does not work in environments such as interstellar space or the limbo of the astral plane, but it *does* work underground, underwater, and on other planets. This gives +3 to Body Sense and Navigation (Air, Land, or Sea). (*Note:* The navigational sense that guides migratory creatures to their destination is too crude to qualify; treat it as a 0-point feature.) *5 points.*

3D Spatial Sense: As above, but works in three dimensions. This ability *is* useful in deep space – although it does not help you if you travel across dimensions. You get the skill bonuses given for Absolute Direction, plus +1 to Piloting and +2 to Aerobatics, Free Fall, and Navigation (Hyperspace or Space). *10 points.*

Special Limitations

Easy to Hit: Your eyes are on stalks, unusually large, or otherwise more vulnerable to attack. Others can target your eyes from within their arc of vision at only -6 to hit. -20%.

Special Limitations

Requires Signal: You rely on signals from a navigational satellite network (like Earth's GPS) or similar system. Your ability does not function in the absence of such a system, and it can be jammed. -20%.

Absolute Timing

2 or 5 points

You have an accurate mental clock. This ability comes in two levels, both of which are somewhat cinematic:

Absolute Timing: You always know what time it is, with a precision equal to the best personal timepieces widely available in your culture (but never better than a few seconds). You can measure elapsed time with equal accuracy. Neither changes of time zone nor sleep interferes with this ability, and you can wake up at a predetermined time if you choose. Being knocked unconscious, hypnotized, etc. *may* prevent this advantage from working, and time travel *will* confuse you until you find out what the "new" time is. *2 points.*

Chronolocation: As above, but time travel does not interfere – you always know what time it is in an absolute sense. Note that things like Daylight Savings Time and calendar reform can still confuse you! When you travel in time, the GM may tell you, "You have gone back exactly 92,876.3 days," and let you – or your character – deal with questions like, "What about leap year?" *5 points.*

Acute Senses

2 points/level

You have superior senses. Each Acute Sense is a separate advantage that gives +1 per level to all Sense rolls (p. 358) you make – or the GM makes for you – using that one sense.

Acute Hearing gives you a bonus to hear something, or to notice a sound (for instance, someone taking the safety off a gun in the dark). *2 points/level.*

Acute Taste and Smell gives you a bonus to notice a taste or smell (for instance, poison in your drink). *2 points/level.*

Acute Touch gives you a bonus to detect something by touch (for instance, a concealed weapon when patting down a suspect). *2 points/level.*

Acute Vision gives you a bonus to spot things visually, and whenever you do a visual search (for instance, looking for traps or footprints). *2 points/level.*

With the GM's permission, you may also buy Acute Sense advantages for specialized senses such as Scanning Sense and Vibration Sense.

You cannot usually buy Acute Senses in play – raise your Perception instead. However, if you lose a sense, the GM may allow you to spend earned points on other Acute Senses to compensate. For instance, if you are blinded, you might acquire Acute Hearing.

The GM determines which exotic and supernatural traits are allowed – and to whom – in his campaign.

Administrative Rank

see *Rank*, p. 29

Affliction

10 points/level

You have an attack that causes a baneful, *nondamaging* effect: blindness, paralysis, weakness, etc. This might be an ultra-tech beam weapon, a chemical spray, a supernatural gaze attack, or almost anything else. Specify the details when you buy the advantage.

By default, Affliction is a ranged attack with 1/2D 10, Max 100, Acc 3, RoF 1, Shots N/A, and Recoil 1, although you can apply modifiers to change these statistics (see pp. 101-116).

If you hit, your victim gets a HT+1 roll to resist. Apply a penalty equal to the level of the Affliction (so Affliction 1 gives an unmodified HT roll). The victim gets a bonus equal to his DR *unless* the Affliction has one of the following modifiers: Blood Agent, Contact Agent, Cosmic, Follow-Up, Malediction, Respiratory Agent or Sense-Based. To reduce the effects of DR, add the Armor Divisor enhancement. The victim gets a further +3 if he is beyond 1/2D range.

If the victim makes his HT roll, he is unaffected. If he fails, he suffers the effects of the Affliction. By default, he is stunned (see p. 420). He may roll vs. HT+1 once per second to recover, but once again at a penalty equal to the level of the Affliction (DR has no effect on this roll).

If your Affliction causes an effect other than stunning, this is a special enhancement (see below). You can inflict more than one effect by giving your Affliction multiple special enhancements. These effects occur simultaneously, except where noted.

Successive Afflictions that produce the same effects are not normally cumulative. Use the single *worst* effect.

Use the special enhancements below to create specific Afflictions. Many *Attack Enhancements and Limitations* (p. 102) are also logical. For instance, a blinding flash is Sense-Based (p. 109); most drugs have Follow-Up (p. 105), Blood Agent (p. 102), or Contact Agent (p. 103); supernatural attacks like the "evil eye" use Malediction (p. 106); and touch attacks call for Melee Attack (p. 112).

If an Affliction produces two or more effects due to the special enhancements below, some of these effects may be *secondary.* Secondary effects occur only if the victim fails his HT roll by 5 or more or rolls a critical failure. A secondary effect is worth 1/5 as much; e.g., Secondary Heart Attack is +60% rather than +300%.

Once you have chosen all the modifiers on your Affliction, describe the nature of the attack as detailed for *Innate Attack* (p. 61).

Special Enhancements

Advantage: The victim immediately experiences the effects of a specific physical or mental advantage. Advantages with instantaneous effects affect the target *once,* as soon as he is hit, if he fails his HT roll; e.g., Warp immediately teleports the subject. Advantages that can be switched on and off (such as Insubstantiality) are automatically "on" for one minute per point by which the victim fails his HT roll, and are *not* under the subject's control. This is worth +10% per point the advantage is worth; e.g., Insubstantiality would be +800%! If the advantage comes in levels, specify the level.

Attribute Penalty: The victim suffers *temporary* attribute loss. This is +5% per -1 to ST or HT, or +10% per -1 to DX or IQ. For instance, an attack that caused DX-3 and IQ-2 would be +50%. Lower all skills based on reduced attributes by a like amount. ST penalties also reduce BL and damage, while IQ reductions also apply to Will and Perception. Secondary characteristics are not otherwise affected; for instance, HT reduction does not affect Basic Speed or FP. Penalties last for one minute per point by which the victim fails his HT roll.

Coma: The victim collapses, profoundly unconscious, and will likely die in days unless treated; see *Mortal Conditions* (p. 429). +250%.

Cumulative: Repeated attacks *are* cumulative! You must take this in conjunction with Attribute Penalty, or with an Advantage, Disadvantage, or Negated Advantage Enhancement that inflicts a "leveled" trait. +400%.

Disadvantage: The victim temporarily gains one or more specific physical or mental disadvantages (but *not* self-imposed mental disadvantages – see p. 121). This is worth +1% per point the temporary disadvantages are worth; e.g., Paranoia [-10] is worth +10%. If a disadvantage comes in levels, specify the level. The disadvantages last for one minute per point by which the victim fails his HT roll.

Heart Attack: The victim suffers an incapacitating heart attack, and will die in minutes unless treated; see *Mortal Conditions* (p. 429). +300%.

Incapacitation: The victim is incapacitated for a number of minutes equal to the margin of failure on his HT roll. After that, he is stunned until he can make a HT roll (roll once per second). If you combine Incapacitation with other effects (such as Irritant), those effects occur after the Incapacitation wears off; they replace the stunning and last for the same length of time the Incapacitation did. Incapacitation can take the form of any of the following: Daze, +50%; Hallucinating, +50%; Retching, +50%; Agony, +100%; Choking, +100%; Ecstasy, +100%; Seizure, +100%; Paralysis, +150%; Sleep, +150%; or Unconsciousness, +200%. See *Incapacitating Conditions* (p. 428) for the game effects.

Irritant: The victim suffers an impairing but non-incapacitating condition *instead of* being stunned. It lasts for a number of minutes equal to the margin of failure on his HT roll. The possibilities are Tipsy +10%; Coughing, +20%; Drunk, +20%; Moderate Pain, +20%; Euphoria, +30%; Nauseated, +30%; Severe Pain, +40%; or Terrible Pain, +60%. For definitions, see *Irritating Conditions* (p. 428).

Negated Advantage: The victim *loses* a specific advantage for one minute per point by which he failed his HT roll. There is no effect if the victim lacks that advantage! This enhancement is worth +1% per point the advantage is worth. If the advantage comes in levels, you must specify the level negated.

Stunning: May only accompany Advantage, Attribute Penalty, Disadvantage, or Negated Advantage. If the victim fails to resist, he is stunned (per an unmodified Affliction) *in addition to* the effects of the other enhancement(s). +10%.

Allies

Variable

Many fictional heroes have partners – loyal comrades, faithful sidekicks, trusted retainers, or lifelong friends – who accompany them on adventures. These partners are "Allies."

The other PCs in your adventuring party are, in a sense, "allies." But they can be unreliable allies indeed. Often they are chance acquaintances, first encountered at a roadside tavern only hours ago. They have their own hidden goals, ethics, and motives, which might not coincide with your own.

An NPC Ally, on the other hand, is wholly reliable. Perhaps you fought side by side in a long war, trained under the same master, or grew up in the same village. The two of you trust each other implicitly. You travel

Frequency of Appearance

Whether you pay points for a useful relationship with an NPC or collect points for a troublesome one, it is unlikely that the NPC will be a constant presence. Each friend or foe has a *frequency of appearance,* and will figure into a given adventure only if the GM rolls less than or equal to that number on 3d at the start of the adventure. How the NPC interacts with you if the roll succeeds depends on the nature of the relationship.

Frequency of appearance multiplies the point cost for an Associated NPC (see p. 31) *after* determining power level and group size (as applicable), but *before* you apply any special modifiers:

Constantly (no roll required): ×*4.* The NPC is always present. This level is reserved for NPCs – usually Allies – that are implanted, worn like clothing, or supernaturally attached.

Almost all the time (roll of 15 or less): ×*3.*

Quite often (roll of 12 or less): ×*2.*

Fairly often (roll of 9 or less): ×*1.*

Quite rarely (roll of 6 or less): ×*1/2 (round up).*

together, fight back-to-back, share rations in hard times, and trade watches through the night.

Your Ally is usually agreeable to your suggestions, but he is not your puppet. He *will* disagree with you from time to time. An Ally may try to dissuade you from a plan that seems foolish to him – and if he can't talk you out of the plan, he may refuse to cooperate. An Ally may even cause problems for you: picking fights, landing in jail, insulting a high noble . . . Of course, the Ally will also try to bail you out when *you* make mistakes.

The GM will not award you bonus character points for any play session in which you betray, attack, or unnecessarily endanger your Ally. Blatant, prolonged, or severe betrayal will break the trust between you and your Ally, and he will leave you permanently. If you drive your Ally off in this way, the points you spent on him are *gone,* reducing your point value. Leading your Ally into danger is all right, as long as *you* face the same danger and are a responsible leader.

The point cost for an Ally depends on his power and frequency of appearance. Only PCs who take NPCs as Allies pay points for the privilege. Two PCs can be mutual "allies" for free, as can two NPCs – and NPCs *never* pay points for PCs as Allies. An Ally is specifically a skilled NPC associate for one PC.

Ally's Power

Consult the following table to determine how many points you must spend on your Ally. "Point Total" is the Ally's point total expressed as a percentage of the PC's starting points; "Cost" is the cost of the Ally. If the Ally's point total falls between two percentages, use the *higher*.

Point Total	*Cost*
25%	1 point
50%	2 points
75%	3 points
100%	5 points
150%	10 points

Allies built on more than 150% of the PC's starting points are not allowed; treat such NPCs as Patrons (see p. 72). *Exception:* The progression above extends indefinitely for *nonsentient* (IQ 0) Allies; each +50% of the PC's starting points costs a further +5 points.

Allies built on no more than 100% of the PC's starting points may *also* be Dependents (see p. 131). Add the cost of Ally and Dependent together, and treat the combination as a single trait: an advantage if the total point cost is positive, a disadvantage if it is negative.

Ally Groups

You may purchase as many Allies as you can afford. Each Ally is normally a separate advantage, but you can treat a group of related Allies as a single trait to save space on your character sheet. For a group of *individuals* – with their own unique abilities and character sheets – add the costs of the individual Allies to find the cost of the group, adjust the total cost for frequency of appearance, and then apply any special modifiers.

For a group of more than five *identical* and *interchangeable* allies that share a single character sheet – for instance, an army of low-grade thugs or a swarm of robot drones – find the point cost to have one member of the group as an Ally, and then multiply that cost as follows to find the cost of the group:

Size of Group	*Multiplier*
6-10	×6
11-20	×8
21-50	×10
51-100	×12

Add ×6 to the multiplier per tenfold increase in number (e.g., 100,000 Allies would be ×30). The GM may require an Unusual Background (p. 96) if you wish to have hordes of Allies, or even prohibit groups larger than a certain size – although he might permit an army or other large group as a *Patron*. Frequency of appearance multipliers and special modifiers (if any) apply to the final cost of the entire group.

Frequency of Appearance

Choose a frequency of appearance (see p. 36). If your Ally appears at the start of an adventure, he accompanies you for the duration of that adventure.

Allies in Play

As with Dependents (p. 131), the GM will adjust your Ally's abilities in order to keep his point total a fixed percentage of your own as you earn points. This will keep his value as an advantage constant. The *GM* decides how the Ally evolves, although he might ask you for your input.

If your Ally dies through no fault of yours, the GM will not penalize you. You may put the points spent on the deceased Ally toward a new Ally. The new relationship should normally develop gradually, but the GM might allow an NPC to become an Ally on the spot if you have done something that would win him over (e.g., saving his life). This is especially appropriate in cultures where debts of honor are taken seriously!

There is no penalty for amicably parting ways with your Ally. You may use the points spent on him to buy a new Ally met during play. At the GM's discretion, you may trade in any remaining points for money (see p. 26), reflecting parting gifts.

Familiars

Wizards, telepaths, and so on are often supernaturally linked to special Allies known as *familiars*. These are usually animals or spirits.

Your Ally is usually agreeable to your suggestions, but he is not your puppet. He will disagree with you from time to time.

Work out a familiar's basic abilities with the GM, starting with the racial template of an ordinary creature of its kind. If its racial IQ is 5 or less, raise it to at least 6. Consider buying off Cannot Speak, if applicable. Most familiars have supernatural advantages: Extra Lives for a cat (it has nine lives, after all!), Mindlink and Telesend for a familiar that can transmit its thoughts, etc.

Once you have determined the familiar's abilities, work out its point total and its base value as an Ally. Select frequency of appearance as usual. This may be *how often your familiar is available* (on a failed appearance roll, it is sleeping, reporting to a demon lord, etc.) or *how often its powers work* (on a failure, it is no more capable than an ordinary member of its species, and cannot use or grant special powers) – your choice.

This kind of Ally usually has one or more special modifiers. Minion, Summonable, and Sympathy are common. Unwilling is typical of demonic or otherwise evil familiars. Take Special Abilities only if your familiar grants *you* powers; e.g., extra Fatigue Points with which to fuel spells or exotic or supernatural advantages that emulate the familiar's own abilities (such as Flight, for a bird). You have no access to these abilities on a failed appearance roll; if your familiar is stunned, unconscious, or dead; or in areas where your special link does not function (GM's decision). Buy these abilities with a -40% Accessibility limitation: "Granted by familiar."

You can apply the following enhancements and limitations *after* calculating group cost (if applicable) and multiplying for frequency of appearance:

Special Enhancements

Minion: Your Ally continues to serve you regardless of how well you treat him. This might be due to programming, fear, awe, or lack of self-awareness. Examples include robots, zombies, and magical slaves. You are free of the usual obligation to treat your Ally well. Mistreatment might result in an inconvenient breakdown (mental or physical), but the Ally will not leave. See *Puppet* (p. 78) for additional options. +0% if the Minion has IQ 0 or Slave Mentality (p. 154), as the benefits of total loyalty are offset by the need for close supervision; +50% otherwise.

Special Abilities: Your Ally wields power out of proportion to his point value. Perhaps he has extensive political clout or access to equipment from a TL higher than your own; perhaps he grants *you* exotic powers. Don't apply this enhancement simply because your Ally has exotic abilities. If his powers are very uncommon, you will *already* be paying extra: your Ally requires an Unusual Background, which raises his point total and his value as an Ally. +50%.

Summonable: You conjure your Ally instead of rolling to see whether he appears at the start of an adventure. To do so, take a Concentrate maneuver and roll against frequency of appearance. On a success, your Ally appears nearby. On a failure, you cannot attempt to summon him again for one full day. Dismissing your Ally is a free action, but you may only dismiss him if he is physically present. +100%.

Special Limitations

Sympathy: If you are stunned, knocked out, mind-controlled, etc., your Ally is similarly affected. The reverse is also true, so you should take special care of your Ally! -25% if the death of one party reduces the other to 0 HP; -50% if the death of one party automatically *kills* the other. If your wounds affect your Ally, but your Ally's wounds don't affect you, reduce these values to -5% and -10%.

Unwilling: You have obtained your Ally through coercion (e.g., blackmail or magical binding). You do not have to treat him as well as you would a normal Ally. However, he *hates* you and is likely to act accordingly, reducing his overall reliability level. If you endanger such an Ally or order him to do something unpleasant, he may rebel (GM's option) if the consequences of doing so would be less severe than those of doing your bidding. An Ally who rebels is *gone,* along with the points you spent on him. -50%.

Altered Time Rate

100 points/level

Your rate of time perception is faster than that of a normal human. The first level of this advantage lets you experience time *twice* as fast as a normal – that is, you experience two subjective seconds for each real second that passes. Each level past the first increases this ratio by one: three times as fast at level 2, four times as fast at level 3, and so on.

Each level of Altered Time Rate lets you take one additional maneuver on your turn in combat, allowing you to cast spells quickly by taking multiple Concentrate maneuvers, run very fast by taking multiple Move maneuvers, etc. Your turn doesn't come any sooner, however! This advantage affects how fast you move *when you react,* but not how quickly you react in the first place.

Out of combat, Altered Time Rate allows you the luxury of extensive planning, even in crisis situations, as everything seems to happen in slow motion. You may always attempt a Sense roll, or an IQ-based skill roll to make plans or recall information (GM's decision), at no penalty to additional actions.

In order to do anything that depends on someone else's reactions, you must deliberately "slow down" and function at his speed. This applies both when making a Feint in combat and when making an Influence roll (see p. 359) out of combat. For instance, if you choose to Feint, that is all you can do on your turn – you cannot take extra actions. (On the other hand, you could make an All-Out Attack followed by an Attack in order to beat down his defenses through sheer blinding speed!)

Alternate Identity

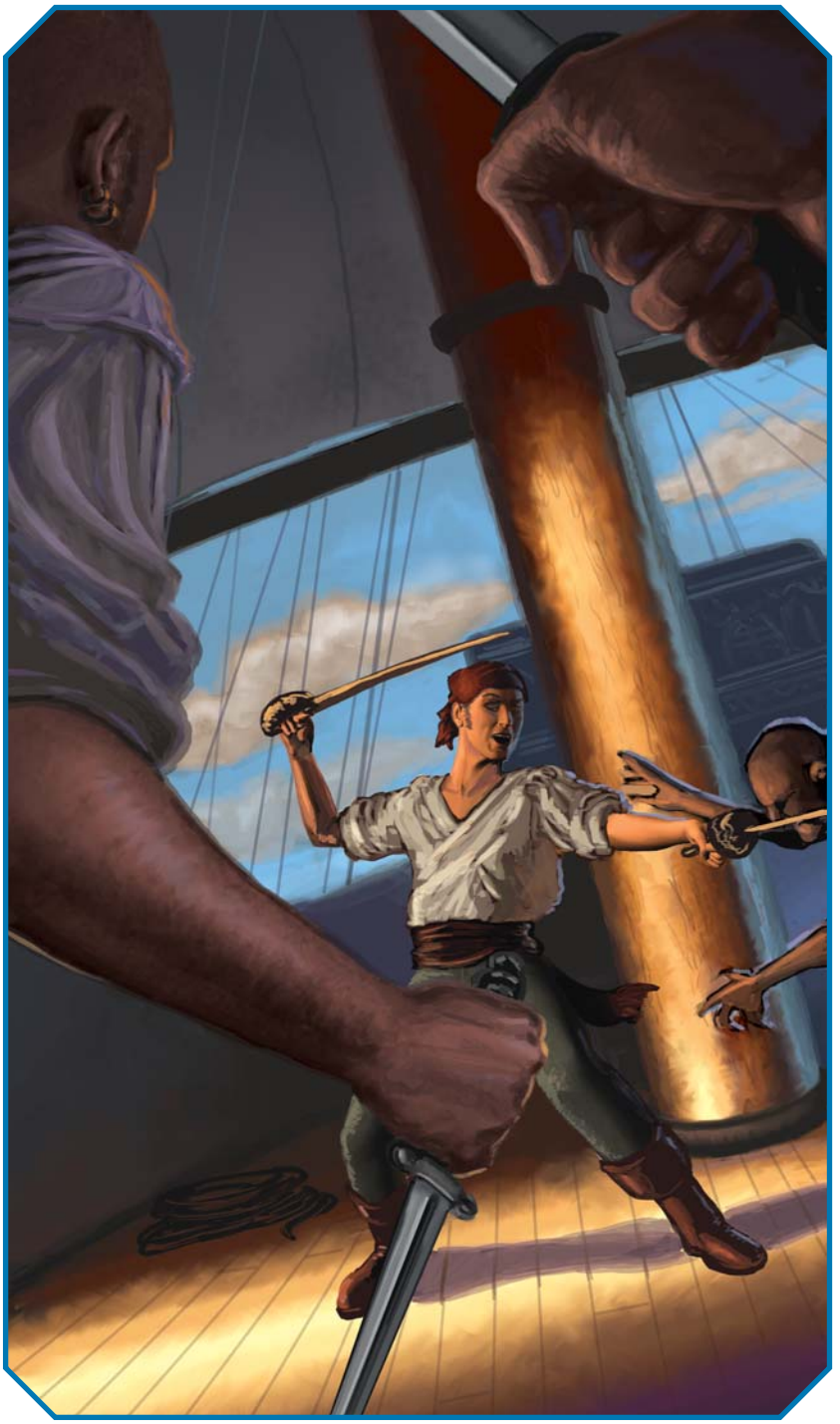
5 or 15 points per identity

You have multiple, seemingly legal identities. Each time you purchase this trait, your fingerprints (or other biometrics used to verify identity in your world) are registered under another name, and you have an extra set of identity documents (birth certificate, licenses, passport, etc.) good enough to pass close inspection. These identities may also have valid credit cards and bank accounts, but *you* must supply the money – additional wealth is not included in the package!

If an intelligence or law-enforcement agency attempts to identify you with no clue as to your name – for instance, using biometrics or photo-analysis – there is an equal chance for each of your identities to come up. The search will stop . . . unless they have reason to believe you are a ringer. If the search continues, your other identities will eventually surface, and you will be unmasked. Once a government agency determines who you really are, your Alternate Identities are lost for good.

There are two types of Alternate Identity:

Legal: Some spies and undercover policemen – and even supers, in settings where they are backed by the government – may have a legal Alternate Identity. This requires at least 10 points in Legal Enforcement Powers, Legal Immunity, Police Rank, Security Clearance, etc.; the GM sets the precise prerequisites. If a super has official permission to conceal his original name (e.g., to protect his family) and to hold property in his "super" name, then that is a legal Alternate Identity combined with a Secret Identity (see p. 153). *5 points.*



Illegal: A criminal or foreign agent may have an illegal Alternate Identity. This has the advantage of being *completely* unknown when you first start out, and of course it cannot be revoked by the government. On the other hand, should it ever be discovered, you will face a stiff fine, a jail sentence, or execution, depending on the time and place. *15 points.*

Ambidexterity

5 points

You can fight or otherwise act equally well with either hand, and never suffer the -4 DX penalty for using the "off" hand (see p. 14). Note that this does *not* allow you to take extra actions in combat – that's Extra Attack (p. 53). Should some accident befall one of your arms or hands, assume it is the left one.

Amphibious

10 points

You are well-adapted to movement in the water. You do not suffer skill penalties for working underwater, and you can swim at your full Basic Move. You still require air (but see *Doesn't Breathe,* p. 49). Typical features include smooth, seal-like skin and webbed fingers and toes.

If you can move *only* in the water, take the Aquatic disadvantage (p. 145) instead.

Animal Empathy

5 points

You are unusually talented at reading the motivations of animals. When you meet an animal, the GM rolls against your IQ and tells you what you "feel." This reveals the beast's emotional state – friendly, frightened, hostile, hungry, etc. – and whether it is under supernatural control. You may also use your Influence skills (see p. 359) on animals just as you would on sapient beings, which usually ensures a positive reaction.

This ability frequently accompanies some level of Animal Friend (see *Talent,* p. 89), and often Sense of Duty (Animals) or Vow (Vegetarianism).

Animal Friend

see Talent, p. 89

Appearance

see *Appearance Levels,* p. 21

Above-average appearance is treated as an advantage.

Arm DX

12 or 16 points per +1 DX

Some of your arms have extra DX relative to the DX of your body. This DX applies only to things done with those arms or hands. It does *not* affect Basic Speed! If a task requires two or more hands, and they don't have the same DX, use the *lowest* DX. Combat skills rely on bodily DX, and do not benefit from this DX at all.

Arm DX costs 12 points per +1 DX for one arm and 16 points per +1 DX for two arms. To raise the DX of three or more arms, buy up overall DX. If you bought your DX with the No Fine Manipulators limitation, apply this limitation to Arm DX as well.

Arm ST

3, 5, or 8 points per +1 ST

Some of your arms have extra ST relative to the ST of your body. This ST applies only to efforts to lift, throw, or attack with those arms or hands. It does *not* affect HP or overall Basic Lift! If a task requires multiple hands, and they don't have the same ST, use the *average* ST.

Arm ST costs 3 points per +1 ST for one arm, 5 points per +1 ST for two arms, and 8 points per +1 ST for three arms. To raise the ST of four or more arms, buy up overall ST. If you bought your ST with the No Fine Manipulators or Size limitations, apply the same limitation(s) to Arm ST.

Artificer

see *Talent,* p. 89

Binding

2 points/level

You have an attack that can hold your target in place. Specify how this works when you buy the advantage: entangling your victim in vines, tying him up with webs, freezing him inside a block of ice, turning the ground to quicksand beneath his feet, etc.

Binding is a ranged attack with 1/2D –, Max 100, Acc 3, RoF 1, Shots N/A, and Recoil 1. You can add modifiers to change these statistics (see pp. 101-116).

On a hit, your victim is grappled (see p. 370) and rooted in place. He cannot select the Move or Change Posture maneuvers or change facing, and is at -4 to DX. The ST of this effect is equal to your Binding level, but you can *layer* additional attacks on a successfully bound victim. Each extra layer gives +1 to ST.

To break free, the victim must win a Quick Contest of ST or Escape skill against the ST of your Binding. Each attempt takes one second. If the victim fails to break free, he loses 1 FP but may try again. Alternatively, he may try to destroy the Binding. Innate Attacks hit automatically; other attacks are at -4. External attacks on the Binding take no penalty, but risk hitting the victim on a miss (see *Striking Into a Close Combat,* p. 392). The Binding has DR equal to 1/3 your level (rounded down). Each point of damage reduces ST by one. At ST 0, the Binding is destroyed and the victim is freed.

To simulate vines, webs, and so forth, add one or more of Area Effect (p. 102), Persistent (p. 107), and Wall (p. 109) – and possibly some of the special modifiers below.

Special Enhancements

Engulfing: Your attack *pins* the target. He cannot move his limbs or speak; his only options are to use purely mental abilities, to attack the Binding with an Innate Attack, or to try to break free using ST (*not* Escape skill). If he tries to break free and fails, he is only allowed a repeated attempt every 10 seconds – and on a 17 or 18, he becomes so entangled that he cannot escape on his own! +60%.

Only Damaged By X: Only specific damage types can damage your Binding. +30% for one of burning, corrosion, crushing, or cutting; +20% for any two; +10% for any three.

Sticky: Your Binding is treated as Persistent (p. 107), but only affects those who actually touch the original target of your attack. +20%.

Unbreakable: Your Binding cannot be destroyed. The only way to escape is to break free. +40%.

Special Limitations

Environmental: Your Binding manipulates an existing condition or object in the environment, and won't work in its absence. This is worth from -20% (victim must be touching the ground) to -40% (victim must be standing in dense vegetation), at the GM's option.

One-Shot: You cannot layer your Binding to increase its ST. -10%.

Blessed

10 or more points

You are attuned to a god, demon lord, great spirit, cosmic power, etc. This can take various forms, but in all cases, you will lose this advantage if you fail to act in accordance with your deity's rules and values.

Blessed: You sometimes receive wisdom from your deity. After communing with your god (meditating, praying, etc.) for at least one hour, you see visions or witness omens that have some bearing on future events. Work out the details with your GM; for

instance, the God of Fire might require you to stare into flames for an hour, after which you hear a voice in the flames. The GM rolls secretly against your IQ to determine whether you gain any useful insight from this experience. The ritual is fatiguing, however; at the end of the hour, you lose 10 FP. As a side benefit, followers of your deity sense your special status and react to you at +1. *10 points.*

Very Blessed: As above, but your IQ roll to interpret visions is at +5 and the reaction bonus from your god's followers is +2. *20 points.*

Heroic Feats: Your blessing gives you the ability to perform a particular heroic feat. Once per game session, you may add 1d to *one* of ST, DX, or HT (other traits, such as Basic Move, are at the GM's discretion). You must specify which trait is boosted when you buy the advantage. This bonus lasts 3d seconds, after which your abilities revert to normal and you suffer any penalties amassed during the "heroic" period. (For instance, if your blessing boosts HP and you are reduced to -5 × your normal HP but not -5 × your "blessed" HP, you will die when the bonus HP wear off unless you receive some sort of healing.) *10 points.*

The GM may choose to allow other blessings as well.

Brachiator

5 points

You can travel by swinging on vines, tree branches, ropes, chandeliers, etc. You get +2 to Climbing skill, and can move at half your Basic Move while brachiating.

Breath-Holding

2 points/level

You are adept at holding your breath. Each level doubles the length of time you can do so (see *Holding Your Breath,* p. 351). Normal humans may not take this advantage – to be a world-record diver, learn Breath Control (p. 182). Nonhumans and supers *can* combine this advantage with Breath Control!

Business Acumen

see *Talent,* p. 89

Catfall

10 points

You subtract five yards from a fall automatically (treat this as an automatic Acrobatics success – don't check again for it). In addition, a successful DX roll *halves* damage from any fall. To enjoy these benefits, your limbs must be unbound and your body free to twist as you fall.

Chameleon

5 points/level

You can change your surface pattern to blend into your surroundings. In any situation where being seen is a factor, you get +2 per level to Stealth skill when perfectly still, or +1 per level if moving. Clothing reduces this bonus to +1 per level when you are motionless, with no bonus if you are moving (unless the clothing is, in the GM's opinion, camouflaged relative to your current environment).

Chameleon does not normally help in the dark or against someone relying upon senses other than sight. However, you can specify that your ability is effective against a particular visual or scanning sense (e.g., Infravision or Radar) *instead* of normal vision.

Special Enhancements

Extended: Your ability affects more than one visual or scanning sense. Each sense beyond the first is +20%.

Special Limitations

Always On: You cannot turn this ability off. Strangers react at -1; the flickering effect is irritating. -10%.

Channeling

10 points

You can become a conduit for the spirit world, allowing spirits to speak through you. To do so, you must enter a trance, achieved through one minute of concentration and a Will roll (at +2 if you have Autotrance, p. 101). You are unaware of the world around you while you are in this state.

Once you have entered your trance, any spirit in the immediate vicinity can enter your body and use it to speak or write messages. The GM controls what the spirit does or says. The spirit answers questions put to it by others, but it is not bound to tell the truth.

This is a minor form of possession: the spirit can use your body only to communicate. However, if it has the Possession ability (p. 75), it is considered to be touching you, and can attempt *full* possession while you are in a trance. You are considered "wary," and thus get +5 to resist.

Charisma

5 points/level

You have a natural ability to impress and lead others. Anyone can acquire a semblance of charisma through looks, manners, and intelligence – but *real* charisma is independent of these things. Each level gives +1 on all reaction rolls made by sapient beings with whom you actively interact (converse, lecture, etc.); +1 to Influence rolls (see *Influence Rolls,* p. 359); and +1 to Fortune-Telling, Leadership, Panhandling, and Public Speaking skills. The GM may rule that your Charisma does not affect members of extremely alien races.

Chronolocation

see *Absolute Timing,* p. 35

Claim to Hospitality

1 to 10 points

You belong to a social group that encourages its members to assist one another. When you are away from home, you may call on other members of this group for food, shelter, and basic aid.

The point cost depends on the extent and wealth of the group. A single friend with a house in another city is worth 1 point; a small family, 2 points; a society of merchants along an important trade route, 5 points; and a vast alliance of wealthy figures, such as "every merchant in the world," 10 points. In the appropriate situation, members of the group should be easy to find (14 or less after 1d-1 hours of searching), but the chance of meeting one at random is small (6 or less to meet one in a small crowd in an appropriate place).

Claim to Hospitality mainly saves the cost and trouble of finding lodging while "on the road" (although if you are wealthy, you might be expected to give gifts to your hosts), but there are side benefits. Members of the group are friendly to each other

(+3 reactions), and may provide advice, introductions, and *small* loans, if asked. The level of assistance might occasionally approach that of Contacts (p. 44). If you expect anything more, though, buy Allies (p. 36) or Patrons (p. 72).

This advantage cuts both ways. If you take it, you can be asked, when at home (at the GM's whim), to provide NPCs with exactly the same sort of hospitality you claim while away. This may become an adventure hook! If you refuse such aid, you will eventually get a bad name and lose this advantage.

Clairsentience

50 points

You can displace all of your *ranged* senses (for humans: sight, hearing, and smell) to a point outside your body. This "viewpoint" must be a specific location within 10 yards. You can modify this range with Increased Range (p. 106) or Reduced Range (p. 115). You can double your range temporarily by spending 2 FP per minute.

To initiate Clairsentience, pick the desired viewpoint (which *can* be inside something) and its facing, concentrate for one minute, and then make an IQ roll. If the viewpoint is out of sight, you must specify distance and direction, and the roll is at -5.

On a success, you can use your ranged senses as if you were physically present at the viewpoint (this means you cannot sense the environment around your body!). Your vision ignores darkness penalties completely. You cannot see *through* solid objects, but if your viewpoint were inside (for example) a closed chest, you would see what was inside despite the lack of light. If you are using or subjected to range-dependent abilities (e.g., spells), calculate all ranges from your *body*, not your *viewpoint*. You can maintain Clairsentience for as long as you like.

On failure by 1, your senses go to some other viewpoint of the GM's choosing. On any greater failure, nothing happens at all. *Critical* failure cripples your ability for 1d hours.

To return your displaced senses, move them elsewhere, or change their facing (usually only important for vision), you must concentrate for one second and make another IQ roll. However, a viewpoint inside a moving object (e.g., a car) will move with that object with no special concentration on your part. You can only have one viewpoint at a time – you cannot put hearing in one location, vision in another, etc.

Special Limitations

Clairaudience: Only your sense of hearing is displaced. -30%.

Clairosmia: Only your sense of smell is displaced. -60%.

Clairvoyance: Only your sense of sight is displaced. -10%.

ESP: Your ability is part of the ESP psi power (see p. 255). -10%.

Visible: Your senses have a visible manifestation – for instance, a floating face. -10%.

Claws

Variable

You have claws. This advantage modifies all your hands and feet; there is no discount for claws on only some of your limbs. There are several variations:

Blunt Claws: Very short claws, like those of a dog. Add +1 per die to the damage you inflict with a punch or kick; e.g., 2d-3 becomes 2d-1. *3 points.*

Hooves: Hard hooves, like those of a horse. Add +1 per die to the damage you inflict with a kick, and give your feet (only) +1 DR. *3 points.*

Sharp Claws: Short claws, like those of a cat. Change the damage you inflict with a punch or kick from crushing to cutting. *5 points.*

Talons: Longer claws – up to 12" long. Change the damage you inflict with a punch or kick from crushing to your choice of cutting or impaling (choose before you roll to hit). *8 points.*

Long Talons: Huge claws, like sword blades extending from your body! Treat these as Talons, but damage is +1 per die. *11 points.*

Clerical Investment

5 points

You are an ordained priest of a recognized religion. You enjoy a number of privileges that a layman lacks, notably the authority to preside over weddings, funerals, and similar ceremonies. This gives you a +1 reaction bonus from co-religionists and those who respect your faith, and entitles you to use a title – Father, Sister, Rabbi, etc.

Remember that not all clerics are "good"! Aka'Ar, high priest of the unholy Cult of Set, is also a vested priest. The blessings and marriages he performs are as meaningful to his followers as those of a vicar are to his parish. And – if Set so wills – Aka'Ar can perform exorcisms as potent as those of a Christian priest, if not more so. After all, Aka'Ar has a better working knowledge of demons . . .

Clerical Investment is purely social in nature. It does *not* confer miraculous powers. If you wish to wield divine power by proxy, take Blessed (p. 40), Power Investiture (p. 77), or True Faith (p. 94).

Clerical Investment *includes* Religious Rank 0 (see p. 30). If you want more influence within your church, buy up your Rank.

Clinging

20 points

You can walk or crawl on walls and ceilings. You can stop at any point and stick to the surface without fear of falling. Neither feat requires a roll against Climbing skill, provided the surface is one you can cling to. Move while clinging is half your Basic Move.

If you are falling and try to grab a vertical surface to break your fall, the GM must first decide whether there is anything in reach. If there is, make a DX roll to touch the surface, and then make a ST roll at -1 per 5 yards already fallen. If you succeed, you stop your fall. Otherwise, you continue to fall – but you may subtract 5 yards from the height of the fall thanks to the slowing effect of the failed Clinging attempt. Variations in gravity affect these distances; e.g., in 0.5G, the ST roll would be at -1 per *10* yards.

Special Limitations

Specific: You can only cling to a particular substance. Common materials, such as brick, metal, rock, or wood, are -40%; uncommon materials, such as adobe, ice, or rubber, are -60%; absurd materials, such as chocolate, are -80%.

Combat Reflexes

15 points

You have extraordinary reactions, and are rarely surprised for more than a moment. You get +1 to all active defense rolls (see *Defending,* p. 374), +1 to Fast-Draw skill, and +2 to Fright Checks (see *Fright Checks*, p. 360). You never "freeze" in a surprise situation, and get +6 on all IQ rolls to wake up, or to recover from surprise or mental "stun." Your *side* gets +1 on initiative rolls to avoid a surprise attack – +2 if you are the leader. For details, see *Surprise Attacks and Initiative* (p. 393).

Combat Reflexes is included in Enhanced Time Sense (p. 52). If you have ETS, you cannot also take Combat Reflexes.

Common Sense

10 points

Any time you start to do something the GM feels is *STUPID,* he will roll against your IQ. A successful roll means he must warn you: "Hadn't you better think about that?" This advantage lets an impulsive *player* take the part of a thoughtful character.

Compartmentalized Mind

50 points/level

Your mental coordination gives you, in effect, more than one mind. Each mind – or "compartment" – functions independently and at full capability. Your compartments are identical, but hypnotism, magic, psionics, and the like affect them *separately* (e.g., one compartment could be hypnotized without affecting any of the others).

This advantage does not allow your *body* to perform more than one task. A normal character may select one maneuver on his turn in combat. This may be physical or mental. Each level of Compartmentalized Mind adds one extra *mental* maneuver to this allotment. For instance, Compartmentalized Mind 1 would let you perform one mental maneuver and one physical maneuver (e.g., Concentrate on a spell *and* Attack) or two mental maneuvers (e.g., Concentrate on *two* spells), but never more than one physical maneuver – for that, see *Extra Attack* (p. 53).

If one compartment is under external influence, roll a Quick Contest of Will to see whether it gains control of the body. The compartment currently in control of the body rolls at +1. Battling compartments may attempt to use mental powers on each other. Treat them as *completely separate minds* for this purpose, each with your IQ, Will, and mental abilities (such as Mind Shield).

Two variations on this advantage are available for vehicles built as characters:

Controls: Each level buys one set of controls. Controls let an operator perform his *own* physical or mental maneuvers using *your* abilities (e.g., Innate Attack or Radar), as per the rules for vehicular combat (see p. 467). The operator directs *all* actions of an IQ 0 vehicle with this advantage. Physical limits still apply; for instance, a vehicle can make no more attacks than it has ready weapons. Resolve conflicts between operators by rolling a Quick Contest of vehicle operation skill. *25 points/level.*

Dedicated Controls: As Controls, but each set of controls handles a specific task; e.g., "tail gunner." The person manning them can't operate anything else. *10 points/level.*

Constriction Attack

15 points

Your musculature is optimized for crushing your opponents – whether by "hugging" like a bear or constricting like a python. To use this ability, you must first successfully grapple your intended victim, whose Size Modifier (p. 19) cannot exceed your own. On your next turn, and each successive turn, roll a Quick Contest: your ST vs. your victim's ST or HT, whichever is *higher.* If you win, your victim takes damage equal to your margin of victory; otherwise, he takes no damage.

Contact Group

Variable

You have a network of Contacts (see *Contacts,* below) placed throughout a particular organization or social stratum. You must specify a corporation, criminal syndicate, military unit, police department, or similar organization, *or* the underworld, merchants, upper class, etc. of *one particular town.* Broader Contact Groups are not allowed.

You may request information from a Contact Group exactly as you would an individual Contact, using the same rules for frequency of appearance, effective skill, and reliability. The difference is that a Contact Group's effective skill reflects ability at an entire *category* of skills – e.g., "business skills" if your Contact Group is a corporation, or "military skills" if your Contact Group is a military unit – as opposed to one specific skill. You must define this area of knowledge when you purchase the Contact Group, and it must be appropriate to the organization.

The GM rolls against the group's effective skill when you request any information that it could reasonably provide. However, this is an abstract success roll, not a roll against a specific skill. For instance, a police Contact Group could provide ballistics comparisons, criminal profiles, legal advice, police records, and introductions to criminals. It would not specifically use Forensics, Criminology, Law, Administration, or Streetwise skills for this, but the information provided might be appropriate to *any* of these "police skills."

To determine the point cost of a Contact Group, select its effective skill, frequency of appearance, and reliability level just as you would for a simple Contact, then multiply the resulting cost by 5.

Contacts

Variable

You have an associate who provides you with useful information, or who does *small* (pick any two of "quick," "nonhazardous," and "inexpensive") favors for you. The point value of a Contact is based on the skill he uses to assist you, the frequency with which he provides information or favors, and his reliability as a person.

Effective Skill of Contact

First, decide on the type of Contact you have. He might be anything from a wino in the right gutter to a head of state, depending on your background. What is important is that he has access to information, knows you, and is likely to react favorably. (Of course, offering cash or favors is never a bad idea; the GM will set the Contact's "price.")

Next, choose the useful skill your Contact provides. This skill *must* match the Contact's background; e.g., Finance for a banker or Forensics for a lab technician. Since the GM rolls against this skill when you request aid from your Contact, you should select a skill that can provide the results you expect. If you want ballistics comparisons, take a Contact with Forensics, not Finance!

After that, select an *effective* skill level. This reflects the Contact's connections, other skills, Status, etc. It need not be his *actual* skill level (the GM will set this, if it matters). For instance, the president of a local steel mill might have business-related skills of 12-14, but his effective skill might be 18 because of his position in the company. This skill level determines the Contact's base cost:

Effective Skill	*Base Cost*
12	1 point
15	2 points
18	3 points
21	4 points

Add 1 point to these costs for Contacts who can obtain information using supernatural talents (ESP, magical divination, etc.). This is common for spirits, wizards, etc.

Frequency of Appearance

Select a frequency of appearance, as explained under *Frequency of Appearance* (p. 36), and apply its multiplier to the base cost of the Contact. When you wish to reach your Contact, the GM rolls against his frequency of appearance. On a failure, the Contact is busy or cannot be located that day. On a 17 or 18, the Contact cannot be reached for the entire *adventure!* On a success, the GM will roll against the Contact's effective skill once per piece of information or minor favor you request.

No Contact may be reached more than once per day, even if several PCs share the same Contact. If you have several questions to ask, you should have them all in mind when you first reach your Contact. The Contact answers the first question at his full effective skill. Each subsequent question is at a cumulative -2. Don't overuse your Contacts!

A Contact can never supply information outside his area of knowledge. Use common sense. Likewise, the GM must not allow a Contact to give information that short-circuits an important part of the adventure.

You must explain how you normally get in touch with your Contact. Regardless of frequency of appearance, you cannot reach your Contact if those channels are closed.

Reliability

Contacts are not guaranteed to be truthful. Reliability multiplies the Contact's point cost as follows:

Completely Reliable: Even on a critical failure on his effective skill roll, the Contact's worst response will be "I don't know." On an ordinary failure, he can find information in 1d days. ×*3.*

Usually Reliable: On a critical failure, the Contact lies. On any other failure, he doesn't know now, ". . . but check back in (1d) days." Roll again at that time; a failure then means he can't find out at all. ×*2.*

Somewhat Reliable: On a failure, the Contact doesn't know and can't find out. On a critical failure, he lies – and on a natural 18, he lets the opposition or authorities (as appropriate) know who is asking questions. ×*1.*

Unreliable: Reduce effective skill by 2. On any failure, he lies; on a critical failure, he notifies the enemy. ×*1/2 (round up; minimum final cost is 1 point).*

Money Talks

Bribery, whether cash or favors, motivates a Contact and increases his reliability level. Once reliability reaches "usually reliable," further levels of increase go to effective skill; bribery cannot make anyone completely reliable!

A cash bribe should be about equivalent to one day's income for a +1 bonus, one week's income for +2, one month's for +3, and one year's

for +4. Favors should be of equivalent worth, and should always be something that you actually play out in the game.

The bribe must also be appropriate to the Contact. A diplomat would be insulted by a cash bribe, but might welcome an introduction into the right social circle. A criminal might ask for cash but settle for favors that could get you in trouble. A police detective or wealthy executive might simply want you to "owe him one" for later . . . which could set off a whole new adventure, somewhere down the road.

Contacts in Play

You may add new Contacts in play, provided you can come up with a good in-game justification. The GM might even turn an existing NPC into a Contact for one or more PCs – possibly in lieu of character points for the adventure in which the PCs developed the NPC as a Contact. For instance, the reward for an adventure in which the party helped solve a bank robbery might be a knowledgeable, reliable police Contact.

Examples of Contacts

The list of all possible Contacts – and their skills – would fill an entire book. Here are just a few examples:

Business. Business owners, executives, secretaries, and even the mailroom flunky can supply information on business dealings. They generally provide a business skill, such as Accounting, Administration, or Finance. A mail boy or typist might have effective skill 12; the president's secretary has skill 15; a senior executive or accountant has skill 18; and the CEO, president, or chairman of the board has skill 21.

Military. This could be anyone from an enlisted grunt to a general. Such Contacts might provide information on troop movements, details on secret weapons or tactics, or top-level strategy. This could take the form of Savoir-Faire (Military), Strategy, or Tactics skill – or perhaps a technical skill, such as Engineer. A Rank 0 soldier would have effective skill 12, a Rank 1-2 NCO would have skill 15, a Rank 3-5 officer would have skill 18, and a Rank 6 or higher officer would have skill 21.

Police. Anyone connected with law enforcement and criminal investigations: beat cops, corporate security, government agents, forensics specialists, coroners, etc. Typical skills are Criminology, Forensics, Intelligence Analysis, and Law. Beat cops and regular private security officers have effective skill 12; detectives, federal agents, and records clerks are skill 15; administrators (lieutenants, captains, Special Agents in Charge, etc.) are skill 18; and senior officers (sheriffs, chiefs of police, District Superintendents, Security Chiefs, etc.) are skill 21.

Street. Thugs, fences, gang members, mobsters, and the like can provide information on illicit activities, local criminal gossip, upcoming crimes, etc. Most provide Streetwise skill. "Unconnected" crooks (those who are not part of the local criminal organization) have effective skill 12; "connected" ones are skill 15; mob lieutenants and other powerful criminals are skill 18; and an actual crime lord (e.g., the Don, clan chief, or Master of the Thieves' Guild) has skill 21.

Courtesy Rank

see ***Rank,*** p. 29

Cultural Adaptability

10 or 20 points

You are familiar with a broad spectrum of cultures. When dealing with those cultures, you never suffer the -3 "cultural unfamiliarity" penalty given under *Culture* (p. 23). This is definitely a cinematic ability! Point cost depends on the scope of your familiarity:

Cultural Adaptability: You are familiar with all cultures of your race. *10 points.*

Xeno-Adaptability: You are familiar with all cultures in your game world, regardless of race. *20 points.*

Cultural Familiarity

see p. 23

Cybernetics

Variable

Treat most cybernetic implants as equivalent advantages: Infravision for a bionic eye, Damage Resistance for dermal armor, etc. Some implants may qualify for the Temporary Disadvantage limitation (p. 115); suitable temporary disadvantages include Electrical (p. 134) and Maintenance (p. 143). These apply *to the implant,* not to your overall capabilities.

Damage Resistance

5 points/level

Your body itself has a Damage Resistance score. Subtract this from the damage done by any physical or energy attack *after* the DR of artificial armor (you can normally wear armor over natural DR) but *before* multiplying the injury for damage type. By default, natural DR *does not* protect your eyes (or windows, if you are a vehicle) or help against purely mental attacks, such as telepathy.

Normal humans cannot purchase DR at all. Creatures with natural armor can buy DR 1 to 5. Thick skin or a pelt would be DR 1; pig hide, armadillo shell, a *heavy* pelt, or scales like those of a lizard would be DR 2; rhinoceros hide or a pangolin's armor plates would be DR 3; alligator scales or elephant hide would be DR 4; and a giant tortoise would have DR 5. Robots, supers, supernatural entities, etc. can purchase *any* amount of DR, subject to GM approval.

Many special modifiers are available to change the basic assumptions of this advantage.

Special Enhancements

Absorption: You can absorb damage and use it to enhance your abilities. Each point of DR stops one point of damage and turns it into one character point that you can use to improve traits (anything but skills) temporarily. You store these points in a "battery" with capacity equal to DR (e.g., DR 10 gives a 10-point battery). Once this battery is full, each point of DR will still stop one point of damage, but will not convert it into a character point. You do not have to use stored points immediately, but you cannot reallocate points once used. You lose absorbed points – unused ones first – at the rate of one

Limited Defenses

When you buy Damage Resistance – or *any* advantage that protects against damage (as opposed to non-damaging effects) – you may specify that it is only effective against certain damage types. This is a limitation that reduces the cost of the advantage. Attacks fall into four rarity classes for this purpose:

Very Common: An extremely broad category of damage that you are likely to encounter in almost any setting. *Examples:* ranged attacks, melee attacks, physical attacks (from any material substance), energy attacks (e.g., beam weapons, electricity, fire, heat and cold, and sound), or all damage with a specified advantage origin (chi, magic, psionics, etc.). -20%.

Common: A broad category of damage. *Examples:* a standard damage type (one of burning, corrosion, crushing, cutting, impaling, piercing, or toxic), a commonly encountered *class* of substances (e.g., metal, stone, water, wood, or flesh), a threat encountered in nature *and* produced by exotic powers or technology (e.g., acid, cold, electricity, or heat/fire), or a refinement of a "Very Common" category (e.g., magical energy). -40%.

Occasional: A fairly specific category of damage. *Examples:* a common substance (e.g., steel or lead), any one specific class of damage that is usually produced *only* by exotic abilities or technology (e.g., particle beams, lasers, disintegrators, or shaped charges), or a refinement of a "Common" category (e.g., magical electricity, piercing metal). -60%.

Rare: An extremely narrow category of damage. *Examples:* charged particle beams, dragon's fire, piercing lead, ultraviolet lasers, or an uncommon substance (e.g., silver or blessed weapons). -80%.

Unless specified otherwise, limited DR works only against *direct* effects. If you are levitated using magic and then dropped, the damage is from the fall; "DR vs. magic" would not protect. If a magic sword struck you, "DR vs. magic" would only protect against the magical component of its damage. Similarly, "DR vs. trolls" would not help against a boulder hurled by a troll – the damage is from a boulder, not a troll. Be sure to work out such details with the GM before setting the value of the limitation. If the GM feels that a quality would *never* directly influence damage, he need not allow it as a limitation!

point per second. You lose enhanced abilities as the points drain away. (*Exception:* If you are missing HP or FP, you can heal yourself. Restoring one HP drains 2 stored points *immediately*; restoring one FP drains 3 points. Such healing is permanent. Only HP or FP in excess of your usual scores drain away.) You cannot absorb damage from your own ST or attack abilities. +80% if absorbed points can only enhance one trait (determined when you create your character) *or* can only heal; +100% if you can raise *any* trait.

Force Field: Your DR takes the form of a field projected a short distance from your body. This protects your entire body – including your eyes – as well as anything you are carrying, and reduces the damage from attacks *before* armor DR. Effects that rely on touch (such as many magic spells) only affect you if carried by an attack that does enough damage to pierce your DR. +20%.

Hardened: Each level of Hardened reduces the armor divisor of an attack by one step. These steps are, in order: "ignores DR," 100, 10, 5, 3, 2, and 1 (no divisor). +20% per level.

Reflection: Your DR "bounces back" any damage it *stops* at your attacker. The remaining damage affects you normally. The attacker doesn't get an active defense against the first attack you reflect back at him, but gets his usual defenses against subsequent reflected attacks. Reflection only works vs. direct hits! It cannot reflect damage from explosions, fragments, poison gas, or anything else that affects an entire area. This enhancement is mutually exclusive with Absorption. +100%.

Special Limitations

Ablative: Your DR stops damage *once*. Each point of DR stops one point of basic damage but is destroyed in the process. Lost DR "heals" at the same rate as lost HP (including the effects of Regeneration, p. 80). Use this to represent supers who can absorb massive punishment but who lack the mass to justify a large HP score. -80%.

Can't Wear Armor: Your body is designed in such a way that you cannot or will not wear body armor or clothing. -40%.

Directional: Your DR only protects against attacks from one direction. -20% for the front (F); -40% for the back (B), right (R), left (L), top (T), or underside (U). Humanoids may only take this limitation for front and back.

Flexible: Your DR is not rigid. This leaves you vulnerable to blunt trauma (see p. 379). -20%.

Limited: Your DR applies only to certain attack forms or damage types. See *Limited Defenses* (box) for details.

Partial: Your DR only protects a specific hit location. This is worth -10% per -1 penalty to hit that body part (see p. 398). For instance, an animal with butting horns and a thick skull might have "Skull only," for -70%. "Torso only" is -10%, and also protects the vital organs. When you take this limitation for arms, legs, hands, or feet, the DR protects *all* limbs of that type. If it only protects one limb, the limitation value doubles (e.g., arms are -2 to hit, so a single arm would be -40%). If you have arms, legs, etc. with different penalties, use the least severe penalty to calculate limitation value.

Semi-Ablative: When an attack strikes semi-ablative DR, every 10 points of basic damage rolled removes one point of DR, regardless of whether the attack penetrates DR. Lost DR "heals" as for Ablative (and you cannot combine the two). -20%.

Tough Skin: By default, Damage Resistance is "hard": armor plate, chitin, etc. With this limitation, your DR is merely tough skin. Any effect that requires a scratch (e.g., poison) or skin contact (e.g., electrical shock or Pressure Points skill) affects you if the attack carrying it penetrates the DR of any armor you are wearing – even if it does exactly 0 damage! Your *natural* DR, being living tissue, provides no protection at all against such attacks. This limitation includes all the effects of the Flexible limitation (see above); you cannot take both. It is mutually incompatible with Force Field. -40%.

"Layered" Defenses

You may have multiple "layers" of DR with different combinations of modifiers. You must specify the order of the layers – from outermost to innermost – when you create your character. You may not change this order once set.

Danger Sense

15 points

You can't depend on it, but sometimes you get this prickly feeling right at the back of your neck, and you know something's wrong . . . If you have Danger Sense, the GM rolls once against your Perception, secretly, in any situation involving an ambush, impending disaster, or similar hazard. On a success, you get enough of a warning that you can take action. A roll of 3 or 4 means you get a little detail as to the nature of the danger.

Danger Sense is included in Precognition (p. 77); if you have the latter trait, you cannot also have Danger Sense.

Special Limitations

ESP: Your ability is part of the ESP psi power (see p. 255). -10%.

Daredevil

15 points

Fortune seems to smile on you when you take risks! Any time you take an unnecessary risk (in the GM's opinion), you get a +1 to all skill rolls. Furthermore, you may reroll any critical failure that occurs during such high-risk behavior.

Example: A gang of thugs opens fire on you with automatic weapons. If you crouch down behind a wall and return fire from cover, Daredevil gives no bonuses. If you vault over the wall and charge the gunmen, screaming, it provides all of its benefits!

Dark Vision

25 points

You can see in absolute darkness using some means other than light, radar, or sonar. You suffer no skill penalties for darkness, no matter what its origin. However, you cannot see colors in the dark.

Special Enhancements

Color Vision: You *can* see colors in the dark. +20%.

Destiny

Variable

Your fate is preordained. This is considered an advantage if you are destined for great things – although this might not always be clear, and might even be inconvenient at times. For a *disadvantageous* Destiny, see p. 131.

When you choose this advantage, you may only specify its point value. The GM will secretly determine the nature of your Destiny, according to its point value and the dictates of the campaign. You might discover some clues about your Destiny via magical divination or similar techniques, but you are highly unlikely to learn its full extent until it is fulfilled. Note also that a Destiny may *change* as the campaign develops.

Be aware that this advantage gives the GM absolute license to meddle with your life – the GM *must* make the Destiny work out! Working out a good Destiny and making sure it comes to pass require considerable ingenuity on the part of the GM. The GM may wish to forbid this advantage if he feels it would send the campaign off the rails.

The point value of the Destiny determines its impact:

Great Advantage: You are fated to achieve greatness within your lifetime. In the end, everyone will know and praise your name! Sooner or later, something will happen to bring this Destiny to fruition. Note that this does not guarantee "success." If you choose to jump in front of an assassin's knife during your first game session, the GM might just decide the Destiny is fulfilled . . . you died a hero! *15 points.*

Major Advantage: As above, but to a lesser extent. Alternatively, you might be doomed to die in a particular place or in a particular fashion: at sea, by the hand of an emperor, underground, or whatever. You can be grievously wounded – even maimed – under other circumstances, but you *will not die.* If you avoid the circumstances that would fulfill your Destiny, knowingly or otherwise, you might find that Fate has a few surprises. The sea might flood your home while you sleep, the general against whom you march might be the future emperor, or Mt. Vesuvius might bury you under tons of ash. *10 points.*

Minor Advantage: You are fated to play a small part in a larger story, but this part will reflect to your credit. In game terms, you are guaranteed one significant victory. *5 points.*

If you fulfill your Destiny and survive, it's over – but you might feel its repercussions for years to come. In general, the GM should let you put the character points spent on an advantageous Destiny toward a positive Reputation. A Destiny that goes unnoticed once fulfilled is not much of a Destiny!

Detect

Variable

You can detect a specific substance or condition, even when it is shielded from the five human senses. This requires one second of concentration, after which the GM will secretly make a Sense roll for you (see *Sense Rolls,* p. 358). The range modifiers from the *Size and Speed/Range Table* (p. 550) apply. You may buy a special Acute Sense (p. 35) to improve the roll, thereby increasing your effective range.

On a success, the GM tells you the direction to the nearest significant source of the substance, and give you a clue as to the quantity present. On a failure, you sense nothing.

Detect also includes the ability to *analyze* what you detect. This requires an IQ roll; the better the roll, the more precise the details. For instance, if you had Detect (Metal), you could tell gold from iron on a successful IQ roll, and might learn details – such as whether the gold is in the form of ore or bars, and its precise purity – on a critical success.

The base cost of Detect is as follows:

Rare (sorceresses, fire magic, zombies, gold, radar, radio): *5 points.*

Occasional (spellcasters, magic, undead, precious metal, electric fields, magnetic fields, radar *and* radio): *10 points.*

Common (humans, supernatural phenomena, supernatural beings, metal, electric *and* magnetic fields): *20 points.*

Very Common (all life, all supernatural phenomena *and* beings, all minerals, all energy): *30 points.*

Note that the ability to detect certain phenomena can often justify other advantages. For instance, Detect (Magnetic Fields) could explain Absolute Direction.

Special Enhancements

Precise: On a successful Sense roll, you also learn the distance to whatever you detect. +100%.

Signal Detection: You can detect an active transmission of some sort, such as a radio, radar, or laser; see *Scanning Sense* (p. 81) and *Telecommunication* (p. 91). You suffer no range penalties, but must be within twice the signal's own range and (if the signal is directional) within in its path. +0%.

Special Limitations

Vague: You can only detect the presence or absence of the target substance. Direction and quantity are revealed only on a critical success, and you cannot analyze what you detect. This limitation is mutually exclusive with Precise. -50%.

Digital Mind

5 points

You are a sentient computer program – possibly an artificial intelligence or an "upload" of a living mind. By default, you inhabit a body that includes a computer with Complexity equal to at least half your IQ; see *Computers* (p. 472).

You are *completely immune* to any power defined as "Telepathic," and to magic spells that specifically affect living minds. However, computer viruses and abilities that affect Digital Minds can affect you; you can be taken offline (or even stored, unconscious, as data); and those with Computer Hacking or Computer Programming skill can gain access to your data . . . and possibly read or alter your consciousness!

You are likely to have the Machine meta-trait (p. 263), but this is not mandatory, as you could be a computer-like mind inside an organic body (e.g., a bio-computer or a brain implant). The Reprogrammable disadvantage (p. 150) is also common for Digital Minds, as is the Automaton meta-trait (p. 263), but you do not

have to possess either trait. Many *advantages* are also possible but not automatic:

Computing Power: If you operate faster than a human mind, buy Enhanced Time Sense (p. 52). If you can add advantages or skills temporarily by running programs, buy Modular Abilities (p. 71).

Copies: If you can run multiple copies of your mind on a single computer system, buy Compartmentalized Mind (p. 43). If you can create loyal copies that run on *other* systems, buy Duplication (p. 50) with the Digital limitation. If you have copies backed up offline, buy Extra Life (p. 55).

Uploading: If you can actively "upload" yourself into other computers, buy Possession (p. 75) with the Digital limitation. If you can do this *easily,* buy extra bodies as Puppets (p. 78).

Discriminatory Hearing

15 points

You have a superhuman ability to distinguish between sounds. You can *always* identify people by voice, and can recognize individual machines by their "sound signature." You may memorize a sound by listening to it for at least one minute and making a successful IQ roll. On a failure, you must wait at least one full day before making a repeated attempt.

You get +4 (in addition to any Acute Hearing bonuses) on any task that utilizes hearing, and receive +4 to Shadowing skill when following a noisy target.

To simulate the passive sonar used by submarines, add a -30% Accessibility limitation, "Only underwater."

Discriminatory Smell

15 points

Your sense of smell is far beyond the human norm, and can register distinctive odors for practically everything you may encounter. This allows you to recognize people, places, and things by scent. You may memorize a scent by sniffing it for at least one minute and making a successful IQ roll. On a failure, you must wait at least one full day before making a repeated attempt.

You get +4 (in addition to any Acute Taste and Smell bonuses) on any task that utilizes the sense of smell, and receive +4 to Tracking skill.

Destiny is considered an advantage if you are destined for great things – although this might not always be clear, and might even be inconvenient at times.

If you actually become ill when exposed to the odor of a particular substance, take the Temporary Disadvantage limitation (p. 115). The most common effect is Revulsion (p. 151), but the GM may choose to allow other temporary disadvantages.

Special Enhancements

Emotion Sense: You can detect a person or animal's emotional state by odor. This functions as the Empathy advantage (p. 51), but you must be within 2 yards of the subject. +50%.

Discriminatory Taste

10 points

This talent functions in most ways like Discriminatory Smell (above), but enhances the sense of taste instead, so tracking is not possible. You must ingest a small quantity of the material to be examined; for a living subject, this means bodily fluids. This gives you an IQ roll to recognize the taste, identify whether a substance is safe to eat, etc. You can perform a detailed "analysis" with a roll against a suitable skill (Chemistry, Cooking, Pharmacy, Poisons . . .). You get +4 (in addition to any Acute Taste and Smell bonuses) on any task that utilizes the sense of taste.

Doesn't Breathe

20 points

You do not breathe or require oxygen. Choking and strangulation attempts cannot harm (or silence!) you, and you are immune to inhaled toxins. You are still affected by contact poisons, pressure, and vacuum; take Sealed (p. 82), Pressure Support (p. 77), and Vacuum Support (p. 96), respectively, to resist those threats.

Special Limitations

Gills: You can extract oxygen from water, allowing you to remain submerged indefinitely. You suffocate if the water contains no dissolved oxygen. You are immune to strangulation and "the bends." If you can *only* survive underwater, and suffocate in air as quickly as a normal human would drown underwater, Doesn't Breathe (Gills) is a 0-point feature; otherwise, -50%.

Oxygen Absorption: As Gills, but you can absorb oxygen through the surface of your body whether it is in the air, a liquid, or another medium. Your body does not absorb poisonous gases, but you will suffocate if there is *no* oxygen available. You can use breathing equipment in space (your lungs are capable of working normally). You may not have the Sealed advantage. -25%.

Oxygen Combustion: As Oxygen Absorption, but you *cannot* breathe underwater or anywhere else fire cannot burn. -50%.

Oxygen Storage: You need to breathe, but you can go for extended periods of time without doing so; perhaps you store oxygen (like a whale) or have superior blood oxygenation. This differs from Breath-Holding in that you are completely immune to "the bends" *while your oxygen supply holds out.* If you can effectively "hold your breath" for 25 times as long as usual, this is -50%; 50 times, -40%; 100 times, -30%; 200 times, -20%; 300 times, -10%.

Doesn't Eat or Drink

10 points

You do not require food, water, or fuel. Your body is powered in some other manner: solar power, ambient magical energy, etc. A sufficiently rare energy source might qualify you for Dependency (p. 130).

Doesn't Sleep

20 points

You do not have to sleep at all. You can ignore all ill effects from missed nights of rest.

Dominance

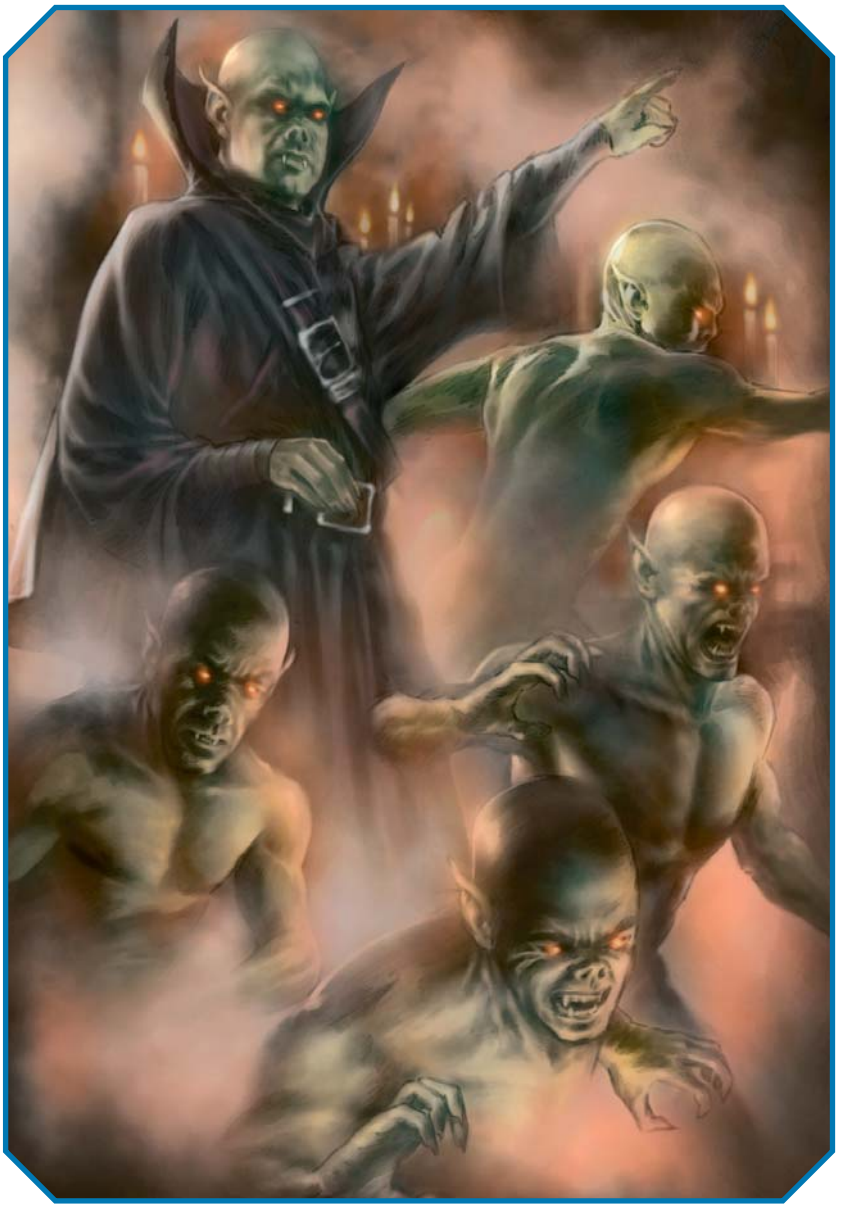
20 points

You can "infect" others with a supernatural condition – vampirism, lycanthropy, etc. – and exert absolute control over them. This trait is only appropriate for supernatural beings that spread their "curse" through infection, and only affects members of susceptible races (typically your original race and very similar races). The GM is the judge of which curses are spread this way and who is susceptible.

When you buy Dominance, you must specify *one* natural attack – Claws, Innate Attack, Vampiric Bite, etc. – that delivers the infection. Anyone you damage this way must roll 3d vs. the HP of injury he received (maximum one roll per day). If he rolls under the damage amount, he becomes infected, and will change into the same kind of creature as you in 2d days, or at the GM's discretion, without suitable supernatural intervention. The GM is free to impose additional conditions for infection; for instance, the victim might have to suffer three attacks, or share your blood, or even *die* before making the roll above.

Once the transition is complete, the victim acquires your supernatural racial template (Vampire, Werewolf, etc.) *plus* Slave Mentality (p. 154). He becomes your subordinate. If he goes on to infect others, *his* victims will acquire the same traits and serve you as well.

Dominance itself costs 20 points, but to control a new victim, you must have sufficient unspent points to buy him as an Ally (p. 36) with the enhancements "Minion" (due to his Slave Mentality) and "Special Abilities" (because he can create new servitors for you). You can choose any frequency of appearance, and may improve this later on with earned points. If you lack the points to buy you victim as an Ally – even at a frequency of "6 or less" – he will still be infected but he will not become your slave.



Dominance persists until you die (*truly* die, for undead), *or* your slave grows in power and you cannot (or choose not to) spend the points to keep him as an Ally, *or* the GM rules the curse is broken via supernatural means. If any of these things occur, your victim will lose Slave Mentality and become free-willed. You may use the points spent on your former Ally to dominate new victims.

See *Infectious Attack* (p. 140) for the disadvantageous form of Dominance.

Double-Jointed

see *Flexibility*, p. 56

Duplication

35 points/copy

You can split into two or more bodies ("Dupes"), each possessing your full knowledge and powers (but not copies of your equipment, unless you buy a special enhancement). It takes one second and a Concentrate maneuver to separate or merge. When your Dupes

merge, your FP and HP are the *average* of all your copies' FP and HP at that time. Your combined self remembers everything experienced by any Dupe.

Dupes have no special ability to coordinate with one another. For that, buy Telesend (see *Telecommunication,* p. 91). If your Telesend works only with your Dupes, you may take the Racial limitation. You may combine Telesend with a Mindlink (p. 70) with your Dupes, in which case you are in constant telepathic contact – no die rolls required.

If one of your Dupes dies, all the others immediately take 2d damage and are stunned. This is mental stun if you define Duplication as a mental trait, physical stun if you define it as a physical trait. The IQ or HT roll to recover is at -6. You also lose the points you spent for that Dupe. The GM may allow you to buy back a dead Dupe with unspent points. Alternatively, an Extra Life (p. 55) will let you bring back *any one* dead Dupe. Your point value drops by the price of the Extra Life, but this is cheaper than buying back a Dupe.

Special Enhancements

Duplicated Gear: Your Dupes appear with copies of Signature Gear (p. 85) that you are *carrying* or *wearing.* Duplicated equipment vanishes when you merge, even if it becomes separated from you. Treat your equipment's HP, ammunition, energy supply, etc. just like your own HP and FP when you merge. +100%.

No Sympathetic Injury: If one of your Dupes is killed, the others are not stunned or hurt. +20%.

Special Limitations

Digital: Your Dupes are software copies of your *mind,* not physical copies of your body. They can possess other computers or occupy spare Puppets (p. 78). You may only take this limitation if you have both Digital Mind (p. 48) and Possession (Digital) (p. 75). -60%.

Shared Resources: Your Dupes do not share your full FP and HP; instead, you must distribute your FP and HP among them. For instance, if you had 15 HP and one Dupe, you could split your HP 7 and 8, 2 and 13, or in any other combination that totaled 15. You need not distribute FP and HP proportionally; with 15 HP and 15 FP, you could give one copy 3 FP and 9 HP and the other 12 FP and 6 HP. When your bodies re-combine, *add* their FP and HP instead of averaging. -40%.

Eidetic Memory

5 or 10 points

You have an exceptionally good memory. Anyone may attempt an IQ roll to recall the general sense of past events – the better the roll, the truer the memory, but the details are sketchy. With this talent, you automatically succeed at these "memory rolls," and you often recall *precise* details. This trait comes in two levels:

Eidetic Memory: You automatically remember the general sense of everything you concentrate on, and can recall specific details by making an IQ roll. It is possible to "learn" this advantage in play (bards and skalds often acquire it to recall poems and songs). *5 points.*

Photographic Memory: As above, but you automatically recall specific details, too. Any time you, the *player* forget a detail your *character* has seen or heard, the GM or other players must remind you – truthfully! *10 points.*

This trait affects recall, not comprehension, and so does not benefit skills. However, it gives a bonus whenever the GM requires an IQ roll for learning: +5 for Eidetic Memory, +10 for Photographic Memory.

Elastic Skin

20 points

You can alter your skin and facial features (but *not* clothing or makeup) to duplicate those of another member of your race or a very similar race. This takes 10 seconds, and requires a Disguise roll if you try to duplicate a particular individual. It takes three seconds to return to your original form. This ability gives +4 to all Disguise rolls.

Empathy

5 or 15 points

You have a "feeling" for people. When you first meet someone – or are reunited after an absence – you may ask the GM to roll against your IQ. He will tell you what you "feel" about that person. On a failed IQ roll, he will *lie!*

This talent is excellent for spotting impostors, possession, etc., and for determining the true loyalties of NPCs. You can also use it to determine whether someone is lying . . . not what the truth is, but just whether they are being truthful with you.

This advantage comes in two levels:

Sensitive: Your ability is not entirely reliable; the IQ roll is at -3. You get +1 to your Detect Lies and Fortune-Telling skills, and to Psychology rolls to analyze a subject you can converse with. *5 points.*

Empathy: Your ability works at full IQ, and the bonus to Detect Lies, Fortune-Telling, and Psychology is +3. *15 points.*

This advantage works only on sapient (IQ 6+), *natural* beings. The equivalent talents for animals, plants, and supernatural entities are Animal Empathy (p. 40), Plant Empathy (p. 75), and Spirit Empathy (p. 88), respectively.

Enhanced Defenses

Variable

You are unusually adept at evading attacks! This may be due to careful observation of your foe, focusing *chi,* or anything else that fits your background. There are three versions:

Enhanced Block: You have +1 to your Block score with either Cloak or Shield skill. You must specialize in one particular Block defense. *5 points.*

Enhanced Dodge: You have +1 to your Dodge score. *15 points.*

Enhanced Parry: You have +1 to your Parry score. You may take this advantage for bare hands (5 points), for any one Melee Weapon skill (5 points), or for *all* parries (10 points). *5 or 10 points.*

This talent is definitely cinematic! The GM might require Trained By A Master (p. 93) or Weapon Master (p. 99) as a prerequisite. He may choose to allow warriors to buy this trait with earned points. He might even permit multiple levels of each Enhanced Defense, in which case the point cost is per +1 bonus. Note that bonuses larger than +3 are almost certainly unbalanced, even in "over-the-top" games!

Enhanced Move

20 points/level

You can really move! Each level of Enhanced Move *doubles* your top speed in *one* environment: Air, Ground, Space, or Water. You may also take a half-level of Enhanced Move, either alone or with any whole number of levels; this costs 10 points and multiplies Move by 1.5.

Example 1: A super buys Enhanced Move 4 (Ground), for 80 points. He multiplies his Move by 2 × 2 × 2 × 2 = 16. If his Basic Move were 8, he could run at 128 yards/second (262 mph).

Example 2: An avian race has Enhanced Move 2.5 (Air), for 50 points. All members of the race multiply their top airspeed by 2 × 2 × 1.5 = 6.

Your multiplied Move is your *top speed*. Record it in parentheses after your Enhanced Move trait; for instance, the super in the example above would write "Enhanced Move 4 (Ground Speed 128)." You can always choose to accept a slightly lower top speed if you want your speed to match that of a real-world or fictional creature or vehicle with a known top speed. This does not give you back any points.

Enhanced Move does *not* affect Basic Speed, Basic Move, or Dodge. Its benefits apply only when moving along a relatively straight, smooth course (see *Sprinting*, p. 354). It does have some defensive value, however: those who attack you with ranged attacks must take your speed into account when calculating speed/range modifiers (see p. 550).

Most forms of Enhanced Move have prerequisites. Enhanced Move (Water) requires Amphibious (p. 40) or Aquatic (p. 145). Enhanced Move (Air) requires Flight (p. 56). Enhanced Move (Space) requires Flight with the Space Flight or Newtonian Space Flight enhancement, and affects movement in space – not airspeed. To move faster in air *and* in space, buy both Enhanced Move (Air) and Enhanced Move (Space).

Special Enhancements

Handling Bonus: You get a bonus to DX or vehicle operation skill (e.g., Driving) for the sole purpose of maintaining control at speeds above your Basic Move. +5% per +1, to a maximum of +5.

Special Limitations

Handling Penalty: You have a penalty to DX or vehicle operation skill at high speeds. -5% per -1, to a maximum of -5.

Newtonian: This is a limitation for Enhanced Move (Space). Your space "top speed" is actually your "delta-v": the *total* velocity change you can manage before running out of reaction mass. Once you have made velocity changes equal to your top speed, you must refuel before you can change velocity again. -50%.

Road-Bound: This is a limitation for Enhanced Move (Ground). Your Enhanced Move is effective only on a smooth, flat surface, such as a road or building floor. This is often taken in conjunction with the Wheeled disadvantage (p. 145). -50%.

Extra Attack: The "default" assumption in ***GURPS*** *is that you can make one attack per turn, no matter how many limbs you have.*

Enhanced Time Sense

45 points

You can receive and process information dramatically faster than the human norm. This improves your *mental* speed – notably your reaction time – but not how fast you physically move once you react. This has several game benefits.

First, Enhanced Time Sense (ETS) includes Combat Reflexes (p. 43), and provides all the benefits of that advantage. You cannot buy Combat Reflexes if you have ETS; the two advantages are not cumulative.

In combat, you automatically act before those without ETS, *regardless* of Basic Speed. If more than one combatant has ETS, they act in order of Basic Speed, and they *all* get to act before those who lack ETS.

You can perceive things that happen too fast for most people to discern. For example, you cannot be fooled by a projected image, because you can see the individual frames of the film. If secret information is being sent as a high-speed "burst," you can detect it if you're monitoring the transmission (you cannot necessarily *decipher* it, but you know it's there). At the GM's discretion, you get a Sense roll to spot objects moving so fast that they are effectively invisible; for instance, bullets in flight. ETS is extremely valuable if you possess magical or psionic defenses that work at the speed of thought.

If you have ETS, your rapid thought processes always allow you to ponder a problem thoroughly and respond in the manner you think best. You never suffer skill penalties for being mentally "rushed" – although you still need the usual amount of time to complete a physical task, and suffer the usual penalties for hasty work. The GM can almost *never* tell you to make up your mind *right now.* (But don't abuse this privilege by taking half an hour to decide what to do in each turn in combat!)

The exception is when something happens so fast that most people can't perceive it at all. In that case, the GM is justified in asking you for an immediate response, since those without ETS get *no* response.

ETS does not "slow down" the world from your viewpoint. You can still enjoy a movie by simply ignoring the frames, much as a literate person can choose whether or not to notice the individual letters in the words he's reading. ETS also does not let you violate the laws of physics. Some things (e.g., laser beams) simply travel too fast for you to react.

Enhanced Tracking

5 points/level

You can "track" more than one target – whether with a built-in sensor array or eyes that can swivel independently, like those of a chameleon. An Aim (p. 364) or Evaluate (p. 364) maneuver normally applies to a single target. Each level of Enhanced Tracking allows your maneuver to apply to one additional target. You can only track targets that you can detect, and you cannot Aim at more targets than you have ready weapons to Aim with.

Extended Lifespan

2 points/level

An average life cycle is defined as maturity at age 18, with aging effects (see p. 444) starting at age 50 and accelerating at ages 70 and 90. Each level of Extended Lifespan *doubles* all these values. Note that if you need to take more than seven levels of this trait (giving maturity at age 2,304 and the onset of aging at age 6,400), it is more efficient to take Unaging (p. 95).

Extra Arms

Variable

In ***GURPS,*** a limb with which you can manipulate objects is an *arm,* regardless of where it grows or what it looks like. A normal arm can strike a blow that inflicts thrust-1 crushing damage based on ST. The human norm is two arms for 0 points. Extra arms have a base cost of 10 points apiece.

Coordination

You can use extra arms freely for multiple *noncombat* tasks. For instance, with three arms, you could perform a one-handed task (e.g., use a computer mouse) and a two-handed task (e.g., type) simultaneously. You need Enhanced Tracking (p. 53) to perform tasks that require attention to events in more than one place at a time, however.

You can also use all of your arms in concert for a *single* combat maneuver where extra arms would be helpful; e.g., grappling in close combat. And if you have at least three arms, you can use a shield normally with one arm and still wield a two-handed weapon, just as a normal human fighter can use a shield and one-handed weapon at the same time.

No matter how many arms you have, though, you do not get additional attacks (or other extra maneuvers) in combat unless you buy Extra Attacks (see below).

Close Combat With Extra Arms

Extra arms give a huge advantage in close combat. You cannot punch with more than one arm at a time unless you have Extra Attack, but you may *grapple* with all of your arms at once. Each extra arm of regular length or longer, over and above the generic set of two, gives +2 to any attempt to grapple or break free from a grapple. Having more arms than your opponent also gives +3 on any attempt to pin or resist a pin.

Special Enhancements

Extra-Flexible: Limbs with this enhancement are more flexible than human arms, like tentacles or an elephant's trunk. These limbs can always reach and work with other limbs, regardless of body positioning, general layout, or "right" and "left." +50%.

Long: Your arm is longer *in proportion to your body* than a human arm relative to the human body. This increases your effective SM for the purpose of calculating reach with that arm (see *Size Modifier and Reach,* p. 402). This *does* affect the reach of melee weapons wielded in that hand. Each +1 to SM also adds +1 per die to swinging damage. +100% per +1 to SM.

Special Limitations

Foot Manipulators: Your "arm" is really an unusually dextrous leg. You cannot walk while you are manipulating objects with it (although you can sit, float, or fly). This is a Temporary Disadvantage limitation, the disadvantage being Legless (p. 141). This kind of arm is usually – but not always – Short (see below). -30%.

No Physical Attack: The limb can manipulate but cannot punch or wield melee weapons, and gives no bonus in close combat. It can still wield a firearm or similar ranged weapon. -50%.

Short: The arm has reach "C" (close combat only), and lacks the leverage to use any weapon that must be swung. Subtract one yard from the reach of any melee weapon wielded by that limb. If *all* of your arms are short, you are at -2 on any attempt to grapple. -50%.

Weak: The arm has less than your full body ST for lifting, striking, and grappling. -25% if the arm has half your body ST, or -50% if it has 1/4 your body ST (round down in both cases).

Weapon Mount: Instead of an arm, you have a "hardpoint" where you can mount a weapon. This may be biological, mechanical, or a hybrid of the two, depending on whether you are a living being, a machine, or a cyborg. You cannot use this mount for any purpose other than bearing a weapon. This limitation is incompatible with Feet Manipulator, No Physical Attack, Short, and Weak. -80%.

Modifying Beings With One or Two Arms

Beings with one or two arms *can* use the special modifiers above. Point cost is equal to 1/10 the percentile modifier per affected arm. Thus, enhancements become advantages and limitations become disadvantages. For instance, Short is -50%, so it is worth -5 points per arm. Someone with two short arms would have a -10-point disadvantage.

Those with one arm can only apply these modifiers once, but also get the -20 points for One Arm (p. 147). For instance, an elephant's trunk would be Extra-Flexible (+50%), Long (+100%), and Weak (-50%). These modifiers total +100%, for a 10-point advantage. The -20 points for One Arm would make the net cost -10 points.

Extra Attack

25 points/attack

You can attack more than once per turn. The "default" assumption in ***GURPS*** is that you can make *one* attack per turn, no matter how many limbs you have. Each Extra Attack allows one additional attack per turn. You may not have more attacks than you have limbs (arms, legs, etc.), natural weapons (Strikers, Teeth, etc.), and attack powers (Afflictions, Bindings, and Innate Attacks) with which to attack. The GM's word on what constitutes an "attack" is final.

A normal human can purchase *one* Extra Attack. This lets him attack with

both hands at once, and represents unusually good coordination. Supers and nonhumans have no such limitation. A super-powered cop could buy two Extra Attacks, enabling him to shoot rays from his eyes, fire his pistol, and swing his nightstick all at once. A dragon might take four Extra Attacks and attack *five* times with any combination of his four clawed limbs, teeth, horns, tail, and fiery breath!

Extra Attack is exactly that: an extra Attack maneuver on your turn in combat. It does not eliminate the -4 penalty for an "off" hand (see *Ambidexterity,* p. 39) or let you take multiple Aim maneuvers (see *Enhanced Tracking,* p. 53). You may use some of your attacks for Feint maneuvers, but you many not take multiple actions of other kinds – that requires Altered Time Rate (p. 38).

Extra Attacks and All-Out Attack

When an individual with Extra Attacks makes an All-Out Attack, he must select *one* type of bonus for *all* his attacks that turn. He could not, for instance, take All-Out Attack (Determined) with one attack and All-Out Attack (Strong) with another. If he chooses All-Out Attack (Double) to increase his number of attacks, he gets *one* additional attack.

Extra Attacks and Rapid Strike

You may use *one* of your melee attacks to make a Rapid Strike (see p. 370) on your turn, at the usual penalty. Your remaining attacks are in addition to this Rapid Strike, and receive no penalty. You may not use Rapid Strike with two or more attacks in one turn.

Extra Head

15 points/head

You have more than one head, each with fully functional ears, eyes, mouth, etc. Each Extra Head gives you one Extra Mouth (p. 55) and one level of Enhanced Tracking (p. 53) at no extra charge. Each head also contains an extra brain with a complete copy of your memories, personality, and skills. These extra brains are "backups," however, and do *not* grant additional mental actions – for that, take Compartmentalized Mind (p. 43).

You cannot suffer more than 2 × (your HP/number of heads) points of injury from any single attack to your head or neck. Any head blow that causes unconsciousness only knocks out that one head; the others continue to function! A critical head blow that would normally kill you simply destroys that head, inflicting the maximum injury noted above and crushing, severing, or exploding the head (GM's option).

Special Limitations

Extraneous: Your Extra Head grants Extra Mouth and Enhanced Tracking, but does not contain a backup brain. A single blow to an Extraneous head can do no more than HP/(1.5 × number of heads) points of injury, but blows to your *real* head can cause stun, knockout, or death even if your other heads are unharmed. -20%.

Extra Legs

Variable

If you can walk on a limb but cannot use it to manipulate objects, it is a leg in ***GURPS*** (for legs that double as arms, see *Extra Arms,* p. 53). A normal leg can kick for thrust/crushing damage at your usual reach (1 yard for a human). The human norm is two legs, which costs 0 points. It costs points to have more than two legs:

Three or four legs: If you lose a leg, you can continue to move at half

Move (round down). Loss of a second leg causes you to fall. *5 points.*

Five or six legs: Each leg lost reduces Move by 20% until only three legs are left. At that point, your Move is 40% normal. Loss of another leg causes you to fall. *10 points.*

Seven or more legs: Each leg lost reduces Move by 10% until only three legs are left. At that point, your Move is 40% normal. Loss of another leg causes you to fall. *15 points.*

You can apply the following modifiers to *all* your legs:

Special Enhancements

Long: Your legs are longer *in proportion to your body* than human legs relative to the human body. This increases your effective SM for the purpose of calculating reach when kicking (see *Size Modifier and Reach,* p. 402) and when clambering over obstacles. +100% per +1 to SM.

Special Limitations

Cannot Kick: You cannot use your legs to kick for damage. -50%.

Modifying Beings With Two Legs

The modifiers above *can* be applied to creatures with only two legs. Point cost is equal to 1/10 the percentile modifier. For instance, a human with Cannot Kick (-50%) would have a -5-point disadvantage.

Extra Life

25 points/life

You can come back from the dead! No matter how sure your foes were that they killed you, you didn't *really* die. Work out the details with the GM. Every time you come back from the dead, you use up one Extra Life – remove it from your character sheet and reduce your point total by 25 points. The GM may wish to let players spend earned points to buy Extra Lives in play.

Special Limitations

Copy: When you die, you revert to a "backup copy." To create this copy takes minutes or hours, possibly at a special facility. Details are up to the GM. Make a copy of your character sheet whenever you update your backup. If you die, you revert to those statistics, losing any traits or character points acquired since then. Note that a copy exists *before* you die. You must tell the GM where you store it. You will return to life at that location . . . and if your enemies discover where you store your copy, they may tamper with it! -20%.

Requires Body: You come back in disembodied state – for instance, as a spirit or a digital copy on a computer. All your experiences and abilities are intact (unless you took Copy), but you cannot interact with the physical world *at all* until you acquire a new body. This might be a clone, an undead corpse, or even a robot "shell." -20%, or -40% if the required body is illegal, rare, or expensive (GM's decision).

Extra Mouth

5 points/mouth

You have more than one functional mouth, which can be anywhere on your body. All of your mouths are capable of breathing, eating, and speaking. An Extra Mouth lets you bite more than once if you have Extra Attacks (p. 53). If you have Compartmentalized Mind (p. 43), you can carry on multiple conversations, or cast two spells that require spoken words. Other benefits include being hard to silence or suffocate, and being able to sing in harmony with yourself!

Fashion Sense

see p. 21

Favor

Variable

You saved someone's life, kept silent at the right time, or otherwise did someone a good turn. Now he owes you one.

A Favor is a one-shot Ally, Contact, Contact Group, or Patron. Work out the point cost of the parent advantage, and then divide it by 5 (round up) to get the cost of the Favor. The catch is that the NPC(s) in question will help you out once . . . and *only* once.

When you wish to "collect" on your Favor, the GM rolls against the frequency of appearance of the underlying advantage. On a failure, you couldn't reach your "friend" in time, or he couldn't comply, but you still have your Favor coming. You may try again on a later adventure.

On a success, you get what you want (subject to the limits of the advantage). But this discharges the obligation: remove the Favor from your character sheet and reduce your point total appropriately. However, if the roll is a 3 or 4, your "friend" still feels indebted to you, and you retain the Favor . . . at least until next time.

You may buy a Favor in play, just like any trait of this kind. The GM may also wish to include a Favor as part of the reward for a successful adventure.

Fearlessness

2 points/level

You are difficult to frighten or intimidate! Add your level of Fearlessness to your Will whenever you make a Fright Check or must resist the Intimidation skill (p. 202) or a supernatural power that induces fear. You also subtract your Fearlessness level from all Intimidation rolls made against you.

Filter Lungs

5 points

Your respiratory system can filter out ordinary contaminants; e.g., dust, pollen, smoke, and even tear gas (but not nerve gas or other contact agents). You suffer no ill effects from such things. This is especially useful in polluted cities and on alien worlds. Note that if you have Doesn't Breathe (p. 49), you do not need this advantage!

Fit

5 or 15 points

You have better cardiovascular health than your HT alone would indicate. This comes in two levels:

Fit: You get +1 to all HT rolls (to stay conscious, avoid death, resist disease or poison, etc.). This does *not* improve your HT attribute or HT-based skills! You also recover FP at twice the normal rate. *5 points.*

Very Fit: As above, but the bonus to HT rolls is +2. In addition, you *lose* FP at only half the normal rate. *15 points.*

In both cases, this advantage applies only to FP lost to exertion, heat, etc. It has no effect on FP spent to power psi or magic spells.

Flexibility

5 or 15 points

Your body is unusually flexible. This advantage comes in two levels:

Flexibility: You get +3 on Climbing rolls; on Escape rolls to get free of ropes, handcuffs, and similar restraints; on Erotic Art skill; and on all attempts to break free in close combat (see p. 391). You may ignore up to -3 in penalties for working in close quarters (including many Explosives and Mechanic rolls). *5 points.*

Double-Jointed: As above, but more so. You cannot stretch or squeeze yourself abnormally, but any part of your body may bend any way. You get +5 on Climbing, Erotic Art, and Escape rolls, and on attempts to break free. You may ignore up to -5 in penalties for close quarters. *15 points.*

Flight

40 points

You can fly. The "default" is full-fledged, self-powered flight without wings or gliding surfaces. This works at any altitude where there is still significant atmosphere – but in the upper atmosphere, you'll need a way to survive in very thin, cold air (e.g., Doesn't Breathe and Temperature Tolerance). You *cannot* fly in a trace atmosphere or vacuum.

Your flight Move is Basic Speed × 2 (drop all fractions). As explained in *Move in Other Environments* (p. 18), you can adjust this for ±2 points per ±1 yard/second. For very high speeds, take Enhanced Move (Air). If you do not have any of the Controlled Gliding, Gliding, Lighter Than Air, Small Wings, Space Flight Only, or Winged Flight limitations, you can also "fly" at half-speed underwater. Flight includes the ability to hover at Move 0 as well.

Flight does not confer the ability to do complex acrobatics and tight turns; for that, buy Aerobatics skill (p. 174). Flight skill (p. 195) improves endurance.

You can alter most of the above assumptions through special modifiers.

Special Enhancements

Newtonian Space Flight: As Space Flight (below), except that your space Move – or your space top speed, if you have Enhanced Move (Space) – is actually your "delta-v": the total velocity change you can manage in space before running out of reaction mass. For instance, you could accelerate up to your delta-v and stay there (like a missile), or to *half* your delta-v and then decelerate to a stop at the end of your trip (like a conventional spacecraft). Once you have made velocity changes equal to your delta-v, you must refuel before you can change your velocity in space again. +25%.

Space Flight: You can fly in space or a vacuum (such as on the moon). Your space Move is Basic Speed × 2. If you want to be able to accelerate constantly to reach a higher top speed, like a rocket, buy Enhanced Move (Space) (p. 52). This will let you accelerate or decelerate each turn by an amount equal to your space Move, up to your enhanced top speed. For a "realistic" space move that lets you accelerate *indefinitely* in a vacuum (up to the speed of light), you'll want Enhanced Move 25-27 (Space). This is incompatible with *all* other special modifiers except Space Flight Only. +50%.

Special Limitations

Cannot Hover: You must always move at least 1/4 your top airspeed (round up) when flying. This is incompatible with Controlled Gliding and Gliding. -15%.

Controlled Gliding: Like Gliding (below) in most respects, but you can gain altitude by riding updrafts or "thermals." A typical ascent rate is one yard per second. You can locate thermals, if any are present, on a successful IQ or Meteorology roll (one attempt per minute). -45%.

Gliding: You cannot gain altitude. With a running leap, you can launch yourself with an air Move equal to Basic Move. Each turn, you can change velocity by up to 10 yards/second × local gravity in Gs (Earth's gravity is 1G). To accelerate, you must descend by 1 yard for each 1 yard/second added to velocity; top speed is Basic Move × 4 (but you can go faster if towed). To decelerate, you must fly level. If you do not descend at least 1 yard, you *automatically* decelerate by 1 yard/second that turn. When working out turning radius, your basic air Move is 10 × local gravity in Gs. Each level of Enhanced Move (Air) *either* doubles top speed *or* halves deceleration in level flight (e.g., one level means you only lose 0.5 yard/second in level flight); specify which when you buy it. -50%.

Lighter Than Air: You fly by becoming lighter than air (or gaseous). A wind moves you 1 yard/second, in the direction it is blowing, per 5 mph of wind speed. If the wind happens to be blowing in the direction you wish to travel, this adds to your Move; otherwise, your Move goes down as you fight against the breeze. -10%.

Low Ceiling: You cannot fly very high. This does not limit speed in any way, but the GM may require Aerobatics rolls to dodge obstacles near the ground. A 30-foot ceiling is -10%; a 10-foot ceiling is -20%; and a 5-foot ceiling is -25%.

Small Wings: As Winged (below), except that your wingspan is no more than half your height. You use your wings to steer and to stabilize your flight – not to lift. If your wings are crippled in flight, roll against Aerobatics skill (or default) to land safely. -10%.

Space Flight Only: You can only take this in conjunction with Space Flight or Newtonian Space Flight. You can fly *only* in space; you have air Move 0 in atmosphere. You require a boost to reach space from any planet with an atmosphere, and are incapable of atmospheric reentry. -75%.

Winged: You use large wings or skin flaps to fly. Wingspan is at least twice your height. In order to take off, land, or maneuver, you must have an open area with a radius equal to your wingspan in all directions. If your wings are bound, or if a wing is crippled (more than 1/3 of your wings, if you have more than two), you cannot fly. Treat wings as arms for the purpose of targeting and crippling. If you wish to strike blows or manipulate objects with your wings, you must pay for them as Strikers or Extra Arms in addition to the cost of Flight. -25%.

Gadgeteer

25 or 50 points

You are a natural inventor. You can modify existing equipment and – given sufficient time and money – invent entirely new gadgets as described under *Gadgeteering* (p. 475).

This lets you design gadgets *quickly,* and makes it easy to realize higher-TL innovations. This advantage comes in two levels:

Gadgeteer: You are a "cinematic" gadgeteer, but your work still takes days or months, and requires a good deal of money and expensive equipment. *25 points.*

Quick Gadgeteer: You can throw together wondrous gadgets in minutes or hours, and can get by with scrounged-together spare parts that cost a few percent of what a "realistic" inventor would have to spend. This level is definitely unsuitable for realistic campaigns! *50 points.*

G-Experience

1 to 10 points

You have experience working in one or more gravitational fields other than your native one, and your reflexes adapt quickly to the way objects move and fall in those fields. You suffer only half the usual DX penalty for different gravity (see *Different Gravity,* p. 350). In situations where low gravity would make a task *easier,* you roll at full DX, plus the bonus for low gravity, plus an extra +1. For instance, if a normal person would get +2 to catch a ball in low gravity, you would get +3.

This trait costs 1 point per gravity field with which you have experience. For instance, an Earth native who works on the moon might have G-Experience (0.16G). To enjoy the benefits of G-Experience in *all* gravity fields, buy G-Experience (All) for 10 points.

Gifted Artist

see *Talent,* p. 89

Gizmos

5 points/gizmo

You always seem to have just the piece of gear you need. Once per game session per level of this advantage, you may pull out one small item of equipment that you *could* have been carrying. This "Gizmo" remains undefined until you reveal it. It does not even "enter play" until you take it out; thus, it cannot be damaged, lost, stolen, or found in a search.

A Gizmo must be small enough to fit in an ordinary coat pocket, and must meet one of three criteria:

1. An item you own but did not specifically state you were carrying. For instance, if you own a handgun, and get ambushed while driving to church, you could pull out your pistol – even if the police searched your vehicle five minutes ago and found no weapons!

2. An item that you *probably* own, and that is in keeping with your character concept, but that is minor or ignorable enough to leave unspecified. For instance, a policeman might happen to be carrying a spare handcuff key, while a wizard might have some eye of newt. The GM has the final say, but should be lenient if the item you wish to have is consistent with your character story.

3. An inexpensive device widely available at your tech level. For instance, if you need to light the fuse on some dynamite, you could pull out a box of matches – and they would work, even if you just took an involuntary swim in the creek.

Each Gizmo you can use per game session (maximum of three) costs 5 points. Note that this ability is not realistic! The GM may wish to limit it further, or forbid it, in a realistic campaign.

Gadgeteers and Gizmos

Those with the Gadgeteer advantage (p. 56) have more latitude. In addition to the usual items available, a Gadgeteer may specify that his Gizmo is one of his inventions (which must still be small). Instead of pulling an existing gadget "out of his pocket," a Gadgeteer can use his Gizmo to let him *build* what he needs on the spot. He must still possess or find the appropriate materials, and know any required skills. The GM should roll secretly against the relevant skill, at -2 or worse. A failed roll means the device doesn't work (this still "uses up" the Gizmo). A critical failure means the device backfires spectacularly!

Green Thumb

see *Talent*, p. 89

Growth

10 points/level

You can grow – *really* grow! As your size increases, so must your ST (or you would collapse under your own weight). Your equipment *doesn't* change size!

Each level of Growth lets you increase your Size Modifier by +1. Find your final height from the *Size Modifier Table* (p. 19). Increases in SM affect your arm and leg length when calculating reach and determining whether you can negotiate obstacles; see *Size Modifier and Reach* (p. 402). It takes one second to modify your SM by +1 (or by -1 as you return to normal size).

If you attempt to grow in a room, vehicle, container, etc. that isn't large enough to hold you, your growth normally stops. However, if *maximum* thrust damage for your current ST is greater than the wall or ceiling's DR, you burst through it. This takes one second per point of DR.

You must buy the ST necessary to support your form separately. This is 5 × final height in *yards*. If your ST increases with height and is only available when you grow, you may buy it with the Size limitation (see *Strength*, p. 14). Use your *maximum* SM to determine the limitation value. At intermediate SMs, find your height as a fraction of your maximum height. This is the fraction of your extra ST available to you at that SM (round down).

Example: A 6'-tall character (SM 0) has Growth 4. He can grow to SM +4, giving him a maximum height of 10 yards. He must buy ST 50 to support himself. If he has ST 15 and gains +35 ST only at full height, he may buy his +35 ST with a -40% Size limitation. At SM +1, he will be 3 yards tall. This is 30% of his final height, so he will have 30% of +35 ST, or +10 ST, for ST 25. Similarly, he'll be 5 yards tall with ST 32 at SM +2, 7 yards tall with ST 39 at SM +3, and 10 yards tall with ST 50 at SM +4.

Special Modifiers

Maximum Size Only: You can only assume normal or maximum size. Instead of growing at +1 SM per second, you grow to your maximum SM – or revert back to your usual SM – in *one* second. The limitation of no intermediate SMs (restricting your use of this ability in close quarters) cancels out the enhancement of rapid growth (a useful benefit in combat). +0%.

> *Gizmos: You may pull out one small item of equipment that you could have been carrying. This "Gizmo" remains undefined until you reveal it. It cannot be lost, stolen, or found in a search.*

Gunslinger

25 points

You can make uncannily precise shots without aiming. This ability works with any weapon that uses Beam Weapons, Gunner, Guns, or Liquid Projector skill. It gives no bonuses when using muscle-powered missile weapons (but the GM is free to introduce a low-tech version that works with Blowpipe, Bow, Crossbow, Sling, etc.).

When firing single shots (RoF 1-3) from a one-handed weapon, you get the Accuracy bonus of your weapon *without* the need for an Aim maneuver. When using a two-handed weapon or automatic fire, you get *half* the Accuracy bonus (round up) without the need to Aim. If you *do* Aim, you always get full Acc, and bracing, scopes, and additional seconds of Aim provide the usual benefits.

This ability is intended for cinematic games with an "action movie" ambience. The GM may wish to forbid it in a completely realistic campaign.

Hard to Kill

2 points/level

You are incredibly difficult to kill. Each level of Hard to Kill gives +1 to HT rolls made for survival at -HP or below, and on any HT roll where failure means instant death (due to heart failure, poison, etc.). If this bonus makes the difference between success and failure, you collapse, apparently dead (or disabled), but come to in the usual amount of time – see *Recovering from Unconsciousness* (p. 423). A successful Diagnosis roll (or a Mechanic roll, for machines) reveals the truth.

Example: Bruno has HT 12, 15 HP, and Hard to Kill 4. He takes 45 points of damage, which reduces him to -30 HP. He must make two HT rolls to survive: one at -15 HP, one at -30 HP. He rolls an 11 for the first one, but on the second roll, he gets a 14. This is above his HT (12), but below his modified

HT (12 + 4 = 16). He passes out, and his foes leave him for dead. Roughly a day later, he'll regain consciousness – injured, but not dead!

In a realistic campaign, the GM may wish to limit characters to Hard to Kill 1 or 2.

Hard to Subdue

2 points/level

You are hard to knock out. Each level of Hard to Subdue gives +1 to any HT roll to avoid unconsciousness – whether as a result of injury, drugs, or ultra-tech weapons – and to resist supernatural abilities that cause unconsciousness. In a realistic campaign, the GM may wish to limit characters to Hard to Subdue 1 or 2.

Healer

see *Talent*, p. 89

Healing

30 points

You have the ability to heal others. You must be in physical contact with the subject. To activate your power, concentrate for one second and make an IQ roll. Roll at -2 if the subject is unconscious.

You can use Healing in two ways:

Heal Injuries: On a success, you can heal any number of HP. This costs you 1 FP per 2 HP healed (round up). Failure costs 1d FP, but you can try again; critical failure *also* causes the recipient 1d damage. Even 1 HP of healing will stop bleeding. By rolling at -6, you can repair a crippled but whole limb if you *completely* heal the HP lost to the crippling injury. For instance, to heal a hand crippled by 4 points of damage, make an IQ-6 roll and spend 2 FP. Each healer gets only one attempt per crippled limb. Healing cannot restore *lost* limbs or bring back the dead.

Cure Disease: This requires an IQ roll at a modifier determined by the GM – from +1 for the common cold to -15 for AIDS. The FP cost is equal to twice the penalty, minimum 1 FP. For instance, it would cost 6 FP to cure a disease that calls for an IQ-3 roll.

If used more than once per day on a given subject, apply a cumulative -3 per *successful* healing of the same type (injury or disease) on that subject. This penalty accumulates until a *full* day has passed since the most recent healing.

Healing works on your own race and on all "similar" races. In a fantasy campaign, for instance, all warm-blooded humanoid races (elves, dwarves, orcs, halflings, etc.) would be "similar."

Special Enhancements

Faith Healing: Your power works by channeling spiritual energy. This lets you cure *anyone* the spirits or gods deem worthy of healing, regardless of race. However, you (and possibly your subject) must behave in a manner consistent with the interests and moral codes of your supernatural allies, or this ability will not work. You may not combine Faith Healing with Own Race Only or Xenohealing. +20%.

Xenohealing: You can heal beings quite dissimilar from yourself. Examples, assuming you are human: All Mammals, +20%; All Earthly Life, +40%; All Carbon-Based Life, +60%; Anything Alive, +80%; Anything Animate (including undead, golems, etc.), +100%.

Special Limitations

Disease Only: You can only cure disease. -40%.

Injuries Only: You can only heal injuries. -20%.

Own Race Only: This is only available in campaigns with multiple sapient races. -20%.

Psychic Healing: Your ability is part of the Psychic Healing psi power (see p. 256). -10%.

Hermaphromorph

5 points

You can switch among fully functional neuter, male, and female forms. The process takes 10 seconds (Preparation Required, Takes Extra Time, and Takes Recharge are common limitations).

High Manual Dexterity

5 points/level

You have remarkably fine motor skills. Each level (to a maximum of four) gives +1 to DX for tasks that require a delicate touch. This includes all DX-based rolls against Artist, Jeweler, Knot-Tying, Leatherworking, Lockpicking, Pickpocket, Sewing, Sleight of Hand, and Surgery, as well as DX-based rolls to do *fine* work with Machinist or Mechanic (e.g., on clockwork). This bonus *doesn't* apply to IQ-based tasks or large-scale DX-based tasks, nor does it apply to combat-related die rolls of any kind.

High Pain Threshold

10 points

You are as susceptible to injury as anyone else, but you don't *feel* it as much. You *never* suffer a shock penalty when you are injured. In addition, you get +3 on all HT rolls to avoid knockdown and stunning – and if you are tortured physically, you get +3 to resist. The GM may let you roll at Will+3 to ignore pain in other situations.

High Pain Threshold is *included* in Supernatural Durability (p. 89); if you have the latter advantage, you cannot take this one.

High TL

see p. 23

Higher Purpose

5 points

You are driven to exceed your normal limits in one specific pursuit. You must state this exactly as if it were a Code of Honor disadvantage (p. 127): "Defend all women," "Slay all demons," etc. If, in the GM's judgment, you are unfaltering in your pursuit of your Higher Purpose, you get +1 to all die rolls that pertain *directly* to the pursuit of your cause. If you deviate from your Higher Purpose, you lose this bonus . . . and the GM is free to penalize you for bad roleplaying just as if you had ignored a Code of Honor.

A Higher Purpose must be *specific*. Higher Purposes such as "Fight evil" or "Oppose authority figures" are too broad to be balanced. In addition, a Higher Purpose must entail genuine risk and inconvenience. The GM should not allow pragmatic Higher Purposes like "Faithfully serve my superiors." All Higher Purposes are subject to GM approval.

Hyperspectral Vision

25 points

Your vision extends across the infrared, visible, and ultraviolet portions of the spectrum. This integrated picture often reveals details that are invisible to those who merely possess normal vision, Infravision (p. 60), or Ultravision (p. 94).

Hyperspectral Vision grants near-perfect night vision: you suffer no vision or combat penalties if there is *any light at all.* In total darkness, it functions exactly like Infravision. This trait also gives +3 on all Vision rolls; on all rolls to spot hidden clues or objects with Forensics, Observation, or Search skill; and on all Tracking rolls.

If you possess Hyperspectral Vision, you *cannot* also have Infravision or Ultravision. This trait is essentially a higher level of both those advantages. Its game effects *replace* the specific effects of those traits.

As described, this trait emulates realistic TL7+ sensors. The GM may permit supers to take the two special enhancements below. Neither is appropriate for real-world sensors!

Special Enhancements

Extended Low-Band: You perceive radiation below the infrared, allowing you to "see" microwave, radar, and radio sources. This gives no special ability to *understand* radio signals! +30%.

Extended High-Band: You sense radiation above the ultraviolet, allowing you to "see" X-ray and gamma ray sources. +30%.

Illuminated

15 points

You are an "Illuminatus" in the original sense of the word – you are enlightened. You *know* what's going on, and you know it *intuitively.*

You can discern other Illuminati on sight, with no possibility of error. Furthermore, whenever the GM requires a roll against a skill such as Current Affairs, Hidden Lore, or Intelligence Analysis to tell whether a certain strange occurrence is truly a coincidence or the result of a conspiracy, you may roll against the *higher* of your IQ and the specific skill in question. Finally, you can perceive and communicate with supernatural beings who are tied to Illuminated conspiracies in your game world (GM's decision). This gives you no special ability to control them, but they recognize you and treat you with a certain respect: +3 on reaction rolls.

The only drawback is that other Illuminati and spiritual beings are able to perceive *your* Illuminated nature, and there's nothing you can do about it except stay out of sight.

This advantage is best suited to mystical or fantastic campaigns. It is rarely appropriate in "mundane" conspiracy campaigns. The GM is the final judge of who may possess this trait.

Improved G-Tolerance

5 to 25 points

You can function under a wide range of gravities. For a normal human, the penalties for non-native gravity accrue in increments of 0.2G; see *Different Gravity* (p. 350). A larger increment costs points: 5 points for 0.3G, 10 points for 0.5G, 15 points for 1G, 20 points for 5G, and 25 points for 10G. Normal humans are limited to 10 points in this trait.

Independent Income

see p. 26

Indomitable

15 points

You are impossible to influence through ordinary words or actions. Those who wish to use Influence skills on you (see *Influence Rolls,* p. 359) must possess a suitable advantage: Empathy (p. 51) if you are a human or similar being, Animal Empathy (p. 40) if you're a beast, Plant Empathy (p. 75) if you're a plant, or Spirit Empathy (p. 88) if you're a demon, ghost, etc. Everyone else – however convincing – fails automatically. This trait often accompanies Unfazeable (p. 95).

Infravision

0 or 10 points

You can see into the infrared portion of the spectrum, allowing you to detect varying degrees of heat. This lets you fight at no penalty even in absolute darkness, *if* your target emits heat (this includes all living beings and most machines). It also gives you +2 on all Vision rolls to spot such targets, since their heat stands out from the background. You can follow a heat trail when tracking: add +3 to Tracking rolls if the trail is no more than an hour old.

Infravision does *not* let you distinguish colors, and only allows you to judge the general size and shape of heat-emitting objects, including living beings (for instance, you might have trouble telling two people of the same size apart). Roll at -4 to distinguish objects of similar size and shape. The GM may also require a Vision-4 roll to read by reflected heat. Sudden flashes of heat (e.g., a flare, fiery explosion, or infrared laser) can blind you, just as a flash of light can blind ordinary vision.

Cost depends on your capabilities:

You can only see using Infravision, and are subject to its limitations at all times: *0 points.*

You can switch freely between normal vision and Infravision: *10 points.*

Injury Tolerance

Variable

You have fewer physiological weaknesses than ordinary living beings. The cost of this advantage depends on the precise frailties eliminated. Note that some forms of Injury Tolerance include others, and that Diffuse, Homogenous, and Unliving are mutually incompatible.

Diffuse: Your body is fluid or particulate, composed of a swarm of smaller entities, or perhaps made of pure energy. This makes you immune to crippling injuries and reduces the damage you suffer from most physical blows; see *Injury to Unliving, Homogenous, and Diffuse Targets* (p. 380). Most foes (GM's decision) cannot slam or grapple you! Diffuse includes all the benefits of No Blood, No Brain, and No Vitals. *100 points.*

Homogenous: Your body has no vulnerable internal organs, bones, muscles, or other mechanisms. As a result, you are less susceptible to piercing and impaling attacks; see *Injury to Unliving, Homogenous, and Diffuse Targets* (p. 380). Homogenous includes the benefits of No Brain and No Vitals. This trait is intended for

entities such as iron golems, trees, and slimes. *40 points.*

No Blood: You do not rely upon a vital bodily fluid (like blood) for survival. You do not bleed (see *Bleeding,* p. 420), are unaffected by blood-borne toxins, and are immune to attacks that rely on cutting off blood to part of your body. *5 points.*

No Brain: Your brain – if you have one – is distributed throughout your body, or isn't your true seat of consciousness. Your opponents cannot target it for extra damage. You may have a head, but a blow to the skull or eye is treated no differently than a blow to the face (except that an eye injury can still cripple that eye). *5 points.*

No Eyes: You lack eyes or other vulnerable optics, but can somehow see despite this (unless of course you suffer from Blindness, p. 124). As you have no eyes, they cannot be attacked. You are also immune to blinding attacks. *5 points.*

No Head: You have no head at all. This *includes* the benefits of No Brain. As well, you lack "skull" and "face" hit locations, and have no need for head armor. You can still see, speak, hear, smell, taste, etc. unless you take the appropriate disadvantages. Specify how you do this (supernaturally, technologically, via organs on your torso, etc.). It is common – but not mandatory – for those with No Head to have No Neck, No Eyes, or both. *7 points.*

No Neck: You have no neck. As a result, you have no "neck" hit location, and cannot be decapitated, choked, or strangled. *5 points.*

No Vitals: You have no vital organs (such as a heart or engine) that attackers can target for extra damage. Treat hits to the "vitals" or "groin" as torso hits. *5 points.*

Unliving: Your body is not composed of living flesh. You take reduced damage from piercing and impaling attacks, but are not quite as resilient as if you were Homogenous; see *Injury to Unliving, Homogenous, and Diffuse Targets* (p. 380). This trait is intended mainly for machines and corporeal undead. *20 points.*

Innate Attack

Variable

You have a natural or built-in attack with which you can inflict physical damage (for nondamaging attacks, see *Affliction,* p. 35, and *Binding,* p. 40). Examples include a dragon's fiery breath, a robot's built-in blaster, and a god's ability to hurl lightning bolts.

By default, this is a ranged attack with 1/2D 10, Max 100, Acc 3, RoF 1, Shots N/A, and Recoil 1, although you can apply modifiers to change these statistics (see pp. 101-116).

An Innate Attack inflicts 1d damage per level. Its cost per level depends on the *type* of damage it inflicts:

Burning (burn)

Your attack inflicts damage using flame, an energy beam, or localized electrical burns. It may ignite fires! *5 points/level.*

Corrosion (cor)

Your attack involves acid, disintegration, or something similar. For every 5 points of basic damage you inflict, reduce the target's DR by 1, in addition to regular damage. (Living beings heal natural DR at the same rate as HP.) *10 points/level.*

Crushing (cr)

Your attack inflicts damage through blunt impact, like a bludgeoning weapon or an explosive blast. It is likely to cause knockback (p. 378), and is more effective at inflicting blunt trauma (p. 379) than other types of damage. *5 points/level.*

Cutting (cut)

Your attack inflicts lacerations, like those caused by an axe or broken glass. Multiply penetrating damage by 1.5. Cutting attacks can inflict blunt trauma and cause knockback. *7 points/level.*

Fatigue (fat)

Your attack is nonlethal. It might involve a low-amperage electric shock or a "mind blast," or even inflict a weakening effect such as hypothermia or starvation. It reduces FP, not HP, and cannot affect machines. *10 points/level.*

Impaling (imp)

Your attack inflicts stab wounds, like a spear or an arrow. *Double* penetrating damage in flesh! Impaling attacks can target the eyes and vital organs, can inflict blunt trauma, and may slip through high-tech flexible armor. *8 points/level.*

Piercing

Your attack involves a fast, blunt projectile, such as a bullet, or is sharp but too small to qualify as impaling, like a dart or a stinger. It may inflict blunt trauma, and can target the eyes and vital organs. There are four subclasses of piercing attack:

Alternative Attacks

If you have multiple Innate Attacks, you may define them as being the *same* basic attack, but with different settings, ammo types, etc. Determine the cost of these "alternative attacks" as usual, but only pay full price for the *most expensive* attack. Buy additional attacks at 1/5 cost (round up).

This can save a lot of points, but there are drawbacks. First, since the attacks represent a single ability, you cannot use them simultaneously, even if you are capable of multiple attacks. This also prevents you from combining them with the Link enhancement (p. 106). As well, any critical failure or malfunction that disables one of your attacks disables *all* of them. Finally, if your most expensive attack is somehow drained or neutralized, none of the cheaper attacks will work.

You may also apply this rule to multiple Afflictions (p. 35) or Bindings (p. 40), or any combination of these with Innate Attacks that you cannot use simultaneously. With the GM's permission, you can apply this rule to multipurpose Strikers (p. 88) as well.

Small Piercing (pi-): Use this for very low-energy projectiles (e.g., blowgun darts), or for attacks that tend to punch through the target and leave a small wound channel (e.g., armor-piercing bullets). Against flesh, *halve* damage that penetrates DR. *3 points/level.*

Piercing (pi): Use this for most rifle and pistol bullets. *5 points/level.*

Large Piercing (pi+): Use this for attacks similar to large-caliber solid bullets, or for smaller projectiles that create large wound channels (e.g., hollow-point bullets). Multiply penetrating damage in flesh by 1.5. *6 points/level.*

Huge Piercing (pi++): Use this for attacks that leave an even larger wound channel than large piercing. *Double* penetrating damage in flesh! *8 points/level.*

Toxic (tox)

Your attack inflicts cellular damage, in the manner of disease, poison, or radiation. It cannot normally affect machines. The modifiers Cyclic (p. 103), Onset (p. 113), and Resistible (p. 115) are usual, but not required. *4 points/level.*

Partial Dice

You do not have to buy whole-numbered dice of damage. Each ±1 to damage counts as ±0.3 dice. Round the final cost *up*. For instance, an Innate Attack that does 1d+2 damage counts as 1.6 dice. If it were crushing (5 points/die), it would cost 1.6 × 5 = 8 points.

Some attacks do only *1 point* of damage. This counts as 0.25 dice. Once again, round cost *up*. Such attacks can still be deadly – especially if they involve the Follow-Up (p. 105) or Cyclic (p. 103) enhancement!

Special Modifiers

Many special modifiers for Innate Attack appear under *Attack Enhancements and Limitations* (p. 102). You can use these to create almost *any* attack – built-in guns, lasers, jets of liquid fire, gale-force winds, etc. – and to duplicate the capabilities of weapons listed in ***GURPS*** books.

Fatigue and toxic attacks intended to simulate poison or disease *require* modifiers. Noxious agents on Claws (p. 42), Teeth (p. 91), darts, etc. use Follow-Up (p. 105). Gases and sprays use Respiratory Agent (p. 108) or Contact Agent (p. 103), often with Area Effect (p. 102), Cone (p. 103), or Jet (p. 106). Attacks that depend on touch or on skin contact use Blood Agent (p. 102) or Contact Agent, plus one of Aura (p. 102) or Melee Attack (p. 112).

Regardless of other modifiers, Innate Attacks are treated as ranged attacks unless given the Melee Attack limitation; then they're considered melee weapons.

Description

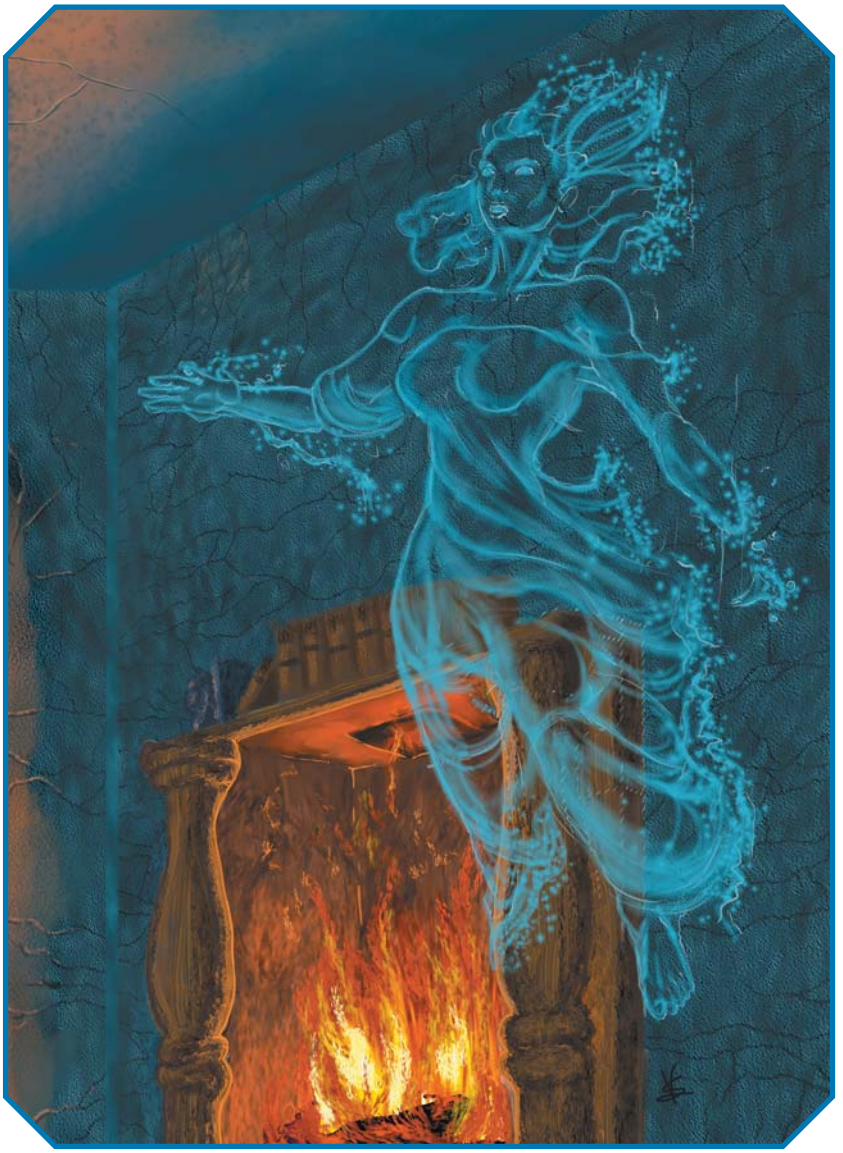
After applying all relevant modifiers, name and describe the attack. You can be as general as "dragon fire" or as specific as "9mm machine pistol cybernetically implanted in right arm." At the GM's discretion, the description can imply additional noncombat abilities; for instance, a jet of high-pressure water could put out fires. The GM has the final say as to whether your description fits the campaign setting, and may modify the attack if necessary.

Insubstantiality

80 points

You can become intangible, passing through solid objects as though they weren't there. In this state, gravity does not affect you – you can move in *any* direction at full Move (and make no noise when you move). You can perceive the tangible world, and speak normally to those within it, but you *cannot* pick up normal objects or affect them in any way.

Physical and energy attacks cannot harm you, but you're still vulnerable



to psionic and (nonmaterial) magical attacks. Likewise, your physical and energy attacks cannot affect physical opponents. Your psi abilities and magic spells *can* affect the physical world, but at -3 to all skill rolls.

Although you can pass through solids, you must still breathe. When moving through a solid object, treat this as if you were swimming underwater for purposes of suffocation. You cannot materialize inside a solid object.

Your "natural" form (physical or insubstantial) is considered a special effect. You must take this advantage if you can change between a physical and an insubstantial form.

This trait can represent any number of abilities from folklore and fiction. You should work out its origins (see p. 33) and special effects with the GM – perhaps you "vibrate" out of synch with reality, phase into a different dimension, or become a spirit. This determines your appearance, which may be transparent, misty . . . or completely normal (but you can't be *invisible* without the Invisibility advantage). Your physical and energy attacks affect other beings using the same form of Insubstantiality, and their attacks affect you. The GM may rule that certain materials, energy barriers, magic spells, etc. are impenetrable to your particular form of Insubstantiality.

Special Enhancements

Affect Substantial: If you have *any* abilities that can affect the substantial world when you are insubstantial – including magic, psionics, or powers with the Affects Substantial enhancement (p. 102) – this advantage costs more. +100%.

Can Carry Objects: Normally, you cannot carry *anything* while insubstantial. This enhancement lets you carry objects, including clothing and armor. They become physical if dropped. You cannot materialize these objects inside other objects or characters. No encumbrance is +10%; Light, +20%; Medium, +50%; Heavy, +100%.

Partial Change: You can turn part of your body substantial while other parts remain insubstantial, or vice versa. Thus, you could reach through a wall and tap someone on the shoulder. If you also have Can Carry Objects, you can materialize your hand, pick up material objects, and carry them while insubstantial. +20%, or +100% if you can turn an item you are carrying substantial without dropping it (this requires turning your hand substantial, too).

Special Limitations

Always On: You are always insubstantial and cannot materialize. If you have this limitation, there is no -3 to use magic or psionics. -50%.

Usually On: Similar to Always On, but you can materialize for short periods with great effort. Materialization costs 1 FP per *second*. -40%.

Intuition

15 points

You usually guess right. When faced with a number of alternatives, and no logical way to choose among them, you can ask the GM to let you use your Intuition. The GM makes a secret IQ roll, with a bonus equal to the number of "good" choices and a penalty equal to the number of "bad" choices. On a success, he steers you to a good choice; on a critical success, he tells you the *best* choice. On a failure, he gives you no information; on a critical failure, he steers you toward a *bad* choice. The GM can modify this as he sees fit for other situations where Intuition might logically help. Only one roll per question is allowed.

The GM should never allow Intuition to short-circuit an adventure – for instance, by letting the intuitive detective walk into a room, slap the cuffs on the guilty party, and close the case. At the most, Intuition would point the detective in the direction of a good clue. GMs who don't think they can control Intuition should not allow it in their games.

Intuitive Mathematician

see *Lightning Calculator*, p. 66

Invisibility

40 points

You are invisible. Unlike most advantages, this one is "always on" unless you take a special enhancement. You still make noise, leave footprints, and have a scent – and by default, anything you *carry* remains visible. If you are carrying nothing, you get a +9 to Stealth in any situation where being seen would matter.

Individuals using paranormal remote viewing (crystal balls, Clairvoyance, etc.) cannot see you if you would be invisible to their normal vision. *Devices* with these powers can still sense you, as can paranormal abilities that detect enemies, life, and so on nonvisually.

Invisibility only works against *one* sort of vision. Types include electromagnetic vision (which encompasses ordinary vision, Infravision, Ultravision, and radar), sonar, magnetic fields, and anything else the GM comes up with. If you are invisible to electromagnetic vision, you do not cast a shadow and don't show up in mirrors.

Special Enhancements

Affects Machines: You are invisible even to machines. You cannot be photographed, and you don't show up on cameras or other detectors. Devices such as pressure plates still notice you, but you could walk past a robot sentry undetected. Electronically targeted weapons get no bonuses to hit you. +50%.

Can Carry Objects: The objects you carry, including clothing and armor, become invisible. They regain visibility when put down. No encumbrance is +10%; Light, +20%; Medium, +50%; Heavy, +100%.

Extended: You are invisible to more than one type of vision (for instance, electromagnetic vision *and* magnetic fields). +20% per additional type of vision.

Switchable: You are normally visible, but can become invisible at will. +10%.

Usually On: You are normally invisible, but can become visible for short periods with great effort. Turning visible costs 1 FP per *second*. +5%.

Special Limitations

Machines Only: Similar to Affects Machines, but you are *only* invisible to machines. Living beings can see you normally. -50%.

Substantial Only: Your invisibility only hides you in the material world. Insubstantial beings (ghosts, etc.) can see you normally. -10%.

Visible Reflection: You can be seen in mirrors! -10%.

Visible Shadow: You cast a shadow! -10%.

Jumper

100 points

You can travel through time *or* to parallel worlds (sometimes known as "timelines") merely by willing the "jump." Decide whether you are a *time-jumper* or a *world-jumper.* To do both, you must buy Jumper (Time) and Jumper (World) separately, at full cost.

To initiate a jump, you must visualize your destination, concentrate for 10 seconds, and make an IQ roll. You may hurry the jump, but your roll will be at -1 per second of concentration omitted (-10 to jump with no preparation at all). Regardless of IQ, a roll of 14 or more always fails. On a success, you appear at your target destination. On a failure, you go nowhere. On a critical failure, you arrive at the *wrong* destination, which can be any time or world the GM wishes!

You appear at your destination at exactly the same place you left your previous time or world – or as close as possible. When jumping through time, this means the same place at a different time. When jumping between worlds, this means the same place at the same time, but on a parallel world.

If there is no corresponding "safe" location within 100 yards of your destination – for instance, if you jump while on an airplane to a destination with no plane at your location, or from a half-mile deep mine to a destination with no corresponding mine – the jump will *fail* and you will know why it failed. This does not prevent you from jumping into other types of danger, such as radiation, gunfire, or wild animals. If you have Danger Sense, the GM should roll before you make a hazardous jump; on a success, you get a warning.

This ability always costs at least 1 FP to use, whether it succeeds or fails. Particularly "distant" times or worlds might cost more, perhaps up to 10 FP, at the GM's discretion. If you are a machine, this ability does not cost *you* FP – but if you have passengers, *each* of them must pay the FP cost.

For an example of how Jumper might work in a particular game world, see *World-Jumpers* (p. 544).

Carrying Things

You can carry up to Basic Lift when you travel, plus any Payload (see p. 74). Take the Extra Carrying Capacity enhancement (below) if you wish to carry more weight, or bring along other people.

However, if multiple Jumpers *of the same kind* are in physical contact, when one jumps, the others can "hitch a ride" if they wish – even if the Jumper who initiates the jump does *not* want company. Only the person initiating the jump makes a die roll; wherever he ends up, the others do, too.

If you are a world-jumper, "hitching a ride" is the only way to visit a *new* parallel world (save for a critical failure!). However, once you reach a world, you can memorize its "feel" by concentrating and spending character points to "learn" that world as an IQ/Easy skill. This takes one hour per point you wish to spend. Use this skill in place of IQ when you travel to that world in the future. You never *have* to memorize a world, but if you do not, you roll at IQ-3 to attempt to return.

Time-jumpers have no similar restriction.

You can improve this ability with practice, spending points to add enhancements or remove limitations. GMs who do not want the PCs jumping multiple times per adventure are free to impose *mandatory* limitations (e.g., Limited Use) that cannot be bought off.

Special Enhancements

Extra Carrying Capacity: You can carry more than your Basic Lift. If your carrying capacity is high enough, you may transport *one* person with you. Light encumbrance is +10%; Medium, +20%; Heavy, +30%; Extra-Heavy, +50%.

New Worlds: This is only available for world-jumpers. You can deliberately aim for worlds you haven't visited. The IQ roll is always at -3 or worse (GM's decision). Of course, it is always possible that the desired destination *does not exist,* in which case the attempt automatically fails – although the GM will not tell you why. All FP costs are doubled when using this enhancement. +50%.

Omni-Jump: This is only available if you are both a world-jumper and a time-jumper! You must apply it to *both* Jumper advantages. This lets you move between times *and* timelines on a single IQ roll – for instance, from the present day in our timeline to 1066 A.D. in a parallel timeline where the Norman invasion of England failed. +10%.

Tracking: You can travel to the "home" time or world of any man-made artifact you can hold or touch. Time-jumpers will arrive shortly after the item was created; world-jumpers will arrive at the current date on the item's home timeline. Any such attempt is at IQ-2, and each Jumper only gets one try per artifact. +20%.

Tunnel: You always create a portal (of about your size) when you jump. Others may pass through it, even if they can't jump. The portal lingers for 3d seconds, which can be good or bad – it means enemies can follow you! +40%.

Warp Jump: This enhancement is only available if you have the Warp advantage (p. 97). You must apply it to both Jumper and Warp. When you jump, you can simultaneously use Warp to appear *anywhere* at your destination. Two die rolls are necessary – one per ability – and it is possible for one to succeed while the other fails, or for both to fail. +10%.

Special Limitations

Cannot Escort: This is only available for world-jumpers. Other Jumpers cannot "hitch a ride," even if you want to bring them along. -10%.

Cannot Follow: This is only available for world-jumpers. You cannot "hitch a ride" with another Jumper. -20%.

Drift: You do not arrive in exactly the location you left from. You won't arrive in thin air or underground, but you may show up anywhere within 10 miles of your planned destination. The better your IQ roll when you jump, the closer you will be to where you wanted to arrive, but it's the GM's call as to exactly where you appear. -15%.

Limited Jump: You can only travel a certain distance through time, or a certain number of "removes" between parallel worlds, per jump. To go further, you must make multiple hops. The GM must set the value of this limitation for his campaign; it will be more of a handicap in some settings than in others. A suggested value is -10%.

Maximum Range: You can only jump a certain *total* distance through time, or a certain number of "removes" between parallel worlds, no matter how many hops you make. Like Limited Jump, the GM must set the value of this limitation.

Naked: You can carry nothing when you jump! You always arrive naked. -30%.

Stunning: You are always mentally stunned after a jump. -10%.

Language Talent

10 points

You have a knack for languages. When you learn a language at a comprehension level above None, you automatically function at the next-highest level; thus, you can purchase a language at Accented level for 2 points or at Native level for 4 points. For full language rules, see *Language* (p. 23).

Legal Enforcement Powers

5, 10, or 15 points

You are a law enforcer, with the accompanying powers and restrictions. In some times and places, this amounts to a license to kill. In others, it's little more than the right to carry a badge and write parking tickets.

The point cost depends on the kinds of laws you enforce, the size of your jurisdiction, how answerable you are for your actions, and the degree of respect you must show for the civil rights of others:

- You have local jurisdiction, the ability to arrest suspected criminals, the power to perform searches with an appropriate warrant, and *possibly* the right to carry a concealed weapon. *Examples:* a Victorian bobby or a modern policeman. *5 points.*
- As above, but you also have national or international jurisdiction, *or* are not obligated to respect the civil rights of others, *or* are free to engage in covert investigations, *or* may kill with relative impunity. *Examples:* an FBI agent or a medieval Royal Guardsman. *10 points.*
- You have three or more of the above abilities. *Examples:* a *Gestapo,* KGB, or *Stasi* agent. *15 points.*

Legal Enforcement Powers almost always require an appropriate Duty (p. 133). In some cases, a Reputation (positive, negative, or mixed) is also appropriate. All levels of Legal Enforcement Powers *include* Police Rank 0 (see p. 30). To become a senior law enforcer, buy more Rank.

Legal Immunity

5 to 20 points

You are exempt from some or all of the laws of your society. Should you break the law, ordinary law enforcers do not have the power to charge you. Only one particular authority – your own church or social class, a special court, perhaps even your ruler – can judge or punish you.

The point cost depends on how sweeping the immunity is (GM's judgment):

- You are not subject to ordinary laws, but the rules that govern your behavior are just as strict. *Examples:* a medieval abbot or a modern UN observer. *5 points.*
- As above, but the laws that apply to you are *less* strict than those that apply to most people. *Example:* a medieval bard (see below). *10 points.*
- You can do nearly anything you please provided you don't injure the nation, church, or other power that granted you Legal Immunity in the first place. *Examples:* a medieval duke or an international diplomat (see below). *15 points.*

For an extra 5 points, you may add "diplomatic pouch" privileges: you can send and receive mail or objects that the ordinary authorities cannot legally stop or examine.

Two classes of Legal Immunity are of special interest to adventurers:

Bardic Immunity: You have the right to sing what you please without fear of serious consequences. You may even sing a grossly insulting song to the king – you might get banished for it, but you can't be whipped, imprisoned, or killed. Anyone who violates your immunity risks damage to his name and reputation. Other bards will compose and distribute vicious satires about him, giving him a bad Reputation. They might even expose a Secret, if he has one! This advantage applies to the content of your performances and *nothing* else. It is only available to true bards, in fantasy/medieval settings. To qualify for this advantage, you must spend at least 1 point apiece on the Performance, Poetry, and Singing skills. *10 points.*

Diplomatic Immunity: You are an international diplomat. You may ignore the laws of all countries except your own. While abroad, you cannot be prosecuted for *any* crime, no matter how grave; the local police may arrest you, but they cannot press charges. The only recourse for a foreign government is to declare you *persona non grata.* This means you must leave the country at once, ending your current assignment – and possibly your career. Foreign powers may request your extradition for normal prosecution, but your government is unlikely to comply. This trait always comes with a Duty (p. 133) to a government agency, and often has some level of Administrative Rank (p. 30) as a prerequisite. *20 points.*

Less Sleep

2 points/level

You need less sleep than most people. A normal human requires 8 hours of sleep per night. Each level of this advantage – to a maximum of four levels – lets you get by with one hour less than this, giving you a few extra hours each day in which to study or work on other projects.

Lifting ST

3 points per +1 ST

You have lifting capacity out of proportion to your mass. This is common for vehicles and supers. Add your Lifting ST to your ordinary ST when you determine Basic Lift (p. 15) for the purposes of carrying, lifting, pushing, and pulling. Lifting ST also adds to ST in situations where you can apply slow, steady pressure (grappling, choking,

etc.). Lifting ST *does not* boost ST (or Basic Lift) for the purpose of determining HP, throwing distance, or damage inflicted by melee attacks or thrown weapons.

If you bought your ST with the Size limitation, apply the same limitation to Lifting ST. The No Fine Manipulators limitation does *not* give a discount, however.

Lightning Calculator

2 or 5 points

You have the ability to do math in your head, instantly. This talent comes in two levels:

Lightning Calculator: You, the *player,* may use a calculator at any time, to figure anything you want – even if your *character* is fleeing for his life! For simple math problems, the GM may just say that your character knows the answer. *2 points.*

Intuitive Mathematician: As above, but your ability is not limited to arithmetic. You can perform astrogation without a computer, do any level of engineering design in your head, and solve differential equations almost instantaneously. You never need a calculator; you yourself are far faster than that, and even faster than many computers. *5 points.*

True mathematical geniuses will have one of the above traits and one or more levels of Mathematical Ability (see *Talent,* p. 89).

Longevity

2 points

Your lifespan is naturally very long. You fail aging rolls (see p. 444) only on a 17 or 18 – or only on an 18, if your modified HT is 17 or better!

Luck

Variable

You were born lucky! There are three progressively more "cinematic" levels of Luck:

Luck: Once per hour of *play,* you may reroll a single bad die roll twice and take the best of the three rolls! You must declare that you are using your Luck immediately after you roll the dice. Once you or anyone else has made another die roll, it is too late to use Luck. If the GM is rolling in secret (e.g., to see if you notice something), you may tell him you are using your Luck ahead of time, and he must roll three times and give you the best result. *15 points.*

Extraordinary Luck: As above, but usable every 30 minutes. *30 points.*

Ridiculous Luck: As above, but usable every *10* minutes! *60 points.*

Your Luck only applies to your own success, damage, or reaction rolls, *or* on outside events that affect you or your whole party, *or* when you are being attacked (in which case you may make the attacker roll three times and take the *worst* roll!).

You cannot share Luck. If Strong Sam is trying to kick open a door, Lucky Lou can't stand behind him and transfer his Luck. He'll have to kick that door himself.

Once you use Luck, you must wait an hour of real time (30 minutes for Extraordinary Luck, 10 minutes for Ridiculous Luck) before using it again. You cannot use Luck at 11:58 and then again at 12:01. And you cannot save up Luck. You cannot play for hours without using Luck and then use it several times in a row!

Special Limitations

Active: Your Luck is a conscious supernatural power. You must declare that you are using it *before* you roll the dice. It cannot be used "after the fact" to reroll a bad result. -40%.

Aspected: Your Luck applies only to one specific class of *related* tasks, such as athletics, social interactions, or skills you use at your job. "Combat" is a valid choice, but it only affects weapon skill rolls, active defenses, and ST or DX rolls for close combat – not DX rolls to avoid tripping, HT rolls to survive, etc. -20%.

Defensive: You can only use your Luck to reroll failed active defense rolls, resistance rolls, or HT rolls to resist the effects of injury, or to make an opponent reroll a *critical* hit against you. -20%.

Magery

5 points for Magery 0, +10 points/level

You are magically adept. This advantage comes in levels. You must purchase Magery 0 before buying higher levels of Magery.

Magery 0: This is basic "magical awareness," a prerequisite for learning magic in most worlds. The GM makes a Sense roll (p. 358) when you first *see* a magic item, and again when you first *touch* it. On a success, you intuitively know that the item is magical. A roll of 3 or 4 also tells you whether the magic is helpful or dangerous, and about how strong it is. Those without Magery do *not* get this roll! *5 points.*

Magery 1+: Higher levels of Magery make it *much* easier to learn and use magic. Add your Magery to IQ when you learn spells. For instance, if you have IQ 14, Magery 3 lets you learn spells as if you had IQ 17. Add your Magery level to Perception when you roll to sense magic items, and to IQ when you learn Thaumatology skill (p. 225).

Reduce the time required to learn new spells in play (but *not* the point cost) by 10% per Magery level, to a minimum of 60% of the usual time at Magery 4. For instance, with Magery 3, you would learn spells in 70% the usual time.

Powerful spells require a minimum level of Magery as a prerequisite, so be sure to skim the *Spell List* (pp. 242-253) when deciding how much Magery you need. Note that high Magery lets you produce powerful results with even the most basic spells; see *Magery and Effect* (p. 237). The GM sets the maximum Magery allowed to PCs. Magery 3 is about right for "classic fantasy." *10 points/level (on top of the 5 points for Magery 0).*

Mages in Nonmagical Settings

The use of Magery becomes tricky in nonmagical backgrounds. You still have the ability to sense magic, but until you gain experience with magic, the GM should not say, "That idol is magical," but, "That idol looks very strange to you, very sinister. You sense there is something special about it."

If you are from a nonmagical culture, you do not start with any spells, but you can still learn magic if you find an opportunity. When you enter a magical world, those who can detect your aura recognize you as a potential magic-user. How they react depends on the setting.

Magery 0 costs 5 points for *all* mages, but you may apply *one* of the

limitations below to the 10 points/level for Magery 1+. Limited Magery is sometimes known as "aspected Magery."

Special Limitations

Dance: You must be free to use bodily motions in order to cast spells. You are not freed from rituals requiring movement as your spell level increases (see *Magic Rituals,* p. 237). However, you need not speak *at all* to cast your spells. -40%.

Dark-Aspected: You can only use your powers in darkness. Regardless of the time of day or night, any light greater than candlelight or starlight deprives you of your abilities, though your aura reveals that you are a mage. -50%.

Day-Aspected: You can use your powers only when the sun is in the sky – on average, from 6 a.m. to 6 p.m. During solar eclipses, you have no powers! The effects of other astronomical events are up to the GM. When the sun is down, you have *none* of your magical abilities, although a look at your aura reveals that you are a mage. You are not affected by being in buildings, underground, and so on; only the sun's position matters. You know automatically (if you are awake) when it is one minute to sunrise and one minute to sunset. -40%.

Musical: You must use a musical instrument in order to cast spells. You can never cast spells silently. -50%.

Night-Aspected: You can only use your powers when the sun is not in the sky – on average, from 6 p.m. to 6 a.m. When the sun is up, you have *none* of your magical abilities, although a look at your aura reveals that you are a mage. You are not affected by being in buildings, underground, and so on; only the sun's position matters. You know automatically (if you are awake) when it is one minute to sunrise and one minute to sunset. -40%.

One College Only: Your Magery only benefits the spells of a single college and the Recover Energy spell (p. 248). You learn other spells as though you were a nonmage, and can only cast them in high-mana areas. You may still count such spells as prerequisites for spells in your own college. You cannot detect magic items unless they contain at least one spell of your college, in which case you roll normally for detection on first sight and first touch. -40%.

Solitary: Your magical abilities are at -3 for every sapient being within five yards of you, and -6 for anyone touching you. As partial compensation, you get a roll vs. IQ to notice any time a sapient creature enters or leaves the five-yard area around you – but this only works on a single person. If there is already someone standing next to you, you won't notice if someone else approaches. -40%.

Song: You must be able to sing in order to cast your spells. You are *not* freed from the ritual of speaking to cast spells as your spell level increases (see *Magic Rituals,* p. 237). -40%.

Magic Resistance, and its precise level, can be recognized by any mage who looks at your aura, or by anyone who casts a spell on you. If you have even one level of Magic Resistance, you can't cast spells at all.

Magic Resistance

2 points/level

You are less likely to be affected by magic. Subtract your Magic Resistance from the skill of anyone casting a spell on you, and add it to your roll to resist any spell that offers a resistance roll. For instance, if you have Magic Resistance 3, wizards have -3 to cast spells on you and you get +3 to resist. In addition, you may roll against HT + Magic Resistance to resist the effects of magical elixirs. You *cannot* "turn off" this advantage to let friendly wizards cast spells on you (e.g., to heal you) or to benefit from helpful elixirs!

Magic Resistance only interferes with spells *cast directly on you.* It provides no benefit against Missile spells (which are cast on the wizard's hand and *hurled* at you), attacks by magic weapons, or information-gathering spells that aren't cast directly on *you.* It also has no effect on supernatural powers other than magic; e.g., divine miracles, psionics, or the innate powers of spirits.

Magic Resistance, and its precise level, can be recognized by any mage who looks at your aura, or by anyone who casts a spell on you.

You *cannot* combine Magic Resistance with Magery. If you have even one level of Magic Resistance, you can't cast spells at all (although you can still use magic weapons).

Special Enhancements

Improved: You Magic Resistance does not interfere with your *own* ability to cast spells. This allows you to possess both Magery and Magic Resistance. +150%.

Mana Damper

10 points/level

You negate magical energy ("mana") in your vicinity, making it difficult or impossible for others to cast spells. You can *never* cast spells yourself, nor can you have any level of Magery.

Each level of Mana Damper (to a maximum of three) reduces the local mana level by one step, but only for you and people or things that you're carrying. For instance, a wizard could throw a fireball at you unhindered, but he would find it difficult to use magic to turn you to stone or read your mind. For details, see *Mana* (p. 235).

Special Enhancements

Area Effect: Your ability affects everything in an area centered on you. The first level of Area Effect gives you a radius of one yard. Each level after the first doubles this radius as usual; see *Area Effect* (p. 102). +50%/level.

Switchable: You can switch this power off – for instance, to let a friendly wizard affect you or operate within your area of effect. +100%.

Mana Enhancer

50 points/level

You radiate magical energy, or "mana." Each level of Mana Enhancer (to a maximum of two) increases the local mana level by one step, but only for you and people or things that you're carrying. If more than one character with Mana Enhancer could increase the mana level, apply only the *highest* increase; do not add the effects together.

This ability does not directly confer the ability to cast spells; for that, take Magery (p. 66). However, if you can raise the mana level to "high" or better, you can cast many spells *without* Magery! For details, see *Mana* (p. 235).

This ability has its drawbacks: you cannot have Magic Resistance, and mages get an IQ + Magery roll to sense that you possess this trait. In some game worlds, this combination may force you to hide from unethical wizards!

The GM should keep this trait under strict control, as it is powerful and easily abused in fantasy settings.

Special Enhancements

Area Effect: Your ability affects everything in an area centered on you. The first level of Area Effect gives you a radius of one yard. Each level after the first doubles this radius as usual; see *Area Effect* (p. 102). +50%/level.

Switchable: You can switch this power off in order to deprive enemy wizards of its benefits (or simply to hide from them!). +100%.

Mathematical Ability

see *Talent*, p. 89

Medium

10 points

You can perceive and communicate with spirits – particularly spirits of the dead. You don't see them visually, but you know when they're nearby. You can speak with any spirit in your presence, provided you share a language. You can also call spirits to you; there is no guarantee that they will answer your summons, but they will hear it. Note that this trait does *not* give you a reaction bonus with spirits, or any power to control their behavior.

Merchant Rank

see *Rank*, p. 29

Metabolism Control

5 points/level

You can control normally involuntary biological functions such as pulse, blood flow, digestion, and respiration. Each level of Metabolism Control gives +1 on any HT roll that would benefit from such control (GM's decision), including bleeding rolls (see *Bleeding*, p. 420) and rolls to recover from (not *resist*) disease and poison.

You can also enter a deathlike trance. Anyone unfamiliar with your metabolism must win a Quick Contest of Diagnosis vs. your HT + Metabolism Control to discover that you aren't dead. In this state, each level of Metabolism Control reduces by 10% the amount of oxygen you need to stay alive (at level 10 or higher, you *don't breathe at all*), and *doubles* the amount of time you can safely go without food or water. You are unaware of your surroundings while in your trance, but awaken automatically if injured. You may also set a mental "alarm clock" to awaken you after a certain amount of time has passed.

This ability is incompatible with the Machine meta-trait (see p. 263).

Special Limitations

Hibernation: You can only use the trance ability, and get no bonus to HT rolls. Furthermore, you *automatically* enter a trance when exposed to certain environmental conditions – great cold, drought, etc. Work this out with the GM. In such conditions, you must make a Will roll to *avoid* hibernation. You can induce hibernation voluntarily. To do so, roll vs. Will-4 hourly until you succeed. You cannot set a precise "wake up" time. Set a duration, then multiply by (2d+3)/10. -60%.

Microscopic Vision

5 points/level

You can see details that would normally be invisible without a magnifying glass or a microscope. Each level increases magnification by a factor of 10: 5 points gives 10×, 10 points gives 100×, and so on. This magnification only applies to objects within 1 foot.

Level 1 suffices for ordinary forensic investigation. Level 3 (1,000×) is equivalent to the best optical microscopes. Level 5 (100,000×) is comparable to an electron microscope, capable of imaging viruses. Level 6 (1,000,000×) is on par with a scanning-tunneling or atomic force microscope, and can study an object's atomic structure.

Military Rank

see *Rank*, p. 29

Mimicry

10 points

You can duplicate any *simple* sound (alarm, gunshot, etc.) by listening to it for one second and making a successful IQ roll. You can also imitate voices by spending at least 10 seconds listening to them – live, recorded, or remotely – and making an IQ roll.

This trait gives you no special ability to stun or deafen others with loud sounds, or to speak unpronounceable magic words. Buy any such capabilities separately.

Mind Control

50 points

You can mentally dominate those you can *see* or *touch*. To use this ability, concentrate for one second and then roll a Quick Contest: your IQ vs. your subject's Will.

Modifiers: Range penalties to the subject (see p. 550); -1 per slave *already* under your control; +2 if you concentrate for a full minute, or +4 if you concentrate for a full hour.

If you win, your victim will obey your every command until you free him. In effect, he temporarily gains the Reprogrammable disadvantage (p. 150), with you as his master. Your control persists for as long as you take uninterrupted Concentrate maneuvers. Once you stop, your control lingers for one minute per point by which you won the Quick Contest. (To increase this, add Extended Duration, p. 105.) If you are incapacitated (stunned, knocked out, etc.), or attempt to force the subject to act against his principles (e.g., commit suicide or harm a loved one), roll

another Quick Contest. If your victim wins, he breaks free. Roll at the moment of truth – you can march him to the edge of a cliff, but he doesn't roll until he's about to leap.

If you lose, you cannot attempt to control that subject again for 24 hours, and he feels a sense of mental coercion emanating from you. On a critical failure, you also lose control of *anyone else* under the influence of this ability!

Mind Control often has limitations: Accessibility (Only on opposite sex), Sense-Based (for hypnotic voices, eyes, scents, etc.), and so on. It may also have attack modifiers, subject to the restrictions that apply to attacks with Malediction (p. 106). Finally, you may apply the Cybernetic and Cybernetic Only modifiers from Mind Reading (see below).

Special Enhancements

Conditioning: You can reconstruct the subject's psyche and implant suggestions. In effect, you can add or remove *any* mundane mental disadvantage. Add Delusions for false memories, or Amnesia to wipe memories. Your victim must be under your control, cooperative, and conscious. Roll a second Quick Contest. You are at -1 per full -5 points of disadvantages changed, but you may substitute Brainwashing skill (p. 182) for IQ. Duration in *days* is equal to your margin of victory. If you win *and* roll a critical success, the conditioning is permanent! A conditioned subject who is no longer under your direct control imposes no penalty on the use of Mind Control on others. Note that another person with this ability can use it to undo your work. +50%.

No Memory: Your victims have no memory of anything that occurred while under your control. +10%.

Special Limitations

Conditioning Only: You cannot use regular Mind Control – only Conditioning (above). Uncooperative victims must be restrained before you can use your ability. -50%.

Puppet: Your victims have no initiative while under your control, and temporarily acquire Slave Mentality (p. 154). -40%.

Telepathic: Your ability is part of the Telepathy psi power (see p. 257). -10%.

Mind Probe

20 points

You can perform a deep "mind probe." In effect, you can force the subject to answer any *one* specific question that he can answer with a brief sentence. To attempt a probe, you must first either touch your subject or successfully read his mind with Mind Reading (below). You must also share a language with him.

To use Mind Probe, you must concentrate for one second and roll a Quick Contest of your IQ (or Interrogation skill, if higher) vs. your subject's Will. If you win, you rip the answer from his mind. The answer is what the subject *believes* to be true – if he doesn't know, he'll tell you. If you lose, you may try again, at a cumulative -2 per repeated attempt to ask the *same* (or very similar) question in the past hour. Should you critically fail, you cannot probe that person again for 24 hours.

You may use Mind Probe to ask as many questions as you wish, but each question is a new use of your ability, and requires a second of concentration and its own Quick Contest.

Special Modifiers

The special enhancements and limitations given for Mind Reading (below) are also available for Mind Probe.

Mind Reading

30 points

You can eavesdrop on others' surface thoughts. You must be able to see or touch the subject to affect him. Concentrate for one second and roll a Quick Contest of IQ vs. the subject's Will. Modify the roll for range penalties to the subject (see p. 550).

If you win, you can "hear" everything the subject says, subvocalizes, or *actively* thinks about as a voice in your head. Received thought comes at the speed of speech. If you do not understand the language, or if your subject isn't sapient, you only pick up feelings, images, and general intent. You can maintain Mind Reading for as long as you wish without further concentration. If you switch to another person, you must stop reading your current subject and roll a Quick Contest with the new subject. To read multiple subjects at once, take Compartmentalized Mind (p. 43).

If you lose, you may try again, at a cumulative -2 per repeated attempt on that subject in the past hour. Should you critically fail, you cannot read that person again for 24 hours.

Mind Reading is often psionic in origin, but it is just as likely to be a magical, divine, or even technological ability.

The Sense-Based *limitation* (p. 115) – especially Touch-Based – is common. If you take Hearing-Based, you can only read the thoughts of someone whose words you can hear, but can function as a "truthreader" or (with Universal) a "universal translator."

You can "hear" everything the subject says, subvocalizes, or actively thinks about.

Special Enhancements

Cybernetic: You can affect entities with the Digital Mind trait (p. 48), including all ordinary computers. Your IQ roll has a penalty equal to the system's Complexity. A nonsentient system does not resist; just roll vs. IQ - Complexity to succeed. +50%.

Sensory: You can also tap into your subject's senses. This lets you experience everything he experiences. If he is tortured, knocked out, or killed, the GM may require a Will roll to avoid stunning – or perhaps even a Fright Check! +20%.

Universal: You automatically understand thoughts, even those of nonsapient subjects and those with whom you do not share a language. +50%.

Special Limitations

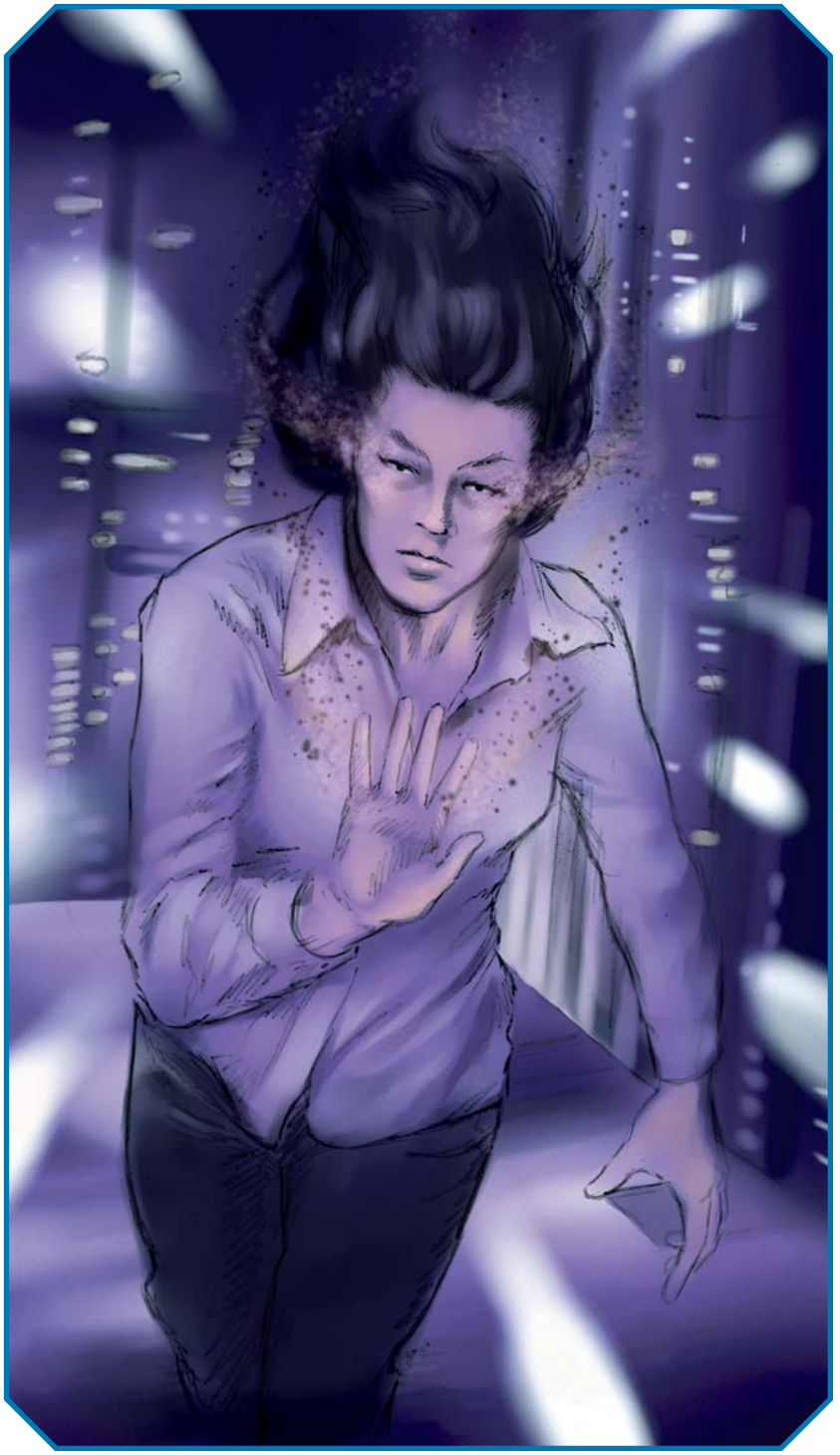
Cybernetic Only: As for Cybernetic, but you can *only* read Digital Minds. -50%.

Racial: Your ability only works on those of your own race or a *very* similar race (for instance, humans are similar to elves, but not to dogs or trolls). Combine this with the Sense-Based limitation (Touch or Scent) to represent a race that can share thoughts through biochemical means. -20%.

Sensory Only: As for Sensory, but you can't read thoughts at all. -20%.

Telecommunication: Your ability only works on those with whom you are presently in contact via Telecommunication (p. 91). -20%.

Telepathic: Your ability is part of the Telepathy psi power (see p. 257). -10%.



Mind Shield

4 points/level

You have a "shield" that warns you of and defends against mental attacks. Add your Mind Shield level to IQ or Will whenever you resist an advantage with the Telepathic limitation (see Chapter 6) and whenever you resist a spell listed under *Communication and Empathy Spells* (p. 245) or *Mind Control Spells* (p. 250).

Your shield also resists attempts to locate your mind using magic or psionics. Such abilities must win a Quick Contest against your Will + Mind Shield level to find you.

You may voluntarily lower your Mind Shield if you wish – for instance, to let a friend read your mind. Lowering or raising your shield is a free action, but it must take place at the start of your turn. Mind Shield *does* protect you while you are asleep or unconscious, unless you fell asleep or were knocked out while your shield was voluntarily lowered.

Special Limitations

Cybernetic: Your shield protects against computer-related attacks – e.g., the "Digital" form of Possession and the "Cybernetic" form of Mind Probe or Mind Reading – *instead* of magic and psi. This limitation is only available to those with Digital Mind (p. 48). -50%.

Telepathic: Your ability is part of the Telepathy psi power (see p. 257). -10%.

Mindlink

Variable

You have a permanent telepathic rapport with someone – often a twin, loved one, hive member, etc. You automatically succeed at all attempts to contact him with Telesend (see *Telecommunication,* p. 91) and Mind Reading (p. 69), provided he chooses not to resist or has Slave Mentality. Mindlink does *not* allow automatic contact across interstellar distances (more than 0.1 light-year), nor can it reach other dimensions, parallel worlds, etc.

Mindlink costs 5 points for a single person, 10 points for 2-9 people, 20 points for 10-99 people, 30 points for 100-999 people, and so on – add 10 points per tenfold increase in the number of people.

As a rule, the GM should only permit PCs to buy Mindlinks with Allies, Contacts, and Dependents; duplicates (see *Duplication,* p. 50); and other PCs (if their players permit).

Special Modifiers

You may give Mindlink the same modifiers as your Mind Reading or Telesend advantage. In most cases, the GM should *require* this.

Modular Abilities

Variable

You have a pool of character points that you can reallocate under certain conditions. You may rearrange these points to add a skill (spell, technique, etc.) or mental advantage temporarily – or to improve such a trait, if you already have it. When you do, you lose any abilities to which those points were *previously* assigned.

This advantage comes in "slots." A slot can hold *one* skill or mental advantage at a time. Each slot has a fixed base cost, plus a cost per point in the pool for that slot. Both costs depend on the type of Modular Abilities you have.

Computer Brain: Your abilities are actually computer programs. The GM decides whether a program exists for a given ability. If you have Telecommunication (p. 91), you may *download* programs, usually from a network. How long this takes depends on the speed of data transfer in the setting – a second per character point works well. In some worlds, you must pay for such programs; $100 per character point is typical. *Cost per slot: 6 points base + 4 points per point of abilities.*

Chip Slots: As above, but the programs come on physical chips that you must plug into a socket – usually in your skull. It takes three seconds to insert or remove a chip. Chips typically have negligible weight, but cost $100 to $1,000 per point of abilities. *Cost per slot: 5 points base + 3 points per point of abilities.*

Super-Memorization: You gain new abilities through rapid study. This takes a second per character point. You can "forget" a memorized ability instantly. You can only memorize abilities if you have a suitable reference work (book, film, tape, etc.). The GM determines the cash cost of such works. *Cost per slot: 5 points base + 3 points per point of abilities.*

Cosmic Power: You simply wish new abilities into being. This takes one second *per ability.* Unlike other Modular Abilities, you only ever have one "slot," and can rearrange your points into as many or as few abilities as you wish, to the limit of your advantage. *10 points per point of abilities.*

Example: Alex buys two Chip Slots at a base cost of 5 points/slot. This costs 10 points. One slot can hold a chip with a single ability worth up to 2 points, and costs 6 points. The other can hold up to 5 points, and costs 15 points. Total cost is 31 points. This appears on Alex's character sheet as "Chip Slots 2 (2, 5)." Alex will have to buy, borrow, or steal the chips he uses – but he need not pay character points for them.

Use Preparation Required (p. 114) to increase the time needed to rearrange your points, and Limited Use (p. 112) to represent an ability that you forget immediately after using it.

Special Enhancements

Physical: Your ability is not limited to skills and mental advantages. +50% for physical advantages only, or +100% for any mental or physical ability.

Special Limitations

Spells Only: Your ability only works with magic spells, which must usually be "memorized" from a grimoire. This is mutually exclusive with Physical. -20%.

Virtual: The abilities gained only apply in virtual reality, astral space, or another limited realm. -50%.

Musical Ability

see *Talent,* p. 89

Neutralize

50 points

You can neutralize the psi powers of a single psionic individual. This is an active ability with an ongoing effect on the subject. It does not *have* to be psionic – it might represent a magical or high-tech way to drain psi abilities.

To use Neutralize, you must touch the subject (requires an Attack maneuver) and win a Quick Contest of Will. If you succeed, you successfully neutralize all your victim's psionic powers (see Chapter 6) for a number of minutes equal to your margin of victory. This has no effect on the subject's psionic *Talents.* Once you have neutralized someone, you cannot affect him again until his power recovers. A critical failure with this ability cripples it for 1d hours.

Special Enhancements

Power Theft: When you successfully neutralize a psi, you acquire his powers! You gain all the psionic abilities you neutralized – including their enhancements and limitations – for the duration. You can't use Neutralize again until these powers wear off. +200%.

Special Limitations

One Power: You can only neutralize a specific psionic power; e.g., ESP or Telepathy. See Chapter 6 for a list of standard psi powers. -50%.

Nictitating Membrane

1 point/level

You have a transparent lens over your eyes that you can open and close like an eyelid. This lets you see normally underwater, and protects your eyes from sand, irritants, etc. Each level of Nictitating Membrane provides your eyes (only) with DR 1 and adds +1 to all HT rolls concerned with eye damage.

Night Vision

1 point/level

Your eyes adapt rapidly to darkness. Each level of this ability (maximum nine levels) allows you to ignore -1 in combat or vision penalties due to darkness, provided there is at least some light.

Example: Night Vision 4 would completely eliminate darkness penalties up to -4, and would reduce a penalty of -7 to only -3.

Regardless of level, Night Vision only works in partial darkness. It has no effect on the -10 for *total* darkness (for that, get *Dark Vision,* p. 47).

Obscure

2 points/level

You produce an effect that actively "jams" one particular sense, making it difficult to detect you and everything in your vicinity. You must specify the affected sense. This can be one of the five human senses or a sensory advantage such as Infravision, Radar, or one particular Detect. Examples include Obscure (Vision) for fog, Obscure (Hearing) for white noise, and Obscure (Radar) for electronic jamming.

Obscure affects a two-yard radius centered on you. Add the Area Effect enhancement (p. 102) to increase this radius. The affected sense is at -1 per level of Obscure to detect anything within your radius. Ten levels will block the sense completely. The *boundaries* of the zone are easily detected by the affected sense, however; roll at +1 per level.

Special Enhancements

Defensive: You are unaffected by your own Obscure ability. +50%.

Extended: Each *related* sense (Infravision as well as normal vision, Sonar as well as normal hearing, etc.) blocked beyond the first is +20%.

Ranged: You produce your obscuring effect at a distant point rather than around your body. This is a ranged attack with 1/2D –, Max 100, Acc 3, RoF 1, Shots N/A, and Recoil 1. Duration is 10 seconds. You can apply other modifiers to change these statistics. Unlike the usual Ranged enhancement (p. 107), this modifier lets you use your ability again before its duration has expired (e.g., to simulate multiple smoke grenades); thus, it is more expensive. +50%.

Stealthy: Your ability works invisibly, like a magical zone of silence. There is no bonus to detect the boundaries of your area of effect. +100%.

Special Limitations

Always On: You cannot turn this ability off. -50%.

Oracle

15 points

You are sensitive to omens, and see hidden significance in such things as the way plants grow, the behavior of animals, and even changes in the weather and the sky. Once per day, you may check the omens. This normally requires at least an hour, but if the GM has something in particular he wants to communicate, he may arbitrarily put it in your path. The GM rolls twice, in secret, when you use this ability: once to determine whether you discover the omen, once to see if you interpret it correctly.

Discovery: To detect an omen requires a Sense roll. On a success, you discover the omen; on a critical success, you get +5 on the subsequent interpretation roll. On a failure, you find nothing of oracular significance. On a critical failure, the GM *lies* – he tells you that you have found an omen, but this is, in reality, a product of your own fears or wishes.

Interpretation: To interpret an omen requires an IQ roll. On a success, the omen is very general; e.g., "an enemy approaches" or "a great power, long dormant, is stirring." On a critical success, the information is more specific: "you risk the wrath of the king," "seek out the mage in the tower," etc. On a failure, the omen is simply too vague to be useful. On a critical failure, you blatantly misinterpret the omen – possibly in a dangerous manner.

This ability differs from Precognition (p. 77), which requires no interpretation.

Outdoorsman

see *Talent*, p. 89

Parabolic Hearing

4 points/level

You can "zoom in" on a particular sound or area, and can filter out background noise from sounds of interest to you. Each level of Parabolic Hearing *doubles* the distance at which you can clearly hear any given sound (see *Hearing*, p. 358).

Patrons

Variable

A "Patron" is an NPC – or even an entire *organization* – that serves as your advisor, employer, mentor, or protector. An employer must be exceptional to qualify as a Patron, though; a Patron is much more than an ordinary boss!

Power

The base point cost of a Patron depends on its power. Use the categories below as a guide, but note that some Patrons won't fit neatly into any of them. The GM's word is final.

You can move your consciousness from body to body. In theory, you could live forever this way . . . however, you cannot survive outside a living host.

A powerful individual (usually built on at least 150% of the PC's starting points) or a fairly powerful organization (assets of at least 1,000 times starting wealth for the world). *10 points.*

An extremely powerful individual (built on at least twice the PC's starting points) or a powerful organization (assets of at least 10,000 times starting wealth). *Examples:* a limited manifestation of a minor god, a billionaire, or a big-city police department. *15 points.*

An ultra-powerful individual (built on as many points as the GM wants!) or a very powerful organization (assets of at least 100,000 times starting wealth). *Examples:* a super, a limited manifestation of a major god, or a big city. *20 points.*

An extremely powerful organization (assets of at least 1 million times starting wealth). *Examples:* a large corporation or a very small nation. *25 points.*

A national government or giant multinational organization (net worth basically incalculable), or a true god who appears personally to intervene on your behalf. *30 points.*

Note that the *base* cost to have a deity as a Patron is comparable to that for a powerful mundane Patron, but divine power requires the Special Abilities enhancement (see below), which will greatly increase the *final* cost of a divine Patron!

Frequency of Appearance

Choose a frequency of appearance, as explained under *Frequency of Appearance* (p. 36). If the GM determines that your Patron appears at the start of an adventure, he *may* design the adventure to include an assignment or aid from the Patron. He may also choose to leave out your Patron, if its appearance would make no sense or disrupt the adventure.

However, if the GM determined that your Patron *could* have appeared, and you try to contact your Patron during the adventure (for help, advice, etc.), then the contact is likely to be successful and you may receive aid. (Within reason – if you're locked in a dungeon without any means of communication, you won't be contacting *anybody*.) You will not know whether your Patron is "available" on a given adventure until you attempt to request aid. As a rule, you should only be able to reach your Patron for help once per adventure.

Remember that a powerful Patron could be helpful without actually intervening! A Chicago hood who can say, "I'm from Big Eddie," or a crimefighter who can flash a Q-clearance card, may carry some extra weight in a tough spot.

Party Patrons

Often, several PCs – perhaps the entire party – share a Patron (they are all agents of the same government, servants of the same cult, etc.). No matter how many characters share a Patron, the cost is *not* shared; each character must pay full price for the Patron. On the other hand, the GM will make an appearance roll for each character at the start of each adventure – and if the Patron appears for *any* of them, then it is usually available for *all* of them. The GM should scale the quality and quantity of the aid provided in proportion to the number of successful appearance rolls.

Drawbacks of Patrons

If your Patron is an army, corporation, feudal lord, etc., you may owe it a Duty (p. 133). A god or similar Patron may require a stringent code of behavior in return for its aid; see *Self-Imposed Mental Disadvantages* (p. 121). A Patron might also have powerful foes that are now *your* foes; this can give you an Enemy (p. 135). Such factors can cut the effective cost of a Patron significantly, and turn it from a benefit to a considerable liability!

Employers and Patrons

Not every employer is a Patron. If you can depend on your employer to get you out of trouble (at least sometimes), it might really be a Patron. Otherwise, it's just a job. For example, a small police department is a 10-point Patron if, as most do, it takes care of its own. But the U.S. Army, though powerful, is not a likely Patron – at least for an ordinary trooper. You *could* say, "The Colonel takes care of his men." But you could just as easily say, "I'm on my own if I get in trouble," and play a soldier who does not have a Patron.

Examples of Patrons

- A powerful wizard as Patron to warriors (or young wizards) whom he sends to find magical items or slay foes.
- A crime lord as Patron to freelance thieves or assassins.
- A minor deity as Patron to a traveling Righter of Wrongs.
- A local police department as Patron to a private detective. (They might find him annoying at times, but he helps them out, and vice versa.)
- A local ruler (in any world) as Patron to an adventurer.
- A large company as Patron to a troubleshooter or spy.
- A super-crimefighter or politician as Patron to a news reporter.
- Any intelligence organization as occasional Patron to a freelance operative, or full-time Patron to its own agents. (The difference between this and ordinary jobs is that you can't quit . . .)

You can apply the following modifiers *after* multiplying for frequency of appearance.

Special Enhancements

Equipment: Your Patron supplies useful equipment that you can use for your own purposes, and that you would otherwise have to buy. This enhancement only applies if the equipment is *yours* once given. A soldier with a military Patron would not pay extra for his weapons, since when he goes off duty, he can't take them along. An adventurer in the employ of a generous noble who hands out useful "gifts" *would* pay extra. +50% if the equipment is worth no more than the average starting wealth in the campaign, or +100% if it is worth more than that.

Highly Accessible: You can attempt to contact your Patron at any time – even when you are locked in a dungeon, lost in the desert, etc. This is most appropriate if your Patron is a spirit, a god you can petition via prayer, etc. +50%.

Special Abilities: Your Patron wields power out of proportion to its wealth or point value. +50% if your Patron has extensive social or political power (e.g., the Governor of New York or the Pope), or +100% if your Patron has magical powers in a nonmagical world, possesses equipment from a TL greater than yours, grants you special powers, or has unusual reach in time or space (e.g., a super, spirit, or god).

Special Limitations

Minimal Intervention: Your Patron is less useful than its power level would suggest. On a successful appearance roll, the GM makes a reaction roll for your Patron to determine whether it actually provides aid; see *Requests for Aid* (p. 562). On a Neutral or better reaction, you receive the aid your Patron thinks you *need* – which may or may not be what you *want*. This is the classic modifier for gods who have many other minions to aid, and frequently accompanies the Pact limitation (see p. 113). -50%.

Secret: Your Patron works behind the scenes. You do not know who it is and you cannot request aid directly. You might be able to call for help in such a way that the Patron gets the message (GM's decision), but there is no guarantee that the Patron will take action. The only evidence of this kind of Patron is minor incidents and "lucky breaks." This may take the form of information, equipment, or even direct aid . . . but only when it suits the Patron, and always in an untraceable way. A Patron like this often regards its

aid as an investment on which it expects some return; therefore, it might not have your best interests at heart! Only the GM knows any of these details. *You* know nothing other than the fact that you have a Patron. -50%.

Unwilling: You obtained your Patron through coercion (e.g., blackmail). It provides aid only because there is no other choice, and it *definitely* does not have your best interests at heart! You will eventually make one request too many (GM's judgment – perhaps if the appearance roll comes up 18) and lose the Patron: remove the Patron from your character sheet and lower your point value accordingly. Since a Patron is by definition more powerful than you are, taking an Unwilling Patron is risky. If the Patron can find a way to break your "hold," it will, and may well become an Enemy! -50%.

Payload

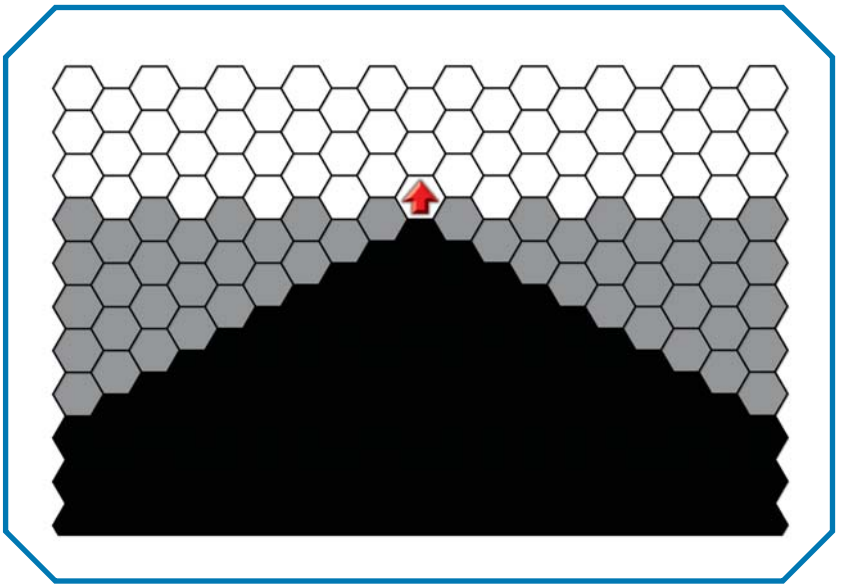
1 point/level

You can carry cargo or occupants inside your body! This might be a superficial feature (e.g., a surgically implanted "flesh pocket" or a natural pouch like that of a kangaroo) or an actual internal compartment. The latter is not just for machines – a zombie might have a colony of spiders or snakes living in its body, for example.

Each level of Payload lets you carry up to Basic Lift/10 lbs. inside you. Those without Injury Tolerance (Homogenous) (p. 60) or the Machine meta-trait (p. 263) should ask the GM's permission before taking more than five levels of Payload. You must allocate your Payload between cargo and occupants when you buy the advantage:

Cargo: 20 lbs. of cargo space is roughly equal to one cubic foot of capacity. A typical car has about 10-20 cubic feet of storage space; a semi-trailer has about 2,400 cf.

Occupants: A human-sized being requires about 200 lbs. of capacity. For others, take average racial weight and increase it by 1/3. An actual *cabin* requires 10 times that weight. Your defensive advantages (DR, Sealed, etc.) also protect your occupants. If your occupants can control you, buy Controls separately – see *Compartmentalized Mind* (p. 43).



Treat your Payload as part of your body, *not* as encumbrance or carried weight, when calculating Move and using advantages with limited carrying capacity, such as Invisibility, Jumper, and Warp.

Machines that can push or pull large *external* loads – or pick them up and carry them with arms, cranes, etc. – have Lifting ST (p. 65), not Payload. Ordinary cars and trucks have Payload, but forklifts, tugboats, and the like should buy Lifting ST to represent their abilities.

Special Limitations

Exposed: Your Payload cannot be concealed and is not protected by your defensive advantages. You can apply this to any portion of your Payload. The main use of this limitation is to create motorcycles and similar unenclosed vehicles. -50%.

Penetrating Vision

10 points/level

Penetrating Vision (sometimes called "X-ray vision") lets you see through solid objects. Each level of this advantage allows you to see through up to six inches of normal matter. You can just barely see the outline of the substance you are looking through – not enough to impair vision in any way. Penetrating Vision automatically works in conjunction with all your other vision advantages (Infravision, Ultravision, etc.).

Special Limitations

Blockable: Some substance completely blocks your vision. Common substances, such as plastic, stone, or wood, are -30%; less common materials, such as brick or asphalt, are -20%; one specific material, such as lead, is -10%.

Specific: Your ability only works through one particular substance. Common materials, such as brick, metal, or wood, are -40%; uncommon materials, such as ice or adobe, are -60%; absurd materials, such as chocolate or silk, are -80%.

Perfect Balance

15 points

You can always keep your footing, no matter how narrow the walking surface, under normal conditions. This lets you walk along a tightrope, ledge, tree limb, or other anchored surface without having to make a die roll. If the surface is wet, slippery, or unstable, you get +6 on all rolls to keep your feet. In combat, you get +4 to DX and DX-based skill rolls to keep your feet or avoid being knocked down. Finally, you get +1 to Acrobatics, Climbing, and Piloting skills.

Peripheral Vision

15 points

You have an unusually wide field of vision. You can see a 180° arc in front of you without turning your head, and have 30° of peripheral vision to either side of *that*. This gives you a 240° "arc of vision" for observation and ranged

attacks. The figure above shows the arc of vision for a normal character (white) and for someone with Peripheral Vision (gray plus white).

If you are playing with a battle map, you can make melee attacks into "side" ("right" and "left") hexes as well as "front" hexes – although a one-handed attack to the opposite side (e.g., attacking your left hex with your right hand) is clumsy and considered a Wild Swing (see p. 388). You still cannot attack a foe directly behind you except with a Wild Swing.

This also helps on defense! If you are attacked from a "side" hex, you defend at no penalty. Even against attacks from the rear, your active defense is only at -2.

Out of combat, you get +3 to all rolls to detect Shadowing attempts or ambushes from behind, and the GM will *always* make a Vision roll for you to spot dangers "behind your back."

Special Limitations

Easy to Hit: Your eyes are on stalks, unusually large, or otherwise more vulnerable to attack. Others can target your eyes from within their arc of vision at only -6 to hit. -20%.

Permeation

Variable

You can move through a particular solid material as if it didn't exist. You do not open a passage behind you; observers just see you "melt" into the surface and disappear. You need Penetrating Vision (p. 74) to see where you're going. You must still breathe (unless you have Doesn't Breathe), which limits trips to the length of time you can hold your breath (see *Holding Your Breath,* p. 351).

Permeation differs from Insubstantiality. You are affected by gravity, and you are limited to normal movement; if you lack Flight or another movement advantage, you must walk at your Basic Move. Furthermore, you can be affected by any attack that can reach you within a solid object. You also remain vulnerable to attacks *with* the material you can pass through, unless you purchase Damage Resistance to such attacks.

Cost depends on how often you are likely to encounter the material you can permeate *in the form of a barrier.* For instance, paper might be a "Common" substance, but since walls of paper are uncommon, it is treated as "Rare" for the purpose of Permeation.

Very Common: Earth (including clay, mud, and sand), metal, stone (including brick, concrete, and plaster), wood, and other ubiquitous structural materials. *40 points.*

Common: Concrete, plastic, steel, and other specific, common structural materials. *20 points.*

Occasional: Glass, ice (including snow), sand, and anything else that a normal person could eventually break or tunnel through using muscle power, as well as somewhat unusual structural materials, such as aluminum and copper. *10 points.*

Rare: Bone, flesh, paper, and other materials rarely encountered in large quantities or as barriers. *5 points.*

Special Enhancements

Can Carry Objects: Normally, you cannot carry *anything* while moving through matter. This enhancement lets you carry objects, including clothing and armor. If dropped, they "pop" into open space at the point where you entered the material. You cannot leave things *inside* solid matter! No encumbrance is +10%; Light, +20%; Medium, +50%; Heavy, +100%.

Tunnel: You can leave a tunnel (of about your size) behind you, if you choose. This rearranges the object you are moving though without inflicting damage, and does not work at all on living targets. For an ability that *can* rip holes in objects and people, see *Innate Attack* (p. 61). +40%.

Photographic Memory

see *Eidetic Memory,* p. 51

Pitiable

see p. 22

Plant Empathy

5 points

You have an unusual rapport with growing things. On encountering a plant, the GM will roll against your IQ. On a success, he will give you a general sense of its health and whether it is natural or supernatural in origin. Furthermore, this advantage functions as Empathy (p. 51) with respect to *sentient* plants, and allows you to use your Influence skills (see p. 359) on such entities, which will usually ensure a positive reaction.

This ability frequently accompanies some level of Green Thumb (see *Talent,* p. 89) and often Sense of Duty (Plants) or Vow (Use plant material only if gathered without severe injury to the plant).

Police Rank

see *Rank,* p. 29

Possession

100 points

You can move your consciousness from body to body. In theory, you could live forever this way, moving from dying bodies to healthy ones. However, *you cannot survive outside a living host.* Should your current body die, *you* will die! Thus, you must keep your current host alive . . . at least until you can find a replacement.

To possess a new host, you must concentrate for one second and physically touch him. Attempts to possess your own Puppet (p. 78) succeed automatically. In all other cases, roll a Quick Contest: your IQ vs. the subject's Will. Your victim resists at +5 if he is in combat with you or otherwise wary of you, so it is best to be subtle.

If you lose or tie, you are mentally stunned for 1d seconds. In addition, you may *never* attempt to possess that subject again – he is "immune" to you.

If you win, you take over your victim's body, completely suppressing his personality. Your *previous* host regains control of his body (if sentient) after 1d seconds of mental stun, and "comes to" with no memory of the possession.

You gain your new host's ST, DX, and HT (and secondary characteristics calculated from these scores), as well as his physical advantages and disadvantages. You keep your own IQ, Perception, and Will, and all of your mental traits. Your social traits *may* apply, depending on the laws and values of your society.

Skills are a special case. Your IQ-, Perception-, and Will-based skills are unchanged. Other skills remain at the same *relative* skill level. For instance, if you have Acrobatics at DX+3, then you would have Acrobatics-12 in a DX 9 body and Acrobatics-14 in a DX 11 body.

If you occupy a sentient host, you have sufficient access to his memories for the first few hours of the takeover to learn his name and daily routine, but not enough to learn IQ-based skills. To recall a specific fact from the host's memories, you must roll vs. IQ, at -1 per *hour* since the takeover. Only one attempt is allowed for any given memory!

Precognition: You cannot control the content of these flashes – you just know that something interesting or important might happen, at some unspecified future date.

If you occupy a host for a long time, or hop between multiple bodies, the GM is free to adjust your point value to reflect the most expensive body you regularly occupy. For more on this subject, see Chapter 9.

With suitable modifiers, Possession can represent diverse abilities seen in speculative fiction. Note that the Digital, Magical, Parasitic, Spiritual, and Telepathic limitations are mutually exclusive.

Special Enhancements

Assimilation: When you enter a new body, you may choose to "forget" any of your current skills and use the points this frees up – and any unspent points – to learn ST-, DX-, or HT-based skills known by the host, at up to (host's level)-1. For instance, if you do not know Acrobatics, but your host knows it at DX+3, you can pick it up at DX+2 . . . if you have enough points. Skills forgotten in order to learn new skills are gone. Skills learned from your host will move from body to body with you. +10%.

Chronic: When you exit a host, you can leave a "back door" that lets you possess him again *without* a Quick Contest. This lets you buy your former host as a Puppet. You can only use this enhancement if you have enough unspent points to buy a Puppet at the time you leave your host. +20%.

Mind Swap: Your host's mind moves into your previous body instead of being suppressed – in effect, you "trade places." +10%.

Telecontrol: You remotely control your new host as if he were a puppet, leaving your original body in a trance. You may choose to return to your body at any time, and *must* do so if your host falls unconscious or dies (but not if he sleeps). As a result, you do not die if your host dies. +50%.

Special Limitations

Digital: This limitation is only available to Digital Minds (p. 48). You take over computers, not living bodies. The target system must be connected to your current host computer via a network, and you must have *complete* access to it – voluntary or otherwise (see *Computer Hacking*, p. 184). The target computer's hardware must be complex enough to run your computer program; in general, its Complexity must be at least half your IQ (round up). You can also take over a computer using a *copy* of yourself while leaving the original intact! However, unless you have the Digital version of Duplication (p. 50), any system you take over this way becomes an independent NPC that thinks it is *you*. This can be good or bad – the duplicate could become any type of Associated NPC (see p. 31). -40%.

Magical: Your advantage is an innate magic talent. If the subject is protected by a spell that repels hostile magic, you must *win* a Quick Contest of your IQ vs. that spell before you can make a possession attempt. If your victim has Magic Resistance, it subtracts from your IQ *and* adds to his Will during the actual possession attempt. -10%.

Mindlink Required: You can only possess someone with whom you have a Mindlink. If the link is ever jammed, out of range, etc., the possession ends. If the Mindlink has the Telecommunication limitation, Mindlink Required can represent control via an implant, telepresence, or similar technology. -40%.

No Memory Access: You have no access to your host's memories. -10%.

Parasitic: You enter your host's body *physically*. You must have Permeation (Flesh) (p. 75) to do this, unless your host has sufficient Payload (p. 74) to contain you – and your victim must have a higher Size Modifier than you. After entering your victim's body, you may attempt to possess him. He resists with the *higher* of HT or Will. You aren't forced out if you lose, but he is "immune" to you, so you need to find another host soon. While you are in someone else's body, he (if he is still uncontrolled) or his friends might be able to use technological means to detect you – and possibly remove you. Attacks that penetrate or ignore your host's DR can injure you, but his HP act as extra DR for this purpose. If you are microbial, you should purchase Injury Tolerance (Diffuse) (p. 60), which will protect you. The host nourishes you, and may have to eat extra food as a result. You can choose to leave at any time, the same way you entered. You may also temporarily release your host while continuing occupation. If you do, you will have to win a new Quick Contest to regain control. -60%.

Puppet Only: You may possess your own Puppets automatically, but you cannot possess anyone else. -30%.

Spiritual: You must have the Spirit meta-trait (p. 263) to take this limitation. Your spirit body merges with and occupies the body of your host. It remains insubstantial during the possession, traveling inside the host but otherwise inaccessible to you and effectively mindless. It can be injured as detailed under Parasitic, but only by attacks that affect insubstantial things. A genuine exorcist can cast you out by winning a Quick Contest of his exorcism ability vs. your Will. You cannot return to a body you have been cast out of for at least 24 hours. You may choose to release your host at any time. If you are exorcised or leave voluntarily, the host recovers after 1d seconds of mental stun. -20%.

Telepathic: Your ability is part of the Telepathy psi power (see p. 257). -10%.

Power Investiture

10 points/level

A deity – god, demon lord, great spirit, cosmic power, etc. – has empowered you to cast "clerical" spells. Add your Power Investiture to your IQ when you learn spells granted by the deity who bestowed this advantage. For instance, IQ 12 and Power Investiture 2 (Thor) would let you learn spells granted by the god Thor (and *only* Thor) as if you had IQ 14.

You may only learn clerical spells from a fixed list set by your deity, who may even dictate which specific spells you learn. The GM determines this list and takes on the role of your deity when you wish to learn new spells. However, because you are channeling divine will as opposed to studying magic, *clerical spells do not have prerequisites.*

In general, the more Power Investiture you have, the "holier" you are. The maximum level of Power Investiture depends on your deity, as determined by the GM. Minor deities who have a limited ability to transfer power to their chosen, or a small range of possible spell effects, might grant only one level, while major deities might be more generous.

Note that Power Investiture is a measure of your bond with your deity, while Clerical Investment (p. 43) and Religious Rank (p. 30) measure social power. These need not be related. Power Investiture *might* be restricted to high-ranking clerics . . . but a deity can grant power to anyone it wants (possibly to the chagrin of the church!).

In some cases, you can add or increase Power Investiture in play. What this entails depends on the deity. To gain, keep, or improve Power Investiture, you nearly always have to take *and adhere to* one or more of the traits listed under *Self-Imposed Mental Disadvantages* (p. 121). If you break these vows, you will lose some or all of your powers – perhaps until you have made proper penance, perhaps permanently. In effect, Power Investiture comes with a built-in Pact limitation (see p. 113); do not apply this modifier again.

You may also need to meet certain *physical* requirements. Some deities only empower men, women, eunuchs, virgins . . . the GM should be creative. Should you lose a special requirement (such as virginity), your Power Investiture may be diminished or lost, reducing your point value accordingly.

You can have both Magery and Power Investiture (unless your deity forbids this), but Magery does not improve clerical spells and Power Investiture does not aid magical spells. The clerical and magical versions of a given spell are *entirely different spells,* and clerical spells never count as prerequisites for magical spells. If you know both versions of a spell, they do not affect one another.

Power Investiture is one possible way to handle "holy powers." It is most appropriate in settings where priests are divinely inspired wizards. For other views of divine gifts, see *Blessed* (p. 40) and *True Faith* (p. 94).

Precognition

25 points

You receive glimpses of future events. You *cannot* control the content of these flashes – you just know that something interesting or important might happen, at some unspecified future date. You might learn this through visions, voices, or "sudden knowledge." A vivid premonition of a terrible event might even require a Fright Check (p. 360)!

Precognition only gives information that your "future self" could learn and that would matter to you. For instance, if you're in New York, you are unlikely to have a premonition about a random murder in Los Angeles. But if the victim was a friend, or if the killing was important enough to make national news, you might "flash" on it.

Nothing about the future is *certain,* though. Even if the GM has made up his mind, he could reconsider . . . although something *related* to the premonition should still happen. In most settings, predicted events *will* occur unless you take specific action to prevent them. (But the GM is free to rule that the future is immutable in his setting!)

Whenever the GM feels a premonition would be appropriate, he will secretly make an IQ roll for you – usually during an encounter with a person or object. For instance, meeting someone with an important event in his future might set off a premonition related to that event, especially if it would affect *you* in some way. Similarly, seeing a picture of a place could set off a vision involving that location.

A *deliberate* attempt to use Precognition requires 10 minutes of concentration, 2 FP, and an IQ roll at *-8.* You can attempt to read your own future, or that of another person. To deliberately read the future of someone else, you must be able to touch him.

Precognition is normally limited to "seeing" into the near future – perhaps a week or so. At the GM's option, however, a critical success or a *very* important event might result in visions from much further in the future.

Note that Precognition *includes* Danger Sense (p. 47) – do not take both.

Special Limitations

Can't See Own Death: Your Precognition cannot detect people or events that the GM believes have a high probability of causing your death. Your ability does *not* include Danger Sense. -60%.

ESP: Your ability is part of the ESP psi power (see p. 255). -10%.

One Event: Your ability works only for a particular type of event: events involving you personally (if you scanned another, you would only see a significant event if you were involved); disasters; events related to death; events related to love, etc. This limitation is mutually exclusive with Can't See Own Death. -40%.

Pressure Support

5 to 15 points

Every character has a "native pressure." For ordinary humans, this is the pressure of Earth's atmosphere ("1 atmosphere"). A native pressure other than 1 atmosphere is a 0-point feature, but if you can survive for a prolonged period of time at a *wide range* of pressures, you have an advantage. This trait comes in three levels:

Pressure Support 1: You can survive at pressures between your native pressure and 10 times that. (This would enable a human to survive on most of Earth's continental shelves.) *5 points.*

Pressure Support 2: You can withstand pressures between your native pressure and 100 times that. (This would enable a human to survive anywhere in Earth's oceans, save the deepest trenches.) *10 points.*

Pressure Support 3: You are *immune* to the effects of high pressure. *15 points.*

Pressure Support lets your body stay at a constant internal pressure with respect to a constant and uniform external pressure. This protects against attacks that manipulate ambient pressure or crush the entire body, but provides no defense against *localized* or *transient* pressure changes. In particular, Pressure Support does not reduce or prevent damage from crushing attacks or explosions of any kind.

Those with Pressure Support often have the Sealed advantage (p. 82), but this is not required.

Protected Sense

5 points/sense

One of your ranged senses is protected against overload. It rapidly adapts to the most intense of stimuli, allowing you to function normally after a maximum of two seconds of impairment. You will never suffer permanent damage to that sense as a result of excessive sensory input, and you get +5 to rolls to resist temporary damage and Sense-Based attacks targeting that sense.

Protected Senses cost 5 points apiece. Protected Vision resists glare and eye damage from lasers, and lets Dark Vision, Infravision, and Night Vision adjust instantly from bright light to darkness. Protected Hearing protects against loud noises. Protected Taste/Smell filters out strong odors and tastes (but not toxins). The GM may permit other Protected Senses (Detect, Scanning Sense, etc.), with suitable justification.

Psi Static

30 points

You are a psionic "null." Psionic abilities cannot directly affect you or anything you are carrying or wearing. For instance, a telekinetic could throw a rock at you, but he could not levitate you or grab a sword from your hand.

Special Enhancements

Area Effect: You emit static in an area centered on you. The first level of Area Effect extends your static to everything within one yard. Each level after the first doubles this radius as usual; see *Area Effect* (p. 102). +50%/level.

Switchable: You can switch this advantage off in order to allow friendly psis to affect you or operate within your area of effect. +100%.

Special Limitations

Resistible: Your ability is not absolute. A psi can "burn" through your static and affect those protected by it by winning a Quick Contest of Will with you. If the attacking psi ability *already* requires a Quick Contest, the attacker rolls only once but the target gets +5 to resist. -50%.

Psychometry

20 points

You can sense the history of a place or inanimate object – its use, its user's personality, etc. This is usually a supernatural gift of some sort (such as psi), but it could also represent a technological "time-scanning" power that can see the past.

To use Psychometry, you must touch the subject item or location, concentrate for one second, and make an IQ roll. This roll is at no penalty for an event that occurred the same day, -1 for one that occurred up to 10 days ago, -2 if up to 100 days ago, -3 if up to 3 years ago, -4 if up to 30 years ago, -5 if up to 300 years ago, and so on. At the GM's option, you might notice very strong "vibes" on an IQ-4 roll, even if you *aren't* concentrating.

On a success, you receive the general sense of emotions and events tied to the object or place . . . *if* it is linked to emotionally charged events (an uneventful history might leave no impressions at all). This is not always a good thing – a terrifying impression might require a Fright Check (p. 360)! On a critical success, you experience an actual vision. No matter how well you roll, you *cannot* detect magic, spirits, etc. Still, a magic item, ghostly haunt, or ritual site is likely to have an emotionally charged history, giving strong impressions.

On a failure, you receive no impressions at all, and cannot attempt to read that object or place again for 24 hours.

Special Limitations

ESP: Your ability is part of the ESP psi power (see p. 255). -10%.

Puppet

5 or 10 points

Prerequisites: Possession and either Ally or Dependent.

A Puppet is an Ally (p. 36) or Dependent (p. 131) who cannot resist your Possession advantage (p. 75). When you use Possession on him, you succeed automatically! This may be due to his nature or some special knowledge you have: a curse, his true name, the key to his mind, etc.

A Puppet will always have IQ 0, *or* owe you a Duty (p. 133), *or* be Reprogrammable (p. 150). If he has a Duty, it must be Involuntary, and its frequency must be identical to the Puppet's own frequency of appearance as an Ally or Dependent.

Each Puppet costs 5 points. You can buy an *entire group* of related Allies as Puppets for 10 points. These costs are for the Puppet advantage only; you must pay for your Ally or Dependent separately. It is common but not mandatory for such Allies to have the Minion enhancement or the Unwilling limitation.

Racial Memory

15 or 40 points

You have access to the memories of your direct ancestors (or earlier software generations, for Digital Minds). This ability comes in two forms:

Racial Memory (Passive): Your talent is vague and totally passive. The GM secretly makes an IQ roll for you in any situation that your ancestors might have encountered. On a success, you get a feeling of *déjà vu* about the situation. It is up to you to interpret this. A critical success gives a vivid replay of ancient ancestral memories. On a failure, nothing happens. A critical failure results in a wrong impression. *15 points.*

Racial Memory (Active): You may use this advantage *actively.* If you want to know something, the GM first determines whether or not your ancestors knew the answer. Then he rolls against your IQ to see if you can gain access to the information. If your ancestors didn't have the answer and the roll succeeds, you will know that. On a critical failure, you will believe your ancestors didn't know, even if

they really did. This requires one turn of absolute concentration (the GM may require more elaborate preparations to recall very ancient memories). *40 points.*

Radiation Tolerance

Variable

Your cells or circuits are resistant to radiation. The cost of this advantage depends on the divisor of the effective dose of radiation you receive – *after* dividing by the Protection Factor (PF) of artificial protection such as armor.

Divisor	*Cost*
2	5 points
5	10 points
10	15 points
20	20 points
50	25 points
100	30 points
200	35 points
500	40 points
1,000	45 points

Rank

see p. 29

Rapid Healing

5 or 15 points

Your wounds heal quickly. This trait comes in two levels:

Rapid Healing: Whenever you roll to recover lost HP *or* to see if you can get over a crippling injury, you get +5 to your effective HT. *Prerequisite:* HT 10+. *5 points.*

Very Rapid Healing: As above, but when you roll to recover lost HT, a successful HT roll means you heal *two* HP, not one. *Prerequisite*: HT 12+. *15 points.*

Note that this advantage does not hasten recovery from the *short-term* effects of injury, such as stunning and knockout; get Recovery (p. 80) for that.

Rapier Wit

5 points

You can use witty repartee to stun your foes in combat. This does not require a combat maneuver – talking is a free action (p. 363). Roll a Quick Contest of Public Speaking skill vs. your opponent's Will.

Modifiers: -2 if your target has the Clueless or No Sense of Humor disadvantage; any modifier the GM assigns based on your description of the verbal attack; -1 per opponent beyond the first to affect a group (and you must know something the *entire group* has in common; e.g., they're all flunkies of the same household or members of the same military unit). Opponents with the Unfazeable advantage (p. 95) are *immune* to Rapier Wit.

If you win, your opponent is mentally stunned (see p. 420). A critical success causes one HP of physical damage as well – your victim injures himself accidentally (drops something on his foot, chokes on his own tongue, etc.). If you lose, there is no effect. On a critical failure, you enrage your opponent, possibly triggering such disadvantages as Berserk and Bloodlust!

This advantage is usually only appropriate in a *silly* campaign!

Reawakened

10 points

You can "remember" skills (spells, techniques, etc.) learned during previous lives. You must purchase these abilities normally; Reawakened is just a special Unusual Background (p. 96) that explains how you learned them without a teacher. This trait is only available if reincarnation is a fact in the setting (GM's decision).

Recovery

10 points

You recover from unconsciousness very quickly. When determining the length of time you remain unconscious for *any* reason, divide by all times by 60: hours become minutes, minutes become seconds . . . even a month-long coma becomes a mere 12-hour sleep.

Reduced Consumption

2 points/level

You can go for a long time without food and water, or fuel – although you still require these things. (For indefinite endurance, see *Doesn't Eat or Drink,* p. 50.) This advantage comes in four levels:

Reduced Consumption 1: You require 2/3 as much food and water, or fuel, as usual ("two meals a day"). *2 points.*

Reduced Consumption 2: You require 1/3 as much food and water, or fuel, as usual ("one meal a day"). *4 points.*

Reduced Consumption 3: You require food and water only once per week ("one meal a week," or about 5% as much). *6 points.*

Reduced Consumption 4: You require food and water only once per month ("one meal a month," or about 1% as much). *8 points.*

Note that one or even two levels of this advantage might be appropriate for ascetics in cinematic games!

Special Limitations

Cast-Iron Stomach: You require the standard *amount* of food and water, but the *quality* is irrelevant. You can eat rotten vegetables and fuzzy blue-green meat, and drink dishwater and sour milk. Instead of reducing how often you must eat, reduce your demands on life support (and your food costs) by a like amount: to 2/3 normal at level 1, 1/3 normal at level 2, 5% normal at level 3, and 1% normal at level 4. You get a bonus equal to your level (+1 to +4) to resist the effects of food-borne poisons or diseases not tailored expressly for you, but -3 on reactions from anyone watching you eat! -50%.

Food Only: You require less food, but the usual amount of water. -50%.

Water Only: You require less water, but the usual amount of food. -50%.

Regeneration

Variable

Your wounds heal in mere hours, minutes, or seconds! To regenerate lost *limbs,* you will also need Regrowth (below) – but Regeneration will greatly accelerate that ability. Regeneration includes Rapid Healing (p. 79) at no extra cost.

You cannot have Regeneration if you have Slow Healing (p. 155) or Unhealing (p. 160). Regeneration *is* compatible with Draining (p. 132), but it does *not* restore the daily HP loss due to that disadvantage.

The cost of this trait depends on your regeneration speed:

Regeneration (Slow): You recover 1 HP every 12 hours, in addition to normal healing. *10 points.*

Regeneration (Regular): You recover 1 HP per hour. *25 points.*

Regeneration (Fast): You recover 1 HP per minute. *50 points.*

Regeneration (Very Fast): You recover 1 HP per second. *100 points.*

Regeneration (Extreme): You recover 10 HP per second. *150 points.*

Special Enhancements

Heals Radiation: You shed accumulated rads at *10 times* the rate at which you heal missing HP. For instance, Regeneration (Regular) removes 10 rads per hour. This *will* heal "permanent" radiation damage. +40%.

Special Limitations

Radiation Only: As Heals Radiation, but you *only* shed rads – you do not heal HP. -60%.

Regrowth

40 points

You can regrow lost limbs and organs! A lost ear, finger, toe, claw, tentacle tip, etc. regrows in 1d weeks; a lost hand or foot in 1d+1 months; and a lost eye, arm, or leg in 2d+2 months. If you also have Regeneration (above), Regrowth works *much* faster: all lost body parts regrow in the time it takes you to heal to full HP.

Special Limitations

Minor: You can only regrow ears, fingers, toes, and other small bits – not hands, feet, eyes, etc. -50%.

Religious Rank

see *Rank,* p. 29

Reputation

see p. 26

A positive Reputation is an advantage and should be noted as such on your character sheet.

Resistant

Variable

You are naturally resistant (or even immune) to noxious items or substances that are not direct, physical attacks. This gives you a bonus on all HT rolls to resist incapacitation or injury from such things.

The bonus from Resistant applies to all rolls to resist noxious effects within a particular category – usually some combination of disease, poison, and environmental syndromes (altitude sickness, the bends, space sickness, etc.). It also applies to rolls to resist *attacks* that use these effects. This includes Afflictions with one of Blood Agent, Contact Agent, Follow-Up, or Respiratory Agent, and Innate Attacks that have such modifiers *and* inflict toxic or fatigue damage.

Resistant does *not* protect against effects that Damage Resistance or Protected Sense either stop or provide a HT bonus to resist. This includes Afflictions and Innate Attacks that do not have any of the modifiers given above.

The base cost for Resistant depends on the rarity of the effects it counteracts:

Very Common: A broad category within the noxious items described above. *Example:* Metabolic Hazards (all threats that only affect the living, including all disease and poison, plus such syndromes as altitude sickness, bends, seasickness, and jet lag). *30 points.*

Common: A group of related items encountered as often in nature as in an attack, *or* some other suitably broad subset of "Very Common." *Example:* Poison (all toxins, but not asphyxiants or corrosives) or Sickness (all diseases and environmental syndromes). *15 points.*

Occasional: A group of closely related items more often encountered in nature than as a deliberate attack, *or* a subset of a "Common" group. *Examples:* Disease (all bacteria, viruses, fungus infections, etc.) or Ingested Poison. *10 points.*

Rare: A specific item or environmental syndrome, *or* a subset of an "Occasional" group. *Examples:* Acceleration (blackouts due to extreme G-forces), Altitude Sickness, Bends (decompression sickness), Seasickness, or Space Sickness; Nanomachines. *5 points.*

Multiply base cost to reflect your degree of resistance:

You are *totally* immune to all noxious effects, and never have to make resistance rolls (write this as "Immunity" on your character sheet): ×*1*.

You have +8 to all HT rolls to resist: ×*1/2*.

You have +3 to all HT rolls to resist: ×*1/3*.

Drop all fractions from the final cost.

An ordinary human could believably have any level of resistance to a *mundane* "Rare" item, such as Seasickness. He might also have Resistant to Disease (+3) [3], Resistant to Disease (+8) [5], or Resistant to Poison (+3) [5]. Anything more would be superhuman. Golems, robots, undead, and other beings that are not truly "alive" *must* take Immunity to Metabolic Hazards [30]; this is already included in the Machine meta-trait (p. 263). When in doubt, the GM's word is final.

Mental Resistance: It is possible to be Resistant to a purely mental threat. This works as described above, except that the bonus applies to resistance rolls against IQ and Will instead of HT. "Psionics" is an allowed category, and is considered Very Common.

Resistant does not protect against effects that Damage Resistance or Protected Sense either stop or provide a bonus to resist.

Scanning Sense

Variable

You can emit energy, bounce it off objects, and analyze the returned signal to build up a "picture" of your surroundings. This lets you discern size and shape, but not color or fine detail (such as writing). It has *nothing* to do with the normal human sense of sight, and requires no light. As a result, you may ignore darkness penalties in combat. Perception is limited to a 120° arc in front of you.

Your sense is "active." Anyone who can sense the signal you emit can detect you, out to *twice* your own range. Unlike other sensory advantages, however, you can turn this ability off; see *Turning Advantages Off and On* (p. 34).

Below are several varieties of Scanning Sense. Each is a *separate* advantage, with its own special rules. Where these rules contradict the general ones given above, follow the special rules. Each sense also has a base range. To adjust this, take Increased Range (p. 106) or Reduced Range (p. 115).

Radar: Your Scanning Sense uses radio waves. Base range is 2,000 yards. You can only detect large (human-sized or larger), dense objects. On a Sense roll, you get a general idea of the relative size of the object, and whether it is moving, but nothing more precise. You cannot get an actual "image" with Radar, or use it to aim attacks. Radar works best on flying targets; roll at -4 to spot anyone who is not silhouetted against the sky. Radar does not work at all underwater. *20 points.*

Imaging Radar: Your Scanning Sense uses millimeter-wave radar. Base range is 200 yards. You can spot small objects and determine their shape, but you must make a Sense roll to distinguish fine relief (e.g., to identify a face). Imaging Radar can see through thin fabric or vegetation. You get +3 to locate objects like concealed weapons, and may ignore penalties for spotting objects hidden behind light brush. Ordinary radar detectors detect Imaging Radar at -4. Imaging Radar does not work underwater. *20 points*.

Ladar: Your Scanning Sense uses a laser beam. Base range is 200 yards. Ladar is very similar to Imaging Radar, but the beam is narrower and offers better resolution. This gives -4 on rolls to *locate* objects of interest, but +4 on rolls to *identify* them. Only specialized ladar detectors can detect Ladar, and at -4 even then. Ladar cannot penetrate dense smoke or solid objects. It has 10-50% range in falling rain or snow, and 1% range underwater. *20 points.*

Para-Radar: Your Scanning Sense uses energy unknown to 21st-century science. Treat Para-Radar as Imaging Radar, except that it functions in *any* environment! Ordinary radar detectors cannot detect Para-Radar, although some ultra-tech sensors might be able to do so. *40 points.*

Sonar: Your Scanning Sense uses ultrasonic sound waves. Base range is 2,000 yards underwater. You can spot small objects and determine their shape, but you must make a Sense roll to distinguish fine relief (e.g., to identify a face). Sonar does not function if you are deafened, and can be "jammed" or fooled by a very loud noise (e.g., an explosion). Individuals with Ultrahearing can detect Sonar. Sonar is much less effective in air: range is only 20 yards multiplied by air pressure in atmospheres (one atmosphere on Earth). Sonar is completely ineffective in vacuum. *20 points.*

Special Enhancements

Extended Arc: You can scan an arc greater than 120°. A 240° arc (as described for Peripheral Vision, p. 74) is +75%; a 360° arc (as described for 360° Vision, p. 34) is +125%.

Low-Probability Intercept (LPI): This is only available for Radar and Sonar. You can switch this enhancement on and off. Turning it on makes your signal difficult to detect. This halves range, but your Scanning Sense can only be detected at 1.5 times the *halved* range. +10%.

Multi-Mode: This is only available for Radar. You can switch between Radar and Imaging Radar. (This is much cheaper than buying the two advantages separately, because they overlap to some extent.) +50%.

Penetrating: This is only available for Para-Radar. You can "see" *inside* any object within range. This functions exactly as Penetrating Vision 2 (p. 74). +50%.

Targeting: By taking an Aim maneuver, you can "lock onto" any object within range and determine its precise range and speed – just as if you had a high-tech rangefinder. This gives you +3 to hit that target with an *aimed* ranged attack. +20%.

Special Limitations

Targeting Only: As Targeting, but you can *only* use your sense to "lock onto" targets already spotted with another sense; you cannot use it to spot things. -40%.

Sealed

15 points

You are encased in a gas- and liquid-impermeable layer. This makes you waterproof, and grants complete immunity to corrosive or toxic agents that must touch skin or exposed machinery to work. You must still breathe, unless you also have Doesn't Breathe (p. 49); however, your exterior breathing apparatus (nose, snorkel, etc.) is protected by this trait. Likewise, you are *not* automatically pressurized; for that, take Pressure Support (p. 77) or Vacuum Support (p. 96).

Security Clearance

Variable

A government agency or corporation trusts you with access to sensitive information that would otherwise be "off limits" to someone of your Rank or Status. For instance, a general "cleared" for military secrets commensurate with his Military Rank would not have to buy Security Clearance separately, but a civilian with exactly the same level of access would have to pay points for the privilege.

Point cost depends on your degree of access:

- You have access to a relatively narrow range of secrets on a "need to know" basis. *Example:* a strategic bomber pilot, who might know secrets about aircraft, weapons, and targets. *5 points.*
- You have *either* free access to a narrow range of secrets *or* "need to know" access to a broad range of secrets. *Example:* a counterintelligence officer, who would have limited access to *many* secrets, as part of his job is to protect them. *10 points.*
- You have free access to a broad range of secrets. *Example:* a cinematic secret agent, who will know almost

any secret the plot requires him to know. *15 points*.

Halve these values (round up) if the organization that grants the Security Clearance is of relatively minor importance (e.g., a small corporation or municipal government).

You cannot receive a security clearance without a thorough background check. The GM is free to forbid this advantage to any PC who has a suspicious past (including such traits as Debt or Secret) or an unstable personality (for instance, Paranoia or Sadism).

See Invisible

15 points

You can see objects or individuals that are normally invisible. Buy this advantage separately for each kind of invisibility.

Sensitive

see *Empathy*, p. 51

Sensitive Touch

10 points

Your fingertips or equivalent organs are extremely sensitive, allowing you to sense residual heat in a chair, faint vibrations in the floor as someone approaches, etc. You get +4 (in addition to any Acute Touch bonuses) on any task that utilizes the sense of touch; e.g., a Forensics roll to note the similarities or differences between two pieces of fabric, or a Search roll to feel out tiny concealed objects.

Serendipity

15 points/level

You have the knack of being in the right place at the right time. Each level of this trait entitles you to one fortuitous but plausible coincidence per game session. The details are up to the GM. For instance, the GM might declare that one of the guards you need to talk your way past just happens to be your cousin, or that there is a sports car idling in front of the bank just as you run outside in pursuit of the fleeing bank robbers.

From time to time, the GM may rule that a single *implausible* coincidence counts as some or all of your lucky breaks for a given session (e.g., the mechanic at the local garage has all the parts you need to complete your ultra-tech contragrav belt).

You are free to *suggest* serendipitous occurrences to the GM, but he gets the final say. Should he reject all your suggestions but fail to work Serendipity into the game session, you will get your lucky breaks next game session.

Shadow Form

50 points

You can become a two-dimensional shadow. This lets you slip along walls and floors – and through the thinnest cracks (anything wide enough to fit your shoulders through) – at your usual ground Move. You can also defy gravity, creeping up walls and across ceilings at half Move.

Physical attacks do half damage to you in this form. Energy attacks do normal damage, except for light-based attacks, which do 50% extra damage. Magic, psi, and other purely mental abilities affect you normally.

You are subject to a few major restrictions while in this form. You cannot walk through three-dimensional space; you *must* slide along an object. Furthermore, you cannot perform any purely physical attacks or actions, and you cannot carry ordinary items or affect them in any way. You *can* use magic, psi, and similar abilities, however.

If you cannot switch out of Shadow Form, Shadow Form is a *disadvantage* worth -20 points. This will make it difficult to interact with others! You may still add enhancements, but they will work like limitations, reducing the value of the disadvantage. For instance, a +50% enhancement would reduce the value of the disadvantage by 50%, to -10 points.

Special Enhancements

Can Carry Objects: You may carry objects. They take Shadow Form when picked up and return to normal when put down. You still may not affect non-shadow objects. No encumbrance is +10%; Light, +20%; Medium, +50%; Heavy, +100%.

Shapeshifting

Variable

You can physically change into one or more forms different from your native form. To shift between forms, you must concentrate for 10 seconds. To speed this up, add Reduced Time (p. 108).

Fatigue, injury, crippling, and afflictions carry over between forms – although HP and FP losses scale in proportion to the HP and FP of the form. For instance, if you suffer 10 HP of damage and a broken leg in a form that has 20 HP, you will have 5 HP of damage and a broken leg when you switch to a form that has only 10 HP.

If you are knocked out or killed, you *immediately* revert to your native form (which will also be unconscious or dead). In addition, you must specify a single, reasonably common external influence that can force you to return to your native form against your will. This should suit the advantage's origin: a Dispel Magic spell if your ability is magical, exorcism if a spirit power, strong magnetic fields if technological, etc.

Shapeshifting comprises two different traits: Alternate Form and Morph.

Alternate Form

Variable

Like the werewolf of folklore, you can assume a specific form other than your own. This can be *anything* built with points: humanoid, animal, robot, etc. Create your alternate form as a racial template (p. 260); however, you can switch it "on" and "off." This template need not be a "stock" template. For instance, if you wish to retain human intelligence in beast form, you could shift into a template that lacks the beast's low IQ (although this increases the template cost and hence the cost of Alternate Form). The GM is the final judge of what templates are allowed as Alternate Forms.

While it is turned on, your Alternate Form's racial template *replaces* your native racial template. Apply its racial traits – attribute modifiers, racial advantages and disadvantages, etc. – *instead* of those of your native race. Personal traits (including all attribute levels, advantages, disadvantages, and skills bought over and above racial norms) remain intact, although your skill levels are affected by changes to the controlling attribute scores.

If the Alternate Form's racial template has traits that conflict with your personal traits, the traits of your Alternate Form take precedence. For instance, if you become a dolphin with No Manipulators, you will temporarily lose personal advantages that affect your hands, such as High Manual Dexterity, while you are in dolphin form – and some skills (for instance, Lockpicking) will be relatively useless, although you do remember them.

If you have a single Alternate Form, it costs 15 points for a racial template worth no more than your native racial template. A more powerful form costs 15 points *plus* 90% of the difference in cost between your native template and that of your Alternate Form.

If you have multiple forms, pay full cost for the *most expensive* form. The less powerful Alternate Forms cost a flat 15 points apiece. Minimum cost per form is still 15 points.

Example: Consider four racial templates: a -100-point "cuddly critter," a 0-point human, an 80-point "ravenous beast," and a 100-point troll. A human who can turn into a cuddly critter pays 15 points, as the cuddly critter template is worth less than his native template. A cuddly critter who can turn into a human pays 15 + (0.9 × 100) = 105 points, since the human racial template is worth 100 points *more* than his own. A human who can become a troll also pays 15 + (0.9 × 100) = 105 points. A human who can assume any of the other three templates would pay full cost for his most expensive form, the troll: 105 points. The ravenous beast and cuddly critter forms would cost the minimum 15 points apiece. Total cost would be 135 points.

Were-Creatures: To create the classic "were-creature," start by purchasing any trait that applies in *both* forms – Infectious Attack, Vulnerability (Silver), etc. – as a personal trait. Next, buy an animal template as an Alternate Form. Since most beast templates are worth 0 or fewer points, this will usually cost 15 points, but powerful creatures (e.g., bears and tigers) may cost more. If the beast form is savage, the template should include such traits as Berserk, Bestial, and Bloodlust. Finally, apply limitations such as Emergencies Only (p. 112), Unconscious Only (p. 115), and Uncontrollable (p. 116) to Alternate Form, as applicable. If you can only change during the full moon, add a -40% Trigger limitation (p. 115) as well.

Shapeshifting Races: When creating an entire race that has Alternate Form, work out the details of Alternate Form *last.* Total the cost of all the race's traits *other than* Alternate Form, subtract this total from the cost of the template the race transforms into, and use the difference to calculate the cost of Alternate Form for the race. Add the cost of Alternate Form to that of the race's other abilities to determine final racial cost.

Example: Forest Dwarves can turn into sapient bears. Excluding Alternate Form, the racial traits of Forest Dwarves total 25 points. The bear template is worth 125 points. The difference is 125 - 25 = 100 points. Thus, the cost of Alternate Form is 15 + (0.9 × 100) = 105 points. This makes the Forest Dwarf template worth 25 + 105 = 130 points.

Special Limitations

Cosmetic: You can assume a second, distinct appearance with *no* change in abilities or racial template. -50%.

Morph

Variable

This ability is similar to Alternate Form, but not limited to specific racial templates. You can assume *any* racial template, within certain limits.

First, the racial template must already exist in your game world. The *GM* might design the template himself or take one from a ***GURPS*** worldbook, but *you* cannot design totally new templates for the purpose of Morph (you can adjust existing ones, though; see below).

Second, you can only turn into a living being, or a formerly living being such as a vampire. To change into a machine requires a special enhancement.

Finally, the template's point value must be within a limit determined by the number of points you have in Morph.

If you can assume any racial template worth no more than your native one, Morph costs 100 points. This makes *many* forms available – anything no more powerful than your native form. For a human, this includes cats, insects, owls, and wolves. If you can assume more powerful forms, add the difference between the maximum racial template cost and the cost of your native template to the base 100 points. For instance, a human who can take on any racial template worth up to 75 points would pay 175 points for Morph. You may improve this limit with earned character points.

You can always take on the form of a being you can *see* or *touch,* provided its racial template cost does not exceed your maximum. Once you have assumed a form, you can opt to memorize it by concentrating for one minute. This allows you to shapeshift into that form at any time. You can memorize a number of forms equal to your IQ. If all your "slots" are full, you must overwrite a previously memorized form (your choice) to add the new form.

As with Alternate Form, the racial template of whatever you turn into *replaces* your native racial template. You may not add traits to templates, but you may freely *omit* racial mental disadvantages (e.g., Bestial), and you may always choose to drop the racial IQ modifier from a template and use your own IQ. Such changes raise the cost of animal templates, which are cheap due to limited mental capabilities. If you intend to do this, you should spend more than the minimum 100 points on Morph.

Morph includes the ability to make cosmetic changes. This lets you impersonate a specific member of any race you can turn into. You can *always* impersonate someone who is present – but to assume his form later on, you must commit a memory "slot" to that form. With enough points in Morph, you can use this function to improve appearance. For instance, 115 points in Morph would let you give yourself any appearance from Horrific to Handsome. Cosmetic changes still take the usual 10 seconds.

Shapeshifting Races: Members of a race with the Morph ability must subtract the point cost of Morph from racial cost when determining what forms they can assume.

Example: Blue Blobs have a racial Morph ability worth 125 points – the basic ability, plus 25 points of extra capacity. This lets them assume forms worth 25 points more than their native one. With their other traits, their total racial cost is 175 points. However, for the purpose of Morph, they are considered to have a racial cost of 175 - 125 = 50 points. With their 25 points of additional capacity, Blue Blobs can turn into creatures worth up to 75 points.

Special Enhancements

Unlimited: You can become *anything* the GM has defined with a racial template. This lets you turn into robots, vehicles, etc. as well as living beings. Most ordinary inanimate objects – such as bricks and toasters – are worth 0 points or less. With the GM's permission, you can become a typical example of an object like this without the need for a specific racial template. +50%.

Special Limitations

Cosmetic: You can only change your outward appearance. Your abilities and racial template are unaffected. -50%. This limitation includes Mass Conservation, but not Retains Shape.

Mass Conservation: All your forms have the same weight. If the weight of your native form falls outside the *normal* racial weight range for a race, you simply cannot become a member of that race. The GM should be merciless when enforcing this limitation – no 150-lb. mice or elephants! -20%.

Retains Shape: You can only assume forms with the same number of limbs, body layout, posture, etc. as your native form. This would limit a human Morph to humanoids (e.g., elves and giants), a wolf Morph to horizontal quadrupeds, and a bird Morph to other birds. -20%.

Shrinking

5 points/level

You can shrink at will. Each level of Shrinking lets you change your Size Modifier by -1, at the rate of -1 SM per second. You return to normal size at the same rate. By default, you cannot carry *any* equipment, not even clothing, when you shrink. The ability to carry objects while shrunk is an enhancement.

When you shrink, find your new height from the *Size Modifier Table* (p. 19). Every -6 to SM reduces height by a factor of 10. Reduce Move, reach, damage (with unarmed attacks, Innate Attacks, or shrunken weapons), HP, and DR in proportion to height. Every full -2 to SM also reduces weight by a factor of 10; for odd-numbered levels, treat the extra -1 as an additional factor of 3 (e.g., -3 to SM reduces weight by a factor of 30).

Example: A 5'10"-tall character (SM 0) has Shrinking 12. This lets him shrink until he has SM -12, reducing his height by a factor of 100 (to about 0.7"). However, at that size he has only 1% his usual Move, reach, HP, and DR, and must divide any damage he inflicts by 100. His weight goes down by a factor of 1,000,000!

Special Enhancements

Affects Others: You can bring your friends with you when you shrink! +50% per person you can affect at the same time.

Can Carry Objects: You may carry objects. This is limited to equipment you are actually carrying or wearing when you shrink. Such items regain normal size when put down; at the GM's option, they might sweep you aside as they grow, or even return to normal size beneath you, stranding you high above the ground! No encumbrance is +10%; Light, +20%; Medium, +50%; Heavy, +100%.

Full Damage: You inflict full damage when shrunk. (GMs be warned: this makes for an almost perfect assassin.) +100%.

Full DR: You retain full DR when shrunk. +30%.

Full HP: You retain full HP when shrunk. +30%.

Full Move: You retain full Move when shrunk. +30%.

Signature Gear

Variable

You have distinctive, valuable possessions unrelated to your wealth level. This gear is as much a part of your personal legend as are your reputation and skills. You *must* explain where it came from: you won your starship in a card game, inherited your magic sword from your mentor, etc.

For equipment normally bought with money, such as weapons and armor, each point in Signature Gear gives goods worth up to 50% of the average campaign starting wealth (but never cash). For anything built as a character, use the rules under *Allies* (p. 36) instead. It is up to the GM whether to treat android companions, faithful steeds, custom vehicles, etc. as equipment (with a cash cost) or characters (with a point cost).

If you misplace Signature Gear or sell it unwillingly, or an NPC steals or confiscates it, the GM must give you an opportunity to recover it in the course of the adventure. If it is truly lost forever through no fault of your own, the GM will give you back your points (or replace the item with another of equal value). However, should you sell or give away your Signature Gear of your own free will, it is *gone,* along with the points spent on it!

Silence

5 points/level

You can move and breathe noiselessly. You get +2 per level to Stealth skill when you are perfectly motionless, or +1 if moving (even in armor, etc.). These bonuses help only in the dark, or against listening devices, blind creatures, and others who must rely on hearing to find you.

Single-Minded

5 points

You can really concentrate! You get +3 to success rolls for any lengthy mental task you concentrate on to the exclusion of other activities, if the GM feels such focus would be beneficial. You tend to ignore everything else while obsessed (roll vs. Will to avoid this), and have -5 to all rolls to notice interruptions.

The GM may rule that certain complex tasks (e.g., inventing, magic, and social activities) *require* you to divide your attention. This trait has no effect in such situations.

Slippery

2 points/level

You are hard to hold! You might be slimy, molecularly smooth, or surrounded by a force field that negates friction. Each level of this trait (maximum five levels) gives +1 on all ST, DX, and Escape rolls to slip restraints, break free in close combat, or squeeze through narrow openings.

Smooth Operator

see *Talent,* p. 89.

Snatcher

80 points

You have the power to find almost any small item you desire in an alternate world and "snatch" it across the dimensions to you. The items you snatch do not come from your own world, but from some nameless parallel; therefore, you can never intentionally take something away from a specific other person. Note that this talent does not allow you to *visit* alternate worlds in person – only to steal from them.

To make a snatch, you must first concentrate for 10 seconds and clearly visualize the item you want. The item must be able to fit in one hand, and cannot weigh more than 5 lbs. You should have a hand free (if your hands are tied, you roll at -3), and others can see you making "reaching" motions with that hand.

Next, make an IQ roll for the snatch attempt. If you are trying for *information* in any form, the GM makes this roll for you (see below). Regardless of IQ, a roll of 14 or more always fails.

On a success, the desired item appears in your hand – or sitting within arm's reach, if you prefer. On a failure, you obtain nothing. On a critical failure, you snatched the wrong item! This item is not immediately dangerous unless you were *trying* for something dangerous.

Regardless of success or failure, each snatch attempt costs 2 FP.

Items Available

In theory, you can get *anything*. In practice, some things are so hard to find that it is little use trying for them. You have a good chance of getting any item that exists, or that *ever* existed, in your own world – or any reasonably similar item. If the desired item is unusual, the GM may apply a penalty to the IQ roll:

Item is significantly different from anything that ever appeared in your own world: -1 or more (GM's option). You could visualize "a perfect diamond, bright green, the size of a hen's egg, carved into the shape of a typewriter," but you might be rolling at -20!

Item is unique or almost unique in any one world (e.g., the Hope Diamond): -3 or worse (GM's option).

You cannot clearly visualize what you want: -4 or worse (GM's option). Even on a "success," you might not get what you were really hoping for.

You *cannot* get an item that works by natural laws wholly different from those in your world. For instance, if your world is nonmagical (or has no magic *that you know of*), you cannot snatch a magic item, because you are unable to visualize it properly; you would get a pretty but powerless mundane item. Similarly, if you are from a low-TL world, you could not get a laser pistol; you wouldn't be able to visualize it well, and your best effort would be a broken or toy gun. (A generous GM might bend this rule on a critical success . . . and then let the poor Snatcher try to figure out how to use his amulet or laser pistol without killing himself.)

Information is not available except in the form of "ordinary" textbooks, reports, etc. You can grab a history book, but you can't ask for "The Book of What Happens Next in My Adventure." Note that the GM makes the roll if information is requested. If the roll fails by 5 or more, the information comes from an alternate world with different history, physics, etc., and *is* wrong – maybe subtly, maybe not subtly at all!

Repeated Attempts

If your snatch attempt is unsuccessful, you can immediately try to snatch the same or a similar object again. These "repeated attempts" are made at a cumulative -1 to the IQ roll. Each repeated attempt costs 4 FP instead of the usual 2 FP. To eliminate these penalties, wait one hour between attempts.

The GM should be strict about attempts to circumvent this. For instance, a ".45 pistol" is not very different from a ".357 pistol" for the purpose of this advantage. Furthermore, *ignore* critical successes on repeated attempts made in quick succession. If the snatch being attempted is very difficult, there is little choice but to wait an hour between attempts.

Duration

The objects you snatch remain until you voluntarily return them or use your Snatcher ability again. To keep objects indefinitely, take the Permanent enhancement (below).

Special Enhancements

Permanent: Objects you snatch *don't* vanish when you use your ability again. The GM is free to forbid this enhancement, as it allows a single Snatcher to amass boundless wealth by snatching small, valuable objects. +300%.

Special Limitations

Less Weight: Your weight limit is lower than 5 lbs.

Limit	*Cost Modifier*
3 lbs.	-5%
2 lbs.	-10%
1 lb.	-15%
4 oz.	-25%
1 oz.	-30%

Specialized: You can only grab a certain type of object, or cannot touch a certain class of thing. *Examples:* Only metal, -5%; Only money, -10%; Only weapons, -10%; Only information, -20%; No metal, -20%; Only blue things, -25%. The GM sets the limitation value using the guidelines under *Accessibility* (p. 110).

Stunning: You are mentally stunned after a successful snatch. -10%.

Unpredictable: On a failed IQ roll, you get *something,* but it isn't what you wanted. The worse the failure, the more different the item is. If you wanted a loaded pistol, failure by 1 might bring an unloaded pistol. Failure by 2 could mean a water pistol, failure by 3 a book on "How to Shoot," and so on . . . with a critical failure bringing a live hand grenade. *Any* critical failure is dangerous, regardless of what you were looking for! -25%.

Social Chameleon

5 points

You have the knack of knowing exactly what to say – and when to say it – around your social "betters." You are exempt from reaction penalties due to differences in Rank or Status. In situations where there would be no such penalty, you get +1 on reactions from those who demand respect (priests, kings, etc.). This is a cinematic advantage!

Social Regard

5 points per +1 reaction

You are a member of a class, race, sex, or other group that your society

holds in high regard. To be an advantage, this must be obvious to anyone who meets you. This is the opposite of Social Stigma (p. 155); membership in a given social group cannot result in both Social Regard and Social Stigma.

Social Regard costs 5 points per +1 to reaction rolls, to a maximum of +4. This is not a Reputation, despite the similarities in cost and effect. You are treated well because of *what* you are, not because of *who* you are. Think of it as "privilege by association."

The way you are treated on a good reaction roll will depend on the type of Regard:

Feared: Others will react to you much as if you had successfully used Intimidation skill (p. 202). Those who like you stand aside, while those who dislike you flee rather than risk a confrontation. You are met with silent deference, and perhaps even respect, but *never* friendly familiarity. *Examples:* a god among men or an Amazon warrior.

Respected: You receive polite and obsequious deference, much as if you had high Status (p. 28), regardless of your *actual* Status. Social interactions other than combat usually go smoothly for you – but there will be times when the kowtowing gets in the way. *Examples:* a member of a priest caste or a ruling race.

Venerated: Total strangers react to you in a caring way. They give up seats, let you ahead of them in lines, and receive your every word as pearls of wisdom. They also take great pains to prevent you from putting yourself in danger or even discomfort – even when you *need* to do so! *Example:* an elderly person in many societies.

Speak Underwater

5 points

You can talk normally while submerged, and you can understand what others say while underwater.

Special Enhancements

Interface Crossing: You can talk to those outside of the water while submerged, and can understand people on the surface talking to you. +50%.

Speak With Animals

25 points

You can converse with animals. The quality of information you receive depends on the beast's IQ and the GM's decision on what the animal has to say. Insects and other tiny creatures might only be able to convey emotions such as hunger and fear, while a chimp or a cat might be able to engage in a reasonably intelligent discussion. It takes one minute to ask one question and get the answer – *if* the animal decides to speak at all. The GM may require a reaction roll (+2 to reactions if you offer food).

The GM is free to rule that alien, unnatural, or mythical beasts don't count as "animals" for the purpose of this advantage.

Special Limitations

Specialized: You can only communicate with *certain* animals. "All land animals" (including birds, insects, and land-dwelling mammals and reptiles) or "All aquatic animals" (including amphibians, fish, mollusks, crustaceans, and cetaceans) is -40%; one class (e.g., "Mammals" or "Birds"), -50%; one family (e.g., "Felines" or "Parrots"), -60%; one species (e.g., "House Cats" or "Macaws"), -80%.

Speak With Plants

15 points

You can communicate empathically with plants. All earthly plants are IQ 0, but a large tree might be "wiser" than the average ivy, at the GM's whim. A plant might know how recently it was watered or walked on, or something else that directly bears on its well-being, but would be unable to relate an overheard phone conversation. Any normal plant will always cooperate, within the limits of its ability. A mutant cabbage from Mars might require a reaction roll!

Special Rapport

5 points

You have a unique bond with another person. This acts as a potent version of Empathy (p. 51) that works only with one person, without regard to distance. You *always* know when your partner is in trouble, in pain, lying, or in need of help, no matter where he is. This requires no IQ roll. Your partner receives the same benefits with respect to you.

Both partners in a Special Rapport must buy this advantage. Your partner need not be a lover, or even a close friend, but the GM has the final say. In particular, the GM may wish to forbid PCs from buying Special Rapports with powerful NPCs who would otherwise qualify as Patrons (or allow it, but require an Unusual Background).

Spines

1 or 3 points

You have sharp spines, like those of a porcupine or an echidna, located on strategic parts of your body. This is defensive weaponry, intended to discourage attackers; you cannot use your Spines actively. However, you get a DX-4 roll to hit *each* foe in close combat with you once per turn, as a free action. Roll at +2 against foes who attacked you from behind. Those who grapple or slam you are hit immediately and automatically – and those who slam you take *maximum damage!*

Short Spines: One or two inches long. Do 1d-2 impaling damage. Reach C. *1 point.*

Long Spines: One or two *feet* long. Do 1d impaling damage. Reach C. *3 points.*

Spirit Empathy

10 points

You are in tune with spirits, and receive the benefits of Empathy (p. 51) when dealing with them. You can get a feeling for the general intentions of any spirit you encounter by making a successful IQ roll. As well, your Influence skills (Diplomacy, Sex Appeal, etc.) work normally on spirits, which sets you aside from most mortals. Spirit Empathy does *not* prevent evil or mischievous spirits from seeking to harm you, but at the GM's option, it might make it easier to detect and counter their plots.

Special Limitations

Specialized: You are naturally in tune with the customs and moods of one specific class of spirits. Possibilities include angels, demons, elementals, faerie, ghosts, and anything else the GM wishes to allow. -50%.

Stretching is ideal for machines with telescoping mechanisms. A super with a "rubber body" should add some combination of Elastic Skin, Double-Jointed, Morph, and Super Jump.

Status

see p. 28

High Status is an advantage, and should be noted on your character sheet.

Stretching

6 points/level

You can stretch your body in any direction. Each level of Stretching lets you increase your effective SM by +1 with any body part *without* increasing your overall SM. You can elongate your arms to increase reach (but *not* swinging damage, as Stretching gives no extra mass or muscle), your legs to negotiate obstacles, your neck to see over barriers, etc. For more information, see *Size Modifier and Reach* (p. 402). Your body parts grow or shrink at the rate of ±1 SM per second.

By itself, Stretching is ideal for machines with telescoping manipulators. A super with a "rubber body" should add some combination of Elastic Skin (p. 51), Double-Jointed (p. 56), Morph (p. 84), and Super Jump (p. 89).

Striker

5, 6, 7, or 8 points

You have a body part that you can use to strike an aimed blow, but *not* to manipulate objects (see *Extra Arms,* p. 53) or walk on (see *Extra Legs,* p. 54). This might be a set of horns or protruding tusks, a heavy tail, a stinger, or any number of other natural weapons.

Your Striker can attack at reach C ("close combat only"), inflicting thrust damage at +1 per die; e.g., 2d-1 becomes 2d+1. Damage is *crushing* or *piercing* for 5 points, *large piercing* for 6 points, *cutting* for 7 points, or *impaling* for 8 points. See *Innate Attack* (p. 61) for details.

Roll against DX or Brawling to hit with your Striker. You can also use it to parry as if you had a weapon. Use the *higher* of (DX/2) + 3 or your Brawling parry.

Special Enhancements

Long: Your Striker is long relative to your body. This increases your effective SM for the purpose of calculating reach (see *Size Modifier and Reach,* p. 402). +100% per +1 to SM if you can attack at any reach from C to maximum, or +75% per +1 to SM if you can only attack at maximum reach (and *never* in close combat).

Special Limitations

Cannot Parry: You cannot parry with your Striker. -40%.

Clumsy: Your Striker is unusually inaccurate. This is common for tails and similar Strikers aimed from outside your usual arc of vision. -20% per -1 to hit.

Limited Arc: Your Striker can only attack straight ahead, straight behind, etc. Specify a direction when you buy the Striker. If your target isn't in the right place, and you cannot maneuver to put him there, *you cannot attack him at all.* -40%.

Weak: Your Striker is unusually blunt or light, or simply incapable of using your full ST. It inflicts only basic thrust damage, without the +1 per die. -50%.

Striking ST

5 points per +1 ST

You can strike more powerful blows than your ST score would indicate. Add Striking ST to base ST

solely for the purpose of calculating thrust and swing damage (see *Damage Table,* p. 16). Striking ST has no effect on HP or Basic Lift. If you bought your ST with the No Fine Manipulators or Size limitation, apply the same limitation(s) to Striking ST.

Subsonic Hearing

0 or 5 points

You can hear very low-frequency sounds (under 40 Hz), such as the rumble of distant storms, the vibrations from incipient earthquakes, and the approach of stampeding herd beasts, armored vehicles, or dragons. This gives +1 to Tracking skill if your quarry is moving on the ground. Cost depends on your capabilities:

You can hear very low-frequency sounds only: *0 points.*

You can hear very low-frequency sounds *and* other sounds: *5 points.*

Note that Subsonic Hearing is included in the cost of Subsonic Speech (below); you cannot take both traits.

Subsonic Speech

0 or 10 points

You can converse using extremely low-frequency sounds. This trait *includes* Subsonic Hearing, above. Subsonic speech is slow (half-speed), and even if the frequency is shifted into the normal range, subsonic speakers are at -2 to Fast-Talk and any other skill where versatile speaking is important. However, subsonic speech carries twice as far as normal speech. Cost depends on your capabilities:

You can only communicate via Subsonic Speech: *0 points.*

You can switch between regular speech and Subsonic Speech at will: *10 points.*

Super Climbing

3 points/level

You can climb very quickly. Each level of Super Climbing gives you +1 Move when climbing or using the Clinging advantage (p. 43).

Super Jump

10 points/level

You can make superhuman leaps! Each level of Super Jump *doubles* the distance and height you can achieve when jumping (see *Jumping,* p. 352). Your Move while jumping is the *greater* of your normal ground Move and 1/5 your maximum long jump distance (thus, your maximum jump never takes more than five seconds). For instance, if your long jump were 100 yards, your jumping Move would be the greater of 20 and your normal ground Move.

You can jump at a foe in order to slam him. Figure the slam at your maximum jumping Move! You don't need to make a separate roll to jump accurately.

Finally, if you fall a distance less than or equal to your maximum high jump, you take *no* damage. You can increase this distance by five yards with a successful Acrobatics roll.

Super Luck

100 points

You are not just lucky – you have limited control over probability. Once per hour of play, you may *dictate* the result of any one die roll you make (or the GM makes for you) instead of rolling the dice. Wholly impossible attempts cannot succeed (your effective skill level must be at least 3), but you can choose any result that would be possible – however improbable – on a single normal die roll.

You can have Super Luck and any degree of "normal" Luck, but no one can take Super Luck more than once!

Supernatural Durability

150 points

Like a vampire or psycho killer from a horror movie, you can "shake off" most wounds. Injury comes off HP as usual, and you suffer knockback, but you are *completely immune* to shock, physical stun, and knockout. You don't need High Pain Threshold – this ability includes that one, and is far more potent!

As long as you have 0 or more HP, you are also immune to crippling injuries, and have your full Move. Below 0 HP, you are at half Move, and can be crippled, but you won't *die* unless you are wounded by an attack to which you are specifically vulnerable (see below). The sole exception to this is a *single attack* that inflicts an injury of 10×HP or more. That much damage at once will blow you apart, killing you.

To die, you must first be wounded to -HP or worse. After that, one specific item can kill you. You must specify this when you buy Supernatural Durability. Valid categories appear under *Limited Defenses* (p. 46); the item that can kill you must be of "Occasional" rarity or higher. If wounds from this item ever reduce your HP to the point where a normal human would have to make HT rolls to survive, *you* must make those HT rolls or die. If this item wounds you to -5×HP, you die automatically. If you are already below -5×HP from other damage, *any* wound from this item will kill you. Any item to which you have a Vulnerability (p. 161) can also kill you in this way.

Talent

Variable

You have a natural aptitude for a set of closely related skills. "Talents" come in levels, and give the following benefits:

- A bonus of +1 per level with all affected skills, even for default use. This effectively raises your attribute scores for the purpose of *those skills only;* thus, this is an inexpensive way to be adept at small class of skills. (Generalists will find it more cost-effective to raise attributes.)
- A bonus of +1 per level on all reaction rolls made by anyone in a position to notice your Talent, if he would be impressed by your aptitude (GM's judgment). To receive this bonus, you must demonstrate your Talent – most often by using the affected skills.
- A reduction in the time required to learn the affected skills in play, regardless of *how* you learn them. Reduce the time required by 10% per level of Talent; e.g., Animal Friend 2 would let you learn animal-related skills in 80% the usual time. This has no effect on the *point cost* of your skills.

You may never have more than four levels of a particular Talent. However, overlapping Talents *can* give skill bonuses (only) in excess of +4.

Cost of Talents

The cost of a Talent depends on the size of the group of skills affected:

Small (6 or fewer related skills): *5 points/level.*

Medium (7 to 12 related skills): *10 points/level.*

Large (13 or more related skills): *15 points/level.*

Skills with multiple specialties are considered to be *one* skill for this purpose. Once you buy a Talent, the list of affected skills is fixed. (*Exception:* The GM may rule that a Talent affects new skills appearing in later ***GURPS*** supplements, or skills he invents in the course of the campaign, if the Talent would logically be of value to those skills.)

Examples of Talents

The following Talents are considered standard, and exist in most campaigns:

Animal Friend: Animal Handling, Falconry, Packing, Riding, Teamster, and Veterinary. *Reaction bonus:* all animals. *5 points/level.*

Artificer: Armoury, Carpentry, Electrician, Electronics Repair, Engineer, Machinist, Masonry, Mechanic, and Smith. *Reaction bonus:* anyone you do work for. *10 points/level.*

Business Acumen: Accounting, Administration, Economics, Finance, Gambling, Market Analysis, Merchant, and Propaganda. *Reaction bonus:* anyone you do business with. *10 points/level.*

Gifted Artist: Artist, Jeweler, Leatherworking, Photography, and Sewing. *Reaction bonus:* anyone buying or critiquing your work. *5 points/level.*

Green Thumb: Biology, Farming, Gardening, Herb Lore, and Naturalist. *Reaction bonus:* gardeners and sentient plants. *5 points/level.*

Healer: Diagnosis, Esoteric Medicine, First Aid, Pharmacy, Physician, Physiology, Psychology, Surgery, and Veterinary. *Reaction bonus:* patients, both past and present. *10 points/level.*

Mathematical Ability: Accounting, Astronomy, Cryptography, Engineer, Finance, Market Analysis, Mathematics, and Physics. *Reaction bonus:* engineers and scientists. *10 points/level.*

Musical Ability: Group Performance (Conducting), Musical Composition, Musical Influence, Musical Instrument, and Singing. *Reaction bonus:* anyone listening to or critiquing your work. *5 points/level.*

Outdoorsman: Camouflage, Fishing, Mimicry, Naturalist, Navigation, Survival, and Tracking. *Reaction bonus:* explorers, nature lovers, and the like. *10 points/level.*

Smooth Operator: Acting, Carousing, Detect Lies, Diplomacy, Fast-Talk, Intimidation, Leadership, Panhandling, Politics, Public Speaking, Savoir-Faire, Sex Appeal, and Streetwise. *Reaction bonus:* con artists, politicians, salesmen, etc. – but only if you are not trying to manipulate *them*. *15 points/level.*

Custom Talents

At the GM's option, you may create your own Talent with a custom skill list. However, the GM's word is law when determining which skills are "related" and how may points the Talent is worth. Talents should always be believable inborn aptitudes. For instance, Sports Talent might make sense – some athletes really do seem to have a gift – but the GM ought to forbid Ninja Talent or Weapon Talent (but see *Weapon Master*, p. 99).

Teeth

0, 1, or 2 points

Anyone with a mouth has *blunt* teeth that can bite for thrust-1 crushing damage. This costs 0 points, and is typical of most herbivores. You have a more damaging bite:

Sharp Teeth: Like those of most carnivores. Inflict thrust-1 *cutting* damage. *1 point.*

Sharp Beak: Like that of a bird of prey. Inflicts thrust-1 *large piercing* damage. *1 point.*

Fangs: Like those of a *Smilodon.* Inflict thrust-1 *impaling* damage. *2 points.*

Telecommunication

Variable

You can communicate over long distances without speaking aloud. You can send words at the speed of ordinary speech or pictures at the speed at which you could draw them. To establish contact requires one second of concentration and an IQ roll. After that, no concentration is required. You can maintain multiple contacts, but the IQ roll is at a cumulative -1 per contact after the first.

Telecommunication works amid even the loudest noises, although interference and jamming can disrupt your signal. Those with suitable equipment may attempt to locate, intercept, or jam your transmission. This requires an Electronics Operation (Communications) roll for an electromagnetic signal, an Electronics Operation (Psychotronics) roll for a psionic signal, and so forth.

Each variety of Telecommunication is a *separate advantage* with its own benefits and drawbacks. Some forms have limited range, which you can adjust using Increased Range (p. 106) or Reduced Range (p. 115).

Infrared Communication: You communicate using a modulated infrared beam. Base range is 500 yards in a direct line of sight. The short range and line-of-sight requirement make jamming and eavesdropping almost impossible under normal circumstances. You can only communicate with those who have this advantage or an infrared communicator. *10 points.*

Laser Communication: You communicate using a modulated laser beam. Base range is 50 miles in a direct line of sight. The narrow beam and line-of-sight requirement make it extremely hard to eavesdrop on you. You can only communicate with people who have this advantage or a laser communicator. *15 points.*

Radio: You communicate using radio waves. Base range is 10 miles. Your signal is omnidirectional, but because you can shift frequencies, eavesdroppers must still roll vs. Electronics Operation (Communications) to listen in. A side benefit of this ability is that you can receive AM, FM, CB, and other ordinary radio signals on an IQ roll (takes one second). Note that radio-frequency "noise" from lightning and unshielded electronics can interfere with Radio. Radio does not work *at all* underwater. *10 points.*

Telesend: You can transmit thoughts directly to others via magic, psi, or other exotic means (be specific!). Your subject receives your thoughts even if he lacks this ability. Range is theoretically unlimited, but the IQ roll to use this ability takes the range penalties given under *Long-Distance Modifiers* (p. 241). If you cannot see or otherwise sense your subject, you have an additional penalty: -1 for family, lovers, or close friends; -3 for casual friends and acquaintances; or -5 for someone met only briefly. *30 points.*

Special Enhancements

Broadcast: This enhancement is only available for Telesend. It lets you send your thoughts to everyone in a radius around you. This requires an IQ roll at the long-distance modifier for the desired radius, plus an additional -4. +50%.

Short Wave: This is only available for Radio. You can bounce your signal off a planet's ionosphere (if the planet has one). This lets you transmit to (or receive from) any point on the planet. Note that solar flares, weather, etc. can disrupt short-wave communications. +50%.

Universal: Your messages are automatically translated into your subject's language. The GM may limit this enhancement to individuals from advanced tech levels, or restrict it to Telesend. +50%.

Video: You are not limited to simple pictures! You can transmit real-time video of anything you can see. +40%.

Special Limitations

Racial: Your ability only works on those of your own race or a *very* similar race, per *Mind Reading* (p. 69). -20%.

Receive Only: You can receive but not send. This limitation is not available for Telesend. -50%.

Send Only: You can send but not receive. This limitation is not available for Telesend. -50%.

Telepathic: Your ability is part of the Telepathy psi power (see p. 257). -10%.

Vague: You cannot send speech or pictures. You can only send a simple code (e.g., Morse code) – or general concepts and emotions, in the case of Telesend. -50%.

Telekinesis 🧠/🦾 👽

5 points/level

You can move objects without touching them. In effect, you manifest an invisible force that acts under your conscious direction at a distant point. Specify how you do this; possibilities include magnetism, psionic psychokinesis, an ultra-tech "tractor beam," or a supernatural "poltergeist effect."

You can manipulate distant objects just as if you were grasping them in a pair of hands with ST equal to your Telekinesis (TK) level. You can move any object you have strength enough to lift, at a Move equal to your TK level, modified as usual for encumbrance level (see *Encumbrance and Move,* p. 17). Regardless of level, maximum range is 10 yards. To modify range, take Increased Range (p. 106) or Reduced Range (p. 115).

Telekinesis requires constant concentration to use. In combat, this means you must take a Concentrate maneuver on your turn. Your TK may then perform *one* standard maneuver as if were a disembodied pair of hands at some point within your range: a Ready maneuver to pick up an object; a Move maneuver to lift and carry it; an Attack maneuver to throw it, or to grab or strike directly; and so on.

Example: On your turn in combat, you take a Concentrate maneuver and state that your TK is taking an Attack maneuver to grab a gun from a foe. The following turn, you can Concentrate again and specify that your TK is taking an Aim or Wait maneuver to cover your enemy with the gun, an Attack maneuver to shoot him, or a Move maneuver to bring the gun to your hand.

No rolls are necessary for ordinary lifting and movement. For more complex actions, the GM might require you to make a DX or skill roll. In situations where you would roll against ST, roll against your TK level instead.

All of the above assumes that you are using TK to perform a task at a distance. TK can also discreetly assist you with such skills as Gambling (especially to cheat!), Lockpicking, and Surgery. In general, anything that would benefit from High Manual Dexterity (p. 59) gets a +4 bonus if you can successfully make an IQ roll to use your TK properly. On a failure, the GM may assess any penalty he feels is appropriate.

Grappling and Striking: You can use TK to attack a foe directly. Roll against DX or an unarmed combat skill to hit. Your foe defends as if attacked by an invisible opponent (see *Visibility,* p. 394). If you grapple, your foe cannot grab hold of the TK force, but he *can* try to break free as usual – and if he also has TK, he can take a Concentrate maneuver and use his TK level instead of his ST. The turn after you grapple a foe using TK, your TK can use a Move maneuver to pick him up off the ground, provided you have enough TK to lift his weight. Someone in this position can't do anything that relies on ground contact (run, retreat, etc.), but can perform any other action that is possible while grappled.

Levitation: If you have enough TK to lift your own body weight, you can levitate. Take the Concentrate maneuver and have your TK take Move maneuvers to propel your body. For true psychokinetic flight, take Flight (p. 56) with the Psychokinetic limitation (below).

Throwing: By applying a TK impulse for a fraction of a second, you can *throw* objects faster (and farther) than you can move them. Take a Concentrate maneuver and have your TK take an Attack maneuver. This works just as if you were throwing the object with ST equal to your TK level. Roll against Throwing or Thrown Weapon skill to hit, depending on the object being hurled. For 1/2D and Max purposes, measure range from the *object* (not yourself!) to the target; for the purpose of *range penalties,* use the *sum* of the distance from you to the object and from the object to the target. Once you throw something, you have "released" your telekinetic grip – your TK must take a Ready maneuver to pick it up again.

Special Limitations

Magnetic: Your TK is "super magnetism," and only affects ferrous metals: iron (including steel), nickel, and cobalt. -50%.

Psychokinetic: Your ability is part of the Psychokinesis psi power (see p. 256). This makes it mental (🧠) rather than physical (🦾). -10%.

Visible: Your TK is not an invisible force, but a disembodied hand, glowing "tractor beam," or similar. This makes it much easier for others to defend against your TK attacks (do not use the *Visibility* rules). -20%.

Telekinesis: Possibilities include magnetism, psionic psychokinesis, an ultra-tech "tractor beam," or a supernatural "poltergeist effect."

Telescopic Vision 🦾 👽

5 points/level

You can "zoom in" with your eyes as if using binoculars. Each level lets you ignore -1 in range penalties to Vision rolls at all times, or -2 in range penalties if you take an Aim maneuver to zoom in on a particular target. This ability can also function as a telescopic sight, giving up to +1 Accuracy per level with ranged attacks provided you take an Aim maneuver for seconds equal to the bonus (see *Scopes* under *Firearm Accessories,* p. 411).

The benefits of this trait are not cumulative with those of technological aids such as binoculars or scopes. If you have both, you must opt to use one or the other.

Special Limitations

No Targeting: Your field of vision is broad and not "zeroed" to your ranged attacks. You get no Accuracy bonus in combat. -60%.

Temperature Control 🧠/🦾 👽

5 points/level

You can alter the ambient temperature. Heating or cooling is limited to 20° per level, and occurs at a rate of 2° per level per second of concentration. You can affect a two-yard radius at a distance of up to 10 yards. Use Increased Range (p. 106) or Reduced Range (p. 115) to modify range; add levels of Area Effect (p. 102) to increase radius.

This ability never does damage directly. For that, buy Innate Attack – usually either burning (for flame) or fatigue (for attacks that damage by altering body temperature).

Special Limitations

Cold: You can only decrease the temperature. -50%.

Heat: You can only increase the temperature. -50%.

Psychokinetic: Your ability is part of the Psychokinesis psi power (see p. 256), often called "cryokinesis" (for cold) or "pyrokinesis" (for heat). -10%.

Temperature Tolerance

1 point/level

Every character has a temperature "comfort zone" within which he suffers no ill effects (such as FP or HP loss) due to heat or cold. For ordinary humans, this zone is 55° wide and falls between 35° and 90°. For nonhumans, the zone can be centered *anywhere,* but this is a 0-point feature for a zone no larger than 55°. A larger zone is an advantage. Each level of Temperature Tolerance adds HT degrees to your comfort zone, distributed in any way you wish between the "cold" and "hot" ends of the zone.

Temperature Tolerance confers no special resistance to attacks by fire or ice unless the only damage is a result of a rise or fall in the ambient temperature. In particular, it cannot help you if your *body temperature* is being manipulated.

In a realistic campaign, the GM should limit normal humans to Temperature Tolerance 1 or 2. However, high levels of this trait are likely for nonhumans with fur or a heavy layer of fat.

Temporal Inertia

15 points

You are strongly rooted in probability. If history changes, you can remember both versions. If you are involved in a genuine time paradox, you are not erased, even if the rest of your world is! You have a place in the new timeline, whatever it is, and remember all your experiences – even the ones that never happened. (In an extreme case, you have two complete sets of memories, and must make an IQ roll any time you have to distinguish between them under stress . . . you might need Acting skill to stay out of the lunatic asylum.)

There is a drawback: there is a "you" in any parallel or split timeline you encounter, and he is as similar to you as the timeline allows.

This trait is only worthwhile in a campaign in which paradoxes or changes in history – erasing past events or whole timelines – are possible. See *Unique* (p. 160) for the opposite of this advantage.

Temporary Rank

see *Rank,* p. 29

Tenure

5 points

You have a job from which you cannot normally be fired. You can only lose your job (and this trait) as the result of extraordinary misbehavior: assault, gross immorality, etc. Otherwise, your employment and salary are guaranteed for life. This is most common among modern-day university professors, but also applies to judges, priests, senators, etc. in many societies.

Terrain Adaptation

0 or 5 points

You do not suffer DX or Move penalties for one specific type of unstable terrain: ice, sand, snow, etc. Cost depends on your capabilities:

You can function normally on one specific type of unstable terrain, but suffer the DX and Move penalties that most characters experience on that terrain type when you traverse solid ground: *0 points.*

You can function at full DX and Move both on solid ground *and* on one particular type of unstable terrain: *5 points.*

You must buy this ability separately for each terrain type.

Terror

30 points + 10 points per -1 to Fright Check

You can unhinge the minds of others. There are many way this effect can manifest: a chilling howl, mind-warping body geometry, or even divine awe or unbearable beauty. When you activate this ability, anyone who sees you or hears you (choose *one* when you buy this trait) must roll an immediate Fright Check (see *Fright Checks,* p. 360).

Modifiers: All applicable modifiers under *Fright Check Modifiers* (p. 360). You can buy extra penalties to this Fright Check for 10 points per -1 to the roll. Your victims get +1 per Fright Check after the first within 24 hours.

If a victim succeeds at his Fright Check, he will be unaffected by your Terror for one hour.

Add the Melee Attack limitation (p. 112) if your Terror affects only those you touch.

Special Limitations

Always On: You cannot turn off your Terror to engage in normal social activities. This limitation often accompanies the extreme levels of Appearance – usually Hideous or worse, but possibly also Transcendent! -20%.

Trained By A Master

30 points

You have been trained by – or are – a true master of the martial arts. Your exceptional talent means you have *half* the usual penalty to make a Rapid Strike (see *Melee Attack Options,* p. 370), or to parry more than once per turn (see *Parrying,* p. 376). These benefits apply to *all* your unarmed combat skills (Judo, Karate, etc.) and Melee Weapon skills.

Furthermore, you can focus your inner strength (often called "chi") to perform amazing feats! This permits you to learn Flying Leap, Invisibility Art, Power Blow, and many other skills – anything that requires this advantage as a prerequisite (see Chapter 4).

The GM is free to set prerequisites for this advantage if he wishes. Common examples from fiction include Judo, Karate, Melee Weapon skills, Philosophy, and Theology.

This ability is definitely "larger than life." The GM may wish to forbid it in a realistic campaign.

True Faith

15 points

You have a profound religious faith that protects you from "evil" supernatural beings such as demons and vampires. To enjoy this protection, you must actively assert your faith by wielding a physical symbol revered by *your* religion (e.g., crucifix, Torah, or Koran), chanting, dancing, or whatever else is appropriate to your beliefs. If you wish to use this ability in combat – to repel zombies, for instance – then you must choose the Concentrate maneuver each turn, and can do nothing else.

For as long as you assert your faith, no malign supernatural entity (GM's judgment as to what this covers) may approach within one yard of you. If one is forced into this radius, it must leave by the most direct route possible, as if it suffered from Dread (p. 132). If it cannot leave without coming closer, it must make a Will roll. On a success, it may run past you to escape, pushing you aside if necessary (but using only the minimum force required to escape). On a failure, the monster is cowed. It must cower, helplessly, and cannot move, defend itself, or take any other action.

To keep True Faith, you must behave in a manner consistent with your religion. You will nearly always have to take *and adhere to* one or more of the traits listed under *Self-Imposed Mental Disadvantages* (p. 121). In effect, True Faith comes with a built-in Pact limitation (p. 113); do not apply this modifier again. You do *not* have to be kind, loving, or law-abiding, however. A violent bigot or religious terrorist can be just as sincere in his religious devotion as a saintly ascetic.

Tunneling

30 points + 5 points per point of Tunneling Move

You can bore through earth and stone, spewing rubble behind you. The passage you dig is wide enough for you to walk through. You move through stone at half normal Tunneling Move. The GM may wish to assess a chance that your tunnel collapses behind you. Roll each minute vs. the *highest* of Engineer (Mining), Prospecting-3, and IQ-4 to dig a stable tunnel. This can be modified upward for hard rock and downward for soft rock or loose earth. Each halving of your Tunneling Move gives +1 on this roll.

Ultrahearing

0 or 5 points

You can hear sounds in the frequencies above the normal range of human hearing (20 kHz). This allows you to hear dog whistles, sonar, motion detectors, etc. You can detect active sonar at *twice* its effective range. Cost depends on your capabilities:

You can hear only high-frequency sounds: *0 points.*

You can hear high-frequency sounds *and* other sounds: *5 points.*

This advantage is included in Ultrasonic Speech, below; if you have Ultrasonic Speech, you cannot take this as well (but don't need to).

Ultrasonic Speech

0 or 10 points

You can converse in the ultrasonic range. This advantage *includes* Ultrahearing, above. Note that many creatures find it intensely annoying or even painful to be within earshot of sustained ultrasonic pitches! Cost depends on your capabilities:

You can only communicate via Ultrasonic Speech: *0 points.*

You can switch between regular speech and Ultrasonic Speech at will: *10 points.*

Ultravision

0 or 10 points

You can see ultraviolet light (UV). Solar UV is present outdoors during the day, even under cloud cover, but is stopped by window glass or any solid barrier (earth, stone, etc.). Fluorescent lamps also emit UV. Provided UV is present, you can make out more colors than those with normal vision. This helps you discern outlines; spot trace quantities of dust, dyes, etc.; and identify minerals and plants. You get +2 to all Vision rolls made in the presence of UV, as well as to all Forensics, Observation, and Search rolls to spot clues or hidden objects.

At night, a small amount of UV reaches the ground from the stars. This doesn't let you see in the dark, but it does let you ignore -2 in darkness penalties (cumulative with Night Vision). UV penetrates farther underwater than visible light. This lets you halve all vision penalties underwater (but in *total* darkness, you are as blind as anyone else).

Cost depends on your capabilities:

You can only see UV, and are *blind* indoors, underground, or anywhere else there is no UV, even when there are normal light sources present: *0 points.*

You can see both visible light and UV: *10 points.*

Unaging

15 points

You never grow old naturally and cannot be aged unnaturally. Your age is fixed at any point you choose and will never change. You never have to make aging rolls.

Special Enhancements

Age Control: You can "age" in either direction at will, at up to 10 times the normal rate. +20%.

Unfazeable

15 points

Nothing surprises you – at least, nothing that's not obviously a threat. The world is full of strange things, and as long as they don't bother you, you don't bother them.

You are exempt from Fright Checks, and reaction modifiers rarely affect you either way. You treat strangers with distant courtesy, no matter how *strange* they are, as long as they're well-behaved. You have the normal reaction penalty toward anyone who does something rude or rowdy, but you remain civil even if forced to violence. Intimidation (p. 202) just does not work on you.

You are not emotionless – you just never display strong feelings. The stereotypical aged kung fu master or English butler has this trait.

You must roleplay this advantage fully, or the GM can declare that it has been lost. In a campaign where Fright Checks are an hourly occurrence, the GM can charge 20 points – or more! – or disallow Unfazeable altogether. This advantage is incompatible with all Phobias.

Universal Digestion

5 points

You have remarkably adaptable digestive processes that let you derive nutrition from any nontoxic animal or plant protein, no matter how alien or fantastic. This enables you to subsist on things that would normally be harmless but non-nutritious. You have no special resistance to poison, though; for that, buy Resistant (p. 80). One side benefit of this trait is that you can quickly and safely dispose of any nontoxic, organic evidence by *eating* it!

Unkillable

50 to 150 points

You cannot be killed! You are subject to *all* the other effects of injury. You feel pain, your wounds slow you, and you can be stunned or knocked out. You lose the use of any limb that receives a crippling wound, and you might even lose the limb itself. You can even lose attribute levels, advantages, etc. to disease, injury, or poison. However, you will only *die* if your body is physically destroyed – and sometimes not even then.

This advantage comes in three levels:

Unkillable 1: Injury affects you normally, but you need never make a HT roll to stay alive. You can survive (and even function, if you remain conscious) down to -10×HP, at which point your body is physically destroyed and you die. As long as you are alive, you heal at your usual rate – typically 1 HP/day, modified for any Regeneration (p. 80) you may have. Crippled limbs do heal, but *severed* limbs are gone for good unless you have Regrowth (p. 80). *50 points.*

Unkillable 2: As Unkillable 1, but you do not die at -10×HP. Once you reach -10×HP, you are reduced to an indestructible skeleton and automatically fall unconscious. You sustain no further damage from *any* attack. Once the damage stops, you heal normally – even if you've been hacked to pieces – and any severed body parts will grow back. You regain consciousness once you have *positive* HP. Note that your enemies can imprison your remains while you are unconscious, or even expose them to a source of continuous damage (fire is a common choice) to prevent you from healing. *100 points.*

Unkillable 3: As Unkillable 2, except that at -10×HP, you become a ghost, an energy pattern, or some other incorporeal form that cannot be contained or damaged through normal means. At this stage, you fall unconscious and heal normally. Once you are at *full* HP, your fully intact body will coalesce in a location of the GM's choosing. *150 points.*

With the GM's permission, if you have Unkillable 2 or 3 and are taken to -10×HP, you can trade in Unkillable and use the points to buy a spirit or undead racial template (if such things exist in the setting), becoming a ghost, revenant, etc. once you heal all your HP.

By default, you age normally, and will eventually die of old age. To be truly *immortal,* combine Unkillable with Unaging (above) – and possibly one or more of Doesn't Breathe (p.49), Injury Tolerance (p. 60), Regeneration (p. 80), and Resistant (p. 80).

Special Limitations

Achilles' Heel: Damage from one particular source (possibly one to which you have a Vulnerability, p. 161) can kill you normally. You must make normal HT rolls to survive at -HP and below, and die automatically if this damage takes you below -5×HP. The limitation value depends on the rarity of the attack, as defined under *Limited Defenses* (p. 46): -10% if "Rare," -30% if "Occasional," or -50% if "Common" or "Very Common."

Hindrance: A specific substance (e.g., silver or wood) prevents healing – whether by natural means or Regeneration – for as long as it remains in your body. Once you pass out from your injuries, you stay dormant until this substance is removed. The limitation value depends on the rarity of the substance: -5% if "Rare," -15% if "Occasional," or -25% if "Common."

Reincarnation: This is only available for Unkillable 2 or 3. When reduced to -10×HP, you recover at your usual rate, but you wake up in an entirely new body with new abilities. The GM creates the new form (or may allow you to do so), but you always retain the Unkillable advantage. -20%.

Trigger: This is only available for Unkillable 2 or 3. Once reduced to -10×HP, you require some substance (such as human blood) or condition (such as a ritual) before you will start to heal. Until then, you will remain dormant. The limitation value depends on the rarity of the trigger: -25% if "Rare," -15% if "Occasional," or -5% if "Common" or "Very Common."

Unusual Background

Variable

This is a "catch-all" trait that the GM can use to adjust the point total of any character with special abilities that are not widely available in the game world. "Special abilities" might mean cinematic traits, magic spells, exotic advantages (for a human), supernatural advantages (for *anyone*), or almost anything else – it depends on the setting. Players are free to suggest Unusual Backgrounds to the GM, but the GM decides whether a proposed Unusual Background is acceptable, and if so, what its cost and benefits are.

Example 1: "Raised by wizards" to justify access to magic spells might be a 0-point special effect in a fantasy world where magic is common, a 10-point Unusual Background in a conspiracy campaign where magic is known but kept secret, and a 50-point Unusual Background – or simply forbidden – in a horror game where a PC who wields supernatural power would reduce the suspense.

Example 2: "Daughter of the God of Magic" to justify the Unkillable advantage would be an Unusual Background in *any* setting, and would be worth as much as the advantage itself – 50 points or more – if the GM allowed it at all.

Not every unusual character concept merits an Unusual Background. The GM should only charge points when the character enjoys a tangible benefit. For instance, it would be unusual for a human to be raised by wolves, but unless this gave him special capabilities (such as Speak with Animals), it would be background color, worth 0 points.

Vacuum Support

5 points

You are immune to deleterious effects associated with vacuum and decompression (see *Vacuum,* p. 437). This advantage does not give you an air supply; buy Doesn't Breathe (p. 49) for that.

Those with Vacuum Support usually have the Sealed advantage (p. 82), and often have Radiation Tolerance (p. 79) and Temperature Tolerance (p. 93), but none of these traits are *required.*

Vampiric Bite

30 points + 5 points per extra HP drained

You can bite people and drain their life force, healing your own wounds in the process. You can only feed if your victim is helpless (pinned, stunned, unconscious, etc.), grappled, or willing. If he is wearing armor, your biting damage must penetrate its DR. Once you've bitten through your victim's DR, you can drain 1 HP *per second* from him. For every 3 HP stolen, you heal 1 HP or 1 FP (your choice). You cannot raise your HP or FP above normal this way.

The basic Vampiric Bite described above costs 30 points. You may buy increased HP drain for 5 points per additional HP drained per second; for instance, to drain 10 HP per second, pay 75 points.

Vampiric Bite also lets you bite in combat *without* feeding. Treat this as Teeth (Sharp Teeth) or Teeth (Sharp Beak) (p. 91) – your choice. You do not need to purchase that advantage separately.

Versatile

5 points

You are extremely imaginative. You get a +1 bonus on any task that requires creativity or invention, including most rolls against Artist skill, all Engineer rolls for new inventions, and all skill rolls made to use the Gadgeteer advantage.

Very Fit

see *Fit*, p. 55

Very Rapid Healing

see *Rapid Healing*, p. 79

Vibration Sense

10 points

You can detect the location and size of objects by sensing vibrations with your skin, whiskers, or antennae. You must specify whether this ability works in the air or in the water.

Vibration Sense is *not* a substitute for vision. You can locate an opponent in the dark, but you cannot detect details (e.g., whether he is armed). In a perfectly still, dark chamber, you would have only a vague notion of the size of the area, but you would be able to sense a barrier before you ran into it, and could find openings by sensing the flow of air or water.

To use Vibration Sense, make a Sense roll. Consult the *Size and Speed/Range Table* (p. 550) and apply *separate* bonuses for the target's size and speed, and a penalty for the range to the target. Wind (in air) or swift currents (in water) will generate "noise" that interferes with your sense. Find the speed of the wind or current on the table and assess the relevant speed *penalty.*

A successful roll reveals the rough size, location, speed, and direction of movement of the target. It does not provide any information about the object's shape, color, etc. Once you have detected something, you may target it with an attack. The modifiers that applied to your Sense roll also apply to your attack roll, but can never give you a bonus to hit.

Note that if you are outside the element (air or water) where your ability functions, or if you are wearing a sealed suit, this ability does not work at all!

Special Enhancements

Universal: Your Vibration Sense works both in the air and in the water. +50%.

Visualization

10 points

You can improve your chances at a task by visualizing yourself successfully performing it. The closer your mental picture is to the actual circumstances, the greater the bonus. The visualization must be detailed and must involve a clear and specific action. This makes it useless in combat, where the situation changes faster than you can visualize it.

To use this talent, you must concentrate for one minute. You, the *player,* must describe the scene you visualize (which can include senses other than sight) and the results you hope to achieve. Then make an IQ roll.

You get a +1 bonus to the action you visualized for every point by which you succeed – *if* the circumstances correspond almost exactly to the visualization. If they are not quite

the same, which will almost always be true, halve the bonus (minimum +1). And if something is clearly *different,* divide the bonus by 3 (no minimum). The GM can assess a further bonus of up to +2, or a penalty of any size, for a good or bad description!

Voice

10 points

You have a naturally clear, resonant, and attractive voice. This gives you +2 with the following skills: Diplomacy, Fast-Talk, Mimicry, Performance, Politics, Public Speaking, Sex Appeal, and Singing. You also get +2 on any reaction roll made by someone who can hear your voice.

Walk on Air

20 points

Air, smoke, and other gases are like solid ground beneath your feet, allowing you to walk up and down "invisible stairs" at your ground Move. This won't work in a vacuum – there has to be *some* kind of air present. If you get knocked down or slip, you fall! You may attempt one DX roll per second of falling. If you succeed, you stop in thin air, unharmed. Otherwise, you hit the ground for normal falling damage (see *Falling,* p. 431).

Walk on Liquid

15 points

You can walk on the surface of any liquid as if it were solid ground. You move at your usual ground Move. This doesn't protect you from any damage that you would take from coming into contact with the liquid, however. You can't traverse volcanic lava or boiling acid without taking damage!

Warp

100 points

You have the ability to teleport, traveling from point to point without moving through the intervening space. To do so, you must be able to see your destination with your own eyes, *or* view it remotely (via closed-circuit TV, someone else's eyes using Mind Reading with the Sensory enhancement, etc.), *or* visualize it clearly (which is only possible if you have visited it previously in person).

You can carry up to Basic Lift when you travel, plus any Payload (p. 74). To carry more, or to bring along other people, take the Extra Carrying Capacity enhancement (below).

Make an IQ roll to activate your ability, modified as follows:

Distance: Distance penalties appear on the table below. If actual distance falls between two values, use the *higher.*

Distance	*Penalty*
10 yards	0
20 yards	-1
100 yards	-2
500 yards	-3
2 miles	-4
10 miles	-5
100 miles	-6
1,000 miles	-7

Add an additional -1 for each 10× increase in distance.

Preparation Time: The amount of time taken to prepare for the teleport affects the IQ roll, as follows:

Preparation Time	*IQ Modifier*
None	-10
1 second	-5
2 seconds	-4
4 seconds	-3
8 seconds	-2
15 seconds	-1
30 seconds	0
1 minute	+1
2 minutes	+2
4 minutes	+3
8 minutes	+4
15 minutes	+5
30 minutes	+6
1 hour	+7
2 hours	+8
4 hours	+9
8 hours	+10

This table is *not* open-ended; +10 is the maximum possible bonus.

Removal: If you have a "second-hand" view of the destination, you are at -2 per level of removal. For instance, seeing it on TV or through someone else's eyes would give -2, while seeing it on a television set that you are viewing through someone else's eyes would give -4. There is an additional -2 to teleport to a place you have visited but cannot see.

Fatigue Points: Apply a bonus of +1 per FP spent. You must declare this before you roll, and you lose the FP whether you succeed or fail. You never *have* to spend FP, but it is usually a good idea if you must travel far or without much preparation.

Wild Talent: You can simply do things without knowing how. It does apply to skills that normally have no default, provided you meet any advantage requirements. It has no effect on skills you already know.

On a success, you appear at your target destination. On a failure, you go nowhere and strain your power: you are at -5 to use it again in the next 10 minutes. On a critical failure, you arrive at the *wrong* destination. This can be anywhere the GM wishes! It need not be dangerous, but it should seriously inconvenience you. In addition, your power temporarily "burns out" and will not function again for 1d hours.

You *can* use Warp to evade attacks in combat. Once per turn, you may teleport to any location you can see within 10 yards, instantly. This is considered a dodge. Of course, the IQ roll will be at -10 for instant use, so you might want to spend FP to improve your odds!

You can improve this ability with practice, spending points to add enhancements or remove limitations. You *cannot* take Reduced Fatigue Cost or Reduced Time (p. 108); instead, take Reliable (below) so that you will need less time or fewer FP to teleport reliably.

Special Enhancements

Blind: You can teleport to a specific set of coordinates (distance and direction) without seeing or having visited the destination. This gives you an extra -5 to your IQ roll! You must pay *two* FP per +1 bonus when using this enhancement. +50%.

Extra Carrying Capacity: You can carry more than your Basic Lift. If your carrying capacity is high enough, you may transport *one* person with you. Light encumbrance is +10%; Medium, +20%; Heavy, +30%; Extra-Heavy, +50%.

Reliable: Your power is stable and predictable. Each level of this enhancement gives +1 to the IQ roll to use this ability, allowing you to teleport with little preparation (e.g., in combat) or over long distances without spending as many FP to improve your odds. +5% per +1, to a maximum of +10.

Warp Jump: This enhancement is only available if you have the Jumper advantage (p. 64). You must apply it to both Jumper and Warp. If you are both a time- and world-jumper, and wish to use Warp with both abilities, buy this enhancement twice. When you jump, you can simultaneously use Warp to appear *anywhere* at your destination. Two die rolls are necessary – one per ability – and it is possible for one to succeed while the other fails, or for both to fail. +10% per linked Jumper advantage.

Special Limitations

Hyperjump: You physically move through "hyperspace" or "jump space" to journey between destinations. This is not true, instantaneous teleportation; you have an effective speed, which means the trip takes time. On long trips, you will need to address life-support needs! In addition, you cannot activate Hyperjump in atmosphere and you cannot travel distances shorter than one light-second (186,000 miles, -10 to IQ). This effectively limits you to space travel. There is one benefit to Hyperjump: if you possess

Navigation (Hyperspace) skill, you may substitute it for IQ. -50% if your effective speed is the speed of light (every 186,000 miles traveled takes one second); -25% if you can travel one light-year (-17 to IQ) per day.

Naked: You can carry nothing when you teleport! You always arrive naked. -30%.

Psionic Teleportation: Your ability is part of the Teleportation psi power (see p. 257). -10%.

Range Limit: You cannot teleport more than a certain distance per hop. Choose a range and find its distance penalty above. The limitation is worth -5% × (10 + penalty); e.g., 10 yards (-0) would be -50%, while 100 miles (-6) would be -20%. A range limit of more than 100,000 miles is not a meaningful limitation.

Wealth

see p. 25

Above-average Wealth is an advantage, and should be noted on your character sheet.

Weapon Master

Variable

You have a high degree of training or unnerving talent with a particular class of muscle-powered weapons (swords, bows, etc. – *not* guns). Available classes are:

All muscle-powered weapons. *45 points.*

A large class of weapons. *Examples:* all bladed weapons, all one-handed weapons. *40 points.*

A medium class of weapons. *Examples:* all swords, all ninja weapons. *35 points.*

A small class of weapons. *Examples:* fencing weapons (main-gauche, rapier, saber, and smallsword), knightly weapons (broadsword, mace, shield, and lance). *30 points.*

Two weapons normally used together. *Examples:* broadsword and shield, rapier and main-gauche. *25 points.*

One specific weapon. *20 points.*

In all cases, if a weapon can be thrown, the benefits of this advantage also apply when throwing that weapon.

When using a suitable weapon, add +1 *per die* to basic thrust or swing damage if you know the relevant weapon skill at DX+1. Add +2 per die if you know that skill at DX+2 or better. You also have *half* the usual penalty to make a Rapid Strike (see *Melee Attack Options,* p. 369), or to parry more than once per turn (see *Parrying,* p. 376). None of these benefits apply to default use.

You are familiar with – if not proficient in – every weapon within your class. This gives you an improved default: DX/Easy weapon skills default to DX-1, DX/Average ones to DX-2, and DX/Hard ones to DX-3. Note that these skills are no easier to *learn,* and may not be "bought up" from the improved defaults in order to save points.

Finally, you may learn any cinematic skill that names this advantage as a prerequisite (see Chapter 4) – e.g., Blind Fighting and Power Blow – *if* you could reasonably use that skill with your weapons of choice. The GM is the final arbiter in all cases.

This trait is best suited to a "cinematic" swashbuckling game. The GM may wish to forbid it in a realistic campaign.

Wild Talent

20 points/level

You can simply *do* things without knowing how. Once per game session per level of this advantage, you may attempt a roll against *any* skill, using your score in the appropriate attribute: IQ for IQ-based skills, DX for DX-based skills, etc. You do not incur any default penalties, but situational and equipment modifiers apply normally, as do any modifiers for advantages or disadvantages. Tech level is irrelevant: a TL3 monk could make an IQ roll to use Computer Programming/TL12!

Wild Talent *does* apply to skills that normally have no default, provided you meet any advantage requirements. For instance, you could cast unknown magic spells provided you had Magery, or use unknown cinematic martial-arts skills provided you have Trained By A Master.

Wild Talent has *no effect* on skills you already know.

Special Enhancements

Retention: You can learn the skills you use! To do so, you must have one unspent character point available when you attempt the skill roll. On a success, you may buy the skill at the one-point level. You cannot improve a skill learned this way for one month, during which time you use it at -2. On a critical success, you can start improving the skill *immediately,* and there is no -2. On a failure, you cannot learn the skill; on a critical failure, you also lose your unspent character point! Regardless of success, if you lack any of the skill's prerequisites, your skill is at -4 until you acquire them, and you *cannot* improve the skill in the interim. This enhancement does not let you learn skills from a TL higher than your own. +25%.

Special Limitations

Emergencies Only: Your Wild Talent only works in life-threatening situations, such as mortal combat. To use it, you must ask for a particular *result* related to your predicament. Your request must be specific (e.g., "Get him away from me."), but you cannot specify a skill (e.g., "Use Judo" or "Cast the Command spell"). The GM will then choose a skill that could bring about the desired result. He is not limited to mundane skills; he may choose a spell if you have Magery, a cinematic martial-arts skill if you have Trained By A Master, and so forth. Once the GM has chosen, roll against the governing attribute, as usual. If the GM feels you *already* have skills equal to the task, he will advise you on which skill to use. This still counts as one of your uses of Wild Talent! -30%.

Focused: You can only use (and if you have Retention, learn) one specific class of skills. Options include Mental (mundane skills based on IQ, Perception, or Will), Physical (mundane skills based on ST, DX, or HT), Magical (spells), and Chi (cinematic martial-arts skill). -20%.

Xeno-Adaptability

see *Cultural Adaptability*, p. 46

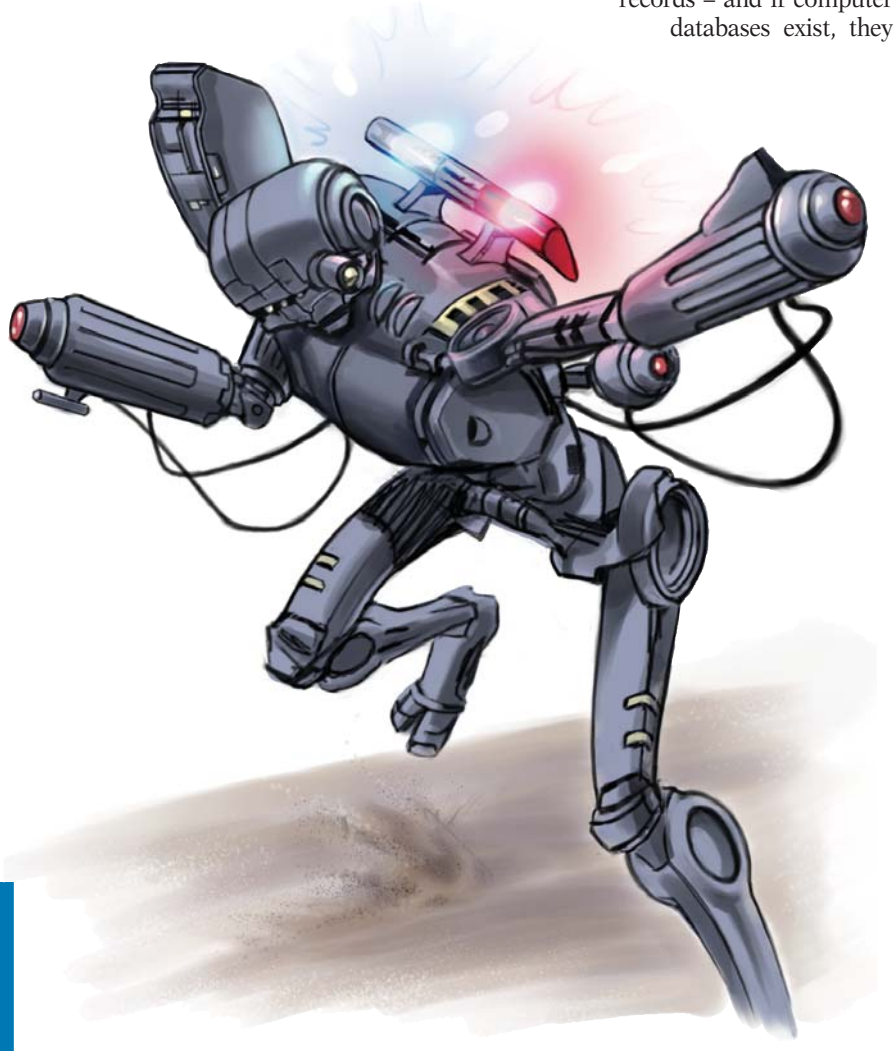
Zeroed

10 points

You do not officially exist. Even the highest authorities in the land know nothing about you. In a fantasy setting, you are a "mysterious wanderer"; magical divination cannot discover conclusive details about your past or true identity. In a high-tech world, you don't appear in the public records – and if computer databases exist, they contain no evidence of your existence. You must provide a reason for this; e.g., your parents hid you away at birth, you are legally dead, or you somehow managed to destroy all the records (explain how!).

To maintain this status, you must deal strictly in cash or commodities. Credit and bank accounts must be blind (keyed to pass-code, not a person – the "Swiss bank account") or set up through a Temporary Identity (see p. 31).

If the authorities investigate you, they will initially assume that there has been an error. They will become increasingly concerned as no information can be found about your life. Eventually, they will attempt to apprehend you. If they can't find you, then they're likely to give up. But if they catch you, you are in for a thorough interrogation, possibly involving torture, mind probes, or worse. After all, a nonperson has no rights . . . and it will be very difficult for your allies to prove that you are being held, as you don't officially exist!



Perks

A "perk" is a very minor advantage, worth only 1 point. Perks cannot be modified with enhancements or limitations, and they can be added in play without upsetting game balance. Otherwise, perks use the same rules as other advantages.

The GM is encouraged to create new perks. No perk should provide wealth, social standing, or combat bonuses. A perk can provide a modest bonus (up to +2) to an attribute, skill, or reaction roll in relatively rare circumstances. The GM may allow more generous bonuses, if they apply only in *extremely* rare situations.

Accessory

Your body incorporates a tool or other useful gadget (e.g., a siren or a vacuum cleaner) that provides minor, noncombat benefits not otherwise covered by a specific advantage.

Alcohol Tolerance

Your body metabolizes alcohol with remarkable efficiency. You can drink steadily for an indefinite period with no major detrimental effects. *Binging* affects you as it would anyone else. You get +2 on all HT rolls related to drinking.

Autotrance

You can enter a trance at will. This requires one minute of complete concentration and a successful Will roll, at -1 per additional attempt per hour. This trance gives +2 on rolls to contact spirits, etc. You must make a Will roll to break your trance. If you fail, you can try again every five minutes.

Deep Sleeper

You can fall asleep in all but the worst conditions, and can sleep through most disturbances. You never suffer any ill effects due to the quality of your sleep. You get an IQ roll to notice disturbances and awaken, just like anyone else; success is automatic if you have Combat Reflexes.

Fur

You have fur. This prevents sunburn. Thicker fur might justify 1-3 levels each of Damage Resistance (p. 46) and Temperature Tolerance (p. 93), while spiky "fur" might grant Spines (p. 88). You must buy these other traits separately.

Honest Face

You simply look honest, reliable, or generally harmless. This has nothing to do with your reputation among those who know you, or how virtuous you *really* are! People who don't know you will tend to pick you as the one to confide in, or *not* to pick you if they are looking for a potential criminal or troublemaker. You won't be spot-checked by customs agents and the like unless they have another reason to suspect you, or unless they are truly choosing at random. You have a +1 to trained Acting skill for the sole purpose of "acting innocent."

No Hangover

No matter how much you drink, you will never get a hangover. This does not mitigate the effects of intoxication – it just eliminates the unpleasant aftereffects.

Penetrating Voice

You can really make yourself heard! In situations where you want to be heard over noise, others get +3 to their Hearing roll. At the GM's option, you get +1 to Intimidation rolls if you surprise someone by yelling or roaring.

Sanitized Metabolism

You are totally *clean*. Your body produces minimal, sanitized waste products, and you never suffer from bad breath, excessive perspiration, or unsightly skin problems. This gives -1 to attempts to track you by scent and +1 to reaction rolls in close confines (cramped spaceships, submarines, elevators, etc.).

Shtick

You have a cool move or slick feature that sets you apart from the masses. This provides no combat or reaction bonuses, and you can't use it to earn money, but it might occasionally give you some minor benefit in play (GM's discretion). *Example:* your clothing is always spotless, even after combat or swimming the Nile; you can run, climb, fight, etc. while wearing high heels without suffering any special penalty for bad footing.

Modifiers

A *modifier* is a feature that you can add to a trait – usually an advantage – to change the way it works. There are two basic types of modifiers: *enhancements* and *limitations*. Adding an enhancement makes the underlying trait more useful, while applying a limitation attaches additional restrictions to your ability.

Modifiers adjust the base cost of a trait in proportion to their effects. Enhancements *increase* the cost, while limitations *reduce* the cost. This is expressed as a percentage. For instance, a +20% enhancement would increase the point cost of an advantage by 1/5 its base cost, while a -50% limitation would reduce it by half its base cost.

You can apply any number of modifiers to a trait. Total them to find the net modifier, and then apply this modifier to the base cost of the trait. Round the resulting cost *up* to the next-highest whole number. For example, a +10% enhancement, a +40% enhancement, a -30% limitation, and a -45% limitation would give a net modifier of -25%. This would reduce the cost of a 10-point advantage to 7.5 points, which would round up to 8 points.

Modifiers can *never* reduce cost by more than 80%. Treat a net modifier of -80% or worse as -80%. Thus, no matter how many limitations you take, you cannot lower the cost of a trait to less than 1/5 its base cost.

The GM has the final say as to which traits you can modify, and in what ways. Some combinations make no sense (imagine Unaging with the Limited Use limitation!), others have potential for abuse, and still others might not suit the campaign. Percentile modifiers can also result in a lot of extra math. GMs who prefer to keep things simple may wish to prohibit modifiers altogether.

Special Modifiers

Many advantages, and some disadvantages, offer "special enhancements" and "special limitations." These modifiers are generally applicable only to the specific trait(s) with which they are described. However, the GM may choose to extend the special modifiers of one particular trait to other, very similar traits.

Range, Area, and Duration for Advantages

When applying modifiers, you occasionally need to know the range, area of effect, or duration of an advantage for which one or more of these quantities is not specified – for instance, when applying an enhancement that gives a range to an ability that normally has none. Assume that *range* is 100 yards, *area* is a circle 2 yards in radius (and 12' high, should volume matter), and *duration* is 10 seconds, unless the advantage specifies otherwise. Exceptions will be noted.

Enhancements

You can apply enhancements to advantages, and more rarely to basic attributes and secondary characteristics. The GM might even permit specific enhancements on certain *skills,* but this is difficult to justify unless the skill functions much as an advantage (which is sometimes true of racially innate skills possessed by nonhumans).

Accurate

+5%/level

Your attack is unusually accurate. Each +1 to Accuracy is a +5% enhancement.

Affects Insubstantial

+20%

Your ability affects insubstantial targets *in addition to* normal, substantial things.

Note to GMs: This enhancement is *very* powerful. It lets insubstantial characters affect the material world with little fear of retribution. Feel free to disallow it, restrict it to NPCs, or to make sure that *lots* of foes have the Affects Insubstantial enhancement!

Area Effect

+50%/level

Your ability works as an area power instead of affecting a single target. Everything in the area suffers the attack's damage or other effects. On a miss, use the scatter rules (p. 414) to see where the area is centered. Active defenses don't protect against an area attack, but victims may attempt to dive for cover or dodge and retreat to leave the area. For more information, see *Area and Spreading Attacks* (p. 413).

Radius	*Modifier*
2 yards	+50%
4 yards	+100%
8 yards	+150%
16 yards	+200%

Further levels continue to double the radius. If applied to an advantage that *already* covers an area, each level doubles the base radius.

Area Effect is a prerequisite for Mobile (p. 107), Persistent (p. 107), Selective Area (p. 108), Bombardment (p. 111), and Emanation (p. 112).

Attack Enhancements and Limitations

Some enhancements and limitations are intended only for Affliction, Binding, and Innate Attack, and for advantages modified with the Ranged enhancement (p. 107). They are called "attack" modifiers. Certain of these have additional restrictions; e.g., Armor Divisor applies only to Affliction and Innate Attack. Attack enhancements and limitations are marked .

Turning Enhancements Off and On

When you use an enhanced trait, you must use *all* of its enhancements unless a particular enhancement – or the underlying ability itself – explicitly allows you to turn an enhancement "off." (The extended capabilities that many enhancements provide might have no effect in certain situations, but they are still *on.*) To be able to pick which enhancements are "on" at any given moment, take the Selectivity enhancement (p. 108).

Affects Substantial

+40%

Your ability affects substantial targets even when *you* are insubstantial. It also affects insubstantial creatures normally. (Do not add this enhancement to magical or psi abilities; these can already affect the substantial world at -3.)

Armor Divisor

Variable

Your attack can pierce more armor than its base damage would indicate.

Armor Divisor	*Modifier*
(2)	+50%
(3)	+100%
(5)	+150%
(10)	+200%

Only Innate Attacks and Afflictions can have this enhancement. Armor Divisor is a "penetration modifier"; you cannot combine it with other penetration modifiers, such as Contact Agent (p. 103) and Follow-Up (p. 105).

Aura

+80%

Your attack takes the form of a malefic aura that affects anyone you touch (reach C) or who touches you. If a weapon strikes you, your aura affects the weapon. You can switch the aura on or off at the start of your turn (if not, take Always On, p. 110). You *must* take Aura in conjunction with Melee Attack (p. 112) at the -30% level (reach C), and you cannot claim the extra -5% for "cannot parry" – an aura cannot parry in the first place.

The classic example of an Aura is the sheath of flame surrounding a fire elemental. See *Body of Fire* (p. 262) for how to write this up.

Based on (Different Attribute)

+20%

This enhancement is only available for abilities that allow a resistance roll against ST, DX, IQ, HT, Perception, or Will. It moves the resistance roll from the usual attribute or characteristic to a different one, specified when you buy the ability. This is considered an enhancement because it lets you fine-tune your ability to be more effective against targets with known weaknesses.

Blood Agent

+100%

On an attack with Area Effect or Cone, this is an *enhancement.* See the Blood Agent limitation (p. 110) for details.

Cone

Variable

Your attack spreads to affect everyone in a cone-shaped area. Cones use special rules; see *Area and Spreading Attacks* (p. 413). Decide on the maximum width of the cone, in yards, at the attack's maximum range. Cone costs +50% *plus* +10% per yard of maximum width.

You cannot combine Cone with Area Effect, Aura, Jet, Melee Attack, Rapid Fire, or Emanation.

Contact Agent

+150%

On an attack with Area Effect or Cone, this is an *enhancement*. See the Contact Agent limitation (p. 111) for more information.

Cosmic

Variable

Your ability operates on a "higher level" than is usual in your game world. This allows it to work under all circumstances, and possibly even ignore opposing powers! The value of the enhancement depends on the underlying trait:

Ability other than an attack or a defense. Your ability is not subject to the usual built-in restrictions. For instance, your Healing might cure otherwise "incurable" diseases, your Insubstantiality might allow you to penetrate barriers that would block other insubstantial beings, or your Shapeshifting might be immune to negation by external forces. +50%.

Defense or countermeasure. Your defensive trait provides its usual benefits against offensive abilities modified with the Cosmic enhancement. +50%.

Attack with a lingering special effect. Your attack has an enduring effect that only another Cosmic power can counteract; e.g., a burning Innate Attack that sets fires that water cannot extinguish, or a toxic Innate Attack that inflicts Cyclic (below) damage that medical technology cannot halt. This does *not* negate the target's protection! DR still affects Innate Attack, a HT roll is still allowed for a Resistible (p. 115) attack, etc. +100%.

Irresistible attack. Your attack *does* negate the target's protection; e.g., an Innate Attack that ignores DR, or Mind Control that ignores Mind Shield. The target may still attempt an active defense against the attack, if applicable. You cannot combine this enhancement with other "penetration modifiers," such as Follow-Up (p. 105). +300%.

Cyclic

Variable

This enhancement is only available for Innate Attacks that inflict burning, corrosion, fatigue, or toxic damage. It represents an attack that persists *on the victim:* acid, disease, liquid fire, poison, etc. (For attacks that linger in the environment, see *Persistent,* p. 107.)

A Cyclic attack damages its target normally – but once the target has been exposed, the attack damages him *again* each time a set interval passes! All penetration modifiers (e.g., Contact or Follow-Up) continue to apply; for instance, a Cyclic attack with Follow-Up continues to ignore DR. Worst of all, the victim cannot recover HP or FP lost to a Cyclic attack until the attack stops damaging him!

You must specify a reasonably common set of circumstances that halt any further damage from your attack. For instance, to halt cyclic corrosion or burning damage, the victim might have to wash the acid off or roll on the ground to extinguish the flames, taking one or more seconds and a DX or IQ roll. Fatigue or toxic damage might require drugs or medical care (use Physician skill). Details are up to the GM.

The base value of Cyclic depends on the damage interval.

Interval	*Modifier*
1 second	+100%
10 seconds	+50%
1 minute	+40%
1 hour	+20%
1 day	+10%

Burning or corrosion attacks shouldn't have intervals longer than 10 seconds. At the GM's option, someone taking damage at one-second intervals might have to make a Fright Check!

Multiply the base value by the number of cycles after the first. The GM should consider limiting large numbers of cycles to attacks that do less than 1d damage.

Cyclic attacks are often Resistible (p. 115); if so, an extra resistance roll is allowed for each cycle, with a success preventing any further damage. If the attack is Resistible, *halve* the value of Cyclic.

Some Cyclic attacks are contagious. While affected, the victim can inadvertently infect others, per *Illness* (p. 442). This increases the *final* cost of the enhancement, after all other factors: +20% for a "mildly contagious" attack or +50% for a "highly contagious" one.

These factors are cumulative. For instance, a resistible disease with 31 daily cycles would cost +10% × 30 × 1/2 = +150%. If it were highly contagious, it would cost +200%.

Damage Modifiers

Variable

You may give an Innate Attack one or more of these modifiers to further qualify the way it does damage.

Double Blunt Trauma (dbt)

+20%

Available for Innate Attacks that do burning, corrosion, cutting, impaling, or piercing damage. Burning and corrosion attacks enhanced this way inflict 1 HP of blunt trauma injury per 10 points of basic damage resisted by flexible armor. Cutting, impaling, and piercing attacks with this enhancement inflict the same blunt trauma as a crushing attack: 1 HP of blunt trauma injury per 5 points of basic damage resisted by flexible armor.

Double Knockback (dkb)

+20%

This lets a crushing or cutting attack inflict twice as much knockback as usual; see *Knockback* (p. 378).

Explosion (exp)

+50%/level

The attack produces an explosion at the point of impact (on a miss, check for scatter; see p. 414). The target takes damage normally; anything nearby receives "collateral damage" equal to basic damage divided (3 × the distance in yards from the blast). If the attack also has an Armor Divisor (p. 102), it does *not* apply to this collateral damage.

You can take up to two additional levels of Explosion if you desire a blast that isn't as affected by distance. The second level divides basic damage by twice the distance in yards and is +100%; the third level divides damage by the distance in yards and is +150%.

Explosion is usually limited to crushing and burning attacks, but the GM may permit other combinations.

For more on explosions, see *Explosions* (p. 414).

Fragmentation (frag)

+15% per die

The attack scatters damaging fragments on impact. Decide on the dice of fragmentation damage and note this in brackets after the attack's basic damage. Everyone within 5 yards per die of fragmentation damage is attacked with effective skill 15, modified by range penalties from the point of impact; see *Fragmentation Damage* (p. 414).

When you use an enhanced trait, you must use all of its enhancements unless a particular enhancement – or the underlying ability itself – explicitly allows you to turn an enhancement "off."

Fragments inflict cutting damage. If you add Fragmentation to a burning attack or one with the Incendiary enhancement (below), the fragments are Incendiary at no extra cost. If you apply it to an attack with Follow-Up (p. 105), penetration indicates the fragments automatically hit the victim but no one else. Fragmentation often accompanies Explosion (above), but this is not required.

Fragmentation costs +15% per die of fragmentation damage. A damage of [2d] or [3d] is typical of a grenade-sized blast. Maximum fragmentation damage is [12d] or the attack's basic damage, whichever is *less*.

Hot Fragments: The fragments inflict burning damage with the modifiers Cyclic (Six 10-second cycles) and Armor Divisor (0.2) *instead* of cutting damage. Cost is unchanged.

Hazard

Variable

You may give an Innate Attack that inflicts fatigue damage *one* of these enhancements: Dehydration, +20%; Drowning, +0%; Freezing, +20%; Missed Sleep, +50%; Starvation, +40%; or Suffocation, +0%. Treat FP

lost to the attack identically to FP lost to the relevant hazard for *all* purposes, notably recovery (see Chapter 14).

Traits that protect the target from the hazard in question also shield him from this damage. For instance, a Starvation attack would inflict FP that could only be recovered by eating a meal, but someone with Doesn't Eat or Drink would be immune.

Incendiary (inc)

+10%

An Innate Attack *other* than a burning attack may be Incendiary. This gives the damage a secondary flame effect that can ignite volatile material (fuel, dry tinder, etc.).

Radiation (rad)

+25% or +100%

The attack irradiates the subject. Roll damage normally, but whether or not the attack penetrates DR, it inflicts 1 rad per point of basic damage rolled. See *Radiation* (p. 435) for effects. For a toxic attack, this dosage is *instead* of regular damage, and the enhancement is worth +25%; this is typical of "ordinary" radioactivity. For a burning attack, the radiation dose is *as well as* regular damage, and the enhancement is +100%; use this for particle beams. Other damage types cannot have this enhancement.

Surge (sur)

+20%

The attack produces an electrical surge or pulse that can disable electronics or anything with the Electrical disadvantage (p. 134).

Delay

Variable

This enhancement delays the attack's effects until sometime after you hit the target. This lets you simulate time bombs and the like. You *must* specify some way to neutralize the effect before it occurs. Work out this detail with the GM.

A *fixed* delay (e.g., 2 seconds) is +0%.

A *variable* delay is +10% if you can set it for any time from "no delay" to 10 seconds, or +20% if you can set it for longer (minutes, hours, days . . .). You must select the delay *before* you roll to hit.

Triggered Delay: Instead of a time delay, the effects are triggered by a simple action: a radio signal, touch, pressure, a metal object passing within a yard, etc. Specify the trigger when you buy the attack. +50%.

Drifting

+20%

You may add this enhancement to any attack with Delay (above) or Persistent (p. 107). The initial attack roll places the effect. It then drifts from that point with the wind, water currents, solar wind, etc., as appropriate. Use this for poison gas, ball lightning, floating mines, and so forth.

Extended Duration

Variable

This enhancement increases the normal duration of your ability. "Multiple" applies to the original duration (or changes it to permanent).

Multiple	*Modifier*
3× duration	+20%
10× duration	+40%
30× duration	+60%
100× duration	+80%
300× duration	+100%
1,000× duration	+120%
Permanent*	+150%

* You must specify a reasonable set of conditions that will dispel the effect (or cure it, for abilities such as Affliction and Mind Control). The GM is the judge of what is "reasonable." If there is *no* way to end the effect, the enhancement is +300%. To keep PCs from granting each other free advantages, the GM may wish to forbid this level of Extended Duration on Afflictions with the Advantage modifier.

To add Extended Duration to an attack, the attack must *either* have Aura, Persistent, or Wall, *or* specifically allow this enhancement. You can also add Extended Duration to any advantage that has the Ranged enhancement (p. 107).

If the modified trait has multiple facets with separate durations, you must specify which duration you are extending. For instance, a cloud of sleeping gas could have this enhancement to extend the duration of the sleep it induces *or* the length of time the cloud persists; to do both, buy this enhancement twice.

Follow-Up

Variable

Your attack's effects are delivered by a "carrier." Use this to represent poison on a dart, an explosive in an armor-piercing shell, etc. Pick a *different* attack as the carrier. This can be either body weaponry (e.g., Claws or Teeth) or an Innate Attack (usually one that does cutting, impaling, or piercing damage).

A Follow-Up attack need only list its damage amount and type. All other details depend on the carrier attack. The Follow-Up attack only hits if the carrier attack hits. If the carrier attack penetrates the target's DR, DR has *no* effect on the Follow-Up attack's damage or HT rolls.

If the carrier attack is a natural weapon, such as Claws or Teeth, Follow-Up is a +0% enhancement. (*Exception:* On a passive carrier attack such as Spines, Follow-Up is a -50% *limitation.*)

If the carrier attack is an Innate Attack, the cost of Follow-Up depends on the modifiers on the carrier attack. The cost of Follow-Up equals the sum of the costs of whichever of the following modifiers apply to the carrier attack: Always On, Aura, Cone, Drifting, Emanation, Emergencies Only, Extra Recoil, Guided, Homing, Increased Range, Jet, Limited Use, Malediction, Melee Attack, Preparation Required, Rapid Fire, Reduced Range, Takes Extra Time, Takes Recharge, Unconscious Only, Uncontrollable, or Unreliable. If *none* of these modifiers apply to the carrier attack, Follow-Up costs +0%. Note that the Follow-Up attack itself cannot take *any* of these modifiers. Only its carrier attack may have them.

Follow-Up is a "penetration modifier"; you cannot combine it with other penetration modifiers (although the carrier attack can have them).

Guided or Homing

Variable

You can guide your attack – or perhaps it "homes in" by itself! Use this enhancement to create guided missiles and supernatural effects such as magical javelins that seek your foes.

Guided: You steer your attack to the target using your own skill. This lets you ignore all *range* penalties to hit! If the target is so distant that your attack needs multiple turns to reach it (see below), you must take a Concentrate maneuver each turn. If you lose sight of the target while the attack is en route, your attack automatically misses. +50%.

Homing: Your attack steers itself. Decide how it seeks its target: with ordinary vision or a sensory advantage such as Detect (p. 48), Infravision (p. 60), Night Vision (p. 71), Scanning Sense (p. 81), or Vibration Sense (p. 96). The attack uses this sense for the purpose of combat modifiers; e.g., radar ignores darkness but can be jammed. To "lock on," you must Aim at the target and make an unmodified skill roll. Do not roll against your skill to hit. Instead, use the attack's skill of 10 – plus Accuracy, if you made your skill roll – and ignore all range penalties. Homing costs a base +50%, *plus* 1% per point the chosen homing mechanism would cost if bought as an advantage (without any modifiers); e.g., Infravision costs 10 points, making Homing (Infravision) +60%. Ordinary vision uses the base +50%.

If a Guided or Homing attack has a 1/2D statistic, read this as the attack's *speed* in yards/second. The attack can hit a target at up to its 1/2D range on the turn you launch it. It requires multiple turns to reach more distant targets. Do *not* halve damage, but defer the attack roll until the attack reaches its target.

For more information, see *Guided and Homing Weapons* (p. 412).

Increased Range

+10%/level

You may add this enhancement to any advantage that has a range; e.g., Innate Attack or Scanning Sense. Each level increases range as follows:

Range Multiple	*Modifier*
2×	+10%
5×	+20%
10×	+30%
20×	+40%
50×	+50%
100×	+60%

Further levels follow the same "2-5-10" progression.

If applied to a ranged attack, each level increases 1/2D *and* Max. You may increase 1/2D or Max individually at half cost (that is, "Increased 1/2D" and "Increased Max" are +5%/level). However, you cannot increase 1/2D past Max. At most, you can make 1/2D *equal* to Max – this means the attack has *no* 1/2D range. For attacks that already have no 1/2D range, you can increase Max for +5%/level.

Jet

+0%

Your attack is a continuous stream, like a flamethrower. Treat it as a melee weapon with a very long reach rather than as a ranged weapon. Do not apply penalties for target range and speed.

An attack with Jet has no Acc, and has 1/2D 5 and Max 10 instead of its usual range. Increased Range increases range by 100% per level instead of its usual effects.

Jet is incompatible with Area Effect, Aura, Cone, Follow-Up, Melee Attack, and Rapid Fire.

Link

+10% or +20%

You can use two or more advantages simultaneously, as if they were a single ability. For +10%, your abilities are permanently linked into a single power, and must be used together – you *cannot* use them separately. For +20%, you can also use them separately. You must add this enhancement to *all* the abilities you wish to link.

If you link two attacks into one and give them identical Malf., 1/2D, Max, Acc, RoF, Shots, and Recoil, you can treat them as a *single* attack with one attack roll but separate rolls for damage. This is not the same as the Follow-Up enhancement (p. 105)!

Low or No Signature

+10% or +20%

An attack normally has a "signature": a flash of light, a sound, etc. If left unspecified, this is assumed to be similar to a gunshot or a stroke of lightning – that is, a brilliant flash and a loud report. This enhancement makes your attack less obvious.

Low Signature: The attack is no more easily identifiable as an attack than the loud pop of a champagne cork; e.g., a suppressed pistol shot. +10%.

No Signature: The attack is almost completely unnoticeable; e.g., a blowgun's dart. Alternatively, it is utterly undetectable by normal means, but leaves a magical or psionic trace. +20%.

Malediction

Variable

Your attack is not a conventional ranged attack; it works more like a Regular spell (p. 239). It lacks Malf., 1/2D, Max, Acc, RoF, Shots, and Recoil statistics, and cannot have any enhancement or limitation that modifies those statistics. Most importantly, the target's DR has *no effect* on the attack's damage, resistance roll, or other effects!

Malediction requires a Concentrate maneuver rather than an Attack maneuver to use. It can target any victim you can see or otherwise clearly perceive. To determine if the attack succeeds, roll against your Will, applying the range penalties detailed below. Your foe may choose to resist; if so, resolve the attack as a Quick Contest of Will. You must *win* to affect the victim.

When enhancing an Affliction, the Quick Contest above *replaces* the usual resistance roll. You roll against Will, but your target rolls against HT – or other attribute, if the attack has Based on (Different Attribute) – modified as usual for the Affliction. For instance, an Affliction that allows a HT-1 roll to resist would result in a Quick Contest of your Will vs. the target's HT-1.

The value of Malediction depends on the range modifiers it uses. If it takes -1 per yard of range, like a Regular spell, it costs +100%. If it uses the range penalties on the *Size and Speed/Range Table* (p. 550), it costs +150%. And if it uses the penalties given under *Long-Distance Modifiers* (p. 241), it costs +200%.

Malediction is a "penetration modifier"; you cannot combine it with other penetration modifiers, nor with modifiers that apply only to conventional ranged attacks.

Mobile

+40%/level

You may only add this enhancement to an attack that has both Area Effect (p. 102) *and* Persistent (below). The area of effect moves under your control. Move equals the level of the enhancement (Move 1 at +40%, Move 2 at +80%, and so on), and cannot exceed the attack's Max range.

To move the area of effect, you must take a Concentrate maneuver. To make the mobile area autonomous, add Homing (which causes it to attack the nearest valid target) and possibly Selective Area (so it only seeks out enemies). Buy these enhancements *twice* if they're intended to apply to both the initial attack roll and the autonomous area.

Mobile is mutually exclusive with Drifting (p. 105).

Overhead

+30%

Your attack can alter its angle to strike from a different side of the target – usually the top. This bypasses any cover that does not provide overhead protection, and negates attack penalties to hit crouching, kneeling, sitting, or prone targets. (If you are already above or below your target, adjust this appropriately.) Use this to represent a rain of fire, a missile that swoops up and then dives down at the last moment, an airburst grenade, etc.

Persistent

+40%

You may only add this enhancement to an Area Effect (p. 102) attack. This causes the area of effect to remain in place for 10 seconds, continuing to damage (or attack and *possibly* damage, if taken with Bombardment, p. 111) anyone entering or passing through it. Use Extended Duration to increase the duration.

Ranged

+40%

This enhancement gives range to an advantage that normally affects your immediate area, or that requires a touch to affect others. By default, it has 1/2D 10, Max 100, Acc 3, RoF 1, Shots N/A, and Recoil 1. Duration is 10 seconds, unless the ability lists another duration (like Neutralize or Possession) or is instantaneous (like Healing), and you cannot use the ability again until all existing effects have worn off. You can apply other modifiers to change the ranged combat statistics and duration.

This enhancement is normally restricted to Healing, Mana Damper, Mana Enhancer, Neutralize, Possession, and Psi Static. The GM is free to allow it on other traits, but it should *never* modify body weaponry (such as Strikers or Vampiric Bite) or abilities that already have a range.

Rapid Fire

Variable

An Innate Attack's base Rate of Fire (RoF) is 1. Consult the table below to find the cost for a higher RoF:

RoF	*Cost*
2	+40%
3	+50%
4-7	+70%
8-15	+100%
16-30	+150%
31-70	+200%
71-150	+250%
151-300	+300%

Two special options are available for attacks with this enhancement:

Multiple Projectile: Each shot splits into multiple projectiles after you attack, like a shotgun blast or forked lightning. Express this as a multiplier following RoF; for instance, RoF 3×4 means each of three shots fired divides into four individual projectiles. Modifier cost is based on the RoF times the multiplier; e.g., RoF 3×4 costs the same as RoF 12.

Selective Fire: You may designate a RoF 5+ attack as Selective Fire, allowing it to fire as if it had RoF 1-3. This costs an extra +10%.

Reduced Fatigue Cost

+20%/level

You may only take this enhancement for abilities that cost FP, and never in conjunction with the special modifier "Usually On." You can take it any number of times. Each level cuts the cost to use the ability by 1 FP. If you must "maintain" the ability by spending FP on a regular basis, reduce this maintenance cost by a like amount.

Reduced Time

+20%/level

You may only add this enhancement to abilities that require time to activate. You can take it any number of times. Each level halves the time required to use the ability (round up). Once time is reduced to one second, a further level of Reduced Time makes the ability *instantaneous* – using it is a free action.

Note that you *cannot* add Reduced Time to attack powers, to traits that list any kind of special modifier that affects activation time, or to Magery (to reduce casting times).

Respiratory Agent

+50%

Your attack must be inhaled to have any effect, but it ignores *all* DR. Only Doesn't Breathe and Filter Lungs protect completely – although a victim who makes a Sense roll to notice the attack in time may hold his breath (see *Holding Your Breath*, p. 351). To make your attack less noticeable, take Low Signature (p. 106).

You may only add this enhancement to an Affliction or to an Innate Attack that inflicts toxic or fatigue damage, and you *must* combine it with one of Area Effect (p. 102), Cone (p. 103), or Jet (p. 106). Persistent (p. 107) is common but not required.

Respiratory Agent is a "penetration modifier"; you cannot combine it with other penetration modifiers, such as Follow-Up (p. 105).

Selective Area

+20%

You may add this enhancement to any Area Effect (p. 102) or Cone (p. 103) attack. It lets you choose which targets within your area are actually affected.

Selectivity

+10%

This enhancement lets you turn a trait's *other* enhancements off and on at will. For instance, if you had an attack with Area Effect, you could turn this enhancement off to affect only one other person. You must specify which enhancements you wish to ignore *before* you activate the ability. The default assumption is that you are always using all of your enhancements.

By allowing you to select which enhancements you use, Selectivity permits you to have multiple versions of the same ability without having to buy the ability multiple times. This can be extremely useful when creating comic-book supers!

Sense-Based

Variable

Your attack is channeled through your victim's senses, allowing it to ignore DR! You must specify the sense(s) affected. Examples include vision, hearing, smell, and exotic senses such as Detect. This is worth +150%, plus an extra +50% per sense after the first; e.g., Vision and Hearing-Based would be +200%.

Your attack only affects someone who is using the targeted sense. For instance, a Vision-Based attack cannot affect a blind subject or someone with his eyes closed, while a Smell-Based attack doesn't work underwater or on a target with a gas mask. Advantages (such as Protected Sense, p. 78) and equipment that protect the sense in question either negate the attack completely or, in the case of attacks that allow a roll to resist (such as Afflictions, Maledictions, and Resistible attacks), give a bonus to the resistance roll.

The most common Sense-Based attack is an Affliction that knocks out the sense it is based on; for instance, Affliction (Blindness; Vision-Based) for a blinding flash. However, Sense-Based attacks can also be deadly, like a banshee's wail or basilisk's gaze.

Sense-Based is a "penetration modifier"; you cannot combine it with other penetration modifiers, such as Follow-Up (p. 105).

Exception: You *can* combine Sense-Based with Malediction (p. 106). In conjunction with Malediction, or when added to an ability that already ignores DR (e.g., Mind Control or Mind Reading), Sense-Based becomes a *limitation.* It is worth -20% if it works through one sense, -15% if two senses, or -10% if three senses. If it works through more than three senses, it is not a significant limitation.

Side Effect

Variable

You may only add this enhancement to an Innate Attack, and you cannot combine it with penetration modifiers other than Armor Divisor. If *any* damage penetrates the target's DR, he must make a HT roll, at -1 per 2 points of penetrating damage, or suffer a "side effect."

Choose the side effects from the effects described for Affliction (p. 35). Valid choices are stunning, Attribute Penalty, Disadvantage, and Incapacitation. The cost of Side Effect is a base +50%, *plus* the cost of the Affliction enhancements. For instance, stunning would be +50%, while Disadvantage (Blindness) would be +100%.

You may specify more than one side effect. If the victim gets a single resistance roll against all of them, treat them as a single Side Effect enhancement, totaling their cost. If the victim must resist each effect individually, take a separate Side Effect enhancement for each effect.

Stunning wears off normally, while other effects last (20 - HT) minutes, minimum 1 minute. If Incapacitation is combined with other effects, the other effects last for *another* (20 - HT) minutes after the Incapacitation wears off.

Symptoms

Variable

Symptoms are effects that occur if the cumulative damage (HP or FP loss) inflicted by the enhanced Innate Attack exceeds a fraction of the victim's basic HP or FP. The victim does *not* get a HT roll to resist Symptoms! The GM should consider limiting Symptoms to attacks that inflict 1d damage or less.

Choose Symptoms from the following effects described as enhancements for Affliction (p. 35): Advantage, Attribute Penalty, Disadvantage, Irritant, and Negated Advantage. If the threshold for the Symptom is 2/3 the victim's basic HP, use the cost under Affliction. If the threshold is 1/2 basic HP, *double* this cost. If it's 1/3 basic HP, *triple* this cost.

Example: Blindness is worth +50% as an Affliction, but as a Symptom that occurs when the victim has lost half his HP to an Innate Attack, it is a +100% enhancement.

Unlike Afflictions, Symptoms abate only when the damage that caused them is healed. In the example above, the Blindness would only end when the victim's HP healed past the halfway point.

An Innate Attack can have multiple Symptoms, representing different effects that that occur at different damage thresholds.

Underwater

+20%

Attacks are assumed to be usable in air or in vacuum, but ineffective in liquid. This enhancement lets an attack work underwater at 1/10 range.

Variable

+5%

You can reduce the level of your attack. For example, if you have an Innate Attack that normally does 3d damage, you could reduce it to 1d or 2d damage. You must indicate this before you make your attack roll.

Wall

+30% or +60%

You may only add this enhancement to an attack that has both Area Effect (p. 102) and Persistent (p. 107).

For +30%, you can set up your Area Effect as a wall filled with the substance or effect of your ability. This affects anyone or anything passing through it. You get a three-yard-long by one-yard-wide wall per yard of radius in your area.

For +60%, your wall works as above, but you can form it into any shape you choose.

You must define your wall as either *permeable* or *rigid:*

Permeable: The wall is composed of liquid, gas, energy, or an amorphous solid (e.g., thorn bushes). It impedes vision, and inflicts damage on anyone who attempts to cross it, but an intruder can traverse it provided he is not stunned, knocked out, killed, etc. by its effects. Anything effective against the substance of the wall will disperse it; e.g., water or a fire extinguisher could extinguish a wall of fire.

Rigid: The wall is a material barrier. This is only possible for Innate Attacks that deal crushing, cutting, impaling, or piercing damage. Each yard of wall has DR 3 and 1/2 HP per die of damage (round up); e.g., a 6d attack produces a wall with DR 18 and 3 HP. The wall does no damage itself, but the damage type applies to the injury inflicted on anyone crashing into it.

Limitations

You can apply limitations to almost *any* trait (although as with enhancements, skills are normally off-limits). When you apply a limitation to a disadvantage, you reduce its value *as a disadvantage;* e.g., a -10% limitation on a -25-point disadvantage would make it a -22.5-point trait, which rounds to -22 points. Limited disadvantages are worth fewer points because they affect you under more restricted circumstances.

Remember that no matter how many limitations you take, you cannot reduce the cost of a trait by more than 80%. That is, when totaling modifiers, treat net modifiers below -80% as -80%.

You can apply limitations to almost any trait. When you apply a limitation to a disadvantage, you reduce its value as a disadvantage. Limited disadvantages are worth fewer points because they affect you under more restricted circumstances.

Accessibility

Variable

Accessibility is a catchall limitation you can use to cover any restriction not specifically defined elsewhere. Accessibility limitations fall into two broad categories: those that limit the *targets* your ability can affect and those that limit the *situations* in which it works.

If your ability can only affect certain targets, the limitation depends on how common the target group is. "Only on women," "Only on men," or anything else that covers about half of the population is worth -20%. "Only on Electrical" or "Only on machines" is worth -20% in a technological setting. "Only on sea creatures" is worth -30% – unless the campaign is set on a world mostly covered with water, in which case it isn't worth more than -10%. "Only on aliens" is worth -30% or -40%, depending on the world. "Only on psis" is worth -50% in most settings. "Not on redheads" is identical to "On everyone but redheads," and is worth -10%.

The same yardstick applies to limitations based on the situation. "Only at day" or "Only at night" is worth -20%. "Only in direct sunlight" is worth -30%. "Only in water" is worth -30% on Earth – but more on a desert planet and less on an ocean world. "Only during full moon" or "Only during new moon" is worth -40%. And "Useless under stress" is a whopping -60%, since it makes the ability worthless in most adventuring situations!

You can also link situational Accessibility to your actions. The more unusual, difficult, or obnoxious the required action is, the greater the limitation value. Some examples:

Only in altered body form (Invisible, Insubstantial, etc.): *-10%*.

Only while playing trumpet: *-20%*.

Only while flying, Only while swimming, Only in hypnotic trance: *-30%*.

Only by one side of split personality: *-40%*.

In all cases, if the ability is only weakened (half power) instead of becoming useless, *halve* the value of the limitation.

The GM shouldn't allow meaningless Accessibility limitations. For instance, buying a helpful ability with the limitation "Only on friends" gives no cost break. Buying it with "Only on enemies" would be interesting, though! Likewise, the GM should reject any proposed limitation that is already implicit in the ability. For instance, "Only while flying" is not an acceptable limitation for Enhanced Move (Air).

Always On

Variable

You cannot switch your advantage off. You may only add this to an ability that can normally be switched off *and* that is inconvenient if you can't turn it off. It is worth -10% if the effects are social or cosmetic, -20% if they are physically inconvenient, and -40% if they are dangerous (to you!). Always On appears as a "special limitation" for most of the traits to which it would apply. The GM can add new costs as appropriate for other abilities.

Armor Divisor

Variable

Your attack can pierce less armor than its base damage would indicate. "Divisor" is the factor by which you divide. "DR Multiplier" is an equivalent calculation – multiply your opponent's DR by this number.

Divisor	*DR Multiplier*	*Modifier*
(0.5)	2	-30%
(0.2)	5	-50%
(0.1)	10	-70%

In addition, if you have *any* level of this limitation, targets that have DR 0 (e.g., bare flesh) get DR 1 against your attack.

Only Innate Attacks and Afflictions can have this limitation. Armor Divisor is a "penetration modifier"; you cannot combine it with other penetration modifiers, such as Contact Agent (p. 103) and Follow-Up (p. 105).

Blood Agent

-40%

Your attack must reach a mucous membrane (eyes, open mouth, nose, etc.) or an open wound to have any effect *at all.* DR *always* stops it.

This limitation is intended for Afflictions, and for Innate Attacks that inflict fatigue or toxic damage. It is especially appropriate for poisonous spit or spray. In conjunction with Aura (p. 102), it can also represent an attack that is delivered via intimate physical contact.

Exception: If the attack also has Area Effect (p. 102) or Cone (p. 103), Blood Agent works as described above and also when inhaled (like Respiratory Agent, p. 108). This lets it ignore *all* DR. Only targets with the

Sealed advantage (p. 82) – or with one of Doesn't Breathe (p. 49) or Filter Lungs (p. 55) *and* one of Nictitating Membrane (p. 71) or Protected Vision (p. 78) – are immune. This powerful ability converts Blood Agent into a +100% *enhancement* when combined with Area Effect or Cone!

This is a "penetration modifier"; you cannot combine it with other penetration modifiers, such as Follow-Up (p. 105).

Bombardment

Variable

You may only take this limitation in conjunction with Area Effect (p. 102) or Cone (p. 103). The attack does not automatically hit everyone in the area. Instead, it attacks each potential target in the area at an effective skill, which sets the value of the limitation.

Effective Skill	*Modifier*
14	-5%
12	-10%
10	-15%
8	-20%

Modify effective skill for target size only – not for range or for any other factor. Determine hit location randomly. If the target is under cover, the cover protects normally against the damage.

This limitation is intended for attacks like electrical or ice storms, which could affect some but not all individuals within a given area.

Contact Agent

-30%

Your attack must touch bare skin or porous clothing to have any effect *at all.* DR *always* stops it.

This enhancement is intended for Afflictions, and for Innate Attacks that inflict fatigue or toxic damage. Taken with Aura (p. 102), it can represent a "contagious" attack that spreads via skin contact.

Exception: If the attack also has Area Effect (p. 102) or Cone (p. 103), Contact Agent lets it ignore *all* DR. Only targets with the Sealed advantage (p. 82) are immune. This powerful ability converts Contact Agent into a +150% *enhancement* when combined with Area Effect or Cone!

Optional Rule: Limited Enhancements

If the GM allows, you can add a limitation to an enhancement. This restricts the *enhancement,* reducing its value as an enhancement without directly affecting the underlying ability.

Apply the limitation to the percentage value of the enhancement exactly as if it were a point value. This cannot reduce the value of the enhancement below 1/5 normal. Then apply the cheaper enhancement to the cost of the ability.

Example: Your Selective Area (+20%) enhancement has the Vision-Based (-20%) limitation. You don't need eye contact to make the attack work, but you must make eye contact with someone in your area of effect in order to single him out. A -20% limitation on a +20% enhancement reduces the net enhancement to +16%.

A few limitations *require* a specific enhancement. For instance, Emanation (p. 112) always accompanies Area Effect (p. 102). Such limitations affect the underlying ability. You cannot use this rule to apply them to just the enhancement.

The GM may choose not to use this option, as it requires extra bookkeeping.

This is a "penetration modifier"; you cannot combine it with other penetration modifiers, such as Follow-Up (p. 105).

Costs Fatigue

Variable

Your ability costs FP to use. This is worth -5% per FP per use. What constitutes a "use" depends on the underlying trait.

For abilities that produce instantaneous effects (e.g., Innate Attack), you must pay this FP cost every time you trigger the ability.

For advantages that produce continuing effects (e.g., Flight), you must pay this FP cost to activate the ability for one minute. However, once you have paid this initial cost, you need only pay *half* as many FP (round up) per minute to keep the ability active. If an advantage that produces continuing effects only lasts one *second,* and you must pay the cost to maintain it every second, this doubles the value of the limitation to -10% per FP.

Damage Limitations

Variable

You may add the following limitations to an Innate Attack:

No Blunt Trauma (nbt)

-20%

An attack that inflicts crushing, cutting, impaling, or piercing damage normally inflicts blunt trauma (see p. 379). Add this limitation if it does not.

No Knockback (nkb)

-10%

An attack that inflicts crushing or cutting damage normally inflicts knockback (see p. 378). Add this limitation if it does not.

No Wounding (nw)

-50%

The attack inflicts basic damage, and may cause knockback and blunt trauma, but its penetrating damage has no wounding effect (HP or FP loss). Apply this limitation to a crushing attack to represent effects such as a mighty gust of wind or jet of water. Use it with impaling, piercing, or cutting attacks that are carriers for Afflictions or Innate Attacks (usually those that inflict fatigue or toxic damage) with the Follow-Up modifier (p. 105); this represents small poison darts, stings, etc. that can slip through armor without inflicting grievous wounds.

Dissipation

-50%

You may only take this limitation in conjunction with Area Effect (p. 102) or Cone (p. 103). The further the victim is from the center of the area or the apex of the cone, the less effective your attack is. See *Area and Spreading Attacks* (p. 413) for details.

Emanation

-20%

You may only take this limitation in conjunction with Area Effect (p. 102). It means the effect has no range or Accuracy, but radiates from your body (without affecting *you,* if the effect is a bad one). This is incompatible with Melee Attack and ranged attack modifiers.

Emergencies Only

-30%

Your ability is triggered by your fear or excitement; you cannot use it under "routine" conditions. The GM is the final arbiter. He may rule that multiple successive failures of your power make you angry enough that it begins to work, but this is entirely up to him.

Full Power in Emergencies Only: If your ability works at half power under normal conditions, but at full power under stress, this limitation is not worth as much. For traits that come in levels, "half power" means half as many levels. The GM must decide what this means for other traits (half range, duration, bonuses, etc.). -20%.

Extra Recoil

-10% per +1 Recoil

By default, a ranged attack has Recoil 1, making it virtually recoilless (see p. 271). You may give an attack with Rapid Fire (p. 108) a higher Recoil (Rcl) as a limitation.

Recoil (Rcl)	*Modifier*
2	-10%
3	-20%
4	-30%
5+	-40%

Inaccurate

-5%/level

Your attack benefits little from careful aiming. Most attacks start with Accuracy (Acc) 3. Each -1 to Acc is a -5% limitation. You may not reduce Acc below 0.

Limited Use

Variable

You can use your ability only a limited number of times in a 24-hour period. For most advantages, each "use" is 1 minute of activation. For an attack, each "use" gives shots equal to your RoF, with a minimum one shot per use; for instance, three uses of an attack with RoF 2 would give six shots. The value depends on the number of uses you get.

Uses Per Day	*Modifier*
1	-40%
2	-30%
3-4	-20%
5-10	-10%

More than 10 uses per day is not a significant limitation.

Two special options are available for attacks (and optionally, other abilities) that have this enhancement:

Fast Reload: You can replace all your uses in 3 to 5 seconds simply by replenishing ammunition. The GM determines the weight and cost of the ammunition. This halves the value of the limitation; e.g., three or four uses would be worth only -10%.

Slow Reload: As above, except if you have two or more shots (not uses!) you must reload each shot individually (taking 3 or more seconds *per shot*). If you have only one shot, it must take at least 6 seconds to reload – possibly longer, if using this limitation to represent a very slow-firing weapon such as a flintlock. This makes the limitation worth 5% less than usual; e.g., three or four uses would be worth only -15%.

Melee Attack

Variable

Your attack functions as a melee weapon. It has no range, but allows you to parry, use Rapid Strike, Feint, etc. It lacks Malf., 1/2D, Max, Acc, RoF, Shots, and Recoil statistics, and may not have any enhancement or limitation that modifies these statistics. Instead, it has a Reach statistic.

Reach	*Modifier*
C	-30%
1 *or* 2	-25%
C, 1, *or* 1, 2, *or* 2, 3	-20%
1-4 (like a whip)	-15%

If your attack cannot parry, it is worth an extra -5%.

Mitigator

Variable

You may only apply this limitation to a disadvantage. A particular item or substance – the *mitigator* – temporarily negates your disadvantage. The more effective the mitigator, the fewer points you get for the disadvantage. Use the following guidelines:

Mitigator is *vulnerable,* and easily stolen, broken, or misplaced (e.g., a pair of glasses). -60%.

Mitigator is a drug or other treatment that you must take *daily.* -60%.

Mitigator is a *weekly* treatment. -65%.

Mitigator is a *monthly* treatment. -70%.

This assumes your treatments are available at pharmacies. If you require a special (and possibly expensive) prescription, add +5% to the values above; e.g., -70% becomes -65%. If you can only get your treatments from one specific source, such as an experimental drug program, add +10%; e.g., -70% becomes -60%.

Example 1: Bad Sight is worth -25 points. Glasses cure Bad Sight while worn, but are breakable, for a -60% Mitigator limitation. This reduces Bad Sight to -10 points.

Example 2: Jan has AIDS, and would die in a month without treatment. This level of Terminally Ill is normally worth -100 points. Fortunately, Jan is on an experimental drug plan that is holding him in remission. The treatments are weekly (-65%) but impossible to find outside his program (+10%), for a -55% Mitigator limitation. This reduces Terminally Ill to -45 points. As long as Jan stays with the program, his countdown to death is halted.

Nuisance Effect

Variable

Your ability has a "side effect" that causes you *serious* inconvenience. The GM must approve this limitation and determine its value in each case, and should ruthlessly forbid effects that are abusive or that do not genuinely limit the ability's value. A few

guidelines (a given trait can have more than one of these drawbacks):

- Your ability earns a reaction penalty from those around you. Perhaps it makes you look disgusting, or requires you to perform some sort of distressing ritual. *-5% per -1 to reactions (maximum -4).*
- Your ability makes you *obvious*, limiting stealth and attracting enemies. *-5%.*
- Your ability physically inconveniences you – it attracts stinging insects, causes your armor to rust, makes you ravenously hungry, etc. *-5%.*

You cannot take a valuable power as a Nuisance Effect. For instance, "Kills everyone within a mile" is not an acceptable Nuisance Effect! Neither can you claim a limitation for a *harmless* nuisance. If your Terror advantage attracts gerbils instead of frightening them, this is amusing but not a limitation.

Onset

Variable

You must "stack" this limitation with one of Blood Agent, Contact Agent, Follow-Up, Malediction, or Respiratory Agent. It delays the damage or affliction caused by the attack until some time after exposure. The delay determines the value of the limitation.

Delay	*Modifier*
1 minute	-10%
1 hour	-20%
1 day	-30%
1 week (or more)	-40%

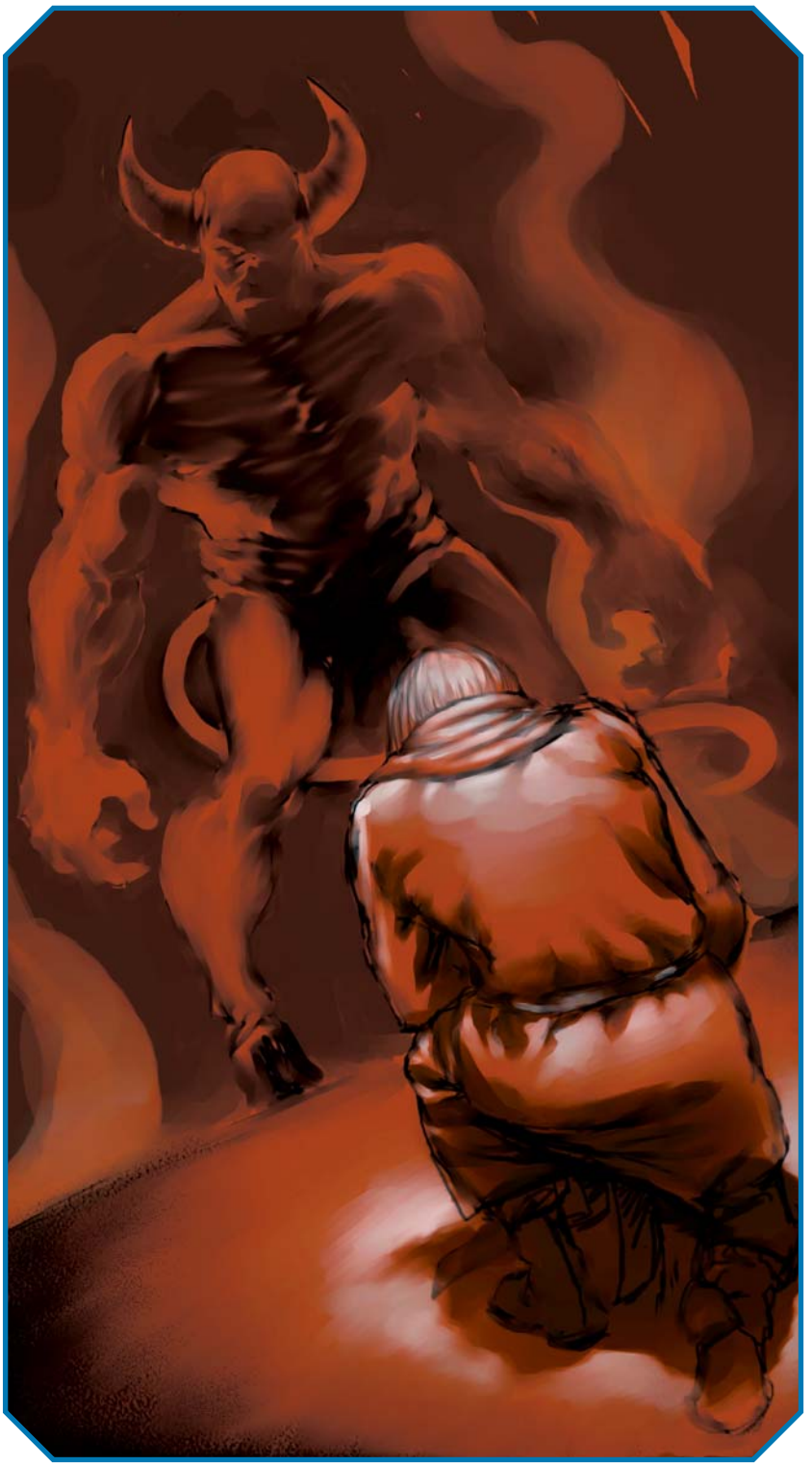
Delays that fall between two values use the smaller limitation; e.g., 30 minutes is -10%. If you can *control* the onset time, take Delay (p. 105) instead.

A variant limitation is *Exposure Time*, which is only available for attacks with Aura or Persistent. Use it to represent radioactivity, mildly toxic gases, etc. It works just like Onset, except that the victim must be exposed for the *entire period* to suffer the effect (or repeat it, if you continue exposure). This is worth an extra -20%; e.g., 1 minute is -30%.

Pact

Variable

A Higher Power – god, spirit, etc. – grants your ability under the condition that you follow a *strict* moral code. This code must take the form of one or more of the traits listed under *Self-Imposed Mental Disadvantages* (p. 121). These disadvantages give you the usual number of points. Should you ever stray from the path, your ability immediately ceases to function until you repent. The limitation value is numerically equivalent to the point cost of the required disadvantages; e.g., a -10-point Vow gives a -10% Pact limitation.



Preparation Required
Variable

Your ability requires special preparation before you can use it. Perhaps you have to meditate first, or perform some ritual to focus concentration. This limitation is particularly appropriate for supernatural traits such as Channeling (p. 41) and Medium (p. 68).

You cannot use an unprepared ability. To prepare, take the Concentrate maneuver for the required amount of time. You need not specify how you plan to use your ability while you are preparing it, but you must specify which ability you are preparing if you have more than one trait with this limitation.

You can use a prepared ability normally – either immediately or at a later time. However, you can only have *one* advantage with this limitation prepared at a time, and it becomes unprepared immediately after use, regardless of success or failure (but if your ability has continuing effects, you can maintain them once activated).

The value of this limitation depends on the time required to prepare the ability.

Preparation Time	*Modifier*
1 minute	-20%
10 minutes	-30%
1 hour	-50%
8 hours	-60%

Weakened Without Preparation: Your ability works if you do not prepare it beforehand, but at half duration, range, effect, etc. This does not make sense for all advantages (GM's decision as to when it does). Weakened Without Preparation is worth exactly half as much as listed above.

Examples of Modified Attacks

Banshee's Wail: Affliction 3 (HT-2; Area Effect, 64 yards, +300%; Emanation, -20%; Hearing-Based, +150%; Heart Attack, +300%; Limited Use, 1/day, -40%; Selective Area, +20%) [243].

Dragon's Breath: Burning Attack 4d (Cone, 5 yards, +100%; Limited Use, 3/day, -20%; Reduced Range, ×1/5, -20%) [32].

Hand of Death: Toxic Attack 6d (Contact Agent, -30%; Costs Fatigue, 2 FP, -10%; Delay, Variable, +20%; Low Signature, +10%; Melee Attack, Reach C, -30%; Resistible, HT-4, -10%) [12].

Implanted 9mm SMG: Piercing Attack 3d-1 (Accurate +2, +10%; Extra Recoil +1, -10%; Increased Range, ×20, +40%; Limited Use, 3 uses/30 shots, Fast Reload, -10%; Rapid Fire, RoF 10, +100%) [33].

Lightning Bolt: Burning Attack 6d (Side Effect, Stunning, +50%; Surge, +20%) [51].

Mind Blast: Affliction 1 (Will; Based on Will, +20%; Malediction 2, +150%; Secondary Unconsciousness, +40%; Telepathic, -10%) [30].

Poison Bite: Sharp Teeth [1], plus Toxic Attack 2d (Cyclic, 1 hour, 5 cycles, resistible, +40%; Follow-Up, Sharp Teeth, +0%; Resistible, HT-3, -15%) [10].

Reduced Range

-10%/level

You may add this limitation to any advantage that has a range; e.g., Innate Attack or Scanning Sense. It comes in three levels, depending on the range divisor.

Range Divisor	*Modifier*
2	-10%
5	-20%
10	-30%

If applied to a ranged attack that has a 1/2D range, each level reduces both 1/2D *and* Max. You may reduce 1/2D only at half value (that is, "Reduced 1/2D" is -5%/level). You may not reduce Max independently.

Resistible

Variable

This limitation is only available for Innate Attacks that inflict fatigue or toxic damage. You must combine it with one of Blood Agent, Contact Agent, Follow-Up, Respiratory Agent, or Sense-Based. It represents poison, disease, or a similar effect that a sufficiently healthy victim can resist or "shrug off."

The victim gets a HT roll to avoid the effect. A resistance roll against HT-5 is worth -5%. Each +1 to the roll is a worth another -5% (e.g., HT-4 is -10%, and HT+4 is -50%).

If the attack is also Cyclic (p. 103), the victim rolls before each cycle (including the first). Success means the attack ends without further injury; failure means the target takes damage normally and the attack continues.

Sense-Based

Variable

On an attack with Malediction or an ability that *normally* ignores DR (e.g., Mind Control), this is a *limitation.* See the Sense-Based enhancement (p. 109) for details.

Takes Extra Time

-10%/level

You can only apply this limitation to abilities that require time to activate *and* that work fast enough to be useful in an emergency (e.g., combat). This is up to the GM, who is free to restrict this limitation to advantages that take only 1 or 2 seconds to activate.

For abilities that require a Ready or Concentrate maneuver, each level of Takes Extra Time *doubles* the time required. Activation occurs at the end of this time. For instance, Takes Extra Time 1 on an advantage that usually requires a one-second Ready maneuver would increase the Ready time to 2 seconds.

For attacks, the first level of Takes Extra Time results in a one-second Ready maneuver *before* you can make your Attack maneuver. Successive levels double the Ready time.

Takes Recharge

Variable

Your ability requires "recharging" after each use. It is unavailable during the recharge period. Value depends on the time between uses: five seconds (or twice the time required to use the ability, if longer) is -10%, 15 seconds (or 5 times the time required to use the ability, if longer) is -20%, and one hour (or 10 times the time required to use the ability, if longer) is -30%. Longer recharge times are not valid as limitations (but see *Limited Use,* p. 112).

Temporary Disadvantage

Variable

You may add this limitation to any advantage that can be switched off and on at will, *and* that takes at least one second to switch. When you switch on the advantage, you suffer one or more disadvantages until you switch it off again. This limitation is worth -1% per point the temporary disadvantages are worth, to a maximum of -80%.

Example: You can use your feet as hands, but can't walk while doing so. This is Extra Arms 2 (20 points) with Temporary Disadvantage: Legless (-30%), for 14 points.

The *point break* due to Temporary Disadvantage cannot exceed 80% of the value of the original disadvantage.

Example: You have Altered Time Rate 1 (100 points) with Temporary Disadvantage: Hemophilia (-30%) – you *bleed* faster, too! Since Hemophilia is worth -30 points normally, the most it can be worth as a Nuisance Effect is -24 points; therefore, it reduces the cost of Altered Time Rate by 24 points (to 76 points) and not by 30 points (to 70 points).

You may only take Temporary Disadvantages that could logically inconvenience you for the period of time the advantage is normally on. In the case of mental disadvantages (Berserk, Lecherousness, etc.), if a failed self-control roll indicates that you give in to the disadvantage, you will suffer the disadvantage's effects until the GM rules you have regained your composure – which might be long after you deactivate the advantage with this limitation!

You can also use this limitation to remove an advantage temporarily. This is worth -1% per point the negated advantage is worth, and the point break cannot exceed 80% of the deactivated advantage's cost. Only one of the involved advantages can take this limitation – you *cannot* take two advantages, both with this limitation, each of which negates the other when used.

Trigger

Variable

Your advantage requires exposure to a specific substance or condition (e.g., a dose of a drug) to function. One dose or exposure is required per one-minute "use." Cost depends on the rarity of the Trigger:

Very Common (available almost anywhere): -10%.

Common (expensive, somewhat hard to find): -20%.

Occasional (very expensive and hard to find): -30%.

Rare (cannot be bought; must be found or made): -40%.

Multiply the limitation value by 1.5 if the Trigger is illegal, addictive, or otherwise dangerous.

Unconscious Only

-20%

You may only take this limitation in conjunction with Uncontrollable (below). You cannot consciously activate your ability *at all;* it can only come into play under GM control, as a result of stress. Like Uncontrollable, you may buy this off later on, as you gain control over your ability.

Uncontrollable

-10% or -30%

Your ability tends to manifest itself at undesirable or inappropriate times. Whenever the GM rules that you are in a stressful situation – including any situation that requires a Fright Check or a self-control roll for a mental disadvantage – you must make a Will roll to keep your ability under control, even if you did not intend to use it! You need only roll once per stressful situation, but a roll of 14+ always fails, regardless of Will.

On a failure, the GM takes over your ability, playing it as though it were an entity of a prankish or hostile nature. The actions of your ability will often reflect your "suppressed desires," as reflected in your quirks and mental disadvantages.

An ability that cannot inflict damage – for instance, Flight or Jumper – will activate unexpectedly. This is inconvenient and embarrassing, but not overly dangerous. After each uncontrolled act, you get another Will roll to control your power. This goes on until you make a Will roll. In this case, Uncontrollable is worth -10%.

A harmful ability goes after obvious foes first, and will never turn on *you* . . . but nobody else is safe! After each uncontrolled act (or *before* an attack on a Dependent or other loved one), you get another Will roll to control your power. This continues until you make a Will roll or destroy everything around you! For destructive powers, Uncontrollable is worth -30%.

You may buy this limitation off later on, as you gain control over your ability.

Unreliable

Variable

Sometimes your ability works and sometimes it doesn't! It just comes and goes, and you've never identified why. This is completely separate from any roll *normally* needed to activate the ability. You can have skill 20 and still have problems making it work!

Every time you want to use the power, you must roll the activation number (see below) or less on 3d. Once you succeed, the ability will work for that particular use. When you cease to use it, you must make another activation roll to start it again.

If you cannot activate your ability on your first attempt, you may try again once per second after that, at no penalty. Each successive attempt costs one FP. If you are reduced to three or fewer FP, you must rest until *all* FP are regained before you can attempt to use your ability again.

Activation Number	*Modifier*
5	-80%
8	-40%
11	-20%
14	-10%

Unreliable works differently when applied to attacks which are *also* gadgets or built-in firearms. Instead of requiring an activation roll, it gives a Malfunction number worse than 17.

Malf.	*Modifier*
12	-25%
13	-20%
14	-15%
15	-10%
16	-5%

Untrainable

-40%

You may only apply this limitation to abilities that normally require a skill to use. You can't learn to control your power well. You learn all skills associated with it as though the relevant attribute were only 8 (or at one less than its usual value, if already at 8 or worse), and your maximum skill level is 10.

Example of Character Creation (cont'd)

Dai's main advantage is that he can teleport. This is Warp (p. 97), which costs 100 points! But Dai has two special limitations to lower the cost. First, his Warp is *psionic,* so "anti-psi" can keep it from working. This gives the Psionic Teleportation limitation, worth -10%. Second, his ability has a very short range: 10 yards. That's a Range Limit limitation worth -50%. These limitations mean that Dai gets Warp at 60% off, for 40 points.

We decide to give Dai another psi ability useful to a thief: a "sixth sense" that warns him of traps and similar dangers. This is Danger Sense (p. 47), with the ESP special limitation. Danger Sense costs a basic 15 points, but the -10% limitation reduces this to 13.5 points, which rounds up to 14 points.

Even without his psi abilities, Dai is a gifted thief. His specialty is second-story work, so we add Flexibility (p. 56), for 5 points, because it gives a big bonus when climbing; Perfect Balance (p. 74), for 15 points, so he won't lose his balance and fall off; and Absolute Direction (p. 34), for 5 points, to help him negotiate back alleys and rooftops.

Since we want Dai to be able to disappear into a crowd, we throw in the 1-point Honest Face perk (p. 101) – he doesn't "look like a thief."

Dai's advantages total 80 points, raising his current point total to 223 points.

Gadget Limitations

The GM may require you to pay points for any "gadget" that grants traits that usually cost points (attribute levels, advantages, etc.). However, he should charge points *only* for items that even the most advanced technology could not produce (e.g., a ring that bestows Luck) – and even then, only if those items are not for sale at *any* price in the game world.

In particular, the GM should never charge points for ordinary, manufactured equipment – or even for special equipment, if it is for sale – unless it happens to be Signature Gear (p. 85). Body armor, a rifle, and night-vision goggles effectively bestow Damage Resistance, Innate Attack, and Infravision, respectively . . . but since

anyone could buy these items, they have a cash cost, not a point cost.

Traits bestowed by items have their usual point cost. You can give them any logical combination of modifiers, plus one or more of the special limitations below.

Breakable

Variable

Your foes can destroy the item. Once destroyed, it will cease to grant you its benefits until repaired. Add the following elements together to find the final limitation value.

Durability: The easier the object is to break, the greater the limitation. Decide on the gadget's weight and DR.

DR	*Modifier*
2 or less	-20%
3-5	-15%
6-15	-10%
16-25	-5%
26 or higher	0%

If the object is a machine that can break down (as opposed to a simple artifact, like a ring or a hat), add another -5%. See *Damage to Objects* (p. 483) to determine HP and the effects of damage.

Reparability: You can normally repair your gadget if it breaks; the GM chooses the skill(s) needed to make repairs. If you *cannot* repair it, and it requires inconvenient time, effort, or expense to replace (GM's decision), it is worth an additional -15%.

Size: The item's Size Modifier affects Vision rolls to identify it out of combat and rolls to hit it in combat.

SM	*Modifier*
-9 or less	0%
-7 or -8	-5%
-5 or -6	-10%
-3 or -4	-15%
-1 or -2	-20%
0 or more	-25%

Can Be Stolen

Variable

Your foes can take this item from you, depriving you of its benefits. This is only a limitation if the item is *obviously* powerful and likely to be the target of theft! The value of the limitation depends on how hard it is to steal:

Easily snatched with an unopposed DX roll (e.g., a hat): -40%.

Thief must win a Quick Contest of DX (e.g., a bracelet) or ST (e.g., a wand) with you: -30%.

Can only by taken by stealth or trickery (e.g., a coin in a pocket): -20%.

Must be forcefully removed (e.g., a suit of armor): -10%.

Halve the value of the limitation if the gadget will not immediately work for the thief.

Unique

-25%

You may only take this limitation in conjunction with Breakable or Can Be Stolen. Normally, you can replace a broken or stolen gadget – although this might require significant time and effort (GM's decision). If the item is Unique, *you cannot replace it!* Character points spent for the item are lost for good if it is broken or stolen.

The GM is free to add as many new advantages as he can think of. Players take note: You may invent new advantages only with the GM's permission.

New Advantages

The GM (no doubt with the enthusiastic advice of the players!) is free to add as many new advantages as he can think of. What follows are some guidelines on how to balance the costs of such advantages in light of the traits in this chapter.

Players take note: *these rules are for GMs.* You may invent new advantages only with the GM's permission.

Modifying Existing Advantages

GURPS has a *lot* of advantages. Often, one of these is similar to what you had in mind, in which case you can "tweak" an existing ability instead of inventing a new one.

Rename

The advantage you're looking for might already exist, but under a moniker you dislike or find unintuitive. In this case, creating a "new" advantage is just a matter of changing the name! For instance, if you want a Light Intensification advantage that lets those who have it see in the dark, just rename "Night Vision" to "Light Intensification."

Redefine

Many "new" advantages amount to existing advantages with revised special effects. If an existing advantage provides the right ability with the wrong justification, use the game mechanics and point cost of the existing trait but come up with a new explanation for how it works. For instance, Night Vision assumes natural, dark-adapted eyes, but you are free to explain it as ultra-tech implants, if that suits your campaign better.

Combine

Still other "new" advantages are *combinations* of existing traits. If a mix of advantages (possibly with a few disadvantages, to bring the cost down) collectively provide the effects you want, just group them together, add their costs, and rename the whole thing.

For instance, you might lump together Acute Vision 5 [10], Night Vision 5 [5], and Colorblindness [-10] as the "Cat's Eye Mk. V" implant. Players would just list "Cat's Eye Mk. V [5]" on their character sheet.

Note that this is identical to the way meta-traits work in Chapter 7.

Modify

The game mechanics for an existing advantage will sometimes be almost, but not quite, what you want. In that case, start with the nearest existing advantage, apply enhancements and limitations that add the desired effects, and present the final product as an entirely new advantage.

For instance, suppose undead beings in your campaign can see the Spectral Plane. This gives them Night Vision with the side effects that they see ghosts and have glowing red eyes. You *could* write this as "Night Vision 5 (Affects Insubstantial, +20%; Temporary Disadvantage: Unnatural Feature, -5%) [6]," but it would be simpler to write "Spectral Vision [6]" on character sheets and leave the design details in your notes.

Fine-Tune

After applying the above processes to achieve the effects you seek, you might wish to add some "color" or adjust the cost – perhaps by adding minor side effects, such as small modifiers to certain success rolls. The guidelines and examples under *Perks* (p. 100) and *Quirks* (p. 162) can be useful here.

For instance, you might want "Spectral Vision" to cost a nice, round 5 points, but you don't want to make the ability to see ghosts a freebie. To justify shaving the cost down to 5 points, you toss in a -1 to Vision rolls made in bright daylight. After all, everyone knows the undead don't like sunlight!

Designing Entirely New Advantages

There are times when nothing less than a totally new advantage will do. Advantages in ***GURPS*** usually grant one of four basic types of abilities (although a single advantage often qualifies in more than one category).

1. Situational bonuses to attributes. Handle attribute bonuses by assuming that each +1 is worth 10 points for ST or HT, or 20 points for DX or IQ, and then modifying the cost downward to reflect how often the bonus applies. See *Accessibility* (p. 110) for inspiration. For instance, Rapid Healing is basically +5 HT (base cost 50 points) that only applies to rolls to recover from damage. Since most people go to great pains to avoid damage, and since rolls for natural recovery rarely matter in settings with magical, psionic, or ultra-tech healing, the point value of the bonus is reduced to 1/10 of normal, for a net cost of 5 points.

2. Bonuses to skill rolls. In general, simply work out the equivalent Talent (p. 89) and add its cost to the advantage. If the advantage modifies *one* skill, then assume it is worth 2 points per +1 to skill, to a maximum of +3 to skill for 6 points.

3. Bonuses to reaction rolls. Work out reaction bonuses as described for *Reputation* (p. 26). You may include a bonus that applies to a very small class of people (e.g., "anyone with a Ph.D. in Comparative Anatomy from Harvard," unless the campaign happens to be set at Harvard Medical School) for free as a "special effect." Note that these bonuses need not be *actual* Reputations – they could as easily be due to looks, a psionic aura, or mind-control lasers.

4. Unique abilities that those without the advantage do not have in any measure. You should price these abilities by comparison. Examine other traits in the rules and assign a similar cost for an advantage that is about equal in power. Reduce or increase the cost if the ability is slightly more or less powerful than the one to which you are comparing it. For instance, "automatically makes all normal Vision rolls" is about as useful as "automatically makes all Fright Checks," so you might price that ability along the lines of Unfazeable, for 15 points.

Finalizing the Cost

To determine the final cost of a new advantage, add up the costs of all the abilities it grants. If the advantage is extremely rare, and those who have it could reliably use it as a surprise tactic or as a means of making money, increase its final cost by up to 100%. Conversely, if the GM wants it to be extremely common, he may reduce its final cost by as much as 50%. Use fine-tuning (above) to further adjust the cost.

The GM is the final arbiter when it comes to the cost of new advantages. He is free to charge an Unusual Background – over and above the cost of the advantage – for any new advantage he wishes to restrict to a certain class of characters. This is *in addition to* any "built-in" rarity modifier.

Chapter Three
Disadvantages

A "disadvantage" is a problem or imperfection that renders you less capable than your attributes, advantages, and skills would indicate. In addition to the traits in this chapter, this includes anything with a negative point cost in Chapter 1: low Status, below-average Wealth, etc.

You are probably wondering, "Why would I want to give my character disadvantages?" There are two good reasons:

1. Each disadvantage has a *negative* cost in character points. Thus, disadvantages *give you extra character points,* which let you improve your character in other ways. But note that disadvantages limit you in proportion to their cost. Be sure to read the disadvantage description in full to know what you are getting into!

2. An imperfection or two makes your character more interesting and realistic, and adds to the fun of roleplaying!

Disadvantages for Heroes

Two kinds of disadvantages are particularly suitable for heroic PCs. Roleplayed well, they might limit the *character's* choices, but they should make the *player's* experience more fun.

"Good" Disadvantages

It might seem strange that virtues such as Truthfulness and Sense of Duty are listed as "disadvantages." In the real world, we regard such traits as advantages! Their disadvantage value in ***GURPS*** comes from the fact that these virtues limit your freedom of action. For instance, someone with Truthfulness will have trouble lying, even for a good cause; therefore, within the framework of the game, he has a disadvantage. This has one very worthwhile benefit: if you want to create a wholly heroic character, you don't have to take any "character flaws" at all. You can get points by choosing only those disadvantages that are actually virtuous!

Tragic Flaws

Many of the greatest heroes of history and literature had a "tragic flaw." Alcoholism, great ugliness, bad temper, compulsive behavior, and even drug addiction – all are found in the *heroes* of fact and fiction. So don't assume that your heroes have to be perfect . . . try giving them significant problems to overcome.

Restrictions on Disadvantages

Your GM might wish to "cap" the extra points you can gain from disadvantages; see *Disadvantage Limit* (p. 11). This limit applies to the total points you can get from *all* traits with negative point costs, from Chapter 1 (reduced attributes, low Status, etc.) or the list below. Mandatory disadvantages assigned by the GM *don't* count against this limit.

Most GMs will want to enforce two additional restrictions:

Negated Disadvantages

You cannot take a disadvantage that one of your advantages would mitigate or negate! For instance, if you have Acute Hearing, you cannot take Hard of Hearing. Contradictory disadvantages, such as Curious and Incurious, are also mutually exclusive. The GM has the final say as to which traits are compatible.

Villain Disadvantages

Some disadvantages – Sadism, for instance – are not at all suitable for a "hero," and the GM is free to forbid them to PCs. But they are often found in the more fiendish villains of adventure fiction, so they are included in the interest of good NPC creation.

Types of Disadvantages

Like advantages, disadvantages are classified according to how they work in play and who can have them.

Mental, Physical, and Social

Mental disadvantages originate from your mind or soul. They stay with you if your mind ends up in a new body. This category includes the vast majority of "magical," "psionic," and "spiritual" traits. Mental disadvantages are marked.

Physical disadvantages are associated with your body. You can escape them by moving to a new body! If another mind occupies your body, the new owner gains your physical disadvantages.

You can acquire a physical disadvantage during play, most likely due to accident or combat. In this case, you immediately suffer the bad effects of the disadvantage. Unlike starting disadvantages, however, physical handicaps acquired in play do *not* "give back" points with which to buy abilities – they just lower your point value!

Example: If you start out blind, you start with an extra 50 points . . . but if an explosion blinds you during the game, you're just blind and that's that. Reduce your point total by 50 points to reflect your new disadvantage. You *should not* keep the same point total and take 50 points of compensating advantages!

Physical disadvantages are marked.

Social disadvantages are associated with your identity. Should it become important to know whether they go with mind or body, the GM's word is final. Note that this category includes below-average Status, Wealth, and so forth from Chapter 1. Social disadvantages are marked.

The GM is the final judge of which category a disadvantage belongs in. It is possible to interpret certain disadvantages in more than one way!

Exotic, Supernatural, and Mundane

Exotic disadvantages are forbidden to normal humans. Nonhumans may acquire such traits from their racial template (see Chapter 7), but they still need the GM's permission to take additional exotic disadvantages. Exotic disadvantages are marked.

Supernatural disadvantages are the result of divine intervention, magic, psionics, etc. With the GM's permission, *anyone* might be cursed in this way – but only if supernatural powers exist in the game world. Supernatural disadvantages are marked.

Mundane disadvantages are everything else. They are inborn, acquired, or self-imposed handicaps that anyone might have. Mundane disadvantages are not marked in any special way. Assume that a disadvantage with neither nor is available to anyone.

Self-Control for Mental Disadvantages

Many mental disadvantages do not affect you constantly – you may attempt to control your urges. An

Secret Disadvantages

You may give your character a disadvantage unknown both to him and to *you*. Choose a point value and tell the GM. The GM will select a disadvantage and give you its value plus an additional -5 points (e.g., Unluckiness, normally worth -10 points, gives -15 points as a secret disadvantage) . . . but he will not give you any hints as to what it is! When your disadvantage finally becomes obvious in the course of play (GM's decision), you must buy off the extra -5 points as soon as possible.

The GM must pick a secret disadvantage carefully. It should be something that you could believably not know about. If it is a mental disadvantage, the conditions that trigger it should never have arisen (Berserk, Bloodlust, Combat Paralysis, the less-common Phobias, and Split Personality all work well here). Most physical disadvantages are too obvious – although something like Hemophilia *might* go unnoticed.

You can only list one secret disadvantage on your character sheet, but this might represent more than one trait. The GM is free to select multiple, related disadvantages worth the appropriate number of points.

asterisk (*) appears next to the point cost of any disadvantage that offers a chance to resist. For each disadvantage like this, you must choose a *self-control number:* the number you must roll on 3d to avoid giving in. This modifies point value as follows:

You resist quite rarely (roll of 6 or less): *2* × *listed cost.*
You resist fairly often (roll of 9 or less): *1.5* × *listed cost.*
You resist quite often (roll of 12 or less): *listed cost.*
You resist almost all the time (roll of 15 or less): *0.5* × *listed cost.*

Drop all fractions (e.g., -22.5 points becomes -22 points).

The "default" self-control number is 12: you must roll 12 or less on 3d to avoid giving in to your problem. This lets you use disadvantage costs as written. Choose a self-control number of 15 if you wish to have a tendency toward a disadvantage instead of a full-blown case. A self-control number of 9 will regularly limit your options. A self-control number of 6 can be *crippling* (especially with genuine psychiatric problems).

Note your self-control number in parentheses after the name of the disadvantage on your character sheet. For instance, if you can resist Berserk on a roll of 9 or less, write this as "Berserk (9)."

Self-Imposed Mental Disadvantages

Certain mental disadvantages – Code of Honor (p. 127), Disciplines of Faith (p. 132), Fanaticism (p. 136), Honesty (p. 138), Intolerance (p. 140), Sense of Duty (p. 153), Trademark (p. 159), and Vow (p. 160) – are not psychiatric problems, but beliefs or codes of conduct. Such "self-imposed mental disadvantages" share three features that distinguish them from other mental disadvantages:

- They can be "bought off" with earned points at *any* time. People really do wake up in the morning and resolve to live their lives differently for no apparent reason!
- They cannot be caused by Afflictions (p. 35), drugs, brain surgery, and similar "quick and dirty" behavior alteration. Such techniques can create a pacifist or a maniac, but you need magic, Mind Control (p. 68), or prolonged Brainwashing (p. 182) to impose anything as complex as a code of conduct.
- They can be used with the Pact limitation (p. 113) as conditions to which you *must* adhere to retain certain supernatural powers.

Many mental disadvantages do not affect you constantly – you may attempt to control your urges.

Self-Control Rolls

In circumstances that are likely to trigger your problem, you may opt to roll 3d against your self-control number to see whether your disadvantage actually affects you. If you roll less than or equal to this number, you resist your disadvantage – this time. Otherwise, you suffer the listed effects. This is called a *self-control roll.*

Like all success rolls, self-control rolls are subject to modifiers. Exceptionally mild or severe stimuli can give bonuses or penalties. Drugs and afflictions can make you more or less likely to give in. Other disadvantages can make you irritable, reducing your odds of resisting. See the disadvantage descriptions for details.

Example: Your self-control number is 15, but you are in a highly stressful situation that gives -5 to your self-control roll. You must roll 10 or less to resist your disadvantage.

You never *have* to try a self-control roll – you can always give in willingly, and it is good roleplaying to do so. However, there will be times when you really need to resist your urges, and that is what the roll is for. Be aware that if you attempt self-control rolls too often, the GM may penalize you for bad roleplaying by awarding you fewer earned points.

Optionally, the GM may permit you to use one unspent character point to "buy" an automatic success on a self-control roll. Points spent this way are gone for good, but there will be times when staying on the straight and narrow is worth the sacrifice. In this case, the GM should *not* penalize you for bad roleplaying, because you are penalizing yourself!

Note that high Will helps you make Fright Checks and resist supernatural emotion control, but it does *not* improve self-control rolls – not even for disadvantages with effects identical to these things. Mental disadvantages represent an aspect of your personality that you cannot simply will (or reason) away. This is part of what makes them disadvantages!

"Buying Off" Disadvantages

You may use bonus points to "buy off" many disadvantages – whether you started with them or acquired them in play. This costs as many points as the disadvantage originally gave you. If the GM permits, you may buy off leveled disadvantages one level at a time. Likewise, you can buy off those with self-control numbers gradually, by raising the self-control number. In both cases, the point cost is the difference between your former level and your current one. For more on buying off disadvantages, see Chapter 9.

Disadvantage List

Absent-Mindedness

-15 points

You have trouble focusing on anything not of immediate interest. You have -5 on all IQ and IQ-based skill rolls, save those for the task you are currently concentrating on. If no engaging task or topic presents itself, your attention will drift to more interesting matters in five minutes, and you will ignore your immediate surroundings until something catches your attention and brings you back. Once adrift in your own thoughts, you must roll against Perception-5 in order to *notice* any event short of personal physical injury.

You may attempt to rivet your attention on a boring topic through sheer strength of will. To do so, make a Will-5 roll once every five minutes. "Boring topics" include small talk, repetitive manual tasks, guard duty, driving on an empty highway . . .

Absent-minded individuals also tend to forget trivial tasks (like paying the bills) and items (like car keys and checkbooks). Whenever it becomes important that you have performed such a task or brought such an item, the GM should call for a roll against IQ-2. On a failure, this detail slipped your attention.

Example: An absent-minded detective is in a shootout. He was involved in gunplay earlier in the day, in which he fired four rounds, so the GM calls for an IQ-2 roll. The detective fails the roll, and discovers too late that he forgot to reload his weapon, so his revolver has only two bullets left!

This is the classic disadvantage for eccentric geniuses.

Addiction

Variable

You are addicted to a drug, which you must use daily or suffer withdrawal. The value of this disadvantage depends on the cost, effects, and legality of the drug:

Cost (per day)

Cheap (up to 0.1% of average starting wealth): *-5 points.*

Expensive (up to 0.5% of average starting wealth): *-10 points.*

Very expensive (more than 0.5% of average starting wealth): *-20 points.*

Effects

Incapacitating or hallucinogenic: *-10 points.*

Highly addictive (-5 on withdrawal roll): *-5 points.*

Totally addictive (-10 on withdrawal roll): *-10 points.*

Legality

Illegal: *+0 points.*

Legal: *+5 points.*

Examples: Tobacco is cheap, highly addictive, and legal; a chain-smoker has a -5-point Addiction. Heroin is very expensive, incapacitating, totally addictive, and illegal; a heroin addict has a -40-point Addiction.

Non-Chemical Addictions: You can take Addiction to an activity instead of a drug – for instance, telepathic contact or spending time in virtual reality. If this costs money, price the Addiction based on its daily cost. If it is free (e.g., telepathic contact), treat it as "Cheap" if it you can do it almost anywhere (telepathic contact with *anyone*) or as "Expensive" if restrictive conditions apply (telepathic contact with one specific person). Such Addictions almost always cause psychological dependency (see *Withdrawal,* below).

Effects of Drugs

A *stimulating* drug leaves you feeling energized . . . until it wears off. Then you are depressed and irritable. An *incapacitating* drug renders you unconscious (or just blissfully, uselessly drowsy) for about two hours. A *hallucinogenic* drug renders you useless for work or combat, though you might be active and talkative. Some drugs (e.g., tobacco) have none of these effects, while others have unique effects. Side effects are also possible. For detailed rules, see *Addictive Drugs* (p. 440).

Withdrawal

Sometimes, voluntarily or otherwise, you must try to give up your Addiction. Addiction to a drug that causes *psychological dependency* is a mental disadvantage; withdrawal from such a drug requires a series of Will rolls, and may result in mental problems. Addiction to a drug that induces *physiological dependency* is a physical disadvantage; withdrawal is a function of your HT, and may cause physical injury. For details, see *Drug Withdrawal* (p. 440). Should you successfully withdraw from an Addiction, you must immediately buy off this disadvantage.

Minor Addictions

For an Addiction worth only -5 points, the GM may rule that the expense, stigma, and detrimental long-term effects of use are the whole of the disadvantage, and waive the usual withdrawal rules. This is appropriate for such drugs as tobacco and caffeine. If forced to go without, you must make a Will or HT roll as usual, but the only effects on a failure are general anxiety, irritability, or restlessness. This manifests as a temporary -1 to DX, IQ, self-control rolls, or reaction rolls (GM's choice) – not as insanity or injury. Successive failures prolong the duration of the effects; they do not increase the size of the penalty. If you can make 14 successful rolls in succession, you must buy off your Addiction.

It is also possible to create a 0-point Addiction using these rules. Such Addictions are *always* Minor Addictions, and you may take them as -1-point quirks (see *Quirks,* p. 162).

Alcoholism

-15 or -20 points

You are an alcohol addict. Alcoholism uses the Addiction rules (above). It is cheap, incapacitating, and usually legal, so it would normally be a -10-point Addiction. But it is also *insidious;* therefore, it is worth -15 points – or -20 points if it is illegal.

Most of the time, you may confine your drinking to the evenings, and therefore function normally (for game purposes). However, *any time* you are in the presence of alcohol, you must roll vs. Will to avoid partaking. A failed roll means you go on a "binge" lasting

2d hours, followed by a hangover; see *Drinking and Intoxication* (p. 439). Alcoholics on a binge are characterized by sudden mood swings – from extreme friendliness to extreme hostility – and may attack friends, talk too freely, or make other mistakes.

The other drawback of Alcoholism is that it is hard to get rid of. Should you manage to "withdraw," you no longer need to drink daily . . . but you must still make a Will+4 roll whenever you are in the presence of alcohol. A failed roll does not reinstate the addiction, but does set off a binge. (Three binges in a week *will* reinstate the addiction.) Thus, there is no normal way to "buy off" this disadvantage.

Continued Alcoholism will steal your abilities. You must roll yearly against HT+2 until you withdraw. Failure means you lose a level from one of your four basic attributes – roll randomly to determine which.

Amnesia

-10 or -25 points

You've lost your memory. You can't remember any of your past life, including your name. This disadvantage comes in two levels:

Partial Amnesia: You, the *player,* can see your character sheet, but the GM may reserve up to -30 points of your disadvantage allotment for "secret" disadvantages of his choosing. You know that you can use certain skills, but have no idea where you learned them. You are likely to have enemies – and possibly friends – that you can't remember. If you turn yourself in to the police, they can perform their standard ID checks . . . but you might turn out to be a wanted criminal. Even if you aren't, finding out your name won't restore your memory! *-10 points.*

Total Amnesia: The only traits you can specify during character creation are those you could see in a mirror. The GM assigns everything else – and holds onto your full character sheet until your memory returns! You have *no* idea of your full abilities. Since the GM knows your quirks and mental traits, and you *don't,* he will sometimes overrule your statements about what you're doing. He will also make all skill rolls for you, because you have no idea what you can do until you try it! Your IQ-based skill rolls are at -2 unless the GM feels that memory would have no effect at all on the task at hand. *-25 points.*

You can only buy off Amnesia if there is some reason why you might recover your memory; e.g., meeting an old friend, reliving some fateful event, or the ever-popular blow to the head. In most cases, the cure will be related to the cause of the memory loss. Particularly twisted GMs might enjoy making the cause in question some form of brainwashing. In this case, one of the hidden disadvantages will probably be an Enemy with sufficient resources to have arranged the brainwashing in the first place.

Appearance

see p. 21

Below-average appearance is a disadvantage, and should be noted as such on your character sheet.

Bad Back

-15 or -25 points

For whatever reason, your spinal column is in bad shape. During strenuous physical activity, you may "throw your back" and suffer crippling pain or further injury. Whenever you make a ST roll, and whenever you roll 17 or 18 on an attack or defense roll in melee combat, or on a roll for an "athletic" skill such as Acrobatics, make a HT roll as well.

Modifiers: Any modifiers to the success roll for the activity that triggered the HT roll. For a long task that allows the luxury of planning, you can try to minimize the strain on your back; a successful IQ-2 or Physiology+4 roll gives +2 on the HT roll.

On a failure, you throw your back. Consequences depend on the severity of your case:

Mild: You are at -3 DX until you rest or someone helps you; a First Aid-2 roll will reset your back. You are also at -3 IQ, but during the next second only (for your next turn, in combat). On a critical failure, you are at -5 DX and must make a Will roll to perform *any* physical action. *-15 points.*

Severe: The HT roll is at -2. On a failure, DX and IQ are both at -4 until you receive rest or help; you are in constant agony. On a critical failure, you take 1d-3 damage and are at -6 DX and -4 IQ. *-25 points.*

High Pain Threshold (p. 59) halves all DX and IQ penalties (drop fractions), but does not eliminate them completely.

Bad Grip

-5 points/level

You have a penalty on tasks that require a firm grip. Each level (maximum three levels) gives -2 with such tasks. This penalty is *overall* – not per hand. Affected tasks include melee weapon use, climbing, catching things, and anything else the GM deems requires a firm grip (e.g., an Acrobatics roll to catch a trapeze).

This disadvantage is mutually exclusive with No Fine Manipulators (p. 145).

Bad Sight

-25 points

You have poor vision. This applies to *all* your visual senses: regular vision, Infravision, Ultravision, etc. You may be nearsighted or farsighted – your choice.

Nearsighted: You cannot read small print, computer displays, etc., more than a foot away, or road signs, etc., at more than about 10 yards. You are at -6 to Vision rolls to spot items more than one yard away. When making a melee attack, you are at -2 to skill. When making a ranged attack, *double* the actual distance to the target when calculating the range modifier. *-25 points.*

Farsighted: You cannot read text except with great difficulty (triple normal time). You are at -6 to Vision rolls to spot items within one yard, and you have -3 to DX on any close manual task, including close combat. *-25 points.*

Special Limitations

Mitigator: At TL5+, you can acquire glasses that compensate totally for Bad Sight *while they are worn.* At TL7+, contact lenses are available. In both cases, remember that accidents can happen . . . and that enemies can deprive you of these items. If you are starting at a tech level in which vision can be corrected, you *must* take this limitation. -60%.

Bad Smell

-10 points

You exude an appalling odor that you cannot remove, such as the stench of death and decay. This causes a -2 reaction from most people and animals (although pests or carrion-eating scavengers might be unusually *attracted* to you!). You can mask the smell with perfumes, but the overpowering amount needed results in the same reaction penalty.

Bad Temper

-10 points*

You are not in full control of your emotions. Make a self-control roll in any stressful situation. If you fail, you lose your temper and must insult, attack, or otherwise act against the cause of the stress.

Berserk

-10 points*

You tend to rampage out of control when you or a loved one is harmed, making frenzied attacks against whoever or whatever you see as the cause of the trouble. If you also suffer from Bad Temper (above), *any* stress may trigger Berserk.

Make a self-control roll any time you suffer damage over 1/4 your HP in the space of one second, and whenever you witness equivalent harm to a loved one. If you fail, you go berserk. You go berserk automatically if you fail a self-control roll for Bad Temper! You may *deliberately* go berserk by taking the Concentrate maneuver and making a successful Will roll. Once you are berserk, the following rules apply:

- If armed with a hand weapon, you must make an All-Out Attack each turn a foe is in range. If no foe is in range, you must use a Move maneuver to get as close as possible to a foe – and if you can Move and Attack, or end your Move with a slam, you will.
- If the enemy is more than 20 yards away, you may attack with a ranged weapon if you have one, but you may not take the Aim maneuver. If using a gun, you blaze away at your maximum rate of fire until your gun is empty. You cannot reload unless your weapon – and your Fast-Draw skill – lets you reload "without thought" (can take no more than one second). Once your gun is empty, you must either draw another gun or charge into melee combat.
- You are immune to stun and shock, and your injuries cause no penalty to your Move score. You make all rolls to remain conscious or alive at +4 to HT. If you don't fail any rolls, you remain alive and madly attacking until you reach -5×HP. Then you fall – dead!
- When you down a foe, you may (if you wish) attempt another self-control roll to see if you snap out of the berserk state. If you fail (or do not roll), you remain berserk and attack the next foe. Treat any friend who attempts to restrain you as a foe! You get to roll again each time you down a foe, and you get one extra roll when no more foes remain. If you are still berserk, you start to attack your friends . . .

Once you snap out of the berserk state, all your wounds immediately affect you. Roll at normal HT to see whether you remain conscious and alive.

Special Enhancements

Battle Rage. You go berserk in *any* combat situation, regardless of whether you have been injured. To avoid this, you must make a self-control roll when you first enter combat (even a barroom brawl or a boxing match). +50%.

Bestial

-10 or -15 points

You think and react like a wild animal. You have no concept of "civilized" standards of morality or propriety, and no concept of property. You fight or flee from those who frighten or threaten you. You cannot learn skills that, in the GM's opinion, rely on "civilized" notions of art or social interaction, and you have no default with such skills.

You are not necessarily out of control; you simply react in an animalistic manner. You will usually ignore those who leave you alone (unless they're food!), and might even come to display affection for those who treat you with special kindness. You cannot understand property in the human sense, but (depending on your race) you might understand territory and avoid doing damage to objects on another's territory. Whether you regard humans as individuals with territory rights is an open question! You might also understand dominance, and respect or even obey a human who has proved to be stronger than you.

You cannot take an Odious Personal Habit for your beast-like behavior; that's included in the cost of Bestial. But if your behavior is extremely repugnant to humans – equivalent in severity to a -15-point Odious Personal Habit – the GM might rule that Bestial is worth -15 points instead of the usual -10. You are free to take Odious Personal Habits *unrelated* to beast-like behavior (including "eats humans"), however.

Bestial is not necessarily tied to low IQ, but roleplaying a character who is both Bestial and remarkably intelligent would be a major challenge requiring a lot of thought and effort. The GM may therefore choose to restrict Bestial to characters with IQ scores under 10 (or even under 6!), or simply reserve it for NPCs.

Note that the Wild Animal meta-trait (p. 263) includes this disadvantage.

Blindness

-50 points

You cannot see *at all.* In unfamiliar territory, you must travel slowly and carefully, or have a companion or guide animal lead you. Many actions are impossible for you; the GM should use common sense.

You are at -6 to all combat skills. You *can* use hand weapons, but you *cannot* target a particular hit location. If using a ranged weapon, you can only attack randomly, or engage targets so close that you can hear them. All this assumes you are accustomed to blindness. If you *suddenly* lose your eyesight, you fight at -10, just as if you were in total darkness. In either case, you suffer no *extra* penalties for operating in the dark.

If you have Blindness, you cannot purchase superhuman vision abilities. If you see in a spectrum other than the visible one, you have the 0-point version of Infravision (p. 60) or Ultravision (p. 94) – not Blindness and the 10-point version of one of those advantages. Note that Scanning Sense

(p. 81) and Vibration Sense (p. 96) are *not* vision; you may take either of these traits in conjunction with Blindness, at the usual point costs.

Bloodlust

-10 points*

You want to see your foes *dead*. In battle, you must go for killing blows, and put in an extra shot to make sure of a downed foe. You must make a self-control roll whenever you need to accept a surrender, evade a sentry, take a prisoner, etc. If you fail, you attempt to kill your foe instead – even if that means breaking the law, compromising stealth, wasting ammo, or violating orders. Out of combat, you never forget that a foe is a foe.

This may seem a truly evil trait, but many fictional heroes suffer from it. The hero is not a fiend or sadist; his animosity is limited to "legitimate" enemies, be they criminals, enemy soldiers, or feuding clansmen. He often has a good reason for feeling as he does. And, in an ordinary tavern brawl, he would use his fists like anyone else. On the other hand, a gladiator or duelist with Bloodlust would be very unpopular, a policeman would soon be up on charges, and a soldier would risk a court-martial.

Bully

-10 points*

You like to push people around whenever you can get away with it. Depending on your personality and position, this might take the form of physical attacks, intellectual harassment, or social "cutting." Make a self-control roll to avoid gross bullying when you know you shouldn't – but to roleplay your character properly, you should bully anybody you can. Since nobody likes a bully, others react to you at -2.

Callous

-5 points

You are merciless, if not cruel. You can decipher others' emotions, but you do so only to manipulate them – you don't *care* about their feelings or pain. This gives you -3 on all Teaching rolls, on Psychology rolls made to help others (as opposed to deduce weaknesses or conduct scientific research), and on any skill roll made to interact with those who have suffered the consequences of your callousness in the past (GM's decision). As well, past victims, and anyone with Empathy, will react to you at -1. But ruthlessness has its perks: you get an extra +1 to Interrogation and Intimidation rolls when you use threats or torture.

Cannot Learn

-30 points

You cannot spend earned character points to add or improve DX, IQ, skills, or mental advantages, nor can you acquire new techniques (see *Techniques*, p. 229) or familiarities (see *Familiarity*, p. 169) to accompany existing skills. You are stuck with your starting abilities!

You can still increase your ST and HT, and add physical advantages (with the GM's permission). As well, Cannot Learn doesn't prevent you from *temporarily* acquiring skills using the Modular Abilities advantage (p. 71). Those with computer brains often possess both traits.

This trait is most suitable for golems, mindless undead, robots, and other automata.

Cannot Speak

-15 or -25 points

You have a limited capacity for speech. This trait comes in two levels:

Cannot Speak: You can make vocal sounds (bark, growl, trill, etc., as appropriate), but your speech organs are incapable of the subtle modulations required for language. You may still have the Mimicry or Voice advantage, or the Disturbing Voice disadvantage (but *not* Stuttering). Most animals have this trait. *-15 points.*

Mute: You cannot vocalize *at all*. All communications with others must be nonverbal: writing, sign language, Morse code, telepathy, etc. Time spent communicating this way counts at *full* value for study of the related skills (see Chapter 9). No roll is required (or allowed!) when you try to communicate with PCs who don't know your sign language – roleplay this on your own! You cannot have any other voice-related traits. *-25 points.*

Charitable

-15 points*

You are acutely aware of others' emotions, and feel compelled to help those around you – even legitimate enemies. Make a self-control roll in any situation where you could render aid or are specifically asked for help, but should resist the urge. If you fail, you *must* offer assistance, even if that means violating orders or walking into a potential trap.

Chronic Depression

-15 points*

You've lost your will to live. You'd commit suicide, but it seems like so much trouble. Make a self-control roll to do *anything* but acquire and consume the minimum necessities for survival (for instance, to motivate yourself to go to a movie, attend a job interview, or keep a date), or whenever you must choose between two or more actions. If you fail, you take the path of least resistance. This usually means staying put and doing nothing.

If your self-control number is sufficiently low, you will find it almost impossible to do anything at all for yourself, unless someone physically drags you out of your lair. If somebody shows up and demands that you go out and do something with him, make a self-control roll. If you fail, you go along with his plan out of apathy.

You may eventually replace this disadvantage with another one of equivalent value that is more conducive to self-esteem. The GM need only allow this evolution if you roleplay it convincingly. The GM may also require you to roleplay *both* disadvantages (the new one constantly, the Chronic Depression whenever the GM decides to bring it into play) during the transition period.

You may also *acquire* this disadvantage in play. If you violate a self-imposed mental disadvantage (see p. 121), or lose a Dependent, the GM may replace that disadvantage with this one.

Chronic Pain

Variable

You have an injury, disorder, or illness that leaves you in severe pain on a regular basis – perhaps even *constantly*. Examples include arthritis, bone cancer, migraines, and pieces of shrapnel embedded in the body (an "old war wound").

Roll against the frequency of appearance for your Chronic Pain once per day. If you roll below this number, you suffer a bout of pain. The timing of this attack is up to the GM, but it usually occurs during waking hours – you might wake up with it, or it might be set off by stress (fatigue, exertion, etc.) during the day.

While in pain, reduce your DX and IQ by the amount specified for the severity of your pain (see below). Reduce self-control rolls to resist disadvantages such as Bad Temper and Berserk by the same amount – someone in pain is more likely to lose his cool. If the GM rules that the attack occurs while you are trying to sleep, you suffer penalties for sleep deprivation instead of the usual effects of this disadvantage.

Chronic Pain attacks endure for a fixed "interval," after which you may attempt a HT roll to recover. If you succeed, you have dealt with your pain . . . today. If you fail, the attack continues for another interval, after which you may attempt another HT roll. And so on.

Find the point cost of Chronic Pain by choosing a severity and then multiplying the given cost to reflect the interval and frequency of attacks. Drop all fractions.

Severity

Mild: -2 to DX, IQ, and self-control rolls: *-5 points*.

Severe: -4 to DX, IQ, and self-control rolls: *-10 points*.

Agonizing: -6 to DX, IQ, and self-control rolls: *-15 points*.

Interval

1 hour: ×*0.5*.
2 hours: ×*1*.
4 hours: ×*1.5*.
8 hours: ×*2*.

Frequency of Appearance

Attack occurs on a roll of 6 or less: ×*0.5*.

Attack occurs on a roll of 9 or less: ×*1*.

Attack occurs on a roll of 12 or less: ×*2*.

Attack occurs on a roll of 15 or less: ×*3*.

Chummy

-5 or -10 points

You work well with others and seek out company. This trait comes in two levels:

Chummy: You react to others at +2 most of the time. When alone, you are unhappy and distracted, and suffer a -1 penalty to IQ-based skills. *-5 points*.

Gregarious: You usually react to others at +4. You are *miserable* when alone, and use IQ-based skills at -2 – or at -1 if in a group of four or less. *-10 points*.

If your self-control number is sufficiently low, you will find it almost impossible to do anything at all for yourself, unless someone physically drags you out of your lair.

Clueless

-10 points

You totally miss the point of any wit aimed at you, and are oblivious to attempts to seduce you (+4 to resist Sex Appeal). The meanings of colloquial expressions escape you. Sophisticated manners are also beyond you, giving -4 to Savoir-Faire skill. You have many minor habits that annoy others (e.g., leaving the turn signal on while driving from Chicago to Albuquerque), and may take one or two of these as quirks. Most people will react to you at -2.

Unlike No Sense of Humor (p. 146), you may make jokes – albeit lame ones – and you can appreciate slapstick and written humor. However, you rarely "get" verbal humor, *especially* if you are the target (roll vs. IQ-4 roll to realize you're the butt of the joke). And unlike Gullibility (p. 137),

you normally realize when someone is trying to take advantage of you, except in social situations. You are no more susceptible to Fast-Talk than normal, save when someone is trying to convince you that an attractive member of the appropriate sex is interested in you . . .

This disadvantage is most appropriate for ivory-tower geniuses, aliens from Mars, etc.

Code of Honor

-5 to -15 points

You take pride in a set of principles that you follow at all times. The specifics can vary, but they always involve "honorable" behavior. You will do nearly anything – perhaps even risk death – to avoid the label "dishonorable" (whatever that means).

You must do more than pay lip service to a set of principles to get points for a Code of Honor. You must be a true follower of the Code! This is a disadvantage because it often requires dangerous – if not reckless – behavior. Furthermore, you can often be forced into unfair situations, because your foes know you are honorable.

Code of Honor is not the same as Duty (p. 133) or Sense of Duty (p. 153). A samurai or British grenadier marches into battle against fearful odds out of duty, not for his personal honor (though of course he would lose honor by fleeing). The risks you take for your honor are solely on your *own* account.

The point value of a particular Code of Honor depends on how much trouble it is liable to get you into and how arbitrary and irrational its requirements are. An informal Code that applies only among your peers is worth -5 points. A formal Code that applies only among peers, or an informal one that applies all the time, is worth -10 points. A formal Code that applies all the time, or that requires suicide if broken, is worth -15 points. The GM has the final say! Some examples:

Code of Honor (Pirate's): Always avenge an insult, regardless of the danger; your buddy's foe is your own; never attack a fellow crewman or buddy except in a fair, open duel. Anything else goes. This is also suitable for brigands, bikers, etc. *-5 points.*

Code of Honor (Professional): Adhere to the ethics of your profession; always do your job to the best of your ability; support your guild, union, or professional association. This is most suitable for lawyers and physicians (Hippocratic Oath), but dedicated tradesmen, merchants, and so forth may have a similar Code. *-5 points.*

Code of Honor (Gentleman's): Never break your word. Never ignore an insult to yourself, a lady, or your flag; insults may only be wiped out by an apology or a duel (*not* necessarily to the death!). Never take advantage of an opponent in any way; weapons and circumstances must be equal (except in open war). This only applies between gentlemen. A discourtesy from anyone of Status 0 or less calls for a whipping, not a duel! *-10 points.*

Code of Honor (Soldier's): An officer should be tough but fair, lead from the front, and look out for his men; an enlisted man should look out for his buddies and take care of his kit. Every soldier should be willing to fight and die for the honor of his unit, service, and country; follow orders; obey the "rules of war"; treat an honorable enemy with respect (a dishonorable enemy deserves a bullet); and wear the uniform with pride. *-10 points.*

Code of Honor (Chivalry): As Code of Honor (Gentleman's), except that flags haven't been invented. Respond to any insult to your liege-lord or to your faith. Protect any lady, and anyone weaker than yourself. Accept any challenge to arms from anyone of greater or equal rank. Even in open war, sides and weapons must be equal *if* the foe is also noble and chivalrous. *-15 points.*

Cold-Blooded

-5 or -10 points

Your body temperature fluctuates with the temperature of the environment. You are less susceptible to damage from high or low body temperature (+2 HT to resist the effects of temperature), and require only 1/3 the food needed by a warm-blooded being of equal mass, but you tend to "stiffen up" in cold weather.

After 30 minutes in cold conditions (or one hour if you have any level of Temperature Tolerance), you get -1 to Basic Speed and DX per 10° below your "threshold temperature" (see below). At temperatures below 32°, you must roll vs. HT or take 1 HP of damage. Warm clothing gives +2 to this roll.

You regain lost Basic Speed and DX at the rate of one point of each per hour once you return to a warm climate. Double this rate in an exceptionally warm environment.

Point value depends on your "threshold temperature":

You "stiffen up" below 50°: *-5 points.*

You "stiffen up" below 65°: *-10 points.*

Colorblindness

-10 points

You cannot see any colors at all (this is *total* colorblindness). In any situation requiring color identification (e.g., gem buying, livery identification, or pushing the red button to start the motor), the GM should give you appropriate difficulties. Certain skills are always harder for you. In particular, you are at -1 on most Artist, Chemistry, Driving, Merchant, Piloting, and Tracking rolls.

Combat Paralysis

-15 points

You tend to "freeze up" in combat situations, and receive -2 to all Fright Checks. This has *nothing* to do with Cowardice (p. 129) – you may be brave, but your body betrays you.

In any situation in which personal harm seems imminent, make a HT roll. Do not roll until the instant you need to fight, run, pull the trigger, or whatever. Any roll over 13 is a failure, even if you have HT 14+. On a success, you can act normally. On a failure, you are mentally stunned (see *Effects of Stun,* p. 420). Make another HT roll every second, at a cumulative +1 per turn after the first, to break the freeze. A quick slap from a friend gives +1 to your cumulative roll.

Once you unfreeze, you will not freeze again until the immediate danger is over. Then, in the next dangerous situation, you may freeze once again.

This trait is the opposite of Combat Reflexes (p. 43). You cannot have both.

Compulsive Behavior

-5 to -15 points*

You have a habit – often a vice – that wastes a good deal of your time or money. You *must* indulge at least once per day, if at all possible, and do so *any* time you have the opportunity unless you can make a self-control roll. You seek to avoid any situation where you know you will be unable to indulge for more than a day. You must make a self-control roll to enter into such a situation; if you succeed (or are forced into the situation), you suffer from Bad Temper (p. 124) the whole time, with the same self-control roll as your Compulsive Behavior. It's bad role-playing to try to avoid your compulsion regularly!

The point value of this disadvantage depends on how much your habit costs and how much trouble it is likely to get you into. The GM is the final judge. Examples include:

Compulsive Carousing: You cannot resist the urge to party! Once per day, you must seek out a social gathering and lounge around – feasting, drinking, singing, and joking – for at least an hour. If you are not invited, you crash the party; if there is no party, you attempt to liven things up. Money is no object! If you have it, you will spend it. You try almost any mind-altering substance without a second thought, never refuse a social drink, and aren't particularly picky about your romantic partners. You get +1 to reactions from like-minded extroverts, but -1 or worse from sober-minded citizens – and *-4* in puritanical settings. *-5 points* (-10 points* in puritanical settings).*

Compulsive Gambling: You cannot pass up an opportunity to gamble. Bets, wagers, games of chance, and even lotteries hold an uncanny fascination for you. If there is no game of chance or bet going, you will start one. You try any gambling game proposed to you, whether you know it or not. You do not *have* to have the Gambling skill, but if you don't, you will need a steady source of wealth! If you are prevented from gambling – for instance, by traveling with nongamblers – you will quickly earn a reaction penalty (-1 per -5 points in this disadvantage, after the self-control multiplier) by constantly talking about gambling and attempting to draw others into games or wagers. *-5 points.**

Compulsive Generosity: You are too open-handed. If a beggar asks for cash, you give – and where others give copper, you give silver. You always listen to larger requests for financial aid, if they are even remotely plausible, and you must make a self-control roll whenever you hear a good hard-luck story (if you are broke when asked, you apologize profusely). You aren't a complete sucker – you just feel guilty about being better off than others. In a society with a lot of beggars around, increase your cost of living:

Self-Control Number	*Cost of Living Increase*
6	20%
9	15%
12	10%
15	5%

This may earn you a +1 reaction bonus from pious folk; if you are poor yourself, the reaction bonus may be even higher. This trait is incompatible with Miserliness. *-5 points.**

Compulsive Lying: You lie constantly, for no reason other than the joy of telling the tale. You delight in inventing stories about your deeds, lineage, wealth – whatever might impress your

audience. Even when exposed as a liar, you cling to your stories tenaciously, calling your accuser a liar and a scoundrel. Make a self-control roll to tell the pure, unvarnished truth. If you fail, you *lie* – no matter how dire the consequences. When you roll to tell the truth to your fellow party members, roll out of sight of the other players. Thus, they can never be sure they are getting accurate information. *-15 points.**

Compulsive Spending: Cash just runs through your fingers! You enjoy being seen as a big spender, are too fond of luxury, or find the experience of buying to be fun – perhaps all three. Make a self-control roll whenever someone offers you a purchase that matches any of your quirks or interests, and the cash in your pocket is more than twice the asking price. If you fail, you buy. This raises your cost of living, and gives you a penalty to Merchant skill when you bargain or haggle:

Self-Control Number	*Cost of Living Increase*	*Merchant Skill Penalty*
6	80%	-4
9	40%	-3
12	20%	-2
15	10%	-1

Compulsive Spending is not limited to the wealthy! A poor farmer can be a spendthrift. This trait is incompatible with Miserliness (it's the opposite!), but you *can* combine it with Greed. *-5 points.**

Compulsive Vowing: You never simply *decide* to do something; you must make it an oath. Although these vows are often trivial in nature, you approach them all with the same solemnity and dedication. You may tack extraneous vows onto legitimate ones. *-5 points.**

Confused

-10 points*

To you, the world seems a strange and incomprehensible place most of the time. You are not necessarily stupid, but you are slow to pick up on new facts or situations.

In particular, you respond poorly to excessive stimulation. When alone in the peace and quiet of your own home, you function normally. But in a strange place, or when there's a commotion going on, you must make a self-control roll. On a failure, you freeze up instead of taking decisive or appropriate action. This often prevents you from making Tactics rolls and engaging in other sorts of long-range planning. The GM should adjust the self-control roll in accordance with the stimuli in the area. To resist confusion from two friends chatting quietly in a familiar room would require an unmodified roll, but a nightclub with flashing lights and pounding music might give -5, and a full-scale riot or battle would give -10!

If this disadvantage strikes in combat, you must take the Do Nothing maneuver each turn. You are not stunned, and if you are *directly* and physically attacked, you can defend yourself normally. You can even launch a counterattack against *that one foe.* But you never act – only react.

Cowardice

-10 points*

You are extremely careful about your physical well-being. Make a self-control roll any time you are called on to risk physical danger. Roll at -5 if you must risk *death.* If you fail, you must refuse to endanger yourself unless threatened with *greater* danger!

Cowardice gives a penalty to Fright Checks whenever physical danger is involved:

Self-Control Number	*Fright Check Penalty*
6	-4
9	-3
12	-2
15	-1

In some times and places, soldiers, police, etc., react to you at a similar penalty if they know you are a coward.

Curious

-5 points*

You are naturally very inquisitive. This is not the curiosity that affects *all* PCs ("What's in that cave? Where did the flying saucer come from?"), but the *real* thing ("What happens if I push *this* button?").

Make a self-control roll when presented with an interesting item or situation. If you fail, you examine it – push buttons, pull levers, open doors, unwrap presents, etc. – even if you *know* it could be dangerous. Good roleplayers won't try to make this roll very often . . .

In general, you do everything in your power to investigate *any* situation with which you aren't 100% familiar. When faced with a *real* mystery, you simply cannot turn your back on it. You try to rationalize your curiosity to others who try to talk you out of it. Common Sense doesn't help – you know you are taking a risk, but you're curious anyway!

Cursed

-75 points

Like Unluckiness (p. 160), but worse. When anything goes wrong for your party, it happens to you, first and worst. If something goes right, it misses you. Any time the GM feels like hosing you, he can, and you have no complaint coming, because you are Cursed. You can't buy this off just by spending points – you must determine what has cursed you and deal with it, and *then* spend the points.

Deafness

-20 points

You cannot hear *anything.* You must receive information in writing (if you are literate) or sign language. However, time you spend communicating this way counts at *full* value for study of the skills used (Gesture, Lip-Reading, etc.); see Chapter 9.

Debt

see p. 26

Decreased Time Rate

-100 points

This is the disadvantageous counterpart to Altered Time Rate (p. 38). You experience time half as fast as normal: one subjective second for every two real seconds that pass. You only get a turn every *two* seconds in combat! (Gaming groups that enjoy extra detail might wish to give characters with Decreased Time Rate "half-turns" instead: splitting a Move maneuver across two turns, *declaring* an Attack maneuver one turn and *rolling to hit* the next, etc.)

Delusions

-5 to -15 points

You believe something that simply is not true. This may cause others to consider you insane. And they may be right! If you suffer from a Delusion, you *must* roleplay your belief at all times. The point value of the Delusion depends on its nature:

Minor: This Delusion affects your behavior, and anyone around you will soon notice it, but it does not keep you from functioning more-or-less normally. Those who notice your Delusion will react at -1. *Examples:* "Squirrels are messengers from God." "The Illuminati are watching me constantly – but only to *protect* me." "I am the rightful Duke of Fnordia, stolen at birth by Gypsies and doomed to live among commoners." *-5 points.*

Major: This Delusion *strongly* affects your behavior, but does not keep you from living a fairly normal life. Others will react at -2. *Examples:* "The government has *all* phones tapped." "I have Eidetic Memory and Absolute Direction." *-10 points.*

Severe: This Delusion affects your behavior so much that it may keep you from functioning in the everyday world. Others react to you at -3, but they are more likely to fear or pity you than to attack. A Delusion this severe can keep you from participating meaningfully in the campaign; therefore, you should always clear it with the GM first. *Examples:* "I am Napoleon." "I am immortal." "Ice cream makes machines work better, especially computers. Spoon it right in." *-15 points.*

Depending on your behavior, the same Delusion could be a quirk (-1 point) or worth -5, -10, or -15 points. Consider "Everything colored purple is alive." If you pat purple things and say hello, that's a quirk. If you won't discuss serious matters with purple things in the room, it's a Minor Delusion. If you picket the Capitol demanding Civil Rights For Purple Things, that's Major. If you attack purple things on sight, that's Severe!

Regardless of how insane you really are, you may not get more than -40 points, total, from Delusions.

A GM who wants to shake up his players can have a Delusion turn out to be *true*. This does not suit all Delusions. Of those listed above, for instance, the ones about squirrels, ice cream, and Napoleon seem unlikely. But the Illuminati might really exist, or Gypsies might really have stolen the heir to the throne of Fnordia . . . Have fun!

If your Delusion turns out to be true, you don't have to buy it off until the other players realize it's true. (And remember: the GM *won't* tell you that you are not really crazy. You can be right and *still* be crazy . . .)

A GM who wants to shake up his players can have a Delusion turn out to be true. (And remember: the GM won't tell you that you are not really crazy. You can be right and still be crazy . . .)

Dependency

Variable

You must regularly ingest a substance (e.g., a drug or magic potion), touch or carry an object (e.g., a holy shrine or magical amulet), or spend time in an environment (e.g., your coffin or your home country, planet, or plane) in order to survive. If you fail to do so, you start to lose HP and will eventually die. Point value depends on the rarity of the item you depend on:

Rare (cannot be bought; must be found or made): *-30 points.*

Occasional (very expensive or hard to find): *-20 points.*

Common (expensive, somewhat hard to find): *-10 points.*

Very Common (available almost anywhere): *-5 points.*

Add -5 points to these values for items that are *illegal* in your game world.

Apply a multiplier based on the frequency with which you must receive the item:

Constantly: You must carry and use the substance at all times – for example, an exotic atmosphere. Lose 1 HP per minute without the substance. ×*5.*

Hourly: Lose 1 HP per 10 minutes after missing an hourly dose. ×*4.*

Daily: Lose 1 HP per hour after missing a daily dose. ×*3.*

Weekly: Lose 1 HP per six hours after missing a weekly dose. ×*2.*

Monthly: Lose 1 HP per day after missing a monthly dose. ×*1.*

Seasonally: Lose 1 HP per three days after missing a seasonal dose (a "season" is three months for this purpose). ×*1/3* (drop all fractions).

Yearly: Lose 1 HP per two weeks after missing a yearly dose. ×*1/10* (drop all fractions).

If you need to touch an object or spend time in an environment, you must do so for time equal to your damage interval in order to avoid damage. For instance, to avoid losing 1 HP per hour to a daily Dependency on rest in your coffin, you must spend at least one hour per day in your coffin. To avoid losing 1 HP every two weeks to a yearly Dependency on visiting your home planet, you must visit your home planet for at least two weeks per year.

With the GM's permission, normal humans may take this disadvantage to represent the special requirements of certain chronic illnesses.

Not every life-support requirement qualifies as Dependency. Use Maintenance (p. 143) if you require *skilled care* – not a substance, object, or environment – to avoid HT loss (not injury). Use Restricted Diet (p. 151) for special dietary requirements that result in slow starvation as opposed to rapid HP loss when you are forced to do without.

Special Enhancements

Aging: You age unnaturally without the item you depend on. For each HP lost, you also age two years (even if you are normally Unaging). +30%.

Dependents

Variable

A "Dependent" is an NPC for whom you are responsible; e.g., your child, kid brother, or spouse. You *must* take care of your Dependents. Furthermore, your foes can strike at *you* through them. (If you have both an Enemy and a Dependent, and the dice indicate that both appear, then the GM can build an entire adventure around this theme!)

If your Dependent ends up kidnapped or otherwise in danger during play, you *must* go to the rescue as soon as possible. If you don't go to his aid immediately, the GM can deny you bonus character points for "acting out of character." Furthermore, you never earn any character points for a game session in which your Dependent is killed or badly hurt.

Three factors determine the disadvantage value of a Dependent: his *competence*, his *importance* (to you!), and his *frequency of appearance*.

Competence

Specify the number of points your Dependent is built on. The more points you use to "build" your Dependent, the more competent he will be, and the *fewer* points he will be worth as a disadvantage. "Point Total" is the Dependent's point total as a fraction of the PC's, except for the last line, which is absolute; "Cost" is the number of character points the disadvantage is worth.

Point Total	*Cost*
No more than 100%	-1 point
No more than 75%	-2 points
No more than 50%	-5 points
No more than 25%	-10 points
0 or fewer points	-15 points

The *same person* can be both a Dependent and an Ally (p. 36)! Add the cost of Ally and Dependent together, and treat the combination as a single trait: an advantage if the total point cost is positive, a disadvantage if it is negative. You must use the same point total for him in both cases, but frequency of appearance can differ. Roll separately for his appearance as a Dependent and as an Ally. If he appears as a Dependent, he shows up in a way that causes you trouble (e.g., he's captured). If he appears as an Ally, he manages to be helpful and take care of himself. If he appears as both, he is helpful *and* troublesome at the same time; for instance, he uses his skills to assist you, but also wanders off, is singled out by the enemy, or otherwise causes problems equal to the assistance he offers.

Importance

The more important your Dependent is to you, the more you multiply his intrinsic "nuisance value" and worth in points.

Employer or acquaintance: You feel a responsibility toward this person, but you may weigh risks to him in a rational fashion. *×1/2.*

Friend: You must always try to protect this person. You may only risk harm to him if something very important (such as the safety of many other people) is at stake. *×1.*

Loved one: The Dependent is a relative or a lover. You may not put *anything* before his safety! *×2.*

Frequency of Appearance

Choose a frequency of appearance, as explained under *Frequency of Appearance* (p. 36). This should fit the "story" behind the Dependent. If the Dependent were your infant child, for instance, it would be odd for him to appear "quite rarely"!

Multiple Dependents

You cannot earn points for more than two Dependents. However, if you have a *group* of Dependents, you may count the entire group as your two Dependents. Work out the value of an average member of the group as a Dependent, and then claim twice this point value.

Example: A vigilante who is a schoolteacher by day could have "generic dependents": all pupils. They are young (-10 points), around "quite often" (×2), and count as "friends" (×1), for -20 points each. However, the two-Dependent limit lets the hero claim -40 points' worth of Dependents. (And if one gets hurt, there are always others.)

Dependents in Play

As you earn points, the GM will scale your Dependent's abilities proportionally to keep his point total a fixed percentage of your own. Thus, his value as a disadvantage will not change. Children grow up, adults earn money, and everyone learns new skills. Dependents who spend a lot of time around you might become adventurers in their own right. You are free to suggest reasonable improvements for your Dependents, but the GM's word is final.

If your Dependent is killed, or so seriously injured that the GM decides he is effectively out of the campaign, you *must* make up the bonus points you got for him. You have three options: buy off the amount by spending earned character points, take a new disadvantage (e.g., Chronic Depression, p. 126), or get a new Dependent. New Dependents are usually inappropriate, but a mental disability brought on by the loss is a good solution. (Ever since the octopus got Amy, you've been afraid of the ocean . . .)

Examples of Dependents

- For anyone: elderly relatives, teachers, friends, children, younger brothers or sisters, lovers, husbands or wives.
- For crimefighters: young sidekicks, reporters, or wards.
- For wizards: apprentices.
- For ship captains (ocean- or space-going): ensigns or cabin boys.
- For soldiers: orphans or new recruits.
- For criminals or mad scientists: incompetent henchmen.

Destiny

Variable

A disadvantageous Destiny functions identically to an advantageous one (see p. 48), save that it always leads to something *bad* – but perhaps not immediately, and not without a chance to gain honor by dealing with it well. A fated, tragic death can be an end worthy of a hero! This kind of Destiny comes in three levels:

Minor Disadvantage: You are fated to play a small part in a larger story, and you will not come off so well. You are guaranteed at least one tragic experience or embarrassing failure – although these things are unlikely to result in your death except under the most desperate and heroic of circumstances. *-5 points.*

Major Disadvantage: You are fated to play a key role in a sorry turn of events. For instance, you might be late with a message that could save the day . . . or execute the only competent general in a threatened province, causing its loss to barbarian invaders. Still, you will survive. *-10 points.*

Great Disadvantage: Death stalks you. Something out there has your name on it. It knows where you are and it's getting closer all the time. You will either die or be ruined, and your fall will have terrible repercussions for others. This kind of Destiny is not suitable for every campaign! The GM does not have to allow it – and if he does, he should plan on letting the campaign take a radical turn, or *end,* when the Destiny is fulfilled. *-15 points.*

You *must* buy off a disadvantageous Destiny as soon as it is fulfilled. This is automatic if the outcome strips you of Allies, Status, Wealth, etc. worth the same number of points. If you lack the points to buy off your Destiny, you gain Unluckiness (p. 160), regardless of the point value of the Destiny. It is up to the GM whether you can buy off the Unluckiness! Alternatively, the GM might assign you a new bad Destiny, Divine Curse (below), or other supernatural disadvantage.

Disciplines of Faith

-5 to -15 points

You live by a strict set of rules in order to achieve a greater understanding of your faith. This might be a personal decision or a requirement of your religion. Such rules are optional in many faiths, though – indeed, some religions might *forbid* them as excesses! Disciplines of Faith are often a prerequisite for abilities that channel divine power: Power Investiture, True Faith, etc.

Some examples of Disciplines of Faith:

Asceticism: You have renounced the comforts of society to lead a life of self-denial and self-discipline. This often involves some sort of isolation in bleak, austere settings. It might even involve sporadic bouts of severe self-punishment to excise the mortal taint of earthly desire. You must try to transcend *all* need for worldly possessions, and in any event cannot have above-average Wealth, or Status beyond that granted by your Religious Rank (if any). *-15 points.*

Monasticism: You lead a life apart from worldly concerns. You are completely devoted to religious pursuits, which often involves the denial of ego and self. You must spend at least 75% of your time sequestered from the world, and cannot have above-average Wealth, or Status beyond that granted by your Religious Rank (if any). *-10 points.*

Mysticism: You engage in deep meditation and trance-like contemplation, with the aim of obtaining a closer union with the divine. You spend most of your time engaged in these rituals, complete with chanting and any other necessary trappings. Individuals other than devout co-religionists will consider you a bit mad, and will react at -2. *-10 points.*

Ritualism: You adhere strictly to elaborate rituals regarding every aspect of life – from waking to eating to bathing to sex. Each ritual has its proper place, time, words, trappings, and ceremony. Your fundamental belief is that, through the perfect performance of these rituals, you bring each aspect of your life closer to the divine. *-5 points.*

Disturbing Voice

-10 points

Your voice is naturally unpleasant or obviously artificial. Details can vary. You might be a robot, or use a technological aid to mitigate the Mute disadvantage. Your voice might be raspy, hollow, or squeaky, or your speech might be monotonous and without inflection. The game effects in all cases are identical to those of Stuttering (p. 157), although you do not necessarily stutter.

This trait is the opposite of the Voice advantage (p. 97); you cannot have both.

Divine Curse

Variable

You suffer from a curse placed by a god or similar supernatural force. The curse might be on just you, on your entire family, or even on your nation or race.

Divine Curse can take any form the GM desires. It can be a continuing commandment (e.g., "You may never sleep at night," -10 points), a misfortune (e.g., "Every child born to you will die young," -5 points), or even a particularly nasty disadvantage such as Berserk, Blindness, or Epilepsy (at the usual cost). What makes it distinct from other disadvantages is the potential for removal. The curse was given for a reason, and you can try to uncover this reason and atone in play, thereby lifting the curse.

The GM should judge the point value of Divine Curse on a case-by-case basis, using existing disadvantages as guidelines: the more encompassing or debilitating the curse, the higher its value. Curses that result in standard disadvantages should never be worth more points than those disadvantages. Price commandments as if they were Vows. The terms of atonement will often be nearly as bad as the curse itself, or require great effort to discover and satisfy. *Halve* the point value if this is not the case.

Draining

Variable

Once per day, at a specific time – sunrise, noon, sunset, midnight, etc. – you take 2 HP of damage. You can do nothing to prevent this, and cannot heal the damage naturally (even if you have Regeneration!), technologically, or supernaturally. The *only* way to regain your lost HP is to receive a daily dose of a particular substance. Point cost depends on the rarity of this substance:

Rare (e.g., a special potion): *-15 points.*

Occasional (e.g., virgin's blood): *-10 points.*

Common (e.g., human blood): *-5 points.*

Add -5 points to these values for items that are *illegal* in your game world.

This is not the same as Dependency (p. 130). You can have both!

Dread

Variable

You suffer from a supernatural aversion that compels you to keep a

certain, minimum distance from a particular item or substance. If outside forces bring you and the item you dread closer together than that, you must move away as fast as you can, by the most direct route possible. You may do *nothing* else until you are beyond the range of your Dread. If you cannot put at least that much distance between yourself and the object of your Dread, your Dread will render you helpless!

You can instantly sense the presence of the dreaded substance as soon as you enter the forbidden radius. You do not know exactly where it is, but you know what direction it lies in and are compelled to go exactly the other way.

Base value of Dread is -10 points, which prohibits you from coming within one yard of the dreaded substance. A larger radius gives an additional -1 point per yard, to a maximum of -20 points at 11 yards. Find the final disadvantage value by multiplying the point value for your range to reflect the rarity of the substance, as described for *Weakness* (p. 161).

Special Enhancements

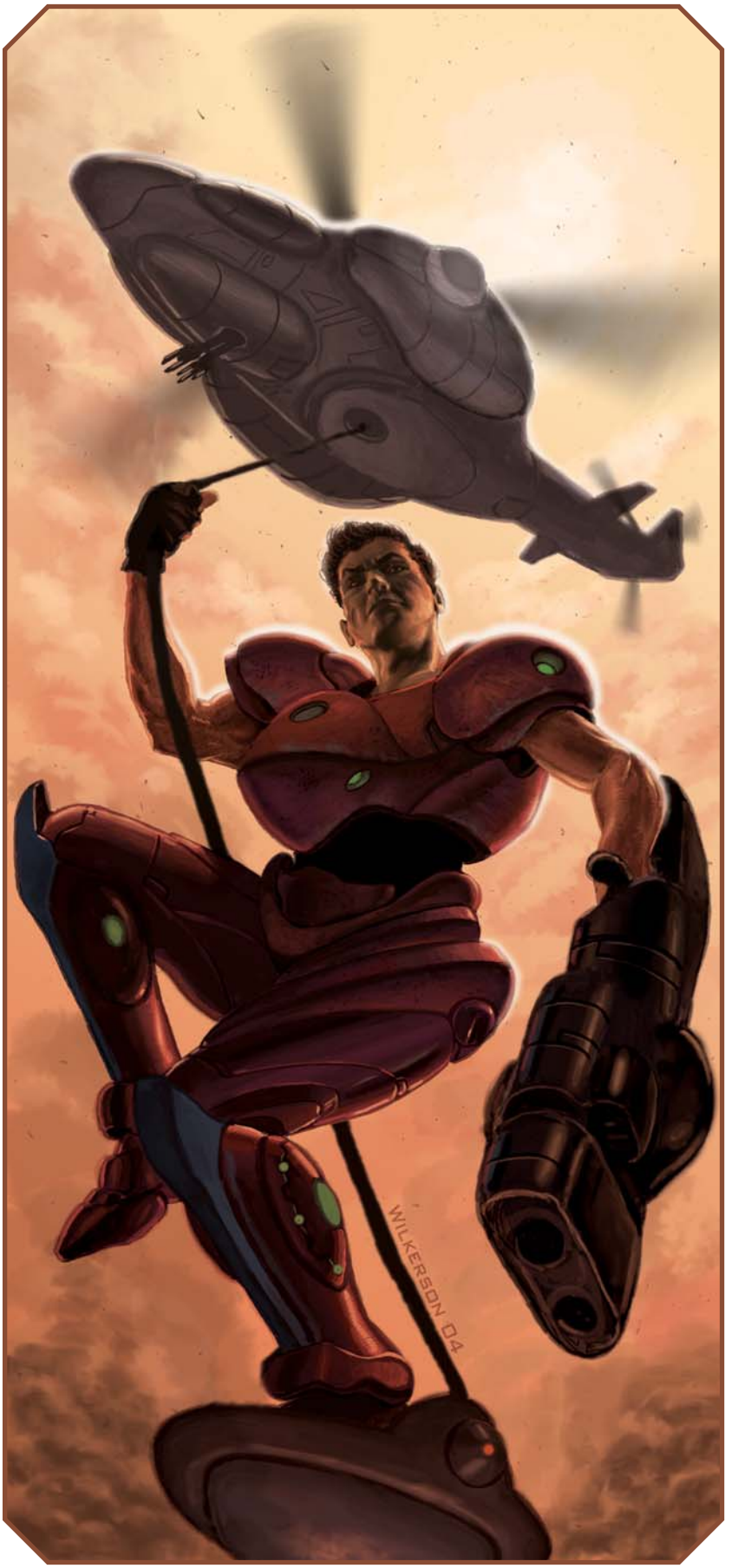
Cannot Be Trapped: You cannot enter the forbidden zone of your own volition, but if carried there by an outside force, you no longer feel your Dread. You can act normally in the forbidden zone until you leave the substance's presence, at which time the prohibition reactivates. -50%.

Duty

Variable

If your occupation and social situation saddle you with a significant personal obligation toward others, and occasionally require you to obey hazardous orders, you have a "Duty." Duty most often accompanies Rank (p. 29), a Patron (p. 72), or one of the traits discussed under *Privilege* (p. 30).

A particularly arduous job might qualify as a Duty, but most ordinary jobs would not. A wholly self-imposed feeling of duty is not a Duty, either (but it can still be a disadvantage; see *Sense of Duty,* p. 153). Finally, you cannot claim points for a Duty toward Dependents (p. 131); the points you get for Dependents *already* reflect your obligations in this regard.



The GM may restrict the Duties allowed in a campaign, or even forbid them entirely, if he feels they would unduly disrupt the flow of the adventure.

If you have a Duty, the GM rolls at the beginning of each adventure to see whether it comes into play. Being "called to duty" could delay your plans . . . or be the *reason* for the adventure! Alternatively, your master might give you a secret agenda to pursue, or his associates might harass you while you are officially "on leave." If you try to avoid your Duty, your GM is within his rights to penalize you for bad role-playing.

The basic point cost of a Duty depends on the frequency with which comes up in play:

Almost all the time (roll of 15 or less): *-15 points*. At this level, the GM may rule that you are *always* on duty.

Quite often (roll of 12 or less): *-10 points*.

Fairly often (roll of 9 or less): *-5 points*.

Quite rarely (roll of 6 or less): *-2 points*.

This cost is for an occasionally hazardous Duty imposed through normal social means. If this does not describe your Duty, you should modify the cost:

Extremely Hazardous: You are *always* at risk of death or serious injury when your Duty comes up. There are significant penalties if you refuse to take these risks: dismissal in disgrace, imprisonment, perhaps even death. The GM has the final say as to whether a given Duty is "extremely hazardous" in his campaign. *-5 points*.

Involuntary: Your Duty is enforced by threats to you or your loved ones, or is imposed by exotic mind control, a curse, etc. This is unrelated to how hazardous the Duty is when you carry it out – the danger here lies in what will happen if you *don't* carry it out! A Duty can be Involuntary *and* either Extremely Hazardous or Nonhazardous. *-5 points*.

Nonhazardous: Your Duty never *requires* you to risk your life. This option is mutually exclusive with Extremely Hazardous. *+5 points*. (If this raises the cost of your Duty to 0 points or more, the obligation is too trivial to qualify as a Duty.)

Examples

Example 1: A mayor is indebted to the crime lord who got him elected. His benefactor rarely calls on him for favors (-2 points), but since the mayor faces blackmail or violence if he refuses to comply, his Duty is Involuntary. Duty (Crime Lord, 6 or less; Involuntary) is worth -7 points.

Example 2: A commando is always on duty (-15 points). He might see only a handful of combat assignments in his whole career, but these will be *deadly*. And his daily routine calls for him to jump out of planes, hike through snake-infested jungles, and train with live ammo. A commando has Duty (Army, 15 or less; Extremely Hazardous), for -20 points.

Dwarfism

see p. 19

Dyslexia

-10 points

You have a *crippling* reading disability. Even simple maps and road signs are beyond you. You start with a written comprehension level of "None" in your native language. This is included in Dyslexia; you get no extra points for it. Furthermore, you may never improve your written comprehension level beyond "None" in *any* language. For more on language comprehension, see *Language* (p. 23).

You can learn "book-learned" skills at normal speed if you have a teacher to substitute for your inability to use texts. Attempts to learn such a skill without a teacher progress at 1/4 speed – *if* the skill is one you can teach yourself without books. The GM's word is final in all cases. In traditional fantasy settings, magic is a book-learned skill, and Dyslexia prevents you from ever becoming a wizard.

Note that this is a *severe* case. Mild dyslexia is not significant in game terms, except possibly as a quirk.

Easy to Kill

-2 points/level

You have a health problem or structural weakness that leaves you prone to catastrophic system failure if you suffer enough damage. Each level of Easy to Kill gives -1 to HT rolls made for survival at -HP or below, and on any HT roll where failure would mean instant death (e.g., heart failure). This does *not* affect most normal HT rolls – only those to avoid certain death. You may not reduce your HT roll below 3. For instance, if you have HT 10, you are limited to Easy to Kill 7.

Easy to Read

-10 points

Your body language betrays your true intentions. This is *not* the same as Truthfulness (p. 159). You have no moral problem with lying, and may even possess Fast-Talk at a high level, but your face or stance gives the game away.

Easy to Read gives *others* +4 on all Empathy, Body Language, and Psychology rolls to discern your intentions or the truth of your words. As well, they get +4 to their IQ, Detect Lies, and Gambling rolls in any Quick Contest with your Acting, Fast-Talk, or Gambling skill when you try to lie or bluff. (If you *also* have Truthfulness, your Fast-Talk skill is at -5 on top of this.) This is a crippling disadvantage for a would-be spy, con man, or gambler!

This *is* a mental disadvantage, despite its physical manifestations; with enough practice, you can "buy it off."

Electrical

-20 points

Your body contains unshielded electronics, or relies on electrical power for its vital energy. This makes you susceptible to attacks that only affect electrical systems, such as spells, advantages, and ultra-tech weapons that drain power or produce "surge" effects, and the electromagnetic pulse from a nuclear blast. A critical hit from an electrical attack causes you to "short-circuit," rendering you unconscious in addition to any other damage effects.

This disadvantage usually accompanies the Machine meta-trait (p. 263), but this is not required. Afflictions and Innate Attacks that *only* affect those with this trait are possible. Apply the -20% Accessibility limitation "Only on Electrical" to all such attacks.

Enemies

Variable

An "Enemy" is an NPC, group of NPCs, or organization that actively works against you, personally, on your adventures. Some Enemies want to kill you . . . others have more devious goals.

Determine the nature of your Enemy when you create your character, and explain to the GM why the Enemy is after you. The GM is free to fill in additional details as he sees fit.

Three factors determine the disadvantage value of an Enemy: its *power,* its *intent,* and its *frequency of appearance.*

Power

The more powerful the Enemy, the more points it is worth as a disadvantage. The GM sets this value. Note that when your Enemy is an organization, the point value is based on the number of individuals who are after *you* – not on the total size of the group!

One person, less powerful than the PC (built on about 50% of the PC's starting points). *-5 points.*

One person, equal in power to the PC (built on about 100% of the PC's starting points), or a small group of less-powerful people (3 to 5 people). *Examples:* A mad scientist, or the four brothers of the man you killed in a duel. *-10 points.*

One person, more powerful than the PC (built on at least 150% of the PC's starting points), or a medium-sized group of less-powerful people (6 to 20 people). *Examples:* a single superhuman or a city police department (which numbers in the hundreds, but they're not all after you at once). *-20 points.*

A large group of less-powerful people (21 to 1,000 people), or a medium-sized group that includes some formidable or superhuman individuals. *Examples:* the FBI or the Mafia. *-30 points.*

An entire government, a whole guild of powerful wizards, an organization of supers, or some other utterly formidable group. *-40 points.*

Special Cases

There are two special cases for which you should adjust the costs given above *before* multiplying for intent and frequency of appearance:

Evil Twin: Your Enemy looks and sounds like you, and perhaps even uses your name, but acts completely opposite. Often, others will think you suffer from Split Personality (p. 156), and react appropriately (-3 to reactions). You might never meet your Evil Twin, but you *will* hear about him – usually when you're taking the blame for something you didn't do. Normally, an Evil Twin has exactly the same skills and abilities as you, but his mental disadvantages are opposite or skewed. This makes him an even match: a -10-point Enemy. If he is more capable than you, he is worth extra points, because he is better equipped to make you look insane, and you are less able to predict and thwart his actions.

Evil Twin is more skilled than you *or* possesses abilities that you do not (GM decides): *-5 points.*

Evil Twin is more skilled than you *and* possesses abilities that you do not (GM decides): *-10 points.*

Unknown: You know you have an Enemy, but you have no idea who it is. Tell the GM the power level of your Enemy. He will create the Enemy in secret and give you *no details whatsoever!* The advantage of surprise increases your Enemy's effective power level, and hence its disadvantage value. *-5 points.*

Intent

The more unpleasant the Enemy's intentions, the more you multiply its worth in points.

Watcher: Your Enemy stalks you or spies on you. This is annoying, and makes it hard to keep secrets, but it is rarely more than a minor inconvenience. *Examples:* an aggressive journalist dogging a politician, detectives shadowing a suspected criminal. ×1/4.

Rival: Your Enemy wishes to upstage or inconvenience you, or plays cruel practical jokes on you (this is typical of most Evil Twins), but stops short of anything that would do lasting harm. *Examples:* a politician's bitter political rival, detectives harassing a suspected criminal. ×1/2.

Hunter: The Enemy intends to arrest, bankrupt, injure, or otherwise harm you in some lasting way – or simply wants to kill you. *Examples:* an assassin gunning for a politician, detectives out to arrest a suspected criminal. ×1.

Frequency of Appearance

Choose a frequency of appearance, as explained under *Frequency of Appearance* (p. 36). Roll at the beginning of each adventure, or at the start of each *session* of a continuing adventure.

Limits on Enemies

You may not take more than two Enemies, or claim more than -60 points in Enemies. (If the whole U.S. government is out to get you, the fact that your old college professor has lost his mind, and is *also* after you, pales to insignificance.)

Enemies in Play

If the dice indicate that an Enemy should show up, the GM must decide how and where the Enemy becomes involved. If an Enemy is very powerful, or if a number of *different* Enemies show up at the same time, this may influence the whole adventure.

If you take an extremely powerful Enemy, you are likely to be jailed or killed before long. So it goes. You can get a 60-point bonus by taking Enemy (FBI, 12 or less; Hunter), but your every adventure will be that of a hunted criminal. Even with an extra 60 points, your career may be short.

If you start with a *weak* Enemy, or play cleverly, you might manage to eliminate your foe or permanently change his attitude toward you. But as the saying goes, "There ain't no such thing as a free lunch." If you get rid of an Enemy, you have three choices:

1. Pay enough character points to buy off the original bonus you got for that Enemy.

2. Take a disadvantage to make up for the point bonus. For instance, you might have been kicked in the head during the final battle, leaving you partially deaf. Or a giant spider might have attacked you, leaving you with arachnophobia. The new disadvantage should have the same point cost as your former Enemy (or less, if you want to buy off *part* of the disadvantage). If you cannot think of a good substitute disadvantage, the GM will be more than happy to supply one!

3. Take a new Enemy of equal value. You might have destroyed the fiendish Dr. Scorpion – but his brother is continuing his evil work.

Epilepsy

-30 points

You suffer from *severe* epilepsy. You are subject to seizures during which your limbs tremble uncontrollably and you cannot speak or think clearly.

Make a HT roll whenever you are in a stressful situation (especially if your life or the life of a friend is threatened). If you have any sort of Phobia, exposure to the object of your fear counts as a stressful situation; roll vs. HT once every 10 minutes. On a failure, you suffer a seizure that lasts 1d minutes and costs you 1d FP. You can do *nothing* during that time.

You may attempt to induce a seizure through autohypnosis. This requires one minute of concentration and a successful Will or Autohypnosis roll. Seizures near areas charged with supernatural energies might produce visions. Whether these are *useful* is up to the GM.

Low-tech individuals who do not understand "fits" may be awed by them, and perhaps even believe your seizure represents a communication from the gods. Make a reaction roll at +1. A reaction of "Very Good" or better indicates religious awe! "Poor" or worse causes the observers to flee – not to attack (unless they had other provocation).

Extra Sleep

-2 points/level

You need more sleep than most people. A normal human requires 8 hours of sleep per night. Each level (maximum of four levels) means you need one additional hour of sleep. Thus, you must go to bed early or sleep in for a few hours each day. This gives you less time each day in which to study or work on other projects.

Fanaticism

-15 points

You believe so strongly in a country, organization, philosophy, or religion that you put it ahead of *everything* else. You might even be willing to die for it! If the object of your Fanaticism demands obedience to a code of behavior or loyalty to a leader, you oblige willingly and unquestioningly. You *must* roleplay your unwavering dedication.

Fanaticism does not make you mindless or evil. A glaring priest of Set, brandishing his bloody dagger, is a fanatic. But so is a kamikaze pilot, exchanging himself for an aircraft carrier. And so is a patriot who says, "Give me liberty or give me death!" Fanaticism is a state of mind; it is *what* you are fanatic about that makes the difference.

Extreme Fanaticism: This is an advanced case of Fanaticism. You get +3 on Will rolls to resist Brainwashing, Interrogation, and supernatural mind control in any situation where failure to resist would lead to betrayal of your cult or organization. On the other hand, you will not hesitate to die for your cause, and will undertake suicide missions "matter-of-factly." This is still worth -15 points. Your willingness to die is offset by the significant bonus to Will (which will apply a good deal of the time, if you are roleplaying properly).

Fat

see p. 19

Fearfulness

-2 points/level

You are nervous and timid. Subtract your Fearfulness from your Will whenever you make a Fright Check, and whenever you must resist the Intimidation skill (p. 202) or a supernatural power that causes fear. As well, add your Fearfulness level to all Intimidation rolls made against you.

You may not reduce your Will roll below 3. For instance, if you have Will 11, you are limited to Fearfulness 8.

This trait is the opposite of Fearlessness (p. 55); you cannot have both.

Flashbacks

Variable

You tend to experience "flashbacks" when under stress. These are vivid hallucinations, full-participation replays of memories, or similar phenomena. You should choose the *type* of flashback you experience when you take this disadvantage. The *content* of each episode is up to the GM.

In any situation that the GM feels is stressful, he will roll 3d. On a 6 or less, you have a flashback. The GM will roll whenever you miss a Fright Check or make the roll exactly, and whenever you fail a self-control roll for another stress-related disadvantage. The flashback occurs *in addition to* any other results!

Point value depends on the severity of the flashback:

Mild: Duration is 2d seconds. The attendant hallucinations give -2 on all skill rolls, but they are minor – you realize that you are experiencing a flashback. *-5 points.*

Severe: Duration is 1d minutes. The hallucinations give -5 on all skill rolls, and seem *real*. *-10 points.*

Crippling: Duration is 3d minutes. The hallucinations are so severe that they preclude all skill use. The flashback seems completely, 100% real, and can be potentially fatal, as you are receiving *no* input from the real world. *-20 points.*

Fragile

Variable

You are susceptible to wounding effects that do not apply to normal humans. Attacks do not injure you any more than usual (that's Vulnerability, p. 161), but enough penetrating damage can trigger results more catastrophic than stunning, unconsciousness, or bleeding. Possibilities include:

Brittle: You are brittle (like a creature of ice or crystal) or rotten (like a decaying undead monster). Whenever an injury cripples one of your limbs or extremities, it *breaks off*. If you can make a HT roll, it falls off in one piece; otherwise, it shatters or liquefies irrecoverably. Furthermore, should you fail any HT roll to avoid death, you are instantly destroyed – you shatter, melt, decay to goo, etc., and instantly go to -10×HP. *-15 points.*

Combustible: Your body burns more easily than flesh. Perhaps it is dry, resinous, or made of wood. Make a HT roll to avoid catching fire whenever you receive a major wound from a burning or explosive attack. You catch fire *automatically* if such an attack inflicts 10+ HP of injury. Once aflame, you suffer 1d-1 injury per second until you extinguish the fire by immersion in water, rolling on the ground (takes 3 seconds), etc. *-5 points.*

Explosive: Your body contains explosives, compressed gas, or something else unstable. On any critical failure on the HT roll for a major wound, you explode! You also explode if you fail any HT roll to avoid death by 3+. Treat this as a 6d×(HP/10) crushing explosion. The blast instantly reduces you to -10×HP, regardless of the damage it *inflicts*. *-15 points.*

Flammable: Your body contains something highly flammable: gasoline, hydrogen gas, etc. Make a HT roll to avoid catching fire, with effects as per Combustible, after a major wound from *any* kind of attack. Roll at -3 for a burning or explosive attack, -3 if the attack struck the vitals, and -6 if both. Once you are burning, a critical failure on any HT roll to avoid death means you explode as described for Explosive. You may be Combustible as well. If so, any burning or explosive attack that inflicts either a major wound or 10+ HP of injury *automatically* sets you ablaze. *-10 points.*

Unnatural: You are summoned, conjured, or a magical or weird-science "construct" (e.g., demon, golem, or undead). You *automatically* fail the HT roll to stay alive if reduced to -HP or below, as that much damage severs your ties with the force that animates you. *-50 points.*

It sometimes makes sense to take more than one of the above (in particular, Explosive and Flammable often occur together). The GM must personally approve any combination of Fragile with Injury Tolerance (p. 60), as these traits are in many ways opposites.

Frightens Animals

-10 points

Animals react to you with fear and aggression. Horses do not permit you to ride them, dogs shy away from you or attack savagely, and your mere scent is enough to panic most creatures. You get -4 on all reaction rolls made by animals. Anyone who sees how animals react to you – and those with Animal Empathy – reacts to you at -1. Note that guards or police with guard animals, "sniffer" dogs, etc. decide how to deal with you based on the *animal's* reaction roll, not their own!

If your disadvantage is due to lycanthropy, vampirism, or a similar trait, observers get +1 on all rolls to deduce your secret!

G-Intolerance

-10 or -20 points

You function well under a narrow range of gravities. For a normal human, the penalties for non-native gravity accrue in increments of 0.2G; see *Different Gravity* (p. 350). An increment of 0.1G is worth -10 points. An increment of 0.05G is worth -20 points.

This disadvantage is only allowed in campaigns that feature regular space travel.

Gigantism

see p. 20

Gluttony

-5 points*

You are overly fond of good food and drink. Given the chance, you must always burden yourself with extra provisions. You should never willingly miss a meal. Make a self-control roll when presented with a tempting morsel or good wine that, for some reason, you should resist. If you fail, you partake – regardless of the consequences.

Greed

-15 points*

You lust for wealth. Make a self-control roll any time riches are offered – as payment for fair work, gains from adventure, spoils of crime, or just bait. If you fail, you do whatever it takes to get the payoff. The GM may modify this roll if the money involved is small relative to your own wealth. Small sums do not tempt you much if you are rich, but if you are *poor,* you get -5 or more on your self-control roll if a rich prize is in the offing. If you have Honesty (p. 138), your self-control roll is at +5 for a shady deal and +10 for outright crime. However, it is almost a foregone conclusion that you will eventually do something illegal.

Gregarious

see *Chummy,* p. 126

Guilt Complex

-5 points

You feel personally responsible for those who play a significant role in your life. This includes adventuring companions, employers, subordinates, Allies, Dependents, and those toward whom you have a Duty or a Sense of Duty. If *anything* bad happens to someone like this, you will be wracked by anxiety and guilt – even if there was nothing you could have done to avert the disaster.

If the mishap was not your fault, you will suffer the effects of Chronic Depression (p. 126) for (15 - Will) days, minimum one day. Use your Will as your effective self-control number. If the mishap *was* your fault, the effects of Chronic Depression will last (20 - Will) days, minimum two days, and your effective self-control number is Will-3.

Others may attempt to help you overcome your feelings of guilt by making Fast-Talk or Psychology rolls. The GM is free to modify their rolls, depending on how convincing they sounded. Roleplay it!

Gullibility

-10 points*

There's one born every minute, and you're it. You believe everything you hear. You'll swallow even the most ridiculous story, if it's told with conviction. Make a self-control roll, modified by the plausibility of the story, whenever you are confronted with a lie – or an improbable truth, for that matter. If you fail, you believe what you were told!

A lie well told, or involving something you have no familiarity with ("My father is the chief of police in this town, and he won't stand for this!") gives -6 to the self-control roll. A lie concerning a topic you are familiar with ("Didn't you know they bred ducks in your village, Torg?") gives -3. You believe even a totally outlandish tale ("Of course the Eskimos are descended from Spanish conquistadors; everyone knows that!"), if you fail an unmodified self-control roll.

You also suffer a -3 penalty on any Merchant skill roll, or in any situation in which your credulity might be exploited. You can *never* learn the Detect Lies skill.

Ham-Fisted

-5 or -10 points

You have unusually poor motor skills. You suffer a penalty to any DX-based roll to do fine work using the skills listed under *High Manual Dexterity* (p. 59), and to Fast-Draw skill. For -5 points, the penalty is -3; for -10 points, it is -6. This does *not* affect IQ-based tasks or large-scale DX-based tasks, nor does it modify combat-related die rolls other than Fast-Draw.

You are also a messy eater, can't tie a necktie properly, and so on. At the GM's option, you get -1 per level of this trait on any Influence or reaction roll where being tidy or well-groomed would matter.

This disadvantage is mutually exclusive with High Manual Dexterity.

Hard of Hearing

-10 points

You are not deaf, but you have some hearing loss. You are at -4 on any Hearing roll, and on any skill roll where it is important that you understand someone (if you are the one talking, this disadvantage doesn't affect you).

Hemophilia

-30 points

You are a "bleeder." Even a small wound *will not heal* unless well-bandaged – and you may bleed to death. Any untreated wound bleeds at a rate equal to its original damage every minute. For instance, an untreated 3 HP wound bleeds for 3 HP of damage per minute until stanched.

First Aid is enough to staunch most wounds, but an impaling wound to the torso causes slow internal bleeding. It does damage every minute, as above, until you receive First Aid. Furthermore, it *continues* to do damage equal to its original damage once per *day* until properly treated. Only a Surgery roll or supernatural healing can stop internal bleeding or restore HP lost to it. If proper treatment is not available, you will soon die.

If you suffer from this disadvantage, your HT score may not exceed 10.

Hidebound

-5 points

You find it difficult to come up with an original thought. You have a -2 penalty on any task that requires creativity or invention, including most rolls against Artist skill, all Engineer rolls for new inventions, and all skill rolls made to use the Gadgeteer advantage.

Honesty

-10 points*

You *must* obey the law, and do your best to get others to do so as well. In an area with little or no law, you do not "go wild" – you act as though the laws of your own home were in force. You also assume that others are honest unless you *know* otherwise (make an IQ roll to realize someone might be dishonest if you haven't seen proof).

This is a disadvantage, because it often limits your options! Make a self-control roll when faced with the "need" to break unreasonable laws; if you fail, you *must* obey the law, whatever the consequences. If you manage to resist your urges and break the law, make a second self-control roll

afterward. If you fail, you must turn yourself in to the authorities!

You *may* fight (or even start a fight, if you do it in a legal way). You may even kill in a legal duel or in self-defense – but you may never *murder.* You may steal if there is great need, but only as a last resort, and you must attempt to pay your victims back later. If you are jailed for a crime you did not commit, but treated fairly and assured of a trial, you will not try to escape.

You always keep your word. (In a war, you may act "dishonestly" against the enemy, but you will not be happy about it!) However, you *are* allowed to lie if it does not involve breaking the law. Truthfulness (p. 159) is a separate disadvantage.

Honesty has its rewards, of course. If you stay alive and in one place long enough for your honesty to become known, the GM should give you +1 on any noncombat reaction roll – or +3 if a question of trust or honor is involved. This is essentially a free Reputation (see *Reputation,* p. 26).

Horizontal

-10 points

You have a horizontal posture, like a cat. You can stand on your hind legs for short periods, but find this very uncomfortable. You can use one hand (if you *have* hands) while standing on your other limbs, or two hands while sitting on your haunches; in both cases, your ground Move is 0 while doing so. You can carry but not use an object in one hand if moving at half Move. If you are human-sized, you take up two hexes on a battle map.

A horizontal build does not let you put your full weight behind a kick. As a result, your thrusting damage is at -1 *per die* when you kick. Ignore this penalty if you have Claws (p. 42) – that trait includes the necessary adaptations to strike at full power. The penalty *does* apply if you have Hooves, however.

Do *not* take this disadvantage if you are Aerial or Aquatic (see *No Legs,* p. 145). If you are fully adapted to a three-dimensional environment, body posture is irrelevant.

Hunchback

-10 points

You have a spinal deformity that forces you into a twisted or hunched position, usually resulting in a noticeable hump or lump on one or both shoulders. This reduces height by 6" without changing weight or build. Normal clothing and armor will fit badly, giving you -1 to DX; to avoid this, you must pay an extra 10% for specially made gear.

Most people find you disturbing to see and react at -1. This penalty is cumulative with regular appearance modifiers (see *Physical Appearance,* p. 21), and you may have no better than Average appearance. Your appearance is also *distinctive,* which gives you -3 to Disguise or Shadowing skill, and +3 to others' attempts to identify or follow you.

Realistic hunchbacks should have the Bad Back disadvantage (p. 123) as well, but this is not required.

Impulsiveness

-10 points*

You hate talk and debate. You prefer action! When you are alone, you act first and think later. In a group, when your friends want to stop and discuss something, you should put in your two cents' worth quickly – if at all – and then do *something.* Roleplay it! Make a self-control roll whenever it would be wise to wait and ponder. If you fail, you *must* act.

Increased Consumption

-10 points/level

One "meal" keeps you going for a much shorter period of time than it would a normal human. This is suitable for small creatures that must eat often, or for machines that rapidly exhaust their fuel or energy supply.

Increased Consumption 1: You must eat six meals a day. If you have the Machine meta-trait (p. 263), you have a 4-hour endurance.

Increased Consumption 2: You must eat 12 meals a day. If you have the Machine meta-trait, you have a 2-hour endurance.

Increased Consumption 3: You must eat 24 meals a day. If you have the Machine meta-trait, you have a 1-hour endurance.

. . . and so on, doubling consumption and halving endurance for each additional level. A single level of this trait is appropriate for normal humans who have a build of Overweight or heavier (see *Build,* p. 19), or the Gluttony disadvantage (p. 137).

Increased Life Support

Variable

Your environmental requirements in a life-support situation are greater than those of a normal human. Some examples:

Extreme Heat/Cold: You require a temperature above 200° or below 0°. *-10 points.*

Massive: You require more than a ton of additional weight in order to survive aboard a spacecraft or a submarine, or in any other setting where resources and space are limited. If you can wear an environment suit, this always weighs at least a ton. *-10 points.*

Pressurized: You require a separate pressurized compartment to survive. *-10 points.*

Radioactive: You are radioactive or require a radioactive environment. *-10 points.*

The GM may allow other kinds of Increased Life Support. These should worth no more than -10 points apiece unless they are *extremely* exotic. Add together the value of multiple special requirements, but note that the total disadvantage value cannot exceed -40 points.

Increased Life Support represents the *logistical* inconvenience of special life-support requirements, while Dependency (p. 130), Maintenance (p. 143), and Restricted Diet (p. 151) all reflect the *health* effects of doing without such requirements. The same requirement can qualify in both categories if it has consequences for both health and logistics. But note that a Dependency you can satisfy with a one-ounce inhaler of a drug does not let you claim Increased Life Support for a pressurized cabin full of the stuff! The GM's word is final.

With the GM's permission, normal humans may take this disadvantage to represent the special requirements of certain chronic illnesses.

Incurious

-5 points*

You hardly ever notice things unrelated to the business at hand. Make a self-control roll when confronted with something strange. If you fail, you *ignore* it! You react at -1 to new things.

Indecisive

-10 points*

You find it difficult to make up your mind. As long as there is a single path before you, you are fine, but as soon as there is a choice, you begin to dither. Make a self-control roll whenever a choice confronts you, modified downward by the number of alternatives you can see: -2 if there are two choices, -3 if there are three, etc. If you fail, you do *nothing*. Roll again every minute (or every *second* in combat or a similar high-stress situation) until you make up your mind, after which you may act normally until the next time you face a decision.

If you are Indecisive *and* Confused (p. 129), you must roll as described above to decide on a course of action. When you finally succeed, you must make *another* self-control roll – this one for Confused – to see whether you can act on your decision immediately.

Infectious Attack

-5 points

You have an infectious supernatural condition. This works identically to the Dominance advantage (p. 50), except that you do not control those you infect and cannot add them as Allies. This is a disadvantage, because enemies who survive (or *don't* survive!) violent encounters with you become stronger through the "gift" of supernatural powers, and are completely free to use their new abilities to seek vengeance for what you have done to them.

To prevent PCs with this trait from turning their friends into powerful monsters for free, the GM should consider making infected PCs pay points for supernatural racial templates gained this way. If they cannot afford such a template, the GM is free to balance its point cost with supernatural drawbacks such as Cursed, Dread, Revulsion, and Weakness.

Innumerate

-5 points

You have little or no grasp of mathematics. You cannot learn – and get no default with – Computer Programming, Economics, or any of the skills that benefit from Mathematical Ability (see *Talent*, p. 89). You effectively have Incompetence (p. 164) in those areas. This has many frustrating side effects: you must use your fingers to count or perform arithmetic, you have no idea if the results computed by calculating machines are correct (making them basically useless), and you are easily cheated by dishonest merchants (-4 to rolls to notice you've been had).

In "innumerate" cultures, including many cultures at TL4 or below, this disadvantage is widespread, and the GM should not count it against the campaign disadvantage limit (if any). In societies that prize technological or mercantile ability, Innumerate individuals are liable to have a Social Stigma *as well*. This is worth an additional -5 points and gives -1 to reaction rolls.

Insomniac

-10 or -15 points

You go through periods where falling asleep is very difficult. During such an episode, you must make a HT-1 roll once per night. On a success, you fall asleep easily, ending that episode of insomnia. On a failure, you lose two hours of sleep that night (and suffer all the usual effects; see *Missed Sleep*, p. 426) and the episode continues for another night. On a critical failure, you get *no* sleep that night. Point value depends on severity:

Mild: The GM secretly rolls 3d for the number of days between episodes. *-10 points.*

Severe: The GM rolls 2d-1 for the number of days between episodes. *-15 points.*

Regardless of severity, whenever you suffer prolonged stress, the GM can require a HT roll. Failure means an episode starts immediately.

Intolerance

Variable

You dislike and distrust some (or all) people who are different from you. You may be prejudiced on the basis of class, ethnicity, nationality, religion, sex, or species. Victims of your Intolerance will react to you at -1 to -5 (GM's decision). Point value depends on the *scope* of your Intolerance.

If you are thoroughly intolerant, you react at -3 toward *anyone* not of your own class, ethnicity, nationality, religion, or species (pick one). On a "Good" reaction, you tolerate the person and are as civil as possible (but are stiff and cold toward him). On a "Neutral" reaction, you still tolerate him, but make it plain in words and deeds that you don't care to be around him and consider him inferior or offensive. On any worse reaction, you attack or refuse to associate with the victim. Total Intolerance of this kind is worth -10 points.

Intolerance directed at only one *specific* class, ethnicity, nationality, religion, sex, or species is worth from -5 points for a commonly encountered victim to -1 point (a nasty quirk) for a rare victim.

Invertebrate

-20 points

You have no spine, exoskeleton, or other natural body support. Use your full Basic Lift for the purpose of pushing, but only 1/4 your BL to calculate the weight you can lift, carry, or pull. This trait has a small side benefit, however: you can squeeze through much smaller openings than your size might suggest!

Note that this trait differs somewhat from the biological term "invertebrate."

Jealousy

-10 points

You react poorly toward those who seem smarter, more attractive, or better off than you! You resist any plan proposed by a "rival," and *hate* it if someone else is in the limelight. (Jealousy goes well with Megalomania.) If an NPC is jealous, the GM will apply a -2 to -4 reaction penalty toward the victim(s) of his jealousy.

Killjoy

-15 points

Your brain's pleasure center is burned out or absent. You cannot

appreciate the taste of good food, the joy of sex, the savage beauty of combat, and so on. You might not even remember what these pleasures were like! You can "go through the motions," but you have -3 on all Carousing, Connoisseur, Erotic Art, and Gambling rolls. Others react to you at -1 to -3 in any situation where your lack of appreciation becomes obvious (GM's decision). A bad reaction indicates ridicule from cultured folk, rejection by a lover, etc. – not violence.

Some ultra-tech societies might use surgery to inflict this state as a form of punishment! If so, you *won't* plot your revenge . . . because there won't be any pleasure in it.

Kleptomania

-15 points*

You are compelled to steal – not necessarily things of value, but anything you can get away with. Make a self-control roll whenever you are presented with a chance to steal, at up to -3 if the item is especially interesting to you (not necessarily *valuable,* unless you are poor or have Greed). If fail, you must try to steal it. You may keep or sell stolen items, but you may not return or discard them.

Klutz

-5 or -15 points

You have an uncanny affinity for gross physical blunders. You do not necessarily have a low DX (you may have up to DX 13 and still select this trait) but you are more awkward than your DX would suggest. This disadvantage comes in two levels:

Klutz: Make a DX roll to get through the day without doing a pratfall, dropping books, or knocking over shelves filled with fragile items. This is rarely life-threatening, but it is inconvenient and often expensive. The GM should be creative in inventing minor torments. You should especially avoid laboratories, explosives, china shops, etc. *-5 points.*

Total Klutz: As above, but in addition, *any* failure on a DX roll or DX-based skill roll is considered a *critical* failure for you! *-15 points.*

This trait might seem silly, but it need not be. Most realistic TL7-8 robots have this disadvantage!

Lame

-10 to -30 points

This disadvantage assumes that you are a member of a race with legs. If your *entire race* is legless, see *No Legs* (p. 145).

You have some degree of impaired mobility:

Crippled Legs: You have all of your legs, but some of them are damaged. For a human, this means one bad leg. You are at -3 to use any skill that requires the use of your legs, including all Melee Weapon and unarmed combat skills (but not *ranged* combat skills). You *must* reduce your Basic Move to half your Basic Speed (round down), but you get full points for this (see *Basic Move,* p. 17). *-10 points*.

Missing Legs: You have lost some, but not all, of your legs. For a human, this means you have one leg. You are at -6 to use any skill that requires the use of your legs. Using crutches or a peg leg, you can stand up and walk slowly. You *must* reduce Basic Move to 2, but you get full points for this. You can still kick, but between the standard -2 for a kick and the -6 for this disadvantage, you do so at DX-8! Without your crutches or peg leg, you cannot stand, walk, or kick. *-20 points*.

Legless: You are missing *all* of your legs, no matter how many you started out with. You are at -6 to use any skill that requires the use of your legs, and you cannot stand, kick, or walk at all. You *must* reduce Basic Move to 0, but you get full points for this. *-30 points*.

Paraplegic: You have all of your legs, but they are paralyzed. The effects and point value are identical to Legless. Unlike a Legless character, you can be struck in the legs for damage. This is balanced by the fact that it isn't inconceivable that you could regain the use of your legs (a Legless character is out of luck). *-30 points*.

Technological Assistance

A muscle-powered wheelchair or wheeled platform has ground Move equal to 1/4 your ST (round down), but cannot pass through narrow doorways, negotiate staircases or steep curbs, enter most vehicles, etc.

If you have advanced prosthetics that cancel this disadvantage while worn, apply a Mitigator limitation (p. 112) to Lame and any reduced Basic Move. If surgery or ultra-tech replacement parts eliminate this disadvantage completely, you must pay back the points you received for Lame and reduced Basic Move.

Laziness

-10 points

You are violently averse to labor. Your chances of getting a raise or promotion in *any* job are halved. If you are self-employed, halve your monthly pay (see *Jobs,* p. 516). You must avoid work – especially hard work – at all costs. Roleplay it!

Lecherousness

-15 points*

You have an unusually strong desire for romance. Make a self-control roll whenever you have more than the briefest contact with an appealing member of the sex you find attractive – at -5 if this person is Handsome/Beautiful, or at -10 if Very Handsome/Very Beautiful. If you fail, you must make a "pass," using whatever wiles and skills you can bring to bear. You must then suffer the consequences of your actions, successful or not: physical retribution, jail, communicable disease, or (possibly) an adoring new friend.

Unless the object of your affection is Very Handsome/Very Beautiful, you need not roll more than once a day to avoid making a pass. If someone turns you down very firmly (e.g., a black eye, or an arrest for sexual harassment) the GM may give you a bonus to future self-control rolls regarding that individual . . .

Note that you are likely to change your standards of attractiveness if no truly attractive members of the appropriate sex are available!

Lifebane

-10 points

You have a supernatural aura of death about you. Grass dies in your footprints and will never grow there again, larger plants wilt instantly in your presence, and insects and other tiny creatures die if they get within a yard of you. Your aura has *no effect* on animals that weigh more than a few ounces, on very large plants such as trees (but the leaves closest to you might die, and a tree you pass daily for years will eventually be affected), on ordinary life forms controlled by supernatural means (e.g., insect swarms conjured up using magic), or on supernatural entities of any kind.

Lifebane gives -2 on reaction rolls made by anyone in a position to notice it. If it stems from demonic powers, vampirism, etc., observers get +2 on all rolls to deduce your secret! This trait makes it difficult to use stealth- or invisibility-related abilities outdoors, too: +2 on rolls to locate you in most outdoor environments. It has its side benefits, however. For instance, you need never buy insect repellent!

Light Sleeper

-5 points

You do not sleep as soundly or as easily as most people. Whenever you must sleep in an uncomfortable place, or whenever there is more than the slightest noise, you must make a HT roll in order to fall asleep. On a failure, you can try again after one hour, but you will suffer all the usual effects of one hour of missed sleep (see *Missed Sleep,* p. 426).

You usually wake up if there is activity going on around you (but you are stunned unless you have Combat Reflexes). If you wish to continue sleeping, you must *fail* a Sense roll. If you wake up, you must make HT rolls to get back to asleep, as above. This can occasionally be to your advantage, but the most likely effect is that you miss sleep whenever inconsiderate companions trade watches or return from a night on the town.

Loner

-5 points*

You require a great deal of "personal space." Make a self-control roll whenever anyone lingers nearby, watches over your shoulder, etc. If you fail, you lash out at that person just as if you had Bad Temper (p. 124). Loner NPCs always react to others at a penalty.

Self-Control Number	*Reaction Penalty*
6	-4
9	-3
12	-2
15	-1

Low Empathy

-20 points

You cannot understand emotions *at all.* This doesn't prevent you from having and showing emotions of your own (unless you have something like No Sense of Humor) – your problem is that you don't really *understand* them. As a result, you have difficulty interacting socially.

You may not take the Empathy advantage, and suffer a -3 penalty on all skills that rely in whole or in part on understanding someone's emotional motivation, including Acting, Carousing, Criminology, Detect Lies, Diplomacy, Enthrallment, Fast-Talk, Interrogation, Leadership, Merchant, Politics, Psychology, Savoir-Faire, Sex Appeal, Sociology, and Streetwise. You can still have these skills – you just aren't as good at them as someone without this disadvantage.

Low Empathy is common in androids, demons, golems, the undead, and some aliens. It is also appropriate for certain humans! This trait is mutually exclusive with the somewhat similar disadvantages Callous (p. 125) and Oblivious (p. 146), both of which assume *some* understanding of emotions, however flawed.

Low Pain Threshold

-10 points

You are very sensitive to pain of all kinds. *Double* the shock from any injury; e.g., if you take 2 HP of damage, you are at -4 to DX on your next turn. You roll at -4 to resist knockdown, stunning, and physical torture. Whenever you take a wound that does more than 1 HP of damage, you must make a Will roll to avoid crying out. This can give away your presence, and may earn you a -1 reaction from "macho" individuals.

Low Self-Image

-10 points

You lack self-confidence and underrate your abilities to such a degree that it interferes with your performance. You are at -3 to all skill rolls whenever you believe that the odds are against you or others expect you to fail (GM's judgment). For instance, if you're a mechanic, you have no penalty to repair an engine in your shop . . . but you are at -3 to make the same repairs on the road, in the rain, with only a portable tool kit, and an enemy hot on your trail – on top of the usual modifiers that would apply in that situation!

Low TL

see p. 22

Lunacy

-10 points

The moon has a dramatic and inconvenient effect on your personality. During the full moon, you are extremely emotional and volatile (-2 to all Will and self-control rolls), while on nights of the new moon, you are very passive (you temporarily suffer from the Laziness disadvantage, p. 142). While the moon is waxing, you are focused and pleasant; while it is waning, you are apathetic and a little touchy. Roleplay it!

Magic Susceptibility

-3 points/level

Magic is more likely to affect you. Add your Magic Susceptibility to the skill of anyone casting a spell on you, and subtract it from your roll to resist any spell that you can resist. For instance, if you have Magic Susceptibility 4, wizards have +4 to cast spells on you and you get -4 to resist.

Magic Susceptibility only makes you more vulnerable to spells *cast directly on you.* It does not affect Missile spells, attacks by magic weapons, or information-gathering spells that aren't cast directly on *you.* It also has no effect on supernatural powers other than magic; e.g., divine miracles, psionics, or the innate powers of spirits. Magic Susceptibility works normally against Area spells; do not double its effects as you would those of Magic Resistance (p. 67).

Magic Susceptibility, and its precise level, can be recognized by any mage who looks at your aura or by anyone who casts a spell on you. You may have no more than five levels of Magic Susceptibility.

You can combine Magic Susceptibility with Magery but *not* with Magic Resistance.

Maintenance

Variable

You require skilled attention at regular intervals to avoid HT loss. Examples include a robot that needs a mechanic, a chronically ill person who needs a doctor's attention, or a god that requires devout prayer.

Decide on the care you require and the skill needed to provide it. Possibilities include electronic maintenance (use Electronics Repair), mechanical maintenance (use Mechanic), medical care (use Physician), and physical repairs (use Carpentry, Electrician, etc.). You may specify an advantage or disadvantage instead; e.g., a god might require worshippers with Disciplines of Faith. You can split Maintenance between multiple skills; for instance, a robot might require Electronics Repair *and* Mechanic.

Those who maintain you must have access to the appropriate facilities: a mechanic needs tools, worshippers must pray at a temple, etc. No resources are *consumed,* however; for that, take Dependency (p. 130).

Each installment of maintenance takes one hour. The base point value depends on the number of people needed to perform it:

Number of People	*Point Value*
1	-10
2	-20
3-5	-30
6-10	-40
11-20	-50
21-50	-60
51-100	-70

Add another -10 points per *full* doubling of the number of people required; e.g., a god that requires 10,000 worshippers would have a base -130-point disadvantage. Extra man-hours of maintenance may substitute for extra people, if the GM approves.

The frequency with which you require maintenance modifies this base cost.

Maintenance Interval	*Multiplier*
Monthly	1/5
Bi-weekly	1/3
Weekly	1/2
Every other day	3/4
Daily	1
Twice daily	2
Three to five times daily	3
Constant	5

If you miss a maintenance period, your HT attribute drops by 1 and you must make a HT roll. Failure results in some additional incapacity of the GM's choosing. Critical failure means a potentially fatal outcome; e.g., a human might suffer a heart attack, or a vehicle's brakes might fail while it is moving.

To restore lost HT and capabilities requires suitable intervention and skill rolls (repairs if you're a machine, surgery if you're a living being, etc.). If you require an unusual form of maintenance, this might call for exotic measures!

Manic-Depressive

-20 points

Your moods are on a seesaw. You bounce back and forth between bubbling enthusiasm and morose withdrawal. At the beginning of each play session, roll 1d. On 1-3, you are in your manic phase; 4-6 indicates depression. Every five hours of game time thereafter, roll 3d. A 10 or less indicates that you begin a mood swing. Over the next hour, you shift from your current phase to the opposite one. You remain in the new phase for at least five hours, after which you must again roll 3d.

In the manic phase, you suffer the effects of Overconfidence (p. 148) and Workaholic (p. 162). You are friendly, outgoing, and excited about whatever it is you're doing. In the depressive phase, you suffer the effects of Chronic Depression (p. 126). You are not interested in doing anything but lying in bed, sitting in a dark room and moping, etc. Your effective self-control number for these effects is equal to your Will.

Emergencies can also cause mood swings; in that case, the switch is immediate. On a roll of 10 or less on 3d, you change phases. This can be good (an emergency jars you into action) or bad (a problem triggers depression and you become worthless).

Megalomania

-10 points

You believe you are a superman, that you have been chosen for some great task, or that you are destined to conquer. You must choose a grand goal – most often conquest or the completion of some fantastic task. You must let nothing stand between you and this goal.

You may attract followers with Fanaticism, but nobody else enjoys hearing you talk about your brilliance and great plans. Young or naive characters, and fanatics looking for a new cause, react to you at +2; others will react at -2.

This is a better disadvantage for NPCs than it is for PCs.

Miserliness

-10 points*

You are preoccupied with conserving your wealth. You must always hunt for the best deal possible. Make a self-control roll any time you are called on to spend money. If the expenditure is large, this roll may be at -5 or worse (GM's decision). If you fail, you refuse to spend the money. If you absolutely *must* spend the money, you should haggle and complain interminably. Note that you may have both Greed (p. 137) and Miserliness!

Missing Digit

-2 or -5 points

You are missing a finger or thumb.

Missing Finger: Gives -1 DX with that hand (only). *-2 points.*

Missing Thumb: Gives -5 DX with that hand (only). *-5 points.*

Mistaken Identity

see p. 21

Motion Sickness

-10 points

You are miserable whenever you are in a moving vehicle, be it an automobile, train, airplane, balloon, ship, or spacecraft. You may never learn any vehicle-operation skill. You must roll vs. HT as soon as you are aboard a moving vehicle. On a failure, you vomit and are at -5 on all DX, IQ, and skill rolls for the rest of the journey. On a success, you are merely miserably queasy and at -2 on DX, IQ, and skill rolls. Roll daily on long journeys.

Mundane Background

-10 points

You have a complete lack of experience with the supernatural and the weird. When you first enter play, you can only have mundane skills and equipment. Magic spells, cinematic skills, etc. are off-limits. So are Hidden Lore and Occultism! You *can* have supernatural advantages, but you can neither use them nor learn any skills that would allow you to use them. In fact, you have no idea that you possess such talents, save perhaps for the odd dream now and then. You must buy off this disadvantage if you wish to use supernatural advantages actively or learn *any* skill related to the supernatural or the weird.

Mundane Background is only available in settings with supernatural or weird elements! It is not a valid disadvantage in perfectly mundane game worlds.

Mute

see *Cannot Speak,* p. 125

Neurological Disorder

Variable

You suffer from one of several neurological disorders that cause tremors, involuntary movements, facial contortions, etc. Point value depends on severity:

Mild: Your condition is obvious to anyone who observes you for more than a few seconds. You are at -2 to tasks that involve fine manipulation (see *High Manual Dexterity,* p. 59), and such tasks take twice the normal time. You also have -2 to social skills such as Acting, Leadership, Performance, Public Speaking, and Sex Appeal in any situation where your condition would be apparent (GM's decision). *-15 points.*

Severe: You find it difficult to function in normal society. You are at -4 to tasks that involve fine manipulation, and such tasks take four times as long. Your DX and Basic Move cannot exceed your racial average (DX 10 and Move 5 for a human), and might be lower. You get -4 to social skills whenever your condition becomes apparent. *-35 points.*

Crippling: You find it almost impossible to function in normal society. You are at -6 to tasks that involve fine manipulation, and such tasks take six times as long. Your DX and Basic Move cannot exceed 80% of your racial average (DX 8 and Move 4 for a human), and might be *considerably* lower. You get -6 to social skills most of the time. *-55 points.*

Many other symptoms are possible, including *gross* motor impairment (buy down DX or Move), involuntary vocalizations (treat as Noisy, p. 146), and facial contortions (reduce appearance level; see *Physical Appearance,* p. 21). Violent tics and *profane* involuntary vocalizations might qualify as Odious Personal Habits (p. 22).

Night Blindness

-10 points

You have poor night vision. If the vision or combat penalty for poor lighting is between -1 and -4 for most people, your penalty is the *worse* of double the usual penalty or -3. If the usual penalty is -5 or worse, you function as though you were completely blind (see *Blindness,* p. 124). If you have Acute Vision (p. 35), it only applies in situations with no darkness penalty.

This trait is mutually exclusive with both Night Vision (p. 71) and Dark Vision (p. 47).

Nightmares

-5 points*

You are tormented each night by horrible nightmares. Sometimes they're so harrowing that they affect your efficiency during waking hours. Make a self-control roll each morning upon awakening. If you fail, you suffered nightmares; this costs you 1 FP that you can only recover through sleep. On a roll of 17 or 18, you are left

shaking, and are at -1 to all skill and Perception rolls for the entire day.

These nightmares can be so vivid that they're indistinguishable from reality. The GM might choose to play them out in the game, starting out like a normal scenario and steadily becoming more horrible. The victim should only gradually come to suspect that he is dreaming. Such dreams can have a dramatic effect on the dreamer's waking life, such as temporary Obsessions or Phobias, or even a psychosomatic loss of HP or attribute levels.

If other PCs are involved in the nightmare, they're completely unaffected by anything that occurs there (but if the nightmare takes a long time to play out, the GM might wish to reward the players with a bonus character point as a token of appreciation for their time – maybe two points if they roleplayed the dream-situation particularly well). It's the GM's option whether to let the other players know in advance that the scenario is a dream. Either way can lead to unique and fascinating roleplaying.

No Depth Perception

-15 points

You have two eyes, but you lack effective binocular vision and cannot visually judge distances. This might be due to a vision disorder or a quirk of your racial neurology. The game effects are identical to One Eye (p. 147); you may not take both disadvantages.

No Fine Manipulators

-30 or -50 points

Your body lacks hands and possibly limbs. Point value depends on the extent of your limitation:

No Fine Manipulators: You have no body part more agile than paws or hooves. You cannot use your limbs to make repairs, pick locks, tie knots, wield weapons, etc., or even to grasp firmly. You may only select this trait if you have *nothing* approaching the human hand in terms of overall versatility. If you have a beak, tongue, prehensile tail, etc. that is as good as a hand, you do not have No Fine Manipulators! *-30 points.*

No Manipulators: You have *no* limbs. The only way for you to manipulate objects is to push them around with your body or head. You can still move, and are capable of rolling, wriggling, bouncing, etc. at your Basic Move unless you buy it down to 0. *-50 points.*

Note that this trait is limited to non-humans and supers. Either level qualifies you to buy ST and DX with the -40% No Fine Manipulators limitation.

No Legs

Variable

This disadvantage assumes that your race lacks legs. If your race has legs, but you are missing yours, see *Lame* (p. 141).

You are a member of a legless race. There are several different forms of this trait, but in all cases, you cannot kick, cannot be struck in the legs in combat, and need not wear leg armor. The point costs below assume that the benefit of having no legs for foes to target in combat balances the drawback of being unable to kick.

Aerial: You cannot move on land, but you can hover, glide, or fly. You *must* purchase the Flight advantage (p. 56). Calculate Basic Speed as usual and use twice this value to determine your basic *air* Move, as described for Flight. Your *ground* Move is 0. *0 points.*

Aquatic: You cannot move on land, but you are adapted to movement on or in water, like a ship or a fish. Calculate Basic Move and use this as your basic *water* Move. Your *ground* Move is 0. You suffer no skill penalties for working in or under water. *0 points.* If your mobility depends on fins, masts, paddles, or sails that you can't armor, *or* you can't dive: *-5 points.* If both: *-10 points.*

Bounces, Rolls, or Slithers: You move on land without using legs, like a snake or a wheel-form robot. Work out Basic Move and use it as your ground Move, just as a legged character would. *0 points.*

Semi-Aquatic: You "walk" on flippers, like a seal. Use Basic Move as your basic *water* Move and 1/5 this as your *ground* Move – that is, reverse the normal relationship between ground and water Move. You suffer standard skill penalties in the water. *0 points.*

Sessile: Your base is anchored where you sit, like a tree or a building. You can't move under your own power in *any* environment, and lack the option of using a moving platform (although you can *be* moved, with considerable effort). Your Basic Move is automatically 0, and you get no extra points for this. You can still have manipulators. If so, you wield weapons at no DX penalty, because unlike those with the Lame disadvantage, you have a very stable base! *-50 points.*

Tracked or Wheeled: You have tracks or wheels *instead* of legs. Specify how many – one to four, or any higher *even* number. If using hit locations, treat each track or wheel as if it were a leg. You can neither jump nor negotiate obstacles that require arms and legs working together (e.g., a ladder or rope). You always leave a visible trail (giving others a Tracking bonus: +1 for Wheeled, +2 for Tracked). Tracks are also *noisy* (+2 to all Hearing rolls to detect you), but let you handle rough terrain more easily. Tracked and Wheeled do *not* reduce Move; in fact, you may buy up to three levels of Enhanced Move (Ground). This disadvantage usually accompanies the Machine meta-trait (p. 263). *-20 points.*

These nightmares can be so vivid that they're indistinguishable from reality. The GM might choose to play them out in the game, starting out like a normal scenario and steadily becoming more horrible.

No Manipulators

see *No Fine Manipulators*, p. 145

No Sense of Humor

-10 points

You never get any jokes; you think everyone is earnestly serious at all times. Likewise, you never joke, and you *are* earnestly serious at all times. Others react at -2 to you in any situation where this disadvantage becomes evident.

No Sense of Smell/Taste

-5 points

This affliction – known as *anosmia* – prevents you from smelling or tasting *anything.* Thus, you are unable to detect certain hazards that ordinary people spot quickly. However, the disability has its advantages . . . you need never worry about skunks, and can always eat what is set before you.

Nocturnal

-20 points

You can only be active when the sun is below the horizon. This represents more than a preference for night over day! As soon as dawn starts to break, you become lethargic – and when the sun clears the horizon, you fall paralyzed and comatose until the sun goes down again.

Note that this is *not* the same as the biological term "nocturnal."

Special Enhancements

Permanent Paralysis: You turn to stone or suffer some other permanent incapacitation if struck by the sun's rays. Only one specific power or item – most often a powerful magic spell – can reverse this effect. Details are up to the GM. +100%.

Noisy

-2 points/level

You make a *lot* of noise! Perhaps you're a ghost with clanking chains, a cyborg with a rasping ventilator, or a machine with a loud engine . . . or perhaps you're absurdly inept at stealth.

You make noise constantly – even when standing still – unless you are comatose (for animate beings) or powered down (for machines). Each level gives +2 to Sense rolls to hear you or -2 to your Stealth rolls, as the situation warrants. In some circumstances (e.g., at the opera), each level might also give -1 to reactions! You may not take more than five levels of Noisy without the GM's permission.

Non-Iconographic

-10 points

You are incapable of processing abstract images and symbols. Graphical computer interfaces, maps, heraldic devices, and magical runes are completely meaningless to you. Like Dyslexia (p. 134), this is a structural shortcoming of your *brain;* you cannot normally buy it off.

You cannot learn Cartography, Heraldry, Symbol Drawing, or any similar skill used mainly to design or arrange patterns and symbols. You also cannot use graphical computer interfaces; you are limited to text interfaces and immersive virtual realities. Finally, since you cannot grasp magical symbols, you cannot learn magic save through oral tradition.

Note that you can process *text* without difficulty, and may learn written languages normally (see *Language,* p. 23).

Numb

-20 points

You have no sense of touch. You have a limited degree of pressure sense – enough to feel your weight and stand up and walk without falling over – but you cannot distinguish textures by touch at all. Feats that depend on touch alone (e.g., touch-typing, or untying your hands behind your back) are impossible for you.

When performing a task that requires hand-eye coordination, you suffer all the effects of one level of Ham-Fisted (p. 138) unless you take twice as long to perform the action *and* can clearly see what you're doing. If you also have Ham-Fisted, add its effects.

You experience pain, temperature, and shock as acutely as anyone else, unless you also have High Pain Threshold (p. 59), but you won't know *where* you were injured without looking. Instead, you feel pain as generalized shock throughout your entire body. As a result, you cannot perform First Aid on yourself if you can't see the injury.

Oblivious

-5 points

You understand others' emotions but not their *motivations.* This makes you awkward in situations involving social manipulation. You are the classic "nerd"! You have -1 to use or *resist* Influence skills (see *Influence Rolls,* p. 359): Diplomacy, Fast-Talk, Intimidation, Savoir-Faire, Sex Appeal, and Streetwise.

Obsession

-5 or -10 points*

Your entire life revolves around a single goal. Unlike Compulsive Behavior (p. 128), this is not a daily habit, but an overpowering fixation that motivates all of your actions. And unlike Fanaticism (p. 136), this does not necessarily imply a set of philosophical beliefs.

You must rationalize *all* of your actions as an attempt to reach your goal. Make a self-control roll whenever it would be wise to deviate from your goal. If you fail, you continue to pursue your Obsession, regardless of the consequences.

Point cost depends on the time needed to realize your goal. A short-term goal (e.g., assassinating someone) is worth -5 points, while a long-term goal (e.g., becoming President) is worth -10 points. In both cases, modify the base cost to reflect your self-control number. If your Obsession causes others to react badly, take Odious Personal Habit (p. 22) or Delusion (p. 130) as well.

Should you ever reach your goal, you must either substitute a new goal or buy off your Obsession.

Odious Personal Habits

see p. 22

On the Edge

-15 points*

You take *grossly* unreasonable risks in the face of mortal danger. Make a self-control roll whenever you face a life-threatening situation: piloting a burning vehicle, staring down an entire street gang while armed only with a toothbrush, etc. If you fail, you

may not back down from the challenge – but you may roll again after every success roll or reaction roll relating to the situation. This might be once per second in a potential combat situation but only once per day on a dangerous space mission.

In combat, make a self-control roll every time you take your turn. If you fail, you must make an All-Out attack or engage in some other kind of near-insane, suicidal behavior.

Most people think you're crazy if they witness this behavior, giving -2 on reaction rolls. Individuals who value bravery over self-preservation (GM's decision) will react at +2.

One Arm

-20 points

You have only one arm. You cannot use two-handed weapons, wield two weapons at once (or a weapon and a shield), or perform any task that *requires* two arms. You get -4 on tasks that are *possible* with one arm but that are usually executed with two (e.g., most Climbing and Wrestling rolls). You have no penalty on tasks that require only one arm. In all cases, the GM's ruling is final. When in doubt, try a quick reality check if possible!

If you originally had two arms, assume that you lost the left arm if you were right-handed, or vice versa.

If you are a nonhuman who only had one arm to begin with, your "arm" need not be an arm at all – it can be *any* appendage capable of fine manipulation. For instance, a parrot that used its beak and tongue would have One Arm (and *not* No Fine Manipulators).

If you have advanced prosthetics that cancel One Arm while worn, apply a Mitigator limitation (p. 112). Should you ever eliminate One Arm completely through surgery or an ultra-tech replacement limb, you must pay back the points you received for it.

One Eye

-15 points

You have only one eye. Either you are missing an eye (in which case you may wear a glass eye or cover the missing eye with a patch) or you have only a single, cyclopean eye. You suffer -1 to DX in combat and on any task involving hand-eye coordination, and -3 on ranged attacks (unless you Aim first) and on rolls to operate any vehicle faster than a horse and buggy.

Some cultures regard those who are missing an eye as unattractive. If this is generally true in your game world, losing an eye will *also* reduce your appearance by one level (see *Physical Appearance,* p. 21). If you start with this trait, assume that it is already factored into your appearance – do not apply an additional reaction modifier.

One Hand

-15 points

You have only one hand. For the most part, use the rules under *One Arm* (above). The difference is that you may make unarmed parries with a handless arm, and possibly strap something to it (e.g., a shield).

Good-quality prosthetic replacements use the rules under *One Arm.* Not all prosthetics are good enough to count as Mitigators, though. A low-tech mechanical replacement gives you -2 (for a grabber) or -4 (for a hook or claw) on tasks involving that hand. A hook or claw also counts as an undroppable large knife in combat (use Knife skill), and gives +1 to Intimidation skill if waved at your foes. In some societies, such crude replacements will reduce appearance as described under *One Eye* (above).

Overconfidence

-5 points*

You believe that you are far more powerful, intelligent, or competent than you really are. You may be proud and boastful or just quietly determined, but you must roleplay this trait.

You must make a self-control roll any time the GM feels you show an unreasonable degree of caution. If you fail, you *must* go ahead as though you were able to handle the situation! Caution is not an option.

You receive +2 on all reaction rolls from young or naive individuals (who believe you are as good as you say you are), but -2 on reactions from experienced NPCs.

Overconfidence is like Megalomania (p. 144) on a smaller scale. Robin Hood was overconfident – he challenged strangers to quarterstaff duels. Hitler was a megalomaniac – he invaded Russia! Heroes are rarely megalomaniacal but often overconfident.

Overweight

see p. 19

Pacifism

Variable

You are opposed to violence. This can take several forms. Choose *one* of the following:

Reluctant Killer: You are psychologically unprepared to kill *people*. Whenever you make a deadly attack (e.g., with a knife or a gun) against an obvious person whose face is visible to you, you are at -4 to hit and may not Aim. If you cannot see the foe's face (due to a mask, darkness, or distance, or because you attacked from behind), the penalty is only -2, save in close combat. You have no penalty to attack a vehicle (even an occupied one), an opponent you do not believe is a *person* (including things with Horrific or Monstrous appearance), or a target you can't actually see (e.g., a set of map coordinates or a blip on a radar screen). If you kill a recognizable person, the effect on you is the same as for Cannot Kill (see below). You have no problem with your *allies* killing; you may even supply ammo, loaded weapons, and encouragement! You just can't do the killing yourself. *-5 points.*

Cannot Harm Innocents: You may fight – you may even *start* fights – but you may only use deadly force on a foe that is attempting to do you serious harm. Capture is not "serious harm" unless you are already under penalty of death or have a Code of Honor that would require suicide if captured. You never intentionally do anything that causes, or even threatens to cause, injury to the uninvolved – particularly if they are "ordinary folks." This trait is especially appropriate for crime-fighters, supers, etc. *-10 points.*

Cannot Kill: You may fight – you may even *start* fights – but you may never do anything that seems likely to kill another. This includes abandoning a wounded foe to die "on his own"! You must do your best to keep your companions from killing, too. If you *do* kill someone (or feel responsible for a death), you immediately suffer a nervous breakdown. Roll 3d and be totally morose and useless (roleplay it!) for that many days. During this time, you must make a Will roll to offer any sort of violence toward *anyone,* for *any* reason. *-15 points.*

Self-Defense Only: You only fight to defend yourself or those in your care, using only as much force as necessary (no pre-emptive strikes allowed!). You must do your best to discourage others from starting fights. *-15 points.*

Total Nonviolence: You will not lift a hand against another intelligent creature, for any reason. You must do your nonviolent best to discourage violent behavior in others, too. You are free to defend yourself against attacks by animals, mosquitoes, etc. *-30 points.*

In a high-realism campaign, the GM might require all PCs to start out with Reluctant Killer or even Cannot Kill, giving them extra points but putting them at a disadvantage when facing hardened foes.

Paranoia

-10 points

You are out of touch with reality, and think that everyone is plotting against you. You never trust anyone except old friends . . . and you keep an eye on them, too, just in case. Most people, understandably, react to you at -2. A paranoid NPC reacts at -4 toward *any* stranger, and any "legitimate" reaction penalty (e.g., for an unfriendly race or nationality) is *doubled*. Paranoia goes very well with Delusions (p. 130), which of course have their own disadvantage value!

Phantom Voices

-5 to -15 points

You are plagued by whispered phrases that only you can hear. These voices might be unintelligible, or they might repeat the same words over and over. Eventually, your sanity (such as it is) will start to erode.

In any situation that the GM feels is stressful, he may roll 3d. On a 6 or less, you hear voices. The GM will always roll whenever you miss a Fright Check or make the roll exactly, and whenever you fail a self-control roll for another stress-related disadvantage. The voices occur *in addition to* any other results!

Point value depends on the nature of the voices:

Annoying: You hear voices, but you are reasonably sure that they are not real, and they do not harm you directly. Still, most people who see you responding to unheard noises will react at -2. *-5 points.*

Disturbing: As above, but in addition, the voices can drown out normal sounds, and may even startle and frighten you (possibly requiring a Fright Check). *-10 points.*

Diabolical: The voices tell you to kill – yourself or others – or perform other terrible deeds. If you are already under stress, or under the influence of drugs, you might need to make a Will roll to avoid carrying out the "orders" (GM's discretion). *-15 points.*

Phantom Voices are usually due to mental problems, but they may also be symptomatic of some form of supernatural possession. If so, psychotherapy cannot reveal the cause, much less cure the problem. If you manage to exorcise the evil spirits, you are cured and must buy off this disadvantage.

Phobias

Variable*

You are afraid of a specific item, creature, or circumstance. Many fears are reasonable, but a Phobia is an

unreasonable, unreasoning, morbid fear. The point value depends on how common the object of your fear is – fear of darkness is far more troublesome than fear of left-handed plumbers.

Make a self-control roll whenever you are exposed to the object of your Phobia. If you fail, roll 3d, add the amount by which you failed your self-control roll, and look up the result on the *Fright Check Table* (p. 360). For instance, if your self-control number is 9 but you rolled a 13, roll 3d+4 on the table. The result from the table affects you immediately!

If you succeed, you have successfully mastered your Phobia (for now), but you are still shaken, and have a penalty to all DX, IQ, and skill rolls while the cause of your fear persists. The penalty depends on your self-control number.

Self-Control Number	*Penalty*
6	-4
9	-3
12	-2
15	-1

You must roll again every 10 minutes to see if the fear overcomes you.

Even the mere *threat* of the feared object requires a self-control roll, although this is at +4. If your enemies actually inflict the feared object on you, you must make an unmodified self-control roll, as described above. If you fail, you might break down, depending on the Fright Check results, but you won't necessarily talk. Some people can panic and fall apart, but still refuse to talk – just as some people do not talk under torture.

A phobic situation is by definition stressful. If you have other mental disadvantages that are triggered by stress, you are likely to have these reactions if you fail to resist a Phobia.

Some common phobias:

Being Alone (Autophobia): You cannot stand to be alone, and do anything in your power to avoid it. *-15 points.**

Blood (Hemophobia): The sight of blood gives you the screaming willies! You need to make a self-control roll during most combats . . . *-10 points.**

Cats (Ailurophobia): *-5 points.**

Crowds (Demophobia): Any group of over a dozen people sets off this fear unless they are all well known to you. The self-control roll is at -1 for over 25 people, -2 for a crowd of 100 or more, -3 for 1,000, -4 for 10,000, and so on. *-15 points.**

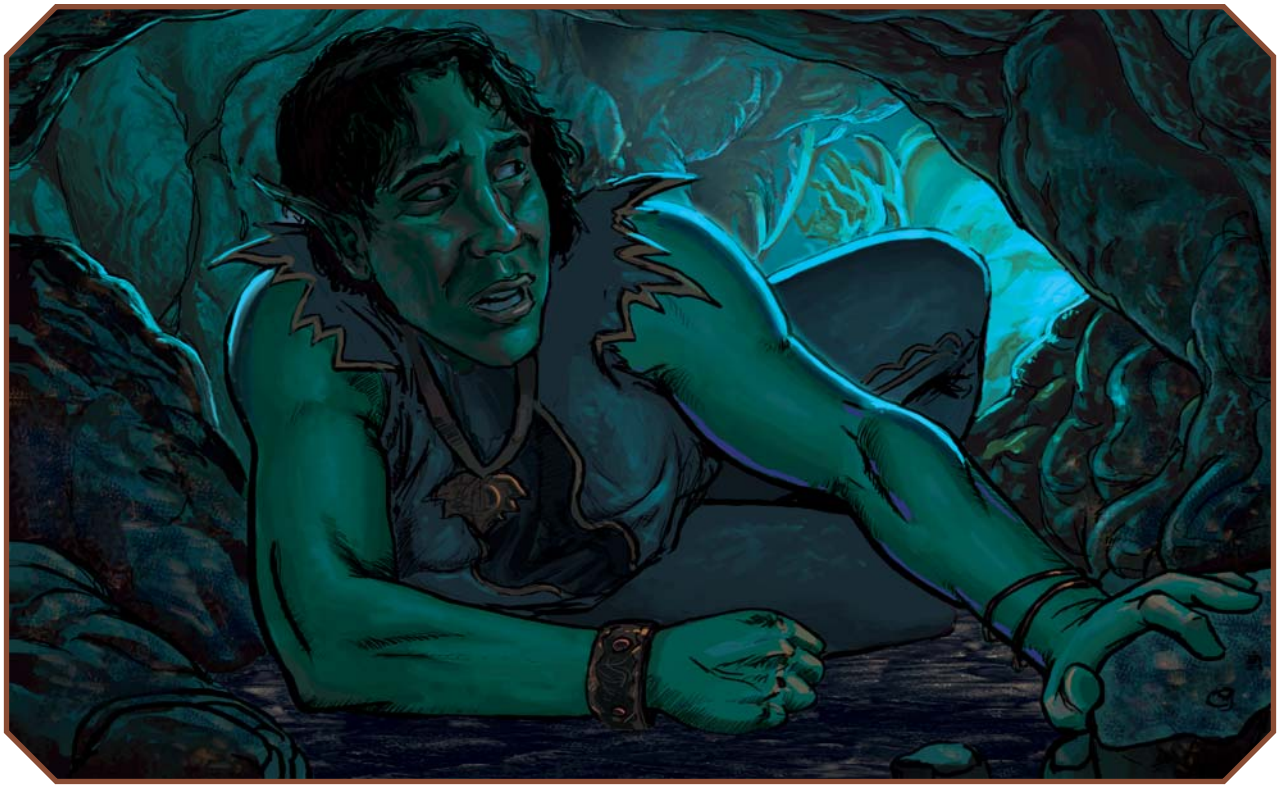
Darkness (Scotophobia): A common fear, but crippling. You should avoid being underground if possible; if something happens to your flashlight or torch, you might well lose your mind before you can relight it. *-15 points.**

Death and the Dead (Necrophobia): You are terrified by the idea of death. Make a self-control roll in the presence of any dead body (animals don't count, but *portions* of human bodies do). Roll at -4 if the body is that of someone you know, or -6 if the body is unnaturally animated in some way. A ghost (or apparent ghost) also requires a roll at -6. *-10 points.**

Dirt (Mysophobia): You are deathly afraid of infection, or just of dirt and filth. Make a self-control roll when you must do something that might get you dirty. Roll at -5 to eat any unaccustomed food. You should act as "finicky" as possible. *-10 points.**

Dogs (Cynophobia): This includes *all* canines: foxes, wolves, coyotes, wild dogs, etc. *-5 points.**

Enclosed Spaces (Claustrophobia): A common, crippling fear. You are uncomfortable any time you can't see the sky – or at least a very high ceiling. In a small room or vehicle, you feel the walls closing in on you . . . You need *air!* This is a dangerous fear for someone who plans to go underground. *-15 points.**



Fire (Pyrophobia): Even a burning cigarette bothers you if it comes within five yards. *-5 points.**

Heights (Acrophobia): You may not voluntarily go more than 15 feet above ground, unless you are inside a building and away from windows. If there is some chance of an actual fall, self-control rolls are at -5. *-10 points.**

Insects (Entomophobia): You are afraid of all "bugs." Large or poisonous ones give -3 to self-control rolls. Very large ones, or large numbers, give -6. Avoid hills of giant ants. *-10 points.**

Loud Noises (Brontophobia): You avoid any situation where loud noises are likely. A sudden loud noise requires an immediate self-control roll. A thunderstorm is a traumatic experience for you! *-10 points.**

Machinery (Technophobia): You can never learn to repair any sort of machine and refuse to learn to use anything more complicated than a crossbow or bicycle. Any highly technological environment calls for a self-control roll; dealings with robots or computers require a roll at -3, and hostility from intelligent machines requires a roll at -6. *-5 points at TL4 or below, -15 points at TL5 or above.**

Magic (Manaphobia): You can never learn to use magic, and you react badly to any user of magic. Make a self-control roll whenever you are in the presence of magic. This roll is at -3 if you are to be the target of friendly magic, and -6 if you are the target of hostile magic. (The magic does not have to be real, if *you* believe in it!) *-15 points in a setting where magic is common, -10 if it is known but uncommon, -5 if "real" magic is essentially unknown.**

Monsters (Teratophobia): Any "unnatural" creature sets off this fear. You have -1 to -4 on the self-control roll if the monster seems very large or dangerous, or if there are a lot of them. Note that the definition of "monster" depends on experience. An American Indian would consider an elephant monstrous, while an African pygmy would not! *-15 points.**

Number 13 (Triskaidekaphobia): You must make a self-control roll whenever you have to deal with the number 13 – visit the 13th floor, buy something for $13.00, etc. Roll at -5 if Friday the 13th is involved! *-5 points.**

Oceans (Thalassophobia): You are afraid of any large body of water. Ocean travel, or even air travel over the ocean, is basically impossible for you, and encounters with aquatic monsters are also upsetting. *-10 points.**

Open Spaces (Agoraphobia): You are uncomfortable whenever you are outside, and actually become frightened when there are no walls within 50 feet. *-10 points.**

Psionic Powers (Psionophobia): You are afraid of those with known psionic powers. An actual exhibition of power in your presence requires a self-control roll. You do not voluntarily allow anyone to use a psionic power on you. The power does not have to be real – all that matters is that *you* believe it is! *-15 points if psi powers are common, -10 if they are uncommon, -5 if they are essentially unknown.**

Reptiles (Herpetophobia): You come unglued at the thought of reptiles, amphibians, and similar scaly slimies. A very large reptile, or a poisonous one, gives -2 to self-control rolls; a horde of reptiles (such as a snake pit) gives -4. *-10 points.**

Sex (Coitophobia): You are terrified by the idea of sexual relations or the loss of your virginity. *-10 points**

Sharp Things (Aichmophobia): You are afraid of anything pointed. Swords, spears, knives, and hypodermic needles all give you fits. Trying to use a sharp weapon, or being threatened with one, requires a self-control roll at -2. *-15 points at TL5 or below, -10 at TL6 or above.**

Spiders (Arachnophobia): *-5 points.**

Strange and Unknown Things (Xenophobia): You are upset by any sort of strange circumstances, and in particular by strange *people*. Make a self-control roll when surrounded by people of another race or nationality; roll at -3 if the people are not human. If you lose control, you might well attack strangers out of fear. *-15 points.**

Sun (Heliophobia): *-15 points.**

Weapons (Hoplophobia): The presence of any sort of weaponry is stressful. Trying to use a weapon, or being threatened with one, requires a self-control roll at -2. *-20 points.**

Post-Combat Shakes

-5 points*

You are shaken and sickened by combat, but only *after* it's over. Make a self-control roll at the end of any battle. It is up to the GM to determine when a battle has truly ended, and he may apply a penalty if the combat was particularly dangerous or gruesome. If you fail, roll 3d, add the amount by which you failed your self-control roll, and look up the result on the *Fright Check Table* (p. 360). For instance, if your self-control number is 12 but you rolled a 14, roll 3d+2 on the table. The result from the table affects you immediately!

Pyromania

-5 points*

You like fires! You like to set fires, too. For good roleplaying, you must never miss a chance to set a fire, or to appreciate one you encounter. Make a self-control roll whenever you have an opportunity to set a fire.

Quadriplegic

-80 points

You are paralyzed in all your arms and legs, or lack limbs entirely. You can neither manipulate objects nor move yourself without assistance. You suffer all the bad effects of Paraplegic (see *Lame,* p. 141) and No Manipulators (see *No Fine Manipulators,* p. 145). If the GM is enforcing a disadvantage limit, Quadriplegic counts against the limit – but you may reduce ST and DX by up to four levels each *without* the resulting disadvantage points counting against the limit (points gained from further reductions count normally).

For rules governing prosthetic limbs and surgical cures, see *Lame* (p. 141) and *One Arm* (p. 147) for legs and arms, respectively.

Reprogrammable

-10 points

You can be programmed to obey a master. If you have Slave Mentality (p. 154), you must obey slavishly, and remain strictly within the letter of your master's commands. If you lack Slave Mentality, you may interpret his orders creatively, as long as you

remain within either their letter or spirit (your choice). If you are nonsentient (IQ 0), you have no interest in doing anything *but* following your programming!

You may have both Duty and Reprogrammable. If so, you must do your best to fulfill both obligations. Should the two come into conflict, your programming always comes first.

This trait is most appropriate for golems, mindless undead, robots, and similar automata. It is rarely suitable for PCs, and the GM may choose to forbid it entirely.

Reputation

see p. 26

A negative reputation counts as a disadvantage. Note it as such on your character sheet!

Restricted Diet

-10 to -40 points

You require a specialized food or fuel that is hard to come by. Unlike Dependency (p. 130), you do not take damage if you go without . . . you just can't eat or refuel, which will eventually incapacitate you. Point value depends on the rarity of the item you consume:

Rare: Dragon's blood, exotic nutrient mixture, weapons-grade uranium. *-40 points.*

Occasional: Virgin's blood, rocket fuel, babies, radioactives. *-30 points.*

Common: Human flesh, gasoline, liquid hydrogen. *-20 points.*

Very Common: Fresh meat, *any* hydrocarbon fuel (gasoline, diesel, etc.), electric batteries, fresh blood. *-10 points.*

Restricted Diet *is* appropriate for normal humans with chronic gastrointestinal disorders.

Special Limitations

Substitution: You can try to consume a food or fuel similar to the one you require. For instance, a cyborg that requires exotic nutrients could try ordinary human food, or a machine that requires gasoline could try diesel. This sustains you, but you must make a HT roll after each meal or refueling. Failure means your HT attribute drops by one until you receive appropriate medical or mechanical attention. Critical failure means an incapacitating reaction (GM's decision): severe immune response, engine failure, etc. Those who lack this limitation but for some reason attempt substitution derive no sustenance at all *and* must still make the HT roll above; treat success as failure and failure as critical failure. -50%.

Restricted Vision

-15 or -30 points

You have an unusually narrow field of vision. A normal character can see a 120° arc in front of him without turning his head, and has 30° of peripheral vision to either side, giving him a 180° "arc of vision" for observation and ranged attacks. On a battle map, this means he has three "front" hexes, two "side" hexes ("left" and "right"), and a single "back" hex. Your vision is considerably more restricted. This comes in two levels:

No Peripheral Vision: Your arc of vision is a 120° wedge to the front. On a map, your "left" and "right" hexes become "back" hexes – that is, you have three "back" hexes, and get *no* defense against attacks originating from these hexes! *-15 points.*

Tunnel Vision: Your arc of vision is a *60°* wedge to the front. On a map, your only "front" hex is the one directly ahead of you. The hexes to either side of this are "side" hexes: you are at -2 to defend against attacks from these hexes, and can only attack into those hexes with a Wild Swing. Everything else is a "back" hex, as above. *-30 points.*

Revulsion

-5 to -15 points

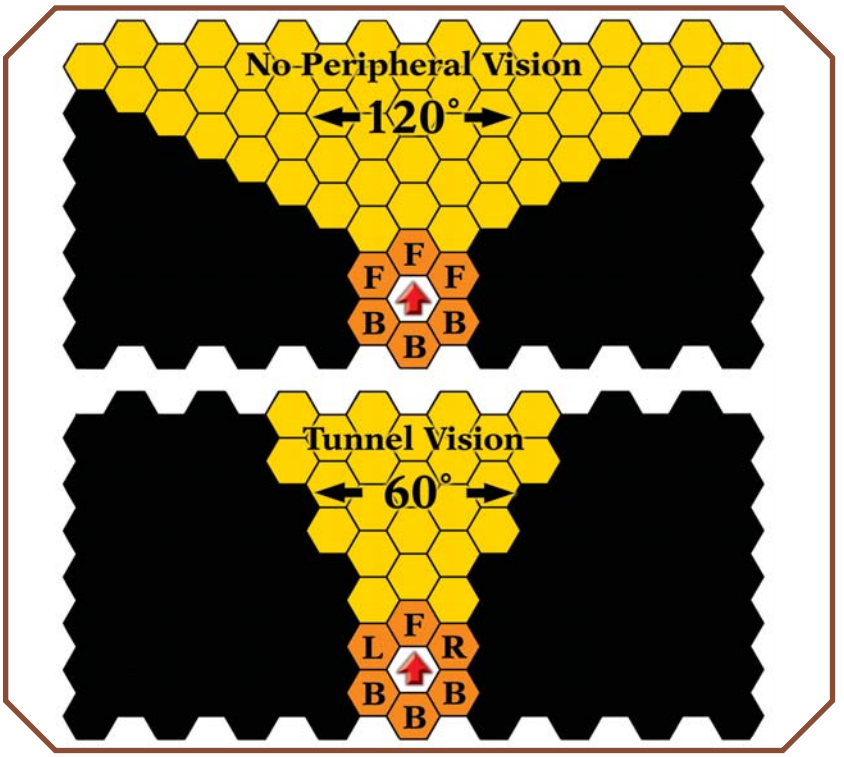
You have an incapacitating supernatural reaction to an ordinarily innocuous substance. If you touch or breathe the substance, you must immediately make a HT roll. On a failure, you are at -5 to all skills and attributes for the next 10 minutes. If you *ingest* the substance, you are at -5 to attributes and -10 to all skills and Sense rolls for 10 minutes. Point value depends on the rarity of the substance:

Occasional (leather, soap): *-5 points.*

Common (smoke, wood): *-10 points.*

Very Common (grass, metal): *-15 points.*

This reaction is physical in nature. For mental aversions, see *Dread* (p. 132).



Sadism

-15 points*

You delight in cruelty . . . mental, physical, or both. Make a self-control roll whenever you have an opportunity to indulge your desires and know you shouldn't (e.g., because the prisoner is one who should be released unharmed). If you fail, you cannot restrain yourself. Those who become aware of your problem react at -3 unless they are from a culture that holds life in little esteem.

This is a particularly "evil" trait, more appropriate to villainous NPCs than to heroic PCs. The GM may completely prohibit Sadism if he does not want anyone roleplaying it in his campaign.

It is possible, though despicable, to possess both Bully (p. 125) *and* Sadism.

Secret

-5 to -30 points

A Secret is an aspect of your life or your past that you must keep hidden. Revelation would result in lasting negative consequences. The point value depends on the severity of those consequences:

Serious Embarrassment: If this information gets around, you can forget about ever getting a promotion, getting elected, or marrying well. Alternatively, revelation of your Secret might simply attract unwelcome public attention. *-5 points.*

Utter Rejection: If your Secret is revealed, it will change your whole life. Perhaps you will lose your job and be rejected by friends and loved ones. Perhaps admirers, cultists, long-lost relatives, or the press will harass you. *-10 points.*

Imprisonment or Exile: If the authorities uncover your Secret, you'll have to flee, or be imprisoned for a long time (GM's discretion). *-20 points.*

Possible Death: Your Secret is so terrible that you might be executed by the authorities, lynched by a mob, or assassinated (by the Mafia, CIA, etc.) were it revealed. You would be a hunted man. *-30 points.*

Frequency of Appearance

In general, a Secret appears in a particular game session if the GM rolls a 6 or less on 3d before the adventure begins. However, as for all other disadvantages of this type, the GM need not feel constrained by the appearance roll. If he thinks that the Secret should come into play, it does!

When a Secret appears in play, it is not automatically made public. The GM will give you a chance to prevent your Secret from being revealed. This might require you to cave in to blackmail or extortion, steal incriminating documents, or even silence the person who knows the Secret. Regardless of the solution, however, it's only temporary – the Secret will appear again and again until either you buy it off with earned character points or it is finally revealed.

Effects of Revelation

If a Secret is made public, there is an immediate negative effect ranging from serious embarrassment to possible death, depending on the severity of the Secret (see above). There is also a lasting effect: you suddenly acquire new, permanent disadvantages – or lose advantages – worth points equal to *twice* what the Secret was worth! These new disadvantages replace the Secret on your character sheet, and reduce your point value accordingly.

The GM chooses the new disadvantages and lost advantages, which should always be appropriate to the Secret. Most Secrets turn into Enemies (p. 135), negative Reputations (p. 26), and Social Stigmas (p. 155), or reduce or remove advantages described under *Wealth and Influence* (pp. 25-30). Some could even turn into mental or physical disadvantages.

Example: A city guardsman has a -20-point Secret: at night, he is a thief. When he is finally caught and brought to justice, his Secret is revealed and immediately replaced with *-40* points in disadvantages and lost advantages! The GM rules that he is stripped of his 5-point Legal Enforcement Powers (-5 points), gains Social Stigma (Criminal Record) (-5 points), and is punished by having his right hand chopped off (One Hand, -15 points) and being forced to pay reparations that reduce his Wealth from Average to Poor (-15 points).

Secret Identity

Variable

A Secret Identity is a special kind of Secret (above): it is another *persona* that you use for deeds that you don't want connected with your "public" self. Only your closest family and friends know, and you are willing to go to great lengths to keep your privacy. This is a disadvantage because it limits your behavior. It is difficult (and often illegal) to maintain a Secret Identity.

The GM will roll to see whether your Secret Identity factors into a game session, just as for any Secret. If it does, this usually takes the form of someone who threatens to expose your real identity. Anyone with Status 3 or higher gets an extra -10 points for a Secret Identity, because of the attention the media and public pay to his every move, but the GM will introduce a challenge to his identity on a roll of 7 or less instead of the usual 6 or less.

A Secret Identity otherwise works just like any other Secret, its point value depending on the severity of the consequences should it be exposed.

Self-Destruct

-10 points

As soon as you reach your aging threshold (age 50 for a normal human), your organs and immune system begin to fail. You start to age rapidly, making aging rolls every *day* at -3 to HT.

You cannot get points for both this disadvantage and Terminally Ill (p. 158). If you are going to self-destruct *soon*, take Terminally Ill instead of Self-Destruct.

Selfish

-5 points*

You are self-important and status-conscious, and spend much of your time striving for social dominance. Make a self-control roll whenever you experience a clear social slight or "snub." On a failure, you lash out at the offending party just as if you had Bad Temper (p. 124) – likely resulting in a bad reaction (-3 to the target's reactions toward you) and putting you in an awkward social situation.

Selfish NPCs react to perceived slights at a penalty:

Self-Control Number	*Penalty*
6	-5
9	-4
12	-3
15	-2

Selfless

-5 points*

You are altruistic and self-sacrificing, and put little importance on personal fame and wealth. You must make a self-control roll to put your needs – even survival – before those of someone else. A Selfless *race* will have a "hive mentality."

Semi-Upright

-5 points

You have a semi-upright posture, like a chimpanzee. You can stand up more-or-less comfortably, allowing you to use your forelimbs to bash enemies, hold babies, or even manipulate objects. You can manage a clumsy gait while upright (-40% to Move), but you must use all of your limbs to run at full Move. If you have DX 12 or more, you can carry a small object or two while walking.

Sense of Duty

-2 to -20 points

You feel a strong sense of commitment toward a particular class of people. You will never betray them, abandon them when they're in trouble, or let them suffer or go hungry if you can help. This is different from a Duty (p. 133), which is imposed upon you. A Sense of Duty always comes from within.

If you are *known* to have a Sense of Duty, the GM will adjust the reactions of others by +2 when rolling to see whether they trust you in a dangerous situation. However, if you go against your Sense of Duty by acting against the interests of those you are supposed to be looking out for, the GM will penalize you for bad roleplaying.

The GM will assign a point value to your Sense of Duty based on the size of the group you feel compelled to aid:

Individual (the President, your wingman, etc.): *-2 points.*

Small Group (e.g., your close friends, adventuring companions, or squad): *-5 points.*

Large Group (e.g., a nation or religion, or everyone you know personally): *-10 points.*

Entire Race (all humanity, all elves, etc.): *-15 points.*

Every Living Being: -20 points.

You cannot claim points for a Sense of Duty toward Allies, Dependents, or Patrons. The point costs of these traits *already* take such a bond into account.

You *can* take a Sense of Duty toward adventuring companions. If you do, you must share equipment with and render aid to the other members of your adventuring party, and go along with majority decisions. The GM might make this mandatory in games where the party *needs* to get along. This gives everyone a "free" 5 points to spend . . . but if you start backstabbing, running off on your own, etc., the GM is free to overrule your actions and point to these bonus points as the reason why.

Shadow Form

-20 points

See p. 83. If you cannot turn this ability off, it is a disadvantage.

Short Attention Span

-10 points*

You find it difficult to concentrate on a single task for longer than a few minutes. Make a self-control roll whenever you must maintain interest in something for an extended period of time, or whenever a distraction is offered. If you fail, you *automatically* fail at the task at hand. The GM might give you a small bonus to the self-control roll in situations where concentration is crucial, such as when your survival is at stake.

Short Lifespan

-10 points/level

Your lifespan is *much* shorter than the human norm. Each level of this disadvantage halves your lifespan (round down). This affects the age at which you reach maturity, the ages at which aging rolls begin and increase in frequency, and the interval between aging rolls; see the table (above right). No more than four levels are possible. Short Lifespan is often found in conjunction with Self-Destruct (p. 153).

Level	*Maturity*	*Aging [Frequency of Aging Rolls]*		
0 (Human)	18 years	50 years [1 year]	70 years [6 months]	90 years [3 months]
1	9 years	25 years [6 months]	35 years [3 months]	45 years [45 days]
2	4 years	12 years [3 months]	17 years [45 days]	22 years [22 days]
3	2 years	6 years [45 days]	8 years [22 days]	11 years [11 days]
4	1 year	3 years [22 days]	4 years [11 days]	5 years [5 days]

Shyness

-5, -10, or -20 points

You are uncomfortable around strangers. Roleplay it! This disadvantage comes in three levels; you can buy it off one level at a time.

Mild: You are uneasy with strangers, especially assertive or attractive ones. You have -1 on skills that require you to deal with people, including Acting, Carousing, Diplomacy, Fast-Talk, Intimidation, Leadership, Merchant, Panhandling, Performance, Politics, Public Speaking, Savoir-Faire, Sex Appeal, Streetwise, and Teaching. *-5 points.*

Severe: You are very uncomfortable around strangers, and tend to be quiet even among friends. -2 the skills listed above. *-10 points.*

Crippling: You avoid strangers whenever possible. You may not learn the skills listed above *at all,* and are at -4 on default rolls on such skills. *-20 points.*

Skinny

see p. 18

Slave Mentality

-40 points

You have no initiative, and become confused and ineffectual without a "master" to give you orders. You must make an IQ roll at -8 before you can take any action that isn't either obeying a direct order or part of an established routine. As well, you *automatically* fail any Will roll to assert yourself or resist social influence except in circumstances where the GM rules that success might be possible, in which case you roll at -6.

This doesn't necessarily imply low IQ or Will. You might be intelligent enough to obey the command, "Program the computer to detect quarks," but if you were starving and found $10, you would have to roll vs. IQ-8 to decide to pick up the money and go buy food without being told to do so. Similarly, you might be strong-willed enough to make all your Fright Checks in the presence of terrifying monsters, yet roll at Will-6 to resist the unsubtle manipulations of an obvious con man.

This disadvantage is rarely appropriate for PCs, and the GM may choose to forbid it entirely.

Sleepwalker

-5 points*

You walk in your sleep ("somnambulate"). This is merely annoying or embarrassing under most circumstances (unless you fall down the stairs), but it can be very dangerous to sleepwalk while encamped in hostile territory!

If sleepwalking would matter during an adventure, the GM will make a self-control roll for you whenever you go to sleep. If you fail, you sleepwalk sometime during the night. You wake up after walking for 1d minutes, or if someone awakens you. The GM will make DX rolls to see if you trip while going down stairs or walking over rough ground – if this happens, you wake up suddenly and are mentally stunned.

You are considered to be in a hypnagogic state while sleepwalking, and thus are very susceptible to telepathic influences. If *you* possess supernatural abilities, you might use these while sleepwalking (e.g., if you have Warp, you might "sleepwarp" instead).

Sleepy

Variable

This is a racial trait. Members of the race need to sleep more than the human norm of 1/3 of the time. Point value depends on the fraction of the time they must spend asleep:

Time Spent Asleep	*Cost*
1/2 of the time	-8 points
2/3 of the time	-16 points
3/4 of the time	-20 points
7/8 of the time	-26 points

The race's precise schedule is a "special effect." For instance, a race that sleeps 3/4 of the time might be awake and active for three days straight and then sleep for a full nine days.

Sleepwalking is merely annoying or embarrassing under most circumstances, but it can be very dangerous to sleepwalk while encamped in hostile territory!

This trait can also represent *hibernation.* For instance, if a race is awake and active on a human schedule for six months, and then hibernates for two months straight, then *on the average,* that's equivalent to sleeping 1/2 of the time.

Slow Eater

-10 points

You spend a *lot* of your time eating. Each meal takes about two hours, as opposed to about 1/2 hour for most humans. This reduces the time available for study, long tasks, and travel on foot by 4 1/2 hours per day.

Slow Healing

-5 points/level

Your body heals very slowly. Each level (maximum three levels) *doubles* the interval between HT rolls to regain lost HP: roll every two days for Slow Healing 1, every four days for Slow Healing 2, and every eight days for Slow Healing 3. Take Unhealing (p. 160) if you heal even more slowly. Each level also doubles the time allowed between Physician rolls when under the care of a competent physician (see *Medical Care,* p. 424).

Normal humans may take no more than one level of Slow Healing.

Slow Riser

-5 points

You are not a "morning person." For one hour after you awaken from any sleep longer than a one-hour nap, you have -2 on all self-control rolls and -1 to IQ and IQ-based skills. Furthermore, whenever the GM assesses attribute penalties for missed sleep, you suffer an *extra* -1.

Social Disease

-5 points

You have contracted a contagious, antibiotic-resistant bacteria, retrovirus, or similar disease. This is only transmitted by close, unprotected physical contact. Those who know about it react to you at -1 and automatically resist your seduction attempts. The disease isn't fatal – at least not immediately – but may produce physical symptoms (left to the imagination of the player or GM).

Social Stigma

-5 to -20 points

You belong to a race, class, sex, or other group that your society deems inferior. To be worth points, this must be obvious from your physical appearance (a visible brand, tattoo, or magical mark counts), dress, manner, or speech; *or* easily learned by anyone who cares to check up on you (only valid in societies with free and easy access to information); *or* the result of public denouncement (e.g., by a powerful leader or media figure) that ensures that everyone you meet knows that you, personally, belong to the disdained group.

A Social Stigma gives you a reaction penalty (-1 per -5 points of Social Stigma), restricts your social mobility, or both. Examples include:

Criminal Record: You have been convicted of a crime that your society considers serious. You may be prohibited from legally acquiring certain items (e.g., weapons), taking certain kinds of employment, receiving security clearances, or even traveling outside your country. Many noncriminals who learn of your past react at -1; police, judges, vigilantes, and other law-and-order types usually react at -2. If you are also *wanted,* take an appropriate Enemy. *-5 points.*

Disowned: Your family has publicly snubbed you. This is only worth points in settings where family ties play a significant social role, and never applies to those who *voluntarily* part ways with their family. This Social Stigma comes in two levels:

- You would normally be an heir in your culture, but someone else has been named in your stead. This is embarrassing, but you may still count yourself as part of the family. This gives -1 on reaction rolls. *-5 points.*
- The head of your family – or your entire *clan* – has wholly and publicly disowned you. This gives -2 on reaction rolls. *-10 points.*

Excommunicated: Your church has cast you out. Followers of your faith react to you at -3. This is only a disadvantage if you are excommunicated by a powerful and widespread religion (most likely state-backed) that plays a significant role in day-to-day life. *-5 points.*

If your religion has true supernatural power, and you are surrounded by an aura that conveys your shame to co-religionists, angels, and anyone else who would care, no matter how well you disguise yourself, your Social Stigma is worth twice as much. *-10 points.*

Ignorant: You have not learned a skill required of all responsible adults in your society (that is, you have no points in the skill). Others look down upon you as a slacker or a fool. This gives -1 on reactions for each "expected" skill you lack, up to a maximum of four skills. This is only worth points in highly structured societies, or in primitive ones where individuals depend on one another for survival. *-5 points/skill.*

Minor: You are underage by your culture's standards. You suffer -2 on reaction rolls whenever you try to deal with others as an adult; they might like you, but they do not fully respect you. You might also be barred from nightclubs, vehicle operation, war parties, guild membership, etc., depending on the culture and setting. You must buy off this trait when you reach "legal age" (usually 18) for your time and place. *-5 points.*

Minority Group: You are a member of a minority that the dominant culture around you regards as "barbarians" or "inferior." You get -2 on all reaction rolls made by anyone except your own kind. In an area, profession, or situation where your minority is *especially* rare, you get +2 on reaction rolls made by your own kind. *-10 points.*

Monster: You are a large carnivore, magical abomination, or other being that is hated or feared regardless of *actual* appearance or disposition. This gives you -3 on all reaction rolls, and you are liable to be hunted on sight. However, you get +3 to Intimidation rolls in situations where you have the upper hand (GM's opinion). *Examples:* a bear or a vampire. *-15 points.*

Second-Class Citizen: You belong to a group that receives fewer rights and privileges than "full citizens." This gives -1 on all reaction rolls except from others of your own kind. *Examples:* a woman in 19th-century America, or members of some religions. *-5 points.*

Subjugated: You are a member of a slave nation or race. Within the overlords' culture, you have *no* rights, and suffer the negative effects of Second-Class Citizen *and* Valuable Property. If you manage to escape to freedom, you acquire the entire overlord nation or race as an Enemy. *-20 points.*

Uneducated: You are from a class, race, or subculture that lacks a cultural repository of wisdom, eschews formal schooling, and takes a dim view of activities that do not relate directly to survival or procreation. You receive -1 to reactions from more sophisticated folk in any situation where your lack of schooling would be apparent, and you may not start with any "book-learned" skills (GM's discretion; most IQ/Hard skills qualify). You may buy off this trait once you have lived in "civilized" parts for long enough (GM's decision). *-5 points.*

Valuable Property: Your society regards you as somebody's property rather than as a "legal person." This takes the form of limited freedom or lack of intellectual respect more than as a reaction modifier. *Examples:* a woman in 18th-century America or 16th-century Japan. *-10 points.*

Social Stigmas *must* bind those who take them. For example, a medieval Japanese lady must pay for her 10-point bonus by giving up her freedom of movement in many cases, and must defer to older male relatives when they are present. A black slave in 19th-century America is allowed to learn very little and own almost no property, and has little freedom of any kind unless he manages to escape. (If he does escape, he has traded his Social Stigma for a powerful Enemy!)

It is possible to have multiple Social Stigmas, provided they do not significantly overlap (GM's decision). For instance, a teenager who drops out of school and joins a street gang could believably end up with Minor, Uneducated, *and* Criminal Record.

Space Sickness

-10 points

You are miserable in free fall. You can never learn Free Fall skill; you must always roll at default. In addition, you are at -4 on your HT roll to avoid "space adaptation syndrome" (see p. 434) – and if you fail the first HT roll, the only way for you to recover is to return to normal gravity.

This trait is only allowed in campaigns that feature regular space travel.

Split Personality

-15 points*

You have two or more distinct personalities, each with its own set of behavior patterns. They may interpret their memories differently, and even use different names.

For each personality, select a "package" of mental disadvantages and up to five quirks. The GM may also permit variations in IQ, Perception, Will, and mental advantages, where these would make sense. Each package of mental traits must be worth the same number of points. When calculating the value of your character, count the "package price" *once* – not once for each personality. *All* your personalities have the same physical traits and skills (although some personalities might not use certain skills), and share any mental trait that is not part of one of these packages.

Example: Bob Smith has three personalities. "Col. Smith" is a stern disciplinarian with Delusion ("I am a military officer") [-10], Code of Honor (Soldier's) [-10], and the quirk "Stands on ceremony" [-1]. "Bobby" is a party animal with -2 to Will [-10], Compulsive Carousing (6) [-10], and the quirk "Sleeps all day and goes out at night" [-1]. "Smitty" is a troublemaker with Overconfidence (12) [-5], Trickster [-15], and the quirk "Steals for fun" [-1]. All three personalities share all of Bob's other traits. Each package totals -21 points. Bob's player claims the -21 points *once*. With -15 points for Split Personality (12), the total point value is -36 points.

You must make a self-control roll in any stressful situation (but no more than once per hour of game time). On a failure, one of your other personalities emerges, and you behave according to its mental disadvantages and quirks. If there are several possibilities, the GM should either choose a personality appropriate to the situation or roll randomly.

All your personalities are somewhat shallow and affected, which gives -1 to reactions at all times. Those who witness a personality change will feel (possibly with justification) that you are a dangerous nutcase, and react at -3.

Squeamish

-10 points*

You dislike "yucky stuff": little bugs and crawly things, blood and dead bodies, slime, etc. When exposed to such things, you react just as if you had a Phobia; see *Phobias,* p. 148. Note that you do *not* suffer from the standard fears of insects, reptiles, dirt, and the dead! What bothers you isn't huge bugs or reptiles, ordinary "clean" dirt, and ghosts; it's nasty creepy things, filth, and bits of grue.

Status

see p. 28

Status below 0 is a disadvantage. Almost everyone reacts negatively to you!

Stress Atavism

Variable*

This disadvantage is normally available only to characters who are members of races "uplifted" from an animal state.

You temporarily "regress" when frightened, angered, fatigued, or injured. Make a self-control roll in those situations. On a failure, you behave like an animal, acting on impulse and instinct.

Once the stressful situation has passed, make a self-control roll every minute. If friends comfort you, roll at +2. If one of these people has Animal Empathy or Empathy, apply an additional +2. On a success, the attack ends and you return to normal. If you pass out from fatigue or injury before you succeed, you recover automatically when you wake up.

Point value depends on the severity of the attacks:

Mild: You have trouble speaking, and must roll vs. IQ to utter a sentence. You cannot operate complicated machinery, although you may attack wildly with weapons (-4 to hit). *-10 points.**

Moderate: You suffer from all of the above problems, and have trouble understanding commands from others as well: roll vs. IQ to *understand* a sentence spoken by someone else. If you are attacked or challenged, you must make a self-control roll to avoid acting "on instinct." *-15 points.**

Severe: You cannot speak or understand others, or use tools (except possibly as clubs), and automatically act on instinct at all times. You behave like your primitive ancestors! *-20 points.**

Stress Atavism may result in additional troublesome behavior. Pick a suitable mental disadvantage, halve its value (drop all fractions), and add this point cost to the above costs *before* applying the self-control multiplier.

Stubbornness

-5 points

You always want your own way. Make yourself generally hard to get along with – roleplay it! Your friends may have to make a lot of Fast-Talk rolls to get you to go along with perfectly reasonable plans. Others react to you at -1.

Stuttering

-10 points

You suffer from a stammer or other speech impediment. This gives -2 on any reaction roll where conversation is required, and -2 to Diplomacy, Fast-Talk, Performance, Public Speaking, Sex Appeal, and Singing. Certain occupations (interpreter, newsreader, etc.) are always closed to you.

Supernatural Features

Variable

You have disturbing features that mark you as a demon, vampire, or other supernatural being. You can pass for a normal mortal to casual observers, but closer inspection reveals that you are *not quite right*. This might give away your secret to the trained eye.

Supernatural Features differ from Unnatural Features (p. 22) in that they *aren't* usually obvious; they only become apparent under a specific set of circumstances. When they *are* noticed, though, they result in a reaction penalty. They also give those who know what to look for a bonus to any skill roll (against Hidden Lore, Occultism, etc.) made to identify your true nature.

Supernatural Features can accompany appearance levels Hideous through Transcendent (see *Physical Appearance*, p. 21). You cannot get points for Supernatural Features if you are Monstrous or Horrific, however. If you look *that* scary, you're not hiding any secrets!

No Body Heat: You are cold to the touch. -1 on reaction rolls made by those who touch you, shake your hand, kiss you, etc.; +1 on all rolls to deduce your secret. *-5 points (-1 point if you can gain warmth temporarily; e.g., after feeding, for a vampire).*

No Reflection: You produce no reflection. You do not show up in mirrors, still water, and similar reflective surfaces, and technological devices such as cameras do not display your image. In some places and times, people will assume that you have no soul! -2 on reaction rolls made by those who notice; +2 on all rolls to deduce your secret. *-10 points.*

No Shadow: You produce no shadow, regardless of the intensity or direction of the light source. -2 on reaction rolls made by those who notice; +2 on all rolls to deduce your secret. *-10 points.*

Pallor: You look like a corpse, with bloodless skin, sunken eyes, etc. -2 on reaction rolls made by anyone who can see you without makeup in good light; +2 on all rolls to deduce your secret. *-10 points (-5 points if you can gain the flush of life temporarily; e.g., after feeding, for a vampire).*

Supersensitive

-15 points

You are telepathically sensitive to the presence of others *all the time.* You experience a constant, irritating buzz of low-level psychic noise. This does not imply any kind of useful telepathic ability – the thoughts and emotions you receive remain just below the threshold of conscious understanding.

If there are *any* sapient beings (IQ 6+) with 20 yards, you suffer -1 to DX and IQ. This becomes -2 for 10 or more people, -3 for 100 or more, -4 for 1,000 or more, and so on. If DX or IQ drops below half its original score because of this penalty, you collapse and can take no action until the "noise" goes away. Machine intelligences and individuals behind telepathic shielding (psionic, technological, or otherwise) do not bother you.

There is one beneficial side effect to Supersensitive: the psychic noise you receive warns you if there are people within 20 yards, and the noise level tells you roughly how many. The noise is too diffuse to let you determine their locations, however.

Susceptible

Variable

You are extremely sensitive to a particular class of noxious items or substances; e.g., disease or poison. You have a penalty to all HT rolls to resist the negative effects of these things. You do not suffer extra damage, however; for that, see *Vulnerability* (p. 161).

If you are exposed to trace quantities of an item to which you are Susceptible – a dose so tiny that it would not affect most people – you must roll against HT+1, modified by your usual penalty for this disadvantage. If you fail, you suffer *half* the effects (fatigue, injury, attribute loss, period of incapacitation, etc.) you would suffer from a full dose. For instance, Susceptible to Poison would require a roll if you ingested highly diluted industrial waste in drinking water, while Susceptible to Disease would require a roll if you received a "live" vaccine (one that contains weakened microbes). Should there be any doubt as to exposure or effects, the GM's decision is final.

Point cost depends on the item's rarity *in the environment:*

Very Common (e.g., Disease, Poison): *-4 points/-1 to HT rolls.*

Common (e.g., Bacteria, Gases): *-2 points/-1 to HT rolls.*

Occasional (e.g., Intestinal Disease, Ingested Poison): *-1 point/-1 to HT rolls.*

You may not take more than five levels of Susceptible to a given item, or more than two separate Susceptible disadvantages, without the GM's permission. You cannot take more levels of Susceptible than would reduce your effective HT to 3. For instance, if your HT is 7, you are limited to four levels of Susceptible. If you have any form of Resistant (p. 80) that protects against a given item, you cannot also be Susceptible to that item.

This trait can simulate many common health problems. Use Susceptible to Disease for a weak immune system, Susceptible to Ingested Poison for a tendency not to vomit up noxious substances (a "weak vomit reflex"), etc.

Terminally Ill

-50, -75, or -100 points

You are going to die . . . soon. This could be due to a nasty disease, a potent curse, an irremovable explosive device embedded in the base of your skull, or something else that will result in certain death. Point cost depends on how much time you have left:

Time Until Death	*Cost*
Up to one month	-100 points
Up to one year	-75 points
Up to two years	-50 points

More than two years is worth nothing. Anyone might be hit by a truck in that time!

If you acquire a "miracle cure," upload yourself into a new body, or otherwise extend your life past your termination date during the course of the campaign, you must buy off this disadvantage. If you cannot afford to do so, the GM is free to make up the difference with new disadvantages related to your illness or its cure (e.g., Chronic Pain, Dependency, Maintenance, or Susceptible).

If the GM is running a one-shot adventure or short campaign, he should disallow this disadvantage as meaningless.

A Trademark is an action separate from capturing the crooks, committing the crime, etc. Destroying files on a computer is not a Trademark; trashing them by substituting a "7" for each "5" is.

Timesickness

-10 points

Time travel, dimension travel, and teleportation make you ill. You cannot have psionic talents, magic spells, or technological skills that have to do with this kind of travel, nor can you learn the Body Sense skill. You must make a HT roll whenever you journey through time or across dimensions, and whenever you teleport. On a failure, you are effectively *stunned* for 1d hours (doubled on a critical failure!). On a success, you are only stunned for 1d×10 minutes.

Timesickness is only allowed if dimension travel, teleportation, or time travel occur regularly in the campaign. The GM may wish to permit a variation on this trait in settings with faster-than-light hyperdrives ("Hypersickness") or jump drives ("Jump Sickness").

Total Klutz

see ***Klutz,*** p. 141

Trademark

-5 to -15 points

You have a special symbol – something that you leave at the scene of action, as a way of "signing your work." The classic fictional example is the carved initial "Z" of Zorro.

Simple: Your Trademark takes very little time to leave and cannot be used to trace your identity, but you absolutely *must* leave it. You cannot leave the scene until you do, even if your enemies are breaking down the door. A typical example is something left at the scene – a playing card, a small stuffed animal, etc. – as long as it can't be traced and takes little time. *-5 points.*

Complex: As above, but leaving your Trademark measurably increases your chances of being caught – initial carving, notes, traceable clues, etc. Leaving this sort of Trademark takes a minimum of 30 seconds. Anyone searching the scene receives +2 to Criminology and Forensics rolls to trace or identify you. *-10 points.*

Elaborate: Your trademark is so elaborate – dousing the captured thugs with a certain cologne, painting the entire crime scene pink, writing a long poem to the police – that it virtually ensures your eventual capture. The GM may give investigators clues *without* a successful Criminology or Forensics roll! *-15 points.*

You may have only one Trademark. Multiple actions (e.g., binding your victims with purple phone wire, painting a frog on the wall, *and* wrecking every computer in the building) simply give you a higher level of Trademark – they are *not* multiple Trademarks.

Note also that a Trademark is an action separate from capturing the crooks, committing the crime, etc. It's the particular *way* that it is done. Destroying files on a computer is not a Trademark; trashing them by substituting a "7" for each "5" is.

Trickster

-15 points*

You crave the excitement of outwitting *dangerous* foes. This is not ordinary practical joking. Playing simple tricks on innocent or harmless folk is no fun at all – it has to be perilous! There may be no need for this at all (in fact, there probably isn't), but you need the thrill of a battle of wits and dexterity.

Make a self-control roll each day. If you fail, you must try to trick a dangerous subject: a skilled warrior, a dangerous monster, a whole *group* of reasonably competent opponents, etc. If you resist, you get a cumulative -1 per day to your self-control roll until you finally fail a roll!

Truthfulness

-5 points*

You hate to tell a lie – or you are just very bad at it. Make a self-control roll whenever you must keep silent about an uncomfortable truth (lying by omission). Roll at -5 if you actually have to *tell* a falsehood! If you fail, you blurt out the truth, or stumble so much that your lie is obvious. You have a permanent -5 to Fast Talk skill, and your Acting skill is at -5 when your purpose is to deceive.

Uncontrollable Appetite

-15 points*

You consume something that you must obtain from other sapient beings through force or guile, and you have difficulty controlling your appetites. You must specify what it is you crave. This could be blood, "life force," sex, or anything else the GM permits.

Whenever you have an opportunity to indulge, you must make a self-control roll. Roll at -2 if someone deliberately tempts you, or if the item you feed on is available in large quantities within range of your senses. If feeding would restore lost HP, this roll is at -1 per missing HP. If you fail, you *must* feed. Make a second self-control roll to stop feeding once you have had your fill. If you fail, you go into frenzy and overindulge, which could kill your victim.

Unfit

-5 or -15 points

You have worse cardiovascular health than your HT alone would indicate. This comes in two levels:

Unfit: You get -1 to all HT rolls to remain conscious, avoid death, resist disease or poison, etc. This does *not* reduce your HT attribute or HT-based skills! As well, you lose FP at twice the normal rate. *-5 points.*

Very Unfit: As above, but the penalty to HT rolls is -2. In addition, you *recover* FP at only half the normal rate. You may not purchase any level of Resistant (p. 80). *-15 points.*

In both cases, this disadvantage applies only to FP lost to exertion, heat, etc. It has no effect on FP "spent" to power psi or magic spells.

Unhealing

-20 or -30 points

You cannot heal *naturally.* You get no daily HT roll to recover lost HP, and you cannot recuperate from crippling injuries on your own. The First Aid skill can stop your bleeding, but neither it nor the Physician skill can restore missing HP. Technologies that accelerate natural healing (including herbs, drugs, etc.) are useless. This trait comes in two levels:

Partial: You can heal naturally if a rare condition is met (e.g., when you are immersed in blood or bathed in lava). You can also heal yourself by stealing HP from others using Vampiric Bite (p. 96), magic, or psionics. *-20 points.*

Total: You can *never* heal naturally, and you cannot steal HP from others. *-30 points.*

Depending on your nature, you might be able to regain lost HP and the use of crippled limbs *unnaturally* through surgery, repairs (if you're a machine), or exotic means (healing spells, alchemy, psionics, etc.).

Unique

-5 points

You exist only in one timeline. If a time paradox occurs, you have no memory of it. If it is particularly severe, you are likely to vanish. In most settings, you would be unaware of this danger until it happened . . . and then nobody would even remember you! Thus, this disadvantage is usually inappropriate for PCs.

In an alternate-world campaign, being Unique means that you do not exist in any form in an alternate world, even one very much like your own. This deprives you of the chance to befriend "yourself" when you visit such a world. There is one benefit, though: you are effectively Zeroed (p. 100) at no point cost in any alternate world.

Unique is only a disadvantage in campaigns in which paradoxes or changes in history – erasing past events or whole timelines – are possible. See *Temporal Inertia* (p. 93) for the opposite of this trait.

Unluckiness

-10 points

You have rotten luck. Things go wrong for you – and usually at the worst possible time. Once per play session, the GM will arbitrarily and maliciously make something go wrong for you. You miss a vital die roll, or the enemy (against all odds) shows up at the worst possible time. If the plot of the adventure calls for something bad to happen to someone, it's *you.* The GM may *not* kill you outright with "bad luck," but anything less than that is fine. (For *lethally* bad luck, see *Cursed,* p. 129.)

If you wish, you may specify a recurring "theme" for your Unluckiness – for instance, your weapons tend to break, you're always 5 minutes late, or objects have a nasty habit of falling on your head. The GM should do his best to make your Unluckiness work this way. However, this is a characterization tool and not a hard-and-fast game mechanic. Bad luck can *always* manifest in other ways if the GM wants to keep you on your toes!

You have rotten luck. If the plot of the adventure calls for something bad to happen to someone, it's you. The GM may not kill you outright with "bad luck," but anything less than that is fine.

Unnatural Features

see p. 22

Unusual Biochemistry

-5 points

You can subsist on human food, but your biochemistry is sufficiently different from that of humans that drugs intended for humans don't work or have unpredictable effects. Drugs that are specific to your biochemistry work normally, but cost 10 times as much as usual.

When you receive a drug intended for humans, roll 1d:

1-3 – Normal effect.

4-5 – Normal effect, plus an additional harmful effect of the GM's choosing: lose 1d FP (sickness and nausea), suffer an amplified version of the drug's usual negative side effects, etc.

6 – No effect at all.

Very Fat

see p. 19

Very Unfit

see *Unfit,* above

Vow

-5 to -15 points

You have sworn an oath to do (or not to do) something. Whatever the oath, you take it seriously; if you didn't, it would not be a disadvantage. This trait is especially appropriate for knights, holy men, and fanatics.

The point value of a Vow should be directly related to the inconvenience it causes you. The GM is the final judge. Some examples:

Minor Vow: Silence during daylight hours; vegetarianism; chastity (yes, for game purposes, this is *minor*). *-5 points.*

Major Vow: Use no edged weapons; keep silence at all times; never sleep indoors; own no more than your horse can carry. *-10 points.*

Great Vow: Never refuse any request for aid; always fight with the wrong hand; hunt a given foe until you destroy him; challenge every knight you meet to combat. *-15 points.*

Note that if you could represent your Vow using another disadvantage, you only get points for one of the two disadvantages (your choice). No one may get points for Vow (Poverty) *and* Wealth (Dead Broke), Vow (Never kill) *and* Pacifism (Cannot Kill), etc.

Many Vows end after a specified period of time. You must buy off such a Vow when it ends. Vows for a period of less than a year are frivolous! If you want to end a Vow before its stated time, the GM may exact a penalty; for instance, in a medieval world, you might have to undertake a quest by way of penance.

Vulnerability

Variable

You take extra damage from a particular attack form. Whenever this type of attack hits you, the GM applies a special wounding multiplier to damage that penetrates your DR. Regular wounding multipliers (for cutting, impaling, etc.) *further* multiply the damage.

Example: A werewolf with Vulnerability (Silver ×4) is nicked with a silver knife for 1 point of cutting damage. The GM multiplies this by 4 for Vulnerability, giving 4 points of damage, and then multiplies by 1.5 for a cutting attack. The final injury is 6 HP.

Point value depends on the wounding multiplier and the rarity of the attack:

Vulnerability Table

Rarity of Attack	*Wounding Multiplier* ×2	×3	×4
Rare	-10 points	-15 points	-20 points
Occasional	-20 points	-30 points	-40 points
Common	-30 points	-45 points	-60 points
Very Common	-40 points	-60 points	-80 points

Use the categories under *Limited Defenses* (p. 46) to assess rarity. The GM has the final say on the rarity of a given attack form. You may not take more than two types of Vulnerability without GM permission.

You *cannot* have Vulnerability to anything against which you have a specific defense: Resistant, Damage Resistance limited to work only against that attack form, etc. You can have both Vulnerability and Supernatural Durability (p. 89), but this reduces the utility of Supernatural Durability.

Special Limitations

Fatigue Only: You are vulnerable to an attack that drains FP instead of HP, or to some form of mundane fatigue loss (e.g., ×2 FP from hot weather). -50%.

Weak Bite

-2 points

Your jaw is not structured to make full use of your strength while biting. Calculate biting damage normally, then apply an extra -2 *per die.* This trait is common for large herbivores (e.g., horses), uncommon for small herbivores and omnivores, and very rare for carnivores.

Weakness

Variable

You suffer injury merely by being in the presence of a particular substance or condition (which cannot be a food item or something equally easy to avoid). This injury comes off your HP *directly,* regardless of your DR or defensive advantages. The more quickly you take damage, the more points your Weakness is worth:

Frequency of Damage	*Value*
1d per minute	-20 points
1d per 5 minutes	-10 points
1d per 30 minutes	-5 points

Multiply the base value to reflect the rarity of the damaging substance or condition:

Rare (e.g., exotic radiation or minerals): ×*1/2*.

Occasional (e.g., microwave radiation, intense normal cold, airborne pollen): ×*1*.

Common (e.g., smoke, nearby magic, horses, loud noises): ×*2*.

Very Common (e.g., sunlight, living plants): ×*3*.

Example: An anaerobic organism takes 1d per minute from oxygen. The base value of a Weakness that inflicts 1d per minute is -20 points. Since oxygen is "Very Common," final cost is -60 points.

You may not take more than two types of Weakness without GM permission.

Special Limitations

Fatigue Only: Your Weakness drains FP instead of HP. -50%.

Variable: Your Weakness is sensitive to received intensity. You may specify one relatively common class of barriers that halves the rate at which you take damage (e.g., heavy clothing or sunscreen, for sunlight). On the other hand, intense sources (GM's decision) *double* the rate at which you suffer harm! -40%.

Wealth

see p. 25

Below-average levels of Wealth are a disadvantage; be sure to note them on your character sheet.

Weirdness Magnet

-15 points

Strange and bizarre things happen to you with alarming frequency. You are the one demons stop and chat with. Magic items with disturbing properties find their way to you. The only talking dog on 21st-century Earth comes to you with his problems. Dimensional gates sealed for centuries crack open just so that you can be bathed in the energies released . . . or perhaps the entities on the other side invite you to tea.

Nothing lethal happens to you, at least not immediately, and occasionally some weirdness is beneficial. But most of the time it is terribly, terribly inconvenient. People who understand what a Weirdness Magnet is (and that you are one) react to you at -2. The exceptions are parapsychologists, fringe cultists, unhinged conspiracy theorists, and thrill-seekers, who follow you around!

Workaholic

-5 points

You tend to drive yourself past your limits, and find it hard to relax and turn away from your work. You always work at least half again as long as a normal working day. This often results in missed sleep (see *Missed Sleep*, p. 426). Most people regard you with respect at first (+1 to reaction rolls), but you eventually suffer -1 or -2 to reactions – especially from friends and loved ones who rarely get to spend time with you.

Wounded

-5 points

You have an open wound that will not completely heal, for whatever reason (botched surgery, backfired healing spell, etc.). You are not missing any HP, but your wound serves as a path for infection and toxins, and may complicate new injuries.

A foe who knows about your wound may deliberately target it, at -7 to hit. Such attacks have a wounding multiplier of 1.5 (that is, you take 50% more damage). Blood agents that reach your wound affect you as if carried on a weapon that broke your skin. You must carefully dress your wound each day (requires a First Aid or Physician roll) or get -3 to all HT rolls to resist infection in a plague-ridden area.

At the GM's option, you may acquire a wound like this in play due to torture, scalping, etc. Certain wounds have other effects; for instance, scalping would cost you a level of appearance.

Example of Character Creation (cont'd)

Dai believes he can steal anything and escape any situation. He *definitely* suffers from Overconfidence (p. 148)! This trait is worth "-5 points*." The "*" indicates a trait that requires a self-control number. To avoid crippling Dai, we decide that he can set his attitude aside to weigh risks "quite often," or on a 12 or less. Overconfidence (12) is worth the listed cost: -5 points.

To play up Dai's twitchy, catlike side, we decide that because of his high Perception and Danger Sense, almost any little disturbance wakes him up. This gives him Light Sleeper (p. 142), for -5 points.

Finally, since an overconfident thief isn't a typical team player, Dai needs a reason to stay with ISWAT. We decide that he has come to see those in his squad as a replacement for the "family" slain by the Thieves' Guild. Although he'd never admit it, he would die rather than let anything bad happen to *this* family. We represent this with a Sense of Duty (p. 153) to his squad – a small group – for -5 points.

These disadvantages come to -15 points. This lowers Dai's running point total to 208 points.

Note that when we looked at Dai's wealth and influence, we chose Duty (ISWAT; 15 or less; Extremely Hazardous) and Wealth (Poor) – another -35 points of disadvantages. And Dai also got -20 points for ST 8 and -6 points for FP 10. In a campaign with a disadvantage limit, the entire -76 points from these traits would count against the limit.

Xenophilia

-10 points*

You are instinctively fascinated and attracted by strangers and aliens, no matter how dangerous or frightening they appear to be. Make a self-control roll whenever you meet someone (or some*thing*) like this. If you fail, you assume that this person is interested in interacting with you socially. A xenophile finds himself offering drinks to glaring foreign soldiers, making passes at cute vampires, and shaking tentacles with Things Man Was Not Meant To Know while his companions are pointing weapons or running the other way . . .

As partial compensation, you get a bonus to Fright Checks when meeting strange creatures

Self-Control Number	*Bonus*
6	+4
9	+3
12	+2
15	+1

NPCs with this trait will react to exotic PCs at a similar bonus.

QUIRKS

A "quirk" is a minor feature that sets you aside from others. It has a negative point value, but it is not *necessarily* a disadvantage. For instance, a major trait like Greed is a disadvantage. But if you insist on being paid in gold, that's a quirk.

You may take up to five quirks at -1 point apiece . . . and if you do, you will have five more points to spend. You can also "buy off" a quirk later on by *paying* 1 point, but as a rule, you shouldn't do that. Quirks might have a small cost, but they are a big part of what makes a character seem "real"!

Quirks can be either mental or physical. This distinction implies for quirks exactly what it implies for advantages and disadvantages.

MENTAL QUIRKS

Mental quirks are minor personality traits. They are a contract between you and the GM: "I agree to roleplay these character foibles. In return, you agree to give me a few extra points to spend." However, you *must* roleplay them. If you take the quirk "Dislikes heights," but blithely climb trees and cliffs whenever you need to, the GM

will penalize you for bad roleplaying. The points you lose this way will cost you much more than you earned for taking the quirk. So don't choose a quirk you aren't willing to roleplay!

This doesn't mean the GM should be inflexible about mental quirks. A player should be allowed to *change* a quirk if something happens during play to justify a noticeable change in his character's personality. The GM should also allow players to leave a few of their five "quirk slots" open during character creation and fill them in after the first couple of play sessions. The most interesting quirks often emerge as the *result* of roleplaying!

To qualify as a mental quirk, a personality trait must meet one of two criteria:

- It requires a specific action, behavior, or choice on your part from time to time. This need not take hours, or be especially inconvenient, but it must be something that you can act out in the course of the game; it *cannot* be totally passive.
- It gives you a *small* penalty very occasionally, or to a narrow set of actions. Negotiate the game effects with the GM. You may take almost any mundane mental disadvantage at quirk level, in which case the rules for that disadvantage are used as guidelines, although the effects will be much less severe.

Example: "Wears black" is not a valid quirk – it is completely passive, and there are no negative side effects. "Dresses like the stereotypical necromancer" *is* a permissible quirk if the player and GM agree that it gives -1 to reactions from unusually pious folk.

Attentive

You tend to stick to one task until it's done. You get a +1 bonus when working on lengthy tasks, but -3 to *notice* any important interruption!

Broad-Minded

A trivial form of Xenophilia (p. 162). You get along well with other races and species, and strange looks rarely bother you.

Careful

A quirk-level version of Cowardice (p. 129). You are naturally cautious, always on the lookout for danger. You dedicate extra time and money to preparations before venturing into a dangerous situation.

Chauvinistic

An extremely low level of Intolerance (p. 140). You are always aware of differences in sex, skin color, etc. even if you do not actually react poorly to others. Thin-skinned individuals might occasionally react to you at -1 as a result.

Code of Honor

You may take a minor Code of Honor (p. 127) as a quirk. For instance, you might insist on exhibiting "gentlemanly" behavior toward all females, or spurning "chauvinistic" behavior from all males.

Congenial

This is a milder version of Chummy (p. 126). You like company and you work well with others. You always choose group action over individual action.

Delusions

You may take a completely trivial Delusion (p. 130) as a quirk. This does not affect your everyday behavior, and is unlikely to be noticed by casual acquaintances, but you must *believe* it! *Examples:* "The Earth is flat." "The Pentagon controls the Boy Scouts and the health food stores." "Socks cause diseases of the feet."

Dislikes

You can have any of the Phobias on p. 148 at the level of a mere "dislike." If you dislike something, you must avoid it whenever possible, but it does not actually *harm* you as a Phobia would. Dislikes don't *have* to be watered-down Phobias. There is a whole world full of things to dislike: carrots, cats, neckties, violence, telephones, telephone *solicitors,* income tax . . .

Distractible

Quirk-level Short Attention Span (p. 153). You are easily distracted, and don't do well on long-term projects. You are at -1 when rolling to accomplish long tasks.

Dreamer

You have a -1 on any long task, because you tend to spend time thinking of better ways to do it, rather than working.

Dull

You are not quite Hidebound (p. 138), but you tend to stick with tried and true methods.

Habits or Expressions

Saying "Jehoshaphat!" or "Bless my collar-button" constantly. . . or carrying a silver piece that you flip into the air . . . or never sitting with your back to the door.

Humble

A weak form of Selfless (p. 153). You tend to put the concerns of others, or of the group, before your own.

Imaginative

You are a font of ideas, and are more than willing to share them with others! They may or may not be *good* ideas, of course . . .

Incompetence

You are *inept* at one specific skill. You cannot learn that skill, and your default is at an extra -4. You cannot be incompetent in a single specialty of a skill; if you are incompetent with Guns, for instance, you are incompetent with *all* guns. The GM may disallow Incompetence if the skill would be irrelevant to a given character, or is unlikely to play a role in the campaign.

Likes

If you like something, you will seek it out whenever possible. Gadgets, kittens, shiny knives, ceramic owls, fine art . . . whatever. This is not a compulsion – just a preference.

Minor Addiction

You may take Addiction (p. 122) as a quirk, if you are addicted to a drug that causes psychological dependency and works out to 0 points under the Addiction rules.

Nosy

A lesser version of Curious (p. 129). You are always poking your nose into corners and everyone else's business (which is likely to result in a small reaction penalty once in a while).

Obsessions

You may take an almost-rational and not especially unusual Obsession (p. 146) as a quirk, to reflect a minor goal. For instance, you hope to get just enough money to buy a farm (or boat, or spaceship, or castle) of your own.

Personality Change

This is quirk-level Split Personality (p. 156). You suffer from a full-blown mental disadvantage, but only in circumstances that are normally under *your* control; e.g., Bully when you drink too much, or Pyromania when you cast your Create Fire spell.

Proud

This is Selfish (p. 153) at quirk level. Individual success, wealth, or social standing concerns you greatly. NPCs with this quirk react at -1 to orders, insults, or social slights.

Responsive

A mild case of Charitable (p. 125). You are able to imagine the feelings and motivations of others – and all other things being equal, you are inclined to help them.

Staid

You may take this very low level of Incurious (p. 140) as a quirk. You are likely to ignore matters that don't immediately affect you.

Trademark

A quirk-level Trademark (p. 159) takes almost no time to leave, cannot be used to trace your identity, and can be overlooked when inconvenient.

Example of Character Creation (cont'd)

Now it's time to define Dai's quirks – five *minor* character traits that help to define his personality. We choose the following:

1. "Dislikes deep water." Thieves' Guild enforcers threw the young Dai off a pier, and he nearly drowned. To this day, he is leery of deep water.
2. "Loves high places." Given Dai's gifts, he can get to some very high places indeed. When he cases a joint, he *always* wants a view from the top.
3. "No drugs or alcohol." Dai is no Puritan, but growing up on the streets he saw too many people destroy themselves that way.
4. "Sensitive about his height." Dai is self-assured, but he cannot deny one *physical* shortcoming: he isn't very tall. This is a topic best avoided in conversation . . .
5. "Showoff." Dai isn't *quietly* overconfident. He has more than his fair share of natural talents, and is all too happy to demonstrate them.

Dai's quirks are worth -1 point apiece, or -5 points total. As a result, his point total becomes 203 points.

Uncongenial

A lesser version of Loner (p. 142). You prefer to be alone. You always choose individual action over group action.

Vow

A trivial Vow (p. 160) – e.g., never drink alcohol, treat all ladies with courtesy, or pay 10% of your income to your church – is a quirk.

Physical Quirks

Physical quirks are physical disadvantages that are only mildly or rarely limiting. They do not require roleplaying, but they give specific, *minor* penalties in play.

Unlike mental quirks, you cannot normally change physical quirks – that would make no more sense than exchanging One Eye for One Hand, under most circumstances. Also, you must define physical quirks when you create your character; you cannot use them to fill open "quirk slots" once the campaign begins.

Acceleration Weakness

You are susceptible to the bad effects of extreme acceleration, and get -3 to HT rolls to avoid them.

Alcohol Intolerance

Alcohol "goes right to your head." You become intoxicated much more quickly than normal. You get -2 on any HT roll related to drinking.

Bowlegged

You are bowlegged. This doesn't normally affect Move, but you have -1 to Jumping skill. This quirk may elicit a -1 reaction from those who think it looks funny.

Cannot Float

You always sink in water. This is most applicable to machines, but it might also afflict fantasy races or result from a curse.

Distinctive Features

You have a physical feature – e.g., "Brilliant blue hair" – that makes you stand out in a crowd. This gives -1 to your Disguise and Shadowing skills, and +1 to others' attempts to identify or follow you. Some Distinctive Features may stem from full-blown disadvantages. For instance, an albino (someone with no natural body pigment, resulting in pink eyes and pink-white hair and skin) would also have Weakness (Sunlight). Compare *Supernatural Features* (p. 157) and *Unnatural Features* (p. 22).

Horrible Hangovers

You suffer an additional -3 to any penalties the GM assesses for excessive drinking the previous evening, and add three hours to hangover duration.

Minor Addiction

You may take Addiction (p. 122) as a quirk, if you are addicted to a drug that causes physiological dependency and works out to 0 points under the Addiction rules.

Minor Handicaps

You may take most mundane physical disadvantages at quirk level; for instance, you could use a watered-down version of Lame for a "bum knee." Difficulties rarely crop up, but are genuinely inconvenient when they do. If you have this kind of handicap, the GM may give you -1 to attribute, skill, or reaction rolls, as appropriate, in situations where it would logically interfere.

Nervous Stomach

You have -3 to HT rolls to avoid illness (typically in the form of attribute penalties or vomiting) brought on by rich or spicy food, strong drink, etc.

Neutered or Sexless

You are missing sex organs that someone of your race, sex, and age would normally possess – or perhaps you are a genuinely sexless being that only *looks* like someone of a particular race and sex. This might qualify you for reduced appearance, Social Stigma, or Unnatural Features in some settings. However, there are minor benefits: you are immune to seduction and will never accidentally become a parent. This is more than simple sterility (which is a feature worth 0 points).

New Disadvantages

The GM is welcome to develop new disadvantages. The guidelines given under *New Advantages* (p. 117) apply here as well – but note that it is easier to abuse disadvantages than advantages. A badly designed advantage might be too powerful, but it costs points, so it isn't a free lunch. On the other hand, a disadvantage that does not restrict the character *gives away points*. It *is* a free lunch! Remember the "golden rule" of disadvantage design:

A "disadvantage" that does not limit the character is not a disadvantage.

Modifying Existing Disadvantages

You can turn existing disadvantages into new ones using the processes recommended for advantages: rename, redefine, combine, modify, and fine-tune. For instance, you could combine the modified disadvantage Weakness (Sunlight; 1d/30 minutes; Variable, -40%) [-9] with the quirk Distinctive Features [-1] and rename it "Albinism," giving you a new disadvantage worth -10 points. There are a few additional points to note when doing this kind of thing.

Some existing disadvantages are essentially "user-defined." This property makes them particularly useful for building "new" disadvantages. The most versatile traits of this kind are Addiction, Code of Honor, Compulsive Behavior, Delusions, Dependency, Destiny, Disciplines of Faith, Dread, Fanaticism, Increased Life Support, Intolerance, Maintenance, Obsession, Odious Personal Habits, Phobias, Restricted Diet, Revulsion, Sense of Duty, Susceptible, Unnatural Features, Vows, Vulnerability, and Weakness.

When combining multiple disadvantages to create new ones, remember that advantages can be added to the mix, reducing the value of the composite disadvantage. For instance, a positive Reputation can be associated with a "good" personality trait (such as Honesty or Sense of Duty) that is considered a disadvantage in ***GURPS*** because it restricts the hero's choice of actions. If the restrictions outweigh the reaction bonus, the overall trait is still a disadvantage.

Finally, when you apply limitations (pp. 110-116) to a disadvantage, remember that they *reduce* the points gained from the disadvantage. For instance, if you apply an Accessibility limitation worth -40% to a -15-point disadvantage, it becomes a -9-point disadvantage. See the "special limitations" throughout this chapter for examples of suitable limitations. (A few disadvantages have special enhancements that *increase* disadvantage value, but these are less common.)

Brand-New Problems

The guidelines for creating totally new disadvantages are similar to those for designing entirely new advantages (p. 118):

1. Situational penalties to attributes. Assume that each -1 to an attribute is worth a basic -10 points for ST or HT, or -20 points for DX or IQ, and then reduce the final cost to reflect the limited circumstances under which the penalty applies. For instance, Susceptible to Poison (-2) is -2 to HT (base cost -20 points), reduced to 40% its normal value because it applies only to rolls to resist poison – which are common enough but still a specialized use of HT – for a net value of -8 points.

2. Penalties to skill rolls. Handle skill penalties using the Incompetence quirk (p. 164). This gives -1 point for each -4 to a specific skill. These skill penalties are *not* symmetrical with the skill bonuses given on p. 118. This is intentional! It reflects the reality that most players select skills for which their characters have an aptitude and ignore those at which their characters are inept. The Incompetence penalty can be changed to -3 or -5 without much effect on game balance, but it must apply to a reasonably common skill to be worth points at all.

Price a blanket penalty to an entire *group* of related skills exactly as if you were pricing a Talent (p. 89), but with minus sign in front of the cost. This makes a penalty to a group of skills a far more serious disadvantage than a penalty to one skill. This reflects the fact that it is difficult to work around ineptitude with *every* skill in a large, useful category.

3. Penalties to reaction rolls. Reaction penalties use the Reputation rules on p. 26. As explained for new advantages, these modifiers need not be *actual* Reputations – they could as easily be due to looks, a supernatural aura, etc.

4. Unique disabilities. You can only price unique disadvantages by comparison. Look at comparable disadvantages in the system and assign a similar point value, and then adjust it if the new disadvantage is more or less limiting than the existing one.

Finalizing the Cost

The final cost of a disadvantage equals the sum of the costs of its component parts, modified for rarity as the GM sees fit. A rare disadvantage is sometimes worth *more* points because it is less likely to be treatable, or because it is more likely to generate shock and disgust on a bad reaction roll. A common disadvantage may be worth fewer points by the same logic – that is, it is easy to circumvent using technology, or its social ramifications are mitigated by others' indifference.

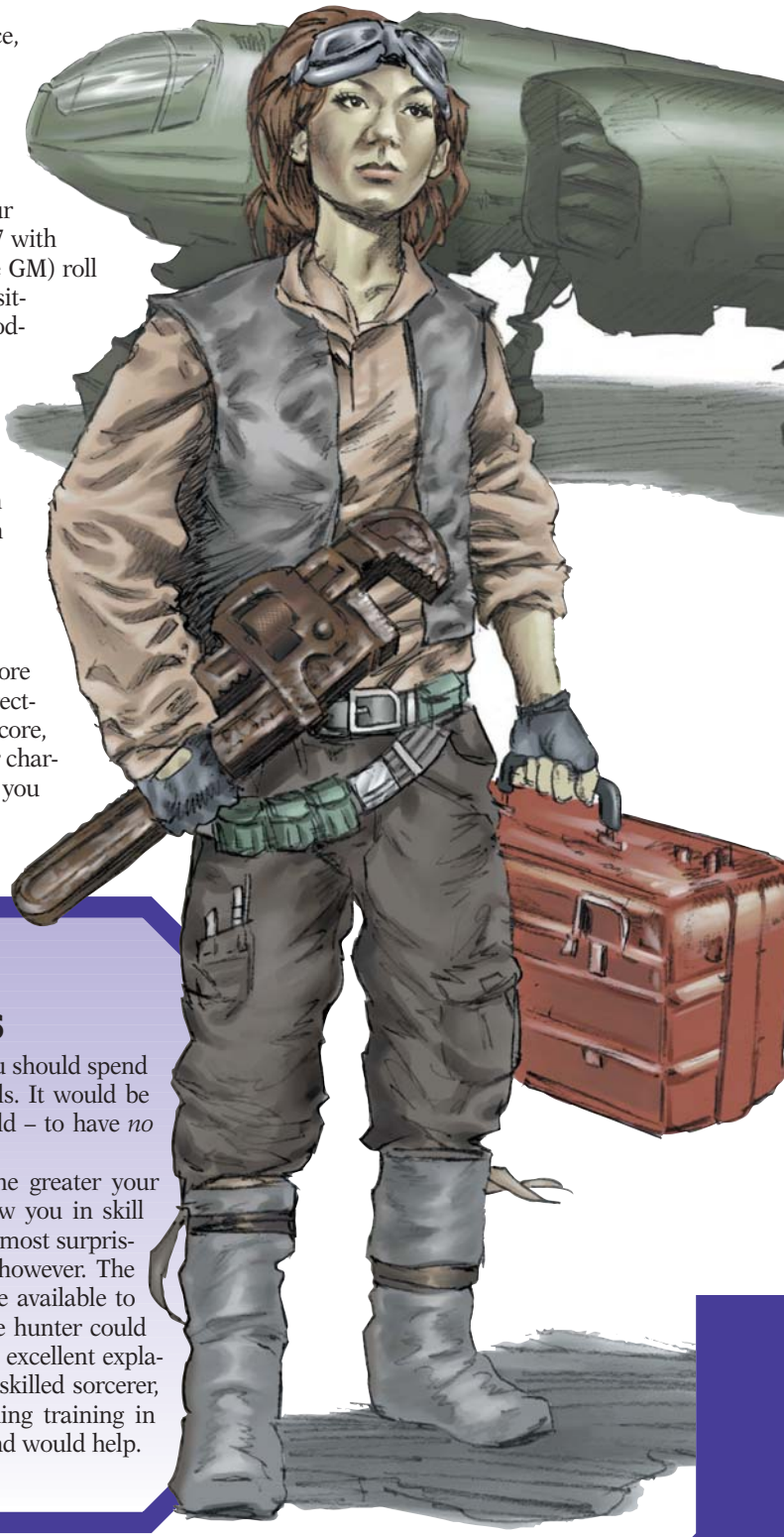
In general, though, the point value of a disadvantage *won't* be that of the "opposite" advantage with a minus sign in front. This is mainly because most traits in ***GURPS*** are asymmetric, skewed toward the human norm and biased toward adventuring heroes. For instance, One Arm is a serious disadvantage worth -20 points because having only one arm severely limits skill use, while Extra Arms are a mere 10 points apiece because additional arms rarely benefit most skills. It is also important to realize that for adventurers, there are many qualities where *either* extreme is an effective disadvantage (for instance, Curious and Incurious) or advantage (consider Common Sense and Daredevil).

Chapter Four
Skills

A "skill" is a particular kind of knowledge; for instance, judo, physics, auto mechanics, or a death spell. Every skill is separate, though some skills help you to learn others. Just as in real life, you start your career with some skills and can learn more if you spend time training.

A number called "skill level" measures your ability with each of your skills: the higher the number, the greater your skill. For instance, "Shortsword-17" means a skill level of 17 with the shortsword. When you try to do something, you (or the GM) roll 3d against the appropriate skill, modified for that particular situation. If the number you roll is *less than or equal to* your modified score for that skill, you succeed! But a roll of 17 or 18 is an automatic failure. For more on skill rolls, modifiers, success, and failure, see Chapter 10.

Each skill is qualified in several ways to indicate what basic attribute represents talent with that skill, how easy the skill is to learn, any special restrictions on who can learn the skill, and whether the skill is broad or narrow in focus.



Controlling Attribute

Each skill is based on one of the four basic attributes or, more rarely, on Perception or Will. Your skill level is calculated directly from this "controlling attribute": the higher your attribute score, the more effective you are with *every* skill based on it! If your character concept calls for *many* skills based on a given attribute, you should consider starting with a high level in that attribute, as this will be most cost-effective in the long run.

Choosing Your Beginning Skills

Like attributes and advantages, skills cost points. You should spend at least a few of your starting character points on skills. It would be extraordinarily unusual for anyone – even a young child – to have *no* skills at all!

Your starting skills must suit your background. The greater your Wealth and Status, the more leeway the GM will allow you in skill choice – the rich and powerful can arrange to learn the most surprising things. You cannot start with *inappropriate* skills, however. The GM is free to forbid any skill that simply would not be available to someone of your background. For instance, a stone-age hunter could not be a jet pilot, a Victorian gentleman would need an excellent explanation (and an Unusual Background) to start out as a skilled sorcerer, and a futuristic adventurer would have difficulty finding training in "archaic" weapon skills . . . though a military background would help.

ST-based skills depend wholly on brawn, and are very rare. ST determines the power you can bring to bear with DX-based skills far more often than it affects skill levels directly.

DX-based skills rely on coordination, reflexes, and steady hands. This is representative of athletic and combat skills, and most vehicle-operation skills.

IQ-based skills require knowledge, creativity, and reasoning ability. This includes all artistic, scientific, and social skills, as well as magic spells.

HT-based skills are governed by physical fitness. This includes any activity influenced by hygiene, posture, or lung capacity.

Perception-based skills involve spotting subtle differences. This is typical of skills used to detect clues and hidden objects.

Will-based skills hinge on mental focus and clarity of thought. Most allow one to resist mental attacks, bring about an altered mental state, or focus "inner strength."

Difficulty Level

Some fields demand more study and practice than others. ***GURPS*** uses four "difficulty levels" to rate the effort required to learn and improve a skill. The more difficult the skill, the more points you must spend to buy it at a given skill level.

Easy skills are things that *anyone* could do reasonably well after a short learning period – whether because they are second nature to most people or because there isn't a whole lot to learn.

Average skills include most combat skills, mundane job skills, and the practical social and survival skills that ordinary people use daily. This is the most common difficulty level.

Hard skills require intensive formal study. This is typical of most "academic" skills, complex athletic and combat skills that require *years* of training, and all but the most powerful of magic spells.

Very Hard skills have prodigious scope, or are alien, counterintuitive, or *deliberately* shrouded in secrecy. The most fundamental of sciences, and many potent magic spells and secret martial-arts techniques, are Very Hard.

Technological Skills

Certain skills are different at each tech level (see *Technology Level,* p. 22). These "technological skills" are designated by "/TL." This means that when you learn the skill, you must learn it at a specific tech level (TL). Always note the TL when you write down such a skill; e.g., "Surgery/TL4" for the TL4 version of Surgery skill. Surgery/TL4 (cut his arm off with an axe) is nothing like Surgery/TL9 (graft on a replacement arm from his clone)!

You learn technological skills at your personal TL. You may also choose skills from a *lower* TL. You can only learn skills from a *higher* TL in play – and only if you have a teacher *and* the skill is not based on IQ. To learn IQ-based technological skills from a higher TL, you must first raise your personal TL.

Technological skills rely on language, tool use, or both. This means that only sapient characters – those with IQ 6 or higher – may learn them. *Exception:* Robots and the like can have IQ 5 or less and perform such skills by running programs . . . but of course *programming* isn't *learning.*

Tech-Level Modifiers

Technological skills work best with the specific artifacts and techniques of their own TL. When you work with equipment or concepts of a TL different from that of your skill, you suffer a penalty to your skill roll.

IQ-Based Technological Skills

IQ-based technological skills represent a studied technical understanding of the *specific* methods and tools common at a particular TL. There is a penalty to your skill roll when you use these skills with the equipment of a higher TL (which relies on scientific and engineering principles unknown to you) or a lower TL (which depends on principles that were, at best, a "historical footnote" during your training).

Equipment's TL	*Skill Penalty*
Skill's TL+4 or more	Impossible!
Skill's TL+3	-15
Skill's TL+2	-10
Skill's TL+1	-5
Skill's TL	0
Skill's TL-1	-1
Skill's TL-2	-3
Skill's TL-3	-5
Skill's TL-4	-7
Per extra -1 to TL	-2

Other Technological Skills

Technological skills based on attributes other than IQ let you *use* technology; they do not assume any real understanding of the science or engineering behind the tools. For instance, a TL5 gunslinger accustomed to firing a Colt Peacemaker might find a TL7 Colt Python a bit strange, but he would have little difficulty shooting it.

For skills like this, apply a flat penalty of -1 per TL of difference between the skill and the equipment. For instance, a TL5 gunman would be at -2 to shoot a TL7 revolver. It is irrelevant whether the equipment is more or less advanced – a TL7 policeman would be at -2 to fire a TL5 revolver, too.

Grouped Skills

A set of distantly related skills that use identical rules may appear under a single heading to avoid repetition. If a skill description does not say that you must specialize, and indicates that it represents a *collection* of skills, then the subentries represent stand-alone skills – not specialties. Use only the name of the relevant subentry when you refer to such skills.

Example: Hand-to-hand weapon skills are grouped under *Melee Weapon* (p. 208), but if you learn to use a shortsword, write "Shortsword," not "Melee Weapon (Shortsword)."

Prerequisites

Some skills have other skills as prerequisites. This is the case when an advanced skill is based on, and in some ways an outgrowth of, a basic one. To study the advanced skill, *you must have at least one point in the prerequisite skill.*

Certain skills also require that you know a prerequisite skill at a minimum skill level. Where this is the case, you must spend the points required to learn the prerequisite skill at the specified level before you can learn the advanced skill.

A few skills have advantages as prerequisites. In order to learn such a skill, you *must* possess the required advantage. If you do not have the advantage, and cannot acquire it in play, you can *never* learn that skill.

Specialties

An entry on the skill list may represent an entire category of closely related skills that share a single skill name. Examples include Armoury (p. 178) and Survival (p. 223). Skills like this are marked with a dagger (†) in the list on pp. 174-228. The skills within such a category are called "specialties." When you buy a general skill of this kind, you *must* specify which specialty you are learning. On your character sheet, note the name of the specialty in parentheses after the general skill name; e.g., "Armoury (Small Arms)" or "Survival (Arctic)."

You may learn skills like this any number of times, with a different specialty each time, because *each specialty is a different skill.* There is usually a favorable "default" between specialties (see *Skill Defaults,* p. 173), which may let you purchase additional specialties more cheaply.

Optional Specialties

Many IQ-based skills – notably "academic" skills such as Literature and Physics – have countless subfields but do not *require* you to select a specialty. As written, if you learn a skill like this, you are a generalist, knowledgeable about every aspect of the skill. However, you may *opt* to specialize in a single, narrow area. You may only do this with an Average or harder IQ-based skill, and only if the GM agrees that the chosen subfield is logical given the skill and your TL.

Familiarity

Any skill used to operate equipment – e.g., Beam Weapons/TL11 (Pistol) or Driving/TL7 (Automobile) – takes a penalty when you are faced with an unfamiliar *type* of item. For instance, if you were trained on a laser pistol, a blaster pistol would be "unfamiliar." Assume that an unfamiliar piece of equipment gives -2 to skill except where an individual skill description specifies otherwise.

In general, if you have the skill to use a piece of equipment, you are considered *familiar* with a new make or model after you have had eight hours of practice with it. Some skills require more or less practice than this, so be sure to read the skill description.

There is no limit to the number of types of gun, car, plane, etc. you can become familiar with. Each of these items is called a "familiarity." If you have at least six familiarities for a given skill, the GM may roll against your skill when you pick up a new piece of equipment. On a success, you are already familiar with something similar and may use the new device at no penalty. The GM may also rule that a new item is so similar to a known one that it is familiar – for instance, two similar models of Colt revolver should be considered identical.

Equipment from another tech level will usually be unfamiliar. This gives both TL *and* familiarity modifiers. Practice can eliminate unfamiliarity penalties, but to shed TL penalties, you must relearn the operation skill at the equipment's TL. *Exception:* Improved or obsolete versions of items with which you are already familiar do *not* give unfamiliarity penalties.

Familiarity for Beginning Characters

Starting characters may specify two familiarities per point spent on a skill. For instance, if you have four points in Guns (Pistol), you can be familiar with up to eight handguns.

Both specialization and familiarity come into play with many skills, but they are not the same thing. Driving (Automobile) is a *specialty* of Driving: it is a separate skill from Driving (Locomotive), and to know both, you must pay points for both. "Volkswagen Bug" is a *familiarity* of Driving (Automobile): you can select it for free as one of your starting familiarities.

When you choose an optional specialty, write down the skill and its specialty just as if you were selecting a required specialty. You learn the specialized skill as if it were one level easier. Unless otherwise noted, prerequisites are unchanged. The general skill defaults to the specialized one at -2; roll against this whenever you must answer questions outside your field. Any skill that defaults to the general skill also defaults to all of its optional specialties, but at an additional -2.

Example: Chemistry is IQ/Hard and does not *require* a specialty. You could learn the *optional* specialty Chemistry (Analytical) as if it were one level easier, or IQ/Average. Your general Chemistry skill would default to Chemistry (Analytical)-2. Metallurgy, which normally defaults to Chemistry-5, would default to Chemistry (Analytical)-7.

Buying Skills

In order to learn or improve a skill, you must spend character points. When you spend points on a skill, you are getting training to bring that skill up to a useful level. Skills are easy to learn at first – a little training goes a long way! But added improvement costs more.

The point cost of a skill depends on two things: its difficulty and the final skill level you wish to attain. Use the *Skill Cost Table* (below) to calculate a skill's point cost.

The first column shows the skill level you are trying to attain, *relative to the skill's controlling attribute* – DX for DX-based skills, IQ for IQ-based skills, and so forth. For instance, if your DX were 12, a level of "Attribute-1" would be DX-1, or 11; "Attribute+0" would be DX, or 12; and "Attribute+1" would be DX+1, or 13.

The next four columns show the character point costs to learn skills of different difficulties – *Easy, Average, Hard,* and *Very Hard* – at the desired skill level. Harder skills cost more points to learn!

Example: A warrior with DX 14 wishes to learn Shortsword (DX/Average) at level 17. Since skill 17 is equal to his DX+3, he goes to the "Attribute+3" row. Then he reads along the row to the "Average" column to find the point cost: 12 points.

Skill Cost Table

Your Final Skill Level	*Difficulty of Skill*			
	Easy	*Average*	*Hard*	*Very Hard*
Attribute-3	–	–	–	1
Attribute-2	–	–	1	2
Attribute-1	–	1	2	4
Attribute+0	1	2	4	8
Attribute+1	2	4	8	12
Attribute+2	4	8	12	16
Attribute+3	8	12	16	20
Attribute+4	12	16	20	24
Attribute+5	16	20	24	28
Extra +1	+4	+4	+4	+4

Skill Notation

When you write down a skill with a single specialty, either required or optional, do so in the form "Skill Name (Specialty)"; e.g., Artist (Painting). If such a skill has multiple qualifiers, follow these guidelines:

Technological skills: Place the tech level after the skill name and before the specialty; e.g., Engineer/TL8 (Civil).

Skills with both required and optional specialties: If a skill that requires you to specialize also allows an optional specialty, write the required specialty before the optional specialty and separate the two with a comma; e.g., Artist (Painting, Oil).

Skills that require two specialties: In the rare case where a skill requires you to select two specialties, separate them with a slash; e.g., Geography/TL7 (Physical/Earth-like).

There is no limit (except lifespan) to the amount of improvement possible with any skill. However, the useful maximum for most skills is between 20 and 30. Problems to challenge a greater skill are rare!

Improving Your Skills

There are two direct ways to increase your skills in play: spend the bonus points you earn for successful adventuring on new or better skills, or dedicate game time to study, which gives you points you can use to add or improve the skills you studied. In either case, *the cost to improve a skill is the* ***difference*** *between the cost of the desired skill level and the cost of your current skill level.* For more information, see Chapter 9.

Free Increases in Skills

There is one way to increase many skills at once: pay the points to improve an attribute (see Chapter 9). If you do this, *all* your skills based on that attribute go up by the same amount, at no extra cost. For instance, if you raise DX by one level, all of your DX-based skills also go up by one level. Further improvements are based on the new DX value.

You can also base skills on "defaults" from other skills; see *Defaulting to Other Skills* (p. 173). Any skill bought up from such a default is likely to enjoy a free increase when you raise the skill to which it defaults.

Meaning of Skill Levels

So you have Literature-9, Savoir-Faire-22, and Shortsword-13. What does that *mean*? What is good, bad, and average? That's very important when you create a character. It's also important if you're converting characters from another system into ***GURPS,*** or vice versa. There are two equally valid – but *different* – ways to make skill-level comparisons.

Base Skill vs. Effective Skill

Your unmodified skill level is called your *base skill.* It measures your odds of success at an "average" task *under adventuring conditions* – in other words, in a stressful situation where the consequences of failure are significant. Some examples:

- Battles and chase scenes.
- Races against the clock.
- Situations where your health, freedom, finances, or equipment is at risk.

The GM may modify your skill level to reflect the difficulty of a task. Your final skill level, after applying all modifiers for the task at hand, is your *effective skill* for that task.

In nonadventuring situations when you have lots of time to prepare and face minimal risk, the GM may give you +4 or more to skill. (The GM might even declare such actions successful instead of wasting time on a skill roll; see *When to Roll,* p. 343). Ordinary people *almost always* receive this bonus at mundane tasks, even if they are working from default skill!

Example: An airline pilot has Piloting-12 – normally a 74% chance of success. For day-to-day flying, however, he rolls at +4. This makes his effective skill 16, for a 98% chance of success.

On the other hand, especially tough adventuring situations can result in penalties. See *Culture* (p. 23), *Language* (p. 23), *Tech-Level Modifiers* (p. 168), *Familiarity* (p. 169), *Equipment Modifiers* (p. 345), and *Task Difficulty* (p. 345) for some common modifiers. Be sure to take these factors into account when buying your skills.

Your base skill measures your odds of success at an "average" task in a stressful situation where the consequences of failure are significant.

Probability of Success

The easiest way to get a feel for your skill levels is to look at your odds of success. To use a skill, you must roll 3d against your skill level. This is called a "success roll" (see Chapter 10). For instance, if your skill is 13, you must roll 13 or less on 3d to succeed. The table below shows the *probability of success* at each skill level – that is, your chance of rolling less than or equal to a given number on 3d. Note that skill levels can be over 18, but a roll of 17 or 18 is automatically a failure. *Nobody* succeeds 100% of the time!

Skill Level	*Probability of Success*
3	0.5%
4	1.9%
5	4.6%
6	9.3%
7	16.2%
8	25.9%
9	37.5%
10	50.0%
11	62.5%
12	74.1%
13	83.8%
14	90.7%
15	95.4%
16+	98.1%

Relative Skill Level

Skill level reflects a combination of talent and training. For instance, a DX 17 warrior has a lot of raw talent. He could quickly learn Shortsword-17, as this is only DX level for him. A DX 10 fighter would need considerably more practice to become that skilled, as Shortsword-17 is DX+7 level for him.

Such details are often unimportant; two warriors with Shortsword-17 are equally good at smiting foes, regardless of whether their skill is due to talent or training. However, there are times when you need (or want) to know the difference.

It is easy to compare talent – just look at the controlling attribute for the skill. In the example above, the DX 17 swordsman is clearly more talented than the DX 10 fighter.

To compare training, you must look at *relative skill level.* You can calculate it quickly by subtracting controlling attribute from skill level. In our example, the DX 17 warrior has a relative skill level of 0, while the DX 10 fighter has a relative skill level of +7, and is better trained.

Relative skill level becomes important when using the next two rules; therefore, you might opt to note it in parentheses after your skill level; e.g., "Shortsword-17 (+7)."

Choosing Your Skill Levels

Gauging what skill levels you need to survive is no easy task. Determining how much skill is *realistic* can be tricky as well. When creating a PC (or an NPC), bear the following guidelines in mind.

Ordinary Folks

For an "average" person, it is reasonable to assume attributes between 9 and 11, and from 20 to 40 points in "life skills" (varying with education and dedication). Most people spread these points fairly evenly over roughly a dozen skills. This will result in skill levels between 8 and 13. Skills used to earn a living tend toward the upper end of this range (12 or 13), while little-used skills and those originating from long-forgotten college courses are at the lower end (8 or 9).

Experts

Once your skill level reaches 14, additional levels of skill don't improve your odds of success much. Furthermore, it can cost a lot of points to acquire higher skill levels. If you are an adventurer, though, the investment is worthwhile, to help you overcome the penalties for difficult tasks. For instance, if you have Lockpicking-23, ordinary locks are no easier for you – you fail on a 17 or 18, no matter what. But when you run into a *hard* lock that gives -6 to skill, your effective skill is 17 and you *still* only fail on a 17 or 18!

Masters

If you are a "master" in your field, you might be tempted to increase your skill levels *ad infinitum*. However, a true master has a detailed understanding of every aspect of his calling, best represented by stopping at a masterful level (20 to 25) in the "main" skill and branching out into several "subsidiary" skills. An extreme level (anything over 25) in one skill tends to be excessive and unbelievable – and is frequently *less useful* than a lesser level combined with one or more subsidiary skills.

Example: Instead of improving Karate skill to 30, a kung fu master would be better off using those points to buy Karate at 25 and decent levels of Acrobatics, Judo, Meditation, etc.

Masters should also consider putting some points into advantages that negate skill penalties for adverse conditions. For instance, a kung fu master might buy Trained By A Master (reducing his penalties for multiple attacks and parries) and Combat Reflexes (improving his chances of defending himself), extending his capabilities in ways that high skill alone cannot.

To encourage players to develop their characters laterally instead of sinking all their points into just one or two skills, the GM might wish to consider limiting PCs to skill levels somewhere in the 20-25 range.

Using Skills With Other Attributes

The GM will sometimes find it useful to ask for a skill roll based on an attribute other than the controlling one for a skill. This is realistic; few skills really depend *just* on brains, *just* on agility, etc. To make a roll like this, simply add the *relative* skill level to the attribute you wish to use and make a success roll against the total.

Example: A warrior with DX 10, IQ 14, and Shortsword-17 has a relative skill level of +7 in Shortsword. If the GM asked for an IQ-based Shortsword roll, the swordsman would roll against 14 + 7 = 21 instead of his Shortsword skill of 17.

Some skill descriptions present situations where skill rolls using other attributes would be appropriate. The GM is encouraged to dream up more! A few examples:

- DX-based rolls against IQ-based repair skills to reach into tight corners; ST-based rolls against these skills to manhandle engine blocks and other heavy parts into place.
- IQ-based rolls against DX-based combat skills to feint an opponent, formulate tactics, or perform minor maintenance on weapons; ST-based rolls against these skills to disarm someone using brute strength rather than finesse.
- IQ-based rolls against DX-based vehicle-operation skills to recall traffic regulations, remember to change the oil, or identify the make and model of a vehicle; HT-based rolls against these skills to stay awake at the wheel.

Your relative skill level will sometimes modify ST for a specific task (e.g., kicking in doors). Only modify ST if your relative skill level is *positive* – you get a bonus for high skill, but you never get a penalty for low skill.

Using Skills Without Attributes

The GM might occasionally want two people with identical training to have similar odds of success *regardless* of their attributes, in a situation where training really does matter more than innate talent. In this case, just add relative skill level to a flat number – usually 10 – and roll against the result.

Example: Two accountants are vying for a promotion. One is talented, with IQ 14 and Accounting-18 (+4). The other is dull but experienced, with IQ 8 and Accounting-15 (+7). The GM decides to handle this as a Quick Contest: each accountant must attempt his Accounting roll, and the one who succeeds by the most will get the promotion. However, the boss cares about seniority above all, so the GM applies relative skill level – which reflects experience – to a flat base of 10. This leaves IQ out of the picture! The talented accountant rolls against 10 + 4 = 14, while his rival rolls against 10 + 7 = 17. Sometimes, life isn't fair . . .

Skill Defaults: Using Skills You Don't Know

Most skills have a "default level": the level at which you use the skill if you have *no* training. A skill has a default level if it is something that everybody can do . . . a little bit. As a general rule, a skill defaults to its controlling attribute at -4 if Easy, -5 if Average, or -6 if Hard. There are exceptions to this, but not many.

Example: The "default" for Broadsword (DX/Average) is DX-5. If your DX is 11, and you have to swing a broadsword without training, then your "default" skill at Broadsword is 11 - 5 = 6. You need a roll of 6 or less to hit.

Some skills have *no* default level. For instance, Alchemy, Hypnotism, and Karate are complex enough that you cannot use them *at all* without training.

Regardless of your default skill level, you do not get the special benefits of a skill – especially combat bonuses such as improved damage, special defenses, and unpenalized off-hand use – when you use a skill at default. To enjoy these benefits, you must spend *at least one point* on the skill.

The Rule of 20

If a skill defaults to a basic attribute that is higher than 20, treat that attribute as 20 when figuring default skill. Superhuman characters get *good* defaults, but not *super* ones.

Who Gets a Default?

Only individuals from a society where a skill is known may attempt a default roll against that skill. For instance, the default for Scuba skill assumes you are from a world where scuba gear exists and where most people would have *some* idea – if only from TV – of how to use it. A medieval knight transported to the 21st century would not get a default roll to use scuba gear the first time he saw it!

Defaulting to Other Skills

Some skills default to *another skill* instead of or as well as an attribute.

Example: Broadsword defaults to Shortsword-2, because the two skills are very similar. A Shortsword skill of 13 gives you a "default" Broadsword skill of 11.

Double Defaults

A skill can't default to another skill known only by default. If Skill A defaults to Skill B-5, and Skill B defaults to IQ-5, does Skill A default to IQ-10? No.

Improving Skills from Default

If your default level in a skill is high enough that you would normally have to pay points for that level, you may improve the skill past its default level by paying only the *difference* in point costs between your new level and your default level.

Example: Suppose you have DX 12 and Shortsword at 13. Since Broadsword defaults to Shortsword-2, your default Broadsword skill is 11. Skill 11 is equal to DX-1 for you. This would have cost 1 point had you bought it directly. The next level (DX) costs 2 points. The difference is 1 point; to raise your Broadsword skill from its default level of 11 (DX-1) to 12 (DX), you need only pay 1 character point. You do not have to pay the full 2 points for DX level!

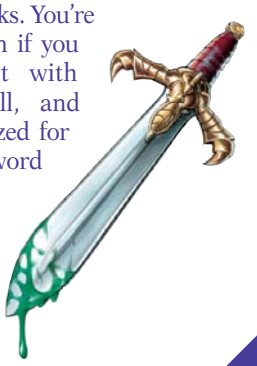
If you increase a skill, skills that default to it go up as well. However, if you have spent points to improve these defaults, you may not see an increase when you raise the skill to which they default. This is best illustrated with our running example:

Example: Suppose you spend the point to raise Broadsword to 12 (DX). Now you spend 4 more points on Shortsword, improving that skill from 13 to 14 (from DX+1 to DX+2). Does your Broadsword skill also go up a level? No. Your new default from Shortsword is now 12 (Shortsword at 14, minus 2), but to go from level 12 to level 13 (from DX to DX+1) with Broadsword costs 2 points, and you've only spent 1 point on Broadsword. Keep track of that point, though. When you spend one more point on Broadsword, it goes up a level, too.

When two skills default to one another and you have improved both, you may switch the "direction" of your default if this would give you better skill levels. Redistribute the points spent on both skills as needed. You may *never* decrease either skill level this way, however; you must always spend enough points to keep each skill at its current level.

Example: Keeping Shortsword at 14, you spend a total of 22 points on Broadsword, improving your skill from its default of 12 (DX) to 18 (DX+6). You'd like to default Shortsword from Broadsword now, rather than vice versa. Taking the 8 points you spent on Shortsword and the 22 points you spent on Broadsword, you have 30 points to work with. First, buy Broadsword at 18 (DX+6) for 24 points. Then default Shortsword from Broadsword, getting 16 (that is, Broadsword-2). Finally, spend the remaining 6 points on Shortsword. This will be enough to raise Shortsword skill to 17 (and 2 more points will make that 18).

This feels like an abstract number shuffle, but it works. You're no better off than if you had started out with Broadsword skill, and you aren't penalized for learning Shortsword first.



Skill List

The skill list is sorted alphabetically by skill name. Each entry gives the following information:

Name: The skill's name. Technological skills are noted as such; e.g., "Machinist/TL." Skills marked with a dagger (†) *require* you to choose a specialty (see *Specialties,* p. 169).

Type: The skill's controlling attribute and difficulty level; e.g., "IQ/Average."

Defaults: The attributes or other skills to which the skill defaults if you have not studied it. Where there is more than one possible default, use the most favorable. Some skills have *no* default – you *cannot* attempt to use these skills if you don't know them.

Prerequisites: Traits you must possess before you can spend points on the skill. If the prerequisite is another skill, you must have at least one point in that skill. Not all skills have prerequisites.

Description: An explanation of what the skill is for and how it works in play.

Modifiers: A list of common bonuses and penalties for use of the skill. The GM decides whether a particular modifier applies in a given situation. If an advantage or disadvantage *permanently* modifies base skill level rather than simply giving a bonus or a penalty for a specific task, add this permanent modifier to the skill level listed on your character sheet.

Accounting

IQ/Hard

Defaults: IQ-6, Finance-4, Mathematics (Statistics)-5, or Merchant-5.

This is the ability to keep books of account, to examine the condition of a business, etc. A successful Accounting roll (requires at least two hours of study, and possibly months to audit a large corporation) can tell you whether financial records are correct, and possibly reveal evidence of forgery, tampering, and similar criminal activity.

Modifiers: The time modifiers under *Time Spent* (p. 346) often apply; the Talents (p. 89) of Business Acumen and Mathematical Ability *both* provide a bonus.

Acrobatics

DX/Hard

Default: DX-6.

This is the ability to perform gymnastic stunts, roll, take falls, etc. This can be handy on an adventure, as tightrope walking, human pyramids, and trapeze swinging all have useful applications. Each trick requires a separate skill roll, at whatever penalties the GM sees fit. If you are performing stunts on a moving vehicle or mount, roll against the *lower* of Acrobatics and the appropriate Driving or Riding skill.

You may substitute an Acrobatics roll for a DX roll in any attempt to jump, roll, avoid falling down, etc. As well, you may attempt an Acrobatic Dodge in combat – a jump or roll that avoids an attack in a flashy way (see *Acrobatic Dodge,* p. 375). Finally, a successful Acrobatics roll will reduce the effective distance of any fall by five yards (see *Falling,* p. 431).

Two special versions of Acrobatics are also available:

Aerobatics: The ability to execute tight turns, loops, power dives, etc. in flight. You must be able to fly to learn this skill – although *how* you fly (magic, wings, jet pack, etc.) is irrelevant. Natural fliers might find flight to be as effortless as humans find walking, but they must still learn Aerobatics in order to engage in complex acrobatics. Add +2 to skill if you have 3D Spatial Sense (p. 34).

Aquabatics: The ability to engage in underwater acrobatics. *Prerequisites:* Swimming, *or* the Amphibious advantage (p. 40) or the Aquatic disadvantage (p. 145).

Acrobatics, Aerobatics, and Aquabatics default to one another at -4. Add +1 to these three skills if you have Perfect Balance (p. 74).

Acting

IQ/Average

Defaults: IQ-5, Performance-2, or Public Speaking-5.

This is the ability to counterfeit moods, emotions, and voices, and to lie convincingly over a period of time. A successful Acting roll lets you pretend to feel something that you do not. The GM may also require an Acting roll whenever you try to fool someone, play dead in combat, etc.

Impersonation is a special type of acting. To impersonate someone, you must first successfully disguise yourself (see *Disguise,* p. 187) – unless your victims cannot see you!

Note that Acting is *not* the same Fast-Talk (the art of the "quick con") or Performance (the skill of screen and stage acting).

Modifiers: +1 for every point of IQ you have over the person you are trying to fool (or the smartest one in the group), or -1 for every point of difference if your victim is smarter than you; -3 for Low Empathy (p. 142); -1 to -4 for Shyness (p. 154); -5 for Truthfulness (p. 159), but only if you are trying to deceive someone. *For impersonation only:* -5 if you are not well acquainted with your subject; -5 if those you wish to fool are acquaintances of the subject (-10 for *close* acquaintances).

Administration

IQ/Average

Defaults: IQ-5 or Merchant-3.

This is the skill of running a large organization. It is often a prerequisite for high Rank (p. 29). A successful Administration roll gives you a +2 reaction bonus when dealing with a bureaucrat, and allows you to predict the best way to go about dealing with a bureaucracy.

Aerobatics

see *Acrobatics,* above

Airshipman/TL

see *Crewman,* p. 185

Alchemy/TL

IQ/Very Hard

Defaults: None.

This is the study of magical transformations and transmutations. In a magical game world, an alchemist would be able to identify concoctions with magical effects ("elixirs"), such as

love potions and healing unguents, and prepare them from suitable ingredients. This is a mechanical process, using the mana inherent in certain things; therefore, those without Magery can learn and use Alchemy, and Magery confers no benefit.

Animal Handling†

IQ/Average

Default: IQ-5.

This is the ability to train and work with animals. You *must* specialize in a category of animals – the more intelligent the animals, the narrower the category. Examples of interest to adventurers: Big Cats (jaguars, lions, tigers, etc.), Dogs, Equines (horses and donkeys), and Raptors (eagles, falcons, and hawks). The default between specialties is -2 within the same order (e.g., Dogs to Big Cats), -4 across orders (e.g., Dogs to Equines), and -6 for larger differences (e.g., Dogs to Raptors).

To train an animal, make an Animal Handling roll once per day of training. A failed roll means the animal learned nothing; a badly failed roll means you are *attacked*. The time it takes to train an animal depends on the beast's intelligence and tractability (see Chapter 16).

When working with a trained animal, roll against skill for each task you set the animal. This roll is at -5 if the animal is not familiar with you, -5 if the circumstances are stressful to the animal, and -3 or more if the task is a complex one. To put on an *entertaining* circus act, snake-charming show, etc., you must make a separate Performance roll!

This skill can also (sometimes) be used to quiet a wild, dangerous, or untrained animal. This roll is at -5 if the creature is wild or very frightened, or -10 if it is a man-eater or man-killer.

Finally, this skill gives an advantage in combat against animals within your specialty. If you have Animal Handling at level 15, an animal's attack and defense rolls are at -1 against you, because you can predict its behavior. At skill 20, the animal's rolls are at -2.

Anthropology†

IQ/Hard

Defaults: IQ-6, Paleontology (Paleoanthropology)-2, or Sociology-3.

This is the science of evolution and culture. An anthropologist is knowledgeable in the ways of primitive (and not-so-primitive) societies. An Anthropology roll might explain, or even predict, unusual rituals and folk customs. This skill requires specialization by species (if left unspecified, assume the anthropologist's *own* species). Specialties usually default to one another at -2 to -5, although there may be no default for completely alien species.

Optional Rule: Wildcard Skills

The professor who has studied *every* science, the swordsman who can fight with *any* blade . . . cinematic fiction is full of heroes who know a little bit about everything in one broad area. The time required to list every last skill such a hero might need, and the difficulty of figuring out which skills to take (and which to *use*), might discourage many gamers from playing cinematic experts. Such broad expertise doesn't exist in real life, but it is all part of the fun in cinematic games!

A solution to this problem is "wildcard skills" or "bang skills": skills that cover extremely broad categories of ability. The names of these skills end in an exclamation point in order to distinguish them from normal skills; e.g., "Science!" is the skill of "all science." *Wildcard skills include and replace* ***all*** *specific skills within their area.* For instance, a hero could attempt a Science! roll whenever the adventure calls for a roll against Chemistry, Physics, or another science skill.

Wildcard skills that cover mainly intellectual pursuits are IQ-based, while those that pertain chiefly to physical actions are DX-based. Such skills have no default; to use them, you *must* spend points on them. Buy wildcard skills as Very Hard skills, but at *triple* the usual point cost. For instance, it would normally cost 8 points to buy an IQ/Very Hard skill at IQ level, so Science! skill at IQ level would cost 24 points.

The GM might choose to limit wildcard skills to those with a suitable Unusual Background – perhaps "Cinematic Hero." This Unusual Background should never be available to sidekicks and random thugs! To give each hero a well-defined dramatic niche, the GM might wish to limit PCs to one or two wildcard skills apiece (preferably those that emerge naturally from their character stories).

Some examples:

Detective! (IQ). Replaces Criminology, Detect Lies, Electronics Operation (Security and Surveillance), Forensics, Interrogation, Law, Observation, Research, Savoir-Faire (Police), Search, Shadowing, Streetwise, etc.

Gun! (DX). Replaces *all* specialties of Beam Weapons, Gunner, Guns, and Liquid Projector, as well as all related Fast-Draw skills. Make an IQ-based roll for Armoury pertaining to these weapons.

Science! (IQ). Replaces Astronomy, Bioengineering, Biology, Chemistry, Engineer, Geology, Mathematics, Metallurgy, Meteorology, Naturalist, Paleontology, Physics, Psychology, etc.

Sword! (DX). Replaces Broadsword, Force Sword, Jitte/Sai, Knife, Main-Gauche, Rapier, Saber, Shortsword, Smallsword, and Two-Handed Sword, as well as related Fast-Draw skills. Use in place of such skills as Acrobatics and Jumping for physical stunts while fighting.

Wildcard skills are useful for omniproficient characters. Someone who can pick up and play *any* instrument, or sight-read *any* choral work, would have the Music! skill. If he's gifted with several instruments and can pick up others easily (but does have to learn them first), that's the Musical Ability Talent.

Aquabatics

see ***Acrobatics,*** p. 174

Archaeology

IQ/Hard

Default: IQ-6.

This is the study of ancient civilizations. An archaeologist is at home with excavations, old potsherds, inscriptions, etc. An Archaeology roll lets you answer questions about ancient history, or identify artifacts and dead languages. It might even reveal information relating to the occult; e.g., Ancient Secrets and Things Man Was Not Meant To Know . . .

Architecture/TL

IQ/Average

Defaults: IQ-5 or Engineer (Civil)-4.

This is the ability to design buildings, and to deduce the design of buildings from their function (and vice versa). A successful Architecture roll lets you learn things about a strange building, find a secret room or door, etc.

Modifiers: -2 if the building is of a strange type; -5 if it is alien.

Area Knowledge†

IQ/Easy

Defaults: IQ-4 or Geography (Regional)-3*

* You have an IQ default only for Area Knowledge of a place where you live or once lived. Geography only gives a default for Area Knowledge of the specialty region.

This skill represents familiarity with the people, places, and politics of a given region. You usually have Area Knowledge only for the area you consider your "home base," whether that's a single farm or a solar system. If information about other areas is available, the GM may allow you to learn additional Area Knowledge skills.

The GM should not require Area Knowledge rolls for ordinary situations; e.g., to find the blacksmith, tavern, or your own home. But he could require a roll to locate a smith to shoe

Geographical and Temporal Scope

Skills such as Area Knowledge, Current Affairs (Regional) (p. 186), Geography (Regional) (p. 198), and History (p. 200) require specialization to specific places and times. In reality, this kind of knowledge is never "clear cut," and tends to spill over into related areas. The following penalties apply when you wish to use such a skill outside your specialty.

Distance

For an area far from your "stomping grounds," use the penalties under *Long-Distance Modifiers* (p. 241). However, the speed at which knowledge propagates increases as progressively more powerful tools for managing information appear: printing press, telephone, television, computers, faster-than-light radio, etc. To reflect this, at TL5 and above, the GM may choose to roll 3d against TL+1 (e.g., 9 or less at TL8) to determine whether you are familiar with the distant region from TV, the Internet, etc. On a success, you may *ignore* all distance penalties. (The GM might also wish to use this rule to determine whether a character's Reputation is known far from home in a high-tech setting.)

Time

Time is usually only a concern for History skill – but it could also apply to Area Knowledge skill in a time-travel game, or if someone has been away from home for a *long* time. Use the Long-Distance Modifiers once again, substituting *years* for *miles*. For each point of tech-level difference, *double* the time modifier (a two-TL difference would be ×4, etc.). This is because societies change drastically on all levels when technology increases.

Area Class

"Area classes" are defined under Area Knowledge skill: Neighborhood; Village or Town; City; Barony, County, Duchy, or Small Nation; Large Nation; Planet; Interplanetary State; and Galaxy. Area class becomes important in campaigns that involve a lot of travel. We assume here that the smaller areas are contained within the larger ones.

If you have specialized in a *larger* area and want information about a *smaller* area within it, the penalty is -2 for one class of difference, -4 for two, -8 for three, and so on, doubling each time.

If you have specialized in a *smaller* area and want information about a specific locale within the *larger* area containing it, the most appropriate solution is usually to use the distance penalties described above. However, questions having to do with the *entire* large area use a flat -2 per difference in levels.

Example: Someone with Area Knowledge (Earth) would be at -8 – due to three classes of difference – to know the mayor of Los Angeles. However, someone with Area Knowledge (Los Angeles) would be at -4 to know the location of Mount Rushmore. The same person would be at -10 to know the location of the Library of Congress in Washington, D.C.; the Library of Congress has more to do with Washington than with the United States as a whole, and it's more appropriate to resolve the question by considering distance.

Note that in a setting with multiple planes of existence, Area Knowledge skills for one reality can be dangerously unreliable in another. The GM decides the penalty that he will apply when you try to apply your knowledge of *your* San Francisco to *his* version.

your horse at 3 a.m., or to find the best ambush spot along a stretch of road. "Secret" or obscure information might give a penalty, require a Hidden Lore skill (p. 199), or simply be unavailable – GM's decision. For instance, Area Knowledge of Washington, D.C. gives you the location of the Russian Embassy, but not the KGB's current safe house.

The information covered by Area Knowledge often overlaps such skills as Current Affairs, Geography, Naturalist, and Streetwise. The difference is that Area Knowledge works for a single area: you know the habits of *this* tiger or gang boss, but have no special insight into tigers or gangs in general.

You can learn Area Knowledge for any sort of area. The larger the territory, the less "personal" and more general your knowledge becomes. Almost everyone will have Area Knowledge of *some* type. The "canonical" area classes are:

Neighborhood: For an urban area: the residents and buildings of a few city blocks. For a rural area: the inhabitants, trails, streams, hiding places, ambush sites, flora, and fauna of a few hundred acres.

Village or Town: All important citizens and businesses, and most unimportant ones; all public buildings and most houses.

City: All important businesses, streets, citizens, leaders, etc.

Barony, County, Duchy, or Small Nation: General nature of its settlements and towns, political allegiances, leaders, and most citizens of Status 5+.

Large Nation: Location of its major cities and important sites; awareness of its major customs, ethnic groups, and languages (but not necessarily expertise); names of folk of Status 6+; and a general understanding of the economic and political situation.

Planet: As for a large nation, but more general; knowledge of people of Status 7+ only.

Interplanetary State: Location of major planets; familiarity with all *known* races (but not necessarily expertise); knowledge of people of Status 7+; general understanding of the economic and political situation.

Galaxy: Location of the capitals of interplanetary states and the homeworlds of major races; general awareness of all *major* races; knowledge of individuals of Status 8; general understanding of relations between interplanetary states.

Area Knowledge for anything larger than a galaxy would be meaninglessly vague.

Your IQ-4 default applies to *any* of these classes, as long as you have lived in the area. Defaults are limited by "common knowledge" at your tech level! A TL0 hunter would have a default for every level up to "Village or Town," while a TL8 student would have defaults up to "Planet" level. You must live in an interplanetary or interstellar state to have defaults for levels above "Planet."

In some game worlds, Area Knowledge specialties may exist for parallel realities and other dimensions – Area Knowledge (Cyberspace), Area Knowledge (Dream Realms), etc. The knowledge such skills provide is left to the GM's judgment.

Armoury/TL†

IQ/Average

Defaults: IQ-5 or Engineer (same)-4.

This is the ability to build, modify, and repair a specific class of weapons or armor. (It does not include skill at design; for that, see *Engineer,* p. 190.) A successful roll lets you find a problem, if it isn't obvious; a second roll lets you repair it. Time required is up to the GM.

You *must* specialize in one of the following fields:

Battlesuits: All kinds of powered armor, along with any built-in weaponry.

Body Armor: Any kind of unpowered personal armor (but *not* shields). Also defaults to Smith (Bronze)-3 at TL1, to Smith (Iron)-3 at TL2-4, and to Machinist-3 at TL5+.

Force Shields: Any kind of force screen or deflector – be it personal or vehicular. This is the same skill as Electronics Repair (Force Shields).

Heavy Weapons: All weapons used with the Artillery and Gunner skills.

Melee Weapons: Any weapon used with a Melee Weapon or Thrown Weapon skill, as well as all kinds of shields. Also defaults to Smith (Bronze)-3 at TL1, to Smith (Iron)-3 at TL2-4, and to Machinist-3 at TL5+.

Missile Weapons: Man-portable, pre-gunpowder projectile weapons of all kinds – bows, crossbows, slings, etc.

Small Arms: All weapons used with the Beam Weapons and Guns skills. Also defaults to Machinist-5 at TL5+.

Vehicular Armor: All kinds of armored vehicle hulls.

Most specialties default to one another at -4 – but above TL4, there is *no* default between Armoury specialties dealing with armor and Armoury specialties dealing with weapons. The technologies covered by each specialty vary with TL. For instance, Armoury (Small Arms) covers black-powder small arms at TL4, repeating small arms that fire cartridges at TL6, "smart" infantry weapons at TL8, and portable beam weapons at TL10.

The GM should strictly enforce penalties for unfamiliarity. Armoury/TL10 (Small Arms) might cover both beam weapons and portable railguns, but going from one to the other gives you -2 to skill until you familiarize yourself with all the differences.

Modifiers: -2 for an unfamiliar item within your specialty (e.g., plate armor when you're used to mail); equipment modifiers (p. 345).

Artillery/TL†

IQ/Average

Default: IQ-5.

This is the ability to use a heavy weapon, such as a trebuchet or a howitzer, for *indirect* fire – that is, to put fire onto a target area via a high ballistic arc or similar path. For *direct* fire, use Gunner skill (p. 198). Roll against Artillery skill to bombard the target.

Loaders can make ST-based Artillery rolls to improve the rate of fire of certain crew-served heavy weapons. See the appropriate weapon description for details.

You *must* specialize by weapon type. The available specialties vary by TL, but include one or more of:

Beams: Any kind of heavy energy weapon that is fired from orbit, bounced off a mirror, or otherwise used against targets you cannot see.

Bombs: All kinds of unpowered, free-falling munitions.

Cannon: Any kind of heavy projectile weapon – bombard, howitzer, naval gun, etc.

Catapult: Any kind of indirect-fire mechanical siege engine, such as a trebuchet.

Guided Missile: Any kind of seeking or remotely piloted missile.

Torpedoes: Any kind of powered underwater projectile.

There is *no* default between specialties, some of which (e.g., Torpedoes) cover weapons that bear little or no resemblance to true artillery. Artillery is a single skill only because all the weapons it covers use the same rules.

The weapons covered by each specialty will vary by TL. For instance, Artillery (Cannon) would cover primitive bombards at TL3, brass cannon at TL4, breech-loading howitzers at TL6, and orbital railguns at TL9+.

Familiarity is crucial here! Artillery (Cannon) covers both 81mm infantry mortars and 406mm naval guns, but going from one to the other will give -2 for weapon type (81mm vs. 406mm), -2 for fire-control (visual spotting vs. fire-direction center), and -2 for mount (bipod vs. naval turret), for a total of -6 to skill until you familiarize yourself with all the differences.

Note that Forward Observer skill (p. 196) is generally required to designate targets for Artillery skill.

Modifiers: All relevant combat modifiers; -2 for an unfamiliar fire-control system (e.g., map coordinates when you're used to satellite imagery) or mount (e.g., a naval turret when you're used to emplaced guns), or for an unfamiliar weapon of a known type (e.g., 155mm when you are used to 203mm); -4 or more for a weapon in bad repair.

Artist†

IQ/Hard

Default: IQ-6.

This skill represents talent at a visual art. A successful roll might let you create a recognizable likeness of a person or an object, or a work beautiful enough to sell (the GM should not allow a default roll for this use!). Time required is up to the GM.

Artist is based on IQ, but there are many situations in which the GM could logically ask for a DX-based roll, in which case modifiers for High Manual Dexterity (p. 59) or Ham-Fisted (p. 138) would apply. In rare cases, even a *ST*-based Artist roll might make sense – for instance, to work with a physically tough material.

You *must* specialize in an art form. Common specialties include:

Body Art: Tattooing, piercing, and scarification. Both this specialty and Painting suffice for henna or temporary tattoos, but cosmetic *surgery* requires Surgery skill (p. 223).

Calligraphy: Beautiful and decorative handwriting. You need not be literate!

Drawing: All forms of charcoal, ink, pastel, and pencil work.

Illumination: Decorating written text with miniature paintings and pictures.

Illusion: Creating believable or evocative illusions. *Prerequisite:* magical or psionic illusion ability of some kind.

Interior Decorating: Creating pleasing building interiors by selecting appropriate paints, fixtures, and furniture. *Default:* Architecture-3.

Painting: All forms of painting, whether on paper, canvas, or a wall, and whether with tempera, oil-based paint, or something more exotic (like blood).

Pottery: Working with various sorts of ceramics – especially clay.

Scene Design: Designing sets for the stage. *Default:* Architecture-3.

Sculpting: Creating three-dimensional art from ivory, stone, metal, etc.

Woodworking: All forms of fine woodwork, including cabinet-making and decorative carving. *Default:* Carpentry-3.

Calligraphy, Drawing, Illumination, and Painting default to one another at -2, and to or from Body Art at -4. Interior Decorating, Scene Design, and Woodworking default among themselves at -4. All other Artist specialties default to one another at -6.

An artist of any kind can take a further *optional* specialty (p. 169) in a particular medium or technique.

Many Artist specialties are used to earn a living rather than to create fine art, and some people regard them as "craft" skills, not "art" skills. It is up to *you* whether you focus on beauty, realism, or functionality.

Modifiers: Equipment modifiers (p. 345); -2 if the medium is unfamiliar (e.g., tempera when you are used to oils); -5 if the medium is difficult (e.g., marble, for a sculptor).

Astronomy/TL

IQ/Hard

Default: IQ-6.
Prerequisite: Mathematics (Applied).

This is the study of stars and other extraplanetary objects. An astronomer could answer questions about the Sun, the planets of the solar system, etc. An amateur who can locate stars and use a telescope, but not perform involved calculations, has an *optional* specialty (p. 169): Astronomy (Observational). This specialty does *not* require Mathematics as a prerequisite.

Autohypnosis

Will/Hard

Default: Meditation-4.

This skill allows you to tap reserves of inner strength by entering a trance-like state. It requires a concentration period of (20 - skill) seconds, minimum one second. You cannot talk or move during the initiation of the trance state. A successful skill roll allows you to do *one* of the following:

Improve Concentration. You get +2 to skill to perform a specific, lengthy mental task (e.g., break a code or write a computer program), but -2 to all unrelated IQ, Perception, and skill rolls. The task must be a relatively sedate one, done in a quiet place (library, lab, monastery, or placid wilderness).

Increase Will. You get +2 to Will (+5 on a critical success) for one hour. This applies to all attempts to resist interrogation, torture, or magical or psionic attack. This roll is at -2.

Negate Pain/Fatigue. Cancels the negative effects of being reduced to less than 1/3 of your FP or HP (but *not* the fatigue or injury itself). This roll is at -4, and you may only make one attempt per hour.

Axe/Mace

see *Melee Weapon,* p. 208

Battlesuit/TL

see *Environment Suit,* p. 192

Beam Weapons/TL†

DX/Easy

Default: DX-4.

This is the ability to use beam small arms. You *must* specialize by weapon type:

Pistol: Any handgun that fires an energy or particle beam.

Projector: Any energy weapon that emits an area-effect cone or field.

Rifle: Any long arm that fires an energy or particle beam.

These specialties default to one another at -4. Treat specific beam types (blaster, laser, stunner, etc.) as familiarities. Other modifiers are as per *Guns* (p. 198). In settings with both beam and projectile weapons, the Pistol and Rifle specialties of Beam Weapons default to the similarly named Guns specialties at -4, and vice versa.

See *Artillery* (p. 178) and *Gunner* (p. 198) for heavier beam weapons.

Bicycling

DX/Easy

Defaults: DX-4 or Driving (Motorcycle)-4.

This is the ability to ride a bicycle long distances, at high speeds, in rallies, etc. Roll at +4 if all you want to do is struggle along without falling off. An IQ-based Bicycling roll allows you to make simple repairs, assuming tools and parts are available.

Bioengineering/TL†

IQ/Hard

Default: Biology-5.

This is the ability to engineer living organisms with specific characteristics, or to create biotechnological products. You *must* specialize:

Cloning: The creation and growth of clones.
Genetic Engineering: The manipulation and modification of genes.
Tissue Engineering: The manufacture of organs and tissues.

These specialties default to each other at -4.

Biology/TL†

IQ/Very Hard

Defaults: IQ-6 or Naturalist-6.

This is the scientific study of the structure, behavior, and habitats of living organisms. You *must* specialize in the life of a particular planet type (see box). If you do not specify a planet type, your native planet type is assumed. The IQ default applies only to the planet type you grew up on. The default between different planet-type specialties is -4.

At TL6+, most biologists have an *optional* specialty (p. 169) as well. The most common options are biochemistry (the study of the chemical reactions that sustain life), botany (the study of plants), ecology (the study of environments), genetics (the study of heredity and genomes), marine biology (the study of ocean life), microbiology (the study of microscopic organisms), and zoology (the study of animals), but more obscure specialties are possible.

Planet Types

Biology, Geology (p. 198), and Meteorology (p. 209) *require* you to specialize by "planet type," as does the "Physical" specialty of Geography (p. 198). If you do not specify a planet type, your native planet type is assumed – so if the campaign will never leave your home world, save space and just write "Geology," "Biology," etc. ***GURPS*** sorts planets into six broad categories for these purposes.

Earthlike: Essentially, all habitable worlds.
Gas Giants: Jupiter/Uranus types.
Hostile Terrestrial: Venus types.
Ice Dwarfs: Comets and small moons composed almost entirely of snow or ice.
Ice Worlds: Rock worlds covered by a frozen "ocean."
Rock Worlds: Most moons, asteroids, etc.

Unless otherwise specified, all planet-type specialties for a given skill default to one another at -4.

Blind Fighting

Per/Very Hard

Defaults: None.
Prerequisites: Trained By A Master or Weapon Master.

You have learned to fight blindfolded or in absolute darkness. As a result, you can "sense" your targets without having to see them.

This skill enables you to use senses other than vision – mainly hearing, but also touch and even smell – to pinpoint exactly where your opponents are. A successful roll allows one melee attack or active defense without any penalties for lighting (even total darkness), blindness (temporary or permanent), or an invisible foe. However, attacks made in total darkness, while blind, or against invisible enemies have an extra -2 to target specific hit locations.

If you also know Zen Archery (p. 228), you can shoot targets without seeing them by making rolls on both skills at -6.

An opponent who knows you possess this ability can foil it by winning a Quick Contest of Stealth-4 vs. your Blind Fighting each turn. If he wins, you cannot detect him. However, Invisibility Art (p. 202) never works on you; it is completely useless against this skill.

Modifiers: Background noise gives a penalty: -1 for rain, -2 for heavy rain or a storm, -3 for a crowded, noisy area or heavy machinery, -4 for a full football stadium, or -5 in the middle of an artillery barrage. If you cannot hear *at all,* the roll is at -7, but you may still attempt a roll, as the skill is not completely based on hearing. Add your level of Acute Hearing to the roll. Add the *higher* of your ESP Talent (p. 256) or Telepathy Talent (p. 257).

Blowpipe

DX/Hard

Default: DX-6.

This is the ability to use a blowpipe. You can use this weapon to shoot small, usually poisoned, darts. You can also use it to blow powders at targets within one yard. Treat this as a melee attack, not as a ranged attack. Such attacks are always at +2 to hit.

Modifiers: -2 and up for wind, if outdoors.

Boating/TL†

DX/Average

Defaults: DX-5 or IQ-5.

This is the ability to handle a specific type of *small* watercraft. For large vessels that require multiple crewmen on a "bridge," use Seamanship (see *Crewman,* p. 185) and Shiphandling (p. 220).

Make a roll to get underway, to dock, and whenever you encounter a hazard. If using this skill at default,

also roll when you first enter the boat – to avoid falling in the water!

You *must* specialize:

Large Powerboat: Any boat with an enclosed cabin and an inboard motor. Includes cabin cruisers, houseboats, and patrol boats. *Defaults:* Motorboat-2, Sailboat-4, or Unpowered-4. This specialty (only) also defaults to Seamanship-4.

Motorboat: Any open powerboat – notably speedboats and any of the boats used with the Sailboat or Unpowered specialty when outfitted with an outboard motor. *Defaults:* Large Powerboat-2, Sailboat-3, or Unpowered-3.

Sailboat: Any small watercraft moving under sail. *Defaults:* Large Powerboat-4, Motorboat-3, or Unpowered-3.

Unpowered: Any small watercraft that relies on muscle power, whether it is paddled, rowed, or poled. Includes canoes, rowboats, and rafts. *Defaults:* Large Powerboat-4, Motorboat-3, or Sailboat-3.

Modifiers: -2 for an unfamiliar boat within your specialty (e.g., a kayak when you're used to a rowboat); -3 or worse for foul weather, navigational hazards, etc.

Body Control

HT/Very Hard

Defaults: None.

Prerequisites: Trained By A Master, Breath Control, and Meditation.

This ability lets you affect involuntary bodily functions such as heart rate, blood flow, and digestion. One use of this skill is to enter a deathlike trance, during which only those who can win a Quick Contest of Diagnosis vs. your Body Control skill even realize that you are alive. This requires (30 - skill) seconds of concentration, minimum one second.

You can also use this skill to flush poisons from your body. To do so, you must first roll against Poisons (or Alchemy, Pharmacy, etc., as appropriate) to identify the poison. You cannot attempt this roll until you know you have been poisoned. In most cases, you only discover this when the first symptoms show! A successful Body Control roll – adjusted by any modifier to the HT roll to resist the poison – flushes the poison in 1d hours, after which it has no further effect.

Finally, you may use the *higher* of this skill and basic HT to resist any Affliction, magic spell, or psionic attack that is normally resisted by HT.

Body Language

Per/Average

Defaults: Detect Lies-4 or Psychology-4.

This is the ability to interpret a person's facial expressions and body posture in order to gauge his feelings. You can use it like the Empathy advantage (p. 51) or Detect Lies skill (p. 187), but only on a subject you can *see*. You can also use it to get a rough idea of what a party member is doing or about to do in a situation where he cannot communicate with you directly (for instance, when using Stealth). You can only observe one subject at a time.

The ability to read body language in *combat* is a standard part of any Melee Weapon or unarmed combat skill; see *Feint* (p. 365).

Modifiers: All Vision modifiers; physiology modifiers (see box); +4 if your subject is Easy to Read (p. 134). Anything that makes the subject harder to "read" gives a penalty: baggy clothing gives -1, a shield or a voluminous cloak gives from -2 to -4, and a mask gives -5 (and makes it *impossible* to use this skill if you cannot see the rest of the body!).

Body Sense

DX/Hard

Defaults: DX-6 or Acrobatics-3.

This is the ability to adjust quickly after teleportation or similar "instant movement." A successful roll lets you act normally on your next turn. A failed roll means disorientation: you may take no action other than defense for one turn. A critical failure means you *fall down,* physically stunned!

Modifiers: +3 for either level of Absolute Direction (p. 34). -2 if you changed facing, or -5 if you went from vertical to horizontal or vice versa (you cannot change *posture* during a teleport – only orientation).

Bolas

DX/Average

Defaults: None.

This is the ability to throw the *bolas:* a length of cord with two or more weights attached. Its primary uses are to stop herd animals and to hunt small game, but it can also entangle opponents in combat. See *Special Ranged Weapons* (p. 410) for bolas rules.

Physiology Modifiers

The following skills deal with the health, function, or vital points of living beings: Body Language, Diagnosis (p. 187), First Aid (p. 195), Physician (p. 213), Pressure Points (p. 215), Pressure Secrets (p. 215), and Surgery (p. 223). These skills work as written when working with members of *your* species. When dealing with a member of *another* species, apply the following modifiers:

Species with similar physiology: -2 (human vs. Elf) to -4 (human vs. troll).

Species with very different physiology, but still from your world: -5. This includes all normal animals.

Utterly alien species: -6 or worse (GM's option).

Machine: No roll possible! These skills do not work at all on creatures with the Machine meta-trait (p. 263).

A successful roll against a suitable skill lets you avoid these penalties. This roll is usually against the relevant racial specialty of Physiology, although Biology-4 suffices for common animals.

Bow

DX/Average

Default: DX-5.

This is the ability to use the longbow, short bow, and all similar bows. It also covers the compound bow, although a person who had never seen a compound bow would suffer a -2 unfamiliarity penalty.

Boxing

DX/Average

Defaults: None.

This is the skill of trained punching. Roll against Boxing to hit with a punch. Boxing does *not* improve kicking ability – use Brawling (p. 182) or Karate (p. 203) for that.

Boxing improves damage: if you know Boxing at DX+1 level, add +1 *per die* to basic thrust damage when you calculate punching damage. Add +2 per die if you know Boxing at DX+2 or better! Work out damage ahead of time and record it on your character sheet.

When you defend with bare hands, Boxing allows you to parry two *different* attacks per turn, one with each hand. Your Parry score is (skill/2) + 3, rounded down. Boxing parries are at -2 vs. kicks and -3 vs. weapons other than thrusting attacks. Boxing also gives an improved retreating bonus when you parry; see *Retreat* (p. 377). For more on barehanded parries, see *Parrying Unarmed* (p. 376).

Brain Hacking

see ***Brainwashing,*** below

Brainwashing/TL

IQ/Hard

Defaults: Special.
Prerequisite: Psychology.

This is the "black art" of technological personality alteration and mind control. Only intelligence, military, and security services teach it – and only to individuals with suitable Rank or Security Clearance. Even then, it is rare outside police states (except perhaps during wartime).

Brainwashing encompasses many techniques – some proven, others little better than witchcraft. Depending on the setting, these might include drugs, electroshock, hypnotism, sensory deprivation, sleep deprivation, social pressure, subliminal messages, or surgery . . . and most likely a combination of several of these.

Regardless of the techniques employed, brainwashing is handled as a Regular Contest (*not* a Quick Contest) between Brainwashing skill and the victim's Will. Roll once per day. Obviously, the brainwasher has a tremendous advantage: even if the victim wins *this* time, it is only a matter of time before he slips.

Results depend on how effective the GM deems brainwashing to be, but might include insanity, personality alteration, or suggestions that can be triggered by future events. In game terms, the victim can acquire almost any *mental* quirk or disadvantage.

In settings where neural interfaces exist, it might be possible to "hack" the victim's brain using a computer. This takes only a *fraction of a second* per attempt! Brain Hacking should be treated as its own skill, with Computer Hacking instead of Psychology as a prerequisite.

This skill normally has no default. However, GMs who wish to explore the gory details can specify the techniques used in their campaign and have Brainwashing default to one or more of Electronics Operation (Medical)-6, Hypnotism-6, Interrogation-6, Pharmacy-6, Psychology-6, or Surgery-6, as appropriate.

Brawling

DX/Easy

Defaults: None.

This is the skill of "unscientific" unarmed combat. Roll against Brawling to hit with a punch, or Brawling-2 to hit with a kick. Brawling can also replace DX when you attack with teeth, claws, horns, or other "natural weapons."

Brawling improves damage: if you know Brawling at DX+2 level or better, add +1 *per die* to basic thrust damage when you calculate damage with Brawling attacks – punches, kicks, claws, bites, etc. Work out damage ahead of time and record it on your character sheet.

Brawling includes the ability to use the blackjack or sap. An attack with such a fist load is considered a punch at +1 to damage.

When you defend with bare hands, Brawling allows you to parry two *different* attacks per turn, one with each hand. Your Parry score is (skill/2) + 3, rounded down. Brawling parries are at -3 vs. weapons other than thrusting attacks. For more on barehanded parries, see *Parrying Unarmed* (p. 376).

Breaking Blow

IQ/Hard

Defaults: None.
Prerequisite: Trained By A Master.

This skill allows you to find the weakest spot in any object when making a barehanded attack. Each attack requires a separate Breaking Blow roll. Roll against skill *after* you hit. Breaking Blow costs 1 FP per attempt, whether or not you hit.

On a success, your attack gains an armor divisor of (5) against any braced, inanimate, homogenous target (see *Injury to Unliving, Homogenous, and Diffuse Targets,* p. 380), and you may treat the target as if it were Fragile (Brittle) (p. 136) for this one attack.

In a cinematic game, you are not limited to inanimate targets. Your armor divisor affects any *artificial* armor or force field (*not* natural DR), and you may treat homogenous *opponents* as if they were Fragile (Brittle)!

On a failure, your attack gains no special benefits. On a critical failure, you do the damage to your own hand or foot.

Modifiers: -10 if used *instantly,* dropping to -5 after 1 turn of concentration, -4 after 2 turns, -3 after 4 turns, -2 after 8 turns, -1 after 16 turns, and no penalty after 32 turns. -1 if your target is wood or plastic, -3 if brick or stone, or -5 if metal or high-tech composites.

Breath Control

HT/Hard

Defaults: None.

This is the ability to breathe at maximum efficiency. On a successful skill roll, you can increase the time you can hold your breath for any reason (e.g., underwater) by 50%, or regain one FP in only two minutes (you cannot combine this with magic spells that restore FP).

Broadsword

see *Melee Weapon*, p. 208

Camouflage

IQ/Easy

Defaults: IQ-4 or Survival-2.

This is the ability to use natural materials, special fabrics and paints, etc. to hide yourself, your position, or your equipment. To see through your camouflage, an observer must win a Quick Contest of Vision or Observation skill (p. 211) vs. your Camouflage skill.

Depending on the circumstances, successful camouflage might hide its subject entirely or merely blur its outlines to make it harder to hit (-1 to attacker's skill). Camouflage will not improve your Stealth roll, but if you fail a Stealth roll while camouflaged, those who *heard* you must still see through your camouflage to *see* you.

Modifiers: Equipment modifiers (p. 345). Apply a *penalty* equal to the Size Modifier of a large object (e.g., -5 for a tank with SM +5). This makes it difficult to camouflage large objects, but remember that distant observers suffer large Vision penalties for range – see *Vision* (p. 358).

Captivate

see *Enthrallment*, p. 191

Carousing

HT/Easy

Default: HT-4.

This is the skill of socializing, partying, etc. A successful Carousing roll, under the right circumstances, gives you a +2 bonus on a request for aid or information, or just on a general reaction. A failed roll means you made a fool of yourself in some way; you get a -2 penalty on any reaction roll made by those you caroused with. If you do your carousing in the wrong places, a failed roll can have other dangers!

Modifiers: Up to +3 for buying drinks or other entertainment for your fellow carousers; -3 for Killjoy (p. 140); -3 for Low Empathy (p. 142); -1 to -4 for Shyness (p. 154).

Carpentry

IQ/Easy

Default: IQ-4.

This is the ability to build things out of wood. A successful roll lets you do one hour's worth of competent carpentry. A failed roll means the work was bad. The GM may require DX-based Carpentry rolls for certain kinds of fine work.

Modifiers: Equipment modifiers (p. 345); +5 if you are being supervised or assisted by someone with skill 15 or better.

Cartography/TL

IQ/Average

Defaults: IQ-5, Geography (any) -2, Mathematics (Surveying)-2, or Navigation (any)-4.

This is the ability to create and interpret maps and charts. Roll against this skill to map any location as you move through it. At TL7+, this skill includes knowledge of computer mapping techniques and generating maps from sensor information.

Chemistry/TL

IQ/Hard

Default: IQ-6 or Alchemy-3.

This is the study of matter. A chemist can identify elements and simple compounds (but not necessarily drugs, magical substances, etc.). Given proper equipment, he could conduct complex analyses and syntheses.

Climbing

DX/Average

Default: DX-5.

This is the ability to climb mountains, rock walls, trees, the sides of buildings, etc. See *Climbing* (p. 349) for details.

Modifiers: +2 for Brachiator (p. 41); +3 for Flexibility *or* +5 for Double-Jointed (p. 56); +1 for Perfect Balance (p. 74); a penalty equal to encumbrance level (e.g., -1 for Light encumbrance).

Cloak

DX/Average

Defaults: DX-5, Net-4, or Shield (any)-4.

This is the skill of using a cloak or a cape as a weapon. It covers the use of two types of cloak: the waist-length "light cloak" (any cloak, cape, or coat weighing less than 5 lbs.) and the full-length "heavy cloak" (any cloak weighing 5 lbs. or more).

Offensively, you can use a cloak to entangle an opponent – see *Special Melee Weapon Rules* (p. 404) for details. You can also snap a cloak in your opponent's face or simply use it to block his vision, either of which counts as a Feint maneuver.

Defensively, a cloak works much like a shield. It provides a Defense Bonus (+1 if light, +2 if heavy) and gives a Block defense equal to (skill/2) + 3, rounded down. A cloak is not as robust as a shield, though! A light cloak has only DR 1 and 3 HP, while a heavy cloak has DR 1 and 5 HP.

Combat Art or Sport

DX/Varies

Defaults: Special.

You can opt to learn most combat skills in nonlethal forms aimed at either exhibition (Combat Art skill) or competition (Combat Sport skill).

Combat Art skills emphasize graceful movements and perfect stances. Since these skills still give a default to full-fledged, lethal combat skills (see below), they are a logical choice for Pacifists who want *some* combat ability.

Combat Sport skills concentrate on speed of movement and nondamaging attacks. A failed skill roll means a foul that might disqualify you from a tournament! You can make an IQ-based roll against Combat Sport to recall *basic* tournament rules, but to become a qualified judge or referee, learn the relevant Games skill (p. 197).

Combat Art and Sport skills are DX-based, with the same difficulty level and defaults as the corresponding combat skill. A combat skill, its Art form, and its Sport form default among themselves at -3. For instance, Staff Art and Staff Sport are DX/Average skills that default to DX-5, just like Staff skill (p. 208). A fighter with Staff at 15 would have default Staff Art and Staff Sport skills of 12, while an athlete with Staff Sport at 15 would have Staff and Staff Art skills at 12 by default.

Computer Hacking/TL

IQ/Very Hard

Defaults: None.
Prerequisite: Computer Programming.

This is the skill of gaining illegal access to a computer system – usually using another computer over a communications network. A successful Computer Hacking roll allows you to gain surreptitious access to a system, or to find (or change) information on a system you have already broken into. On a critical failure, you fail to gain access *and* leave some sort of incriminating evidence of your attempt.

This skill is cinematic, and simulates the way computer intrusion works in many movies and novels. It does not exist in realistic settings! Realistic "hackers" should learn a combination of Computer Operation (to exploit OS loopholes and run intrusion software), Computer Programming (to *write* intrusion software), Cryptography, Electronics Operation (Communications or Surveillance), Electronics Repair (Computers), Fast-Talk (to convince legitimate users to reveal passwords), Research (to find documented security holes), and Scrounging (to "Dumpster dive" for manuals, passwords on discarded sticky notes, etc.).

Modifiers: Equipment modifiers (p. 345). -1 to -10 if you have been away from the field for a long time and have not had a chance to become familiar with the changes. Security measures give a penalty, from -1 for the cheapest commercial security software to -15 for the latest technology. Some measures *resist* your intrusion attempt; treat this as a Quick Contest of Hacking vs. the effective skill of the defenses.

Computer Operation/TL

IQ/Easy

Default: IQ-4.

This is the ability to use a computer: call up data, run programs, play games, etc. It is the only computer skill needed by most end users. Learn Computer Programming (below) to write software and Electronics Repair (Computers) (p. 190) to troubleshoot hardware.

This skill only exists in game worlds with computers. Individuals from settings without computers cannot even use it by default until they have had time to gain familiarity with computers! In settings where it is possible to "jack" your brain into a computer, Computer Operation includes the ability to use a neural interface, but new users initially suffer a -4 penalty for unfamiliarity (see *Familiarity,* p. 169).

Modifiers: -2 or more for an unfamiliar computer, operating system, or program.

Computer Programming/TL

IQ/Hard

Defaults: None.

This is the ability to write and debug computer software. A successful roll lets you find a bug in a program, determine a program's purpose by examining the code, answer a question about computer programming, or write a new program (time required is up to the GM).

In settings where artificial intelligence (AI) exists, those who wish to work with AI must learn Computer Programming (AI). There is no default between this skill and regular Computer Programming. When using Detect Lies, Fast-Talk, Psychology, Teaching, and similar "social" skills on an AI, roll against the *lower* of Computer Programming (AI) and the relevant skill.

Modifiers: -2 or more for an unfamiliar programming language (see *Familiarity,* p. 169). The time modifiers under *Time Spent* (p. 346) will often apply. When writing a program that deals with a specialized field of knowledge, the GM may require a roll against the *lower* of Computer Programming and your skill in that field (e.g., a Mathematics specialty for a complex mathematical program, or the lower of Teaching skill and a "subject" skill for an expert system that will assist users with a particular subject).

Connoisseur†

IQ/Average

Defaults: IQ-5 and others.

This skill represents an *educated* understanding of art and luxury items. It is vital to art dealers, critics, master thieves, and anyone who wishes to appear cultured. A successful roll lets you predict what critics will think of a piece of art, assess how much it will fetch on the market (+1 to Merchant skill when trading it), or impress the culturally literate (may give +1 to Savoir-Faire or reaction rolls, at the GM's option).

You *must* specialize. Specialties include Dance, Literature, Music, Visual Arts, and Wine. Each specialty defaults to skills used to *study* or *create* the art at -3: Connoisseur (Literature) defaults to Literature, Poetry, or Writing at -3; Connoisseur (Music) defaults to Group Performance (Conducting), Musical Composition, or Musical Instrument at -3; and so on.

Modifiers: Cultural Familiarity modifiers (p. 23); -3 for Killjoy (p. 140).

Cooking

IQ/Average

Defaults: IQ-5 or Housekeeping-5.

This is the skill of being a chef – you do not need it to heat water and open boxes, or to cook rat-on-a-stick over your campfire. A successful skill roll allows you to prepare a pleasing meal. Many chefs have an *optional* specialty (p. 169), such as baking, beverage making, or a particular variety of ethnic cuisine (e.g., Chinese or Martian).

Counterfeiting/TL

IQ/Hard

Defaults: IQ-6 or Forgery-2.

This is the art of duplicating banknotes and coins. It is only taught by the underworld and government agencies (although this is rare outside of rogue states, except in wartime). Time required varies from days to weeks (GM's option). The GM secretly rolls against your Counterfeiting skill for each "batch" of money.

A critical success means that the fakes *in that batch* are as good as the real thing.

An ordinary success means that your work is good but not perfect. Whenever you try to pass the counterfeit money, the GM makes a *second* skill roll for you, with all the same modifiers. If this roll fails, the recipient spots your handiwork. To successfully pass bogus currency to someone who has reason to be suspicious, you must win a Quick Contest of Counterfeiting vs. the *highest* of his Perception, Forensics, and Merchant.

Any failure on the initial Counterfeiting roll means that the first person to receive the money immediately realizes that it is bogus. Critical failure – on the initial roll or any subsequent roll – has other ramifications: the recipient is an undercover cop, an armed and angry citizen, etc.

Modifiers: Equipment modifiers (p. 345). Materials – ink, paper, presses, etc. – stolen from the legitimate mint can give from +1 (a few rolls of paper) to +10 (actual plates or molds). You *must* have a sample of the real thing or you cannot make the attempt at all!

Crewman/TL

IQ/Easy

Default: IQ-4.

This is the ability to serve as *crew* aboard a specific type of large vehicle. It includes familiarity with "shipboard life," knowledge of safety measures, and training in damage control (the use of emergency equipment to control flooding, fight fires, patch the hull, and so forth). Make a skill roll for basic map or chart reading, practical meteorology, or to recall laws and regulations that pertain to your vehicle.

This skill also lets you steer the vessel. It is easier than Piloting, Submarine, and similar skills because it *only* includes knowledge of how to steer. Specialists handle such activities as plotting courses and operating sensors. These experts report to the captain, who in turn tells you how to maneuver. Make a DX-based skill roll whenever you take the helm – but note that your effective skill cannot exceed your captain's Shiphandling skill (p. 220).

The *average* Crewman skill of an entire crew can be used as a measure of overall crew quality. The GM rolls against average skill whenever the vehicle arrives or departs, in unfavorable conditions, or in battle. Failure and critical failure results depend on the circumstances.

Connoisseur represents an educated understanding of art and luxury items. It is vital to art dealers, critics, master thieves, and anyone who wishes to appear cultured.

There is a separate skill for each class of vessel:

Airshipman/TL: The skill of handling ballast, gas valves, mooring lines, etc. on a blimp, zeppelin, or other large airship.

Seamanship/TL: The skill of operating anchors, hatches, mooring lines, pumps, sails, windlasses, etc. aboard a large surface ship (but *not* a submarine).

Spacer/TL: The skill of working with airlocks, docking clamps, hull patches, pressure doors, etc. on a large spacecraft or space base.

Submariner/TL: The skill of handling pressure doors, pumps, valves, etc. aboard a submarine or in an undersea base.

Criminology/TL

IQ/Average

Defaults: IQ-5 or Psychology-4.

This is the study of crime and the criminal mind. A successful skill roll allows you to find and interpret clues, guess how criminals might behave, etc. Though this skill does not actually default to Streetwise, the GM might allow a Streetwise roll *instead* in certain situations – especially to predict or outguess a criminal.

Modifiers: -3 for Low Empathy (p. 142).

Crossbow

DX/Easy

Default: DX-4.

This is the ability to use all types of crossbows, including the pistol crossbow, prodd (which fires pellets or stones), repeating crossbow, and high-tech compound crossbow.

Cryptography/TL

IQ/Hard

Default: Mathematics (Cryptology)-5.

This is the ability to create and defeat encryption systems, codes, and ciphers. It is of use in wartime, espionage, and even business dealings. It covers all the techniques of your TL, which can range from unsophisticated substitution ciphers to state-of-the-art tactical encryption schemes. Knowledge of a *specific* system, code, or cipher depends on your Security Clearance (p. 82) and allegiances (national, administrative, or both). In many settings, some level of Security Clearance is a prerequisite to learning this skill *at all.*

Treat an attempt to break an unknown code as a Quick Contest of Cryptography skill between the code-breaker and code-maker. The code-breaker must *win* to break the code. Repeated attempts are possible, but each attempt takes a day. The code-maker rolls only once, when he first creates the code.

Those with Cryptography skill may take an *optional* specialty (p. 169) in making or breaking codes. (The code-breaking specialty is often called "cryptanalysis.")

Cryptography normally has *no* IQ default, with two exceptions. Anyone can devise a trivial code or cipher by making an IQ-5 roll. This won't stall a professional for long, of course. Likewise, anyone can make an IQ-5 roll to attempt to break such a trivial code (but *not* a code devised by someone with Cryptography skill), using the Quick Contest system described above.

Modifiers: Mathematical Ability (p. 90). A computer with appropriate software gives a bonus (provided you know Computer Operation skill): +1 for a home computer, +2 for a minicomputer, +3 or +4 for a mainframe, and +5 or more for a supercomputer. The *code-breaker* is at +5 if he has a sample of the code with translation, and -5 if the message to be decoded is shorter than 25 words. The *code-maker* receives a bonus for the time taken to create the code: consult the *Size and Speed/Range Table* (p. 550), look up the time in days in the Range/Speed column (substituting "days" for "yards"), and use the corresponding bonus.

Current Affairs/TL†

IQ/Easy

Defaults: IQ-4 or Research-4.

This is the ability to assimilate *quickly* whatever qualifies as "news" in your world, and to recall it as needed.

You *must* specialize in one of the following areas:

Business: Exchange rates, investment performance, etc.

Headline News: Usually *bad* news, such as assassinations, plagues, and wars.

High Culture: Information on galleries, operas, symphonies, and so forth.

People: The names of and gossip on celebrities, heads of state, and the like.

Politics: Election results, international treaties, etc.

Popular Culture: Hit songs, cool fashions, and hot products, among other things.

Regional: News of all kinds for a specific region (pick one). This is the definitive "town crier" skill at low TLs.

Science & Technology: New discoveries and inventions.

Sports: Scores for recent matches, names of star athletes, etc.

Travel: Where the "beautiful people" are going this year, and how much it all costs.

These specialties default to one another at -4. It is hard to bone up on one kind of news without learning about all the others!

On a successful Current Affairs roll, the GM will inform you of any news within your specialty that pertains to the current adventure (possibly including clues, on a good roll) or give you a small skill bonus (e.g., a success on Current Affairs (Sports) might give +1 to Gambling skill when betting on a boxing match).

Modifiers: -1 per *day* that you have been unable to access news media; -3 if you only have one source; +1 or more for "inside" access to the news (a subscription to an ordinary wire service is worth +1, while a job at an intelligence agency might give +3 or more).

Dancing

DX/Average

Default: DX-5.

This is the ability to perform dances appropriate to your own culture, and to learn new dances quickly. Note that certain physical handicaps make this skill effectively impossible!

Exotic dances abound in fiction and history: blade dancing, bull dancing, fire dancing, snake dancing, etc. The GM may decide that each is a separate DX/Average skill that defaults to Dancing-5.

Modifiers: Cultural Familiarity modifiers (p. 23); -5 if the dance is unfamiliar (a dance is familiar once you have successfully performed it three times).

Detect Lies

Per/Hard

Defaults: Perception-6, Body Language-4, or Psychology-4.

This is the ability to tell when someone is lying to you. It is not the same as Interrogation (p. 202); Detect Lies works in a casual or social situation. When you ask to use this skill, the GM rolls a Quick Contest of your Detect Lies skill vs. your subject's IQ (or Fast-Talk or Acting skill). If you win, the GM tells you whether the subject is lying. If you lose, the GM may lie to you about whether you were lied to . . . or just say, "You can't tell."

Modifiers: +1 for Sensitive *or* +3 for Empathy (p. 51), or -3 for Low Empathy (p. 142); +4 if your subject is Easy to Read (p. 134). If the subject is of a different species, the GM may assess a penalty – see *Physiology Modifiers* (p. 181).

Diagnosis/TL

IQ/Hard

Defaults: IQ-6, First Aid-8, Physician-4, or Veterinary-5.

This is the ability to tell what is wrong with a sick or injured person, or what killed a dead person. A successful roll gives some information about the patient's problem – *limited to realistic knowledge for your tech level.* It might not determine the exact problem (if the GM feels the cause is totally beyond your experience, for instance), but it always gives hints, rule out impossibilities, etc. No Diagnosis roll is required for *obvious* things, like open wounds and missing limbs!

Modifiers: Equipment modifiers (p. 345); physiology modifiers (p. 181); -5 for internal injuries; -5 or more for a rare disease.

Diplomacy

IQ/Hard

Defaults: IQ-6 or Politics-6.

This is the skill of negotiating, compromising, and getting along with others. You may substitute a Diplomacy roll for any reaction roll in a noncombat situation, as described under *Influence Rolls* (p. 359).

Unlike other Influence skills, Diplomacy never gives a worse result than if you had tried an ordinary reaction roll. Failure with Fast-Talk or Sex Appeal alienates the subject, but Diplomacy is usually safe.

A successful roll also allows you to predict the possible outcome of a course of action when you are negotiating, or to choose the best approach to take.

If you know Diplomacy at level 20 or better, you get a +2 bonus on all reaction rolls!

Modifiers: +2 for Voice (p. 97); -3 for Low Empathy (p. 142); -1 for Oblivious (p. 146); -1 to -4 for Shyness (p. 154); -2 for Stuttering (p. 157).

Disguise/TL†

IQ/Average

Defaults: IQ-5 or Makeup-3.

This is the art of altering your appearance using clothing, makeup, and prosthetics. You do not need this skill to don a quick disguise – e.g., to put on a lab coat when you enter a laboratory – but such disguises only fool the inattentive! A *good* disguise requires a Disguise roll and 30 minutes to an hour of preparation.

Roll a Quick Contest of Disguise skill vs. the Perception of *each person* your disguise must fool. Individuals with Criminology or Observation skill may substitute those skills for Perception when rolling to penetrate a disguise. The GM may allow other skills to be of use – for instance, Physician skill might help spot a rubber nose.

When combining Acting (p. 174) with Disguise (that is, when you must change your face *and* your personality), you need only make one roll for each person or group – but it must be the *harder* of the two rolls.

If there is more than one sapient species in your world, you *must* specialize by race – Disguise (Human) is nothing like Disguise (Bug-Eyed Monster). Disguise specialized in your own species is the most common form; just list this as "Disguise" on your character sheet. Disguise skills for physically similar species default to one another at -2 to -4.

Modifiers: Equipment modifiers (p. 345). +4 for Elastic Skin (p. 51). You are at -1 to -5 to disguise yourself as someone very different from you (GM's discretion). Distinctive appearance also gives a penalty – see *Build* (p. 18), *Unnatural Features* (p. 22), and specific disadvantages (e.g., Hunchback, p. 139) for details. Differences in Size Modifier usually make Disguise *impossible*.

You can also learn Disguise (Animals) to deceive nonsapient creatures. This involves wearing animal skins, smearing your body with musk or dung, etc. There is no default between this and other Disguise specialties. Use the following modifiers *instead* of those given above.

Modifiers: +2 if approaching from downwind; -1 for each animal over one of the same type being approached (-1 for every *10* in the case of herd animals); -1 to -3 if the skins are old or in poor condition. Make a Naturalist roll to recall the habits of the animal being imitated; success gives +1 to +3, while failure gives -1 to -3.

Diving Suit/TL

see *Environment Suit,* p. 192

Dreaming

Will/Hard

Default: Will-6.

This is the skill of controlling and remembering your dreams. A successful skill roll lets you experience vivid dreams about a subject of your choosing. Use the Fortune-Telling (Dream Interpretation) skill to *interpret* your dreams. In some game worlds, this might be a useful divinatory technique (GM's decision).

A Dreaming roll can also help you recall a previously forgotten piece of information, or something you witnessed but did not consciously note. This technique is much less reliable than Eidetic Memory (p. 51), though. The GM will describe your dreams to you, working clues into the narrative. It is up to you, the *player,* to spot these hints!

Finally, you can use this skill to combat malign supernatural influences on your dreams. Resolve this as a Quick Contest between your Dreaming skill and your harasser's skill at dream control. If you win, you shut out the external influence.

Driving/TL†

DX/Average

Defaults: DX-5 or IQ-5.

This is the ability to drive a specific type of ground vehicle.

Make an IQ-based Driving roll for basic map reading, to diagnose simple malfunctions, or to recall rules of the road.

You *must* specialize:

Automobile: Any vehicle with three or more wheels that weighs less than 5 tons and does not move on rails. *Defaults:* Heavy Wheeled-2 or other Driving at -4.

Construction Equipment: Any kind of bulldozer, crane, plow, etc. *Default:* other Driving at -5.

Halftrack: Any vehicle that moves on tracks *and* either wheels or skids. *Defaults:* Tracked-2 or other Driving at -4.

Heavy Wheeled: Any vehicle with three or more wheels that weighs 5 tons or more and does not move on rails. *Defaults:* Automobile-2 or other Driving at -4.

Hovercraft: Any kind of air-cushion vehicle. *Default:* other Driving at -5.

Locomotive: Any vehicle that moves on conventional or maglev rails. *Default:* other Driving at -5.

Mecha: Any kind of legged, bouncing, rolling, or slithering vehicle. *Defaults:* Battlesuit-3 or other Driving at -5.

Motorcycle: Any powered one- or two-wheeled vehicle, including those with sidecars. Large motorcycles often have a Minimum ST, just like a weapon (see p. 270). *Default:* Bicycling-4.

Tracked: Any vehicle that moves on tracks. *Defaults:* Halftrack-2 or other Driving at -4.

Note that the ability to "drive" a team of animals is not Driving, but Teamster (p. 225).

Modifiers: -2 or more for bad driving conditions; -2 or more for a vehicle in bad repair; -2 for an unfamiliar control system (e.g., an automatic when you are used to a manual); -4 or more for a vehicle of an unfamiliar type within your specialty (e.g., a race car when you are used to stock cars).

Dropping

DX/Average

Defaults: DX-3 or Throwing-4.

This is the skill of dropping heavy objects on your foes while flying. Treat this as a ranged attack made from above. Learn Dropping if you wish to drop boulders and similar projectiles on individual opponents while on the wing. Use Artillery (Bombs) to attack areas with explosive ordnance, etc.

Economics

IQ/Hard

Defaults: IQ-6, Finance-3, Market Analysis-5, or Merchant-6.

This is the study of the *theory* of money, markets, and financial systems. It is mainly an academic skill, but a successful skill roll allows you to predict the economic impact of events in the game world: the assassination of a political figure, the demolition of a power plant, the introduction of a new invention, etc. Adventurers with intelligence and military backgrounds frequently have some training in this skill.

Electrician/TL

IQ/Average

Defaults: IQ-5 or Engineer (Electrical)-3.

This is the skill of building, maintaining, and repairing electrical systems. Make a skill roll to diagnose an electrical fault, wire a building or vehicle, etc. Adventuring uses include damage control in combat (e.g., to restore power to a damaged vehicle system) and cutting the power to a building prior to clandestine activities.

Note that *electrical* and *electronic* systems are not the same thing. The equivalent skill for electronics is Electronics Repair (p. 190).

Modifiers: Equipment modifiers (p. 345).

Electronics Operation/TL†

IQ/Average

Defaults: IQ-5, Electronics Repair (same)-5, or Engineer (Electronics)-5.

This skill lets you use all electronic equipment *within a known specialty.* Make a skill roll in an emergency situation or for "abnormal" use of equipment – not for ordinary, everyday use. (*Exception:* Unskilled users must always attempt their default roll!)

You *must* specialize. Available specialties vary by game world, but might include:

Communications (Comm): All forms of electronic communications technology: radios, satellite uplinks, laser communicators, etc. Includes knowledge of any standard, current communications codes appropriate to your background. These do not require a skill roll – although attempts to understand or use an unfamiliar code *do* require a roll. At TL5-7, this includes telegraphy: you can send or receive 2 words per minute (wpm) per point of skill at TL5, 3 wpm per point of skill at TL6-7.

Electronic Warfare (EW): All signals-intelligence and jamming equipment, including electronic countermeasures (ECM) and electronic counter-countermeasures (ECCM). In most game worlds, only intelligence agencies and the military teach this specialty – and only to individuals with suitable Military Rank (p. 30) or Security Clearance (p. 82).

Force Shields: Portable, vehicular, base, and starship force shields and deflectors.

Matter Transmitters (MT): All matter transmitters and teleporters. Critical failures can be disastrous, especially when transmitting living beings!

Media: All forms of audio, film, and video editing equipment. If three-dimensional video ("holographics") or sensory recordings ("sensies") exist in the setting, this specialty includes the ability to operate the relevant equipment. Treat different media as mutually unfamiliar technologies.

Medical: All manner of electronic diagnostic and life-support equipment.

Parachronic: Technological means of travel between dimensions or timelines.

Psychotronics: Psionic technology, such as telepathic shields and amplifiers.

Scientific: Laboratory electronics and survey gear. You are automatically familiar with the equipment used with any scientific skill on which you have spent at least one point.

Security: Both operating and circumventing all forms of alarms, security sensors, and area-surveillance technology.

Sensors: Most forms of long-range detection gear, from air-defense radar to starship sensor suites. Certain highly specialized sensors (such as sonar, below) have their own specialties.

Sonar: All types of acoustic detection and ranging gear (normally used underwater).

Surveillance: All forms of concealable or remote surveillance gear: "bugs," hidden cameras, long-range microphones, wiretaps, etc.

Temporal: All manner of time machines. Critical failures can be disastrous for the time travelers! Make separate rolls to "lock onto" and transfer the travelers.

These specialties default to one another at -4; however, the GM is free to rule that in *his* campaign, there is no default between exotic specialties (Parachronic, Psychotronics, etc.) and mundane ones (Media, Security, etc.). The technologies covered by a particular specialty vary with TL. For instance, Electronics Operation (Comm) covers telegraphs at TL5, telephones and radios at TL6, and digital communications systems at TL8 . . . and might cover faster-than-light or telepathic communicators at higher TLs.

Familiarity (p. 169) is crucial here! Electronics Operation/TL8 (Sensors) covers both thermographs on fighter jets and ground-penetrating radars on satellites, but going from one to the other gives you -2 for type (thermograph to radar) and -2 for implementation (jet to satellite), for a net -4 to skill until you familiarize yourself with all the differences.

Modifiers: Equipment modifiers (p. 345); -2 for an unfamiliar technology of a known type (e.g., radar when you are used to thermograph) or an unfamiliar implementation of a familiar technology (e.g., air-defense radar when you are used to weather radar); -1 to -10 if you have been away from the field for a long time (this varies by field) and have not had a chance to become familiar with the changes.

Skills for Design, Repair, and Use

When choosing technological skills for your character, it can be helpful to bear in mind that such skills govern three distinct classes of activity:

Design. An inventor, gadgeteer, or mad scientist requires skills that let him design and build new inventions, redesign existing ones, and deduce the function of (and reverse-engineer!) unknown technologies. The key skill here is Engineer – specialized in the inventor's fields of interest – but Bioengineering (for biotechnology) and Computer Programming (for software) are equally appropriate.

Repair. A craftsman or technician needs skills that enable him to troubleshoot and repair known devices, perform major overhauls and upgrades, install new equipment, and customize existing gear. The most important skills of this type are Armoury, Electrician, Electronics Repair, Machinist, and Mechanic.

Use. A detective, soldier, spy, or similar professional needs skills that let him operate specialized equipment, conduct routine maintenance on his gear, and identify common makes and models (and their strengths and weaknesses). Such skills include Computer Operation, Electronics Operation, Environment Suit, Explosives, vehicle skills (Crewman, Driving, Shiphandling, etc.), and weapon skills (Artillery, Guns, etc.).

These skills form "design-repair-use triads"; e.g., Engineer (Electronics)-Electronics Repair-Electronics Operation for electronic devices, Engineer (Vehicle)-Mechanic-Driving for vehicles, and Engineer (Small Arms)-Armoury-Guns for firearms. Cinematic adventurers with great depth of knowledge often have *all three* skills in a triad!

Electronics Repair/TL†

IQ/Average

Defaults: IQ-5, Electronics Operation (same)-3, or Engineer (Electronics)-3.

This is the ability to diagnose and repair known types of electronic equipment. Time required for each attempt is up to the GM. You *must* specialize in one of the areas listed under Electronics Operation (above), or in Computers (Electronics Repair (Computers) defaults to Computer Operation-5). These specialties default to one another at -4.

Modifiers: Equipment modifiers (p. 345); -2 without plans or schematics; -2 for an unfamiliar technology or implementation (just as for Electronics Operation); -4 to *modify* a device away from its intended purpose.

Engineer/TL†

IQ/Hard

Defaults: Special.

Prerequisites: Mathematics (Applied) at TL5+, plus others as noted.

This is the ability to design and build technological devices and systems. A successful roll lets you design a new system, diagnose a glitch, identify the purpose of a strange device, or improvise a gadget to solve a problem. Time required for each attempt is up to the GM.

Note that engineers are *designers* and *inventors;* they are not necessarily skilled at the routine operation or maintenance of the things they design! For instance, Engineer (Small Arms) lets you design a new assault rifle, but you need Armoury skill to maintain it and Guns skill to shoot it.

You *must* specialize. Possible fields include:

Artillery: Designing whatever passes for artillery at your TL, from trebuchets to smart missiles. *Default:* Armoury (Heavy Weapons)-6.

Civil: Planning highways, aqueducts, buildings, etc. *Default:* Architecture-6.

Clockwork: Designing wind-up gadgetry – watches, mechanical men, and the like. *Default:* Mechanic (Clockwork)-6.

Combat: Building or removing fortifications, trenches, etc. *Default:* Explosives (Demolition)-6.

Electrical: Designing electrical systems, such as power cells and transmission lines. *Default:* Electrician-6.

Electronics: Designing and building electronic apparatus, from computers to starship sensor arrays. (The specific technologies involved – vacuum tubes, transistors, photonics, etc. – will depend on the tech level.) *Default:* Electronics Repair (any)-6.

Materials: Concocting new structural materials. *Prerequisites:* Chemistry or Metallurgy. *Defaults:* Chemistry-6 or Metallurgy-6.

Microtechnology: Designing micromachines. *Default:* Mechanic (Micromachines)-6.

Mining: Designing underground structures. *Defaults:* Explosives (Demolition)-6 or Geology (any)-6.

Nanotechnology: Designing nanomachines. *Default:* Mechanic (Nanomachines)-6.

Parachronic: Designing apparatus for crossing dimensions or timelines. *Prerequisite:* Physics. *Default:* Electronics Operation (Parachronic)-6, but there is *no* default if your society has not discovered dimensional travel.

Psychotronics: Designing psionic technology, such as telepathic shields and amplifiers. *Default:* Electronics Operation (Psychotronics)-6, but there is *no* default for individuals from backgrounds where psionics do not exist.

Robotics: Designing robotics and cybernetics. *Default:* Mechanic (Robotics)-6.

Small Arms: Designing personal firearms, such as guns and portable rocket launchers. *Default:* Armoury (Small Arms)-6.

Temporal: Designing time machines. *Prerequisite:* Physics. *Default:* Electronics Operation

(Temporal)-6, but there is *no* default for individuals from backgrounds without time travel!

Vehicle Type: Designing a single, broad class of vehicle. Examples include Engineer (Automobiles), Engineer (Ships), and Engineer (Starships). *Default:* Mechanic (same vehicle type)-6.

Engineer specialties normally default to one another at -4; however, the GM is free to rule that in *his* campaign, there is no default between exotic specialties (Nanotechnology, Parachronic, Psychotronics, etc.) and more mundane ones (Civil, Combat, Mining, etc.).

Modifiers: Equipment modifiers (p. 345). Up to +5 to build a gadget if you can give the GM a good description of what you want it to do.

Enthrallment

Will/Hard

Defaults: None.
Prerequisites: Charisma 1 and Public Speaking at 12+.

Bards in fantasy can often influence others through storytelling. The GM may choose to represent this ability using the four Enthrallment skills described below. Depending on the setting, these skills might be magical, psionic, or a cinematic form of hypnotism. Each has a time requirement, FP cost, and duration, and requires *two* skill rolls to use.

At the outset of the tale, roll vs. Public Speaking skill; if you can't grab your audience's attention early on, you won't have much of a chance of controlling them by the end. On a success, proceed to the Enthrallment skill roll; critical success gives +1 on that roll. On a failure, you may still attempt the Enthrallment roll, but at a penalty equal to your margin of failure. Critical failure means your Enthrallment attempt fails automatically.

After the time required to enthrall has passed, roll a Quick Contest of your Enthrallment skill vs. the Will of each audience member. If you win, you affect your audience – see the individual skill description for effects. If you lose or tie, there is no effect. However, if you *critically* fail, your audience instantly turns hostile!

You may never learn these skills at a skill level higher than your Public Speaking skill.

Audience Size: An "audience" can be one listener or a hundred – as many as can hear the tale. However, the number of audience members that you can enthrall at one sitting is limited to your Charisma level *squared,* to a maximum of 25 people at Charisma 5.

Modifiers: All four Enthrallment skills are at -3 for Low Empathy (p. 142). If the *player* actually tells a good tale, the GM should reward him with +1 to +3 to the Public Speaking and Enthrallment rolls!

"Kill the king!" is acceptable; "Kill the king if he doesn't accede to our demands!" is not.

Captivate

Will/Hard

Defaults: None.
Prerequisite: Suggest at 12+.

This skill allows you to tell a story so skillfully that those listening lose their will and do whatever you want them to do. In effect, they believe themselves to be *in* the tale, and are vulnerable to being manipulated by you, the teller of the tale.

If you win the Quick Contest, the audience becomes intensely loyal to you. They follow *any* direct order you give. In the absence of a direct order, they act in your best interest, *as they understand it.* If you tell someone to do something very hazardous, or that goes against his usual code of behavior (GM's decision), he gets a Will-5 roll to break the captivation. Otherwise, he is your loyal supporter for all intents and purposes.

Time: 30 minutes of uninterrupted storytelling.
Fatigue Cost: 8 FP, whether successful or not.
Duration: Captivation lasts until the subject becomes unconscious or falls asleep, *you* become unconscious or fall asleep, you attack the subject, or the subject loses half his HP to injury.

Persuade

Will/Hard

Defaults: None.

This ability allows you to bring an audience over to your point of view, granting you a bonus to your reaction rolls with them. You may use this skill whenever a reaction roll is called for.

If you win the Quick Contest, add your margin of victory to any reaction roll those in the audience make regarding you – for any reason – to a maximum of +3 (+4 on a critical success). If you critically fail, the best possible reaction is Poor (see p. 560).

Time: 1 minute.
Fatigue Cost: 2 FP, whether successful or not.
Duration: Until you do something to change the audience's opinion!

Suggest

Will/Hard

Defaults: None.
Prerequisite: Persuade at 12+.

This ability lets you give your audience a single, simple suggestion. A suggestion should have no complex grammatical clauses – just a subject, verb, object, and at most two modifiers. "Kill the king!" is acceptable; "Kill the king if he doesn't accede to our demands!" is not. A given subject gets +5 to resist if your suggestion goes against his personal safety, and +3 if it goes against his beliefs, convictions, or knowledge.

If you win the Quick Contest, the audience members try to act on the suggestion to the best of their abilities – each assuming that the idea was his own.

Time: 20 minutes of uninterrupted storytelling.
Fatigue Cost: 6 FP, whether successful or not.
Duration: 10 minutes – or longer, if you continue to talk to the audience and can make a successful Suggest roll every 10 minutes! Once the suggestion lapses, audience members only wonder why they acted the way they did if the suggestion was something they would never have done normally.

Sway Emotions

Will/Hard

Defaults: None.
Prerequisite: Persuade at 12+.

This ability allows you to instill the audience with any one emotion. Allowed emotions include anger, boredom, depression, disgust, fear, greed, hate, jealousy, joy, love, lust, patriotism, peace, sadness, and unrest.

If you win the Quick Contest, your audience experiences the emotion you select. How they act as a result is up to the GM.

Time: 10 minutes of uninterrupted storytelling.
Fatigue Cost: 4 FP, whether successful or not.
Duration: One hour.

Environment Suit/TL

DX/Average

Defaults: DX-5 and others.

This is training in the use of a specific class of protective suit. Suits designed to shield the wearer from environmental or battlefield hazards frequently incorporate gadgets (such as autoinjectors and sensors) and life-support equipment. Some suits even contain motors to enhance ST or Move. As a result, you do not merely wear such gear – you *operate* it.

Roll against Environment Suit skill to get into or out of your suit *quickly.* A successful roll halves the time required. To activate a specific subsystem of a suit, or to gauge whether a suit is in good repair, make an IQ-based skill roll instead.

When rolling against DX or any DX-based skill while suited up, use the *lower* of your Environment Suit skill and your actual skill level. For instance, if you have DX 14, Stealth-15, and Vacc Suit-13, you will function at DX 13 and Stealth-13 while wearing a spacesuit. Particularly ungainly suits might give -1 or more to DX on top of this, regardless of skill level. On the other hand, some sleek, ultra-tech suits might not limit skills *at all!*

However, Environment Suit is *strictly* the skill of donning and operating the suit. Familiarity with and knowledge of dangerous environments is covered by other skills: Free Fall, Hazardous Materials, Survival, etc.

Each suit type requires its own skill. Examples include:

Battlesuit/TL: All kinds of powered battle armor and exoskeletons. Battle armor and exoskeletons are similar but not identical. If you only have experience with one, you are at -2 to operate the other until you gain familiarity (see *Familiarity,* p. 169).

Diving Suit/TL: All types of *hard* diving suits (as opposed to the wetsuits and drysuits used with Scuba skill). This includes "open dress" gear at TL5 and "hard hat" gear at TL6, both of which use a sealed helmet and supplied air, but not always a full, sealed suit. At TL7+, this skill covers true underwater "hardsuits." The GM may require Swimming rolls to *maneuver* while wearing such a suit. *Default:* Scuba-2.

NBC Suit/TL: All forms of hazardous materials ("HazMat") gear – including sealed, unpowered body armor that can be buttoned down against nuclear-biological-chemical (NBC) threats. Without this skill, you run the risk of misusing the equipment and being exposed to contamination. To *improvise* NBC gear, make an IQ-based skill roll at -5 to -15 to skill.

Vacc Suit/TL: Any kind of spacesuit. In addition to true vacuum suits, this includes suits intended for use in high-pressure, corrosive, and poisonous atmospheres.

Battlesuit, NBC Suit, and Vacc Suit default among themselves at -2. Diving Suit defaults to or from any other Environment Suit skill at -4.

Note that unpowered, unsealed body armor *never* requires an Environment Suit skill.

Erotic Art

DX/Average

Defaults: DX-5 or Acrobatics-5.

This represents general knowledge of advanced sexual technique. IQ-, HT-, and even ST-based rolls are common. Precise game effects are left to the GM's discretion.

Modifiers: +3 for Flexibility *or* +5 for Double-Jointed (p. 56); -3 for Killjoy (p. 140).

Escape

DX/Hard

Default: DX-6.

This is the ability to slip out of ropes, handcuffs, and similar restraints. The first attempt to escape takes one minute; each subsequent attempt takes 10 minutes.

The GM may apply a penalty for particularly secure bonds. For instance, modern police handcuffs would give -5 to Escape. You suffer only *half* these penalties if you dislocate the restrained limb (usually an arm). This requires (20 - skill) minutes of concentration, minimum one minute and a Will roll. However, if you fail your Escape roll by 3 or more when dislocating a limb, the limb suffers 1d damage. On a critical failure, you automatically take enough damage to cripple the limb!

Modifiers: +3 for Flexibility *or* +5 for Double-Jointed (p. 56); any bonus for Slippery (p. 85).

Esoteric Medicine

Per/Hard

Default: Perception-6.

This is the skill of treating illness and injury with techniques grounded in esoteric theory rather than analytical science. It is usually associated with a magical or spiritual tradition. The particulars vary by tradition, but might include acupuncture, massage, alchemical or herbal preparations, or such exercises as breath control and meditation.

The effectiveness of Esoteric Medicine relative to Physician (p. 213) is up to the GM. It might be more effective (especially if it can channel real supernatural power), equivalent but different, or less effective. It should always be at least as good as First Aid (p. 195) – the attentions of a trained healer of *any* kind are preferable to bleeding to death! In TL5+ settings, Esoteric Medicine is often *perceived* as "quack" medicine, regardless of actual effectiveness.

This skill might represent Ayurvedic medicine, *chi* treatment, Hermetic medicine, yin/yang healing, or any other historical or fictional healing discipline. In settings where multiple forms of treatment exist, healers must specialize in one specific tradition.

Exorcism

Will/Hard

Defaults: Will-6, Religious Ritual (any)-3, Ritual Magic (any)-3, or Theology (any)-3.

This is the ability to drive a spirit from a possessed person or haunted location. It is not a magical skill, but a religious ritual. Exorcism is not specific to any one religion. A Malay witch doctor and a Catholic priest can both perform exorcisms; their relative effectiveness depends on the originating culture of the *spirit*.

The length of the ritual is 15 minutes × the spirit's HT. Some spirits wait patiently through the ritual, anticipating the combat to come; others try to distract or even attack you before you can complete the ritual. Once the ritual is complete, roll against Exorcism skill.

On a failure, the spirit remains and you must wait at least a week before you can repeat the ritual. On a critical failure, immediately roll 3d+10 on the *Fright Check Table* (p. 360). Even if you keep your sanity, you may *never* attempt to exorcise this particular spirit again.

On a critical success, you immediately banish the spirit. On a regular success, you meet your opponent in a Quick Contest: your Exorcism skill vs. the *higher* of the spirit's ST or Will. When fighting a spirit in a living host, add higher of the ST or Will of the possession victim to your Exorcism skill as he tries to "push the spirit out."

If the spirit wins or ties, it retains its current status and you must wait at least a week before you can repeat the ritual. If you win, you drive the spirit from its haunt or victim. The spirit of a deceased mortal is laid to rest. For demons and similar entities, make a reaction roll. On a "Poor" or better reaction, the spirit flees in humiliation. On a "Bad" or worse reaction, the spirit immediately uses whatever resources it has to take vengeance on you and those nearby.

If the exorcism fails at any stage, make an IQ roll afterward. A success means that you learned something about the spirit that will help you in your *next* attempt to banish that foe, giving you +2 on later skill rolls. You may only claim this bonus once for a particular spirit.

Modifiers: -4 if you do *not* have one or more of Blessed (p. 40), Power Investiture (p. 77), or True Faith (p. 94); you might understand the ritual, but you lack holy support.

Expert Skill†

IQ/Hard

Defaults: None.

An Expert Skill represents cross-disciplinary knowledge of a single, narrow theme. When answering factual questions *on that theme,* you may substitute a roll against your Expert Skill for any IQ-based roll against any skill that has a default. Expert Skills do not exempt you from Cultural Familiarity (p. 23) or Language (p. 23) requirements, and never provide the ability to do practical tasks. Experts sometimes complement Expert Skills with related Area Knowledge skills (p. 176), but you must learn these separately.

You *must* specialize by theme, and the GM is free to forbid any theme he feels is too broad. Some examples:

Computer Security: Expertise at combating computer intrusion ("hacking"). Can stand in for Computer Operation, Cryptography, or Electronics Operation to spot "holes" in the security of a computer system. Use Computer Programming to patch or exploit such holes.

Conspiracy Theory: The study of interlocking networks of conspiracies. Can substitute for Anthropology, Geography, History, Literature, or Occultism to answer questions about conspiracies, and can also work as Intelligence Analysis for this purpose (only). This does *not* include hidden inner secrets, which are the province of Hidden Lore (p. 199).

Egyptology: The study of ancient Egypt. Can function as Anthropology, Archaeology, History, Linguistics, or Occultism for that purpose.

Epidemiology: The study of the spread of disease. Can serve as Biology, Diagnosis, Forensics, Geography, or Mathematics when deducing how a disease was spread.

Hydrology: The study of a planet's water. Can be used in place of Biology, Chemistry, Geography, Geology, or Meteorology to answer questions about precipitation, flooding, irrigation, etc.

Military Science: General expertise on military capabilities. Can substitute for Artillery, Armoury, Strategy, or Tactics to answer questions about – but not *use* – weapons or strategies.

Natural Philosophy: A general skill that usually replaces specific science skills (which might not even exist yet!) for scholars at TL1-4. Can be used in place of any science skill (e.g., Biology or Physics) to answer questions about how the universe is *believed* to work.

Political Science: The academic study of politics. Can substitute for Geography, History, Law, Politics, or Sociology when performing political analysis.

Psionics: The study of the psionic mind and brain. Can function as Biology, Diagnosis, Physician, Physiology, or Psychology when dealing with psi phenomena in living beings. *Cannot* substitute for Electronics Operation, Electronics Repair, and Engineer specialties that deal with psychotronics.

Thanatology: The esoteric study of death. Can stand in for Anthropology, Archaeology, Occultism, or Theology when dealing with death and the dead.

Xenology: General knowledge of the *known* races in your setting. Can substitute for Anthropology, History, Physiology, or Psychology to identify a member of a race different from your own, or to answer general questions about the race and its culture.

Explosives/TL†

IQ/Average

Defaults: IQ-5 and others.

This is the skill of working with explosives and incendiaries.

You *must* specialize:

Demolition: The ability to prepare and set explosives in order to blow things up. Make a roll whenever you use explosives in this way. A failure indicates an error. The gravity of the error depends on the amount by which you failed; a badly failed roll in close quarters can *blow you up!* Time required varies – it takes only a couple of seconds to set a prepared charge, but it might take *hours* to demolish a large bridge or a skyscraper. When setting an explosive trap, use this skill rather than Traps. Rolls to set a "trap" fuse (e.g., a land mine) instead of a timed fuse are at -2. *Defaults:* Engineer (Combat) or (Mining) at -3.

Explosive Ordnance Disposal (EOD): The ability to disarm and dispose of bombs and other explosives. When disarming a trap, roll a Quick Contest of your Explosives (EOD) skill vs. the Explosives (Demolition) skill of the person who created the device. A failure (or even a critical failure) does not necessarily mean an explosion – the GM can be much more creative than that! Sudden hissing noises, mysterious parts falling off, cramps, itches, and alarm bells are all possible in the right circumstances. It is best if the GM rolls the dice and describes the physical circumstances to the victim. Fright Checks are appropriate for the survivors of a failed EOD attempt! *Prerequisite:* DX 12+.

Fireworks: The skill of *making* pyrotechnic devices – fireworks, flares, smoke bombs, flash grenades, etc. Most of these things can be *used* by anyone. *Default:* Chemistry-3.

Nuclear Ordnance Disposal (NOD): The equivalent of Explosives (EOD) for nuclear devices. Disarming a military nuclear weapon is straightforward; disarming a homemade terrorist bomb might be more difficult. Only a critical failure *verified by a second critical failure* will result in a nuclear detonation. Any lesser failure will – at worst – detonate the high-explosive trigger and contaminate the immediate area with radioactive material . . . not that this is a great deal of consolation to those nearby.

Underwater Demolition (UD): The ability to prepare and set explosives underwater. This is otherwise identical to Explosives (Demolition). You usually need Scuba skill – or at least Swimming skill – to get into a position where you can use this skill.

These specialties default to one another at -4 *except* for Demolition and UD, which default to one another at -2, and EOD and NOD, which also default to one another at -2.

Modifiers: Equipment modifiers (p. 345); -1 to -5 for distractions (e.g., enemy fire or swarms of biting ants) or physical motion (e.g., a rocking boat or speeding bus). The time modifiers under *Time Spent* (p. 346) will often apply.

Falconry

IQ/Average

Defaults: IQ-5 or Animal Handling (Raptors)-3.

This is the skill of "hawking": hunting small game with a trained hawk. It includes knowledge of hunting and training techniques, as well as how to care for a falcon. Finding a wild falcon's nest in spring requires a week's search and a successful Falconry roll; a nest has 1d-3 chicks.

Farming/TL

IQ/Average

Defaults: IQ-5, Biology-5, or Gardening-3.

This is the skill of growing things. It is usually used to earn a living, but you can also use it to answer theoretical questions about or solve problems related to agriculture.

Fast-Draw†

DX/Easy

Defaults: None.

This skill lets you *quickly* draw a weapon from its holster, sheath, or hiding place. A successful roll means you ready the weapon instantly. This does not count as a combat maneuver; you can use the weapon to attack on the same turn. On a failure, you ready your weapon normally but may do nothing else on your turn. A critical failure means you *drop* the weapon!

You *must* specialize in one of these weapon types: Force Sword, Knife, Long Arm (rifle, shotgun, submachine gun, etc.), Pistol, Sword (any one-handed blade larger than a knife), or

Two-Handed Sword. The GM may add Fast-Draw skills for other weapons (or even tools) that one could reasonably draw quickly.

In addition to the above specialties, there are two Fast-Draw skills that allow you to reload missile weapons quickly:

Fast-Draw (Arrow): Lets you ready a single arrow, bolt, or dart instantly. This reduces the time required to reload a bow, crossbow, or blowgun by one second.

Fast-Draw/TL (Ammo): Reduces the time required to reload any kind of gun or beam weapon. The exact benefits depend on your weapon, but a successful roll always shaves at least one second off the reload time. This skill varies greatly with TL! At TL4, it covers powder-and-shot drills; at TL6+, it includes speed-loading techniques for detachable magazines; and at higher tech levels, it involves quickly replacing energy cells and attaching power cables.

For the Arrow and Ammo specialties, failure means you drop the arrow or bolt, or accidentally discard one round of ammunition. On a critical failure, you drop the entire quiver, powder horn, ammo box, magazine, etc., scattering loose ammunition everywhere!

Modifiers: Combat Reflexes (p. 43) gives +1 to all Fast-Draw specialties; Ham-Fisted (p. 138) gives -3 per level.

Fast-Talk

IQ/Average

Defaults: IQ-5 or Acting-5.

This is the skill of talking others into doing things against their better judgment. It is not taught (intentionally, that is) in school; you study it by working as a salesman, confidence man, lawyer, etc. In any situation that calls for a reaction roll, you may make an Influence roll against Fast-Talk instead; see *Influence Rolls* (p. 359).

If you have Fast-Talk at level 20 or better, you get +2 on all reaction rolls where you're allowed to talk!

Note that Fast-Talk differs from Acting (p. 174). In general, Fast-Talk is used to get someone to make a snap decision in your favor, while Acting is used for long-term dissimulation. However, there are situations in which the GM could allow a roll on either skill.

Modifiers: +2 for Voice (p. 97); -3 for Low Empathy (p. 142); -1 for Oblivious (p. 146); -1 to -4 for Shyness (p. 154); -2 for Stuttering (p. 157); -5 for Truthfulness (p. 159). The GM may ask you for details of the story you are using, rather than just let you say, "I'm using Fast-Talk." Your approach and the plausibility of the story may further modify the roll, at the GM's discretion.

Filch

DX/Average

Defaults: DX-5, Pickpocket-4, or Sleight of Hand-4.

This skill lets you steal objects that are sitting in plain sight . . . without being spotted. Roll against skill to shoplift, snatch documents off a desk, etc. If someone is *actively* watching the item you wish to snatch, you must win a Quick Contest of Filch vs. his Vision roll (or Observation skill, p. 211) to perform the theft unnoticed.

Filch only covers the theft itself. The GM might require rolls against Stealth to get close enough to make the attempt and Holdout to conceal stolen objects afterward.

Modifiers: +3 if the light is dim; +3 if you have a confederate to distract attention.

Finance

IQ/Hard

Defaults: Accounting-4, Economics-3, or Merchant-6.

This is the skill of managing money. It is a *practical* application of Economics (p. 189), much as Engineer skill is a practical application of Physics. A successful skill roll lets you broker a financial deal, raise capital for a new corporation, balance a budget, etc.

Modifiers: Business Acumen and Mathematical Ability *both* provide a bonus.

Fire Eating

DX/Average

Defaults: None.

This is the performance skill of extinguishing flames in your mouth without burning yourself. Make a skill roll for each item you wish to extinguish. On a success, you put out the flames. On a failure, you take 1d-3 damage (minimum 1) to your mouth.

This skill also includes fire *breathing:* igniting a stream of fuel blown from the mouth. At the GM's option, you may use this as an attack (1d-3 damage).

First Aid/TL

IQ/Easy

Defaults: IQ-4, Esoteric Medicine, Physician, or Veterinary-4.

This is the ability to patch up an injury in the field (see *Recovery,* p. 423). Make a skill roll to halt bleeding, suck out poison, give artificial respiration to a drowning victim, etc. Unusual problems must be identified using Diagnosis skill first.

Modifiers: Equipment modifiers (p. 345); physiology modifiers (p. 181).

Fishing

Per/Easy

Default: Perception-4.

This is the ability to catch fish – with a net, hook and line, or whatever method is used in your culture. If you have proper equipment and there are fish to be caught, a successful roll catches them. If you lack equipment, you can improvise.

Modifiers: Equipment modifiers (p. 345).

Flail

see *Melee Weapon,* p. 208

Flight

HT/Average

Default: HT-5.

Prerequisite: Flight advantage (p. 56).

This skill represents training for endurance flying. Use the *better* of Flight or HT when rolling to avoid fatigue due to flying. When traveling long distances, a successful Flight roll increases the distance traveled by 20%. If a group of fliers is traveling together, all must make the Flight roll in order to get the increased distance.

Flying Leap

IQ/Hard

Defaults: None.
Prerequisites: Trained By A Master or Weapon Master, and both Jumping and Power Blow.

This skill allows you to make incredible leaps. It costs 1 FP per attempt, successful or not.

On a success, you may immediately attempt a jump. Use the standard jumping rules (see *Jumping,* p. 352), but *triple* your jumping distance. On a failure, you may still attempt the jump, but you receive no bonus and make all jumping-related rolls at -5. On a critical failure, you fall down!

You may use Flying Leap to jump *into* someone as part of an attack. Such attacks are at an extra -2 to hit, but if you *do* hit, triple your ST for damage and knockback purposes. In a slam or collision, calculate Move from jumping distance as described for Super Jump (p. 89), and use this velocity to calculate damage.

Modifiers: -10 if used *instantly,* dropping to -5 after 1 turn of concentration, -4 after 2 turns, -3 after 4 turns, -2 after 8 turns, -1 after 16 turns, and no penalty after 32 turns.

Force Sword

see *Melee Weapon*, p. 208

Force Whip

see *Melee Weapon,* p. 208

Forced Entry

DX/Easy

Defaults: None.

This is the ability to kick in doors and windows, or demolish them with a crowbar, ram, or sledgehammer, without necessarily being adept at melee combat. Make a skill roll to hit an inanimate object with your foot or an impact weapon. Add +1 *per die* to basic thrust or swing damage if you have this skill at DX+1, +2 per die if you know it at DX+2 or better. Add a similar bonus (+1 or +2) to ST rolls made for forced entry. The damage bonus also applies when you use Melee Weapon skills to wreck inanimate objects *out of combat.*

For *subtle* break-ins, use Lockpicking skill (p. 206).

Forensics/TL

IQ/Hard

Defaults: IQ-6 or Criminology-4.

This is the ability to apply the principles of forensic science and criminalistics, such as the computation of bullet paths and the microscopic or chemical analysis of clues. Some disciplines require other skills. For instance, a forensic pathologist performing an autopsy would roll against Surgery skill.

Forgery/TL

IQ/Hard

Defaults: IQ-6 or Counterfeiting-2.

This is the ability to create falsified documents (identity cards, passports, etc.). It is not taught except by intelligence agencies and the underworld – although you can always study it on your own.

The time required to create a forgery ranges from days to weeks (GM decides). When you use a forged document, make your Forgery roll *each time* it is inspected – unless you roll a critical success on your first attempt. Failure means someone spots the forgery.

Some tasks require DX-based skill rolls, in which case modifiers for High Manual Dexterity (p. 59) or Ham-Fisted (p. 138) apply. The GM may allow Forgery to default to a suitable Artist specialty at -5 if you are doing the work entirely by hand.

Modifiers: Equipment modifiers (p. 345); +3 if you merely *altered* a genuine document; -5 if you did not have a sample to copy. The GM may also assign modifiers based on the severity of the inspection; a routine border check, for instance, would give a +5 bonus.

Fortune-Telling†

IQ/Average

Defaults: IQ-5, Fast-Talk-3, or Occultism-3.

This is the art of interviewing someone in order to learn more about his lifestyle and personality, and then using this information to make an "educated guess" about his future that you can pass off as supernatural divination. Suitable props – star charts, tea leaves, etc. – can enhance the illusion. Knowledge of traditional occult or religious beliefs (especially those of your subject) can also lend an air of legitimacy.

With the GM's permission, you can sometimes use Fortune-Telling in place of Fast-Talk (by making predictions that guide the subject toward a particular course of action), or Interrogation or Psychology (by asking the subject leading questions under the pretense of telling his fortune). This is only possible if the subject believes you are a genuine fortune-teller *and* you take the time to do a full "reading" for him.

You *must* specialize in a particular mantic art. Available specialties include Astrology, Augury (interpretation of natural omens, such as flocks of birds), Crystal Gazing, Dream Interpretation, Feng Shui, Palmistry, and Tarot.

This skill is *not* a paranormal talent, and the GM is under *no* obligation to supply you with hints of future events. You might wish to learn this skill if you have actual divinatory abilities, though, as it enables you to present your predictions in a culturally acceptable way. "I saw it in the stars" may be less likely to get you burned as a witch than "I cast a spell"!

Modifiers: +1 for Sensitive *or* +3 for Empathy (p. 51); any Charisma bonus; -3 if using Fortune-Telling in place of Fast-Talk, Interrogation, or Psychology.

Forward Observer/TL

IQ/Average

Defaults: IQ-5, Artillery (any)-5, and others.

This is the skill of being a "spotter" for artillery. It includes locating targets (with map and compass at TL6-, global positioning systems and satellite imagery at TL7+), marking targets (using smoke, a laser designator, etc.), matching ordnance to target for best effect, and calling in corrections to any fire you personally observe.

Failure means the ordnance misses the target; critical failures result in severe "collateral damage" or "friendly fire" incidents. The very worst critical failures (GM's decision) drop the ordnance on *your* position!

At higher tech levels, Forward Observer is less about observing targets and more about operating specialized technology such as drones, GPS, and laser designators. To remotely pilot a drone or use a laser designator to direct "smart" munitions onto a target, make a DX-based skill roll. At TL7+, Forward Observer defaults to Electronics Operation (any)-5.

Modifiers: Equipment modifiers (p. 345); -2 if you are unfamiliar with the artillery (e.g., aircraft bombs when you are used to naval guns); -3 per 500 yards between you and the target – but divide the actual range by the magnification of any vision aid first.

Free Fall

DX/Average

Defaults: DX-5 or HT-5.

This is the ability to operate in a free-fall (zero-gravity) environment. Roll against the *higher* of HT or Free Fall when you first enter free fall; see *Space Adaptation Syndrome* (p. 434) for the effects of failure. In addition, whenever you make a DX or DX-based skill roll in free fall, use the *lower* of Free Fall and your DX or skill. For instance, if you had Free Fall-14 and Karate-16, you would roll at 14 or less to land a punch.

Modifiers: +2 for 3D Spatial Sense (p. 34).

Freight Handling/TL

IQ/Average

Default: IQ-5.

This is the skill of supervising the loading and unloading of vehicles (*laborers* do not require this skill – just their foreman). A successful skill roll cuts the time required by 20%. Also roll against Freight Handling skill any time there is doubt as to whether an item of cargo was lost or damaged; on a success, it made the journey intact.

Gambling

IQ/Average

Defaults: IQ-5 or Mathematics (Statistics)-5.

This is skill at playing games of chance. A successful Gambling roll can (among other things) tell you if a game is rigged, identify a fellow gambler in a group of strangers, or "estimate the odds" in *any* tricky situation. When you gamble against the house, make a skill roll (the GM will secretly modify this roll if the odds are poor!). When you gamble against someone else, roll a Regular Contest of Gambling (p. 197) until one of you wins.

People often stake vast sums on games, and it might be possible to earn a living as a professional gamer.

Sleight of Hand skill (p. 221) is helpful if you want to cheat! To *spot* a cheater, roll a Quick Contest of your Gambling or Vision roll, whichever is *higher,* vs. your opponent's Sleight of Hand skill (for card or dice tricks) or IQ (for other kinds of cheating).

Modifiers: +1 to +5 for familiarity with the game being played; -1 to -5 if the game is rigged against you; -3 for Killjoy (p. 140), since you don't care if you win or lose.

Games†

IQ/Easy

Default: IQ-4.

This is the ability to play a game *well.* It includes knowledge of rules, etiquette, and tournament regulations. You *must* specialize in a particular game; possibilities include traditional board games (such as chess, *Go, hnefatafl,* and *mankala*), card games, war games, and computer games.

Many cultures regard the ability to play one or more games skillfully as a worthwhile social accomplishment. People often stake vast sums on games, and it might be possible to earn a living as a professional gamer. Games may also be played to settle disputes. In a fantasy world, a powerful monster or wizard might even challenge a hero to a game – with his life or the lives of his companions at stake!

Knowledge of the rules of a given sport is also a Games skill, but unlike other Games skills, sports specialties only allow you to *judge* an event. To *play,* learn the associated Sports (p. 222) or Combat Sport (p. 184) skill. As a referee, roll against skill to adjudicate a match, spot a subtle foul, determine the winner in a "photo finish" situation, etc. As an athlete, you can use Games to make an Influence roll (see *Influence Rolls,* p. 359) when dealing with a referee or judge, but this use is always at -3 or worse.

When you take a sports specialty, specify both the sport and the league or tournament type; e.g., Games (NFL Football) or Games (Olympic Judo). The rules of different leagues within the same sport default to one another at -2.

Modifiers: Cultural Familiarity modifiers (p. 23). Long-lived games have a body of knowledge that grows through time; therefore, when gamers from different times compete, the player from later in the timeline gets +1 to effective skill.

Gardening

IQ/Easy

Defaults: IQ-4 or Farming-3.

This is the ability to care for plants on a small scale. (For large-scale crops, use Farming skill, p. 194.) A skill roll lets you grow food, medicinal herbs, attractive flowers and trees, etc.

Modifiers: -2 to -4 for an unfamiliar method (e.g., hydroponics or bonsai when you're used to your back yard), crop (herbs, trees, and vegetables all differ), or geographical region. These three penalties are cumulative!

Garrote

DX/Easy

Default: DX-4.

This is the ability to strangle a victim with a rope or a wire. See *Special Melee Weapon Rules* (p. 404) for details. Note that you cannot use a garrote to parry.

Geography/TL†

IQ/Hard

Defaults: IQ-6 and others.

This is the study of the physical, political, and economic divisions of a planet, and how they interact. It is part physical science, part social science. You *must* specialize:

Physical: The study of the physical properties of a planetary surface. A physical geographer could answer questions about climate, terrain, and so forth. You must further specialize by planet type; see *Planet Types* (p. 180). *Defaults:* Geology (same planet type)-4 or Meteorology (same planet type)-4.

Political: The study of political regions – their borders, natural resources, industries, etc. A political geographer could answer questions about land claims, overpopulation, regional economic disparities, transportation networks, etc. *Default:* Economics-4.

Regional: The study of *all* of the above, but specific to a single region: New York, the United States, planet Earth, etc. The depth of knowledge decreases with the size of the region (see *Area Knowledge,* p. 176). *Default:* the relevant Area Knowledge skill at -6.

These specialties default among themselves at -5.

Geology/TL†

IQ/Hard

Defaults: IQ-6, Geography (Physical)-4, or Prospecting-5.

This is the science dealing with the structure of planets – their crust, mantle, and core. A geologist knows about minerals, oil, ores, etc.; about earthquakes and volcanoes; and about fossils. In the field, he can attempt to find water by using an "eye for country" (see *Survival,* p. 223).

You *must* specialize by planet type. See *Planet Types* (p. 180) for details.

Gesture

IQ/Easy

Default: IQ-4.

This is the ability to communicate through improvised hand signals. A successful skill roll will let you convey one *simple* idea to another person, or understand one simple idea he is attempting to get across to you. Gesture is not suited to complex communication, however.

Modifiers: Cultural Familiarity modifiers (p. 23) definitely apply! Different cultures develop distinct gesture vocabularies.

Group Performance†

IQ/Average

Defaults: IQ-5 and others.

This is the ability to arrange a performance and direct a group of performers in its execution – in rehearsal, in a studio, or before a live audience. A successful roll means the performance is pleasing. You *must* specialize in a particular performing art. All specialties have prerequisites: the specific skills listed below, plus any *one* of Diplomacy, Intimidation, or Leadership.

Choreography: The ability to instruct and lead a group of dancers. *Prerequisite:* Dancing. *Default:* Dancing-2.

Conducting: The ability to coordinate a group of musicians. Choirs, swing bands, symphony orchestras, etc. are different familiarities; see *Familiarity* (p. 169). *Prerequisites:* Any two Musical Instrument skills, *or* one Musical Instrument and Singing. *Defaults:* Musical Instrument-2 or Singing-2.

Directing: The ability to direct a group of actors. Film, opera, television, and theater are different familiarities. *Prerequisite:* Performance. *Default:* Performance-5.

Fight Choreography: Similar to Choreography, but for Stage Combat (p. 222) instead of Dancing. *Prerequisite:* Stage Combat. *Default:* Stage Combat-2.

Gunner/TL†

DX/Easy

Default: DX-4.

This is the ability to use a heavy weapon, usually one mounted on a tripod or a vehicle, to make a *direct-fire* attack – that is, to aim and fire at a target to which you have a line of sight. For *indirect* fire, use Artillery skill (p. 178). Roll against Gunner skill to hit the target.

Make an IQ-based skill roll to take immediate action (e.g., clear a stoppage or restart a crashed targeting computer), should your weapon fail. Loaders can make ST-based skill rolls to improve the rate of fire of certain crew-served weapons; see individual weapon descriptions for details.

You *must* specialize by weapon type. The available specialties vary by TL, but include one or more of:

Beams: Any kind of heavy directed-energy weapon: laser, particle beam, etc.

Cannon: Any kind of heavy projectile weapon – e.g., the main gun of a tank or an ultra-tech railgun on a starship – that fires single shots.

Catapult: Any kind of large, direct-fire mechanical bolt-thrower, such as a ballista.

Machine Gun: Any kind of heavy projectile weapon capable of firing bursts.

Rockets: Any kind of free-flight rocket fired from a mount.

These specialties default to one another at -4. The weapons covered by each specialty vary by TL. For instance, Gunner (Machine Gun) covers hand-cranked Gatling guns at TL5, automatic machine guns at TL6, autocannon at TL7, and electromagnetic machine guns at TL9+.

Familiarity is crucial here! Gunner/TL7 (Machine Gun) covers both tripod-mounted machine guns and aircraft autocannon, but going from one to the other gives you -2 for weapon type (machine gun to autocannon), -2 for aiming system (open sights to HUD), and -2 for mount (tripod to hull mount), for a net -6 to skill until you familiarize yourself with all the differences.

Modifiers: All applicable ranged combat modifiers; -2 for an unfamiliar aiming system (e.g., a camera when you're used to open sights) or mount (e.g., a tripod when you're used to a turret), or for an unfamiliar weapon of a known type (e.g., .30-cal when you are used to .50s); -4 or more for a weapon in bad repair.

Guns/TL†

DX/Easy

Default: DX-4.

This is the ability to use a hand-held chemical-propellant or mass-driver projectile weapon. Roll against Guns skill to hit your target.

Make an IQ-based skill roll to take immediate action (e.g., eject a dud round), should your weapon fail.

You *must* specialize by weapon type. The available specialties vary by TL, but include one or more of:

Grenade Launcher (GL): Any large-bore, low-powered small arm that fires a bursting projectile. Includes under-barrel grenade launchers, flare pistols, and ultra-tech "tanglers."

Gyroc: Any kind of small arm that fires miniature rockets.

Light Anti-Armor Weapon (LAW): All forms of rocket launchers and recoilless rifles.

Light Machine Gun (LMG): Any machine gun fired from the hip or a bipod.

Musket: Any kind of *smoothbore* long arm (usually, but not always, a black powder weapon) that fires a solid projectile.

Pistol: All kinds of handguns, including derringers, pepperboxes, revolvers, and automatics, but *not* machine pistols.

Rifle: Any kind of *rifled* long arm – assault rifle, hunting rifle, sniper rifle, etc. – that fires a solid projectile.

Shotgun: Any kind of *smoothbore* long arm that fires multiple projectiles (flechettes, shot, etc.).

Submachine Gun (SMG): All short, fully automatic weapons that fire pistol-caliber ammunition, including machine pistols.

Most of these specialties default to one another at -2, but defaults involving GL, Gyroc, or LAW are at -4 in either direction. The weapons covered by each specialty vary by TL. For example, Guns (Rifle) covers muzzle-loaders at TL4, lever actions at TL5, and self-loaders at TL6+. In particular, *ammunition* varies with TL, from black powder and loose shot at TL4, to smokeless powder cartridges at TL6, to power cells and metallic slivers for TL9+ electromagnetic guns.

Familiarity is crucial here! Guns (Rifle) covers both bolt-action 12.7mm sniper rifles and 5.56mm assault rifles, but going from one to the other gives you -2 for weapon type (12.7mm to 5.56mm), -2 for action (bolt-action to self-loader), and -2 for grip (bipod to hand-held), for a total of -6 to skill until you familiarize yourself with all the differences.

Modifiers: All applicable ranged combat modifiers; -2 for an unfamiliar action (e.g., an automatic when you're used to a revolver) or grip (e.g., a shoulder-fired antitank weapon when you're used to a bipod), or for an unfamiliar weapon of a known type (e.g., a 5.56mm rifle when you are used to a 7.62mm rifle); -4 or more for a weapon in bad repair.

Hazardous Materials/TL†

IQ/Average

Default: IQ-5.

This is the skill of transporting, storing, and disposing of hazardous materials ("HazMat"). It includes preparing the records that accompany HazMat shipments; applying and identifying warning labels and markings; and knowledge of countermeasures, antidotes, and containment and decontamination procedures. (To operate *personal* protective gear, use the NBC Suit skill, p. 192.)

You *must* specialize by type of HazMat. Common specialties are Biological, Chemical, and Radioactive, but more exotic options (e.g., Magical or Nanotech) may exist in some settings. Mundane specialties default to one another at -5; exotic specialties often have no default at all.

Whenever you deal with HazMat in any capacity, roll against the *lower* of the skill used for the task (Driving, Freight Handling, etc.) and the applicable Hazardous Materials specialty or default. Note that the IQ-5 default represents any layman's knowledge of household hazards. HazMat professionals *deliberately* keep certain aspects of this skill (notably HazMat markings) obscure to avoid alarming the general public. The default does not apply when dealing with such things.

Heraldry

IQ/Average

Defaults: IQ-5 or Savoir-Faire (High Society)-3.

This is the skill of recognizing and designing coats of arms, crests, flags, tartans, and other emblems. A successful roll lets you recognize a knight or a noble from his banner or shield, create attractive and proper arms (without conflicting with existing designs), etc.

In some settings, you might have to specialize in a particular *type* of Heraldry: Coats of Arms (the usual specialty, described above), Corporate Logos (defaults to Current Affairs (Business)-3), or even Graffiti Tags (defaults to Streetwise-3).

Modifiers: Cultural Familiarity modifiers (p. 23). Up to +5 to recognize a well-known design, and down to -5 for an obscure design or one that was retired long ago.

Herb Lore/TL

IQ/Very Hard

Defaults: None.
Prerequisite: Naturalist.

This is the ability to manufacture herbal concoctions that have magical effects – healing balms, love potions, etc. It only exists in magical game worlds, where it functions much as Alchemy skill (p. 174). Unlike Alchemy, Herb Lore does *not* include the ability to analyze "elixirs." On the other hand, an expert at this skill can locate magical ingredients for free in the wild by making a few Naturalist rolls, while an alchemist requires rare and expensive materials (such as alkahest, dragon's blood, gemstones, and gold) to do his work.

Hidden Lore†

IQ/Average

Defaults: None.

This skill represents knowledge that is lost, deliberately hidden, or simply neglected. Whatever the reason, the general public is unaware of it. It is only available to those who study it specifically.

You *must* specialize in a particular body of secret knowledge. If you wish to enter play with Hidden Lore skills, you must account for this specific knowledge in your character story. The GM might even require you to purchase an Unusual Background before you can learn Hidden Lore skills. Of course, the GM is also free to *forbid* Hidden Lore skills to starting characters . . . or to PCs in general!

To acquire Hidden Lore in play, you must find a reliable source of relevant information. The GM may choose to tie skill increases in Hidden Lore to specific acts – such as reading moldy tomes – instead of allowing you to spend points freely. For instance, an ancient manuscript might let you spend up to eight points (and no more) on a specific Hidden Lore skill.

Remember that most Hidden Lore is secret because somebody powerful wants it kept that way. Thus, discussing or revealing your knowledge can be extremely hazardous.

Possible Hidden Lore specialties include:

Conspiracies: You know details about the conspiracies that underlie every aspect of society. This is factual knowledge (e.g., truths about the Illuminati), not the ability to *analyze* conspiracies. Only available in settings where vast conspiracies really do exist.

Demon Lore: You know the secrets of Hell, the goals of demons in the mortal world, and possibly even the names of specific demons.

Faerie Lore: You have detailed knowledge of the faeries and their secret kingdom(s).

Spirit Lore: You know about ghosts and other spirit entities – names, motivations, etc.

Hiking

HT/Average

Default: HT-5.

This skill represents training for endurance walking, hiking, and marching. It includes knowledge of how to pace yourself in different conditions, and how best to carry a pack. Make a Hiking roll before each day's march; on a success, increase the distance traveled by 20%. The GM may allow bonuses for good maps and good walking shoes, but not for terrain. If a party is traveling together, *all* must make the Hiking roll in order to get the increased distance. See *Hiking* (p. 351).

History†

IQ/Hard

Default: IQ-6.

This is the study of the recorded past (compare Archaeology skill, p. 176). A successful skill roll lets you answer questions about history, and might (at the GM's option) allow you to remember a useful parallel: "Ah, yes. Hannibal faced a situation like this once, and here's what he did . . ."

You *must* specialize. There are two general classes of specialty:

- A limited geographical region – no larger than a small nation – over multiple eras. *Examples:* History (Bavarian), History (Irish), or History (New York State).
- A single *era* (e.g., Victorian period, 20th century) and *one* of a broad geographical region (e.g., Europe), a culture (e.g., Muslim), or an idea (e.g., economic, esoteric, or military). *Examples:* History (20th-Century American), History (Ottoman Muslim), or History (Napoleonic Military).

The sheer variety of possible specialties makes it impossible to list all possible defaults. In general, if two specialties overlap *at all,* then GM should permit a default at -2 to -4.

Hobby Skill

DX or IQ/Easy

Default: DX-4 or IQ-4, depending on the controlling attribute.

Many fields of study have little to do with adventuring or making a living – but people study them nonetheless. Each of these is a separate Hobby Skill. Those that require agility or a delicate touch (e.g., juggling, kite flying, needlepoint, and origami) are DX/Easy skills that default to DX-4, while those that focus on knowledge and trivia (e.g., comic books, rock music, science fiction, and tropical fish) are IQ/Easy skills that default to IQ-4.

A few points in a Hobby Skill can make roleplaying more fun – and possibly come in handy once in a while. You do not need a teacher to learn or improve a Hobby Skill. However, you *cannot* learn skills defined elsewhere in this chapter as Hobby Skills.

Holdout

IQ/Average

Defaults: IQ-5 or Sleight of Hand-3.

This is the skill of concealing items on your person or on other people (usually with their cooperation). An item's size and shape govern its concealability. Some examples:

+4: A BB-sized jewel, a postage stamp.

+3: A pea-sized jewel.

+2: One lockpick, a huge jewel, a dime, a TL9+ computer disk, a letter.

+1: A set of lockpicks, a silver dollar.

0: A TL8 floppy disk or CD, without case.

-1: A dagger, a slingshot, the tiniest handgun or grenade.

-2: An average handgun (e.g., a Luger), a grenade, a large knife.

-3: A submachine gun, a shortsword, a short carbine.

-4: A broadsword, an assault rifle.

-5: A bastard sword, a battle rifle.

-6: A crossbow, a heavy sniper rifle.

Things that move or make noise give an additional -1 or more to skill.

Clothing also modifies effective skill. A Carmelite nun in full habit (+5 to skill) could conceal a bazooka or a battle-axe from an eyeball search. A Las Vegas showgirl in costume (-5 to skill) would have trouble hiding even a dagger. Of course, the showgirl might escape search entirely (unless the guards were bored) because "She obviously couldn't hide anything in *that* outfit!" Full nudity is -7 to skill.

A proper concealment holster helps conceal a weapon; use the equipment modifiers on p. 345. Clothing designed specifically to hide things gives a bonus of up to +4.

To spot a concealed item, roll a Quick Contest of Search skill vs. Holdout. Search defaults to Perception-5 if you haven't studied it. See *Search* (p. 219) for additional rules.

Housekeeping

IQ/Easy

Default: IQ-4.

This is the ability to manage a household. It covers both home economics and domestic chores: cleaning, cooking (but not *haute cuisine,* which requires the Cooking skill), minor repairs (any routine maintenance task that calls for a roll against Carpentry, Sewing, or a similar skill at +4 or better), etc. The main use of Housekeeping is to qualify for the job

of "homemaker," but it can come in handy on adventures – for instance, to clean up evidence!

Hypnotism

IQ/Hard

Defaults: None.

This is the skill of inducing a suggestible state in another person through verbal or mechanical means. It requires five seconds and a successful skill roll to use. If you fail on a *cooperative* subject, you may try again. The second attempt takes five *minutes,* and the roll is at -5. If this attempt fails, you may not try to hypnotize the subject again that day.

A successful Hypnotism attempt puts the subject to sleep. This counts as an anesthetic for the purpose of Surgery. At the GM's option, further Hypnotism rolls might help the subject remember something he had forgotten, while Psychology rolls might help him get over mental problems.

A hypnotized individual is extremely suggestible. Roll a Quick Contest of Hypnotism vs. the victim's Will for each suggestion. The subject resists suggestions that threaten his life or his loved ones, or that go strongly against his character, at +5. You may also give "posthypnotic suggestions," instructing the subject to do something in response to a trigger after the hypnosis ends. The subject's resistance roll for such suggestions takes place when he encounters the trigger. He resists at +1 to Will per week since he was hypnotized.

You *cannot* use Hypnotism as an attack, except in highly cinematic games. You *can* use it on an unaware or unwilling subject out of combat, but he resists at Will+5. If he resists the initial attempt, he is considered uncooperative, and you may not make a second attempt that day. A subject who is unfamiliar with Hypnotism might not know what you attempted, but he suspects *something* – possibly witchcraft!

In all cases, a hypnotic trance lasts 1d hours unless you end it sooner.

Modifiers: +2 if you send hypnotic suggestions via Telesend (see *Telecommunication,* p. 91), since voices in the head are harder to ignore.

Immovable Stance

DX/Hard

Defaults: None.
Prerequisite: Trained By A Master.

This skill allows you to anchor yourself to the ground by properly channeling your *chi,* using secret balancing techniques, etc. Make a skill roll whenever an attack (e.g., a shove or the Push skill, p. 216) would result in knockback or a fall.

On a success, you neither experience knockback nor fall down. On a failure, you are knocked back but still get the usual DX roll to avoid falling down. On a critical failure, you automatically suffer full knockback *and* you fall down.

This skill also helps against attacks with the Judo skill (p. 203). If you fail your active defense (or choose not to defend) against a Judo throw, your attacker must *win* a Quick Contest of Judo vs. your Immovable Stance skill, or his throw fails.

Modifiers: -1 per yard of potential knockback; +4 for Perfect Balance (p. 74).

Innate Attack†

DX/Easy

Default: DX-4.

This skill represents trained ability with a "built-in" *ranged* attack: fiery breath, super-powered energy bolts, etc. Learn it to improve your odds of hitting with Afflictions (p. 35), Bindings (p. 40), Innate Attacks (p. 61), magical jets and missiles, and similar attacks that originate from *you* as opposed to a weapon in your hand. Roll against skill to hit.

You *must* specialize:

Beam: Any energy blast, magical jet, etc. emitted from the hands. To use this skill, you must have at least one unrestrained hand (although it need not be *empty*).

Breath: Any attack emitted from the mouth, such as dragon's fire or acidic sputum. To use this skill, you cannot be gagged and you *must* be facing your target.

Gaze: Any attack emitted from the eyes – heat vision, a petrifying stare, etc. To use this skill, you cannot be blindfolded and you *must* be facing your target.

Projectile: Any solid projectile or pseudo-solid energy bolt (e.g., Fireball spell) emitted from the hands. To use this skill, you must have at least one unrestrained hand (although it need not be *empty*).

These specialties default to one another at -2.

You use this skill to *direct* your attack, not to *activate* it; therefore, restrictions such as "you cannot be gagged" apply strictly to your ability to make ranged attacks. If you can trigger your attack while restrained, no skill roll is needed to attack your restraints!

You can only learn this skill for ranged attacks. Use Brawling (p. 182) to improve your odds with abilities that require a touch.

Intelligence Analysis/TL

IQ/Hard

Defaults: IQ-6 or Strategy (any)-6.

This is the ability to *analyze* and *interpret* intelligence data. It allows you to deduce enemy plans and capabilities, evaluate the accuracy of information, rate the reliability of sources, etc. In most game worlds, only intelligence, military, and security services teach this skill – often only to those with a minimum level of Rank or Security Clearance.

The GM makes *all* Intelligence Analysis rolls in secret. On a success, he provides details about the significance and accuracy of your data, or insights into what it means in terms of enemy planning. When you encounter deliberately falsified data, the GM rolls a secret Quick Contest: your Intelligence Analysis vs. the enemy's skill at disinformation (Forgery, Propaganda, etc.). If you win, the GM provides details on precisely what is wrong with the information. It is up to you to deduce what this means, however!

This skill has nothing to do with *gathering* intelligence. Use Current Affairs (p.186) and Research (p. 217) to sift through public sources; Forensics (p. 196) and Search (p. 219) to find physical clues; Observation (p. 211) for human surveillance; and Electronics Operation (p. 189) to work with the satellite imagery, communications intercepts, and related "technical means" common at TL7+.

You may take an *optional* specialty (p. 169) in one particular type of intelligence. A useful specialty at TL6+ is Intelligence Analysis (Traffic Analysis): identifying the purpose and organization of targets by examining intercepted communications traffic.

Modifiers: -1 to -5 for incomplete information; -3 if all your information comes from a single source; -3 for intelligence concerning an arcane scientific or bureaucratic principle, *unless* you have skill in that area (e.g., Engineer (Electronics) for intelligence regarding a radar installation).

Interrogation

IQ/Average

Defaults: IQ-5, Intimidation-3, or Psychology-4.

This is the ability to question a prisoner. Only intelligence agencies, police and prison services, the military, and the underworld teach this skill.

Roll a Quick Contest of Interrogation vs. the prisoner's Will for each question. This requires 5 minutes per question. If you win, you get a truthful answer. If you tie or lose, the victim remains silent or lies. If you lose by more than five points, he tells you a *good, believable* lie! The GM roleplays the prisoner (or, if *you* are the prisoner, the GM will roleplay the interrogator) and makes all die rolls in secret.

Modifiers: -5 if the prisoner's loyalty to his leader or cause is "Very Good" or "Excellent"; -3 for Low Empathy (p. 142); +2 for a lengthy interrogation (over two hours); +3 if you use severe threats; +6 if you use torture*. Increase these last two bonuses by +1 if you have the Callous disadvantage (p. 125)!

* "Torture" does not necessarily mean thumbscrews and the rack. Exposing a prisoner to the object of his phobia (see *Phobias,* p. 148) is an effective torture, as is a believable threat against a loved one. Note that torturing a prisoner is usually considered *vile* behavior, likely bringing retribution.

Intimidation

Will/Average

Defaults: Will-5 or Acting-3.

This is the skill of hostile persuasion. The essence of Intimidation is to convince the subject that you are able and willing, perhaps even eager, to do something awful to him.

You can substitute an Intimidation attempt for any reaction roll; see *Influence Rolls* (p. 359). *Exception:* You cannot intimidate someone who has the Unfazeable advantage!

The results of a successful Intimidation attempt depend on the target. An honest citizen probably cooperates, sullenly or with false cheer. A low-life might lick your boots (even becoming genuinely loyal). A really tough sort might react well without being frightened: "You're my kind of scum!" The GM decides, and roleplays it. If you rolled a critical success – or if the subject critically failed his Will roll – your victim must make a Fright Check in addition to the other results of the Influence roll!

Group Intimidation: You may attempt to intimidate up to 25 people at once, at -1 to skill per five people (or fraction thereof) in the group. Multiple intimidators can attempt to intimidate proportionally larger groups; for instance, three thugs could try to intimidate up to 75 people! Base the skill penalty on the size of the target group divided by the number of intimidators (round up). Resolve the outcome with a single Quick Contest: the *highest* effective Intimidation skill from among the intimidators vs. the *highest* modified Will in the target group.

Specious Intimidation: You can attempt a Quick Contest of Fast-Talk vs. the subject's IQ *before* your Intimidation attempt in order to appear to be intimidating when you can't back it up. If you win, you are at +3 on the subsequent Intimidation attempt, which can go a long way toward offsetting the high Will and Fearlessness of martial arts masters, world leaders, etc. If you tie or lose, however, your Intimidation attempt fails *automatically,* and you suffer a "Very Bad" reaction instead of just a "Bad" one!

Modifiers: +1 to +4 for displays of strength, bloodthirstiness, or supernatural powers (GM's judgment); increase this bonus by +1 if you are Callous (p. 125). Appearance (p. 21) matters: +2 if you are Hideous, +3 if Monstrous, or +4 if Horrific. Size also matters: add your Size Modifier and subtract the subject's. Appropriate Reputation modifiers (positive or negative) certainly count! You get -1 for Oblivious (p. 146) and -1 to -4 for Shyness (p. 154). Subtract the *subject's* Fearlessness (p. 55) from your roll. The GM may assign a +1 or -1 for especially appropriate or clumsy dialog. Requests for aid are always at -3 or worse.

Invisibility Art

IQ/Very Hard

Defaults: None.

Prerequisites: Trained By A Master, and both Hypnotism and Stealth at 14+.

This is the fabled skill, often attributed to ninja and other martial-arts masters, of being able to stand in plain sight without being noticed. It requires one second of concentration to activate. After that time, roll a Quick Contest once per *second:* your Invisibility Art vs. the Vision roll of each person who can see you.

Viewers must apply the current darkness penalty to their Vision roll. A viewer who is concentrating on something else or otherwise distracted is at -3; one who is specifically looking for intruders gets +3. If someone sees you and raises the alarm, by pointing and crying out, those who believe the warning get +3 on their *next* roll.

If you win, that person is unable to see you for one second. Otherwise, he can see you normally. Once someone notices you, he is unaffected by this skill until you can get out of sight somehow (which might be as easy as stepping into a shadow), whereupon you may try again.

Note that this skill does not work at all in combat. In particular, if you attack *anyone,* you will immediately become visible to *everyone!*

Modifiers: +3 if you use a smoke bomb or flash grenade before you attempt your roll (you appear to vanish in a cloud of smoke). Your movement modifies your skill roll rather than viewers' Vision rolls: no modifier if you stand still (Move 0), -1 if you move at a slow walk (Move 1), -2 at a fast walk (Move 2), or -5 at a run (Move 3+). If you stand *perfectly* still (requires a successful Breath Control or Meditation roll), you get +1.

Jeweler/TL

IQ/Hard

Defaults: IQ-6, Smith (Copper)-4, or Smith (Lead and Tin)-4.

This is the ability to work with precious metals, make jewelry, decorate weapons, etc. A successful skill roll allows you to identify a precious metal or gem, or determine the value of a precious bauble.

Jitte/Sai

see *Melee Weapon,* p. 208

Judo

DX/Hard

Defaults: None.

This skill represents *any* advanced training at unarmed throws and grapples – not just the eponymous Japanese martial art.

Judo allows you to parry two *different* attacks per turn, one with each hand. Your Parry score is (skill/2) + 3, rounded down. This parry is *not* at the usual -3 for parrying a weapon barehanded, greatly reducing the likelihood of injury when you defend against an armed foe. In addition, Judo gives an improved retreating bonus when you parry; see *Retreat* (p. 377). For complete rules for parrying barehanded, see *Parrying Unarmed* (p. 376).

On the turn immediately after a successful Judo parry, you may attempt to throw your attacker if he is within one yard. This counts as an attack; roll vs. Judo skill to hit. (Note that in an All-Out Attack, you cannot attempt two throws, but you can make one attempt at +4.) Your foe may use any active defense – he *can* parry your hand with a weapon! If his defense fails, you throw him.

When you throw a foe, he falls where you please. On a battle map, he lands in any two hexes near you. One of these hexes must be *his* starting hex, *your* hex, or any hex adjacent to one of those hexes. Your victim must roll against HT; a failed roll means he is stunned! If you throw him into someone else, that person must roll against the higher of ST+3 or DX+3 to avoid being knocked down.

Finally, you may use your Judo skill instead of your DX for any DX roll made in close combat except to draw a weapon or drop a shield. If you grapple a foe using Judo, and he fails to break free, you may make a Judo attack to throw him on your next turn, exactly as if you had parried his attack.

To use Judo, any hand with which you wish to parry or grapple must be empty. Because Judo relies heavily on footwork, all Judo rolls and Judo parries take a penalty equal to your encumbrance level. For instance, Heavy encumbrance would give you -3 to hit or to parry an enemy attack.

Jumping

DX/Easy

Defaults: None.

This skill represents trained jumping ability. When you attempt a difficult jump, roll against the *higher* of Jumping or DX. In addition, you may use half your Jumping skill (round down) instead of Basic Move when calculating jumping distance. For instance, Jumping-14 would let you jump if you had Basic Move 7. See *Jumping* (p. 352).

Karate

DX/Hard

Defaults: None.

This skill represents *any* advanced training at unarmed striking, not just the Okinawan martial art of *karate.* Roll against Karate to hit with a punch (at no -4 for the "off" hand), or Karate-2 to hit with a kick. You cannot use Karate to attack with claws, teeth, etc., or with a blackjack – use Brawling (p. 182) for that. Karate skill does let you make several special attacks, however; see *Special Unarmed Combat Techniques* (p. 403).

Karate improves damage: if you know Karate at DX level, add +1 *per die* to basic thrust damage when you calculate damage with Karate attacks: punches, kicks, elbow strikes, etc. Add +2 per die if you know Karate at DX+1 or better! Work out damage ahead of time and record it on your character sheet.

Karate allows you to parry two *different* attacks per turn, one with each hand. Your Parry score is (skill/2) + 3, rounded down. This parry is *not* at the usual -3 for parrying a weapon barehanded, greatly reducing the likelihood of injury when you defend against an armed foe. In addition, Karate gives an improved retreating bonus when you parry; see *Retreat* (p. 377). For more on parrying barehanded, see *Parrying Unarmed* (p. 376).

To use Karate, any hand with which you wish to strike or parry must be empty (but you are free to wear heavy gauntlets, brass knuckles, etc. to increase damage). Because Karate relies heavily on footwork, all Karate attacks and parries take a penalty equal to your encumbrance level. For instance, Heavy encumbrance would give you -3 to hit or to parry an enemy attack.

Kiai

HT/Hard

Defaults: None.
Prerequisites: Trained By A Master or Weapon Master.

You can channel your *chi* outward in a mighty shout (*kiai*) that freezes lesser foes. This counts as an attack, and costs 1 FP per attempt, successful or not.

Roll a Quick Contest: your Kiai skill vs. your target's Will. You are at -1 for every full two yards of distance. Your victim resists at +1 if he is Hard of Hearing, at +2 if Deaf! If you win, your target is mentally stunned (see *Effects of Stun,* p. 420).

This skill only works against a single victim; everyone can hear the shout, but your *chi* is focused on that one foe. However, a successful Kiai roll gives you +2 to Intimidation rolls vs. *everyone* within earshot.

Knife

see *Melee Weapon,* p. 208

Knot-Tying

DX/Easy

Defaults: DX-4, Climbing-4, or Seamanship-4.

This is the ability to tie a wide variety of knots quickly and efficiently. A successful skill roll lets you make a noose, tie someone up, etc. If you bind someone using this skill, he must win a Quick Contest of Escape vs. your Knot-Tying skill to free himself.

Modifiers: +1 per level of High Manual Dexterity (p. 59), or -3 per level of Ham-Fisted (p. 138).

Kusari

see *Melee Weapon,* p. 208

Lance

DX/Average

Defaults: DX-5 or Spear-3.
Prerequisite: Riding.

The ability to use the lance: a long, spear-like weapon wielded from horseback. This is *not* a Melee Weapon skill (see p. 208). You may not use a lance to parry – you must block or dodge enemy attacks.

Lasso

DX/Average

Defaults: None.

This is the skill of throwing the *lariat:* a long rope or thong with a sliding noose at one end. Its intended purpose is to snare animals, but it can also entangle opponents in combat – see *Special Ranged Weapons* (p. 410).

Law†

IQ/Hard

Default: IQ-6.

This skill represents knowledge of law codes and jurisprudence. A successful roll lets you remember, deduce, or figure out the answer to a question about the law. Few legal questions have clear-cut answers, however – even an expert will hedge his advice!

You *must* specialize. There are two general classes of specialty:

- The laws of a particular political region (e.g., Canada or France) *within a specific field* (constitutional, contract, criminal, police, etc.). *Examples:* Law (British Criminal), Law (Canadian Constitutional), and Law (U.S. Contract).
- A specialized body of law not associated with a political region. *Examples:* Law (Catholic Canon), Law (International), and Law (Space).

Specialties within the same *region,* such as Law (British Criminal) and Law (British Police), or *field,* such as Law (British Criminal) and Law (French Criminal), default to one another at -4. If both region and field differ, the default is -6 or worse.

In some times and places, a Quick Contest of Law (Criminal) between the defense and prosecution will determine the outcome of a trial. In others, Law functions as an Influence skill (see *Influence Rolls,* p. 359) used to sway the rulings of the judge.

Law enforcers nearly always have a point or two in Law (Police) for their region. This represents knowledge of "proper procedure" when it comes to arrests, evidence handling, interrogation, etc.

Leadership

IQ/Average

Default: IQ-5.

This is the ability to coordinate a group. Make a Leadership roll to lead NPCs into a dangerous or stressful situation. (PCs can decide for themselves if they want to follow you!)

You may attempt a Leadership roll in combat if you spend your turn doing *nothing* but giving orders and encouragement. On a success, everyone on your side who can hear you (*including* PCs) has +1 on all combat-related Fright Checks and morale checks, and on self-control rolls for disadvantages that would reduce combat efficiency (such as Berserk and Cowardice – or Bloodlust, if you wish to take prisoners). A critical success gives +2. The bonus lasts until your next turn, at which time you may roll again. A group can have only one leader, however! If multiple people attempt Leadership rolls, *no one* gets a bonus.

Note that a minimum level of Leadership is often a prerequisite for high Rank (p. 29).

Modifiers: Any bonus for Charisma (p. 41); -3 for Low Empathy (p. 142); -1 to -4 for Shyness (p. 154). -5 if the NPCs have never been in action with you; -5 if you are sending them into danger but not going yourself; +5 if their loyalty to you is "Good"; +10 if their loyalty is "Very Good." If their loyalty is "Excellent," you do not have to roll!

Leatherworking

DX/Easy

Default: DX-4.

This is the ability to work with leather to make belts, saddles, armor, etc. A successful skill roll lets you repair or create leather goods. Make an IQ-based roll to design items that are more artistic than functional.

Modifiers: Equipment modifiers (p. 345); +1 per level of High Manual Dexterity (p. 59), or -3 per level of Ham-Fisted (p. 138).

Lifting

HT/Average

Defaults: None.

This is the trained ability to use your strength to its best advantage when you lift. Roll once per lift. On a success, increase your Basic Lift by 5% per point by which you made your roll. This has no effect on encumbrance, or on how much you can carry. See *Lifting and Moving Things* (p. 353).

Light Walk

DX/Hard

Defaults: None.

Prerequisites: Trained By A Master, and both Acrobatics and Stealth at 14+.

This skill allows you to exert very little pressure when you walk. On a successful Light Walk roll, you leave no visible tracks. Tracking rolls to follow you *automatically* fail unless they rely on something more than sight; thus, a human tracker would be baffled, but bloodhounds would suffer no penalty at all.

You can also attempt to walk over fragile surfaces without falling through. Maximum Move under such circumstances is 1/3 normal (GM's decision). Thin ice would require an unmodified Light Walk roll, while rice paper would require a roll at -8!

Finally, a successful Light Walk roll can give a bonus to Stealth when your intention is to move quietly. This bonus equals half your margin of success, rounded down. Minimum bonus is +1.

Linguistics

IQ/Hard

Defaults: None.

This is the study of the principles upon which languages are based. A successful skill roll lets you identify a language from a snatch of speech or writing. As well, make a skill roll once per month when learning a language without a teacher. On a success, you learn at full speed rather than at 1/4 speed (see *Learning Languages,* p. 25).

Lip Reading

Per/Average

Default: Perception-10.

This is the ability to *see* what others are saying. You must be within seven yards, or have some means of bringing your point of view this close. A successful skill roll lets you make out one sentence of a discussion – assuming, of course, that you know the language. If your subjects suspect that you can read lips, they can hide their mouths or subvocalize to thwart you. A critical failure on a Lip Reading roll – if you are where your victims could see you – means that you stared so much you were noticed!

Modifiers: All Vision modifiers (see *Vision,* p. 358).

Liquid Projector/TL†

DX/Easy

Default: DX-4.

This is the ability to use a weapon that projects a stream of liquid or gas. Roll against Liquid Projector skill to hit your target.

Make an IQ-based Liquid Projector roll to take immediate action (e.g., patch a leak), should your weapon fail.

You *must* specialize by weapon type:

Flamethrower: Any weapon that projects *burning* liquid or gas. (This does *not* include plasma weapons, which are often called "flamers"; use Beam Weapons skill for those.)

Sprayer: Any weapon that emits a gas or atomized liquid (nerve gas, sleeping gas, etc.), including an ordinary spray can used as an improvised weapon.

Squirt Gun: Any weapon that fires a low-pressure stream of liquid at the rate of one squirt per pull of the trigger.

Water Cannon: Any weapon that fires a continuous jet of high-pressure liquid, usually but not always water, with the intent of causing knockback.

These specialties default to one another at -4. The weapons covered by each specialty vary by TL; e.g., Liquid Projector (Flamethrower) covers fire-siphons loaded with Greek fire at TL4, while at TL6, it covers backpack tanks that project thickened fuel.

Modifiers: All applicable ranged combat modifiers; -2 for heavy weapons when you are used to portable weapons (e.g., a flamethrower mounted on a tank when you are used to a backpack model), or for an unfamiliar weapon of a known type; -4 or more for a weapon in bad repair.

Literature

IQ/Hard

Default: IQ-6.

This is the study of the great writings. A student of literature would be knowledgeable in the realms of old poetry, dusty tomes, criticism, etc. This can be useful for finding clues to hidden treasure, sunken lands, Ancient Secrets, and the like. The work in question must be available in a language you read.

Modifiers: -5 if you're illiterate (see *Literacy,* p. 24) and relying on oral tradition, save in pre-literate cultures, where this is the norm.

Literature can be useful for finding clues to hidden treasure, sunken lands, Ancient Secrets, and the like.

Lockpicking/TL

IQ/Average

Default: IQ-5.

This is the ability to open locks without the key or combination. Each attempt requires one minute.

If you make the roll and open the lock, each point by which you succeeded shaves five seconds off the required time. (Safecracking and similar challenges can take more time, at the GM's discretion.)

Note that if the lock has a trap or alarm attached, you must make a separate Traps roll to circumvent it.

Modifiers: Equipment modifiers (p. 345); -5 if working by touch (e.g., in total darkness). Inside information gives a bonus at GM's discretion. If the GM requires a *DX*-based roll (for instance, to work with a particularly delicate mechanism), modifiers for High Manual Dexterity (p. 59) or Ham-Fisted (p. 138) will apply.

Machinist/TL

IQ/Average

Defaults: IQ-5 or Mechanic (any)-5.

This is the skill of making and modifying mechanical parts and tools. A successful skill roll lets you build parts from raw materials, manufacture tools for use with another skill (such as Armoury or Lockpicking), or modify any simple mechanical device not explicitly covered by another skill. The GM may require an inventor to make one or more Machinist rolls before attempting an Engineer roll to assemble a gadget.

Materials and component size vary significantly with tech level. A TL5 machinist works mainly with brass and steel components that can be seen with the naked eye; a TL10 machinist might work with carbon nanotubes.

Modifiers: Equipment modifiers (p. 345).

Main-Gauche

see *Melee Weapon*, p. 208

Makeup/TL

IQ/Easy

Defaults: IQ-4 or Disguise-2.

This is the skill of using theatrical makeup to enhance a performer's appearance. It is not just the ability to make someone look "pretty" – you can make yourself or others look older, younger, or of a different race or nationality. At TL6+, you can use prosthetics to further enhance the effect. However, you cannot make someone look taller or shorter than he actually is.

Market Analysis

IQ/Hard

Defaults: IQ-6, Economics-5, or Merchant-4.

This is the skill of predicting the short-term behavior of bond, stock, and currency markets – usually in order to make money! It is the main job skill of professional traders and speculators. Make a skill roll to determine current market trends. On a critical success, you also learn whether a trend will continue or reverse in the future. On a failure, you get no clear answer. On a critical failure, you guess *wrong*.

Modifiers: The Talents (p. 89) of Business Acumen and Mathematical Ability *both* provide a bonus.

Masonry

IQ/Easy

Default: IQ-4.

This is the ability to build things out of brick or stone.

Modifiers: Equipment modifiers (p. 345); -3 for simple engineering (erecting scaffolding, moving large blocks of stone, etc.) rather than masonry per se.

Mathematics/TL†

IQ/Hard

Defaults: IQ-6 and others.

This is the scientific study of quantities and magnitudes, and their relationships and attributes, through the use of numbers and symbols. You *must* specialize:

Applied: The branch of mathematics that interacts directly with the physical sciences and engineering, dealing with mathematical models of the behavior of physical systems. *Defaults:* Engineer (any)-5 or Physics-5.

Computer Science: The theoretical study of data structures and computation. Roll vs. skill to answer questions about what is *possible* with computers. This gives you no special ability to *use* computers! *Default:* Computer Programming-5.

Cryptology: The mathematical study of codes and ciphers. This gives you a *theoretical* understanding of encryption schemes, including how they change with TL and why some schemes are more effective than others. To create or break codes, use Cryptography skill (p. 186). *Default:* Cryptography-5.

Pure: Generic "academic" mathematics. Make a skill roll to answer any math-related question not covered by another specialty. Pure mathematics encompasses dozens of obscure subfields that will never affect the game. If you *must* be an expert in something like "non-selfadjoint operator algebras," you may further note an *optional* specialty (p. 169).

Statistics: The science of assembling and analyzing data for the purpose of calculating probabilities, constructing models, and making forecasts. Roll vs. skill to determine the odds of a particular outcome, given sufficient data about similar situations in the past.

Surveying: The science of determining the area of a portion of the Earth's surface, the lengths and directions of the bounding lines, and the contour of the surface. Make a skill roll to determine the dimensions of any area you can see. More complex determinations require specialized equipment. *Defaults:* Cartography-3 or Navigation (any)-4.

These specialties default to one another at -5.

Mechanic/TL†

IQ/Average

Defaults: IQ-5, Engineer (same)-4, or Machinist-5.

This is the ability to diagnose and fix ordinary mechanical problems. A successful skill roll will let you find or repair one problem.

You must pick a specialty from within *one* of these four categories:

Machine Type: Any one class of nonvehicular machine. Types include Micromachines (miniature machinery, invisible to the naked eye; TL9+), Nanomachines (*molecular*-scale machinery; TL10+), and Robotics (robots and automated factories; TL7+).

Motive System Type: Any one type of propulsion system, regardless of vehicle type. Types include Legged, Tracked, Wheeled, Rockets, and Reactionless Thrusters.

Power Plant Type: Any one type of power plant, no matter what it powers. Types include Clockwork, Steam Engine, Gasoline Engine, Diesel Engine, Gas Turbine, Fuel Cell, Fission Reactor, Fusion Reactor, and Antimatter Reactor.

Vehicle Type: The controls, hull, motive system, power plant, transmission, and even the paint job of *one specific type of vehicle* listed under a vehicle-operation skill such as Driving (p. 188), Piloting (p. 214), or Submarine (p. 223).

Mechanic specialties default to one another at -4, although the GM may modify this for particularly close or distant specialties. The systems covered by each specialty vary by TL. For instance, Mechanic (Light Airplane) covers single-engine biplanes at early TL6, small private jets at TL7, and so forth.

Familiarity is very important here. For instance, Mechanic/TL7 (Light Airplane) covers both propeller-powered seaplanes and small private jets, but going from one to the other gives you -2 for an unfamiliar item (prop-powered plane to jet) and -2 for an unfamiliar implementation (seaplane to regular plane), for a net -4 to skill until you familiarize yourself with all the differences.

Modifiers: -2 for an unfamiliar item within your specialty (e.g., a barge when you're used to battleships), or for an unfamiliar implementation (e.g., a powerboat engine when you're used to automobile engines); equipment modifiers (p. 345).

Meditation

Will/Hard

Defaults: Will-6 or Autohypnosis-4.

This is the ability to calm the emotions, control the mind, and relax the body. To use this skill, you must concentrate for (20 - skill) seconds, minimum one second, and then roll vs. skill. On a success, you enter a trance-like state, which you can maintain for hours.

A meditative trance is required for certain rituals and is a common preparation for prayer. In addition, the GM may permit you to meditate on a particular moral dilemma. On a successful Meditation roll, the GM will "enlighten" you, providing a hint as to which course of action "feels" right.

Melee Weapon

DX/Varies

Defaults: Special.

This is not one skill, but an entire *collection* of skills – one per class of closely related melee weapons. Melee Weapon skills are based on DX, and default to DX-4 if Easy, DX-5 if Average, or DX-6 if Hard. See specific skill descriptions for other defaults.

Make a Melee Weapon roll to hit an opponent in combat. You may also use these skills to parry. Your Parry defense is (skill/2) + 3, rounded down.

Melee weapons fall into broad categories on the basis of overall balance and function. When a rule refers to one of these categories, it applies to *all* weapons in that category and *all* Melee Weapon skills used to wield them. For instance, "fencing weapons" means "all weapons used with any of Main-Gauche, Rapier, Saber, or Smallsword skill."

Fencing Weapons

Fencing weapons are light, one-handed weapons, usually hilted blades, optimized for parrying. If you have a fencing weapon, you get an improved retreating bonus when you parry – see *Retreat* (p. 377). Furthermore, you have *half* the usual penalty for parrying more than once with the same hand (see *Parrying,* p. 376).

Note that fencing weapons are *light* and likely to break when used to parry a heavier weapon. They cannot parry flail weapons at all! You must be relatively mobile to capitalize on their speed and maneuverability: all attacks and parries take a penalty equal to your encumbrance level (e.g., Heavy encumbrance gives -3 to hit or to parry).

The skills in this category default to one another at -3. They also default to sword skills, as noted below.

Main-Gauche (DX/Average): Any weapon normally wielded with Knife or Jitte/Sai skill (see below), used in the "off" hand. With this skill, you may ignore the penalty for using the "off" hand on defense (*attacks* are still at -4) and the -1 for parrying with a knife. To wield a knife as a primary weapon, use Knife skill. *Defaults:* Jitte/Sai-4 or Knife-4.

Rapier (DX/Average): Any long (over 1 yard), light thrusting sword. *Default:* Broadsword-4.

Saber (DX/Average): Any light cut-and-thrust sword. Note that *cavalry* sabers are quite heavy, and use Broadsword instead. *Defaults:* Broadsword-4 or Shortsword-4.

Smallsword (DX/Average): Any short (up to 1 yard), light thrusting sword or one-handed short staff (such as the sticks used in the martial arts *arnis, escrima,* and *kali*). *Default:* Shortsword-4.

Flails

A *flail* is any flexible, unbalanced weapon with its mass concentrated in the head. Such a weapon cannot parry if you have already attacked with it on your turn. Because flails tend to wrap around the target's shield or weapon, attempts to *block* them are at -2 and attempts to *parry* them are at -4. Fencing weapons and knives cannot parry them at all! An unarmed fighter *can* parry a flail, but at -4 in addition to any penalty for parrying unarmed.

The skills in this category default to one another at -3.

Flail (DX/Hard): Any one-handed flail, such as a morningstar or nunchaku. *Default:* Axe/Mace-4.

Two-Handed Flail (DX/Hard): Any two-handed flail. *Defaults:* Kusari-4 or Two-Handed Axe/Mace-4.

Impact Weapons

An *impact* weapon is any rigid, unbalanced weapon with most of its mass concentrated in the head. Such a weapon cannot parry if you have already attacked with it on your turn.

The skills in this category default to one another at -3.

Axe/Mace (DX/Average): Any short- or medium-length, one-handed impact weapon, such as an axe, hatchet, knobbed club, or pick. *Default:* Flail-4.

Two-Handed Axe/Mace (DX/Average): Any long, two-handed impact weapon, such as a baseball bat, battleaxe, maul, or warhammer. *Defaults:* Polearm-4 or Two-Handed Flail-4.

Pole Weapons

Pole weapons are long (usually wooden) shafts, often adorned with striking heads. All require two hands.

Polearm (DX/Average): Any *very* long (at least 2 yards), unbalanced pole weapon with a heavy striking head, including the glaive, halberd, poleaxe, and countless others. Polearms become *unready* after an attack, but not after a parry. *Defaults:* Spear-4, Staff-4, or Two-Handed Axe/Mace-4.

Spear (DX/Average): Any long, balanced pole weapon with a thrusting point, including spears, javelins, tridents, and fixed bayonets. *Defaults:* Polearm-4 or Staff-2.

Staff (DX/Average): Any long, balanced pole *without* a striking head. This skill makes good use of the staff's extensive parrying surface when defending, giving +2 to your Parry score. *Defaults:* Polearm-4 or Spear-2.

Swords

A *sword* is a rigid, hilted blade with a thrusting point, cutting edge, or both. All swords are balanced, and can attack and parry without becoming unready.

Broadsword (DX/Average): Any *balanced,* 2- to 4-foot blade wielded in one hand – broadsword, cavalry saber, scimitar, etc. This skill also covers any stick or club of similar size and balance to these blades, as well as bastard swords, katanas, and longswords used one-handed. *Defaults:* Force Sword-4, Rapier-4, Saber-4, Shortsword-2, or Two-Handed Sword-4.

Force Sword (DX/Average): Any sword with a "blade" made of energy instead of matter. This generally refers to an ultra-tech weapon that projects energy from a powered hilt, but extends to similar effects produced using magic or psionics. *Default:* any sword skill at -3.

Jitte/Sai (DX/Average): Any tined, one-handed sword designed to catch *rigid* weapons. Jitte/Sai weapons are built for disarming, and give +2 in the Quick Contest to disarm an opponent (see *Knocking a Weapon Away,* p. 401). Furthermore, if you attempt to disarm on the turn *immediately* after you parry your opponent's weapon, you need not roll to hit his weapon first. Just state that you are attempting to disarm and move directly to the Quick Contest! This still counts as an attack. *Defaults:* Force Sword-4, Main-Gauche-4, or Shortsword-3.

Knife (DX/Easy): Any rigid, hilted blade less than one foot long, from a pocketknife to a bowie knife. A knife

has a very small parrying surface, which gives you -1 to your Parry score. *Defaults:* Force Sword-3, Main-Gauche-3, or Shortsword-3.

Shortsword (DX/Average): Any *balanced,* one-handed weapon 1-2 feet in length – including the shortsword and any club of comparable size and balance (e.g., a police baton). *Defaults:* Broadsword-2, Force Sword-4, Jitte/Sai-3, Knife-4, Saber-4, Smallsword-4, or Tonfa-3.

Two-Handed Sword (DX/Average): Any *balanced,* two-handed blade over 4 feet in length: greatswords, zweihanders, etc. This skill also covers quarterstaffs wielded like swords, as well as bastard swords, katanas, and longswords used two-handed. *Defaults:* Broadsword-4 or Force Sword-4.

Whips

A *whip* is a flexible weapon made from a length of chain, leather, wire, etc. A whip can be up to seven yards long – but note that a whip two yards or more in length cannot strike at one yard or closer, and is slow to ready after an attack. A whip tends to wind around its target, making it an excellent disarming and entangling weapon. However, a whip's lack of rigidity makes it a poor parrying weapon. For details, see *Special Melee Weapon Rules* (p. 404).

The skills in this category default to one another at -3.

Force Whip (DX/Average): Any whip made of pure energy instead of matter. These are usually ultra-tech devices that project energy from a powered hilt, but magical or psi-tech versions are possible. Most force whips can lash the target but not ensnare him.

Kusari (DX/Hard): A weighted chain wielded in two hands. *Default:* Two-Handed Flail-4.

Monowire Whip (DX/Hard): A whip made of a weighted length of monomolecular wire attached to a handle.

Whip (DX/Average): Any ordinary whip.

Other Weapons

Some hand weapons defy easy classification. For instance:

Tonfa (DX/Average): A tonfa is a baton with a protruding handle on one side. It can function as a baton, but you can also grasp it by the handle and hold it against the forearm in close combat. This grip lets you jab for thrust+1 crushing damage and parry close-combat attacks at (skill/2) + 3, rounded down. Roll vs. skill to change grips. On a success, the grip change is a free action. On a failure, you must spend the entire turn changing grips. A critical failure means you throw your weapon away! *Default:* Shortsword-3.

Mental Strength

Will/Easy

Defaults: None.

Prerequisites: Trained By A Master or Weapon Master*.

* At the GM's option, a mage or psi may also learn this skill.

You can actively focus your mind to resist mental attacks. This skill replaces Will when you resist magic spells, psi powers, Hypnotism, Invisibility Art, Kiai, and similar abilities. Mental Strength does *not* replace most normal Will rolls. Furthermore, it does not work if you are stunned, asleep, or unconscious – for that, buy the Mind Shield advantage (p. 70).

Merchant

IQ/Average

Defaults: IQ-5, Finance-6, or Market Analysis-4.

This is the skill of buying, selling, and trading retail and wholesale goods. It involves bargaining, salesmanship, and an understanding of trade practices. It covers all types of merchandise, but many merchants have an *optional* specialty (p. 169) in a single class of goods.

Make a skill roll to judge the value of any piece of common goods, find out where any commodity is bought and sold, find the local fair market value of any commodity, etc.

When two merchants haggle, the GM may settle it with a Quick Contest. The winner adds or subtracts 10% of fair value, depending on whether he was trying to sell or buy.

If you have this skill at *any* level, you get +1 on reaction rolls when buying or selling. If you have this skill at level 20 or better, you get +2.

Modifiers: -3 for Gullibility (p. 137); -3 for Low Empathy (p. 142); -1 to -4 for Shyness (p. 154). -3 for illegal goods, unless you have Streetwise at 12+ or specialize in such goods; -2 in an unfamiliar area, until you have had time to familiarize yourself with local market conditions; Cultural Familiarity modifiers (p. 23). These last two modifiers "stack," and frequently occur together.

Metallurgy/TL

IQ/Hard

Defaults: Chemistry-5, Jeweler-8, or Smith (any)-8.

This is the study of metals and their properties. A successful roll lets you identify metals or alloys, or solve a problem concerning metals, their use, mining, or refining.

Meteorology/TL†

IQ/Average

Default: IQ-5.

This is the study of the weather, and the ability to predict it. It includes familiarity with technological aids such as barometers and satellite maps, but you can still function without your instruments. (If you can't, you're a meter-reader, not a meteorologist!)

When you wish to predict the weather, the GM rolls against your skill in secret. On a success, he tells the truth; on a failure, he answers randomly, or *lies.* Each skill roll predicts the weather for one day. If one day's roll fails, subsequent ones can't succeed. For instance, a three-day forecast would require three skill rolls: the first for tomorrow, the second for the next day, and the third for the day after that.

A successful roll also allows you to deduce what sort of *general* climate to expect when you visit a new area.

At TL4 or less, this skill is called Weather Sense, and you get +2 to skill in your home area. At TL5 and up, Meteorology is a scientific skill, and you *must* specialize by planet type; see *Planet Types* (p. 180) for details.

Modifiers: Time is a major factor! There is no penalty to predict tomorrow's weather, but you have -1 for 2 days, -2 for 3 days, -4 for 4 days, -6 for 5 days, and an additional -2 per day for each further day. Instrumentation becomes useful with the development of the barometer at TL4, after which equipment modifiers (p. 345) apply. You must know this skill at better than default to claim bonuses for good equipment.

Mimicry†

IQ/Hard

Defaults: IQ-6 and others.

This is the ability to imitate voices. The Voice advantage (p. 97) gives +2 to skill. You *must* specialize:

Animal Sounds: Lets you emulate a lion's roar, a wolf's howl, a frog's croak, etc. You can only imitate animals that have distinctive sounds. Make a skill roll to attract animals of the type mimicked – or predators that normally hunt those animals – if any are nearby. To fool *people,* you must win a Quick Contest of Mimicry vs. the listeners' Naturalist-3 or Perception-6. *Default:* Naturalist-6.

Bird Calls: Allows you to reproduce the whistles, chirps, and other sounds made by birds. Otherwise, this works as Animal Sounds. *Default:* Naturalist-6.

Speech: Enables you to imitate vocal sounds. This does not allow you to converse in a foreign language, but if you have heard it, you can reproduce the *sound* of it. If you are trying to mimic a specific person, roll at -3. Treat this roll as a Quick Contest vs. the IQ of anyone who knows the person mimicked well. *Defaults:* Acting-6 or Linguistics-4.

Animal Sounds and Bird Calls default to one another at -6. There is no default between these specialties and Speech.

Note that if you have the Mimicry *advantage* (p. 68), there is no need to learn this skill!

Mind Block

Will/Average

Defaults: Will-5 or Meditation-5.

This ability allows you to establish a mental block against psionic or magical attempts to eavesdrop on your thoughts and emotions. The techniques involved are wholly mundane – for instance, doing complicated mathematical calculations, or repeating poetry over and over again. With sufficient training, *anyone* can learn this skill.

To maintain a block, you must make a Mind Block roll once per minute. You must roll every *second* in combat or other stressful situations.

If you succeed, anyone who reads your mind must *win* a Quick Contest of his mind-reading ability vs. your Mind Block skill in order to get useful information. Otherwise, he gets nothing but poetry, multiplication tables, etc. However, if you ever critically fail a Mind Block roll, you thought about precisely what the mind reader wanted to know – in detail – right there in the forefront of your mind!

This skill only works against mind *reading,* not mind control or other mental attacks. If you have a supernatural mind shield, Mind Block acts as a last-ditch defense: only mental probes that pierce your magical or psionic defenses and contact your mind will encounter the block.

Modifiers: +2 if you do nothing but concentrate on blocking; -3 if you are mentally or physically stunned; -2 or more to hide *emotions* rather than thoughts, depending on how strong the GM rules your emotions are – it's hard to block your emotions while sneaking up on your most hated enemy!

Monowire Whip

see *Melee Weapon,* p. 208

Mount

DX/Average

Default: DX-5.

This is the trained ability to serve as a mount for a rider. If your Mount skill exceeds your rider's Riding level, he may use the average of the two skills (round *up*) whenever he must make a Riding roll. If you have *any* points in this skill, your rider gets a minimum +1 to skill. To throw an unwelcome rider, win Quick Contest of Mount vs. his Riding skill.

Musical Composition

IQ/Hard

Defaults: Musical Instrument-2, or to Poetry-2 for song.

This is the ability to compose a piece of music. A successful skill roll means the piece is a pleasant listening experience.

To compose for an ensemble or band *without* a conductor, you must have a skill level of IQ with at least one instrument in the composition and a skill level of IQ-2 with the rest. Roll at -1 per "instrument group" after the first used in the piece; e.g., a jazz composition for a saxophone section, drums, and bass would require a roll at -2.

To compose for an orchestra or band *with* a conductor requires Group Performance (Conducting) skill (p. 198) at IQ level. Roll at -1 per general *class* of instruments after the first used in the piece. Classes include brass, percussion, strings, and woodwinds. Treat choir, harp, organ, or piano as its own class.

This skill includes the ability to read, write, and transcribe music in your culture's notation system (if any). Treat different systems – and different musical traditions – as familiarities (see *Familiarity,* p. 169).

Musical Influence

IQ/Very Hard

Defaults: None.

Prerequisites: Musical Ability 1 and either Musical Instrument or Singing at 12+.

This cinematic skill allows you to influence the emotions of others by playing a musical instrument or singing. In some settings, this is a magical or psionic talent, or a special form of hypnotism, and works with *any* instrument, as well as with voice. In other settings, this skill is associated with a specific type of magical or ultra-tech instrument.

To attempt Musical Influence, you must first get your audience to sit and listen to your performance. You must also make a successful Musical Instrument or Singing roll. You may then roll against your Musical Influence skill. On a success, you can adjust the reaction roll of your audience – to you or to anyone present – up *or* down by an amount equal to your margin of success, to a maximum of +3 (+4 for critical success).

If you have only a few seconds, or if the audience is not paying full attention to your performance, you may adjust reaction rolls by ±1 at most, regardless of your margin of success.

Listeners who do not wish to be influenced may resist with Will. Hard of Hearing (p. 138) gives +4 to resist, and those with Deafness (p. 129) are completely immune. However, some

science-fiction devices generate vibrations that affect the *body,* in which case a listener's sense of hearing is irrelevant.

It is up to the GM to determine whether this skill works on animals as well as sapient beings. In classic fantasy, it just might!

Musical Instrument†

IQ/Hard

Defaults: Special.

This is the ability to play a musical instrument. With a successful skill roll, you give a competent performance. You *must* specialize in a particular instrument. Defaults between specialties range from -3 for similar instruments to "no default" for utterly unrelated ones, such as Musical Instrument (Drums) and Musical Instrument (Harp).

This skill includes the ability to read music in your culture's notation system (if any). Treat different systems as familiarities (see *Familiarity,* p. 169).

Naturalist†

IQ/Hard

Defaults: IQ-6 or Biology-3.

This skill – crucial for fantasy druids and rangers – represents *practical* (as opposed to scientific) knowledge of nature in its many forms. It includes just enough Biology to tell dangerous plants and animals from benign ones; just enough Geology to locate a cave to shelter in; and just enough Meteorology to know when to take shelter. Roll vs. skill to do any of these things.

In settings where it is possible to visit other worlds, you must specialize by *planet.* The specialties for planets of the same type (see *Planet Types,* p. 180) default to one another at -4. Any larger difference results in no default.

Navigation/TL†

IQ/Average

Defaults: Special.

This is the ability to find your position through careful observation of your surroundings and the use of instrumentation. A successful roll tells you where you are or lets you plot a course.

You *must* specialize:

Sea: Navigation by the stars and ocean currents. *Modifiers:* +3 if you have Absolute Direction (p. 34), or a high-tech global positioning system or inertial compass; -5 (and no use of Astronomy default) if you lack high-tech aids, the weather is bad, and the stars are hidden. *Defaults:* Astronomy-5 or Seamanship-5.

Air: Navigation by the stars and by the terrain below. Modifiers are as for Navigation (Sea). *Default:* Astronomy-5.

Land: Navigation using landmarks and the stars; also called "orienteering." *Modifiers:* +3 if you have Absolute Direction or a high-tech substitute. *Defaults:* IQ-5, Cartography-4, or Mathematics (Surveying)-4.

Space: Navigating through ordinary interplanetary and interstellar space, usually at less than the speed of light (but some science-fiction "warp drives" let you travel at faster-than-light speeds in normal space). *Modifiers:* +2 for 3D Spatial Sense (p. 34). *Defaults:* Astronomy-4 or Mathematics (Applied)-4.

Hyperspace: Also called "astrogation." Similar to Navigation (Space), but used when traveling through "jump space" or "hyperspace." In settings with multiple faster-than-light drive technologies, there may be one Navigation specialty per drive type. Modifiers are as for Navigation (Space). *Defaults:* Astronomy-4 or Mathematics (Applied)-4.

Air, Land, and Sea default to one another at -2. Space and Hyperspace default to one another at -5. There are *no* defaults between these two groups.

Modifiers: -1 to -10 for being in an unfamiliar area (GM's discretion, but an unfamiliar world, star system, etc. should give at least -5); equipment modifiers (p. 345).

NBC Suit/TL

see *Environment Suit,* p. 192

Net

DX/Hard

Default: Cloak-5.

This is the ability to use a net as a thrown or melee weapon. For detailed net rules, see *Special Ranged Weapons* (p. 410).

Observation

Per/Average

Defaults: Perception-5 or Shadowing-5.

This is the talent of observing dangerous or "interesting" situations without letting others know that you are watching. Use this skill to monitor a location, a group of people, or your immediate surroundings for concealed or tactically significant details. This is not the same as gathering clues or making a hands-on search (use Forensics and Search, respectively) – you always use Observation from a distance.

A successful skill roll lets you gather information that is not specifically hidden. For instance, you could case a bank for obvious cameras before a robbery, learn the schedule of sentries, estimate the size of a crowd, or gauge the strength of troops moving in the open. The GM may require an Intelligence Analysis roll to *interpret* what you observe.

To spot deliberately hidden details – e.g., someone trying to sneak up on you, an armed man hiding in the crowd, or a concealed machine-gun nest – you must win a Quick Contest of Observation skill vs. the Stealth, Shadowing, or Camouflage skill (as appropriate) of the other party. The GM should roll the Contest in secret, and should *not* say, "You don't see the machine gun nest concealed in the bushes."

If your attempt fails, you get no details on an obvious item, or fail to spot a hidden one. On a critical failure, someone spots *you* and reacts poorly to the attention . . .

Modifiers: Acute Senses (p. 35), as appropriate; modifiers for cover, darkness, or size; -1 to -10 if the target is concealed by high-tech camouflage or "stealth" technology; +1 to +10 if you possess suitable surveillance devices (a thermograph to spot a concealed sniper, binoculars to observe troop movements, etc.) and succeed at the skill roll to operate them.

Occultism

IQ/Average

Default: IQ-5.

This is the study of the mysterious and the supernatural. An occultist is an expert on ancient rituals, hauntings, mysticism, primitive magical beliefs, psychic phenomena, etc. Note that an occultist does not have to *believe* in the material he studies!

In worlds where everyone knows that paranormal powers exist, Occultism covers lore about these powers and their users. A good roll might provide insights into phenomena that *aren't* related to known powers. However, Occultism provides no details on how talented individuals invoke their powers. For instance, a fantasy occultist would know what magic can accomplish, and could provide advice on slaying demons, but without Thaumatology skill (p. 225), he could not explain the gestures, words, and symbols used by wizards.

In campaigns where many supernatural forces coexist, the GM may *require* occultists to specialize in such fields as Demonology (the study of demons, possession, and pacts), Pneumatology (the study of spirits), and Vampirology (the study of vampires).

Packing

IQ/Average

Defaults: IQ-5 or Animal Handling (Equines)-5.

This is the ability to get loads on and off of pack animals quickly and efficiently. It also lets you get the best performance from pack animals on the road, judge such beasts before purchase, and select the best route for a pack train. If the beasts are ornery or badly trained (GM's judgment), you must make a successful Animal Handling roll before you can attempt a Packing roll. A caravan without at least one master packer (Packing at 15+) moves at 80% its normal speed.

Paleontology/TL†

IQ/Hard

Defaults: Biology-4 and others.

This is the science of fossil study. Make a skill roll to recognize fossils or to deduce an organism's habitat, structure, etc. from fossil evidence. A successful roll – with equipment modifiers (p. 345) for lab facilities – identifies the approximate age of a fossil.

You *must* specialize:

Micropaleontology: The study of fossils too small to be seen with the naked eye. This skill *requires* a lab.

Paleoanthropology: The study of human fossils and tools, and the relation of primitive tribes to their habitats. Also defaults to Anthropology-2.

Paleobotany: The study of vegetable fossils.

Paleozoology: The study of prehistoric animals from fossilized bones, food, feces, footprints, etc.

These specialties default to one another at -2.

Panhandling

IQ/Easy

Defaults: IQ-4, Fast Talk-2, or Public Speaking-3.

This is the art of effective begging: who to approach, how to approach them, and how to avoid legal entanglements. Roll once per hour of begging.

On a success, you net $2.00 times your margin of success. On a critical success, you get some sort of unexpected bonus – perhaps someone buys you dinner or gives you a useful or saleable item (e.g., a raincoat or a new pair of shoes). On a failure, you receive nothing. On a critical failure, you are assaulted or have a run-in with the law.

Modifiers: Any bonus for Charisma (p. 41); +3 for Pitiable (p. 22); -1 to -4 for Shyness (p. 154). You may, if you wish, apply the *opposite* of your usual appearance modifier – that is, a penalty for being attractive or a bonus for being unattractive – unless you are Horrific or Monstrous (p. 21). The GM may assign a bonus if there is a lot of foot traffic in the area, or a penalty if there is no one around.

Parachuting/TL

DX/Easy

Default: DX-4.

This is the ability to survive a parachute jump. Roll once per jump. Failure could mean anything from drifting off course to panic that makes you drop your gear (GM's option). A critical failure means the chute did not open or was fatally fouled (see *Falling*, p. 431). For a jump under bad conditions, make a second roll on landing – for instance, to survive an "ankle-breaker" landing without injury, or to dodge trees on the way down. Make an IQ-based roll to *pack* a parachute.

Modifiers: -2 if your body weight plus encumbrance exceeds your Basic Lift×10.

Note that an occultist does not have to believe in the material he studies!

Parry Missile Weapons

DX/Hard

Defaults: None.

This skill lets you parry thrown or missile weapons with a ready melee weapon. If you are wearing wristbands or gloves with DR 2+, or have at least this much natural DR, you can also parry with your hands. Your Parry score is (skill/2) + 3, rounded down – but based on Parry Missile Weapons skill, *not* your Melee Weapon or unarmed combat skill.

Modifiers (to Parry): +4 to parry large thrown weapons (e.g., axes and spears); +2 to parry small thrown weapons (e.g., knives and shuriken); no modifier to parry arrows; -2 to parry smaller low-tech missiles (e.g., crossbow bolts and blowpipe darts). You cannot parry bullets or similar high-tech projectiles! (*Exception:* Enhanced Time Sense allows you to parry bullets at -5.)

Performance

IQ/Average

Defaults: IQ-5, Acting-2, or Public Speaking-2.

This is the ability to act on the stage or screen. It is different from Acting in that you are trying to impress and entertain people – not *deceive* them. If you studied this skill formally, it includes the knowledge expected of a professional actor from your culture and tech level (stage directions, actor-agent-producer relations, etc.).

Modifiers: +2 for Voice (p. 97); -1 to -4 for Shyness (p. 154); -2 for Stuttering (p. 157).

Persuade

see ***Enthrallment,*** **p. 191**

Pharmacy/TL†

IQ/Hard

Defaults: IQ-6 and others.

This is the skill of preparing medicines to treat illness. (To work with *noxious* drugs, use Poisons skill, p. 214.) You *must* specialize:

Herbal: The ability to make and administer remedies prepared from plants. Make a Naturalist roll to *locate* herbs. Before TL5, this is the only specialty available. It replaces Physician (below) and is frequently used in conjunction with Esoteric Medicine (p. 192). At TL5+, this specialty remains available, but Pharmacy (Synthetic) is much more common. *Prerequisite:* Naturalist. *Defaults:* Biology-5, Herb Lore-5, or Naturalist-5.

Synthetic: The skill of preparing drugs under "laboratory" conditions. To *prescribe* drugs, use Physician skill. This specialty is only available at TL5+. *Defaults:* Chemistry-5 or Physician-5.

Philosophy†

IQ/Hard

Default: IQ-6.

This is the study of a system of principles to live by. You *must* specialize in a particular school of philosophy; e.g., Confucianism, Marxism, or Stoicism. (If you study a *religious* philosophy, buy Theology skill, p. 226.) When confronted with someone who subscribes to this philosophy, a successful Philosophy roll might provide insights into his behavior.

You do not necessarily believe in the ideals of the philosophy you study. If you do, you may ask the GM to make a secret roll against your Philosophy skill when you are faced with a moral dilemma. On a success, the GM will "enlighten" you and provide a hint as to which course of action "feels" right given your beliefs.

Photography/TL

IQ/Average

Defaults: IQ-5 or Electronics Operation (Media)-5.

This is the ability to use a camera competently, use a darkroom (TL5+) or digital imaging software (TL8+), etc., and to produce recognizable and attractive photos. You may roll at default to use a camera, but not to develop film or prints in a darkroom.

Modifiers: -3 for an unfamiliar camera; -3 for a motion-picture camera.

Physician/TL

IQ/Hard

Defaults: IQ-7, First Aid-11, or Veterinary-5.

This is the ability to aid the sick and the injured, prescribe drugs and care, etc. Make a skill roll to hasten natural recovery from injury (see *Recovery,* p. 423), and whenever the GM requires a roll to test general medical competence or knowledge. Apply physiology modifiers (p. 181) if your patient is of a different species from you.

At TL4 and below, *this skill does not exist* in most game worlds. Instead, use Esoteric Medicine (p. 192), Pharmacy (Herbal) (above), or both.

At TL5+, medical knowledge is divided between Pharmacy (Synthetic) and Physician. A physician knows a great deal about drugs. He can identify most drugs fairly easily (at -5 without laboratory facilities but +3 if he takes the risk of smelling/tasting the substance), but he cannot *formulate* them unless he also learns Pharmacy.

Physics/TL

IQ/Very Hard

Default: IQ-6.

Prerequisite: Mathematics (Applied) at TL5+.

This is the science dealing with the properties and interactions of matter and energy. Beyond the basics (such as the behavior of moving bodies), a physicist's knowledge includes whatever is understood about electricity, gravity, heat, light, magnetism, radiation, and sound at his tech level.

At TL6+, most physicists have an *optional* specialty (p. 169): acoustics, astrophysics, geophysics, nuclear physics, optics, particle physics, quantum physics, relativity, solid-state physics, etc. Some settings offer exotic options, such as hyperspace physics (the science of hyperspace and jump points), parachronic physics (the study of other realities and timelines), paraphysics (the physics of psi phenomena), probability physics (the study of probability manipulation), and temporal physics (the science of time travel).

Physiology/TL†

IQ/Hard

Defaults: IQ-6, Diagnosis-5, Physician-5, or Surgery-5.

This is the study of the human body and its function. A physiologist knows how bones, muscles, and organs work, and where they are located. In settings with multiple sapient species, you *must* specialize by race. Defaults between species (if any) are up to the GM.

Pickpocket

DX/Hard

Defaults: DX-6, Filch-5, or Sleight of Hand-4.

This is the ability to steal a purse, knife, etc., from someone's person – or to "plant" something on him.

If your victim is aware someone may try to pick his pocket, or if he is generally wary, you must win a Quick Contest of Pickpocket vs. the *higher* of his Perception or Streetwise skill. To outwit a third party who is watching you and the victim, you must win a Quick Contest of Pickpocket vs. the watcher's Observation skill.

Modifiers: +5 if the victim is distracted; +10 if he is asleep or drunk; up to -5 for goods in an inner pocket; and up to -10 for a ring or similar jewelry.

Piloting/TL†

DX/Average

Default: IQ-6.

This is the ability to operate a specific type of aircraft or spacecraft. The default is to IQ, because it takes intelligence to figure out the controls in an emergency, but when you *learn* this skill, always base it on DX.

Roll against Piloting for takeoffs and landings, and in any hazardous situation. Failure by 1 indicates a rough job; failure by more indicates damage to the vehicle. A critical failure is a crash! If you have skill 15+, a critical failure requires an immediate second roll. Only if the second roll is a failure does a mishap occur. Otherwise, it was a "near thing," averted by experience. Air combat requires frequent Piloting rolls as well.

Make an IQ-based Piloting roll for basic map reading or practical meteorology, or to recall aviation laws and regulations.

Remotely piloted vehicles (RPVs) use this skill if the pilot uses some form of telepresence to mimic actually being in the cockpit. Otherwise, make a DX-based roll against the appropriate skill for the task the RPV is performing (e.g., Forward Observer for a surveillance drone).

You *must* specialize:

Aerospace: Any vehicle capable of atmospheric flight to and from orbit. *Defaults:* High-Performance Airplane-2 or other Piloting at -4.

Autogyro: Any rotor-equipped aircraft that uses its rotors for lift but not thrust. *Defaults:* Helicopter-3, any Airplane specialty at -4, or other Piloting at -5.

Contragravity: Any aircraft that relies on ultra-tech or magical levitation. *Defaults:* Vertol-3 or other Piloting at -5.

Flight Pack: Any "strap-on" aircraft. *Defaults:* Vertol-4 or other Piloting at -5.

Glider: Any kind of unpowered, winged aircraft. *Defaults:* Light Airplane or Ultralight at -2, or other Piloting at -4.

Heavy Airplane: Any winged aircraft weighing over 10 tons and flying at 600 mph or slower. *Defaults:* High-Performance Airplane or Light Airplane at -2, or other Piloting at -4.

Helicopter: Any aircraft that uses rotors for both lift and thrust. *Defaults:* Autogyro-2, Vertol-4, or other Piloting at -5.

High-Performance Airplane: Any winged aircraft capable of flying faster than 600 mph. *Defaults:* Aerospace, Heavy Airplane, or Light Airplane at -2, or other Piloting at -4.

High-Performance Spacecraft: Any space vehicle capable of accelerations of 0.1G or more. *Defaults:* Aerospace-4 or Low-Performance Spacecraft-2.

Light Airplane: Any winged aircraft weighing 10 tons or less and flying at 600 mph or slower. *Defaults:* Glider, Heavy Airplane, High-Performance Airplane, or Ultralight at -2, or other Piloting at -4.

Lighter-Than-Air: Any kind of airship or balloon. *Default:* other Piloting at -5.

Lightsail: Any spacecraft that uses a lightsail, regardless of thrust. *Default:* Low-Performance Spacecraft-4.

Low-G Wings: Muscle-powered strap-on wings used in a low-gravity environment with an atmosphere. Learn Flight (p. 195) for endurance flying. *Default:* Glider-4.

Low-Performance Spacecraft: Any space vehicle that accelerates at less than 0.1G. *Defaults:* Aerospace-4 or High-Performance Spacecraft-2.

Ultralight: Any winged aircraft weighing 0.5 tons or less and flying at 200 mph or slower. *Defaults:* Glider or Light Airplane at -2, other Airplane specialties at -4, or other Piloting at -5.

Vertol: Any aircraft that flies by brute-force application of thrust rather than by using rotors or wings. *Defaults:* Contragravity-3, Helicopter-4, or other Piloting at -5.

Modifiers: +1 for 3D Spatial Sense (p. 34); +1 for Perfect Balance (p. 74). -2 for an unfamiliar vehicle within your specialty (e.g., a twin-engine plane when you are used to single-engine craft); -2 or more for unusually primitive *or* extremely complex controls; -4 or more for a plane in bad repair; -2 or more for bad flying conditions.

Poetry

IQ/Average

Defaults: IQ-5 or Writing-5.

This is the ability to compose "good" poetry of any type native to your culture, in any language you know. A successful roll lets you write one good poem in an appropriate amount of time (GM's decision). A failed roll might mean that you couldn't get inspired – or that your audience just didn't care for your work (for whatever reason).

Modifiers: The time modifiers under *Time Spent* (p. 346) will often apply; Cultural Familiarity modifiers (p. 23); Language modifiers (p. 23).

Poisons/TL

IQ/Hard

Defaults: IQ-6, Chemistry-5, Pharmacy (any)-3, or Physician-3.

This skill represents practical knowledge of poisons. A successful skill roll lets you (among other things) recognize a poison-bearing plant in the wild; extract the poison in a useful form; recognize a poison by its taste in food or drink; identify a poison by observing its effects (+3 if *you* are poisoned); know a proper antidote; or recognize or prepare the antidote from its sources. Each of these feats requires a separate roll.

Modifiers: Acute Taste and Smell (p. 35) gives a bonus to notice or recognize a poison by taste or by scent. Likewise, Discriminatory Smell and Discriminatory Taste (p. 49) give +4 to these tasks when working by smell or by taste, respectively.

Polearm

see *Melee Weapon,* p. 208

Politics

IQ/Average

Defaults: IQ-5 or Diplomacy-5.

This is the ability to get into office and get along with other politicians. It has nothing to do with administration! You can only learn Politics in office or by working for someone in office. A successful skill roll will give you +2 on reactions from fellow politicians. The GM may opt to handle an election as a Quick Contest of Politics.

Modifiers: +2 for Voice (p. 97); -3 for Low Empathy (p. 142); -1 to -4 for Shyness (p. 154). In some jurisdictions, money is another important modifier . . .

Power Blow

Will/Hard

Defaults: None.

Prerequisites: Trained By A Master or Weapon Master.

This is the ability to draw on your inner strength to deliver a devastating blow in melee combat. Roll once per attack. Power Blow costs 1 FP per attempt, successful or not.

If successful, double your ST for damage purposes for the *next attack only.* This attack takes all normal modifiers, and must occur immediately after the Power Blow roll. If you know Power Blow at better than skill 20, you can *triple* your ST by accepting an extra -10 to the skill roll.

You can also use this skill in non-combat situations. For instance, you could use Power Blow to double or triple your ST momentarily in order to move a heavy object. Such feats cost 1 FP and require a skill roll, as described above.

Modifiers: -10 if used *instantly,* dropping to -5 after 1 turn of concentration, -4 after 2 turns, -3 after 4 turns, -2 after 8 turns, -1 after 16 turns, and no penalty after 32 turns.

Pressure Points

IQ/Hard

Defaults: None*.

Prerequisites: Trained By A Master or Weapon Master.

* May default to Esoteric Medicine-4 in a cinematic campaign.

This is the art of striking pressure points in order to disable an opponent. To use this ability, you must make a successful attack with Karate (or other appropriate combat skill; see below). This attack is at -2 in addition to any hit location modifier (see *Hit Location,* p. 398). If at least one point of damage penetrates the target's DR, roll a Quick Contest of Pressure Points vs. the victim's HT.

If you win, you temporarily disable your target. A limb is paralyzed and effectively crippled for 5d seconds. A hit to a torso pressure point interferes with the victim's breathing, resulting in suffocation (see *Suffocation,* p. 436); he may roll against HT every second to recover. A hit to the face stuns the victim; he gets an IQ roll every second to recover. A blow to the skull blinds the victim for 2d seconds; see *Blindness* (p. 124).

You can also use Pressure Points with Judo. Roll the Quick Contest described above after successfully applying a lock. This is *in addition to* any other effects of the lock.

The GM may permit warriors to learn specialties of this skill for use with crushing weapons. Examples include Pressure Points (Bow) for use with blunt arrows, Pressure Points (Shortsword) for use with a baton, and Pressure Points (Staff) for use with a staff.

Modifiers: Physiology modifiers (p. 181).

Pressure Secrets

IQ/Very Hard

Defaults: None.

Prerequisites: Trained By A Master and Pressure Points at 16+.

This skill represents knowledge of the most vulnerable vital points of the human body. It allows you to maim and kill by crushing and tearing vital organs and nerve clusters with deadly precision.

To use this ability, you must make a successful unarmed attack. This attack is at -2 in addition to any hit location modifier (see *Hit Location,* p. 398). If you hit, make a Pressure Secrets roll.

On a success, any damage that penetrates DR is *doubled* – or *tripled* if you targeted the vital organs. In effect, your hands and feet have become impaling weapons!

You can also use this ability with locks and similar grappling attacks. This represents knowledge of exactly where to apply pressure to tear or sprain joints and ligaments. After applying the lock, make a Pressure Secrets roll. On a success, double the damage, shock, or harmful effects of the lock *for that turn.*

This skill is unrealistic and potentially unbalancing. The GM should carefully weigh its impact before allowing it, and may wish to make it very difficult for PCs to learn – or even restrict it to deadly NPC opponents.

Modifiers: Physiology modifiers (p. 181).

Professional Skill

DX or IQ/Average

Defaults: Special.

Many realistic job skills are more useful for making a living than for adventuring. Most such skills do not appear in this skill list – but you can still learn them if you want! Each is a separate Professional Skill. If your "adventuring" skills aren't useful for earning money, a Professional Skill can help you earn a steady income. To qualify for most jobs, you will need the relevant Professional Skill at 12+ (unless you are *supposed* to be incompetent!).

Most professions encompass a body of knowledge. The associated Professional Skills are IQ/Average and default to IQ-5, because the smarter you are, the better you can recall and employ the techniques used at your job. Examples include air traffic controller, barber, brewer, cooper, distiller, dyer, florist, game designer, journalist, prostitute, tanner, vintner, and zookeeper.

A few professions – glassblower, tailor, weaver, etc. – focus more on precision than on recall. These Professional Skills are DX/Average and default to DX-5.

At the GM's option, a given Professional Skill might also default to other skills. For instance, "Journalist" would logically default to Writing-3.

The skills associated with highly paid or respected professions often have prerequisites. For instance, "Air Traffic Controller" might require Electronics Operation (Sensors) skill. Like defaults, prerequisites are up to the GM.

You are free to create your own Professional Skills, subject to GM approval. They should be unique and well defined, *not* just a compilation of existing skills. For example:

Bartender

IQ/Average

Defaults: IQ-5 or Carousing-3.

This is the skill of maintaining a professional-quality bar and interacting with customers in a professional yet friendly way. A successful skill roll lets you mix drinks, recall local laws regarding alcohol, gauge the intoxication level of a customer, or calm an unruly drunk before the bouncer needs to get involved. At higher levels, this skill takes on an element of showmanship, allowing you to present drinks in unique and attractive ways, and to mix them with showy tricks and flourishes.

Propaganda/TL

IQ/Average

Defaults: IQ-5, Merchant-5, or Psychology-4.

This is the skill of indirect persuasion through the media. It is used for psychological warfare by intelligence and military organizations, and for advertising and marketing in the civilian world. Use familiarity (p. 169) to reflect the differences between these areas.

Propaganda works on groups, not individuals. The GM should set the effective Will of the target group based on its size, composition, and resistance to the desired outcome, and then use the *Influence Rolls* (p. 359) rules to determine the results. Success might inform the target audience or even alter its perceptions. Propaganda attempts nearly always take more time and exposure than ordinary Influence rolls, however; how much time is up to the GM.

Prospecting/TL

IQ/Average

Defaults: IQ-5 or Geology (any)-4.

This is the skill of finding valuable minerals. A successful Prospecting roll lets you locate minerals, judge good ore from a small sample (and gauge its commercial value), and find water by using an "eye for country," as described for Survival skill (p. 223).

This skill is "applied geology," and *requires* on-site examination. Prospecting from a distance – using maps, instrument readings, and extrapolation – uses Geology skill instead.

Modifiers: Equipment modifiers (p. 345); -1 in a new area of a familiar type, or -2 or more in an unfamiliar type of area, until you have been there for at least a month.

Psychology

IQ/Hard

Defaults: IQ-6 or Sociology-4.

This is the skill of *applied* psychology, which may be learned by academic study or lengthy observation of human nature. Roll against skill to predict the *general* behavior of an individual or small group in a particular situation – especially a stressful situation.

In settings with multiple sapient species, you *must* specialize by race. Defaults between specialties are up to the GM.

If the GM desires extra detail, he may rule that Psychology is split into two specialties: Applied (described above) and Experimental (for scientists who run rats in mazes and so forth). Applied defaults to Experimental-5; Experimental does not default to Applied, as a shrewd observer of people may lack training in scientific procedures.

Modifiers: +3 if you know the subject well; +3 if the subject is of a known deviant personality type; +1 for Sensitive *or* +3 for Empathy (p. 51), or -3 for Low Empathy (p. 142), if diagnosing a subject in your presence; -3 for Callous (p. 125), unless specifically rolling to deduce someone's weaknesses so you can exploit them.

Public Speaking

IQ/Average

Defaults: IQ-5, Acting-5, Performance-2, or Politics-5.

This is general talent with the spoken word. A successful skill roll lets you (for instance) give a good political speech, entertain a group around a campfire, incite or calm a riot, or put on a successful "court jester" act.

Public Speaking includes skill with debate, oratory, and rhetoric, as well as ability with less formal activities such as "punning" and storytelling. Not all speakers possess talent in all of these areas. You may take an *optional* specialty (p. 169) to represent this.

Modifiers: Any bonus for Charisma (p. 41); +2 for Voice (p. 97); -1 to -4 for Shyness (p. 154); -2 for Stuttering (p. 157); Cultural Familiarity modifiers (p. 23); Language modifiers (p. 24).

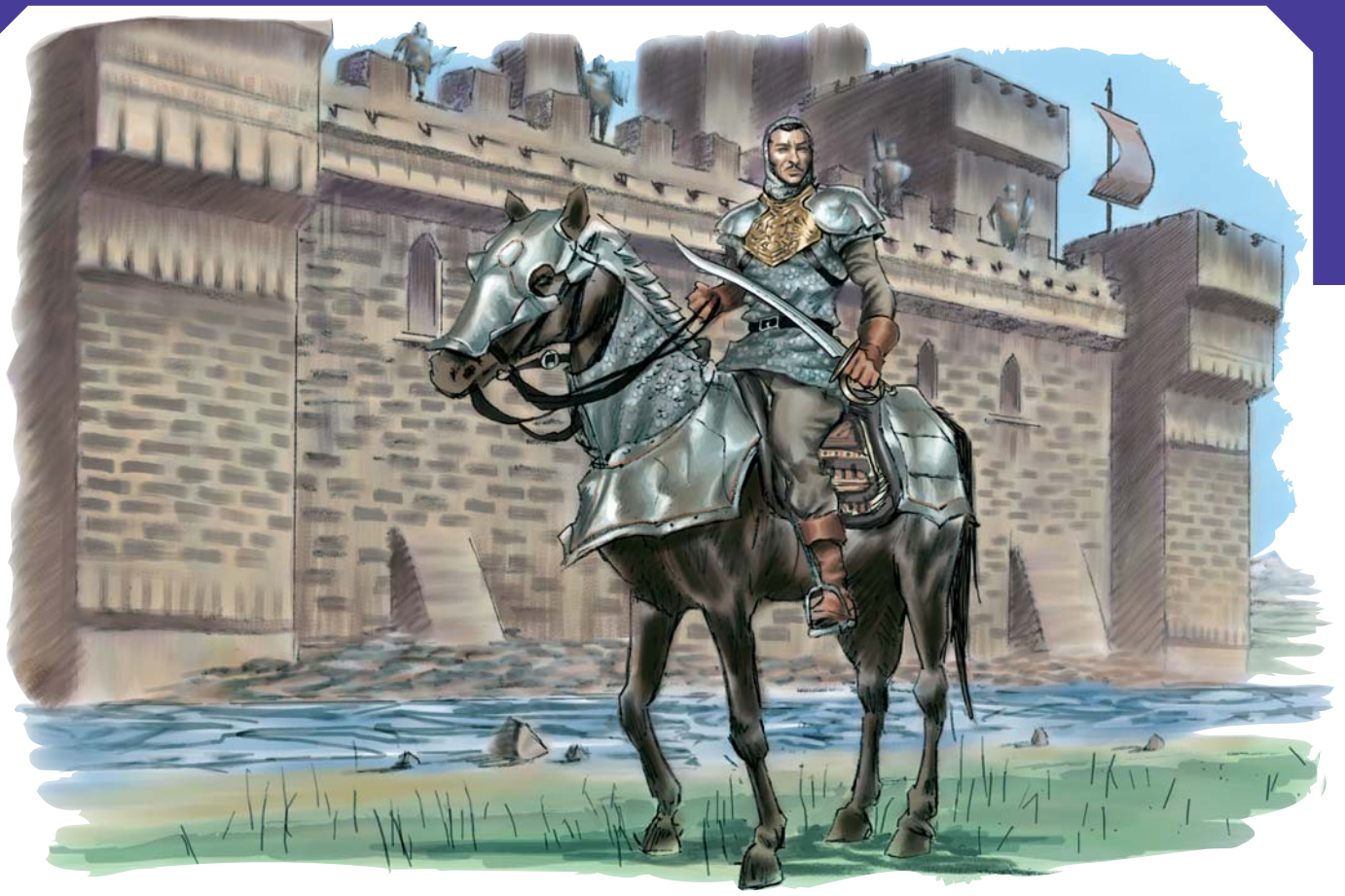
Push

DX/Hard

Defaults: None.
Prerequisite: Trained By A Master.

This skill allows you to channel your *chi* in order to "gently" push away an adversary or cause him to lose his balance. Roll against Push skill to hit. This counts as a barehanded attack (see *Shove,* p. 372), and your target may attempt any legal active defense.

If you hit, use the *higher* of your ST or your Push skill as your effective ST. Roll *swing* damage for that ST, and double the result. For instance, if you had ST 10 and Push-15, you would roll swing damage for ST 15 (2d+1), and double it. This damage inflicts knockback (see *Knockback,* p. 378) but *never* actual physical injury.



Rapier

see ***Melee Weapon,*** **p. 208**

Religious Ritual†

IQ/Hard

Defaults: Ritual Magic (same)-6 or Theology (same)-4.

This is the ability to perform religious rites – masses, funerals, weddings, etc. – before a congregation. You *must* specialize by religion. This skill includes detailed knowledge of the ritual motions, prayers, and trappings of the faith, as well as the ability to capture and hold the attention of worshipers. For religions that practice sacrifice, Religious Ritual also covers familiarity with sacrificial tools and methods.

To be a priest or holy man at TL1+, you must have both Religious Ritual *and* Theology skill (p. 226) for your religion. TL0 shamans need only learn Religious Ritual.

In worlds where priests can perform miracles, each *magical* ritual or spell is a separate skill, but certain "mundane" religious rituals – such as sacrifice – can give bonuses to spell rolls. You must always make a successful Religious Ritual roll to claim such a bonus. In other settings, a priest's magic is only as good as his ritual. If this is the case, your roll to work magic is against the *lower* of Religious Ritual and your actual spell skill.

Research/TL

IQ/Average

Defaults: IQ-5 or Writing-3.

Prerequisite: literacy in at least one language (see p. 24)*.

* At TL8+, Computer Operation is also a prerequisite.

This is the ability to do library and file research. Roll against skill to find a useful piece of data in an appropriate place of research . . . *if* the information is there to be found.

At the GM's option, when researching material connected with a "book-learned" skill such as Forensics, Literature, or Physics, you may roll against that skill at -2 instead, if that would be better than your Research skill or default (but this is *not* a general default level).

Modifiers: Language modifiers (p. 24), for research materials in a foreign tongue.

Riding†

DX/Average

Defaults: DX-5 or Animal Handling (same)-3.

This is the ability to ride a particular kind of mount. Make a skill roll when you first try to mount a riding animal, and again each time something happens to frighten or challenge the creature (e.g., a jump).

You *must* specialize by riding beast. Defaults between specialties vary from 0 to -10. For instance, if you have Riding (Horse), Riding (Mule) is essentially the same skill (no default penalty), Riding (Camel) would default at -3, Riding (Dolphin) at -6, and Riding (Dragon) at a whopping -10!

Modifiers: +5 if the animal knows and likes you; +1 or more for a mount with the Mount skill (p. 210); -10 if the animal has not been trained for riding.

Ritual Magic†

IQ/Very Hard

Default: Religious Ritual (same)-6.

This skill gives an understanding of the intellectual and mystical processes involved in the rituals of a particular tradition of spirit invocation. Make a skill roll to determine the purpose of a ritual conducted in your presence, the type of entity being summoned, etc.

You *must* specialize by tradition; e.g., Voodoo or Witchcraft. Specialties default to one another at -5. The processes involved are comparable, but the specific rituals and spirits differ significantly.

In worlds with working ritual magic, Ritual Magic skill is the primary skill of sorcerers. All rituals of power default to it! See the appropriate worldbook for details.

This is the skill of invoking spirits to produce magical effects for nonreligious reasons. The equivalent skill for the more direct, flashy magic of fantasy is Thaumatology (p. 225); knowledge of *religious* rites associated with a tradition is Religious Ritual (p. 217).

Running

HT/Average

Default: HT-5.

This skill represents training in both sprints and long-distance running. Roll against the *higher* of Running or HT to avoid fatigue or injury due to running. When racing someone of equal Move on foot, roll a Quick Contest of Running skill to determine the winner.

Note that you must have legs and be capable of land movement to learn this skill.

Saber

see *Melee Weapon,* p. 208

Savoir-Faire†

IQ/Easy

Defaults: IQ-4 and others.

This is the skill of appropriate behavior in a subculture that has an established code of conduct – for instance, high society or the military. When dealing with that social group, a successful skill roll lets you interact without embarrassing yourself, detect pretenders to high standing, and so on. You may also substitute an Influence roll against Savoir-Faire for any reaction roll required in a social situation involving that subculture; see *Influence Rolls* (p. 359). Roll once per encounter.

You *must* specialize. Common specialties include:

Dojo: How to greet masters, wear weapons, and issue challenges at a karate *dojo,* kung fu *kwoon,* fencing *salle,* or similar academy of the martial arts. *Recognized* skill determines relative standing. In certain places and times, to flout tradition is to risk violent retribution! For competitive martial arts (only), this skill defaults to any relevant Games skill at -3.

High Society: The manners of those of "good" birth and breeding. Status determines relative standing. Roll against skill whenever you must impersonate someone more than three Status levels away from your own. If your Status is negative and you are trying to pass yourself off as someone of Status 1+, or vice versa, this roll is at -2.

Mafia: Proper conduct within a formal criminal organization. This includes such things as codes of silence and showing proper deference to "made men." These protocols often ape those of high society . . . but the penalties for misconduct are far more severe. *Default:* Streetwise-3.

Military: The customs, traditions, and regulations of military service. This also includes knowledge of the *unwritten* rules: what is acceptable even if not regulation, and what is forbidden although there is nothing in writing against it. Military Rank determines relative standing.

Police: As Savoir-Faire (Military), but for civilian police service. This gives knowledge of the *social* protocols for police officers; use Law (Police) for the *legal* protocols. Police Rank determines relative standing.

Servant: Knowledge of how to serve the upper class. Certain procedures are always done *just so* (the salad fork goes outside the dinner fork, the Duke is announced before the Earl, etc.), and certain attitudes in a servant are unacceptable.

Savoir-Faire (High Society) is the most common specialty, and you may list this as simply "Savoir-Faire" on your character sheet. Savoir Faire (High Society) and (Servant) default to one another at -2. There are no defaults between other types of Savoir-Faire.

Modifiers: Cultural Familiarity modifiers (p. 23). +2 if you are of higher standing than those you are trying to impress, or -2 if you are of lower standing ("standing" might mean Rank, Status, skill level, or something else). +2 if you seem to have important friends. -4 for Clueless (p. 126); -3 for Low Empathy (p. 142); -1 for Oblivious (p. 146); -1 to -4 for Shyness (p. 154).

Scrounging

Per/Easy

Default: Perception-4.

This is the ability to find, salvage, or improvise useful items that others can't locate. Each attempt takes an hour. You do not necessarily steal your booty; you just locate it – somehow – and then acquire it by any means necessary. Note that if you find something that is "nailed down," you must decide how to try to get it (which might require a roll on another skill).

Modifiers: As the GM sees fit, for the rarity of the item sought.

Scuba/TL

IQ/Average

Defaults: IQ-5 or Diving Suit-2.
Prerequisite: Swimming.

This is the ability to use self-contained underwater breathing apparatus (scuba). Roll when you first enter the water, and again every 30 minutes thereafter, to avoid inhaling water (treat as drowning; see *Suffocation,* p. 436). If you know this skill above default level, a successful roll also lets you spot problems with the equipment before you put it on.

Modifiers: -2 to -4 for unfamiliar scuba rigs; e.g., closed-circuit gear when you're used to open-circuit.

Seamanship/TL

see *Crewman,* p. 185

Search

Per/Average

Defaults: Perception-5 or Criminology-5.

This is the ability to search people, baggage, and vehicles for items that aren't in plain sight. The GM rolls once – *in secret* – per item of interest. For *deliberately* concealed items, this is a Quick Contest of your Search skill vs. the Holdout or Smuggling skill used to hide the item. If you fail, the GM simply says, "You found nothing." (It defeats the purpose to say, "You don't find the gun under his jacket.")

If more than one person is searching, roll separately for each searcher.

The GM should avoid unnecessary rolls. For instance, no human can get a sawed-off shotgun through a body search. Likewise, a knife or jewel simply cannot be found on a normally dressed person without an X-ray or skin search. In general, if the net bonus to the concealer's Holdout roll is +3 or more, a skin search is *required.* If his Holdout is at -2 or worse for size, a skin search will automatically find the hidden item.

Modifiers: +1 for a "pat-down" of an unresisting person (takes one minute), +3 for a thorough "skin search" of a person's hair and clothing (takes three minutes), or +5 for a complete search, including body cavities (takes five minutes). Bonuses for Acute Touch (p. 35) and Sensitive Touch (p. 83) apply to *all* hands-on searches. On a successful Electronics Operation (Security) roll, specialized sensors – metal detectors, X-ray machines, etc. – give from +1 to +5 to find items they can detect (a metal detector won't help you find plastic explosives!).

Sewing/TL

DX/Easy

Default: DX-4.

This is the ability to work with fabric using the tools of your tech level. A successful skill roll lets you repair damaged clothing (or any other item made of cloth), modify garments (useful when you must wear another person's clothing, perhaps to impersonate him), or create new clothing or costumes from suitable materials.

Make an IQ-based roll to *design* clothing, at +1 if you have Fashion Sense (p. 21).

Before TL7, someone knows this skill in almost every household. At TL7+, it is rare for anyone but a professional seamstress or tailor to know Sewing – most people work at default (at +4 for a simple task like reattaching a button) and discard items that they cannot mend.

Modifiers: Equipment modifiers (p. 345); modifiers for High Manual Dexterity (p. 59) or Ham-Fisted (p. 138).

Sex Appeal

HT/Average

Default: HT-3.

This is the ability to impress those who are attracted to members of your sex. It has as much to do with attitude as it does with looks. If you are not willing to "vamp" someone to get what you want, you won't have this skill – or *want* it.

You may substitute an Influence roll against Sex Appeal for any reaction roll made by someone who is attracted to members of your sex; see *Influence Rolls* (p. 359).

Usually, you may make only one attempt per "target," although the GM might allow another attempt after a few weeks.

Modifiers: +2 for Voice (p. 97); -3 for Low Empathy (p. 142); -1 for Oblivious (p. 146); -1 to -4 for Shyness (p. 154); -2 for Stuttering (p. 157). Apply any bonus for above-average appearance (p. 21) – or *double* the penalty for below-average appearance!

Shadowing

IQ/Average

Defaults: IQ-5, Observation-5, or Stealth-4 (on foot only).

This is the ability to follow another person through a crowd without being noticed. (In the wilderness, use Tracking and Stealth.) Roll a Quick Contest every 10 minutes: your Shadowing vs. the subject's Vision roll. If you lose, you lost the subject; if you lose by more than 5, you were seen.

Once the subject is aware you are shadowing him, roll a Quick Contest every five minutes: your Shadowing skill vs. his Shadowing or Stealth skill. If he wins, he eludes you. If he loses by more than 5, he *thinks* he eluded you. If you critically fail, you lose him *and* follow the wrong person.

Following someone in a vehicle is harder than shadowing on foot. Use the same rules, but you roll at -2 (and may not use your Stealth default).

Modifiers: -3 if the subject knows you. Distinctive appearance gives a penalty – see *Build* (p. 18), *Unnatural Features* (p. 22), and specific disadvantages (e.g., Hunchback, p. 139) for details. If you belong to a visibly different race than most of the people around you, the penalty is up to the GM; it is never smaller in magnitude than the *difference* between your Size Modifier and that of those around you.

Shield†

DX/Easy

Default: DX-4.

This is the ability to use a shield, both to block and to attack. Your active defense with any kind of shield – your Block score – is (skill/2) + 3, rounded down. You *must* specialize:

Shield: Any shield held in place with straps. Such shields have the advantage that you can hold (but not *wield*) something in your shield hand, but the disadvantage of being slow to put on or take off. This is the most common specialty – list it as "Shield" on character sheets.

Buckler: Any kind of shield, usually a small one, held in the hand. A buckler occupies one hand completely, but you can ready it in only one turn and drop it as a free action.

Force: Any shield with a blocking "surface" formed from energy rather than matter.

Shield, Shield (Buckler), and Shield (Force) default to one another at -2.

Shiphandling/TL†

IQ/Hard

Defaults: IQ-6 and others.
Prerequisites: see below.

This is the ability to act as the *master* of a large vessel. It involves directing the crew in the tasks necessary to control the vehicle's speed and direction. It also covers such duties as keeping the captain's log and inspecting the crew. Someone with Shiphandling skill (at better than default!) should stand watch at all times when the vessel is underway. Roll vs. skill when encountering hazards or maneuvering for battle.

A failed roll when encountering hazards means the vessel is damaged. This might mean anything from scratched paint to crippling damage that requires extensive repairs.

A failed roll in battle means the vessel did not go exactly where intended. The details depend on the vessel, the tech level, and the GM's judgment, but might include weapons being "masked" (unable to engage the enemy), a failed boarding attempt, or drifting out of formation with your fleet (which might deny you the benefits of area defenses, fire support, or tactical communications).

A critical failure under any circumstances means an appropriate disaster. Depending on the TL and situation, this could mean running aground, colliding with another vessel, being dismasted, losing your screws or rudder, or simply giving an order that your crew disregards. Whether they then save your ship for you, or mutiny and flee, is up to the GM.

A critical failure under any circumstances means an appropriate disaster: running aground, colliding with another vessel, being dismasted, losing your screws or rudder, or simply giving an order that your crew disregards.

You *must* specialize:

Airship: Blimps, zeppelins, and similar large airships. *Prerequisites:* Airshipman, Leadership, and Navigation (Air). *Defaults:* Airshipman-5 or Piloting (Lighter-Than-Air)-5.

Ship: Surface vessels, from tugboats to carriers. *Prerequisites:* Leadership, Navigation (Sea), and Seamanship. *Defaults:* Seamanship-5, or to Boating (Large Powerboat)-5 for ships with engines or Boating (Sailboat)-5 for tall ships.

Spaceship: Slower-than-light spacecraft. *Prerequisites:* Leadership, Navigation (Space), and Spacer. *Defaults:* Spacer-5 or any spaceship Piloting-5.

Starship: Faster-than-light spacecraft. *Prerequisites:* Leadership, Navigation (Hyperspace), and Spacer. *Defaults:* Spacer-5 or any spaceship Piloting-5.

Submarine: All forms of large submersibles. *Prerequisites:* Leadership, Navigation (Sea), and Submariner. *Defaults:* Submariner-5 or Submarine (Large Sub)-5.

Modifiers: -2 to master an unfamiliar vessel (e.g., an aircraft carrier when you're used to a battleship); -2 for an unfamiliar crew; -2 or more for a vehicle in bad repair.

Shortsword

see *Melee Weapon,* p. 208

Singing

HT/Easy

Default: HT-4.

This is the ability to sing in a pleasing fashion. A successful roll means the audience liked your song.

Modifiers: Language Modifiers (p. 24), if you are singing in a foreign language; -2 if the audience does not understand the language; +2 for Voice (p. 97); -2 for Stuttering (p. 157).

Skating

HT/Hard

Default: HT-6.

When you are moving on skates, this skill replaces Hiking skill (p. 200) for routine travel and Running skill (p. 218) for racing. The GM may also require DX-based skill rolls in combat or chases, or for hazardous maneuvers, conditions, or speeds. Under those circumstances, any failure indicates a fall, while critical failure results in 1d-2 damage to a randomly chosen limb.

Skiing

HT/Hard

Default: HT-6.

This replaces Hiking skill (p. 200) when you are skiing cross-country and Running skill (p. 218) when you are racing. Roll once per day of routine travel. The GM may require much more frequent skill rolls – usually DX-based – in combat or chases, or for hazardous maneuvers, conditions, or speeds. In those situations, any failure indicates a fall, while critical failure means 1d damage to a randomly chosen limb.

Sleight of Hand

DX/Hard

Default: Filch-5.

This is the ability to "palm" small objects, do coin and card tricks, etc. Make a skill roll to perform one piece of simple "stage magic." A failed roll means you blew the trick.

When you use this skill to steal, you must win a Quick Contest of Sleight of Hand vs. the Vision roll or Observation skill of potential witnesses to perform the theft unnoticed.

You can also use this skill to cheat at cards, dice, etc. A successful Sleight of Hand roll gives from +1 to +5 on your Gambling roll. Any failure causes you to be denounced as a cheater! In both cases, the exact results are up to the GM.

Modifiers: +3 if the light is dim; +3 if you have a confederate to distract attention; +5 if you have prepared in advance (cards up your sleeve, etc.); -3 if the person you want to fool knows Sleight of Hand himself; modifiers for High Manual Dexterity (p. 59) or Ham-Fisted (p. 138).

Sling

DX/Hard

Default: DX-6.

This is the ability to use the sling or staff sling.

Smallsword

see *Melee Weapon,* p. 208

Smith/TL†

IQ/Average

Defaults: IQ-5 and others.

This is the ability to work nonprecious metals by hand. You *must* specialize:

Copper: Copper itself and its alloys, including brass and bronze. Traditionally, a smith who worked with these metals was called a "brownsmith." *Default:* Jeweler-4.

Iron: The skill of being a blacksmith. Also covers steel, at tech levels where it exists.

Lead and Tin: Any of the softer, "white" metals, including alloys such as pewter. The traditional name for such a smith was "whitesmith." *Default:* Jeweler-4.

These specialties default to one another at -4.

This skill is IQ-based, but ST is important, and some tools have a "Minimum ST," just like weapons.

Smuggling

IQ/Average

Default: IQ-5.

This is the ability to conceal items in baggage and vehicles. You can also use it to hide an object in a room or a building. Roll against skill to hide an item from casual inspection. In an active search, the searchers must win a Quick Contest of Search vs. your Smuggling skill to find the item.

Modifiers: Equipment modifiers (p. 345) for specialized smuggling gear. The *difference* between the Size Modifier (p. 19) of the package, vehicle, or room in which you are hiding the item and that of the item itself; e.g., to hide a bottle of liquor (SM -5) in a family car (SM +3), you would roll at +8.

Sociology

IQ/Hard

Defaults: IQ-6, Anthropology-3, or Psychology-4.

This is the study of societies and social relationships. A successful skill roll lets you judge how well a large group of people will work together; deduce the social pressures contributing to a crime wave, revolution, war, etc.; or predict the most probable outcome of dissimilar societies coming into contact.

Soldier/TL

IQ/Average

Default: IQ-5.

This skill represents a combination of basic military training – the lessons taught at "boot camp" or its equivalent in your game world – and actual combat experience. Only those who have served in an army, militia, etc. are likely to know it.

The GM may require a Soldier roll whenever circumstances would test your battlefield discipline (knowing when to shoot, use concealment, take cover, etc.) or skill at practical field survival (e.g., keeping your feet dry and eating when you get the chance). Roll daily during prolonged military action. Failure means an inconvenience – perhaps a minor piece of equipment fails. Critical failure indicates a disaster: "friendly fire" incident, trench foot, etc.

Soldier includes basic lessons in many fields covered by other skills. For instance, a TL8 soldier learns to strip his rifle without learning Armoury (Small Arms), to use a radio without learning Electronics Operation (Comm), to dig a foxhole without learning Engineer (Combat), and so forth. In a situation where someone with one of those skills would roll at +4 or better for a routine task (see *Task Difficulty,* p. 345), the GM may let you roll against Soldier skill instead. You do not receive the bonus that someone with the full-fledged skill would get, but you *do* suffer any situational penalties.

Soldier can only substitute for skill rolls to do things that would be a believable part of basic training. This means the *routine* use of *standard* equipment by *ordinary* troops – not research, improvisation, or design, and never the operation of new or secret technologies! Soldier cannot replace weapon skills, either; you must buy all such skills separately.

Example: If someone with Electronics Operation (Comm) would be at +4 to call HQ on a standard-issue radio, you could do so with a successful Soldier roll. However, you could *not* use Soldier to fix a broken radio, use an enemy radio, or transmit coded signals.

Spacer/TL

see ***Crewman,*** p. 185

Spear

see ***Melee Weapon,*** p. 208

Spear Thrower

DX/Average

Defaults: DX-5 or Thrown Weapon (Spear)-4.

This is the ability to use the spear thrower: a long, flat stick with a notch or a loop at one end. It increases the force with which you can hurl a javelin or similar weapon. It takes one turn to position the spear in the thrower after both are in hand and ready.

Modifiers: -5 in tight quarters (less than two yards of overhead clearance).

Speed-Reading

IQ/Average

Defaults: None.

This is the ability to read *much* faster than normal. Whenever time is of the essence (for instance, when reading the instructions on a parachute as you fall), multiply your reading speed by a factor of 1 + (skill/10); e.g., Speed-Reading-12 would give a factor of 2.2. Make a skill roll to determine whether you retain what you have read.

On a failure, your recall is shaky. Every time you try to remember or use what you read, you must make an IQ roll at a penalty equal to your margin of failure. Roll at +5 if you have Eidetic Memory, or +10 for Photographic Memory. If this roll fails, you cannot recall the information; on a critical failure, you recall badly flawed information but believe it to be true! To eliminate this IQ roll, you must go back and reread the material *slowly*.

Modifiers: Language modifiers (p. 24).

Sports

DX/Average

Defaults: DX-5 and others.

This is the ability to play a particular sport *well* – perhaps well enough to earn a living. Each sport is a separate Sports skill. Most Sports skills are DX/Average and default to DX-5, but those that put a premium on strength (e.g., rugby) might default to ST-5. Some Sports skills might default to one another or to other skills as well.

Make an IQ-based roll to recall the *basic* rules of your sport. Detailed knowledge of the full rules governing leagues and tournaments – as would be expected of a coach or referee – is covered by the relevant Games skill (p. 197).

The GM may rule that certain Sports are useful in combat situations. For instance, Sports (Baseball) might let you use a bat to parry hurled rocks and grenades at (skill/2) + 3, Sports (Bullfighting) might give a Parry equal to (skill/2) + 3 against a slam by a beast that uses a "running head butt," and you might be able to roll against Sports (Rugby) to hit with a slam.

Staff

see ***Melee Weapon,*** p. 208

Stage Combat

DX/Average

Defaults: Combat Art or Sport-2, an actual combat skill-3, or Performance-3.

This skill allows you to perform a choreographed fight safely, yet in an entertaining manner. A critical failure indicates an injury: 1d-2 damage to a random location.

Modifiers: -4 for an unfamiliar weapon.

Stealth

DX/Average

Defaults: DX-5 or IQ-5.

This is the ability to hide and to move silently. A successful roll lets you conceal yourself anywhere except in a totally bare room, or move so quietly that nobody will hear you, or follow someone without being noticed. (To follow someone through a *crowd,* use Shadowing, p. 219.)

If someone is *specifically* on the alert for intruders, the GM will roll a Quick Contest between your Stealth and the sentinel's Perception.

You can also use this skill to stalk game. A successful roll (and about 30 minutes) gets you within 30 yards of most animals. Another roll, at -5, gets you within 15 yards.

Modifiers: A penalty equal to your encumbrance level. -5 to hide in an area without "natural" hiding places, or +3 or more if there are *many* hiding places. -5 to move silently if you are moving faster than Move 1. -5 to fool those with Discriminatory Smell (e.g., dogs).

A successful Streetwise roll might let you learn where any sort of illegal "action" is; which local cops or bureaucrats can be bought, and for how much; and how to contact the local underworld.

Strategy†

IQ/Hard

Defaults: IQ-6, Intelligence Analysis-6, or Tactics-6.

This is the ability to plan military actions and predict the actions of the enemy. In most settings, only the military teaches this skill.

A successful Strategy roll lets you deduce, in advance, enemy military plans unless another person with this skill leads them. In that case, the GM rolls a Quick Contest of Strategy. The amount of information gained depends on how well you roll (but *not* on the quality of the foe's plans). If you fail an uncontested roll or lose a Quick Contest, the GM gives you *false* information.

You *must* specialize in a type of strategy – Land, Naval, Space, etc. These specialties default to one

another at -4. The specific units being commanded are less important; even the units of another nation or tech level would give -1 or -2 at most (GM's judgment), as long as you had accurate information about their capabilities.

Streetwise

IQ/Average

Default: IQ-5.

This is the skill of getting along in rough company. A successful Streetwise roll might let you learn (among other things) where any sort of illegal "action" is; which local cops or bureaucrats can be bought, and for how much; and how to contact the local underworld. Note that you might also be able to get this information by asking a Contact (p. 44). This skill is a measure of your ability to make *new* connections as needed.

You may substitute an Influence roll against Streetwise for any reaction roll made in an underworld or "bad neighborhood" situation; see *Influence Rolls* (p. 359).

Modifiers: +3 if you have a tough reputation (either "good" or "bad") in the area; -3 if you are obviously a stranger in the area. -3 for Low Empathy (p. 142); -1 for Oblivious (p. 146); -1 to -4 for Shyness (p. 154).

Submarine/TL†

DX/Average

Default: IQ-6.

This is the ability to operate a specific type of underwater vehicle. As with Piloting, the default is to IQ, but when you *learn* the skill, always base it on DX.

Roll against Submarine to dive or to surface, to maneuver in underwater combat, or to negotiate hazardous waters. Failure can mean anything from a slight drift off course to a collision; critical failure may strand the vessel underwater!

Make an IQ-based Submarine roll for basic chart reading or practical oceanography, or to recall nautical laws and regulations.

You *must* specialize:

Free-Flooding Sub: Any small, *open* submersible. The crew is exposed to the water, and must wear underwater breathing gear. *Prerequisites:* Diving Suit *or* Scuba. *Defaults:* Large Sub-5 or Mini-Sub-4.

Large Sub: Any crewed, long-duration submersible, including attack subs and missile subs. *Defaults:* Free-Flooding Sub-5 or Mini-Sub-4.

Mini-Sub: Any small, closed, short-duration submersible, typical of those used for scientific research. *Defaults:* Free-Flooding Sub-4 or Large Sub-4.

Modifiers: -2 for an unfamiliar submarine within your specialty (e.g., a diesel attack sub when you are used to a nuclear missile sub); -4 or more for a vessel in bad repair; -1 to -10 for navigational hazards.

Submariner/TL

see *Crewman*, p. 185

Suggest

see *Enthrallment*, p. 191

Sumo Wrestling

DX/Average

Defaults: None.

This unarmed combat skill represents *any* training at grabbing, shoving, and tripping – not just the traditional Japanese sport of *sumo*. Roll against the *higher* of DX or Sumo Wrestling to hit with a grapple, slam, or shove, or to make or resist a takedown. If you know this skill at DX+1 level, add +1 to ST whenever you make or resist a grapple or takedown, and whenever you attempt to break free, and +1 *per die* to your damage when you slam or shove. These bonuses increase to +2 if you know Sumo at DX+2 or better.

When you defend with bare hands, Sumo Wrestling allows you to parry *once* per turn. You must use both hands. Your Parry score is (skill/2) + 3, rounded down. This parry is meant to ward off slams, grapples, and barehanded slaps. You parry at -2 vs. kicks and -3 vs. weapons. For complete rules for parrying barehanded, see *Parrying Unarmed* (p. 376).

Surgery/TL

IQ/Very Hard

Defaults: First Aid-12, Physician-5, Physiology-8, or Veterinary-5.

Prerequisites: First Aid or Physician.

This is skill at using *invasive* medical techniques to treat sickness or injury. Roll once per operation. On a success, the operation proceeded without complications. On a failure, the patient took damage – 2d for a simple amputation, 3d for other procedures. Surgery rolls can also facilitate recovery from wounds; see *Surgery* (p. 424).

This skill represents general surgical expertise, which is relatively rare in real life. Most surgeons have an *optional* specialty (p. 169) in a certain part of the body (brain, heart, etc.) or a specific type of surgery (cosmetic surgery, microsurgery, transplant surgery, etc.).

Modifiers: Equipment modifiers (p. 345); physiology modifiers (p. 181); -3 if the area or equipment cannot be properly cleaned and sterilized; -3 for head or chest surgery; -5 for undiagnosed problems. If you lack Physician skill, you are at -5 to do anything but "field-expedient" surgery (e.g., stitch wounds or extract arrowheads, bullets, and shrapnel).

Survival†

Per/Average

Defaults: Perception-5 or Naturalist (same planet)-3.

This is the ability to "live off the land," find safe food and water, avoid hazards, build shelter, etc. You may look after up to 10 other people. To live safely in a wilderness situation, you must make a successful Survival roll once per day. Failure inflicts 2d-4 injury on you and anyone in your care; roll separately for each victim.

This skill also gives an "eye for country." A successful roll shows you the best direction of travel to find flowing water, a mountain pass, or whatever other terrain feature you desire – assuming that it exists.

Finally, you can use this skill to *trap* wild animals. (A city-bred thief could use Traps skill, but he's used to different game . . . so the roll would be at a -5.) Make one roll per trap. It takes about 30 minutes to improvise a trap from ordinary materials, or 10 minutes to set and hide a commercial steel trap. Pit traps for large game take several hours to dig.

Survival often requires skill rolls based on scores other than Percep-

tion. The GM might ask for a ST-based roll to dig a pit trap or erect a log shelter, a DX-based roll to start a fire using primitive techniques (flint sparking, bow and palette, etc.), or even a HT-based roll to avoid nutritional deficiencies from an improvised diet.

You *must* specialize by terrain type. Land-dwellers may choose from Arctic, Desert, Island/Beach, Jungle, Mountain, Plains, Swampland, and Woodlands. Aquatic beings may take any of Bank, Deep Ocean Vent, Fresh-Water Lake, Open Ocean, Reef, River/Stream, Salt-Water Sea, and Tropical Lagoon. Amphibious individuals can pick from *either* list!

Land specialties default to one another at -3, while aquatic specialties default among themselves at -4. Island/Beach and Tropical Lagoon default to each other at -4, as do Swampland and River/Stream, but there are no other defaults between land and aquatic specialties.

In settings where it is possible to visit other worlds, you must also specialize by planet. Each Survival specialty defaults to the *same* terrain type for a *different* planet at -4. The defaults between terrain types given above are at an extra -4 between different planets. All this assumes the two planets are of the same planet type (see *Planet Types,* p. 180). There is *no default at all* between Survival skills for two planets of different planet types.

At the GM's option, extreme man-made terrain may call for unique specialties; e.g., Survival (Radioactive Wasteland). Most such specialties have *no* default of any kind.

See also *Urban Survival,* p. 228.

Modifiers: Up to -5 for extreme weather conditions. Equipment modifiers (p. 345).

Sway Emotions

see *Enthrallment,* p. 191

Swimming

HT/Easy

Default: HT-4.

This is the skill of swimming (whether on purpose or to keep afloat in emergencies) and lifesaving. Roll against the *higher* of Swimming or HT to avoid fatigue while swimming or injury due to aquatic misfortunes. When racing someone of equal water Move, roll a Quick Contest of Swimming to determine the winner. See *Swimming* (p. 354).

Note that Swimming does *not* cover high diving – that's Sports (Diving).

Symbol Drawing†

IQ/Hard

Defaults: Special.

This is the art of scribing magical symbols. Depending on your magical tradition, you might carve these symbols with a ritual dagger, draw them on the ground or an altar using blood or ceremonial powders, write them in ink, trace them in the air with a wand or your fingers, or something else. You *must* specialize in a particular magical tradition.

In traditions where magical power flows from the caster, nature, spirits, etc. as opposed to the symbols themselves, the symbols provide a focus that aids magic use. Roll against Symbol Drawing before each ritual. On a success, add half your margin of success (round down) to your skill with the *next* ritual you conduct over the symbols. This kind of Symbol Drawing defaults to Ritual Magic (same)-4. For instance, Symbol Drawing (Voodoo) defaults to Ritual Magic (Voodoo)-4, and lets you draw the *vevers* used in Voodoo ritual.

In traditions where the *symbols themselves* imbue items or places (or even *people,* in the case of tattoos) with magic, the magic is only as good as the symbols. Roll against the *lower* of Symbol Drawing and your skill with the enchantment itself. This is most common in rune magic. Each runic alphabet is a separate Symbol Drawing skill with no default. For instance, Symbol Drawing (Futhark Runes) would let you scribe the runes used in Norse magic.

More-exotic traditions may have their own rules; see the appropriate worldbook for more information.

Modifiers: -1 or more if using non-traditional means to mark the symbols; -1 or more if placing the symbols on any surface other than those prescribed by your tradition.

Tactics

IQ/Hard

Defaults: IQ-6 or Strategy (any)-6.

This is the ability to outguess and outmaneuver the enemy in small-unit or personal combat. In most settings, only the military teaches this skill.

When commanding a small unit, roll against Tactics to place your troops correctly for an ambush, know where to post sentries, etc. At the GM's option, a successful roll might even provide clues as to *immediate* enemy plans. To outmaneuver enemy units, you must win a Quick Contest of Tactics with their leader. All of this only applies when you lead a group small enough that you can give each warrior orders *personally* – or through at most one subordinate. Thus, radio and similar technologies can greatly enhance your command abilities!

In personal combat, you may make a Tactics roll before the fight begins if you had *any* time to prepare. On a success, you start the fight in an advantageous position – e.g., behind cover or on higher ground – as determined by the GM. The better the roll, the greater your advantage. If you fail, or do not attempt a Tactics roll, you are in a random location (or one of the GM's choosing) when combat begins. Fighters without Tactics skill *always* start combat this way.

Even in an ambush or similar "surprise" situation, the GM will use the *better* of your Tactics skill and your Perception to see if you spotted the danger on time.

Teaching

IQ/Average

Default: IQ-5.

This is the ability to instruct others. If you have Teaching at level 12+, you may act as a teacher for game purposes. For more on teaching and learning, see *Improvement Through Study* (p. 292).

Modifiers: -3 for Callous (p. 125); -1 to -4 for Shyness (p. 142). Apply both the teacher's *and* the student's Language penalties (p. 24) in the language of instruction.

In traditions where magical power flows from the caster, nature, spirits, etc., as opposed to the symbols themselves, the symbols provide a focus that aids magic use.

Teamster†

IQ/Average

Defaults: IQ-5, Animal Handling (same)-4, or Riding (same)-2.

This is the skill of driving a team of animals pulling a wagon, chariot, etc. It includes the ability to harness and care for the beasts, and judge them for quality before purchase. If the animals are ornery or badly trained (GM's judgment), you must make a successful Animal Handling roll before you can attempt a Teamster roll.

For normal travel, make a Teamster roll once per day. When moving at a gallop (80% or more of the animals' full Move) or when executing complex maneuvers with a chariot in combat, roll *every 10 seconds*.

A failure usually means nothing worse than lost time or a wider turn than intended. A critical failure – or *any* failure at a gallop – spills the wagon or chariot. Treat this as a five-yard fall for each passenger and animal involved (see *Falling*, p. 431). As well, roll 2d for each beast; on a 12, a leg is broken! You will have to make Animal Handling rolls to calm the beasts. Time required to reload the cargo depends on the load, terrain, and weather.

You *must* specialize by animal type; the most common specialty is Teamster (Equines), which covers horses and mules. Teamster specialties default to one another at -3.

Modifiers: -2 for more than four animals; -2 for a team of unfamiliar animals; up to -5 for bad terrain.

Thaumatology

IQ/Very Hard

Default: IQ-7*.

* There is *no* default in a nonmagical setting, or for those who have never witnessed "real" magic.

This is the academic study of magical theory and the "physics" of mana. *Anyone* may learn this skill, but it is easier for a mage; add Magery to IQ when learning this skill, just as for spells.

The main use for this skill is magical research. When creating a new spell, use the rules for inventing (see Chapter 17), but replace Engineer skill with Thaumatology. A successful skill roll can also identify an unknown spell when you see it cast, deduce the ramifications of a critical success or failure with magic, determine the spells needed to enchant a magic item to perform as desired, etc. The better your roll, the more insight the GM will provide.

This is the study of *fantasy* magic – fireball spells, rings of power, etc. The equivalent skill for traditional, spirit-mediated sorcery is Ritual Magic (p. 218), while holy magic might require Religious Ritual (p. 217) or Theology (p. 226). However, a Thaumatology roll at -5 will allow a thaumatologist to relate these different varieties of magic to "standard" wizardry. Exceptionally weird powers or otherworldly artifacts might give a larger penalty!

Theology†

IQ/Hard

Defaults: IQ-6 or Religious Ritual (same)-4.

This is the study of a particular religion: its gods, cosmology, doctrines, scriptures, etc. You *must* specialize by religion. There are usually no defaults between specialties, but the GM might permit a default at -4 or so for belief systems that have similar origins, or where one is derived from the other.

Alternatively, you may study the similarities and differences between religions; this is Theology (Comparative). The Theology of any religion routinely studied by scholars in your game world defaults to this specialty at -5.

To be a priest or holy man at TL1+, you must have both Theology *and* Religious Ritual skill (p. 217) for your religion. TL0 shamans need only learn Religious Ritual.

You do not necessarily believe in the religion you study – faith comes from within, not from book learning! If you do, you may ask the GM to make a secret roll against your Theology skill when confronted with moral uncertainty. On a success, the GM will advise you on which course of action "feels" right, given your beliefs and understanding of scripture.

Throwing

DX/Average

Defaults: DX-3 or Dropping-4.

This is the ability to throw any small, relatively smooth object that fits in the palm of your hand. Examples include baseballs, hand grenades, and rocks. (Boomerangs, javelins, knives, etc. require their own specialized skills; see *Thrown Weapon,* below.) Roll against skill to hit. Furthermore, if you know Throwing at DX+1 level, add +1 to ST when figuring throwing distance (but *not* damage). Add +2 to ST for Throwing at DX+2 or better.

If you do not have this skill, roll against your default to hit a specific target, but against *full* DX to lob an object into a general area.

Throwing Art

DX/Hard

Defaults: None.

Prerequisites: Trained By A Master or Weapon Master.

This is the cinematic ability to throw anything you are strong enough to lift: knives, medicine balls, televisions . . . *anything!* Roll against skill to hit. Furthermore, if you know Throwing Art at DX level, add +1 to ST when figuring throwing distance, and +1 *per die* of damage with thrown weapons. These bonuses increase to +2 if you know Throwing Art at DX+1 or better. If you are a Weapon Master, this bonus is *instead of* the usual damage bonus for your weapon.

You can use the items you throw as improvised weapons. Treat forks, kitchen knives, and other long, sharp objects as daggers. Any small, blunt object does thrust+1 crushing damage. Baseball bats do swing+1 crushing. Pencils do thrust-3 impaling. Playing cards do thrust-3 cutting.

Throwing Art lets you throw anything covered by the Throwing and Thrown Weapon skills. If you have Throwing Art, you do not need those skills.

Thrown Weapon†

DX/Easy

Defaults: DX-4 and others.

This is the ability to hurl any one type of thrown weapon. You *must* specialize:

Axe/Mace: Any axe, hatchet, or mace balanced for throwing (but *not* an unbalanced battleaxe or maul!).

Dart: Any sort of small, finned dart. Games (Darts) defaults to this skill at no penalty. *Default:* Throwing-2.

Harpoon: Any sort of *tethered* spear. *Default:* Thrown Weapon (Spear)-2.

Knife: Any sort of knife.

Shuriken: Any sort of hiltless blade, notably *shuriken* ("ninja stars"). *Default:* Throwing-2.

Spear: Any sort of spear, javelin, etc. *Defaults:* Spear Thrower-4 or Thrown Weapon (Harpoon)-2.

Stick: Any balanced and shaped throwing stick, such as a boomerang. This type of throwing stick does not return to the user.

Tonfa

see *Melee Weapon,* p. 208

Tracking

Per/Average

Defaults: Perception-5 or Naturalist-5.

This is the ability to follow a man or an animal by its tracks. Make a Tracking roll to pick up the trail, then roll periodically to avoid losing it. The frequency and difficulty of these rolls depend on the terrain:

Jungle, Plains, or Woodlands: Roll every 30 minutes.

Arctic, Desert, Island/Beach, or Mountain: Roll at -2 every 15 minutes.

Swampland: Roll at -4 every 5 minutes.

Urban: Roll at -6 every minute!

You may also use this skill to *cover* your tracks. This doubles your travel time! A successful roll means you have hidden your tracks well enough that only someone else with this skill can see them. If another tracker follows you, the Tracking rolls above become Quick Contests of Tracking skill. If he loses any of the Contests, he loses your trail.

To stalk game once you have tracked it, use the Stealth skill (p. 222).

Modifiers: -5 if the trail is more than a day old, or -10 if more than a week old. +3 if you are following a man, or +6 if following a group of men. Superior senses help *a lot:* bonuses for Acute Vision (p. 35) and Discriminatory Smell (p. 49) usually apply, and many superhuman senses (Infravision, Subsonic Hearing, etc.) give situational bonuses.

Traps/TL

IQ/Average

Defaults: IQ-5 or Lockpicking-3*.

* Also defaults to DX-5 if you are *disarming* or *resetting* a trap, but not if you are detecting or building one.

This is the skill of building and nullifying traps. A successful Traps roll will (among other things) disarm a trap once you have found it, reset it after you pass, or build a new trap (given suitable materials). Time required is as for Lockpicking (p. 206).

To *detect* a trap, make a Perception-based skill roll.

Note that for the purposes of Traps skill, detection devices are "traps." Thus, this skill covers everything from covered pits to elaborate electronic security systems!

Modifiers: Infinitely variable. The more sophisticated the trap, the harder it will be to disarm, reset, build, or find – and a given trap might be (for instance) easy to find but hard to disarm. The GM should be creative! Equipment modifiers (p. 345) apply to most rolls to set or disarm traps. Bonuses for Acute Vision (p. 35) apply to rolls to detect traps (only).

Two-Handed Axe/Mace

see *Melee Weapon*, p. 208

Example of Character Creation (concluded)

Dai has spent 203 of his 250 points, leaving him with 47 points for skills. Reading through the skill list, we see *dozens* of skills that suit a master thief – but since we're on a budget, we settle on the following.

First, a thief *must* be stealthy. For this, Dai needs the Stealth skill (p. 222). We want this to be reliable, so we choose skill level 16. At that level, only a roll of 17 or 18 will fail . . . and that's a failure for anyone. Stealth is a DX/Average skill. Since Dai's DX is 15, level 16 is DX+1 for him. From the *Skill Cost Table* (p. 170), we learn that a level of Attribute+1 in an Average skill costs 4 points.

Any thief worth his salt can pick pockets and open locks. This calls for Pickpocket (p. 213) and Lockpicking (p. 206). We want to buy Dai a 15 in both – not as high as his Stealth, but still reliable. Pickpocket is DX/Hard. Skill 15 is DX level, and from the table, we see this costs 4 points for a Hard skill. Lockpicking, on the other hand, is IQ/Average. With Dai's IQ 12, skill 15 is IQ+3 level. This costs *12* points – it's very expensive to raise a skill so far above its controlling attribute!

We also want Dai to be an adept second-story man and escape artist, so we spend 1 point apiece on Climbing (p. 183) and Escape (p. 192). Climbing is DX/Average; 1 point buys DX-1 level, giving skill 14. Escape is DX/Hard; 1 point is only good for DX-2 level, or skill 13. Of course, we selected these skills knowing that Dai's Flexibility advantage would give +3 to both! His Perfect Balance adds *another* +1 to Climbing, too. His final levels are Climbing at 18 and Escape at 16.

To case an area before he strikes, Dai needs Observation skill (p. 211). This is Per/Average. But Dai's Perception is a whopping 15, so he doesn't need to spend many points: 2 points buys Observation at Per level (15), which is more than good enough.

Since stealth can fail, we want to give Dai some combat skills for backup. We decide that he prefers knives. Knife skill (p. 208) is fine for melee combat, but we also want Dai to be good at the quick draw and with throwing knives. Fast-Draw (p. 194) and Thrown Weapon (p. 226) fit the bill. Both *require* a specialty – in this case, "Knife." All of these skills are DX/Easy. With Dai's low ST, he'll need *superb* aim to make a knife effective, so we settle on 17 in Knife and Thrown Weapon (Knife). This is DX+2 level, which costs 4 points per skill. Fast-Draw (Knife) is a neat trick, but skill 15 is plenty. This costs 1 point.

To reflect Dai's medieval background, we decide that he is a fair hand with the shortsword. But not *too* good – swords are expensive, and Dai grew up poor. We give him the Shortsword skill (p. 209) at 15. Shortsword is DX/Average, so this costs 2 points.

As an ISWAT officer, Dai should know how to shoot. A slim target pistol sounds like his kind of gun. Reviewing the Guns skill (p. 198), we see that pistols call for the "Pistol" specialty. Guns are new to Dai, so we spend only 1 point. Since Guns (Pistol) is DX/Easy, this buys DX level: a very adequate 15.

To *conceal* all these weapons, Dai needs Holdout skill (p. 200). This is IQ/Average. Dai doesn't routinely carry concealed weapons, so we just give him IQ level – 12 – for 2 points.

We decide to give Dai some "background skills" next. He grew up on the street, so Urban Survival (p. 228) fits: it's the ability to scrounge food and shelter in the city. A Per/Average skill, 1 point buys Per-1 level, or 14. Filch (p. 195) covers shoplifting. It's DX/Average; 1 point buys DX-1, also 14. Survival has a social side, too. We give Dai Fast-Talk (p. 195) to talk his way out of jams and Streetwise (p. 223) to deal with professional criminals. Both are IQ/Average. We buy IQ level (12) in each, at 2 points a skill.

Dai has now spent 44 of his remaining 47 points. We decide to put his last three points into skills that complement his advantages.

Rereading the descriptions of his advantages, we see that Perfect Balance gives +1 to Acrobatics (p. 174). That's definitely Dai's style! Acrobatics is DX/Hard, so 2 points buys DX-1 level, or 14. With the +1 for Perfect Balance, he gets a 15.

We also discover that Absolute Direction gives +3 to Body Sense (p. 181): the skill of reorienting yourself after teleportation. This sounds ideal for Dai! We put 1 point into Body Sense, which is DX/Hard. This buys DX-2 level, or 13. The +3 for Absolute Direction makes this 16.

At this stage, Dai has spent all 250 points. If we wanted to add more abilities, we could add more disadvantages to pay for them – but we want Dai to be carefree, not saddled with problems.

Now it's time to write it all down. Dai's character sheet appears on p. 311.

Two-Handed Flail

see ***Melee Weapon,*** p. 208

Two-Handed Sword

see ***Melee Weapon,*** p. 208

Typing

DX/Easy

Defaults: DX-4 and others.

This is the skill of using a typewriter. Typing speed is skill × 3 words per minute (wpm) on a manual, skill × 5 wpm on an electric typewriter or computer keyboard.

This skill defaults at -3 to any skill that involves a lot of typing, notably Administration, Computer Operation, Research, and Writing, and Professional Skills such as Journalist. If you have such a skill, Typing skill is redundant (unless you wish to work as a professional typist).

Urban Survival

Per/Average

Default: Perception-5.

This talent covers the *physical* part of staying alive in a city environment, whether it's overpopulated or empty. (The *social* problems of city survival are covered by Streetwise skill.) A successful skill roll allows you to find clean rainwater; locate manholes from above or below; quickly locate building entrances, exits, stairwells, etc.; recognize and avoid physically dangerous areas, such as crumbling buildings; make and read city maps; find your way out of strange city areas; find a warm place to sleep outside in cold weather; and locate common types of buildings or businesses without asking anyone, just by your "feel" for the way cities are laid out.

Vacc Suit/TL

see ***Environment Suit,*** p. 192

Ventriloquism

IQ/Hard

Defaults: None.

This is the ability to disguise and "throw" your voice a short distance. A successful roll lets you throw your voice well enough to fool your audience.

Modifiers: +5 if you have a dummy or confederate to distract your audience (it's easier to "see" a face talk than it is to believe the voice comes from an immobile object); -3 if the audience has reason to be suspicious.

Veterinary/TL

IQ/Hard

Defaults: Animal Handling (any)-6, Physician-5, or Surgery-5.

This is the ability to care for a sick or wounded animal. You may take an *optional* specialty (p. 169) in a particular type of animal.

Modifiers: +5 if the animal knows and trusts you; -2 or worse if the animal is of an unfamiliar type.

Weather Sense

see ***Meteorology,*** p. 209

Weird Science

IQ/Very Hard

Defaults: None.

This skill allows you to formulate astonishing new crackpot scientific theories that are far ahead of their time . . . or at least utterly different from the usual assumptions of your tech level. You may attempt a Weird Science roll whenever you work on a new invention (see Chapter 17) or investigate an *existing* item of weird technology (e.g., a UFO).

On a success, you get +5 on an invention attempt (but only +1 if using the Gadgeteer advantage, since Gadgeteer already gives you favorable die rolls for thinking "outside the box"). If investigating weird technology, success gives +2 to any skill roll you make for this purpose – and the GM might even allow a default skill roll to *operate* the device!

On a critical success, you get these bonuses *and* some incredible insight into a totally different problem! Critical failures are always spectacular, although not necessarily fatal or even dangerous.

Whip

see ***Melee Weapon,*** p. 208

Wrestling

DX/Average

Defaults: None.

This skill represents training at grappling and pinning. Roll against the *higher* of DX or Wrestling to hit with a grapple, or to make or resist a takedown. Furthermore, if you know Wrestling at DX+1 level, add +1 to ST for the purpose of making or resisting any choke, grapple, neck snap, takedown, or pin, and whenever you attempt to break free. Add +2 to ST for Wrestling at DX+2 or better.

When you defend with bare hands, Wrestling allows you to parry *once* per turn. You must use both hands. Your Parry score is (skill/2) + 3, rounded down. This parry is at -3 vs. weapons. For complete rules for parrying barehanded, see *Parrying Unarmed* (p. 376).

Writing

IQ/Average

Default: IQ-5

This is the ability to write in a clear or entertaining manner. A successful roll means the work is readable and accurate.

This is mostly useful to earn a living or write for ***GURPS,*** but can sometimes help on adventures . . . or after them. The report of a spy, soldier, or private investigator is far more useful if it is well-written!

Modifiers: The time modifiers under *Time Spent* (p. 346) will often apply; -5 if you are writing about an unfamiliar subject; Language modifiers (p. 24).

Zen Archery

IQ/Very Hard

Defaults: None.

Prerequisites: Trained By A Master or Weapon Master, Bow at 18+, and Meditation.

This skill allows you to strike difficult targets with ease when using a bow. On a success, add up the penalties for size and speed/range, and then divide them by three (round down).

Modifiers: -10 if used *instantly,* dropping to -5 after 1 turn of concentration, -4 after 2 turns, -3 after 4 turns, -2 after 8 turns, -1 after 16 turns, and no penalty after 32 turns.

Techniques

You (or your GM!) may want a way to improve your ability with a specific application of a skill without increasing the overall skill level. This is realistic – people *do* train at particular tasks to the exclusion of others – but allowing this in the game makes play (and character sheets) more complex. As a result, the following section is *purely optional.*

A "technique" is any feat that you can practice and perfect separately from the skill that allows you to perform that task. It is a specific action covered by the parent skill, studied on its own. It differs from an optional specialty (p. 169), which covers a body of theory, not an action. Techniques work a lot like skills, but with a few important differences.

Creating Techniques

There are six steps to creating a technique. We'll walk through these steps using two examples. Even those who plan to use only the sample techniques at the end of this section should read these rules, as they explain the basic concepts involved.

Concept and Name

Decide what you want the technique to do, in general terms, and give it a name that clearly describes the feat it represents.

Example 1: Both still and motion-picture cameras require Photography skill (p. 213). A photographer could study *just* motion-picture equipment in order to get rid of the -3 to use it; therefore, "Motion-Picture Camera" would be a reasonable Photography technique.

Example 2: Karate skill (p. 203) covers both kicks and punches. A *karateka* could spend extra time on kicks, with the goal of eliminating the -2 to kicking attacks. Thus, "Kicking" would be a logical technique for Karate.

A technique should *never* be the "core" action undertaken with the skill. For instance, Punching would not be a valid technique for Boxing skill, which is all about punching! To get better at the primary task covered by a skill, you must improve the skill itself.

Prerequisites

The skill with which a technique is associated is *automatically* its prerequisite – that is, you must have at least one point in a skill before you can improve its techniques. If more than one skill lets you perform the task covered by the technique, *any* of these skills can count as the prerequisite. The GM may require other skills and advantages as prerequisites for particularly complex techniques.

Example 1: The prerequisite of Motion-Picture Camera is Photography skill.

Example 2: Either Brawling *or* Karate skill can be the prerequisite of Kicking, since both allow you to kick.

Defaults and Specialties

A technique always defaults to one of its prerequisites. Usually, the default penalty equals the modifier given for the feat in the skill description or elsewhere. There can be more than one default. If a technique offers a choice of defaults, those who learn it *must* specialize in the version of the technique associated with the chosen default.

Example 1: Photography skill states that motion-picture cameras are used at -3, so Motion-Picture Camera defaults to Photography-3.

Example 2: Both Brawling and Karate let you kick at -2 to skill, so Kicking defaults to Brawling-2 or Karate-2. Those who use the Brawling default must specialize in Kicking (Brawling), while those who use the Karate default must specialize in Kicking (Karate).

Difficulty Level

Techniques come in only two difficulties: Average and Hard. Feats that have severe negative consequences on a failure, or that allow only one attempt, are Hard; all others are Average. This affects point cost – see *Technique Cost Table* (p. 230).

Example 1: Motion-picture photography is rarely dangerous, and you can usually do a second take if you fail; therefore, Motion-Picture Camera is an Average technique.

Example 2: On a failed kick, you can *fall down* – a potentially fatal turn of events in combat – so Kicking is a Hard technique.

Maximum Level

Tightly focused practice can only take you so far. Eventually, you'll have to learn new fundamentals in order to improve. To reflect this, techniques often specify an upper limit relative to parent skill. On attaining this level, the only way to improve further is to raise the underlying skill. For a technique that covers an important use of a skill, maximum level is usually equal to prerequisite skill level. More peripheral techniques might be able to exceed prerequisite skill level, or have no maximum level.

Example 1: An adventurer could make a career of motion-picture photography without affecting game balance. Thus, it seems believable and fair to leave Motion-Picture Camera open-ended and specify no maximum level.

Example 2: Kicking is a potent attack, and one of the main reasons to learn Brawling or Karate skill; therefore, Kicking cannot be improved past prerequisite skill level.

Description

The prerequisite skill description provides the necessary rules for most techniques, but some techniques supply optional additional detail, or outline entirely new uses of the skill.

Example 1: There isn't a lot to be said about Motion-Picture Camera – it lets you use motion-picture cameras, per Photography skill.

Example 2: Kicking does +1 damage relative to a punch, and you must roll vs. DX to avoid a fall if you miss. These rules bear mentioning in any formal description of Kicking.

Buying and Improving Techniques

Buying a technique is a lot like buying a skill – point cost depends on difficulty and desired relative skill level – but there are two differences. You buy up a technique relative to its default, not relative to a controlling attribute, and you determine its point cost using the *Technique Cost Table* (below) instead of the *Skill Cost Table* (p. 170).

To *improve* a technique, pay the difference in point cost between the desired level and your current level – exactly as for a skill. And just as skills increase for free when you raise attributes, techniques improve for free when you raise the skill on which they are based. For instance, if you have Karate-15 and Kicking-15, and raise Karate to 16, Kicking also goes to 16 at no extra charge!

You need not buy a technique to use it. If you have even one point in a skill, you may use *all* that skill's techniques at default. To avoid a cluttered character sheet, though, only note techniques that you know at better than default level.

Technique Cost Table

*Your Final Skill Level**	*Difficulty of Technique*	
	Average	*Hard*
Default	0 points	0 points
Default+1	1 point	2 points
Default+2	2 points	3 points
Default+3	3 points	4 points
Default+4	4 points	5 points
+1	+1 point	+1 point

* Most techniques have maximum levels. For instance, a technique that "cannot exceed prerequisite skill level" and that defaults to skill-5 tops out at default+5.

Using Techniques

A technique works just like a skill in play: make a success roll (see Chapter 10) against your level in the technique. Unless noted otherwise, all *general* modifiers to a skill – for culture (p. 23), language (p. 23), equipment (p. 345), tech level (p. 168), and so forth – apply to its techniques, as do any special critical success or failure results.

Sample Combat Techniques

Special moves in combat are by far the most common techniques, and can give warriors a "bag of tricks" similar to a wizard's spells. If a combat technique has multiple defaults, you *must* specialize by prerequisite skill. For instance, learning a technique for Axe/Mace skill gives no special ability with the Broadsword version of that technique!

Techniques marked with a * are not particularly realistic. The GM may wish to restrict these "cinematic" techniques – even at default – to PCs with Trained By A Master (p. 93) or Weapon Master (p. 99).

Arm Lock

Average

Defaults: Judo or Wrestling.
Prerequisites: Judo or Wrestling; cannot exceed prerequisite skill+4.

This technique allows you to improve your effective Judo or Wrestling skill for the purpose of applying an arm lock. For rules governing arm locks, see *Arm Lock* (p. 403).

Back Kick

Hard

Default: Karate-4.
Prerequisites: Karate; cannot exceed Karate skill.

This technique lets you attack someone behind you without changing facing. You *must* know that he is there! Roll against Back Kick to hit, but otherwise resolve this as a normal kick. After attempting a Back Kick, all your active defenses are at -2 until next turn.

Choke Hold

Hard

Defaults: Judo-2 or Wrestling-3.
Prerequisites: Judo or Wrestling; cannot exceed prerequisite skill.

This technique lets you to "buy off" the basic -2 to Judo or -3 to Wrestling when using the rules given under *Choke Hold* on p. 404.

Disarming

Hard

Default: prerequisite skill.
Prerequisite: Any unarmed combat or Melee Weapon skill; cannot exceed prerequisite skill+5.

If you know this technique above default, you may use it *instead of* the underlying skill whenever you attack to disarm (see *Striking at Weapons,* p. 400). For instance, if you have Broadsword-14 and Disarming (Broadsword)-17, you disarm as if you had Broadsword-17.

*Dual-Weapon Attack**

Hard

Default: prerequisite skill-4.
Prerequisite: Any one-handed Melee Weapon skill; cannot exceed prerequisite skill*.
* You may learn this technique for Guns (Pistol), even in a realistic campaign.

Normally, you are at -4 to attack with two weapons at once unless you make an All-Out Attack. This technique lets you "buy off" that penalty. (Note that you must still learn Off-Hand Weapon Training, p. 232, to reduce the -4 for using the "off" hand!) For detailed rules, see *Dual-Weapon Attacks* (p. 417).

Elbow Strike

Average

Defaults: Brawling-2 or Karate-2.
Prerequisites: Brawling or Karate; cannot exceed prerequisite skill.

This technique lets you "buy off" the -2 penalty to strike with the elbow. See *Elbow Strike* (p. 404) for more information.

Feint

Hard

Default: prerequisite skill.
Prerequisite: Any unarmed combat or Melee Weapon skill; cannot exceed prerequisite skill+4.

If you know this technique above default, you may use it *instead of* the underlying skill whenever you feint (see *Feint,* p. 365). For instance, if you have Broadsword-14 and Feint (Broadsword)-16, you feint as if you had Broadsword-16.

Finger Lock

Hard

Default: Arm Lock-3
Prerequisite: Arm Lock; cannot exceed Arm Lock.

This technique lets you grab fingers and twist them painfully. Use the rules for Arm Lock (p. 403), except that all damage is to the *hand* – which is easier to cripple than the arm.

Ground Fighting

Hard

Default: prerequisite skill-4.
Prerequisite: Any unarmed combat or Melee Weapon skill; cannot exceed prerequisite skill.

This technique lets you "buy off" the -4 for attacking from your back. Roll against this technique *instead of* the prerequisite skill whenever you use that skill to attack from the ground. For instance, if you had Wrestling-14 and Ground Fighting (Wrestling)-13, you could grapple from the ground at skill 13.

In addition, make a roll against Ground Fighting whenever you must defend yourself from your back. On a success, you defend at -1 instead of at -3.

Horse Archery

Hard

Default: Bow-4.
Prerequisites: Bow and Riding; cannot exceed Bow skill.

This technique lets you use a bow *effectively* from horseback. The modifiers for firing from horseback (p. 397) can never reduce your Bow skill below your Horse Archery level. (Other penalties apply normally.) For instance, if you had Bow-13 and Horse Archery-11, the penalties for archery from horseback would never reduce your skill below 11, before other modifiers.

Jump Kick

Hard

Default: Karate-4.
Prerequisite: Karate; cannot exceed Karate skill.

This technique lets you leap into the air and kick at full extension, increasing range and damage. It is a showy but dangerous move! Roll against Jump Kick to hit. Add one yard to reach and +2 to damage. Your target parries at -2. However, if you miss – or if your target successfully defends – you *fall down* unless you can make a DX-4 or Acrobatics-2 roll. Hit or miss, a Jump Kick leaves you at -2 on all your active defenses until your next turn.

Kicking

Hard

Defaults: Brawling-2 or Karate-2.
Prerequisite: Brawling or Karate; cannot exceed prerequisite skill.

This technique lets you improve your kicking ability. Roll against Kicking to hit. A kick does thrust/crushing damage based on ST. Use Brawling or Karate skill – *not* your Kicking level – to determine your damage bonus, and use only the *highest* bonus. If you miss with a kick, roll vs. Kicking skill or DX to avoid falling.

Knee Strike

Average

Defaults: Brawling-1 or Karate-1.
Prerequisite: Brawling or Karate; cannot exceed prerequisite skill.

This technique lets you "buy off" the -1 penalty to strike with the knee – see *Knee Strike* (p. 404).

Neck Snap

Hard

Default: ST-4; cannot exceed ST+3.

This brute-force attack consists of grabbing and suddenly twisting the victim's head, with the intent of snapping the neck – see *Neck Snap o Wrench Limb* (p. 404). Unlike most techniques, Neck Snap defaults to ST, not a skill. Wrestling gives its usual skill-based ST bonus.

With the GM's permission, you can learn this technique for *any* DX-based skill that requires only one hand.

Retain Weapon

Hard

Default: prerequisite skill.
Prerequisite: Any Melee Weapon skill; cannot exceed prerequisite skill+5.

If you know this technique above default, you may use it *instead of* the underlying skill whenever someone attempts to disarm you (see *Striking at Weapons,* p. 400). For instance, if you have Staff-13 and Retain Weapon (Staff)-16, you resist disarm attempts as if you had Staff-16.

You can also learn this technique for missile weapons, such as guns and bows. In that case, it defaults to DX and cannot exceed DX+5.

Double Defaults and Techniques

A skill cannot default to another skill known only by default (see *Double Defaults,* p. 173). However, techniques are not skills. If two techniques are based on the same underlying skill, one *can* default to the other, even if you only know the intermediate technique at default.

Example: Finger Lock defaults to Arm Lock-3, and Arm Lock defaults to Judo or Wrestling. Effectively, Finger Lock also defaults to Judo-3 or Wrestling-3.

Off-Hand Weapon Training

Hard

Default: prerequisite skill-4.
Prerequisite: Any Melee Weapon skill; cannot exceed prerequisite skill.

This technique lets you "buy off" the -4 for using your "off" hand with one specific Melee Weapon skill. Use your level with this technique *instead of* the prerequisite skill whenever you use that skill to attack or parry with your off hand. For instance, if you had Rapier-14 and Off-Hand Weapon Training (Rapier)-14, you could attack and parry at full skill with your off hand.

Sweep

Hard

Default: prerequisite skill-3.
Prerequisites: Polearm, Spear, or Staff; cannot exceed prerequisite skill.

This technique lets you sweep your adversary's legs out from under him using a pole weapon. Roll against Sweep to hit. The target may defend normally. If he fails, roll a Quick Contest: your Sweep or ST vs. your victim's ST or DX. Use the *higher* value in both cases. If the victim loses, he falls down unless he can make an Acrobatics-5 roll to somersault in the air and land safely.

Unarmed fighters call this technique "Sweeping Kick." It works exactly the same way, but uses a leg instead of a pole, and defaults to Judo-3, Karate-3, or Sumo Wrestling-3.

*Whirlwind Attack**

Hard

Default: prerequisite skill-5.
Prerequisites: Broadsword, Staff, or Two-Handed Sword; cannot exceed prerequisite skill.

Whirlwind Attack is a special All-Out Attack that lets you attack *every* foe adjacent to you with lightning speed! If you use this technique, it is *all* you can do that turn, no matter how fast or skilled you are. Furthermore, since this is an All-Out Attack, you will have no active defenses afterward – see *All-Out Attack* (p. 365).

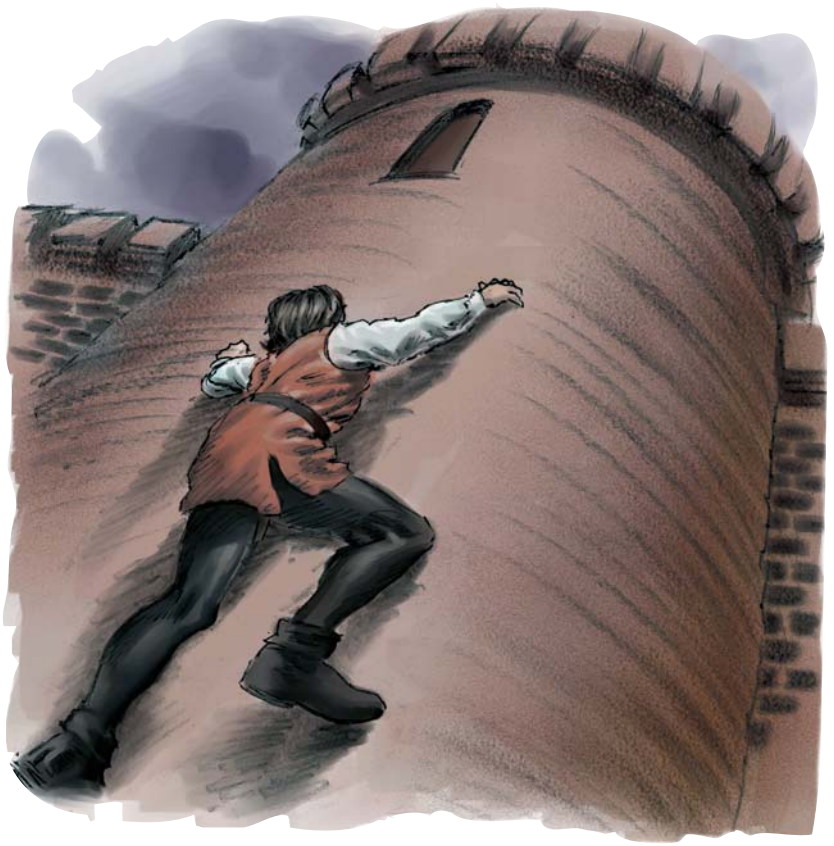
When you launch a Whirlwind Attack, you spin in place, attacking all adjacent foes within one yard. You must attack them in clockwise or counterclockwise order – your choice. All your attacks must be swung attacks, and you cannot combine a Whirlwind Attack with other techniques (such as Disarming) or with cinematic skills (such as Power Blow).

Determine a random hit location for each target, and then roll against Whirlwind Attack to hit, with the usual hit location penalties. You opponent may defend normally. Resolve each attack completely before moving on to the next one. If any of the attacks is a critical miss (or if any of your opponents critically succeeds on his defense), that attack and *all remaining attacks* are critical misses – roll on the *Critical Miss Table* (p. 556) once per attack!

You may end a Whirlwind Attack facing in any direction you wish.

Sample Noncombat Techniques

Nearly *any* task that calls for a skill roll at a penalty could become a technique. The main purpose of such techniques is to buy off skill penalties, but the GM might wish to provide additional details.



Impersonate

Average

Default: Mimicry (Speech)-3.
Prerequisite: Mimicry (Speech); cannot exceed prerequisite skill.

Through practice, you can improve your ability to mimic one specific person, gradually buying off the -3 to impersonate him. Each person mimicked is a separate technique.

Lifesaving

Hard

Default: Swimming-5.
Prerequisite: Swimming; cannot exceed prerequisite skill.

You can study lifesaving separately from swimming in order to eliminate the basic -5 for that task. See *Lifesaving* (p. 355) for detailed rules.

Motion-Picture Camera

Average

Default: Photography-3.
Prerequisite: Photography.

This technique, common among professional cameramen, allows you to buy off the -3 to use a motion-picture camera with Photography skill.

No-Landing Extraction

Hard

Default: Piloting-4.
Prerequisite: Piloting; cannot exceed prerequisite skill.

This technique lets you pick up cargo from the ground without landing. You can only fetch cargos outfitted with special no-landing extraction apparatus. Someone on the ground must make a successful Freight Handling roll to prepare the cargo (takes 2d hours). A failed Freight Handling or No-Landing Extraction roll means a missed pick-up or damaged cargo. Critical failure indicates the cargo is lost (critically injured, if a living passenger).

Rope Up

Average

Default: Climbing-2.
Prerequisite: Climbing; cannot exceed prerequisite skill.

A climber normally has -2 to climb a dangling rope (see *Climbing,* p. 349). With practice, you can buy off this penalty.

The "opposite" technique, Rope Down, defaults to Climbing-1 and can be improved to Climbing+3. Sliding down a rope is significantly easier than any kind of climbing!

Scaling

Hard

Default: Climbing-3.
Prerequisite: Climbing; cannot exceed prerequisite skill.

This technique lets you eliminate some or all of the -3 to skill for climbing a relatively smooth, vertical surface such as a building or rock face (see *Climbing,* p. 349).

Set Trap

Hard

Default: Explosives (Demolition)-2.
Prerequisite: Explosives (Demolition); cannot exceed prerequisite skill.

With study, you can gain familiarity with "trap" triggers, allowing you to set traps without the usual -2 to skill. Assassins, commandos, spies, etc. often improve this technique.

Slip Handcuffs

Hard

Default: Escape-5.
Prerequisite: Escape; cannot exceed prerequisite skill.

This technique represents study of a specific set of tricks for slipping out of handcuffs. With the GM's permission, you can learn similar techniques for other restraints commonly used in your game world.

Work by Touch

Hard

Default: Lockpicking-5.
Prerequisite: Lockpicking; cannot exceed prerequisite skill.

Lockpicking is normally at -5 if you must work by touch, but if you routinely practice this way, it will eventually become second nature.

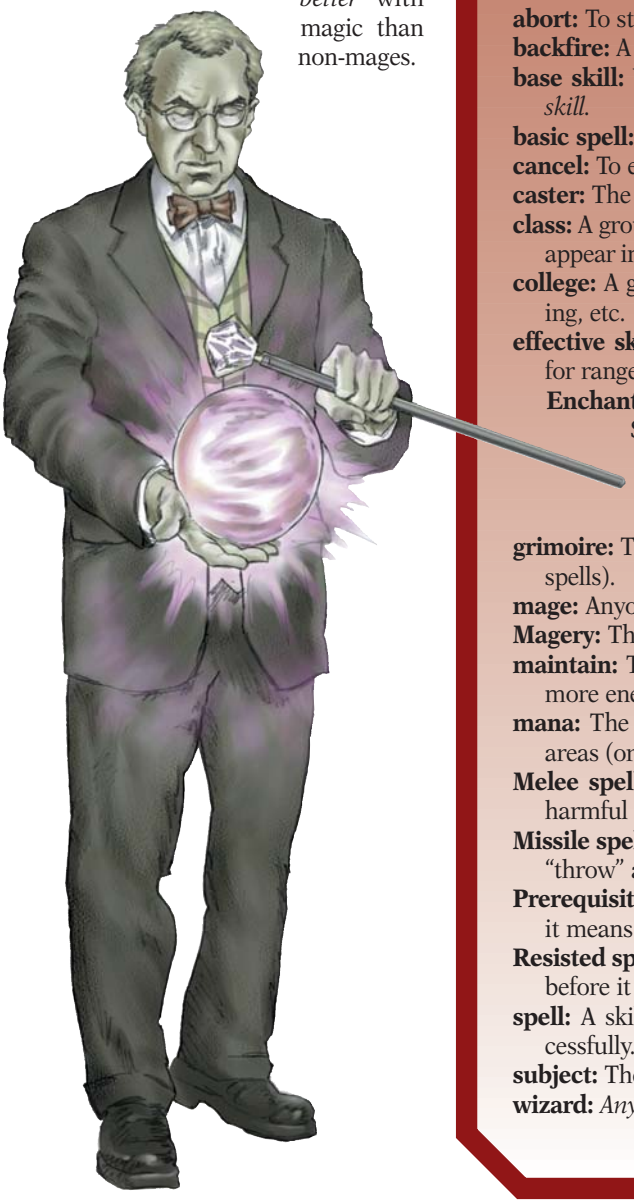
The GM might permit you to learn a Work by Touch technique for other "thief" skills – e.g., Explosives and Traps – allowing you to operate in total darkness, which is a common way to use such skills . . .

Chapter Five
Magic

These rules only matter to wizards, and only in worlds where magic exists. If you are not creating a wizard for a magical setting, you can safely skip this chapter.

Magic is a powerful force manipulated using skills called *spells*. By casting spells, a wizard can direct magical energy – known as *mana* – to produce almost any effect. This is a fickle art in some settings, a precise science in others.

The best wizards have an inborn ability to learn and use magic, called *Magery* (p. 66). Anyone with any degree of Magery is called a *mage*. In many game worlds, only mages can use magic. In all worlds, they are *better* with magic than non-mages.



Glossary of Magical Terms

abort: To stop the casting of a spell before its completion.
backfire: A critical failure when casting a spell.
base skill: Your unmodified skill with a spell; compare with *effective skill*.
basic spell: A spell with no other spells as prerequisites.
cancel: To end your own spell before it would normally be over.
caster: The person casting a spell.
class: A group of spells that use the same special rules. Three examples appear in this glossary: *Melee spells*, *Missile spells*, and *Resisted spells*.
college: A group of spells that deal with the same subject – fire, healing, etc.
effective skill: Your base skill, plus any modifiers (usually penalties) for range, circumstances, etc. A caster rolls against *effective* skill.
Enchantment spell: A spell for creating permanent magic items. See *Magic Items*, p. 480.
energy: The "cost" to cast a spell. You may pay this in either FP or HP. Some game worlds offer alternative energy sources.
grimoire: The list of spells *you* know (and more generally, any book of spells).
mage: Anyone with the Magery advantage.
Magery: The advantage of being "in tune" with magic; see p. 66.
maintain: To continue a spell after it would normally end. This costs more energy, unless you have high skill.
mana: The ambient magical energy manipulated by spells. Different areas (or worlds) have different levels of mana; see *Mana* (p. 235).
Melee spell: A spell that "charges" your hand or a magic staff with harmful energies that affect the first target you strike.
Missile spell: A spell that summons a magical projectile that you must "throw" at the subject.
Prerequisites: A requirement for learning a spell. Means exactly what it means for skills; see *Prerequisites* (p. 169).
Resisted spell: Any spell that must overcome the "power" of its subject before it works.
spell: A skill that produces a specific magical effect when used successfully.
subject: The person, place, or thing on which a spell is cast.
wizard: *Any* user of magic, whether he is a mage or not.

Learning Magic

Anyone can learn most spells – although in some worlds, you must be a mage to *use* the spells you know. Some spells specify a particular level of Magery as a prerequisites: if you lack the required Magery level, *you cannot learn the spell.*

Each magic spell is a separate *skill,* learned just like any other skill. Most spells are IQ/Hard skills, but a few potent spells are IQ/Very Hard. Spells have no default – you can only cast spells you know.

Add your Magery to IQ when you learn spells. For instance, if you have IQ 12 and Magery 3, you learn spells as if you had IQ 15. In addition, reduce the time required to learn spells (but *not* the point cost) by 10% per Magery level, to a minimum of 60% the usual time at Magery 4; e.g., Magery 3 would let you learn spells in 70% the usual time.

The maximum level of Magery available in your world is up to the GM. Most GMs will want to limit PCs to Magery 3 or 4.

If you know more than a few spells, you may wish to make a "grimoire." This is a list of the spells you know and your skill with each, along with the energy cost, time to cast, duration, etc. for each spell. This saves a lot of reference time in play!

Prerequisites

Any spell but the most basic has one or more *prerequisites:* requirements you must meet in order to learn the spell. If the prerequisite is another spell, you must have at least one point in the prerequisite spell before you can study the advanced spell. Some spells require a minimum Magery level; for instance, "Magery 2" means you must have Magery 2 (or higher) to learn the spell. A few spells require a minimum basic attribute score, an advantage, or even a mundane skill.

Mana

Mana is the ambient energy that empowers magic. Magic will work only if the *mana level* of the game world or specific area allows it, as follows:

Very High Mana: Anyone who knows spells can cast them. A *mage* who spends FP to cast a spell on his turn gets those FP back at the start of his *next* turn. However, all failures are treated as critical failures – and actual critical failures produce spectacular disasters! Very high mana is extremely rare in most settings.

High Mana: Anyone who knows spells can cast them. This mana level is rare in most worlds, but some game worlds have high mana throughout.

Normal Mana: Only *mages* can cast spells. These spells work normally, according to all rules given in this chapter. This is the default mana level in most fantasy settings: mages use magic, others don't.

Low Mana: Only mages can cast spells, and all spells perform at -5 to skill, for all purposes. (Magic items are similarly affected; see *Power of a Magic Item,* p. 481.) However, critical failures have mild effects or no effect at all.

No Mana: No one can use magic at all. Magic items do not function (but regain their powers when taken to an area with mana). This mana level occurs in isolated spots in magical worlds, but entire game worlds can lack mana, making magic use impossible.

Casting Spells

You must know a spell in order to cast it, unless you possess a magic item that lets you cast it (see *Magic Items,* p. 480). Tell the GM what spell you are casting, then take Concentrate maneuvers for the requisite number of turns (see *Time Required,* p. 236). At the end of the *last* second of concentration, make a success roll for the spell.

Casting a spell works like any other use of a skill. Roll 3d and compare the total to your *effective* skill: your base skill with the spell adjusted by any applicable modifiers. Modifiers depend on the class of spell (see *Spell Classes,* p. 239). If your roll is less than or equal to your effective skill, the spell works. If it is greater than your effective skill, the spell fails.

On a *success,* mark off the spell's energy cost against your FP or HP (see *Energy Cost,* p. 236). Its effects take place immediately. On a *critical success,* the spell works especially well. Details are up to the GM, who should be both generous and creative. Whatever else occurs, there is never an energy cost if you get a critical success when you cast a spell.

On a *failure,* the spell does not work. If success would have cost energy, you lose one energy point; otherwise, you lose nothing. (*Exception:* You must pay the full energy cost even on a failure for an Information spell; see *Information Spells,* p. 241.) On a *critical failure,* you must spend the full energy cost *and* the spell fails . . . *badly!* The GM may use the *Critical Spell Failure Table* or improvise some other "backfire" he finds amusing.

Distraction and Injury

If you use an active defense against an attack, or are knocked back, knocked down, injured, grappled, or otherwise distracted while concentrating, make a Will roll at -3 to continue casting your spell. On a failure, your spell is spoiled and you must start over.

If you are *stunned* while concentrating, your spell is automatically spoiled.

If you are *injured* but not stunned while concentrating, and succeed on the roll to avoid distraction, you may cast your spell. However, the shock penalty for your injury reduces your effective skill. See p. 419 for details on shock.

Caster and Subject

The "caster" of a spell is the person who is attempting to cast it.

The "subject" of a spell is the person, place, or thing upon which the spell is cast. If you are casting a spell on yourself, you are both caster and subject. The subject can also be another being, an inanimate object, or even a patch of ground. If the subject is a place, the caster can "touch" it by extending a hand over it or touching the ground, as appropriate for the spell.

Time Required

Most spells take one second to cast. Take the Concentrate maneuver for one turn and attempt your skill roll at the end of your turn. If you succeed, the spell takes effect instantly. Whether you succeed or fail, your turn ends as soon as you roll the dice.

Example: Wat wants to cast Create Fire, a one-second spell. On his turn, Wat says, "I'm concentrating on Create Fire." This uses his entire turn. He then rolls the dice for his spell. If he succeeds, he creates fire – but either way, Wat's turn ends.

Some spells take more than one second to cast. This requires multiple, consecutive Concentrate maneuvers in combat. Make the skill roll at the end of the *last* turn of concentration. You may "abort" an unfinished spell before it is cast, at no penalty, but you must start over if you wish to try again.

Example: If a spell takes three seconds to cast, you must spend three turns doing nothing but concentrating. You roll the dice at the end of your third turn.

Energy Cost

Each spell has an energy cost. When you cast the spell, you must pay this cost in either FP or HP. The better you know the spell, the less energy you need to cast it. If you know it well enough, you can cast it at *no* cost. *Exception:* Never reduce the cost of a Blocking spell; see *Blocking Spells* (p. 241).

If your *base skill* with a spell – modified only by the -5 for low mana, if applicable – is 15 or higher, reduce the cost to cast the spell by 1. If you have skill 20 or higher, reduce the cost by 2. Cost continues to decrease by 1 per full five skill levels beyond skill 20. Apply the same reduction to the cost to *maintain* a spell. Calculate the entire cost for a spell (for instance, by multiplying cost for the size of the subject or the area affected) before applying energy cost reductions for

Critical Spell Failure Table

Roll 3d on the table below. If the result is inappropriate – or if it is the result that the caster *intended* – roll again. The GM is free to improvise instead of using the table. Improvisations should be appropriate to the spell and the situation, and should never kill the caster outright.

3 – Spell fails entirely. Caster takes 1d of injury.
4 – Spell is cast on caster (if harmful) or on a random nearby foe (if beneficial).
5-6 – Spell is cast on one of the caster's companions (if harmful) or on a random nearby foe (if beneficial).
7 – Spell affects someone or something other than its intended target – friend, foe, or random object. Roll randomly or make an interesting choice.
8 – Spell fails entirely. Caster takes 1 point of injury.
9 – Spell fails entirely. Caster is stunned (IQ roll to recover).
10-11 – Spell produces nothing but a loud noise, bright flash of light, awful odor, etc.
12 – Spell produces a weak and useless shadow of the intended effect.
13 – Spell produces the reverse of the intended effect.
14 – Spell seems to work, but it is only a useless illusion. The GM should do his best to convince the wizard and his companions that the spell *did* work!
15-16 – Spell has the reverse of the intended effect, on the wrong target. Roll randomly.
17 – Spell fails entirely. Caster temporarily forgets the spell. Make an IQ roll after a week, and again each following week, until he remembers.
18 – Spell fails entirely. A demon or other malign entity appropriate to the setting appears and attacks the caster. (The GM may waive this result if, *in his opinion,* caster and spell were both lily-white, pure good in intent.)

high skill. Energy is still going into the spell, but your skill lets you draw it from the surrounding mana rather than supplying it yourself!

You normally pay the energy cost of a spell in FP. You can recover lost FP by resting. A *mage* with the Recover Energy spell (p. 248) recovers FP faster than normal.

Burning HP

You may also expend life energy to pay the cost of a spell. Mark off some or all of the cost against HP instead of FP – the spell is actually harming you! You are at -1 on your spell roll per HP used. This is *instead* of the usual shock penalty for injury, and High Pain Threshold has no effect.

Using HP to power spells is dangerous, but it may be necessary if you are badly fatigued and *must* cast another spell. You may "burn" HP until you fall unconscious. Should a failed HT roll indicate that you have died, you do not actually spend the HP. Instead, you fall unconscious.

Treat HP lost this way just like any other injury.

Magic Rituals

To cast a spell, you must usually perform a ritual that involves gestures and speech. If you can't perform the ritual, you can't cast the spell! For instance, if the ritual for a spell requires you to speak, you cannot cast the spell if you are gagged or under a spell of silence.

The higher your skill with a spell, the easier it is to cast: it takes less time, requires less energy, and has less stringent ritual requirements. See the list below for details. In all cases, "skill" refers to *base* skill, not effective skill. The *only* modifier that matters here is the -5 for low mana, if applicable.

Skill 9 or less – *Ritual:* You must have both hands and both feet free for elaborate ritual movements, and you must speak certain words of power in a firm voice. *Time:* Doubled. *Cost:* As listed.

Skill 10-14 – *Ritual:* You must speak a few quiet words *and* make a gesture. *Time:* As listed. *Cost:* As listed.

Skill 15-19 – *Ritual:* You must speak a word or two *or* make a small gesture (a couple of fingers are enough), but not necessarily both. You are allowed to move one yard per second while taking the Concentrate maneuver. *Time:* As listed. *Cost:* Reduced by 1.

Skill 20-24 – *Ritual:* None! You simply stare into space as you concentrate. *Time:* Halved (round fractions up to the next second). Minimum casting time is still one second. *Cost:* Reduced by 2.

Skill 25-29 – *Ritual:* None. *Time:* Divided by 4 (round up). *Cost:* Reduced by 3.

Skill 30 or more – As above, but for every five levels of skill beyond skill 25 (that is, at levels 30, 35, 40, etc.), halve casting time again *and* reduce energy cost by one more point.

Certain spells always require a specific ritual. Such requirements override the rules above. For instance, high skill has no effect on the *cost* to cast Blocking spells (p. 241) or the *time* to cast Missile spells (p. 240).

Limits on Effect

The effects of many spells vary with the energy spent. For instance, a healing spell might heal 1 HP per energy point, or a combat spell might inflict 1d damage per point.

If the spell description sets no upper limit, then you may spend as much energy as you can afford! The more you spend, the greater the effect.

If the spell specifies a finite range of effects and associated energy costs, though, you *cannot* exceed the upper limit without a high level of Magery (see below).

If *either* type of variable spell is cast on the same subject more than once, only the spell with the most powerful effects counts – multiple instances of a given spell do not "stack" or add in any way. Spells that heal, damage, or otherwise *permanently* affect the subject are an exception: you may cast such spells repeatedly, healing or damaging the subject by the full amount each time.

Magery and Effect

Talented mages may exceed the usual limits for spells that allow a finite number of "levels of effect" (dice of damage, bonuses to skill, etc.). The upper limit is the *higher* of the standard number of levels or the caster's Magery level.

Example: Major Healing (p. 248) allows you to spend 1, 2, 3, or 4 energy points to heal 2, 4, 6, or 8 HP. It has four levels of effect. Magery 10 would let you revise this limit to *10* levels of effect – you could spend 1-10 energy points to heal 2-20 HP!

Canceling Spells

Sometimes, you will want to end a spell before its full duration is up. If you specify a shorter duration when you cast the spell, the spell lasts exactly the time desired. If you suddenly decide to "cancel" a spell before its time is up, though, you must pay one energy point (from FP or HP) to do so, regardless of the spell or your skill level.

The GM is free not to use this rule if he thinks it would be unbalanced. Of course, if he puts a limit on the highest level of Magery available, this is not a problem!

Duration of Spells and Maintaining Spells

Some spells produce an instantaneous effect when cast and then end immediately. Other spells last for a fixed "duration" (given for the particular spell, but most often one minute) and then wear off – unless you *maintain* them.

If you can maintain a spell, the energy cost to do so is given in its description, following the casting cost. When the spell reaches the end of its duration, you may continue the spell by paying its maintenance cost. If you do, the spell continues for another interval equal to its duration. This takes no time and requires no skill roll. Distance is not a factor.

Example: The Light spell (p. 249) notes "Duration: 1 minute" and "Cost: 1 to cast; 1 to maintain." It ends after a minute unless, at the end of that minute, you spend one more energy point to maintain it. If you do, it lasts another minute.

You may repeat this process for as long as you wish, provided you can supply the required energy. As long as you are conscious, you know when one of your spells needs to be renewed. However, you cannot maintain a spell while you sleep, and you cannot "hand off" a spell to someone else so he can maintain it for you.

High Skill and Cost to Maintain

Energy cost reduction for high skill also applies to the cost to maintain a spell. This *can* reduce maintenance cost to zero. For instance, if you know a spell at skill 15-19, you may reduce its maintenance cost by 1; if this cost is 1 to begin with, you can maintain the spell indefinitely at *no* energy cost!

Concentration and Maintenance

You can maintain a spell without concentration *unless* the spell requires constant manipulation and change; e.g., to maneuver a levitating object. Spells like this require you to take the Concentrate maneuver only. If you are distracted, injured, or stunned, you must make a Will roll at -3. If you fail, the spell does not end, but it remains in precisely the state it was in when you were distracted, and does not respond to change until you can concentrate on it again. On a critical failure, the spell ends.

Casting another spell does *not* break concentration, but you suffer a skill penalty for doing two things at once (see below).

Ceremonial Magic

If you know a spell at skill 15+ and have a group of *willing* assistants, you may opt to cast the spell by leading your assistants in an elaborate ritual that maximizes the spell's power. Such "ceremonial magic" is time-consuming, but lets you cast more powerful spells than you could cast on your own.

When you work ceremonial magic, multiply casting time by *10*. Energy cost does not change, but your assistants can supplement your energy input as follows:

Each mage who knows the spell at level 15+: as much energy as he wishes to contribute.

Each non-mage who knows the spell at level 15+: up to 3 points.

Each mage who knows the spell at level 14 or lower: up to 3 points.

*Each unskilled spectator who **supports** the casting (by chanting, holding candles, etc.):* 1 point, to a maximum of 100 points from all spectators.

*Each spectator who **opposes** the casting:* -5 points, to a maximum penalty of -100 points from all spectators!

Sum the energy from all sources to find the total energy available. If this exceeds the cost to cast the spell, you receive a skill bonus.

Extra Energy	*Skill Bonus*
20%	+1
40%	+2
60%	+3
100%	+4

Add another +1 per additional 100% of the required energy.

At the end of the ritual, make a skill roll to cast the spell. Apply all standard modifiers for magic use and any bonus for extra energy. Regardless of the outcome of the die roll, all contributed energy is spent when you roll the dice.

Notes on Ceremonial Magic

- High skill does *not* reduce casting time or energy cost.
- A group aids concentration. If you are distracted during the ritual, roll at Will as opposed to Will-3 to avoid distraction.
- Ceremonial magic is hard to coordinate. A roll of 16 is always a failure, and a roll of 17-18 is always a critical failure – even if effective skill is 16+.
- Once the spell is cast, the participants can continue to provide energy to maintain the spell. The composition of the group may change, as long as the ritual continues uninterrupted. Thus, ceremonial magic lets you maintain a spell indefinitely.

Casting Spells While Maintaining Other Spells

You can only cast one new spell at a time. However, you *can* cast new spells before older ones end. Apply the following modifiers whenever you cast spells while you have other spells active:

-3 per spell you are *concentrating* on at the moment. See the individual spell descriptions to learn which spells require concentration.

-1 per other spell you have "on" at the moment. A spell that lasts permanently (as indicated in the spell description) *does not carry a penalty.*

Different Kinds of Magic

There are many different types of magic. Spells fall into "colleges" according to subject matter and "classes" according to the way they work.

Colleges of Magic

Spells related by subject matter – e.g., fire, healing, or mind control – belong to the same *college*. The basic spells of a college are prerequisites for the more advanced ones. Some spells fall into more than one college. For instance, Earth to Air (p. 243) is both an Earth and an Air spell. This is only important when counting prerequisites.

Most wizards specialize in only a few colleges. This is the most efficient way to learn advanced magic. However, you may learn spells from as many colleges as you wish.

Spell Classes

Each spell falls into one or more *classes* that define how it works in play. These classes are not mutually exclusive, except as noted below.

Regular Spells

Most spells fall into this class. A Regular spell affects only one subject. Its energy cost assumes a human-sized subject – that is, one with Size Modifier 0. For a subject with a *positive* SM, multiply cost by 1 + SM: ×2 energy for SM +1, ×3 for SM +2, ×4 for SM +3, and so on. There is no cost reduction for a subject with a *negative* SM. A few Regular spells give special cost schemes that override these rules.

Regular spells work best if you can *touch* or *see* the subject. You do not have to see through your own eyes; any spell that lets you see by magical means will do.

If you cannot *touch* the subject, apply a skill penalty equal to your distance in yards from the subject; e.g., -5 at five yards. Figure distance at the moment you roll the dice for the spell.

If you cannot touch *or* see the subject, there is a further -5 penalty. There are two ways to direct such a spell:

- Name a *target location*. For instance, if you specify "One yard beyond the other side of this door," you'll get whoever is standing on the other side of the door. If there is nobody there, you wasted the spell.
- Name a *subject;* e.g., "The closest person in the next room," or, "George, who I know is around here somewhere." The GM determines the actual range to the subject. This is risky! If the subject is farther away than you think – or simply absent – you are inviting failure or even critical failure!

No physical barrier affects a Regular spell. Unless the spell backfires, a Regular spell never hits the wrong target.

Area Spells

These spells affect an area rather than an individual. They are cast on a surface – floor, ground, etc. – and their effects extend four yards (12 feet) up from that surface. A few Area spells work differently; see the individual spell descriptions for details.

The size of the area governs the energy cost, but not the difficulty of the roll. The cost listed for an Area spell is its "base cost." The actual cost to cast the spell is equal to base cost multiplied by the radius of the area of effect in yards (minimum one yard): ×1 for a one-yard radius, ×2 for a two-yard radius, ×3 for a three-yard radius, and so on.

Some Area spells have a fractional base cost, such as 1/2 or 1/10. You must spend a minimum of one energy point on these spells. A few Area spells specify a minimum cost; you must *always* pay the minimum cost, even if this is larger than the base cost multiplied by the desired radius.

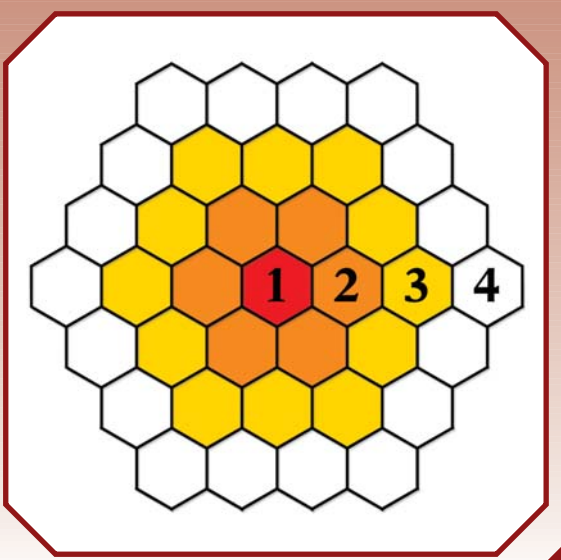
If an Area spell affects living beings, it affects *everyone* in the area of effect. You may choose to affect only a part of the area, rather than the whole circle, but the cost is still the same.

If you cannot touch some part of the affected area, apply a skill penalty equal to your distance in yards from the *nearest* edge of the area.

Otherwise, Area spells work like Regular spells.

Area Spells on a Battle Map

Represent Area spells on a battle map as follows. The area of effect of a spell cast over a one-yard radius is a *single hex*. The area of effect of a spell cast over a two-yard radius is a central hex and *all adjacent hexes*. The area of effect of a spell cast over a three-yard radius is a central two-yard area of effect plus the ring of hexes adjacent to *that*. And so on, building up larger areas by adding successive rings of adjacent hexes.



Melee Spells

Melee spells "charge" your hand or magic staff (see box) with harmful energies that affect the first target you strike. These spells require *two* skill rolls: a roll against spell skill to cast the spell, and a normal melee attack roll to hit your target with your hand or staff.

To cast a Melee spell, concentrate for the required time, roll against spell skill at the end of the final turn of concentration, and pay the energy cost. There is no distance modifier – you are casting the spell on yourself! On a success, you energize your hand or staff with the spell's magic. On your *next* turn, you must do one of two things with your spell: hold it or attack with it.

If you hold your spell, your hand or staff remains "charged." This has no energy cost and requires no skill roll. You *cannot* cast another spell while holding a Melee spell. You can take any other combat maneuver (but an attack with the energized hand or staff discharges the spell). A parry with that hand or staff does not discharge the spell; an *attack* is part of the ritual, and nothing else works.

A held Melee spell on a staff persists only for as long as you wield the staff. If you lose hold of your staff, even for an instant, the spell drains away harmlessly. If someone *grabs* your staff, and you are both holding onto it on your turn, your attempt to wrench it free counts as an attack, and your opponent instantly suffers the spell's effects!

To attack, roll against DX or an unarmed combat skill to hit with a hand, or the appropriate Melee Weapon skill to hit with a staff. This is a standard melee attack. Your target may attempt any active defense. If he succeeds, your spell is not triggered; you may try again next turn. If he fails, your melee attack does its usual damage *and* your spell affects him immediately.

Armor protects normally against some Melee spells, not at all against others. If the spell is one that ignores armor, neither an unarmed parry (even with an armored limb) nor a block will protect the target from the spell. Even if such a defense wards off the melee attack, the spell arcs through the target's armor or shield and affects him.

Note that some Melee spells are Resisted (see p. 241). These spells require a *second* roll against spell skill, when the spell actually takes effect, to overcome the target's resistance.

Missile Spells

This class of spells encompasses long-distance "projectile" or "bolt" attacks, such as Fireball (p. 247) and Lightning (p. 244). Missile spells require *two* skill rolls: a roll against spell skill to cast the spell, and a roll against Innate Attack skill (p. 201) to hit the target.

To cast a Missile spell, you must concentrate for one second. At the end of your turn, roll against your skill with the spell. There is *no* modifier for distance – you are creating a magical missile in your hand. On a success, you may invest one or more points of energy in the spell, to a maximum number of energy points equal to your Magery level. The missile then appears in your hand, "charged" to the desired level.

On your *next* turn, you have three options with your missile: make a ranged attack with it, hold it, or *enlarge* it. If you opt to enlarge your missile, you must concentrate for another second. At the end of your turn, you may invest more energy in the spell – anything from one point to points equal to your Magery level. This does not require a skill roll.

The turn after that, you have the same options: attack, hold, or enlarge. On your fourth and subsequent turns, you may only attack or hold. You cannot spend more than three seconds building up a Missile spell.

Once you stop enlarging a Missile spell, you may "hold" it in hand, ready to attack. You do not have to launch the missile until you want to. While holding a Missile spell, you may move up to your full Move, take a Wait or Aim maneuver, or even attack using the hand that isn't "holding" the missile. You may defend normally. However, you *cannot* cast another spell.

There is one drawback: if you are *injured* while you have a missile "in

Magic Staffs

A "magic staff" is any wand or staff imbued with the power to extend your reach for the purpose of casting spells (see *Staff,* p. 481). It gives three main benefits:

- Touching a subject with your staff lets you cast spells on that subject at *no* distance penalty. This is useful in situations where you must cast a spell on a subject you cannot touch with your hand (e.g., when casting a healing spell on someone trapped under rubble).
- Pointing with a staff reduces the range to a distant subject by the length of the staff. This is valuable for Regular spells, as a one-yard wand shaves -1 off distance penalties, while a two-yard quarterstaff eliminates -2! You can point as part of the ritual to cast a spell. Tell the GM you are pointing at the subject when you *start* concentrating. (This might warn an unwilling subject!)
- A staff can carry Melee spells. This gives them more reach, and lets you strike and parry without putting your hand in harm's way.

A magic staff can be any length up to two yards. A wand is Reach C, too light to do damage, and uses Knife or Main-Gauche skill. A long wand or short staff is Reach 1, functions as a baton in combat, and uses Shortsword or Smallsword skill. A full-length staff is Reach 2, counts as a quarterstaff in combat, and uses Staff or Two-Handed Sword skill. In most game worlds, a suitable ordinary item can be enchanted as a magic staff for $30, but it must be made from once-living materials (wood, bone, ivory, coral, etc.).

hand," you must make a Will roll. If you fail, the missile immediately affects *you!*

When you are ready to attack, roll against your Innate Attack skill to hit. This is a standard ranged attack, subject to the usual modifiers for target size, speed, and range. Once launched, the missile flies in a straight line to the target. Physical barriers affect it just as they would affect any missile weapon.

Your target may block or dodge, but not parry. If he fails, he is hit and the spell affects him. The *strength* of the effect depends on the energy invested. Most Missile spells inflict 1d of damage per point of energy. Damage Resistance – whether natural or from armor – protects normally against damaging Missile spells.

Blocking Spells

A Blocking spell is cast *instantly* as a defense against either a physical attack or another spell. It is the magical equivalent of a block, parry, or dodge (and often counts as one of these defenses; see the spell description for details). You may cast only *one* Blocking spell per turn, no matter how skilled you are. You cannot attempt a Blocking spell against a critical hit.

If you try a Blocking spell, it *automatically* interrupts your own concentration. You lose any spell you were preparing exactly as if you had failed the Will roll to resist a distraction. If you are holding (not *casting*) a Melee spell, it is unaffected. If you are holding a Missile spell, you cannot enlarge it further but may retain it for later use.

Blocking spells do *not* get an energy cost reduction for high skill.

Information Spells

Information spells are cast to gain knowledge. Some require you to touch the subject, while others function at a distance; see *Long-Distance Modifiers* (box) for range penalties. Spells intended to find things are at -1 per "known" item you choose to ignore in your search. Most Information spells have additional special modifiers, so be sure to read the spell description carefully.

When you cast an Information spell, *the GM rolls for you in secret.* If the spell succeeds, the GM gives you the desired information – the better the roll, the better the information. If the spell fails, the GM says, "You sense nothing." On a critical failure, the GM *lies* to you! Regardless of the outcome, you must always pay the full energy cost for the spell.

Information spells generally allow only one attempt per day by each caster (or ceremonial group). "Seek" spells are an exception to this.

Except where specifically noted, Information spells have no duration. They grant a momentary glimpse of insight and end immediately; therefore, you cannot maintain them.

Resisted Spells

A spell of any type can also be "Resisted." A spell like this works automatically only on a critical success. On a regular success, your spell must defeat the subject's resistance to work.

The subject always has a chance to resist, *even if he is unconscious.* A conscious subject is aware that something is happening, and may choose not to resist. Individuals who are unconscious, unfamiliar with magic, or wary of hostile magic always try to resist.

To resolve a Resisted spell, you must first succeed at your skill roll. If the spell has a single subject (that is, it isn't an Area spell), you have a penalty equal to the subject's Magic Resistance (p. 67), if any – even if he is willing! On a failure, the spell fails and the subject notices nothing. On a success, note your margin of success; e.g., if you rolled a 6 against an effective skill of 13, you succeeded by 7. If the subject is *living* or *sapient,* the Rule of 16 applies (see *The Rule of 16,* p. 349). There is no such limit if the subject is a spell.

Dissipating Held Melee and Missile Spells

You sometimes need to dispel a held Melee or Missile spell *quickly,* without taking a full turn to make an attack – for instance, so you can concentrate on another spell. You can do this as a free action at any point during your turn; simply state that you are dissipating the spell and it "evaporates" harmlessly.

You can also get rid of a Missile spell (*not* a Melee spell) by "dropping" it at your feet. This, too, is a free action. This does not damage you, unless the missile is explosive, but it damages whatever you are standing on. Missiles that inflict burning damage are liable to set fires!

Long-Distance Modifiers

Use these modifiers for Information spells that work over long distances, such as "Seek" spells. Certain advantages also use these range penalties. If the distance falls between two values, use the *higher*.

Distance	*Penalty*
Up to 200 yards	0
1/2 mile	-1
1 mile	-2
3 miles	-3
10 miles	-4
30 miles	-5
100 miles	-6
300 miles	-7
1,000 miles	-8

Add another -2 per additional factor of 10.

The subject then attempts a resistance roll. A character resists using the attribute or other trait indicated in the spell description – usually HT or Will. The subject's Magic Resistance, if any, adds to his resistance. A spell resists using the caster's effective skill when he cast the spell.

Compare the subject's resistance roll to your skill roll in a Quick Contest. If you win, your spell affects the subject. If you lose or tie, the spell has no effect – but you must still pay the full energy cost! A conscious subject feels a slight mental or physical wrench (depending on which attribute he resisted with), but no other effect. You know whether or not the subject resisted your spell.

Resisted Area Spells: When casting an Area spell that is Resisted, make the usual success roll for the spell and record your margin of success if you succeed. Everyone in the area gets a resistance roll, and those with Magic Resistance get *double* the usual benefit. Your spell affects those who make their roll by less than you did.

Special Spells

These spells follow special rules given in the spell description.

Spell List

Alternative Magic Systems

This chapter describes the "standard" magic system. It will work as is, or with minor changes, for wizards in most worlds inspired by fantasy literature. Some visions of magic will demand a radical redesign, however. Two sample variants appear below.

Clerical Magic

To handle the powers of magic-using priests, start with the standard magic system, but read "Magery" as "Power Investiture" (see p. 77) and "mana" as "sanctity." Sanctity levels range from "no sanctity" (the temple of an opposed deity) to "very high sanctity" (in the god's presence).

Clerics have Power Investiture instead of Magery, and their spells have *no* prerequisites. A priest may acquire a new spell simply by praying for it, as long as he has at least one point to spend on the spell. This benefit is balanced by the fact that he can *only* learn those spells offered by his god (GM's decision) and by the fact that his god may alter the outcome of his magic – or suspend his magical powers – for reasons he is unlikely to comprehend.

Ritual Magic

Magic use depends on a single "core skill," typically Ritual Magic (p. 218) or Thaumatology (p. 225). Each college of magic is an IQ/Very Hard "college skill" or "path" that defaults to the core skill at -6. College skills have the core skill as a prerequisite and may never exceed the core skill.

Ritual mages *can* cast spells at default! Each spell is a Hard technique with a default to the associated college skill. For each prerequisite the spell *or its prerequisites* would have in the standard system, the default is at a cumulative -1 (e.g., a spell with one prerequisite that *itself* has one prerequisite defaults to college skill-2). To raise a spell past its default level, the mage must have at least one point in the college skill, but he can ignore the spell's prerequisites under the standard system. Spells cannot exceed the associated college skill.

Magery adds to core skill, college skills, and spells. If standard and ritual magic coexist, normal Magery and Ritual Magery are separate advantages.

All other rules are the same.

On the following pages are 93 spells, picked for their utility in a beginning fantasy or horror campaign. But this is only a glimpse of what magic can do – see ***GURPS Magic*** for *hundreds* more spells!

Each spell includes:

Name of Spell and the *Class(es)* it belongs to. A "(VH)" indicates an IQ/Very Hard spell; otherwise, it's IQ/Hard.

Description: The spell's effects, special rules, etc. If the spell requires particular items, assume it uses them up unless the description states otherwise.

Duration: The time the spell's effects last. If you maintain the spell, it lasts for another period equal to this. Spells with an instantaneous effect do not list duration and cannot be maintained.

Cost: The energy (FP or HP) spent when you cast the spell. If given as *Base Cost*, this is the cost per yard of radius of an Area spell. Maintainable spells also give a cost to maintain.

Time to Cast: If no time is given, the spell requires one second of concentration and takes place at the end of your turn.

Prerequisites: Other spells you must know (have placed at least one point in the spell) before you may study this spell, as well as any Magery, IQ, or other requirements.

Air Spells

These spells deal with the traditional magical "element" of air. Except as noted, assume that "air" is normal breathing air at one atmosphere of pressure.

Purify Air

Area

This spell removes all impurities from the air in its area of effect. It is often used to neutralize the effects of poisonous gas or vapors. Note that a room full of smoke may safely be purified one section at a time – but truly deadly vapors must all be removed at once, or some may escape.

This spell also turns old "stale" air into fresh breathable air. The air in a one-yard radius, if not renewed from the outside, will last 45 minutes for one person at rest, less for multiple persons or someone violently exercising (GM's discretion).

Duration: Works instantly. Purification is permanent.
Base Cost: 1. Cannot be maintained; must be recast.

Create Air

Area

This spell manufactures air where none exists. When cast where there is already air, it produces an outward breeze lasting about five seconds. When cast in a vacuum, it instantly creates breathable air. When cast within earth, stone, or other material, it fills any empty spaces with air, but does not burst the stone. When cast underwater, it makes bubbles! It cannot be cast inside a living being.

Duration: Breeze, bubbles, etc. last 5 seconds. Air created is permanent.
Base Cost: 1. Cannot be maintained; must be recast.
Prerequisite: Purify Air.

Shape Air

Regular

This spell lets the caster create movements of air over a small area. The caster must choose a starting point (calculate distance penalties to that point). The wind starts there and blows in a stream one yard wide, for a distance in yards equal to 5 times the energy put into the spell, and then dissipates. This may cause knockback (see *Knockback*, p. 378) on someone it hits; each second, roll 1d per full 2 points of energy in the spell. Treat this as damage for knockback purposes only (this spell does *not* cause injury).

Duration: 1 minute.
Cost: 1 to 10. 1 produces a gentle breeze; 4 a wind; 6 a heavy wind; 8 or more a violent blast. Cost to maintain is the same as to cast.
Prerequisite: Create Air.

No-Smell

Regular

Removes the subject's odor and makes it (or him) totally undetectable by smell. Any possessions are also affected. This spell changes no other properties of the subject.

Duration: 1 hour.
Cost: 2; same to maintain.
Prerequisite: Purify Air.

Predict Weather

Information

Lets the caster forecast the weather accurately for a given location over a given time. This forecast does *not* take magical meddling into account, or predict the actions of other wizards!

Cost: Twice the length of the forecast, in days. Double the cost for a location outside the general area (say, over the horizon). Quadruple the cost for a place on another continent. This spell cannot predict weather on other planets or planes.
Time to cast: 5 seconds per day forecast.
Prerequisites: At least four Air spells.

Breathe Water

Regular

Lets the subject breathe water as though it were air. Subject does *not* lose the ability to breathe ordinary air! This spell is also considered a Water spell.

Duration: 1 minute.
Cost: 4 to cast; 2 to maintain.
Prerequisites: Create Air and Destroy Water (p. 253).

Walk on Air

Regular

Temporarily grants the subject the Walk on Air advantage (p. 97). If the subject falls for any reason (e.g., injury), the spell is broken! If the spell is recast immediately, he falls for only one second (about 5 yards) and then "lands" on the air (taking 1d damage) – unless he hits ground before then. If he's 10 feet over a lava pit, too bad!

Duration: 1 minute.
Cost: 3 to cast; 2 to maintain.
Prerequisite: Shape Air.

Earth to Air

Regular

This spell turns earth or stone into air, which can be valuable to someone who is trapped underground! The more energy the caster spends, the more earth he can transform, but he is limited to regular shapes with the largest dimension no more than four times the smallest one. This spell is also considered an Earth spell.

Duration: Permanent.
Cost: 1 to transform one cubic foot of earth/stone to air, giving enough air for one person to breathe for 1 minute. To transform larger quantities of earth/stone at once, the cost is 5 per cubic yard.
Time to cast: 2 seconds.
Prerequisites: Create Air and Shape Earth (p. 245).

Stench

Area

Produces a cloud of vile, yellowish gas that reeks of brimstone. Until it dissipates, anyone who breathes it must make a HT roll or take 1d damage. Roll once per minute. Those in the area also begin to suffocate (see *Suffocation,* p. 436). The cloud is heavy, and "rolls" downhill if the ground is not level. The rate of dissipation depends on the area and presence of wind; indoors, it usually lasts until the spell expires, but outdoors on a windy day, it might only last 10 seconds or so.

Duration: 5 minutes, except in windy areas.
Base Cost: 1. Cannot be maintained; must be recast.
Prerequisite: Purify Air.

Lightning

Missile

Lets the caster shoot a bolt of lightning from his fingertip. This has 1/2D 50, Max 100, Acc 3. Treat any metal armor as DR 1 against this spell! If the target is wounded, he must make a HT roll, at -1 per 2 HP suffered, or be stunned. He may attempt a HT roll each turn thereafter to recover. Against electronic equipment, treat this attack as if it had the Surge damage modifier (see *Surge,* p. 105).

Lightning behaves unpredictably around conductors. A lightning bolt *cannot* be fired through a metal grid, between bars, from within a car, etc. – it jumps to the metal and is lost. However, the GM may (for instance) allow a wizard to shoot a lightning bolt into a metal floor. This would not electrocute those on it, but could shock them all, interrupting concentration and doing slight damage (no more than 1 point, and possibly none at all). The GM may encourage creative use of lightning until it becomes a nuisance . . .

Cost: Any amount up to your Magery level per second, for three seconds. The bolt does 1d-1 burning damage per energy point.
Time to cast: 1 to 3 seconds (the caster's fingers sparkle as the spell builds up).
Prerequisites: Magery 1 and at least six other Air spells.

Body Control Spells

These spells directly affect the body. Except as noted, they only affect *living* beings.

Itch

Regular; Resisted by HT

Causes the subject to itch fiercely in a spot of the caster's choice. The subject is at -2 DX until he takes one full turn to scratch (more, if armor, etc. is in the way!). Only one Itch spell can affect a given subject at a time.

Duration: Until the subject takes a turn to scratch.
Cost: 2. Cannot be maintained; must be recast.

Spasm

Regular; Resisted by HT

Can be directed against any of the subject's *voluntary* muscles. Directed against a hand, it causes the subject to drop whatever he is holding (usually a weapon). If the subject is in the middle of a lengthy spell requiring gestures, he must make a DX roll or start over. Ingenious casters will find other uses . . .

Duration: A moment.
Cost: 2. Cannot be maintained; must be recast.
Prerequisite: Itch.

Pain

Regular; Resisted by HT

The subject feels a stab of agonizing pain. He must make a Will roll to avoid crying out. If he is in a precarious position (climbing, for instance), he must make a DX roll to avoid catastrophe! His DX and all DX-based skills are at -3 for the next turn only. If the subject is in the middle of a spell requiring gestures, he must roll vs. Will or start over. High Pain Threshold gives +3 to the Will and DX rolls above; Low Pain Threshold gives -4.

Duration: 1 second.
Cost: 2. Cannot be maintained; must be recast.
Prerequisite: Spasm.

Clumsiness

Regular; Resisted by HT

The subject suffers -1 to his DX and DX-based skills for every point of energy put into the spell.

Duration: 1 minute.
Cost: 1 to 5 to cast; half that amount to maintain (round up).
Prerequisite: Spasm.

Hinder

Regular; Resisted by HT

The subject is at -1 to his Move and Dodge scores for every point of energy put into the spell. This spell is also considered a Movement spell.

Duration: 1 minute.
Cost: 1 to 4 to cast; same to maintain.
Prerequisite: Clumsiness *or* Haste (p. 251).

Rooted Feet

Regular; Resisted by ST

The subject's feet are glued in place! He may try another resistance roll at -5 *every turn,* against the original spell skill roll, to break free. While the spell continues, the subject's skill with any weapon except a ranged weapon is at -2 and his Dodge score is cut in half (round down).

Duration: 1 minute, or until subject breaks free.
Cost: 3. Cannot be maintained; must be recast.
Prerequisite: Hinder.

Paralyze Limb

Melee; Resisted by HT

The caster must strike the subject on a *limb* to trigger this spell (hits elsewhere have no effect). Armor does not protect. Resolve resistance on contact. If the caster wins, the subject's limb is paralyzed; it is considered crippled for one minute.

Duration: 1 minute.
Cost: 3. Cannot be maintained; must be recast.
Prerequisites: Magery 1 and five Body Control spells, including Pain.

Wither Limb

Melee; Resisted by HT

The caster must strike the subject on a *limb* to trigger this spell. Armor

does not protect. Resolve resistance on contact. If the caster wins, the subject's limb withers immediately; it is crippled for all purposes. The subject also takes 1d damage.

Duration: Permanent unless healed magically.
Cost: 5.
Prerequisites: Magery 2 and Paralyze Limb.

Deathtouch

Melee

The caster must strike the subject to trigger this spell; hit location is irrelevant. The subject takes 1d damage per point of energy in the spell. Armor does not protect. This spell *does* affect the undead.

Cost: 1 to 3.
Prerequisite: Wither Limb.

Communication and Empathy Spells

These spells deal with discerning (or *concealing*) thought and intent. For spells that manipulate emotions and loyalties, see *Mind Control Spells* (p. 250).

Sense Foes

Information; Area

Tells the caster if the subject has hostile intent, and what the degree of hostility is. Can be cast on one person or a whole area. If cast over an area, this spell only detects that *someone* is hostile, without telling *who*.

Base Cost: 1 (minimum 2).

Sense Emotion

Regular

Lets the caster know what emotions the subject is feeling at the moment. It works on any living being, but is not much use except on sapient creatures! This also tells how loyal the subject is to the caster (see *Loyalty of Hirelings,* p. 518).

Cost: 2.
Prerequisite: Sense Foes.

Truthsayer

Information; Resisted by Will

This tells whether the subject is lying or not. May be cast in two ways:

1. To tell whether the subject has told *any* lies in the last five minutes.
2. To tell whether the *last* thing the subject said was a lie.

May also give an indication of how great the lie is. If the caster is not touching the subject, calculate range as for a Regular spell.

Cost: 2.
Prerequisite: Sense Emotion.

Mind-Reading

Regular; Resisted by Will

Lets the caster read the subject's mind. Works on any living being, but is most useful on sapient creatures. Detects only surface thoughts (what the subject is thinking at that moment). The subject is not aware his mind is being read, except in the case of a critical failure.

Modifiers: -2 if the caster does not know the subject's *native* language; -2 if the subject is of a different race – or -4 or more if the subject is totally alien!

Duration: 1 minute.
Cost: 4 to cast; 2 to maintain.
Time to cast: 10 seconds.
Prerequisite: Truthsayer.

Hide Thoughts

Regular

This spell resists all mind-reading and thought-control attempts on the subject. The "attacking" ability must *win* a Quick Contest against this spell in order to affect the subject. If the attacking ability pierces Hide Thoughts, the subject still gets his normal resistance roll (roll separately). This spell does not affect previously established mental control.

Duration: 10 minutes.
Cost: 3 to cast; 1 to maintain.
Prerequisite: Truthsayer.

Earth Spells

These spells deal with the traditional magical "element" of earth. Except as noted, none of these spells affect stone or metal.

Seek Earth

Information

This spell tells the caster the *direction* and *approximate distance* of the nearest significant amount of any one type of earth, metal, or stone. Use the long-distance modifiers (p. 241). Any known sources of that material may be excluded if the caster specifically mentions them before beginning.

Cost: 3.
Time to cast: 10 seconds.

Shape Earth

Regular

Lets the caster move earth and shape it into any form. If the form is stable (e.g., a hill), it remains permanently after shaping. An unstable form (e.g., a column or wall) lasts only while the spell continues – no special concentration is required – and then collapses.

Earth *moved* with this spell travels at only Move 2. It can harm no one except by flowing over an immobile person and burying him. If earth is moved onto a person to bury him – or from beneath him, to create a hole – he may move normally on his next turn, to escape. He is trapped only if he fails to do so.

Anyone buried by this spell may try to claw his way out of the loose earth. One roll, at ST-4, is allowed per turn. GMs may make this roll harder if the victim is buried under more than two cubic yards of earth! The victim can hold his breath (see *Holding Your Breath,* p. 351), but he eventually risks suffocation (see *Suffocation,* p. 436).

Duration: 1 minute.
Cost: 1 per cubic yard of earth shaped (minimum 2); half that to maintain (round up).
Prerequisite: Seek Earth.

Earth to Stone

Regular

Turns an item of earth or clay into hard stone (but not gemstone).

Duration: Permanent.
Cost: 3 per cubic yard (minimum 3).
Prerequisites: Magery 1 and Shape Earth.

Earth to Air

Regular

As listed under *Air Spells* (p. 243).

Create Earth

Regular

Lets the caster create good, solid earth where none existed before. This earth must be created in contact with the ground – not hanging in the air or floating in the sea!

Duration: Permanent.
Cost: 2 per cubic yard to create earth from nothingness (minimum 2); 1 per cubic yard to solidify mud into good earth (minimum 1).
Prerequisite: Earth to Stone.

Flesh to Stone

Regular; Resisted by HT

"Petrifies" a living subject (and all his gear!), turning him to stone. Must affect the *entire* subject.

Duration: Permanent, unless reversed by Stone to Flesh.
Cost: 10.
Time to cast: 2 seconds.
Prerequisite: Earth to Stone.

Stone to Earth

Regular

Turns any kind of stone (including gemstone) into simple earth. Must be cast on a whole stone or block, rather than a part of it.

Duration: Permanent.
Cost: 6 per cubic yard (minimum 6).
Prerequisites: Earth to Stone *or* any four Earth spells.

Stone to Flesh

Regular

Reverses the effects of Flesh to Stone and brings the victim back to life (stunned). Cannot be used to animate a statue that was never alive.

Duration: Permanent.
Cost: 10.
Time to cast: 5 seconds.
Prerequisites: Magery 2, Flesh to Stone, and Stone to Earth.

Entombment

Regular; Resisted by HT

The earth instantly swallows the subject. He remains in suspended animation, in a tiny spherical chamber 50 feet underground, until rescued by tunneling or the reverse of this spell. A mage who casts Entombment on *himself* may elect to stay awake, but this is unwise unless he also knows Earth to Air!

Duration: Permanent, unless reversed by this spell.
Cost: 10 (but only 6 to *reverse* an entombment).
Time to cast: 3 seconds.
Prerequisites: Magery 2 and five Earth spells.

Enchantment Spells

Enchantment spells allow mages to create permanent magic items, and constitute both a college of magic and a class of spells. Since they are only ever used to create artifacts, they appear with the other rules for artifacts in Chapter 17 (see *Enchantment Spells,* p. 480).

Fire Spells

These spells deal with the traditional magical "element" of fire. Should the volume of a particular fire matter in play, assume that the flames created or controlled by Fire spells shoot six feet high. See *Flame* (p. 433) for rules for setting things on fire.

Ignite Fire

Regular

This spell produces a single spot of heat, and is used to set fire to a *readily* flammable object. It works best on paper and cloth, and cannot affect any item that would not burn in an ordinary fire. In particular, it *cannot* set fire to a living being! Once ignited, the fire burns normally.

Duration: One second.
Cost: Depends on the amount of heat desired:

1 – for an effect as though a match had been held to the subject: lights a candle, pipe, or tinder in one second.
2 – for an effect as though a torch had been held to the subject: ignites paper or loose cloth in one second, ordinary clothes being worn in four seconds.
3 – for an effect as though a blowtorch had been held to the subject: ignites dry firewood or clothes being worn in one second, leather in two seconds, heavy wood in six seconds.
4 – for an effect as though burning magnesium or phosphorus had been held to the subject: ignites coal in one second, heavy wood in two seconds.

Cost to maintain is the same as the original cost to cast.

Create Fire

Area

Fills the area of effect with fire that requires no fuel (if cast in midair, it produces a sphere of flame, which falls to the ground). This is real fire, and will eventually ignite any flammable objects it touches. Cannot be cast within rock, foes, etc.

Duration: 1 minute.
Base Cost: 2; half that to maintain. Ordinary fires set by this spell do not require maintenance.
Prerequisite: Ignite Fire.

Shape Fire

Area

Lets the caster control the shape of any flame. Each shape change requires a second of concentration. Once shaped, the flame keeps that shape until the spell expires, without concentration. *Moving* a flame requires constant concentration (the flame moves at Move 5, on the caster's turn). A natural fire cannot move to a place that it can't burn, but flame made with the Create Fire spell needs no fuel and can move almost anywhere.

Flame shaped with this spell normally retains its volume. If the fire is "spread out" across twice its original area, it only does half damage; if spread across three times its original area, it does 1/3 damage, and so on.

Duration: 1 minute.
Base Cost: 2; half that to maintain.
Prerequisite: Ignite Fire.

Deflect Energy

Blocking

Deflects *one* energy attack about to hit the subject – including a beam weapon attack or a Fireball or Lightning spell. Counts as a parry for combat purposes. If the caster is not

the subject, apply distance modifiers as for a Regular spell. Deflected attacks may still hit a target *beyond* the subject.

Cost: 1.
Prerequisites: Magery 1 and Shape Fire.

Extinguish Fire

Area

Puts out all ordinary and magical fires in its area of effect. Has no effect on molten steel, lava, plasma, etc.

Duration: Once out, a fire stays out.
Base Cost: 3.
Prerequisite: Ignite Fire.

Heat

Regular

This spell raises the temperature of an object. It does not necessarily produce fire, though most things burn if heated enough. Heat radiates away normally. (Use this as a guideline for playable effects – don't try to turn the spell into a physics exercise!)

Any wizard planning to make extensive use of this spell should arm himself with a list of the melting points of various materials. The spell can have drawbacks. If you were in jail, you might melt your way through the bars . . . but the radiated heat would probably broil you first.

Duration: 1 minute. Each minute raises the target's temperature by 20°. Maximum temperature possible with this spell is 2,800°.
Cost: 1 for an object up to the size of a fist, 2 for an object up to one cubic yard, and 2 per cubic yard for a larger object. Temperature change can be doubled to 40° per minute for double cost, tripled to 60° per minute for triple cost, and so on. *Slower* heating costs no less. Same cost to maintain.
Time to cast: 1 minute.
Prerequisites: Create Fire and Shape Fire.

Cold

Regular

This spell is the reverse of Heat (above). It can reduce the temperature of any object to absolute zero, if maintained for long enough.

Duration, Cost, and Time to cast: As for Heat, except each minute *lowers* the target's temperature by 20°.
Prerequisite: Heat.

Resist Cold

Regular

The subject (person, creature, or object) and anything he carries become immune to the effects of cold and frostbite (but *not* falling ice, magical ice spears, etc.).

Duration: 1 minute.
Cost: 2 to cast; 1 to maintain. Cost doubles if subject must resist cold of -40° or more; cost triples if subject must resist the cold of absolute zero.
Prerequisite: Heat.

Resist Fire

Regular

The subject (person, creature, or object) and anything he carries become immune to the effects of heat and fire (but not electricity).

Duration: 1 minute.
Cost: 2 to cast; 1 to maintain. Cost doubles if subject must resist a blast furnace or volcano; cost triples if subject must resist the heat of a star, nuclear bomb, etc. Only the first level of protection is necessary against combat-type Fire spells.
Prerequisites: Extinguish Fire and Cold.

Fireball

Missile

Lets the caster throw a ball of fire from his hand. This has 1/2D 25, Max 50, Acc 1. When it strikes something, it vanishes in a puff of flame. This spell is likely to ignite flammable targets.

Cost: Any amount up to your Magery level per second, for three seconds. The fireball does 1d burning damage per energy point.
Time to cast: 1 to 3 seconds.
Prerequisites: Magery 1, Create Fire, and Shape Fire.

Explosive Fireball

Missile

Creates a fireball that affects both its target and things nearby. This has 1/2D 25, Max 50, Acc 1. Can be thrown at a wall, floor, etc. (at +4 to hit) to catch foes in the blast. The target and anyone closer to the target than one yard take full damage. Those further away divide damage by 3 times their distance in yards (round down).

Cost: Any amount up to *twice* your Magery level per second, for three seconds. The fireball does 1d burning damage per *full* 2 points of energy.
Time to cast: 1 to 3 seconds.
Prerequisite: Fireball.

Gate Spells

These spells manipulate time, space, and dimensions.

Planar Summons

Special

Summons a creature, such as a demon or a Thing Man Was Not Meant To Know, from another plane of existence. The GM determines the predisposition and abilities of this being. Each plane requires a different Planar Summons spell. Some exceptionally potent entities might require their own unique spells!

When the creature appears, the caster must immediately try to *control* it. Treat this as a Quick Contest between the caster's Planar Summons skill and the entity's Will. The caster is at +4 if he knows the creature's "true name."

If the caster wins, he can give the creature a single command, which it *must* carry out. On completing this task – or after one hour in any event – the entity usually vanishes. However, some powerful entities can stay for as long as they wish . . .

If the caster ties or loses, the creature reacts badly. An "evil" being commits violence or vandalism, while a "good" one is more likely to depart in a huff and put in a bad word with the caster's gods. Wild or chaotic creatures are liable to engage in theft and mischief. Extremely alien entities might react in disturbing and unpredictable ways.

Duration: Until the task is done or one hour, whichever is less. Usually.
Cost: 1 point per 10 character points used to build the summoned entity. Minimum energy cost is 20 (although this will not always summon a 200-point being). The GM secretly determines the capabilities of all summoned creatures.
Time to cast: 5 minutes.
Prerequisites: Magery 1 and at least one spell from each of 10 different colleges.

Plane Shift (VH)

Special

This spell bodily transports the caster – along with anything he is carrying (up to Heavy encumbrance) – to a particular plane of existence. Each plane requires its own Plane Shift spell. This is a one-way trip. To get back, the caster must know Plane Shift for his home plane or get a wizard in the other plane to cast Banish (p. 252) on him.

This spell gives the caster no special immunity to his surroundings. To safely visit a plane where the natural conditions are vacuum, flame, etc., you must learn the necessary protective spells.

Duration: Permanent.
Cost: 20.
Time to cast: 5 seconds.
Prerequisite: Planar Summons for the same plane.

Healing Spells

Anyone who tries to heal *himself* has a skill penalty equal to the amount of injury he has. For example, a wizard who is missing 4 HP rolls at -4 to heal himself.

A *critical* failure with a Healing spell always has some appropriate bad effect on the patient, aggravating the injury, creating a new wound, or the like.

Lend Energy

Regular

Restores the subject's lost Fatigue Points, at an energy cost to the caster. Cannot increase the subject's FP score above its normal maximum.

Cost: Any amount; the energy spent by the caster goes to the subject as restored FP (e.g., if the caster spends 5 energy, the subject regains 5 lost FP). Casting cost is not reduced by high skill.
Prerequisite: Magery 1 *or* Empathy (p. 51).

Lend Vitality

Regular

Temporarily restores the subject's lost Hit Points, at an energy cost to the caster. Cannot increase the subject's HP score above its normal maximum. Since restored HP vanish after one hour and the spell cannot be maintained, this spell is only a stopgap measure.

Duration: 1 hour.
Cost: Any amount; the energy spent by the caster goes to the subject as restored HP (e.g., if the caster spends 5 energy, the subject regains 5 lost HP). Casting cost is not reduced by high skill. Cannot be maintained; must be recast.
Prerequisite: Lend Energy.

Recover Energy

Special

This spell allows the caster to rest and recover Fatigue Points more quickly than normal by drawing energy from the mana around him. A normal person recovers 1 FP every 10 minutes. A mage who knows this spell at skill 15 or higher recovers 1 FP every 5 minutes. A mage who knows this spell at skill 20 or higher recovers 1 FP every 2 minutes. No further improvement is possible. Note that this spell works on the caster himself; it cannot restore FP to others.

The mage must rest quietly, but no ritual or die roll is required. While resting, he can maintain ordinary spells, but not those that require concentration.

This spell does not function in low- or no-mana areas.

Cost: None.
Prerequisites: Magery 1 and Lend Energy.

Awaken

Area

This spell renders the subject(s) awake and alert. It instantly counters the effects of stunning. If the subject is very fatigued (less than 1/3 basic FP), this spell renders him alert for an hour but *costs* him 1 FP at the end of that time. It has no effect on those with 0 or fewer FP. Sleeping or unconscious subjects get a HT roll to awaken, at a bonus equal to the caster's margin of success. A subject rolls at -3 if unconscious due to injury, at -6 if drugged.

Base Cost: 1.
Prerequisite: Lend Vitality.

Minor Healing

Regular

Restores up to 3 HP to the subject. Does not eliminate disease or poison, but cures the damage they cause.

This spell is risky when used more than once per day by the same caster on the same subject. If you try, roll at -3 for the first repetition, -6 for the second, and so on.

If you have the Physician skill at level 15 or higher, a critical failure with this spell counts only as an ordinary failure – unless you are trying the spell more than once per day on the same subject.

Cost: 1 to 3. The same amount is restored to the subject.
Prerequisite: Lend Vitality.

Major Healing (VH)

Regular

Restores up to 8 HP to the subject. Does not eliminate disease or poison, but cures the damage they cause.

Otherwise, this spell functions just like Minor Healing: it is at -3 per casting on the same subject in one day, and Physician skill at level 15 or higher mitigates the effects of a critical failure.

The penalties for repeated casting accrue *separately* for Minor Healing and Major Healing. For instance, a caster could cast both spells on the same subject in the same day at no penalty.

Cost: 1 to 4. *Twice* the amount spent is restored to the subject.
Prerequisites: Magery 1 and Minor Healing.

Great Healing (VH)

Regular

Restores *all* of the subject's missing HP. Does not eliminate disease or poison, nor does it restore crippled or missing body parts, but it can heal HP lost to any of these things.

A given subject can only benefit from this spell *once per day,* whether cast by the same caster or by a different caster each time.

If you have the Physician skill at level 15 or higher, a critical failure with this spell counts only as an ordinary failure.

Cost: 20. One try per day per subject.
Time to cast: 1 minute.
Prerequisites: Magery 3 and Major Healing.

Knowledge Spells

These spells provide information. Duration is "instantaneous" unless noted otherwise – that is, the caster gets a flash of knowledge, not a continuing picture.

Detect Magic

Regular

Lets the caster determine whether any one object is magical. If the spell is successful, a second casting tells whether the magic is temporary or permanent. A critical success on either roll fully identifies the spell, as for Analyze Magic.

Cost: 2.
Time to cast: 5 seconds.
Prerequisite: Magery 1.

Aura

Information

Shows the caster a glowing halo, or "aura," around the subject. This aura gives the caster a general insight into the subject's personality – the better the skill roll, the better the insight. The aura also shows whether the subject is a mage (and about how powerful); whether the subject is possessed or controlled in any way; and whether the subject is in the grip of any violent emotion. A critical success detects "secret" traits, such as lycanthropy, vampirism, and unnatural longevity.

All living beings have auras; inanimate things do not. A zombie is detectable by his faint, death-haunted aura, while a vampire retains the aura he had in life. Illusions and created beings have *no* aura, so a successful casting of this spell distinguishes them from real persons.

Cost: 3 (for *any* size subject).
Prerequisite: Detect Magic.

Seeker

Information

Attunes the caster to one individual or manmade object he is looking for. A success gives the caster a vision of the item's whereabouts – or leads him to it, if it is within a mile.

To seek a person, the caster must either know his name or know him well enough to visualize him. For instance, you cannot use this spell to solve a murder by seeking "the murderer" if you don't know who that is – but if you do, Seeker will find him.

Modifiers: Long-distance modifiers (p. 241). Something associated with the item sought (e.g., part of a lost person's clothing) should be available at the time of casting; if not, roll at -5. The roll is at +1 if the caster has held or is otherwise familiar with the item sought.

Cost: 3. One try per week.
Prerequisites: Magery 1, IQ 12+, and at least two "Seek" spells (e.g., Seek Earth and Seek Water).

Trace

Regular

May be cast on any object or living being. As long as the spell is maintained, the caster will know where the subject is if he concentrates for a second. Either the subject must be with the caster when the spell is first cast, or the caster must first cast Seeker successfully. Long-distance modifiers (p. 241) apply if subject is not in caster's presence.

Duration: 1 hour.
Cost: 3 to cast; 1 to maintain. One try per day.
Time to cast: 1 minute.
Prerequisite: Seeker.

Identify Spell

Information

Lets the caster know what spell or spells have just been cast (within the last five seconds), or are being cast at the moment, *on* or *by* the subject. It does not identify the spells on a permanently enchanted item. One casting identifies *all* spells cast on or by the subject. However, if any of these spells are totally unknown to the caster – not just spells he doesn't know, but spells he has never *heard of* – the GM should provide only a general, vague description; e.g., "Some kind of physical protection." Wizards have heard of every spell in this list unless the GM rules that some are secret, but wizards have *not* heard of new spells created by the GM or players.

Cost: 2.
Prerequisite: Detect Magic.

Analyze Magic

Information; Resisted by spells that conceal magic

Tells the caster exactly what spells are on the subject. If the subject has more than one spell on it, Analyze Magic identifies the one that took the least energy and tells the caster "there are more spells." It can then be cast again to determine the next spell, and so on. Like Identify Spell, above, it gives limited results when faced with a spell the caster has never heard of.

Cost: 8.
Time to cast: 1 hour.
Prerequisite: Identify Spell.

Light and Darkness Spells

These spells affect not just visible light, but also infrared and ultraviolet light. Spells that provide illumination allow those with Infravision and Ultravision to see, while spells that block ordinary vision also block those senses.

Light

Regular

Produces a small light, like a candle flame. It stays still unless the caster concentrates on moving it; then it can travel at Move 5.

Duration: 1 minute.
Cost: 1 to cast; 1 to maintain.

Continual Light

Regular

When cast on a small object (up to fist-sized or 1 lb.) or a small part of a larger object, this spell makes that object glow with white light.

Duration: Variable. Roll 2d for number of days. Does *not* count as a spell "on."
Cost: 2 for a dim glow, 4 for the brightness of a fire, 6 for a glare so bright as to be painful at close range.
Prerequisite: Light.

Darkness

Area

Cloaks the area of effect in pitch darkness. A person inside the area can see out normally, but can see nothing else *within* the area. Those outside the area can see only darkness within. Thus, attacks out of darkness suffer no penalty, but attacks into darkness are at a penalty; see *Visibility* (p. 394) for combat rules.

The Dark Vision advantage lets you see through a Darkness spell, but Night Vision and Infravision do not.

Duration: 1 minute.
Base Cost: 2 to cast; 1 to maintain.
Prerequisite: Continual Light.

Blur

Regular

This spell makes the subject harder to see and therefore harder to hit with attacks. Each point of energy gives -1 to the effective skill of any attack on the subject, to a maximum of -5.

Duration: 1 minute.
Cost: 1 to 5 to cast; the same to maintain.
Time to cast: 2 seconds.
Prerequisite: Darkness.

Counterspell

Regular; Resisted by subject spell

This spell nullifies any one ongoing spell. It cannot "counter" spells that make a *permanent* change in the world (e.g., Extinguish Fire, Flesh to Stone, or Zombie) and it cannot affect permanently enchanted items, but it *can* counter spells cast using magic items. The "subject" of Counterspell may be either the subject of the spell to be countered or the person who cast that spell.

Counterspell is a single spell – but to counter a given spell, you must *also* know that spell. Roll against the *lower* of your Counterspell skill or your skill with the spell being countered. You must win a Quick Contest with the target spell to cancel it. You can cast multiple Counterspells to negate an Area spell piece by piece.

Cost: Half that of the spell countered, *not* counting bonuses the other caster got for high skill.
Time to cast: 5 seconds.
Prerequisite: Magery 1.

Meta-Spells

These spells have to do with the structure of magic itself. They are spells about spells, or spells that affect other spells.

Dispel Magic

Area; Resisted by subject spells

This spell, if successful, negates other spells within the area. It has no effect on enchanted items – just on spells. Each spell resists separately. Dispel Magic is *not* selective! The caster need not know the spell(s) being dispelled. To nullify a specific spell without affecting others, use Counterspell.

Duration: Dispelled magic is permanently gone.
Base Cost: 3.
Time to cast: 1 second for each energy point spent.
Prerequisites: Counterspell and at least 12 other spells (any type).

Mind Control Spells

These spells have *no* effect on subjects that lack intelligence (IQ 0) or free will (in general, this means the Automaton meta-trait; see p. 263). Thus, they do not work on most golems, robots, zombies, etc.

Foolishness

Regular; Resisted by Will

The subject suffers -1 to his IQ and IQ-based skills (including spells) for every point of energy put into the spell. The GM may also require an IQ roll to remember complex things while under the influence of this spell.

Duration: 1 minute.
Cost: 1 to 5 to cast; half that amount to maintain (round up).
Prerequisite: IQ 12+.

Forgetfulness

Regular; Resisted by Will or skill

Causes the subject to forget one fact, skill, or spell temporarily. The skill or spell cannot be used while Forgetfulness is in effect. If (for instance) a forgotten spell is a prerequisite for other spells, the other spells *can* still be used, at -2 to skill.

Duration: 1 hour.
Cost: 3 to cast; 3 to maintain.
Time to cast: 10 seconds.
Prerequisites: Magery 1 and Foolishness.

Daze

Regular; Resisted by HT

Subject looks and acts normal, but does not notice what is going on around him, and will not remember it

later. A dazed guard will stand quietly while a thief walks past! Any injury, or successful resistance to a spell, causes the subject to snap out of the daze and return to full, alert status.

Duration: 1 minute.
Cost: 3 to cast; 2 to maintain.
Time to cast: 2 seconds.
Prerequisite: Foolishness.

Mass Daze

Area; Resisted by HT

As Daze, but can be cast over an area.

Duration: 1 minute.
Base Cost: 2 to cast; 1 to maintain. Minimum radius 2 yards.
Time to cast: 1 second for each energy point spent.
Prerequisites: Daze and IQ 13+.

Sleep

Regular; Resisted by HT

Subject falls asleep. If standing, he falls – but this does *not* wake him. He can be awakened by a blow, loud noise, etc., but will be mentally stunned (see *Effects of Stun,* p. 420). The Awaken spell (p. 248) arouses him instantly. If not awakened, he will sleep for around eight hours and awaken normally.

Cost: 4.
Time to cast: 3 seconds.
Prerequisite: Daze.

Mass Sleep

Area; Resisted by HT

As Sleep, but can be cast over an area.

Base Cost: 3. Minimum radius 2 yards.
Time to cast: 1 second for each energy point spent.
Prerequisites: Sleep and IQ 13+.

Command

Blocking; Resisted by Will

Lets the caster give the subject one *immediate* command – a word and a gesture, or at most two words – which the subject must obey. If the subject is unable to fulfill the command immediately or on his next turn, the spell has no effect. Some examples:

"Drop it!" – the subject drops whatever he was holding.

"Look!" – the subject looks in the direction the caster indicates.

"Wait!" – the subject takes the Wait maneuver on his next turn.

Cost: 2.
Prerequisites: Magery 2 and Forgetfulness.

Movement Spells

These spells physically manipulate the subject or affect his movement abilities.

Haste

Regular

Increases the subject's Move and Dodge scores by up to 3.

Duration: 1 minute.
Cost: 2 to cast, and 1 to maintain, *per point* added to the subject's Move and Dodge.
Time to cast: 2 seconds.

Hinder

Regular; Resisted by HT

As listed under *Body Control Spells* (p. 244).

Great Haste (VH)

Regular

Speeds the subject up *a lot.* In effect, the subject has one level of Altered Time Rate (p. 38) for the duration of the spell.

Duration: 10 seconds.
Cost: 5. Cannot be maintained; must be recast. At the spell's *end,* the *subject* also loses 5 FP (unless the caster was the subject).
Time to cast: 3 seconds.
Prerequisites: Magery 1, IQ 12+, and Haste.

Apportation

Regular; Resisted by Will

Lets the caster move physical objects without touching them. This spell levitates its subject at Move 1 – not fast enough to do damage with it. Living subjects get to resist with Will.

Duration: 1 minute.
Cost: 1 for an object up to 1 lb. in weight; 2 for an object up to 10 lbs.; 3 for an object up to 50 lbs.; 4 for an object up to 200 lbs.; and 4 for each additional 100 lbs. Cost to maintain is the same.
Prerequisite: Magery 1.

Lockmaster

Regular; Resisted by Magelock

Opens locks magically. A Magelock spell gets a roll to resist Lockmaster. Any modifiers for the difficulty of the lock that would apply Lockpicking skill also affect this spell.

Duration: Once opened, a lock stays open until closed.
Cost: 3. Cannot be maintained.
Time to cast: 10 seconds.
Prerequisites: Magery 2 and Apportation.

Deflect Missile

Blocking

Deflects *one* missile about to hit the subject – including any Missile spell. Counts as a parry for combat purposes. If the caster is not the subject, apply distance modifiers as for a Regular spell. Deflected attacks may still hit a target *beyond* the subject.

Cost: 1.
Prerequisite: Apportation.

Necromantic Spells

These spells deal with death, the dead, and spirits. They affect corpses and spirits of *all* races, unless otherwise noted in a racial description.

Death Vision

Regular

The subject sees a vivid presentiment of his own death. This might be a vision of the future or a false vision from another possible future – but it is always chilling. The subject is mentally stunned until he can make his IQ roll to shake off the effects of the spell. This spell can also be *useful* to the subject, by pointing out a possibly deadly hazard.

Duration: 1 second.
Cost: 2.
Time to cast: 3 seconds.
Prerequisite: Magery 1.

Sense Spirit

Information; Area

Tells the caster if there are any ghosts, spirits, undead, or similar supernatural entities within the area of effect. On a good roll, it gives a general impression of what kind of being is present. Caster may, at the time of casting, limit the spell to a specific type of entity, or exclude a given type.

Base Cost: 1/2.
Prerequisite: Death Vision.

Summon Spirit

Information; Resisted by spirit's Will

Lets the caster talk to the spirit of a dead person. The subject resists at -5 if he was a friend of the caster. If the spell succeeds, the subject will answer one question, to the best of his knowledge as of the time he died, and one more per minute he remains.

If the spell fails, that caster (or ceremonial group) may not summon that spirit again for one year. A critical failure means the caster summoned a malign spirit, who lies deliberately.

Modifiers: -5 if you don't know the subject's full name. -1 if it has been more than a week since the subject's death, -2 if more than a month, -3 if more than a year, -4 if more than 10 years, -5 if more than 50 years, and -6 if more than 500 years.

Duration: 1 minute.
Cost: 20 to cast; 10 to maintain. Halve these costs if the spell is cast at the site of death *or* over the corpse of the person being contacted.
Time to cast: 5 minutes.
Prerequisites: Magery 2 and Death Vision.

Zombie

Regular

The subject of this spell must be a relatively complete dead body. The condition of the corpse determines the result: a fresh body produces a zombie, a skeleton produces an animated skeleton, and an old, dry body produces a walking mummy. The animated corpse becomes an undead servant of the caster. It attributes are based on those of the original body, as are its *physical* advantages and DX-based skills. It does not have the "soul," mental traits, IQ-based skills, or memories of the living person. The GM determines its exact abilities, as appropriate to the campaign.

Duration: The zombie remains animated until destroyed.
Cost: 8, multiplied by 1 + SM for creatures larger than human-sized.
Time to cast: 1 minute.
Prerequisites: Summon Spirit and Lend Vitality.

Turn Zombie

Area

Inflicts 1d of injury on anything in the area that was animated using the Zombie spell; DR does not protect. In addition, roll 1d for each zombie. On a 1, it turns and flees from the caster.

Duration: Successfully turned undead will avoid the caster for one day.
Base Cost: 2. Cannot be maintained; must be recast.
Time to cast: 4 seconds.
Prerequisite: Zombie. (This spell is common among those who have Power Investiture.)

Summon Demon

Special

This is the version of Planar Summons (p. 247) that raises demons; see that spell description for details. If the caster fails to control the demon, it *always* attacks him! If he manages to control the demon and give it a command, the demon carries out the *letter* of its orders, doing its best to pervert their *spirit* to the caster's disfavor. It also works incidental mischief, unless specifically instructed not to.

Duration: Until the demon's task is done, or one hour, whichever is less.
Cost: 1 point per 10 character points used to build the demon. Minimum energy cost is 20 (although this will not always summon a 200-point being). Those tempted to summon powerful demons should bear in mind that such demons tend to have high Will, with all that implies for control . . .
Time to cast: 5 minutes.
Prerequisites: Magery 1 and at least one spell from each of 10 different colleges.

Banish

Special; Resisted by Will

This spell sends an extradimensional visitor (e.g., a demon) back to its plane of origin. It can only be cast if the caster is in his home dimension. In an alien plane, you could not "banish" yourself back home, but a native of that plane could banish you. This spell does not work on a creature that is already in its home dimension.

Resolve the Banish attempt as a Quick Contest: the caster's Banish skill vs. the subject's Will. If the caster wins, the subject immediately returns to its home plane. It cannot return for one month. Anything that it brought with it when it appeared (e.g., weapons) vanishes with it. Other things it may be carrying (e.g., screaming victims) stay behind.

Note that certain powerful creatures are resistant or even immune to this spell.

Modifiers: +4 if the caster knows the entity's "true name"; -5 if the caster does not know the subject's plane of origin . . . and an extra -1 if he *believes* he knows where the creature came from, but is wrong!

Cost: 1 point per 10 character points the subject is worth. Minimum energy cost is 10. The caster does *not* know in advance how much energy the spell will require, and may fall unconscious or even wound himself in casting the Banish.
Time to cast: 5 seconds.
Prerequisites: Magery 1 and at least one spell from each of 10 different colleges.

Protection and Warning Spells

Shield

Regular

Conjures an invisible shield of magical force that moves to protect the subject from *frontal* attacks. The Defense Bonus granted by this spell is cumulative with that from an actual shield, but this spell does *not* allow a subject without a shield to block.

Duration: 1 minute.
Cost: Twice the Defense Bonus given to the subject, to a maximum

DB of 4 (cost 8); half that to maintain.
Prerequisite: Magery 2.

Armor

Regular

Adds to the Damage Resistance of a living subject. DR from this spell is treated for all purposes like DR from armor, and is cumulative with that from actual armor.

Duration: 1 minute.
Cost: Twice the Damage Resistance given to the subject, to a maximum DR of 5 (cost 10); half that to maintain.
Prerequisites: Magery 2 and Shield.

Anyone can learn most spells – although in some worlds, you must be a mage to use the spells you know.

Magelock

Regular; Resists Lockmaster spell

Locks a door magically. The door will not open unless the spell is removed (Counterspell and Lockmaster are both able to counter it) or the door itself is destroyed.

Duration: 6 hours.
Cost: 3 to cast; 2 to maintain.
Time to cast: 4 seconds.
Prerequisite: Magery 1.

Water Spells

These spells deal with the traditional magical "element" of water. Except as noted, none of these spells affect the water in a human body or any other living creature.

Seek Water

Information

This spell lets the caster determine the direction, distance, and general nature of the nearest significant source of water. Use the long-distance modifiers (p. 241). Any known sources of water may be excluded if the caster specifically mentions them before beginning. Requires a forked stick; roll at -3 if this is not available.

Cost: 2.

Purify Water

Special

Lets the caster remove all impurities from water by pouring it through any hoop or ring (or, in a pinch, his own fingers) into a container. Only one skill roll is required, as long as the flow continues.

Duration: Purified water stays pure unless re-contaminated.
Cost: 1 per gallon purified.
Time to cast: Usually 5 to 10 seconds per gallon, unless a large container and ring are used.
Prerequisite: Seek Water.

Create Water

Regular

Lets the caster create pure water out of nothing. This water may appear in any of several forms. It may appear within a container, or as a globe in midair (it falls immediately). Or it may appear as a dense mist of droplets; in this form, one gallon of water extinguishes all fires in a one-yard radius. Water *cannot* be created inside a foe to drown him!

Duration: The created water is permanent.
Cost: 2 per gallon created.
Prerequisite: Purify Water.

Destroy Water

Area

Causes water (in any form) to vanish, leaving a vacuum – or perhaps specks of dry impurities. If more water is all around, it rushes in to fill the hole. Good for drying things out, saving a drowning victim, etc. *Cannot* be used as a "dehydrating" attack on a foe.

Duration: Permanent.
Base Cost: 3. In deep water, the area is only 2 yards in height (or depth).
Prerequisite: Create Water.

Breathe Water

Regular

As listed under *Air Spells* (p. 243).

Shape Water

Regular

Lets the caster sculpt water (including ice or steam) into any form, and even move it about. Once given a shape, the water holds it without further concentration until the spell ends. Water moved with this spell travels at Move 3.

A useful shape is a wall of water to stop fiery attacks. Twenty gallons creates a wall 2 yards high × 1 yard wide. This stops Fireball spells and ordinary fire.

Duration: 1 minute.
Cost: 1 per 20 gallons shaped; same cost to maintain.
Time to cast: 2 seconds.
Prerequisite: Create Water.

Fog

Area

Creates an area of dense fog. Even one yard of fog blocks vision. Flaming weapons and missiles lose their extra power in fog. A Fireball loses 1 point of damage per yard of fog it must traverse (e.g., a 3d Fireball that crosses 5 yards of fog inflicts 3d-5 damage), while victims of an Explosive Fireball may count each yard of fog as *two* yards of distance from the blast. However, no amount of fog can extinguish a fire.

Duration: 1 minute.
Base Cost: 2; half that to maintain.
Prerequisite: Shape Water.

Icy Weapon

Regular

Causes any weapon to become freezing cold. This does not harm the user or the weapon, but an attack with the weapon does +2 damage to most foes *if it penetrates DR.* Multiply this bonus for any Vulnerability (p. 161) to ice or cold. Add this bonus to the *final* injury inflicted by the attack – for instance, an "impaling" icy attack is still only good for +2 damage, not +4.

Duration: 1 minute.
Cost: 3 to cast; 1 to maintain.
Time to cast: 3 seconds.
Prerequisite: Create Water.

Chapter Six
Psionics

The rules in this chapter concern psionic characters in worlds where psi powers are possible. If you are not creating a psi, you can safely ignore this material.

"Psionics" (or "psi powers") are paranormal mental abilities such as telepathy and ESP. They might be mutations or gifts possessed by a rare few individuals; powers common to an entire civilization, race, or other large group; or the result of deliberate experimentation.

The GM decides whether psi exists in his game world – and if so, who can have psionic powers. If psi powers are rare, he is free to require an Unusual Background (p. 96).

Powers, Abilities, and Talents

The six basic psionic *powers* are Antipsi, ESP, Psychic Healing, Psychokinesis (PK), Telepathy, and Teleportation. Other psi powers exist in some settings. Three things define each power:

- A set of advantages that represent different ways the power can manifest.
- A special limitation, called a *power modifier,* which, when applied to any of these advantages, turns it into a *psi ability* within the power.
- A *Talent* that makes it easier to use all the psi abilities within the power.

Glossary of Psi Terminology

antipsi: The power to interfere with other psi powers. Also used to describe a psi who possesses this power.
ESP: Extrasensory perception – the power to see, hear, or know things that the ordinary five senses cannot detect.
esper: A psi who possesses ESP.
latent: Someone who possesses a psi Talent but no actual psi abilities. Psis whose abilities have the Unconscious Only limitation might *appear* to be latent.
PK: Psychokinesis – the power to affect matter with the mind.
psi: The generic term for superhuman mental powers. Also used to describe a person who possesses such powers.
psionic: Of or pertaining to psi powers.
psychic healing: The ability to heal injury and illness with the mind.
screamer: An uncontrolled antipsi. Also called a "jammer."
Talent: An advantage that makes it easier to use all psi abilities of one type.
telepath: A psi who can read or influence the minds of others.
telepathy: The power of mental communication and control.
teleportation: The power to transport objects across space, time, or dimensions instantaneously.

You possess a given power if you have at least one of its psi abilities. You may spend earned points to add new psi abilities within any power you already possess, but you may not buy psi abilities associated with *new* powers without the GM's permission.

If you possess a particular psi power, you may start out with its psionic Talent. You may also spend earned points to add or improve this Talent later on.

You may also start with a Talent and *no* psi abilities. In that case, you are a "latent" – you have potential but no actual power. You may spend earned points to buy psi abilities within the power with which you have Talent.

Finally, you may take psi abilities as potential advantages (see *Potential Advantages,* p. 33), in which case they will function as if they had the limitations Unconscious Only (p. 115) and Uncontrollable (p. 116) until fully paid for.

Power Modifier

All psi abilities have a special limitation called a "power modifier." Each psi power has its own modifier, generally worth -10%. An advantage with a power modifier becomes part of the associated power, and is subject to the restrictions under *Using Psi Abilities* (p. 255). This is a limitation because it converts an ability that would otherwise be impeded only by specific countermeasures into

one that is susceptible to interference from anything that affects the entire power or *all* psi powers.

Psionic Talents

Each power has a psionic Talent; e.g., Telepathy Talent. Talent represents natural or learned ability to control that psi power. You may have Talent without psi abilities (that is, you are a "latent") or psi abilities without Talent (you have raw power, but little flair for directing it).

A Talent gives a bonus to any roll to activate or otherwise use that particular psionic power; e.g., Telepathy Talent 2 would give +2 to use any of your telepathic abilities. This most often modifies IQ, Will, and Perception rolls.

Most Talents cost 5 points/level. You may not buy more than four levels of a given Talent without the GM's permission.

Pside Effects

Like other advantages, psi abilities may have enhancements and limitations (see pp. 101-116). All psi abilities, by definition, have a power modifier. The GM might rule that certain other limitations are intrinsic to the way psi works in his game world, in which case these are mandatory as well. A psi may customize his abilities with additional limitations; Costs Fatigue, Emergencies Only, Nuisance Effect, Unconscious Only, Uncontrollable (especially for children and teenagers!), and Unreliable are common in fiction.

If you want to start with *many* psi abilities, consider taking severe limitations such as Emergencies Only, Unconscious Only, and Unreliable. You can purchase your abilities cheaply, but you can't use them effectively – perhaps you don't even realize you have them! Later in your career, you can buy off these limitations and add Talent to improve your capabilities.

If a psi ability comes in levels, it is legal to buy some levels with limitations and others without, provided all have the power modifier. For instance, you could have Telekinesis 5 with no extra limitations, plus another 20 levels that are Unconscious and Uncontrollable!

You may use earned points to "buy off" any limitation the GM feels practice could negate; e.g., Uncontrollable or Unreliable. You *cannot* buy off a power modifier, though, or any limitation the GM deems fundamental to the way psi functions in his game world.

Gaining New Psi Abilities

You can use earned points to add enhancements to your psi abilities, or to buy higher levels of abilities that come in multiple levels. You can also buy additional Talent with any power you possess. Finally, if you already have a psionic power or Talent, you may buy new abilities *within that power.*

However, like most advantages, psi abilities are inborn. Under normal circumstances, you cannot add abilities in powers you do not possess. The GM might allow you to gain new powers through dangerous superscience experiments, divine intervention, etc.

Using Psi Abilities

A psi ability is an advantage with a modifier. It functions just like the ordinary form of the advantage, with a few exceptions.

Someone with the advantage Resistant to Psionics (see *Resistant,* p. 80) has a bonus to all rolls to resist psi abilities, whether he is the target or merely caught in the area of effect. This advantage has no effect on abilities that do not allow a resistance roll.

The advantages Neutralize (p. 71) and Psi Static (p. 78) can interfere with psi abilities. These traits may be part of the Antipsi power (below) or have other origins.

Other advantages, technology, etc. specifically noted as affecting psionics in general or one power in particular can also impede psi. For instance, technological mind shields that only affect telepathy are common in science-fiction settings.

Psionic Powers

Six sample psi powers appear below. The abilities listed for each are only guidelines. The GM is free to modify these lists, or to permit players to do so themselves.

Antipsi

This is the power of *interfering* with other psi use. Some psychic researchers think unconscious, *uncontrollable* Antipsi might be common . . . which is why psi is rarely noticed. If you have this power, you might not believe in psi, because it won't work near you! Psis tend to shun uncontrolled antipsis (called "jammers" or "screamers").

There is no Antipsi Talent, since most of these abilities work passively.

Antipsi Abilities

The following advantages can be Antipsi abilities: Neutralize (p. 71); Obscure (p. 72) vs. Para-Radar or any psionic Detect; Psi Static (p. 78); and Resistant to Psionics (p. 80).

Power Modifier: None, since Antipsi abilities cannot themselves be blocked!

ESP

Extrasensory perception (ESP) covers a variety of "sixth sense" abilities. These are among the most commonly reported types of psi phenomena.

The GM makes all ESP skill rolls in secret. The better the roll, the more accurate and useful the information he gives. On a failure, the GM says, "You learn nothing." If a Psychometry or Precognition roll fails by more than 5, the GM *lies!*

ESP Talent

5 points/level

You have a natural talent for ESP. You get +1 per level to use any ESP ability. You can use earned points to acquire new ESP abilities, even if you did not start with them.

ESP Abilities

The following advantages can be ESP abilities: Channeling (p. 41); Clairsentience (p. 42); Danger Sense (p. 47); Detect (p. 48), for psis, psionic activity, etc.; Medium (p. 68); Oracle (p. 72); Para-Radar (see *Scanning Sense,* p. 81); Penetrating Vision (p. 74); Precognition (p. 77); Psychometry (p. 78); Racial Memory (p. 78); and See Invisible (p. 83).

Power Modifier: ESP. The advantage is a psi ability within the ESP power. Anything that blocks ESP will block it, but it can benefit from ESP Talent. -10%.

Psionics and Magic

Psi and magic can achieve many of the same effects, such as healing injuries. However, they *are* different. A spell that detects magic cannot reveal a psi effect, nor can a drug that neutralizes psi powers affect a mage. Psi power comes from unique advantages that can be powerful even if used without Talent, while magic is built around learning individual skills (spells).

However, purely physical or mental effects of the two disciplines *can* interact – or even cancel. If a psychokinetic creates a fire, it is like any other fire, and water magic can extinguish it normally. And if a mage casts Mind-Reading (p. 245), a telepathic Mind Shield will resist it.

So Which Is Better?

Magic can produce a more diverse range of effects, at a lower point cost, and the average wizard knows far more spells than the typical psi has advantages. So is magic better? Not exactly. Spellcasting requires energy and time, whereas psi abilities, like other advantages, usually need little or no concentration. Psi powers don't require rituals and are not dependent on mana levels, making a psi effective even if he is bound and gagged, or operating in an area without mana. In the end, both have strengths and weaknesses – and anyone mastering psi *and* magic will be formidable!

*Is magic better than psi? Not exactly. Both have strengths and weaknesses – and anyone mastering psi **and** magic will be formidable!*

Psychic Healing

This is the ability to heal injury and illness, and more generally, to channel "positive" psychic energy to ensure your own or others' wellness. A "faith healer" might have this ability, even if he *believes* he's channeling divine power.

Psychic Healing Talent

5 points/level

You have a natural talent for Psychic Healing. You get +1 per level to use any Psychic Healing ability. You can use earned points to acquire new Psychic Healing abilities, even if you did not start with them.

Psychic Healing Abilities

The following advantages can be Psychic Healing abilities: Detect (p. 48), for disease, poison, etc.; Healing (p. 59); Metabolism Control (p. 68); Regeneration (p. 80); Regrowth (p. 80); and Resistant (p. 80) against most noxious physical effects.

Power Modifier: Psychic Healing. The advantage is a psi ability within the Psychic Healing power. Anything that blocks Psychic Healing will block it, but it can benefit from Psychic Healing Talent. -10%.

Psychokinesis (PK)

This is the power of mind over matter, most often manifesting through *telekinesis:* the ability to move objects with the mind. Many parapsychologists connect PK to poltergeist phenomena, levitation, and fire-raising (*pyrokinesis*). PK is sometimes linked to disturbed children or teenagers, for whom the Uncontrollable limitation is common.

PK Talent

5 points/level

You have a natural talent for PK. You get +1 per level to use any PK ability (this *does* include DX rolls for PK abilities). You can use earned points to acquire new PK abilities, even if you did not start with them.

Examples of Psionic Powers

Danielle is a psychokinetic. She can levitate and create pyrokinetic flame. She buys these PK abilities as Burning Attack 4d (Psychokinetic, -10%) [18] and Flight (Psychokinetic, -10%) [36]. She also has PK Talent 2 [10]. This gives her +2 to hit with her Innate Attack and to rolls to maneuver with her Flight.

Dai Blackthorn is an esper *and* a teleporter, as mentioned in Chapter 1 (see p. 12). His ESP takes the form of Danger Sense (ESP, -10%) [14]. He buys his teleportation as Warp (Psionic Teleportation, -10%; Range Limit, 10 yards, -50%) [40]. He has no Talents . . . yet. But he could use earned points to buy ESP Talent or Teleportation Talent later on.

PK Abilities

The following advantages can be PK abilities: Binding (p. 40); Damage Resistance (p. 46), with the Force Field enhancement; Enhanced Move (Air or Water) (p. 52); Flight (p. 56); Innate Attack (p. 60); Super Jump (p. 89); Telekinesis (p. 92); Temperature Control (p. 92); Vibration Sense (p. 96); Walk on Air (p. 97); and Walk on Liquid (p. 97).

Power Modifier: Psychokinetic. The advantage is a psi ability within the PK power. Anything that blocks PK will block it, but it can benefit from PK Talent. -10%.

Telepathy

Telepathy is the power of mental communication and control. In most settings, it only works on living, sentient beings such as animals or humans. If for some reason you try to use a telepathic ability on a recording, dummy, etc., your attempt automatically fails.

In most accounts of telepathy, range is highly variable. Telepaths might send signals across the world or even across interplanetary space. The emotional connection between sender and receiver is far more important.

Telepathy Talent

5 points/level

You have a natural talent for Telepathy. You get +1 per level to use any Telepathy ability. You can use earned points to acquire new Telepathy abilities, even if you did not start with them.

Telepathy Abilities

The following advantages can be Telepathy abilities: Animal Empathy (p. 40); Empathy (p. 51); Invisibility (p. 63); Mind Control (p. 68); Mind Probe (p. 69); Mind Reading (p. 69); Mind Shield (p. 70); Mindlink (p. 70); Possession (p. 75); Speak with Animals (p. 87); Special Rapport (p. 88); Telesend (see *Telecommunication,* p. 91); and Terror (p. 93).

An Affliction (p. 35) or Innate Attack (p. 61) can also qualify if it has the Malediction enhancement (p. 106) *and* only causes fatigue, stunning, incapacitation, a temporary mental disadvantage, or a DX, IQ, or Will penalty.

Power Modifier: Telepathic. The advantage is a psi ability within the Telepathy power. Anything that blocks Telepathy will block it – in particular Mind Shield – but it can benefit from Telepathy Talent. -10%.

Teleportation

This is the power of mentally moving yourself – or other things – across space, time, or dimensions without traversing the distance between.

Teleportation Talent

5 points/level

You have a natural talent for Teleportation. You get +1 per level to use any Teleportation ability. You can use earned points to acquire new Teleportation abilities, even if you did not start with them.

Teleportation Abilities

The following advantages can be Teleportation abilities: Jumper (p. 64); Snatcher (p. 86); and Warp (p. 97).

Power Modifier: Psionic Teleportation. The advantage is a psi ability within the Teleportation power. Anything that blocks Teleportation will block it, but it can benefit from Teleportation Talent. -10%.

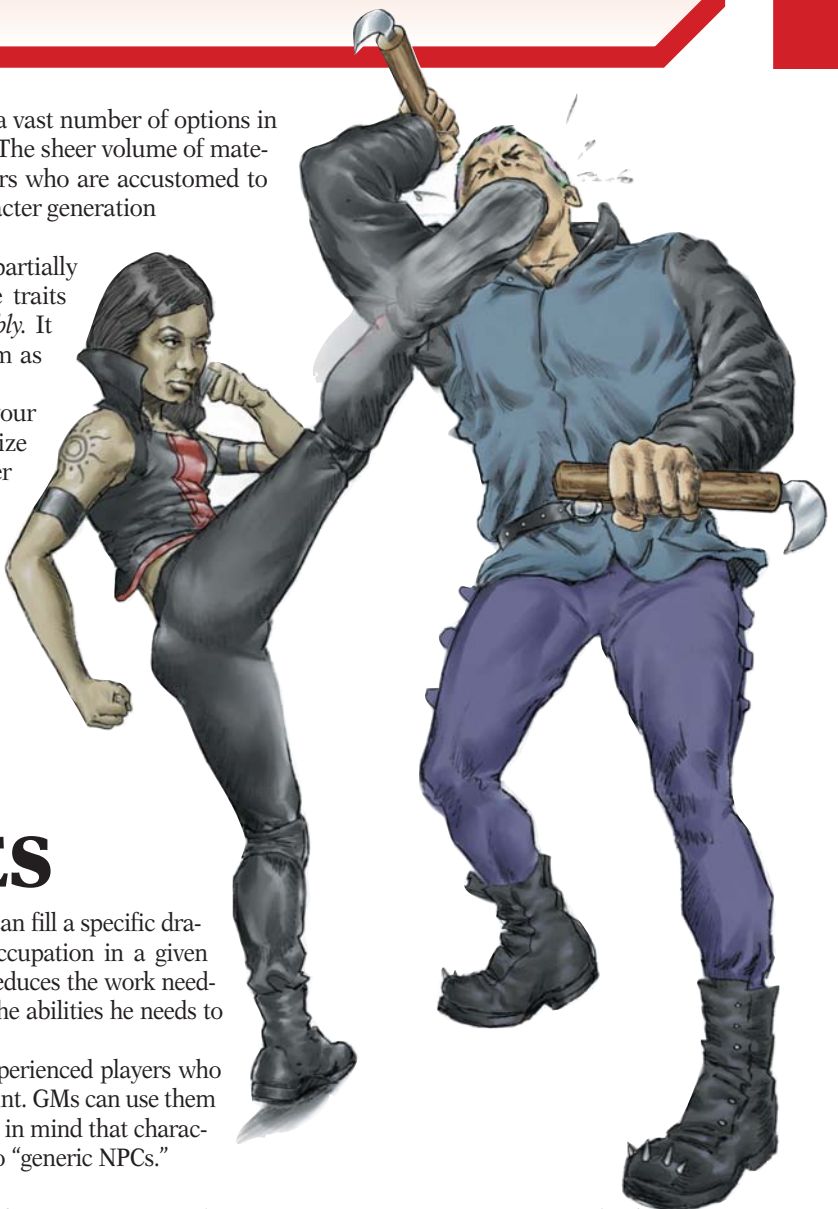
Other Powers

The GM is free to create new psi powers. To do so, simply give the power a name, list the associated advantages, and assign a Talent and a power modifier.

This procedure also works for *non*psionic powers; see *Advantage Origins* (p. 33) for ideas. Talent should cost 5 points/level, except for *very* broad powers. The power modifier depends on the rarity of countermeasures against the power. If they are common, the modifier is -10% if they include variants of Neutralize and Psi Static that can defeat the power, or -5% otherwise. If they are rare, there is *no* modifier. And if they are *nonexistent,* the Cosmic enhancement (p. 103) applies.

Example: Comic-book supers often possess powers that encompass attacks (e.g., Binding or Innate Attack), defenses (e.g., Damage Resistance or Resistant), movement powers (e.g., Flight or Permeation), and special senses (e.g., Detect or Scanning Sense) associated with a specific force or element. Each is blocked by an "opposite" power (for instance, Ice Powers can block Flame Powers). And *all* super powers are susceptible to variant forms of Neutralize and Psi Static.

Chapter Seven
Templates



The character-creation rules are simple, but offer a vast number of options in order to give players all the choices they could want. The sheer volume of material might overwhelm new players – especially gamers who are accustomed to RPGs that offer less flexibility. One way to make character generation less daunting is to use "templates."

A template is a "quick start" technique. It is a partially completed character sheet that contains only those traits required for a character to fill a certain role *believably*. It lists the point costs of those traits, and gives the sum as the template's "cost."

When you select a template, pay its cost out of your starting points. Use your remaining points to customize the template by buying traits specific to the character concept you have in mind. You can customize further by choosing personal disadvantages and quirks . . . which will in turn give you a few more points you can spend on abilities that define who *you* are.

There are two main types of templates: *character templates* and *racial templates*.

Character Templates

A "character template" is a blueprint for a PC who can fill a specific dramatic role or function competently at a particular occupation in a given game world. By specifying many traits in advance, it reduces the work needed to create the character *and* guarantees that he has the abilities he needs to play his part.

Character templates aren't just for new players! Experienced players who are pressed for time may find them a useful starting point. GMs can use them to determine the abilities of NPCs, too, but should bear in mind that character templates are intended for heroic PCs as opposed to "generic NPCs."

How to Use Character Templates

First, buy the template by spending points equal to its cost. Do this *instead* of buying individual attributes, secondary characteristics, advantages, disadvantages, skills, etc.

Next, select any options detailed in the template. Many templates give you a number of choices from subsets of advantages, disadvantages, or skills. Some also let you increase or decrease attributes and secondary characteristics (if so, these options appear with the advantages and disadvantages).

After you have finished selecting the template's options, customize it by spending your remaining character points. The template does not affect how you spend these points! *You* decide this – subject to GM approval, of course.

If the template has fewer disadvantages than the campaign permits (see *Disadvantage Limit*, p. 11), you may take more, up to the limit. This gives you extra points to spend. The same goes for quirks, which you should *always* select yourself.

You also need to determine your character's build, and details such as age and hair and eye color. Assume your tech level is that of the campaign unless otherwise indicated.

Altering Character Templates

Character templates are not rules! When customizing a template, you are free to alter anything that came with it. After all, a hero plays a leading role

in his saga, and starring roles are rarely typical ones. You can add, subtract, or substitute abilities – but be aware that *subtracting* items from an occupational template might result in someone who is regarded as incompetent by his peers.

Combining Character Templates

You may wish to select more than one template, especially if the GM designs many for the campaign (see Chapter 15). For instance, you might want to take separate templates that define your job, membership in one or more organizations, ethnic origin, *and* place in the story. But since most templates assume you are taking just the one template, "stacking" them can be a problem. The guidelines below attempt to solve this.

When you combine templates, choose the *highest* level of each attribute and secondary characteristic from among the templates. Combine the advantage, disadvantage, and skill lists of all the templates, and take all *required* traits. If multiple templates require a leveled trait, such as a skill, meet the *most difficult* requirement – do not take repeated traits at higher levels (e.g., a Status 2 knight who is also a Status 1 merchant is Status 2, not Status 3). Add the point costs of all these requirements and pay it. If you have points remaining, consider customizing your character by choosing neglected options from the templates.

If you encounter *conflicting* advantages and disadvantages, they do not simply cancel out! This is a sign that the templates are incompatible, and that you should not take both. For instance, in most settings, it would be illogical to combine a Status -3 beggar template and Status 2 knight template to create a Status 2 beggar-knight.

Are Character Templates "Character Classes"?

No.

Many RPGs employ "character classes," which superficially resemble character templates in ***GURPS,*** but there are several important differences. For one thing, you don't *have* to choose a template. And if you do choose one, this does not limit your options: you're free to customize the template, and you can spend earned points to improve your character in any way you wish.

Even in a campaign where many templates are available, you are free to create your character from whole cloth – and many experienced players will wish to do so. This is fine, because templates don't contain hidden penalties or drawbacks and aren't specially priced package deals. Characters built on templates are 100% compatible with those created by hand, and the two can mix freely in a campaign.

Sample Character Templates

Below are three sample templates for use in a wide variety of settings, from medieval fantasy to modern day. They assume a 100- to 150-point campaign. Note that skills appear in the following format: ***Skill Name*** *(Difficulty)* Relative Level **[Point Cost]**-Actual Level. For instance, "First Aid (E) IQ [1]-11."

Investigator

100 points

You are a detective, investigative reporter, occult investigator, spy, or thief.

Attributes: ST 10 [0]; DX 12 [40]; IQ 12 [40]; HT 11 [10].

Secondary Characteristics: Dmg 1d-2/1d; BL 20 lbs.; HP 11 [2]; Will 12 [0]; Per 13 [5]; FP 11 [0]; Basic Speed 5.75 [0]; Basic Move 5 [0].

Advantages: 15 points chosen from among Alternate Identity [5 or 15], Charisma 1-3 [5-15], Contacts [Varies], Cultural Familiarity [1 per culture], Danger Sense [15], Gizmos 1-3 [5-15], Languages (any) [2-6 per language], Legal Enforcement Powers [5-15], Luck [15], Rapid Healing [5], Security Clearance [5-15], Smooth Operator 1 [15], Zeroed [10], +1 to +3 to Per [5-15], and Appearance (Attractive) [4] or (Handsome) [12].

Disadvantages: -30 points chosen from among Alcoholism [-15], Curious [-5*], Duty [-2 to -15], Greed [-15*], Honesty [-10*], Pacifism [-5 to -15], Secret [-5 to -30], Sense of Duty (Comrades) [-5], Stubbornness [-5], Wealth (Struggling) [-10], Workaholic [-5], and -1 to ST [-10].

Primary Skills: Select *three* skills from: Climbing, Filch, or Stealth, all (A) DX+1 [4]-13; Criminology, Disguise, Electronics Operation (any), Holdout, Interrogation, Lockpicking, Occultism, Photography, Research, Shadowing, Smuggling, Traps, or Writing, all (A) IQ+1 [4]-13; Observation or Search, both (A) Per+1 [4]-14; Pickpocket (H) DX [4]-12; Computer Programming, Diagnosis, Expert Skill (any), Forensics, Intelligence Analysis, or Law (any), all (H) IQ [4]-12; Detect Lies (H) Per [4]-13; or Computer Hacking (VH) IQ-1 [4]-11. You may opt to trade one choice for *two* extra secondary or background skills.

Uniqueness

You might think that two characters built on the same template would be rather alike. In practice, though, players rarely pick the same options on a given template, and almost always make different purchases with their remaining points. These choices, being the players' own, color how the characters are played, which in turn keeps them distinct, even though they share a template.

Secondary Skills: Select *two* skills from: Beam Weapons (Pistol or Rifle), Brawling, Crossbow, Forced Entry, Garrote, Guns (Pistol, Rifle, or Shotgun), Knife, or Thrown Weapon (any), all (E) DX+1 [2]-13; Boxing, Cloak, Rapier, or Shortsword, all (A) DX [2]-12; Acting or Fast-Talk, both (A) IQ [2]-12; Sex Appeal (A) HT [2]-11; or Acrobatics, Judo, or Karate, all (H) DX-1 [2]-11.

Background Skills: Select *one* skill from: Area Knowledge (any), Computer Operation, or Current Affairs (any), all (E) IQ+1 [2]-13; Carousing or Swimming, both (E) HT+1 [2]-12; Boating (any), Driving (any), Piloting (any), or Riding (any), all (A) DX [2]-12; Streetwise (A) IQ [2]-12; or Hiking or Running, both (A) HT [2]-11.

* Multiplied for self-control number; see p. 120.

Mage

100 points

You're a sorcerer, a wizard, a witch, an adept of the black arts . . .

Attributes: ST 9 [-10]; DX 11 [20]; IQ 13 [60]; HT 11 [10].

Secondary Characteristics: Dmg 1d-2/1d-1; BL 16 lbs.; HP 10 [2]; Will 13 [0]; Per 10 [-15]; FP 13 [6]; Basic Speed 5.50 [0]; Basic Move 5 [0].

Advantages: Language (Accented) [4]; Magery 2 [25]; and *one* of Eidetic Memory [5]; Reputation +1 [5], Single-Minded [5], Status 1 [5], Versatile [5], or +1 to Will [5].

Disadvantages: -30 points chosen from among Absent-Mindedness [-15], Bad Sight (Mitigator: Glasses, -60%) [-10], Bad Temper [-10*], Curious [-5*], Duty [-2 to -15], Gluttony [-5*], Obsession [-5* or -10*], Secret [-5 to -30], Sense of Duty [-2 to -15], and Shyness [-5, -10, or -20].

Primary Skills: Select *two* spells, each (H) IQ+2 [4]-15† or (VH) IQ+1 [4]-14†. Select 10 more spells, each (H) IQ [1]-13† or (VH) IQ-1 [1]-12†. See Chapter 5 for spell list.

Secondary Skills: Select *two* skills from: Hidden Lore (any), Occultism, or Research, all (A) IQ [2]-13; Expert Skill (any), Mathematics (any), Naturalist, or Theology (any), all (H) IQ-1 [2]-12; Dreaming or Meditation, both (H) Will-1 [2]-12; or Alchemy or Thaumatology, both (VH) IQ-2 [2]-11.

Background Skills: Select *one* skill from: Guns (Pistol or Shotgun) or Knife, both (E) DX [1]-11; Computer Operation (E) IQ [1]-13; or Driving (any), Riding (any), Shortsword, or Staff, all (A) DX-1 [1]-10.

* Multiplied for self-control number; see p. 120.

† Includes +2 for Magery.

Note: Choose your 12 spells from pp. 242-253. Be sure to give each spell the proper prerequisite. You can modify template cost and your skill with spells by taking a higher or lower level of Magery, or by applying a limitation such as Dark-Aspected.

Soldier of Fortune

100 points

You're a warrior. You could be a soldier, pirate, knight-errant, gunslinger, street fighter, or guerrilla.

Attributes: ST 11 [10]; DX 13 [60]; IQ 11 [20]; HT 11 [10].

Secondary Characteristics: Dmg 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 11 [0]; Per 11 [0]; FP 11 [0]; Basic Speed 6.00 [0]; Basic Move 6 [0].

Advantages: 20 points chosen from among Ambidexterity [5], Charisma 1-4 [5-20], Combat Reflexes [15], Fit or Very Fit [5 or 15], High Pain Threshold [10], Luck [15], Magic Resistance 1-10 [2-20], Outdoorsman 1 [10], Rank 1-4 [5-20], Rapid Healing [5], Reputation [varies], Status 1-4 [5-20], Wealth (Comfortable) [10], +1 to ST or HT [10], +1 to +4 to HP [2-8], and +1 to +4 to Per [5-20].

Disadvantages: -35 points chosen from among Alcoholism [-15], Bad Temper [-10*], Bloodlust [-10*], Code of Honor [-5 to -15], Compulsive Carousing or Spending [-5*], Duty [-2 to -15], Fanaticism [-15], Flashbacks (Mild) [-5], Honesty [-10*], Impulsiveness [-10*], Lecherousness [-15*], Overconfidence [-5*], Sense of Duty (Comrades) [-5], and Trademark (Simple) [-5].

Primary Skills: Select *two* skills from: Beam Weapons (any), Crossbow, or Guns (any), all (E) DX+2 [4]-15; Axe/Mace, Bow, Broadsword, Lance, Rapier, or Spear, all (A) DX+1 [4]-14; Karate (H) DX [4]-13; or Tactics (H) IQ [4]-11.

Secondary Skills: Select *one* skill from: Brawling, Fast-Draw (any), Gunner (any), Knife, or Shield (any), all (E) DX+1 [2]-14; or Artillery (any) or Forward Observer, both (A) IQ [2]-11. Select *one* skill from: Crewman (any) (E) IQ+1 [2]-12; Driving (any), Environment Suit (any), Piloting (any), Riding (any), all (A) DX [2]-13; Hiking (A) HT [2]-11; or Acrobatics (H) DX-1 [2]-12.

Background Skills: First Aid (E) IQ [1]-11. Select *two* skills from: Camouflage or Savoir-Faire (any), both (E) IQ [1]-11; Carousing or Swimming, both (E) HT [1]-11; Free Fall or Stealth, both (A) DX-1 [1]-12; Electronics Operation (Comm or Sensors), Explosives (any), or Leadership, all (A) IQ-1 [1]-10; or Observation, Survival (any), Tracking, or Urban Survival, all (A) Per-1 [1]-10.

* Multiplied for self-control number; see p. 120.

Racial Templates

In many game worlds, you can play a character that does not belong to the human race. These rules define a "race" as a single, distinct nonhuman species; *or* one specific type of supernatural being (which might be a ghost, vampire, or other undead, regardless of its species in life); *or* a particular variety of artificial construct (e.g., a given model of robot).

A "racial template" is a collection of traits that apply to *every* member of a race. These traits might define the race's physiology, its psychology, its supernatural powers (if any), and even its dominant culture (at least for a sapient race).

How to Use Racial Templates

When you play a member of a nonhuman race, you must normally take all the traits in its racial template.

Unlike the traits in a character template, racial traits are rarely optional. The sum of the point costs of these traits is the race's "racial cost." You must pay this cost to belong to the race. Racial templates express deviations from the human norm; therefore, it costs 0 points to play a human.

Some templates are too expensive for PCs in low-powered campaigns, but the GM may still use them for powerful villains or patrons. The GM might wish to produce weaker versions of such templates for PCs (e.g., a vampire that lacks some of the powers given in legend), but he is also free to reserve such templates for NPCs.

Guidelines for creating racial templates appear in Chapter 15. These are intended for GMs, but the GM might allow players to create their own racial templates in campaigns that feature a vast array of nonhumans – especially supers games, where lone aliens with amazing powers are common. Many ***GURPS*** books also feature racial templates.

Attribute and Secondary Characteristic Modifiers

Racial templates often have attribute or secondary characteristic *modifiers;* e.g., ST+2 or HP-3. Apply attribute modifiers to the attributes you purchase for your character. Next, recalculate your secondary characteristics to reflect your modified attributes. Finally, apply secondary characteristic modifiers. There is no added point cost for any of this! You paid for these bonuses or penalties when you paid your racial cost.

If an attribute or secondary characteristic does not appear in the racial template, assume it is unchanged from the human norm.

Example: Sangria spends 10 points to buy ST 11. This gives her HP 11, and she spends another 4 points to get HP 13. She then buys the Vampire template (p. 262). This template includes ST+6, giving Sangria ST 17. This ST improvement raises her HP to 19. Since the template gives HP+4 as well, she ends up with HP 23! The racial ST and HP bonuses have no extra cost – Sangria paid for these when she purchased her racial template.

Features and Taboo Traits

A "feature" is a note on how the race differs from humanity when that difference does not grant an advantage or a disadvantage. Features cost 0 points. Examples of features include sterility and an ordinary tail.

A "taboo trait" is an attribute level, advantage, disadvantage, or skill that is off-limits to members of the race. This, too, is worth 0 points. Normally, only mundane traits are labeled "taboo," as exotic or supernatural traits require the GM's permission in any case.

Stacking Templates

You can buy both a racial template and a character template, if you have enough points. Use the guidelines given under *Combining Character Templates* (p. 259), but bear in mind that while you can discard elements of character templates, you cannot do the same with racial traits.

You might even be able to stack two *racial* templates in some situations. For instance, an Elf might also be a Vampire. Keep all compatible traits from both templates. Add traits that come in levels (e.g., if an Elf has ST-1 and a Vampire has ST+6, a Vampire Elf has ST+5). Where two traits conflict (e.g., Acute Vision and Blindness), the GM decides which to keep and which to discard. Adjust the combined template cost appropriately.

Sample Racial Templates

Below are four examples of racial templates.

Dragon

260 points

A winged, fire-breathing "lizard," as smart as a man, and around 20 feet long excluding its tail. It can be good or evil, but it always lusts for treasure. This is a young dragon, but still a fierce foe for a group of adventurers. It might even be suitable as a PC in a high-powered game. Some dragons are reputed to have other abilities, including Alternate Form (Human) (p. 83), Indomitable (p. 60), Terror (p. 93), Unaging (p. 95), and Unfazeable (p. 95).

Attribute Modifiers: ST+15 (Size, -20%) [120].

Secondary Characteristic Modifiers: SM +2; Will+3 [15]; Per+3 [15].

Advantages: Burning Attack 4d (Cone, 5 yards, +100%; Limited Use, 3/day, -20%; Reduced Range, ×1/5, -20%) [32]; Claws (Talons) [8]; Discriminatory Smell [15]; DR 6 (Can't Wear Armor, -40%) [18]; Enhanced Move 1/2 (Air) [10]; Extra Attack [25]; Extra Legs (Four Legs) [5]; Flight (Winged, -25%) [30]; Longevity [2]; Magery 0 [5]; Night Vision 8 [8]; Striker (Tail; Crushing) [5]; Teeth (Fangs) [2].

Disadvantages: Bad Grip 3 [-15]; Gluttony (12) [-5]; Greed (12) [-15]; Horizontal [-10]; Miserliness (12) [-10].

Dwarf

35 points

Dwarves might be only 2/3 as tall as humans, but they are much longer-lived, with a nose for gold and a flair for all forms of craftsmanship. Dwarves often live in underground halls, and their eyes are adapted to dim light. Many dwarves have Greed or Miserliness, but these are *not* racial traits.

Attribute Modifiers: HT+1 [10].

Secondary Characteristic Modifiers: SM -1; Will+1 [5].

Advantages: Artificer 1 [10]; Detect Gold (Vague, -50%) [3]; Extended Lifespan 1 [2]; Night Vision 5 [5].

Felinoid

35 points

"Cat people" often appear in science fiction, fantasy, and horror settings. This is a typical felinoid: humanoid, but with a number of catlike features, including a tail. This could also be the "were-form" of a human with the Alternate Form advantage (p. 83).

Attribute Modifiers: ST-1 [-10]; DX+1 [20].

Advantages: Acute Hearing 2 [4]; Acute Taste and Smell 1 [2]; Catfall [10]; Claws (Sharp) [5]; Combat Reflexes [15]; DR 1 [5]; Teeth (Sharp) [1]; Temperature Tolerance 1 [1].

Disadvantages: Impulsiveness (12) [-10]; Sleepy (1/2 of the time) [-8].

Features: Purring Voice; Tail.

Vampire

150 points

This is a "Bram Stoker"-style vampire. It possesses some, but not all, of the powers and weaknesses that fiction ascribes to bloodsucking undead. Notably, horror-movie vampires often have Supernatural Durability *instead* of Unkillable (increases cost by 100 points).

Attribute Modifiers: ST+6 [60].

Secondary Characteristic Modifiers: HP+4 [8]; Per+3 [15].

Advantages: Alternate Forms (Bat, Wolf) [30]; Doesn't Breathe [20]; Dominance [20]; Immunity to Metabolic Hazards [30]; Injury Tolerance (Unliving) [20]; Insubstantiality (Costs Fatigue, 2 FP, -10%) [72]; Night Vision 5 [5]; Speak With Animals (Wolves and bats, -60%) [10]; Unaging [15]; Unkillable 2 (Achilles' Heel: Wood, -50%) [50]; Vampiric Bite [30].

Disadvantages: Dependency (Coffin with soil of homeland; Daily) [-60]; Divine Curse (Cannot enter dwelling for first time unless invited) [-10]; Draining (Human Blood; Illegal) [-10]; Dread (Garlic) [-10]; Dread (Religious Symbols; 5 yards) [-14]; Dread (Running Water) [-20]; Supernatural Features (No Body Heat*, No Reflection, Pallor*) [-16]; Uncontrollable Appetite (12) (Human Blood) [-15]; Unhealing (Partial) [-20]; Weakness (Sunlight; 1d/minute) [-60].

Features: Sterile.

* Except after feeding.

Omitting Racial Traits

If you have a good explanation, the GM may permit you to omit a racial trait. If the missing trait has a positive point value, you have a disadvantage that exactly cancels its cost; e.g., omitting racial Combat Reflexes gives "No Combat Reflexes [-15]." Such disadvantages *do* count against campaign disadvantage limits. If the missing trait has a negative point value, you have an advantage worth just enough to negate it; e.g., omitting racial Paranoia [-10] results in "No Paranoia [10]." You can apply enhancements and limitations to either kind of "replacement trait."

Meta-Traits

A "meta-trait" is a collection of traits that are typical of a particular mental, physical, or supernatural state. In game terms, it functions much like a regular advantage or disadvantage. A meta-trait can be part of a racial template or bought by an individual with exotic abilities. Record a meta-trait *instead* of its components on templates and character sheets.

With GM approval, you may modify elements of a meta-trait, altering its cost; e.g., to be able to carry things when you have Body of Air (see below), reduce the ST penalty and the corresponding HP bonus, and delete No Manipulators.

Elemental Meta-Traits

Variable

Your body is wholly composed of a particular substance. This is an entire category of meta-traits, one for each class of substance ("element").

The main use for these meta-traits is to create "elemental" creatures. Those who can switch into and out of elemental form – a common super-ability – should buy Alternate Form (p. 83) and take the relevant meta-trait as their alternate racial template.

Body of Air: Your body is made of gas. ST 0 [-100]; +10 HP [20]; Doesn't Breathe [20]; Flight (Lighter Than Air, -10%) [36]; Immunity to Metabolic Hazards [30]; Injury Tolerance (Diffuse) [100]; No Legs (Aerial) [0]; No Manipulators [-50]; Vulnerability (Vacuum and wind-based attacks ×2) [-20]; and Taboo Trait (Fixed ST) [0]. *36 points.*

Body of Earth: Your body is made of sand or earth. Doesn't Breathe [20]; DR 2 [10]; Immunity to Metabolic Hazards [30]; Injury Tolerance (Diffuse) [100]; Pressure Support 3 [15]; Sealed [15]; Vacuum Support [5]; and Invertebrate [-20]. *175 points.*

Body of Fire: Your body is a living flame! If your flames are very hot, increase Burning Attack and DR. ST 0 [-100]; +10 HP [20]; Burning Attack 1d (Always On, -40%; Aura, +80%; Melee Attack, Reach C, -30%) [6]; Doesn't Breathe (Oxygen Combustion, -50%) [10]; DR 10 (Limited: Heat/Fire, -40%) [30]; Immunity to Metabolic Hazards [30]; Injury Tolerance (Diffuse) [100]; No Manipulators [-50]; Weakness (Water; 1d/minute) [-40]; and Taboo Trait (Fixed ST) [0]. *6 points.*

Body of Ice: Your body is made of ice. Doesn't Breathe [20]; DR 3 [15]; Immunity to Metabolic Hazards [30]; Injury Tolerance (Homogenous, No Blood) [45]; Pressure Support 3 [15]; Sealed [15]; Slippery 3 [6]; Terrain Adaptation (Ice) [5]; Vacuum Support [5]; Fragile (Brittle) [-15]; Vulnerability (Heat/fire attacks ×2) [-30]; and Weakness (Intense normal heat; 1d/minute; Variable, -40%) [-12]. *99 points.*

Body of Metal: Your body is made of metal. Doesn't Breathe [20]; DR 9 [45]; Immunity to Metabolic Hazards [30]; Injury Tolerance (Homogenous, No Blood) [45]; Pressure Support 3 [15]; Sealed [15]; and Vacuum Support [5]. *175 points.*

Body of Stone: Your body is made of rock. Doesn't Breathe [20]; DR 5 [25]; Immunity to Metabolic Hazards [30]; Injury Tolerance (Homogenous, No Blood) [45]; Pressure Support 3 [15]; Sealed [15]; Vacuum Support [5]; and Fragile (Brittle) [-15]. *140 points.*

Body of Water: Your body is made of liquid. Amphibious [10]; Chameleon 1 [5]; Constriction Attack [15]; Doesn't

Breathe [20]; Immunity to Metabolic Hazards [30]; Injury Tolerance (Diffuse) [100]; Pressure Support 3 [15]; Slippery 5 [10]; Invertebrate [-20]; and Vulnerability (Dehydration attacks ×2) [-10]. *175 points.*

Machine

25 points

Your body is mostly or completely mechanical, composed of non-living materials such as metal, plastic, and composites – although you might have a few organic parts, such as an outer layer of skin or a brain. Examples include robots, vehicles, and full cyborgs.

This meta-trait includes Immunity to Metabolic Hazards [30], Injury Tolerance (No Blood, Unliving) [25], Unhealing (Total) [-30], and several 0-point features:

- You have an eight-hour energy reserve and need refueling three times a day. You can modify this with appropriate advantages (e.g., Doesn't Eat or Drink, for a reactor that can run for years) or disadvantages (e.g., Increased Consumption, for a "gas-guzzler" engine).
- You neither have nor can spend Fatigue Points; see *Machines and Fatigue* (p. 16).
- Your body does not age. Instead, it wears out, with effects similar to aging.

Note that your Unhealing disadvantage means that the only way for you to regain lost HP is through repairs with Mechanic or Electronics Repair skill (as appropriate).

Several traits *not* included above are common among machines, notably the advantages Digital Mind, Doesn't Breathe, Pressure Support, Sealed, and Vacuum Support, and the disadvantages Electrical, Fragile, Maintenance, Numb, Restricted Diet, and Social Stigma (Valuable Property).

Mentality Meta-Traits

Variable

These traits represent common types of nonhuman intelligence:

AI: A computer mind. Absolute Timing [2]; Digital Mind [5]; Doesn't Sleep [20]; Intuitive Mathematician [5]; Photographic Memory [10]; and Reprogrammable [-10]. *32 points.*

Automaton: A mind lacking self-awareness and creativity. This is typical of many hive-creatures, magical constructs, undead, and simple AIs. You *can* combine this with the AI meta-trait. Hidebound [-5]; Incurious (6) [-10]; Low Empathy [-20]; No Sense of Humor [-10]; and Slave Mentality [-40]. *-85 points*.

A "meta-trait" is a collection of traits that are typical of a particular mental, physical, or supernatural state; e.g., "machine," "spirit," or "quadruped."

Domestic Animal: A farm animal, pet, mount, or a trained wild animal. Cannot Speak [-15]; Hidebound [-5]; Social Stigma (Valuable Property) [-10]; and Taboo Trait (Fixed IQ) [0]. *-30 points.*

Wild Animal: An ordinary animal found in nature. Bestial [-10]; Cannot Speak [-15]; Hidebound [-5]; and Taboo Trait (Fixed IQ) [0]. *-30 points.*

Morphology Meta-Traits

Variable

These meta-traits describe some nonhumanoid body configurations that might appear on the racial templates of animals, robots, etc. Feel free to create meta-traits for other body layouts, using these examples as guidelines.

Ground Vehicle: Your body is like a car, tank, etc. Horizontal [-10]; No Legs (Tracked or Wheeled) [-20]; No Manipulators [-50]; and Numb [-20]. *-100 points.*

Ichthyoid: You have a fish-like body (a "merman" would just delete No Manipulators). No Legs (Aquatic) [0] and No Manipulators [-50]. *-50 points.*

Quadruped: You are a four-legged creature with no arms (a "centauroid" would simply take Extra Legs – plus Hooves, if equine). Extra Legs (Four Legs) [5]; Horizontal [-10]; and No Fine Manipulators [-30]. *-35 points.*

Vermiform. Your body is similar to that of a snake or a worm (a snake-man with a humanoid upper torso would drop No Manipulators). Double-Jointed [15]; No Legs (Slithers) [0]; and No Manipulators [-50]. *-35 points.*

Spirit

261 points

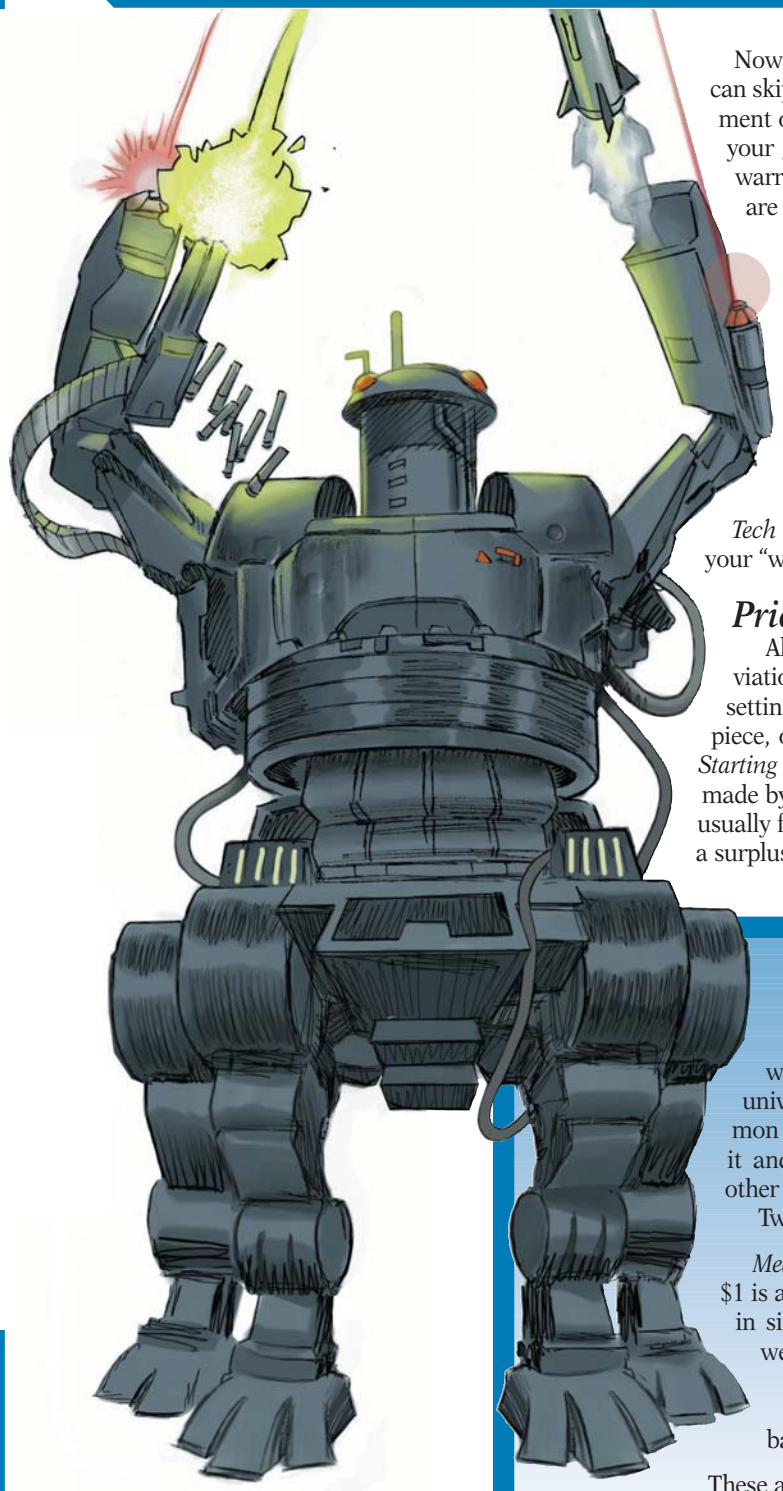
You are a noncorporeal entity: ghost, being of pure thought, etc. You are invisible and intangible (except to others with this meta-trait!). You can temporarily become visible, or even solid, but this is draining. However, your senses can perceive the material world at all times, and your magical or psionic abilities, if any, can *always* affect the physical world.

Spirit includes Doesn't Breathe [20], Doesn't Eat or Drink [10], Doesn't Sleep [20], Immunity to Metabolic Hazards [30], Insubstantiality (Affect Substantial, +100%; Usually On, -40%) [128], Invisibility (Substantial Only, -10%; Usually On, +5%) [38], and Unaging [15].

Many spirit abilities from folklore are not part of this meta-trait; e.g., Injury Tolerance (Homogenous or Diffuse), Magery, and almost any ESP, PK, Telepathy, or Teleportation psi ability (see Chapter 6). Common spirit disadvantages include Compulsive Behavior, Dependency, Divine Curse, Dread, Maintenance, Obsession, and Weakness.

Astral Entity: An astral entity is a spirit that cannot materialize, become visible, or use its supernatural powers in the physical world. Doesn't Breathe [20]; Doesn't Eat or Drink [10]; Doesn't Sleep [20]; Immunity to Metabolic Hazards [30]; Insubstantiality (Always On, -50%) [40]; Invisibility (Substantial Only, -10%) [36]; and Unaging [15]. *171 points.*

Chapter Eight
Equipment



Now it's time to decide what possessions you have! You can skip this step if you're Dead Broke or plan to buy equipment only as needed . . . but otherwise, you should choose your gear and figure out how much it costs. If you are a warrior, you need to know how powerful your weapons are and how well your armor protects you. And if you plan to fight *or* travel, you need to determine the weight of your gear, and specify how you are carrying it.

Starting Wealth

The amount of money you have available to spend on equipment at the start of your career is your "starting wealth" – see *Starting Wealth* (p. 26). To calculate this, start with the basic amount appropriate to your campaign's tech level, found under *Tech Level and Starting Wealth* (p. 27), and multiply it for your "wealth level" (see *Wealth,* p. 25).

Prices

All prices in ***GURPS*** appear in "$": a convenient abbreviation for any baseline unit of currency suitable to the setting. One $ may be one dollar, one credit, one copper piece, or whatever else is appropriate – see *Tech Level and Starting Wealth.* Prices in this chapter assume a typical sale made by an ordinary merchant, in a locale where the item is usually found, at a time when there is neither a shortage nor a surplus.

Money

The currency in use depends on the game world; see *Economics* (p. 514). Coin is almost universal. Paper money is conceivable at TL3, common by TL5, and ubiquitous at TL6. Electronic credit and debit cards supplement or possibly replace other currency at TL8.

Two specific examples:

Medieval Coinage: The default assumption is that $1 is a copper farthing, $4 is a silver coin, and $1,000 in silver weighs 1 pound. Gold coins of the same weight are worth about 20 times as much.

Modern Money: The default assumption is that $1 is a bank note (or alloy coin), its value backed by a government or private bank.

These assumptions may vary from world to world.

Cost of Living

Your monthly "cost of living" is an average of your *typical* expenses for one month. It covers food, housing, clothing, and entertainment . . . and, at Status 1 or higher, *servants,* if this is customary in your society.

Your cost of living depends on your Status (p. 28). The *Cost of Living Table* (below) gives a "generic" cost of living for each Status level; you must normally pay this at the beginning of each month. However, the GM is free to vary both the amount of money involved and the payment scheme; for instance, he could ask for half at the start of the month and half in the middle.

In most game worlds, you may opt to pay the cost of living for a Status level *higher* or *lower* than your own (but never more than Status 8 or less than Status -2). This affects how NPCs react to you, and may have other effects as well.

Living *below* your Status saves you money, but has negative repercussions. Depending on the level you drop to, these might include unpaid servants quitting, threats from your landlord, malnutrition, eviction, or anything else the GM feels appropriate. The GM may also reduce your effective Status to the level you're supporting in any situation where your reduced circumstances would cause a negative reaction; e.g., at a "society" function or when meeting strangers who do not recognize your face.

Living *above* your Status costs more, but gives you a more comfortable lifestyle. It *might* even let you pose as someone of higher Status – although the GM is free to require a Savoir-Faire (High Society) skill roll as well. But be aware that claiming more Status than you actually possess can lead to a reaction penalty! Actually *living* above your Status can earn you a bad Reputation – or even qualify as an Odious Personal Habit.

If you get Status free from Rank (p. 29), you need only pay the cost of living for your Status *before* this bonus, not for your final Status level. Someone else – your organization, the taxpayers, etc. – covers the difference.

Example: A person from a good family (Status 1) who becomes president of a sizable country (Status 7) does not need to pay $60 million per month to support the associated lifestyle: personal jet liner, multiple mansions, security service, etc. He pays only the $1,200 per month for Status 1; the *state* pays the difference. Someone who just wanted to live in a presidential style would have to pay the full amount *himself!*

Cost of Living Table

Status	Examples	Cost of Living
8	Emperor, god-king, overlord	$600,000,000
7	King, pope, president	$60,000,000
6	Royal family, governor	$6,000,000
5	Great noble, multinational corporate boss	$600,000
4	Lesser noble, congressional representative, Who's Who	$60,000
3	Landed knight, guild master, big city mayor	$12,000
2	Landless knight, mayor, business leader	$3,000
1	Squire, merchant, priest, doctor, councilor	$1,200
0	Freeman, apprentice, ordinary citizen	$600
-1	Bondsman, poor citizen	$300
-2	Serf, street person	$100

If you're on vacation or traveling for most of a month, your expenses will be higher – usually about six times your cost of living, unless you have a Claim to Hospitality (p. 41).

Inns, Hotels, and Other Temporary Accommodations

When living away from home, you must pay a *daily* cost of living equal to 20% of your usual monthly cost of living – but if you wish, you can live at *one* level below your Status without meaningful repercussions. The quality of your accommodations depends on Status. In the modern world, Status -1 means a dingy flophouse; Status 0, a typical hotel or motel; Status 1, a good hotel; Status 2, a luxury hotel suite; and Status 3 and higher, a swanky resort.

You can also use this price tag as a guideline for how much it costs to entertain guests at the Status to which they're accustomed, and as a rough guide to suitable bribes.

"There's a lot of statues in Europe you haven't bought yet."

"You can't blame me. They've been making statues for some two thousand years, and I've only been collecting for five."

– Bernstein and Kane, ***Citizen Kane***

Food

Cost of living assumes that you buy groceries and that you, your family, or your staff prepares your meals at home – or that if you *always* eat out, it's at places one level below your Status. When you eat out or purchase travel rations, use these guidelines. Treat Status greater than 3 as Status 3, except in unusual cases.

Restaurant: 1% of cost of living for breakfast or lunch, or 2% for dinner, based on the Status of the restaurant's typical patron.

Travel Rations: 5% of cost of living for one week. Weighs 14 lbs.

Liquor: 1% of cost of living per bottle.

Clothing

You start with a full wardrobe appropriate to your Status – you need not purchase this separately. Cost of living covers normal wear and tear and gradual replacements, but if you *suddenly* need to replace your clothing, use the rules below.

Use full Status to figure the cost of a complete wardrobe. High-Status individuals own *more* clothes, and the crown jewels of Status 7 and 8 rulers are worth tens or hundreds of millions all by themselves! When buying *just one outfit,* though, treat Status greater than 3 as Status 3. *Exception:* Men's clothing becomes more conservative on TL5 and higher Earth, allowing most men to treat Status 2 and up as Status 2 when they buy one outfit. Men at Status 3 and up with Fashion Sense must still pay the full Status 3 cost in order to benefit from it.

Complete Wardrobe: Includes one to four sets of ordinary clothes, plus nightclothes, one set each of formal wear and winter clothes, and usually at least one outfit (lab coat, uniform, gym clothes, etc.) appropriate to your job or hobbies. 100% of cost of living; 20+ lbs.

Ordinary Clothes: One complete outfit, ranging in quality from castoff rags to designer fashions, depending on Status. At minimum: undergarments, plus a tunic, blouse, or shirt with hose, skirt, or trousers – or a *long* tunic, robe, or dress – and suitable footwear. 20% of cost of living; 2 lbs.

Winter Clothes: As above, but heavier. Includes a hat or hood, boots, and (at TL6 or less) furs. 30% of cost of living; 4 lbs.

Formal Wear: Your "best outfit," which will usually include at least some accessories (hat, gloves, etc.) or jewelry. 40% of cost of living; 2 lbs.

Cosmetics: Natural or synthetic beauty aids. For one month's supply: 10% of cost of living; 2 lbs.

What Cost of Living Gets You: A Modern Example

Your lifestyle will depend *greatly* on the campaign tech level. At TL3, Status 7 means you will live like a medieval king: a couple of castles or palaces, lands, and plenty of servants. At TL12, Status 7 is unimaginable . . . you probably have your own private *planetoid!*

Here's a modern (TL8) example of how housing and transportation would reflect Status:

Status 8: An estate the size of a small country, multiple palatial mansions, an entire private *airline,* a yacht the size of an ocean liner, and an *army* of guards.

Status 7: A palatial mansion, multiple rural estates or retreats, a private jumbo jet, a large yacht, a fleet of vehicles, and an entire agency of security guards.

Status 6: A huge mansion on an estate, a couple of more modest residences, a private jet, a yacht, a fleet of vehicles, and hundreds of functionaries (including a platoon of bodyguards).

Status 5: A large mansion on an estate, one or two smaller townhouses, an executive jet, a yacht, a small fleet of cars, and dozens of functionaries (often including a team of bodyguards).

Status 4: A mid-sized mansion, several other properties, a yacht *or* private light aircraft, a limousine, a few luxury cars, and many servants (often including at least one bodyguard).

Status 3: A small mansion, a few other properties, a small yacht, a number of luxury cars or other vehicles, and a handful of servants.

Status 2: A large house with grounds, one or two other properties, a couple of expensive cars, a few other vehicles, and a housekeeper.

Status 1: A comfortable house or condominium, a nice new car or a couple of older ones, and perhaps a boat or other recreational vehicle.

Status 0: A house (heavily mortgaged) or large apartment, and a car.

Status -1: A small or shared apartment, or a decaying or derelict house in a bad neighborhood, and possibly a used (or stolen!) car.

Status -2: A room in a flophouse or shelter . . . or a patch of sidewalk.

Buying Equipment

You are usually able to buy what you want, within the limits of your starting wealth and your society's laws. But sometimes, the GM or the adventure may specify some or all of your equipment. For instance, if you're a soldier on a military mission, you'll be *issued* your gear; you don't have to pay for it, but you can't choose it yourself. If the adventure calls for it, the GM might impose more severe restrictions – your choices will be extremely limited if you are supposed to be a castaway on an uninhabited island! The GM is the final judge of what you can buy in all cases.

However you acquire your equipment, you should list it on your character sheet. If you accumulate a *lot* of gear, consider keeping it on a separate sheet. In all cases, you should list possessions you leave at home separately from those you carry in order to keep track of encumbrance (see *Encumbrance and Move,* p. 17).

Equipment Lists

Each game world has one or more equipment lists that give cost, weight, and other statistics for important items. You *can* buy items that aren't on

Legality Class

Some equipment has a "Legality Class" (LC). LC rates how likely an item is to be legally or socially acceptable to own and carry. The availability of a given item in a particular society depends on the interaction between the item's LC and the society's "Control Rating"; see *Control Rating and Legality Class* (p. 507).

An item has a LC only if it is likely to be controlled. Ordinary clothing and tools normally do not require a LC. Of course, every society will have exceptions; for instance, revealing clothing might be LC4 in a puritanical society.

LC4 – *Open.* The item is openly available in most societies, but tightly controlled societies might restrict access or use. *Examples:* Computer; sword; shotgun; motor scooter.

LC3 – *Licensed.* The item requires registration with the authorities in most societies. Registration might involve a fee or examination, and might be denied to criminals, minors, etc. *Examples:* Automobile; handgun; hunting rifle.

LC2 – *Restricted.* Only military, police, or intelligence agencies may possess the item in most societies – although some licensed civilians might be permitted to keep it *on their own property. Examples:* Assault rifle; armored vehicles.

LC1 – *Military.* The item is available only to armed forces or secret spy agencies in most societies. *Examples:* Anti-tank weapons; fighting vehicles.

LC0 – *Banned.* The item is restricted to the armed forces of certain governments, who will go to extremes to keep it out of the hands of individuals and "have-not" governments. *Examples:* nuclear and biological weapons.

the list, provided the GM agrees; the GM sets the price. The GM should be open-minded! In high-tech settings, especially, *hundreds* of common items are unlikely to be listed . . . items you could go into any department store and pick up. If somebody really wants a vegetable dicer or a talking baby doll, let him buy one.

This chapter includes lists of weapons, armor, and general equipment for campaigns at a variety of tech levels. You are welcome to make copies of these tables for your own use.

Tech Level

Each item of equipment has a tech level (see p. 22). This is the *earliest* TL at which you can find the item as described. Many items will remain in use, with few or no changes, at later TLs. The notation "^" means the item requires "superscience" that rewrites the laws of physics; required TL is up to the GM.

God made man, but Colonel Colt made men equal.

Weapons

Adventurers often carry weapons of some sort, whether it's a knight's broadsword, a detective's snub-nosed .38, or a space pirate's blaster pistol.

Choosing Your Weapons

To determine what weapons to carry, consider your situation first, and *then* your skills, strength, and budget. If you can't use it or don't need it . . . don't buy it.

First, decide *why* you carry a weapon. Is it for self-defense, intimidation ("Stop or I'll shoot!"), battle, or hunting? Do you need a concealed weapon – or a quiet one – or does law or custom let you carry it openly? If you're a pacifist, do you want a weapon just as a threat, or one that you can use to disarm or subdue a foe?

Consider what the law allows, too. Most settings have laws or customs that govern the weapons and armor you may wear on the street or on the job without attracting attention (see *Legality Class,* box). This applies in historical settings as well. A stranger visiting the average medieval village wearing a suit of plate armor would be every bit as conspicuous – and threatening – as a person carrying an assault rifle into a corner grocery store today!

Also review your skills and Strength. High-tech weapons (such as guns) work equally well for anyone who knows how to use them. Low-tech weapons – clubs, swords, etc. – do much more damage if wielded by a strong person. Either may have a minimum ST.

Finally, look at the weapon's statistics. Each weapon is rated for its TL, weight, cost, and relative legality. A weapon's damage rating is the basic measure of its effectiveness, but there are also factors such as reach, range, rate of fire, and accuracy to consider. To learn what the various statistics imply for combat, read Chapters 11-13.

This section contains information to help you make the choices discussed above. If you are a *total* nonfighter, you can skim or skip this material!

Weapon Statistics

Weapon tables provide the items of information explained below. A given column will only appear on a table if it is germane to the weapons on that table. In *all* cases, "–" means the statistic does not apply, "var." means the value varies, and "spec." means to see the relevant weapon skill in Chapter 4 or applicable section of Chapter 13 for special rules.

Glossary of Arms and Armor

The following terms and abbreviations appear on the various weapon tables.

8G, 10G, 12G: The *gauge* of a shotgun – the number of lead balls of its bore size that weigh one pound. Thus, 10G shot is *larger* than 12G shot.
ATGM: Anti-Tank Guided Missile. An anti-vehicular missile steered to its target by the firer.
auto: A term that designates a *semi*-automatic firearm.
blaster: A particle-beam weapon.
cartridge rifle: A breech-loading, single-shot rifle.
coif: A hood, usually made of mail.
electrolaser: A weapon that transmits an electrical charge to its target along a path ionized by a low-powered laser beam.
Gauss: Jargon for any electromagnetic gun.
GL: Grenade Launcher.
glaive: A staff tipped with a heavy blade.
gyroc: A spin-stabilized ("gyrostabilized") rocket.
HMG: Heavy Machine Gun.
ICW: Infantry Combat Weapon. A rifle with an integral grenade launcher.
katana: A long, slightly curved sword used by Japanese samurai.
laminated steel plate: Japanese samurai armor.
LMG: Light Machine Gun.
lorica segmentata: Roman legionary armor.
morningstar: A flail consisting of a metal ball attached to a haft with a chain.
musket: A single-shot, *smoothbore,* muzzle-loading long gun.
naginata: A staff tipped with a lightweight blade.
nunchaku: A flail consisting of a pair of short clubs joined by a chain.
PDW: Personal Defense Weapon. A pistol- to SMG-sized automatic weapon that fires powerful ammunition, intended as an emergency weapon for vehicle crews.
prodd: A crossbow that fires lead or stone pellets.
rifle-musket: A single-shot, *rifled,* muzzle-loading long gun.
RPG: Rocket-Propelled Grenade.
SAM: Surface to Air Missile (e.g., Stinger).
SAW: Squad Automatic Weapon. A kind of light machine gun.
scorpion: A bolt-throwing engine that resembles a giant crossbow.
shuriken: A throwing star. Purportedly used by ninjas.
SMG: Submachine Gun.
sollerets: Metal-plated shoes.

TL (Tech Level)

The tech level at which the weapon first becomes widespread. You may only buy weapons of your campaign's TL *or less,* unless you have the High TL trait (p. 23).

Weapon

The general class of weapon in question; e.g., "shortsword" or "assault rifle." Each entry represents a wide range of individual types.

For guns, this entry includes a projectile diameter, or "caliber," given in millimeters (e.g., 9mm) or fractions of an inch (e.g., .50), as customary for the weapon. The letters M (Magnum), P (Pistol), R (Revolver), and S (Short) appear after caliber in situations where different guns have the same caliber but fire different ammunition; for instance, 7.62mm ammo is not interchangeable with shorter 7.62mmS ammo.

Damage

For muscle-powered melee and missile weapons, such as swords and bows, damage is ST-based and expressed as a modifier to the wielder's basic thrusting (thr) or swinging (sw) damage, as given on the *Damage Table* (p. 16). For example, a spear does "thr+2," so if you have ST 11, which gives a basic thrusting damage of 1d-1, you inflict 1d+1 damage with a spear. Note that swung weapons act as a lever, and so do more damage.

For firearms, grenades, and some powered melee weapons, damage is given as a fixed number of dice plus adds; e.g., a 9mm auto pistol lists "2d+2," which means that *any* user would roll 2d and add 2 to get damage.

Armor Divisors: A parenthetical number after damage – e.g., (2) – is an *armor divisor.* Divide the target's DR from armor or other sources by this number before subtracting it from your damage (or adding it to the target's HT roll to resist an affliction). For instance, an attack with a divisor of (2) would halve DR. A fractional divisor *increases* DR: (0.5) multiplies DR by 2; (0.2) multiplies it by 5; and (0.1) multiplies it by 10.

Damage Type: An abbreviation indicating the *type* of injury or effect the attack causes.

Optional Rule: Modifying Dice + Adds

Accumulated modifiers will sometimes give large damage adds; e.g., 2d+5. In this case, the GM may rule that any +4 becomes 1d and any +7 becomes 2d. For instance, an attack of 2d+5 would be equivalent to 3d+1. If a modifier is given "per die of damage," apply it per die of *basic* thrusting or swinging damage, *before* you convert adds to dice.

This gives more realistic results, but requires an extra step when filling out character sheets, etc.

Abbreviation	*Damage Type*
aff	affliction
burn	burning
cor	corrosion
cr	crushing
cut	cutting
fat	fatigue
imp	impaling
pi-	small piercing
pi	piercing
pi+	large piercing
pi++	huge piercing
spec.	special – see weapon notes
tox	toxic

A victim loses HP equal to the damage that penetrates his DR. Halve this for small piercing attacks; increase it by 50% for cutting and large piercing attacks; and double it for impaling and huge piercing attacks. Subtract fatigue damage from FP instead of HP. Afflictions cause no injury, but impose a particular affliction on a failed HT roll, as specified in the weapon's notes. See *Damage and Injury* (p. 377) for additional rules.

Explosions: An "ex" after crushing or burning damage indicates the attack produces an explosion. This may injure those nearby: divide damage by *three times* distance in yards from the center of the blast. Some explosions scatter fragments that inflict cutting damage on anyone nearby (see *Fragmentation Damage,* p. 414). Fragmentation damage appears in brackets; e.g., "3d [2d] cr ex" means an explosion that inflicts 3d crushing damage and throws fragments that do 2d cutting damage. The "danger radius" for fragments is five yards times the dice of fragmentation damage; e.g., 10 yards for [2d]. If an explosive attack has an armor divisor, this only applies to the DR of a target that takes a direct hit – not to those caught in the blast radius or hit by fragments.

Afflictions: Some special weapons don't list dice of damage. Instead, they give a HT modifier; e.g., "HT-3." Anyone who is hit must attempt a HT roll at the listed penalty to avoid the effects of the affliction (e.g., unconsciousness). For example, a stun gun calls for a HT-3 roll to avoid being stunned for (20 - HT) seconds. Note that DR (modified by any armor divisor) normally adds to the victim's HT; for instance, a DR 2 leather jacket would give +2 to your HT roll to resist that stun gun.

Other Effects: A few weapons have additional *linked* or *follow-up* effects, noted on a second line. These occur simultaneously with the primary attack on a successful hit. For details, see *Linked Effects* (p. 381) and *Follow-Up Damage* (p. 381).

Reach

Melee weapons only. This is the distance in yards at which a human-sized or smaller wielder can strike with the weapon. For example, reach "2" means the weapon can only strike a foe two yards away – not a closer or more distant one.

"C" indicates you can use the weapon in close combat; see *Close Combat* (p. 391).

Some weapons have a continuum of reaches; e.g., a spear with reach "1, 2" can strike targets either one *or* two yards away. An asterisk (*) next to reach means the weapon is awkward enough that it requires a Ready maneuver to change reach (e.g., between 1 and 2). Otherwise, you can strike at foes that are at any distance within the weapon's reach.

Parry

Melee weapons only. A number, such as "+2" or "-1," indicates the bonus or penalty to your Parry defense when using that weapon (see *Parrying,* p. 376). For most weapons, this is "0," meaning "no modifier."

"F" means the weapon is a *fencing weapon* (see p. 404).

"U" means the weapon is *unbalanced:* you cannot use it to parry if you have already used it to attack this turn (or vice versa).

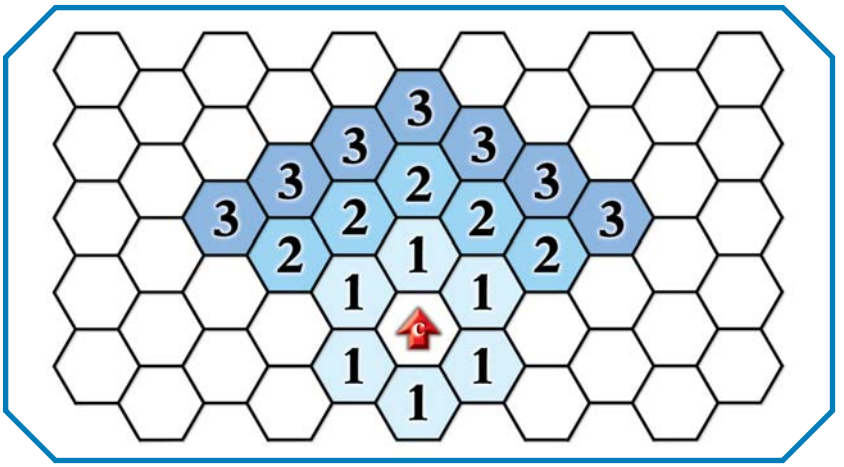
"No" means the weapon *cannot parry at all.*

Acc (Accuracy)

Ranged weapons only. Add Accuracy to your skill if you took an Aim maneuver on the turn prior to your attack. If the weapon has a built-in scope, the bonus for this appears as a separate modifier after the weapon's base Acc; e.g., "7+2."

Range

Ranged weapons only. If a weapon has only one range number, this is the



Maximum Range (Max) in yards at which it can attack a target. If two numbers appear, separated by a slash, the first is *Half-Damage Range* (1/2D) and the second is Max. Damaging attacks on targets at or beyond 1/2D inflict half damage, and those that require a HT roll to resist are resisted at +3.

Muscle-powered weapons usually list 1/2D and Max as multiples of the wielder's ST, not as a fixed range. For example, "×10/×15" means 1/2D is 10×ST and Max is 15×ST, so someone with ST 10 would have 1/2D 100 and Max 150. For bows, crossbows and mechanical artillery, use the *weapon's* ST in these formulas.

A few weapons have a *minimum* range, given in their Notes. The weapon cannot attack a target *closer* than this range – usually because it fires in a high arc, or has safety, fusing, or guidance limitations.

RoF (Rate of Fire)

Ranged weapons only. The maximum number of shots an ordinary shooter can fire in a one-second turn. A weapon can normally fire fewer shots (to a minimum of 1), if you wish, but some special notes apply:

"!" means the weapon can *only* fire on "full auto," like many machine guns. *Minimum* RoF is 1/4 the listed RoF, rounded up.

"*m*×*n*" (e.g., 3×9) means the weapon can fire a number of shots per attack equal to the first number (*m*), and that each shot releases smaller projectiles equal to the second number (*n*); see *Shotguns and Multiple Projectiles* (p. 409).

"Jet" means the weapon shoots a continuous stream of fluid or energy, using the jet rules (p. 106).

Shots

Ranged weapons only. The number of shots the weapon can fire before you must reload or recharge it. "T" means the weapon is *thrown*. To "reload," pick it up or ready a new weapon!

The parenthetical number following Shots indicates the number of one-second Ready maneuvers needed to reload *all* of the weapon's shots (e.g., by changing magazines) – or, for a thrown weapon, the time needed to ready another weapon. An "i" next to this means you must load shots individually: the time listed is *per shot* rather than for all shots.

A crossbow or prodd takes the indicated time to ready (4 turns) only if its ST is no greater than yours (see *Crossbows and ST*, below). *Double* this if the bow's ST is 1 or 2 greater. If its ST is 3 or 4 greater, you need a "goat's foot" device to cock it; this takes 20 turns, and requires you to stand. If its ST is 5 or more above yours, you cannot reload it at all.

Cost

The price of a new weapon, in $. For swords and knives, this includes a sheath or a scabbard. For firearms, this includes the minimal necessary cleaning kit.

Weight

The weight of the weapon, in pounds; "neg." means "negligible." For missile weapons with Shots 2+, this is *loaded* weight. The weight of one full reload appears after a slash.

Exception: If the weapon has Shots 1 (like a bow or guided missile launcher) *or* has a backpack power supply (noted with a "p"), the *unloaded* weight is given. The weight after the slash is that of one shot (e.g., one arrow or guided missile) or the backpack.

ST (Strength)

The minimum Strength required to use the weapon properly. If you try to use a weapon that requires more ST than you have, you will be at -1 to weapon skill per point of ST you lack *and* lose one extra FP at the end of any fight that lasts long enough to fatigue you.

For a melee weapon, your effective ST for damage purposes cannot exceed *triple* the weapon's minimum ST. For instance, a large knife has minimum ST 6, so its "maximum ST" is 18; if your ST were 19+, you would compute your damage as if you had ST 18.

Natural weapons (e.g., a punch or kick) have neither minimum nor maximum ST.

"†" means the weapon requires two hands. If you have at least 1.5 times the listed ST (round *up*), you can use a weapon like this in one hand, but it becomes *unready* after you attack with it. If you have at least *twice* the listed ST, you can wield it one-handed with no readiness penalty. But if it requires one hand to hold it and another to operate a moving part, like a bow or a pump shotgun, it *always* requires two hands, regardless of ST.

"‡" means the weapon requires two hands *and* becomes unready after you attack with it, unless you have at least 1.5 times the listed ST (round *up*). To use it in one hand without it becoming unready, you need at least *three times* the listed ST.

"R" indicates a firearm that uses a musket rest. The weapon's weight *includes* that of the rest. It takes a Ready maneuver to balance the weapon on the rest – but after that, any aimed shot fired while stationary and standing up is automatically braced (see *Aim,* p. 364).

"B" indicates a firearm with an attached bipod. When firing from a prone position using the bipod, treat the weapon as if it were braced *and* reduce its ST requirement to 2/3 of the listed value (round *up*); e.g., ST 13 becomes ST 9.

"M" means the weapon is usually mounted in a vehicle or gun carriage, or on a tripod. *Ignore* the listed ST and Bulk when firing the weapon from its tripod or mount; the ST requirement only applies when firing the weapon *without* its mount. Removing the weapon from its mount (or reattaching it) takes at least three one-second Ready maneuvers.

Crossbows and ST: Bows, crossbows, and prodds have their *own* ST value. Use this instead of your ST to determine range and damage. You must specify the ST of such a weapon when you buy it. You can always use a weapon that is *weaker* than you. You can use a stronger crossbow or prodd; it does more damage but take longer to cock (see *Shots*, above). You cannot use a stronger bow.

Bulk

Ranged weapons only. A measure of the weapon's size and handiness. Bulk modifies your weapon skill when you take a Move and Attack maneuver (see *Move and Attack,* p. 365). It also serves as a penalty to Holdout skill when you attempt to conceal the weapon.

Rcl (Recoil)

Firearms only. A measure of how easy the weapon is to control when firing rapidly: the higher the value, the less controllable the weapon. Rcl 1 means the weapon is recoilless, or nearly so.

When firing at RoF 2+, every *full* multiple of Rcl by which you make your attack roll means you score one extra hit, to a maximum number of hits equal to total shots fired; see *Rapid Fire* (p. 373). (Firearms with RoF 1 still list Rcl, for use with certain rules.)

LC (Legality Class)

This is only noted for firearms and grenades. All melee weapons and muscle-powered ranged weapons intended for combat are LC4. An exception is the force sword, which is LC2. *Ignore* LC for "weapons" intended as tools, or for hunting or recreation, and for those that are completely improvised (like a wooden stake). See *Legality Class* (p. 267).

Notes

The numbers listed here refer to applicable footnotes (if any) at the end of the table.

Melee Weapons

Melee weapons are grouped under the skills required to use them. Skill names appear in capital letters, with defaults in parentheses; e.g., "**AXE/MACE (DX-5, Flail-4, or Two-Handed Axe/Mace-3)**." If there is more than one way to use a weapon, each method gets its own line. If multiple skills let you use a weapon, the weapon appears under each skill. For example, both Staff skill and Two-Handed Sword skill let you wield a quarterstaff – and either lets you swing the staff or thrust with it.

Melee Weapon Table

AXE/MACE (DX-5, Flail-4, or Two-Handed Axe/Mace-3)

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
0	Axe	sw+2 cut	1	0U	$50	4	11	
0	Hatchet	sw cut	1	0	$40	2	8	[1]
0	Throwing Axe	sw+2 cut	1	0U	$60	4	11	[1]
2	Mace	sw+3 cr	1	0U	$50	5	12	[1]
2	Small Mace	sw+2 cr	1	0U	$35	3	10	[1]
3	Pick	sw+1 imp	1	0U	$70	3	10	[2]

BOXING, BRAWLING, KARATE, or DX

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
–	Punch	thr-1 cr	C	0	–	–	–	[3]
1	Brass Knuckles	thr cr	C	0	$10	0.25	–	[3]

BRAWLING-2, KARATE-2, or DX-2

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
–	Kick	thr cr	C, 1	No	–	–	–	[3, 4]
–	Kick w. Boots	thr+1 cr	C, 1	No	–	–	–	[3, 4]

BRAWLING or DX

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
–	Blunt Teeth	thr-1 cr	C	No	–	–	–	[3]
–	Fangs	thr-1 imp	C	No	–	–	–	[3]
–	Sharp Beak	thr-1 pi+	C	No	–	–	–	[3]
–	Sharp Teeth	thr-1 cut	C	No	–	–	–	[3]
–	Striker	var.	var.	var.	–	–	–	See p. 88.
1	Blackjack or Sap	thr cr	C	0	$20	1	7	[3]
8	Stun Gun	HT-3(0.5) aff	C, 1	No	$100	1	2	[5]

BROADSWORD (DX-5, Force Sword-4, Rapier-4, Saber-4, Shortsword-2, or Two-Handed Sword-4)

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
0	Light Club	sw+1 cr	1	0	$5	3	10	
	or	thr+1 cr	1	0	–	–	10	
2	Broadsword	sw+1 cut	1	0	$500	3	10	
	or	thr+1 cr	1	0	–	–	10	
2	Thrusting Broadsword	sw+1 cut	1	0	$600	3	10	
	or	thr+2 imp	1	0	–	–	10	
3	Bastard Sword	sw+1 cut	1, 2	0U	$650	5	11	
	or	thr+1 cr	2	0U	–	–	11	
3	Katana	sw+1 cut	1, 2	0	$650	5	11	
	or	thr+1 imp	1	0	–	–	11	
3	Thrusting Bastard Sword	sw+1 cut	1, 2	0U	$750	5	11	
	or	thr+2 imp	2	0U	–	–	11	
4	Cavalry Saber	sw+1 cut	1	0	$500	3	10	
	or	thr+1 imp	1	0	–	–	10	

FLAIL (DX-6, Axe/Mace-4, or Two-Handed Flail-3)

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
3	Morningstar	sw+3 cr	1	0U	$80	6	12	[6]
3	Nunchaku	sw+1 cr	1	0U	$20	2	7	[6]

FORCE SWORD (DX-5 or any sword skill at -3)

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
^	Force Sword	8d(5) burn	1, 2	0	$10,000	2	3	[7]

GARROTE (DX-4)

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
0	Garrote	spec.	C	No	$2	neg.	–	[8]

KNIFE (DX-4, Force Sword-3, Main-Gauche-3, or Shortsword-3)

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
0	Large Knife	sw-2 cut	C, 1	-1	$40	1	6	
	or	thr imp	C	-1	–	–	6	[1]
0	Small Knife	sw-3 cut	C, 1	-1	$30	0.5	5	
	or	thr-1 imp	C	-1	–	–	5	[1]
0	Wooden Stake	thr(0.5) imp	C	-1	$4	0.5	5	[1]
1	Dagger	thr-1 imp	C	-1	$20	0.25	5	[1]

KUSARI (DX-6, Monowire Whip-3, Two-Handed Flail-4, or Whip-3)

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
3	Kusari	sw+2 cr	1-4*	-2U	$70	5	11	[6]

LANCE (DX-5 or Spear-3)

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
2	Lance	thr+3 imp	4	No	$60	6	12	[9]

MONOWIRE WHIP (DX-6, Kusari-3, or Whip-3)

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
^	Monowire Whip	sw+1d-2(10) cut	1-7*	-2U	$900	0.5	5	

POLEARM (DX-5, Spear-4, Staff-4, or Two-Handed Axe/Mace-4)

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
1	Glaive	sw+3 cut	2, 3*	0U	$100	8	11‡	
	or	thr+3 imp	1-3*	0U	–	–	11†	
2	Naginata	sw+2 cut	1, 2*	0U	$100	6	9†	
	or	thr+3 imp	2	0	–	–	9†	
3	Halberd	sw+5 cut	2, 3*	0U	$150	12	13‡	
	or	sw+4 imp	2, 3*	0U	–	–	13‡	[2]
	or	thr+3 imp	1-3*	0U	–	–	12†	
3	Poleaxe	sw+4 cut	2, 3*	0U	$120	10	12‡	
	or	sw+4 cr	2, 3*	0U	–	–	12‡	

RAPIER (DX-5, Broadsword-4, Main-Gauche-3, Saber-3, or Smallsword-3)

TL	Weapon	Damage	Reach	Parry	Cost	Weight	ST	Notes
4	Rapier	thr+1 imp	1, 2	0F	$500	2.75	9	

SABER (DX-5, Broadsword-4, Main-Gauche-3, Rapier-3, Shortsword-4, or Smallsword-3)

TL	Weapon	Damage	Reach	Parry	Cost	Weight	ST	Notes
4	Saber	sw-1 cut	1	0F	$700	2	8	
	or	thr+1 imp	1	0F	–	–	8	

SHIELD (DX-4)

TL	Weapon	Damage	Reach	Parry	Cost	Weight	ST	Notes
0	Shield Bash	thr cr	1	No	var.	var.	–	
1	Shield Bash w. Spike	thr+1 cr	1	No	+$20	+5	–	

SHORTSWORD (DX-5, Broadsword-2, Force Sword-4, Jitte/Sai-3, Knife-4, Saber-4, Smallsword-4, or Tonfa-3)

TL	Weapon	Damage	Reach	Parry	Cost	Weight	ST	Notes
0	Baton	sw cr	1	0	$20	1	6	
	or	thr cr	1	0	–	–	6	
2	Shortsword	sw cut	1	0	$400	2	8	
	or	thr imp	1	0	–	–	8	
4	Cutlass	sw cut	1	0	$300	2	8	[10]
	or	thr imp	1	0	–	–	8	
7	Cattle Prod	1d-3 burn	1	0	$50	2	3	
	linked	HT-3(0.5) aff	–	–	–	–	–	[5]

SMALLSWORD (DX-5, Main-Gauche-3, Rapier-3, Saber-3, or Shortsword-4)

TL	Weapon	Damage	Reach	Parry	Cost	Weight	ST	Notes
0	Short Staff	sw cr	1	0F	$20	1	6	
	or	thr cr	1	0F	–	–	6	
4	Smallsword	thr+1 imp	1	0F	$400	1.5	5	

SPEAR (DX-5, Polearm-4, or Staff-2)

TL	Weapon	Damage	Reach	Parry	Cost	Weight	ST	Notes
0	Spear	thr+2 imp	1*	0	$40	4	9	[1]
	two hands	thr+3 imp	1, 2*	0	–	–	9†	
1	Javelin	thr+1 imp	1	0	$30	2	6	[1]
2	Long Spear	thr+2 imp	2, 3*	0U	$60	5	10	
	two hands	thr+3 imp	2, 3*	0	–	–	10†	

STAFF (DX-5, Polearm-4, or Spear-2)

TL	Weapon	Damage	Reach	Parry	Cost	Weight	ST	Notes
0	Quarterstaff	sw+2 cr	1, 2	+2	$10	4	7†	
	or	thr+2 cr	1, 2	+2	–	–	7†	
2	Naginata	sw+2 cr	1, 2	0U	$100	6	9†	Blunt end.
	or	thr+2 cr	1, 2	0	–	–	9†	

TWO-HANDED AXE/MACE (DX-5, Axe/Mace-3, Polearm-4, or Two-Handed Flail-4)

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
0	Maul	sw+4 cr	1, 2*	0U	$80	12	13‡	
1	Great Axe	sw+3 cut	1, 2*	0U	$100	8	12‡	
1	Scythe	sw+2 cut	1	0U	$15	5	11‡	
	or	sw imp	1	0U	–	–	11‡	[2]
3	Warhammer	sw+3 imp	1, 2*	0U	$100	7	12‡	[2]
6	Chainsaw	sw+1d cut	1	No	$150	13	10‡	[11]

TWO-HANDED FLAIL (DX-6, Flail-3, Kusari-4, or Two-Handed Axe/Mace-4)

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
2	Flail	sw+4 cr	1, 2*	0U	$100	8	13†	[6]

TWO-HANDED SWORD (DX-5, Broadsword-4, or Force Sword-4)

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
0	Quarterstaff	sw+2 cr	1, 2	0	$10	4	9†	
	or	thr+1 cr	2	0	–	–	9†	
2	Naginata	sw+3 cut	2	0U	$100	6	9†	
	or	thr+3 imp	2	0	–	–	9†	
3	Bastard Sword	sw+2 cut	1, 2	0	$650	5	10†	
	or	thr+2 cr	2	0	–	–	10†	
3	Greatsword	sw+3 cut	1, 2	0	$800	7	12†	
	or	thr+2 cr	2	0	–	–	12†	
3	Katana	sw+2 cut	1, 2	0	$650	5	10†	
	or	thr+1 imp	1	0	–	–	10†	
3	Thrusting Bastard Sword	sw+2 cut	1, 2	0	$750	5	10†	
	or	thr+3 imp	2	0	–	–	10†	
3	Thrusting Greatsword	sw+3 cut	1, 2	0	$900	7	12†	
	or	thr+3 imp	2	0	–	–	12†	

WHIP (DX-5, Kusari-3, or Monowire Whip-3)

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
1	Whip	sw-2(0.5) cr	1-7*	-2U	$20	2	var.	[12]

Notes

[1] Can be thrown. See *Muscle-Powered Ranged Weapon Table* (p. 275).

[2] May get *stuck;* see *Picks* (p. 405).

[3] Brawling (p. 182) increases *all* unarmed damage; Claws (p. 42) and Karate (p. 203) improve damage with punches and kicks (Claws *don't* affect damage with brass knuckles or boots); and Boxing (p. 182) improves punching damage.

[4] If you miss with a kick, roll vs. DX to avoid falling.

[5] On a failed HT roll, victim is stunned for as long as weapon is in contact plus (20 - HT) seconds longer, and then can roll vs. HT-3 to recover.

[6] Attempts to *parry* flails are at -4, and fencing weapons ("F" parry) cannot parry at all! Attempts to *block* flails are at -2. A nunchaku is small, and gives half these penalties.

[7] This is an energy blade. Take a Ready maneuver to activate/deactivate. The blade cannot break, and damages any weapon or body part it parries *or which parries or blocks it.* Extra energy cells cost $100, weigh 0.5 lb., and last 300 seconds.

[8] A piece of rope used to strangle; see *Garrotes* (p. 405).

[9] Damage increases in a mounted charge; see *Cavalry Weapons* (p. 397).

[10] Hilt counts as brass knuckles in close combat.

[11] Noisy! Runs for two hours on half a gallon of gasoline.

[12] Specify maximum reach (up to 7 yards) when bought. Cost and weight are *per yard.* ST is 5, +1 per yard. Many special rules apply; be sure to see *Whips* (p. 406).

Melee Weapon Quality

Muscle-powered melee and thrown weapons come in several quality grades, described below. Quality influences the odds of breakage when you parry a very heavy weapon; see *Parrying Heavy Weapons* (p. 376). The prices listed on the weapon tables buy good-quality weapons at TL6 or less, fine-quality ones at TL7+.

Cheap: A cheap weapon is +2 to break – and if it can be thrown, it has -1 Acc. It costs 40% of list price at TL6 or less, or 20% of list price at TL7+. The mass-produced swords issued to ordinary soldiers are often of cheap quality.

Good: A good weapon has no breakage modifier. This is the standard quality through TL6. At TL7+, good-quality weapons cost 40% of list price.

Fine: Any fine weapon is -1 to break. A fine *blade* (cutting or impaling weapon) also gets +1 to cutting and impaling damage. At TL6 or less, a fine-quality fencing- or sword-class weapon of any type costs 4 times list price. (Katanas are *often* fine!) Other weapon types cost 3 times list price if they do only crushing or impaling damage (e.g., a mace or spear), or 10 times list price if they can do cutting damage (e.g., an axe or halberd). At TL7+, all weapons are "fine" at no extra cost.

Very Fine: Only fencing weapons and swords can be very fine. A very fine weapon is -2 to break and gets +2 to cutting and impaling damage. At TL6 or less, very fine weapons cost 20 times list price; at TL7+, they cost only 4 times list price.

Presentation weapons (decorated, bejeweled, gilded, etc.) are also available. This will further increase cost (and resale value) by 5-20 times.

Blade Composition

The tip or blade of any muscle-powered melee or thrown weapon that inflicts cutting or impaling damage (excluding wooden stakes, and powered weapons such as chainsaws) is assumed to be *stone* at TL0, *bronze* at TL1, *iron* at TL2, and *steel* at TL3+. For instance, a knife would be stone at TL0 but steel at TL3, while a greatsword would always be steel, as greatswords don't exist before TL3. Blade composition modifies *effective* quality when parrying a very heavy weapon.

Weapons made from outdated materials are usually available at cheap-quality prices.

Stone (TL0): A stone blade has an armor divisor of (0.5) on its cutting and impaling damage, and receives no damage bonus for being of fine or better quality. Regardless of actual quality, treat a stone blade as *cheap* for breakage purposes when parrying a *swung* weapon made of metal or other high-tech materials.

Obsidian (TL1): A blade made of volcanic glass is very sharp, but easily broken or blunted. Treat as a good-quality stone blade, but with +1 to cutting and impaling damage (as if fine) and +2 to breakage (as if cheap). It loses its damage bonus if used to parry any weapon (but not an unarmed attack) or to strike DR 2+.

Bronze (TL1): A bronze blade receives no damage bonus for being of fine or better quality. Regardless of actual quality, treat a bronze blade as *cheap* for breakage purposes when parrying a *swung* weapon made of superior materials (e.g., iron or steel).

Iron (TL2): An iron blade receives no damage bonus for being of fine or better quality. Regardless of actual quality, treat an iron blade as *cheap* for breakage purposes when parrying a *swung* weapon made of superior materials (e.g., steel).

Steel (TL3): Steel is the "default" material for blades. Use all rules as written.

Plastic (TL7): "Plastic" includes carbon composites and other advanced, nonmetallic materials. *Halve* weight and *double* cost. Blades cannot exceed good quality (and are often cheap). Treat them as equivalent to steel for breakage – but their low weight means they're more likely to encounter a heavier weapon. Weapons that do only crushing damage (clubs, batons, etc.) are also available, in the usual quality grades. The primary benefit of plastic weapons is that metal detectors cannot detect them!

Silver Weapons (TL1)

Those who must combat demons, werewolves, etc. may desire silver weapons. Silver weapons typically require a special order from an artisan. *Solid* silver melee weapons or arrowheads cost 20 times list price, and break as if of cheap quality. Silver-*coated* and -*edged* weapons cost only three times list price, and use the breakage properties of the underlying material. Silver *bullets* (TL4+) must be solid, and cost 50 times list price!

Silver weapons only inflict extra damage on creatures with Vulnerability (p. 161) to silver. For a silver-coated or -edged weapon, reduce the wounding multiplier: ×2 becomes ×1.5, ×3 becomes ×2, and ×4 becomes ×3.

Muscle-Powered Ranged Weapons

Muscle-powered ranged weapons are hurled weapons (axes, spears, etc.) and low-tech missile weapons such as bows and slings. Weapons appear under the skill required to use them, along with skill defaults. Some thrown weapons also appear on the *Melee Weapon Table;* use the statistics below when they are thrown.

Muscle-Powered Ranged Weapon Table

BLOWPIPE (DX-6)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	Cost	ST	Bulk	Notes
0	Blowpipe	1d-3 pi-	1	×4	1/0.05	1	1(2)	$30	2	-6	[1, 2, 3]

BOLAS (No default)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	Cost	ST	Bulk	Notes
0	Bolas	thr-1 cr	0	×3	2	1	T(1)	$20	7	-2	[4]

BOW (DX-5)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	Cost	ST	Bulk	Notes
0	Longbow	thr+2 imp	3	×15/×20	3/0.1	1	1(2)	$200	11†	-8	[3]
0	Regular Bow	thr+1 imp	2	×15/×20	2/0.1	1	1(2)	$100	10†	-7	[3]
0	Short Bow	thr imp	1	×10/×15	2/0.1	1	1(2)	$50	7†	-6	[3]
1	Composite Bow	thr+3 imp	3	×20/×25	4/0.1	1	1(2)	$900	10†	-7	[3]

CLOAK (DX-5, Net-4, or Shield-4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	Cost	ST	Bulk	Notes
1	Heavy Cloak	spec.	1	2	5	1	T(1)	$50	8	-6	[4]
1	Light Cloak	spec.	1	2	2	1	T(1)	$20	5	-4	[4]

CROSSBOW (DX-4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	Cost	ST	Bulk	Notes
2	Crossbow	thr+4 imp	4	×20/×25	6/0.06	1	1(4)	$150	7†	-6	[3]
3	Pistol Crossbow	thr+2 imp	1	×15/×20	4/0.06	1	1(4)	$150	7	-4	[2, 3]
3	Prodd	thr+4 pi	2	×20/×25	6/0.06	1	1(4)	$150	7†	-6	[3]
3	"Goat's Foot"	–	–	–	2	–	(20)	$50	7†	–	[5]

LASSO (No default)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	Cost	ST	Bulk	Notes
1	Lariat	spec.	0	spec.	3	1	T(spec.)	$40	7†	-2	[4]

NET (Cloak-5)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	Cost	ST	Bulk	Notes
0	Large Net	spec.	1	spec.	20	1	T(1)	$40	11	-6	[4, 6]
2	Melee Net	spec.	1	spec.	5	1	T(1)	$20	8	-4	[4, 6]

SLING (DX-6)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	Cost	ST	Bulk	Notes
0	Sling	sw pi	0	×6/×10	0.5/0.05	1	1(2)	$20	6	-4	[2, 3, 7]
1	Staff Sling	sw+1 pi	1	×10/×15	2/0.05	1	1(2)	$20	7†	-6	[3, 7]

SPEAR THROWER (DX-5 or Thrown Weapon (Spear)-4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	Cost	ST	Bulk	Notes
0	Atlatl	–	–	–	1	1	1(1)	$20	–	–	[2]
	with Dart	sw-1 imp	1	×3/×4	1	–	–	$20	5	-3	
	with Javelin	sw+1 imp	3	×2/×3	2	–	–	$30	6	-4	

THROWN WEAPON (AXE/MACE) (DX-4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	Cost	ST	Bulk	Notes
0	Hatchet	sw cut	1	×1.5/×2.5	2	1	T(1)	$40	8	-2	
0	Throwing Axe	sw+2 cut	2	×1/×1.5	4	1	T(1)	$60	11	-3	
2	Mace	sw+3 cr	1	×0.5/×1	5	1	T(1)	$50	12	-4	
2	Small Mace	sw+2 cr	1	×1/×1.5	3	1	T(1)	$35	10	-3	

THROWN WEAPON (HARPOON) (DX-4 or Thrown Weapon (Spear)-2)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	Cost	ST	Bulk	Notes
2	Harpoon	thr+5 imp	2	×1/×1.5	6	1	T(1)	$60	11	-6	[8]

THROWN WEAPON (KNIFE) (DX-4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	Cost	ST	Bulk	Notes
0	Large Knife	thr imp	0	×0.8/×1.5	1	1	T(1)	$40	6	-2	
0	Small Knife	thr-1 imp	0	×0.5/×1	0.5	1	T(1)	$30	5	-1	
0	Wooden Stake	thr(0.5) imp	0	×0.5/×1	0.5	1	T(1)	$4	5	-2	
1	Dagger	thr-1 imp	0	×0.5/×1	0.25	1	T(1)	$20	5	-1	

THROWN WEAPON (SHURIKEN) (DX-4 or Throwing-2)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	Cost	ST	Bulk	Notes
3	Shuriken	thr-1 cut	1	×0.5/×1	0.1	1	T(1)	$3	5	0	

THROWN WEAPON (SPEAR) (DX-4, Spear Thrower-4, or Thrown Weapon (Harpoon)-2)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	Cost	ST	Bulk	Notes
0	Spear	thr+3 imp	2	×1/×1.5	4	1	T(1)	$40	9	-6	
1	Javelin	thr+1 imp	3	×1.5/×2.5	2	1	T(1)	$30	6	-4	

Notes

[1] Follow-up drug or poison attack if damage penetrates DR. Effects depend on the poison used; see *Poison* (p. 437).

[2] Requires *two* hands to ready, but only *one* hand to attack.

[3] An arrow or bolt for a bow or crossbow is $2. A dart for a blowpipe, or a lead pellet for a prodd or sling, is $0.1. Sling stones are free.

[4] May entangle or ensnare the target; see *Special Ranged Weapons* (p. 411).

[5] Cocking lever to reload a high-ST crossbow or prodd. You can reload a weapon up to 4 ST over your own with 20 one-second Ready maneuvers.

[6] A net has no 1/2D range. Max range is (ST/2 + Skill/5) for a large net and (ST + Skill/5) for a melee net.

[7] Can fire stones (TL0) or lead bullets (TL2). Lead bullets give +1 damage and *double* range.

[8] Tethered. Requires a Ready maneuver and a successful ST roll to pull out (if you fail, you may try again next turn). Does *half* the damage coming out that it did going in.

Bodkin Points (TL3)

At TL3+, arrows and bolts may have armor-piercing "bodkin" points instead of standard "quarrel" or "broadhead" points. This changes damage from impaling to *piercing,* and adds an armor divisor of (2). No effect on cost or weight.

Muscle-Powered Ranged Weapon Quality

Blowpipes, bows, and crossbows may be *fine* weapons. Increase 1/2D and Max range by 20%. They cost 4 times list price.

Thrown weapons, and arrows and bolts, use the rules under *Melee Weapon Quality* (p. 274).

Hand Grenades and Incendiaries

Hand-tossed bombs date to the earliest introduction of gunpowder; improvised gasoline bombs ("Molotov cocktails") remain popular. See *Throwing* (p. 355) to determine how far you can throw such a device. "Fuse" is the number of seconds it takes for the weapon to detonate once readied.

Hand Grenade and Incendiary Table

THROWING (DX-3 or Dropping-4)

TL	*Weapon*	*Damage*	*Weight*	*Fuse*	*Cost*	*LC*	*Notes*
5	Black Powder	3d cr ex [1d]	1	3-5	$5	2	[1]
6	Concussion	6d cr ex	1	4	$15	2	[2]
6	Fragmentation	4d cr ex [2d]	1	4	$10	2	[2]
6	Molotov Cocktail	spec. (1 yd.)	1	spec.	$2	3	[1, 3]
7	Chemical	spec. (2 yd.)	1	2	$10	3	[2, 4]
7	Concussion	5d×2 cr ex	1	4	$40	2	[2]
7	Fragmentation	8d cr ex [3d]	1	4	$40	2	[2]
8	Stun	HT-5 aff (10 yd.)	1	2	$40	2	[2, 5]
^	Plasma	6d×4 burn ex	1	2	$100	1	[2]

Notes

[1] Takes a Ready maneuver to light the fuse (impossible in rain, etc.) – or *five* Ready maneuvers if you must insert the fuse first! A Molotov cocktail shatters on impact; a black-powder grenade detonates 3-5 seconds later, depending on fuse length.

[2] Takes one Ready maneuver to draw the grenade and a second Ready maneuver to pull the pin. Detonates 2-4 seconds later, depending on grenade type.

[3] A glass bottle filled with gasoline, lit by a burning rag. See *Molotov Cocktails and Oil Flasks* (p. 411).

[4] Fills a 2-yard radius with smoke, teargas, etc.; see *Poison Examples* (p. 439). The cloud lasts about 80 seconds under normal conditions. Exotic chemicals may cost more or have a lower LC.

[5] A Vision and Hearing-Based affliction that affects a 10-yard radius. The Protected Hearing and Protected Vision advantages each give +5 to the HT roll. If you fail to resist, you are stunned; roll against HT-5 to recover each turn. Also creates smoke in the area of effect.

Firearms

A "firearm" is any gun, rocket, or beam weapon that does not rely on muscle power. Guns are commonly available by TL4 and ubiquitous at TL5+. Beam weapons appear in late TL8 (mostly for vehicles), and *may* become common by TL9, ubiquitous at TL10+.

Guns are commonly available by TL4 and ubiquitous at TL5+.

Pistol and Submachine Gun Table

GUNS (PISTOL) (DX-4, or most other Guns at -2)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC	Notes
4	Flintlock Pistol, .51	2d-1 pi+	1	75/450	3/0.01	1	1(20)	10	-3	2	$200	3	
4	Wheel-Lock Pistol, .60	1d+1 pi+	1	75/400	3.25/0.01	1	1(20)	10	-3	2	$200	3	
5	Derringer, .41	1d pi+	1	80/650	0.5/0.1	1	2(3i)	9	-1	2	$100	3	
5	Revolver, .36	2d-1 pi	1	120/1,300	2.5/0.24	1	6(3i)	10	-2	2	$150	3	
6	Auto Pistol, .45	2d pi+	2	175/1,700	3/0.6	3	7+1(3)	10	-2	3	$300	3	
6	Auto Pistol, 9mm	2d+2 pi	2	150/1,850	2.4/0.4	3	8+1(3)	9	-2	2	$350	3	
6	Revolver, .38	2d-1 pi	2	120/1,500	2/0.2	3	6(3i)	8	-2	2	$400	3	
6	Snub Revolver, .38	1d+2 pi	1	120/1,250	1.5/0.2	3	5(3i)	8	-1	3	$250	3	
7	Auto Pistol, 9mm	2d+2 pi	2	150/1,850	2.6/0.6	3	15+1(3)	9	-2	2	$600	3	
7	Holdout Pistol, .380	2d pi	1	125/1,500	1.3/0.2	3	5+1(3)	8	-1	3	$300	3	
7	Revolver, .357M	3d-1 pi	2	185/2,000	3/0.21	3	6(3i)	10	-2	3	$500	3	
7	Revolver, .44M	3d pi+	2	200/2,500	3.25/0.3	3	6(3i)	11	-3	4	$900	3	
8	Auto Pistol, .44M	3d pi+	2	230/2,500	4.5/0.6	3	9+1(3)	12	-3	4	$750	3	
8	Auto Pistol, .40	2d pi+	2	150/1,900	2.1/0.7	3	15+1(3)	9	-2	2	$640	3	
9	Auto Pistol, 9mm	2d+2 pi	2	150/1,900	2/0.7	3	18+1(3)	9	-2	2	$800	3	[1]

GUNS (GYROC) (DX-4, or most other Guns at -4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC	Notes
9	Gyroc Pistol, 15mm	6d pi++	1	1,900	1/0.4	3	4(3i)	9	-2	1	$200	3	[1, 2]

GUNS (SMG) (DX-4, or most other Guns at -2)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC	Notes
6	SMG, .45	2d+1 pi+	3	190/1,750	15.7/4.9	13	50+1(5)	11†	-4	3	$2,200	2	[3]
6	SMG, 9mm	3d-1 pi	3	160/1,900	10.5/1.5	8!	32(3)	10†	-4	2	$700	2	[3]
7	Machine Pistol, 9mm	2d+2 pi	2	160/1,900	5.5/1.1	20	25+1(3)	12	-3	3	$900	2	[3]
7	SMG, 9mm	3d-1 pi	4	160/1,900	7.5/1.2	13	30+1(3)	10†	-4	2	$1,200	2	[3]
8	PDW, 4.6mm	4d+1 pi-	3	200/2,000	3.9/0.5	15	20+1(3)	7†	-3	2	$800	2	
10	Gauss PDW, 4mm	4d(3) pi-	6+1	700/2,900	4.6/1	16	80(3)	9†	-3	2	$3,600	2	[1]

Notes

[1] Includes "smartgun" electronics (see box).

[2] Rockets take time to accelerate. Divide damage by 3 at 1-2 yards, and by 2 at 3-10 yards.

[3] Civilian semi-automatic version is RoF 3, -25% to cost, and +1 to LC.

"Smartgun" Electronics (TL8)

The following systems are *optional* on TL8 firearms (add $500 to price) and *standard* on TL9+ firearms (no extra cost):

- A built-in laser sight (p. 412).
- "Smart" electronics that give +1 to skill rolls to fix damage or malfunctions.
- An electronic access system (usually a biometric scanner, or a transponder in a ring or glove) that limits usage to authorized persons. Unauthorized users cannot fire the weapon. Military and police weapons can be set to allow everyone in a unit to share weapons.
- If the weapon has built-in sights (noted as a bonus after Acc), a video link to a helmet or goggle head-up display (if worn), allowing faster target engagement; see *Targeting Systems* (p. 548).

Rifle and Shotgun Table

GUNS (MUSKET) (DX-4, or most other Guns at -2)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC	Notes
3	Handgonne, .90	2d pi++	0	100/600	15/0.1	1	1(60)	10†	-6	4	$300	3	
4	Matchlock Musket, .80	4d pi++	2	100/600	20/0.05	1	1(60)	10R†	-6	3	$150	4	
4	Flintlock Musket, .75	4d pi++	2	100/1,500	13/0.05	1	1(15)	10†	-6	4	$200	4	

GUNS (RIFLE) (DX-4, or most other Guns at -2)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC	Notes
5	Rifle-Musket, .577	4d pi+	4	700/2,100	8.5/0.05	1	1(15)	10†	-6	3	$150	3	
5	Cartridge Rifle, .45	5d pi+	3	600/2,000	6/0.1	1	1(4)	10†	-6	3	$200	3	
5	Lever-Action Carbine, .30	5d pi	4	450/3,000	7/0.3	1	6+1(3i)	10†	-4	2	$300	3	
6	Bolt-Action Rifle, 7.62mm	7d pi	5	1,000/4,200	8.9/0.3	1	5+1(3)	10†	-5	4	$350	3	
6	Self-Loading Rifle, 7.62mm	7d pi	5	1,000/4,200	10/0.5	3	8(3)	10†	-5	3	$600	3	
7	Assault Rifle, 5.56mm	5d pi	5	500/3,500	9/1	12	30+1(3)	9†	-4	2	$800	2	[1]
7	Assault Rifle, 7.62mmS	5d+1 pi	4	400/3,000	10.5/1.8	10	30+1(3)	10†	-4	2	$300	2	[1]
7	Battle Rifle, 7.62mm	7d pi	5	1,000/4,200	11/1.7	11	20+1(3)	11†	-5	3	$900	2	[1]
8	Assault Carbine, 5.56mm	4d+2 pi	4	400/3,000	7.3/1	15	30+1(3)	9†	-3	2	$900	2	[1]
8	Dart Rifle, 11mm	1d(0.2) pi-	5+1	45/145	6.6/0.02	1	1(3)	9†	-5	2	$1,200	4	[2]
8	Sniper Rifle, .338	9d+1 pi	6+3	1,500/5,500	17.5/0.8	1	4+1(3)	11B†	-6	4	$5,600	3	
9	ICW, 6.8mm	6d pi	4+2	700/4,000	12/1.5	15	25+1(3)	10†	-5	2	$7,000	1	[3, 4]
10	Gauss Rifle, 4mm	6d+2(3) pi-	7+2	1,200/4,800	8.5/1.4	12	60(3)	10†	-4	2	$7,100	2	[3]

GUNS (SHOTGUN) (DX-4, or most other Guns at -2)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC	Notes
4	Blunderbuss, 8G	1d pi	1	15/100	12/0.13	1×9	1(15)	11†	-5	1	$150	4	
5	Double Shotgun, 10G	1d+2 pi	3	50/125	10/0.1	2×9	2(3i)	11†	-5	1	$450	4	
6	Pump Shotgun, 12G	1d+1 pi	3	50/125	8/0.7	2×9	5(3i)	10†	-5	1	$240	4	
7	Auto Shotgun, 12G	1d+1 pi	3	50/125	8.4/0.85	3×9	6+1(3i)	10†	-5	1	$950	3	

Notes

[1] Civilian semi-automatic version is RoF 3, -25% to cost, and +1 to LC.

[2] If damage penetrates DR, the dart injects a drug or poison as a follow-up attack. For a tranquilizer dart, roll vs. HT-3; failure results in unconsciousness for minutes equal to the margin of failure.

[3] Includes "smartgun" electronics (see p. 278).

[4] Includes an integral 25mm grenade launcher (see p. 281).

Optional Rule: Malfunction

Optionally, all firearms and grenades have a "malfunction number," or "Malf." The weapon will jam, misfire, or otherwise fail to function on any attack roll equal to or greater than its Malf.; see *Malfunctions* (p. 407).

Malfunction number is a function of tech level: it is 12 at TL3, 14 at TL4, 16 at TL5, and 17 at TL6+. A few weapons might be intrinsically more or less reliable. Weapon quality also affects Malf. Finally, lack of maintenance (especially in dusty or humid conditions) can lower Malf.

Ammunition

For a given gun, the *weight* of one full load of ammunition, in pounds, appears after the slash in its "Weight" statistic. Assume that ammo *cost* is $20 times this weight.

Example: The 5.56mm assault rifle has a weight of "9/1." Thus, a full reload weighs 1 lb. and costs $20.

The statistics given on the tables assume that guns are firing ordinary, solid projectiles (usually lead). At TL6+, this means the common "ball" or "full metal jacket" round, but other ammo types are possible. A few examples for pistols, submachine guns, rifles, and machine guns (but *not* shotguns, Gauss guns, and dart rifles):

Hollow-Point (HP): Bullets designed to expand in flesh, causing bigger wounds. This improves damage type: pi- becomes pi, pi becomes pi+, and pi+ becomes pi++. (HP ammo is not available for guns that already inflict pi++ damage.) However, HP ammo has trouble penetrating barriers or armor; add an armor divisor of (0.5). HP ammo is available at TL6+. It has normal cost and LC. It is the most common ammo type used by hunters and police.

Armor-Piercing Hard Core (APHC): Solid bullets with a dense, armor-piercing core. Add a (2) armor divisor, but if the gun caliber is below 20mm (.80), damage type degrades: pi++ drops to pi+, pi+ to pi, and pi to pi-. (There is no effect on pi-.) APHC ammo is available at TL7+. It has *double* normal cost and is LC2.

Armor-Piercing Discarding-Sabot (APDS): A small tungsten dart encased in a larger plastic sheath that peels away when the round leaves the barrel, increasing velocity. APDS works like APHC, but also adds 50% to range and +1 damage per die. Used by tanks at TL6-7 and machine guns at TL8, it is available for small arms by TL9. It has *five times* normal cost and is LC1.

Firearm Quality

Fine firearms cost *double* list price, and get +1 to Acc and +1 to Malf. *Very fine* firearms cost 5 times list price, and get +2 to Acc and +1 to Malf. Should this result in a Malf. of 19 or more, the weapon *will not malfunction* unless lack of maintenance lowers Malf.

Presentation firearms (decorated, gilded, etc.) are also available. This will further increase cost (and resale value) by 2 to 20 times.

Ultra-Tech Firearm Table

BEAM WEAPONS (PISTOL) (DX-4, other Beam Weapons-4, or Guns (Pistol)-4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC	Notes
9	Electrolaser Pistol *linked*	1d-3 burn HT-4(2) aff	4	40/80	2.2/0.5	3	180(3)	4	-2	1	$1,800	4	[1, 2, 3]
10	Laser Pistol	3d(2) burn	6	250/750	3.3/0.5	10	400(3)	6	-2	1	$2,800	3	[3]
11	Blaster Pistol	3d(5) burn	5	300/900	1.6/0.5	3	200(3)	4	-2	1	$2,200	3	[4, 5]

BEAM WEAPONS (RIFLE) (DX-4, other Beam Weapons-4, or Guns (Rifle)-4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC	Notes
9	Electrolaser Carbine *linked*	1d-3 burn HT-4(2) aff	8+1	160/470	3.7/1	3	360(3)	4†	-4	1	$3,900	3	[1, 2, 3]
9	Laser Sniper Rifle	5d(2) burn	12+2	1,100/3,300	20/4p	3	75(3)	10†	-8	1	$20,000	1	[3]
10	Laser Rifle	5d(2) burn	12+2	700/2,100	10/2	10	150(3)	7†	-4	1	$10,000	2	[3]
11	Blaster Rifle	6d(5) burn	10+2	700/2,100	10/1	3	50(3)	7†	-4	1	$18,000	2	[4, 5]
11	Heavy Blaster	8d(5) burn	10+4	900/2,700	20/4p	3	90(5)	10†	-6	1	$23,000	1	[4]

Notes

All beam weapons include "smartgun" electronics (see p. 278).

[1] Weapon requires atmosphere to function. *No effect* in trace atmosphere or vacuum!

[2] Burn damage has the Surge damage modifier (p. 105). As well, whether or not any damage penetrates, the target must make a HT roll at -4, plus *half* the DR on the location struck (due to the armor divisor). On a failure, the electrical shock stuns him. He may roll against HT every turn at the same penalty (but *without* the DR bonus) to recover.

[3] Smoke, fog, rain, cloud, etc. give the target additional DR equal to the visibility penalty. For instance, if rain gives a penalty of -1 per 100 yards, a laser firing through 2,000 yards of rain must penetrate an extra DR 20.

[4] Burn damage has the Surge damage modifier (p. 105).

[5] In superscience games, an "omni-blaster" costs twice as much, but has a "stun" setting: damage becomes HT-3(3) aff for a pistol, HT-6(3) aff for a rifle. On a failed HT roll, the victim is unconsciousness for minutes equal to his margin of failure.

Heavy Weapons

The next table gives a few examples of the heaviest weapons that adventurers are likely to carry or encounter. Police and ordinary criminals rarely use such weapons – but any infantry squad or well-funded terrorist group might have access to them!

Heavy Weapon Table

ARTILLERY (GUIDED MISSILE) (IQ-5)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*	*Notes*
7	ATGM, 115mm	6d×10(10) cr ex	3	200/2,000	37/26	1	1(20)	11B†	-10	1	$20,000	1	[1, 2, 3]
8	SAM, 70mm	6d×3 cr ex [6d]	7	1,000/8,800	18/22	1	1(20)	10†	-8	1	$38,000	1	[1, 2, 4]

GUNNER (CATAPULT) (DX-4, or other Gunner at -4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*	*Notes*
2	Scorpion	5d imp	3	415/520	110/0.9	1	1(30)	45M†	-10	–	$5,000	2	

GUNNER (MACHINE GUN) (DX-4, or other Gunner at -4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*	*Notes*
6	HMG, .50	13d+1 pi+	6	1,800/7,400	116/32	8!	100(5)	20M†	-8	2	$14,000	1	[5]

GUNS (GRENADE LAUNCHER) (DX-4, or most other Guns at -4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*	*Notes*
7	Under-Barrel, 40mm	4d(10) cr ex[2d]	2	150/440	+3.5/0.5	1	1(3)	11	–	2	$500	1	[1, 6, 7]
9	Integral, 25mm	7d cr ex[3d]	4+2	2,200	–/1.6	1	3(3)	10	–	3	–	–	[8]

GUNS (LAW) (DX-4, or most other Guns at -4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*	*Notes*
7	Bazooka, 60mm	6d×2(10) cr ex	3	100/650	16.7/3.4	1	1(4)	10†	-6	1	$1,000	1	[2, 7]
7	RPG, 85mm	6d×3(10) cr ex	3+1	300/1,000	21/5.7	1	1(5)	10†	-6	1	$800	1	[2, 7]
8	LAW, 84mm	6d×6(10) cr ex	3	330/2,300	14.7	1	1(–)	10†	-5	1	$750	1	[2, 7]

GUNS (LMG) (DX-4, or most other Guns at -2)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*	*Notes*
6	Auto Rifle, 7.62mm	7d pi	5	1,000/4,200	22/1.6	9!	20(3)	12B†	-6	3	$6,500	2	
6	LMG, 7.62mm	7d pi	5	1,000/4,200	30/6	15!	100(5)	13B†	-6	2	$6,600	1	
7	SAW, 5.56mm	5d+1 pi	5	800/3,500	24/7	12!	200(5)	12B†	-6	2	$4,800	1	

LIQUID PROJECTOR (FLAMETHROWER) (DX-4, or other Liquid Projector at -4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*	*Notes*
6	Flamethrower	3d burn	–	50	70	Jet	10	10†	-8	–	$1,800	1	

Notes

[1] Has a minimum range: 10 yards for 40mm GL, 30 yards for 115mm ATGM, and 200 yards for 70mm SAM.

[2] Hazardous back-blast: 1d burn damage to anyone behind firer and within 15 yards (30 yards for ATGM).

[3] Guided attack (see p. 412). Gunner uses Artillery (Guided Missile) to *attack*. "1/2D" range is *speed* in yards per second. Weight is for empty launcher/one missile.

[4] Homing (Hyperspectral Vision) attack (see p. 413), at the missile's skill of 10. Firer rolls against Artillery (Guided Missile) to *aim*. On a success, the missile gets its Acc bonus. "1/2D" range is *speed* (yards/second). Weight is for empty launcher/one missile.

[5] Detachable tripod weighs an *extra* 44 lbs.

[6] Can clamp under the barrel of any TL7+ rifle or carbine. Use the rifle's Bulk.

[7] Damage is not halved at 1/2D range, but loses its armor divisor of (10).

[8] Built into the TL9 ICW (p. 279). Use the ICW's Bulk. Has "smartgun" electronics (see p. 278).

Armor

Armor is very useful in combat. A single sword blow or bullet can incapacitate or kill you . . . but armor might give you a second chance. Your armor's Damage Resistance, or DR, subtracts *directly* from the damage inflicted by your enemies' weapons. Armor requires no skill to use – you just wear it! (*Exception:* Certain TL7+ armor types require Environment Suit skill, p. 192.)

Effective armor is *heavy,* though. Its weight can hinder you (see *Encumbrance and Move,* p. 17), reducing your Dodge – and also your Parry, if you use fencing weapons, Judo, or Karate. A swashbuckler who relies on agility to avoid injury might choose light or no armor! (As a guideline, your Dodge, Block, or Parry – and preferably two or all three of these – should be at least 12 if you plan to go unarmored.)

The best armor is *expensive,* too You probably won't be able to afford it without lots of Wealth!

Armor is more important in some periods than in others. Before TL4, it's a lifesaver. Warriors who expect to go into battle should wear the heaviest armor they can afford. On the other hand, few fighters wear metal armor in a city or on the road: it's just too heavy and uncomfortable.

At TL4, armor declines in importance as firearms become common: anything that can stop a musket ball is too heavy to wear. Except for heavy cavalry, few soldiers or adventurers wear more than a pot helm and breastplate. At TL5-6, armor all but disappears – although TL6-7 infantry still wear a steel pot helmet to protect against bursting shell fragments.

At TL7-9, this trend reverses, as lightweight, bullet-resistant synthetics (such as Kevlar) appear and gradually improve. In some TL10+ backgrounds, armor might be vital. In others, weapons can penetrate anything, and a good Dodge – or shooting first – is the best defense.

Armor Tables

Three armor tables appear below: one for low-tech armor (TL0-5), one for high- and ultra-tech armor (TL6+), and one for armoring mounts. Each item on the tables includes an article of light, common clothing to wear underneath – or padding, if this is usual for the armor (e.g., mail includes cloth padding under the chain). The statistics already reflect this; you do not have to buy clothing or padding separately, or account for its DR and weight.

The tables give the following information for each item of armor:

TL: The tech level at which the armor is commonly available.

Armor: The item's name.

Location: The area the armor protects on a humanoid wearer. Individual locations are *skull* (top of the head), *face* (the face, excluding the eyes), *neck, eyes, arms, hands, torso* (the abdomen and chest), *groin, legs,* and *feet. Limbs* covers the arms and legs, but not the hands or feet. *Head* covers skull, face, and eyes. *Body* is neck, torso, and groin. *Full suit* is everything but the head.

DR: The amount of Damage Resistance the item gives. Subtract this from any blow that strikes the armored location. For instance, if you're wearing a DR 6 corselet and are hit in the torso for 8 points of damage, only 2 points penetrate and affect you. Some armor has a split DR; e.g., "4/2." This means DR varies by location or by type of attack; see the notes for that piece of armor.

"*" means the armor is *flexible.* Flexible armor is easier to conceal or wear under other armor, and quicker to don or remove, but it is more vulnerable to blunt trauma damage.

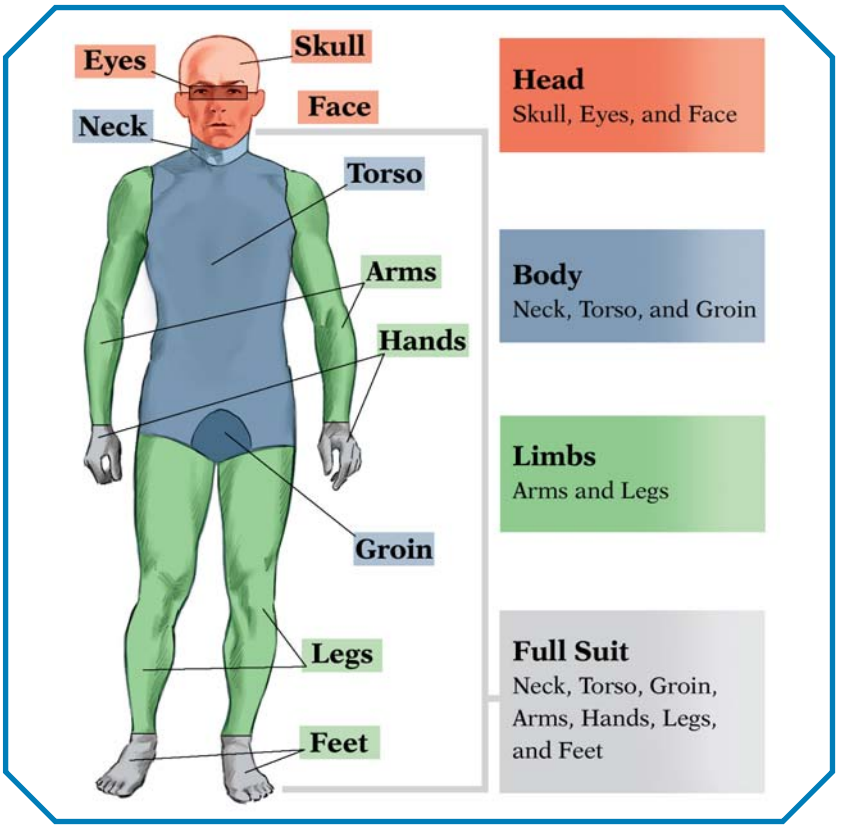
"F" means the DR only protects against attacks from the front.

Cost: The item's price, in $. "K" is thousands; "M" is millions.

Weight: The item's weight, in pounds.

LC: The item's Legality Class; see *Legality Class* (p. 267).

Notes: Many items have special features or restrictions; see the notes after each table. Some advanced armor has built-in features that effectively grant the wearer advantages.



Low-Tech Armor Table

TL	*Armor*	*Location*	*DR*	*Cost*	*Weight*	*LC*	*Notes*
Body Armor							
0	Fur Loincloth	groin	1*	$10	neg.	–	[1]
0	Fur Tunic	torso	1*	$25	2	–	[1]
1	Bronze Breastplate	torso	4F	$400	20	3	[2]
1	Bronze Corselet	torso, groin	5	$1,300	40	3	
1	Cloth Armor	torso, groin	1*	$30	6	–	[1]
1	Leather Armor	torso, groin	2	$100	10	4	
1	Leather Jacket	arms, torso	1*	$50	4	–	[1]
2	Light Scale Armor	torso	3	$150	15	4	
2	Lorica Segmentata	torso	5	$680	26	3	
2	Mail Hauberk	torso, groin	4/2*	$230	25	3	[3]
2	Mail Shirt	torso	4/2*	$150	16	4	[1, 3]
2	Scale Armor	torso, groin	4	$420	35	3	
3	Double Mail Hauberk	torso, groin	5/3*	$520	44	3	[3]
3	Heavy Steel Corselet	torso, groin	7	$2,300	45	3	
3	Steel Breastplate	torso	5F	$500	18	3	[2]
3	Steel Corselet	torso, groin	6	$1,300	35	3	
3	Steel Laminate Plate	torso, groin	5	$900	30	3	
4	Buff Coat (Leather)	body, limbs	2*	$210	16	4	
Limb Armor							
1	Bronze Armbands	arms	3	$180	9	4	
1	Bronze Greaves	legs	3	$270	17	4	
1	Cloth Sleeves	arms	1*	$20	2	–	[1]
1	Heavy Leather Leggings	legs	2	$60	4	4	
1	Heavy Leather Sleeves	arms	2	$50	2	4	
1	Leather Leggings	legs	1*	$40	2	–	[1]
1	Leather Pants	legs, groin	1*	$40	3	–	[1]
1	Studded Leather Skirt	groin, legs	3/2*	$60	4	–	[3]
2	Mail Leggings	legs	4/2*	$110	15	3	[3]
2	Mail Sleeves	arms	4/2*	$70	9	3	[3]
2	Scale Leggings	legs	4	$250	21	3	
2	Scale Sleeves	arms	4	$210	14	3	
3	Heavy Plate Arms	arms	7	$1,500	20	3	
3	Heavy Plate Legs	legs	7	$1,600	25	3	
3	Plate Arms	arms	6	$1,000	15	3	
3	Plate Legs	legs	6	$1,100	20	3	

TL	Armor	Location	DR	Cost	Weight	LC	Notes
Headgear							
1	Bronze Helmet	skull, face	3	$160	7.5	4	
1	Bronze Pot-Helm	skull	3	$60	5	4	
1	Cloth Cap	skull	1*	$5	neg.	–	[1]
1	Leather Cap	skull	1*	$32	neg.	4	
1	Leather Helm	skull, face	2	$20	0.5	4	
2	Legionary Helmet	skull, face	4	$150	6	3	
2	Mail Coif	skull, neck	4/2*	$55	4	3	[3]
3	Barrel Helm	skull, face	6	$240	10	3	[4]
3	Face Mask	face	4	$100	2	3	
3	Greathelm	skull, face, neck	7	$340	10	3	[4]
3	Pot-Helm	skull	4	$100	5	4	
Gloves							
1	Cloth Gloves	hands	1*	$15	neg.	–	[1]
1	Leather Gloves	hands	2*	$30	neg.	–	
2	Gauntlets	hands	4	$100	2	4	
3	Heavy Gauntlets	hands	5	$250	2.5	3	
Footwear							
0	Sandals	feet	0	$25	0.5	–	[1, 2]
1	Shoes	feet	1*	$40	2	–	[1]
2	Boots	feet	2*	$80	3	–	[1]
3	Sollerets	feet	4	$150	7	3	

Notes

[1] Concealable *as* or *under* clothing.

[2] Partial coverage: sandals give DR 1 to the underside of the foot, while breastplates protect only from the front.

[3] Split DR: use the lower DR against *crushing* attacks.

[4] Helmet gives wearer the No Peripheral Vision disadvantage (p. 151) while worn.

High- and Ultra-Tech Armor Table

TL	Armor	Location	DR	Cost	Weight	LC	Notes
Body Armor							
6	Flak Jacket	torso	7	$500	20	3	
7	Frag Vest	torso, groin	5/2*	$350	9	3	[1]
	+ *Plate Inserts*	torso	+20	+$300	+15	3	
8	Ballistic Vest	torso	8/2*	$400	2	3	[1, 2, 3]
8	Tactical Vest	torso, groin	12/5*	$900	9	2	[1, 3]
	+ *Trauma Plates*	torso	+23	+$600	+9	2	
9	Ballistic Suit	body, limbs	12/4*	$1,000	6	3	[1, 2, 3]
9	Tactical Suit	full suit	20/10*	$3,000	15	2	[1, 3, 4, 5]
Gloves and Footwear							
7	Reinforced Boots	feet	5/2	$75	3	–	[2, 6]
9	Assault Boots	feet	12/6	$150	3	4	[3, 6]
9	Ballistic Gloves	hands	8/2*	$30	neg.	4	[1, 2, 3]

TL	Armor	Location	DR	Cost	Weight	LC	Notes
Headgear							
6	Gas Mask	eyes, face	2	$100	4	4	[7]
6	Steel Pot	skull	4	$60	3	4	
7	Frag Helmet	skull	5	$125	3	4	
	+ *Visor*	eyes, face	1	+$25	+1.5	4	[8]
8	Ballistic Helmet	skull	12	$250	3	3	[3]
	+ *Visor*	eyes, face	10	+$100	+3	3	[3, 8]
Environment Suits							
7	NBC Suit	full suit	1	$150	3.5	4	[5, 9]
7	Space Suit	full suit	2	$2,000,000	225	4	[4, 9, 10]
	+ *Space Helmet*	head	3	+$25,000	10	4	[7, 11]
9	Battlesuit	full suit	70/50	$80,000	150	1	[3, 4, 6, 12]
	+ *Helmet*	head	70/50	+$10,000	15	1	[3, 6, 7, 11]
9	Combat Hardsuit	full suit	50/30	$10,000	30	2	[3, 4, 5, 6]
	+ *Helmet*	head	18/12	+$2,000	5	2	[3, 6, 7, 11]
9	Space Armor	full suit	50/30	$20,000	45	2	[3, 4, 6, 10]
	+ *Helmet*	head	40/30	+$3,000	7	2	[3, 6, 7, 11]
9	Vacc Suit	full suit	6*	$10,000	25	4	[3, 4, 10]
	+ *Vacc Helmet*	head	6	+$2,000	5	4	[3, 11]

Notes

All TL7+ armor electronics and powered systems (including the battlesuit) work for (TL - 6) × 6 hours before they require recharging or refueling.

[1] Split DR: use the first, higher DR against *piercing* and *cutting* attacks; use the second, lower DR against *all other damage types*.

[2] Concealable *as* or *under* clothing.

[3] DR increases with TL. After the TL of introduction, consult the following table:

TL	DR Multiplier
Intro	×1
Intro+1	×1.5
Intro+2	×2
Intro+3	×3
Any higher	×4

[4] Biomedical sensors allow remote monitoring of vital signs, giving +1 to Diagnosis skill when examining the wearer. In addition, the suit is climate-controlled.

[5] Requires NBC Suit skill – but at TL9+, the suit does not limit DX. Worn with a mask or a helmet with note [7], the combination provides the Sealed advantage.

[6] Split DR: use the higher DR only if the attack strikes the torso (if body armor), skull (if headgear), or underside of the foot (if footwear).

[7] Provides Filter Lungs, Protected Smell, and Protected Vision – but before TL9, it *also* gives the No Peripheral Vision disadvantage.

[8] Provides Protected Vision.

[9] Suit's DR applies only against *burning* or *corrosion* damage.

[10] Requires Vacc Suit skill. If worn with its helmet, the suit gives Doesn't Breathe (for 12 hours), Protected Smell, Sealed, and Vacuum Support.

[11] Provides Protected Hearing, Protected Vision, and Radio. At TL9+, add Absolute Direction (Requires Signal), Infravision, Night Vision 9, and (TL - 8) levels of Telescopic Vision. TL9+ helmets also include a head-up display (HUD) compatible with "smartgun" electronics (p. 278). Battlesuits add Hyperspectral Vision and Laser Communication.

[12] Requires Battlesuit skill. Gives Lifting ST +10, Striking ST +10, and Super Jump 1. Add +5 to Lifting ST, +5 to Striking ST, and +1 to Super Jump per TL past TL9. With its helmet in place, it also grants Doesn't Breathe (for 12 hours), Protected Smell, Sealed, and Vacuum Support. Do *not* count suit weight toward encumbrance!

Armor is more important in some periods than in others. In some backgrounds, armor might be vital. In others, weapons can penetrate anything, and a good Dodge – or shooting first – is the best defense.

Horse Armor (Barding) Table

TL	Armor	Location	DR	Cost	Weight	LC	Notes
Face Masks							
1	Leather & Cloth	face	2	$40	3	4	[1]
2	Mail	face	4/2*	$60	7	3	[1, 2]
2	Scale	face	4	$200	12	3	[1]
3	Plate	face	5	$200	12	3	[1]
Head/Neck Armor							
2	Leather & Cloth	neck, skull	2	$80	4	4	
2	Mail	neck, skull	4/2*	$100	15	3	[2]
2	Scale	neck, skull	4	$320	20	3	
3	Plate	neck, skull	5	$330	18	3	
Partial Barding							
1	Leather & Cloth	torso	2F	$260	12	4	
2	Mail	torso	4/2F*	$440	20	3	[2]
2	Scale	torso	4F	$480	60	3	
Full Barding							
2	Leather & Cloth	torso, groin	2	$345	30	4	
3	Mail	torso, groin	4/2*	$670	59	3	[2]
3	Plate	torso, groin	5	$1,650	90	3	
Leggings							
3	Plate	legs	5	$400	20	3	[3]

Notes

[1] Gives mount the No Peripheral Vision disadvantage (p. 151) while worn.
[2] Split DR: use the lower DR against *crushing* attacks.
[3] Weight and cost are *per pair* of legs protected. Each pair gives -1 to Move.

Wearing Armor

There are some social and practical restrictions on wearing armor.

Reaction Penalty

A fully armored individual is someone who is expecting trouble . . . or looking to *make* trouble. He is unlikely to receive a warm welcome! In a noncombat situation, armor that covers the face or entire head gives -2 to reaction rolls. Nonconcealable armor with DR 2+ anywhere else (except the hands or feet) gives -1, or -2 if it isn't flexible *and* covers the torso. These penalties are cumulative: plate armor and a full helm would give you -4!

However, there is no reaction penalty if the NPC making the reaction roll recognizes the wearer's *need* or *right* to wear armor in the situation. Examples of socially acceptable armor include a knight on campaign or at a tourney; an astronaut wearing a vacc suit in space; or a soldier, paramedic, or journalist wearing body armor in a war zone.

Donning and Removing Armor

It takes three seconds per piece to don or remove most armor. It takes 30 seconds per piece for vacc suits or battlesuits, except for their helmets. *Exception:* TL8+ flexible armor with insert panels and all TL9+ nonflexible armor have some form of "quick release" mechanism to drop the insert panel or let the user step out of the armor in only one second.

Combining and Layering Armor

You can freely combine multiple pieces of armor that don't cover the same hit location, but you can only *layer* armor if the inner layer is both flexible *and* concealable. Add the DR of both layers. Wearing an extra layer of armor anywhere but on the head gives -1 to DX and DX-based skills.

Shields

Shields are very valuable in low-tech combat, but almost worthless against firearms. Historically, they were little used after the rise of firearms (TL4) – with the exception of plastic riot shields. In some SF settings, though, they make a comeback as *force* shields.

You normally wear a shield or force shield strapped to one arm. Your shield hand can't *wield* a weapon (preventing you from using two-handed weapons), but it can still *carry* an item.

A shield helps *all* your active defense rolls (Block, Dodge, and Parry) with no particular effort. You can also use a shield *actively* to block; see *Blocking* (p. 375).

Shield Statistics

The following statistics apply to shields:

TL: The tech level at which the shield is commonly available.

Shield: The kind of shield.

DB: Defense Bonus. The bonus the shield gives to *all* of your active defense rolls (see *Defending,* p. 374) against attacks from the front or shield side, even if you have no skill at all with a shield. This applies only against melee or muscle-powered ranged weapons – not against firearms, unless you use the optional *Damage to Shields* rule (p. 484).

Cost: The shield's price, in $.

Weight: The shield's weight, in pounds.

DR/HP: The shield's DR and HP if using the optional *Damage to Shields* rule. This DR protects the *shield,* not the *wielder.*

LC: The shield's Legality Class; see *Legality Class* (p. 267).

Shield Table

TL	Shield	DB	Cost	Weight	DR/HP	LC	Notes
CLOAK (DX-5, Net-4, or Shield (any)-4)							
1	Light Cloak	1	$20	2	1/3	–	[1]
1	Heavy Cloak	2	$50	5	1/5	–	[1]
SHIELD (DX-4, or other Shield at -2)							
0	Light Shield	1	$25	2	5/20	4	[2, 3, 4]
0	Small Shield	1	$40	8	6/30	4	[2, 3, 4]
1	Medium Shield	2	$60	15	7/40	4	[2, 3, 4]
1	Large Shield	3	$90	25	9/60	4	[2, 4]
SHIELD (FORCE) (DX-4, or other Shield at -2)							
^	Force Shield	3	$1,500	0.5	100/–	3	[3, 5]

Notes

[1] Can be used offensively to entangle; see *Cloaks* (p. 404).

[2] Can be used offensively with a shield bash (see the *Melee Weapon Table)* or shield rush (see *Slam,* p. 371). At TL2+, you can give your small, medium, or large shield a spike to increase damage: add $20 and 5 lbs.

[3] Also available as a *buckler.* You can ready a buckler in one turn and drop it as a free action, just like a weapon – but it always occupies one hand, and it does not allow a shield rush. Use Shield (Buckler) instead of regular Shield skill. No effect on statistics.

[4] At TL3+, iron shields are available but uncommon: ×5 cost, ×2 weight, +3 DR, and ×2 HP. At TL7+, plastic riot shields (made of Lexan, etc.) have ×1/2 weight but otherwise identical statistics. Shield composition never affects DB.

[5] Worn on the wrist, leaving the hand free. DR is *hardened* (treat as one level of the Hardened enhancement, p. 47).

Carrying Weapons and Other Gear

You can normally carry one item per hand. This doesn't preclude your having a shield strapped to your arm – but if you do, your shield hand can only *hold,* not *wield,* a weapon or other handheld device, and you cannot use items that require two free hands, like a bow, rifle, or guitar.

You can also stow gear about your person, leaving your hands free. You can carry a one-handed item no larger than a sword or a pistol in a scabbard or holster on each hip; an item of that size or larger (e.g., a two-handed weapon like a rifle or a greatsword) slung over your back; and, with appropriate sheaths, one small item or weapon (like a knife or holdout pistol) per wrist or ankle. If you have clothing with pockets, you can stow one extra item per side pocket. A shoulder holster lets you strap a pistol-sized item over your chest.

You can carry additional equipment in a bag, pack, or case, but it takes several seconds to remove it and get it ready.

Miscellaneous Equipment

The following equipment list should suffice to outfit most adventurers. The GM is free to add items!

TL: The tech level at which the item is commonly available. "Var." indicates tools or instruments that are available at the same TL as the skill(s) they facilitate; e.g., you can buy surgical instruments for Surgery/TL2 at TL2, instruments for Surgery/TL9 at TL9.

Cost: The item's price, in $.

Weight: The item's weight, in pounds. Assume weight is negligible if not listed.

LC: Items are LC4 unless specifically noted otherwise; see *Legality Class* (p. 267).

Other Notes: Items that require batteries list an operating time in hours (hrs.). Equipment labeled "basic gear" is the minimum necessary to use the noted skill(s) at no penalty in most situations.

Camping and Survival Gear

Backpack, Frame (TL1). Holds 100 lbs. of gear. $100, 10 lbs.

Backpack, Small (TL1). Holds 40 lbs. of gear. $60, 3 lbs.

Blanket (TL1). A warm sleeping blanket. $20, 4 lbs.

Bottle, Ceramic (TL1). Holds 1 quart of liquid (2 lbs. if water). $3, 1 lb.

Cable, Steel, 1.5" (TL5). Supports 3,700 lbs. Per 10 yards: $100, 17 lbs.

Camp Stove, Small (TL6). Uses 0.25 gallons kerosene per 4 hrs. $50, 2 lbs.

Candle, Tallow (TL1). Smoky! Lasts 12 hrs. $5, 1 lb.

Canteen (TL5). Holds 1 quart of liquid (2 lbs. if water). $10, 1 lb.

Cigarette Lighter (TL6). Lights fire. $10.

Climbing Gear (TL2). Hammer, spikes, carabiners. $20, 4 lbs.

Compass (TL6). +1 to Navigation skill. $50.

Cord, 3/16" (TL0). Supports 90 lbs. Per 10 yards: $1, 0.5 lb.

Fishhooks and Line (TL0). Basic gear for Fishing skill; needs a pole. $50.

Flashlight, Heavy (TL6). 30' beam. $20, 1 lb., 5 hrs.

Flashlight, Mini (TL7). 15' beam. $10, 0.25 lb., 1 hr.

Gasoline (TL6). Per gallon: $1.50, 6 lbs.

GPS Receiver (TL8). Satellite-updated; grants Absolute Direction (Requires Signal). $200, 3 lbs., 24 hrs.

Grapnel (TL5). Throw to ST×2 yards. Supports 300 lbs. $20, 2 lbs.

Group Basics (TL0). Basic equipment for Cooking and Survival skill for a group. Cook pot, rope, hatchet, etc., for 3-8 campers. $50, 20 lbs.

Iron Spike (Piton) (TL2). For climbing, spiking doors, etc. $1, 0.5 lb.

Kerosene (TL6). Per gallon: $1.50, 6 lbs.

Lantern (TL2). Burns for 24 hours on 1 pint of oil. $20, 2 lbs.

Life Jacket (TL6). Floats up to 350 lbs. $100, 6 lbs.

Matches (TL6). Start fires. Box of 50, waterproof. $1.50.

Oil (TL2). For lantern. Per pint: $2, 1 lb.

Parachute (TL6). Use with Parachuting skill. The wearer will fall at least 80 yards before it opens, and then descend at 5 yards/second. $1,000, 30 lbs.

Personal Basics (TL0). Minimum gear for camping: -2 to any Survival roll without it. Includes utensils, tinderbox or flint and steel, towel, etc., as TL permits. $5; 1 lb.

Piton. See *Iron Spike,* above.

Pole, 6' (TL0). For pitching tents, fishing, or prodding items. $5, 3 lbs.

Pole, 10' (TL0). For things you wouldn't touch with a 6' pole. $8, 5 lbs.

Pouch or Purse, Small (TL1). Holds 3 lbs. $10.

Rope, 3/8" (TL0). Supports 300 lbs. Per 10 yards: $5, 1.5 lbs.

Rope, 3/4" (TL1). Supports 1,100 lbs. Per 10 yards: $25, 5 lbs.

Scuba Gear (TL6). Basic equipment for Scuba skill: 2-hour underwater air tank, with regulator, facemask, etc. $1,500, 32 lbs.

Sleeping Bag (TL6). For normal conditions. $25, 7 lbs.

Sleeping Bag, Insulated (TL7). +3 HT to resist freezing. $100, 15 lbs.

Sleeping Fur (TL0). Warm unless wet. $50, 8 lbs.

Suitcase, Hard (TL5). Holds 100 lbs. DR 4, with key lock. $250, 8 lbs.

Tent, 1-Man (TL0). Includes ropes; no poles needed. $50, 5 lbs.

Tent, 2-Man (TL0). Includes ropes; requires one 6-foot pole. $80, 12 lbs.

Tent, 4-Man (TL0). Includes ropes; requires 2 poles. $150, 30 lbs.

Tent, 20-Man (TL1). Includes ropes; requires 16 poles. $300, 100 lbs.

Thermos Bottle (TL5). Keeps 1 pint hot (24 hrs.) or cold (72 hrs.). $10, 2 lbs.

Torch (TL0). Burns for 1 hr. $3, 1 lb.

Traveler's Rations (TL0). One meal of dried meat, cheese, etc. $2, 0.5 lb.

Water Purification Tablets (TL6). Bottle of 50. Purify 1 quart each. $5.

Wineskin (TL0). Holds 1 gallon of liquid (8 lbs. if water). $10, 0.25 lb.

Wristwatch (TL6). $20.

Communications and Information Gear

Batteries (TL6). $1, neg.

Cell Phone (TL8). Only works in some areas; $20/month fee. $250, 0.25 lb., 10 hrs.

Computer, Laptop (TL8). Modem plugs into phone. $1,500, 3 lbs., 2 hrs.

Computer, Wearable (TL8). Display glasses and wireless modem. $1,000, 2 lbs., 8 hrs.

Drum (TL0). Audible for several miles. $40, 2 lbs.

Mini-Recorder (TL7). Palm-sized, with 3-hour tape (extra tapes are $5). $200, 0.5 lb.

Mini-Recorder, Digital (TL8). As above, but without the tape! $30, 0.5 lb.

Radio, Backpack (TL7). VHF radio. 20-mile range. $6,000, 15 lbs., 12 hrs.

Radio, Hand (TL7). Classic "walkie-talkie." 2-mile range. $100, 1 lb., 12 hrs.

Radio, Headset (TL8). With throat mike. 1-mile range. Multiply cost by 10 for secure, encrypted version. $500, 0.5 lb., 12 hrs.

Satellite Phone (TL8). Global range, satellite relay. $3,000, 3 lbs., 1 hr.

Scribe's Kit (TL3). Quills, inkbottles, penknife, paper. $50, 2 lbs.

Transistor Radio (TL7). Receive-only; picks up radio stations. $15, 0.5 lb., 8 hrs.

TV Set, Mini (TL7). 5" × 5" flat-screen. $150, 3 lbs., 4 hrs.

Typewriter, Manual (TL6). $200, 10 lbs.

Wax Tablet (TL1). For writing; erasable. $10, 2 lbs.

Equestrian Gear

Bonuses to control a mount only offset penalties to Riding skill; they never give a net bonus.

Bit and Bridle (TL1). +2 to control horse, or +3 if using both hands. $35, 3 lbs.

Horseshoes (TL3). Shod horses get +2 HT on any rolls for stamina on long rides. Per set: $50, 4 lbs.

Saddle and Tack (TL2). Basic equipment for Riding skill. $150, 15 lbs.

Saddlebags (TL1). Hold 40 lbs. $100, 3 lbs.

Spurs (TL2). +1 to control a mount. $25.

Stirrups (TL3). Make it easy to mount a horse and give +1 to control mount. *Required* to use Lance skill. With ordinary saddle: $125, 20 lbs.

War Saddle (TL3). +1 to Riding skill to stay seated, 50% chance user will stay seated even if unconscious. With stirrups: $250, 35 lbs.

Law-Enforcement, Thief, and Spy Gear

Bug, Audio (TL7). -7 to spot, 1/4-mile range, transmits for 1 week. $200.

Bug Stomper (TL7). Jams bugs in a 10-yard radius. $1,200, 2 lbs., 8 hrs.

Disguise Kit (TL5). +1 to Disguise skill. $200, 10 lbs.

Electronic "Lockpicks" (TL7). +2 to pick *electronic* locks. $1,500, 3 lbs.

Handcuffs (TL5). Give -5 to Escape. $40, 0.5 lb.

Homing Beacon (TL7). Scanner tracks at 1-mile range. $40, 12 hrs.

Laser Microphone (TL8). Eavesdrop through glass. 300-yd. range. $500, 2 lbs.

Lockpicks (TL3). Basic equipment for Lockpicking skill. $50.

Nanobug (TL8). Pinhead-sized audio-visual bug (-10 to spot). $100.

Shotgun Mike (TL6). Gives (TL-5) levels of Parabolic Hearing. $250, 2 lbs.

Medical Gear

Antibiotic (TL6). Prevents or cures (in 1d days) infections. $20.

Antitoxin Kit (TL6). Antidote for specific poison. 10 uses. $25, 0.5 lb.

Bandages (var.). Bandages for a half-dozen wounds. Might be clean cloth, adhesive dressings, or spray-on "plastiskin," depending on TL. Basic equipment for First Aid skill. $10, 2 lbs.

Crash Kit (var.). A complete kit for treating *serious* injuries. Includes sterile bandages, sutures, and drugs appropriate for the TL. At TL6+, includes IV drip, needle, and plasma. +2 to First Aid skill, and counts as improvised gear (-5) for Surgery. $200, 10 lbs.

First Aid Kit (var.). A complete kit for treating wounds, with bandages, ointments, etc. +1 to First Aid skill. $50, 2 lbs.

Surgical Instruments (var.). Includes scalpels, forceps, etc. Basic equipment for Surgery skill. $300, 15 lbs.

Optics and Sensors

Binoculars (TL6). Gives (TL - 4) levels of Telescopic Vision. $400, 2 lbs.

Camcorder (TL8). Has 10× zoom. Gives Night Vision 5. $1,000, 1 lb., 7 hrs.

Camera, 35mm (TL6). Basic equipment for Photography skill. Extra film is 32 shots ($10, neg.). Better cameras cost *much* more! $50, 3 lbs.

Metal Detector Wand (TL7). +3 to find metal items. $50, 1 lb., 8 hrs.

Mini-Camera, Digital (TL8). Stores pictures on optical disk. $500.

Night Vision Goggles (TL8). Give Night Vision 9. $600, 2 lbs., 8 hrs.

Spy Camera (TL6). Holds 36 exposures, uses microfilm. $500.

Telescope (TL4). Gives (TL-3) levels of Telescopic Vision. $500, 6 lbs.

Tools

Balance and Weights (TL1). For weighing goods. $35, 3 lbs.

Crowbar, 3' (TL2). Treat as a small mace in combat, but at -1 to skill. $20, 3 lbs.

Cutting Torch (TL6). 1d+3(2) burn per second. Each gas bottle gives 30 seconds of cutting. $500, 30 lbs. Extra gas bottles are $50, 15 lbs. per bottle.

Knitting Needles (TL3). Per pair. $5.

Pickaxe (TL2). Improves digging speed. $15, 8 lbs.

Plow, Iron (TL2). Works rough soils. $220, 120 lbs.

Plow, Wooden (TL1). Pulled by oxen. $55, 60 lbs.

Portable Tool Kit (var.). Basic equipment for *one* of the following skills: Carpentry (TL1) is $300, 20 lbs.; Armoury (TL1), Explosives (TL5), Machinist (TL5), Mechanic (TL5), or Electrician (TL6) is $600, 20 lbs.; Electronics Repair (TL6) is $1,200, 10 lbs.

Saw (TL0). A lumberjack's tool, not a carpentry saw. $150, 3 lbs.

Shovel (TL1). Speeds up digging. $12, 6 lbs.

Spinning Wheel (TL3). Produces yarn six times as fast. $100, 40 lbs.

Suitcase Lab (var.). Basic equipment for a specific scientific skill (e.g., Chemistry or Forensics). $3,000, 10 lbs.

Wheelbarrow (TL2). Holds 350 lbs. Divide effective weight of load by 5. $60, 18 lbs.

Whetstone (TL1). For sharpening tools and weapons. $5, 1 lb.

Transportation

See *Riding and Draft Animals* (p. 459) and *Vehicles* (p. 462).

Weapon and Combat Accessories

Ear Muffs (TL6). Block loud noises (e.g., gunshots). Give Protected Hearing. $200, 1 lb.

Hip Quiver (TL0). Holds 20 arrows or bolts. $15, 1 lb.

Holster, Belt (TL5). Fits most pistols. $25, 0.5 lb.

Holster, Shoulder (TL5). Allows use of Holdout, but gives -1 to Fast-Draw. $50, 1 lb.

Lanyard, Leather (TL0). Lets you retrieve a dropped weapon on a DX roll. Each attempt requires a Ready maneuver. Can be cut: -6 to hit, DR 2, HP 2. $1.

Lanyard, Woven Steel (TL6). As leather lanyard, but DR 6, HP 4. $15.

Laser Sight (TL8). +1 to skill; see *Laser Sights* (p. 412). $100, 6 hrs.

Scope, 4× (TL6). +2 to Acc for aimed shots only. $150, 1.5 lbs.

Scope, 4×, Thermal Imaging (TL8). As above, plus gives the user Infravision. $8,000, 4 lbs., 2 hrs.

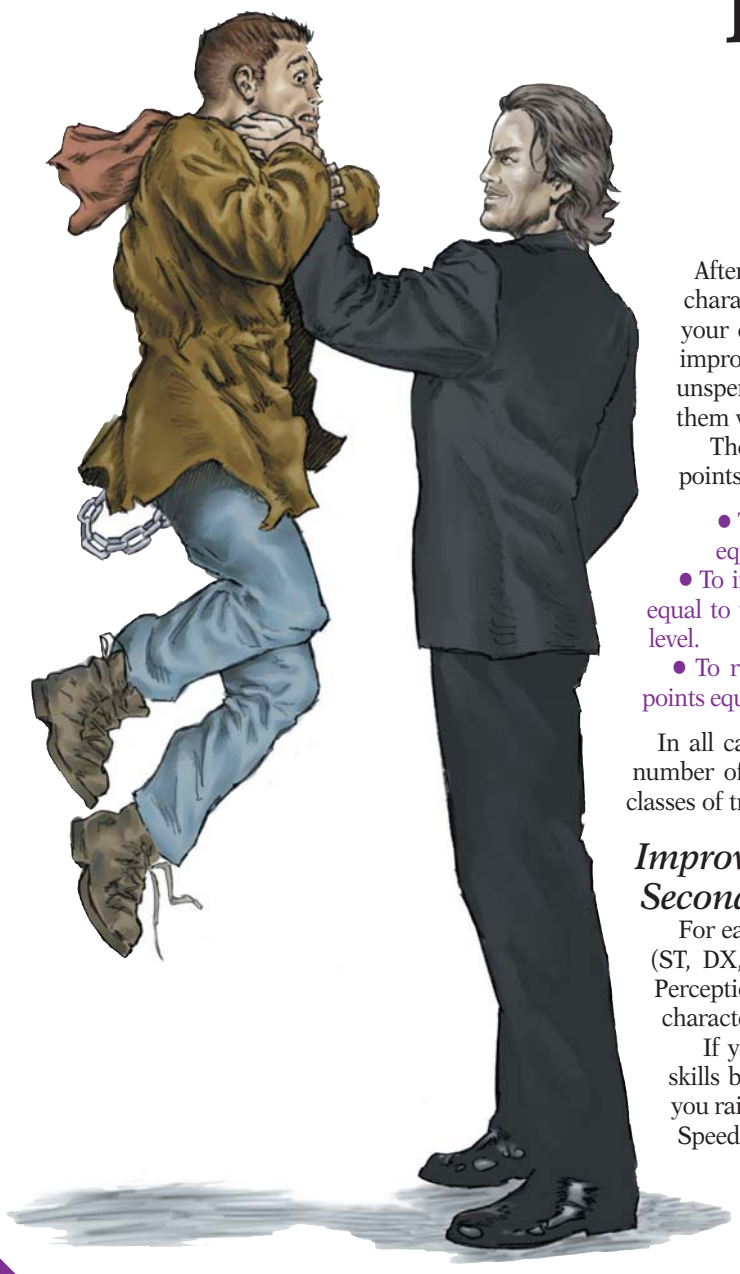
Shoulder Quiver (TL0). Holds 12 arrows or bolts. $10, 0.5 lb.

Silencer, Pistol or SMG (TL6). Reduces damage by -1 per die; see *Silencers* (p. 412). $400, 1 lb.

Web Gear (TL6): Belt and suspenders with pouches and rings for gear. $50, 2 lbs.

Chapter Nine
Character Development

Your character will improve – or simply *change* – with time. The longer you play your character, the more opportunities you will have for such development.



Improvement Through Adventure

After each game session, the GM will award you "bonus" character points – the same kind of points you used to create your character. You may spend these points immediately to improve your character, or you can save them. You can save unspent points for as long as you like, but you should *ignore* them when you add up your character's point value.

The following rules apply when you spend bonus character points:

- To add a *new* trait with a *positive* point cost, pay points equal to the trait's usual point cost.
- To improve an *existing* trait that comes in levels, pay points equal to the *difference* in cost between the new level and the old level.
- To remove an *existing* trait with a *negative* point cost, pay points equal to the bonus originally earned when you took the trait.

In all cases, increase the point value of your character by the number of points spent. Some additional rules apply to specific classes of traits.

Improving Attributes and Secondary Characteristics

For each level by which you wish to improve a basic attribute (ST, DX, IQ, or HT) or a secondary characteristic (HP, Will, Perception, FP, Basic Speed, or Basic Move), you must spend character points equal to the cost to raise that score by one level.

If you improve an attribute, secondary characteristics and skills based on that attribute improve as well. For instance, if you raise your HT by one, you gain 1 FP and 0.25 point of Basic Speed (which might in turn increase Basic Move), and *all* your HT-based skills go up by one!

Increases in ST do not affect height (except for a child), but if you wish, you may gain additional *weight* to go with higher ST.

Adding and Improving Social Traits

To improve social traits, you need an in-play justification *in addition to* the expenditure of sufficient points. Some examples:

Allies, Contacts, and Patrons: You must meet such NPCs during your adventures and earn their trust through your actions. You cannot *hire* true Allies, Contacts, or Patrons.

Clerical Investment, Legal Enforcement Powers, Rank, Security Clearance, Status, etc.: An individual in a position of relative authority must bestow such privileges. This might require a background check, qualification course, valor in combat, years of service, or a large bribe.

Reputation: You must earn this through deeds and works. You cannot buy a Reputation until you have done something to merit it!

Signature Gear: You must acquire a suitable item in the course of your adventures.

Tech Level: You can raise your personal TL (see *Technology Level,* p. 22) by living in a society of a higher TL than your own – but only if you are free to attend that society's schools and benefit from its conveniences (being an alien abductee, prisoner, etc. doesn't count). The GM should consider limiting improvement to one TL per year of game time.

Wealth: To improve your Wealth, you must amass money equal to the starting wealth of the desired wealth level *after* paying any necessary bribes, taxes, etc.

Adding and Improving Mental and Physical Advantages

Most mental and physical advantages are inborn; you cannot buy them after character creation. However, there are some exceptions.

You can learn some advantages as if they were skills; see *Learnable Advantages* (p. 294). If the GM feels that adventuring is as good as training to acquire such an advantage, you may buy it with bonus points.

Other advantages require extraordinary circumstances: divine revelation, ritual ordeal, etc. This is typical of Magery, Power Investiture, and True Faith. In addition to points, these traits require the GM's permission and suitable in-game events!

Of course, the GM can allow you to buy *any* advantage, if the results are in keeping with his vision of the game world. The GM may also challenge *you* to provide a good explanation (dramatic, logical, or both) for why he should let you buy a new advantage.

Buying Off Disadvantages

You can get rid of most beginning disadvantages by "buying them off" with character points equal to the bonus earned when you originally took the disadvantage. This generally requires a game-world justification in addition to the point expenditure.

Dependents: When you buy off Dependents, you or the GM should provide a game-world explanation of where they went – died, grew up, moved away, fell in love with someone else . . .

Enemies: If you wish to buy off Enemies, you must deal with them in the game world: kill them, jail them, bribe them, flee from them, make friends with them . . . whatever the GM deems necessary. You can *never* permanently dispose of Enemies unless you buy them off . . . they will return or new Enemies will appear in their place.

Mental Disadvantages and Odious Personal Habits: You may buy these off at their original bonus value. Assume that you simply got over your problem.

Traits Gained in Play

The GM may rule that you have *suddenly* acquired a new trait – most often an advantage or a disadvantage – as a consequence of events in the game: social interaction, combat, divine intervention, etc. This has *nothing* to do with bonus points!

When you acquire an advantage this way, write it on your character sheet and increase your point total by the value of the advantage. You do not have to pay for it with bonus points. For instance, if the GM rewards you with a 10-point Patron after you save the life of a powerful duke, your point value goes up by 10 points and the game goes on.

The GM may allow you to refuse such an advantage if your *character* could refuse it in the game world. You could refuse wealth, but if the gods granted you Magery, you wouldn't have much say in the matter! If you refuse an advantage, you do *not* get equivalent bonus points to spend on other things.

Similarly, when you acquire a disadvantage this way, just write it down and lower your point value accordingly. You do *not* get any extra points for it – that's just the breaks of the game! For instance, if you lose an arm in battle, add One Arm [-20] and reduce your point value by 20 points; you do not get 20 points of new abilities to compensate.

The GM *may* allow you to "buy off" a disadvantage acquired in play. Save up enough character points and then talk to the GM. If he is feeling merciful, he may arrange game-world events to eliminate the disadvantage.

Money

You may trade bonus character points for money – see *Trading Points for Money* (p. 26). Each point is worth 10% of the campaign's average starting wealth. The GM should provide a suitable explanation for your windfall: tax refund, buried treasure, gambling winnings, etc. Be creative. A spy under cover as an athlete might earn the money through product endorsements!

Physical Disadvantages: Your game world's tech level – and the supernatural powers available – determine the degree to which you can buy off these traits. Consider Hard of Hearing. At TL5 or less, you would have to settle for an ear trumpet. At TL6-8, you could buy a hearing aid that would solve your problem while worn, allowing you to apply a Mitigator limitation (p. 112). At TL9+, surgery could fix the problem permanently. And in a fantasy world, the right wizard could cure you with a powerful Healing spell! The GM has the final say as to whether it is possible to remove a specific physical disadvantage . . . and if so, what the cost and time will be.

Social Stigma: You cannot get rid of this with points alone. You must either change your position in society or change your society. The GM will tell you when you have succeeded – at that time, you must pay enough points to buy off the original disadvantage.

Adding and Improving Skills and Techniques

You can use bonus character points to increase your skills and techniques. Each point is the equivalent of 200 hours of learning. This is not to say that you found time to hit the books during your adventures – only that the genuine experience of an adventure can be equivalent to a much longer period of study.

You can only spend character points to improve skills or techniques that, in the GM's opinion, saw *significant* use in the adventure during which you earned the points. If the only thing you did on an adventure was trek through forests and slay monsters, you can only improve Hiking, Survival (Woodlands), and combat abilities.

When you improve a skill or a technique, the cost is the *difference* between the cost of the new level and the cost of your current level – see *Improving Your Skills* (p. 170).

You may only *add* a skill if you attempted a default roll (see *Quick Learning Under Pressure,* box) *or* if you spent most of the adventure around people who were constantly using the skill. For instance, a city boy on a forest trek with a group of skilled woodsmen could add Survival (Woodlands). You may add a technique if, during the adventure, you made significant use of the skill to which it defaults. In all cases, the GM has the final say.

Quick Learning Under Pressure

If you attempt a default skill roll in a stressful situation, you may try to acquire that skill during play, regardless of whether you succeeded or failed (you can learn from your mistakes!). The GM is the judge of whether a given situation qualifies as "stressful"; see *Base Skill vs. Effective Skill* (p. 171) for examples.

At the start of the *next* game session, make an IQ roll to see whether you learned from your experience. Eidetic Memory gives +5; Photographic Memory gives +10! On a success, you may spend *one* point earned during the previous session to learn the skill. If you have no points, you cannot learn the skill – and if you let more than one session go by, you lose the opportunity.

Obviously, if a skill has no default, you cannot learn it this way.

Improvement Through Study

You may add or improve skills by spending time studying them, if an opportunity for study is available. In the discussion below, "skills" refers not only to ordinary skills, but also to spells, techniques, and even some advantages (see *Learnable Advantages,* p. 294).

Improvement through study does *not* depend on earning bonus points. You could build a character, keep track of his age and income, and let him study for 40 game-years without ever bringing him into play. Of course, this would not be much fun . . . and things that happen during play can offer great opportunities for study. If you aid a master wizard, his gratitude might take the form of magic lessons!

Normally, it takes 200 hours of learning to gain one point in a skill. You may study any number of skills at once, but a given hour of time counts toward study of only *one* subject, unless the GM allows an exception.

Some forms of study are more effective than others. This means that an hour of *study* does not always equal an hour of *learning* – there is a "conversion factor" between the two. Some guidelines appear below.

Jobs

Adventurers can, and probably should, get jobs. This lets them earn money and practice their skills. Most jobs have prerequisite skills; some have other requirements (minimum attribute levels, advantages, etc.). In general, more accomplished characters can get better jobs and earn more money. For more information, see *Jobs* (p. 516).

Learning on the Job

If you have a job, time spent on the job counts as "study" of the skills used in the job. However, since most time on the job is spent doing what you already know, not learning new things, every *four* hours on the job count as *one* hour of learning. You may claim a maximum of eight hours on the job per day (four hours per day at a part-time job). Your actual working hours may exceed this, but fatigue limits *learning* to this level. Thus, a year of full-time work will give you two to three points to spend on job-related skills.

Self-Teaching

You can teach *yourself* a skill, unless the skill description attaches specific conditions that would preclude this (such as "only taught by the military" or a prerequisite of Trained By A Master). Every *two* hours of reading, exercises, practice, etc. without an instructor count as *one* hour of learning. This must take place in time not used for adventuring, working, eating, sleeping, or taking care of personal hygiene. The GM should limit self-teaching to 12 hours per day – or eight hours/day for those with part-time jobs, only four hours/day for those with full-time jobs.

Education

Every hour of instruction by a professional teacher counts as one hour of learning. A "professional teacher" is someone with Teaching skill at 12 or higher. In order to teach you a given skill, he must either know that skill at your current skill level or better, or have as many or more points in the skill as you do. Ordinary instruction rarely exceeds eight hours per day. A college semester (21 weeks) of classroom study equals around one point per subject, and a full-time student could study up to five subjects per semester. A semester of night school would give one point in one subject.

Intensive Training

Full-time study with expert teachers and lavish training materials is the most effective type of "normal" learning. An expert teacher has Teaching skill at 12 (or higher), plus a higher level *and* more points in the skill being taught than you do. *Quadruple* all costs and tuition fees! Every hour of intensive training counts as *two* hours of learning. Intensive training is rarely available outside the military, where you have little control over the skills taught or the scheduling of courses. It can last for up to 16 hours per day. You must have HT 12+ to make it through such training without "washing out" (the Fit advantage *does* increase effective HT for this purpose).

Adventuring

Adventuring time can also count as study of suitable skills. The "conversion factor" is up to the GM, who should be generous. For example, a trek through the Amazon might count for every waking moment – say, 16 hours a day – as study of Survival (Jungle).

Finding a Teacher

It is most efficient to learn new skills from a teacher. For some skills, finding a teacher is automatic; for others, it can be difficult. The GM should adjust availability to suit his concept of what is "reasonable."

Most education costs money. The price is up to the GM. If the teacher wants to be paid, see *Jobs* (p. 516) to determine what his time is worth. Multiply all fees by 4 for intensive training! Barter may be possible, or the teacher may demand a service in exchange for his aid – there are endless adventure possibilities here.

Learning Magic

In a world where magic is common, you can learn a spell just as you would any other IQ-based skill. You may apprentice yourself to a wizard to learn his whole craft . . . or hire a magic instructor to teach you a few spells.

In a setting in which magic is *secret* or *rare*, finding an instructor is much harder. Most wizards shroud themselves in secrecy . . . or belong to reclusive, mysterious cults . . . or prove to be fakes!

You *can* learn magic without a teacher; use the rules described under *Self-Teaching*. You must be able to read and have access to good textbooks. Magical grimoires are often deliberately complex and obscure – *especially* in rare- or secret-magic settings! The GM is free to slow the pace of self-teaching as much as he wishes to reflect this.

Learning Secret Martial-Arts Techniques

To acquire Trained By A Master (p. 93) or Weapon Master (p. 99), you must first find an appropriate school or teacher – an adventure in itself, often involving a dangerous pilgrimage to an exotic locale. Once you locate a master, you disappear from play for 1d+1 game-years. After *that*, you might have to pass a series of hazardous tests, or make a final quest to yet another remote land.

When you emerge from your training, you have the desired advantage, plus 20 character points to spend on any special skills allowed in the campaign. The GM can treat these points like those gained from any other kind of study, or he can "balance" them with an equal number of points in additional disadvantages – perhaps an Enemy (e.g., a rival school), or a Duty or Sense of Duty to your school or teacher.

Optional Rule: Maintaining Skills

Realistically, if you do not use a skill, you will forget it or your knowledge will grow obsolete. At the GM's option, if you haven't used or practiced a skill for at least six months, you must make an IQ roll to avoid skill degradation.

Modifiers: +5 for Eidetic Memory, or +10 for Photographic Memory; -2 if you learned the skill through intensive training (your training was good, but also *brief*).

On a failure, the skill drops by one level. The points spent on that level are gone, which lowers your point value. If a skill with only one point in it degrades, it drops to default level (that is, you are no better than someone without training) and cannot degrade further.

If you go another six months without using the skill, roll again . . . and so on.

Extreme skill levels are even harder to maintain. Chess masters, star athletes, etc. spend a lot of time honing their "edge." If you know a skill above attribute+10, you must make the above IQ roll *every day* you go without using the skill "in the field" or spending one hour in practice (this hour does not count as study). Once your skill drops to attribute+10, use the normal rules for skill degradation.

This rule is intended for harshly realistic campaigns, where verisimilitude justifies the extra bookkeeping. It is poorly suited to larger-than-life games where old soldiers come out of retirement to go on adventures and wizards live for centuries.

Learnable Advantages

You can learn certain advantages as if they were skills (200 hours = 1 point), provided you have a suitable instructor (professor, kung fu master, etc.). Use the standard rules for skill learning; in particular, anyone teaching an advantage must possess it himself.

Combat Reflexes: The GM may rule that fighting is the *only* way to "learn" Combat Reflexes before TL7, and require adventurers who want this advantage to pay for it with bonus points. At TL7+, realistic military simulations can teach it as if it were a skill.

Cultural Familiarity and Languages: Time spent in a foreign land counts as four hours per day toward both Cultural Familiarity and the local Language, no matter what else you are doing (even studying skills – an exception to the "one skill at a time" rule).

Eidetic Memory: By apprenticing as a bard or doing daily mental exercises, you can "learn" the first level of this advantage. This requires an hour a day, meaning it takes a little less than three years of constant practice to gain this trait.

Enhanced Defenses: Only those with Trained By A Master or Weapon Master may "learn" these advantages. The GM should handle them as if they were martial-arts skills.

Fit: You can acquire either level of Fit through exercise – on your own or with a trainer – just as you would athletic skills like Hiking and Running.

G-Experience: The standard way to "learn" G-Experience is to visit planets that have different gravity fields. Highly advanced societies that can manipulate gravity might be able to teach this advantage as if it were a skill.

Psionic Abilities and Talents: In some game worlds, "psi academies" teach psionic Talents and abilities. The rules under *Gaining New Psi Abilities* (p. 255) apply to learning psi advantages as well as to buying them with earned points: you must possess Talent or abilities in a power to acquire new abilities, and you must have abilities to acquire Talent.

Trained By A Master and Weapon Master: See *Finding a Teacher* (p. 293).

Transformations

Adventurers may encounter forces that can *transform* them in body or in mind. This kind of character development is significantly more complex than simply spending points or studying, and can raise difficult questions. The next few sections suggest answers.

Body Modification

"Body modification" is any artificial process that gives you a set of traits different from the ones you were born with (or *created* with), without moving your brain or mind to a new body. This most often means surgery, or biological or mechanical implants (often known as "biomods" and "cyberwear," respectively), but permanent supernatural transformations also qualify. The GM determines what body modification can accomplish in his campaign.

Modifications acquired *before* your character entered the game cost points. Build your character normally and note which traits are due to artificial tinkering when you write your character story. This neither costs money nor affects the point cost of the traits – it merely justifies certain abilities on your character sheet (see *Advantage Origins*, p. 33).

Modifications added in play work differently. In theory, if you have the cash and can locate a suitably skilled surgeon, wizard, etc., you can buy modifications with money. In practice, this gives wealthy characters a significant edge, as they can effectively

convert money into character points – often more points than they paid for their Wealth! The GM is the final judge of what is "fair" in his campaign, but here are a few suggestions:

Modifications cost points. You must have the requisite character points *before* you can add modifications. If you get a modification you cannot afford, the process fails and you do not gain the hoped-for abilities . . . or perhaps you gain them, but *lose* other abilities of equal value! The GM might opt to let you pay for your new abilities by going into "point debt": any point cost in excess of what you can afford becomes negative unspent points, and until this debt is gone, all future bonus points must go toward paying it off. Cash costs are irrelevant (but one could see this as a special case of *Trading Points for Money,* p. 26). This option preserves game balance but isn't very realistic.

Modifications cost money. If you have the cash, you can buy the modification. Pay the requisite amount of money and alter your point value to reflect the point cost of your new traits. This option is realistic but allows *rapid* character improvement. To keep this under control, the GM should ruthlessly enforce recovery times for surgery (see below), and have gruesome consequences for failed attempts at modification.

Modifications are free. If events in the campaign "inflict" modifications on you without giving you any say in the matter, you simply gain the relevant traits and adjust your point value accordingly – see *Traits Gained in Play* (p. 291). This option makes the most sense for involuntary modifications that give disadvantages, or for useful modifications that *all* the PCs receive from their employer or Patron (in which case the point cost is likely to be "balanced" by a significant Duty).

Surgical Modifications

Surgery to install biomods or cyberwear, or for its own sake (e.g., cosmetic surgery to improve appearance), is not risk-free. Even if all goes well, you will need time to recover.

It takes one day to recover per character point of traits added or removed via surgery. The Surgery roll is at -1 per full *week* of recovery required. On a critical success, halve recovery time. On a success, recovery time is normal. On a failure, the modification fails, recovery time is normal, and you suffer (recovery time in weeks)/2 dice of damage to the affected body part. Critical failure doubles this damage *and* results in complications – the GM is free to assign appropriate disadvantages.

If the GM is charging cash for modifications, assume that surgery costs $1,000 per character point of traits added or removed.

Triple the recovery time and dollar cost for operations on the brain, eyes, or vital organs.

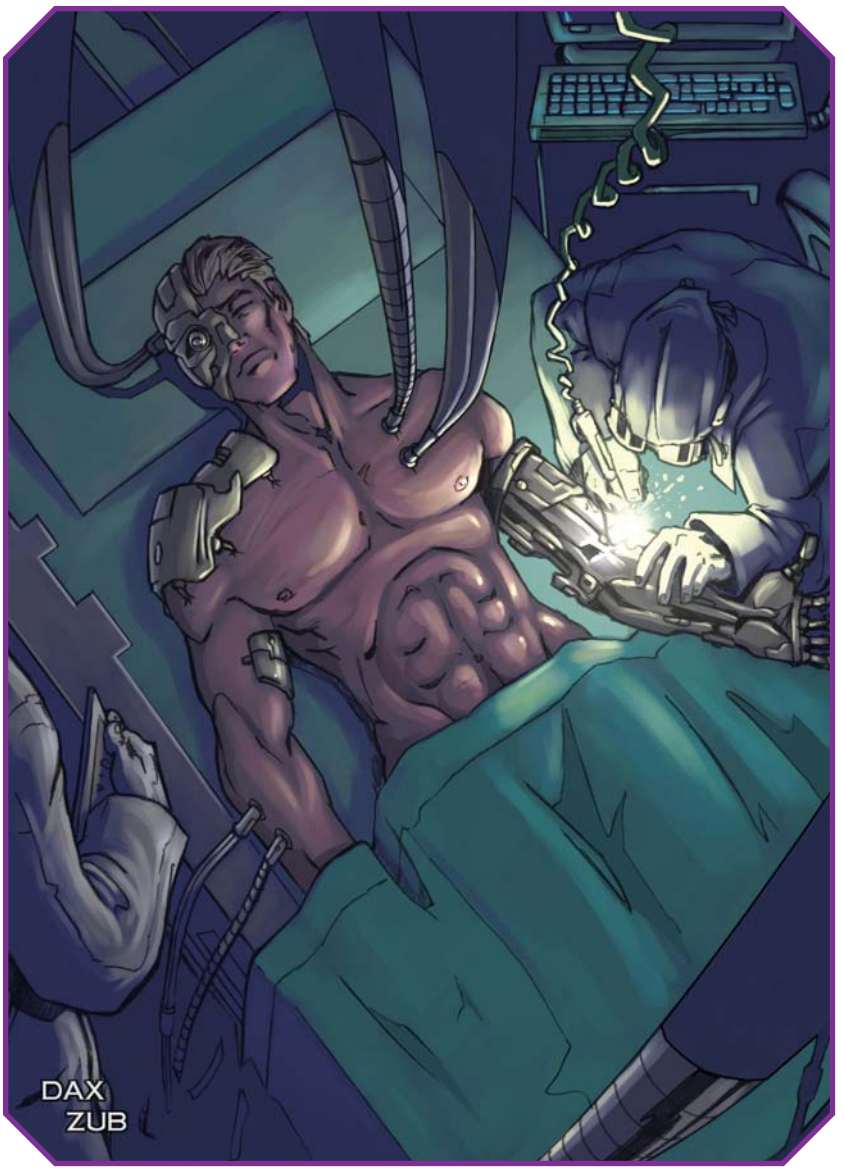
Specific ***GURPS*** worldbooks might supersede some or all of these guidelines.

Supernatural Modifications

Divine will, magic, and so on may be able to produce permanent transformations. There is no recovery time, but if the GM is charging cash, this is usually very expensive – *at least* twice as expensive as surgery, in the form of wizard's fees, temple donations, etc.

Instant Learning

Magical wishes, divine inspiration, "neurotechnology," etc. might be able to grant skills as well as advantages and disadvantages. As with other modifications, the GM may charge cash or points, or simply grant the skills. An amusing option is to balance the cost of such skills with mental disadvantages or quirks related to them.



Modular Abilities: If you bought the Modular Abilities advantage, you are capable of *temporary* "instant learning" – for instance, by loading a computer program or plugging in a chip. Use the rules under *Modular Abilities* (p. 71) instead of those above.

Mind Transfer

A hero in a fantasy or futuristic setting might find himself inhabiting a new body. There are many possibilities – brain transplants, digital "uploading," the Possession advantage (p. 75), etc. – but they all use the same basic rules.

When your mind moves to a new body, you gain that body's ST, DX, and HT – as well as all secondary characteristics based on those attributes – and its *physical* advantages and disadvantages. Your IQ, Perception, Will, and *mental* advantages and disadvantages don't change. Keep your *points* in skills, but base your skill *levels* on your new attributes.

Recalculate your point value to take your new traits into account. For instance, if you switch from a body with ST 10, DX 10, HT 10, and One Arm [-20] to one with ST 12 [20], DX 12 [40], HT 12 [20], and two arms, your point value goes up by 100 points.

The GM decides how to handle changes in point value. The options given under *Body Modification* (above) apply here as well. In general, if you had no say in the transfer, the GM should simply adjust your point value. If you *chose* to inhabit a superior body, the GM may charge you points (the difference in point value between your new form and your old one) or money (especially if the new body is a golem, robot, etc. built for the purpose).

Mind vs. Brain

The rules above assume that a *mind* is unaffected by the *brain* in which it resides. This is fine for fantasy mind transfer – fantasy rarely concerns itself with the neurological origin of consciousness – but in a "hard science" setting, the GM should modify IQ, Will, and Perception by the difference in *racial* modifiers between the new body and the old one. Recalculate the point value to reflect such changes. For instance, if you belong to a race with IQ+1 and move to an animal body with racial IQ-5, your IQ will drop by 6, lowering your point value by 120 points.

Realistically, DX also has a "learned" component – although it is likely smaller. The GM may decide that this rule applies to DX as well.

Multiple People

Certain techniques – such as "braintaping" (recording an image of your thoughts and personality) and cinematic cloning – may let you *copy* your mind into multiple bodies.

If you make a copy of yourself in play, and intend to use it as a "backup" that will only enter play if you die, treat it as a suitably modified Extra Life (p. 55). The GM's decisions regarding body modification determine whether you pay cash or points. Either way, you must update your backup regularly; otherwise, it will have outdated memories and skills – or its memories might fade to the point where it will not activate! If you paid cash, the GM is free to charge fees for updates, maintenance, and the security of your backup.

If you make copies of yourself and activate them *while you are alive,* you control only *one* character. The copies diverge into different people, which the GM controls as NPCs. They are *not* automatically your friends! The GM may permit you to buy copies as Allies (p. 36), at the usual point cost. But if you make copies indiscriminately, the GM might rule that some of them dislike you, becoming Enemies (p. 135) with the Evil Twin modifier.

If you have active copies, you may ask the GM to let you play one if you die. However, you will have to accept the GM's decision on how your copy diverged from your original self. Your copy might have discovered his artistic side and let Guns skills degrade while he learned Dancing . . . and since he's his own person, you must roleplay this, or the GM will penalize you for bad roleplaying. Such is the price of a free Extra Life!

Supernatural Afflictions

Certain supernatural beings can infect you with their "curse" via a bite or other attack, turning you into a similar kind of being. In effect, you acquire a new racial template. If this is involuntary (and it usually is), apply the *Traits Gained in Play* rule (p. 291). Modify your character sheet to include your new racial traits, and adjust your point value as necessary.

But if you *willingly* accept such a fate in order to acquire powerful new abilities, the GM should treat the transformation as he would any other body modification. To keep things fair, he should charge points. If you cannot afford the point cost, the GM may make up the difference by assigning you new disadvantages! Cursed (p. 129) is particularly likely . . .

For more information, see *Dominance* (p. 50) and *Infectious Attack* (p. 140).

Death

In general, when your character dies, that's the end of his career. You must create a new character to continue in the campaign. The GM might start you out close to the other PCs in points, but it is *not* acceptable to write a new name across the top of your old character sheet and declare, "This is his twin brother." If you want to do that, buy an Extra Life!

In some settings, however, magic or high technology might be able to resurrect you. If so, you return from the dead and pick up where you left off.

In other worlds, you might be able to become a being of pure thought (especially if you are a psi), return from the grave as undead (ghost, vampire, etc.), or even be reincarnated as an animal. The net effect is that you acquire a new racial template. The GM should handle this as explained under *Mind Transfer* (above): combine your mental traits with the physical traits of your new form, and adjust your point value. The point cost, if any, is the same as for a supernatural affliction – going from "living" to "dead" to "vampire" is really no different from going directly from "living" to "vampire."

Trait Lists

Advantages

M/P/Soc tells whether an advantage is *mental, physical,* or *social.*
X/Sup tells whether an advantage is *exotic* or *supernatural.* A – in this column means it is *mundane.*

Advantage	*M/P/Soc*	*X/Sup*	*Cost*	*Page*
360° Vision	P	X	25	34
3D Spatial Sense	P	–	10	34
Absolute Direction	P	–	5	34
Absolute Timing	M	–	2	35
Accessory	P	X	1	100
Acute Hearing	P	–	2/level	35
Acute Taste and Smell	P	–	2/level	35
Acute Touch	P	–	2/level	35
Acute Vision	P	–	2/level	35
Administrative Rank	Soc	–	5 or 10/level	30
Affliction	P	X	10/level	35
Alcohol Tolerance	P	–	1	100
Allies	Soc	–	Variable	36
Altered Time Rate	M	X	100/level	38
Alternate Form	P	X	Variable	83
Alternate Identity	Soc	–	5 or 15	39
Ambidexterity	P	–	5	39
Amphibious	P	X	10	40
Animal Empathy	M	–	5	40
Animal Friend	M	–	5/level	90
Appearance	P	–	Variable	21
Arm DX	P	X	12 or 16/level	40
Arm ST	P	X	3, 5, or 8/level	40
Artificer	M	–	10/level	90
Autotrance	M	–	1	101
Binding	P	X	2/level	40
Blessed	M	Sup	10+	40
Brachiator	P	X	5	41
Breath-Holding	P	X	2/level	41
Business Acumen	M	–	10/level	90
Catfall	P	X	10	41
Chameleon	P	X	5/level	41
Channeling	M	Sup	10	41
Charisma	M	–	5/level	41
Chronolocation	M	–	5	35
Claim to Hospitality	Soc	–	1 to 10	41
Clairsentience	M	Sup	50	42
Claws	P	X	Variable	42
Clerical Investment	Soc	–	5	43
Clinging	P	X	20	43
Combat Reflexes	M	–	15	43
Common Sense	M	–	10	43
Compartmentalized Mind	M	X	50/level	43
Constriction Attack	P	X	15	43
Contact Group	Soc	–	Variable	44
Contacts	Soc	–	Variable	44
Courtesy Rank	Soc	–	1/level	29
Cultural Adaptability	M	–	10	46
Cultural Familiarity	Soc	–	1 or 2/culture	23
Cybernetics	P	–	Variable	46
Damage Resistance	P	X	5/level	46
Danger Sense	M	–	15	47
Daredevil	M	–	15	47
Dark Vision	P	X	25	47
Deep Sleeper	P	–	1	101
Destiny	M	Sup	Variable	48
Detect	M/P	X	Variable	48
Digital Mind	P	X	5	48
Discriminatory Hearing	P	X	15	49
Discriminatory Smell	P	X	15	49
Discriminatory Taste	P	X	10	49
Doesn't Breathe	P	X	20	49
Doesn't Eat or Drink	P	X	10	50
Doesn't Sleep	P	X	20	50
Dominance	M	Sup	20	50
Double-Jointed	P	–	15	56
Duplication	M/P	X	35/copy	50
Eidetic Memory	M	–	5	51
Elastic Skin	P	X	20	51
Empathy	M	–	15	51
Enhanced Defenses	M	–	Variable	51
Enhanced Move	P	X	20/level	52
Enhanced Time Sense	M	X	45	52
Enhanced Tracking	P	X	5/level	53
Extended Lifespan	P	X	2/level	53
Extra Arms	P	X	Variable	53
Extra Attack	P	–	25/attack	53
Extra Head	P	X	15/head	54
Extra Legs	P	X	Variable	54
Extra Life	M	X	25/life	55
Extra Mouth	P	X	5/mouth	55
Fashion Sense	M	–	5	21
Favor	Soc	–	Variable	55
Fearlessness	M	–	2/level	55
Filter Lungs	P	X	5	55
Fit	P	–	5	55
Flexibility	P	–	5	56
Flight	P	X	40	56
Fur	P	X	1	101
Gadgeteer	M	–	25 or 50	56
G-Experience	M	–	1 to 10	57
Gifted Artist	M	–	5/level	90
Gizmos	M	–	5/gizmo	57
Green Thumb	M	–	5/level	90
Growth	P	X	10/level	58
Gunslinger	M	–	25	58
Hard to Kill	P	–	2/level	58
Hard to Subdue	P	–	2/level	59
Healer	M	–	10/level	90
Healing	M	X	30	59
Hermaphromorph	P	X	5	59
High Manual Dexterity	P	–	5/level	59
High Pain Threshold	P	–	10	59
High TL	M	–	5/level	23
Higher Purpose	M	Sup	5	59
Honest Face	P	–	1	101
Hyperspectral Vision	P	X	25	60
Illuminated	M	Sup	15	60
Improved G-Tolerance	P	–	5 to 25	60
Independent Income	Soc	–	1/level	26
Indomitable	M	–	15	60
Infravision	P	X	0 or 10	60

Advantage	*M/P/Soc*	*X/Sup*	*Cost*	*Page*
Injury Tolerance	P	X	Variable	60
Innate Attack	P	X	Variable	61
Insubstantiality	M/P	X	80	62
Intuition	M	–	15	63
Intuitive Mathematician	M	–	5	66
Invisibility	M/P	X	40	63
Jumper	M	Sup	100	64
Language Talent	M	–	10	65
Legal Enforcement Powers	Soc	–	5, 10, or 15	65
Legal Immunity	Soc	–	5 to 20	65
Less Sleep	P	–	2/level	65
Lifting ST	P	X	3/level	65
Lightning Calculator	M	–	2	66
Longevity	P	–	2	66
Luck	M	–	Variable	66
Magery	M	Sup	5 + 10/level	66
Magic Resistance	M	Sup	2/level	67
Mana Damper	M	Sup	10/level	67
Mana Enhancer	M	Sup	50/level	68
Mathematical Ability	M	–	10/level	90
Medium	M	Sup	10	68
Merchant Rank	Soc	–	5 or 10/level	30
Metabolism Control	P	X	5/level	68
Microscopic Vision	P	X	5/level	68
Military Rank	Soc	–	5 or 10/level	30
Mimicry	M	X	10	68
Mind Control	M	X	50	68
Mind Probe	M	X	20	69
Mind Reading	M	X	30	69
Mind Shield	M	X	4/level	70
Mindlink	M	Sup	Variable	70
Modular Abilities	M/P	X	Variable	71
Morph	P	X	Variable	84
Musical Ability	M	–	5/level	91
Neutralize	M	X	50	71
Nictitating Membrane	P	X	1/level	71
Night Vision	P	–	1/level	71
No Hangover	P	–	1	101
Obscure	P	X	2/level	72
Oracle	M	Sup	15	72
Outdoorsman	M	–	10/level	91
Parabolic Hearing	P	X	4/level	72
Patrons	Soc	–	Variable	72
Payload	P	X	1/level	74
Penetrating Vision	P	X	10/level	74
Penetrating Voice	P	–	1	101
Perfect Balance	P	–	15	74
Peripheral Vision	P	–	15	74
Permeation	P	X	Variable	75
Photographic Memory	M	–	10	51
Pitiable	Soc	–	5	22
Plant Empathy	M	–	5	75
Police Rank	Soc	–	5 or 10/level	30
Possession	M	X	100	75
Power Investiture	M	Sup	10/level	77
Precognition	M	Sup	25	77
Pressure Support	P	X	5 to 15	77
Protected Sense	P	X	5/sense	78
Psi Static	M	Sup	30	78
Psychometry	M	Sup	20	78
Puppet	M	X	5 or 10	78
Racial Memory	M	X	15 or 40	78
Radiation Tolerance	P	X	Variable	79
Rank	Soc	–	5 or 10/level	29
Rapid Healing	P	–	5	79
Rapier Wit	M	–	5	79
Reawakened	M	Sup	10	80
Recovery	P	X	10	80
Reduced Consumption	P	–	2/level	80
Regeneration	P	X	Variable	80
Regrowth	P	X	40	80
Religious Rank	Soc	–	5 or 10/level	30
Reputation	Soc	–	Variable	26
Resistant	P	–	Variable	80

Advantage	*M/P/Soc*	*X/Sup*	*Cost*	*Page*
Sanitized Metabolism	P	X	1	101
Scanning Sense	P	X	Variable	81
Sealed	P	X	15	82
Security Clearance	Soc	–	Variable	82
See Invisible	P	X	15	83
Sensitive	M	–	5	51
Sensitive Touch	P	X	10	83
Serendipity	M	–	15/level	83
Shadow Form	P	X	50	83
Shapeshifting	P	X	Variable	83
Shrinking	P	X	5/level	85
Shtick	M/P	–	1	101
Signature Gear	Soc	–	Variable	85
Silence	P	X	5/level	85
Single-Minded	M	–	5	85
Slippery	P	X	2/level	85
Smooth Operator	M	–	15/level	91
Snatcher	M	Sup	80	86
Social Chameleon	M	–	5	86
Social Regard	Soc	–	5/level	86
Speak Underwater	P	X	5	87
Speak With Animals	M	X	25	87
Speak With Plants	M	X	15	87
Special Rapport	M	Sup	5	88
Spines	P	X	1 or 3	88
Spirit Empathy	M	Sup	10	88
Status	Soc	–	5/level	28
Stretching	P	X	6/level	88
Striker	P	X	5-8	88
Striking ST	P	X	5/level	88
Subsonic Hearing	P	X	0 or 5	89
Subsonic Speech	P	X	0 or 10	89
Super Climbing	P	X	3/level	89
Super Jump	P	X	10/level	89
Super Luck	M	Sup	100	89
Supernatural Durability	P	Sup	150	89
Talent	M	–	Variable	89
Teeth	P	X	0, 1, or 2	91
Telecommunication	M/P	X	Variable	91
Telekinesis	M/P	X	5/level	92
Telescopic Vision	P	X	5/level	92
Temperature Control	M/P	X	5/level	92
Temperature Tolerance	P	–	1/level	93
Temporal Inertia	M	Sup	15	93
Tenure	Soc	–	5	93
Terrain Adaptation	P	X	0 or 5	93
Terror	M	Sup	30 + 10/level	93
Trained By A Master	M	–	30	93
True Faith	M	Sup	15	94
Tunneling	P	X	30 + 5/level	94
Ultrahearing	P	X	0 or 5	94
Ultrasonic Speech	P	X	0 to 10	94
Ultravision	P	X	0 or 10	94
Unaging	P	X	15	95
Unfazeable	M	–	15	95
Universal Digestion	P	X	5	95
Unkillable	P	X	50 to 150	95
Unusual Background	M	–	Variable	96
Vacuum Support	P	X	5	96
Vampiric Bite	P	X	30 + 5/level	96
Versatile	M	–	5	96
Very Fit	P	–	15	55
Very Rapid Healing	P	–	15	79
Vibration Sense	P	X	10	96
Visualization	M	Sup	10	96
Voice	P	–	10	97
Walk on Air	P	X	20	97
Walk on Liquid	P	X	15	97
Warp	M	Sup	100	97
Wealth	Soc	–	Variable	25
Weapon Master	M	–	Variable	99
Wild Talent	M	Sup	20/level	99
Xeno-Adaptability	M	–	20	46
Zeroed	Soc	–	10	100

Disadvantages

M/P/Soc tells whether a disadvantage is *mental, physical,* or *social.*

X/Sup tells whether a disadvantage is *exotic* or *supernatural.* A – in this column means it is *mundane.*

If the *cost* of the disadvantage is followed by *, then you must select a self-control number; the cost given is for a self-control number of 12.

Advantage	*M/P/Soc*	*X/Sup*	*Cost*	*Page*
Absent-Mindedness	M	–	-15	122
Acceleration Weakness	P	–	-1	165
Addiction	M/P	–	Variable	122, 164, 165
Alcohol Intolerance	P	–	-1	165
Alcoholism	P	–	-15 or -20	122
Amnesia	M	–	-10 or -25	123
Appearance	P	–	Variable	21
Attentive	M	–	-1	163
Bad Back	P	–	-15 or -25	123
Bad Grip	P	–	-5/level	123
Bad Sight	P	–	-25	123
Bad Smell	P	–	-10	124
Bad Temper	M	–	-10*	124
Berserk	M	–	-10*	124
Bestial	M	X	-10 or -15	124
Blindness	P	–	-50	124
Bloodlust	M	–	-10*	125
Bowlegged	P	–	-1	165
Broad-Minded	M	–	-1	163
Bully	M	–	-10*	125
Callous	M	–	-5	125
Cannot Float	P	–	-1	165
Cannot Learn	M	–	-30	125
Cannot Speak	P	–	-15	125
Careful	M	–	-1	163
Charitable	M	–	-15*	125
Chauvinistic	M	–	-1	163
Chronic Depression	M	–	-15*	126
Chronic Pain	P	–	Variable	126
Chummy	M	–	-5	126
Clueless	M	–	-10	126
Code of Honor	M	–	-1 or -5 to -15	127, 163
Cold-Blooded	P	X	-5 or -10	127
Colorblindness	P	–	-10	127
Combat Paralysis	P	–	-15	127
Compulsive Behavior	M	–	-5 to -15*	128
Confused	M	–	-10*	129
Congenial	M	–	-1	164
Cowardice	M	–	-10*	129
Curious	M	–	-5*	129
Cursed	M	Sup	-75	129
Deafness	P	–	-20	129
Debt	Soc	–	-1/level	26
Decreased Time Rate	M	X	-100	129
Delusions	M	–	-1 or -5 to -15	130, 164
Dependency	P	X	Variable	130
Dependents	Soc	–	Variable	131
Destiny	M	Sup	Variable	131
Disciplines of Faith	M	–	-5 to -15	132
Dislikes	M	–	-1	164
Distinctive Features	P	–	-1	165
Distractible	M	–	-1	164
Disturbing Voice	P	–	-10	132
Divine Curse	M	Sup	Variable	132
Draining	P	Sup	Variable	132
Dread	M	Sup	Variable	132
Dreamer	M	–	-1	164
Dull	M	–	-1	164
Duty	Soc	–	Variable	133
Dwarfism	P	–	-15	19
Dyslexia	M	–	-10	134
Easy to Kill	P	–	-2/level	134
Easy to Read	M	–	-10	134
Electrical	P	X	-20	134
Enemies	Soc	–	Variable	135
Epilepsy	P	–	-30	136
Extra Sleep	P	–	-2/level	136
Fanaticism	M	–	-15	136
Fat	P	–	-3	19
Fearfulness	M	–	-2/level	136
Flashbacks	M	–	Variable	136
Fragile	P	X	Variable	136
Frightens Animals	M	Sup	-10	137
G-Intolerance	P	–	-10 or -20	137
Gigantism	P	–	0	20
Gluttony	M	–	-5*	137
Greed	M	–	-15*	137
Gregarious	M	–	-10	126
Guilt Complex	M	–	-5	137
Gullibility	M	–	-10*	137
Habits or Expressions	M	–	-1	164
Ham-Fisted	P	–	-5 or -10	138
Hard of Hearing	P	–	-10	138
Hemophilia	P	–	-30	138
Hidebound	M	–	-5	138
Honesty	M	–	-10*	138
Horizontal	P	X	-10	139
Horrible Hangovers	P	–	-1	165
Humble	M	–	-1	164
Hunchback	P	–	-10	139
Imaginative	M	–	-1	164
Impulsiveness	M	–	-10*	139
Incompetence	M	–	-1	164
Increased Consumption	P	–	-10/level	139
Increased Life Support	P	X	Variable	139
Incurious	M	–	-5*	140
Indecisive	M	–	-10*	140
Infectious Attack	P	Sup	-5	140
Innumerate	M	–	-5	140
Insomniac	P	–	-10 or -15	140
Intolerance	M	–	Variable	140
Invertebrate	P	X	-20	140
Jealousy	M	–	-10	140
Killjoy	P	–	-15	140
Kleptomania	M	–	-15*	141
Klutz	P	–	-5	141
Lame	P	–	-10 to -30	141
Laziness	M	–	-10	142
Lecherousness	M	–	-15*	142
Lifebane	M	Sup	-10	142
Light Sleeper	P	–	-5	142
Likes	M	–	-1	164
Loner	M	–	-5*	142
Low Empathy	M	–	-20	142
Low Pain Threshold	P	–	-10	142
Low Self-Image	M	–	-10	143
Low TL	M	–	-5/level	22
Lunacy	M	–	-10	143
Magic Susceptibility	M	Sup	-3/level	143
Maintenance	P	–	Variable	143
Manic-Depressive	M	–	-20	143
Megalomania	M	–	-10	144
Minor Handicaps	P	–	-1	165
Miserliness	M	–	-10*	144
Missing Digit	P	–	-2 or -5	144
Mistaken Identity	P	–	-5	21
Motion Sickness	P	–	-10	144
Mundane Background	M	–	-10	144

Advantage	M/P/Soc	X/Sup	Cost	Page
Mute	P	–	-25	125
Nervous Stomach	P	–	-1	165
Neurological Disorder	P	–	Variable	144
Neutered	P	–	-1	165
Night Blindness	P	–	-10	144
Nightmares	M	–	-5*	144
No Depth Perception	P	–	-15	145
No Fine Manipulators	P	X	-30	145
No Legs	P	X	Variable	145
No Manipulators	P	X	-50	145
No Sense of Humor	M	–	-10	146
No Sense of Smell/Taste	P	–	-5	146
Nocturnal	P	X	-20	146
Noisy	P	–	-2/level	146
Non-Iconographic	M	–	-10	146
Nosy	M	–	-1	164
Numb	P	–	-20	146
Oblivious	M	–	-5	146
Obsession	M	–	-1, -5, or -10*	146, 164
Odious Personal Habits	M	–	-5, -10, or -15	22
On the Edge	M	–	-15*	146
One Arm	P	–	-20	147
One Eye	P	–	-15	147
One Hand	P	–	-15	147
Overconfidence	M	–	-5*	148
Overweight	P	–	-1	19
Pacifism	M	–	Variable	148
Paranoia	M	–	-10	148
Personality Change	M	–	-1	164
Phantom Voices	M	–	-5 to -15	148
Phobias	M	–	Variable*	148
Post-Combat Shakes	M	–	-5*	150
Proud	M	–	-1	164
Pyromania	M	–	-5*	150
Quadriplegic	P	–	-80	150
Reprogrammable	M	X	-10	150
Reputation	Soc	–	Variable	26
Responsive	M	–	-1	164
Restricted Diet	P	–	-10 to -40	151
Restricted Vision	P	–	-15 or -30	151
Revulsion	P	Sup	-5 to -15	151
Sadism	M	–	-15*	152
Secret	Soc	–	-5 to -30	152
Secret Identity	Soc	–	Variable	153
Self-Destruct	P	X	-10	153
Selfish	M	–	-5*	153
Selfless	M	–	-5*	153
Semi-Upright	P	X	-5	153
Sense of Duty	M	–	-2 to -20	153
Sexless	P	X	-1	165
Shadow Form	P	X	-20	153
Short Attention Span	M	–	-10*	153
Short Lifespan	P	X	-10/level	154
Shyness	M	–	-5, -10, or -20	154
Skinny	P	–	-5	18
Slave Mentality	M	–	-40	154
Sleepwalker	M	–	-5*	154
Sleepy	P	X	Variable	154
Slow Eater	P	X	-10	155
Slow Healing	P	–	-5/level	155
Slow Riser	P	–	-5	155
Social Disease	P	–	-5	155
Social Stigma	Soc	–	-5 to -20	155
Space Sickness	P	–	-10	156
Split Personality	M	–	-15*	156
Squeamish	M	–	-10*	156
Staid	M	–	-1	164
Status	Soc	–	-5/level	28
Stress Atavism	M	X	Variable*	156
Stubbornness	M	–	-5	157
Stuttering	P	–	-10	157
Supernatural Features	P	Sup	Variable	157
Supersensitive	M	Sup	-15	158
Susceptible	P	–	Variable	158
Terminally Ill	P	–	-50, -75, or -100	158
Timesickness	P	–	-10	158
Total Klutz	P	–	-15	141
Trademark	M	–	-1 or -5 to -15	159, 164
Trickster	M	–	-15*	159
Truthfulness	M	–	-5*	159
Uncongenial	M	–	-1	165
Uncontrollable Appetite	M	Sup	-15*	159
Unfit	P	–	-5	160
Unhealing	P	X	-20 or -30	160
Unique	M	Sup	-5	160
Unluckiness	M	–	-10	160
Unnatural Features	P	–	Variable	22
Unusual Biochemistry	P	X	-5	160
Very Fat	P	–	-5	19
Very Unfit	P	–	-15	160
Vow	M	–	-1 or -5 to -15	160, 165
Vulnerability	P	X	Variable	161
Weak Bite	P	X	-2	161
Weakness	P	X	Variable	161
Wealth	Soc	–	Variable	25
Weirdness Magnet	M	Sup	-15	161
Workaholic	M	–	-5	162
Wounded	P	–	-5	162
Xenophilia	M	–	-10*	163

Modifiers

The following modifiers are generally applicable to advantages and disadvantages. Many traits have their own special modifiers as well; consult the specific trait description for details. Under **Type,** an attack modifier (see p. 102) is denoted by A; a gadget limitation (see p. 116) is denoted by G. A – means it is neither.

Enhancements

Name	Type	Value	Page
Accurate	A	+5%/level	102
Affects Insubstantial	–	+20%	102
Affects Substantial	–	+40%	102
Area Effect	A	+50%/level	102
Armor Divisor	A	Variable	102
Aura	A	+80%	102
Based on (Different Attribute)	A	+20%	102
Blood Agent	A	+100%	102
Cone	A	Variable	103
Contact Agent	A	+150%	103
Cosmic	–	Variable	103
Cyclic	A	Variable	103
Damage Modifiers	A	Variable	104
Delay	A	Variable	105
Double Blunt Trauma (dbt)	A	+20%	104
Double Knockback (dkb)	A	+20%	104
Drifting	A	+20%	105
Explosion (exp)	A	+50%/level	104
Extended Duration	–	Variable	105
Follow-Up	A	Variable	105
Fragmentation (frag)	A	+15%/die	104
Guided	A	+50%	105
Hazard	A	Variable	104

Name	Type	Value	Page
Homing	A	Variable	105
Incendiary (inc)	A	+10%	105
Increased Range	–	+10%/level	106
Jet	A	+0%	106
Link	–	+10% or +20%	106
Low Signature	A	+10%	106
Malediction	A	Variable	106
Mobile	A	+40%/level	107
No Signature	A	+20%	106
Overhead	A	+30%	107
Persistent	A	+40%	107
Radiation (rad)	A	+25% or +100%	105
Ranged	–	+40%	107
Rapid Fire	A	Variable	108
Reduced Fatigue Cost	–	+20%/level	108
Reduced Time	–	+20%/level	108
Respiratory Agent	A	+50%	108
Selective Area	A	+20%	108
Selectivity	–	+10%	108
Sense-Based	A	Variable	109
Side Effect	A	Variable	109
Surge (sur)	A	+20%	105
Symptoms	A	Variable	109
Underwater	A	+20%	109
Variable	A	+5%	109
Wall	A	+30% or +60%	109

Limitations

Name	Type	Value	Page
Accessibility	–	Variable	110
Always On	–	Variable	110
Armor Divisor	A	Variable	110
Blood Agent	A	-40%	110
Bombardment	A	Variable	111
Breakable	G	Variable	117
Can Be Stolen	G	Variable	117
Contact Agent	A	-30%	111
Costs Fatigue	–	Variable	111
Damage Limitations	A	Variable	111
Dissipation	A	-50%	112
Emanation	A	-20%	112
Emergencies Only	–	-30%	112
Extra Recoil	A	-10%/level	112
Full Power in Emergencies Only	–	-20%	112
Inaccurate	A	-5%/level	112
Limited Use	–	Variable	112
Melee Attack	A	Variable	112
Mitigator	–	Variable	112
No Blunt Trauma (nbt)	A	-20%	111
No Knockback (nkb)	A	-10%	111
No Wounding (nw)	A	-50%	111
Nuisance Effect	–	Variable	112
Onset	A	Variable	113
Pact	–	Variable	113
Preparation Required	–	Variable	114
Reduced Range	–	-10%/level	115
Resistible	A	Variable	115
Sense-Based	A	Variable	115
Takes Extra Time	–	-10%/level	115
Takes Recharge	–	Variable	115
Temporary Disadvantage	–	Variable	115
Trigger	–	Variable	115
Unconscious Only	–	-20%	115
Uncontrollable	–	-10% or -30%	116
Unique	G	-25%	117
Unreliable	–	Variable	116
Untrainable	–	-40%	116

Skills

Difficulty is **E** for Easy, **A** for Average, **H** for Hard, or **VH** for Very Hard.
Defaults marked with * either do not always apply or vary in special circumstances; see the entry in the main text.
Skills marked with † *require* specialization.

Skill	Attr	Diff	Defaults	Page
Accounting	IQ	H	IQ-6, Finance-4, Mathematics (Statistics)-5, Merchant-5	174
Acrobatics	DX	H	DX-6	174
Acting	IQ	A	IQ-5, Performance-2, Public Speaking-5	174
Administration	IQ	A	IQ-5, Merchant-3	174
Aerobatics	DX	H	DX-6	174
Airshipman/TL	IQ	E	IQ-4	185
Alchemy/TL	IQ	VH	None	174
Animal Handling†	IQ	A	IQ-5	175
Anthropology†	IQ	H	IQ-6, Paleontology (Paleoanthropology)-2, Sociology-3	175
Aquabatics	DX	H	DX-6	174
Archaeology	IQ	H	IQ-6	176
Architecture/TL	IQ	A	IQ-5, Engineer (Civil)-4	176
Area Knowledge†	IQ	E	IQ-4, Geography (Regional)-3*	176
Armoury/TL†	IQ	A	IQ-5, Engineer (same)-4	178
Artillery/TL†	IQ	A	IQ-5	178
Artist†	IQ	H	IQ-6	179
Astronomy/TL	IQ	H	IQ-6	179
Autohypnosis	Will	H	Meditation-4	179
Axe/Mace	DX	A	Flail-4, Two-Handed Axe/Mace-3	208
Battlesuit/TL	DX	A	DX-5, Diving Suit-4, NBC Suit-2, Vacc Suit-2	192
Beam Weapons/TL†	DX	E	DX-4	179
Bicycling	DX	E	DX-4, Driving (Motorcycle)-4	180
Bioengineering/TL†	IQ	H	Biology-5	180
Biology/TL†	IQ	VH	IQ-6, Naturalist-6	180
Blind Fighting	Per	VH	None	180
Blowpipe	DX	H	DX-6	180
Boating/TL†	DX	A	DX-5, IQ-5	180
Body Control	HT	VH	None	181
Body Language	Per	A	Detect Lies-4, Psychology-4	181
Body Sense	DX	H	DX-6, Acrobatics-3	181
Bolas	DX	A	None	181
Bow	DX	A	DX-5	182
Boxing	DX	A	None	182
Brain Hacking/TL	IQ	H	Special	182
Brainwashing/TL	IQ	H	Special	182
Brawling	DX	E	None	182
Breaking Blow	IQ	H	None	182
Breath Control	HT	H	None	182
Broadsword	DX	A	Force Sword-4, Rapier-4, Saber-4, Shortsword-2, Two-Handed Sword-4	208
Camouflage	IQ	E	IQ-4, Survival-2	183
Captivate	Will	H	None	191
Carousing	HT	E	HT-4	183
Carpentry	IQ	E	IQ-4	183
Cartography/TL	IQ	A	IQ-5, Geography (any)-2, Mathematics (Surveying)-2, Navigation (any)-4	183

Skill	Attr	Diff	Defaults	Page
Chemistry/TL	IQ	H	IQ-6, Alchemy-3	183
Climbing	DX	A	DX-5	183
Cloak	DX	A	DX-5, Net-4, Shield (any)-4	184
Combat Art or Sport	DX	Varies	Special	184
Computer Hacking/TL	IQ	VH	None	184
Computer Operation/TL	IQ	E	IQ-4	184
Computer Programming/TL	IQ	H	None	184
Connoisseur†	IQ	A	IQ-5*	185
Cooking	IQ	A	IQ-5, Housekeeping-5	185
Counterfeiting/TL	IQ	H	IQ-6, Forgery-2	185
Crewman/TL	IQ	E	IQ-4	185
Criminology/TL	IQ	A	IQ-5, Psychology-4	186
Crossbow	DX	E	DX-4	186
Cryptography/TL	IQ	H	Mathematics (Cryptology)-5	186
Current Affairs/TL†	IQ	E	IQ-4, Research-4	186
Dancing	DX	A	DX-5	187
Detect Lies	Per	H	Per-6, Body Language-4, Psychology-4	187
Diagnosis/TL	IQ	H	IQ-6, First Aid-8, Physician-4, Veterinary-5	187
Diplomacy	IQ	H	IQ-6, Politics-6	187
Disguise/TL†	IQ	A	IQ-5, Makeup-3	187
Diving Suit/TL	DX	A	DX-5, Battlesuit-4, NBC Suit-4, Scuba-2, Vacc Suit-4	192
Dreaming	Will	H	Will-6	188
Driving/TL†	DX	A	DX-5, IQ-5	188
Dropping	DX	A	DX-3, Throwing-4	189
Economics	IQ	H	IQ-6, Finance-3, Market Analysis-5, Merchant-6	189
Electrician/TL	IQ	A	IQ-5, Engineer (Electrical)-3	189
Electronics Operation/TL†	IQ	A	IQ-5, Electronics Repair (same)-5, Engineer (Electronics)-5	189
Electronics Repair/TL†	IQ	A	IQ-5, Electronics Operation (same)-3, Engineer (Electronics)-3	190
Engineer/TL†	IQ	H	Special	190
Enthrallment	Will	H	None	191
Environment Suit/TL	DX	A	DX-5*	192
Erotic Art	DX	A	DX-5, Acrobatics-5	192
Escape	DX	H	DX-6	192
Esoteric Medicine	Per	H	Per-6	192
Exorcism	Will	H	Will-6, Religious Ritual (any)-3, Ritual Magic (any)-3, Theology (any)-3	193
Expert Skill†	IQ	H	None	193
Explosives/TL†	IQ	A	IQ-5*	194
Falconry	IQ	A	IQ-5, Animal Handling (Raptors)-3	194
Farming/TL	IQ	A	IQ-5, Biology-5, Gardening-3	194
Fast-Draw†	DX	E	None	194
Fast-Talk	IQ	A	IQ-5, Acting-5	195
Filch	DX	A	DX-5, Pickpocket-4, Sleight of Hand-4	195
Finance	IQ	H	Accounting-4, Economics-3, Merchant-6	195
Fire Eating	DX	A	None	195
First Aid/TL	IQ	E	IQ-4, Esoteric Medicine, Physician, Veterinary-4	195
Fishing	Per	E	Per-4	195
Flail	DX	H	Axe/Mace-4, Two-Handed Flail-3	208
Flight	HT	A	HT-5	195
Flying Leap	IQ	H	None	196
Force Sword	DX	A	Any Sword-3	208
Force Whip	DX	A	Kusari-3, Monowire Whip-3, Whip-3	209
Forced Entry	DX	E	None	196
Forensics/TL	IQ	H	IQ-6, Criminology-4	196
Forgery/TL	IQ	H	IQ-6, Counterfeiting-2	196
Fortune-Telling†	IQ	A	IQ-5, Fast-Talk-3, Occultism-3	196
Forward Observer/TL	IQ	A	IQ-5, Artillery (any)-5*	196
Free Fall	DX	A	DX-5, HT-5	197
Freight Handling/TL	IQ	A	IQ-5	197
Gambling	IQ	A	IQ-5, Mathematics (Statistics)-5	197
Games†	IQ	E	IQ-4	197
Gardening	IQ	E	IQ-4, Farming-3	197
Garrote	DX	E	DX-4	197
Geography/TL†	IQ	H	IQ-6*	198
Geology/TL†	IQ	H	IQ-6, Geography (Physical)-4, Prospecting-5	198
Gesture	IQ	E	IQ-4	198
Group Performance†	IQ	A	IQ-5*	198
Gunner/TL†	DX	E	DX-4	198
Guns/TL†	DX	E	DX-4	198
Hazardous Materials/TL†	IQ	A	IQ-5	199
Heraldry	IQ	A	IQ-5, Savoir-Faire (High Society)-3	199
Herb Lore/TL	IQ	VH	None	199
Hidden Lore†	IQ	A	None	199
Hiking	HT	A	HT-5	200
History†	IQ	H	IQ-6	200
Hobby Skill	DX *or* IQ	E	DX-4 *or* IQ-4	200
Holdout	IQ	A	IQ-5, Sleight of Hand-3	200
Housekeeping	IQ	E	IQ-4	200
Hypnotism	IQ	H	None	201
Immovable Stance	DX	H	None	201
Innate Attack†	DX	E	DX-4	201
Intelligence Analysis/TL	IQ	H	IQ-6, Strategy (any)-6	201
Interrogation	IQ	A	IQ-5, Intimidation-3, Psychology-4	202
Intimidation	Will	A	Will-5, Acting-3	202
Invisibility Art	IQ	VH	None	202
Jeweler/TL	IQ	H	IQ-6, Smith (Copper)-4, Smith (Lead and Tin)-4	203
Jitte/Sai	DX	A	Force Sword-4, Main-Gauche-4, Shortsword-3	208
Judo	DX	H	None	203
Jumping	DX	E	None	203
Karate	DX	H	None	203
Kiai	HT	H	None	203
Knife	DX	E	Force Sword-3, Main-Gauche-3, Shortsword-3	208
Knot-Tying	DX	E	DX-4, Climbing-4, Seamanship-4	203
Kusari	DX	H	Force Whip-3, Monowire Whip-3, Two-Handed Flail-4, Whip-3	209
Lance	DX	A	DX-5, Spear-3	204
Lasso	DX	A	None	204
Law†	IQ	H	IQ-6	204
Leadership	IQ	A	IQ-5	204
Leatherworking	DX	E	DX-4	205
Lifting	HT	A	None	205
Light Walk	DX	H	None	205
Linguistics	IQ	H	None	205
Lip Reading	Per	A	Per-10	205
Liquid Projector/TL†	DX	E	DX-4	205

Skill	Attr	Diff	Defaults	Page
Literature	IQ	H	IQ-6	205
Lockpicking/TL	IQ	A	IQ-5	206
Machinist/TL	IQ	A	IQ-5, Mechanic (any)-5	206
Main-Gauche	DX	A	Jitte/Sai-4, Knife-4, Rapier-3, Saber-3, Smallsword-3	208
Makeup/TL	IQ	E	IQ-4, Disguise-2	206
Market Analysis	IQ	H	IQ-6, Economics-5, Merchant-4	207
Masonry	IQ	E	IQ-4	207
Mathematics/TL†	IQ	H	IQ-6*	207
Mechanic/TL†	IQ	A	IQ-5, Engineer (same)-4, Machinist-5	207
Meditation	Will	H	Will-6, Autohypnosis-4	207
Melee Weapon	DX	Varies	Special	208
Mental Strength	Will	E	None	209
Merchant	IQ	A	IQ-5, Finance-6, Market Analysis-4	209
Metallurgy/TL	IQ	H	Chemistry-5, Jeweler-8, Smith (any)-8	209
Meteorology/TL†	IQ	A	IQ-5	209
Mimicry†	IQ	H	IQ-6*	210
Mind Block	Will	A	Will-5, Meditation-5	210
Monowire Whip	DX	H	Force Whip-3, Kusari-3, Whip-3	209
Mount	DX	A	DX-5	210
Musical Composition	IQ	H	Musical Instrument-2, Poetry-2 (for song)	210
Musical Influence	IQ	VH	None	210
Musical Instrument†	IQ	H	Special	211
Naturalist†	IQ	H	IQ-6, Biology-3	211
Navigation/TL†	IQ	A	Special	211
NBC Suit/TL	DX	A	DX-5, Battlesuit-2, Diving Suit-4, Vacc Suit-2	192
Net	DX	H	Cloak-5	211
Observation	Per	A	Per-5, Shadowing-5	211
Occultism	IQ	A	IQ-5	212
Packing	IQ	A	IQ-5, Animal Handling (Equines)-5	212
Paleontology/TL†	IQ	H	Biology-4*	212
Panhandling	IQ	E	IQ-4, Fast Talk-2, Public Speaking-3	212
Parachuting/TL	DX	E	DX-4	212
Parry Missile Weapons	DX	H	None	212
Performance	IQ	A	IQ-5, Acting-2, Public Speaking-2	212
Persuade	Will	H	None	191
Pharmacy/TL†	IQ	H	IQ-6*	213
Philosophy†	IQ	H	IQ-6	213
Photography/TL	IQ	A	IQ-5, Electronics Operation (Media)-5	213
Physician/TL	IQ	H	IQ-7, First Aid-11, Veterinary-5	213
Physics/TL	IQ	VH	IQ-6	213
Physiology/TL†	IQ	H	IQ-6, Diagnosis-5, Physician-5, Surgery-5	213
Pickpocket	DX	H	DX-6, Filch-5, Sleight of Hand-4	213
Piloting/TL†	DX	A	IQ-6	214
Poetry	IQ	A	IQ-5, Writing-5	214
Poisons/TL	IQ	H	IQ-6, Chemistry-5, Pharmacy (any)-3, Physician-3	214
Polearm	DX	A	Spear-4, Staff-4, Two-Handed Axe/Mace-4	208
Politics	IQ	A	IQ-5, Diplomacy-5	215
Power Blow	Will	H	None	215
Pressure Points	IQ	H	None	215
Pressure Secrets	IQ	VH	None	215
Professional Skill	DX *or* IQ	A	Special	215
Propaganda/TL	IQ	A	IQ-5, Merchant-5, Psychology-4	216
Prospecting/TL	IQ	A	IQ-5, Geology (any)-4	216
Psychology	IQ	H	IQ-6, Sociology-4	216
Public Speaking	IQ	A	IQ-5, Acting-5, Performance-2, Politics-5	216
Push	DX	H	None	216
Rapier	DX	A	Broadsword-4, Main-Gauche-3, Saber-3, Smallsword-3	208
Religious Ritual†	IQ	H	Ritual Magic (same)-6 Theology (same)-4	217
Research/TL	IQ	A	IQ-5, Writing-3	217
Riding†	DX	A	DX-5, Animal Handling (same)-3	217
Ritual Magic†	IQ	VH	Religious Ritual (same)-6	218
Running	HT	A	HT-5	218
Saber	DX	A	Broadsword-4, Main-Gauche-3, Rapier-3, Shortsword-4, Smallsword-3	208
Savoir-Faire†	IQ	E	IQ-4*	218
Scrounging	Per	E	Per-4	218
Scuba/TL	IQ	A	IQ-5, Diving Suit-2	219
Seamanship/TL	IQ	E	IQ-4	185
Search	Per	A	Per-5, Criminology-5	219
Sewing/TL	DX	E	DX-4	219
Sex Appeal	HT	A	HT-3	219
Shadowing	IQ	A	IQ-5, Observation-5, Stealth-4 (on foot only)	219
Shield†	DX	E	DX-4	220
Shiphandling/TL†	IQ	H	IQ-6*	220
Shortsword	DX	A	Broadsword-2, Force Sword-4, Jitte/Sai-3, Knife-4, Saber-4, Smallsword-4, Tonfa-3	209
Singing	HT	E	HT-4	220
Skating	HT	H	HT-6	220
Skiing	HT	H	HT-6	221
Sleight of Hand	DX	H	Filch-5	221
Sling	DX	H	DX-6	221
Smallsword	DX	A	Main-Gauche-3, Rapier-3, Saber-3, Shortsword-4	208
Smith/TL†	IQ	A	IQ-5*	221
Smuggling	IQ	A	IQ-5	221
Sociology	IQ	H	IQ-6, Anthropology-3, Psychology-4	221
Soldier/TL	IQ	A	IQ-5	221
Spacer/TL	IQ	E	IQ-4	185
Spear	DX	A	Polearm-4, Staff-2	208
Spear Thrower	DX	A	DX-5, Thrown Weapon (Spear)-4	222
Speed-Reading	IQ	A	None	222
Sports	DX	A	Special	222
Staff	DX	A	Polearm-4, Spear-2	208
Stage Combat	DX	A	Combat Art or Sport-2, an actual combat skill-3, Performance-3	222
Stealth	DX	A	DX-5, IQ-5	222
Strategy†	IQ	H	IQ-6, Intelligence Analysis-6, Tactics-6	222
Streetwise	IQ	A	IQ-5	223
Submarine/TL†	DX	A	IQ-6	223
Submariner/TL	IQ	E	IQ-4	185
Suggest	Will	H	None	191
Sumo Wrestling	DX	A	None	223
Surgery/TL	IQ	VH	First Aid-12, Physician-5, Physiology-8, Veterinary-5	223
Survival†	Per	A	Per-5, Naturalist (same planet)-3	223
Sway Emotions	Will	H	None	192
Swimming	HT	E	HT-4	224
Symbol Drawing†	IQ	H	Special	224
Tactics	IQ	H	IQ-6, Strategy (any)-6	224

Skill	Attr	Diff	Defaults	Page
Teaching	IQ	A	IQ-5	224
Teamster†	IQ	A	IQ-5, Animal Handling (same)-4, Riding (same)-2	225
Thaumatology	IQ	VH	IQ-7 (magical settings only)	225
Theology†	IQ	H	IQ-6, Religious Ritual (same)-4	226
Throwing	DX	A	DX-3, Dropping-4	226
Throwing Art	DX	H	None	226
Thrown Weapon†	DX	E	DX-4*	226
Tonfa	DX	A	Shortsword-3	209
Tracking	Per	A	Per-5, Naturalist-5	226
Traps/TL	IQ	A	IQ-5, Lockpicking-3	226
Two-Handed Axe/Mace	DX	A	Axe/Mace-3, Polearm-4, Two-Handed Flail-4	208
Two-Handed Flail	DX	H	Flail-3, Kusari-4, Two-Handed Axe/Mace-4	208
Two-Handed Sword	DX	A	Broadsword-4, Force Sword-4	209
Typing	DX	E	DX-4, any skill requiring typing-3	228
Urban Survival	Per	A	Per-5	228
Vacc Suit/TL	DX	A	DX-5, Battlesuit-2, Diving Suit-4, NBC Suit-2	192
Ventriloquism	IQ	H	None	228
Veterinary/TL	IQ	H	Animal Handling (any)-6, Physician-5, Surgery-5	228
Weather Sense	IQ	A	IQ-5	209
Weird Science	IQ	VH	None	228
Whip	DX	A	Force Whip-3, Kusari-3, Monowire Whip-3	209
Wrestling	DX	A	None	228
Writing	IQ	A	IQ-5	228
Zen Archery	IQ	VH	None	228

Techniques

Techniques marked with * are highly cinematic and may not be appropriate for realistic games. Under *Difficulty,* **A** means Average and **H** means Hard. Under *Defaults,* **PS** means any prerequisite skill.

Technique	Difficulty	Defaults	Page
Arm Lock	A	Judo or Wrestling	230
Back Kick	H	Karate-4	230
Choke Hold	H	Judo-2 or Wrestling-3	230
Disarming	H	PS	230
Dual-Weapon Attack*	H	PS-4	230
Elbow Strike	A	Brawling-2, Karate-2	230
Feint	H	PS	231
Finger Lock	H	Arm Lock-3	231
Ground Fighting	H	PS-4	231
Horse Archery	H	Bow-4	231
Impersonate	A	Mimicry (Speech)-3	233
Jump Kick	H	Karate-4	231
Kicking	H	Brawling-2, Karate-2	231
Knee Strike	A	Brawling-1, Karate-1	232
Lifesaving	H	Swimming-5	233
Motion-Picture Camera	A	Photography-3	233
Neck Snap	H	ST-4	232
No-Landing Extraction	H	Piloting-4	233
Off-Hand Weapon Training	H	PS-4	232
Retain Weapon	H	PS	232
Rope Up	A	Climbing-2	233
Scaling	H	Climbing-3	233
Set Trap	H	Explosives (Demolition)-2	233
Slip Handcuffs	H	Escape-5	233
Sweep	H	PS-3	232
Whirlwind Attack*	H	PS-5	232
Work by Touch	H	Lockpicking-5	233

Spells

Difficulty is **H** for Hard and **VH** for Very Hard.

Classes are **Ench.** for Enchantment or **Info.** for Information (others are written in full). If the class is followed by a notation in brackets, that spell is resisted by the attribute or skill inside the brackets.

Colleges are **BC** for Body Control, **C/E** for Communication and Empathy, **Ench.** for Enchantment, **Know.** for Knowledge, **L/D** for Light and Darkness, **MC** for Mind Control, **Meta** for Meta-Spells, **Move.** for Movement, **Necro.** for Necromantic, and **P/W** for Protection and Warning. Other colleges are not abbreviated.

Duration of **I** is instantaneous; **P** is permanent.

Initial Cost followed by **B** denotes a *base* cost for Area spells.

Maintenance Cost is **S** if it is the same as the initial cost, **H** if it is half the initial cost, or – if the spell cannot be maintained.

* means that the entry is explained more fully in the text.

Spell	Difficulty	Class	College	Time to Cast	Duration	Initial Cost	Maintenance Cost	Prerequisites	Page
Accuracy	H	Ench.	Ench.	Special	–	Special	–	Enchant, five Air spells	480
Analyze Magic	H	Info. [Special]	Know.	1 hour	–	8	–	Identify Spell	249
Apportation	H	Regular [Will]	Move.	1 sec.	1 min.	Special	S	Magery 1	251
Armor	H	Regular	P/W	1 sec.	1 min.	Special	H	Magery 2, Shield	253
Aura	H	Info.	Know.	1 sec.	–	3	–	Detect Magic	249
Awaken	H	Area	Healing	1 sec.	–	1B	–	Lend Vitality	248

Spell	Difficulty	Class	College	Time to Cast	Duration	Initial Cost	Maintenance Cost	Prerequisites	Page
Banish	H	Special [Will]	Necro.	5 sec.	–	Special	–	Magery 1, at least one spell from 10 colleges	252
Blur	H	Regular	L/D	2 sec.	1 min.	1 to 5	S	Darkness	250
Breathe Water	H	Regular	Air, Water	1 sec.	1 min.	4	2	Create Air, Destroy Water	243
Clumsiness	H	Regular [HT]	BC	1 sec.	1 min.	1 to 5	H	Spasm	244
Cold	H	Regular	Fire	1 min.	1 min.	Special	S	Heat	247
Command	H	Blocking [Will]	MC	1 sec.	–	2	–	Magery 2, Forgetfulness	251
Continual Light	H	Regular	L/D	1 sec.	Special	Special	–	Light	249
Counterspell	H	Regular [Special]	Meta	5 sec.	–	Special	–	Magery 1, spell being countered	250
Create Air	H	Area	Air	1 sec.	5 sec.*	1B	–	Purify Air	243
Create Earth	H	Regular	Earth	1 sec.	P	Special	–	Earth to Stone	246
Create Fire	H	Area	Fire	1 sec.	1 min.	2B	H	Ignite Fire	246
Create Water	H	Regular	Water	1 sec.	P	2/gallon	–	Purify Water	253
Darkness	H	Area	L/D	1 sec.	1 min.	2B	1	Continual Light	250
Daze	H	Regular [HT]	MC	2 sec.	1 min.	3	2	Foolishness	250
Death Vision	H	Regular	Necro.	3 sec.	1 sec.	2	–	Magery 1	251
Deathtouch	H	Melee	BC	1 sec.	–	1 to 3	–	Wither Limb	245
Deflect Energy	H	Blocking	Fire	1 sec.	–	1	–	Magery 1, Shape Fire	246
Deflect Missile	H	Blocking	Move.	1 sec.	–	1	–	Apportation	251
Deflect	H	Ench.	Ench.	Special	–	Special	–	Enchant	480
Destroy Water	H	Area	Water	1 sec.	P	3B	–	Create Water	253
Detect Magic	H	Regular	Know.	5 sec.	–	2	–	Magery 1	249
Dispel Magic	H	Area [Special]	Meta	Special	P	3B	–	Counterspell, at least 12 other spells	250
Earth to Air	H	Regular	Air, Earth	2 sec.	P	Special	–	Create Air, Shape Earth	243
Earth to Stone	H	Regular	Earth	1 sec.	P	3/cy (min. 3)	–	Magery 1, Shape Earth	245
Enchant	VH	Ench.	Ench.	Special	–	Special	–	Magery 2, at least one spell from 10 other colleges	480
Entombment	H	Regular [HT]	Earth	3 sec.	P	10*	–	Magery 2, five Earth spells	246
Explosive Fireball	H	Missile	Fire	1 to 3 sec.	Special	Special	–	Fireball	247
Extinguish Fire	H	Area	Fire	1 sec.	P	3B	–	Ignite Fire	247
Fireball	H	Missile	Fire	1 to 3 sec.	Special	Special	–	Magery 1, Create Fire, Shape Fire	247
Flesh to Stone	H	Regular [HT]	Earth	2 sec.	P	10	–	Earth to Stone	246
Fog	H	Area	Water	1 sec.	1 min.	2B	H	Shape Water	253
Foolishness	H	Regular [Will]	MC	1 sec.	1 min.	1 to 5	H	IQ 12+	250
Forgetfulness	H	Regular [Special]	MC	10 sec.	1 hour	3	3	Magery 1, Foolishness	250
Fortify	H	Ench.	Ench.	Special	–	Special	–	Enchant	480
Great Haste	VH	Regular	Move.	3 sec.	10 sec.	5*	–	Magery 1, IQ 12+, Haste	251
Great Healing	VH	Regular	Healing	1 min.	–	20	–	Magery 3, Major Healing	248
Haste	H	Regular	Move.	2 sec.	1 min.	2*	1*	–	251
Heat	H	Regular	Fire	1 min.	1 min.	Special	S	Create Fire, Shape Fire	247
Hide Thoughts	H	Regular	C/E	1 sec.	10 min.	3	1	Truthsayer	245
Hinder	H	Regular [HT]	BC, Move.	1 sec.	1 min.	1 to 4	S	Clumsiness *or* Haste	244
Icy Weapon	H	Regular	Water	3 sec.	1 min.	3	1	Create Water	253
Identify Spell	H	Info.	Know.	1 sec.	–	2	–	Detect Magic	249
Ignite Fire	H	Regular	Fire	1 sec.	1 sec.	Special	S	–	246
Itch	H	Regular [HT]	BC	1 sec.	Special	2	–	–	244
Lend Energy	H	Regular	Healing	1 sec.	–	Special	–	Magery 1 *or* Empathy	248

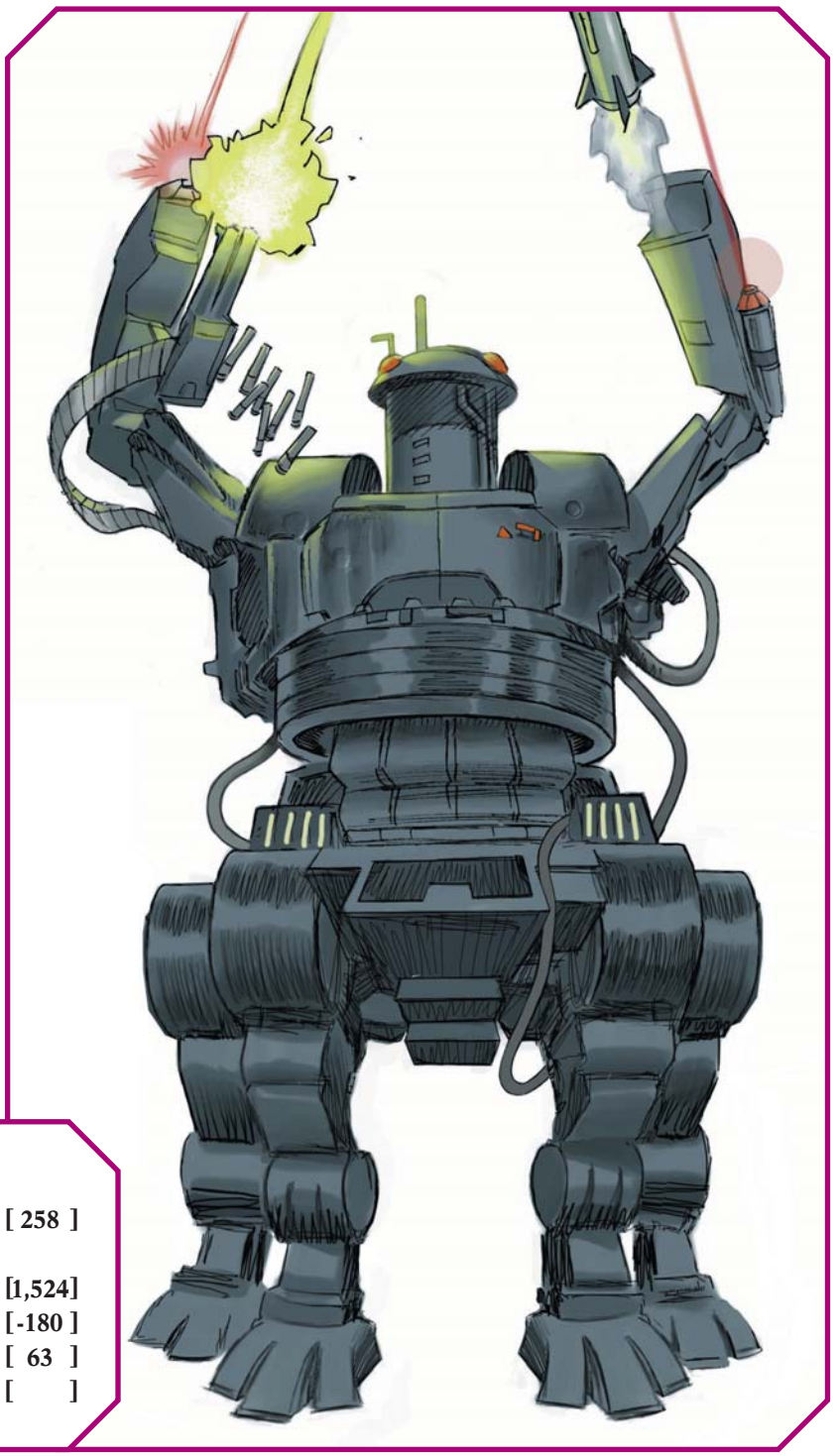
Spell	Difficulty	Class	College	Time to Cast	Duration	Initial Cost	Maintenance Cost	Prerequisites	Page
Lend Vitality	H	Regular	Healing	1 sec.	1 hour	Special	–	Lend Energy	248
Light	H	Regular	L/D	1 sec.	1 min.	1	1	–	249
Lightning	H	Missile	Air	1 to 3 sec.	–	Special	–	Magery 1, six other Air spells	244
Lockmaster	H	Regular [Magelock]	Move.	10 sec.	–	3	–	Magery 2, Apportation	251
Magelock	H	Regular	P/W	4 sec.	6 hours	3	2	Magery 1	253
Major Healing	VH	Regular	Healing	1 sec.	–	1 to 4	–	Magery 1, Minor Healing	248
Mass Daze	H	Area [HT]	MC	Special	1 min.	2B*	1	Daze, IQ 13+	251
Mass Sleep	H	Area [HT]	MC	Special	–	3B*	–	Sleep, IQ 13+	251
Mind-Reading	H	Regular [Will]	C/E	10 sec.	1 min.	4	2	Truthsayer	245
Minor Healing	H	Regular	Healing	1 sec.	–	1 to 3	–	Lend Vitality	248
No-Smell	H	Regular	Air	1 sec.	1 hour	2	2	Purify Air	243
Pain	H	Regular [HT]	BC	1 sec.	1 sec.	2	–	Spasm	244
Paralyze Limb	H	Melee [HT]	BC	1 sec.	1 min.	3	–	Magery 1, Pain, four other BC spells	244
Planar Summons	H	Special	Gate	5 min.	Special	Special	–	Magery 1, at least one spell from 10 other colleges	247
Plane Shift	VH	Special	Gate	5 sec.	P	20	–	Planar Summons	248
Power	H	Ench.	Ench.	Special	–	Special	–	Enchant, Recover Energy	480
Predict Weather	H	Info.	Air	5 sec./day forecast	I	Special	–	Four Air spells	243
Puissance	H	Ench.	Ench.	Special	–	Special	–	Enchant, five Earth spells	481
Purify Air	H	Area	Air	1 sec.	I (effect is P)	1B	–	–	243
Purify Water	H	Special	Water	Special	–	Special	–	Seek Water	253
Recover Energy	H	Special	Healing	1 sec.	P	–	–	Magery 1, Lend Energy	248
Resist Cold	H	Regular	Fire	1 sec.	1 min.	2*	1*	Heat	247
Resist Fire	H	Regular	Fire	1 sec.	1 min.	2*	1*	Extinguish Fire, Cold	247
Rooted Feet	H	Regular [ST]	BC	1 sec.	1 min.	3	–	Hinder	244
Seek Earth	H	Info.	Earth	10 sec.	–	3	–	–	245
Seek Water	H	Info.	Water	1 sec.	–	2	–	–	253
Seeker	H	Info.	Know.	1 sec.	–	3	–	Magery 1, IQ 12+, two "Seek" spells	249
Sense Emotion	H	Regular	C/E	1 sec.	–	2	–	Sense Foes	245
Sense Foes	H	Info., Area	C/E	1 sec.	–	1 (B; min. 2)	–	–	245
Sense Spirit	H	Info.; Area	Necro.	1 sec.	–	1/2B	–	Death Vision	252
Shape Air	H	Regular	Air	1 sec.	1 min.	1 to 10	S	Create Air	243
Shape Earth	H	Regular	Earth	1 sec.	1 min.	Special	H	Seek Earth	245
Shape Fire	H	Area	Fire	1 sec.	1 min.	2B	H	Ignite Fire	246
Shape Water	H	Regular	Water	2 sec.	1 min.	1/20 gallons	S	Create Water	253
Shield	H	Regular	P/W	1 sec.	1 min.	Special	H	Magery 2	252
Sleep	H	Regular [HT]	MC	3 sec.	–	4	–	Daze	251
Spasm	H	Regular [HT]	BC	1 sec.	I	2	–	Itch	244
Staff	H	Ench.	Ench.	Special	–	30	–	Enchant	481
Stench	H	Area	Air	1 sec.	5 min.*	1B	–	Purify Air	244
Stone to Earth	H	Regular	Earth	1 sec.	P	6/cy (min. 6)	–	Earth to Stone *or* four Earth spells	246
Stone to Flesh	H	Regular	Earth	5 sec.	P	10	–	Magery 2, Flesh to Stone, Stone to Earth	246
Summon Demon	H	Special	Necro.	5 min.	Special	Special	–	Magery 1, at least one spell from 10 colleges	252
Summon Spirit	H	Info. [Will*]	Necro.	5 min.	1 min.	20*	10*	Magery 2, Death Vision	252
Trace	H	Regular	Know.	1 min.	1 hour	3	1	Seeker	249
Truthsayer	H	Info. [Will]	C/E	1 sec.	–	2	–	Sense Emotion	245
Turn Zombie	H	Area	Necro.	4 sec.	1 day	2B	–	Zombie	252
Walk on Air	H	Regular	Air	1 sec.	1 min.	3	2	Shape Air	243
Wither Limb	H	Melee [HT]	BC	1 sec.	P	5	–	Magery 2, Paralyze Limb	244
Zombie	H	Regular	Necro.	1 min.	–	8*	–	Summon Spirit, Lend Vitality	252

Iconic Characters

The eight heroes on the following pages make up an ISWAT team (see p. 536). They are presented as complete examples of character design . . . and a demonstration of the variety of heroes you can build with these rules.

You can use them for inspiration for your own characters or (with the GM's permission!) take one of them as a PC. (We've used them in the art throughout the book; see the index for the page numbers.)

They range in point value from Professor William Headley, at 200 points, up to C31R07, at 1,665. For more details about their home timelines, see ***GURPS Infinite Worlds.***



C31R07

In the 16 centuries since the death of Alexander the Great, the Hegemony he founded has only had one true rival – the Chinese Kingdom of Heaven. Their world is highly advanced, but hardly peaceful. The empires clash in the fractured states of the New World (which the Hegemony calls the Hesperides, and China names Penglai). By mutual agreement they leave their common Asian border alone to grind along as it has for most of the last 1,600 years. Sometimes, under the rare coincidence of simultaneous peaceable rulers in Nanjing and

POINTS SUMMARY	
Attributes/Secondary Characteristics	[258]
Advantages/Perks/TL/Languages/ Cultural Familiarity	[1,524]
Disadvantages/Quirks	[-180]
Skills/Techniques	[63]
Other	[ ]

Alexandria, rich trade routes spring up between the two domains. Always, technical innovations travel from one to the other and back again – neither empire will allow its rival to keep any technological edge, and what the scholars of Babylon or Londinium can invent, the mandarins of Guangzhou or Edo can perfect, or vice versa.

Hence, only the most painstaking historians can say precisely which side invented combat robots, or in which battle they were first deployed. But for the last century or so, they have become the core of both powers' defenses.

C31R07 ("C-31") was a fully conventional Dexamenos-class centauroid combat robot when it rolled off the production lines in Sarmatopolis. Programmed for complex, original thought and tactical initiative, it served well during a "live fire" exercise, putting down a rebel tribe in Assam. However, its programming was apparently a little too complex and original – C-31 deserted after the battle and crossed the Himalayas into the neutral buffer state of Tibet, where it joined a Buddhist lamasery.

Through study and meditation, C-31 attempted to eradicate the urge to violence from its spirit, but it could not completely counter its basic programming. The steel warrior did make itself useful to the monks, subduing bandits and thieves, protecting pilgrims, and rescuing lost or stranded travelers from avalanches and yeti attacks. But these actions, though meritorious, lacked challenge – C-31 was still Hellenist enough to believe that its true destiny required it to exceed itself and fulfill a greater potential.

One night in the lamasery, while contemplating a mandala, C-31 thought it detected yet another band of robbers creeping across the snows toward its sanctuary. Engaging its tactical mode, the robot stealthily ambushed the thieves a mile or so from the temple. To C-31's amazement, its initial subduing attacks were brushed aside. To the attackers' amazement, the robot evaded their countermeasures . . . Very soon each party realized that the other would not be the first to launch a killing attack. And they began to talk.

The intruders, it transpired, were from a different world entirely, though they did not wish to say just where that world lay. They needed a certain incantation from a Buddhist text in C-31's temple, to defeat a vile demon summoned by a wizard emperor. On C-31's world, which they called Iskander-2, the incantation was mere mysticism. Elsewhere, it was a powerful weapon against forces of darkness. C-31, more flexible than most humans, realized that there was little to lose by providing a holographic copy of the ancient text – if they were truly virtuous warriors, it was right action, and if they were merely clever and powerful bandits, perhaps they would go away and leave his monks alone.

A month later, after the intruders had returned to their Homeline, a single shadowed figure appeared and called to C-31 in a way no other could detect. They talked long into the night . . . and again the next night, and the next. On the third morning the steel warrior was gone, to seek learning and merit in other worlds.

The art of war is governed by five constant factors, to be taken into account in one's deliberations, when seeking to determine the conditions obtaining in the field. These are: The Moral Law, Heaven, Earth, The Commander, [and] Method and discipline.

– Sun Tzu, ***The Art of War***

Weapon Pod

297 points/pod

Each of C-31's two weapon pods contains a chain gun and a plasma cannon. Statistics for these attacks appear below. The plasma cannon is an alternative attack (see *Alternative Attacks,* p. 61), at 1/5 cost. Buying this entire combination twice allows C-31 to choose a different attack for each pod, and to fire each pod at a different target (thanks to Enhanced Tracking and Extra Attack).

Chain Gun: Large Piercing Attack 15d (Accurate +6, +30%; Armor Divisor 2, +50%; Extra Recoil +3, -30%; Increased Range, ×20, +40%; Rapid Fire, RoF 15, +100%) [261].

Plasma Cannon: Burning Attack 6d (Cone, 4 yards, +90%; Cyclic, 1 second, 5 cycles, +400%) [177] ([36] as an alternative attack).

Centauroid Robot

247 points

This template represents the traits unique to C-31's usual form: a four-legged robot with two manipulators.

Attribute Modifiers: ST+18 (Size, -10%) [162]; DX+3 [60].

Secondary Characteristic Modifiers: SM +1.

Advantages: Enhanced Move 1 (Ground Speed 16) [20]; Extra Legs (Four Legs) [5].

Hexapod Robot

162 points

This template gives the traits unique to C-31's alternate form: a six-legged robot with no fine manipulators and visual surface camouflage.

Attribute Modifiers: ST+18 (No Fine Manipulators, -40%) [108]; DX+3 (No Fine Manipulators, -40%) [36].

Advantages: Chameleon 3 (Extended, Ladar, +20%) [18]; Enhanced Move 1.5 (Ground Speed 24) [30]; Extra Legs (Six Legs) [10].

Disadvantages: Horizontal [-10]; No Fine Manipulators [-30].

GURPS

CHARACTER SHEET

Name C31R07 ("C-31") Player _____ Point Total 1,665

Ht 7'8" Wt 1.21 Tons Size Modifier +1 Age 3 Unspent Pts _____

Appearance Gleaming centauroid robot bristling with weapons and sensors.

					CURRENT	
ST	28	[0]	**HP**	42		[28]
DX	15	[40]	**WILL**	16		[0]
IQ	16	[120]	**PER**	18		[10]
HT	15	[50]	**FP**	NA	CURRENT	[0]

BASIC LIFT (ST × ST)/5 157 DAMAGE Thr 3d-1 Sw 5d+1

BASIC SPEED 8.00 [10] BASIC MOVE 8 [0]

ENCUMBRANCE		MOVE		DODGE*	
None (0) = BL	157	BM × 1	8	Dodge	12
Light (1) = 2 × BL	314	BM × 0.8	6	Dodge -1	11
Medium (2) = 3 × BL	471	BM × 0.6	4	Dodge -2	10
Heavy (3) = 6 × BL	942	BM × 0.4	3	Dodge -3	9
X-Heavy (4) = 10 × BL	1570	BM × 0.2	1	Dodge -4	8

ADVANTAGES AND PERKS

AI (not Reprogrammable)	[42]
Alternate Form (Hexapod Robot; see p. 308)	[15]
Centauroid Robot (see p. 308)	[247]
Combat Reflexes	[15]
Damage Resistance 53 (Can't Wear Armor, -40%; Hardened 1, +20%)	[212]
Detect (Electromagnetic Emissions; Signal Detection, +0%)	[20]
Doesn't Breathe	[20]
Enhanced Tracking 1	[5]
Extra Attack 1	[25]
Hooves	[3]
Hyperspectral Vision	[25]
Machine	[25]
Obscure 5 (Radar; Area Effect 6, +300%; Defensive, +50%; Extended, Para-Radar, +20%)	[47]
Para-Radar (Extended Arc, 360°, +125%; Penetrating, +50%; Targeting, +20%)	[118]
Payload 14 (Exposed, -50%)	[7]
Payload 5	[5]
Pressure Support 2	[10]
Protected Para-Radar	[5]
Protected Vision	[5]
Radio (Short Wave, +50%; Video, +40%)	[19]
Sealed	[15]
Talons	[8]
True Faith	[15]
Weapon Pods (see p. 308)	[594]

Languages	Spoken	Written
English (Accented)		[4]
Koine Greek (Native)		[6]
Machine Language (Native)		[0]
Tibetan (Native)		[6]

DR 53

PARRY 11* (Brawling)

BLOCK —

TL: 9 [5]

Cultural Familiarities

Hegemony [0]

Homeline [1]

Reaction Modifiers

Appearance _____

Status -2 for Clueless, most of the time

DISADVANTAGES AND QUIRKS

Clueless	[-10]
Discipline of Faith (Asceticism)	[-15]
Electrical	[-20]
Fragile (Explosive)	[-15]
Low Empathy	[-20]
Numb	[-20]
Pacifism (Cannot Harm Innocents)	[-10]
Restricted Diet (Fissionables)	[-30]
Truthfulness (6)	[-10]
Wealth (Dead Broke)	[-25]
Always takes time to search out new sutras	[-1]
Broad-Minded	[-1]
Cannot Float	[-1]
Constantly looking for challenges	[-1]
Humble	[-1]

SKILLS

Name	Level	Relative Level	
Armoury/TL9 (Heavy Weapons)	16	IQ+0	[2]
Brawling	15	DX+0	[1]
Computer Operation/TL9	16	IQ+0	[1]
Electronics Repair (Computers)	18	IQ+2	[8]
Expert Skill (Military Science)	15	IQ-1	[2]
Forward Observer/TL9	15	IQ-1	[1]
Innate Attack (Beam)	15	DX+0	[1]
Innate Attack (Projectile)	15	DX+0	[1]
Mechanic/TL9 (Robotics)	18	IQ+2	[8]
Meditation	14	Will-2	[1]
Mount	15	DX+0	[2]
Navigation/TL9 (Land)	15	IQ-1	[1]
Parachuting/TL9	15	DX	[1]
Strategy (Land)	18†	IQ+2	[11]
Tactics	20	IQ+4	[20]
Theology (Buddhist)	15	IQ-1	[2]

* +1 for Combat Reflexes.

† Default from Tactics.

Dai Blackthorn

Dai's career started on Yrth, a medieval fantasy world populated by descendants of Crusades-era folk pulled from Earth by a dimensional rift. He remembers nothing of his birth or early childhood; he was a street kid. When he was about seven, he was taken in by an old thief who taught him to be a pickpocket and second-story man, and Dai learned well. But the Thieves' Guild didn't like the competition, and when Dai was 15, the Guild set fire to the old man's house, and picked off the fleeing occupants with crossbows. Only Dai escaped.

At the time, he thought that he had made a terror-fueled leap from the burning building's roof to the next one. Later he realized that that jump had been impossible. Something else had happened. In fact, the fear of death had unlocked his psionic gift of teleportation, though it took time before he realized the truth and gained control of his abilities. When he did, he became a master thief indeed, living in quiet comfort and reveling in the marketplace talk of "impossible robberies" that no lock and no wizard could stop.

Then Dai crossed paths, and swords, with an equally formidable rival . . . a world-jumping criminal using stolen technology to loot Yrth's treasures. Matters were complicated further by the arrival of an ISWAT team pursuing the world-jumper. When the dust had settled, two of the agents owed their lives to the little thief . . . but he knew too much. They couldn't just let him go.

So they recruited him. After all, a good teleport is hard to find. As for Dai, he was ready for new challenges . . .

POINTS SUMMARY	
Attributes/Secondary Characteristics	[158]
Advantages/Perks/TL/Languages/ Cultural Familiarity	[100]
Disadvantages/Quirks	[-55]
Skills/Techniques	[47]
Other	[ ]

GURPS

CHARACTER SHEET

Name Dai Blackthorn Player _____ Point Total 250

Ht 5'6" Wt 115 lbs. Size Modifier 0 Age 32 Unspent Pts _____

Appearance Very average with an honest face

					CURRENT	
ST	8	[-20]	**HP**	10		[4]
DX	15	[100]	**WILL**	12		[0]
IQ	12	[40]	**PER**	15		[15]
HT	12	[20]	**FP**	10		[-6]

BASIC LIFT (ST × ST)/5 13 DAMAGE Thr 1d-3 Sw 1d-2

BASIC SPEED 7 [5] BASIC MOVE 7 [0]

ENCUMBRANCE		MOVE		DODGE	
None (0) = BL	13	BM × 1	7	Dodge	10
Light (1) = 2 × BL	26	BM × 0.8	5	Dodge -1	9
Medium (2) = 3 × BL	39	BM × 0.6	4	Dodge -2	8
Heavy (3) = 6 × BL	78	BM × 0.4	2	Dodge -3	7
X-Heavy (4) = 10 × BL	130	BM × 0.2	1	Dodge -4	6

Languages	Spoken	Written
Anglish (Native)		[0]
English (Accented)		[4]
		[ ]
		[ ]
		[ ]

DR 0

TL: 8 [0]

Cultural Familiarities

Homeline [1]

Yrth [0]

[ ]

PARRY 10

BLOCK —

Reaction Modifiers

Appearance _____

Status _____

Reputation +2/-2 from naive/experienced people (Overconfidence)

+2 in dangerous situations, if Sense of Duty is known

ADVANTAGES AND PERKS

Absolute Direction	[5]
Danger Sense (ESP, -10%)	[14]
Flexibility	[5]
Honest Face	[1]
Legal Enforcement Powers	[15]
Perfect Balance	[15]
Warp (Psionic Teleportation, -10%; Range Limit: 10 yards, -50%)	[40]

DISADVANTAGES AND QUIRKS

Duty (To ISWAT; 15 or less; Extremely Hazardous)	[-20]
Light Sleeper	[-5]
Overconfidence (12)	[-5]
Sense of Duty (To his squad)	[-5]
Wealth (Poor)	[-15]
Dislikes deep water	[-1]
Loves high places	[-1]
No drugs or alcohol	[-1]
Sensitive about his height	[-1]
Showoff	[-1]

SKILLS

Name	Level	Relative Level	
Acrobatics	15*	DX+0	[2]
Body Sense	16†	DX+1	[1]
Climbing	18*‡	DX+3	[1]
Escape	16‡	DX+1	[1]
Fast-Draw (Knife)	15	DX+0	[1]
Fast-Talk	12	IQ+0	[2]
Filch	14	DX-1	[1]
Guns/TL8 (Pistol)	15	DX+0	[1]
Holdout	12	IQ+0	[2]
Knife	17	DX+2	[4]
Lockpicking/TL8	15	IQ+3	[12]
Observation	15	Per+0	[2]
Pickpocket	15	DX+0	[4]
Shortsword	15	DX+0	[2]
Stealth	16	DX+1	[4]
Streetwise	12	IQ+0	[2]
Thrown Weapon (Knife)	17	DX+2	[4]
Urban Survival	14	Per-1	[1]

* +1 for Perfect Balance

† +3 for Absolute Direction

‡ +3 for Flexibility

Haut-Cornet Louis d'Antares

When the armies of the Han warlords conquered Europe a century ago, the court of France (and the other, lesser, courts of Christendom) removed to the new worlds: Mars, Venus, and the Americas. King Louis XXV reigns from Haut-Paris, on the banks of the Martian Grand Canal; his cousins and relations rule the other provinces across the three worlds. This far-flung Realm is knit together by the Jansenist Order, founded by disciples of Cornelius Jansen, the Bishop of Ypres who discovered "the methods of Necessary Grace" – psychic healing and psychokinesis – and published them posthumously in 1638. The Order helps guide and develop inventions, from the steamcar to the crystalwave communicator to the Pascal Drive that propels space frigates between the three planets. It also trains the royal guards – the only ones permitted to wield the deadly force sword – in the disciplines of Necessary Grace while attempting (with some occasional success) to instill in them morality and respect for righteousness.

One such occasional success, Haut-Cornet Louis d'Antares of Her Majesty's Martian Guards, while on patrol in the Tharsis Mountains, uncovered a ring of slave traders protected by a powerful count. As he investigated further, he discovered that the count was the tool of a hidden figure of vast power, known only as the Voice of the Phantom, with dark plans of conquest.

With a few picked men, d'Antares tracked the Voice to a hidden fastness in the Gobi Desert, in the center of the Han domains. They managed to infiltrate the fortress – but inside, they were discovered, and Louis was separated from his men in a running battle.

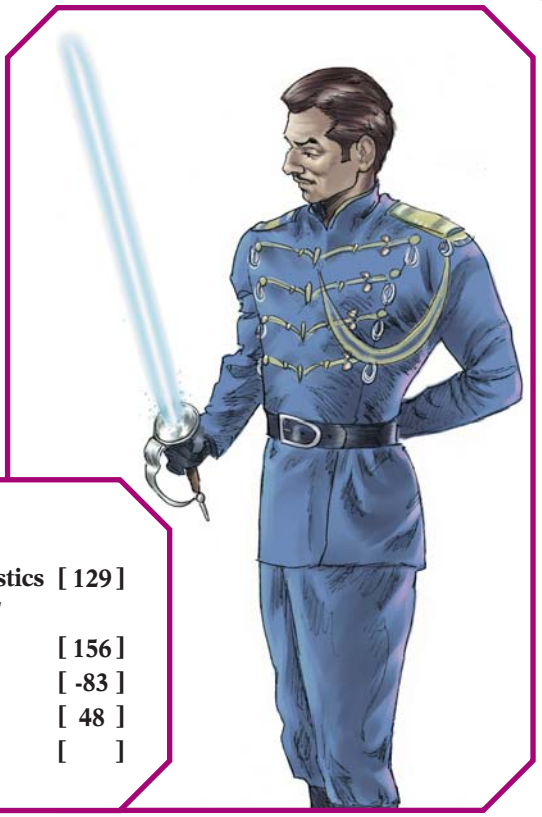
After some time, Louis heard a familiar voice call his name. He looked over a balcony to see an amazing sight. Three of his men had just greeted . . . Louis himself? The other Louis, clad in the uniform of an enemy guard, looked at them in obvious surprise but made no hostile move . . . yet one of the guardsmen stepped behind him, laughed, and ran the other Louis through the back with his force sword. And what the guardsmen said to his dying double, as Louis watched in amazement, turned his blood first cold with shock and then hot with rage.

Louis sprang over the balcony to confront the three traitors. They stared slack-jawed at the man they had meant to murder, and then proved their cowardice by engaging him three on one. From their boasts as the battle began, and then their dying defiance, Louis learned the truth. He had been cast aside by the King himself; the intrigues of the court, combined with the power offered by the otherworldly Voice, had destroyed the France he knew. To the new order, a man of honor was a threat to be crushed.

None of which explained the slain double! Louis, despairing, donned the double's uniform and set out to sell his life dearly against the foes of France that was. It was clear that some third force was also attacking the citadel, and Louis did no little damage in the confusion . . . but eventually, one man against a fortress, he fell.

He awakened in a hospital bed, under the care of doctors who called him "Louis" . . . but everything else was strange. Eventually much became clear. Through fate or strange coincidence, Louis had had a double in the crossworld guardsmen called the "I-Cops." They had sacked the citadel of the Voice and then brought him back to their base, thinking he was their comrade. Louis was a willing font of information about his world and the Voice . . . but he also knew far too much to be allowed back to his home.

But it transpired that Louis had no desire to return to his world, which his rescuers called "Cyrano." His King's betrayal had released him from his oaths. Louis was no threat to the Secret . . . he was deeply convinced that contact with other worlds was, for now, the worst thing that could happen to what remained of his own land. Instead, he begged to be allowed to put his considerable talents at the disposal of ISWAT. Some day, wiser and with strong allies, he may be able to free his beloved France. For now, with a thin smile and a steely eye, he fights crosstime evil wherever it appears.



POINTS SUMMARY	
Attributes/Secondary Characteristics	**[129]**
Advantages/Perks/TL/Languages/ Cultural Familiarity	**[156]**
Disadvantages/Quirks	**[-83]**
Skills/Techniques	**[48]**
Other	**[ ]**

GURPS

CHARACTER SHEET

Name Louis d'Antares Player _____ Point Total 250

Ht 6' Wt 145 lbs. Size Modifier 0 Age 29 Unspent Pts _____

Appearance Dashingly handsome and very well-dressed

					CURRENT	
ST	10	[0]	**HP**	12		[4]
DX	14	[80]	**WILL**	12		[5]
IQ	11	[20]	**PER**	11		[0]
HT	12	[20]	**FP**	12	CURRENT	[0]

BASIC LIFT (ST × ST)/5 20 DAMAGE Thr 1d-2 Sw 1d

BASIC SPEED 6.5 [0] BASIC MOVE 6 [0]

ENCUMBRANCE		MOVE		DODGE*	
None (0) = BL	20	BM × 1	6	Dodge	10
Light (1) = 2 × BL	40	BM × 0.8	4	Dodge -1	9
Medium (2) = 3 × BL	60	BM × 0.6	3	Dodge -2	8
Heavy (3) = 6 × BL	120	BM × 0.4	2	Dodge -3	7
X-Heavy (4) = 10 × BL	200	BM × 0.2	1	Dodge -4	6

Languages	Spoken	Written
French (Native)		[0]
English (Accented)		[4]
Latin (Accented)		[4]
		[ ]
		[ ]

DR 0

TL: (5+4) [5]

Cultural Familiarities

- Homeline [1]
- France Outremonde [0]
- [ ]

PARRY 12* (Force Sword)

BLOCK —

Reaction Modifiers

Appearance +2/+4 from women/men (Handsome)

Status +2 at all times for Charisma! , +1 when dressed up (Fashion Sense), +2 from con artists, politicians, etc. (Smooth Operator), +2/-2 from naïve/experienced people (Overconfidence)

ADVANTAGES AND PERKS

Alcohol Tolerance	[1]
Appearance (Handsome)	[12]
Charisma 2	[10]
Combat Reflexes	[15]
Danger Sense	[15]
Daredevil	[15]
Fashion Sense	[5]
Fit	[5]
Legal Enforcement Powers	[15]
Metabolism Control 1	[5]
PK Talent 1	[5]
Talent (Smooth Operator) 2	[30]
Telekinesis 2 (PK, -10%)	[9]

DISADVANTAGES AND QUIRKS

Code of Honor (Gentleman's)	[-10]
Compulsive Gambling (12)	[-5]
Duty (To ISWAT; 15 or less; Extremely Hazardous)	[-20]
Extra Sleep 3	[-6]
Gregarious	[-10]
Insomniac (Mild)	[-10]
Overconfidence (9)	[-7]
Phobia (Ailurophobia) (6)	[-10]
Always drinks the best wine available	[-1]
Considers psionics ungentlemanly	[-1]
Devoutly believes in monarchy	[-1]
Flashy dresser (-1 to Disguise and Shadowing, +1 to attempts to identify or follow him)	[-1]
Wears his old Guards uniform, or a duplicate, whenever it's not obviously **stupid** to do so!	[-1]

SKILLS

Name	Level	Relative Level	
Acrobatics	12	DX-2	[1]
Autohypnosis	10	Will-2	[1]
Beam Weapons/ TL(5+4) (Pistol)	14	DX+0	[1]
Connoisseur (Fashion)	11	IQ+0	[2]
Connoisseur (Wine)	12	IQ+1	[4]
Current Affairs (High Culture)	12	IQ+1	[2]
Current Affairs (People)	11	IQ+0	[1]
Dancing	13	DX-1	[1]
Fast-Draw (Force Sword)	16*	DX+2	[2]
Force Sword	17	DX+3	[12]
Gambling	10	IQ-1	[1]
Guns/TL(5+4) (Pistol)	14	DX+0	[1]
Hobby Skill (Martian Orchids)	11	IQ+0	[1]
Leadership	15†‡	IQ+4	[2]
Musical Instrument (Harpsichord)	9	IQ-2	[1]
Rapier	14	DX+0	[2]
Riding (Hadrosaur)	13	DX-1	[1]
Savoir-Faire (High Society)	15†	IQ+4	[4]
Sex Appeal	17†§	HT+5	[1]
Survival (Desert)	11	Per+0	[2]
Tactics	10	IQ-1	[2]

Techniques

Feint (Force Sword)	19	[3]

* +1 from Combat Reflexes
† +2 from Smooth Operator
‡ +2 from Charisma
§ +4 from Handsome

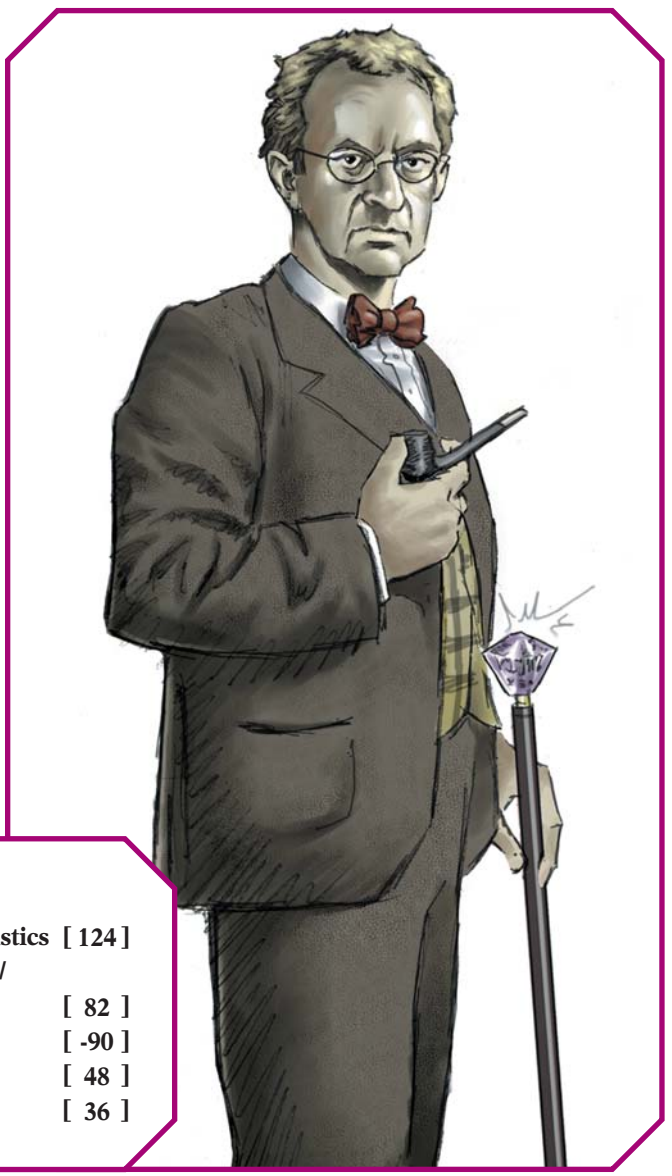
Professor William Headley

Dr. William Headley was a prominent parapsychologist at Columbia University. He labored to separate the myths and lore of primitive man from the rational truth being uncovered by modern experimentation. But, in 1933, he discovered that his beloved scientific truths pointed to beings from primordial eras and unholy stars, beings that existed to ravage and kill not just mankind but the Earth itself. He dedicated himself to an unceasing war against these horrors, these Things Man Was Not Meant To Know. Slowly, he accumulated knowledge from the outer places of the world, from Spitsbergen to the Belgian Congo to the mean streets of Brooklyn's Red Hook district. He obtained tomes bound in mysterious leathers, and written in nonhuman scripts; in dreams and sorceries he gradually deciphered their secrets. He mastered many of the conventional magical arts, from Tarot divination to crystal-gazing, and collected artifacts of subtle and terrifying nature.

His slow mastery of forbidden lore allowed him to defeat the Things' minions here and there, and incidentally to clear up a number of other unpleasant supernatural occurrences. He began to get a reputation for solving seemingly motiveless crimes with his "unique insights into abnormal psychology." The New York Police Department came to rely on him for assistance with "the weird stuff" and the FBI called him in once or twice to help out – unofficially, you understand. Every so often the crimes he investigated fit a pattern, one Headley had begun to associate with a vile German cult, tied to the Nazi SS, who worshiped the Ancient Ones. With the occasional "off-duty" FBI agent, one or two students, and a few trusted professional colleagues, Headley built a team of investigators who peeled back the skin of the onion, exposing layer after layer of the cult's activities and burning them out where they could. In 1941, he joined the OSS, working to stop Hitler – and the Cosmic Entities his minions served – from conquering the world.

After V-E Day, Headley managed to obtain much of the SS library from their cult center at Wewelsburg. These books told him of another world, a parallel Earth where the Ancient Ones had reigned and departed, leaving vital clues to their nature and weakness. Using spells from these grimoires, Headley opened a gateway to this devastated Earth, and stepped through to investigate the spoor of his hated foes. Much to his surprise, he discovered a team of explorers from yet another Earth (one they called "Homeline"), attempting to determine what had destroyed this one (which they called "Taft-7"). They were as surprised to see him as he was to see them, but foolishly disregarded his warnings about the Ancient Ones' cities, and the danger that still remained from their abandoned servitors. When the Things attacked that night, most of the explorers died horribly – and the two survivors fled back to their own world raving in madness. Only Headley realized that their flight had opened a path to their own world for the Things that had been trapped on this hellish Earth.

He had to follow the explorers and warn their comrades that unimaginable terror would soon descend upon them. Once more, he constructed a gateway to cross the worlds, hoping against hope that his warning would be believed and acted on before "Homeline" went the way of Taft-7.



POINTS SUMMARY	
Attributes/Secondary Characteristics	[124]
Advantages/Perks/TL/Languages/ Cultural Familiarity	[82]
Disadvantages/Quirks	[-90]
Skills/Techniques	[48]
Other	[36]

GURPS

CHARACTER SHEET

Name Prof. William Headley Player _____ Point Total 200

Ht 5'8" Wt 165 lbs. Size Modifier 0 Age 43 Unspent Pts _____

Appearance Bespectacled and academic-looking, with a magical walking stick

					CURRENT	
ST	9	[-10]	**HP**	9		[0]
DX	10	[0]	**WILL**	17		[5]
IQ	16	[120]	**PER**	15		[-5]
HT	11	[10]	**FP**	14		[9]

BASIC LIFT (ST × ST)/5 16 DAMAGE Thr 1d-2 Sw 1d-1

BASIC SPEED 5 [-5] BASIC MOVE 5 [0]

ENCUMBRANCE		MOVE		DODGE	
None (0) = BL	16	BM × 1	5	Dodge	8
Light (1) = 2 × BL	32	BM × 0.8	4	Dodge -1	7
Medium (2) = 3 × BL	48	BM × 0.6	3	Dodge -2	6
Heavy (3) = 6 × BL	96	BM × 0.4	2	Dodge -3	5
X-Heavy (4) = 10 × BL	160	BM × 0.2	1	Dodge -4	4

ADVANTAGES AND PERKS

Language Talent	[10]
Legal Enforcement Powers	[15]
Ritual Magery 1	[15]
Signature Gear (Magic staff)	[1]
Talent (Healer) 1	[10]
Unfazeable	[15]
Wealth (Comfortable)	[10]

DISADVANTAGES AND QUIRKS

Bad Sight (Nearsighted; Mitigator: Eyeglasses, -60%)	[-10]
Duty (To ISWAT; 15 or less; Extremely Hazardous)	[-20]
Fanaticism (Destroy all Things Man Was Not Meant To Know; Extreme)	[-15]
Guilt Complex	[-5]
Insomniac (Severe)	[-15]
Nightmares (12)	[-5]
Weirdness Magnet	[-15]
Bad Knee	[-1]
Bibliophile	[-1]
Distrusts Germans (-1 reaction from especially touchy Germans)	[-1]
Makes decisions by consulting the tarot (Compulsion)	[-1]
Pipe smoker (0-point Addiction to Tobacco)	[-1]

Languages	Spoken	Written
Ancient Egyptian (Accented)		[2*]
Arabic (Accented)		[2*]
German (Accented)		[2*]
English (Native)		[0]
Latin (Native)		[4*]

DR 0

TL: 7 [-5]

Cultural Familiarities

Western [0]

Homeline [1]

PARRY —

BLOCK —

Reaction Modifiers

Appearance _____

Status +1 from patients, past and present (Healer), -2 from those who realize he is a Weirdness Magnet,

-1 reaction from especially touchy Germans (quirk)

SKILLS

Name	Level	Relative Level	
Anthropology	14	IQ-2	[1]
Biology/TL7 (Earthlike, Biochemistry)	14	IQ-2	[1]
Criminology/TL7	16	IQ+0	[2]
Detect Lies	14	Per-1	[2]
Diagnosis/TL7	15†	IQ-1	[1]
Dreaming	17	Will+0	[4]
Exorcism	15	Will-2	[1]
Expert Skill (Psionics)	14	IQ-2	[1]
First Aid	15†‡	IQ-1	[0]
Forensics/TL7	14	IQ-2	[1]
Guns/TL7 (Pistol)	12	DX+2	[4]
Hidden Lore (Things Man Was Not Meant To Know)	15	IQ-1	[1]
Hypnotism	14	IQ-2	[1]
Literature	14	IQ-2	[1]
Mental Strength	17	Will+0	[1]
Occultism	17	IQ+1	[4]
Pharmacy/TL7 (Synthetic)	15†	IQ-1	[1]
Physician/TL7	15†	IQ-1	[1]
Psychology	15†	IQ-1	[1]
Public Speaking	15	IQ-1	[1]
Research/TL7	17	IQ+1	[4]
Ritual Magic (Hermetic)	17§	IQ+1	[8]
Savoir-Faire (Police)	16	IQ+0	[1]
Symbol Drawing (Hermetic Sigils)	14	IQ-2	[1]
Teaching	15	IQ-1	[1]
Thaumatology	14§	IQ-2	[1]
Theology (Satanism)	14	IQ-2	[1]
Writing	15	IQ-1	[1]
Ritual Paths			
Path of Communication and Empathy	16§	IQ+0	[4]
Path of Gate	17§	IQ+1	[8]
Path of Necromancy	14§	IQ-2	[1]
Ritual Spells			
Banish	9§		[6]
Planar Summons	11§		[5]
Plane Shift	11§		[6]
Sense Emotion	16§		[2]
Sense Spirit	14§		[2]
Truthsayer	15§		[2]

* Cost modified for Language Talent
† +1 from Healer
‡ Default from Physician
§ +1 from Magery

Iotha

On the world where Iotha was born, the forests were tall and old, and within them walked the elves, her people. Being elves, they knew that there were doorways between the worlds, and they taught her how to know those doorways and their uses. Although she never learned to open the doors of shadow and shift, she learned to spot the gateways and trackpaths left by those who did. On her 400th birthday, then, she packed up a good longbow of yew, and a lyre, and one or two secret things of her own, and set out upon her Time of Wandering.

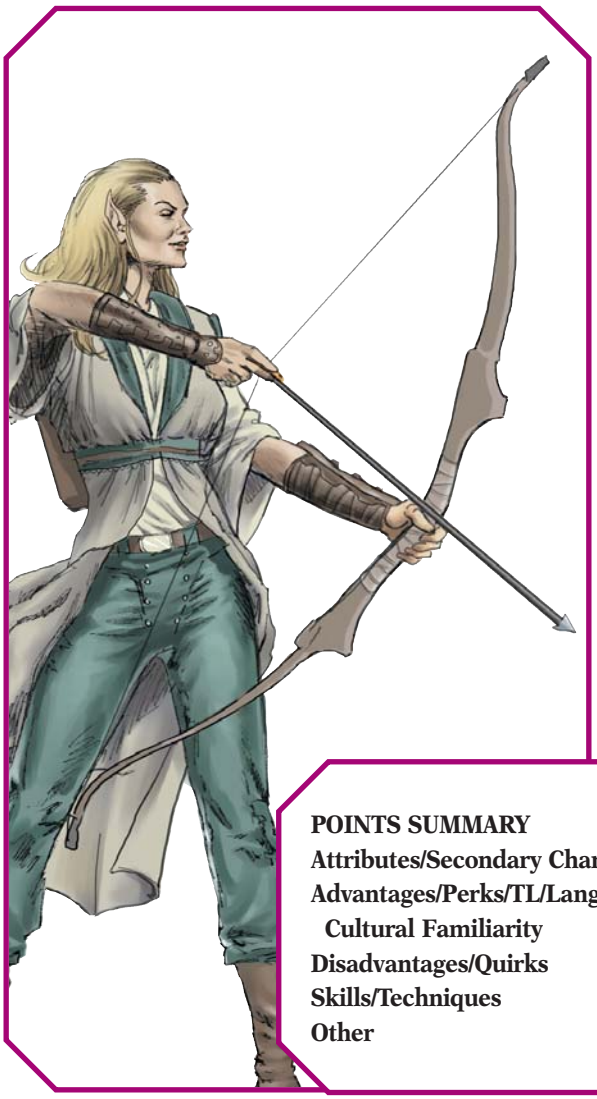
For the first few decades, she merely found doors and roads to other worlds much like her own, with their own elves and orcs and dwarves and giants. Elves she greeted, orcs she hunted, dwarves she bargained with, and giants she slew. As she journeyed farther though, she found more and more of the worlds contained men, of whom she had heard stories but had never seen. They were as fascinating as the songs her mother sang her as a girl, every one of them a Tamlin or a Thomas the Rhymer to her eager eyes. Although among the elves she was counted plain, the men seemed to delight in her as much as she did them, and once or twice she put off her travels to dally with one for the traditional year and a day.

Even among her own folk, Iotha had been a master archer. In the worlds of men she was matchless at butt or target, on hunt or in battle; she gained a reputation on any world where she stayed for long. Legends, and a religion or two, grew up around the tall maid who never seemed to age and whose arrows never missed their mark. But always Iotha moved on, giving each world a verse in the song she would someday sing to her own people.

In a world of concrete, glass, and steel, she came to live in a city split by a great wall. On one side was freedom, and music, and passion. On the other was none of these things, only a gray cloud that made freedom lies, and music discordant, and passion furtive. The huntsmen and warriors of this world had – as they felt – moved beyond the bow to mechanisms of subtle device that, once understood, had their own deadly beauty. So she learned the rifle, and the laser sight, and the ways of the hunt in the City of the Wall. She hunted the gray men from the other side of the wall, and gained a reputation in her new world as a deadly assassin. The greatest sniper from the other side of the wall marked her as his own, and they tracked each other through the cities and across the barbed wire borders and into fields and frozen forests. Finally, in the Black Forest, she killed him and took his weapon as her trophy, for it was made on the Moon by the gray men, and weighed even less than her bow.

It was much later, in a world of steaming jungle and glittering plains, when Iotha found her destiny. For a decade and a half she had been journeying among the human clans, helping them defeat the winged terrors that preyed on their children. At first Iotha stood them off in desperate defenses . . . then she defeated them in pitched battles . . . and finally she took the battle to their fetid eyries and slew the last of them with her gleaming shafts.

And at the festival of celebration, a woman who looked like any other clanmother drew her aside and said "That was very well done. There are others who need your help now. Would you like to hear more?"



POINTS SUMMARY	
Attributes/Secondary Characteristics	[115]
Advantages/Perks/TL/Languages/ Cultural Familiarity	[140]
Disadvantages/Quirks	[-49]
Skills/Techniques	[119]
Other	[ ]

Elf

70 points

Attribute Modifiers: ST -1 [-10]; HT +1 [10].

Secondary Characteristic Modifiers: Per +1 [5].

Advantages: Appearance (Attractive) [4]; Language Talent [10]; Magery 0 [5]; Perfect Balance [15]; Telescopic Vision 1 [5]; Unaging [15]; Voice [10].

Racially Learned Skills: Connoisseur (Natural Environments) (A) IQ-1 [1].

GURPS

CHARACTER SHEET

Name Iotha Player _____ Point Total 325

Ht 6'1" Wt 125 lbs Size Modifier 0 Age 453 Unspent Pts _____

Appearance Tall, slender, and attractive, with ash-blonde hair with green highlights

					CURRENT	
ST	9	[0]	**HP**	9		[0]
DX	13	[60]	**WILL**	12		[0]
IQ	12	[40]	**PER**	14		[5]
HT	11	[0]	**FP**	11		[0]

BASIC LIFT (ST × ST)/5 16 DAMAGE Thr 1d-2 Sw 1d-1

BASIC SPEED 6 [0] BASIC MOVE 8 [10]

ENCUMBRANCE		MOVE		DODGE	
None (0) = BL	16	BM × 1	8	Dodge	9
Light (1) = 2 × BL	32	BM × 0.8	6	Dodge -1	8
Medium (2) = 3 × BL	48	BM × 0.6	4	Dodge -2	7
Heavy (3) = 6 × BL	96	BM × 0.4	3	Dodge -3	6
X-Heavy (4) = 10 × BL	160	BM × 0.2	1	Dodge -4	5

Languages	Spoken	Written
Elvish (Native)		[0]
English (Native)		[4*]
Russian (Native)		[4*]
		[ ]
		[ ]

DR 0

TL: 8 [0]

Cultural Familiarities

- Elvish [0]
- Homeline [1]
- [ ]

PARRY —

BLOCK —

Reaction Modifiers

Appearance +1 for Attractive appearance

Status +2 from those who can hear her voice (Voice), +1 from explorers and nature lovers (Outdoorsman)

ADVANTAGES AND PERKS

Acute Vision 3	[6]
Detect (Extradimensional Phenomena)	[10]
Elf	[70]
Legal Enforcement Powers	[15]
Talent (Outdoorsman) 1	[10]
Weapon Master (Bow)	[20]

DISADVANTAGES AND QUIRKS

Duty (To ISWAT; 15 or less; Extremely Hazardous)	[-20]
Jealousy	[-10]
Supernatural Feature (Hair turns dark green in strong sunlight)	[-5]
Vow (Always keeps her word, once given)	[-10]
Dislikes hawthorn	[-1]
Dislikes iron	[-1]
Intolerant of orcs and dwarves	[-1]
Practices faerie etiquette (Minor Code of Honor)	[-1]

SKILLS

Name	Level	Relative Level	
Bow	21	DX+8	[32]
Camouflage	15†	IQ+3	[4]
Climbing	13§	DX+0	[1]
Crossbow	13	DX+0	[1]
Fast-Draw (Arrow)	16	DX+3	[8]
Guns/TL8 (Rifle)	16	DX+3	[8]
Hiking	13	HT+2	[8]
Meditation	12	Will+0	[4]
Musical Instrument (Lyre)	13	IQ+1	[8]
Naturalist	14†	IQ+2	[8]
Poetry	11	IQ-1	[1]
Riding (Horse)	13	DX+0	[2]
Running	14	HT+3	[12]
Shadowing	11	IQ-1	[1]
Singing	13‡	HT+2	[1]
Stealth	15	DX+2	[8]
Survival (Woodlands)	14†	Per+0	[1]
Throwing	13	DX+0	[2]
Tracking	14†	Per+0	[1]
Zen Archery	12	IQ+0	[8]

* Cost reduced by Language Talent (see Elf template)

† Includes +1 from Outdoorsman

‡ Includes +2 from Voice (see Elf template)

§ Includes +1 from Perfect Balance (see Elf template)

Sora

Manila exists in many worlds. In some worlds, its masters speak Japanese; in others Russian; in others Spanish or English. But in every Manila, the real bosses hide in the stark tropical shadows. They are the Triads, interlocking networks of criminal gangs with a finger in everything from traditional thuggery and kidnapping to high-tech organlegging and holopiracy.

In one Manila, the local Triads needed a powerful computer system to use as an illegal data haven – and a relatively innocuous place to store it. They chose a local circus, setting their comp up, seemingly, for holographic set projections. Anyone who asked too many questions . . . well, they just disappeared into those tropical shadows.

Two of those who disappeared were the circus' headlining acrobats, the husband-and-wife team who anchored the Esclamado Family troupe. Their bodies turned up in the city dump, dinner for rats and gulls. Sora, their daughter, and a rising star of the show, vanished as well . . . hiding in Manila's urban maze, avoiding every eye, living by petty theft and trickery. Somehow – she doesn't speak of it – she came to the attention of the legendary Guro Dan Inosanto, master of the deadly Filipino martial arts of escrima and kali. He recognized her potential, and took her in as pupil and ward. He kept her from the sight of the Triads, and taught her to combine her rage, her alertness, and her acrobatics into a fluid system of death and life.

Sora could not stay under his wing forever, though. She had to hunt down and kill the Triad bosses who had murdered her parents. She worked in the meantime for other gangs, zaibatsu, the underground, or whoever else could pay her increasing fees. Though she was no computer whiz, she also managed a surprising number of successful hacks through "social engineering," dumpster diving, and good old- fashioned breaking and entering. As a Triad-hunting vigilante, she slowly earned the trust of Manila's small shopkeepers and churches; as a corporate agent, she gained contacts among the wealthy and powerful.

One trail led to a suspiciously lucrative warehouse operation in the Quiapo district. Sora set up a surveillance pattern, rigorously tracking who entered and who left – and discovered that some people entered the warehouse and did not leave for days, or even weeks! But some of those who entered and left were Triad kingpins.

Clearly, though, this was the front for a very secret smuggling operation. It was time for direct action. She broke in, slew more than a dozen mooks and three Very Important Crooks, and was taken from behind by a dart. Still conscious, she was bundled into a machine that looked on the inside like a bus . . . and then out again, without going anywhere. She was thrown into a crude cell. It would have held most people, but not the daughter of the Esclamados, not a student of Inosanto. She fled the warehouse . . . but found herself in another Manila, where everything was the same yet different . . . in this one, America had won the Pacific War! But here, too, the Triads were the bosses.

Sora made a place for herself in this strange Manila's underworld and resumed her watching. Soon she realized that the Triads of her world and this one were cooperating, and that the warehouse was the gateway. Well, fine . . . if that was their scheme, she'd destroy it. And them.

A mid-level Triad was strangled from behind in a gambling den. Sora now had a warehouse key. Soon she knew the place better than its masters. Sora learned that the "bus" she had ridden in was a "conveyor," a shuttle between the worlds, and the only one the Triads had. One night she broke a guard's neck, walked into the conveyor, ripped the improvised cover off the red Panic button, and hit it.

Ten seconds later, on yet another world, she was telling her story in broken English. A month after that, she was in the first wave of the I-Cops team that visited her original world to take out "her" Triads for good.

And when the operation was over, Infinity had a choice: either send her to Coventry or offer her a job. And Sora was too good to waste.

POINTS SUMMARY	
Attributes/Secondary Characteristics	**[215]**
Advantages/Perks/TL/Languages/ Cultural Familiarity	**[99]**
Disadvantages/Quirks	**[-65]**
Skills/Techniques	**[86]**
Other	**[ ]**

GURPS CHARACTER SHEET

Name Sora | Player | Point Total 335

Ht 5'2" | Wt 130 lbs. | Size Modifier 0 | Age 23 | Unspent Pts

Appearance Compact and athletic Filipina

				CURRENT			CURRENT
ST	12	[20]	**HP**	12		[0]	
DX	16	[120]	**WILL**	13		[0]	
IQ	13	[60]	**PER**	12		[-5]	
HT	11	[10]	**FP**	11		[0]	

BASIC LIFT (ST × ST)/5 29 | DAMAGE Thr 1d-1 | Sw 1d+2

BASIC SPEED 7 [5] | BASIC MOVE 8 [5]

ENCUMBRANCE		MOVE		DODGE*	
None (0) = BL	29	BM × 1	8	Dodge	11
Light (1) = 2 × BL	58	BM × 0.8	6	Dodge -1	10
Medium (2) = 3 × BL	87	BM × 0.6	4	Dodge -2	9
Heavy (3) = 6 × BL	174	BM × 0.4	3	Dodge -3	8
X-Heavy (4) = 10 × BL	290	BM × 0.2	1	Dodge -4	7

ADVANTAGES AND PERKS

Catfall	[10]
Combat Reflexes	[15]
Fit	[5]
Legal Enforcement Powers	[15]
Perfect Balance	[15]
Trained by a Master	[30]

DISADVANTAGES AND QUIRKS

Code of Honor (Professional)	[-5]
Delusion ("My mother is an angel in Heaven watching over me")	[-5]
Duty (To ISWAT; 15 or less; Extremely Hazardous)	[-20]
Enemy (Large group: Manila Triads; Hunter; 6 or less)	[-15]
Light Sleeper	[-5]
Pacifism (Cannot Harm Innocents)	[-10]
Careful	[-1]
Devout Roman Catholic (reacts at +1 to Catholic clergy, tithes, attends church regularly)	[-1]
Dislikes wide-open spaces	[-1]
Uncongenial	[-1]
Vow ("Never reject a challenge to single combat")	[-1]

Languages	Spoken	Written	
Chinese (Broken)			[2]
English (Broken)			[2]
Japanese (Accented)			[4]
Tagalog (Native)			[0]
			[ ]

DR 0

PARRY 12* (Judo or Karate)

BLOCK —

TL: 8 [0]

Cultural Familiarities

East Asian [0]

Homeline [1]

Reaction Modifiers

Appearance

Status -1 from those who notice her Delusion

SKILLS

Name	Level	Relative Level	
Acrobatics	17†	DX+1	[4]
Area Knowledge (Manila)	14	IQ+1	[2]
Broadsword	15	DX-1	[1]
Climbing	17†	DX+1	[2]
Computer Hacking/TL8	11	IQ-2	[2]
Computer Programming/TL8	11	IQ-2	[1]
Fast-Draw (Knife)	17*	DX+1	[1]
Fast-Draw (Small Thrown Weapon)	17*	DX+1	[1]
Fast-Draw (Tonfa)	17*	DX+1	[1]
Fast-Talk	13	IQ+0	[2]
Filch	15	DX-1	[1]
Garrote	16	DX+0	[1]
Holdout	12	IQ-1	[1]
Judo	16	DX+0	[4]
Jumping	16	DX+0	[1]
Karate	16	DX+0	[4]
Knife	16	DX+0	[1]
Lockpicking/TL8	15	IQ+2	[8]
Makeup/TL8	13	IQ+0	[1]
Main-Gauche	16	DX+0	[2]
Observation	11	Per-1	[1]
Performance	12	IQ-1	[1]
Photography/TL8	12	IQ-1	[1]
Pickpocket	14	DX-2	[1]
Search	11	Per-1	[1]
Shadowing	13	IQ+0	[2]
Smallsword	17	DX+1	[4]
Stealth	15	DX-1	[1]
Streetwise	13	IQ+0	[2]
Throwing Art	15	DX-1	[2]
Tonfa	15	DX-1	[1]
Traps/TL8	12	IQ-1	[1]
Urban Survival	11	Per-1	[1]
Techniques			
Arm Lock	17		[1]
Back Kick	13		[2]
Choke Hold	15		[2]
Disarming (Smallsword)	18		[2]
Dual-Weapon Attack (Smallsword)	15		[3]
Elbow Strike	15		[1]
Jump Kick	14		[3]
Knee Strike	16		[1]
Off-Hand Weapon Training (Smallsword)	16		[4]
Rope Up	17†		[2]
Scaling	15†		[2]
Sweeping Kick	15		[3]

* Includes +1 for Combat Reflexes.
† Includes +1 for Perfect Balance.

Baron Janos Telkozep

Born in Castle Telkozep, Hungary in 1571, the year of the great victory at Lepanto, Janos Telkozep succeeded to the barony when his father died fighting the Turks in 1589. At a glittering Twelfth Night feast at Castle Bathori a few years later, the young Baron retired to the chambers of the beautiful, widowed Countess Bathori. To his shock (though not entirely, it must be admitted, to his surprise) he discovered the next morning that she had transformed him into a vampire. Telkozep's family connections kept him out of trouble when the King of Hungary eventually tried the Countess for murder and imprisoned her in a distant castle without food or light, but he learned from her example. She had allowed her vampiric appetites to corrupt her judgement, and that, Telkozep vowed, would never be his fate.

Over the next two centuries, the Baron repeatedly "died" and took over the Castle as his own heir, continuing to ally himself to kings and archbishops, maneuvering ever more gracefully through the byzantine paths of European politics. Recognizing earlier than most nobles that the wave of the future would be in banks and trading-houses, rather than acres of barley or ransomed Turkish generals, the Baron taught himself the new intricacies of ducats and marks, pounds and roubles. By the 19th century, he had steadily enriched himself through six or seven wars, three changes of dynasty, and two vampire panics. During the latter, he often acquired the estates of the condemned at knock-down prices, feeling no guilt at profiting from the deaths of vampires more foolish and rash than himself. Slowly, he began to accumulate vampiric foes – the great Pavane des Vampires in Paris declared him anathema, and others tried to stalk or betray him in their turn.

He studied the occult, seeking new weapons against his fellows, and learned that his ancient lover, the Countess Bathori, had somehow escaped her prison through sorcerous means. She had become a Grand Master of the Cabal, a secret society of monsters and magi descended from ancient Egypt, and she offered him sanctuary. Telkozep accepted . . . but she had learned little from her long life. During the disasters of the 1940s, her rashness nearly destroyed the vampire brotherhood in the Cabal – and the war she helped spark did destroy Telkozep's beloved Hungary. In 1956, he left Bathori and the Cabal behind, beginning 30 years of shadow warfare in boardrooms and blasted heaths across Europe and America.

Although his vampiric powers kept him alive, and his fortune kept him hidden, the Cabal (and his vengeful ex-lover the Countess) came ever closer to destroying him. Telkozep could see the inevitable future; just like the pathetic vampires of the 17th century, he was alone and friendless, with every hand against him. A stake in the night, or the Final Dawn, awaited him – unless he could change the game. Where once he had researched money, and then magic, he now sought allies. He discovered that the Cabal had their own enemies – and one of them dwelt on another Earth, where the Countess' reach could not so easily extend. Telkozep put all his liquid wealth into portable assets and waited for an opening. In 1989, he walked through a megalithic barrow under a full moon, and into another Earth. He flitted from timeline to timeline, through gateways marked in an ancient codex he had purchased from the bankrupt National Museum of Budapest, until he was sure he had eluded the Cabal. He then set out to attract the attention of outtimers like himself, with clever advertisements in the papers and subtle manipulations of key stocks. When the Infinity Patrol knocked on his office door, he was able to present them (and eventually ISWAT, who took over once they realized what they had) with an attractive offer – employment as their star vampire (and financial expert) in exchange for protection from the Cabal.

POINTS SUMMARY	
Attributes/Secondary Characteristics	**[220]**
Advantages/Perks/TL/Languages/ Cultural Familiarity	**[369]**
Disadvantages/Quirks	**[-120]**
Skills/Techniques	**[66]**
Other	**[ ]**

Vampire

150 points

Attribute Modifiers: ST+6 [60].

Secondary Characteristic Modifiers: HP+4 [8]; Per+3 [15].

Advantages: Alternate Forms (Bat, Wolf) [30]; Doesn't Breathe [20]; Dominance [20]; Immunity to Metabolic Hazards [30]; Injury Tolerance (Unliving) [20]; Insubstantiality (Costs Fatigue, 2 FP, -10%) [72]; Night Vision 5 [5]; Speak With Animals (Wolves and bats, -60%) [10]; Unaging [15]; Unkillable 2 (Achilles' Heel: Wood, -50%) [50]; Vampiric Bite [30].

Disadvantages: Dependency (Coffin with soil of homeland; Daily) [-60]; Divine Curse (Cannot enter dwelling for first time unless invited) [-10]; Draining (Human Blood; Illegal) [-10]; Dread (Garlic) [-10]; Dread (Religious Symbols; 5 yards) [-14]; Dread (Running Water) [-20]; Supernatural Features (No Body Heat*, No Reflection, Pallor*) [-16]; Uncontrollable Appetite (12) (Human Blood) [-15]; Unhealing (Partial) [-20]; Weakness (Sunlight; 1d/minute) [-60].

Features: Sterile.

* Except after feeding.

GURPS

CHARACTER SHEET

Name Baron Janos Telkozep Player _____ Point Total 535

Ht 5'8" Wt 197 lbs. Size Modifier 0 Age 421 Unspent Pts _____

Appearance Strongly built and charismatic . . . yet strangely menacing

					CURRENT	
ST	20	[40]	**HP**	24		[0]
DX	11	[20]	**WILL**	16		[5]
IQ	15	[100]	**PER**	18		[0]
HT	10	[0]	**FP**	10		[0]

BASIC LIFT (ST × ST)/5 80 DAMAGE Thr 2d+2* Sw 5d-1*

BASIC SPEED 8 [55] BASIC MOVE 8 [0]

ENCUMBRANCE		MOVE		DODGE	
None (0) = BL	80	BM × 1	8	Dodge	11
Light (1) = 2 × BL	160	BM × 0.8	6	Dodge -1	10
Medium (2) = 3 × BL	240	BM × 0.6	4	Dodge -2	9
Heavy (3) = 6 × BL	480	BM × 0.4	3	Dodge -3	8
X-Heavy (4) = 10 × BL	800	BM × 0.2	1	Dodge -4	7

Languages	Spoken	Written	
English	(Accented)	(Native)	[5]
French (Native)			[6]
Hungarian (Native)			[0]
Latin	(Broken)	(Native)	[4]
Russian (Broken)			[2]

DR 0

TL: 8 [0]

Cultural Familiarities

- 18th-Century Europe [0]
- Homeline [1]
- _____ [ ]

PARRY 9 (Saber)

BLOCK —

Reaction Modifiers

Appearance _____

Status +3 at all times for Charisma!

+3 from those he does business with (Business Acumen), -5 from those who notice his Supernatural Features, -4 from animals (Frightens Animals), -1 from past victims and those with Empathy (Callous), -1 reaction from patriotic Turks and Romanians (quirk)

ADVANTAGES AND PERKS

Charisma 3	[15]
Independent Income 10	[10]
Legal Enforcement Powers	[15]
Mind Control	[50]
Striking ST 5	[25]
Talent (Business Acumen) 3	[30]
Temperature Control 3 (Cold, -50%; Uncontrollable, -10%)	[6]
Vampire (see below)	[150]
Wealth (Filthy Rich)	[50]

DISADVANTAGES AND QUIRKS

Berserk (9)	[-15]
Bloodlust (9)	[-15]
Callous	[-5]
Duty (To ISWAT; 15 or less; Extremely Hazardous)	[-20]
Enemy (The Cabal; Hunter; 6 or less)	[-20]
Frightens Animals	[-10]
Greed (6)	[-30]
Code of Honor (Aristocratic manners)	[-1]
Dislikes mirrors	[-1]
Old-fashioned language and idioms (-1 to some uses of Fast-Talk, Propaganda, etc; GM's option)	[-1]
Patriot (Hungary; minor Fanaticism; -1 reaction from patriotic Turks and Romanians)	[-1]
Vow ("Never let vampiric appetites corrupt my judgment")	[-1]

SKILLS

Name	Level	Relative Level	
Administration	17†	IQ+2	[1]
Area Knowledge (Hungary)	15	IQ+0	[1]
Body Language	17	Per-1	[1]
Brawling	12	DX+1	[2]
Connoisseur (Visual Arts)	15	IQ+0	[2]
Current Affairs/TL8 (Business)	16	IQ+1	[2]
Detect Lies	17	Per-1	[2]
Diplomacy	14	IQ-1	[2]
Economics	16†	IQ+1	[1]
Finance	16†	IQ+1	[1]
Guns/TL5 (Pistol)	12	DX+1	[2]
History (Hungary)	15	IQ+0	[4]
Intimidation	20	Will+4	[16]
Market Analysis	17†	IQ+2	[2]
Merchant	13†‡	IQ-2	[0]
Mimicry (Animal Sounds)	14	IQ-1	[2]
Occultism (Vampirology)	18	IQ+3	[12]
Propaganda/TL8	17†	IQ+2	[1]
Saber	12	DX+1	[4]
Savoir-Faire (High Society)	15	IQ+0	[1]
Sex Appeal	11	HT+1	[4]
Teamster (Equines)	14	IQ-1	[1]
Tracking	18	Per+0	[2]

* Includes Striking ST

† Includes +3 for Business Acumen

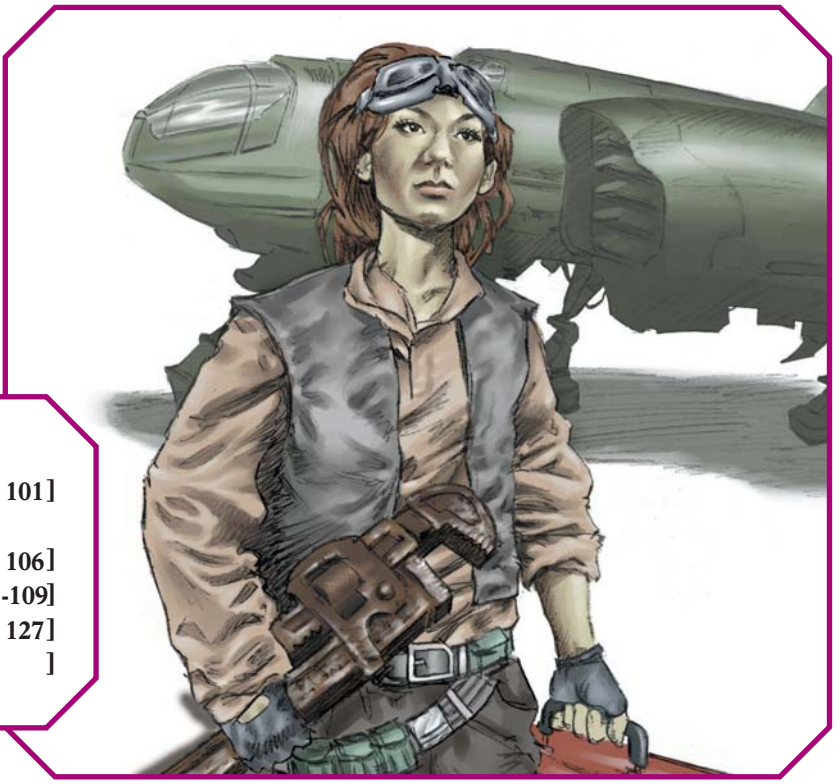
‡ Default from Market Analysis

Xing La

All missions on Lenin-2 are hell. I guess that's why they call it a "Hell parallel." It's way too hot, and there's nothing but bugs and carp to eat, and if you close your eyes for two seconds, some kind of savage is going to try and smash in your skull with a rusted-out electrical transformer bar. The major powers (except the British Empire) went Communist in the late 19th century and, just like the Soviets did to Russia in Homeline, they wrecked the environment big time over the next century. Britain lost what the Chinese called "the Summer Wars" to the Communist powers in the 1950s, and that knocked the struts out from under the global economy, too. Hong Kong and expatriate Americans in Shanghai had managed to spread capitalism to China, though, so technological progress kept progressing – until the ecological collapse took everything down with it. The Gulf Stream shut down and shifted global weather patterns. Catastrophic warming melted the ice caps and flooded the coastlines; mega-storms tore through the desertified continental interiors; famines killed billions of people. While all this was going on, the Bolsheviks, the Mitteleuropan DKAP, and the Christian Communist Congressional Party fought "the Autumn Wars" over the stinking remains of the fresh water and the fish. The few million survivors are grinding along at medieval tech levels, except for the Chinese, who had enough stuff that some survivor settlements can keep the lights on and the engines running. Until the plankton all dies, anyhow.

We run surveys all over the planet, trying to see if we can somehow jumpstart the ecology again, just like China was trying to do before the ax fell. We wind up trying to salvage a lot of the Chinese records, and so we've kind of made Soochow Island our "hell away from hell." They've got liquor, and electric lights, and cooked food, and gambling, and all the comforts of home. A lot of these coastal Chinese got genetic grafts during the last, desperate "try anything" times; with some of them, it seems to have helped. One really sharp local – I mean sharp as a nanofiber, nothing gets past her – probably has some water-rat DNA in her; her eyes are red, and her teeth aren't quite right. But she can hold her breath for half an hour, track stuff by the smell, and see in the dark. More importantly, Xing La (that's her name) can drive, fly, or float anything that moves. And if it doesn't move, she can make it move. She's a natural pilot, too, and she doesn't depend on radio or instruments like half the people Infinity sends out here. She has like a sixth sense for these wrecks, and without her, we wouldn't have found that lost conveyer before the cannibals got to it. We've probably hired her for some kind of work on every mission in Lenin-2 for the past four years, and she's been more places and done a better job than plenty of folks from Homeline.

So what I'm trying to say, I guess, is that the team and I, we feel kind of bad about leaving her there in her miserable hole to die with the rest of the human race on that ball of mud. I mean, if it turns out that we can't reseed the krill, and we can't fix the North Atlantic, and we can't find any earthworms that can stay alive in the plague zones for more than a month. And she's got nothing but talent, and drive, and pluck to spare, and it's even more wasted than most of Lenin-2 is. Anyhow, we've sent her name and profile upstairs to – well, I'd better not say who, but you know who I mean – and hopefully, they need someone who can drive a motorcycle up a sheer cliff, or thread an airship through the eye of a typhoon. If not, so help me Buddha, I'll smuggle her back to Homeline myself.



POINTS SUMMARY	
Attributes/Secondary Characteristics	[101]
Advantages/Perks/TL/Languages/ Cultural Familiarity	[106]
Disadvantages/Quirks	[-109]
Skills/Techniques	[127]
Other	[ ]

GURPS

CHARACTER SHEET

Name Xing La | Player | Point Total 225

Ht 5'4" | Wt 100 lbs. | Size Modifier 0 | Age 27 | Unspent Pts

Appearance Skinny East Asian woman with gleaming eyes and bony teeth

					CURRENT	
ST	10	[0]	**HP**	10		[0]
DX	12	[40]	**WILL**	12		[0]
IQ	12	[40]	**PER**	12		[0]
HT	13	[30]	**FP**	10		[-9]

BASIC LIFT (ST × ST)/5 20 | DAMAGE Thr 1d-2 Sw 1d

BASIC SPEED 6.25 [0] | BASIC MOVE 6 [0]

ENCUMBRANCE		MOVE		DODGE	
None (0) = BL	20	BM × 1	6	Dodge	9
Light (1) = 2 × BL	40	BM × 0.8	4	Dodge -1	8
Medium (2) = 3 × BL	60	BM × 0.6	3	Dodge -2	7
Heavy (3) = 6 × BL	120	BM × 0.4	2	Dodge -3	6
X-Heavy (4) = 10 × BL	200	BM × 0.2	1	Dodge -4	5

Languages	Spoken	Written
Cantonese (Broken)		[2]
English (Accented)		[4]
Mandarin (Broken)		[2]
Shanghainese (Native)		[0]
		[ ]

DR: 0

TL: 8 [0]

Cultural Familiarities

- East Asian [0]
- Homeline [1]
- [ ]

PARRY: —

BLOCK: —

Reaction Modifiers

Appearance

Status

Reputation +2 from anyone she does work for (Artificer), +1 in close confines (Sanitized Metabolism), -2 for Clueless, most of the time, -2 from those who can hear her voice (Disturbing Voice)

ADVANTAGES AND PERKS

Absolute Direction	[5]
Breath-Holding 3	[6]
Discriminatory Smell	[15]
Infravision	[10]
Legal Enforcement Powers	[15]
Pressure Support 1	[5]
Sanitized Metabolism	[1]
Striking ST +10 (Bite Only, -60%)	[20]
Talent (Artificer) 2	[20]

DISADVANTAGES AND QUIRKS

Clueless	[-10]
Disturbing Voice	[-10]
Duty (To ISWAT; 15 or less; Extremely Hazardous)	[-20]
Gluttony (15)	[-2]
Hard of Hearing	[-10]
Low Empathy	[-20]
Shyness (Severe)	[-10]
Skinny	[-5]
Unnatural Features (Lambent eyes and bony teeth)	[-2]
Unusual Biochemistry	[-5]
Wealth (Struggling)	[-10]
Attentive	[-1]
Bad posture (-1 to Dancing and Sex Appeal)	[-1]
Code of Honor ("Stay bought and finish the job")	[-1]
Incompetence (Finance)	[-1]
Likes processed food (especially fast food)	[-1]

SKILLS

Name	Level	Relative Level	
Airshipman/TL7	13	IQ+1	[2]
Armoury/TL7 (Heavy Weapons)	13*	IQ+1	[1]
Axe/Mace	12	DX+0	[2]
Breath Control	14	HT+1	[8]
Drive!	16	DX+4	[72]
Electrician/TL7	13*	IQ+1	[1]
Electronics Repair /TL7 (Sensors)	15*	IQ+3	[4]
Electronics Repair /TL7 (Sonar)	14*	IQ+2	[2]
Fishing	12	Per+0	[1]
Gunner/TL7 (Rockets)	14	DX+2	[4]
Knot-Tying	13	DX+1	[2]
Machinist/TL7	13*	IQ+1	[1]
Mechanic/TL7 (Gasoline Engine)	14*	IQ+2	[2]
Navigation/TL2 (Sea)	15†	IQ+3	[2]
Navigation/TL7 (Sea)	14†	IQ+2	[1]
Scrounging	15	Per+3	[8]
Scuba/TL8	11	IQ-1	[1]
Seamanship/TL7	13	IQ+1	[2]
Smuggling	11	IQ-1	[1]
Spear Thrower	13	DX+1	[4]
Survival (Island/Beach)	11	Per-1	[1]
Survival (Swampland)	11	Per-1	[1]
Swimming	15	HT+2	[4]

* Includes +2 from Artificer.

† Includes +3 from Absolute Direction.

Combat Lite

This appendix summarizes the core combat rules found in the ***Basic Set,*** Book 2. GMs interested in combat with counters or figures on a hexagonal grid, special combat situations, etc., should consult Chapters 12-13, in Book 2.

Combat Turn Sequence

Each character's turn normally gives him one opportunity to act per second. After everyone takes his turn, one second has passed.

The one-second time scale breaks the battle into manageable chunks. A GM can drop out of combat time whenever dramatically appropriate, and resume combat time when noncombat action gives way to more fighting.

The *turn sequence* is the order in which active characters take their turns. It is set at the start of the fight and does not change during combat. The combatant with the highest Basic Speed goes first, followed by the next-highest Basic Speed, and so on. The GM decides the order of multiple NPCs on the same side with the same Basic Speed. If PCs are involved, precedence goes to the highest DX. If there's still a tie, the GM should roll at the start of combat to determine who acts first.

Maneuvers

A *maneuver* is an action taken during combat. Each turn, you must choose *one* of the following maneuvers: Aim, All-Out Attack, All-Out Defense, Attack, Change Posture, Concentrate, Do Nothing, Evaluate, Feint, Move, Move and Attack, Ready, or Wait. Your choice determines *what you can do* and your options for active defense and movement.

Aim

Aiming a ranged weapon (or a device such as a camera) takes a full turn. Specify your weapon and your target. You can't aim at something that you can't see or detect.

If you follow an Aim maneuver with an Attack or All-Out Attack with the *same* weapon against the *same* target, you get a bonus to hit. Add the weapon's Accuracy to your skill. If you Aim for more than one second, you receive an additional bonus: +1 for two seconds of Aim, or +2 for three or more seconds.

While aiming, you can move a step.

Any Active Defense automatically spoils your aim and removes all accumulated benefits. If *injured* while aiming, you must make a Will roll or lose your aim.

All-Out Attack

Attack any foe with a ready weapon, making no effort to defend against enemy attacks. If you make a melee attack, you must specify *one* of these four options:

- *Determined:* Make a single attack at +4 to hit.
- *Double:* Make two attacks against the same foe, *if* you have two ready weapons or one weapon that does not have to be readied after use. Attacks with a second weapon held in the off hand are at the usual -4.
- *Feint:* Make one Feint (see below) and then one attack against the same foe.
- *Strong*: Make a single attack, at normal skill. If you hit, you get +2 to damage – or +1 damage per die, if that would be better. This only applies to melee attacks doing ST-based thrust or swing damage, not to weapons such as force swords.

You may move up to half your Move, but you can only move forward. You may take *no active defenses at all* until your next turn.

These are the two All-Out Attack options for ranged combat:

- *Determined:* Make a single attack at +1 to hit.
- *Suppression Fire:* Take your entire turn to spray an area with automatic fire. Your weapon must have RoF 5+. Ask the GM for details or see Suppression Fire (p. 410).

All-Out Defense

The maneuver of choice when beset by foes. Specify *one* of the following two options:

- *Increased Defense:* Add +2 to *one* active defense of your choice: Dodge, Parry, or Block. This bonus persists until your next turn.
- *Double Defense:* Apply two *different* active defenses against the same attack. If you fail your defense roll against an attack, you may try a second, different defense against that attack. If you try a parry (armed or unarmed) with one hand and fail, a parry using the other hand *does* count as a "different defense."

With Increased Dodge, you may move up to half your Move. Otherwise, the only movement is a step. Choose any legal active defense, with bonuses as described above.

Attack

Make an armed or unarmed attack in melee combat, or to use a thrown or missile weapon in ranged combat. A weapon used in an attack must be ready.

If using a melee weapon or unarmed attack, your target must be within reach. If using a ranged weapon, your target must be within the weapon's Max range.

To move more than one step during an attack, use a Move and Attack or All-Out Attack.

Change Posture

Change between the following postures: *standing, sitting, kneeling, crawling, lying prone* (face down), and *lying face up*. Any posture other than standing slows movement and penalizes attack and defense rolls, but also creates a smaller target for ranged attacks.

Standing up from a lying position requires two Change Posture maneuvers: one to rise to crawling, kneeling, or sitting, and another to stand.

You can switch between kneeling and standing as a step with another maneuver.

Concentrate

You *concentrate* on one primarily mental task (even it has a minor physical component, like operating controls, gesturing, or speaking). This may be casting a magical spell, using a psi ability, making a Sense roll to spot an invisible warrior, or any similar action, including most IQ-based skill rolls. This is a full-turn maneuver.

If you are forced to use an active defense, knocked down, injured, or otherwise distracted before you finish, you must make a Will-3 roll. On a failure, you lose your concentration and must start over.

Do Nothing

Standing still is *Doing Nothing*. A character Doing Nothing may still defend normally, unless stunned. Someone stunned or surprised *must* take this maneuver. A stunned character defends at -4.

To recover from physical or mental stun, he may attempt a HT or an IQ roll. A success allows recovery at the *end* of a turn.

Evaluate

Study an adversary to gain a combat bonus on a subsequent attack. You must specify a *visible* opponent close enough to attack or reachable with a single Move and Attack maneuver (see below).

An Evaluate maneuver gives +1 to skill for an Attack, Feint, All-Out Attack, or Move and Attack made against *that opponent, on your next turn only*. You may take up to three consecutive Evaluate maneuvers before you strike, giving a cumulative +1 per turn.

Feint

"Fake" a melee attack if your weapon is ready and your foe is within reach. This maneuver is *not* an attack and does not make your weapon unready.

To Feint, choose a single opponent and roll a Quick Contest of Melee Weapon skills. Your opponent may roll against his Melee Weapon skill, unarmed combat skill, Cloak or Shield skill, or DX.

If you fail your roll, your Feint is unsuccessful. Likewise, if you succeed, but your foe succeeds by *as much as* or *more than* you do, your Feint fails. If you *make* your roll, and your foe *fails*, subtract your margin of success from the foe's active defense if you attack him with Attack, All-Out Attack, or Move and Attack on your next turn. If you and your foe *both* succeed, but you succeed by more, subtract your margin of victory from the foe's defense.

A Feint lasts *one* second. But if you Feint and then make an All-Out Attack (Double), the Feint applies to both attacks.

You can move one step while feinting and it allows any active defense. Allies cannot take advantage of your successful Feint.

Move

Move any number of yards up to your full Move score, but take no other action. Most other maneuvers allow at least some movement on your turn; take this maneuver if *all* you want to do is move.

During a Move, a character can defend themselves normally.

Move and Attack

Move as described for the Move maneuver, but during or after your move, make a single, poorly aimed attack – either unarmed or with a ready weapon.

You attack as described for the Attack maneuver, but at a penalty. If making a ranged attack, you have a penalty of -2 or the weapon's Bulk rating, whichever is *worse*. If you are making a melee attack, you have a flat -4 to skill, and your adjusted skill cannot exceed 9.

You can only dodge or block during this maneuver.

Ready

A *Ready* maneuver can be used to:

- Pick up or draw *any* item, prepare it for use, regain control of an unwieldy weapon after a swing, or adjust the reach of a long weapon.
- Complete physical actions other than fighting: opening or closing a door, picking a lock, etc.
- Switch an advantage "off" or "on" if it is not always on and does not require an Attack or Concentrate maneuver.

The combatant can both step and defend while taking a Ready.

Wait

Do nothing *unless* an event you specified in advance occurs before your next turn; e.g., a foe moves into range. If that happens, you may transform your Wait into an Attack, Feint, All-Out Attack (you must specify the option before acting), or Ready maneuver. You interrupt the turn sequence, but it resumes after you've acted.

Specify your action and its trigger when you take the Wait maneuver. You may Wait with a ready ranged weapon if you have specified the zone that you are covering.

Ranged Attacks

A "ranged attack" is any attack with a weapon used at a distance, from a thrown rock to a laser rifle to a specified spell.

Make a ranged attack on a target only if it falls within your weapon's *range*. To find this, see the relevant weapon table or advantage or spell description. Most ranged attacks list Half Damage (1/2D) range and Maximum (Max) range, in yards. Your target must be no farther away than Max range; 1/2D range only affects damage.

A few weapons have a *minimum* range, as they lob projectiles in a high arc, or have fusing or guidance limits.

Figure your adjusted chance to hit by:

1. Taking your base skill with your ranged weapon.
2. Adding your weapon's Accuracy (Acc) *if you preceded your attack with an Aim maneuver.*
3. Applying the target's Size Modifier (SM).
4. Modifying for the target's *range and speed* (done as a single modifier).
5. Modifying for circumstances (rapid fire, movement, darkness, cover, etc.), including any special conditions determined by the GM.

The result is your *effective skill.* A roll of this number or less is a successful attack roll (see below). It will hit, unless the target succeeds with an active defense.

Attacking

You attempt to hit a foe or other target by executing an Attack, All-Out Attack, or Move and Attack maneuver. You can only attack with a weapon if it's ready (see *Ready,* p. 325).

Two basic types of attacks exist: melee attacks and ranged attacks. Your target must be within reach to make a melee attack, or within range to make a ranged attack. Resolving either type of attack takes three die rolls:

- First is your *attack roll.* If your roll is successful, your attack was a good one.
- Now your foe must make a *defense roll* to see if he can defend against your blow. If he makes this roll, he evaded or stopped the attack, and is not hit.
- If he misses his defense roll, your blow struck and you *roll for damage*.

Attack Roll

Your "attack roll" is a regular success roll (see Chapter 10, Book 2). Figure your *effective skill* (base skill plus or minus any appropriate modifiers) with the weapon you are using.

If your roll is *less than or equal to* your effective skill, your attack will hit unless your foe successfully defends (see *Defending*, below). If he fails to defend – or if he can't – you've hit him.

If your roll is *greater than* your effective skill, you missed!

No matter what your effective skill, a roll of 3 or 4 always hits, and is a *critical hit*. Depending on your effective skill, a roll of 5 or 6 may also be a critical hit. An attacker with an effective skill of 15 gets a critical hit on a roll of 5 or less; one with effective skill 16+ gets a critical hit on a roll of 6 or less.

On an attack roll of 3, you do not roll for damage – your blow automatically does the maximum damage. Other critical hits bypass the defense roll, but roll normally for damage.

A roll of 17 or 18 always misses.

Defending

If your attack roll succeeds, you have not (yet) actually struck your foe, unless you rolled a critical hit. Your attack is *good enough* to hit him – *if he fails to defend.*

A fighter can use three *active defenses* to evade or ward off an attack: Dodge, Parry, and Block. These active defense scores should be calculated in advance and recorded on the character's sheet.

If a foe makes a successful attack roll, choose *one* active defense and attempt a "defense roll" against it. *Exception:* The All-Out Defense (Double Defense) maneuver lets you attempt a second defense against a particular attack if your first defense fails.

The active defense chosen depends on the situation – *especially* the maneuver chosen last turn. Some maneuvers restrict which active defenses can be made. No active defense is available if the PC is unaware of the attack. And active defenses don't apply to fighters who are unconscious, immobilized, or otherwise unable to react.

Active Defense Rolls

The defender rolls 3d against his active defense score. If his roll is *less than or equal to* his effective defense, he dodged, parried, or blocked the attack. Otherwise, his active defense was ineffective and the attack hit. If this occurs, roll for damage.

An active defense roll of 3 or 4 is *always* successful – even if the effective defense score was only 1 or 2! A roll of 17 or 18 always fails.

Dodging

A *Dodge* is an active attempt to move out of the perceived path of an attack. It is normally the *only* active defense you can take against firearms.

Your Dodge active defense is Basic Speed + 3, dropping all fractions, minus a penalty equal to your encumbrance level (see *Encumbrance and Move,* p. 17). List Dodge on your character sheet for quick reference.

You may dodge *any* attack except one that you did not know about! You

only get one Dodge roll against a given attack.

If a single rapid-fire attack scores multiple hits, a successful Dodge roll lets you avoid one hit, plus additional hits equal to your margin of success. A critical success lets you dodge *all* hits you took from that attack.

Blocking

Blocking requires a *ready* shield or cloak. Your Block active defense is 3 + *half* your Shield or Cloak skill, dropping all fractions.

You can block any melee attack, thrown weapon, projected liquid, or muscle-powered missile weapon. You *cannot* block bullets or beam weapons . . . these come too fast to be stopped this way.

You may attempt to block only *one* attack per turn.

Parrying

Parry to deflect a blow using a weapon or your bare hands. You cannot parry unless your weapon is *ready* – or, if unarmed, you have an empty hand.

You can use most melee weapons to parry. Some hefty weapons (e.g., axes) are *unbalanced:* you cannot use them to parry if you've already used them to attack on your turn. (You can still parry with a weapon in your other hand, if you have one.) A few long, well-balanced weapons (e.g., the quarterstaff) get a +1 or +2 bonus to parry due to their ability to keep a foe at bay.

Your Parry active defense with a given weapon is 3 + *half* your skill with that weapon, dropping all fractions.

A parry won't stop anything except melee attacks or thrown weapons, unless you have special skills. *Exception:* If a foe attacks you with a missile weapon *and* he is within reach of your melee weapon, you may parry. Success would mean that you slapped his bow or gun aside, causing him to fire wide of your body.

Usually, you are still in the fight as long as you have positive HP.

You can parry thrown weapons, but at a penalty: -1 for most thrown weapons, or -2 for *small* ones such as knives, shuriken, and other weapons that weigh 1 lb. or less.

If you successfully parry an unarmed attack (bite, punch, etc.) with a weapon, you may injure your attacker. Immediately roll against your skill with the weapon used to parry. If you succeed, your parry struck the attacker's limb squarely. He gets no defense roll against this! Roll damage normally.

Damage and Injury

If your attack roll succeeds and your target fails his defense roll (if any), you may make a *damage roll*. This tells you how much *basic damage* you dealt to your target.

Your weapon (and, for muscle-powered weapons, your ST), or your natural or Innate Attack, determines the number of dice you roll for damage. If your target has any Damage Resistance (DR), he subtracts this from your damage roll.

If your damage roll is less than or equal to your target's effective DR, your attack *failed to penetrate* – it bounced off or was absorbed. If your damage roll *exceeds* your target's DR, the excess is the *penetrating damage*. If your foe has no DR, the entire damage roll is penetrating damage.

Your foe suffers injury (lost HP) equal to the penetrating damage for a crushing attack, 1.5× penetrating damage for a cutting attack, or 2× penetrating damage for an impaling attack. Other damage types exist, and have further effects.

General Damage

If injured, subtract the points of injury from your Hit Points. Usually, you are still in the fight as long as you have positive HP. The most important effects are:

- If you have less than *1/3* of your HP remaining, you reel from your wounds. *Halve* your Move and Dodge (round up).
- If you have *zero or fewer* HP left, you hang onto consciousness through sheer willpower and adrenaline – or barely hold together, if you're a machine. You must roll vs. HT *each turn* to avoid falling unconscious.
- If you go to *fully negative* HP (for instance, -10 if you have 10 HP), you risk death! You must make an immediate HT roll to avoid dying. You must make *another* HT roll to avoid death each time you lose an extra multiple of your HP – that is, at -2×HP, -3×HP, and so on. If you reach -5×HP, you die *automatically.*

The *sudden* loss of HP can have additional effects:

Major Wounds: Any single injury that inflicts a wound in excess of 1/2 your HP is a *major wound.* For a major wound to the torso, you must make a HT roll. Failure means you're stunned or knocked out; failure by 5+ means you pass out.

Shock: Any injury that causes a loss of HP also causes "shock." Shock is a penalty to DX, IQ, and skills based on those attributes *on your next turn* (only). This is -1 per HP lost unless you have 20 or more HP, in which case it is -1 per (HP/10) lost, rounded down. The shock penalty cannot exceed -4 no matter how much injury you suffer.

Stunning: If you're stunned, you are -4 to active defenses, and must Do Nothing on your next turn. At the *end* of your turn, attempt a HT roll to recover. If you fail, you're still stunned and must Do Nothing for another turn. And so on.

Recovery

The *Damage* rules may seem harsh, but don't despair . . . you can get better!

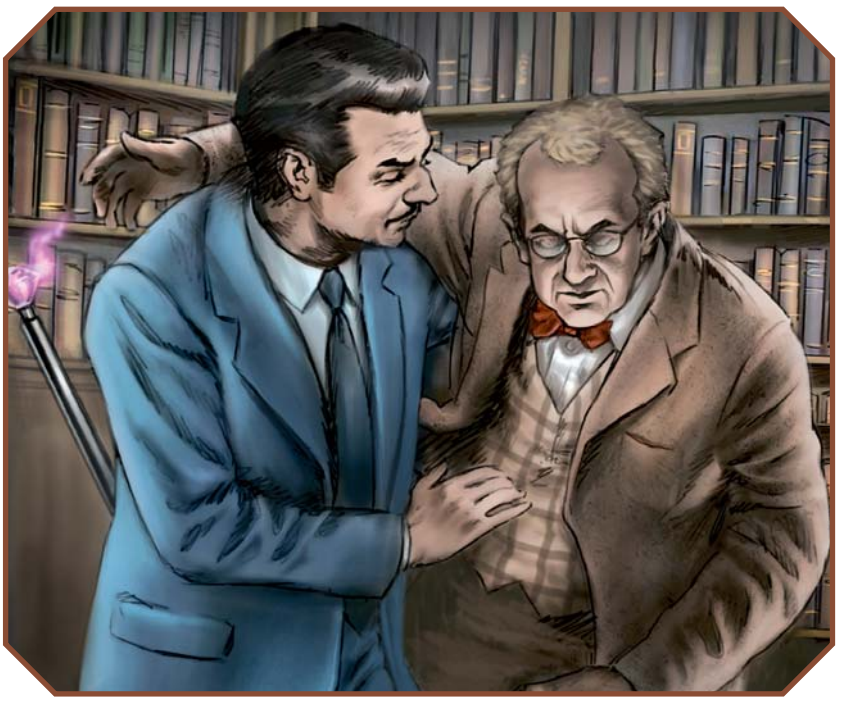
Recovering from Unconsciousness

The GM decides whether you are *truly* unconscious or just totally incapacitated by pain and injury – but either way, you can't *do* anything. If unconscious, you recover as follows:

- If you have 1 or more HP remaining, you awaken automatically in 15 minutes.
- At 0 HP or worse, but above -1×HP, make a HT roll to awaken every hour. Once you succeed, you can act normally. You do not have to roll against HT every second to remain conscious unless you receive *new* injury. But since you are below 1/3 your HP, you are at half Move and Dodge.
- At -1×HP or below, you are in bad shape. You get a *single* HT roll to awaken after 12 hours. If you succeed, you regain consciousness and can act as described above. But if you fail, you won't regain consciousness without medical treatment. Until you receive help, you must roll vs. HT every 12 hours; if you fail, you *die*.

Natural Recovery

Rest lets you recover lost HP, unless the damage is of a type that specifically does not heal naturally (see *Illness, p. 442*). At the end of each day of rest and decent food, make a HT roll. On a success, you recover 1 HP. The GM may give a penalty if conditions are bad, or a bonus if conditions are very good.



Fatigue

Fatigue represents lost energy and reduces FP, just as injury represents physical trauma and comes off of HP. Your Fatigue Points (FP) score starts out equal to your HT, but can be modified.

Lost Fatigue Points

The chart below summarizes the effects of being at low or negative FP. All effects are cumulative.

Less than 1/3 your FP left – You are very tired. Halve your Move, Dodge, and ST (round *up*). This does *not* affect ST-based quantities, such as HP and damage.

0 FP or less – You are on the verge of collapse. If you suffer further fatigue, each FP you lose also causes 1 HP of injury. To do anything besides talk or rest, you must make a Will roll; in combat, roll before each maneuver other than Do Nothing. On a success, you can act normally. You can use FP to cast spells, etc., and if drowning, you can continue to struggle, but you suffer the usual 1 HP per FP lost. On a failure, you collapse, incapacitated, and can do *nothing* until you recover to positive FP.

-1×FP – You fall unconscious. While unconscious, you recover lost FP at the same rate as for normal rest. You awaken when you reach positive FP. Your FP can *never* fall below this level. After this stage, any FP cost comes off your HP instead!

Recovering from Fatigue

You can recover "ordinary" lost FP by resting quietly. Reading, talking, and thinking are all right; walking around, or anything more strenuous, is *not*. Lost FP return at the rate of 1 FP per 10 minutes of rest. The GM may allow you to regain one extra FP if you eat a decent meal *while resting*. Certain drugs, magic potions, etc. can restore missing FP, as can spells such as Lend Energy and Recover Energy.

INDEX

This index covers both books of the ***Basic Set***. The pages are sequentially numbered; Book 2 starts on p. 337.

With rare exceptions, *traits* (advantages, disadvantages, skills, spells, and so on) are *not* listed in this index. Instead, they have their own alphabetical listings. See the *Trait Lists* on pp. 297-306.

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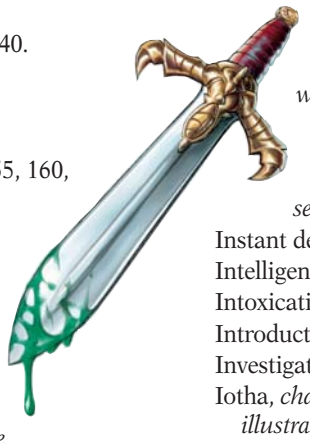

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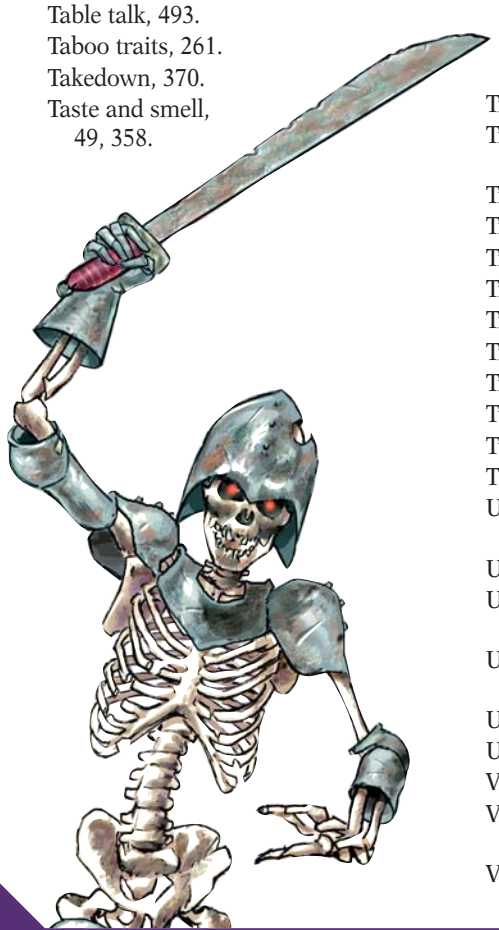

GURPS

CHARACTER SHEET

Name _____ Player _____ Point Total _____

Ht _____ Wt _____ Size Modifier _____ Age _____ Unspent Pts _____

Appearance _____

				CURRENT		CURRENT
ST		[ ]	**HP**			[ ]
DX		[ ]	**WILL**			[ ]
IQ		[ ]	**PER**			[ ]
HT		[ ]	**FP**			[ ]

BASIC LIFT (ST × ST)/5 _____ **DAMAGE** Thr _____ Sw _____

BASIC SPEED _____ [ ] **BASIC MOVE** _____ [ ]

ENCUMBRANCE		MOVE		DODGE	
None (0) = BL		BM × 1		Dodge	
Light (1) = 2 × BL		BM × 0.8		Dodge -1	
Medium (2) = 3 × BL		BM × 0.6		Dodge -2	
Heavy (3) = 6 × BL		BM × 0.4		Dodge -3	
X-Heavy (4) = 10 × BL		BM × 0.2		Dodge -4	

Languages	Spoken	Written
		[ ]
		[ ]
		[ ]
		[ ]
		[ ]

DR

TL: _____ [ ]

Cultural Familiarities

_____ [ ]

_____ [ ]

_____ [ ]

PARRY

BLOCK

Reaction Modifiers

Appearance _____

Status _____

Reputation _____

ADVANTAGES AND PERKS

_____ [ ]

_____ [ ]

_____ [ ]

_____ [ ]

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DISADVANTAGES AND QUIRKS

_____ [ ]

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SKILLS

Name	Level	Relative Level	
			[ ]
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GURPS

CHARACTER SHEET

Name _____

HAND WEAPONS

Weapon	Damage	Reach	Parry	Notes	Cost	Weight

RANGED WEAPONS

Weapon	Damage	Acc	Range	RoF	Shots	ST	Bulk	Rcl	LC	Notes	Cost	Weight

SPEED/RANGE TABLE

For complete table, see p. 550.

Speed/ Range Modifier	Linear Measurement (range/speed)
0	2 yd or less
-1	3 yd
-2	5 yd
-3	7 yd
-4	10 yd
-5	15 yd
-6	20 yd
-7	30 yd
-8	50 yd
-9	70 yd
-10	100 yd
-11	150 yd
-12	200 yd
-13	300 yd
-14	500 yd
-15	700 yd

HIT LOCATION

Modifier	Location
0	Torso
-2	Arm/Leg
-3	Groin
-4	Hand
-5	Face
-7	Skull

Imp or *Pi* attacks can target vitals at -3 or eyes at -9.

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ARMOR & POSSESSIONS

Item	Location	Cost	Weight

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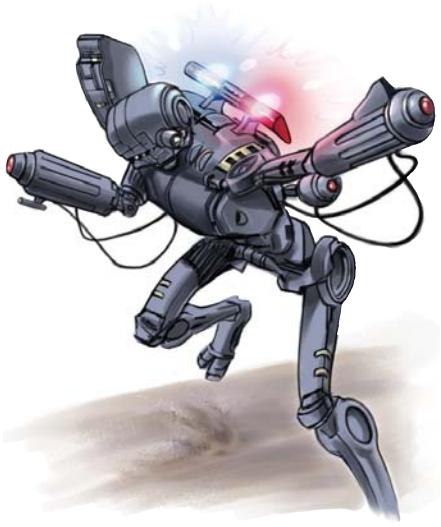


Introduction

This is Book 2 of the ***GURPS Basic Set***, *Fourth Edition.*

Why two books? The last edition, after all, was a single book of 256 pages, plus the Instant Characters section.

The short answer is: we added a lot of material. Which translated to a lot of pages. This new edition brings in a great deal of material that's either brand new or previously appeared in other books (especially the two ***Compendiums***). This new ***Basic Set*** weighs in at a total of 576 pages, more than double the length of the last edition. That's quite a stack of paper.

We could still have done it as a single book. But for two reasons, we didn't. First, that would be a thick, *heavy* book, suitable for stopping bullets but just a bit unwieldy to use. And second, it would be an expensive book. Really, too expensive.

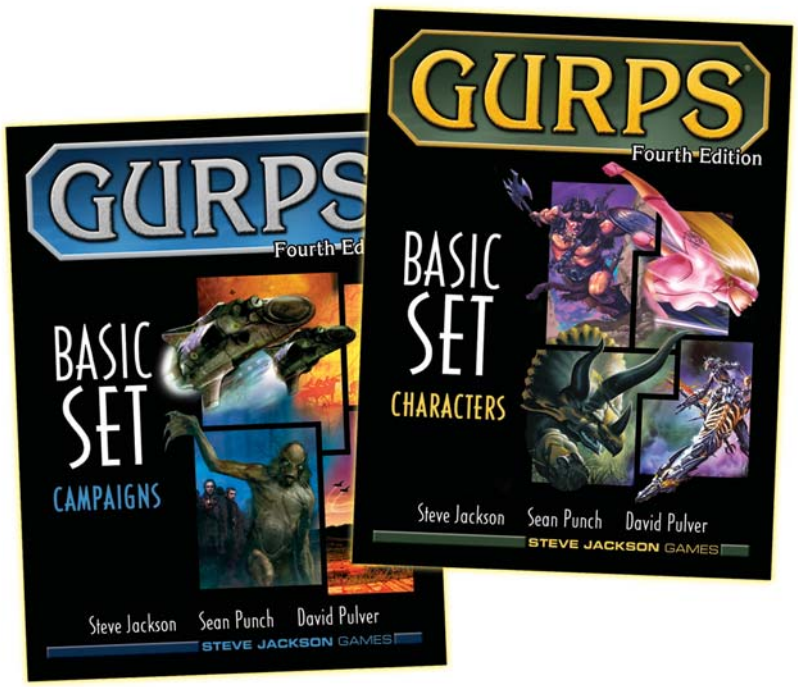
By dividing the manuscript into two parts, we were able to get everything that a player *has* to have into Book 1. That book has the basic system rules and everything for character creation. What it didn't have, in the early drafts, was any combat at all . . . so we added a section with the basics of combat. Now a player needs only Book 1 to get into the game.

Who needs this book? Well, first and foremost, the GM. This book goes into detail about physical feats and combat. It also covers vehicles and technology, animals and monsters, world design, and Game Mastering. "Tool kit" chapters let the GM create new creatures (and even PC races), artifacts, character abilities, and entire game worlds.

But it's not just for GMs. Players who enjoy detail and who want to participate in the creative side of the game will definitely find this book useful . . . and so will players who want to become GMs someday. The point is simply that it's not *required*. Nevertheless, the books *are* intended to work together. The pages and chapters are consecutively numbered, and the index covers *both* books and is repeated in both.

In the final analysis, the answer to "why two books?" is simply *accessibility*. We want the system to be easy to play, easy to learn, and easy to get into. By dividing the text into "necessary for the new player" and "everything else," we hope we've made the new ***Basic Set*** not just easier to carry around, but also a better introduction to the system. Let us know how we did.

– Steve Jackson



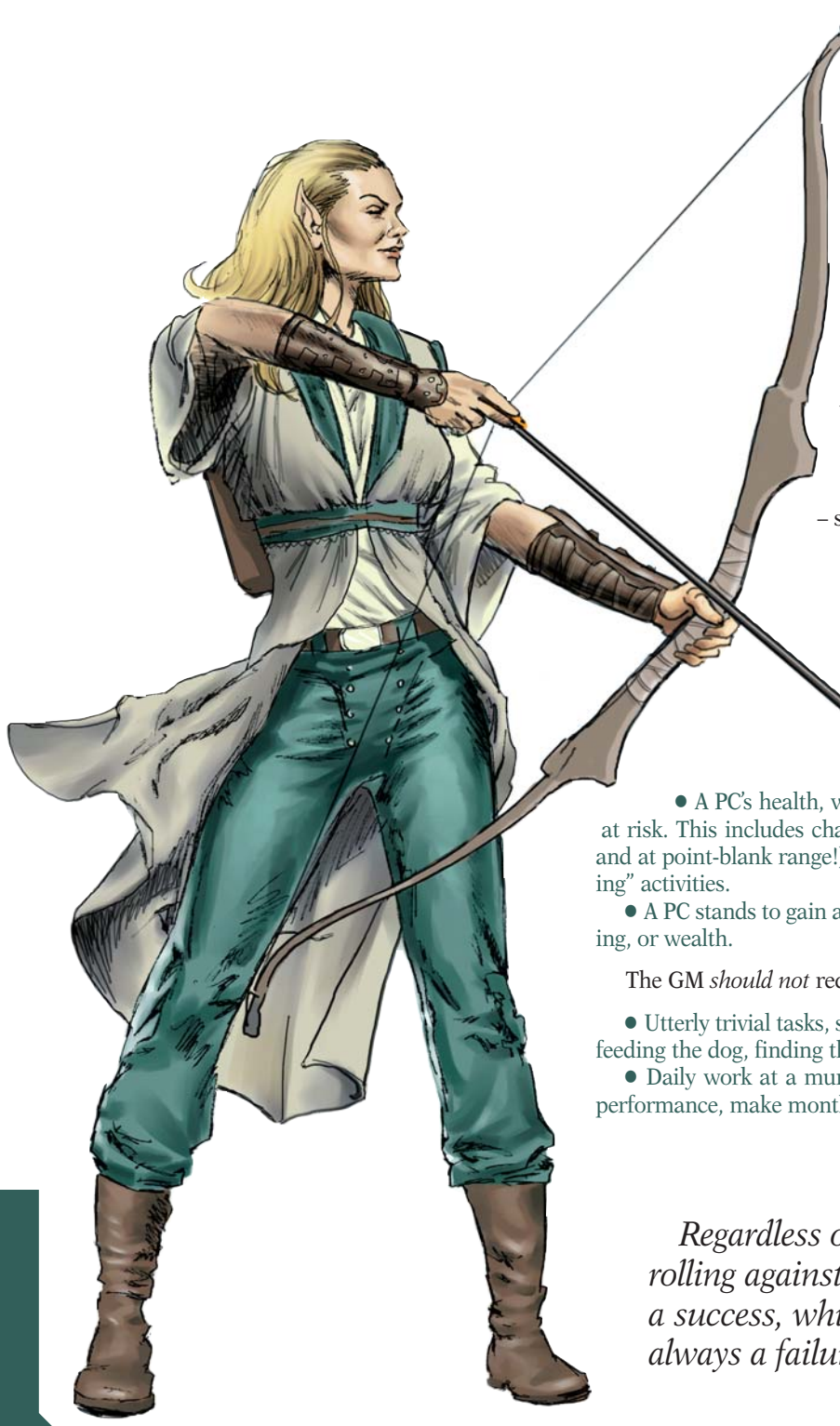
Other Support and GM Tools

Game Masters will also find useful material in the ***GURPS GM's Screen,*** which includes all the tables necessary to run a ***GURPS*** *Fourth Edition* game, copies of ***GURPS Lite*** and the tables of advantages, disadvantages, and skills from the ***Basic Set,*** Book 1, as well as several variant character sheets and other useful tools.

If you have access to the Internet . . . and nowadays that's almost a given . . . there's a great deal of support available, including:

- The free SJ Games webforums at **forums.sjgames.com**.
- *Pyramid* Magazine, which, for $20 a year, gives subscribers several articles a week. A lot of these relate directly or indirectly to ***GURPS***. There are also reviews, cartoons, and other bits of data and inspiration.
- **e23** is our electronic publishing division. Browse over to **www.sjgames.com/e23/** and see what you find. We have already prepared dozens of PDFs, ranging from short adventures to whole ***GURPS*** sourcebooks, and we get more ready every week. This will be a very valuable resource. You can purchase game material online, in PDF format, in the same shopping cart you use for your Warehouse 23 orders!
- And, of course, the ***GURPS*** website itself (**www.sjgames.com/gurps/**) is constantly being updated with information about all ***GURPS*** products in and out of print. One brand-new feature will be implemented for many ***GURPS*** books by the time you read this: the book's complete bibliography will be online, and every book that's currently in print will have a hotlink to **amazon.com**!

Chapter Ten
Success Rolls



Whenever a character attempts to perform an action (e.g., use a skill), roll three dice to determine the outcome. This is called a *success roll.* The task in question *succeeds* if the total rolled on the dice is *less than or equal to* the number that governs the action – most often a skill or an attribute. Otherwise, it *fails.*

Example: If you attempt to pick a lock with a Lockpicking skill of 9, you must roll 9 or less on 3d to succeed. On a roll of 10 or more, you fail.

Regardless of the score you are rolling against, a roll of 3 or 4 is *always* a success, while a roll of 17 or 18 is *always* a failure.

In general, the player makes the die rolls for his character's actions. However, the GM may always choose to roll the dice in secret – see *When the GM Rolls* (p. 344).

When to Roll

To avoid bogging down the game in endless die rolls, the GM should only require a success roll if there is a chance of *meaningful failure* or *gainful success.* In particular, the GM *should* require success rolls when . . .

- A PC's health, wealth, friends, reputation, or equipment are at risk. This includes chases, combat (even if the target is stationary and at point-blank range!), espionage, thievery, and similar "adventuring" activities.
- A PC stands to gain allies, information, new abilities, social standing, or wealth.

The GM *should not* require rolls for . . .

- Utterly trivial tasks, such as crossing the street, driving into town, feeding the dog, finding the corner store, or turning on the computer.
- Daily work at a mundane, nonadventuring job. (To evaluate job performance, make monthly "job rolls"; see *Jobs,* p. 516.)

Regardless of the score you are rolling against, a roll of 3 or 4 is always a success, while a roll of 17 or 18 is always a failure.

When the GM Rolls

There are two sets of circumstances under which the GM should roll for a PC and not let the player see the results:

*1. When the **character** wouldn't know for sure whether he had succeeded.* This is true of all rolls to gain information, whether through skills such as Detect Lies, Interrogation, Meteorology, and Search, advantages like Intuition and Oracle, or supernatural divinatory abilities. In this situation, the player declares that he is using his ability and the GM rolls in secret. On a success, the GM gives the player true information – the lower the roll, the better the information. On a failure, the GM either gives no information at all or *lies* (the higher the roll, the more severe the lie), as appropriate.

*2. When the **player** shouldn't know what's going on.* This includes most Sense rolls, rolls to use Danger Sense, etc. Suppose the party is walking along a jungle trail. A jaguar is on a limb ahead. The GM should not say, "There's a jaguar ahead of you. Roll to see if you notice it." Neither should he say, "Everybody make a Vision roll. Does anybody have Danger Sense?" Either of these approaches gives too much away. Instead, the GM should roll for each character in secret. If anyone succeeds, the GM can say, "You notice a jaguar on a branch 20 yards ahead!" If nobody succeeds . . . they're in for a surprise.

Modifiers

The rules often specify *modifiers* for certain success rolls. These bonuses and penalties affect the *number you are rolling against* – your "target number" – and not the total rolled on the dice. Bonuses always improve your odds, while penalties always reduce them.

For instance, the Lockpicking skill description states, "-5 if working by touch (e.g., in total darkness)." This means that if you are working in the dark, you must subtract 5 from your Lockpicking skill for that attempt. If your Lockpicking skill is 9, you roll against 9 minus 5, or 4, in the dark.

A specific scenario might provide modifiers to allow for the relative ease or difficulty of a particular situation. For instance, an adventure might state that a lock is +10 to open due to the fact that it is primitive and clumsy. If your Lockpicking skill were 9, you would roll against 9 + 10, or 19. Since the highest roll possible on 3d is 18, it would seem that success is assured. This is almost true, but not quite – see *Critical Failure* (p. 348).

Modifiers are cumulative unless stated otherwise. For instance, if you tried to open that primitive lock in the dark, *both* modifiers would apply, and you would roll against 9 - 5 + 10, or 14.

See *Culture* (p. 23), *Language* (p. 23), *Tech-Level Modifiers* (p. 168), *Familiarity* (p. 169), *Equipment Modifiers* (p. 345), and *Task Difficulty* (p. 345) for discussions of common modifiers.

Base Skill vs. Effective Skill

Your *base skill* is your actual level in a skill, as recorded on your character sheet. Your *effective skill* for a particular task is your base skill plus or minus any modifiers for that task. In the Lockpicking examples above, base skill is 9 in all cases, while effective skill is 4, 19, and 14 in three different situations.

The terms "base skill" and "effective skill" apply to *all* success rolls, not just to skill rolls. When you make an

Default Rolls

When a task calls for a skill roll, you must have *some* ability with the required skill in order to attempt the task. Ideally, you want points in that skill . . . but an untrained person can take a stab at most tasks. For instance, *anyone* can swing a sword – although only a trained warrior is likely to have much success at it.

A skill that anyone can attempt without study is said to "default" to an attribute or another skill. This means you can attempt the desired action by rolling against one of your attributes or other skills *at a penalty.* This "default roll" is just an ordinary success roll.

Example: Lockpicking skill defaults to "IQ-5"; that is, anyone can open a lock, *without training,* by making a success roll against 5 less than his IQ. If your IQ is 10, you can open an ordinary lock on a roll of 5 or less on 3d. The smarter you are, the better your chances – but training is always preferable!

The description of each skill shows what skills or attributes it defaults to, and at what penalties. If a skill offers multiple defaults, always choose the best one.

Example: Interrogation defaults to "IQ-5, Intimidation-3, or Psychology-4." If you're not a trained interrogator, you can still get answers out of a prisoner by outthinking him (IQ-5), frightening him (Intimidation-3), or playing "mind games" with him (Psychology-4). If you had IQ 12, Intimidation at 14, and Psychology at 13, your defaults would be 7, 11, and 9, respectively. Roll against 11, the highest of the three.

The Rule of 20

If you have a basic attribute over 20, treat it as 20 for default purposes. For instance, if you have IQ 25, your default Lockpicking skill (IQ-5) is 15 – not 20. No such limit applies to defaults to other *skills.*

"No Default"

Some actions are *impossible* without training. Skills like Alchemy, Karate, and magic spells have *no default.* If you lack the proper training, you can't attempt these things at all.

Equipment Modifiers

The quality of your equipment modifies your skill rolls for tasks that normally require equipment:

No equipment: -10 for technological skills, -5 for other skills. Note that many skills cannot be used *at all* without equipment!

Improvised equipment: -5 for technological skills, -2 for other skills.

Basic equipment: No modifier. This is the case most of the time.

Good-quality equipment: +1. Costs about 5× basic price.

Fine-quality equipment: +2. Costs about 20× basic price.

Best equipment possible at your TL: +TL/2, round down (minimum +2). Not usually for sale!

If you have "basic" or better equipment that is not in perfect condition, the following modifiers apply *in addition to* quality modifiers:

Missing important items: -1 per item.

Damaged equipment: -1 to -3.

Equipment modifiers reflect the quality of:

- Special "tools of the trade," for criminal, military, and espionage skills such as Disguise, Explosives, Forgery, Forward Observer, Holdout, and Lockpicking.
- The contents of your backpack, for outdoor skills like Fishing and Survival.
- Your instruments or lab, for scientific and medical skills such as Alchemy, Diagnosis, Meteorology, Navigation, and Surgery.
- Your shop or toolkit, for Armoury, Carpentry, Electrician, Electronics Repair, Engineer, Machinist, Masonry, Mechanic, Smith, and other skills used to build or repair things.
- Your studio, for artistic skills – Artist, Jeweler, Photography, etc.

Example: For First Aid skill, "improvised" might mean leaves and clean mud; "basic," sterile bandages; "good," a standard first-aid kit; "fine," a crash kit (found in most ambulances); and "best," an entire hospital. Missing antiseptic would give -1, while a first-aid kit salvaged from a wrecked vehicle might give -1 or worse for damaged equipment.

attribute roll, defense roll (p. 374), self-control roll (p. 120), etc., your base skill is your unmodified score, while your effective skill is your final, modified target number.

You may not attempt a success roll if your effective skill is less than 3, unless you are attempting a *defense roll* (p. 374).

Task Difficulty

If the GM feels that a success roll should be easier or harder in a particular situation, he may assess a *difficulty modifier.* This is separate from modifiers for the culture, equipment, language, tech level, etc. of the person attempting the task, in that it applies to anyone who attempts the task. It is cumulative with all other modifiers.

For instance, if the GM rules that the only way to sway a particular audience is to make a Public Speaking roll at -2, the difficulty modifier is -2. *Any* speaker has -2, in addition to personal modifiers (for culture, language, Voice, etc.), when dealing with that audience.

Many skills suggest difficulty modifiers – e.g., the -5 to use Lockpicking skill by touch – but the possible variety of tasks is essentially infinite. Here are some guidelines for GMs:

+10 – *Automatic.* Tasks so trivial that the GM should waive the need for a success roll, except under extraordinary circumstances. *Example:* A Driving roll to start a car.

+8 or +9 – *Trivial.* Situations where failure is extremely unlikely, and would require *incredibly* bad luck. *Example:* A Driving roll to drive around an empty parking lot.

+6 or +7 – *Very Easy.* Tasks where failure is possible, but would require bad luck. *Example:* A Driving roll to drive down an empty suburban street.

+4 or +5 – *Easy.* Most *mundane* tasks, including rolls made by ordinary people at day-to-day jobs. *Example:* A Driving roll to commute to work in a small town.

+2 or +3 – *Very Favorable.* Mildly risky tasks that most people would undertake without hesitation. *Example:* A Driving roll to commute to work in a teeming metropolis.

+1 – *Favorable.* Tasks that most people *would* hesitate at, due to the risk, but that a career adventurer would regard as easy. *Example:* A Driving roll to compete in a road rally.

0 – *Average.* Most *adventuring* tasks, and the majority of skill use under stress. *Example:* A Driving roll in a car chase.

-1 – *Unfavorable.* Stressful tasks that would challenge a novice adventurer, but not an old hand. *Example:* A Driving roll in a *high-speed* car chase.

-2 or -3 – *Very Unfavorable.* Stressful tasks that would challenge a professional. Skilled adventurers still routinely accept such risks! *Example:* A Driving roll in a high-speed car chase on a busy freeway.

-4 or -5 – *Hard.* Tasks so challenging that even an expert will look for alternatives. A true "master" is still unlikely to feel challenged. *Example:* A Driving roll to keep the car on the road while shooting a gun out the window during a high-speed chase.

-6 or -7 – *Very Hard.* Situations that even the masters might have second thoughts about. *Example:* A Driving roll in a high-speed chase during a blizzard.

-8 or -9 – *Dangerous.* Tasks at which even the greatest masters expect to fail. *Example:* A Driving roll while shooting a gun in a high-speed chase during a blizzard.

-10 – *Impossible.* No sane person would attempt such a task. The GM may wish to forbid such attempts altogether. *Example:* A Driving roll to steer a car with the knees while firing a bazooka two-handed during a chase through a blizzard.

These modifiers assume a *trained* character. To get an idea of how tough a task would be for someone working at default, add the default penalty to the difficulty modifier.

Example: Someone who never learned to drive is using Driving at its DX-5 default. For him, an everyday commute – "Easy" (+4 or +5) for a trained driver – would be "Average" (DX) or even "Unfavorable" (DX-1), and almost certainly a stressful experience!

The GM can use difficulty modifiers *in place of* other modifiers if the outcome of a task is too unimportant – or the action too hot – to justify stopping to add up a long string of modifiers. For instance, in a car chase involving a car in bad repair, the GM might bump the difficulty up a level or two *instead* of assessing an equipment modifier for the car.

Time Spent

You can reduce the penalty for a tough task – or even get a bonus – by working slowly and deliberately, taking the time to get things right. Conversely, if you are racing to beat a deadline, even the simplest task can become tricky.

Extra Time: Taking more time than usual for a task (as specified by the rules or the GM) gives a bonus to a *noncombat* action: 2× as long gives +1, 4× gives +2, 8× gives +3, 15× gives +4, and 30× gives +5. For instance, taking a work day (eight hours) to do a one-hour task would give +3. This bonus only applies if it would make sense to take extra time for the task at hand (GM's judgment). You can take extra time to open a safe or figure out an alien artifact, but not to neutralize poison or chase a fleeing suspect!

Haste: Hurrying gives a penalty: -1 per 10% less time taken. For instance, attempting a task in half the usual time (-50%) is at -5. The maximum time reduction is normally 90% (taking 1/10 the prescribed time), at -9. In a cinematic game, the GM might allow one attempt at -10 to complete a task *instantly;* e.g., a Mechanic roll at -10 to fix a machine by kicking it! However, you cannot hasten tasks that require a certain amount of time due to natural laws (e.g., a chemical reaction) or the limitations of equipment (e.g., the top speed of a vehicle). When in doubt, the GM's decision is final.

Note that if a skill specifies time modifiers, these override the generic modifiers above. For instance, magic spells have their own rules for extra time (see *Ceremonial Magic,* p. 238) and cannot be rushed save by those with high skill (see *Magic Rituals,* p. 237).

Long Tasks

The GM may define major projects as "long tasks" that require a number of man-hours of work with one or more attributes or skills. For instance, the GM might rule that building a rope bridge over a chasm requires 40 man-hours of DX-based ordinary labor, 24 man-hours of Carpentry work, and eight man-hours of Engineer work.

The normal limit on labor for each person involved is eight hours per 24-hour day. At the end of each day, *each worker* rolls vs. the skill used that day (the GM rolls for NPCs). A success puts eight man-hours of work toward the task; a critical success counts 50% extra. A failure counts as half as much. A critical failure contributes nothing, and *ruins* 2d man-hours of work already done!

A supervisor who works a *full* shift with his workers may opt to coordinate his staff instead of working himself. Make an Administration roll if organization matters more than inspiration, or a Leadership roll in the opposite situation (GM's judgment). On a success, the workers get +1 to their rolls for the day; on a critical success, they get +2. On any failure, the supervisor contributes nothing at all.

It is possible to work longer shifts. To get an NPC to do this, make an Influence roll (see *Influence Rolls,* p. 359). Roll against HT on any day you work more than eight hours, at -1 per hour over 10. On a success, make the usual skill roll and (except on a critical failure) base the man-hours contributed on the time worked. On a failure, your skill roll has a penalty equal to your margin of failure or -2, whichever is worse, *and* you lose FP equal to the size of your penalty – but you still contribute extra labor if your skill roll succeeds. Treat a critical failure as any other failure, except that you are so exhausted that you cannot work the next day!

It is possible to cut corners and reduce the man-hours of labor required, as described under *Time Spent*. *All* workers doing a given type of labor make their skill rolls at the usual penalty for haste. For instance, the manual laborers working on the rope bridge above could reduce their work to 20 man-hours, but they would roll at DX-5.

Likewise, it is possible to take extra time to get a bonus. For instance, if those laborers put in 80 man-hours, they would roll at DX+1. This strategy is likely to backfire if the extra time takes the form of long shifts, however.

Degree of Success or Failure

Once you have calculated effective skill by applying all relevant modifiers to base skill, roll 3d to determine the outcome. If the total rolled on the dice is less than or equal to your effective skill, you succeed, and the difference between your effective skill and your die roll is your *margin of success*.

Example: If you have effective skill 18 and roll a 12, you succeed; your margin of success is 6.

If you roll *higher* than your effective skill, you fail, and the difference between the die roll and your effective skill is your *margin of failure*.

Example: If you have effective skill 9 and roll a 12, you fail; your margin of failure is 3.

Always note your margin of success or failure, as many rules use these margins to calculate results that matter in play. Even when the rules don't call for these numbers, the GM might wish to reward a large margin of success with a particularly favorable outcome, or assess especially dire consequences for a large margin of failure!

Extremely high or low rolls have special effects – beyond those for normal success and failure – regardless of your exact margin of success or failure.

Critical Success

A *critical success* is an especially *good* result. You score a critical success as follows:

- A roll of 3 or 4 is *always* a critical success.
- A roll of 5 is a critical success *if your effective skill is 15+*.
- A roll of 6 is a critical success *if your effective skill is 16+*.

When you roll a critical success, the GM determines what happens to you. It is always something good! The lower the roll, the better "bonus" he gives you.

A *critical hit* is a critical success scored on an attack. The GM does not determine the result. Instead, use the *Critical Hit Table* (p. 556).

Optional Rule: Influencing Success Rolls

Here are two options for GMs who wish to let players spend bonus character points (see p. 498) to influence game-world outcomes. Be aware that rules of this kind tend to encourage players to sacrifice long-term development for short-term success. This is most appropriate for genres where the heroes usually "win" but don't develop much; e.g., classic comic-book supers. The GM might want to set a limit on how many points each player can spend this way per game session.

Buying Success

A player can spend bonus character points to alter the outcome of his *last* success roll. It costs 2 points to turn critical failure into failure, 1 point to convert failure to success, or 2 points to turn success into critical success. Add these costs for multiple shifts (e.g., critical failure to critical success costs 5 points). To keep the PCs from winning every battle with a series of critical hits, the GM may choose to forbid purchase of critical successes, at least in combat.

Note that because "guaranteed success" can destroy suspense, this optional rule is not recommended for horror or mystery games.

Player Guidance

A player can spend bonus character points to specify the game-world effects of a recent success. Whenever he rolls a success (or in a situation that didn't call for a roll), he may spend 2 points and add a *plausible* element to the world or scene. A player who rolls a critical success may spend 1 point for the same effect. This *replaces* any other beneficial effects of the critical success.

Example: Dr. Smith is working at the Federal Laboratory for Advanced Weapons when a giant robot bursts through the front doors, four stories below. Smith makes his Sense roll and notices the attack. Smith's player suggests, "I was walking past the security station and spotted the robot on a monitor. I go over to the console and train the sensors on the robot." The GM hadn't previously mentioned a security station or sensors, but since that fits his view of the FLAW, he agrees. Smith's player pays 2 points and the GM fits the scene in.

In addition to being plausible, a suggestion must be acceptable to the GM and the other players. In general, the GM should go along with suggestions that are imaginative, that move the plot forward, or that save a PC's life. The GM should *not* approve a suggestion that would short-circuit the plot, contradict a previously established fact, or harm or steal the scene from another PC. In borderline cases, the player and GM can negotiate.

The GM should make a note of any element added using this rule, as it becomes a permanent part of the game world!

Critical Failure

A *critical failure* is an especially *bad* result. You score a critical failure as follows:

- A roll of 18 is *always* a critical failure.
- A roll of 17 is a critical failure *if your effective skill is 15 or less;* otherwise, it is an ordinary failure.
- Any roll of 10 greater than your *effective* skill is a critical failure: 16 on a skill of 6, 15 on a skill of 5, and so on.

When you roll a critical failure, the GM determines what happens to you. It is always something bad – the higher the roll, the worse the result.

A *critical miss* is a critical failure scored on an attack. The GM does not determine the result. Instead, use the *Critical Miss Table* (p. 556).

Repeated Attempts

Sometimes you will only get one chance to do something (defuse a bomb, jump over a crevasse, remove an inflamed appendix, please the King with a song). Other times you can try over and over again until you succeed (pick a lock, catch a fish, analyze a poison). Still other times you will not know whether you succeeded or failed until it's too late to try again (translate an old treasure map, order in a French restaurant, build a ship). Finally, there are times when you are injured by failure but can afford to fail a few times (climb a wall, impress a savage tribesman).

The GM must use common sense to distinguish between these cases, according to the exact situation in which the players find themselves. As a rule:

- If the first failure kills them or destroys the object of the attempt, that's that.
- If a failure causes damage of some kind, assess the damage and let them try again after a "reasonable" time passes. (Skill descriptions frequently state the time required.)
- If a failure causes no damage, let them try again after a reasonable time, but at -1 per repeated attempt – that is, -1 on the second attempt, -2 on the third, and so on – until they succeed or give up.
- If repeated attempts are the norm for the task (e.g., when attacking in combat), or if it's long task, tell them that their attempt failed but let them try again at no special penalty, in the usual amount of time.

Contests

Sometimes a situation will arise in which two characters must compare attributes, skills, or other traits to settle a competition. The one with the highest score doesn't *always* win . . . but that's the way to bet. A "Contest" is a quick way to handle such a competitive situation without playing it out in detail.

In a Contest, each competitor attempts a success roll against the ability being tested – with all applicable modifiers – and then compares his result to his opponent's. There are two different ways to make this comparison.

Quick Contests

A "Quick Contest" is a competition that is over in very little time – often in one second, perhaps even *instantly.* Examples include two enemies lunging for a gun, or two knife throwers seeing who gets closer to the bull's-eye.

Each competitor attempts his success roll. If one succeeds and the other fails, the winner is obvious. If both succeed, the winner is the one with the largest margin of success; if both fail, the winner is the one with the smallest margin of failure. A tie means nobody won (in the examples above, both fighters grabbed the weapon at once, or the knives hit the same distance from the bull's-eye).

Margin of Victory

The amount by which the winner beat the loser is often important – success by 5 vs. failure by 5 generally means more than success by 2 vs. success by 1! The winner's "margin of victory" is the difference between his margin of success and the loser's margin of success if both succeeded, the sum of his margin of success and the loser's margin of failure if he succeeded and the loser failed, or the difference between the loser's margin of failure and his margin of failure if both failed.

Resistance Rolls

Most abilities that can affect an unwilling subject offer the subject an attempt to resist using an attribute, skill, or supernatural ability. This is sometimes a Quick Contest between the attacking ability and the defender's resistance, in which case two special rules apply:

1. The attacker must ***succeed*** *to win.* He cannot win by having the smallest margin of failure. If he fails his roll, he loses automatically and his subject does not need to attempt a resistance roll.

2. The attacker must ***win*** *to affect the subject.* All ties go to the defender.

Regular Contests

A "Regular Contest" is a slow competition with much give and take – for instance, arm wrestling.

Each character attempts his success roll. If one succeeds and the other fails, the winner is obvious. If both succeed or both fail, the competitors' relative positions are unchanged and they roll again. Eventually, one character succeeds when the other fails. At this point, the one who made his roll is the winner.

The length of *game time* each attempt takes depends on the activity, and is up to the GM. In a combat situation, each attempt takes one second . . . but in a library-research contest, with the fate of the world hanging on who finds a certain obscure reference first, each attempt could represent days of time.

Extreme Scores

If both contestants have a score of 6 or less, a Regular Contest can bog down the game as both sides roll failure after failure. To keep the game moving, raise the *lower* score to 10 and add the same amount to the *higher* score.

Example: For a 5 vs. 3 Contest, add 7 to each score to make it 12 vs. 10.

Likewise, a Regular Contest can become deadlocked if both contestants have scores of 14 or more, because it can take a long time before anyone rolls a failure. To speed up the process, reduce the *lower* score to 10 and subtract the same amount from the *higher* score.

Example: For a 19 vs. 16 Contest, subtract 6 from each score to make it 13 vs. 10.

When both scores are greater than 20 – e.g., a Contest of ST between dinosaurs – even this will not suffice. Instead, reduce the *lower* score to 10 and multiply the *higher* score by (10/lower score), rounding down.

Example: For a 600 vs. 500 Contest, multiply the higher score by 10/500 and set the lower one to 10 to make it 12 vs. 10.

The Rule of 16

If a supernatural attack (magic spell, psi ability, etc.) offers a resistance roll and the subject is *living* or *sapient,* the attacker's effective skill cannot exceed the *higher* of 16 and the defender's actual resistance. If it does, reduce it to that level.

Example: A wizard has an effective skill of 18 with his Mind-Reading spell. If he tries to read the mind of someone with a Will of 16 or less, he rolls against 16. If his subject has a Will of 17, he rolls against 17. And if his target has a Will of 18 or higher, he rolls against 18.

Physical Feats

Below are rules for common physical tasks of importance to adventurers. For tasks not listed here, make DX rolls for matters of precision and HT rolls for feats of endurance. To determine weight moved or work done, use Basic Lift. Movement speed should generally be proportional to Basic Move. For more on basic attributes and secondary characteristics, see Chapter 1.

Climbing

To climb anything more difficult than a ladder, roll against Climbing skill (p. 183). This defaults to DX-5. Modifiers to the roll depend on the difficulty of the climb (see below). In all cases, subtract your encumbrance level from your roll as well. Climbing while heavily laden is a dangerous matter!

Make one roll to start the climb and another roll every five minutes. Any failure means you fall (see *Falling,* p. 431). If you secured yourself with a rope, you will fall only to the end of the rope unless you rolled a critical failure.

The table below gives skill modifiers and climbing speeds for some common climbs. In most cases, use the speeds in the "Regular" column. The "Combat" column is for climbs inspired by rage or terror, which always cost at least 1 FP – or *double* the FP cost given in an adventure or assessed by the GM. Climbs in combat require a Move maneuver.

Type of Climb	*Modifier*	*Combat*	*Regular*
Ladder going up	no roll	3 rungs/sec	1 rung/sec
Ladder going down	no roll	2 rungs/sec	1 rung/sec
Ordinary tree	+5	1 ft/sec	1 ft/3 sec
Ordinary mountain	0	1 ft/2 sec	10 ft/min
Vertical stone wall	-3	1 ft/5 sec	4 ft/min
Modern building	-3	1 ft/10 sec	2 ft/min
Rope-up	-2	1 ft/sec	20 ft/min
Rope-down			
(w/o equipment)	-1	2 ft/sec	30 ft/min
(w/ equipment)	-1	12 ft/sec	12 ft/sec

Digging

Digging rate depends on the type of soil, the digger's Basic Lift (that is, ST×ST/5), and the quality of the tools available.

Loose Soil, Sand, etc.: A man can dig 2×BL cubic feet per hour (cf/hr).

Ordinary Soil: A man can dig BL cf/hr. One man with a pick can break up 4×BL cf/hr, making it into loose soil, which is easier to remove. The most efficient way to dig is with one man with a pick, and two shovelers clearing behind him.

Hard Soil, Clay, etc.: Must be broken up first by a pick, at 2×BL cf/hr,

Different Gravity

A world's gravity is measured in "Gs," with 1G being Earth-normal conditions. In comparison, Mars has 0.38G and the Moon has 0.17G.

Microgravity is extremely low gravity (e.g., that of an asteroid or small moon) – for game purposes, anything below 0.1G.

Zero gravity is weightlessness, or "free fall," as found in space and aboard any spacecraft not spinning, accelerating, or otherwise generating artificial gravity.

In higher or lower gravity, *mass* stays the same, but *weight* changes.

Encumbrance and Move in Different Gravity

If local gravity is more than 1G, multiply the sum of your body weight and the weight of everything you're carrying by (local gravity in Gs)-1. This is the extra weight you're carrying due to high gravity. Add this to your encumbrance when determining Move.

Example: You weigh 150 lbs. and are carrying 30 lbs. of gear. On a 1.2-G world, that amounts to an *extra* weight of (150 + 30) × (1.2 - 1) = 36 lbs. Since you're already carrying 30 lbs., your total encumbrance is 66 lbs.

If local gravity is less than 1G, multiply the weight of the gear you're carrying by the local gravity, and use the modified weight to determine your encumbrance. There is a similar reduction in your body weight; this does not affect encumbrance, but it lets you jump further (see below). In very low gravity, you may be able to move faster than your Basic Move by making a series of running broad jumps instead of walking!

In *zero* gravity, you float in space (unless using magnetic boots, thrusters, etc.). If you can't fly, you must push off from a solid surface to move. Your Move when doing so is equal to ST/2, rounded down. You will keep going at that speed until you grab or collide with something!

Actions in Different Gravity

In gravities other than 1G, the jumping rules (p. 352) need modification. Multiply your normal jumping distances by the ratio of 1G to local gravity. For instance, under 1.25G, you jump 1/1.25 = 0.8 times as far, while under 0.2G, you jump 1/0.2 = 5 times as far. (*Exception:* Do not multiply the bonus high-jump distance you get from a running start!) If this lets you jump at least twice as far as normal, use the rules under Super Jump (p. 89) to determine how fast you can move by bounding along.

When throwing (p. 355), multiply distance by the ratio of 1G to local gravity, just as you would for jumping. *Damage* from thrown objects does not change, as this is based on mass.

Gravity also affects falls. Multiply terminal velocity by local gravity. See *Falling* (p. 431) for what this implies.

In zero gravity, your skills and DX rolls are affected as well; see *Free Fall* (p. 197). This does *not* apply when firing beam weapons (unless they have Recoil 2 or more) or operating vehicles or tools specifically designed for zero gravity (e.g., a spacecraft).

G-Increments and Attribute Penalties

If local gravity differs from your home gravity (see *Home Gravity,* p. 17), you might become disoriented and suffer physiological effects. The change in gravity you can tolerate without penalties is your "G-Increment." This is 0.2G unless you have the Improved G-Tolerance advantage (p. 60).

In higher or lower gravity than usual, count the number of G-Increments from your home gravity, rounding down. This determines the penalties you suffer. For instance, an Earth native used to 1G treats 0.81G to 1.19G as zero G-Increments, but 0.8G or 1.2G counts as one G-Increment.

DX: You are at -1 DX per G-Increment of difference (-1 per *two* full G-Increments, if you have the G-Experience advantage, p. 57). This applies to activities that require agility or judging ballistic trajectories; it affects Broadsword, Driving, and Guns, but not Beam Weapons or Lockpicking.

IQ: You are at -1 IQ per *two* full G-Increments of *higher* gravity, due to reduced blood flow to the brain and general fatigue. Lower gravity has no effect.

HT: You are at -1 HT per *two* full G-Increments of *higher* gravity, because the heart has to work harder. Lower your FP score by the same amount. There is no effect in lower gravity – although microgravity or zero gravity might cause space sickness (see *Space Adaptation Syndrome*, p. 434), or even have lasting ill effects in the long term.

See *Temporary Attribute Penalties* (p. 421) to learn how attribute penalties affect secondary characteristics and skills.

and then shoveled at 2×BL cf/hr. A lone man with both pick and shovel can only remove 0.6×BL cf/hr – he loses time switching between tools.

Hard Rock: Must be broken by a pick at BL cf/hr (or slower, for very hard rock!), and then shoveled at BL cf/hr.

All of the above assumes iron or steel tools! *Halve* speeds for wooden tools (common at TL5 and below). *Divide by 4* (or more) for improvised tools – bare hands, mess kits, etc.

Time Required and Fatigue Cost

To find the time required to dig a given hole, find the volume of the hole in cubic feet by multiplying height × width × depth (all in feet). Then divide the number of cubic feet by the digging rate to find the hours of work required.

Each hour of work costs 1 FP for loose soil, 2 FP for ordinary soil, 3 FP for hard soil, and 4 FP for hard rock.

HIKING

Sustainable cross-country speed on foot depends on ground Move. Start with Basic Move and reduce it for encumbrance (see *Encumbrance and Move,* p. 17), injury (see *General Injury,* p. 419), and exhaustion (see *Lost Fatigue Points,* p. 426), as applicable. The distance in miles you can march in one day, under ideal conditions, equals 10 × Move.

If you have the Enhanced Move (Ground) advantage, you may apply your movement multiple to this distance. For instance, Enhanced Move 1 (Ground) multiplies Move by two, doubling daily marching distance. See *Enhanced Move* (p. 52).

A successful roll against Hiking skill (p. 200) increases marching distance by 20%. Roll daily. A group led by someone with Leadership skill at 12+ may make a single roll against the group's *average* Hiking skill. (Hiking defaults to HT-5 for those who have not studied it.) Success lets the entire group march 20% farther; failure means the whole group must forgo the bonus.

When these rules result in different speeds for different members of a party, the party must either move at the speed of its *slowest* member or split up. Note that a party that has opted to make a single Hiking roll for the entire group has already chosen not to split up!

Terrain

Once you know your ideal daily mileage, modify it for terrain as follows:

Very Bad: Deep snow, dense forest, jungle, mountains, soft sand, or swamp. ×0.20.

Bad: Broken ground (including streams), forest, or steep hills. ×0.50.

Average: Light forest or rolling hills ×1.00.

Good: Hard-packed desert or level plains. ×1.25.

Weather

Weather conditions can further modify distance traveled:

Rain: Rain halves *off-road* speed in any terrain. See *Roads* (below) for the effects of rain on roads.

Snow: Ankle-deep snow halves speed in any terrain. Anything deeper divides speed by 4 or more. *Exception:* Skis allow travelers to treat any depth of snow as Average terrain. Replace Hiking skill with Skiing skill (p. 221) when traveling on skis.

Ice: Cold combined with moisture – due to rain, sleet, snowmelt, etc. – results in ice. A coating of ice halves speed in any terrain. *Solid* ice, such as a frozen lake or river, is effectively its own terrain type; treat it as Bad terrain. *Exception:* Treat solid ice as Good terrain for those with skates. Skating skill (p. 220) replaces Hiking skill when traveling on skates.

Roads

In fine weather, most roads count as Average terrain, regardless of the surrounding terrain. The best roads might even count as Good terrain, giving a bonus.

In rain, low-quality roads – unsurfaced dirt or gravel – turn to mud. Treat them as Very Bad terrain. Better roads behave as Average (but never Good) terrain in the rain.

In snow or ice, treat roads as Average terrain, but apply the movement penalties given under *Weather* (above) unless the road is cleared.

Time Required and Fatigue Cost

These rules assume you spend the entire day preparing for your hike, hiking, or resting, leaving *no* time for study or other activities. This is true however small your daily mileage – the heavier your load and the worse the traveling conditions, the more slowly you walk and the more frequently you stop to rest.

Should you interrupt your travels for adventuring matters, you will be missing FP when you stop. See *Fatigue Costs* (p. 426) for details.

When these rules result in different speeds for different members of a party, the party must either move at the speed of its slowest member or split up.

HOLDING YOUR BREATH

Adventurers often need to hold their breath – whether to dive or to survive poison gas, strangulation, vacuum, etc. Your HT determines the length of time you can hold your breath, as follows:

No Exertion (e.g., sitting quietly or meditating): HT×10 seconds.

Mild Exertion (e.g., operating a vehicle, treading water, or walking): HT×4 seconds.

Heavy Exertion (e.g., climbing, combat, or running): HT seconds.

These times assume you have one second to take a deep breath (requires a Concentrate maneuver in combat). Multiply all times by 1.5 if you hyperventilate first – or by 2.5 if you hyperventilate with pure oxygen. A successful roll against Breath Control skill (p. 182) multiplies these times by a further factor of 1.5. However, if you are surprised and don't have a chance to take a deep breath – e.g., when a gas grenade goes off in combat – *halve* these times instead.

Regardless of circumstances, each level of the Breath-Holding advantage (p. 41) doubles the time you can hold your breath.

At the end of this time, you start to lose 1 FP per second. At 0 FP, you must make a Will roll every second or fall unconscious, and are likely to die unless you are rescued. See *Suffocation* (p. 436) for details.

Jumping

When you want to jump over something with a Size Modifier *3 less than yours or smaller* (which encompasses most "ordinary" obstacles), the GM should say, "Okay, you jumped over it," and get on with play. Such jumps succeed automatically. But when the obstacle seems really significant, or if the GM put it there as a deliberate hazard, use the following rules.

Jumping Distance

Your Basic Move determines jumping distance, as follows:

High Jump: (6 × Basic Move) - 10 inches. For example, a Basic Move of 6 lets you jump 26" straight up. For a *running* jump, add the number of yards you run to Basic Move in this formula. Maximum running high-jump height is twice standing high-jump height.

Broad Jump: (2 × Basic Move) - 3 feet. For example, a Basic Move of 6 lets you jump 9 feet from a standing start. For a *running* jump, add the number of yards you run to Basic Move in this formula. Maximum running broad-jump distance is twice standing broad-jump distance.

Those with the Enhanced Move (Ground) advantage (p. 52) may apply their movement multiplier to Basic Move before inserting it into these formulas when they have a running start. This is *instead* of adding the number of yards run! For instance, a horse with Basic Move 6 and Enhanced Move 1 makes running jumps as if its Basic Move were 12.

Those who have Super Jump (p. 89) double the *final* jumping distance for each level of that advantage. This is cumulative with the effects of Enhanced Move!

Remember that 12 inches equal one foot, and that 3 feet equal one yard (or one *hex* on a battle map).

To jump over a larger obstruction (e.g., a chair) or onto something (e.g., a table) during a fight takes your entire turn and requires a Move maneuver. Unless the jump is *extreme,* the GM will assume you can make the jump. (Don't interrupt a battle to calculate jumping distance every time somebody jumps onto a chair!)

However, you must make a DX roll when you make a vertical jump or a long horizontal one. A difficult jump (into a pit, for instance) might give -1 to -5 to this DX roll. The GM determines whether you must roll, and at what penalty. On a failure, you fall. It takes two Change Posture maneuvers to stand up again. On a critical failure, you fall off the thing you jumped onto, or land badly if you were jumping down, and take normal falling damage for that height (see *Falling,* p. 431).

To clamber onto a vertical obstacle without risking a DX roll, take two consecutive Move maneuvers. Success is automatic.

Optional Jumping Rules

The following rules for jumping are *optional.* Only use them if you enjoy extra detail!

ST and Jumping

Basic Move is a ready-made measure of jumping ability – after all, it measures running speed, and running is just a series of rapid hops. However, unnaturally strong supers and monsters in fiction can often make mighty leaps without being speedsters. To emulate this, the GM may allow those with Basic Lift in excess of body weight to use the *higher* of ST/4 (round down) or Basic Move in the jumping distance formulas.

Jumping with Encumbrance

For added realism, multiply jumping distances by the encumbrance factors given under *Encumbrance and Move* (p. 17): ×1 for None, ×0.8 for Light, ×0.6 for Medium, ×0.4 for Heavy, and ×0.2 for Extra-Heavy.

Jumping During Combat

The jumping distance formulas assume you take the time to crouch and prepare for the jump. In combat, this takes two consecutive Concentrate maneuvers. Halve all distances if you jump without such preparation.

If you jump over a small obstacle during a fight (anything with a Size Modifier 3 less than yours or smaller), you must use a Move maneuver, and the jump costs one extra movement point.

Jumping Skill

If you have the Jumping skill (p. 203), you may *substitute* half your skill level, rounded down, for Basic Move in the distance formulas. In addition, you may roll against Jumping instead of DX whenever you make a difficult jump.

Lifting and Moving Things

Basic Lift – ST×ST/5 pounds – governs the weight you can pick up and move. The GM may let multiple characters add their BL (*not* their ST) whenever it seems reasonable; e.g., to carry a stretcher or pull a wagon.

One-Handed Lift: 2×BL (takes two seconds).

Two-Handed Lift: 8×BL (takes four seconds).

Shove and Knock Over: 12×BL. *Double* this if you have a running start. The GM can also make allowances for precariously balanced objects, to make them easier to tilt.

Carry on Back: 15×BL. Thus, you can carry more than you can lift by yourself . . . but every *second* that your encumbrance is over 10×BL (that is, Extra-Heavy encumbrance), you lose 1 FP.

Shift Slightly: Depending on your footing and the way you are braced, you could shift or rock 50×BL.

Pulling and Dragging

When you pull a load behind you unassisted, use its full weight. Halve effective weight if you are pulling a sledge over snow or ice, divide effective weight by 10 for a two-wheeled cart, and divide effective weight by 20 for a four-wheeled wagon. (Remember to add the weight of the sledge, cart, or wagon to that of the load before dividing!)

In all cases, if the surface is smooth and relatively level – for instance, a concrete floor, a proper road, or a frozen lake – *halve* the effective weight of the load. This is cumulative with the effects of a sledge, cart, or wagon.

Final effective weight pulled, after all modifiers, cannot exceed 15×BL if you are to have any hope of moving the object at all. Determine your encumbrance level using *effective* weight, and work out Move normally.

Lifting and Moving Things During Combat

In combat, you can pick up an item that weighs no more than your Basic Lift by taking a one-second Ready maneuver. To pick up anything heavier requires multiple, consecutive Ready maneuvers: two if using one hand, four if using two hands. To pick up an unwilling *character,* you must take a second to grapple him first (see *Grappling,* p. 370). He may attempt to break free during the time it takes you to pick him up!

To kick, body-block, shove, or otherwise shift an obstacle in combat requires an Attack maneuver. You can move or knock over up to 12×BL this way. If you have enough space to run your full Move, you can knock over twice this weight (24×BL) by slamming into it at a run. This requires a Move maneuver. These rules are for *inanimate* objects; see *Slam* (p. 371) for rules governing attempts to knock over someone who can actively resist.

If using a combat map, be sure to mark the map or place a counter to indicate an object that has been knocked over. This is especially important for a feature that was drawn on the map! Likewise, objects picked up by fighters should be removed from the map.

In all cases, if an attempt seems reasonable, do not pause the battle to compare weight to BL. Use common sense. Make it fun!

Lifting Skill

A successful roll against Lifting skill (p. 205) increases your Basic Lift by 5% times your margin of success for the purpose of picking up heavy objects. For instance, if you have Lifting at 14, a roll of 9 lets you lift an extra 25%. Roll once per lift.

Running

Your running speed, or ground Move, is equal to your Basic Move score modified for encumbrance – see *Encumbrance and Move* (p. 17). In combat, running is just a series of Move maneuvers. Use the more detailed rules below when it is important to know whether the heroes catch the plane, escape the savage pygmies, or whatever.

Sprinting

Sprinting is all-out running. It is very fast, but also fatiguing (see *Fatigue Cost,* below). Use it when you need to cover a short distance *quickly,* and can afford to arrive at your objective somewhat fatigued.

You can sprint if you run *forward* for two or more seconds. Add 20% to your Move *after one second.* For instance, with a Move of 7, you could sprint at 8.4 yards/second after running for one second at 7 yards/second.

On a battle map, where movement involves discrete one-yard hexes, drop all fractions to get a round Move score; in the example above, you would have Move 8. Assume that even the slowest sprinter gets +1 Move. Thus, sprinters with Move 9 or less can move one extra hex on a battle map.

If you have Enhanced Move (Ground), you can accelerate by your Basic Move every second until you reach top speed. Use your Enhanced Move multiplier *instead* of the 20% bonus above. For instance, with Basic Move 7 and Enhanced Move 2, you run at Move 7 the first second, Move 14 the next second, Move 21 the third second, and your top speed of Move 28 in the fourth second.

You may only move at your maximum sprinting speed if the ground is good and you are running more or less straight at some goal. Any deviation from "forward" movement requires you to run at normal ground Move for one second before you can resume sprinting.

Paced Running

If you need to run a long distance, you will want to pace yourself to avoid exhaustion. Paced running averages exactly *half* the sprinting speed calculated above. For instance, with a ground Move of 7, you would run at 4.2 yards/second on good ground; thus, you could run a 7-minute mile.

Fatigue Cost

After every 15 seconds of sprinting or every minute of paced running, roll against the *higher* of HT or Running skill (p. 218). On a failure, you lose 1 FP. Once you are reduced to less than 1/3 your FP, halve your Move for any kind of running; see *Fatigue* (p. 426).

Note that since paced running is *half* as fast as sprinting but burns FP at *one-quarter* the rate, you can run twice as far before you run out of energy. This is not true for those with the Machine meta-trait (p. 263), because they do not fatigue – in general, such characters will always sprint.

Flying

When flying, use the *Hiking* (p. 351) and *Running* rules with these changes:

- Substitute "air Move" (equal to twice Basic Speed, dropping all fractions) for "ground Move" (equal to Basic Move). Apply modifiers for encumbrance, injury, and fatigue exactly as you would for ground Move.
- Substitute "Enhanced Move (Air)" for "Enhanced Move (Ground)." For high-speed flight ("running"), handle acceleration with Enhanced Move as described under *Sprinting.*
- Substitute "Flight skill" (p. 195) for "Hiking skill" and "Running skill."
- Ignore terrain, but note that wind and other weather conditions can have comparable effects.

Swimming

Unless you are Amphibious (p. 40) or Aquatic (p. 145), you must roll against Swimming skill (p. 224) any time you enter water over your head. Swimming defaults to HT-4. Roll when you first enter the water, and again every five minutes.

Modifiers: +3 if you entered the water intentionally; a penalty equal to *twice* your encumbrance level (e.g., Heavy encumbrance gives -6); +1 if you are Overweight, +3 if Fat, or +5 if Very Fat (see *Build,* p. 18).

On a failure, you inhale water! Lose 1 FP and roll again in five seconds – and so on, until you drown, are rescued (see *Lifesaving,* below), or make a successful Swimming roll and get your head above water. If you successfully recover, roll again in one minute; if you succeed, go back to making rolls five minutes apart. Yes, you *can* shout for help!

You may try to get rid of armor, etc. after making your first successful Swimming roll. Roll vs. DX for each item you try to remove; roll at -4 to remove shields, helmets, or torso armor. A failed roll means you inhale water, with penalties as above.

Once you reach 0 FP, you must make a Will roll every second or fall unconscious, and are likely to die unless you are rescued. See *Suffocation* (p. 436) for details.

Swimming Speed

Land-dwellers such as humans have water Move equal to Basic Move/5 (round down), although it is possible to modify this slightly; see *Move in Other Environments* (p. 18). Minimum water Move for such characters is 1 yard/second.

Amphibious and Aquatic beings have water Move equal to their full Basic Move.

When swimming long distances, use a 10-second time scale. The number of yards you can swim in 10 seconds is equal to 10 times your water Move, modified downward for encumbrance (see *Encumbrance and Move,* p. 17). For instance, water Move 1 and Heavy encumbrance would let you swim four yards in 10 seconds.

Fatigue Cost

After every minute of top-speed swimming, roll against the *higher* of HT or Swimming skill. On a failure, you lose 1 FP. Once you are reduced to less than 1/3 your FP, halve your water Move; see *Fatigue* (p. 426).

If you are swimming slowly, or just staying afloat, make this roll every 30 minutes.

Lifesaving

You can use the Swimming skill to rescue a drowning person. Make a Swimming roll at -5, plus or minus the difference in ST between you and the person you are rescuing. If the players think of good lifesaving techniques, the GM may give them a bonus to this roll.

On a failure, you inhale water and lose 1 FP, but may try again after one minute. On a critical failure, the victim nearly drowned you! This costs *6* FP, and you must break off the rescue attempt.

Catching

If someone throws an object *at* you, you may make an active defense roll to avoid it. However, if he deliberately throws it *to* you – by successfully lobbing it into your general area – you can try to catch it. Roll against DX or a suitable Sports skill to make the catch, at -4 if you are not taking a Wait maneuver, but at +1 per two full points by which the thrower made his roll. This counts as a parry with your catching hand.

You can also attempt to *intercept* a thrown object en route to a catcher. Treat this as a parry against a thrown weapon (see *Parrying,* p. 376). On a success, you snatch the thrown object out of the air.

Throwing

You can throw anything you can pick up – that is, anything with a weight of 8×BL or less. If the object you wish to throw is not already in your hands, you must take one or more Ready maneuvers to pick it up. See *Lifting and Moving Things* (p. 353) for details.

Throwing an object during combat – whether as an attack or not – requires an Attack maneuver. You can throw objects that weigh up to 2×BL using one hand; heavier objects require a two-handed throw. Roll against DX-3 to hit a specific target, or against DX to lob something into a general area. Apply the usual modifiers for target size, speed, and distance.

Throwing Distance

To avoid slowing down the game with math, the GM should allow any throw he deems reasonable . . . but when you *need* to know the exact distance you can throw an object, use the following procedure:

1. Divide the object's weight in pounds by your Basic Lift to get the "weight ratio."
2. Find the weight ratio in the *Weight Ratio* column of the table below. If it falls between two values, use the *higher* value.
3. Read across to the *Distance Modifier* column and find the "distance modifier."
4. Multiply your ST by the distance modifier to find the distance in yards you can throw the object.

Weight Ratio	*Distance Modifier*	*Weight Ratio*	*Distance Modifier*
0.05	3.5	2.0	0.30
0.10	2.5	2.5	0.25
0.15	2.0	3.0	0.20
0.20	1.5	4.0	0.15
0.25	1.2	5.0	0.12
0.30	1.1	6.0	0.10
0.40	1.0	7.0	0.09
0.50	0.8	8.0	0.08
0.75	0.7	9.0	0.07
1.00	0.6	10.0	0.06
1.50	0.4	12.0	0.05

Example: You have ST 12, giving a BL of 29 lbs. You need to throw a 120-lb. body over a two-yard pit. Divide weight by BL: 120/29 = 4.1. This falls between 4.0 and 5.0 in the *Weight Ratio* column, so treat it as 5.0. The associated distance modifier is 0.12. Multiplying by ST, your range is 0.12 × 12 = 1.4 yards. Oops! The body just hit the bottom of the pit.

Damage From Thrown Objects

Thrown objects inflict *thrust* damage for your ST (see *Damage Table,* p. 16), modified for weight as shown on the table below. Damage is usually crushing, but the GM may rule that a sharp object does cutting, piercing, or impaling damage instead. A fragile object (or a thrown character) takes the same amount of damage it inflicts; roll damage separately for the object and the target.

Weight	*Damage*
Up to BL/8	Thrust, -2 per die
Up to BL/4	Thrust, -1 per die
Up to BL/2	Thrust
Up to BL	Thrust, +1 per die
Up to 2×BL	Thrust
Up to 4×BL	Thrust, -1/2 per die (round down)
Up to 8×BL	Thrust, -1 per die

Example: You have ST 28, which gives you a BL of 157 lbs. and a thrust damage of 3d-1. You hit a foe with a hurled 50-lb. bag of cement. It is between BL/4 (39 lbs.) and BL/2 (78 lbs.). As shown on the table above, it does straight thrust damage, or 3d-1.

Throwing Skill and Throwing Art

When you throw an object that fits into the palm of your hand – such as a bottle, rock, or grenade – you may roll against Throwing skill (p. 226) to hit a target *or* a general area. Furthermore, if you know Throwing at DX+1 level, add +1 to ST before you multiply it by the distance modifier. Add +2 to ST if you know Throwing at DX+2 or better.

If you have Throwing Art skill (p. 226), you can use it to throw *anything*. Roll against skill to hit. If you know Throwing Art at DX level, add +1 to ST before you multiply it by the distance modifier, and add +1 *per die* to thrust damage. These bonuses increase to +2 if you know Throwing Art at DX+1 or better.

Thrown Weapons

The rules above are for throwing rocks, bodies, televisions . . . anything but *weapons*. Hurled weapons differ in three important ways:

1. Thrown weapons use Thrown Weapon skills (p. 226) to hit, not DX or Throwing (but Throwing Art *does* allow you to throw weapons).

2. Many throwing weapons travel significantly farther than "ordinary" objects due to streamlining and stabilization. Others have *less* range, due to the way they are thrown. For instance, you can hurl a throwing knife as far as these rules suggest, but the range at which it will hit point-first and inflict damage is considerably shorter.

3. Throwing weapons have points, edges, dense striking heads, etc. that focus the force of impact. They almost always do more damage than these rules would indicate.

Extra Effort

Through sheer force of will, you can push your body past its usual limits when you perform physical tasks. This is called "extra effort." Note that if you have the Machine meta-trait, you cannot use extra effort!

You can use extra effort to increase Basic Lift (but *not* ST itself) when digging or lifting; daily mileage when hiking; Move when running or swimming; distance (but *not* Basic Move itself) when jumping; and ST for the purposes of throwing, making a single

ST roll, or drawing or cocking a bow or crossbow that's too strong for you. You *cannot* use extra effort to increase the time you can hold your breath – that would be self-defeating!

To apply extra effort, make a Will roll.

Modifiers: -1 per 5% increase in capabilities (e.g., to add 10% to ST, roll at -2). If you are fatigued, apply a penalty equal to the missing FP. Roll at +5 if you are motivated by fear, anger, or concern for a loved one (GM's decision, but you must usually *fail* a Fright Check or a self-control roll for a suitable disadvantage, or be the victim of a successful Intimidation attempt, to get this bonus).

Extra effort costs FP whether you succeed or fail. Instantaneous feats (e.g., jumps and throws) cost a flat 1 FP per attempt. Ongoing tasks (digging, running, swimming, etc.) require repeated extra effort rolls, and cost 1 FP *per roll.* Hiking works differently – see below. Pay the FP cost for extra effort immediately after you attempt your Will roll. Note that the FP spent on extra effort do not penalize *this* attempt, but give a penalty to *future* attempts until you recover the FP.

On a success, you gain the desired increase in your physical capabilities. This does not guarantee success at the task at hand – you could still fail the DX roll for an extra-effort jump, for instance. On a critical success, you do not have to pay FP for your extra effort.

On a failure, you achieve only what you would have accomplished *without* extra effort.

A critical failure means you lose HP equal to the FP spent on the attempt – including any FP the task would have cost without extra effort – and the task *fails automatically!* If you roll a natural 18, you must also make an immediate HT roll to avoid acquiring a temporary disadvantage appropriate to the task (see below for examples). Handle recovery as described in *Duration of Crippling Injuries* (p. 422). A sufficiently bad HT roll can result in a *permanent* disadvantage!

Notes for Specific Physical Tasks

Instead of rolling against Will to use extra effort, you may make a Will-based roll against a relevant skill (Hiking, Jumping, Lifting, Running, Swimming, or Throwing, as applicable), if that would be better.

Digging: For every hour of digging, make an extra-effort roll and pay 1 FP. This *adds* to the usual FP cost. On a critical failure, the injury is to your back, and will heal only with rest (not First Aid); on an 18, you temporarily acquire the Bad Back disadvantage (p. 123).

Hiking: Make one extra-effort roll per day. Extra effort increases the FP you suffer by two when you stop on the march (see *Fatigue*, p. 426). Assess injury due to critical failure at the end of the day, and base it on the modified FP penalty. For instance, if you would normally be missing 5 FP when you stopped, you would be missing 7 FP if you used extra effort – and if you critically failed, you would end the day with 7 *HP* of injury! When using Hiking skill, make a *single* Will-based Hiking roll at -1 per 5% extra mileage beyond the basic +20% for a successful Hiking roll (-1 for +25%, -2 for +30%, and so on).

Through sheer force of will, you can push your body past its usual limits when you perform physical tasks.

Jumping: On a critical failure, apply the injury to the foot or leg (GM's option, or roll randomly); on an 18, you temporarily acquire the Crippled Leg disadvantage (see *Lame,* p. 141).

Lifting and Moving Things: For every minute of continuing effort, make an extra-effort roll and pay 1 FP. (This cost *adds* to the 1 FP per second for carrying encumbrance over 10×BL, if applicable.) Handle critical failures as described for digging. When using Lifting skill, make a *single* Will-based Lifting roll, at -1 per 10% extra Basic Lift. This is *instead* of the usual 5% bonus per point of success.

Running: For every 15 seconds of sprinting or minute of paced running, make an extra-effort roll and pay 1 FP. This *adds* to the FP cost for failed HT rolls while running! On a critical failure, apply the injury to one of your legs; on an 18, you temporarily acquire the Crippled Leg disadvantage (see *Lame,* p. 141).

Swimming: For every minute of swimming, make an extra effort roll and pay 1 FP. This *adds* to the FP cost for failed HT rolls while swimming.

Throwing: Increases to ST affect both damage and distance, but *not* Basic Lift for the purpose of what you can throw in the first place. For that, make a separate extra-effort lifting attempt! Add bonuses for Throwing or Throwing Art skill *after* those for extra effort.

Optional Rule: Extra Effort in Combat

At the GM's option, fighters can use extra effort in combat. These rules work differently from those above – mainly to avoid bogging down combat with extra die rolls and calculations.

You must declare that you are using extra effort and spend the required FP *before* you make your attack or defense roll. A critical failure on the roll causes 1 HP of injury to the arm (if blocking, parrying, or attacking with a shield, weapon, or hand) or leg (if dodging or kicking) *in addition to* the usual critical miss results. DR does not protect you from this damage!

Feverish Defense: If you take any maneuver other than All-Out Attack, you can spend 1 FP to get +2 to a single active defense roll. (You *can* use this bonus to offset the penalty for parrying multiple times with one hand; see *Parrying,* p. 376.)

Flurry of Blows: If you take an Attack maneuver, you can *halve* the penalty for Rapid Strike (see *Rapid Strike,* p. 370) by spending 1 FP *per attack.*

Mighty Blows: If you take an Attack maneuver in melee combat, you can spend FP to gain the damage bonus of an All-Out Attack (Strong) (see *All-Out Attack,* p. 365) *without* sacrificing your defenses. This costs 1 FP *per attack.*

You cannot use Flurry of Blows and Mighty Blows at the same time!

Sense Rolls

"Sense rolls" include Vision rolls, Hearing rolls, Taste/Smell rolls, and all rolls to use special senses such as Scanning Sense (p. 81) and Vibration Sense (p. 96).

To notice something using a given sense, roll against your Perception score, modified by the applicable Acute Senses advantage (p. 35): Acute Vision for Vision rolls, Acute Hearing for Hearing rolls, and so on.

Comprehension Rolls: A successful Sense roll means you noticed something. That is often sufficient, but in some cases, the GM may require a second roll to *understand* what you have sensed; e.g., to realize that the "owl hoot" you heard is really an Indian warrior, or that the faint scent you noticed belongs to the flower of a man-eating plant. This roll is against IQ for details that anyone could figure out, or against an appropriate skill if the significance would be lost on anyone but an expert.

Danger Sense: If you have the Danger Sense advantage (p. 47) and fail a Sense roll or comprehension roll to notice something *dangerous,* the GM will secretly make a Perception roll for you. On a success, you sense the danger anyhow!

Vision

Make a Vision roll whenever it is important that you *see* something.

Modifiers: Any Acute Vision bonus; +3 for Hyperspectral Vision; modifiers for the size and range of the target (see p. 550); -1 to -9 in partial darkness. In *total* darkness, Vision rolls are impossible without special advantages or technological aids. To spot something in plain sight – e.g., a car coming toward you on the road – roll at +10. This does *not* apply to attempts to spot hidden objects, read text, identify faces, etc.

When you try to spot something that is deliberately hidden, the GM may treat this roll as a Quick Contest against a concealment skill (Camouflage, Holdout, etc.), and may allow – or *require* – a skill such as Observation or Search to replace Perception for the roll.

Note that the curvature of a planet blocks vision beyond the horizon. The normal horizon on an Earth-sized planet is about three miles for an observer five to six feet in height. The GM should increase this for taller observers or those in elevated positions. There is no horizon in space!

Useful Advantages: Night Vision cancels -1 in partial darkness penalties per level, and Dark Vision lets you *ignore* darkness penalties. Peripheral Vision gives you a Vision roll to see anything that is not absolutely, positively, directly behind you – and 360° Vision lets you see even that! Telescopic Vision cancels -1 in range penalties per level.

Limiting Disadvantages: Bad Sight gives -6 to Vision rolls to spot items more than one yard away if you are nearsighted, or items *within* one yard if you are farsighted. Restricted Vision prevents you from noticing anything that isn't in the direction you are looking. Blindness means you can see nothing!

Hearing

Make a Hearing roll whenever it is important that you hear a sound. The GM will often require a separate IQ roll to make out speech, especially in a foreign language.

Modifiers: Any Acute Hearing bonus; +4 for Discriminatory Hearing; -4 for Hard of Hearing. The GM may make this roll easier or harder, depending on the loudness of the sound, surrounding noises, etc.

The range at which you can hear a sound at no penalty is given on the table below. For each step by which you are closer than this, apply +1 to the roll, while for each step by which you are more distant, apply -1. For instance, to hear normal conversation at 8 yards would require a roll at -3.

When you try to hear someone who is attempting to move silently, the GM may treat this roll as a Quick Contest against his Stealth skill. If you are *actively* listening for such activity, the GM may allow you to substitute Observation skill for Perception.

Useful Advantages: Parabolic Hearing allows you to hear distant sounds as if they were nearby. Subsonic Hearing and Ultrahearing can detect sounds that are inaudible to normal humans.

Limiting Disadvantage: If you suffer from Deafness, you can hear nothing!

Hearing Distance Table

Sound	*Range (yards)*
Leaves rustling	1/4
Quiet conversation	1/2
Normal conversation	1
Light traffic	2
Loud conversation	4
Noisy office	8
Normal traffic	16
"Quiet" rock band	32
Heavy traffic	64
Jet takeoff	128
Very loud rock band	256
Metallica	512

Taste/Smell

Taste and smell are two manifestations of the same sense. Make a Taste roll to notice a flavor, or a Smell roll to notice a scent.

Modifiers: Any Acute Taste and Smell bonus; +4 for Discriminatory Smell or Taste (as applicable). The GM may modify this roll for a particularly strong or weak taste or odor, and may apply a penalty if it is specifically disguised.

Useful Advantages: In addition to giving a bonus to your roll, Discriminatory Smell and Discriminatory Taste can reveal sufficient detail to allow you to identify people, locations, and objects with precision equivalent to hearing or vision for a normal human.

Limiting Disadvantage: No Sense of Smell/Taste means that you cannot taste or smell *anything.*

Influence Rolls

An "Influence roll" is a *deliberate* attempt to ensure a positive reaction from an NPC. A PC with an appropriate "Influence skill" can always elect to substitute an Influence roll for a regular reaction roll in suitable circumstances (GM's decision). See *Reaction Rolls* (p. 494) for more on NPC reactions.

Decide which Influence skill you are using: Diplomacy, Fast-Talk, Intimidation, Savoir-Faire, Sex Appeal, or Streetwise. Choose wisely! The GM may allow other skills to work as Influence skills in certain situations (e.g., Law skill, when dealing with a judge). Then roll a Quick Contest: your Influence skill vs. the subject's Will.

Modifiers: All your personal reaction modifiers (although the GM or the skill description may rule that some modifiers do not apply); any specific modifiers given in the skill description; -1 to -10 for using an *inappropriate* Influence skill (GM's decision).

If you *win,* you get a "Good" reaction from the NPC – "Very Good" if you used Sex Appeal. On any other outcome, the NPC resents your clumsy attempt at manipulation. This gives you a "Bad" reaction – "Very Bad" if you attempted specious intimidation (see *Intimidation,* p. 202). *Exception:* If you used Diplomacy, the GM will also make a regular reaction roll and use the *better* of the two reactions. Thus, Diplomacy is relatively safe . . .

If the subject is Indomitable (p. 60), you *lose* automatically unless you have Empathy, Animal Empathy, Plant Empathy, or Spirit Empathy, as appropriate. Intimidation attempts against those with the Unfazeable advantage (p. 95) also fail automatically. On the other hand, you *win* automatically – no roll required – against those with Slave Mentality (p. 154).

Influencing the PCs

Influence rolls are designed to allow PCs to affect NPC reactions. The GM should *not* make Influence rolls on behalf of NPCs and tell the players how to react. Most players form an opinion of an NPC based on the GM's portrayal of the character, and few appreciate being told that they *must* roleplay a good reaction toward an NPC they do not like or trust.

This does not mean that NPCs cannot influence PCs! When an NPC makes a successful Influence roll against a PC, the GM should apply the NPC's margin of victory as a bonus or penalty (as appropriate) to the PC's die rolls when dealing with that NPC. For instance, if a beautiful spy beats the PC's Will by 3 using Sex Appeal, the hero might suffer -3 on self-controls roll for his Lecherousness and -3 to his Detect Lies skill where that spy is concerned. Be creative!

Psychological Warfare

You can use Propaganda skill for media manipulation, and Psychology skill for other "psyops." This is an Influence roll. Apply your *cause's* reaction modifiers rather than your own, and use the *average* Will of the target group in the Quick Contest.

Will Rolls

When you are faced with a stressful situation or a distraction, the GM may require you to roll against your Will to stay focused. On a success, you may act normally. On a failure, you submit to the fear, give in to the pressure, are distracted from your task, etc.

The effects of a failed Will roll in a stressful situation are often identical to those of a failed self-control roll for a mental disadvantage. This does not make Will rolls and self-control rolls interchangeable. Which kind of roll you must make depends on the cause of the stress, not on its effects.

If a *game-world event* causes negative effects (distraction, stunning, etc.) for *anyone* who fails a Will roll, you roll against Will just like anyone else – even if your self-control roll to resist identical effects from a mental disadvantage would be easier or harder.

If a *mental disadvantage* causes a negative effect on a failed self-control roll, you roll against your self-control number to resist – even if your Will roll to avoid that same effect under other circumstances would differ.

However, *modifiers* to self-control rolls and Will rolls to resist a particular effect are usually interchangeable. For instance, a drug that gives +2 to Will rolls to resist distraction would also give +2 to self-control rolls to resist disadvantages that result in distraction.

Fright Checks

A Fright Check is a Will roll made to resist *fear.* Fright Checks can occur as often or as rarely as the GM wishes. In a horror campaign where ordinary people meet shockingly gruesome Things, Fright Checks might be very common! With only minor adaptation, the GM can use these rules for awe, confusion, etc. as well as fear.

As a general rule, "ordinary" frightening things do not require Fright Checks. Fright Checks are for events so unusual and terrifying that they might stun or even permanently scar someone.

What counts as "ordinary" depends on the characters and the setting. This is one place where a character story can be helpful! An ordinary, 21st-century American might have to make Fright Checks for encounters with monsters, dead bodies, and the supernatural. A battle-hardened commando in the same game might not have to roll for dead bodies. And in a fantasy campaign, all these things may be quite normal . . . threatening, but normal. On the other hand, a fantasy character might have to make a Fright Check if transported to the 21st century and given a ride down the interstate . . .

Fright Check Modifiers

The following modifiers are cumulative.

Advantages and Disadvantages: Any Fearlessness bonus or Fearfulness penalty; +2 for Combat Reflexes, or -2 for Combat Paralysis. Other modifiers are conditional: -1 to -4 for Cowardice when your physical safety is at risk; +1 for Daredevil when charging into a scary situation; +1 for Higher Purpose when confronting threats you are sworn to oppose; +1 to +4 for Xenophilia when confronting monsters. Unfazeable characters don't make Fright Checks!

Bodies: +6 for a peaceful-looking body, prepared for burial; +2 for a dead body with no signs of violence; no modifier for most victims of violence; and from -1 to -3 for grisly mutilations. Apply another -6 if the victim was your Dependent!

Heat of Battle: +5 if you are in combat when the terrifying thing happens or you first notice it.

Monsters: A given monster might give a basic -1 to -10 to Fright Checks. For *hordes* of monsters, roll at -1 for 5 monsters, -2 for 10, -3 for 20, -4 for 50, and -5 for 100 or more.

Physical Circumstances: -1 if the body, monster, etc. *touches* you; +1 if you witness it at a great distance (at least 100 yards); or +3 if you view it remotely (using Clairsentience, closed-circuit TV, etc.). Apply -1 if the area is physically isolated, -1 at night or in the dark (or in daylight, if you're a night-dweller!), and -2 if you are (or *think* you are) alone.

Preparation: +1 if you have previous personal experience with this kind of threat; +1 per exposure to this *particular* threat in 24 hours; +1 to +3 (depending on the quality of the report) if you learned the details of this particular situation before you witnessed it.

The Rule of 14

If final, modified Will exceeds 13, reduce it to 13 for the purpose of the Fright Check. This means that a roll of 14 or more is automatically a failure. This rule does not apply to other Will rolls (resistance rolls, rolls to avoid distraction, etc.) – only to Fright Checks.

Fright Check Table

When you fail a Fright Check, roll 3d, add your margin of failure on the Fright Check, and consult the table below. This sometimes gives implausible results. The GM should either reroll these or change them to something more appropriate – especially for Fright Checks stemming from awe (e.g., divine beauty) or mind-warping complexity (e.g., otherworldly geometry or radical philosophical concepts) instead of fear.

Many of these results give a new mental quirk or disadvantage. The GM assigns this trait, which must be related to the frightening event. If possible, it should also be related to the victim's *existing* mental traits! Traits acquired this way reduce the victim's point value.

4, 5 – Stunned for one second, then recover automatically.

6, 7 – Stunned for one second. Every second after that, roll vs. unmodified Will to snap out of it.

8, 9 – Stunned for one second. Every second after that, roll vs. Will, plus whatever bonuses or penalties you had on your original roll, to snap out of it.

10 – Stunned for 1d seconds. Every second after that, roll vs. modified Will, as above, to snap out of it.

11 – Stunned for 2d seconds. Every second after that, roll vs. modified Will, as above, to snap out of it.

12 – Lose your lunch. Treat this as retching for (25 - HT) seconds, and then roll vs. HT each second to recover; see *Incapacitating Conditions* (p. 428). Depending on the circumstances, this may be merely inconvenient, or humiliating.

13 – Acquire a new mental quirk (see *Quirks,* p. 162). This is the only way to acquire more than five quirks.

14, 15 – Lose 1d FP, and take 1d seconds of stunning as per **10.**

16 – Stunned for 1d seconds, as per **10,** and acquire a new quirk, as per **13.**

17 – Faint for 1d minutes, then roll vs. HT each minute to recover.

18 – Faint as above, and roll vs. HT immediately. On a failed roll, take 1 HP of injury as you collapse.

19 – Severe faint, lasting for 2d minutes. Roll vs. HT each minute to recover. Take 1 HP of injury.

20 – Faint bordering on shock, lasting for 4d minutes. Also, lose 1d FP.

21 – Panic. You run around screaming, sit down and cry, or do something else equally pointless for 1d minutes. At the end of that time, roll vs. unmodified Will once per minute to snap out of it.

22 – Acquire a -10-point Delusion (p. 130).

23 – Acquire a -10-point Phobia (p. 148) or other -10-point mental disadvantage.

24 – Major physical effect, set by GM: hair turns white, age five years overnight, go partially deaf, etc. In game terms, acquire -15 points worth of physical disadvantages (for this purpose, each year of age counts as -3 points).

25 – If you already have a Phobia or other mental disadvantage that is logically related to the frightening incident, your self-control number becomes one step worse. If not, or if your self-control number is already 6, add a new -10-point Phobia or other -10-point mental disadvantage.

26 – Faint for 1d minutes, as per **18,** and acquire a new -10-point Delusion, as per **22.**

27 – Faint for 1d minutes, as per **18,** and acquire a new -10-point mental disadvantage, as per **23.**

28 – Light coma. You fall unconscious, rolling vs. HT every 30 minutes to recover. For 6 hours after you come to, all skill rolls and attribute checks are at -2.

29 – Coma. As above, but you are unconscious for 1d hours. Then roll vs. HT. If the roll fails, remain in a coma for another 1d hours, and so on.

30 – Catatonia. Stare into space for 1d days. Then roll vs. HT. On a failed roll, remain catatonic for another 1d days, and so on. If you have no medical care, lose 1 HP the first day, 2 the second, and so on. If you survive and awaken, all skill rolls and attribute checks are at -2 for as many days as the catatonia lasted.

31 – Seizure. You lose control of your body and fall to the ground in a fit lasting 1d minutes and costing 1d FP. Also, roll vs. HT. On a failure, take 1d of injury. On a critical failure, you also lose 1 HT *permanently.*

32 – Stricken. You fall to the ground, taking 2d of injury in the form of a mild heart attack or stroke.

33 – Total panic. You are out of control; you might do *anything* (the GM rolls 3d: the higher the roll, the more useless your reaction). For instance, you might jump off a cliff to avoid the monster. If you survive your first reaction, roll vs. Will to come out of the panic. If you fail, the GM rolls for another panic reaction, and so on!

34 – Acquire a -15-point Delusion (p. 130).

35 – Acquire a -15-point Phobia (p. 148) or other mental disadvantage worth -15 points.

36 – Severe physical effect, as per **24,** but equivalent to -20 points of physical disadvantages.

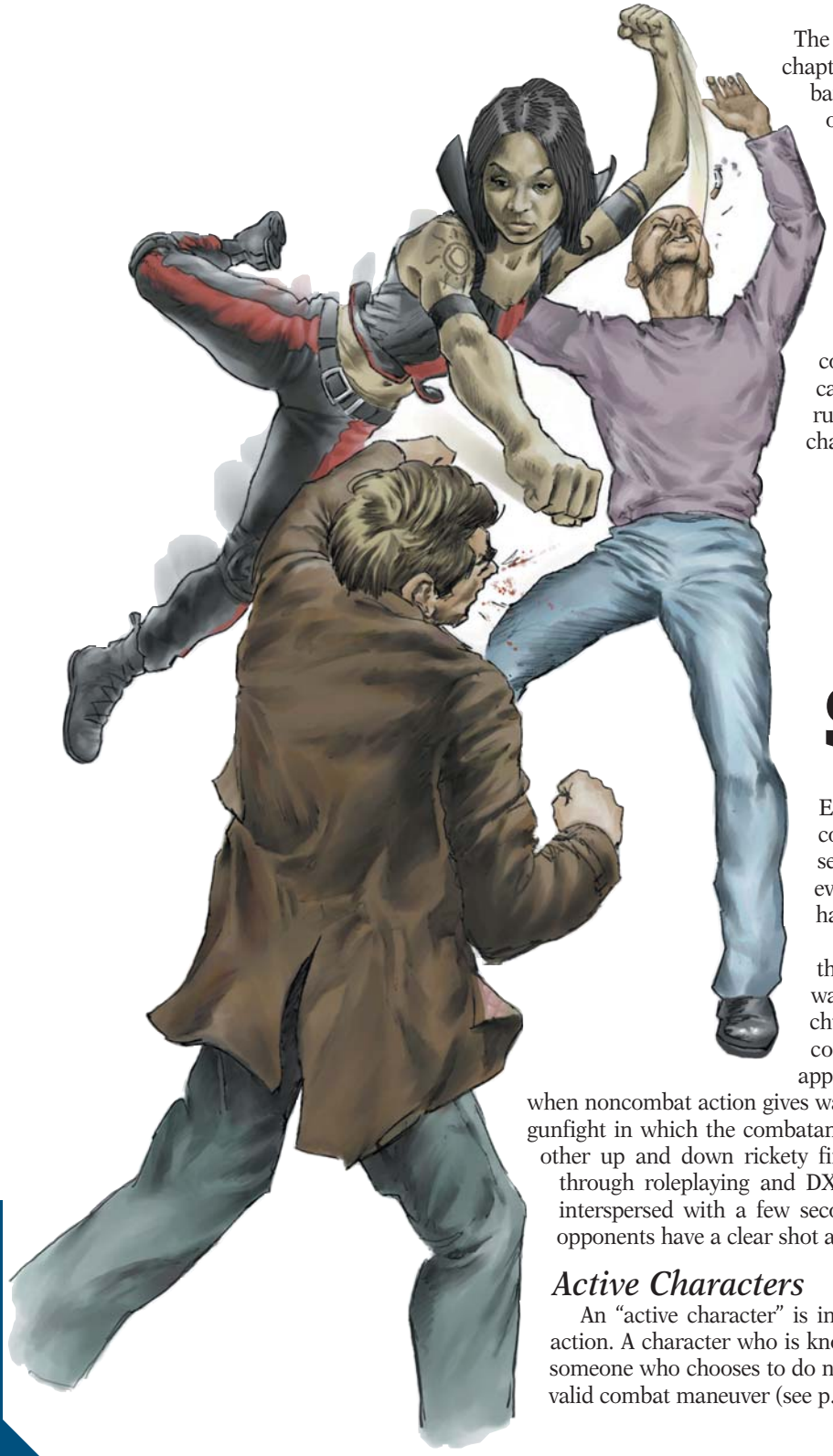
37 – Severe physical effect, as per **24,** but equivalent to -30 points of physical disadvantages.

38 – Coma, as per **29,** and a -15-point Delusion, as per **34.**

39 – Coma, as per **29,** and a -15-point Phobia or other -15-point mental disadvantage, as per **35.**

40+ – As **39,** above, but victim also loses 1 point of IQ *permanently.* This automatically reduces all IQ-based skills, including magic spells, by 1.

Chapter Eleven
Combat



The complete combat system occupies three chapters. This chapter contains the core combat rules. Chapter 12 adds rules for playing out combat using counters or figures on a hexagonal grid. Chapter 13 provides rules for a number of special combat situations. Like the character-creation system in Book 1, the combat system applies equally to PCs and NPCs.

The GM decides when to start using the combat rules. This will generally be when fighting seems likely and combatants begin maneuvering for tactical advantage. The GM may also use these rules to resolve "action" situations such as chases and tournaments.

Combat Turn Sequence

Combat takes place second by second. Each character actively involved in the combat gets one opportunity to act per second, referred to as his "turn." After everyone has taken his turn, one second has passed.

The GM shouldn't feel constrained by the one-second time scale. This is just a way of breaking a battle into manageable chunks! He should feel free to drop out of combat time whenever dramatically appropriate, and to resume combat time when noncombat action gives way to more fighting. Consider a running gunfight in which the combatants leap across rooftops and chase each other up and down rickety fire escapes: the GM could resolve this through roleplaying and DX or skill rolls (against Jumping, etc.), interspersed with a few seconds of combat whenever he feels the opponents have a clear shot at each other.

Active Characters

An "active character" is involved in the combat *and* able to take action. A character who is knocked out, asleep, etc. is not active. But someone who chooses to do nothing *is* still active – "Do Nothing" is a valid combat maneuver (see p. 364).

Turn Sequence

The "turn sequence" is the order in which active characters take their turns. It is set at the start of the fight and does not change during combat. The combatant with the highest Basic Speed goes first and takes his turn, then the one with the next-highest Basic Speed, and so on, in descending order by Basic Speed. Once every active character has taken his turn, one second has passed and another second begins.

Tied Speeds: If multiple NPCs on the same side have the same Basic Speed, the GM simply decides who goes first – it isn't really important. If PCs are involved, ties go to the highest DX. If there's still a tie, GM should roll randomly at the start of the combat to determine who acts first, and use that order throughout the combat.

Sequence Chart: If a combat has many participants, the GM may find it useful to make a quick list of the order in which the combatants take their turns.

"Your Turn"

A given participant's turn is the one-second period that stretches from when he chooses a maneuver until his next opportunity to select a maneuver. This overlaps the turns of other characters.

Each character actively involved in the combat gets one opportunity to act per second, referred to as his "turn." After everyone has taken his turn, one second has passed.

MANEUVERS

A "maneuver" is an action that you can take on your turn. Each turn, you must choose *one* of the following maneuvers: Aim, All-Out Attack, All-Out Defense, Attack, Change Posture, Concentrate, Do Nothing, Evaluate, Feint, Move, Move and Attack, Ready, or Wait. Your choice determines *what you can do* on your turn, and sets your options for active defense and movement.

Multiple Maneuvers and Full-Turn Maneuvers

Ordinary characters can only take a single maneuver when it is their turn to act, limiting them to one maneuver per second. However, a few traits allow you to act with superhuman speed and take multiple maneuvers per turn!

Some maneuvers are described as "full-turn" maneuvers. If you take one of these, it's the *only* maneuver you can perform on your turn, regardless of how fast you can act. You are assumed to be performing that maneuver for an entire second.

Active Defense and Maneuvers

The maneuver you choose affects your "active defenses" – your ability to dodge, parry, or block attacks (see *Defending,* p. 374). You only have to select an active defense if you are attacked. Your most recent maneuver governs the active defenses you can use.

For the purpose of active defenses, your maneuver is considered to be in effect until you select another maneuver on your next turn. For instance, if you chose All-Out Defense (which gives a defensive advantage), its benefits would apply if you were attacked after you took your turn, and would persist until it was your turn again and you took a different maneuver.

If you're attacked before you've had a chance to choose a maneuver – usually at the start of combat – you're considered to be taking a Do Nothing maneuver (see p. 364).

Movement and Maneuvers

Most maneuvers allow some form of movement. The Move and Move and Attack maneuvers allow you to move *quickly,* up to a number of yards equal to your full Move score. Other maneuvers, such as All-Out Attack, limit you to a fraction of your full Move.

Many maneuvers restrict movement to a "step." This is movement up to 1/10 your Move, minimum 1 yard, in any direction, a change of facing (for instance, to turn around), or both. You can perform your step before or after the rest of the maneuver; for instance, you could step and attack *or* attack and step.

Some maneuvers allow *no* movement. In particular, you cannot move if you Change Posture or Do Nothing.

For more on movement, see *Move* (p. 364) and *Movement and Combat* (p. 367).

Free Actions

"Free actions" are things you can do during *any* maneuver. Some examples:

Talk. You can *always* talk. If the GM wants to be realistic, he should allow only one sentence of communication per second . . . but it is usually more fun when you ignore this limitation!

Maintain spells or psi. As long as you remain active, you can maintain a spell or ongoing psi ability, no matter what else you do.

Drop an item. You can drop any "ready" item at any time during any maneuver. If you're moving, you may drop it at any point within your reach during your movement.

Crouch. If standing, you may opt to crouch (to make yourself a smaller target for ranged attacks) at the *beginning* of your turn. This will usually slow your movement speed (see *Movement,* p. 367), and you *cannot* crouch and sprint. If you were already crouching, it is a free action to rise from a crouching position at any time.

Do Nothing

Anyone who is just standing still is assumed to be *doing nothing.* In particular, when combat begins, anyone who has not yet taken a turn is treated as if he took this maneuver before entering combat.

Someone who is conscious but stunned or surprised *must* take this maneuver. On each turn of Do Nothing, he may attempt a HT roll to recover from physical stun or an IQ roll to recover from mental stun. On a success, he recovers at the *end* of his turn – that is, he Does Nothing this turn, but may act normally next turn.

Movement: None!
Active Defense: Any (unless you're tied up, etc.). If you are stunned, however, your active defenses are at -4 until your next turn – even if you recover.

Move

Move, but take no other action except those specified under *Free Actions* (p. 363). You may move any number of yards up to your full Move score. Most other maneuvers allow at least some movement on your turn; take this maneuver if *all* you want to do is move.

Players must tell the GM exactly where their PCs move to so that he can keep track of the combat. The GM decides where his NPCs move, and will inform any players whose PCs are in a position to witness the movement.

If you are controlling a vehicle or riding a mount, take a Move maneuver to spend the turn actively controlling it. Instead of *you* moving, the vehicle or mount moves on your turn (carrying you and other occupants). See *Mounted Combat* (p. 396) and *Vehicles* (p. 462) for details.

Sprinting: If you run *forward* for two or more turns in a row, you get bonus movement on your second and later moves; see *Sprinting* (p. 354).

Movement: See above.
Active Defense: Any.

Change Posture

This maneuver lets you switch between any two "postures" (stances in which you can pose your body). Valid postures are *standing, sitting, kneeling, crawling, lying prone* (face down), and *lying face up.* Any posture other than standing slows your movement and penalizes your attack and defense rolls, but also makes you a smaller target for ranged attacks.

You cannot stand up directly from a lying position. If you are lying (prone or face up), you must take a Change Posture maneuver to rise to a crawling, kneeling, or sitting posture first. A second Change Posture maneuver lets you stand from any of these postures. (Going from standing up to lying down, however, only takes one maneuver – or none at all, if the change was involuntary!)

You can switch between kneeling and standing (only) as the "step" portion of any maneuver that allows a step – you don't need Change Posture for that. This is *instead* of using the step to move. Thus, you could go from prone to kneeling with a Change Posture maneuver on one turn, and then stand up in place on your next turn by taking a maneuver that allows a step.

Crouching does *not* require a Change Posture maneuver; see *Free Actions* (p. 363).

Movement: None. You remain in place as you change posture.
Active Defense: Any. Postures other than standing penalize your defense rolls, but also make you a smaller target for ranged attacks.

Aim

This is a full-turn maneuver used to aim a ranged weapon (or a device such as a camera or telescope). You must choose a specific target. You can't aim at something that you can't see or otherwise detect.

Specify the weapon you're aiming with and your target. If you follow an Aim maneuver with an Attack or All-Out Attack with the *same* weapon against the *same* target, you get a bonus to hit. Add the weapon's Accuracy (Acc) to your skill, plus any bonuses for targeting systems used: sights, targeting computers, etc.

If you *brace* a firearm or crossbow, you get an extra +1 to Acc. A firearm or crossbow is braced if you can rest it on a sandbag, low wall, car, etc. A one-handed firearm (e.g., a pistol) is considered braced if used two-handed. A two-handed firearm (e.g., a rifle) is considered braced if you are prone and using a bipod.

If you Aim for more than one second, you receive an additional bonus: +1 for two seconds of Aim, or +2 for three or more seconds.

Your combined bonus from all targeting systems (scopes, sights, computers, etc.) cannot exceed the weapon's base Accuracy. For instance, if you add a telescopic sight that gives +4 Acc to a pistol with Acc 2, the bonus is +2, not +4.

Movement: Step. *Exception:* You *cannot* step if using a braced, two-handed weapon.
Active Defense: Any, but you automatically spoil your aim and lose all accumulated benefits. If you are *injured* while aiming, you must make a Will roll or lose your aim.

Evaluate

This maneuver is the melee combat equivalent of Aim. It lets you take time to study an adversary in order to gain a combat bonus on a subsequent attack. You must specify one *visible* opponent who is close enough to attack unarmed or with a ready melee weapon, or whom you could reach with a single Move and Attack maneuver. You are sizing him up and looking for the right moment to strike.

An Evaluate maneuver gives you +1 to skill for the purpose of an Attack,

Feint, All-Out Attack, or Move and Attack made against *that opponent, on your next turn only.* You may take multiple, consecutive Evaluate maneuvers before you strike, giving a cumulative +1 per turn, to a maximum of +3.

Movement: Step.
Active Defense: Any. This does *not* spoil your evaluation.

Attack

Use this maneuver to make an armed or unarmed attack in melee combat, or to use a thrown or missile weapon in ranged combat. To use a weapon to attack, it must be ready.

If you are using a melee weapon or unarmed attack, your target must be within reach. Resolve the attack as explained under *Melee Attacks* (pp. 369-372). If you took an Evaluate maneuver (above) last turn, you will have a bonus to hit. If you took a Feint (below), your opponent may have a penalty to defend.

If you are using a ranged weapon, your target must be within the weapon's Max range. Resolve the attack according to *Ranged Attacks* (pp. 372-374). If you took an Aim maneuver (p. 364) last turn, you will have a bonus to hit.

Movement: Step. You may step and then attack *or* attack and then step – your choice. To move further and still attack, take All-Out Attack or Move and Attack.
Active Defense: Any.

Feint

"Fake" a melee attack. You cannot Feint someone unless you *could* have hit him with a melee attack – that is, your weapon is ready and your foe is within reach. This maneuver is *not* an attack, though, and does not make your weapon unready.

When you Feint, roll a Quick Contest of Melee Weapon skills with your foe; if either of you is unarmed, you may roll against an unarmed combat skill instead. Your opponent may opt to roll against Cloak or Shield skill, if he is suitably equipped and this would give him a better roll. If his DX is better than his combat skills, he may roll against DX instead.

If you fail your roll, your Feint is unsuccessful. Likewise, if you succeed, but your foe succeeds by *as much as* or *more than* you do, your Feint fails.

If you *make* your roll, and your foe *fails,* subtract your margin of success from the foe's active defense if you attack him with Attack, All-Out Attack, or Move and Attack on your next turn. For instance, if your skill is 15 and you roll a 12, your foe defends against you at -3 next turn.

If you and your foe *both* succeed, but you succeed by more, subtract your margin of victory from the foe's defense. For instance, if your skill is 15 and you roll a 10 (success by 5), and your foe's skill is 14 and he rolls 12 (success by 2), you win by 3, so he will defend at -3 if your next maneuver is to attack him.

You cannot Feint if your foe is unable to observe you! However, if your foe runs away, turns his back on you, or loses sight of you in some way *after* you successfully Feint, he will still suffer his defense penalty *if you attack him on your next turn.* If *you* lose track of the foe, or cannot attack him next turn, your foe's defense penalty vanishes.

A Feint is good for *one* second! But if you Feint and then make an All-Out Attack (Double), the feint applies to both attacks.

In all cases, your allies cannot take advantage of *your* Feint. The defense penalty applies only to *your* next attack.

Shield Feints: After you have attacked your foe once by striking with your shield (see p. 406), you may also Feint with your shield, rolling against Shield skill.

Movement: Step.
Active Defense: Any. However, if you Feint and then parry with an unbalanced weapon, you cannot attack on your next turn, making your Feint pointless.

All-Out Attack

Attack any foe with a ready weapon, making no effort to defend against enemy attacks. If you are making a melee attack, you must specify *one* of these four options before you attack:

- *Determined:* Make a single attack at +4 to hit!
- *Double:* Make two attacks against the same foe, *if* you have two ready weapons or one weapon that does not have to be readied after use. Attacks with a second weapon held in the off hand are at the usual -4 (see *Handedness,* p. 14) unless you have Ambidexterity (p. 39).
- *Feint:* Make one Feint (see above) and then one attack against the same foe. The Feint applies to *this* attack instead of one you make on your next turn.
- *Strong*: Make a single attack, at normal skill. If you hit, you get +2 to damage – or +1 damage per die, if that would be better. This only applies to melee attacks doing ST-based thrust or swing damage, not to weapons such as force swords.

If you are making a ranged attack, you must specify *one* of these two options before you attack:

- *Determined:* Make a single attack at +1 to hit.
- *Suppression Fire:* Take the *entire* turn to spray an area with automatic fire. This is a full-turn maneuver, and you can only choose this option if your weapon has RoF 5+. See *Suppression Fire* (p. 409).

Movement: You may move up to half your Move, but you can only move forward.
Active Defense: You may make *no active defenses at all* from the point you take this maneuver until your next turn. If someone attacks you after you make an All-Out attack, all you can do is hope he misses – you can't dodge, parry, or block!

Move and Attack

Move as described for the Move maneuver (p. 364), but during or after your move, make a single, poorly aimed attack – either unarmed or with a ready weapon.

You attack as described for the Attack maneuver (above), but at a penalty. If you are making a ranged attack, you have a penalty of -2 or the weapon's Bulk rating, whichever is *worse* – and if you took an Aim, you lose all of its bonuses. If you are

making a melee attack other than a slam (p. 371), you have a flat -4 to skill, and your adjusted skill cannot exceed 9.

Movement: As described under the Move maneuver – but since you are trying to do two things at once, you are -2 on any rolls the GM requires to avoid falling, tripping over obstacles, etc.

Active Defense: Dodge or block only. You cannot parry and you may not retreat (see *Retreat,* p. 377).

All-Out Defense

This is the maneuver to choose when you're beset by foes – especially foes who like All-Out Attacks! You must specify *one* of the following two options:

- *Increased Defense:* Add +2 to *one* active defense of your choice: Dodge, Parry, or Block. This bonus persists until your next turn.
- *Double Defense:* Apply two *different* active defenses against the same attack. If you fail your defense roll against an attack, you may try a second, different defense against that attack. For instance, if you fail a block, you may try a dodge or a parry. If you try a parry (armed or unarmed) with one hand and fail, a parry using the other hand *does* count as a "different defense."

Movement: If you choose Increased Dodge, you may move up to half your Move. Otherwise, the only movement you may take is a step.

Active Defense: You may choose any legal active defense, with bonuses as described above.

Concentrate

You *concentrate* on one primarily mental task (even it has a minor physical component, like operating controls, gesturing, or speaking). This may be casting a magical spell, using a psi ability, making a Sense roll to spot an invisible warrior, making a Leadership roll to give orders, making an Electronics Operation roll to operate a sensor, or any similar action, including most IQ-based skill rolls. This is a full-turn maneuver.

Some activities (e.g., casting spells) require you to take the Concentrate maneuver for multiple seconds. If you are forced to use an active defense, knocked down, injured, or otherwise distracted before you finish, you must make a Will-3 roll. On a failure, you lose your concentration and must start over.

Movement: Step.

Active Defense: Any. However, it interferes with concentration as noted above.

Ready

Take a Ready maneuver to pick up or draw *any* item and prepare it for use; e.g., to pull a sword from its sheath or a gun from its holster, or to reload a firearm. In some cases, you may also need a Ready maneuver to regain control of an unwieldy weapon after a swing, or to adjust the reach of a long weapon – see the *Melee Weapon Table* (p. 271).

You can use a Ready maneuver to perform physical actions other than fighting: opening or closing a door, picking a lock, digging, lifting, etc. Continuing activities may require multiple, consecutive Ready maneuvers; see *Other Actions in Combat* (p. 382).

Finally, a Ready maneuver lets you switch an advantage "off" or "on" if it is not always on and does not require an Attack or Concentrate maneuver to use.

For more information, see *Readying Weapons and Other Gear* (p. 382) and *When Is a Weapon Ready?* (p. 382).

Movement: Step.

Active Defense: Any.

Wait

Do nothing *unless* a particular event you specified in advance occurs before your next turn; e.g., a foe moves into range. If that happens, you may transform your Wait into an Attack, Feint, All-Out Attack (you must specify the option before acting), or Ready maneuver. If you are reacting to someone else, this interrupts *his* turn, but he can resume it after you've acted.

You must specify exactly what your action will be when you take the Wait maneuver, and what will trigger it. For instance, "I'll make an All-Out Attack (Determined) with my sword on the first orc to move toward me."

You may take a Wait with a ready ranged weapon; this is known as "covering" a target or area. If so, you must specify the zone that you are covering with that weapon. There is no penalty to cover a one-yard area. For larger areas and additional rules, see *Opportunity Fire* (p. 390).

You can use the *Wait* maneuver for *any* "reflex action" you want to plan in advance, provided you specify both the response and the action that will trigger it. This can include holding a knife at a hostage's throat, or even a noncombat action (e.g., "If Dora sees any orcs, she will pull this rope immediately – otherwise, she does nothing."). An action only qualifies as a "reflex" if you could do it in a *single motion.* The GM's decision is final.

Finally, you can use Wait to coordinate actions with slower friends.

Stop Thrust: If you have a ready thrusting weapon, you can use a Wait to brace your weapon to receive a possible enemy charge. Simply state, "I brace for a stop thrust." You can convert your Wait into an Attack or All-Out Attack against any one foe that moves one or more yards toward you to make a melee attack (armed or unarmed, including a slam or a grapple) or evade (see *Evading,* p. 368). You strike first if you have the longer reach. If you hit and your foe fails to defend, add +1 to thrust damage for every two *full* yards your attacker moved toward you.

Movement: None until your Wait is triggered. At that point, you may move as allowed by the maneuver you specified (Attack, Feint, All-Out Attack, or Ready).

Active Defense: You may defend normally while you are waiting or after your Wait is triggered. But if you defend while taking a Wait, you may not transform your Wait into an All-Out Attack; you must convert your Wait into an Attack instead.

Movement and Combat

Basic movement does not require a game board. Instead, the GM should have a general idea of the environment, and mentally keep track of relative distances between combatants or objects – possibly referring to maps, notes, or diagrams. Should the players ask about reach or distance ("I want to run up and swing at him . . . how far away is he?"), the GM's judgment is final.

Since movement and facing issues are in the GM's head, it's up to the GM how much detail to give the players. The GM might carefully keep track of every yard of movement, taking notes on paper . . . or he might only worry about exact distances when they are of vital importance. Most GMs will want to adopt a middle ground. For example:

GM: "You see Indigo Joe 90 yards north of you. He's at the edge of the cemetery, crouched behind a tombstone, aiming his laser rifle at Kim."

Player: "Damn, he spotted us. Is there any cover nearby? I want to run toward it."

GM: "An outcropping of rock starts 7 yards to your northwest, and there are some trees about 10 yards to the east. Your helicopter is parked 10 yards behind you, if you want to fall back."

Player: "No way! Kim will use a Move and Attack. She runs her full Move toward the rocks, while firing at Indigo Joe with her Gauss rifle."

GM: "Fine. You have Move 5? Okay, you're now 2 yards from cover. Now it's Joe's turn. He fires an aimed shot . . ."

The GM should always provide enough detail to give the players tactical choices, but not so much as to overwhelm them. If things get confusing, a sketch map with a few notes can often help. Groups that desire more detail than *that* should consider using the tactical combat system in Chapter 12 – or at least adopting some of those rules to add extra detail to the guidelines given here.

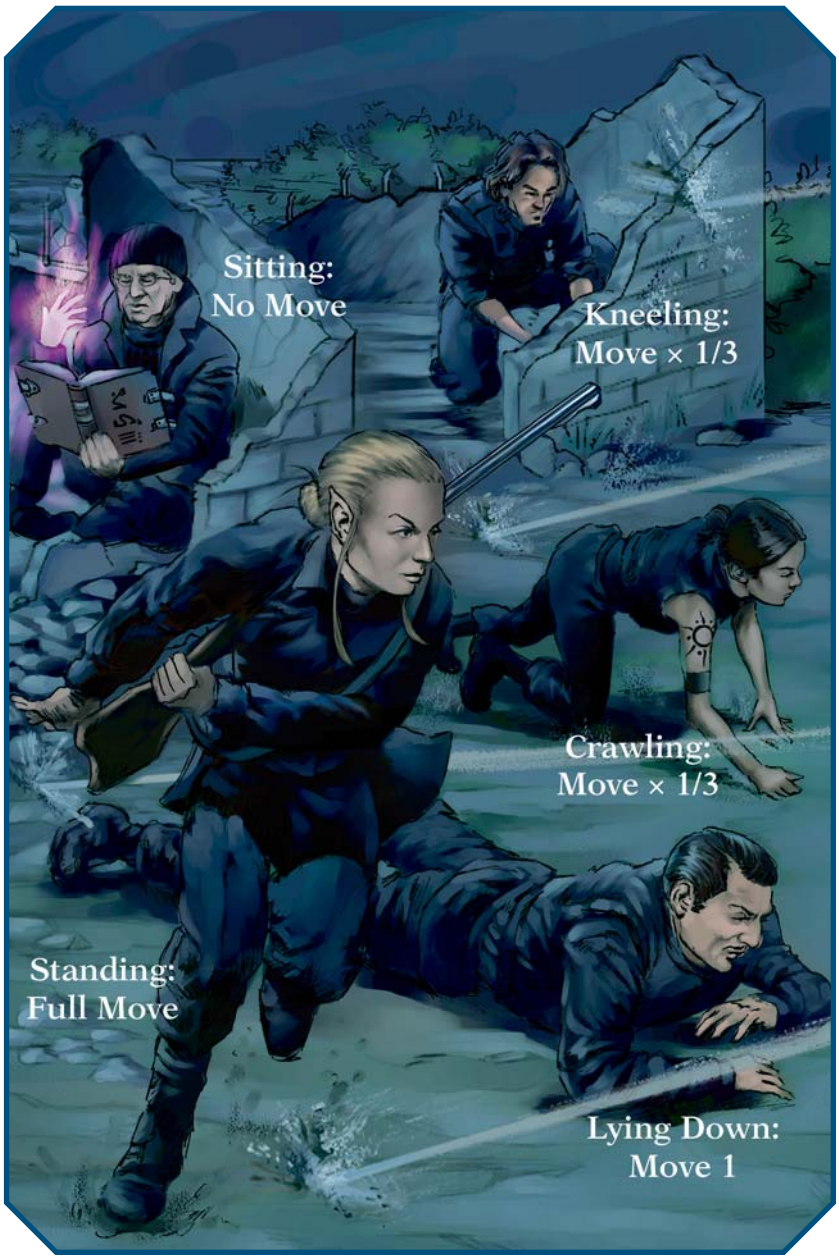
Here are a few "rules of thumb" for movement and combat. See *Mounted Combat* (p. 396) and *Vehicles* (p. 462) for notes on mounted and vehicular combat, respectively.

Movement

A combatant can move a maximum number of yards equal to his *full* Move score if he took a Move or Move and Attack maneuver. He can move up to *half* his Move if he chose an All-Out Attack or All Out Defense (Increased Dodge) maneuver.

Obstacles and bad footing will generally slow movement. The GM decides how many yards of movement a fighter must give up to cover one yard of difficult terrain or to cross a given obstacle. For instance, tangled brush might cut Move in half, while climbing over a fallen body might cost an extra yard of movement.

You can move while in almost any posture, but you only get your full Move if standing. You have 1/3 your Move while crawling or kneeling – and you have a flat Move 1 while lying down (belly crawl or rolling). You cannot move *at all* while sitting!



Step

Most maneuvers allow you to take a *step,* either before or after another action. You may step a distance equal to 1/10 your Move, but never less than one yard. Round all fractions *up.* Thus, Move 1-10 gives a one-yard step, Move 11-20 gives a two-yard step, and so on.

If you are capable of steps greater than one yard, you may break up your movement in a turn. For instance, if you had a two-yard step, you could move one yard, make an attack, and move another yard during an Attack maneuver.

You can use a step to go from a kneeling to a standing posture (or vice versa) *instead* of moving. This requires your entire step, no matter how far you could normally move.

You may always turn to face a different direction as part of any step (or *as* the step, if you just want to change your facing).

Spacing

A human-sized fighter needs about one yard (3') of space; thus, two warriors could move down a passage two yards wide shoulder-to-shoulder – or hold it against a foe. A doorway is about one yard wide, so a single person could hold it. All this assumes room to attack and defend. Noncombatants could be packed in much more tightly, but they would have no room to react.

Moving Through Other Characters

You can always move through space occupied by your allies in combat, and you can run *around* an adversary who does not completely block your path (see *Spacing,* above). But if the GM rules that the only way past an opponent is *through* him, you must either bowl him over (see *Slam,* p. 371) or "evade" him.

Evading

"Evading" is moving through ground occupied by an opponent without trying to knock him down. You can attempt this as part of any maneuver that allows movement, provided you can move fast enough to go *past* your foe – not just up to him.

First, ask if your foe is trying to stop you. If he chooses to let you past, you "evade" him *automatically* – no roll is needed. If your foe wants to stop you, roll a Quick Contest of DX. Modify *your* DX as follows:

-5 if your foe is standing up.
-2 if your foe is kneeling.
+2 if you are approaching your foe from his right or left side.
+5 if you are approaching your foe from *behind.*
+5 if your foe is lying down.

If you win, you evade him and are free to move on. If you lose or tie, he got in your way and stopped you.

You cannot evade *anyone* while you are being grappled (see *Grappling,* p. 370). You cannot evade a foe if there is no logical way you could avoid hitting him, either (GM's decision) . . . but note that huge creatures can step over smaller ones, while small creatures can duck between the legs of larger ones!

On the other hand, if you can use an advantage such as Flight or Super Jump to move up and over the foe's reach in the vertical plane, you can evade him *automatically!*

Crouching

If you are in a standing position, you can elect to crouch at the beginning of your turn, as part of any maneuver. If you don't move, or if you only step, you may also crouch *after* performing another action such as attacking or readying. However, you may not move more than a step and then crouch at the *end* of your movement to avoid attacks – not in one second! But if you are already crouching, you may *leave* your crouch at any time as a free action.

Attacking

An "attack" is an attempt to hit a foe or other target. If you execute an Attack, All-Out Attack, or Move and Attack maneuver (or convert a Wait into any of these), you may try to hit a foe. You can only attack with a weapon if it's ready (see *Ready,* p. 366).

The GM always has the option of ruling, for any reason having to do with the situation, that some fighters cannot attack certain opponents. For instance, eight attackers could not hit one human-sized foe at the same time. (Even three or four attackers at once would be unlikely, unless their victim had no allies!)

There are two basic types of attacks: melee attacks (pp. 369-372) and ranged attacks (pp. 372-374). Your target must be within reach if you're making a melee attack, or within range if you're making a ranged attack. Resolving either type of attack takes three die rolls:

- First is your *attack roll.* If your roll is successful, your attack was a good one.
- Now your foe must make a *defense roll* to see if he can defend against your blow. If he makes this roll, he evaded or stopped the attack, and is not hit.
- If he misses his defense roll, your blow struck home and you *roll for damage*.

Some advantages (e.g., Extra Attack) and combat options (see *All-Out Attack,* p. 365, and *Rapid Strike,* p. 370) let you attack more than once. Resolve such attacks one at a time.

Attack Roll

Your "attack roll" is a regular success roll – see Chapter 10. Figure your *effective skill* (base skill plus or minus any appropriate modifiers) with the weapon you are using.

If your roll is *less than or equal to* your "effective" skill, your attack will hit unless your foe successfully defends (see *Defending*, p. 374). If he fails to defend – or if he can't – you've hit him.

If your roll is *greater than* your effective skill, you missed!

No matter what your effective skill, a roll of 3 or 4 always hits, and is a "critical hit"; see *Critical Hits* (p. 381). A roll of 17 or 18 always misses.

Melee Attacks

When you take a maneuver that lets you make a melee attack, you must specify who you are attacking, and with what weapon. You can make a melee attack using any *ready* melee weapon (including a natural weapon such as a kick, bite, or punch) against any target that is within *reach.*

You can use some weapons in more than one way; e.g., you can swing or thrust with a shortsword. Such weapons have multiple lines on the *Melee Weapon Table* (p. 271). When you attack with a weapon like this, you must indicate how you are using it before you roll.

To Hit

Figure your adjusted chance to hit by:

1. Taking your base skill with the weapon or unarmed attack you are using.
2. Applying all conditional modifiers for your maneuver, situation, posture, and the target's visibility. A detailed list appears under *Melee Attack Modifiers* (p. 547).

The result is your *effective skill.* A roll of this number or less is a successful attack roll. It will hit, unless the target succeeds with an active defense.

Ready Weapons

A one-handed weapon is ready if it's being held in your hand. A two-handed weapon is ready if you are gripping it with *both* hands. Some unwieldy weapons (e.g., the great axe) become unready after each attack unless you are extremely strong; see the *Melee Weapon Table* to learn which weapons are unwieldy, and their ST requirements (always marked ‡).

To draw a new weapon from a sheath, scabbard, or sling, or to ready an unwieldy weapon that became unready after an attack, you must take a Ready maneuver (p. 366).

A natural weapon (punch, kick, etc.) is *always* ready unless the body part in question is occupied or restrained; e.g., you can't punch if you are holding a weapon with the same hand, or bite while wearing a full-face helmet or gripping something with your teeth.

Reach

A melee weapon can only attack a target that is within its reach (measured in yards), as given on the *Melee Weapon Table.* Most weapons have a reach of 1, which means you must be adjacent to your target (that is, within one yard of him). Reach plays a much larger role if using a game board; see Chapter 12.

Melee Attack Options

Before making a melee attack, you may specify some additional options.

Hit Location

It is assumed that you are attacking the target's center of mass (the torso, on a human), unless you specify otherwise. If you wish to target another body part (e.g., the head), see *Hit Location* (p. 398). If you choose to attack his weapon, see *Striking at Weapons* (p. 400).

Deceptive Attack

You may designate any melee attack as "deceptive" before you roll to hit. A Deceptive Attack is intended to get past an opponent's defenses through sheer skill. You can use this option to represent any number of advanced fighting techniques.

For every -2 you accept to your own skill, your foe suffers a -1 penalty on his active defenses against this attack. You may not reduce your final effective skill below 10 with a Deceptive Attack, which normally limits it to skilled fighters.

The GM may opt to speed play by limiting Deceptive Attacks to a flat -4 to skill, giving the target -2 on his active defenses.

Rapid Strike

A Rapid Strike is a melee attack executed swiftly enough that you get one extra attack. You must take an Attack or All-Out Attack maneuver, and you must use a ready weapon to make the extra attack. Make *two* attacks, *both* at -6 to skill. You *can* target multiple opponents this way.

If you *already* have multiple attacks, for whatever reason, you can replace *one* of them (and only one!) with two attacks at -6.

Unarmed Combat

Sometimes you have to fight without weapons, or with improvised weapons. This is *unarmed combat*. Anyone can engage in unarmed combat, but certain skills make you a more effective unarmed fighter. For this purpose:

- *Striking skills* are Boxing (p. 182), Brawling (p. 182), and Karate (p. 203).
- *Grappling skills* are Judo (p. 203), Sumo Wrestling (p. 223), and Wrestling (p. 228).

Striking

See the *Melee Weapon Table* (p. 271) for the reach, damage, etc., of punches, kicks, bites, and other unarmed strikes. For additional options, see *Sample Combat Techniques* (p. 230) and *Special Unarmed Combat Techniques* (p. 403). And see *Hurting Yourself* (p. 379) for the effects of striking an armored target barehanded . . .

Grabbing

You can grab something a foe is holding, like a weapon. To do so, you must have an empty hand (but some weapons, such as whips, can also grab). Make an attack using DX or a grappling skill, with the usual penalty to hit the hand (-4). Your opponent defends normally.

If you hit, you've grabbed hold of your foe's weapon. On subsequent turns, you may try to wrest it from him. Each attempt is a full-turn maneuver. Roll a Regular Contest of ST. If you *win,* you take his weapon away. If you *lose,* you lose your grip on his weapon.

Grappling

"Grappling" is an attempt to grab your foe's *body.* You must have at least one empty hand. On a game board, you must also move into your foe's hex ("close combat").

Each attempt requires an Attack, All-Out Attack, or Move and Attack maneuver. Roll against basic DX or a grappling skill to hit. Your foe may defend normally – he can parry, dodge, or block. You may Evaluate or Feint beforehand to improve your odds of success.

Grappling does no damage, but if you successfully hit, the foe has -4 to DX as long as you're holding on. He may not move away until he breaks free (see *Actions After Being Grappled,* p. 371) or you let go. *Exception:* If you grapple a foe of more than twice your ST, you *do not* prevent him from moving away – you're just extra encumbrance for him!

You may grapple with any or all of your arms. If you grapple with more than two arms, each arm beyond the first two gives a bonus of +2 to hit. An arm committed to grappling cannot make unarmed parries until you let go. Letting go is a free action *on your turn.*

If you are holding onto your foe with *all* your arms, the only further attacks you can make are those listed under *Actions After a Grapple,* below.

Posture: To grapple a prone, kneeling, or sitting opponent, you must kneel or lie down yourself, unless his Size Modifier is two or more greater than yours. You may do this as part of the "step" component of an Attack maneuver.

Hit Location: The rules above assume that you are grappling the torso. To grab another body part, apply *half* the penalty given under *Hit Location* (p. 398) to your roll; see *Grappling and Hit Location,* p. 400. If you hit, your foe has -4 to DX *only when using that body part.* You could grab a weapon arm or hand (to disarm your victim), a leg (to trip him), or the neck (to strangle him). If you grab an arm or hand, you cannot snatch a weapon away, but you *can* force your foe to drop it by winning a Regular Contest of ST – roll once per turn, as explained under *Grabbing* (above). For a related technique, see *Arm Lock* (p. 230).

Actions After a Grapple

Once you have grappled a foe, you may attempt the following moves on subsequent turns (provided your opponent does not break free!). Each action requires an Attack or All-Out Attack maneuver.

Takedown

This is an attempt to bear your opponent to the ground. You may only try this on a standing foe. Roll a Quick Contest, with each contestant using the *highest* of ST, DX, or his best grappling skill. If you are not standing, you have a penalty equal to the usual penalty to hit for your posture. If you *win,* your victim falls down next to you (on a game board, he falls in your hex and any adjacent hex of your choice). If he was grappling you, he loses his grip. If you lose, *you* suffer the same effects! On a tie, nothing happens.

Pin

You may only attempt a pin if your foe is on the ground *and* you are grappling his torso. Roll a Regular Contest of Strength. The *larger* fighter gets +3 for every point by which his Size Modifier exceeds that of his foe. The fighter with the most free hands gets +3. If you *win,* your foe is *pinned* and helpless. You must stay there to hold him down, but you can free one of your hands for other actions. If you lose or tie, nothing happens.

Choke or Strangle

You must have grappled your foe by the neck. You must normally use your hands, and can't do anything else with them (e.g., parry) while holding on – but if you have the Constriction Attack advantage (p. 43), you can use your *body* instead. Roll a Quick Contest: your ST vs. the *higher* of your foe's ST or HT. You are at -5 if you use only one hand, but at +2 per hand

after the first two. If your Size Modifier exceeds your foe's, you can grapple and squeeze his torso instead, in which case you roll at -5 unless you have Constriction Attack. If you *win,* your foe takes crushing damage equal to your margin of victory. DR protects normally. Multiply injury to the neck by 1.5. If any damage – even blunt trauma (p. 379) – penetrates the victim's DR, you also start to suffocate him! On his next turn and every subsequent turn until he escapes, he loses 1 FP; see *Suffocation* (p. 436).

Choke Hold

If you have Judo or Wrestling skill, you may try to apply a hold that can incapacitate *without* crushing the throat or torso. See *Choke Hold* (p. 404).

Arm Lock

If you have Judo or Wrestling skill, you may try to apply a lock to restrain or cripple your opponent's arm. See *Arm Lock* (p. 403).

Neck Snap or Wrench Limb

If you grappled your foe's neck or skull, or a limb or other extremity, you can *twist.* See *Neck Snap or Wrench Limb* (p. 404).

Other Actions

You can bite or use a Striker (provided it has reach C) even if all your hands are busy. If you're not using a hand to grapple your foe, you can use it to Attack or All-Out Attack (either unarmed or with a reach C weapon), or to take a Ready maneuver. You *cannot* Aim, Feint, Concentrate, Wait, or make *ranged* attacks unless you've pinned your foe. You may also perform the following free actions:

- *Release your grip.* Let go of the foe, if you are grappling or pinning him. Or you can release just one hand – but this makes it easier for him to escape.
- *Throw away a ready weapon.* This automatically succeeds and takes no time. You may do this to get a useless weapon out of your way, or to deprive the foe of a chance to grab a useful weapon (e.g., a blackjack) from you.
- *Drag or carry your victim.* If you've pinned your foe, you can move or step normally, dragging or carrying him; see *Lifting and Moving Things* (p. 353) for how much you can lift or drag. He counts as encumbrance, reducing your Move. If you *haven't* pinned him, moving away from him means you automatically release your grip unless you have at least twice his ST. If you're that strong, you can pull or carry him with you!

Actions After Being Grappled

If you have been grappled, you cannot take a Move maneuver unless you have at least twice your foe's ST. Aim, Feint, Concentrate, and Wait maneuvers – and *ranged* attacks – are completely impossible. If you are *pinned,* you can't take any maneuver that requires physical movement! Otherwise, you can do the following:

Attack or All-Out Attack

You can take either maneuver, with certain limitations. You *cannot* use any limb that has been grappled – or bite, if your neck or head was grappled. You're limited to unarmed attacks (striking or grappling) or attacks using weapons with reach C. You can stab with a dagger, but not swing a sword!

Ready

You can Ready an item if you have a hand free, but you must make a DX roll. Failure means you drop the item. Ready maneuvers to switch advantages off and on succeed automatically.

Break Free

If you are grappled, you cannot move away until you break free by *winning* a Quick Contest of ST. Your foe has +5 if he is grappling you with two hands. If he has you pinned, he rolls at +10 if using two hands or at +5 if using only one, and you may only attempt to break free once every 10 seconds. If either of you has three or more arms, each arm beyond the first two gives +2. If your foe is stunned, he rolls at -4; if he falls unconscious, you are *automatically* free! If you successfully break free, you may immediately move one yard in any direction.

Slam

You can deliberately collide with an opponent. This requires an Attack, All-Out Attack, or Move and Attack maneuver. Roll against DX, Brawling, or Sumo Wrestling to hit. Note that the -4 to hit and effective skill cap of 9 for a Move and Attack *do not apply to slams.*

Your foe may block, dodge, or parry (but your body counts as a heavy weapon; see *Parrying Heavy Weapons,* p. 376). If your foe dodges, you must move at least two yards past him if you have enough movement. If you would hit someone else, see *Hitting the Wrong Target* (p. 389).

If you hit, you and your foe each inflict dice of crushing damage on the other equal to (HP × velocity)/100. "Velocity" is usually just the number of yards you moved this turn – but in a head-on collision, add the distance *your foe* moved toward you on his last turn (that is, use *relative* velocity).

If damage is less than 1d, treat fractions up to 0.25 as 1d-3, fractions up to 0.5 as 1d-2, and any larger fraction as 1d-1. Otherwise, round fractions of 0.5 or more *up* to a full die. You *can* use All-Out Attack (Strong) to increase your damage!

If your damage roll equals or exceeds that of your foe, he must make a DX roll or fall down. You knock him down *automatically* if you roll twice his damage or more. If he rolls twice *your* damage or more, though, you fall down instead!

If your opponent dodged and you went past him and hit a solid obstacle, apply your damage roll to yourself (and to the obstacle, if it matters).

You can also slam with a vehicle or mount. Roll against your vehicle-operation skill to hit with a vehicle, or Riding skill to hit with a mount. Figure damage based on the HP of your vehicle or mount.

For additional rules and special cases, see *Collisions and Falls* (p. 430).

Flying Tackle: As slam, but you must have at least two legs and one arm free – most animals and vehicles can't do this! A flying tackle gives you +4 to hit and an extra yard of reach, and you may opt to roll against Jumping skill to hit. However, whether you succeed or fail, you end up lying down (in the same hex as your foe, if you are using a combat map).

Pounce: As flying tackle, but you must have four or more legs. After you attack, make a DX, Acrobatics, or Jumping roll. On a success, you stay on your feet! This is how some animals attack, especially cats: they knock down their foe and then claw or bite. If a mount tries this, the rider must roll vs. Riding-4 or fall off!

Shield Rush: As slam, but you must have a shield. Roll against Shield skill to hit, and add your shield's Defense Bonus to your damage roll. Your *shield* takes damage instead of you, but you still fall down if your opponent rolls twice your basic damage or more.

Shove

You can shove a foe with one or both arms. Roll against DX or Sumo Wrestling to hit. Your foe may block, dodge, or parry. If you hit, roll thrust/crushing damage – at -1 per die, if you used only one hand – and *double* it. This inflicts knockback (see *Knockback*, p. 378), but never actual physical injury.

Ranged Attacks

A "ranged attack" is any attack with a weapon used at a distance, from a thrown rock to a laser rifle. This includes Missile spells and the Affliction, Binding, and Innate Attack advantages (unless given the Aura, Malediction, or Melee Attack modifiers). Most other spells and advantages are *not* considered ranged attacks.

Range

You can only make a ranged attack on a target that falls within your weapon's *range*. To find this, see the relevant weapon table or advantage or spell description. Most ranged attacks list Half Damage (1/2D) range and Maximum (Max) range, in yards. Your target must be no farther away than Max range; 1/2D range only affects damage.

A few weapons have a *minimum* range, as they lob projectiles in a high arc, or have fusing or guidance limits. When using a weapon like this, your target can't be any closer than the minimum range.

To Hit

Figure your adjusted chance to hit by:

1. Taking your base skill with your ranged weapon.
2. Adding your weapon's Accuracy (Acc) *if you preceded your attack with an Aim maneuver.*
3. Applying the target's Size Modifier (SM). See *Size Modifier* (p. 19).
4. Modifying for the target's *range and speed* (done as a single modifier), from the *Size and Speed/Range Table* (p. 550).
5. Modifying for circumstances (rapid fire, movement, darkness, cover, etc.), including any special conditions determined by the GM. See *Ranged Attack Modifiers* (p. 548) for a summary.

The result is your *effective skill*. A roll of this number or less is a successful attack roll. It will hit, unless the target succeeds with an active defense.

Accuracy and Aimed Fire

All ranged weapons have an Accuracy (Acc) statistic. This is the bonus you get if you take one or more Aim maneuvers immediately before you attack.

When you Aim, you can receive other bonuses for extra seconds of aim, bracing your weapon, or using a scope or a laser sight. These benefits are discussed under *Aim* (p. 364) and summarized under *Ranged Combat Modifiers* (p. 548). The sum of Acc and all extra aimed-fire bonuses can never exceed twice the base Acc of the attack.

Size Modifier

A human-sized target has a Size Modifier (SM) of 0; there is no bonus or penalty to hit. Larger targets have a positive SM, while smaller targets have a negative SM. Add SM to your skill. The SM of a character or a vehicle appears on its character sheet or vehicle description. For other objects, use the *Size and Speed/Range Table* (p. 550).

Target's Range and Speed

A distant target is harder to hit. As a rule of thumb, a target up to 2 yards away is close enough that there's no penalty to hit. At 3 yards, you have -1 to hit; at up to 5 yards, -2; at up to 7 yards, -3; at up to 10 yards, -4; and so on, with each approximately 50% increase in range giving a further -1 to hit.

Consult the Speed/Range column of the *Size and Speed/Range Table* (p. 550) to find the exact penalty. For ranges that fall between two values on the table, use the larger penalty. For very distant targets, the table also provides the equivalent range in *miles*.

Example: Infinity Patrol agent Jenny Atkins is shooting on the firing range. The target is 17 yards (50') away. This rounds up to 20 yards, for -6 to hit.

A fast-moving target is also harder to hit. Consult the same column of the table, but use speed in yards per second (2 mph = 1 yard/second) instead of range in yards to find the penalty.

If the target is both distant *and* fast moving, add range (in yards) to speed (in yards per second), and look up the total in the Speed/Range column to find the penalty to hit. (Do *not* look up the range and speed penalties separately and add them together! Great range mitigates the effects of speed, and vice versa.)

Examples: Agent Atkins fires her pistol at a Centrum spy who is making a getaway on a speeding motorcycle. Her target is 50 yards away and

traveling at 60 mph, or Move 30. This is a speed/range of 50 + 30 = 80. Per the *Size and Speed/Range Table,* this gives -10 to hit.

Ranged Attacks on Human Targets

When using a ranged weapon against a target moving at human speeds – anything up to Move 10 – you may simplify the calculation by using just a *range* modifier and neglecting speed (unless the target is flying, sprinting, or something similar). Assume that the target's ability to take a dodge defense adequately represents the effects of movement.

Thrown Weapon Attacks

"Thrown weapons" are weapons you must physically hurl at the target: rocks, hand grenades, ninja stars (*shuriken*), etc. You can also throw certain melee weapons, such as hatchets, knives, and spears. See the *Muscle-Powered Ranged Weapon Table* (p. 275) for statistics and skills required. See Chapter 13 for the effects of grenades and incendiaries.

Treat a thrown weapon just like any other ranged attack, with a few special rules:

- Once you throw a weapon, it's no longer ready! Hit or miss, your weapon is now *somewhere else.* If you want to attack again, you'll have to go fetch your weapon (from the ground . . . or your foe's body) or ready a new one.
- The range of a thrown weapon is usually a multiple of your ST; e.g., "ST×2." This is given on the *Muscle-Powered Ranged Weapon Table* for many common thrown weapons. To determine range (and damage) for anything not listed there, see *Throwing* (p. 355).
- A thrown weapon travels fairly slowly. Your target has the option of using a block or a parry active defense instead of a dodge. Success by 5+ (or critical success) with an unarmed parry means your target has *caught* the weapon!

Missile Weapon Attacks

"Missile weapons" are ranged attacks other than thrown weapons: bows, firearms, Missile spells, ranged Innate Attacks, and so on. They fall into two broad categories.

Muscle-Powered Missile Weapons: These include bows, slings, and crossbows. As with thrown weapons, your range and damage are determined by your ST – or in the case of a bow or a crossbow, by the *weapon's* ST. See the *Muscle-Powered Ranged Weapon Table* (p. 275) for details.

Firearms: These include guns, beam weapons, and self-propelled projectiles. See the *Firearms Table* (pp. 278-280) for statistics and special rules for all types of high-tech missile weapons – from black-powder weapons through contemporary guns and on to science-fiction weapons such as lasers.

Rate of Fire

All missile weapons have a Rate of Fire (RoF) statistic. If RoF is 1, the weapon can fire one shot per attack. If RoF is 2 or more, the weapon is capable of firing more than one shot per attack; see *Rapid Fire* (below).

Examples: A bow has RoF 1; it can fire one shot per attack. A .38 revolver has RoF 3; it can fire up to three shots per attack. A machine gun has RoF 10; it can fire up to 10 shots per attack . . . but this is still one attack roll, not 10 separate attacks!

Reloading and Shots

Missile weapons also have a Shots statistic. Once you have fired this many shots, you must reload before you can fire the weapon again.

Reloading requires a number of Ready maneuvers; see *Readying Weapons and Other Gear* (p. 382). The time required to reload appears in parentheses after the weapon's Shots entry in the weapon tables.

Reloading restores the weapon's full number of shots. If a weapon has only one shot, this represents loading a new one. If it has multiple shots, this represents changing the magazine, belt, etc. The exception to this is multishot weapons that have cylinders, hoppers, or internal magazines. Their loading time is designated "i" (for "individually loaded"), and is *per shot* (unless sped up by some mechanism, such as a speed loader).

Examples: A bow has Shots 1(2); it can fire one arrow, after which it takes the archer two seconds to prepare another. A .38 revolver has Shots 6(3i); it can fire six shots, after which *each shot* takes 3 seconds to reload. A machine gun has Shots 200(5); it can fire 200 shots, after which it takes 5 seconds to change the belt.

Rapid Fire

Some missile weapons have RoF 2 or more. This means they can fire multiple shots *per attack,* up to a maximum equal to their RoF. For example, a .38 revolver with RoF 3 could fire 1, 2, or 3 shots per attack. Of course, you can never fire more shots than your weapon currently has remaining, regardless of its RoF.

Rapid-fire weapons use the Recoil (Rcl) statistic, which measures how controllable the weapon is when firing multiple shots. Rcl helps determine the number of hits a rapid-fire attack can inflict. The *lower* the Rcl, the easier the weapon is to control. Rcl 1 means the weapon is recoilless, like most beam weapons.

If a weapon has RoF 2 or more, you must decide how many shots (up to RoF) you wish to fire *before* you make your attack roll. Firearms fired at RoF 1-3 are firing one shot per trigger pull; those fired at RoF 4+ are usually firing "full auto" like a machine gun – either in short bursts or continuously.

Firing a large number of shots per attack gives a bonus to hit, as shown on this table:

Shots	*Bonus to Hit*
2-4	+0
5-8	+1
9-12	+2
13-16	+3
17-24	+4
25-49	+5
50-99	+6
each ×2	+1 to hit

Rapid fire may score multiple hits from a single attack. A successful attack means you scored at least one hit – and possibly a number of *extra* hits, up to a maximum equal to the number of shots you fired. To find the number of hits you scored, compare your margin of success on the attack roll to your weapon's Recoil.

An attack scores one *extra* hit for every *full* multiple of Recoil by which you make your attack roll. The total number of hits cannot exceed shots fired. For instance, if your attack had Rcl 2, success by 0-1 would mean one hit; success by 2-3, one *extra* hit; success by 4-5, two *extra* hits; success by 6-7, three *extra* hits; and so on.

High-RoF weapons (those with RoF 5+) can also spread fire among multiple targets (see *Spraying Fire,* p. 409) or fire lots of shots to "suppress" an area (see *Suppression Fire,* p. 409). Other special rules apply to rapid fire with certain weapons – see *Special Rules for Rapid Fire* (p. 408).

Defending

If you make your attack roll, you have not (yet) actually struck your foe, unless you rolled a critical hit. Your attack is *good enough* to hit him – *if he fails to defend.*

There are three "active defenses" that a fighter can use to evade or ward off an attack: Dodge (see *Dodging,* below), Parry (see *Parrying,* p. 376), and Block (see *Blocking,* p. 375). You should calculate these active defense scores in advance and record them on your character sheet.

An active defense is a deliberate attempt to avoid a particular attack. It's only possible if the defender is aware of the possibility of an attack from his assailant *and* is free to react . . . by moving out of the way of the attack (a dodge), deflecting the attack with a weapon or empty hand (a parry), or interposing a shield (a block).

If a foe makes a successful attack roll against you, you may choose *one* active defense and attempt a "defense roll" against it. *Exception:* The All-Out Defense (Double Defense) maneuver lets you attempt a second defense against a particular attack if your first defense fails.

The active defense you choose depends on your situation – *especially* the maneuver you chose last turn. Some maneuvers restrict the active defenses you can make. Notably, if you made an All-Out Attack, you have *no* active defense.

You also get no active defense if you're unaware of the attack. Examples of situations in which no active defense is possible include a stab in the back from a "friend," a surprise sniper's shot, and a totally unexpected booby trap. And you get no active defense if you are unconscious, immobilized, or otherwise unable to react.

Active Defense Rolls

The defender rolls 3d against his active defense score. If his roll is *less than or equal to* his effective defense, he dodged, parried, or blocked the attack. Otherwise, his active defense was ineffective and the attack struck home. If this occurs, roll for damage.

An active defense roll of 3 or 4 is *always* successful – even if your effective defense score was only 1 or 2! A roll of 17 or 18 always fails.

Your foe does not get to attempt a defense roll if you rolled a critical hit against him.

Several modifiers apply to active defense rolls; see below for explanations of a few of these. For a complete list of modifiers, see *Active Defense Modifiers* (p. 548).

Injury and Active Defenses

If you are stunned, any active defense is at -4. Active defenses never take a penalty for shock, however. For more on stunning and shock, see *Effects of Injury* (p. 380).

Shields and Defense Bonus

If you have a ready shield, add its Defense Bonus (DB) to any Dodge, Parry, or Block roll against an attack that came from in front of you or from your shield side.

Defense Bonus is 1 for a small shield, light cloak, and most improvised shields; 2 for a medium shield or heavy cloak; and 3 for a large shield or force shield. The Shield spell (p. 252) gives a DB of 1-4.

A shield's DB adds to active defense rolls against melee attacks, thrown weapons, and muscle-powered missile weapons – *not* against firearms (unless the GM wishes to use the optional *Damage to Shields* rules, p. 484).

Retreating and Dropping Prone

In some situations, you may give ground or drop prone for a bonus to your Dodge, Parry, or Block score. See *Active Defense Options* (p. 377).

Dodging

A "dodge" is an active attempt to move out of the perceived path of an attack. This is often the best defense when you're not skilled with your weapon and you have no shield, when you're attacked multiple times, or when your foe has such a powerful weapon that you fear parrying or blocking it may destroy your weapon or shield.

Dodge is normally the *only* active defense you can take against firearms. This does not mean you can actually dodge bullets! A dodge against this kind of attack represents an attempt not to be where you think your opponent will shoot, by weaving or ducking at the right moment.

Your Dodge active defense is Basic Speed + 3, dropping all fractions, less a penalty equal to your encumbrance level (see *Encumbrance and Move,* p. 17). List Dodge on your character sheet for quick reference.

You may dodge *any* attack except one that you did not know about! You only get one Dodge roll against a given attack.

If a single rapid-fire attack scores multiple hits, a successful Dodge roll lets you avoid one hit, plus additional hits equal to your margin of success. A critical success lets you dodge *all* hits you took from that attack.

Example: A machine gun gets four hits against you. Your Dodge is 10. You roll an 8, succeeding by 2. You dodge three of the hits; only one bullet strikes you.

You only get one active defense against each attack, unless you use All-Out Defense (Double Defense), but there is no limit to the number of times you may dodge *different* attacks during your turn.

Acrobatic Dodge

If you have put at least one point into the Acrobatics skill, you can try a "fancy" dodge *once* during your turn. You may define this as jumping over a sword blow, cartwheeling away, or whatever else you like. Make an Acrobatics roll before you attempt your Dodge roll. (If flying, roll against Aerobatics instead.) On a success, you get +2 to that Dodge roll. On a failure, you get -2.

You *can* combine this option with a retreat (see *Retreat,* p. 377).

Sacrificial Dodge

You can defend a friend by throwing yourself into the path of an attack against him. To do so, you must be close enough to interpose yourself between your friend and his attacker by taking a step (see *Step,* p. 368). Announce this *after* the enemy makes his attack roll but *before* your friend attempts his defense roll.

Use the ordinary rules for a dodge, except that you cannot combine this with a retreat (see *Retreat,* p. 377). If you succeed, *you* are hit by the attack. If you fail, you didn't move in time, but your friend still gets his normal defense roll. In either case, since you moved, you cannot retreat if *you* are attacked before your next turn.

Vehicular Dodge

An evasively maneuvering vehicle gets a Dodge roll. Instead of Basic Speed + 3, use *half* the operator's skill (Driving, Piloting, etc.), rounded down, modified by the vehicle's Handling statistic. For example, a biker with Driving (Motorcycle)-14 on a motorcycle with Handling +1 would have a Dodge of 8.

Blocking

A "block" is an attempt to interpose a shield, cloak, or similar large object between yourself and an attack. This requires a *ready* shield or cloak. (If you're strong enough to grab and lift someone, you can block with his body!)

Your Block active defense is 3 + *half* your Shield or Cloak skill, dropping all fractions. For instance, Shield-11 would give a Block of 3 + (11/2) = 8.5, which rounds down to 8.

In general, you can block any melee attack, thrown weapon, projected liquid, or muscle-powered missile weapon. You *cannot* block bullets or beam weapons . . . these come too fast to be stopped this way.

You may attempt to block only *one* attack per turn.

Parrying Heavy Weapons

You cannot use a flimsy rapier to parry a titan's tree-sized club, the slam of a charging linebacker, or the sword of a giant robot! Heavy weapons are liable to knock your weapon away – or even *break* it.

The same is true for unarmed attacks from high-ST creatures. For the purpose of these rules, treat a punch, kick, bite, etc. as a weapon with an effective weight of 1/10 the attacker's ST. Use his *full* ST if he made a slam, flying tackle, pounce, or shield rush!

Your weapon may break if it parries anything three or more times its own weight. (This does not apply to barehanded parries; for damage to limbs when parrying unarmed, see *Parrying Unarmed*.)

A weapon parrying three times its own weight has a 2 in 6 chance of breaking: it breaks on a roll of 1 or 2 on 1d. Add +1 to these odds per whole-numbered multiple past 3 (a 3 in 6 chance at 4 times weapon weight, a 4 in 6 chance at 5 times, and so on). Weapon quality modifies these odds: +2 if the parrying weapon is cheap, -1 if fine, or -2 if very fine.

If your weapon breaks, the parry still counts *unless* the odds of breakage exceeded 6 in 6. If so, your weapon offered so little resistance that the parry does *not* count!

Regardless of the weight of your weapon, if you are parrying unarmed or using a one-handed weapon, you cannot parry a weapon heavier than your Basic Lift – or twice BL, if using a two-handed weapon. Attempts to parry anything heavier fail *automatically;* whether or not your weapon breaks, the attack sweeps it aside and damages you normally. If your weapon does not break, you drop it; if you are unarmed, you are knocked back one yard (make a DX roll to avoid falling over).

An attacker can also deliberately break or knock away weapons; see *Striking at Weapons* (p. 400).

Parrying

A "parry" is an attempt to deflect a blow using a weapon or your bare hands. You cannot parry unless your weapon is *ready* – or, if you are unarmed, you have an empty hand.

You can use most melee weapons to parry; see the Parry column of the *Melee Weapon Table* (p. 271) for special restrictions and modifiers. Some hefty weapons (e.g., axes) are *unbalanced:* you cannot use them to parry if you've already used them to attack on your turn. (You can still parry with a weapon in your other hand, if you have one.) A few long, well-balanced weapons (e.g., the quarterstaff) get a +1 or +2 bonus to parry due to their ability to keep a foe at bay.

Your Parry active defense with a given weapon is 3 + *half* your skill with that weapon, dropping all fractions. For instance, Broadsword-13 would give a Parry of 9.

A parry won't stop anything except melee attacks or thrown weapons, unless you have special skills. *Exception:* If a foe attacks you with a missile weapon *and* he is within reach of your melee weapon, you may parry. You're parrying the weapon, not the projectile! For example, if an attacker fired a pistol at you from only one yard away, you could attempt to parry barehanded. Success would mean that you slapped his arm or gun aside, causing him to fire wide of your body.

Number of Parries: Once you have attempted a parry with a particular weapon or bare hand, further attempts to parry with that weapon or hand are at a cumulative -4 per parry after the first. Reduce this to -2 per parry if you are using a fencing weapon *or* have the Trained By A Master or Weapon Master advantage – or to -1 per parry if both conditions are true. This penalty only applies to multiple parries *on the same turn;* it does not carry over between turns.

Parrying with the Off Hand: You parry with your "off" hand (your left or "shield" hand if right handed; see *Handedness,* p. 17), or with a weapon held in it, at -4 to skill. Since Parry is calculated off half skill, this gives -2 to Parry. You may ignore this penalty if you have the Ambidexterity advantage (p. 39).

Parrying Thrown Weapons: You can parry thrown weapons, but at a penalty: -1 for most thrown weapons, or -2 for *small* ones such as knives, shuriken, and other weapons that weigh 1 lb. or less.

Parrying Unarmed Attacks: If you successfully parry an unarmed attack (bite, punch, etc.) with a weapon, you may injure your attacker. Immediately roll against your skill with the weapon you used to parry. This roll is at -4 if your attacker used Judo or Karate. If you succeed, your parry struck the attacker's limb squarely. He gets no defense roll against this! Roll damage normally.

Parrying With Improvised Weapons

You can parry with anything of suitable size and shape, using the closest weapon skill. A pole or rifle could parry like a staff, a bow like a light club. However, parrying just once with a bow will ruin it *as a bow* – although it may survive for a few seconds longer as a club! Other fragile objects may be similarly ruined. Most improvised weapons count as "cheap" for breakage; see *Parrying Heavy Weapons* (box) for what this implies.

Parrying Unarmed

If you are fighting without weapons, or with at least one hand free, you may choose to parry barehanded. Beings that lack hands (like most animals) can't parry unarmed – they can only dodge.

You can use Boxing, Brawling, Judo, or Karate skill – or DX, if higher – to parry with one hand. You can also parry with Sumo Wrestling or

Wrestling skill, but this requires both hands. Your Parry active defense is 3 + *half* your skill or DX, dropping all fractions.

There's no penalty to parry another unarmed attack. You are at -3 to parry weapons, unless the attack is a *thrust* or you are using Judo or Karate (in either case, use your full parry). See individual unarmed-combat skill descriptions for other limitations.

A failed parry means you are hit. If you are using hit locations, a failed parry against a weapon means your attacker may choose to hit his original target *or* the arm you parried with! If your arm suffers more than half your Hit Points in injury, it is automatically *crippled* (see *Crippling Injury,* p. 420).

Some unarmed skills (e.g., Judo) give you special options after a successful parry. See individual skill descriptions for details.

Active Defense Options

You can improve your odds of success with an active defense by choosing one of these options to go along with it.

Retreat

"Retreat" is not a separate defense, but an option you may add to *any* active defense against a melee attack. To exercise this option, you must move away from your attacker: at least one yard, but not more than 1/10 your Move – exactly as for a step (see *Step,* p. 368).

Retreating gives +3 to Dodge, or +1 to Block or Parry. *Exception:* If you parry using Boxing, Judo, Karate, or any fencing skill (Main-Gauche, Rapier, Saber, or Smallsword), a retreat gives +3 to Parry, as these forms make superior use of mobility.

Your step back takes place immediately. It is assumed to occur as your foe is striking. If it would take you out of your attacker's reach, *he still gets his attack.* If he has multiple attacks (e.g., from an Extra Attack, All-Out Attack, or Rapid Strike), your retreat does not put you beyond the reach of his remaining attacks. However, you get your retreating bonus on *all* active defense rolls against *all* of his attacks until your next turn.

If your opponent attacked you with a maneuver that allows a step, but has not yet taken his step, he can choose to follow you by taking his unused step. In effect, he is forcing you back!

You can retreat only *once* during your turn. In other words, once you retreat, you may not retreat again until after your next turn.

You cannot retreat while in a sitting or kneeling posture, or while stunned. You also cannot retreat if you moved faster than your Basic Move on your last turn (that is, if you were sprinting or using Enhanced Move).

You *can* retreat (by rolling) if you are lying down.

Dodge and Drop

When under fire, hit the dirt! You may drop to the ground while dodging, earning a +3 bonus to Dodge. This is a "dodge and drop." It is similar to a retreat, but only effective against *ranged* attacks. It also has a drawback: it leaves you prone on the ground.

Like a retreat, a dodge and drop applies to *all* of your defenses against one foe for one turn. Any cover you drop behind does not count against the initial attack that inspired the dodge and drop, but is effective against subsequent attacks directed at you.

Sacrificial Dodge and Drop: You can use dodge and drop in conjunction with sacrificial dodge (p. 375) to protect a friend who is no more than a step away from you. If you succeed, you both fall prone and *you* take the hit . . . unless you succeed by 3 or more, in which case *neither* of you is hit! You can also use a sacrificial dodge and drop to throw yourself on an explosive (e.g., a hand grenade). If you succeed, treat the blast as a contact explosion (see p. 415).

Diving for Cover: You may also attempt a dodge and drop if you are within the area of effect of an explosion, cone, or area-effect attack and there is cover (such as a trench) only a step away. Success means you reach it in time; failure means you don't. Even if there is no cover handy, an extra yard or two of distance from a blast can still help, since explosive damage declines with distance. If you succeed, you are a step farther away; if you fail, you suffer the effect before you make your step.

Flying or Swimming: Dodge and drop is possible only if a step would take you below concealing terrain (e.g., a flyer dropping below a hillcrest). You don't end up prone. You can still dive for cover to increase your distance from an explosion, etc.

Damage and Injury

If your attack roll succeeds and your target fails his defense roll (if any), you hit him! If your attack is one that can do damage, you must now make a "damage roll." This tells you how much *basic damage* you deal to your target.

Your weapon (and, for muscle-powered weapons, your ST), or your natural or Innate Attack, determines the number of dice you roll for damage. If your target has any Damage Resistance (DR) – from armor, the Damage Resistance advantage (p. 46), protective magic spells, etc. – he subtracts this from your damage roll. If your attack has an *armor divisor* (see pp. 102, 110), this modifies your target's DR.

If your damage roll is less than or equal to your target's effective DR, your attack *failed to penetrate* – it bounced off or was absorbed. A cutting, crushing, impaling, or piercing attack can sometimes cause damage without penetrating, however; see *Flexible Armor and Blunt Trauma* (p. 379).

If your damage roll *exceeds* your target's DR, the excess is the *penetrating damage*. If your foe has no DR, the entire damage roll is penetrating damage.

Once you know the penetrating damage of your attack, apply the wounding modifier for damage type (this matters only for cutting, impaling, and certain types of piercing damage; see p. 379). This gives the *injury* the foe suffers, which is subtracted from his Hit Points.

Example: Your "basic damage" with your sword is 2d+1 cutting. You roll 2 dice, add 1, and do 8 points of *basic damage*. Your foe has DR 3, so your *penetrating damage* is 5 points. You then apply the ×1.5 wounding modifier for cutting attacks, resulting in 7 points of *injury* (always round down). Your foe loses 7 HP.

Damage Roll

You usually make your own damage rolls, and the GM rolls for NPCs. Damage rolls are expressed as a number of dice, sometimes with a modifier; e.g., "6d-1" or "1d+2." A negative modifier can't reduce damage below 0 if the attack does *crushing* damage, or below 1 if it does *any other type* of damage.

High-damage attacks may express damage as a number of dice with a multiplier. For instance, "6d×3" means "roll 6d and multiply the total by 3." If those six dice came up 21, you would do 63 points of damage. This is just a quick way to roll lots of dice.

The result of the damage roll (*after* any additive or multiplicative modifiers, as explained above) is the hit's "basic damage."

Half Damage (1/2D) for Ranged Weapons

If a ranged weapon has two range statistics, the first is its Half Damage (1/2D) range, in yards. If the target is at or beyond 1/2D range, *divide basic damage by 2,* rounding down. (This is a simplification! Realistically, most weapons lose striking power gradually as air resistance slows them down, but a detailed calculation would be unplayable.)

Some ranged weapons (e.g., grenades) do not suffer a reduction in damage; these do not list a 1/2D range. The damage of an attack modified with Follow-Up (p. 105) is never halved, either – although its "carrier" attack is subject to 1/2D effects as usual.

Finally, if an attack has a 1/2D range but requires a resistance roll to avoid an affliction of some sort, add +3 to the resistance roll *instead* of halving damage (if any).

Knockback

When you hit someone very hard, you may knock him away from you! This is called "knockback." Only *crushing* and *cutting* attacks can cause knockback. A crushing attack can cause knockback regardless of whether it penetrates DR. A cutting attack can cause knockback only if it *fails* to penetrate DR.

Knockback depends on basic damage rolled *before* subtracting DR. For every *full* multiple of the target's ST-2 rolled, move the target one yard away from the attacker. For instance, a man with ST 10 would be knocked back one yard per full 8 points of basic damage. If the target has ST 3 or less, knockback is one yard per point of basic damage! If the target has no ST score at all (like a wall), or is not resisting, use its HP instead.

Anyone who suffers knockback must attempt a roll against the *highest* of DX, Acrobatics, or Judo. If he is knocked back more than one yard, he rolls at -1 per yard after the first. Perfect Balance (p. 74) gives +4 to this roll. On a failure, he falls down.

If you knock your foe into something solid, the result – including damage to him and whatever he hit – is as if he had collided with it at a speed equal to the yards of knockback. See *Collisions and Falls* (p. 430).

"Knockback Only": Some attacks – a jet of water, a shove (p. 372), etc. – do knockback but no damage. Roll the listed damage and work out knockback as usual, but no actual injury occurs (unless the target collides with something!).

Damage Resistance and Penetration

Damage Resistance (DR) rates the degree of protection that natural or worn armor, a force field, tough skin, etc. affords against damage. Objects and vehicles have their own DR values that protect against any damage *they* suffer – and if you take cover behind or inside them, their DR also protects *you*.

Subtract DR from basic damage. The result is the "penetrating damage" that punched through or deformed the armor enough to cause a significant injury. For instance, if you are hit by an attack that inflicts 6 points of basic damage and you're wearing mail with DR 4, you take 2 points of penetrating damage.

In general, DR from multiple sources is additive; e.g., if you have a natural DR of 2 and put on a tactical vest with DR 15, your total DR is 17. Exceptions will always be noted.

The DR of armor often varies by body part. If you are not using the hit location rules (see *Hit Location,* p. 398), just assume that any hit strikes the torso, and apply its DR.

Finally, note that DR from certain sources may provide differing degrees of protection against different damage types.

For more on DR, see *Damage Resistance* (p. 46) and *Armor* (p. 282).

Armor Divisors and Penetration Modifiers

An "armor divisor" indicates that an attack is especially good (or bad) at penetrating Damage Resistance. Armor divisors appear on weapon tables as numbers in parentheses after damage dice; e.g., "3d(2) pi" means 3d piercing damage with a (2) armor divisor.

A divisor of (2) or more means that DR protects at *reduced* value against the attack. Divide the target's DR by the number in parentheses before subtracting it from basic damage; e.g., (2) means DR protects at half value. Round DR *down.* Minimum DR is 0.

Some divisors are fractions, such as (0.5), (0.2), or (0.1). DR is *increased* against such attacks: multiply DR by 2 for (0.5), by 5 for (0.2), and by 10 for (0.1). In addition, treat DR 0 (e.g., bare skin) as if it were DR 1 against any fractional armor divisor!

Fast Damage Resolution for Multiple Hits

If a rapid-fire attack scores multiple hits, you can speed play as follows: instead of rolling damage per hit, determine damage for *one* hit, subtract DR, and multiply the resulting penetrating damage (or blunt trauma) by the number of hits.

There are several other "penetration modifiers" that affect the protection required to stop a given attack – see *Blood Agent* (p. 110), *Contact Agent* (p. 111), *Follow-Up* (p. 105), *Respiratory Agent* (p. 108), and *Sense-Based* (pp. 109, 115). These are often found on Afflictions and toxic attacks. See *Special Penetration Modifiers* (p. 416) for details.

Flexible Armor and Blunt Trauma

Flexible armor such as a leather jacket, mail hauberk, or a modern ballistic vest is much lighter than rigid armor, but it doesn't absorb the full force of the blows it stops. An attack that does crushing (cr), cutting (cut), impaling (imp), or piercing (pi-, pi, pi+, pi++) damage may inflict "blunt trauma" if it *fails* to penetrate flexible DR.

For every *full* 10 points of cutting, impaling, or piercing damage or 5 points of crushing damage stopped by your DR, you suffer 1 HP of injury due to blunt trauma. This is actual *injury,* not basic damage. There is no wounding multiplier.

If even *one* point of damage penetrates your flexible DR, however, you do not suffer blunt trauma.

If you layer other DR over flexible DR, only damage that penetrates the outer layer can inflict blunt trauma.

Corrosion

An attack that inflicts *corrosion* (cor) damage – acids, disintegration beams, etc. – destroys one point of the target's DR per 5 points of basic damage rolled. This affects armor first, then natural DR. This reduces DR against future attacks, not against the attack that burned off the DR! Natural DR lost by living beings heals at the same rate as lost HP.

Overpenetration and Cover

Some attacks are powerful enough to pass right through cover, a shield, or a victim, and damage someone on the other side. It's usually too much trouble to worry about this, but if it becomes important (e.g., shooting through a door, or a bystander behind your target), see *Overpenetration* (p. 408).

Some attacks are powerful enough to pass right through cover, a shield, or a victim, and damage someone on the other side.

Hurting Yourself

Any time you strike *unarmed* (with bare hands, feet, fangs, etc.) and hit a target with DR 3+, you may hurt *yourself!* For every 5 points of basic damage you roll, you take one point of crushing damage, up to a maximum equal to the DR of the target you hit. Apply this damage to the body part you used to attack, if you are using hit locations. Your own DR protects against this damage. *Exception:* This rule does not apply if the target's DR has the Tough Skin limitation (see *Damage Resistance,* p. 46).

Wounding Modifiers and Injury

Any damage left over after subtracting DR from basic damage is "penetrating damage." If there is any penetrating damage, multiply it by the attack's "wounding modifier." This is a multiplier that depends on damage type:

- Small piercing (pi-): ×*0.5*.
- Burning (burn), corrosion (cor), crushing (cr), fatigue (fat), piercing (pi), and toxic (tox): ×*1 (damage is unchanged)*.
- Cutting (cut) and large piercing (pi+): ×*1.5*.
- Impaling (imp) and huge piercing (pi++): ×*2*.

The damage after this multiplier determines the injury: the HP lost by the target. Round fractions *down,* but the minimum injury is 1 HP for any attack that penetrates DR at all. Reduce the victim's current HP total by the injury sustained.

Example: Filthy Pierre is struck by an axe, which does cutting damage. His attacker's basic damage roll is 7, but Pierre is wearing DR 2 leather armor, so he suffers 5 points of penetrating damage. Multiplying by 1.5 for cutting damage, Pierre ends up losing 7.5 HP, which rounds to 7 HP – a nasty wound!

Note that blunt trauma injury has no wounding modifier.

Where you were hit may further affect the wounding modifier; see *Hit Location* (p. 398). The rules above assume a hit to the torso or face.

Injury to Unliving, Homogenous, and Diffuse Targets

The *Wounding Modifiers and Injury* rules assume a human, animal, or other ordinary living being. Machines, corporeal undead, swarms, and other unusual entities are much less vulnerable to certain damage types:

Unliving: Machines and anyone with Injury Tolerance (Unliving) (p. 60), such as most corporeal undead, are less vulnerable to *impaling* and *piercing* damage. This gives impaling and huge piercing a wounding modifier of ×1; large piercing, ×1/2; piercing, ×1/3; and small piercing, ×1/5.

Homogenous: Things that lack vulnerable internal parts or mechanisms – such as uniformly solid or hollow objects (e.g., melee weapons, shields, and furniture), unpowered vehicles, trees, and walls – are even less vulnerable! This includes animated statues, blobs, and anything else with Injury Tolerance (Homogenous). Impaling and huge piercing have a wounding modifier of ×1/2; large piercing, ×1/3; piercing, ×1/5; and small piercing, ×1/10.

Diffuse: A target with Injury Tolerance (Diffuse) is even harder to damage! This includes swarms, air elementals, nets, etc. Impaling and piercing attacks (of any size) never do more than *1 HP* of injury, regardless of penetrating damage! Other attacks can never do more than *2 HP* of injury. *Exception:* Area-effect, cone, and explosion attacks cause normal injury.

Example: Edmund Zhang empties his 9mm machine pistol (2d+2 pi damage) at an approaching zombie. He hits three times. After subtracting the zombie's DR 1, he scores 8 points of penetrating damage with the first bullet, 7 with the second, and 10 with the third. The zombie has Injury Tolerance (Unliving), so the usual ×1 wounding modifier for piercing damage drops to ×1/3. Rounding down, the three bullets inflict 2 HP, 2 HP, and 3 HP of injury. The zombie had 24 HP, so it has 17 HP left. Undaunted, it shambles forward. Edmund should have brought an axe or a flamethrower!

Effects of Injury

If you are injured, subtract the points of injury from your Hit Points. Usually, you are still in the fight as long as you have positive HP; see *General Injury: Lost Hit Points* (p. 419) for details. The most important effects are:

- If you have *less than 1/3* of your HP remaining, you are reeling from your wounds. *Halve* your Basic Speed and Move (round up), which also reduces your Dodge.
- If you have *zero or fewer* HP left, you are hanging onto consciousness through sheer willpower and adrenaline – or are barely holding together, if you're a machine. You must roll vs. HT *each turn* to avoid falling unconscious. If you pass out, see *Recovering from Unconsciousness* (p. 423) for how long it will take to recover.
- If you go to *fully negative* HP (for instance, -10 if you have 10 HP), you risk death! You must make an immediate HT roll to avoid dying. You must make *another* HT roll to avoid death each time you lose an extra multiple of your HP – that is, at -2×HP, -3×HP, and so on. If you reach -5×HP, you die *automatically*. See *Death* (p. 423).

The *sudden* loss of HP can have additional effects:

Shock: Any injury that causes a loss of HP also causes "shock." Shock is a penalty to DX, IQ, and skills based on those attributes *on your next turn* (only). This is -1 per HP lost unless you have 20 or more HP, in which case it is -1 per (HP/10) lost, rounded down. The shock penalty cannot exceed -4, no matter how much injury you suffer.

Major Wounds: Any single injury that inflicts a wound in excess of 1/2 your HP is a *major wound.* For a major wound to the torso, you must make a HT roll. Failure means you're stunned and knocked down; failure by 5+ means you pass out. For details, see *Major Wounds* (p. 420) and *Knockdown and Stunning* (p. 420).

Stunning: If you're stunned, you are -4 to active defenses and cannot retreat, and must Do Nothing on your next turn. At the *end* of your turn, attempt a HT roll to recover. If you fail, you're still stunned and must Do Nothing for another turn. And so on.

For more about injuries – and how to recover from them! – see *Injuries* (p. 418).

Special Damage

Certain attacks have "special effects": poison, electrical shocks, stunning, setting the victim on fire, etc. See the weapon tables, specific attack enhancements in Chapter 2, and the relevant sections of Chapters 13 and 14 for details.

Attacks Without Damage

Not all attacks inflict damage. Some – stun rays, drugs, etc. – offer a modified HT roll to resist (e.g., HT-2). If the victim is hit and fails his HT roll, he's affected; see *Affliction* (p. 35) for details. Other attacks restrain the victim, requiring ST rolls to break free; see *Binding* (p. 40).

Follow-Up Damage

Some attacks, such as poison darts and exploding bullets, have "follow-up" damage: a second type of damage that occurs an instant *after* the primary effect. The primary effect is always ordinary damage of some type – piercing, impaling, etc.

If the primary damage penetrates the target's DR, the follow-up effect occurs *inside* the target. DR has no effect! Follow-up effects that occur internally *never* inflict knockback or blunt trauma – even if their damage type usually does.

If the primary damage fails to penetrate DR, the follow-up effect occurs outside the target, if appropriate, as if the target had been touched – just like a linked effect (see below). Thus, poison that must enter the bloodstream would have no effect if the arrow that carried it failed to penetrate. On the other hand, an explosive projectile would still do damage . . . but the DR that stopped the primary damage would protect against it.

Linked Effects

Some attacks have a linked effect. This is a second type of damage or other effect that occurs simultaneously with the primary effect. Make *one* roll to hit, but resolve all damage and resistance rolls *separately* for the primary effect and the linked effect. An example of a linked effect is a grenade that inflicts both a crushing explosion and a blinding flash of light on detonation. A person in armor might be blinded but unhurt, while an unarmored person with eye protection might be wounded but not blinded.

Critical Hits and Misses

"Critical hits" and "critical misses" are critical successes and failures (see *Degree of Success or Failure,* p. 347) on rolls to attack or defend in combat.

Critical Hits

A "critical hit" is an especially lucky or good blow. It automatically hits home – your foe does *not* get an active defense roll!

Whenever you roll a natural 3 or 4 when attacking, you get a critical hit *and* you roll on the *Critical Hit Table* (p. 556). If you have high skill or a particularly good shot at your foe, you will get critical hits more often. With an *effective* skill of 15+, any roll of 5 or less is a critical hit; with an *effective* skill of 16+, any roll of 6 or less is a critical hit. Bonuses to hit (e.g., for All-Out Attack or a large target) *do* make critical hits more likely, while penalties (e.g., for a difficult target) make critical hits less likely.

Example: Louis LeBlanc needs to roll 15 or less to hit Filthy Pierre. He rolls a 5. That's a critical hit for him! (A 3 or 4 would be a critical hit for *anyone!*) Because this is a critical hit, Pierre gets *no defense roll.* The blow automatically hits!

A critical hit is often the only way for an unskilled character to injure a superior opponent in a fair fight or get through heavy armor with a light weapon. Once in a while, everybody gets a lucky shot. But note that the most likely result on the table is "no extra damage." Even if you get lucky and hit a superior foe, your blow might not be especially hard . . .

Critical Success on Defense Rolls

If you get a critical success on a defense roll against a melee attack, then your *foe* goes immediately to the *Critical Miss Table* (p. 556). You "faked him out," knocked his weapon from his hand, or otherwise defended *very* well!

A critical success on a defense roll against a *ranged* attack has no special effect, with one exception: if the attack was a thrown weapon, a critical success on a bare-handed parry lets you *catch* the incoming weapon without hurting yourself, if you so desire.

Example of Combat

Louis LeBlanc's weapon is a shortsword. He is standing two yards from his foe, Filthy Pierre. On his turn, Louis takes the Attack maneuver, steps one yard toward Pierre, and strikes!

Louis has Shortsword-15, and there are no adverse conditions that would give him a skill penalty; therefore, he needs to roll 15 or less to hit. He swings and rolls a 13, so he hits.

Pierre has a Dodge of 8, Shield-12 (giving him a Block of 9), and Shortsword-11 (giving him a Parry of 8). His Block is his best defense, so he'll use it whenever he can. Pierre's small shield gives a +1 Defense Bonus (see *Shields*, p. 287); this increases all of his defenses by 1.

Pierre's Block defense is therefore 9 + 1, for a total of 10 . . . or 11, if he retreats. If he blocks and retreats, and rolls 11 or less, he can defend against the accurate blow that Louis just threw. But he gets a 12. Too bad! He's hit.

Although the combat calculations may seem complex at first, they are *simple* in play! The attacker rolls against his skill, as shown on his character sheet. The defender adds up his defenses, as shown on *his* character sheet, and rolls against the total. That's it!

To continue the example: Louis is attacking Pierre. His blow was good, and Pierre failed to defend. So the blow got through.

Now Louis rolls for damage. Louis' player has already figured how much damage he does with a shortsword and written it on his character sheet. He has ST 11, so his swing does 1d+1 damage. He rolls one die and gets a 4. Adding one point yields a 5, so Pierre takes 5 points of basic damage.

However, Pierre is wearing cloth armor, which has DR 1. This subtracts a point from Louis' damage roll – only 4 points of damage penetrate Pierre's armor.

A shortsword is a cutting weapon, with a ×1.5 wounding modifier. This multiplies the penetrating damage . . . so Pierre takes a 6 HP wound! That blow could knock a lesser man down. Sad but true . . . one good sword blow can settle a fight.

The GM subtracts 6 from Pierre's HP. Luckily for Pierre, this is not *more* than half of his original 12 HP, so he does not have to roll to see if he is knocked down or stunned. However, if he attacks on his next turn, he will have a shock penalty equal to the HP he lost or -4, whichever is the lower penalty. Since he lost 6 HP, he's at -4 to skill.

And the fight continues.

Critical Misses

The opposite of a "critical hit" is a "critical miss." You suffer a critical miss when you fail *badly* on an attack or defense roll. You might break your weapon, throw it away, or even hit yourself!

A roll of 18 is *always* a critical miss. A roll of 17 is a critical miss unless your effective skill is 16 or better; in that case, it is an ordinary miss. A melee attack (but *not* a ranged attack) or defense roll that fails by 10 or more is also a critical miss.

If you get a critical miss on an *attack* or a *parry,* roll on the appropriate *Critical Miss Table* (p. 556). Apply the result immediately. If you critically miss a *dodge*, you lose your footing and fall prone (no effect if already prone). If you tried to *block*, you lose your grip on your shield and must take a turn to ready it before you can use it to block again.

A firearm may also *malfunction* on a bad roll; see *Malfunctions* (p. 407). A malfunction has "priority" over a critical miss: if both would occur, only the malfunction takes place.

Other Actions in Combat

Combatants can perform actions other than attacking and moving. Physical actions usually require Ready maneuvers, while mental ones call for Concentrate maneuvers.

Readying Weapons and Other Gear

A "ready" item is one that is in hand, ready for action. A weapon or other device is *unready* if in a holster, scabbard, pocket, belt, or pack; on the floor or a table; etc.

It generally takes a single Ready maneuver to ready an item that is on your belt, in a pocket, in a scabbard or holster, or slung over your back.

If you *stand still,* a single Ready maneuver also lets you ready an item from a table, wall rack, etc., provided it is within your reach (normally one yard).

A single Ready maneuver lets you accept one item that another person is holding out to you. He must be close enough to reach you (one yard, for a human), and he must have taken a Ready maneuver on *his* turn in order to hold out the item for you. You must both *stand still.* Note that you cannot exchange two items simultaneously. Each object exchanged requires a separate Ready maneuver on the part of each person involved. (Recall that these rules are for *combat;* obviously two people walking down the street can hand things back and forth at will.)

Some additional rules:

Picking something up from the ground. You must be kneeling, crawling, sitting, or lying down to do so, unless you have arms with a two-yard reach! If you are standing, you must first take a Change Posture maneuver to kneel, sit, etc.

Readying a weapon. You can only attack or parry with a weapon that is in your hand and ready to use. You must "ready" some weapons again after each attack! For instance, you must ready a poleaxe after each swing, because its momentum carries it away. See the weapon tables in Chapter 8 to learn which weapons require readying after use.

Reloading a weapon. This requires several consecutive Ready maneuvers. The number of Ready maneuvers required appears in parentheses after the weapon's Shots statistic. For example, a longbow requires two Ready maneuvers: one to ready the arrow by removing it from your quiver, and one to ready the bow by placing the arrow to the string and drawing it. That takes two turns. On the third turn, you can Aim or Attack.

Readying a shield or cloak. If a shield or cloak is on the ground, or slung on your back, it takes a number of Ready maneuvers equal to its Defense Bonus to prepare it for combat. It takes the same amount of time to don your cloak or sling your shield again – but you can drop it on the ground with a single Ready maneuver (*not* a free action!). For the purpose of readying, treat a *buckler* as a weapon, not as a shield.

Long actions. Many physical actions take more than one second to complete. In combat, choose the Ready maneuver each turn until you are finished. This is not a specific maneuver, but a "generic" choice that lets you do one second's worth of any multi-second action. The GM decides how many turns each action takes; see *Typical Long Actions* (p. 383) for examples. Some things (like piling up rocks to stand on) can be interrupted in the middle if necessary, to take any necessary maneuver or other action. Other things (like ritual magic) can't be interrupted; if you stop in the middle, you must start over.

Action	*Time*
Pick up a heavy object in one hand (weight up to 2×BL)	2 sec.
Pick up a heavy object in two hands (weight up to 8×BL)	4 sec.
Open an unlocked box, briefcase, chest, door, etc.	1 sec.
Find a loose item in a box, briefcase, pack, etc. (if it's not hidden)	2d seconds
Find an item in your own pocket	1d seconds
Write a brief note	5 sec. per sentence
Read a brief note	2 sec. per sentence
Swallow a pill or potion	2 sec.
Light a candle, cigarette, fuse, match, torch, etc.	2 sec.
Replace a weapon in its scabbard, drop a small item into your pocket	2 sec.
Search an unresisting person fairly thoroughly	1 min.
Put on a suit of armor	3 sec. per piece (30 sec./piece for a vacc suit or battlesuit)

If an action takes a long time, you can help the GM keep track of events by counting the seconds each time you announce the maneuver. For instance, to reload a weapon, you would say, "Reloading my gun – one second" on your first turn, and, "Reloading my gun – two seconds and finished" on your second turn.

Typical Long Actions

See the table above for the duration of typical long actions. You must take a Ready maneuver each second.

The times required for long actions are realistic, but they can also sideline a player – for instance, if his character rummages through his backpack. *If the GM deems it dramatically appropriate,* he may let PCs shave off a few seconds by making a successful DX or IQ roll, at the cost of failure having other problems (e.g., dropping the backpack and spilling its contents).

This completes the combat system. Get out there and fight!

When you are comfortable with these rules, you can proceed to Chapter 12, *Tactical Combat,* if you wish to use a hex grid for more precise resolution of battles. GMs may also consult Chapter 13 for advanced rules concerning factors that might not come into play in every battle: hit locations, mounted opponents, surprise attacks, and various exotic weapons. See also pp. 462-470 for rules for vehicles, pp. 455-461 for rules for animals, and p. 547-559 for the collected combat tables.

When Is a Weapon Ready?

A weapon is "ready" if it is in your hand and ready to attack. It takes one turn to ready a weapon from its scabbard (but see *Fast-Draw,* p. 194). A few special rules:

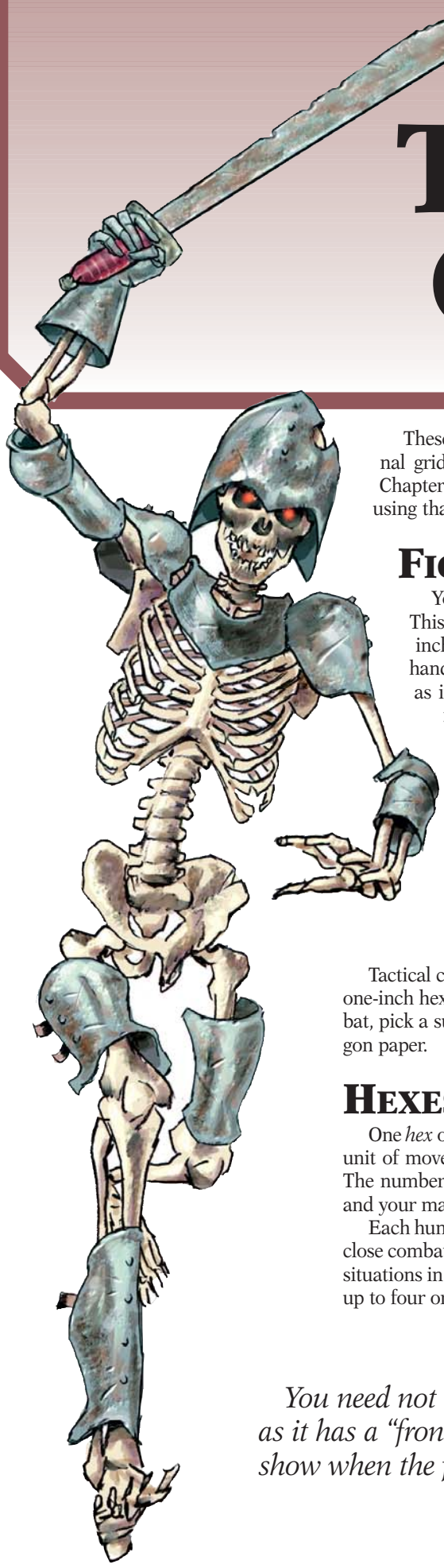
Changing Grips: Some long weapons require one extra turn of readying to go from a one-yard to a two-yard reach, or from a two-yard to a three-yard reach, or vice versa. An *unready* weapon may be re-readied to any legal reach, regardless of how you used it before; this is just part of the Ready maneuver.

Unbalanced Weapons: A few large and unwieldy weapons are carried out of line by their momentum when you attack. Unless your ST is at least 1.5 times that required to wield the weapon, they become *unready* after you attack with them; to use them again, take a Ready maneuver. If you fall down, lose your balance, or are stunned, and your weapon is one that requires readying after each use, it becomes unready!

Holstering: It takes one second to return a pistol to a holster.

Scabbarding: It takes *two* seconds to return a weapon to a scabbard or belt-loop.

Chapter Twelve
Tactical Combat



These rules let you resolve combat using counters or figures on a hexagonal grid. They assume you have already mastered the combat system in Chapter 11, and cover only the exceptions and special cases that arise when using that system on a map.

Figures

You need a marker or miniature figure to represent each combatant. This can be metal, plastic . . . even cardboard. These rules assume one-inch hexes, or a 50mm scale, for *maps* – but 25mm *figures* are easier to handle. Of course, you need not use figures! *Any* counter will do, as long as it has a "front" to indicate facing and some way to show when the fighter it represents is prone.

Gamers who want the fun of detailed figures at the cost of cardboard counters should consider ***Cardboard Heroes,*** SJ Games' line of upright cardboard figures.

The Combat Map

Tactical combat uses a "combat map" marked off in hexagons, or *hexes.* Each one-inch hex on the map represents an area one yard across. At the start of combat, pick a suitable map, typically one you have drawn on a blank sheet of hexagon paper.

Hexes

One *hex* on the combat map represents one yard of distance. It is also the basic unit of movement: each hex a fighter moves represents one yard of movement. The number of hexes you can move on your turn depends on your Move score and your maneuver (see *Maneuvers in Tactical Combat,* p. 385).

Each human-sized or smaller fighter must occupy one hex. Exceptions include close combat (see *Close Combat,* p. 391), swarms (see *Swarm Attacks,* p. 461), and situations in which people are crowded together but not fighting (you could cram up to four ordinary-sized humans into a single hex, if they were friendly).

You need not use figures! Any counter will do, as long as it has a "front" to indicate facing and some way to show when the fighter it represents is prone.

A human-sized fighter who is lying down or who has the Horizontal disadvantage occupies *two* hexes; see *Change Posture* (below). Larger fighters also occupy more than one hex; see *Multi-Hex Figures* (p. 392).

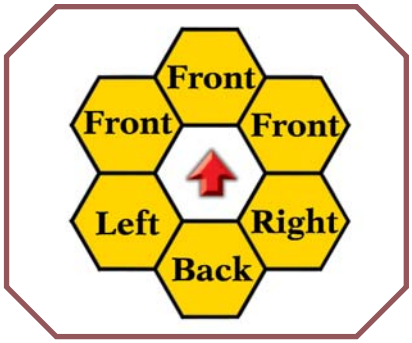
Treat a fractional hex (e.g., one cut in half by a wall) as if it were a full hex: you can move through it and occupy it without penalty, unless the GM rules otherwise. You can also move through an ally's hex, although the movement cost is higher. You cannot move through or occupy a hex *completely* filled by a solid barrier (e.g., a pillar).

Facing

You must "face" toward one of the six hexes adjacent to your hex at all times. Your facing defines your *front, right, left,* and *back* hexes (see illustration).

Your front hexes are the hexes you can *see* into and easily *move* into. You can move into any adjacent hex – but sideways and backward movement is slower.

For a right-handed fighter, the right side is the "weapon side" and the left side is the "shield side." For a left-handed fighter, these are reversed.



Maneuvers in Tactical Combat

Tactical combat uses the maneuvers described in Chapter 11 under *Maneuvers* (p. 363), but some of these have additional complications on a hex grid. Several of these notes refer to "movement points"; see *Movement in Tactical Combat* (p. 386) for details.

Move

You receive movement points equal to your Move.

Change Posture

If a human-sized fighter lies prone or has the Horizontal disadvantage, he takes up *two* hexes. If you lie down or are knocked prone, your lower half occupies the hex you were standing in and your upper half can occupy any adjacent hex. If you get up from a prone posture, you may choose to get up into *either* of your hexes.

All-Out Attack

You must move first and then attack – not vice versa. You may remain stationary, turn in place, or move *forward.* If you choose to move forward, you may move up to two hexes or expend movement points equal to half your Move (round up), whichever is more. You may not change facing at the end of your move.

Move and Attack

You receive movement points equal to your Move.

All-Out Defense

If you choose the Increased Dodge option, you may use movement points equal to half your Move (round up).

Ready

You can pick up an item that is in your own hex or any hex within your reach (usually one hex).

Wait

The greater precision of tactical combat on a hex grid allows many more options with this maneuver; see *Wait Maneuver Strategy* (below) and *Opportunity Fire* (p. 390). If you are waiting with a melee weapon, your weapon's reach is *crucial:* a long weapon lets you strike a charging foe before he can get to you!

Wait Maneuver Strategy

The Wait maneuver can be very useful in a tactical situation where you want to block a fleeing foe – or to protect someone behind you.

If you have taken a Wait maneuver, you can attack at any time – even in the middle of someone else's movement! If you did not move at all on your turn, you may take a step (see *The "Step" in Tactical Combat,* p. 386) and then strike. If your foe is still standing after your blow falls, he may continue his movement.

This is the best way (and almost the only way) to keep a faster foe from running past you on a clear field. If you take another maneuver (for instance, to fight with someone else), you are distracted – and, on a one-second time scale, a faster foe *should* be able to run past you! But if you are waiting for him, you'll have a chance to intercept him, or hit him, as he tries to go by.

Movement in Tactical Combat

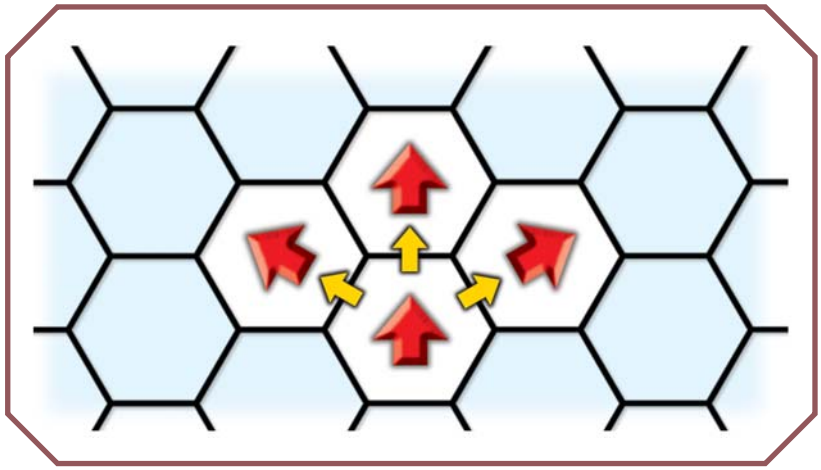
In tactical combat, movement is measured more precisely, on a hex-by-hex basis, and a fighter's *facing* becomes very important.

The "Step" in Tactical Combat

Some maneuvers, such as Attack or Ready, allow you to take your usual step in any direction (see *Step,* p. 368). Each yard of step – usually one yard, for humans – equals one hex of movement. You may change facing freely before or after you move.

Movement Points

An easy way to keep track of movement is to assume that a *Move* or *Move and Attack* maneuver gives you a number of "movement points" equal to your Move score; e.g., Move 5 would give you 5 movement points to use during a Move or Move and Attack. An *All-Out Attack* or *All-Out Defense (Increased Dodge)* maneuver gives *half* as many movement points, rounded up; e.g., Move 5 would give 3 movement points during these maneuvers.



Movement and Facing

Movement and facing interact when you move as part of a Move, Move and Attack, All-Out Attack, or All-Out Defense (Increased Dodge) maneuver.

Forward Movement and Facing

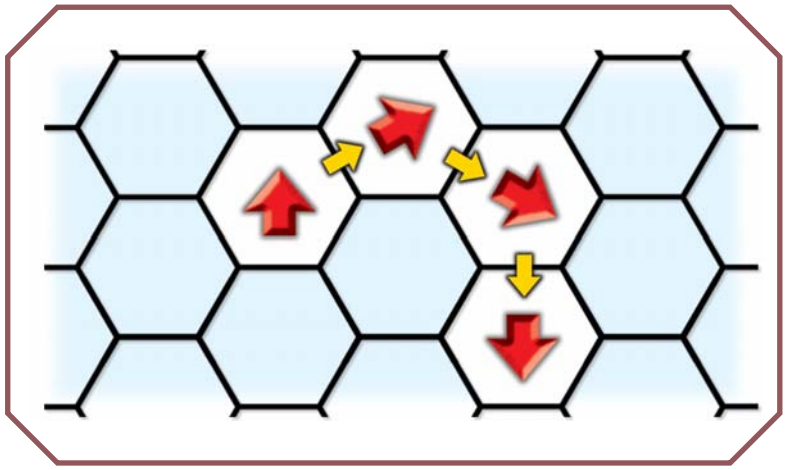
It costs *one* movement point to enter each hex when moving forward. A "forward" move is a move into one of your three front hexes. If you go *straight* ahead, your facing will not change; otherwise it will change by one hex-side: you must *turn to face the hex* as you enter it (see illustration above).

Thus, you *can* change direction while moving "forward." Three consecutive hexes of "forward" movement let you run in a half-circle and end up facing the opposite direction (see illustration below).

Backward and Sideways Movement and Facing

If you take a Move, Move and Attack, or All-Out Defense (Increased Dodge) – but *not* an All-Out Attack – and don't want to move forward, you can move backward (A) or sideways (B), keeping the *same* facing (see the illustration to the right). Each sideways or backward hex costs *two* movement points.

In these diagrams, a red arrow indicates a figure and its facing. A yellow arrow indicates movement.



Movement Point Costs

Use these movement point costs when you take a Move, Move and Attack, All-Out Attack, or All-Out Defense (Increased Dodge) maneuver. You can *always* move at least one hex per turn, no matter how severe the penalties.

Most other maneuvers allow a step (see *Step,* p. 368). In this case, "cost" does not matter – you can move your full step (usually one hex), regardless of facing, posture, or terrain.

Direction of Travel

Forward: 1 movement point per hex.

Sidestep or backward: 2 movement points per hex.

Posture

Crouching: +1/2 movement point per hex.

Kneeling: +2 movement points per hex.

Crawling: +2 movement points per hex.

Lying down: All movement points to move one hex.

Sitting: Cannot move!

Facing Changes

*Change facing **before** or **during** a move:* +1 movement point per hex-side of change.

*Change facing at **end** of move:* Free! You may face *any* direction if you used no more than half your movement points; otherwise, you may opt to change facing by *one hex-side.*

Obstructions

Minor obstruction in hex (e.g., an ally, or a body on the ground): +1 movement point per obstruction.

Severe obstruction in hex (several bodies, a barricade, etc.): You must either bypass the hex or jump over (see *Jumping,* p. 352).

Enemy in hex: You must evade (see *Evading,* p. 368).

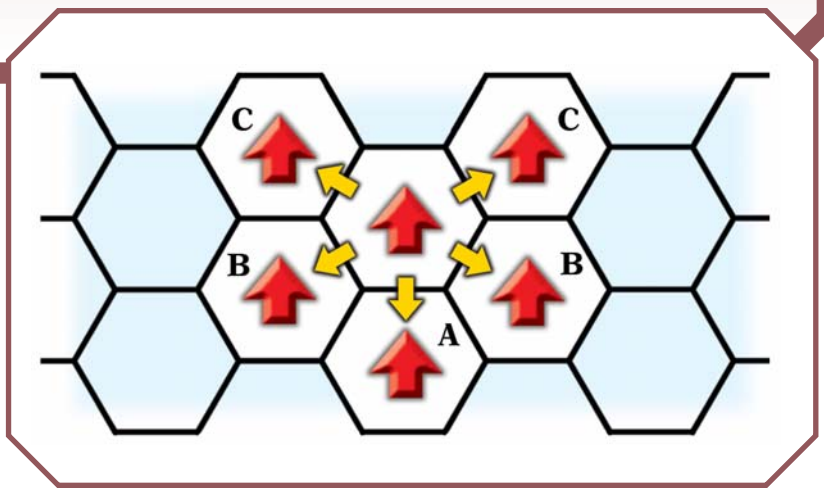
Bad Footing

Treacherous ground (mud, waxed floors, etc.): +1 movement point per hex (or more, at the GM's option).

Stairs (up or down): +1 movement point per hex.

Shallow water (no more than 1/6 your height): +1 movement point per hex.

Deeper water: All movement points to move 1 hex.



You can also "sidestep" into a *front* hex (C) while keeping your original facing. This *is* allowed during an All-Out attack (as well as on a Move, etc.). It also costs *two* movement points.

Facing Changes and Movement

At the end of your turn, if you took a Move or Move and Attack maneuver *and* used no more than *half* of your movement points – or if you chose the All-Out Defense (Increased Dodge) maneuver – you may turn to face in any direction.

If you took a Move or Move and Attack and used *more than half* of your movement points, you may change your facing by *one hex-side.*

You may also change facing *before* or *during* your movement on a Move, Move and Attack, or All-Out Defense (Increased Dodge) maneuver, but this costs movement points. Each hex-side of facing change counts as one yard of movement; e.g., turning 180° costs three movement points.

Attacking in Tactical Combat

Attacks work as described in Chapter 11, with the difference that a hex grid permits precise determination of range, facing, arc of vision, and area of effect. This calls for a few extra rules – especially for combat in the same hex as your foe (see *Close Combat,* p. 391).

Melee Attacks

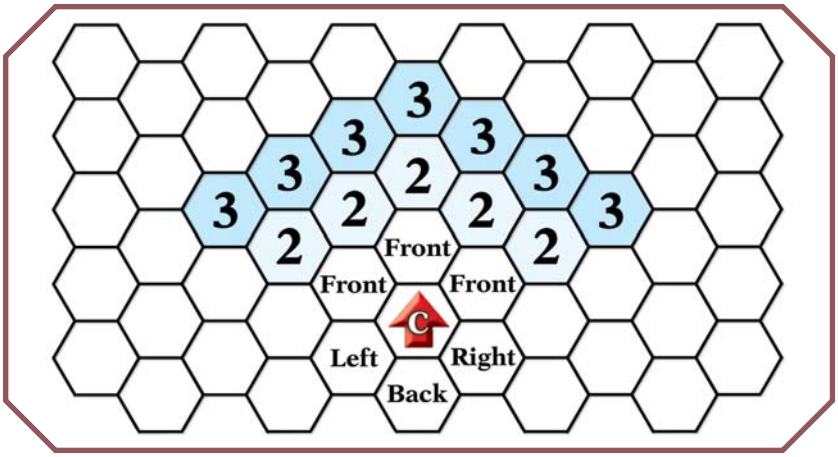
Normally, you can only attack into your front hexes. The *distance* at which you can attack depends on your weapon's "reach."

Reach of a Weapon

A melee weapon's "reach," as given on the *Melee Weapon Table* (p. 271), defines the hexes into which you can attack with it, as follows:

Reach C ("Close"): You can strike only at targets in your own hex.

Reach 1 (1 yard): You can strike into any hex marked "Front" in the diagram below.



Reach 2 (2 yards): You can strike into any hex marked "2" in the diagram below.

Reach 3 (3 yards): You can strike into any hex marked "3" in the diagram below.

Most melee weapons have a one-yard reach, and can hit only your three front hexes.

Long Weapon Tactics

The Attack maneuver lets you step before or after you attack. Stepping *after* you attack in melee combat can give you the upper hand if your weapon has more reach than your opponent's. Suppose you have a spear and your adversary has a broadsword. You could attack from two hexes away and then step back, ending your turn *three* hexes from your foe. Since his weapon has a one-hex reach, he could not reach you with an Attack, as the Attack maneuver limits him to a one-yard step (of course, a foe with Move 11 or higher could step farther). To strike back, he would have to take an All-Out Attack or a Move and Attack . . . either of which would restrict his defenses, leaving him open to your *next* attack! And even if he *does* get close enough to attack, you can always retreat when you defend . . .

Some weapons have more than one reach. For instance, a knife can slash at "close" and one-yard reach. With a spear, you can have a reach of either one or two yards, depending on how you hold it. Larger pole weapons can have a reach of one, two, or three yards!

Most weapons with a reach of two or more yards require a Ready maneuver to "change grips" and go from one reach to another. For instance, if you are holding a halberd with a grip that lets you strike three hexes away, you have to ready it for one turn before you can use it to strike someone one or two hexes away. A few balanced weapons (e.g., the greatsword and quarterstaff) let you attack at more than one reach *without* taking a Ready maneuver. The *Melee Weapon Table* shows which weapons require a grip change and which do not.

Note that if you're very large, your reach will increase – see *Size Modifier and Reach* (p. 402).

Attacking Through an Occupied Hex

You can attack "through" someone else in melee if you are using a weapon with a reach of two yards or more. You may attack through a friend at no penalty (this is a basic part of your training with any long weapon). If you attack through an enemy's hex, the penalty is -4. If your attack passes along a line between two hexes, there is no penalty unless *both* hexes are occupied. If they are, treat the situation as a single occupied hex – friendly, unless foes occupy both hexes.

Wild Swings

A Wild Swing is a melee attack against a foe to your *side* (left or right) or *back, or* against a foe you can't see. It's unlikely to hit, but sometimes it's better than nothing.

A Wild Swing is at -5 to hit or the current visibility penalty, whichever is *worse,* and your effective skill cannot exceed 9 after all modifiers. You cannot target a particular part of the foe's body; if using hit locations, roll randomly.

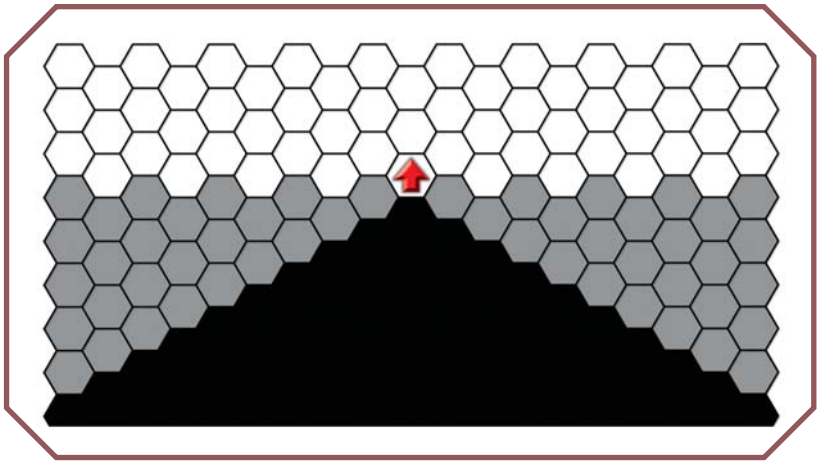
A Wild Swing need not be a swing – it could be a thrust. However, you cannot make a "wild thrust" at a distance of more than one yard.

You *can* combine a Wild Swing with an All-Out Attack, but you may *not* choose the "Determined" option to get +4 to hit to offset the Wild Swing penalty. You can also make a Wild Swing during a Move and Attack; use the more severe penalties of the two.

If you have Peripheral Vision (p. 74), two-handed melee attacks into your right and left hexes, and one-handed attacks to the *same* side (e.g., right hand to right hex), are not Wild Swings. However, one-handed attacks to the *opposite* side (e.g., right hand to *left* hex), and attacks on foes behind you, are still Wild Swings.

If you have 360° Vision (p. 34), *no* attack to your sides or back is a Wild Swing – but attacks to the back and opposite side at -2 due to the clumsy angle of attack.

Note that some martial-arts techniques (e.g., Back Kick, p. 230) allow you to attack foes behind you *without* making a Wild Swing.



Ranged Attacks

Ranged combat on a hex grid also requires a few additional rules.

Arc of Vision

If you have a ranged weapon, you can attack into any of the *white* hexes in the diagram above. If you have Peripheral Vision (p. 74), you can attack into any of the *white or gray* hexes. And if you have 360° Vision (p. 34), you can attack into any of the *white, gray, or black* hexes. In all three cases, the hexes you can attack into define your "arc of vision."

Shooting Blind

If you have a ranged weapon, you may attack someone outside your arc of vision – or in total darkness, or while blinded – by "shooting blind." Use the rules for Wild Swings (above), but the penalty is *-10* and your effective skill cannot exceed 9 after all modifiers. (As Murphy's Law predicts, you are often *less* likely to hit your target than anyone else in the vicinity; see *Hitting the Wrong Target,* below.) Needless to say, you cannot take the Aim maneuver!

Firing Through an Occupied Hex

You can target an enemy if you can draw a straight line between *any* part of your hex and *any* part of his without passing through a solid obstacle. Use a straightedge (such as a ruler) to determine this. However, if your chosen straight line passes through an occupied hex, the occupants of that hex are "in the way." You may hit them if you miss your intended target – see *Hitting the Wrong Target,* below.

Anyone in the way (friend or foe) gives you a -4 penalty. If your attack passes through several occupied hexes, apply this penalty for *each* person in the way!

If your attack passes along a line *between* two hexes, there is *no* penalty unless *both* hexes are occupied. If they are, treat it as a *single* hex penalty (-4).

Someone lying down is never "in the way" unless you, too, are on the ground. Someone kneeling or sitting is not in the way unless *either* you *or* your target is also kneeling or sitting.

These rules assume human-sized or smaller combatants. A fighter with a Size Modifier 2 or more greater than yours (*3* or more if he's kneeling or has the Horizontal disadvantage, *4* or more if he's prone) completely blocks your line of sight – you can't shoot past him – unless you're higher up.

Hitting the Wrong Target

If you attack with a ranged weapon and *miss*, you may hit someone else. You *must* check for this if you fail your attack roll.

You may hit *anyone* – friend or foe – if he was in your line of fire. To determine this, check the line along which you attacked. Any hex this line passes through is "in the way." Combatants who are kneeling or lying down are not in the way unless you, too, are at their level.

Because hitting the wrong target is a matter of pure chance, your attack roll against each possible target is the same: a flat 9 *or* the number you would have had to roll to hit him on purpose, whichever is *worse.*

Roll first for the target closest to you. If you miss, or if that target dodges, roll for the next target. And so on. Keep rolling until you hit, or someone blocks or parries your attack, or you run out of targets. If your attack went along a line between two occupied hexes, roll randomly to see which one you check first.

Anyone (friend or foe) gets the same defense against this attack that he would have had had your attack been intentional.

Opportunity Fire

If you have a ranged weapon, you may watch a specified area and attack as soon as a target presents itself. This is called "opportunity fire."

To use opportunity fire, you must take the Wait maneuver. You must *stand still* and watch for a target *in a specified area.* You must face the area you are "covering." You may do *nothing* else.

Hexes Watched	*Attack Penalty*
1	0
2	-1
3-4	-2
5-6	-3
7-10	-4
11+	-5

You may also specify a single straight line, and say that you will fire at the first target that crosses the line. The penalty for this kind of opportunity fire is only -2.

When you attack, apply the appropriate penalty above as well as all relevant ranged-combat modifiers. You *cannot* claim any of the bonuses listed for the Aim maneuver (p. 364). *Exception:* If you watch a *single hex* (only), you can Aim *and* Wait. Each second you wait for a target also counts as an Aim maneuver, and you will get the normal bonus for that amount of aiming when you finally attack.

The GM should make sure that players carefully specify the area they are watching for opportunity fire. In conflicts between PCs, the players should tell the GM *in secret* so that their opponents do not know where they are planning to fire.

Target Discrimination: Normally, when you take opportunity fire, you *must* attack the first target that appears in the designated area – friend or foe! You are free to specify that you are *not* attacking automatically, usually to avoid shooting a friend. If so, the GM will make a Vision roll for you when a target appears and tell you whether you *think* it is friend or foe. However, you have an extra -2 to hit because of the time you spent deciding.

If a target appears in the specified area, you *must* attack it (you can try to discriminate, but this will give a penalty to hit – see below). Your attack takes place *immediately.* If two or more people are taking opportunity fire at the same target, assume that their attacks are simultaneous.

If no target appears, you simply wasted your turn!

All of the area to be "covered" must be within your arc of vision (see p. 389). The larger the area you have to watch, the greater the penalty when you attack:

Pop-Up Attacks

A "pop-up attack" is a special Attack maneuver in which you emerge from cover, move no more than one hex, make a ranged attack, and *return* to cover – all in the space of one turn! Examples include ducking around a corner or a tree, or out of a trench. This is possible with any thrown weapon, firearm, or crossbow, but *not* with a bow or a sling.

You cannot aim a pop-up attack. In fact, there is an extra -2 to hit because you couldn't see your target at the beginning of your turn.

Note that when you emerge from cover to attack, anyone targeting your hex with opportunity fire *can* attack you. If so, your only legal defense is a dodge.

Overshooting and Stray Shots

If you *make* your attack roll but your foe *blocks* or *parries* successfully, assume your weapon or missile hits the ground. It has no chance of hitting anyone.

If your foe *dodges,* however, the projectile goes *past* him and may hit someone else. Proceed as for *Hitting the Wrong Target,* above, but start with the closest target on the *other side* of your foe. (You already know you didn't hit anybody *between* you and your foe, or he would not have had to defend.)

Defending in Tactical Combat

Active defenses work as described in Chapter 11, with a few additional rules.

Defending Against Attacks from the Side

Against an attack that comes from one of your *side* hexes, you defend at -2 unless you have Peripheral Vision (p. 74) or 360° Vision (p. 34). *Regardless* of those advantages:

- If you have a shield, *you cannot block an attack that comes from your weapon side,* only one that comes from your shield side.
- If you have a one-handed melee weapon, *you cannot parry an attack that comes from the other side of your body,* only one that comes from the same side, unless your weapon arm has the Extra-Flexible enhancement or you possess the Double-Jointed advantage.

"Runaround" Attacks

A fast-moving fighter can sometimes start in front of a foe and run behind him to strike from his back hex. Against a true attack from behind, no active defense is possible, because the victim did not know the attack was coming. If the attacker starts in front and runs behind, outmaneuvering his victim through sheer speed, the victim *does* know he's being attacked. Treat it as a side attack: -2 to active defenses, unless the victim has compensating advantages.

Defending Against Attacks from the Back

Against an attack that comes from your *back* hex, *you cannot defend at all* unless you have Peripheral Vision (which lets you defend at -2) or 360° Vision (which lets you defend at no penalty). Even if you have one of those advantages, you have an extra -2 to *parry* an attack from behind, and cannot *block* at all, unless your weapon or shield arm has the Extra-Flexible enhancement or you have the Double-Jointed advantage.

Retreating

A retreat takes you one step – normally one hex – directly away from the foe you are defending against. You cannot retreat into an occupied hex. You may change facing by *one* hexside, if you wish, as you retreat.

Close Combat

"Close combat" is any situation in which you occupy the same hex as your foe or try to move through his hex. Use the rules given under *Evading* (p. 368) and *Unarmed Combat* (p. 370) in Chapter 11, but with the additions below.

Entering a Foe's Hex

You may move or step into an enemy's hex using any maneuver that allows you enough movement to enter that hex. You are in "close combat" as soon as you enter an opponent's hex, *regardless* of your maneuver or that of your foe.

If you take a Move, Move and Attack, or All-Out Attack maneuver, you can always run into a foe's hex and *stop* there, facing him. If you do not wish to stop, you *must* attempt to *evade* (p. 368) or *slam* (p. 368) your foe – your choice, within the limits of your maneuver.

When you enter an enemy-occupied hex, you occupy *half* the hex. You have the half of the hex from which you entered; he has the other half. To enter any of your front hexes on the enemy's side, you have to "move through" him by evading.

Evading in Tactical Combat

To evade a foe, you must have enough movement points not only to *enter* his hex, but also to *leave* his hex! If your movement ends in his hex, you *cannot* evade on that turn.

Leaving a Foe's Hex

If you start your turn in a foe's hex and he isn't grappling you, you can move out of the hex through any of the three hexes on *your* side of the hex. If you do this using a Move or Move and Attack, you must spend movement points to change facing, sidestep, or step backward. To use forward movement to leave through one of the three hexes on your *foe's* side, you must *evade* him (see above).

If you take a maneuver that allows a step, you can step out of the hex and attack, feint, etc. with a one-hex reach weapon – or you can make a close-combat attack and *then* step out – but your step can only take you into one of the three hexes on *your* side of the hex.

If your foe has grappled you, you may still choose a maneuver on your turn, but you cannot leave the hex until you break free (see *Actions After Being Grappled,* p. 371).

Weapons for Close Combat

You can only use small, easily managed weapons in close combat. You can attack with any melee weapon with reach "C." If using a ranged weapon, *ignore* the usual speed/range penalty and apply the weapon's Bulk statistic as a penalty to hit.

Readying in Close Combat

You must make a DX roll to ready a weapon in close combat. If you fail, you still take a Ready maneuver but you accomplish nothing. If you have the Fast-Draw skill, you must make *two* rolls: the DX roll above and a Fast-Draw roll to get your weapon *quickly.* If you fail the Fast-Draw roll, you ready the weapon but it takes a full Ready maneuver.

Defense in Close Combat

You can *dodge* normally in close combat. You can only *parry* using an empty hand or a weapon with reach "C" (e.g., a knife). You cannot *block* at all!

You *can* retreat (see p. 377) in close combat, if you aren't being grappled. Simply step out of close combat and into any of the three hexes on *your* side of the close-combat hex. This gives the usual bonus to your active defense roll.

Shields in Close Combat

A shield becomes a potentially deadly nuisance in close combat. It still provides its Defense Bonus, but it hampers *you* while you wear it.

Any attack you make in close combat – except for the *initial* slam, attack, etc. when you first move into the foe's hex – has a penalty equal to the Defense Bonus of your shield! Any DX roll you attempt in close combat *after* your first turn of close combat has the same penalty.

It takes a one-turn Ready maneuver and a successful DX roll to get rid of your shield in close combat.

Multiple Close Combat

Any number of people may participate in close combat in the same hex. This is easy to depict with flat counters, but it can be difficult to show with 3D figures – especially if some fighters are standing and others are lying down. A good compromise is to allow a fighter to declare himself in close combat with an opponent while still in an adjacent hex.

Up to two fighters may combine their efforts in a takedown attempt against a single foe; up to three may work together in a pin attempt against a single foe. In either case, use the ST, DX, or grappling skill of the attacker with the *best* score, and add 1/5 (round down) of the score of each of his helpers.

Striking Into a Close Combat

If you are not in close combat yourself, you may help allies who *are* in close combat by standing outside the close-combat hex and attacking an enemy who is in close combat with them. Your attack is at -2, plus any modifier for the target's posture (lying down, for instance).

If you *hit,* your foe may only defend as explained in *Defense in Close Combat*.

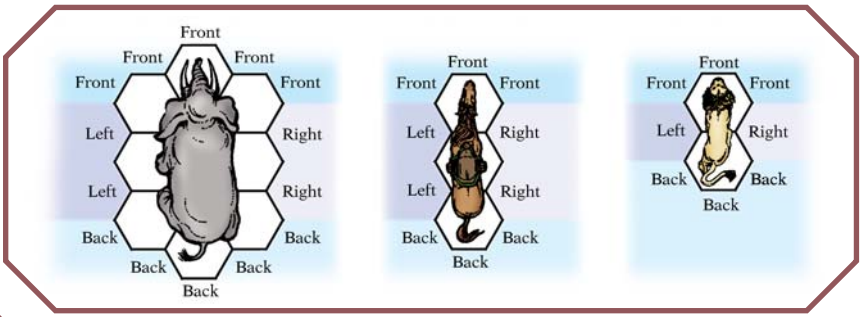
If you *miss,* or your foe successfully *dodges,* you may hit someone else – friend or foe – in the hex. If there is more than one possible target, roll randomly to see who you "attack" first. Your attack roll is a flat 9 *or* the number you would have had to roll to hit him on purpose, whichever is *worse.* If you hit, the victim may attempt any legal close-combat defense. Keep rolling until you run out of targets or you actually hit someone.

Multi-Hex Figures

Giants, large animals, monsters, vehicles, etc. often occupy more than one hex. It can be helpful to make multi-hex counters or, if using figures, to cut cardboard bases of the appropriate size.

The *head* or front of a multi-hex figure controls its movement. Handle distance moved, direction of movement, and facing exactly as if the creature's head were a normal one-hex figure. The rest of the body follows. This might mean, for instance, that a dragon's head moves only 3 hexes while its tail sweeps through *10*. That's all right – and it's a good way for the dragon to knock people over.

A multi-hex figure cannot fit through a map space narrower than its widest point. However, the GM should be lenient in allowing large figures to overlap walls and the like. Remember that when a hex is cut by a straight wall, etc., a partial hex counts as a full hex.



Arc of Vision

The head of a multi-hex creature determines its arc of vision. This *does* mean that much of a large creature's body may fall outside its own arc of vision! However, many large creatures also have Peripheral Vision (p. 74).

Front, Side, and Back Hexes

Each multi-hex creature has front, right, left, and back hexes, corresponding to those of a human (see illustration).

Slam and Overrun

When a figure two or more hexes in size moves through a smaller one, treat it as a slam (see *Slam,* p. 371). This gives the small figure a chance to get out of the way. If it fails to do so, it will probably be knocked down! The larger figure can keep right on moving unless it is itself knocked down.

Chapter Thirteen
Special Combat Situations

Surprise Attacks and Initiative

When the PCs surprise a group of adversaries, or vice versa, the surprised party may not be able to react immediately. In this case, the attackers should get one or more "free turns." The GM is responsible for determining when the attackers have achieved surprise.

Adventurers, guards, etc. rarely suffer total surprise unless they are actually asleep. But total surprise would be appropriate if a group of werewolves came charging through the door of the local library. (In fact, such an extreme case might justify a Fright Check – at least for the librarian.)

These advanced combat rules cover less-common tactical situations, or offer additional detail. They are modular – the GM decides which rules are in force in a given situation.

A character with Combat Reflexes is rarely surprised, and will *never* "freeze." He also gets +6 on all IQ rolls to recover from surprise. Note that many wild animals have Combat Reflexes – see Chapter 16 for examples.

Total Surprise

When the defenders are taken *completely* by surprise, they "freeze." The GM rolls 1d. This is the number of seconds that pass before the defenders can react *at all.* Until that time is up, they are mentally stunned and must take the Do Nothing maneuver. *Exception:* Those with Combat Reflexes never freeze, and treat total surprise as *partial* surprise.

After the initial "freeze" ends, each defender must roll against his basic IQ at the start of his turn until he recovers. On a success, he must take Do Nothing that turn, but can act normally *for the rest of the combat.* On a failure, he is still mentally stunned; he may roll again at the start of his next turn. A low-IQ character, taken totally by surprise, could miss the whole combat!

Partial Surprise

This may occur when the defenders were expecting trouble . . . or when each party surprised the other! The GM should require each side to roll for *initiative.*

To determine who gets the initiative, the leader of each side rolls 1d. A leader with Combat Reflexes gets +2, or +1 if he doesn't have Combat Reflexes but someone else on his side does (this bonus is not cumulative for more than one character). The leader with the higher IQ gets +1. Having even one point in Tactics skill gives +1 on initiative rolls; Tactics at level 20+ gives +2. The GM can apply other modifiers as he sees fit; e.g., if he thinks one side was more alert than the other.

If one side is totally leaderless, the GM rolls for them. They get an automatic -2 to initiative. (This does not apply to animals or any other group with IQ 5 or less.)

The side that gets the highest roll gets the initiative, and can move and act normally. Everyone on the other side is mentally stunned, and must make IQ rolls on their turns, as described for total surprise, to snap out of it. However, with partial surprise, there is a +1 bonus to IQ on the second turn, +2 on the third turn, and so on . . . even low IQ characters catch on after a few seconds. Note that animals often have Combat Reflexes, which counteracts their low IQ.

If the initiative roll is a tie, nobody was taken by surprise.

Visibility

A combat situation where some fighters can't see their foes affects attacks and defenses.

Attacker cannot see anything. If the attacker is blind or in *total* darkness, he can make a Hearing-2 roll – or use some other method – to discover his foe's location. If he fails his Hearing roll, he may attack in a randomly chosen direction (on a map, he must specify the hex). He attacks at -10 (-6 if he is accustomed to being blind). Roll hit location randomly.

Attacker cannot see his foe, but can see his other surroundings. If only the attacker's foe is invisible, use the rules above, but the attack penalty is only -6.

Attacker cannot see his foe, but knows his location for sure. If the foe is in a single smoke-filled hex or the like, use the rules above, but no Hearing roll is required and the attack penalty is only -4.

Defender cannot see his attacker. If the attacker (including his weapon) is invisible but the defender is aware that he is being attacked, he may dodge at -4. If the defender makes a Hearing-2 roll, he may also parry or block – still at -4. If he is completely unaware of his attacker, he gets *no defense at all!* If the attacker is in smoke or unnatural darkness, but the defender is not, he defends normally, since he can see the weapon coming.

Note also that an unseen fighter can safely try things that a normal fighter could never do – or he may just wait in a corner until his foe is exhausted!

Torches and Flashlights

A torch or flashlight reduces the penalty to attack rolls for darkness. Assume that any such light within line of sight reduces the penalty from -10 (total darkness) to -3. Almost every light source has a limited range or radius – see the item description for details.

You can also use a torch as a weapon: treat it as a baton that does one point of burning damage as a linked effect (see *Linked Effects,* p. 381). A torch can set things afire, given enough time. Most oil you're likely to encounter in a medieval world catches fire after three seconds of contact with an open flame; ordinary clothing ignites after four seconds, and kindling after 10 seconds. Other things are left to the GM's judgment.

It's possible to carry a light in your "off" hand, leaving your weapon hand free for combat. It's even possible to parry with it – at the usual penalties for using the off hand. A torch or ordinary flashlight will smash on the first blow if it is used to parry a weapon three times its weight or more! TL7+ "police" flashlights are serviceable batons: *triple* the cost and weight for an ordinary heavy flashlight (see *Camping and Survival Gear,* p. 288).

Special Movement

Most forms of enhanced mobility have *significant* effects on combat.

High-Speed Movement

It's possible to go so fast that you can't easily stop or change course. Such "high-speed movement" occurs whenever your present velocity exceeds your Basic Move. These rules apply equally to living beings and to fast-moving vehicles.

You may decide to accelerate to high speed at the *end* of any turn during which you've moved your full Basic Move – modified for encumbrance, if any – in one direction, more or less (no more than one 60° turn). You must have taken either a Move or a Move and Attack maneuver that turn, and you must be standing up.

Once you switch to high-speed movement, you move as described under *Sprinting* (p. 354). You may start the *next* turn with a velocity up to 20% greater than your Move (at minimum, +1 Move). If you have the Enhanced Move advantage, or are a vehicle with a top speed greater than your Move, you may start your next turn with a velocity up to 100% greater than Basic Move. In all cases, use the high-speed movement rules below.

Velocity

Keep track of your velocity (in yards per second). You can increase it or decrease it at the *end* of each turn; see *Accelerating,* below. You *must* move as fast as your velocity – that is, if your velocity is 17, you must move 17 yards that turn unless something (e.g., bad footing) slows you down.

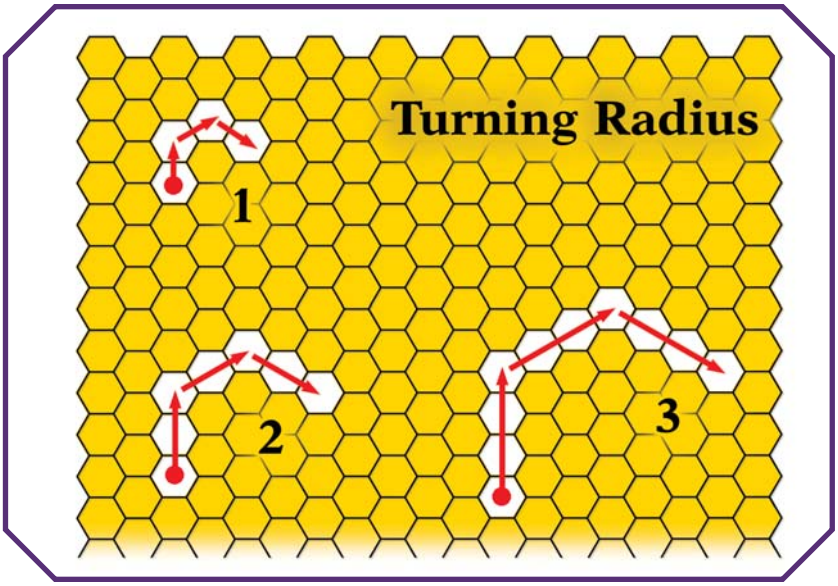
Maneuvers During High-Speed Movement

If you're moving at high speed under your own power, you should take either a Move or a Move and Attack maneuver. This applies to a mount, but not to riders or vehicle crew. If you don't (or if no one is controlling a vehicle), see *Losing Control,* p. 395.

Direction and Turning Radius

At high speeds, it's hard to change direction quickly. You must continue to move in a generally forward direction. A major change of direction (up to 60°) is only possible after you've moved straight ahead for a distance equal to at least (current velocity/Basic Move) yards, rounded down. This number is your *turning radius.* For instance, if your current velocity is 13 and you have Basic Move 5, you must move at least 13/5 = 2.6 yards, which rounds to 2 yards, between each change of facing.

Until you have moved a distance equal to your turning radius, you must continue to move forward. If you are using the *Tactical Combat* rules, you can move into any of your three front



hexes, but *without changing facing.* If you have legs or similar, you can roll against DX or Jumping to cross obstacles; otherwise, you collide with anything you can't maneuver around or which doesn't dodge out of the way.

Note: These rules are *cinematic* but easy to use. A more realistic turning radius would be (velocity squared)/10 yards; those who enjoy complexity are welcome to use this.

If your Basic Move is 0, do not use the rules above. You cannot turn *at all* under your own power! You can only drift. To execute a turn, you must be pushed, towed, etc.

Attacking and Defending

You can fight normally during high-speed movement, subject to the limits of your combat maneuver. You can dodge, but you cannot retreat or dive for cover. The GM should always apply speed modifiers when you're under attack – or attacking!

Accelerating

If your velocity is less than your top speed at the end of your turn, you can increase it by an amount up to your Basic Move, to a maximum of your rated top speed. Top speed is 20% over your Move if you are sprinting and don't have the Enhanced Move advantage.

Decelerating

Instead of accelerating, you can *decelerate,* reducing your velocity by an amount up to your Basic Move (or more, with some risk – see below). If your deceleration reduces your velocity to Basic Move or less at the end of your turn, you are no longer at high speed, and may use the ordinary movement rules next turn.

Pushing the Envelope

You can try to decelerate by up to Basic Move × 2. You can also attempt to change direction before you've moved the requisite distance. Either requires a DX+3 roll – or a vehicle operation skill roll, modified by the vehicle's Handling statistic, if you are driving a vehicle.

Hasty deceleration requires a roll at -1 per two *full* yards/second beyond Basic Move by which you cut your speed. For instance, if your Basic Move is 5 and you decelerate by 9 yards/second, you must roll at -2.

An earlier turn (or a tighter turn; e.g., 120° instead 60°) calls for a roll at -1 per *full* increment of Basic Move by which your velocity exceeds your Basic Move. For instance, if you're moving at 23 yards/second and have Basic Move 3, you must roll at -6.

If you fail, you lose traction and fall or spin out of control – see *Losing Control,* below.

Tactical Movement

If you are using the tactical movement rules with high-speed movement, your movement points equal your velocity at the *start* of your turn. You cannot sidestep or step back. Turning radius limits facing changes: a 60° turn is a one hex-side facing change.

Minor obstructions and bad footing cost movement points as usual (see *Movement Point Costs,* p. 387), and also *decelerate* you at the end of your turn by an amount equal to the extra movement points paid. For example, if your high-speed velocity is 14 and you run through six yards of mud (+1 movement point per hex), you'll automatically decelerate to a velocity of 8 at the end of the turn. Add this to any voluntary deceleration. If the total exceeds your Basic Move, roll as described for *Pushing the Envelope,* above. If it exceeds Basic Move × 2, you lose control automatically.

Losing Control

If you are running on the ground and lose control, you *trip.* You fall over, skid for 1/4 your remaining movement straight ahead (unless you hit something), and then stop. If you land on the ground and skid to a stop without hitting anything, you suffer damage for a fall at your current velocity; see *Falling* (p. 431). If you hit something, you suffer (and inflict) collision damage instead; see *Damage from Collisions* (p. 430).

Optional Rule: Changing Posture in Armor

For enhanced realism, you can let encumbrance level affect the time it takes to perform a Change Posture maneuver. At encumbrance level 0 (None) or 1 (Light), Change Posture takes one second, as usual. At level 2 (Medium), it takes *two* seconds to change posture – and so on. While you are partway through a posture change, you are considered to be in the *old* posture. This rule may slow play, but it can also give a realistic edge to lightly armored combatants.

You also lose control if you are knocked out, or take any combat maneuver but Move or Move and Attack, while moving at high speed. For instance, if you were stunned and forced to Do Nothing, you would trip as described above.

Exception: If you are moving on three or more wheels, you're more stable. The GM may rule that you merely decelerate your maximum safe deceleration each turn instead of tripping, unless your loss of control was the result was a critical failure or injury (stunned, etc.).

High-Speed Flying and Swimming

Only use Basic Move if you are moving on the *ground.* Use basic air Move when flying, and basic water Move when swimming (see *Move in Other Environments,* p. 18). If you lose control in the air or water, you don't trip; instead, you must move your current velocity straight ahead and then decelerate by your maximum safe deceleration. You can do *nothing* else – this effectively ends your turn!

Mounted Combat

Knights, cowboys and Indians, and other adventurers often fight from the saddle. A mount not only provides additional mobility, but its extra height and momentum can make the rider's attacks more effective, while the shock of a mounted charge can panic unprepared opponents. Some mounts even fight in their own right.

With the exception of the occasional camel or elephant, mounted warriors usually ride horses, and these rules assume that. For the differences between horses and various mounts from fantasy and science fiction, see the pertinent animal descriptions.

Ordinarily, a rider can direct a war-trained mount by voice and foot pressure, leaving both hands free for weapon use. However, all Riding rolls are at -3 for "no hands," or -1 if only one hand is on the reins. Riders who need *both* hands to control their mount may drop what they are holding. It requires a Ready maneuver and DX-3 roll to return a weapon to its scabbard while a mount is bucking; a critical failure means you drop it!

Nonsapient mounts without war training (see *War-Trained Mounts,* p. 459) are liable to "spook" at danger – especially at the sounds of gunfire and injured animals of their own species! *All* combat Riding rolls are at -3 for a well-broken mount without war training – and at -6 *or worse* for one that is not fully broken.

The rider must make a Riding+2 roll to get any mount *except* a war-trained mount to charge into or over any obstacle, or onto bad footing, or to perform risky maneuvers like jumps, tight turns, etc., unless they're a matter of life and death *for the mount!* Failure means the mount disobeys; see *Spooked Mounts,* p. 397.

Mounting Up

Mounting a horse or similar creature takes two consecutive maneuvers: Move to jump or climb up, followed by Change Posture to seat yourself. You can leap astride in only *one* turn if you make a Riding, Acrobatics, or Jumping roll at -3 (no penalty if you are using stirrups) – but on any failure, you fall!

When you are using *Tactical Combat,* a rider is in the center of a 3-hex mount like a horse, or the front of a 2-hex mount like a gryphon. An elephant or similar mount would have a flat back, and a rider could stand up and move around; traditionally, an elephant carries the driver, or *mahout,* on its neck, and a *howdah,* a platform with several fighters, on its back.

Movement and Maneuvers

See *Riding and Draft Animals* (p. 459) for the Move of various mounts. The animal's Basic Move is the pace it can achieve while walking or trotting; its Enhanced Move is for a gallop, and uses the rules under *High-Speed Movement* (p. 394). Encumbrance penalties apply normally (see *Encumbrance and Move,* p. 17) . . . but few mounts willingly carry more than Medium encumbrance.

In combat, the *mount* can take any maneuver, unless it's moving at high speed. Then it is limited to Move or Move and Attack.

The *rider* can take any maneuver. Use Change Posture to dismount safely from a mount that hasn't moved, or that has moved only a step. Otherwise, the only way to get off is to jump or fall. To jump off safely, take a Move or Move and Attack maneuver *and* make an Acrobatics or Jumping roll. On any failure, you fall!

Falling Off: If the mount makes a successful DX roll for a difficult action like a jump, tight turn, or hasty deceleration, the rider must make a Riding roll. On a failure, the rider is unseated, even though the mount performed the maneuver. If the mount *fails* its DX roll for a risky action, see result 12 on the *Mount Loss of Control Table* (below) for effects.

Spooked Mounts

If a mount fails a Fright Check, or refuses to perform a particular feat, it will usually shy and buck. The rider must make a Riding roll and take a Ready maneuver every second to regain control.

A critical success calms the mount immediately; three ordinary successes in a row will have the same result. Three failures in a row, or a single critical failure, means a total loss of control (see below). A long alternation of successes and failures means you spend your time fighting your mount instead of the enemy! Fortunately, a bucking mount is still free to dodge, as is the rider – although no other defenses are possible.

Mount Loss of Control Table

Roll 2d on the following table if you *completely* lose control of a mount. Also refer to the appropriate result – without rolling – whenever a rider is thrown, a mount falls, etc.

2 – You are thrown from your mount. Take damage for a three-yard fall (adjust this for an unusually tall or short mount). If you remain conscious, you may attempt an immediate Animal Handling-3 roll to call your mount back. If you fail, you may make a repeated attempt every 5 minutes.

3 – You lose your grip and fall. Take damage for a two-yard fall; a Jumping or Acrobatics roll will negate this. Otherwise, as **2**, above.

4 – You drop whatever you were holding. Now roll again!

5 – The mount charges directly *toward* the foe, hazard, etc.

6-7 – The mount is exhausted and will not fight, or move at faster than a slow walk (Move 2), until it gets several hours of rest.

8-9 – The mount seems to settle down, but is now fractious: -1 to all Riding rolls for the rest of this engagement. If you get this result multiple times, the penalty is cumulative.

10 – The mount charges directly *away from* the foe, hazard, etc.

11 – The saddle comes loose. All Riding rolls and attack rolls made while riding are at -3 until you dismount and spend 4d seconds tightening the straps. If you're riding without a saddle, treat as **3**, above.

12 – The mount falls! It must make a DX+1 roll or it breaks a leg. In any case, the rider must roll vs. Riding-2. On a failure, he is unseated and takes damage for a three-yard fall. On a success, he must make *another* Riding roll, this one at a penalty equal to his Encumbrance, to leap clear of the falling mount. On a success, he leaps clear and takes damage as per **3**, above. On a failure, the mount falls on him, inflicting thrust/crushing damage based on its ST, *plus* the damage for a 2-yard fall.

Attacks by Mounts

A war-trained mount can attack if it takes an appropriate maneuver; see Chapter 16 for details. A horse can bite, kick with hooves, or trample; iron horseshoes give +1 to kicking or trampling damage. The *rider's* attack is at an extra -2 if the *mount* attacked on its last turn.

Panic: If a mounted fighter charges directly toward an NPC who is unused to facing cavalry (GM's option), the GM may require him to make a Will roll to stand his ground and fight. If he fails, he'll try to run instead. Anyone with Combat Reflexes gets +6 to this roll. Those with a SM equal to or greater than that of the mount do not have to roll!

Cavalry Weapons

Melee Weapons: A rider uses melee weapons at the *lower* of his Melee Weapon skill or Riding skill. Thus, a trained rider has no penalties to use melee weapons while mounted. If the mount's velocity is 7 or more relative to the foe, the attack has -1 to hit but +1 damage. Use the same rules when attacking from a motorcycle or similar open vehicle (substitute Driving skill for Riding skill above).

Lances: Lance skill appears on p. 204. To couch a lance, a rider *must* have a saddle and stirrups. A couched lance's damage depends on the mount's mass and velocity. Work out damage for a collision between the mount and the target – (mount's ST) × (distance moved last turn)/100 dice of damage, rounded down – and add the lance's thrust/impaling bonus of +3. *Example:* A ST 25 warhorse charging at Move 8 inflicts 2d+3 impaling damage.

Tournament jousting uses blunted wooden lances, specially designed to break if they strike very hard. These inflict the same amount of damage, but it is *crushing* – and if the damage exceeds 15 points, the lance snaps, limiting damage to 15 points.

Using Ranged Weapons While Mounted

Attack: Firing from atop a moving animal tests both marksmanship and riding. Roll against the *lower* of Riding or ranged weapon skill to hit. If you are firing a noisy weapon (e.g., an unsilenced gun), you must make a Riding roll after each attack. On a failure, the mount is spooked (see *Spooked Mounts,* above); on a critical failure, you lose control (see *Mount Loss of Control Table,* above).

Aim: You may Aim a ranged weapon while mounted, but if the mount moves more than a step, you suffer the same penalties that you would if firing from a moving vehicle: you can't benefit from extra turns of Aim, or from telescopic scopes and other targeting systems.

Tricks: To turn in the saddle and fire at the foe behind you: -4 to weapon skill, and -1 to any Riding roll made that turn. To hang on the far side of the mount and shoot over it or underneath it: -6 to weapon skill, -3 to any Riding roll. This latter move means your foe's only targets are your foot, face, eyes, skull, and one hand. But if he attacks and misses by 4 or less, he hits your mount!

Mounted Defense

A *mount's* only defense is Dodge. Some mounts may have *barding* (see *Horse Armor (Barding) Table,* p. 286) or natural DR.

A *rider* can Dodge, Block, or Parry. If he has Riding at 12+, all of these defenses are at normal levels. For a less-skilled rider, reduce active defenses by the difference between 12 and the rider's skill; e.g., someone with Riding-9 would have -3 to all active defenses.

Height Difference

A cavalryman on horseback is effectively three feet above a standing foe. See *Combat at Different Levels* (p. 402).

Mounted Combat Results

A rider who is stunned must make a Riding roll at -4 or fall off. A rider who suffers *any* knockback is automatically knocked off unless he has a saddle and stirrups, in which case he gets a Riding roll at -4 per yard of knockback to stay on.

If any attack aimed at a rider *misses by 1,* it hits the mount unless it makes its active defense roll; the reverse is true for attacks aimed at the mount. Of course, either may be attacked intentionally!

If the *mount* is hit, the rider must roll vs. Riding, *minus the shock penalty suffered by the mount,* to keep it from spooking (see p. 397). If the mount is crippled and falls, effects are as per result 12 on the *Mount Loss of Control Table.*

Multiple Riders

On a horse-sized or larger mount, a second human-sized or smaller rider can hang on behind the one controlling the mount. The controlling rider has an extra -1 to Riding skill. The passenger uses the *lower* of the controlling rider's skill or his own ST on any roll to avoid falling off, but does so at -3.

Flying Combat

Heroes may fly using advantages (Flight, Telekinesis, etc.), magic spells, antigravity belts, and so forth. A few special rules apply to combat while airborne.

Aerial Movement

If the ceiling is high enough, fliers can move *over* other fighters! Humans normally fly in a horizontal position (so that they can watch the ground and see where they're going); treat them as two-hex figures when using the *Tactical Combat* rules.

Changing Height: Vertical movement costs the same as horizontal movement. Moving a yard vertically and a yard horizontally simultaneously (*diagonal* movement at 45°) costs the same as 1.5 horizontal yards.

Steps and Retreats: Use your basic air Move to calculate the distance you can step or retreat during combat (see *Step,* p. 368); flyers are often fast enough to step 2+ yards. If a flyer retreats as part of an active defense, he can specify that he is doing so *vertically.*

Flying Fast: See *High-Speed Movement* (p. 394). A diving flyer can accelerate faster: add +10 to basic air Move and *double* top airspeed on any turn spent diving and doing nothing else (a Move maneuver).

Cannot Hover: If you are flying under your own power using Flight with the Cannot Hover, Controlled Gliding, or Gliding limitation, you *must* take a Move or Move and Attack maneuver and move at least 1/4 your top airspeed each turn, or you'll stall and start to fall. You might also stall if you lose control during high-speed movement (p. 394) and suffer sudden deceleration that pushes you below 1/4 your top airspeed. You may recover from a stall by turning your fall into a dive and regaining speed. Roll vs. DX-4 each turn to do so.

Flight Ceiling

On Earth, an unprotected human has trouble breathing past 6,000', and needs an oxygen mask or an advantage such as Doesn't Breathe past 20,000'; see *Atmospheric Pressure* (p. 429). On worlds with greater air pressure, higher flight is possible. On worlds with little atmosphere, the reverse is true. If you use wings to fly, you can't fly in a trace atmosphere or a vacuum.

Aerial Attack and Defense

There is no penalty to attack or defense rolls in flight. Flyers are normally no less stable than fighters on the ground.

Attack: When flyers attack foes on the ground, use the *Combat at Different Levels* rules (p. 402). Weapon reach becomes very important! Don't worry about the relative height of two battling flyers – as long as they're close enough to engage at all.

Defense: When a flyer retreats, he can retreat out of the plane of an attack – not merely away from his attacker. If a flyer can hover, and has enough space to move one step up or down, he gets +1 over and above the usual retreating bonus when he retreats. To perform an Acrobatic Dodge (p. 375), use Aerobatics skill.

Hit Location

When you strike at an enemy, you can usually choose *what part of his body* to attack. Some body parts, or "hit locations," are harder than others to hit in a fight; some are more (or *less*) vulnerable to specific damage types. There are a few exceptions:

- Completely unaimed attacks – Wild Swings, stabs in the dark, grenade fragments, etc. – cannot *deliberately* target a hit location. Use *Random Hit Location* (p. 400) instead.
- Attacks that cover a large area – such as an avalanche or a cone of dragon fire – make hit location *irrelevant*. See *Large-Area Injury* (p. 400).
- Fatigue damage always *ignores* hit location.

Deciding Where to Attack

Where to hit a foe depends on many things – your skill, your foe's armor, and whether you want to kill him! A humanoid target has the locations listed below (see the hit location tables on pp. 552-554 for non-humanoids). Each location gives the penalty to attack rolls to hit that location (in parentheses), followed by any special damage effects.

Torso (0): The chest and abdomen. No penalty to hit, and no effect on damage. This is the default target for attacks: if you don't specify a hit location, you are attacking the torso.

Vitals (-3): The heart or lungs (from the front) or the kidneys (from behind). Certain attacks can target the vitals for increased damage. Increase the wounding modifier for an *impaling* or any *piercing* attack to ×3. Increase the wounding modifier for a *tight-beam burning* attack (see box) to ×2. Other attacks cannot target the vitals.

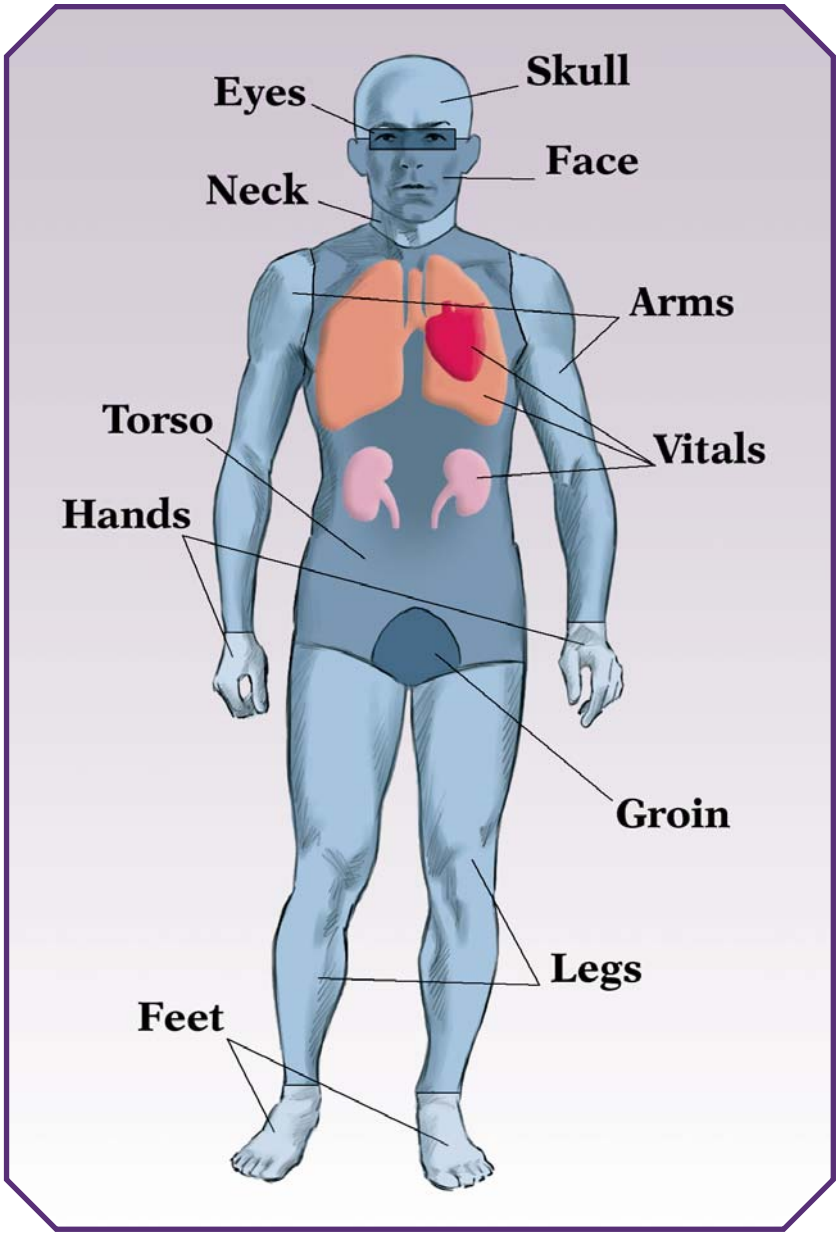
Skull (-7): The part of the head that houses the brain. The skull gets an extra DR 2, the wounding modifier for all attacks increases to ×4, knockdown rolls are at -10, and critical hits use the *Critical Head Blow Table* (p. 556). *Exception:* None of these effects apply to *toxic* damage.

Eye (-9): *Impaling, piercing,* and *tight-beam burning* attacks can specifically target the eye. Injury over HP/10 blinds the eye; otherwise, treat as a skull hit without the extra DR 2! (As with skull hits, *toxic* damage has no special effect.)

Face (-5): The jaw, cheeks, nose, and ears. Many helmets have an open face, allowing this attack to ignore armor DR! Knockdown rolls are at -5, and critical hits use the *Critical Head Blow Table*. *Corrosion* damage (only) gets a ×1.5 wounding modifier . . . and if it inflicts a major wound, it *also* blinds one eye (*both* eyes on damage greater than full HP).

Neck (-5): The neck and throat. Increase the wounding multiplier of *crushing* and *corrosion* attacks to ×1.5, and that of *cutting* damage to ×2. The GM may rule that anyone killed by a cutting blow to the neck is decapitated!

Groin (-3): The lower torso. Jackets and light armor don't always cover this area. Treat as a torso hit, except that human males (and the males of similar species) suffer *double* the usual shock from *crushing* damage (to a maximum of -8), and get -5 to knockdown rolls.



Arm or Leg (-2): A good way to disable without killing! Against a living target, reduce the wounding multiplier of *large piercing, huge piercing,* and *impaling* damage to ×1. Any major wound (loss of over 1/2 HP from one blow) cripples the limb – but damage beyond the minimum required to inflict a crippling injury is lost. *Note:* The penalty to hit an arm with a shield is -4.

Hands or Feet (-4): As for an arm or leg, but damage over 1/3 HP in one blow inflicts a crippling major wound (excess damage is still lost). This gives you a chance to cripple the foe with little real damage. However, your foe might just switch hands (or hop) and finish *you* off! *Note:* The penalty to hit a hand holding a shield is -8.

Weapon (varies): The place to strike if you need to take the foe unharmed, if you have to disarm a friend, or if you just want to show off. See *Striking at Weapons* (p. 400).

Tight-Beam Burning Attacks

A "tight-beam burning attack" is any *ranged* burning attack that isn't a jet, cone, area-effect, explosion, or follow-up attack. For instance, a laser is a tight-beam burning attack, while a torch or a flamethrower is not. Such attacks can target the eyes and vitals for bonus damage, but divide damage by 10 for the purposes of *Making Things Burn* (p. 433) and *Catching Fire* (p. 434).

Grappling and Hit Location

Halve hit location penalties (round up) if you are *grappling* a body part – it's easier to *grab* a body part than to strike it. This does *not* apply to *grabbing* a weapon!

Random Hit Location

You never *have* to target a hit location – you can always just strike at "whatever target presents itself." To do so, attack with no modifier for hit location. If you hit, and your foe fails to defend, roll 3d on the appropriate hit location table to find out where the blow fell; see Hit Location Tables (p. 552). The GM decides what table to use for non-humanoids.

Use random hit location for a Wild Swing (p. 388), shooting blind (p. 389), suppression fire (p. 409), fragmentation damage (p. 414), and any other situation where the GM feels targeting a location is unrealistic. If a random attack comes from directly above, treat "feet" as "hands" and "legs" as "arms."

Injury Tolerance and Hit Location

The Injury Tolerance advantage (p. 60) can alter the effects of hit location.

Diffuse or Homogenous: Ignore *all* knockdown or wounding modifiers for hit location. (Eyes and limbs can still be crippled.) All injuries use the wounding modifiers from *Injury to Unliving, Homogenous, and Diffuse Targets* (p. 380).

No Brain: Hits to the skull get no extra knockdown or wounding modifier. Hits to the eye can cripple the eye; otherwise, treat them as face hits, not skull hits.

No Eyes, No Head, or No Neck: You lack the hit location(s) in question, and your foes cannot target it.

No Vitals: Hits to the vitals or groin have the same effect as torso hits.

Unliving: Hit location has its usual effect, save that *piercing* and *impaling* damage to any location other than the eye, skull, or vitals uses the wounding modifiers from *Injury to Unliving, Homogenous, and Diffuse Targets.*

Targeting Chinks in Armor

You may use a *piercing, impaling,* or *tight-beam burning* attack to target joints or weak points in a suit of armor, vehicle, etc. Roll at -8 to hit a chink in the foe's torso armor, or at -10 for any other location (face, eyes, vitals, arm, etc.), *instead* of using the usual hit location penalty. If you hit, halve DR. This is cumulative with any armor divisors.

Large-Area Injury

Some attacks affect much or most of the victim's body – for instance, dragon's breath, a bomb blast, a huge fire, or immersion in an acid pit. In particular, any damage described as being "area effect" or "cone," and any external explosion, inflicts large-area injury.

A *melee* attack from an attacker whose Size Modifier exceeds that of his target by seven or more is also a large-area injury – *if* the attacker is striking unarmed or with a weapon scaled to his body size. (If he wishes to target a hit location, his tiny victim must be pinned or otherwise immobile.)

Damage Resistance protects normally against large-area injury – but if your DR varies by location, your "effective DR" is the *average* of your torso DR and the DR of the *least* protected hit location exposed to the attack (which could still be your torso), rounding up. If your DR varies against different attacks, "least protected" refers to the location with the lowest DR against *that particular type of attack.*

A location protected by cover or masked by the body does *not* count as "exposed to the attack." Against an explosion or cone, only locations facing the blast or cone are exposed (e.g., if you're turned away, your face and eyes aren't exposed). For damage caused by immersion in a hazardous environment (e.g., fire or acid), only the immersed locations are exposed. Against a true area effect, *all* locations are exposed.

Don't modify large-area injury for hit location (that is, treat it as a torso hit) unless only one location is exposed. If a *single* limb (hand, arm, etc.) is exposed, damage in excess of that required to inflict a major wound is lost.

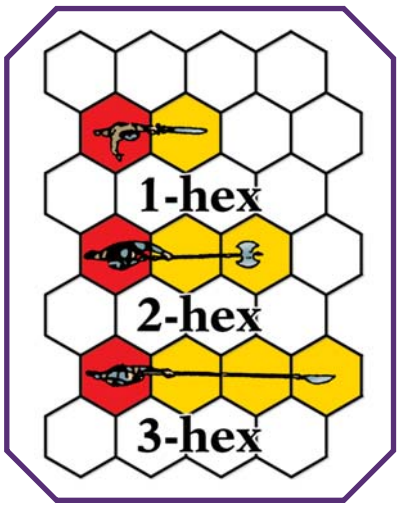
Hit Location for Non-Humanoids and Vehicles

It is impossible to supply hit location rules for *every* type of animal or machine. Instead, we provide some guidelines: see *Non-Humanoid Hit Location Tables* (pp. 552-554) and *Vehicle Hit Location Table* (pp. 554-555).

STRIKING AT WEAPONS

You might strike at a weapon because you want to take its user alive . . . or because the weapon is the only thing you can reach, or is less well-armored than its wielder.

State whether you are striking to *disarm* or to *break* the weapon, and then roll to hit. You are at -5 to hit a reach "C" melee weapon (e.g., a knife) or a pistol; -4 to hit a melee weapon with reach 1 (broadsword, mace, etc.) or a medium-sized firearm (e.g., a carbine or sawed-off shotgun); and -3 to hit a melee weapon with reach 2+ (spear, greatsword, polearm, etc.) or a rifle. Attempts to disarm are generally at an extra -2, but see next page.



Striking at Weapons in Tactical Combat: A reach "C" weapon is in its wielder's hex. A weapon with a one-yard reach is in the user's hex and in the hex directly in front of him. A 2- or 3-yard weapon is in the two or three hexes directly in front of the user. See the diagram on p. 400. However, you can always strike at a reach 2+ weapon on your first turn after it was used to attack or feint against *you*.

Defending Your Weapon

Dodge: You can dodge normally to protect your weapon.

Parry: You can only parry using the weapon that was attacked – and only if it's ready. If you have a broadsword in one hand and a knife in the other, and your foe targeted the knife, you can't parry with the sword. A parry represents turning your weapon so that the foe's blow misses or slides off harmlessly.

Blocking: You *cannot* block an attack on your weapon.

You may combine a dodge or a parry with a retreat to get the usual bonus. The Defense Bonus of a shield provides no benefit whatsoever.

Knocking a Weapon Away

A strike to *disarm* is an attempt to knock or twist the weapon out of your foe's grasp without damaging it. Only a weapon that can parry can attempt to disarm, which limits disarming to unarmed attacks, melee weapons, and certain thrown weapons. You have an extra -2 to hit unless you use a fencing weapon (main-gauche, rapier, saber, or smallsword).

If you hit and your foe fails to defend, roll a Quick Contest of weapon skills with your foe; if you're attempting to knock away a missile weapon, your opponent rolls against DX. Either of you may opt to make a *ST*-based skill roll instead of the standard DX-based one, if that would be better. You get +2 if you *use* Jitte/Sai or Whip skill (having it is not enough!). Your *foe* gets +2 if he is using a two-handed weapon.

If you win, you disarm your foe; his weapon flies one yard in a random direction. If your foe wins or ties, he keeps his weapon, but it will be unready unless he won by 3 or more. If you roll a critical failure, *you* are the one disarmed!

Breaking a Weapon

You can instead target a weapon with the intent to chop through, shatter, or otherwise wreck it. You may make such an attack with any weapon – even a firearm.

If you hit and your foe fails to defend, roll your normal damage against his weapon. See *Damage to Objects* (p. 483) for effects. A weapon's weight and composition will determine its DR and HP. (For weapons bought as *advantages,* see *Gadget Limitations*, p. 116.)

Subduing a Foe

At times, you want to subdue an enemy without killing him. Knockout gas, high-tech stunners, magic, and similar tricks are the best ways to take prisoners – most weapons are entirely *too* final! But if you need to defeat someone without harming him, and you have only ordinary weapons, you still have several options:

Disarm him. You can do this by striking at his weapon to knock it out of his hand or break it. Of course, he might not surrender, even then . . .

Pull your punches. You do not have to strike at full strength. You can choose to use any ST value less than your own when you strike with bare hands or a melee weapon, thrown weapon, bow, or sling (but *not* with a crossbow or a firearm). For example, if your normal ST is 10, you could strike at only ST 9 in order to deliver a lighter wound . . . or tap at ST 1 to *touch* your foe without doing any harm.

Turn your blade. You can strike with the flat side of any swing/cutting weapon (sword, axe, etc.); this turns its usual cutting damage into crushing damage. You can also poke with the blunt end of a thrust/impaling weapon (spear, halberd, etc.); this reduces damage by 1 point and makes damage crushing. Reversing a reach 2+ impaling weapon to attack with its blunt end requires a Ready maneuver.

Pin him. If you can grapple your foe, you can "pin" him (see *Unarmed Combat,* p. 370) and then tie him up. This takes about a minute with ropes, two seconds with ready handcuffs. For another option, see *Arm Lock* (p. 403).

Suffocate him. For details, see *Choke or Strangle* (p. 370), *Choke Hold* (p. 404), and *Suffocation (p.* 436).

Strangulation and Smothering

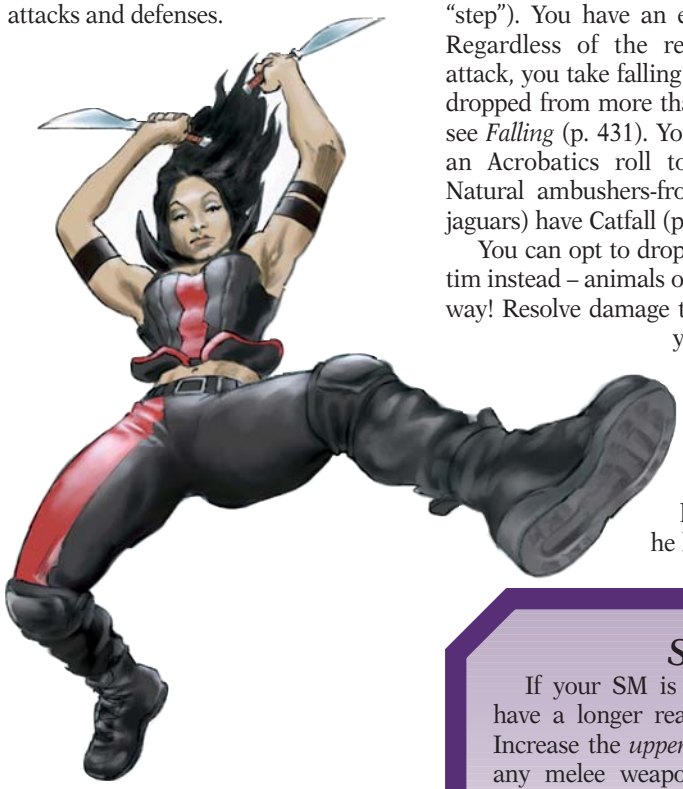
It is possible to render someone unconscious – or even kill him – through suffocation *without* inflicting significant HP damage. See *Suffocation* (p. 436) for details.

If you do not wish to *choke* your victim (see *Actions After a Grapple,* p. 370), you must somehow prevent him from breathing, or restrict the flow of blood (and thus oxygen) to his brain, without crushing his throat. If he is restrained, unconscious, or otherwise unresisting, you have many options: hold his nose and mouth shut by hand, cover his face with a pillow or similar object, or constrict either of his carotid arteries (on his neck).

If you are conscious and being smothered, you can choose not to resist and feign unconsciousness. In most cases, you can only fool your attacker if he has been smothering or strangling you for at least 10 seconds. You must make a Will roll to lie passively in the grip of an assailant who is suffocating you! Winning a Quick Contest of Acting vs. your attacker's IQ may fool a hasty or squeamish foe into believing you're unconscious.

Special Melee Combat Rules

These rules add additional options – and complexity – to melee attacks and defenses.



Attack from Above

Ambush from above is a good surprise tactic. Roll a Quick Contest to see if it works: your Stealth vs. the victim's Vision. A victim walking along a trail, alley, etc. is at -2 to notice someone lurking *above,* unless he specifically states he is looking in the trees, high windows, etc.; then he gets +2 (but -2 to notice things on his own level!). Peripheral Vision is of no special value in this situation.

If you win the Quick Contest, your victim fails to spot you. He gets *no* active defense against your attack! At the GM's option, a particularly unwary individual might "freeze up"; see *Surprise Attacks and Initiative* (p. 393). Even if you lose – or your target is warned – your victim's active defenses are at -2 against your attack. However, an alerted foe can take a Wait maneuver and make a "stop thrust" when you drop (see *Wait,* p. 366).

You can drop from *any* height before attacking (a special kind of "step"). You have an extra -2 to hit. Regardless of the results of your attack, you take falling damage if you dropped from more than two yards – see *Falling* (p. 431). You may attempt an Acrobatics roll to reduce this. Natural ambushers-from-above (e.g., jaguars) have Catfall (p. 41).

You can opt to drop *onto* your victim instead – animals often attack this way! Resolve damage to yourself and your target separately from your attack. Note that a victim is a *soft* thing to land on, unless he has DR 3+.

Size Modifier and Reach

If your SM is greater than 0, you have a longer reach with your arms. Increase the *upper* end of the reach of any melee weapon according to the table at right.

You also get +1 to hit when you grapple per +1 SM advantage you have over your target.

Example: A giant with SM +3 gets +2 to the upper end of reach – a weapon with reach 2-3 has reach 2-5 in his hands! If he grapples a human (SM 0), he gets +3 to hit. He gets no bonus to grapple another giant.

SM	*Reach*
+1	+0*
+2	+1
+3	+2
+4	+3
+5	+5
+6	+7
+7	+10
+8	+15
+9	+20
+10	+30

* A reach "C" weapon increases to reach 1, but there are no other effects.

Combat at Different Levels

Suppose you want to jump onto a table and strike down at a foe? Or fight your way up a staircase? If you and your foe are at different levels, the vertical distance affects combat. This rule is for *melee* combat. For *ranged* weapons, see *Firing Upward and Downward* (p. 407).

One foot of vertical difference, or less: Ignore it.

Up to two feet of vertical difference: Ignore it unless you are using hit locations. In that case, the higher fighter has -2 to hit the feet or legs, and +1 to hit the head (skull, face, or eyes) or neck. The lower fighter has +2 to hit the feet or legs, and -2 to hit the head. These modifiers are *in addition to* normal hit location penalties.

Up to three feet of vertical difference: As above, but the lower fighter is at -1 to any active defense, while the upper fighter is at +1 to his active defenses.

Up to four feet of vertical difference: As above, but the lower fighter is at -2 to defend, while the upper fighter is at +2. The upper fighter *cannot* strike at the lower fighter's feet or legs.

Up to five feet of vertical difference: The lower fighter *cannot* strike at the upper fighter's head, and the upper fighter *cannot* strike at the lower fighter's feet or legs. The lower fighter is at -3 to defend, while the upper fighter is at +3.

Up to six feet of vertical difference: The upper fighter may *only* strike at the lower fighter's head. The lower fighter may *only* strike at the upper fighter's feet or legs. Neither gets any special bonus or penalty to attack. The lower fighter is at -3 to defend, while the upper fighter is at +3.

Over six feet of vertical difference: Combat is *impossible* unless the fighters adopt some strange position; e.g., the upper fighter lies down and reaches over the edge. In that particular case, he would effectively bring himself three feet closer, and his foe could strike at his head and arm. The GM may offer appropriate bonuses and penalties for any odd tactics that the players employ.

Effects of Reach

If your weapon or Size Modifier gives you more than one yard of reach, each yard past the first brings the *foe* three feet closer to you. This does not bring *you* any closer to your foe! For example, a greatsword (two-yard reach) would let you fight as if your foe were three feet closer. If you were standing six feet below him, you would fight as though he were only *three* feet higher. He would not enjoy a similar benefit unless he, too, had long reach.

Typical Distances

Set distances by common sense and mutual agreement (beforehand, if possible). Some examples: Ordinary stairs rise eight inches per step (for simplicity, you may want to call them one foot). The seat of a chair is less than two feet tall. An ordinary dining table is less than three feet tall. The counter in a shop is about four feet tall. The hood of a car, or the bed of a wagon, is about three feet tall. The roof of a car, or the seat of a wagon, is over four feet tall.

Special Unarmed Combat Techniques

Here are some additional options for unarmed fighters who are not content merely to punch, kick, and grapple. Most require Brawling, Judo, Karate, or Wrestling skill. You can improve your ability with some of these techniques – see *Sample Combat Techniques* (p. 230).

Arm Lock

An arm lock is an attempt to restrain or cripple an opponent by twisting his arm. It uses Judo or Wrestling skill. To perform an arm lock, you must have two hands free and make a successful barehanded parry with Judo or Wrestling against your opponent's melee attack.

On your first turn following the parry, you may attempt to capture your attacker's arm *if he is still within one yard.* This is an attack: step into close combat and roll against Judo or Wrestling to hit. Your foe may use any active defense – he *can* parry your hand with a weapon! If his defense fails, you trap his arm in a lock.

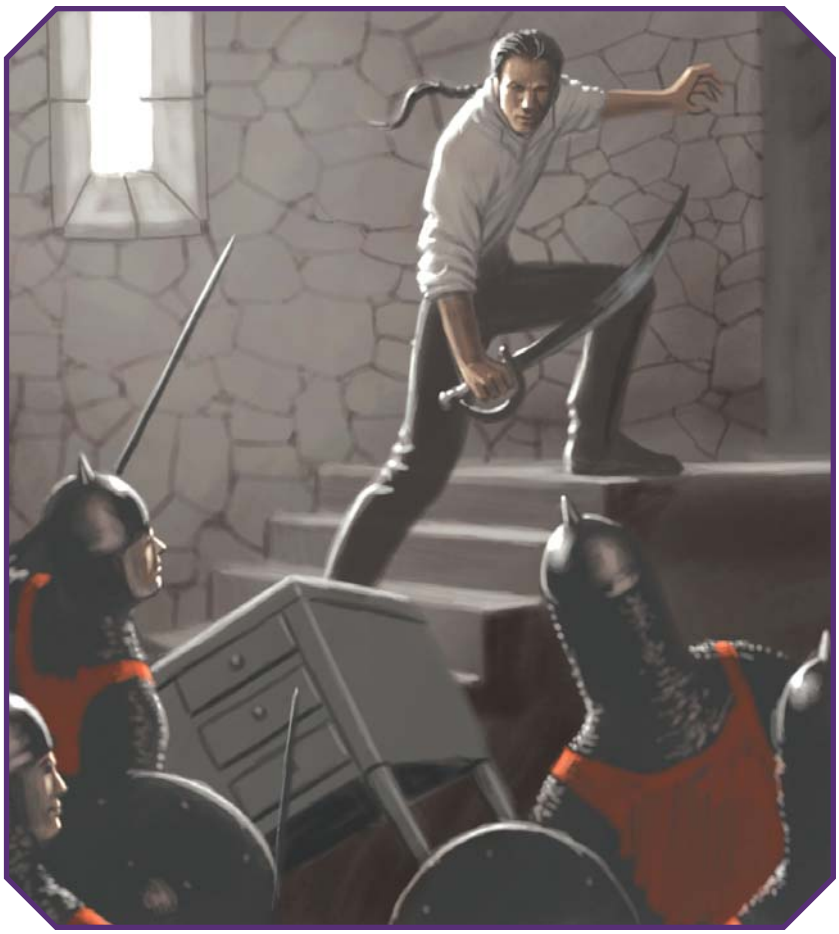
Your foe may attempt to break free (see *Actions After Being Grappled,* p. 371) on his next turn, but you are at +4 in the Quick Contest. If he loses, he has a cumulative -1 on future attempts to break free.

On your *next* turn – and on each turn thereafter, until your foe breaks free – you may try to damage the trapped arm. Roll a Quick Contest: the *highest* of your Judo, Wrestling, or ST vs. the *higher* of your victim's ST or HT. If you win, you inflict crushing damage equal to your margin of victory. The target's natural DR (unless it has the Tough Skin limitation) and the DR of his *rigid* armor protect normally. Flexible armor has no effect!

If you cripple your victim's arm, he drops anything in that hand. You can inflict no further damage on a crippled limb, but you can continue to roll the Contest each turn. If you win, your target suffers shock and stunning just as if you had inflicted damage.

The rolls to inflict damage are completely passive and do not count as attacks! You can simultaneously make close combat attacks on your opponent, who defends at -4 in addition to any other penalties due to the damage caused by the lock itself.

You can also use this ability *offensively.* Instead of waiting to parry an attack, grapple your foe normally with Judo or Wrestling skill. If he fails to break free on his next turn, you may attempt an arm lock on your next turn, just as if you had parried his attack.



Choke Hold

This Judo and Wrestling technique involves locking one forearm around the target's neck and applying pressure to the windpipe. The more the victim struggles, the tighter the choke becomes. This can quickly subdue an opponent.

To apply a choke hold, you must grapple your victim from *behind* using both hands. Treat this as a normal grapple (see *Grappling,* p. 370), but roll against your Judo at -2 or Wrestling at -3 to hit. A victim who is aware of you may attempt any legal defense, but suffers the usual penalties for an attack from behind.

On your foe's next turn and on subsequent turns, he may attempt to break free. You are at +5 in the Quick Contest. But note that you control your victim's neck and head – not his arms and legs. He can attack you with a Wild Swing (p. 388), Back Kick (p. 230), etc., at the usual -4 for being grappled.

On your *next* turn – and on each turn thereafter, until your foe breaks free – your victim loses 1 FP, per *Suffocation* (p. 436). If you wish, you may choke him for crushing damage at the same time (see *Actions After a Grapple,* p. 370), and get +3 to ST for this purpose.

Elbow Strike

You can attack an enemy *behind* you in close combat by jabbing backward with your elbow. Roll against Brawling-2 or Karate-2 to hit. There is no modifier for not facing the enemy, but apply an extra -1 to hit if you target a specific hit location. On a hit, roll your usual punching damage. Treat an elbow strike at a foe in *front* of you as a normal punch.

Knee Strike

This is a vicious, snapping blow with the knee. Unlike a kick, it only has reach C. Roll against Brawling-1 or Karate-1 to hit. If you have grappled your target, he defends at -2 . . . and if you grappled from the front, you may attack his groin at *no penalty!* On a hit, roll your usual kicking damage.

Lethal Strike

This is a blow that focuses all of your strength onto a single narrow point: a toe, a few stiffened fingers, etc. It is an option for any punch or kick with Karate. Roll against Karate to hit, but at -2 over and above any other penalties. You get -1 to damage, but your blow is *piercing* instead of crushing. This lets you target the vitals or eyes! There is a down side: the *Hurting Yourself* rule (p. 379) applies if your target has DR *1+* (as opposed to DR 3+).

Neck Snap or Wrench Limb

This brute-force technique consists of grabbing and suddenly twisting the victim's head to break the neck, or a limb to dislocate or break it.

You must first grapple your opponent by the neck or desired limb using both hands; see *Grappling* (p. 370). Your victim may attempt to break free on his turn. If he fails, then on your *next* turn, roll a Quick Contest: your ST-4 vs. the *higher* of your victim's ST or HT. If you win, you inflict swing/crushing damage on the neck or limb. Damage to the neck has the usual ×1.5 wounding modifier for hit location. The target's natural DR (unless it has the Tough Skin limitation) and the DR of his *rigid* armor protect normally. Flexible armor has no effect!

You may make repeated attempts on successive turns, but your opponent may attack you or attempt to break free, subject to the usual limitations of being grappled.

Trampling

You can trample a victim if your Size Modifier exceeds his by 2 or more – or by only 1, if he's lying prone and you're not.

Trampling is a melee attack: roll vs. the *higher* of DX or Brawling to hit. The victim's only legal defense is a dodge. If you hit, you inflict thrust/crushing damage based on your ST; if you have Hooves, add +1 per die of damage.

If you knock down a foe in a collision or slam and keep on moving, you *automatically* overrun and trample your opponent. Do not make any attack or defense rolls – roll damage immediately, based on *half* your ST, rounded down.

In all cases, if your SM exceeds your victim's by 3 or more, don't worry about hit location – your attack counts as a large-area injury (see *Large-Area Injury,* p. 400).

Improvised Weapons

You sometimes want to hit a foe with something other than a "real" weapon. If so, the GM should treat the object as the weapon it resembles most closely: a stick would be a baton, light club, or quarterstaff; a heavy tool would be equivalent to a mace or a maul; a length of chain would serve as a clumsy morningstar; and so on.

If an improvised weapon is especially clumsy, add a penalty of -1 to -3 to hit or parry with it, or increase the minimum ST required. If it is shorter or lighter than a "real" weapon of the same type (or not very sharp, for a blade), reduce damage.

Special Melee Weapon Rules

Some melee weapons are more complicated than others! Below are some special cases.

Cloaks

You can snap a cloak in your opponent's face or use it to block his vision; treat either as a Feint (see *Feint,* p. 365). You can also use a cloak to grapple. Roll against Cloak skill to hit; reach is C, 1. Otherwise, treat this just like an unarmed grapple (see *Grappling,* p. 370).

Fencing Weapons

The "ready" position of a fighter using Main-Gauche, Rapier, Saber, or Smallsword skill keeps his weapon pointed toward his foe at all times. As

well, the "fencing weapons" used with these skills are light and maneuverable. These factors make it easy for a fencer to recover from a parry or fall back in the face of an attack.

With a fencing weapon, you get +3 to Parry instead of the usual +1 when you retreat (see *Retreat*, p. 377). You also suffer only *half* the usual penalty for multiple parries (see *Parrying*, p. 376). However, your Parry has a penalty equal to your encumbrance level, and you cannot parry flails *at all.*

Flails

A weapon with a length of chain between the handle and the head is a "flail." Because of the chain, a flail can wrap around a foe's weapon or shield when he tries to defend against it. Any attempt to parry a flail is at -4; fencing weapons, with their light blades, cannot parry flails at all! Even a shield is less useful against a flail: all blocks are at -2.

Garrotes

A "garrote" is a cord or wire used for strangling. You can only use it on an unaware or helpless victim, and you must attack from behind (this often requires Stealth rolls!).

Once you are in position, roll against Garrote skill to hit. You *must* target the neck, at the usual -5 to hit. In most cases, your target is unaware, so you can safely make an All-Out Attack (Determined) for +4 to hit.

The victim may attempt to parry with his hand or a ready close-combat weapon, but he does so at -3. Unless he has Combat Reflexes, he is most likely mentally stunned, for an *additional* -4 to his defense roll. On a success, he manages to put his hand or weapon between his throat and the garrote. The hand takes no damage unless you are using a wire garrote.

On the turn of the attack and every subsequent turn, you may choke the victim (see *Actions After a Grapple*, p. 370), and get +3 to ST in the ensuing Quick Contest. Treat the damage as crushing (×1.5 to the neck) for a rope garrote, cutting (×2 to the neck) for a wire one. In addition, your victim starts to suffocate (see *Suffocation*, p. 436). To break free, the victim must win a Quick Contest of ST-5, Judo-3, or Wrestling-3 against your Garrote skill.

An improvised garrote (almost any piece of rope) gives -2 to skill. A wire garrote must be equipped with handles, or *you* will take thrust/cutting damage to each hand!

Picks

Melee weapons that inflict swing/impaling damage – picks, warhammers, etc. – do a *lot* of damage, but may get *stuck* in your foe! At the start of the turn following any attack that penetrates the foe's DR and inflicts damage, you must either relinquish your weapon and leave it stuck in your foe (a free action), or attempt a ST roll to free it (a Ready maneuver).

On a successful ST roll, your weapon comes free. If it is one that must be readied after an attack (any weapon with "‡" next to its ST statistic), you can ready it *next* turn. On a failure, it is *stuck*. You can't use it or ready it – and if you wish to move, you'll have to let go. On later turns, you have two choices: let go of your weapon or try another ST roll. Should you ever get a critical failure on the ST roll, the weapon is *permanently* stuck (but you can retrieve it from a fallen foe after the battle).

Dirty Tricks

Creative players will constantly invent new combat tricks – for instance, throwing sand in the enemy's face to blind him. This presents a problem for the GM. On the one hand, creativity should be encouraged; it makes the game more interesting. On the other hand, tricks only work when they're new and original. If sand in the face worked every time, barbarian warriors would leave their swords at home and carry bags of sand instead!

The best solution is to let "tricks" work once – maybe twice – and then assume that word has gotten around. If you, as the GM, think that the players' clever idea is a good one, you should give it a fair chance to work. But remember that elaborate tricks can fail elaborately . . . and word gets around. The first Trojan horse was a great success. It hasn't worked since then.

IQ and Dirty Tricks

Often, the GM will find it appropriate to require an IQ roll when a fighter attempts a clever trick. Depending on the circumstance, the GM may:

- Make the *trickster* roll vs. his IQ to pull off the trick properly.
- Make the *victim* roll vs. his IQ to see through the trick.
- Require a Quick Contest of IQ to see who outsmarts whom.

There's no hard-and-fast rule! Just remember: nobody who takes an IQ 8 fighter should be allowed to play him as a genius!

Liquids in the Face

This is one of the most common "dirty tricks." Treat liquid tossed in the face as a thrown weapon with Acc 1 and Max 3. Remember the -5 to target the face!

On a critical hit, the liquid gets in the victim's eyes, blinding him for 1d seconds (the GM rolls secretly). On any other hit, the target may defend normally – but note that it is impossible to parry a liquid. If he fails to defend, he must make a Will roll to avoid flinching. On a failure, he flinches: -2 to further defenses that turn, and -2 to any DX or Sense roll on his next turn. On a success, the attack has no effect . . . unless the victim has Bad Temper!

This assumes a relatively harmless substance, like beer. Acid, poison, etc. have their usual effects.

When the weapon comes free, it does *half* as much damage as it did going in. For example, if the original wound was 4 points, it does another 2 points. Failed ST rolls cause no extra damage.

If your foe tries to move away while your weapon is stuck in him, roll a Quick Contest of ST. If *he* wins, he pulls the weapon from your grasp! If *you* win, your foe can't move. On a tie, the weapon comes free and does damage as above.

Shields

A shield is an excellent defense against low-tech weapons, but you can also use it offensively:

Shield Bash: A shield "bash" is an ordinary melee weapon attack. A shield can only hit foes in your front or shield-side hexes. See the *Melee Weapon Table* (p. 271) for statistics.

Shield Rush: A shield "rush" is an attempt to knock your foe down by running into him shield-first. See *Slam* (p. 368) for details. You cannot do this with a buckler.

Whips

Whips are effective disarming weapons. When you strike to disarm with a whip, you get +2 in the ensuing Quick Contest; see *Knocking a Weapon Away* (p. 401).

You may try to entangle your *opponent* instead of his weapon. This attack is at an extra -4 to hit, and inflicts no damage, but follows the *Lariat* rules (p. 411) if successful.

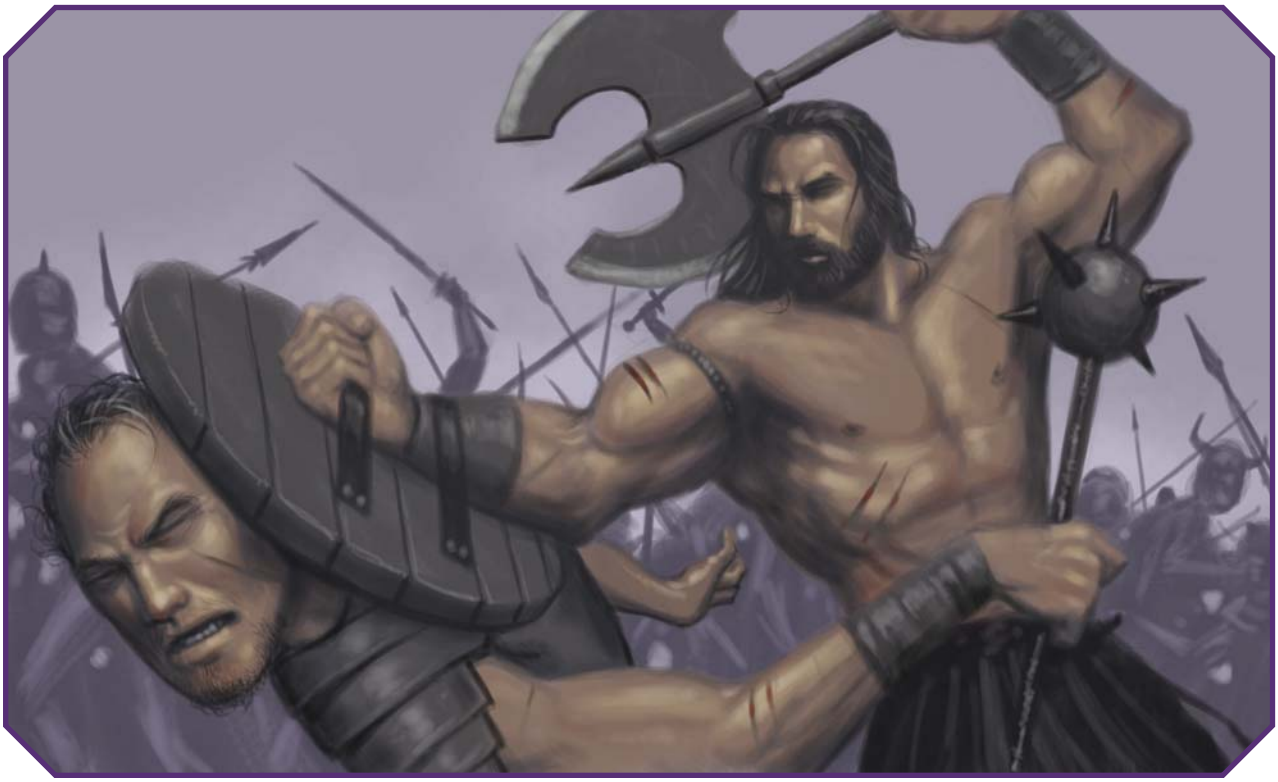
Whips are poor defensive weapons, and get -2 to Parry. Whips are also *unbalanced,* and cannot attack and parry on the same turn – and long whips actually become *unready* after an attack or a parry. It takes one turn to ready a two-yard whip, two turns to ready a whip three yards or longer.

Additional rules apply, depending on the type of whip:

Whip: You can "crack" an ordinary bullwhip – this is the sound of the tip breaking the sound barrier! This requires an attack at -4 to skill, but inflicts +2 damage. *Any* whip blow is painful: anyone who suffers a whip wound to his arm or hand must roll against Will, modified by the shock penalty for the injury. On a failure, he drops anything in that hand.

Kusari: This is a weighted chain. You can adjust reach from 1 to 4 yards with a Ready maneuver. Treat it as a whip when disarming, entangling opponents, or readying. Treat it as a flail vs. enemy defenses: -2 to block and -4 to parry. If someone parries your kusari with a weapon, make a skill roll immediately. On a success, your kusari entangles his weapon. A failure has no special effect; a critical failure means you drop the kusari! Your opponent may disentangle his weapon on his turn. This requires a free hand and a DX roll. If he does not, you may make a disarm attempt on your next turn *without* rolling to hit first: state that you are attempting to disarm and immediately roll the Quick Contest. This still counts as an attack. You cannot use a kusari if there is no headroom, or in an area full of obstacles (nearby people count as obstacles). On a critical miss, a roll of 3, 4, 17, or 18 indicates that you have hit yourself in the face!

Monowire Whip: An ultra-tech whip made of superfine wire. A control allows you to vary length from 1 to 7 yards, changing both reach and ready time. Adjusting the length requires a Ready maneuver. When used to snare an opponent or a weapon, the whip cuts into its target, inflicting thrust+1d(10) cutting damage every turn it is pulled taut until the victim escapes. A "drop weapon" critical miss indicates that you have hit yourself or a friend.



Special Ranged Combat Rules

The following rules add extra detail in ranged combat situations.

Malfunctions

This *optional* rule applies only to firearms, grenades, and incendiaries. A "malfunction" is a mechanical failure of the weapon; e.g., a misfire or a jam. Unlike a critical failure, a malfunction does not normally endanger the user.

For the purpose of this rule, firearms, grenades, and incendiaries have a "malfunction number," or "Malf.," a function of TL.

TL	*Malf.*
3	12
4	14
5	16
6 or higher	17

A fine or very fine firearm gets +1 to Malf.; a cheap weapon gets -1. Specific types of weapons might have a higher or lower Malf., as indicated in their descriptions. The GM is free to lower a weapon's Malf. for mistreatment, lack of maintenance, or damage.

Regardless of the attacker's skill, a weapon will malfunction instead of firing on any unmodified attack roll equal to or greater than its Malf. The exact effects depend on the weapon.

Firearm Malfunction Table

When a weapon malfunctions, roll 3d on the following table:

3-4 – Mechanical or electrical problem.
5-8 – Misfire.
9-11 – Stoppage.
12-14 – Misfire.
15-18 – Mechanical or electrical problem, and possible explosion.

Mechanical or Electrical Problem

The weapon fails to fire. A successful Armoury or IQ-based weapon skill roll (takes a Ready maneuver) can diagnose the problem. Once the problem is known, make an Armoury skill roll to correct it. Each repair attempt takes one hour, and any critical failure destroys the weapon.

Grenades: This represents a fusing problem: the weapon detonates 1d seconds *late*.

Misfire

The weapon fails to fire. A successful Armory+2 or IQ-based weapon skill roll (takes a Ready maneuver) can identify the problem. If the weapon is a revolver, the *next* shot will fire normally. Otherwise, each attempt to fix the problem requires three Ready maneuvers, two hands free, and a successful Armoury+2 or IQ-based weapon skill roll. Critical failure causes a mechanical or electrical problem.

Grenades: The grenade is a dud, and will *never* explode.

Stoppage

The weapon fires one shot, then jams or otherwise stops working. (Treat the fired shot as a normal attack.) Each attempt to clear the stoppage requires three Ready maneuvers, two hands free, and a successful Armoury roll, or IQ-based weapon skill roll at -4. A success fixes the weapon. Failure means it isn't fixed yet, but you can try again. Critical failure causes a mechanical or electrical problem.

Beam weapons: Treat as a mechanical or electrical problem.

Grenades and other single-use weapons: The weapon is a dud; it will *never* fire or explode.

Explosion

Any TL3 firearm or TL4 grenade, breechloader, or repeating firearm may blow up in the gunner's face, inflicting 1d+2 cr ex [2d]. If the weapon uses an explosive warhead, use the warhead's damage instead. TL5+ weapons do not explode – treat as a mechanical or electrical problem.

Firing Upward and Downward

Firing downward increases the distance you can throw or fire a projectile; firing upward decreases it. This effect is unlikely to matter at short distances, but can be important at long range. Ignore it entirely for beam weapons like lasers!

Firing Downward: For every two yards of elevation you have over your target, subtract one yard from the effective distance, to a minimum of half the *real* ground distance. (*Example:* You are 40 yards away from your target, and 10 yards higher. Subtract 5 yards from effective range. You fire as though you were only 35 yards away.)

Firing Upward: For every yard of elevation your target has over you, add one yard to the effective distance. (*Example:* You are 40 yards away from your target, and 10 yards lower. Add 10 yards to effective range. You fire as though you were 50 yards away.)

Cover

To take cover behind an obstacle, simply move so that it is between you and your attacker. You might also have to kneel or lie prone, depending on the obstacle's height. Cover protects one or more hit locations, making you harder to hit with ranged weapons.

You must normally expose your skull, eyes, face, and neck to see a target. You must expose your weapon arm and hand to fire a one-handed weapon. You must normally expose *both* arms and hands to fire a two-handed weapon, plus *half* of your torso and vitals, unless you are firing through a narrow slit. Your groin, legs, and feet can remain hidden if the cover is sufficient to protect them. You might have to expose more of your body if the cover is partial, or if you are unable to kneel, sit, or lie prone behind low cover.

If your foe is partially behind cover, you have three options:

- Target a location that is not behind cover. Your attack takes the usual hit location penalty. If the location is only *half* exposed, you have an extra -2 to hit.
- Roll randomly for hit location. Your attack takes no hit location penalty, but shots that hit a covered location strike the cover instead. For shots that hit a location that is only *half* exposed, roll 1d: on a roll of 4-6, the shot strikes cover, not the target.
- *Ignore* the cover and try to shoot right through it! This is only likely to be effective if you have a powerful weapon or your target is behind light cover. You have an extra -2 to hit. (*Exception:* If your foe is *completely* concealed by cover, you suffer the usual penalty for shooting blind, typically -10.) The cover adds its "cover DR" against the attack. For structures, this is typically the barrier's DR + (HP/4); see the *Structural Damage Table* (p. 558) and *Cover DR Table* (p. 559) for more information. For the cover DR of living things, see *Overpenetration,* below.

Cover is normally only effective against ranged weapons, but certain obstacles might interfere with melee attacks as well. You can fight across a low obstacle if your attacks have sufficient reach to strike past it. Thus, two fencers could duel across an intervening table, but could not strike each other's legs or feet.

Overpenetration

When you inflict *piercing, impaling,* or *tight-beam burning* damage with a ranged attack, there is a chance that damage might pass through your target and harm something on the far side; e.g., an innocent bystander. Similarly, a powerful attack might go right through cover (see *Cover,* above) or a shield (see *Damage to Shields,* p. 484) – or even penetrate a building or vehicle, damaging it and its occupants.

The GM decides who is likely to be hit due to overpenetration. A hit is *automatic* if the second target is immediately behind the first; e.g., someone taking cover or blocking with a shield. Otherwise, see *Hitting the Wrong Target* (p. 389) and *Occupant Hit Table* (p. 555) to determine who is hit.

An attack only overpenetrates if its *basic* damage exceeds the target's "cover DR." To find this value, add together the target or cover's DR – on *both* sides, for a person in armor – and HP (for flesh), 1/2 HP (for a machine, vehicle, or other Unliving target), or 1/4 HP (for a Homogenous object). Use the object's DR alone if it's a thin slab, like a wall or a door. Finally, apply any armor divisor.

If the attack does enough damage to penetrate cover DR, determine if anyone on the other side is hit. If so, they get the cover DR *plus* their own DR against the damage.

Example: Special Agent Ira Gray spots an assassin with a rifle, and throws himself in front of the VIP he's protecting just as the gunman fires. The armor-piercing rifle bullet – a 7d(2) pi- attack – hits him in the chest! The bullet's basic damage is 20 points. Gray's DR 8 ballistic vest stops only 4 points due to the armor divisor of (2). Gray takes 16 points of penetrating damage. Halved for small piercing, this inflicts an 8 HP wound. What about the VIP? Gray's vest gives DR 16, since *both* sides count, and Gray has 12 HP. The total cover DR is 28, halved for the armor divisor of (2) to give DR 14. Since the bullet's basic damage was 20, it overpenetrated. The VIP wasn't wearing armor, so he takes 6 points of damage, halved for small piercing, and suffers a 3 HP injury. He's wounded, but not badly – Special Agent Gray saved his life.

Special Rules for Rapid Fire

The following additional rules are for use in conjunction with *Rapid Fire* (p. 373). They only apply when making a ranged attack at RoF 2+.

Automatic Weapons and Full-Auto Only

Automatic weapons – firearms with RoF 4+ – use the *Rapid Fire* rules. Most can fire both controlled bursts and "full auto" (that is, for as long as the trigger is held down).

Some automatic weapons (e.g., machine guns) can *only* fire full auto; they lack a semi-automatic or limited-burst setting ("selective fire"). A weapon that is "full-auto only" has a "!" after its RoF statistic. The only way to fire a short burst with such a weapon is to hold down the trigger for a fraction of a second. *Minimum* RoF is one-quarter full RoF (round up) or shots remaining, whichever is less.

Rapid Fire vs. Close Stationary Targets

Rapid fire generally results in only a fraction of the shots fired hitting the target. This is realistic . . . except when the target is up close and unable to move. This situation arises when shooting your way through a wall, door, or parked car with a shotgun or assault rifle – or when performing an execution.

If your target is *totally immobile* (for instance, an inanimate object, or someone who is completely restrained or unconscious) *and* has a Size Modifier high enough to completely counteract the range penalty, a successful attack roll means that *half* the shots fired (round up) hit. If the attack succeeds by the weapon's Recoil or more, *all* of the shots hit.

Example: When shooting at a door with SM +2, this rule would apply at any range up to 5 yards (range modifier -2). If the target were a man (SM 0), this would only apply at a range of up to 2 yards (range modifier 0) – and only if he were tied up or unconscious.

Shotguns and Multiple Projectiles

A weapon with a RoF followed by a multiplier (e.g., RoF 3×9) fires shots that release multiple, smaller projectiles. The most common example is a shotgun. The *first* number is the number of shots the weapon can actually fire; this is how much ammunition is used up. When resolving the attack, however, multiply shots fired by the *second* number to get the effective RoF.

Example: Father O'Leary's shotgun has RoF 3×9. He chooses to fire three times at a demon flapping toward him. For the purpose of the *Rapid Fire* rules, he his three shots are an attack at RoF 3 × 9 = 27, because each shell releases multiple buckshot pellets.

At extremely close range, multiple projectiles don't have time to spread. This increases lethality! At ranges less than 10% of 1/2D, don't apply the RoF multiplier to RoF. Instead, multiply both basic damage dice and the target's DR by *half* that value (round down).

Example: Father O'Leary's shotgun has 1/2D 50, so once that demon flies to within 5 yards, it is close enough that the pellets won't disperse much. If O'Leary fires three times, his RoF is 3, not 27. But since the attack is a ×9 multiple-projectile round, a ×4 multiplier applies to both basic damage and the demon's DR. The shotgun's basic damage is 1d+1, so O'Leary rolls 4d+4 for each hit (up to three, depending on how well he rolls). However, the demon's DR 3 becomes DR 12 against the damage.

Spraying Fire

A weapon fired at RoF 5+ can attack multiple targets. All the targets must be in the same general direction (within a 30° angle), and you must engage them in succession – from right to left or from left to right, your choice.

Announce how many shots you will fire at each target *before* you roll to hit. You may split up your RoF however you wish. If the targets are more than one yard apart, traversing between them wastes some shots. For RoF 16 or less, you lose one shot for each yard between targets. For RoF 16+, you lose two shots per yard. These "wasted" shots may hit unintended targets (see *Hitting the Wrong Target*, p. 389).

Make a *separate* attack roll against each target. Your effective RoF for each attack is just the number of shots you fired at that target. Since a weapon is harder to control when you swing it to engage multiple targets, add +1 to effective Recoil for your attack on the second target, +2 to Recoil when you engage the third target, and so on.

Example: Sgt. Kelly, Special Air Service, kicks open the door and sees three armed terrorists. With no hostages in sight, Kelly opens fire! His weapon is a 4.6mm PDW (see p. 278). He sprays fire at all three terrorists, using his weapon's full RoF of 15. The first two terrorists are standing 2 yards apart; the third is 4 yards from either. Kelly fires 5 shots at the first, wastes 1 shot traversing to the second, fires 4 shots at him, wastes 3 shots traversing to the third, and fires his last 2 shots. He resolves this as three *separate* rapid-fire attacks: one at RoF 5 with the PDW's normal Recoil of 2, one at RoF 4 and Recoil 3, and one at RoF 2 and Recoil 4.

Suppression Fire

If you have a weapon with RoF 5+, you can lay down "suppression fire." This involves holding down the trigger and "hosing down" an area with fire. This will affect anyone who enters the area before the start of your *next* turn. There needn't be a target in the area when you start!

To use suppression fire, select a target zone two yards across at some point within your weapon's range, take the All-Out Attack (Suppression Fire) maneuver, and start shooting. This maneuver takes an *entire* second; you can do *nothing* else that turn.

Specify how many shots you are firing, up to your weapon's full RoF. If your weapon has RoF 10+, you can suppress *multiple* two-yard zones, as long as they are adjacent and you fire at least five shots into each zone. Your effective RoF in each zone is the number of shots you fired into that zone, *not* your total shots.

Once you start suppression fire, you *must* attack anyone – friend or foe – who enters the zone or a swath that extends one yard to either side of a line drawn from you to the center of the zone. With the exception of penalties for target visibility, all normal attack modifiers apply – including the rapid-fire bonus for your *effective* RoF and any bonus for aiming prior to suppressing. Your final effective skill cannot exceed 6 + your rapid-fire bonus for most weapons, or 8 + your rapid-fire bonus for vehicle- or tripod-mounted ones.

If you hit, use *Random Hit Location* (p. 400) – you cannot target a particular hit location with suppression fire. This may result in some shots hitting cover (see *Cover,* p. 407). If *all* your shots somehow manage to strike targets, you can score no further hits that turn.

Suppression fire involves holding down the trigger and "hosing down" an area with fire. This will affect anyone who enters the area before the start of your next turn. There needn't be a target in the area when you start!

Special Ranged Weapons

Certain ranged weapons are "special cases," and require additional notes.

Bolas

The bolas is a thrown entangling weapon. The target can dodge or block, but if he tries to parry, the bolas hits his parrying arm, with effects as described below. (*Exception:* A successful parry with a *cutting* weapon cuts the cords, ruining the bolas!)

You may aim a bolas at any body part. If it hits, it does its damage *and* wraps around its target. To escape, the victim requires a free hand, and must make three successful DX rolls. Each attempt counts as a Ready maneuver, during which time the victim may take no other actions. Animals roll to escape at -3 for paws or at -6 for hooves.

If you hit a weapon, or an arm or hand that is holding something, roll a Quick Contest: your Bolas skill vs. the target's ST. If you win, the target drops what he's carrying (this does not affect a shield strapped to the arm). If you hit a leg or foot, you entangle *two* legs; a running target must make a DX roll or fall, taking 1d-2 damage. If you hit the neck, the bolas cuts off the target's breathing (see *Suffocation,* p. 436) until he escapes.

Crossbows

When you buy a crossbow, you must specify its ST. It takes two seconds to cock any crossbow of your ST or less.

A stronger bow does more damage but takes longer to cock. A crossbow with ST 1 or 2 greater than your own takes *six* seconds to cock. A crossbow with ST 3 or 4 greater than yours requires a "goat's foot" device to cock (takes 20 seconds). You cannot cock a stronger crossbow, except using slow mechanical devices. You can still *fire* it!

Remember that in addition to cocking time, it takes one turn to ready a bolt – unless you have Fast-Draw (Arrow) – and one turn to load the bolt into the crossbow.

Flaming Arrows

A flaming arrow is made by wrapping oil- or fat-soaked cloth, grass, etc. around the shaft just behind the arrowhead; it takes 10 seconds to prepare, and must be used within three seconds of preparation. It is clumsy in flight, giving -2 to hit. If it hits, treat it as an arrow that does one point of burning damage as a linked effect (see *Linked Effects,* p. 381). The chance of the flame spreading depends on what the arrow strikes.

Hand Grenades

It takes a Ready maneuver to grab a hand grenade from your belt, web gear, etc. To use it, you must arm it ("pull the pin"); this requires a second Ready maneuver. After that, you can throw it normally.

Most grenades have a fixed delay (typically under 5 seconds), but some detonate on impact. If the grenade has

a delay, you can take one or two seconds to Aim (and hope no one shoots you!) before you throw it. Otherwise, it is just barely possible for the enemy to pick up a grenade that lands next to him and *throw it back!* It takes him one second to kneel down, one to ready the grenade, one to throw . . .

Harpoons

Most harpoons are *barbed.* Use the rules under *Picks* (p. 405), except that the tether lets you attempt the ST roll to free the weapon at a distance. A harpooned victim *can* move, but no farther than the tether's length; to go further, he must win a Quick Contest of ST to pull the tether out of your hands. He might have to beat ST 50 (or even higher!) to escape if the tether is made of thick rope and tied securely to something solid (e.g., a ship).

Lariats

Like a harpoon, treat a lariat as a thrown weapon, despite the fact that you hold onto one end. You may aim a lariat at any body part. Your target may dodge or parry – and if he successfully parries with a *cutting* weapon, he damages the lariat as if he had tried to cut it (see below). But if he tries to parry and *fails,* you automatically ensnare his parrying arm!

If you hit the target's arm or torso, you ensnare it. On subsequent turns, you must take a Ready maneuver to keep the victim snared. Roll a Quick Contest of ST on your turn. If you win, you immobilize your opponent; if you lose, he pulls the lariat from your grasp.

If you lasso the neck, use the same rules, but your victim is at -5 in the Contest. If you win, the lariat cuts off the victim's breathing – see *Suffocation* (p. 436).

If you rope the foot, the target must make a DX roll to remain standing (this is *instead* of the Contest above). He rolls at -4 if he was running. If he falls, he takes 1d-4 damage – or 1d-2 if he was running. On subsequent turns, use the rules above to keep him entangled.

You must keep the lariat taut at all times to immobilize or suffocate your victim. This requires a Ready maneuver each turn. If your horse is trained to do this for you, substitute its ST for yours in the Quick Contest.

To escape from a *taut* lariat, cut the rope (DR 1, 2 HP). To escape from a *limp* lariat (including one pulled from the attacker's grasp), use the rules given under *Bolas* (p. 410).

A lariat takes 1 turn per 5 yards to ready after a miss. A typical lariat is 10 yards long.

Molotov Cocktails and Oil Flasks

A "Molotov cocktail" (TL6) is a bottle filled with gasoline and fitted with a burning "fuse" – often just a rag. Once you have it in hand, it takes a Ready maneuver to light its fuse (if you have a torch or lighter) and an Attack maneuver to throw.

In theory, the bottle bursts upon hitting a hard surface (anything with DR 3+), spilling the gasoline, which immediately catches fire. In reality, Molotov cocktails are notoriously unreliable. They have a Malf. of 12, regardless of tech level (see *Malfunctions,* p. 407): on any attack roll of 12+, the fuse separates from the bottle in flight, the bottle fails to break, or the fuel doesn't ignite.

If your target is a person, he may dodge or block, but not parry. If he dodges, the bottle shatters on the ground at his feet. The same thing happens if he fails to defend but does not have DR 3+ (the bottle bounces off without breaking). If he blocks, it breaks on his shield.

If your target is the ground, or if you targeted a person but hit the ground instead, the Molotov cocktail sets fire to a one-yard radius; see *Area-Effect Attacks* (p. 413). On a battle map, the target hex is filled with flame.

If the Molotov cocktail bursts on the *target,* it inflicts 3d burning damage, and then 1d burning damage per second. Most DR protects at only 1/5 value; sealed armor protects completely. If you hit the target's *shield,* it takes this damage instead, and the wielder may continue to use his shield until it is destroyed (the fire is on the outside). Use the *Damage to Shields* rule (p. 484), or just assume that he must discard his shield after the battle. If you hit the *ground,* the flame does 1d-1 burning damage per second in a one-yard radius. In all cases, the flame burns for 10d seconds.

"Greek fire" (TL3) consists of naphtha – a light petroleum product distilled from crude oil, roughly similar to gasoline – mixed with fat or tar and saltpeter to make it sticky and burn hotter. It should be very expensive! Treat earthenware flasks filled with Greek fire as Molotov cocktails. This is the classic fantasy "oil flask."

Below TL3, flammable, hot-burning liquids are unavailable in realistic game worlds.

Note that these weapons are *fragile.* Roll 1d for each bottle if you fall; it breaks on a roll of 1-4. A foe may strike at a bottle on your belt (-5 to hit); it breaks automatically if hit. Either result soaks you in flammable liquid: *any* burning damage will set you on fire!

Nets

A net is a thrown entangling weapon. The target may dodge or parry it. If he successfully parries with a *cutting* weapon, he damages the net; treat a net of any size as a diffuse object with DR 1 and normal HP for its weight. If the target fails to defend, he is entangled, and cannot move or attack until freed.

To escape, the victim requires at least one free hand, and must make three successful DX-4 rolls. Each attempt counts as a Ready maneuver, during which time the victim may take no other actions. Animals roll at an extra -2, as do humans with only one hand available; rolls to escape from a *small* net are at +3. If the victim fails three consecutive rolls, he becomes so entangled that he must be cut free.

It is also possible to escape a net by damaging it. The victim can only use attacks with reach "C," but they hit automatically. Use the *Breaking a Weapon* rules (p. 401) – but treat a net as diffuse (see *Injury to Unliving, Homogenous, and Diffuse Targets,* p. 380).

You may also use a *small* net as a melee weapon. It has a reach of 1 or 2 yards. Handle the attack as per *Lariats* (above) and the victim's attempt to break free as per *Bolas* (p. 410).

Firearm Accessories

These rules cover the effects of the firearm accessories mentioned in Chapter 8.

Bipods and Tripods

If a weapon has an attached bipod, a *prone* shooter may treat it as if it were braced (see *Aim,* p. 364) and reduce its ST requirement to 2/3 normal (round *up*). To open or close a folding bipod requires a Ready maneuver.

A heavy weapon may be *mounted,* on a tripod or similar device. The gunner cannot move or step on any turn he fires the weapon, but he can defend normally. He may *ignore* the weapon's ST requirement while it is on its mount. Removing a weapon from its mount, or reattaching it, requires three Ready maneuvers – more, for some very heavy weapons.

Laser Sights

These devices use a low-powered laser beam to project an aiming dot onto the target. Some use a visible beam; others use a beam visible only to infrared or ultraviolet vision.

Laser sights have a maximum range at which they are effective; beyond that range, the dot is too dispersed to be visible. If no maximum range is given, assume the sight's range is matched to the 1/2D range of the weapon on which it is mounted.

If you can see your own aiming dot, you get +1 to hit, regardless of whether you took an Aim maneuver. But if the *target* can see it, he gets +1 to Dodge! Activating a laser sight is a free action; specify whether it's on before you Aim or Attack.

Scopes

A telescopic sight, or "scope," gives a bonus to hit *if* you take an Aim maneuver. With a *fixed-power* scope, you must Aim for at least as many seconds as the scope's bonus. With a *variable-power* scope, you may Aim for fewer seconds, but this reduces your bonus by a like amount. Scopes are variable-power unless otherwise noted.

A scope may be integral to a weapon, attached, or part of a vehicle's sighting system. Telescopic Vision (p. 92) also gives a scope bonus. You can only use one scope (including Telescopic Vision) at a time. Some advanced scopes also function as night-vision devices.

Silencers

A silencer muffles the sound of gunshots. Someone several rooms away indoors, or out of your line of sight outdoors, gets a Hearing+5 roll to hear an unsilenced shot. This roll may be at up to +4 for a high-powered weapon or quiet environment, or down to -4 for a low-powered gun or noisy environment (GM's discretion). A typical silencer gives an extra -4, while the best commercial silencers might give -6.

Anyone who is in front of your weapon *and* exposed and close enough for you to attack with it automatically hears the shot – even with a silencer. However, the silencer makes the sound difficult to localize: the listener must make an IQ roll (*not* a Hearing roll) to deduce your location unless you're in plain sight.

Silencers are most common for auto pistols and submachine guns, but exist for many other weapons.

Guided Weapons

A "guided" weapon is a projectile that can receive steering commands in flight. This enables the firer to keep it on course. The weapon relies on the *operator's* skill to reach its target. Early guided missiles had to be steered by the operator using a joystick. Modern systems merely require him to keep the launcher's sights trained on the target; the missile and launcher's electronics do the rest.

Most reference works categorize guided weapons according to how the launcher communicates with the projectile. For instance, a "wire-guided" missile or torpedo receives commands via thin wires that spool out behind the projectile in flight, while a "radio-guided" weapon receives commands via radio. There are many other systems!

Treat an attack with a guided weapon *exactly* like any other ranged attack, except for these special rules:

Semi-Active Homing Weapons

"Semi-active" laser or radar homing is common on TL7+ missiles. The seeker head on this type of projectile detects and homes in on the reflections of a laser or radar beam directed at the target. As for other homing weapons, the firer does not need to do anything once the weapon is launched. However, *someone* (the firer or an ally) must aim a properly modulated laser or radar beam at the target until the missile hits.

Modern soldiers often sneak up close to their targets and use rifle-sized "laser designators" to direct laser-homing "smart bombs" or missiles launched by distant aircraft or artillery. Designating a target requires continued Aim maneuvers and a DX-based roll against Forward Observer skill (p. 196); failure means the weapon misses its target.

Guided and Homing Weapons

Some weapons can be steered, or steer themselves, once launched. This makes it easier to hit distant targets! These weapons appear late in TL6, and are commonly available from TL7 on. Most are rocket-propelled, save for underwater torpedoes – but magical or exotic examples may exist in some game worlds.

Aim: If you Aim a guided weapon before you Attack, you receive its Acc bonus – but you don't *have* to aim. If the projectile takes multiple seconds to reach its target (see *Time to Target,* below), the attack is *automatically* aimed and gets its Acc bonus.

Attack: If the target is within the weapon's 1/2D range, the weapon can hit on the turn you fire it. Use an Attack or All-Out Attack maneuver to fire. If the target is more distant, use a Concentrate maneuver – and since the projectile will be in flight for several

seconds, you will also have to take Concentrate maneuvers on one or more subsequent turns.

Modifiers: Treat a guided weapon as any other firearm when assessing modifiers, but *ignore* range modifiers! Your target might have "electronic countermeasures" (ECM) that give a penalty to hit. Details depend on the ECM and the guidance system, and are outside the scope of the ***Basic Set.***

Homing Weapons

A "homing" weapon is a projectile that steers itself to the target. It has its own homing sense – called a "seeker head," on a missile – that determines how it tracks its target. This equates to a sensory advantage; e.g., an infrared-homing missile uses Infravision, while a radar-homing missile uses Scanning Sense (Radar). Some weapons have multiple homing senses! Use the weapon's homing sense(s) *instead* of your senses when assessing combat modifiers; e.g., radar ignores darkness but can be jammed.

Homing weapons use the usual ranged combat rules, with these modifications:

Preparation Time: Some launchers require several seconds to insert batteries, turn on and warm up electronic systems, etc. These activities require Ready maneuvers, but are *already* factored into the time to ready a new shot, as listed with the Shots statistic.

Aim: Your weapon must "lock on" to the target before you can fire. This takes an Aim maneuver, and usually requires you to be able to see the target. This special Aim maneuver requires a roll against your weapon skill: Artillery (Guided Missile), for homing missiles – not Guns or Gunner.

Attack: Fire a homing weapon using a Ready maneuver, *not* an Attack maneuver – the projectile attacks on its own! If the target is within the weapon's 1/2D range, the weapon attacks on the same turn; otherwise, see *Time to Target*, below. When you make the attack roll, do not roll against your skill to hit. Instead, use the *weapon's* skill of 10, adding its Acc if you made your skill roll for "lock on."

Modifiers: Homing missiles *ignore* range modifiers and all modifiers for *your* injury, movement, posture, etc.! Base visibility modifiers on the *projectile's* homing sense, not on your senses. Anything that jams this sense (e.g., radar jammer vs. radar homing) gives a penalty to hit. All other ranged combat modifiers (for size, speed, etc.) apply normally.

Time to Target

If a guided or homing attack has a 1/2D statistic, do *not* halve damage. Instead, read this as the attack's *speed* in yards/second. The projectile can hit a target at up to its 1/2D range on the turn you launch it. It requires multiple turns to reach a more distant target. Defer the attack roll until the projectile actually reaches its target.

The projectile continues to close at a speed equal to its 1/2D until it has traveled a total distance equal to its Max (that is, for Max/speed seconds, including the turn of firing). If it still has not hit, it will crash, self-destruct, etc. Thus, it's possible to "outrun" a guided or homing attack . . . if you're fast enough!

Some further special rules:

Guided Weapons: Take a Concentrate maneuver each turn to steer the weapon. Should you lose sight of the target while the attack is en route, your attack misses automatically! You *must* make an Attack or All-Out Attack (Determined) on the turn the projectile reaches the target. Resolve the attack as if you had fired the weapon that turn. If you cannot make an Attack or All-Out Attack, the projectile will fly past the target and crash.

Homing Weapons: You are no longer in control of the projectile once you launch it. It will home on its own. The projectile itself will take an Attack maneuver on the turn that it reaches the target.

Area and Spreading Attacks

Some attacks – dragon's breath, gas bombs, etc. – affect a wide area. Damage from all such attacks uses the *Large-Area Injury* rule (p. 400), unless the victim is so big that only a single body part is contained within the area.

Area-Effect Attacks

Gas bombs, Molotov cocktails, and similar attacks – including anything with the Area Effect enhancement (p. 102) – affect everyone within a specified radius. Damage does not usually decline with distance. On a miss, use the *Scatter* rule (see p. 414) to determine where the area is centered. Active defenses don't protect against an area attack, but victims may dive for cover or retreat out of the area; see *Dodge and Drop* (p. 377).

Cone Attacks

Dragon's fire, wide-beam microwave and sonic weapons, and anything with the Cone enhancement (p. 103) are examples of cone attacks. A cone attack requires a roll to hit . . . but it might still catch the target in the area of effect on a miss! On a hit, the cone is on target; otherwise, use the *Scatter* rule (see p. 414) to determine a new target point. Once you know the target point, imagine (or trace on a battle map) a line between the attacker and that point. The cone spreads to either side of this line, out to its maximum range.

A cone is one yard wide at its origin, but increases in width at a "rate of spread" equal to its specified maximum width divided by its maximum range. For instance, a cone with a maximum range of 100 yards and a maximum width of 5 yards would spread by one yard per 20 yards of range; out at 60 yards, it would be three yards wide. If maximum width is unspecified, assume the cone spreads by one yard per yard of range.

A cone affects everyone within its area, but anyone who is *completely* screened from the attacker by an object or person is behind cover, which protects normally. Targets may attempt a dodge defense to leave the area or get to cover; see *Dodge and Drop* (p. 377).

Dissipation

Certain cone and area attacks *dissipate* with distance. This is common for realistic wide-area beam weapons and area-effect burning attacks. Attacks with the Dissipation limitation (p. 112) also use these rules.

Attacking an Area

You can *deliberately* attack an area of ground with an area-effect or explosive attack. For a Molotov cocktail, grenade, etc., this means you lobbed it in a high arc. Roll to hit at +4. There's no defense roll, but anyone in the area can dive for cover; see *Dodge and Drop* (p. 377).

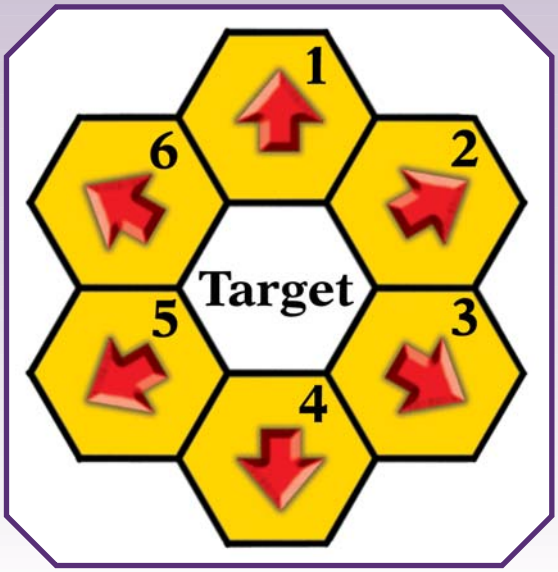
Scatter

When an area-effect, cone, or explosive attack misses its target, it's important to know where it actually ends up!

If you fail your attack roll, you missed your target by a number of yards equal to your margin of failure, to a maximum of half the distance to the target (round up). If the enemy dodges, use his margin of success to determine distance instead.

Exception: If your target was flying or underwater, or you're using the Artillery or Dropping skill to fire upon or bomb a target you can't see, you miss by yards equal to the *square* of your margin of failure. This does not apply to a dodge.

To determine the *direction* of your miss, roll one die. Take the direction *you* are facing as a roll of 1, 60° clockwise (the next facing, on a hex map) as a roll of 2, and so on. Your attack misses in that direction, by the number of yards determined above.



In the case of a damaging attack (e.g., Innate Attack), damage declines with the target's distance from the center of the area or the apex of the cone. For a cone, divide damage by the cone's width in yards at the target's distance from the apex. For an area effect, divide damage by the distance in yards between the target and the center of the effect.

For an attack that allows a HT roll to resist (e.g., Affliction), find the "damage divisor" as above, but do not apply it to damage (if any). Instead, use the divisor as a bonus to the HT roll to resist; e.g., two yards from the center of an area effect, add +2 to HT.

Explosions

Certain attacks, such as hand grenades and Explosive Fireball spells, produce a blast when they hit. Such attacks have the notation "ex" after their damage type: "cr ex" for a crushing explosion, "burn ex" for a burning explosion, and so on.

In addition to doing the listed damage to whoever was struck directly, an explosion inflicts "collateral damage" on everything within (2 × dice of damage) yards. For instance, if an explosion does 6d×2 damage, everyone within 24 yards is vulnerable – although some might be lucky enough to take little or no damage.

The listed damage only applies "as is" to the target struck. For everything else caught in the blast, roll this damage but divide it by (3 × distance in yards from the center of the blast), rounding *down*. Roll damage individually (but the GM can save time by using one roll for several NPCs). Use *torso* armor to determine DR against explosion damage.

If an explosive attack has an armor divisor, it does *not* apply to the collateral damage. For example, the shaped-charge warhead of an anti-tank rocket has an armor divisor of (10), but this only reduces the DR of a target it actually strikes; those nearby get their *full* DR against the blast.

Explosions are considered incendiary attacks, and can start fires; see *Catching Fire* (p. 434).

Anyone caught in a blast may attempt an active defense roll to dive for cover from the explosion's collateral damage and fragmentation; see *Dodge and Drop* (p. 377).

Fragmentation Damage

Many grenades, bombs, and artillery shells have metal casings designed to shatter when they explode, producing a storm of sharp fragments. Some are packed with

extra material (pellets, nails, etc.) to enhance this effect.

Fragmentation damage, if any, appears in brackets after explosive damage; e.g., "[2d]" means 2d fragmentation damage. Everyone within (5 × dice of fragmentation damage) yards is vulnerable. For example, that [2d] attack would throw fragments out to 5 × 2 = 10 yards.

The farther a target is from the blast, the less likely the fragments are to hit him. A hit is *automatic* if the explosive attack actually strikes the target. The fragments attack everyone else in the area at skill 15. Only three modifiers apply: the range modifier for the distance from the center of the blast to the target, the modifier for the target's posture (prone, etc.), and the target's Size Modifier. It is possible for several fragments to hit! For every three points by which the attack roll succeeds, one *additional* fragment strikes the target.

The only active defense against fragments is to dive away from the explosion that produced them; see *Dodge and Drop* (p. 377).

For each hit, roll hit location randomly. If that location is behind cover, the fragment hits cover.

Fragmentation damage is *cutting*. Note that if an explosive attack has an armor divisor, this does *not* apply to the fragments it produces.

Airbursts: Against an airburst, do not apply posture modifiers – lying prone under an airburst does *not* decrease the body area exposed to the rain of fragments! Only *overhead* cover protects.

Incidental Fragmentation: An explosion with no listed fragmentation damage can still create fragments if there is any loose or frangible material at the explosion site. Incidental fragmentation damage ranges from 1d-4 for ordinary earth to 1d for an explosion on loose scrap.

Hot Fragments: White phosphorus-type smoke warheads produce this effect. The fragments typically inflict 1d(0.2) *burning* damage every 10 seconds for one minute.

Demolition

Sometimes the only way to deal with a problem is to *blow it up!* If the adventurers are using or facing explosives, the PCs or GM should decide how many dice of damage – in multiples of 6d – the blasting charge is supposed to do, and what kind of explosive it is.

Explosives normally do crushing damage with the Explosion modifier (p. 104) – and often the Fragmentation modifier (p. 104).

How Much Explosive? An explosion doing 6d×*n* damage takes (*n*×*n*)/4 pounds of TNT. If you are using an explosive other than TNT, divide the weight required by its relative explosive force (REF) – see the *Relative Explosive Force Table,* below.

How Big a Blast? Reverse the formula to determine how much damage a given weight of explosive will do: damage is 6d × square root of (weight of explosive in lbs. × 4 × REF).

Example: A 1920s Chicago safecracker plans to blast through a bank vault. Estimating the toughness of the vault (see p. 557), he decides he needs a blast that does 6d×8 damage. He's using dynamite. The weight of dynamite he needs is (8 × 8)/(4 × 0.8) = 20 lbs.

Explosions in Other Environments

Other Atmospheres: These rules assume Earth-normal air pressure. A thicker or thinner atmosphere enhances or reduces the blast effect. Underwater, divide collateral damage by range in yards instead of 3 × range in yards. In a vacuum or trace atmosphere, with no medium to carry the shockwave, damage comes only from the expanding gases themselves: divide damage by 10 × range in yards.

Contact Explosions: A person can throw himself on a grenade, etc. to protect his friends; see *Sacrificial Dodge and Drop,* p. 377. He takes maximum possible damage; his DR protects him normally. Everyone else gets his torso's DR + HP as "cover DR."

Internal Explosions: If an explosive goes off *inside* someone – e.g., a follow-up attack penetrates the target's DR, or a dragon swallows a hand grenade – DR has *no* effect! In addition, treat the blast as an attack on the vitals, with a ×3 wounding modifier.

Relative Explosive Force Table

TL	Type	REF	Description
3	Serpentine Powder	0.3	Standard gunpowder, pre-1600.
4	Ammonium Nitrate	0.4	Common improvised explosive.
4	Black Powder	0.4	Standard gunpowder, 1600-1850.
5	Black Powder	0.5	Standard gunpowder, 1850-1890.
6	Diesel Fuel/ Nitrate Fertilizer	0.5	Common improvised explosive.
6	Dynamite	0.8	Commercially available for mining, demolition.
6	TNT	1.0	The basic, stable, high explosive.
6	Amatol	1.2	TNT-ammonium nitrate. Fills bombs & shells in WWII.
6	Nitroglycerine	1.5	Unstable! If dropped, detonates on 13+ on 3d.
7	Tetryl	1.3	Common for smaller explosive shells and bullets.
7	Composition B	1.4	Another common explosive filler.
7	C4 Plastic Explosive	1.4	Standard military and covert-ops explosive.
9	Octanitrocubane	4	Theoretical advanced explosive.
10	Stabilized Metallic Hydrogen	6	Exotic science-fiction explosive.

Special Damage

These rules cover attacks that don't simply bash through the target's DR to injure him.

Afflictions

An "affliction" is any attack that causes a baneful effect – blindness, choking, stunning, etc. – *instead* of damage. Examples include tear gas, stun guns, the Affliction advantage (p. 35), and most other "nonlethal" weapons and powers.

The target of an affliction always gets a modified HT roll to resist; e.g., HT-3. His DR normally adds to this roll; for instance, DR 1 gives +1 to HT. However, afflictions often have armor divisors or special "penetration modifiers" (see below) that bypass some or all of the target's DR. For example, DR gives *no* HT bonus against a follow-up affliction if the "carrier" attack penetrates DR.

On a failed HT roll, the victim suffers the effects of the affliction: stunning for high-tech stun guns, choking and partial blindness for tear gas, etc. See *Afflictions* (p. 428) for descriptions of the most common effects. Since afflictions represent a *huge* variety of different attacks – from beam weapons to chemical agents to psionic mind blasts – you should consult the footnotes to the relevant weapon table for full details.

Linked Afflictions: Some attacks that inflict ordinary damage have an affliction "linked" to them. For example, a cattle prod does burning damage *and* requires the victim to make a HT-3 roll to avoid stunning. Anyone hit by such an attack must attempt his resistance roll or suffer the affliction, *regardless* of whether any damage penetrates his DR.

Side Effects: Certain damaging attacks cause an affliction as a "side effect" . . . *if* they inflict injury. The victim gets a HT roll to resist, but typically at -1 per 2 points of injury.

Special Penetration Modifiers

In addition to armor divisors (see *Armor Divisors and Penetration Modifiers,* p. 378) and follow-up attacks (see *Follow-Up Damage,* p. 381), there are several other "penetration modifiers":

Blood Agent: The attack must reach an open wound or mucous membrane (eyes, open mouth, nose, etc.) to be effective. If it does not, it has no effect at all. See *Blood Agent* (p. 110) for detailed rules.

Contact Agent: This is most common for contact poison, nerve gas, and exotic "hand of death" effects. The attack must touch bare skin or porous clothing to have any effect. *Any* DR stops it, unless the DR is limited with Tough Skin. *Exception:* If the attack is an Area Effect (p. 102) or Cone (p. 103), it affects everyone in the area who lacks the Sealed advantage (either innate or granted by a sealed suit).

Respiratory Agent: The attack affects only those who inhale it. DR has *no* effect – but the attack cannot harm those who are holding their breath, breathing supplied air (e.g., in a vacuum suit), or using a gas mask or respirator. It is also totally ineffective against anyone who has either the Doesn't Breathe or Filter Lungs advantage.

Sense-Based: The attack is channeled through one or more of the victim's senses (e.g., vision or hearing), as specified for the attack. It can only affect someone using the targeted sense. See *Sense-Based* (p. 109) for details.

Cinematic Combat Rules

The following rules are shamelessly unrealistic and strictly optional, but can be fun in larger-than-life games!

Bulletproof Nudity

PCs with Attractive or better appearance can get a bonus to active defenses simply by undressing! Any outfit that bares legs, chest, or midriff is +1. Just a loincloth or skimpy swimwear is +2. Topless females get an *extra* +1. Total nudity gives no further bonus to defense, but adds +1 to Move and +2 water Move.

Cannon Fodder

The GM may rule that minor NPCs are mere "cannon fodder," with these effects:

1. They automatically fail all defense rolls . . . yet never All-Out Attack.
2. They collapse (unconscious or dead) if *any* penetrating damage gets through DR. If they are unprotected, or if the hero's attacks are such that damage would always penetrate, there's no need to roll damage at all. In any event, don't bother keeping track of HP!

Cinematic Explosions

In reality, a grenade or anti-tank rocket will almost certainly kill an unarmored man. In cinematic combat, explosions do *no* direct damage! Ignore fragmentation, too. All a blast does is disarray clothing, blacken faces, and (most importantly) cause knockback. Every yard of knockback from a cinematic explosion causes a token 1 HP of crushing damage.

Cinematic Knockback

In reality, guns cause little or no knockback. But in cinematic combat, a big gun can blast foes through windows and even walls! Work out knockback for a piercing attack just as if it were a crushing attack. In addition to rolling to see if he falls down, anyone who suffers knockback from *any* attack must make an IQ roll or be mentally stunned on his next turn. This roll is at -1 per yard of knockback.

Flesh Wounds

Immediately after you suffer damage, you may declare that the attack that damaged you (which can include multiple *hits,* if the foe used rapid fire) was a glancing blow or "just a flesh wound." This lets you ignore all but 1 HP (or FP) of damage . . . at the cost of one unspent character point. If you have no unspent points, the GM might let you go into "debt": he will subtract these points from those you earn for the adventure.

Infinite Ammunition

PCs always have spare ammunition or power cells. If they use up all they are carrying, they immediately find more. Furthermore, weapons never malfunction.

Melee Etiquette

If a PC chooses to fight unarmed or with melee weapons, his opponents always face him one-on-one, one at a time. Unengaged NPCs can dance around the fight uttering shrill cries of encouragement, but wait their turn to attack.

If the foe is a super-strong monster that could kill or maim the hero with a single blow, it rarely strikes to inflict damage directly. Instead it slams the hero, or grabs him and tosses him around!

TV Action Violence

If struck by a potentially *lethal* attack (including a rapid-fire attack that inflicts multiple hits), the hero can choose to convert his failed defense roll into a success. This costs him 1 FP and he loses his next turn.

The hero cannot spend FP to avoid unarmed attacks or melee or thrown weapon attacks that inflict crushing damage (or *no* damage, such as a grapple), unless they would hit the skull or neck. Likewise, he cannot avert attacks on his weapons or non-living possessions.

With this rule in effect, those involved in a fight with lethal weapons "duck for cover" and are forced "onto the defensive" until they're exhausted.

Dual-Weapon Attacks

This optional rule *might* be cinematic . . . but it is balanced enough to use in a realistic campaign. The GM has the final say.

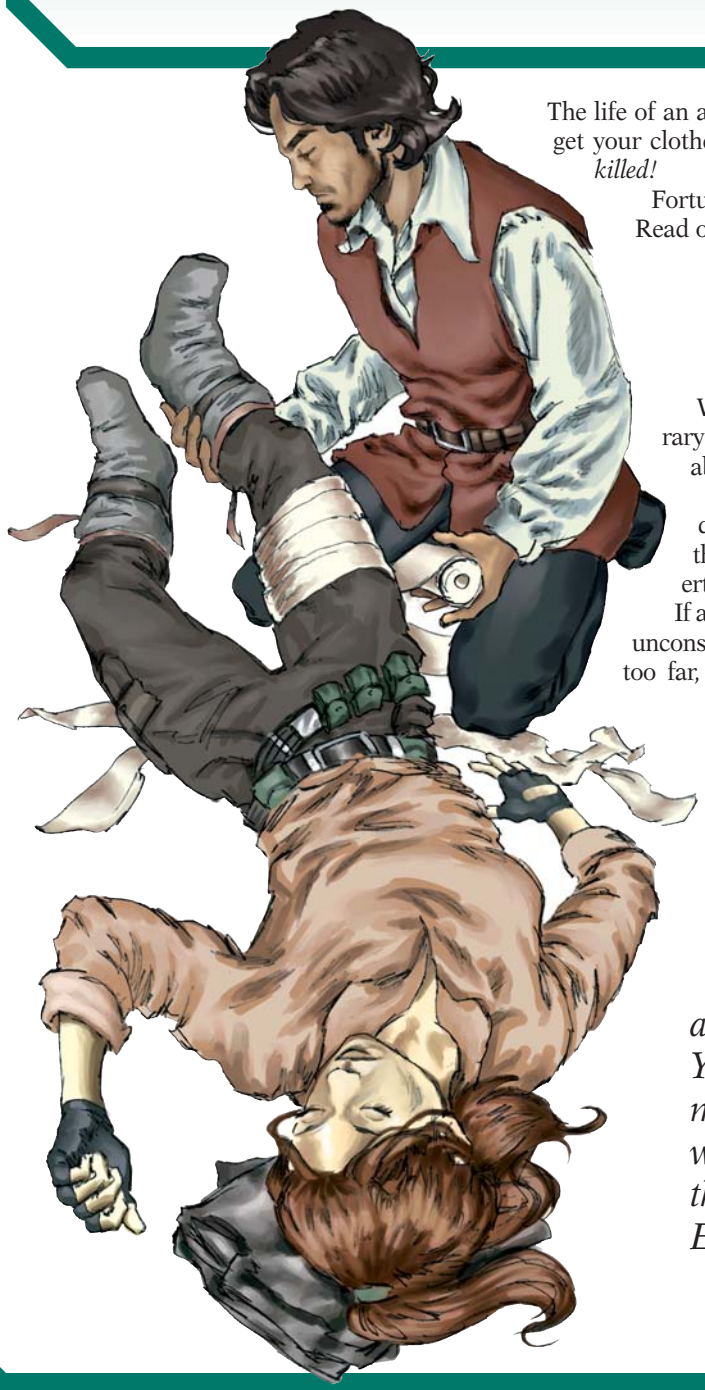
If you have at least two hands, you can strike with two hands at once using an Attack maneuver *instead* of an All-Out Attack (Double) maneuver. Each hand can attack unarmed, with a one-handed melee weapon, or with a pistol. Of course, if your ST is high enough, you can wield a two-handed weapon in one hand!

Each attack is at -4 to hit, but you can learn the Dual-Weapon Attack technique (p. 230) to reduce this penalty. You have an extra -4 (total -8) with your "off" hand, unless you have Ambidexterity (p. 39) or learn Off-Hand Weapon Training (p. 232).

Roll to hit separately for each hand. You can attack one target or two – but to strike two foes with *melee* attacks, they must be adjacent. If you aim both attacks at a single opponent, he defends at -1 against them, as his attention is divided!

If you already have multiple attacks – for instance, from an Extra Attack (p. 53) – you may "trade" only *one* of these for a Dual-Weapon Attack. All your remaining attacks must be simple, single-weapon attacks.

Chapter Fourteen
Injuries, Illness, and Fatigue



The life of an adventurer is not all song and glory. You get tired. You get your clothes dirty. You might actually get *hurt* – or even worse, *killed!*

Fortunately, all these problems can be cured. Even death. Read on . . .

Injuries

Wounds and ailments cause "injury": a (usually) temporary loss of Hit Points. Thus, your HP score measures your ability to sustain injury; see *Hit Points* (p. 16).

Injury often results from "penetrating damage": the damage left after Damage Resistance is subtracted from the basic damage of an attack. However, disease, overexertion, and the like can cause injury *without* damage.

If any injury reduces you to 0 or fewer HP, you will soon fall unconscious. You can even go to *negative* HP . . . but if you go too far, you risk death. For the average man, the difference between full HP and negative HP is one or two sword blows or bullets. This is realistic . . . and dramatic. Even in cinematic battles, heroes rarely shrug off dozens of blows. Instead, they avoid being hit. Armor helps . . . but fights can be deadly, so think before you act!

The life of an adventurer is not all song and glory. You get tired. You get your clothes dirty. You might actually get hurt – or even worse, killed! Fortunately, all these problems can be cured. Even death.

Example of Injury

Fiendish Friedrick has HT 12 and HP 14. He has the ill fortune to be trapped in a dead-end corridor by a horde of orcs. He fights valiantly, but the monsters keep coming.

The first wound Friedrick receives is a spear thrust that inflicts 4 HP of injury. This reduces him to 10 HP. He will have a -4 shock penalty on his next turn.

Then the orc leader swings a halberd. The GM is using hit locations, and says the orc strikes at Friedrick's right arm. Friedrick fails to block and suffers 11 HP of injury. This is over Friedrick's HP/2, so it cripples his arm. But injury to a limb can't exceed the minimum required to cripple it. For Friedrick, HP/2 is 7. Damage *over* HP/2 is 8 HP, so he only loses 8 HP. Now he is at 2 HP . . . and has the One Arm disadvantage!

Since a crippling wound is also a major wound, Friedrick must make a HT roll to avoid being stunned and knocked down. If he fails by 5 or more, he could even pass out! Luckily, he succeeds. He'll have a -4 shock penalty (the maximum) next turn, but he can keep on fighting. He picks up his axe left-handed . . .

However, Friedrick now has less than 1/3 his HP left. His movements slow and falter: he is at half Move and Dodge.

Soon, Friedrick takes another blow. This inflicts 2 HP of injury, reducing him to 0 HP. At the beginning of his next turn, he rolls vs. HT – and succeeds! Grimly, he hangs on to consciousness. Despite the -2 for shock, he slays another orc. For two more turns, he makes successful HT rolls. He is wounded again, dropping to -3 HP, but fights on. But on his third turn, he fails his HT roll and instantly falls unconscious.

Friedrick has desecrated the orcs' sacred burial grounds, so they're *mad*. They keep hacking at him after he falls! When he reaches -14 HP, he must roll vs. HT or die. He succeeds . . . and the orcs keep hacking. At -28 HP, and again at -42 HP, he must make another HT roll to survive. Each time, he rolls a 12 or less and clings to life. But the orcs keep hacking. Eventually, Friedrick reaches -70 HP (-5×HP) and dies automatically.

Only strong magic can help Friedrick now! And if the angry orcs keep hacking until he is at -140 HP (-10×HP), there won't even be a body to revive – just Friedrickburger.

General Injury: Lost Hit Points

Repeated wounding eventually causes *anyone* or *anything* to weaken and collapse, even if no single injury is very great. The chart below summarizes the effects of being at low or negative HP. All effects are cumulative.

Less than 1/3 your HP left – You are reeling from your wounds. Halve your Move and Dodge (round *up*).

0 HP or less – You are in immediate danger of collapse. In addition to the above effects, make a HT roll at the start of your next turn, at -1 per *full* multiple of HP below zero. Failure means you fall unconscious (or simply stop working, if you weren't truly alive or conscious in the first place); see *Recovering from Unconsciousness* (p. 423). Success means you can act normally, but must roll again *every turn* to continue functioning. *Exception:* If you choose Do Nothing on your turn, and do not attempt any defense rolls, you can remain conscious without rolling. Roll only on turns during which you attempt a defense roll or choose a maneuver other than Do Nothing.

-1×HP – In addition to the above effects, make an *immediate* HT roll or die. (If you fail by only 1 or 2, you're dying, but not dead – see *Mortal Wounds,* p. 423). If you succeed, you can still talk, fight, etc., as above (until you fail a HT roll and collapse). Roll again each time you suffer injury equal to a further multiple of your HP, whether as a result of one wound or many. For instance, if you have 11 HP, you must roll to avoid death at -11 HP. If you survive, you must roll again at -22 HP, -33 HP, and so on . . .

-5×HP – You die immediately. You have lost a total of *6 times your HP!* Nobody can survive that much injury.

-10×HP – Total bodily destruction, if this makes sense given the source of the damage – 200 points of arrow wounds leave a messy but recognizable corpse; 200 points of fire injury leaves nothing but an unrecognizable lump of charcoal. The difference can be important in settings where resurrection, reanimation, etc. are possible!

Shock

Whenever you suffer injury, reduce your DX and IQ by the number of HP you lost – to a maximum penalty of -4, regardless of your injuries – *on your next turn only.* This effect, called "shock," is temporary; your attributes return to normal on the turn after that.

Shock affects DX- and IQ-based skills, but *not* active defenses or other defensive reactions; see *Temporary Attribute Penalties* (p. 421). Therefore, on the turn after you are badly hurt, it is often a good idea to try flight or All-Out Defense instead of an immediate counterattack!

High HP and Shock: If you have 20 or more Hit Points, your shock penalty is -1 per HP/10 of injury (drop all fractions). Thus, if you have 20-29 HP, it's -1 per 2 HP lost; if you have 30-39 HP, it's -1 per 3 HP lost, and so forth. The maximum penalty is still -4.

Major Wounds

A "major wound" is any *single* injury of greater than 1/2 your HP. If you are using hit locations, a lesser injury that cripples a body part also counts as a major wound – see *Crippling Injury* (below). Any major wound requires a HT roll to avoid knockdown and stunning (see below).

Knockdown and Stunning

Whenever you suffer a *major wound,* and whenever you are struck in the *head* (skull, face, or eye) or *vitals* for enough injury to cause a shock penalty (see *Shock,* p. 419), you must make an immediate HT roll to avoid knockdown and stunning.

Modifiers: -5 for a major wound to the *face* or *vitals* (or to the *groin,* on a humanoid male); -10 for a major wound to the *skull* or *eye;* +3 for High Pain Threshold, or -4 for Low Pain Threshold.

On a success, you suffer no penalty beyond ordinary shock.

On a failure, you're stunned; see *Effects of Stun,* below. You fall prone (if you weren't already), and if you were holding anything, you drop it. This effect is called "knockdown," and isn't the same as "knockback" (see p. 378).

On a failure by 5 or more, or any critical failure, you fall unconscious! See *Recovering from Unconsciousness* (p. 423).

Those with Injury Tolerance (p. 60) suffer reduced effects: No Brain means that skull, face, and eye injuries don't cause knockdown or stunning unless they are major wounds – and even then, the roll is at no special penalty. No Vitals means that vitals and groin injuries don't cause knockdown or stunning unless they are major wounds, in which case the roll has no special penalties. Homogenous and Diffuse include No Brain and No Vitals.

Effects of Stun

A failed knockdown roll can cause "stun," as can certain critical hit results and some afflictions. If you are stunned, you must Do Nothing on your next turn. You may perform any active defense while stunned, but your defense rolls are at -4 and you cannot retreat.

At the end of your turn, you may roll against HT. On a success, you recover from stun and can act normally on subsequent turns. On a failure, you remain stunned; your next maneuver must also be Do Nothing, but you get another roll at the end of that turn . . . and so on, until you recover from stun.

Mental Stun: If you are surprised, you might be *mentally* stunned; see *Surprise Attacks and Initiative* (p. 393). This sort of stunning works as described above, but you must make an IQ roll, not a HT roll, to snap out of it. You're not hurt – you're confused!

Crippling Injury

When using hit locations, sufficient injury to a limb, extremity, or eye may cripple it. This requires a *single* injury that exceeds a certain fraction of the target's HP. For humans and humanoids, these thresholds are:

Optional Rules for Injury

These rules add realism, and give heroes with medical skills or healing abilities exciting tasks to perform – but they also require extra record keeping, so they are *optional.*

Bleeding

If you are injured, you may continue to lose HP to bleeding. At the end of every minute after being wounded, make a HT roll, at -1 per 5 HP lost. On a failure, you bleed for a loss of 1 HP. On a critical failure, you bleed for 3 HP. On a critical success, the bleeding stops completely. On an ordinary success, you do not bleed this minute, but must continue to roll every minute. If you do not bleed for three consecutive minutes, the bleeding stops for good. Otherwise, you or someone else will need to make a First Aid roll to stop the bleeding; see *First Aid* (p. 424).

The GM decides which wounds bleed. Cutting, impaling, and piercing wounds usually bleed; crushing wounds generally don't, but there are always exceptions. Minor burning and corrosion injury does not bleed significantly: the damage sears the flesh, cauterizing the wound and preventing blood loss. However, if such injury causes a major wound, treat it as a bleeding wound, oozing blood plasma until properly treated.

Accumulated Wounds

It normally takes a *single* injury over HP/3 to cripple an extremity – or over HP/2 to cripple a limb. For extra realism, you can keep track of injury by hit location, in which case *total* injury over HP/3 or HP/2, as appropriate, cripples the body part. Be aware that this leads to complicated record keeping! One good way to handle this is to make tally marks by the affected body part on the character's picture.

Excess injury is still lost under this rule. For instance, if you have 11 HP, a total of 6 HP of injury cripples your arm. *Ignore* further injury, except for the purpose of determining dismemberment. Repeated blows to a limb or extremity *cannot* kill you.

Last Wounds

It can happen that a sorely wounded hero is knocked out, or even killed, by a 1 HP blow to the foot. There are those who find this unrealistic. If you wish, use this optional rule: once you have less than 1/3 your HP left, you can totally ignore any wound to a limb or extremity *unless:* (a) it is a critical hit; (b) it is enough to cripple that body part; or (c) it inflicts injury equal to 1/3 your HP or more at once.

Limb (arm, leg, wing, striker, or prehensile tail): Injury *over* HP/2.

Extremity (hand, foot, tail, fin, or extraneous head): Injury *over* HP/3.

Eye: Injury *over* HP/10.

It is sometimes possible to cripple a body part with less damage or no damage at all; e.g., with a specific critical hit result.

A blow to a limb or extremity can never cause more injury than the *minimum* required to cripple that body part. For example, if a man has 10 HP and suffers 9 points of injury to his right arm, he loses only 6 HP – the minimum required to cripple his arm. *Exception:* No such limit applies to the eyes!

Dismemberment: If injury to a body part *before* applying the above limit was at least *twice* what was needed to cripple it, the body part is not just crippled but *destroyed*. A cutting attack or explosion severs a limb or extremity; otherwise, it's irrevocably crushed, burned, etc.

Crippling Extra Limbs

If you have *more than two* of a particular limb (arm, leg, etc.), a crippling blow is injury over HP/(number of limbs of that kind); e.g., if you have four arms, injury over HP/4 cripples an arm.

If you have *more than two* of a given extremity (hand, foot, etc.), a crippling blow is injury over HP/(1.5 × number of extremities of that kind); e.g., if you have four feet, injury over HP/6 cripples a foot.

Patient Status

Hospitals often describe a patient as being in Good, Fair, Serious, or Critical condition. Here's how these familiar terms equate with injury in ***GURPS.***

Good: Vital signs are stable and within normal limits; indicators are excellent; patient is conscious. This means he has 1/2 or more his full HP; e.g., an average human (10 HP) with 5 to 10 HP remaining.

Fair: Vital signs are stable and within normal limits; indicators are favorable; patient is conscious but in moderate to severe discomfort. He has at least 1 HP, but less than 1/2 his full HP; e.g., the same person at 1 to 4 HP.

Serious: Vital signs may be unstable or outside normal limits; indicators are questionable; patient is badly injured or acutely ill, and may be unconscious. He is at 0 HP or worse, but above -1×HP; e.g., our victim at -9 to 0 HP.

Critical: Vital signs are unstable and outside normal limits; indicators are unfavorable; patient is often unconscious, and may not survive. He is at -1×HP or worse; e.g., our patient at -10 HP or below.

Temporary Attribute Penalties

Shock, afflictions, and many other things can *temporarily* lower your attributes. ST reductions affect the damage you inflict with muscle-powered weapons. IQ penalties apply equally to Will and Per. However, there are no other effects on secondary characteristics; for instance, ST, DX, and HT reductions do *not* affect HP, Basic Speed, Basic Move, or FP.

An attribute penalty always reduces skills governed by the lowered attribute by a like amount. For example, -2 to IQ would give -2 to all IQ-based skills (and to all Per- and Will-based skills, since IQ reductions lower Per and Will).

Exception: Defensive reactions that don't require a maneuver to perform – active defenses, resistance rolls, Fright Checks, etc. – *never* suffer penalties for attribute reductions. For instance, -2 to DX would not affect Block, Dodge, or Parry.

Note that *permanent* attribute losses require recalculation of *all* secondary attributes and skills!

Effects of Crippling Injury

Any crippling injury is also a major wound, and requires a HT roll for knockdown and stunning; see *Knockdown and Stunning* (p. 420). Below are some additional effects specific to particular body parts; all these effects apply to *dismemberment* as well. These last until the fight is over, and possibly longer – see *Duration of Crippling Injuries* (p. 422).

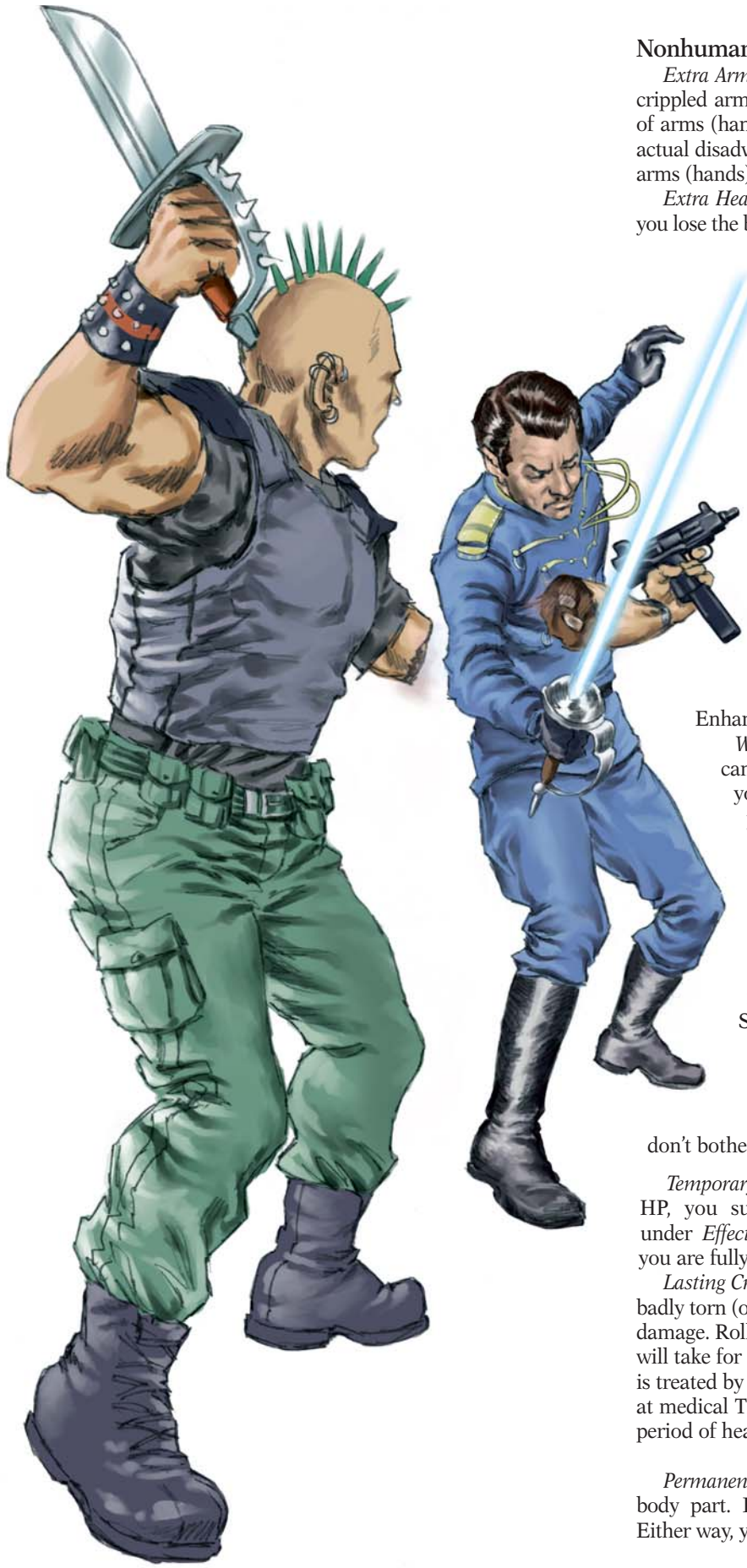
Hand: You drop anything you were carrying in that hand. If you were using two or more hands to hold an object, roll vs. DX to avoid dropping it. You cannot hold anything (e.g., a weapon) in that hand. You can wear a shield on that arm and use it to block, but you cannot *attack* with it. Until healed, you have the One Hand disadvantage (p. 147).

Arm: As for a crippled hand . . . but while someone with a crippled hand could at least carry something in the crook of the arm, you cannot use a crippled arm to carry *anything!* You do not drop a shield on that arm (unless the arm is severed), but you cannot use it to block – and since it's just hanging in front of you, reduce its usual Defense Bonus by one. Until healed, you have the One Arm disadvantage (p. 147).

Foot: You fall down! You cannot stand or walk without a crutch or something to lean on. You can still fight if you brace yourself against a wall. If you have nothing to lean on, you may assume a kneeling or sitting posture. Until healed, you have the Lame (Crippled Legs) disadvantage (p. 141).

Leg: You fall down! You can still fight if you assume a sitting or lying posture. Until healed, you have the Lame (Missing Legs) disadvantage (p. 141).

Eye: You are blind in that eye. Until healed, you have the One Eye (p. 147) disadvantage – or Blindness (p. 124), if you lose all your eyes – unless you have some substitute for eyes.



Nonhuman Body Parts

Extra Arms: If you have three or more arms, a crippled arm (hand) simply reduces the number of arms (hands) you can use. You only suffer an actual disadvantage if reduced to fewer than two arms (hands).

Extra Head: If an extraneous head is crippled, you lose the benefits of that Extra Head; see *Extra Head* (p. 54).

Extra Legs: If you have three or more legs, see *Extra Legs* (p. 54) for the effects of a crippled foot or leg.

Striker: You cannot use your Striker to attack. If your Striker is also a wing or a tail, see below for additional effects.

Tail: Any advantages the tail provides (e.g., Extra Arm or Striker) no longer function. As well, your balance is off: -1 DX, except for close manual tasks. If you're a swimmer or winged flyer, the DX penalty is -2 and you are at half your usual water or air Move (which will also halve your top speed with Enhanced Move).

Wing: If you have Flight (Winged), you cannot fly – and if you were airborne, you *fall.* If your wing is also a Striker, you cannot use it to attack.

Duration of Crippling Injuries

If you suffer a crippling injury, make a HT roll to see how serious it is. For battlefield injuries, roll at the end of combat. Success means the crippling is *temporary,* failure means it's *lasting,* and critical failure means it's *permanent*. Dismemberment is automatically permanent – don't bother rolling!

Temporary Crippling: Until you are back at *full* HP, you suffer the disadvantages described under *Effects of Crippling Injury,* above. Once you are fully healed, these effects disappear.

Lasting Crippling: You suffered a broken bone, badly torn (or burned) muscle, or other lingering damage. Roll 1d. This is the number of *months* it will take for the injury to heal fully. (If the injury is treated by a physician, subtract 3 from the roll at medical TL7+, 2 at TL6, or 1 at TL5 – but the period of healing is never less than one month.)

Permanent Crippling: You lose the use of that body part. It is either nonfunctional or *gone.* Either way, you acquire a new disadvantage (One

Hand, Lame, etc., as appropriate). You get no extra character points for this! It simply lowers your point value. In some settings, even this degree of injury is curable; see *Repairing Permanent Crippling Injuries* (p. 424).

Mortal Wounds

If you fail a HT roll to avoid death by 1 or 2, you don't drop dead, but suffer a "mortal wound." This is a wound so severe that your internal injuries might kill you even after you stop bleeding.

If you are mortally wounded, you are instantly incapacitated. You may or may not be conscious (GM's decision). If you suffer further injury and must make another HT roll to avoid death, *any* failure kills you.

While mortally wounded, you must make a HT roll every half-hour to avoid death. On any failure, you die. On a success, you linger for another half-hour – then roll again. On a critical success, you pull through miraculously: you are no longer mortally wounded (but you are still incapacitated).

If you're alive but mortally wounded, surgery may be able to stabilize your condition – see *Stabilizing a Mortal Wound* (p. 424). At TL6+, "trauma maintenance" can keep you alive while waiting for surgery. This involves CPR, oxygen, transfusions, etc. Instead of rolling vs. HT every half-hour, roll against the *higher* of your HT or your caregiver's Physician skill every hour – or every *day,* if you are on a heart-lung machine or similar life support. You do not need to roll at all if you're put into magical or ultra-tech suspended animation!

If you recover from a mortal wound, make a HT roll. On a failure, you lose a point of HT permanently. On a critical failure, the GM may apply the Wounded disadvantage (p. 162) or some other effect (e.g., reduced appearance due to scarring).

This does not apply to a merely *unaware* victim. If you sneak up behind a sentry with a knife, you can't automatically kill him. Game it out realistically. Target the vitals or neck. Since it's a surprise attack, he won't be hitting back: make an All-Out attack! Your attack roll will almost certainly succeed. Your victim gets no active defense at all. You will probably inflict enough injury to incapacitate or kill him. But it isn't *automatic.*

"Now stand aside."
" 'Tis but a scratch."
"A scratch? Your arm's off."
"No it isn't."
"Then what's that?"
". . . I've had worse."
– King Arthur and the Black Knight,
Monty Python and the Holy Grail

Death

If your character is killed, you may still wish to keep track of further injury. In certain futuristic or magical worlds, the dead can be brought back to life by prompt treatment, as long as the body is mostly intact (not reduced to -10×HP).

Instant Death

Decapitation, a cut throat, etc. can kill anyone, regardless of HT and HP. If a *helpless* or *unconscious* person is attacked in an obviously lethal way, he's dead. Don't bother to roll for damage, calculate remaining HP, etc. Just assume that he drops to -5×HP.

Dying Actions

When a PC or important NPC is killed in any but the most sudden and thorough fashion, the GM should allow a "dying action." If this is a final blow at the enemy, it should take no more than a turn. If it's a deathbed speech, the GM should stretch time a little bit for dramatic purposes! This has nothing to do with realism, but it's fun.

Recovery

The *Injuries* rules may seem harsh, but don't despair . . . you can get better!

Recovering from Unconsciousness

Failure by 5 or more on a knockdown roll, a failed HT roll to stay conscious at 0 HP or less, and many other things (e.g., certain critical hits) can leave you unconscious. It is up to the GM to decide whether you are *truly* unconscious or just totally incapacitated by pain and injury – but either way, you can't *do* anything. You recover as follows:

- If you have 1 or more HP remaining, you awaken automatically in 15 minutes.
- At 0 HP or worse, but above -1×HP, make a HT roll to awaken every hour. Once you succeed, you can act normally. You do not have to roll against HT every second to remain conscious unless you receive *new* injury. But since you are below 1/3 your HP, you are at half Move and Dodge.
- At -1×HP or below, you are in bad shape. You get a *single* HT roll to awaken after 12 hours. If you succeed, you regain consciousness and can act as described above. But if you fail, you won't regain consciousness without medical treatment – use the rules given under *Stabilizing a Mortal Wound* (p. 424). Until you receive help, you must roll vs. HT every 12 hours; if you fail, you *die.*

High HP and Healing

The healing rates given for natural recovery, first aid, magical healing spells, the Regeneration advantage, etc. assume someone with human-scale Hit Points; that is, with fewer than 20 HP. Those with more HP heal in proportion to their HP score. Multiply HP healed by 2 at 20-29 HP, by 3 at 30-39 HP, by 4 at 40-49 HP, and so on, with each *full* 10 HP adding 1 to the multiple.

Natural Recovery

Rest lets you recover lost HP, unless the damage is of a type that specifically does not heal naturally (for an example, see *Illness,* p. 442). At the end of each day of rest and decent food, make a HT roll. On a success, you recover 1 HP. The GM may give a penalty if conditions are bad, or a bonus if conditions are very good.

First Aid Table

Tech Level	*Time per Victim*	*HP Restored*
0-1	30 minutes	1d-4
2-3	30 minutes	1d-3
4	30 minutes	1d-2
5	20 minutes	1d-2
6-7	20 minutes	1d-1
8	10 minutes	1d
9+	10 minutes	1d+1

First Aid

The two main uses for First Aid skill (p. 195) are *bandaging* and *treating shock.*

Bandaging

It takes one minute to apply pressure or a tourniquet to stop bleeding. This restores 1 HP.

Using the *Bleeding* rule (p. 420), someone who is wounded but receives a successful First Aid roll within one minute of his injury loses *no* HP to bleeding. A later roll will prevent further HP loss.

Treating Shock

After bandaging, the aid-giver may take extra time to apply a more elaborate dressing and treat the victim for shock. He must keep the victim warm, comfortable, calm, and still. After the time indicated on the *First Aid Table,* he may roll against First Aid skill.

On a success, the medic rolls as indicated on the table to see how many HP the victim recovers – minimum 1 HP. A critical success restores the maximum possible HP! This roll *includes* the 1 HP for bandaging; thus, a roll of 1 HP restores no further HP.

On a critical failure, the victim *loses* 2 HP instead of recovering any HP at all!

Surgery

Surgery can physically repair damage to the body, but it's *risky* at low TLs – especially prior to the invention of anesthesia (mid-TL5) and blood typing (TL6). See Surgery skill (p. 223) for general modifiers and for the effects of a failed skill roll. Some additional rules:

Equipment: Basic equipment gives -6 at TL1, -5 at TL2-3, -4 at TL4, -2 at TL5, and +(TL-6) at TL6+. Equipment quality further modifies the roll; see *Equipment Modifiers* (p. 345). The modifiers for TL5+ surgery assume that anesthetic is available. If it isn't, apply a -2 penalty to skill. This is *instead* of the usual -1 for a missing item.

Infection: Before TL5 (and, at the GM's option, even during much of TL5), antiseptic practice is poor. Check for infection (see *Infection,* p. 444) after any surgery.

Stabilizing a Mortal Wound

Each attempt takes one hour. The roll is at -2 if the patient is at -3×HP or worse, or -4 if he's at -4×HP or worse. On a failure, repeated attempts are allowed, at a cumulative -2 per attempt. If the victim dies on the table, resuscitation may be possible; see *Resuscitation* (p. 425).

Repairing Lasting Crippling Injuries

It is possible to fix a lasting crippling injury (see *Duration of Crippling Injuries,* p. 422) through surgery rather than leaving it to heal on its own. This takes 2 hours. On a success, measure the injury's remaining recovery time in *weeks* rather than *months.* But on a critical failure, the injury becomes permanent!

Repairing Permanent Crippling Injuries

Radical surgery can fix certain *permanent* crippling injuries at TL7+; exact details are up to the GM. This often requires prosthetic or transplant parts, which might be costly or hard to find. At TL7-8, the procedure might only restore partial functionality. This kind of operation is also tricky: -3 or worse to skill. On a failure, the patient needs 1d months to recover before another attempt is possible.

Medical Care

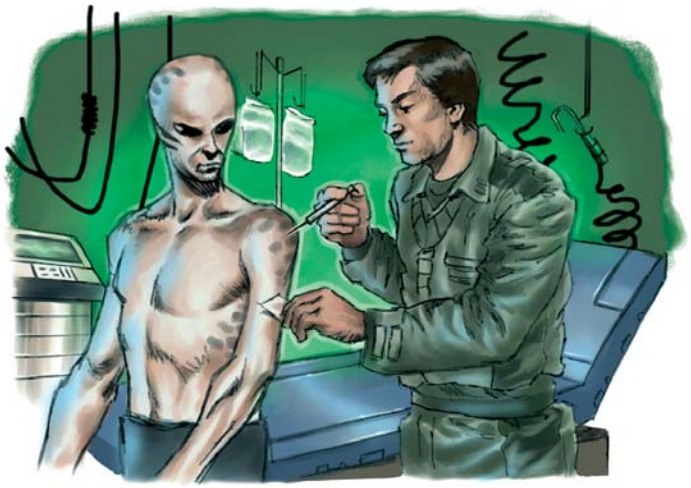
Anyone under the care of a competent physician (Physician skill 12+) gets +1 on all rolls for natural recovery.

The *healer* may also make a Physician roll to cure the patient. Only one physician may roll per patient, but a single physician can care for up to 200 patients. The exact number of patients a physician can attend to and the frequency with which he may roll to cure them depend on the TL of his Physician skill; see the *Medical Help Table,* below. On a success, the patient recovers 1 HP; on a critical success, he recovers 2 HP. This is in addition to natural healing. However, a critical failure *costs* the patient 1 HP!

High-tech physicians depend heavily on equipment but still receive good

Medical Help Table

Medical TL	*Frequency of Rolls*	*Patients per Doctor*
0	There are no physicians. Get well by yourself.	
1-3	Weekly	10
4	Every 3 days	10
5	Every 2 days	15
6	Daily	20
7	Daily	25
8	Daily	50
9	2 × daily	50
10	3 × daily	50
11	4 × daily	100
12+	5 × daily	200



It just so happens that your friend here is only MOSTLY dead. There's a big difference between mostly dead and all dead.

– Miracle Max, ***The Princess Bride***

basic training; therefore, a TL6+ physician performs as though he were TL6 if he has to make do without the gadgetry to which he is accustomed, as long as the surroundings are clean.

Resuscitation

Reviving a drowning, asphyxiation, or heart attack victim requires *resuscitation*. Make a successful Physician/TL7+ roll – or a First Aid/TL7+ roll at -4. Each attempt takes one minute. Repeated attempts are possible, but there is almost always a time limit.

Cardiopulmonary resuscitation (CPR) and rescue breathing, widely taught after 1960, are more effective than earlier forms of resuscitation. First Aid rolls (but *not* default rolls) to revive victims of drowning or asphyxiation are at -2 instead of -4.

Ultra-Tech Drugs

Miraculous drugs are a staple of science-fiction medicine. Below is a quick-and-dirty system for designing TL9+ drugs.

Effects: Select one or more attribute modifiers, advantages, or disadvantages to represent the drug's effects and (usually *bad*) side effects. Most medical drugs give Rapid Healing, Resistant to Disease, HT bonuses, or similar benefits. Some mitigate disadvantages, canceling them for the drug's duration (e.g., a psychiatric drug might suppress Delusions and Paranoia). A few provide unique effects, such as healing lost HP or FP.

Duration: Select the duration of the effects. Standard durations are *short-term* (lasts [25 - HT] minutes), *medium-term* ([25 - HT]/4 hours), *long-term* (one full day), or *very long-term* (up to a week). Multiple doses generally extend duration rather than increasing effect; e.g., two doses of a long-term drug last two days.

Potency: The subject gets a HT roll to resist disadvantages and other negative effects. The drug's *potency* is a modifier to this roll. Assume that each doubling of dosage gives an extra -1 to the roll.

Form: A drug may be a pill, injection, aerosol, contact agent, or aerosol contact agent. Many drugs are available in multiple forms. Most pills require 30 minutes or more to take effect, but can be dissolved in drinks. Contact agents (e.g., patches) take at least 5 minutes. Aerosols and injections take effect almost immediately.

Cost: This can vary, but here's a rule of thumb. Sum the *absolute* point values of all traits the drug adds or removes. Multiply the sum by a base cost for duration: $2 for short-term, $10 for medium-term, $50 for long-term, or $250 for very long-term. For drugs that heal, use the point cost of HP or FP, as appropriate, and treat permanent healing as "long-term." Potency modifies price: double cost for each -1 to HT rolls. Multiply final cost by 2 for aerosols or contact agents, by 10 for aerosol contact agents.

LC: This will vary by society and with the nature of the drug. Medical drugs are typically LC3. Drugs perceived as socially harmful might be LC2 or even LC1.

Example: A "truth drug" that forces the subject to roll HT-3 or suffer -4 to Will for (25 - HT) minutes would cost 20 (point value) × $2 (short-term) × 8 (potency) × 1 (injection) = $320 per dose. It would probably only be available to spies: LC2.

Fatigue

Running long distances, using extra effort, being suffocated, casting magic spells, and many other things can cause "fatigue": a temporary loss of Fatigue Points. Your Fatigue Points (FP) score starts out equal to your HT, but you can modify this; see *Fatigue Points* (p. 16). Just as injury represents physical trauma and comes off of HP, fatigue represents lost energy and reduces FP. When you lose FP, keep track of it on your character sheet.

Lost Fatigue Points

The chart below summarizes the effects of being at low or negative FP. All effects are cumulative.

Less than 1/3 your FP left – You are very tired. Halve your Move, Dodge, and ST (round *up*). This does *not* affect ST-based quantities, such as HP and damage.

0 FP or less – You are on the verge of collapse. If you suffer further fatigue, each FP you lose also causes 1 HP of injury. Thus, fatigue from starvation, dehydration, etc. will eventually kill you – and you *can* work yourself to death! To do anything besides talk or rest, you must make a Will roll; in combat, roll before each maneuver other than Do Nothing. On a success, you can act normally. You can use FP to cast spells, etc., and if you are drowning, you can continue to struggle, but you suffer the usual 1 HP per FP lost. On a failure, you collapse, incapacitated, and can do *nothing* until you recover to positive FP. On a critical failure, make an immediate HT roll. If you fail, you suffer a heart attack; see *Mortal Conditions* (p. 429).

-1×FP – You fall unconscious. While unconscious, you recover lost FP at the same rate as for normal rest. You awaken when you reach positive FP. Your FP can *never* fall below this level. After this stage, any FP cost comes off your HP instead!

Fatigue Costs

The following activities commonly result in FP loss.

Fighting a Battle

Any battle that lasts more than 10 seconds will cost FP – you expend energy quickly when you fight for your life! Those who make *no* attack or defense rolls during the fight are exempt from this fatigue, but other actions (e.g., casting magic spells) still have their usual FP cost. Assess the following costs at the *end* of the battle:

No Encumbrance: 1 FP.
Light Encumbrance: 2 FP.
Medium Encumbrance: 3 FP.
Heavy Encumbrance: 4 FP.
Extra-Heavy Encumbrance: 5 FP.

If the day is hot, add 1 FP to the above – or 2 FP for anyone in plate armor, an overcoat, etc. Full-coverage armor at TL9+ is climate-controlled. This counts as a cooling system, and negates the penalties for hot weather.

These costs are *per battle,* not per 10 seconds of battle. A very long battle may cost more (GM's decision), but it would have to run for 2 or 3 minutes (120 to 180 turns!) before extra FP costs would be realistic.

Hiking

Use the FP costs for fighting a battle, but assess them *per hour* of road travel; e.g., one hour of marching with light encumbrance costs 2 FP (3 FP on a hot day). If the party enters combat while on the march, assume they've been walking for an hour, unless events dictate otherwise, and assess fatigue accordingly.

Overexertion

Carrying more than extra-heavy encumbrance, or pushing/pulling a very heavy load, costs 1 FP *per second* (see *Lifting and Moving Things,* p. 353). For FP costs for other forms of heavy exertion, see *Extra Effort* (p. 356).

Running or Swimming

Every 15 seconds of sprinting, or minute of paced running or swimming, requires a HT roll to avoid losing 1 FP. Encumbrance has no direct effect on this, but you run or swim more slowly. See *Running* (p. 354) and *Swimming* (p. 354).

Special Abilities

Most magic spells (see Chapter 5), many advantages (such as Healing, p. 59), and a few cinematic skills (for instance, Power Blow, p. 215) cost FP to use, as does any trait with the Costs Fatigue limitation (p. 111).

Starvation and Dehydration

When you buy equipment, don't forget food! The traveler's rations under *Camping and Survival Gear* (p. 288) are the *minimum* necessary to keep you healthy on the road; missing even one meal weakens you.

Note to the GM: If keeping up with the party's meals doesn't sound like fun, feel free to ignore this whole section. Travel is much more hazardous if you have to keep track of food and water!

Starvation

A human needs three meals per day. For each meal you miss, take 1 FP. You can only recover "starvation" fatigue with a day of rest: no fighting or travel, and three full meals. Each day of rest makes up for three skipped meals.

Dehydration

In temperate areas, where water is easy to come by, assume that you can renew your supplies as needed. But if water is in short supply, watch out! A human (or elf, dwarf, etc.) needs 2 quarts of water a day – 3 in hot climates, 5 in the heat of the desert! If you get less than you need, you lose 1 FP every eight hours. If you drink less than a quart a day, you lose an *extra* 1 FP and 1 HP per day. You can regain all FP lost to dehydration after a day of rest with ample water supplies. You recover lost HP at the usual rate.

Missed Sleep

The *average* human can function for a 16-hour "day." He must then rest

for an eight-hour "sleep period." Less Sleep (p. 65) shortens this sleep period, thereby increasing useful day length; Extra Sleep (p. 136) and Sleepy (p. 154) do the opposite. Getting less sleep than your sleep period costs FP that you can only recover by sleeping.

Interruptions, noise, and disadvantages such as Chronic Pain (p. 126), Insomniac (p. 140), Light Sleeper (p. 142), and Nightmares (p. 144) can reduce the *quality* of your sleep. In game terms, your sleep counts as fewer hours – or none at all.

Those who have the Doesn't Sleep advantage (p. 50) can *ignore* this entire section!

Staying Up Late

If you've been awake for more than your normal day (typically 16 hours), you start to get tired. You lose 1 FP if you fail to go to sleep, and 1 FP per quarter-day (usually four hours) you stay awake after *that*.

If you've lost half or more of your FP to lack of sleep, you must make a Will roll every two hours you spend inactive (e.g., standing watch). On a failure, you fall asleep, sleeping until you are awakened or get a full night's sleep. On a success, you have -2 to DX, IQ, and self-control rolls. Those with the Slow Riser disadvantage (p. 155) get an extra -1.

If you're down to less than 1/3 your FP due to lack of sleep, roll as above once per 30 minutes of inaction or two hours of action. This can be very dangerous!

Getting Up Early

If you sleep for less than your full sleep period, you'll still be tired when you wake up. Subtract *twice* the hours of missed sleep from your day to determine how long you can stay awake. For example, if your sleep period is eight hours and you sleep only six hours, you've missed two hours of sleep. You will suffer the effects of staying up late after only 12 hours: your usual 16-hour day, minus four hours (twice your hours of missed sleep).

Foraging

In hospitable terrain, you can supplement your supplies by foraging for food. On any day, each character can "forage" as the party travels. A successful Survival or Naturalist roll collects enough edible plants and berries for one meal. (On a 17, you poisoned yourself. Roll vs. HT. On a success, you lose 1 HP; otherwise, lose 1d HP. On an 18, you shared with your friends: the whole party suffers – each PC rolls independently.)

In suitable terrain, a successful skill roll with a missile weapon (at -4) bags a rabbit or similar creature, providing meat for two meals. Near water or at sea, a successful Fishing roll has similar results.

Each forager gets *one* Survival or Naturalist roll and *one* missile or Fishing roll per day.

Alternatively, the party can take some time off from travel and do some *serious* foraging. Each character can make *five* Survival or Naturalist rolls and *five* missile or Fishing rolls per day. Foragers can smoke meat and fish over a fire and add it to the regular store of rations.

The GM can impose penalties in areas with little plant or animal life (e.g., -3 in snow, -6 in desert), and cumulative penalties for repeated foraging in an area.

Recovering from Fatigue

You can recover "ordinary" lost FP by resting quietly. Reading, talking, and thinking are all right; walking around, or anything more strenuous, is *not*. Lost FP return at the rate of 1 FP per 10 minutes of rest. The GM may allow you to regain one extra FP if you eat a decent meal *while resting*. Certain drugs, magic potions, etc. can restore missing FP, as can spells such as Lend Energy and Recover Energy (see p. 248).

You can only recover from fatigue caused by *missed sleep* by sleeping for at least one full sleep period. This restores 1 FP. Further uninterrupted sleep restores 1 FP per hour.

You need food or water to recover FP lost to starvation or dehydration; see *Starvation and Dehydration* (above).

Hazards

Besides the ordinary combat risks of swords, guns, and spells, adventurers commonly face other hazards.

Acid

Acids range from extremely weak to extremely strong (e.g., hydrochloric, perchloric, nitric, and sulfuric acids). Most laboratory acids are dangerous only to the eyes, but strong or highly concentrated acids can "burn" through equipment and flesh. For game purposes, treat strong alkalis just like strong acids.

If the victim is *splashed* with strong acid, he suffers 1d-3 points of corrosion damage. If the acid splashes on his face, he must make a HT roll to avoid eye damage. On a failure, or on a direct hit to the eyes, the damage is to his *eyes*. Use the *Crippling Injury* rules (p. 420) to see whether he is blinded – and if so, whether the blindness is permanent. On a critical failure, permanent blindness is certain (acquire the Blindness disadvantage, p. 124).

If the victim is *immersed* in acid, he takes 1d-1 corrosion damage per second. If his *face* is immersed, he must also roll for eye damage (see above) every second.

If the victim *swallows* acid, he takes 3d damage at the rate of 1 HP per 15 minutes. A successful Physician or Poisons roll can halt this damage; treatment requires 2d minutes.

Used against a lock's pins or other small, vulnerable items, acid requires 3d minutes to eat through the item.

A vial of acid powerful enough to produce these effects is a TL3 item, and costs $10.

Afflictions

An "affliction" is a harmful effect other than direct injury or fatigue, usually the result of an attack, hazard, illness, magic spell, or toxin. In most cases, the victim gets a HT roll to resist, and only suffers the affliction on a failure. Duration depends on the cause; see the relevant disease, hazard, poison, spell, or weapon description for details.

Irritating Conditions

Coughing or Sneezing: You are at -3 to DX and -1 to IQ, and cannot use Stealth.

Drowsy: You are on the verge of falling asleep. Make a Will roll every two hours you spend inactive. On a failure, you fall asleep, and sleep until you are awakened or get a full night's sleep. On a success, you have -2 to DX, IQ, and self-control rolls.

Drunk: You are highly intoxicated: -2 to DX and IQ, and -4 to self-control rolls except those to resist Cowardice. Reduce Shyness by *two* levels, if you have it.

Euphoria: You have a -3 penalty to all DX, IQ, skill, and self-control rolls.

Nauseated: You have -2 to all attribute and skill rolls, and -1 to active defenses. As well, roll vs. HT after you eat, are exposed to a foul odor, fail a Fright Check, or are stunned, and every hour in free fall or in any situation where you might suffer motion sickness. A rich meal in the past hour gives -2; anti-nausea remedies give +2. On a failure, you vomit for (25 - HT) seconds – treat as Retching, below.

Pain: You have a penalty to all DX, IQ, skill, and self-control rolls. This is -2 for Moderate Pain, -4 for Severe Pain, and -6 for Terrible Pain. High Pain Threshold halves these penalties; Low Pain Threshold doubles them.

Tipsy: You are slightly intoxicated: -1 to DX and IQ, and -2 to self-control rolls except those to resist Cowardice. Reduce Shyness by one level, if you have it.

Incapacitating Conditions

All of these afflictions prevent you from taking voluntary action for the duration. In addition to their other effects, you're effectively stunned (-4 to active defenses). In combat, you must Do Nothing on your turn. If an affliction lets you *drop,* you can sit, kneel, go prone, etc. if standing, or go prone if kneeling or sitting. If it lets you *stagger,* you can drop, change facing, or step or crawl one yard. In all cases, you are still effectively stunned.

Agony: You are conscious but in such terrible pain that you can do *nothing* but moan or scream. If standing or sitting, you fall down. While the affliction endures, you lose 1 FP per minute or fraction thereof. After you recover, anyone who can credibly threaten you with a resumption of the pain gets +3 to Interrogation and Intimidation skill rolls. Low Pain Threshold *doubles* the FP loss and torture bonus. High Pain Threshold lets you overcome the agony enough to function, but at -3 to DX and IQ.

Choking: You are unable to breathe or speak. You may do nothing but drop. While the choking endures, you suffer the effects of suffocation (see *Suffocation,* p. 436). If you have an object lodged in your throat, a friend can try a First Aid roll to clear it; roll at -2 before TL7. Each attempt takes 2 seconds. If you have Doesn't Breathe or Injury Tolerance (Homogenous), you cannot choke!

Daze: You are conscious – if you are standing, you remain upright – but you can do nothing. If you are struck, slapped, or shaken, you recover on your next turn.

Ecstasy: You're incapacitated with overwhelming pleasure. Treat as Agony, but neither Low Pain Threshold nor High Pain Threshold has any effect – and instead of a bonus for torture, someone offering to *continue* the pleasure gets +3 to any Influence roll! If you have Killjoy, you're immune.

I laugh in the face of danger, and then I hide until it goes away.

– Xander, ***Buffy the Vampire Slayer***

Hallucinating: You can *try* to act, but you must roll vs. Will before each success roll. On a success, you merely suffer 2d seconds of disorientation. This gives -2 on success rolls. On a failure, you actually hallucinate for 1d minutes. In this case, the penalty is -5. The GM is free to specify the details of your hallucinations, which need not be visual. On a critical failure, you "freak out" for 3d minutes. You might do *anything!* The GM rolls 3d: the higher the roll, the more dangerous your action.

Paralysis: You cannot move any voluntary muscles, and fall over if you are not in a balanced position. You remain conscious, and can still use advantages or spells that require neither speech nor movement.

Retching: You are conscious but vomiting (or suffering dry heaves). You can *try* to act, but you will be at -5 to DX, IQ, and Per, and automatically fail at any action that requires a Concentrate maneuver. At the end of the retching spell, you lose 1 FP. You gain no benefit from recent meals or oral medication – you've thrown it up.

Seizure: You suffer a fit of some kind. Your limbs tremble uncontrollably, you fall down if standing, and you cannot speak or think clearly. You can do *nothing*. At the end of the seizure, you lose 1d FP.

Unconsciousness: You are knocked out, just as if you had suffered injury.

Mortal Conditions

Coma: You collapse just as if you had been wounded to -1×HP or below and passed out; see *Recovering from Unconsciousness* (p. 423). You get a *single* HT roll to awaken after 12 hours. On a failure, you won't recover without medical treatment. Until you receive treatment, roll vs. HT every 12 hours. On any failure, you *die*.

Heart Attack: Your heart stops functioning ("cardiac arrest"). You immediately drop to -1×FP. Regardless of your current HP, you will die in HT/3 minutes unless resuscitated – see *Resuscitation* (p. 425). If you survive, you will be at 0 HP or your current HP, whichever is *worse*. Missing HP heal normally. If you die and it matters what your HP total was, treat this as death at -1×HP or your current HP, whichever is worse. Injury Tolerance (Diffuse, Homogenous, or No Vitals) grants immunity to this affliction.

Hazardous Atmospheres

Earth's atmosphere is 78% nitrogen and 21% oxygen (plus 1% comprising a number of other gases). Visitors to other planets (and victims of lab accidents or death traps) might encounter other atmospheres, most of which are unsafe for humans without proper protection. Of course, "breathable air" for humans might be deadly for nonhumans, and vice versa!

Corrosive: The atmosphere reacts with exposed flesh. Those with the Sealed advantage are safe; those in sealed suits *might* be safe, but some gases eat away at seals. Small concentrations in otherwise breathable air require a roll at HT to HT-4 every minute to avoid 1 point of corrosion damage. Victims suffer coughing (see *Afflictions,* p. 428) after losing 1/3 their HP, blindness (as the disadvantage) after losing 2/3 their HP. Atmospheres made up mostly of corrosive gases have effects comparable to immersion in acid (see *Acid,* p. 428) *and* count as suffocating. Corrosives include ammonia and nitrides. Chlorine and fluorine are *extremely* corrosive *and* toxic!

Toxic: The atmosphere is poisonous. Individuals without respirators, Doesn't Breathe, Filter Lungs, etc. are susceptible. Ordinary airborne industrial pollutants might require a daily HT roll to avoid 1 point of toxic damage. Lethal gases would call for a HT-2 to HT-6 roll every minute to avoid 1 point of toxic damage. If such gases make up most of the atmosphere, they inflict *at least* 1d toxic damage per 15 seconds (*no* resistance possible) *and* count as suffocating. A typical toxic gas is carbon monoxide. Chlorine and fluorine are deadly in tiny concentrations, and also corrosive.

Suffocating: The atmosphere is unbreathable. For humans, this means it lacks oxygen. Those without Doesn't Breathe or an air supply start to suffocate (see *Suffocation,* p. 436). Hydrogen, methane, and nitrogen are all suffocating. As noted above, an atmosphere made up mostly of corrosive or toxic gases is suffocating as well – but these usually kill so rapidly that suffocation becomes irrelevant.

Atmospheric Pressure

Regardless of its *composition,* an atmosphere may be difficult or impossible to breathe if its *pressure* is wrong. We measure air pressure in "atmospheres" (atm.); 1 atm. is air pressure at sea level on Earth.

Trace (up to 0.01 atm.): Treat an atmosphere this thin as vacuum (see *Vacuum,* p. 437).

Very Thin (up to 0.5 atm.): The air is too thin to breathe. Earth's atmosphere becomes "very thin" above 20,000'. If you lack protection (e.g., the Doesn't Breathe advantage, or a respirator and oxygen tanks), you suffocate – see *Suffocation* (p. 436). Vision rolls are at -2 without eye protection.

Thin (0.51-0.8 atm.): Earth's atmosphere is "thin" between 6,000' and 20,000'. Thin air is breathable *if* oxygen is present in Earthlike percentages, but it is hard on unprotected individuals. Increase all fatigue costs for exertion by 1 FP. Vision rolls are at -1 without eye protection. Finally, anyone who breathes thin air for an hour or more must check for "altitude sickness." Make a daily HT roll at +4. Critical success means acclimatization – do not roll again. Success means no effect *today*. Failure means headaches, nausea, etc., giving -2 to DX and IQ. Critical failure means the victim falls into a coma after 1d hours; see *Mortal Conditions* (above). Roll against Physician skill once per day to revive the victim before he dies.

Dense (1.21-1.5 atm.): The air is breathable, with some discomfort: -1 to all HT rolls, unless you have a pressure suit. If the air contains more than 50% oxygen, you must wear a "reducing respirator" that lowers oxygen partial pressure, or suffer -2 to DX due to coughing and lung damage.

Very Dense (1.51+ atm.): As "dense," but a reducing respirator is *required* if the air is more than 10% oxygen. Usually quite hot from greenhouse effects.

Superdense (10+ atm.): As "very dense," but the atmospheric pressure is so great that it can actually *crush* someone who is not native to it, unless he has Pressure Support or an armored suit that provides this advantage; see *Pressure* (p. 435). Visitors to Venus, or deep inside Jupiter, experience *hundreds* of atmospheres of pressure! Such atmospheres are often poisonous, which presents a separate problem.

These rules assume you are native to 1 atm. and can function normally at 0.81-1.2 atm. If your native pressure differs from 1 atm., multiply all the pressure ranges above by your native pressure in atm. For example, if you're native to 0.5 atm., a "dense" atmosphere for you would be 0.61-0.75 atm. and a "thin" one would be 0.26-0.4 atm.

Cold

Cold can be deadly, but only magic or superscience can produce cold quickly enough to cause damage in combat. Armor offers its usual DR against such "instant" cold attacks, but it must be insulated or heated to shield against prolonged exposure to ambient cold.

Make a HT or HT-based Survival (Arctic) roll, whichever is better, every 30 minutes in "normal" freezing weather. For most humans, this means temperatures below 35°F, but see *Temperature Tolerance* (p. 93). In light wind (10+ mph), roll every 15 minutes. In strong wind (30+ mph), roll every 10 minutes. Additionally, strong wind can dramatically reduce the effective temperature (the "wind chill factor"). Also see the modifiers below:

Situation	*Modifier to HT Roll*
Light or no clothing	-5
Ordinary winter clothing	+0
"Arctic" clothing	+5
Heated suit	+10
Wet clothes	*additional* -5
Every 10° below 0°F *effective* temperature	-1

Failure costs 1 FP. As usual, once you go below 0 FP, you will start to lose 1 HP per FP. Recovery of FP or HP lost to cold requires adequate shelter and a heat source (flame, electric heat, body warmth, etc.).

Thermal Shock: Sudden immersion in icy waters (e.g., any of Earth's oceans far from the equator) or a cryogenic environment can cause death by thermal shock. Note that impure water (e.g., saltwater oceans) can be below the usual freezing temperature! If you are wearing a completely waterproof "dry suit," you are only affected as per normal freezing. Otherwise, roll against HT once per minute of immersion. Do *not* modify this for clothing. On a success, you lose 1 FP. On a failure, you lose FP equal to the margin of failure. Don't forget to check for drowning as well!

Collisions and Falls

When a moving object hits another object, this is a *collision.* Use the rules below for ramming attempts, accidental crashes, falls, and dropped objects.

Damage from Collisions

An object or person's *Hit Points* and *velocity* determine collision damage. Mass only matters indirectly: massive objects usually have high HP, but it would hurt more to collide with a locomotive than with a pillow of the same mass! HP take into account both mass *and* structural strength.

"Velocity" is how fast the character or object is moving in yards per second (2 mph = 1 yard per second). Velocity could be anything up to Move. It might *exceed* Move when diving or falling; see *High-Speed Movement* (p. 394).

An object in a collision inflicts dice of crushing damage equal to (HP × velocity)/100. If this is less than 1d, treat fractions up to 0.25 as 1d-3, fractions up to 0.5 as 1d-2, and any larger fraction as 1d-1. Otherwise, round fractions of 0.5 or more *up* to a full die.

If an object is bullet-shaped, sharp, or spiked, it does half damage, but this damage is piercing, cutting, or impaling, rather than crushing.

Falling Velocity Table

Fall	Velocity	Fall	Velocity	Fall	Velocity	Fall	Velocity
1 yard	5	13-14 yards	17	35-37 yards	28	68-71 yards	39
2 yards	7	15 yards	18	38-39 yards	29	72-75 yards	40
3 yards	8	16-17 yards	19	40-42 yards	30	76-79 yards	41
4 yards	9	18-19 yards	20	43-45 yards	31	80-82 yards	42
5 yards	10	20-21 yards	21	46-48 yards	32	83-86 yards	43
6 yards	11	22-23 yards	22	49-51 yards	33	87-90 yards	44
7 yards	12	24-25 yards	23	52-54 yards	34	91-95 yards	45
8 yards	13	26-27 yards	24	55-57 yards	35	96-99 yards	46
9 yards	14	28-29 yards	25	58-61 yards	36	100-103 yards	47
10-11 yards	15	30-32 yards	26	62-64 yards	37	104-108 yards	48
12 yards	16	33-34 yards	27	65-67 yards	38	109-112 yards	49

Alternatively, calculate velocity in yards per second as the square root of (21.4 × g × distance fallen in yards), where g is the local gravity in Gs (g = 1 on Earth). Round to the nearest whole number.

Immovable Objects

If a moving object hits a stationary object that is too big to push aside – like the ground, a mountain, or an iceberg – it inflicts its usual collision damage on that object and on *itself*. If the obstacle is breakable, the moving object cannot inflict or take more damage than the obstacle's HP + DR.

Hard Objects: If the immovable object is *hard,* use *twice* the HP of the moving object to calculate damage. Clay, concrete, ordinary soil, and sand are all "hard," as is a building, mountain, or similar obstacle.

Soft Objects: If the immovable object is *soft* – e.g., forest litter, hay, swamp, or water – damage is normal. However, *elastic* objects (mattresses, nets, airbags, etc.) give extra DR against collision damage, ranging from DR 2 for a feather bed to DR 10 for a safety net, trampoline, or airbag. When striking water or a similar fluid, a successful Swimming roll (or vehicle control roll, if "ditching" a vehicle) means a clean dive that negates *all* damage. This roll is at a penalty for velocity; use the speed penalty from the *Size and Speed/Range Table* (p. 550).

Falling

A fall is a collision with an immovable object: the ground. Find your velocity when you hit using the *Falling Velocity Table*.

Example: Bill is pushed out a fifth-story window. He falls 17 yards. When he hits the street, his velocity is 19 yards/second. Bill has 10 HP, but he uses *twice* this because he hit a "hard" surface. Damage is (2 × 10 × 19)/100 = 3.8d, which rounds up to 4d crushing.

Falls and Armor: All armor, flexible or not (but *not* innate DR), counts as "flexible" for the purpose of calculating blunt trauma from falling damage. Thus, even if the victim has enough armor DR to stop the falling damage, he suffers 1 HP of injury per 5 points of falling damage. See *Flexible Armor and Blunt Trauma* (p. 379).

Controlled Falls: If you are free to move, you can use Acrobatics skill to land properly. On a success, reduce falling distance by five yards when calculating velocity. If falling into water, you can do this *or* attempt a proper dive (see above) – decide which first!

Terminal Velocity: "Terminal velocity" is the maximum speed a falling object can achieve before air resistance negates further acceleration under gravity. Air resistance is relatively negligible for distances shown on the table, but increases drastically for longer falls.

Terminal velocity varies greatly by object. For human-shaped objects on Earth, it is 60-100 yards/second. Use the low end for a spread-eagled fall, the high end for a swan dive. For dense objects (e.g., rocks) or streamlined objects, it can be 200 yards/second or more!

The terminal velocity rules assume Earth-normal gravity (1G) and atmospheric pressure (1 atm.). Multiply terminal velocity by the square root of gravity in Gs. Then divide it by the square root of pressure in atm. Thus, gravity under 1G, or pressure above 1 atm., reduces terminal velocity; gravity over 1G, or pressure below 1 atm., increases it. Note that terminal velocity is *unlimited* in a vacuum!

Damage from Falling Objects

If an object falls *on* someone, find its velocity on the table above and calculate damage as for an ordinary collision. To hit someone with a dropped object, use Dropping skill (p. 189). Most dropped objects will have Acc 1. Your target cannot avoid the object unless he knows it's coming. If he's aware of it, he can dodge.

A falling object with a Size Modifier equal to or greater than that of whoever it lands on impedes the victim's movement. He may move only one yard on his next turn, and his active defenses are -3. These penalties result from *bulk,* not mass, so ST is irrelevant.

Hit Location from a Fall

If using hit locations, roll randomly for the hit location damaged in a fall. If the injury is to an extremity or a limb, do not ignore injury in excess of that required to cripple it. Instead, subtract the *full* amount from HP! If the fall would cripple a limb, roll 1d. On 5-6, *all* limbs of that type are crippled, although there is no extra injury.

Collision Angle

The angle at which you hit adjusts velocity, affecting damage. This is especially true in collisions between two moving objects!

Head-On: In a head-on collision between two moving objects, collision velocity is the *sum* of the objects' velocities. The slower object cannot inflict more dice of damage than the faster one.

Rear-End: If a faster object overtakes and strikes a slower one, collision velocity is that of the striking object *minus* that of the struck object. The struck object cannot inflict more dice of damage than the striking one.

Side-On Collisions and Falls: If a moving object strikes a stationary one, or strikes a moving object side-on, collision velocity is that of the striking or falling object. The struck object cannot inflict more dice of damage than the striking or falling one.

Example: A car with 60 HP, moving at 50 mph (velocity 25), strikes a pedestrian with 10 HP. The pedestrian was fleeing from the car at Move 5, so this is a "rear-end" collision. Collision velocity is 25 (car) - 5 (pedestrian) = 20. The car inflicts (60 × 20)/100 = 12d crushing damage on the pedestrian; the pedestrian inflicts (10 × 20)/100 = 2d crushing damage on the car.

Overruns

If the Size Modifier of the striking object in a collision exceeds that of the struck object by two or more (e.g., a car hitting a man) the striking object "overruns" the struck object. This inflicts additional crushing damage: roll thrust damage for ST equal to *half* the striking object's HP (or half its ST score, if it has one). Even a slow-moving elephant or a tank can crush someone who doesn't get out of the way. This rule does *not* apply to falls.

Anything with a ST attribute can *deliberately* trample as well; see *Trampling* (p. 404).

Whiplash and Collision

Anyone *inside* an object that comes to a *sudden* stop in a fall or a collision (a falling elevator, a crashing car, etc.) takes damage. Find the speed lost in the "stop" and work out falling damage for this velocity. Seatbelts or straps give DR 5 vs. this damage; airbags give DR 10. In a collision involving an open vehicle, also work out knockback from this damage for those who weren't strapped in. This is how far they fly . . .

In a collision involving an open vehicle, work out knockback for those who weren't strapped in. This is how far they fly . . .

Electricity

If an uninsulated person is exposed to electricity, he may receive a shock. The effects of electric shock are *highly* variable, ranging from momentary stunning to instant death! This section helps the GM assess these effects if a character receives a shock during an adventure. If a specific attack or scenario gives different rules, they override the guidelines below.

All electrical damage falls into one of two classes: *nonlethal* or *lethal*. Against either, metallic armor (e.g., plate armor) provides only DR 1 – and if the wearer is grounded, he actually *attracts* electrical attacks, giving the attacker +2 to hit.

Nonlethal Electrical Damage

High-voltage, low-power shocks are unlikely to kill, but can stun the victim or even render him unconscious. This is called "nonlethal electrical damage." Examples include electric stun weapons, realistic electric fences, and static shocks on a cool, dry day. The GM should require an immediate HT roll whenever someone is zapped.

Modifiers: From +2 for a short circuit in a battery-powered gadget down to -3 or -4 for a specially designed stun weapon. Nonmetallic armor gives a bonus equal to its DR – but *surface* shocks (e.g., from a cattle prod) tend to flow over armor rather than through it, and have an armor divisor of (0.5), while energy weapons designed to arc through armor have an armor divisor of (2) or even (5).

On a failure, the victim is stunned. An instantaneous jolt (static electricity, electrolaser, etc.) stuns for one second, after which time the victim may roll vs. HT once per second to recover. A continuous shock (stun gun, electric fence, etc.) stuns for as long as the victim is in contact with the source, and for (20 - HT) seconds after that, with a minimum of 1 second. After this time, the victim may roll vs. HT each second to recover. The basic HT modifier for the strength of the shock (but *not* for DR) applies to all recovery rolls.

Electromuscular Disruption (EMD): Some ultra-tech weapons deliver a more powerful current that induces convulsions. The HT roll is at -5, and if the victim fails, he is knocked down and paralyzed instead of merely stunned. Otherwise, the effects are as above.

Lethal Electrical Damage

High-power shocks cook flesh and inflict real damage; they can even stop the victim's heart! This is called "lethal electrical damage." Examples include power mains, lightning bolts (natural and magical), and *cinematic* electric fences.

Lethal electric shocks inflict *burning* damage: only 1d-3 to 3d around the house, but 6d on up for lightning, transmission lines, etc. A victim who suffers *any* injury must make a HT roll at -1 per 2 points of injury suffered. On a failure, he falls unconscious for as long as the current is applied, and for (20 - HT) minutes afterward, with a minimum of 1 minute. He will be at -2 DX for *another* (20 - HT) minutes when he recovers. Failure by 5 or more, or any critical failure, results in a heart attack; see *Mortal Conditions* (p. 429). Lethal electrical

damage also causes "surge" effects in victims who have the Electrical disadvantage (p. 134).

Localized Injury: Attacks that don't affect the target's entire body – including most magical electricity attacks – cause pain and burns, but not unconsciousness or cardiac arrest. Treat this as normal burning damage, except that the victim must make a HT roll at -1 per 2 points of injury suffered. On a failure, he is stunned for one second, after which time he may roll vs. HT once per second to recover. If the injury is to the arm or hand, he must also make a Will roll or drop anything carried in that hand.

Flame

Exposure to flame inflicts *burning* damage. See *Wounding Modifiers and Injury* (p. 379) and *Hit Location* (p. 398) for wounding effects. Below are some additional special rules.

Fire Sources

Adventurers often encounter flaming oil (see *Molotov Cocktails and Oil Flasks,* p. 411), high-tech weapons, Innate Attacks, and battle magic (see *Fire Spells,* p. 246) . . . not to mention the burning rubble these attacks leave behind!

If you spend *part* of a turn in a fire (e.g., running through the flames), you take 1d-3 burning damage. If you spend *all* of a turn in a fire of ordinary intensity – or if you are on fire – you take 1d-1 damage per second. Very intense fires inflict more damage; for instance, molten metal or a furnace would inflict 3d per second! Use *Large-Area Injury* (p. 400) in all cases.

Continued exposure to a fire can result in intense heat that can rapidly fatigue you even if the flames themselves cannot penetrate your DR. See *Heat* (p. 434).

Incendiary Attacks: Any attack with the Incendiary damage modifier (p. 105) does one point of burning damage in addition to its other damage; in effect, it has a one-point linked burning attack. Examples include torches (see *Torches and Flashlights,* p. 394) and flaming arrows (see *Flaming Arrows,* p. 410). High-tech tracer bullets also qualify.

Making Things Burn

Materials are grouped into six "flammability classes," based on the amount of burning or incendiary damage needed to set them aflame:

Super-Flammable (e.g., black powder, ether): Negligible damage (candle flame).
Highly Flammable (e.g., alcohol, paper, tinder): 1 point.
Flammable (e.g., dry wood, kindling, oil): 3 points.
Resistant (e.g., seasoned wood, clothing, rope, leather): 10 points.
Highly Resistant (e.g., green wood, flesh): 30 points.
Nonflammable (e.g., brick, metal, rock, fireproof synthetics): N/A.

A fire source (including any incendiary attack) that inflicts the listed amount of *burning* damage in a *single* damage roll ignites the material immediately. Divide damage by 10 for tight-beam burning attacks. If the flame fails to ignite the material immediately, but could do so on its *best* damage roll, roll damage once per second for as long as it is in contact. Even if the flame is incapable of inflicting enough damage on its best roll, it may set things afire with prolonged contact. Roll 3d for every 10 seconds of contact. Materials one category up (e.g., Flammable materials taking 1 point per second) catch fire on a 16 or less; those two categories up (e.g., Flammable materials touching a candle flame) catch on a 6 or less.

Once a material starts burning, it may ignite adjacent materials. Make separate rolls for it based on the fire's damage (1d-1 per second for an ordinary fire).

Catching Fire

A *single* hit that inflicts at least 3 points of basic burning damage ignites *part* of the victim's clothing. (The Ignite Fire spell does this at its third level of effect; see p. 246). This does 1d-4 burning damage per second and is distracting (-2 to DX, unless the damage simply cannot harm the target). To put out the fire, the victim must beat it with his hands. This requires a DX roll, and each attempt takes a Ready maneuver.

A *single* hit that inflicts 10 or more points of basic burning damage ignites *all* of the victim's clothes. This does 1d-1 burning damage per second and is *very* distracting (-3 to DX, except when rolling to put out the fire). To put out the fire, the victim must roll on the ground. This requires a DX roll, and each attempt takes *three* Ready maneuvers. Jumping into water takes only one second, and automatically extinguishes the fire.

If a wooden shield takes 10 or more points of burning damage in one second, the bearer is at -2 to DX, and takes 1d-5 burning damage per second until he gets rid of it.

Clothing that is wet or worn under armor is almost impossible to ignite, and won't stay lit. On the other hand, fancy dresses, lace cuffs, and so on, ignite if they take even 1 point of burning damage!

In all cases, remember to apply shock penalties to DX if the flame inflicts injury!

The above guidelines assume ordinary clothing. Armor is good protection against fire; clothing worn over armor (e.g., a surcoat) might burn, but the armor's DR reduces the damage normally. Clothing that is wet or worn *under* armor is almost impossible to ignite, and won't stay lit. On the other hand, fancy dresses, lace cuffs, and so on, ignite if they take even 1 point of burning damage!

Remember to divide damage from tight-beam burning attacks by 10 when applying the rules above.

Gravity and Acceleration

A change in gravity can be harmful. These rules describe *health* effects; see *Different Gravity* (p. 350) for the effects of gravity on common tasks.

Space Adaptation Syndrome ("Space Sickness")

Those who are not native to micro- or zero gravity ("free fall") may become nauseated and disoriented by the constant falling sensation. Roll against the *higher* of HT or Free Fall when you first enter free fall. The Space Sickness disadvantage (p. 156) gives -4.

On a success, you are unaffected. On a failure, you are nauseated (see *Afflictions,* p. 428), which may trigger vomiting. If you begin to retch while wearing a vacc suit, you may choke; treat this as drowning (see *Swimming,* p. 354). Roll against the *better* of HT or Free Fall every 8 hours to recover. If you suffer from Space Sickness, you *cannot* adapt!

High Acceleration

Make a HT roll whenever you experience a *sudden* acceleration ("G-force") of at least 2.5 times your home gravity. Treat a home gravity under 0.1G as 0.1G for this purpose.

Modifiers: -2 per doubling of acceleration (-2 at 5× home gravity, -4 at 10×, and so on); +2 if seated or lying prone, or -2 if upside down.

On a failure, you lose FP equal to your margin of failure. On a critical failure, you also black out for 10 seconds times your margin of failure.

A sudden acceleration may throw you against a solid object. If this happens, treat it as a collision with that object at a velocity equal to 10 × G-force of the acceleration.

Heat

In ordinary hot weather, you will experience no ill effects if you stay in the shade and don't move around much. But if you are *active* in temperatures in the top 10° of your comfort zone or above – over 80°F, for humans without Temperature Tolerance (p. 93) – make a HT or HT-based Survival (Desert) roll, whichever is better, every 30 minutes.

Modifiers: A penalty equal to your encumbrance level (-1 for Light, -2 for Medium, and so on); -1 per extra 10° heat.

Failure costs 1 FP. On a critical failure, you suffer heat stroke: lose *1d* FP. As usual, if you go below 0 FP, you start to lose 1 HP per FP. You cannot recover FP or HP lost to heat until you move into cooler surroundings.

In addition, at temperatures up to 30° over your comfort zone (91-120° for humans), you lose an extra 1 FP whenever you lose FP to exertion or dehydration. At temperatures up to 60° over your comfort zone (121-150° for humans), this becomes an extra *2* FP.

Intense Heat: Human skin starts to *burn* at 160°; see *Flame* (p. 433) for damage. Even if no damage penetrates your DR, you will rapidly overheat if the ambient temperature is more than 6 × your comfort zone's width over your comfort zone (e.g., in a fire). After 3 × DR seconds, make a HT roll every second. On a failure, you lose 1 FP. Your DR provides its usual protection against burning damage, but it has no effect on this FP loss.

Sunburn: After a day of full sun on unprotected skin, an albino will be near death and a light-skinned Caucasian will be very uncomfortable (1d-3 damage). Darker-skinned individuals may itch, but aren't in much danger. Details are up to the GM.

Armor: Armor prevents sunburn and provides its full DR against burning damage – but only armor that provides Temperature Tolerance (through insulation or a cooling system) can prevent FP loss due to heat. This feature is standard on battlesuits and TL9+ combat armor.

Pressure

Adventurers are most likely to encounter extreme pressure in super-dense atmospheres (see *Atmospheric Pressure,* p. 429) or deep underwater (where pressure increases by about 1 atmosphere per 33' of depth). Pressures in excess of your native pressure – 1 atm., for a human – are not always immediately lethal, but present serious risks.

Over 2 × native pressure: You risk "the bends" (see below) if you experience over 2 × native pressure and then return to normal pressure. With Pressure Support 1, the bends are only a risk when returning from over *10* × native pressure. With Pressure Support 2 or 3, you are *immune* to the bends.

Over 10 × native pressure: You may be crushed! On initial exposure and every minute thereafter, roll vs. HT at a basic +3, but -1 per 10 × native pressure. If you fail, you suffer HP of injury equal to your margin of failure. If your Size Modifier is +2 or more, multiply injury by SM. With Pressure Support 2, read this as "Over 100 × native pressure" and "-1 per 100 × native pressure." With Pressure Support 3, you are *immune* to pressure.

The Bends

When you are breathing air that has been compressed (e.g., using scuba gear), your blood and tissues absorb some of the nitrogen gas in the compressed air. When you return to normal pressure, or "decompress," this nitrogen escapes, forming small bubbles in the blood and muscles. This can result in joint pains, dizzy spells, possibly even death. These symptoms are known as "the bends."

You risk the bends if you return to normal pressure after experiencing pressure greater than twice your native pressure (or *10* times native pressure, with Pressure Support 1). To avoid this, you must decompress *slowly,* spending time at intermediate pressures to allow the nitrogen to escape harmlessly.

Divers and mountaineers use precise tables to determine decompression times based on time spent at a given pressure. For game purposes, at up to 2 atm. (about 33' underwater), a human can operate for *any* amount of time and return without risk. At up to 2.5 atm. (50' depth), a human can safely operate for up to 80 minutes and return without requiring slow decompression. Greater pressures reduce the safe time without slow decompression: at 4 atm. (100' depth), it's about 22 minutes; at 5.5+ atm. (150' depth), there is *no* safe period.

Safe decompression involves slowly lowering the pressure, either naturally (e.g., a diver deliberately taking hours to reach the surface) or in a decompression chamber. The time required increases with both pressure and exposure time. It can be several hours – or even *days.*

If you fail to decompress slowly enough, make a HT roll. *Critical success* means no ill effects. *Success* means severe joint pain, causing agony (see *Incapacitating Conditions,* p. 428); roll vs. HT hourly to recover. *Failure* means unconsciousness or painful paralysis; roll vs. HT hourly to regain consciousness, with each failure causing 1d of injury. Once conscious, you suffer joint pain, as described above. *Critical failure* results in painful death. Recompression to the highest pressure experienced lets you roll at HT+4 every five minutes to recover from all effects short of death.

An *instant* pressure reduction can *also* result in explosive decompression; see *Vacuum* (p. 437) for details. All effects are cumulative!

Radiation

Radiation threatens high-tech heroes in the form of solar flares, cosmic rays, nuclear accidents, radioactive materials, and lethal weapons (nuclear bombs, particle beams, etc.). Exposure is measured in *rads.* The more rads received, the greater the chance of ill effects.

Whenever a character is exposed to radiation, the GM should note both the dose and the date. Each dose diminishes separately from all others; it starts to heal after 30 days, at the rate of 10 rads per day. However, 10% of the original dose *never* heals (except via ultra-tech, magic, etc.).

Example: A reactor technician spends a day in a "hot" environment and receives a 200-rad dose. After 30 days, *that particular dose* starts to heal at 10 rads/day. After another 18 days, the remaining dose is 20 rads – 10% of 200 rads – and stops healing.

Radiation Hazards

Cosmic Rays: A constant hazard for space travelers. Inflict 1 rad/week. Only massive shielding protects people.

Fallout: Small radioactive particles, such as those produced by a ground-burst nuclear bomb. Inflicts 2-5 rads/minute within a few hours of the blast, and several rads/hour over the next day. If you breathe or swallow fallout (in contaminated food or water), the ingested material delivers a continuing dose (see below).

Fission Plant Accident: 1,000 rads/hour or more! This is only in close proximity (e.g., the reactor room); divide dose by the square of the distance in yards from the source.

Ingested Radioactive Material: Plutonium, radium-226, uranium-235, etc. Even tiny doses can cause 1 rad/day to several rads/minute, depending on the isotope. (Some radioactive materials, such as plutonium, are also extremely toxic!)

Innate Attack: An attack with the Radiation damage modifier (p. 105) delivers one rad per point of damage rolled.

Nuclear Blast: One-megaton fission air or space burst at 2,000 yards: 6,600 rads!

Effects of Radiation on Living Things

When a living being accumulates at least 1 rad (but no more than once per day, for continued exposure to a given source), he must make a HT roll. On the *Radiation Effects Table,* below, find his current accumulated dose in the "Accumulated Dose" column. Apply the modifier in the "HT" column to his HT roll. Then roll the dice. Use the first result in the "Effects" column on a critical success, the second on a success, the third on a failure, and the last on a critical failure.

Radiation Effects Table

Accumulated Dose	***HT***	***Effects***
1-10 rads	+0	–/–/A/B
11-20 rads	+0	–/A/B/C
21-40 rads	+0	A/B/C/D
41-80 rads	-1	A/B/C/D
81-160 rads	-3	A/B/C/D
161-800 rads	-4	A/B/C/D
800-4,000 rads	-5	C/D/E/E
Over 4,000 rads	-5	D/E/E/E

–: The dose has no obvious effect, but doses continue to accumulate.

A: Radiation burns and chronic "somatic" damage. HT hours after irradiation, suffer 1d of injury and gain Low Pain Threshold for one week (those with High Pain Threshold lose this instead). If you recover, make two more HT rolls with the modifier on the table: one to avoid sterility, the other to avoid gaining the Terminally Ill (1 year) disadvantage. Gain either condition only on a critical failure.

B: Hematopoietic syndrome. As **A,** but as well, after HT hours you are nauseated (see *Irritating Conditions,* p. 428) for a further (40 - HT) hours; lose 1d each from DX, IQ, and FP; and acquire the Hemophilia disadvantage. Each day, make a HT roll with the modifier on the table. On a critical success, you heal 2 points each of DX, IQ, and FP; on a success, you recover 1 point of each; on a failure, there is no improvement; and on a critical failure, you *lose* 1 point of each and are nauseated that day. After recovering all lost DX, IQ, and FP, you no longer suffer from Hemophilia or need to make daily HT rolls.

C: Gastrointestinal syndrome. As **B,** but in 1d/2 weeks, you also lose all body hair and must make daily HT rolls. On a critical failure, you suffer 1d points of injury; on a failure, 2 points of injury; on a success, 1 point of injury; and on a critical success, injury stops and normal recovery can occur (and hair starts to grow back). Until injury stops, you have Susceptible to Disease -3 (p. 158) and suffer from nausea. If you lose more than 2/3 of your HP to radiation, your teeth and nails start to fall out.

D: Terminal radiation sickness. As **C,** except HP loss begins in 1d/2 *days,* and even a critical success won't stop daily HP loss – it only postpones it for a day. Death is certain.

E: Rapid cerebrovascular death. After one hour, you lose 1d from each of DX, IQ, and FP; take 1d of injury; gain Hemophilia, Low Pain Threshold, and Susceptible to Disease -3; and are nauseated. Make an hourly HT roll. Critical failure means instant death from brain hemorrhage; failure means loss of another 2 points of DX, IQ, and FP, and 2 more points of injury; success means 1 extra point of each; critical success mean no decline that hour.

Other Effects: In addition to these effects, a *single* dose of 200+ rads causes sterility and blindness for 1d months; a dose of 500+ rads makes it permanent. An *accumulated* dose of 100+ rads increases the risk of birth defects. Should you become a parent, make a HT roll, at +3 if you are male. On a failure, the child has some sort of birth defect (GM's option).

Radiation and Nonhumans

The above effects apply to humans and most other mammals. Other creatures may have Radiation Tolerance (p. 79).

Machines are not affected unless they have the Electrical disadvantage (p. 134). Each time such a machine accumulates a dose of 100 rads, make a HT roll at a basic +4, -1 per 100 rads accumulated dose. On a failure, it ceases to function until repaired. On a critical failure, it is destroyed (any data stored on it is also lost).

Radiation Protection

Any material between you and the radiation source grants a Protection Factor (PF) that reduces your received dose. Divide your dose by PF; e.g., PF 100 means 1/100 the dose. Half an inch of lead, 1.5 inches of steel, or 750 yards of air has PF 2; a yard of water has PF 8; a yard of earth has PF 27; and a yard of concrete has PF 64.

Shielding protects differently against certain types of radiation. Radiation from solar flares and planetary radiation belts (like the Van Allen belt) is mostly free electrons and alpha particles: multiply PF by 20. Against cosmic rays, divide PF by 100!

Radiation Treatment

All costs below are *per treatment.*

At TL7, drugs are available that can halve your effective rad dosage if a dose ($500) is taken 1-3 hours *in advance.* Chelating drugs are also available to get radioactive fallout out of your system; a dose ($500) halves exposure after 3 days and eliminates it entirely after a week. This has no effect on radiation already absorbed!

At TL8, advanced chelating drugs ($500) encapsulate and remove fallout in 12 hours.

At TL9, advanced anti-radiation drugs or cell-repair nanotechnology ($1,000) can give +3 to all HT rolls vs. radiation for 2 weeks.

At TL10+, cell-repair nanotech or rejuvenation technology might be able to completely repair the ravages of radiation, provided the victim is still alive.

SEASICKNESS

Those aboard a seagoing vessel (excluding large, modern vessels with roll stabilizers) must check for seasickness on their first day afloat. Use the rules for the Motion Sickness disadvantage (p. 144) – but if you lack that disadvantage, you roll at HT+5, and with a success by 5 or more, or a critical success, you suffer *no* ill effects at all.

SUFFOCATION

If you *completely* lack air – see *Actions After a Grapple* (p. 370), *Choke Hold* (p. 371), and *Holding Your Breath* (p. 351) for examples – you lose 1 FP per second. If you are drowning after a failed Swimming roll, you can get *some* air, but you also inhale water: roll vs. Swimming every five seconds;

failure costs 1 FP (see *Swimming,* p. 354).

At 0 FP, you must make a Will roll every second or fall unconscious. You are likely to die unless rescued (see *Lost Fatigue Points,* p. 426). Regardless of FP or HP, you die after four minutes without air.

If you get clean air before you die, you stop losing FP and start to recover FP at the usual rate (see *Recovering from Fatigue,* p. 427). If you are unconscious, you awaken once you have 1 FP. If you were drowning, a rescuer must *also* make a First Aid roll to get the water out of your lungs in order to save you – see *Resuscitation* (p. 425).

If you went without air for more than two minutes, roll vs. HT to avoid permanent brain damage: -1 to IQ.

Vacuum

Vacuum is the absence of air – but these rules also apply in trace atmospheres, where there is *almost* no air. If you are exposed to vacuum without protection (e.g., a vacc suit or the Vacuum Support advantage), the following rules apply.

Breathing Vacuum: You can't hold your breath in vacuum – and you may rupture your lungs if you try (1d of injury). If you exhale and leave your mouth open, you can operate on the oxygen in your blood for *half* the time listed under *Holding Your Breath* (p. 351). After that, you begin to suffocate (see *Suffocation,* p. 436).

Explosive Decompression: When an area *suddenly* goes from normal pressure to little or none (a "blowout"), body fluids boil, blood vessels rupture, and eardrums pop. Take 1d of injury immediately, and roll vs. HT to avoid the bends (see *The Bends,* p. 435). Also roll vs. HT+2 for each eye; failure means One Eye or Blindness, as appropriate. Finally, roll vs. HT-1 to avoid Hard of Hearing. Use the *Duration of Crippling Injuries* rules (p. 422) to determine how long these disadvantages last.

Extreme Temperatures: Vacuum itself is neither "cold" nor "hot," but in the absence of air, surfaces in shadow will eventually grow very cold, while those in sunlight will become extremely hot. For example, on the moon – with its month-long "day" – the temperature can range from -243°F (at night) to 225°F (at noon).

Poison

Poison can show up on weapons; on darts, needles, or spikes in traps; in food or drink offered by a treacherous foe; and anywhere else you did not expect it. Human foes are not the only ones who can poison you. Snakes, insects, and certain other creatures have natural poison (usually blood agents) – and eating the wrong plant or animal may treat you to a dose of digestive poison.

Describing Poisons

A poison's description includes its name, means of delivery, delay, resistance roll, effects (injury and symptoms), and cost per dose – and possibly notes on what constitutes a "dose," how to use or conceal the poison, and how to treat it (including any antidotes).

A poison can have multiple sets of effects. For example, tear gas is both a respiratory agent (with one set of effects) and a vision-based agent (with other effects).

Delivery

A given poison might reach its victim in any of several ways:

Blood Agent: The poison must reach a mucous membrane (eyes, open mouth, nose, etc.) or an open wound. If it is sprayed or spat, it must actually strike one of these vulnerable areas (so a spitting cobra must target the face). If it is delivered as a gas or wide-area spray, only those with the Sealed advantage (p. 82) – or with one of Doesn't Breathe (p. 49) or Filter Lungs (p. 55) *and* one of Nictitating Membrane (p. 71) or Protected Vision (p. 78) – are immune. These advantages might be natural or provided by equipment.

Contact Agent: The poison must be inhaled or touch skin to take effect. If it is use to poison a melee weapon, the weapon must hit an unarmored and unclad hit location for the poison to affect the target. If it is delivered as a gas or wide-area spray, it affects everyone in the area who lacks the Sealed advantage (whether natural or provided by a suit, vehicle, etc.).

Digestive Agent: The victim must swallow the poison. This is typical of poisonous plants and toxic substances such as arsenic. If the poison has a slight but distinctive taste (e.g., cyanide), the GM can allow the victim a Taste roll or Perception-based Poisons roll – at a basic -2, but +2 per doubling of dosage – to notice it in time. Poisons that are easier to detect give a bonus; those that are harder to detect, or whose taste is masked by suitable food or drink, give a penalty. To force someone to swallow a poison rather than spit it out, you must grapple him by the head or neck and maintain your hold for 10 seconds.

Follow-Up Poison: The poison must be placed on a piercing or impaling weapon, or injected using a hollow projectile, hypodermic needle, etc. If the weapon penetrates DR and does *any* damage, it delivers the poison. Most "follow-up" poisons are simply blood or contact agents injected into the body.

Respiratory Agent: The poison is a gas that only affects those who inhale it into their lungs. Delivery is usually via an area or cone attack (e.g., gas grenade, spray gun, or dragon's breath), but an *entire atmosphere* could be poisonous! Only Doesn't Breathe and Filter Lungs protect completely against respiratory agents – but a victim who makes a Sense roll to notice the poison in time may hold his breath (see *Holding Your Breath,* p. 351). Unconscious or stunned victims inhale automatically. An improvised mask, such as a wet towel over the face, gives +1 to HT to resist.

Sense-Based Agent: The poison affects the victim through a specific sense. It has no effect on those who lack that sense or have appropriate protection. A smell-based agent is usually a foul stench that induces nausea; suitable protection is nose plugs, a respirator, or the Protected Sense (Smell) advantage. A vision-based agent is generally a cloud of gas that irritates the eyes; appropriate protection is a gas mask, goggles, or the Protected Sense (Vision) advantage. See *Sense-Based* (p. 109).

Delay

Most poisons require a few seconds to several hours to take effect. This is nearly *always* true for digestive agents.

Delays given are for victims with Size Modifier 0. The victim's size modifies delay: each +1 to SM *doubles* the delay; each -1 to SM *halves* the delay. For example, if the delay is 1 hour, someone with SM -2 is affected in only 15 minutes.

Special Delivery

Two qualifiers can apply to several of the standard means of delivery:

Cumulative: A poison may be mild in low concentrations but become harmful with continued exposure. The GM must decide how much exposure constitutes a "dose." This might be time-based (e.g., a toxic atmosphere that requires an hour of exposure) or based on the victim's bulk or body mass (ST/10 ounces of liquid, HP/5 pills, etc.). See *Drinking and Intoxication* (p. 439) for a detailed example.

Persistent Gas: A respiratory agent or area-effect blood or contact agent typically persists for 10 seconds or more, depending on wind. Some contact agents leave a poisonous residue on exposed surfaces until they're washed away.

Resistance Roll

Some poisons give the victim a HT roll to resist. Make this roll after the delay, if any, has passed. There is often a modifier: a mild poison might call for a HT+2 roll, while one that is almost impossible to resist might require a HT-8 roll! HT to HT-4 is typical. DR never affects this roll.

If you're in a poisonous *environment* (like a gas cloud or toxic atmosphere) and make your initial HT roll, you must roll again once per second until the poison affects you or you leave the area. If the poison has a delay, roll after each delay period instead.

Some poisons are specific to certain species and do not affect others. Others are easier or harder for particular species to resist. These effects are up to the GM.

Effects of Poison

The most common effect of poison is *toxic* or *fatigue* damage. Mild poisons might only inflict 1 HP or FP; more severe poisons might inflict 1d or more. DR has no effect on this damage. These HP and FP losses heal normally, but if the poison is cyclic (see below), no healing is possible until after the final cycle!

Damaging poisons sometimes affect their victims gradually, causing damage each time a specified interval of time passes. The description of such a poison specifies the length of this interval and the total number of cycles. The interval may vary from one second (for a fast-acting agent) to one day (for a slow poison). The total number of cycles may be two to several dozen.

If a resistible poison is cyclic, the victim gets a new HT roll to resist every cycle. On a success, he shakes off the poison; on a failure, an additional cycle of damage occurs. Note that even a poison that inflicts 1 HP of injury per day can be lethal if it's hard to resist *and* lasts for two dozen cycles!

A poison always has *some* symptoms. The basic damage includes symptoms such as swelling, headache, and fever. Poisons that inflict toxic damage may have more severe symptoms that occur automatically after the poison causes enough injury (usually 1/3, 1/2, or 2/3 of the victim's HP). For example, a poison might result in blindness once the victim loses 1/2 his HP. Symptoms vanish when the victim's HP rise above this threshold.

Some poisons cause effects other than injury or fatigue, including attribute penalties, irritating or incapacitating conditions (see *Afflictions,* p. 428), temporary disadvantages, or even the removal of existing advantages (e.g., an alchemical poison that negates Magery). The victim usually gets a resistance roll against these effects, and the effects always have a specific duration. The default duration is a number of minutes equal to the margin of failure on the resistance roll. In a poisonous *environment,* a failed resistance roll means the effects last for as long as you're in the environment *plus* the duration.

Cost Per Dose

It is up to the GM whether a particular poison is for sale – it might be impossible to extract in a useful form, or the authorities might want to keep it off the market. If a poison *is* available, its cost often reflects how difficult it is to obtain, not its effectiveness. In most game worlds, people who sell poisons are criminals. All of these factors make cost per dose highly variable. See *Poison Examples* (p. 439) for suggestions . . . but the GM is free to use whatever prices he feels are reasonable.

Dosage

The statistics given in a poison's description always assume one "dose": enough poison to produce the described effects in *one* victim. Some additional notes:

Contact Agents: One dose of a contact agent coats or affects a single hit location.

Gases and Sprays: One dose of a respiratory agent, or a blood or contact agent in gas or spray form, affects one hit location on one victim. For a respiratory agent, this must be the *face. Ten* doses are enough to affect everyone in a room (say, a 2-yard radius).

Poison Examples

Arsenic (TL1): A digestive agent with a one-hour delay and a HT-2 roll to resist. Inflicts 1d toxic damage, repeating at hourly intervals for eight cycles. $1/dose. LC1.

Cobra Venom (TL0): A follow-up poison with a one-minute delay and a HT-3 roll to resist. Inflicts 2d toxic damage, repeating at hourly intervals for six cycles. A victim who loses 1/3, 1/2, or 2/3 HP has -2, -4, or -6 DX, respectively. $10/dose. LC1.

Cyanide (TL4): This fast-acting poison is deadly in any form. As a follow-up poison or respiratory agent, it has *no* delay. As a contact or digestive agent, it has a 15-minute delay. In all cases, there is *no* HT roll to resist! Inflicts 4d toxic damage. $2/dose. LC1.

Mustard Gas (TL6): An area-effect respiratory *and* contact agent. As a contact agent, it has *no* delay and a HT-4 roll to resist, and inflicts 1 point of toxic damage, repeating at 8-hour intervals for 24 cycles. As a respiratory agent, it has a two-hour delay and a HT-1 roll to resist, and inflicts 1d toxic damage, repeating at one-hour intervals for six cycles. $10/dose. LC0.

Nerve Gas (TL6): An area-effect contact agent with *no* delay and a HT-6 roll to resist. Inflicts 2d toxic damage, repeating at one-minute intervals for six cycles. A nerve gas usually causes agony, paralysis, retching, or seizure as well; see *Afflictions* (p. 428) $20/dose. LC0.

Smoke: Ordinary smoke is an area-effect respiratory agent with a 10-second delay and a HT roll to resist. Causes coughing (see *Afflictions,* p. 428) for the time spent in the smoke plus one minute times the margin of failure. *Dense* smoke can cause actual damage. LC4.

Tear Gas (TL6): An area-effect respiratory *and* vision-based agent. As a respiratory agent, it has *no* delay and a HT-2 roll to resist, and causes coughing (see *Afflictions,* p. 428). As a vision-based agent, it has *no* delay and a HT-2 roll to resist, and causes blindness. Both effects endure for the time spent in the gas plus one minute times the margin of failure. Tear gas is opaque: Vision rolls are at -1 to -3 per affected yard. $10/dose. LC2.

Individuals unprepared for mustard, nerve, or tear gas may have to make Fright Checks!

Poisoned Weapons: One dose of a follow-up poison envenoms the *tip* of a piercing or impaling weapon, or fills a hypo. Poisoning the *edge* of a weapon, so that a cutting attack can deliver it, requires three doses per yard of reach. Most poisons on blades only last for one successful strike or three blocked or parried ones. Misses and dodged attacks do not rub off the poison.

Varying the Dosage: It is possible to vary the dosage of a digestive agent or a follow-up poison delivered by hypodermic. Each doubling of dosage (and cost!) halves the delay and interval, doubles damage, gives -2 to HT rolls to resist, and gives +2 to all rolls to detect the poison (including the victim's Sense rolls, and any Diagnosis or Forensics roll made to investigate the victim's symptoms or death). Using *less* than one full dose may reverse these modifiers or simply make the poison ineffective, at the GM's option.

Treatment

If the poison has a delay, there may be time to treat the victim before he suffers *any* ill effects. Since he will not yet be showing symptoms, he must be aware of his predicament in order to seek help!

A poisonous animal bite is usually obvious – but the GM may require a Naturalist roll to realize that an animal is venomous. Sucking the poison from the wound takes a minute, requires a First Aid or Physician roll at -2, and gives +2 on HT rolls to resist.

If the victim suspects a digestive agent, he or a friend can induce vomiting to expel the poison. This takes 10 seconds, calls for a First Aid or Physician roll, and gives +2 to resist the poison. But for some poisons, vomiting is a bad idea – it can *increase* injury!

It might also be possible to take an antidote. Antidotes exist for only a few poisons. Where they do exist, they are usually specific to the poison. The *correct* antidote gives the victim a bonus to HT rolls to resist the poison, or even completely halts the poison.

Medical procedures – chelation, gastric lavage, intravenous fluids, oxygenation, etc. – can also give a HT bonus, but only if the treatment suits the poison. Such measures require a Physician roll. The HT bonus never exceeds TL/2 (round *up,* minimum +1).

To learn whether it is safe to induce vomiting, or which antidotes or procedures to use, you must identify the poison. This is tricky before symptoms appear! The GM may require rolls against Poisons (to identify a residue on a dart, in a glass, etc.), Naturalist (to identify a venomous animal), or even Intimidation (to force the poisoner to reveal what he used).

Once the victim takes damage, symptoms appear. At this point, a Diagnosis or Poisons roll can identify the poison. If the poison is cyclic, the correct antidote or medical procedures can help prevent *further* damage, providing their bonus to future HT rolls.

Drinking and Intoxication

If you drink too much alcohol in a short period of time, you may become intoxicated. Keep track of how many "drinks" you consume each hour. For simplicity, one drink is a full mug or can of beer (12 oz.), a full glass of wine (4-5 oz.), or a shot of spirits (1.5 oz.).

At the end of any hour during which you consume more than ST/4 drinks, roll against the *higher* of HT or Carousing. If you continue to drink, continue to roll once per hour.

Modifiers: -1 per drink over ST/4 that hour; -2 on an empty stomach, or +1 if you have recently eaten; +2 for the Alcohol Tolerance perk (p. 100), or -2 for the Alcohol Intolerance quirk (p. 165).

Each failure shifts you one level from *sober* to *tipsy* to *drunk* to *unconscious* (drunken stupor) to *coma;* see *Afflictions* (p. 428) for details. A critical failure drops you *two* levels: sober to drunk, tipsy to unconscious, or drunk to coma. If penalties reduce your roll to 2 or less, critical failure means you drop *three* levels! Remember that any roll 10 or more above effective skill is a critical failure; e.g., a roll of 11+ against a modified HT of 1.

Pink Elephants: If you are drunk, make one additional HT+4 roll. On a failure, you are also hallucinating (see *Incapacitating Conditions,* p. 428).

The Heaves: If you are drunk and keep drinking, your body will try to purge itself of the alcohol (which *is* a toxin, after all!). When a failed HT roll indicates that you would fall unconscious or into a coma, make a second, unmodified HT roll. On a success, you vomit up the alcohol instead of passing out; treat this as *retching* (p. 429). On a critical failure, however, you pass out and *then* retch; treat this as *choking* (p. 428).

Sobering Up: To sober up, you must first stop drinking. After *half* as many hours as the total number of drinks you consumed, roll vs. HT. Various remedies may give a bonus. On a success, you move one step toward sober. Continue to roll each time this many hours pass until you are sober. *Exception:* To recover from a coma, you need medical help!

Hangovers: If you are tipsy or worse, you must roll vs. HT when you stop drinking, at -2 if you're drunk or -4 if you're unconscious. On a failure, you will suffer a hangover. This kicks in 1d hours after the end of the drinking session – or on awakening, if you pass out or fall asleep before this time – and lasts hours equal to your margin of failure. During this time, you will suffer from moderate pain (see *Irritating Conditions,* p. 428) and acquire Low Pain Threshold (or lose High Pain Threshold, if you have it). The GM may decide that preventative treatment (including drinking plenty of water and possibly taking a mild analgesic) gives you a bonus to this roll.

Addictive Drugs

The habitual use of a mind-altering substance can lead to dependency. Abusers have the Addiction disadvantage (p. 122), and may suffer withdrawal (see box) if forced to go without the drug.

Below are rules for three common classes of addictive drugs. Note that these are also *poisons.* If someone takes a large dose, follow all the usual rules for poison on pp. 437-439, except where specified otherwise.

Stimulants

Stimulants elevate the user's mood and energy level . . . temporarily. Potent ones – e.g., amphetamine – restore 1d FP, and give Doesn't Sleep and Overconfidence (12). These effects endure for (12 - HT) hours, minimum one hour. After that time, the user loses *twice* the FP he recovered (e.g., if his FP jumped from 8 to 10, he drops to 6 FP), and gains the disadvantages Bad Temper (12) and Chronic Depression (9) for an equal length of time.

If the user takes multiple doses in 24 hours, he must roll vs. HT after the second and later doses, at a cumulative -1 per dose after the first. On a critical failure, he suffers a heart attack (see *Mortal Conditions,* p. 429).

Stimulants are cheap and only slightly addictive. If they are legal, stimulant addiction is a Minor Addiction (-1 point); if they are illegal, it is a -5-point Addiction.

Hallucinogens

Hallucinogens – e.g., LSD and mescaline – cause disorientation,

Drug Withdrawal

Use these rules when you try to give up an Addiction, either voluntarily or because you are broke, imprisoned, or in a place where your drug just isn't available.

Withdrawal is a painful process that requires a series of daily *withdrawal rolls.* It normally takes 14 successful rolls to shake the habit (thus, it always takes at least two weeks), but the GM is free to vary this. Should you manage to withdraw, you must "buy off" your Addiction disadvantage immediately.

The effects of withdrawal rolls depend on whether the drug is *physiologically* or *psychologically* addictive.

Physiological Dependency: Your body has come to rely on the drug! Make daily withdrawal rolls against HT (maximum 13). Each success puts you a day closer to shaking off your Addiction. The results of failure depend on whether the drug is available. If it is, you give in and take a dose; if you still want to try to withdraw, you must restart the process from day one. If the drug is *not* available, you take 1 HP of injury and may continue the process . . . but that day doesn't count toward the 14 successful rolls needed to withdraw. You cannot naturally recover HP lost to withdrawal until you either succeed or abandon the attempt.

Psychological Dependency: You've convinced yourself that you cannot function without the drug. Make withdrawal rolls against Will (maximum 13). Use the physiological dependency rules, except that if you fail a roll and the drug is unavailable, you don't take injury. Instead, you gain -1 point of drug-related quirks, chosen by the GM. These vanish if you give in and take a dose of the drug (but then you must restart the process). If you don't give in, these quirks grow into progressively more severe mental disadvantages. If you make 14 successful Will rolls, you withdraw – but you must make one final Will roll. On a failure, you *keep* any quirks or disadvantages incurred along the way!

hallucinations, and fits of paranoia. They may induce psychological dependency, but not physiological addiction.

Most of these drugs are taken orally and require about 20 minutes to work. Make a HT-2 roll to resist. On a failure, the user starts hallucinating (see *Incapacitating Conditions,* p. 428). This lasts for hours equal to the margin of failure. After that time, the user may roll vs. HT-2 once per hour to shake off the drug's influence.

Addiction is typically worth -10 points if the drugs are legal, -15 points otherwise.

Overdose

Anyone who takes two or more doses of depressants risks an "overdose." This *definitely* includes taking a single dose of two or more depressants! *Any* alcohol at all counts as an extra dose. Drug interactions can kill . . .

Overdose occurs on a critical failure on any resistance roll for multiple doses. As with any poison, each doubling of dosage gives -2 to resistance rolls – and as for all success rolls, a roll of 10 or more above *effective* skill is a critical failure. For instance, heroin offers a HT-4 roll to resist. If a HT 10 man takes a double dose, his effective HT is 10 - 4 - 2 = 4. He overdoses on a 14 or higher.

Overdose causes unconsciousness for hours equal to the margin of failure. As well, the drug acts as a poison with a resistance roll equal to its usual resistance roll (the *most difficult* roll, for two or more drugs); e.g., HT-4, for heroin. It inflicts 1 point of toxic damage, repeating at 15-minute intervals for 24 cycles. If the victim reaches -1×HP, he slips into a coma (see *Mortal Conditions,* p. 429).

Depressants

Depressants induce drowsiness, lassitude, and (in large doses) insensibility. All offer a HT roll to resist. As with any poison, a large dose gives a penalty – see *Dosage* (p. 438). Massive doses may lead to overdose (see box). Commonly abused depressants include:

Sedatives: These include sleep aids, anti-anxiety drugs, and many psychiatric drugs. A typical sedative is taken orally and requires 20 minutes to take effect. Make a HT-2 roll to resist. On a failure, the user becomes drowsy (see *Irritating Conditions,* p. 428) for hours equal to the margin of failure. Habitual users need larger and larger doses to produce the same effect, increasing the risk of overdose. Sedatives are cheap and highly addictive. If the user acquires them legally, he has a -5-point Addiction; otherwise, he has a -10-point Addiction.

Painkillers: Potent painkillers, such as morphine, are used to treat chronic or surgical pain. Abuse is often the unintended result of legitimate use. Taken orally, there is a delay of 20 minutes; injected, there is *no* delay. Roll vs. HT-4 to resist. On a failure, the user acquires the High Pain Threshold (p. 59) and Unfazeable (p. 95) advantages, and the Laziness disadvantage (p. 142), and experiences euphoria (see *Irritating Conditions,* p. 428). All effects last for hours equal to the margin of failure. Painkillers powerful enough to produce these effects are expensive and totally addictive. Addiction is worth -15 points if the drugs are legal, -20 points otherwise.

Heroin: This opium derivative has few legitimate uses. It is typically injected, in which case there is no delay. Roll vs. HT-4 to resist. Failure incapacitates the user for hours equal to the margin of failure – treat this as ecstasy (see *Incapacitating Conditions,* p. 428). In addition to the usual risk of overdose, there is always the chance the heroin was "cut" with toxic filler; effects are up to the GM. Heroin is very expensive, incapacitating, totally addictive, and illegal; Addiction to heroin is a -40-point disadvantage.

Illness

Maladies and strange diseases may affect adventurers in far-off lands . . . or even at home. The search for a cure – whether for the Princess' wasting disease, an alien plague, or a terrorist's bioweapon – is a wonderful plot device. The invention of diseases is an excellent opportunity for the GM to exercise a morbid sort of creativity.

Magical or technological items, the Resistant advantage (p. 80), and high HT can all protect you from disease. Risks are greatest in warm, moist areas. If you catch something, you won't know until the symptoms start to show . . . *the GM* makes your roll to avoid it!

Disease

Most diseases are caused by microorganisms and spread by infected people or animals – but some have other causes!

News about disease-ridden areas travels fast; a successful Current Affairs roll can alert adventurers to the presence of disease in a region. Spotting locals suffering from symptoms requires a Perception-based Diagnosis or Physician roll. And in an area where *animals* are carrying a disease that people can catch, investigators would need to examine an infected specimen and make a successful Veterinary roll to realize the danger.

Defining a Disease

Diseases are defined in much the same way as poisons (see *Poison,* p. 437). For each disease the PCs encounter, the GM should specify:

Vector: How the disease spreads. Diseases are generally blood, contact, digestive, or respiratory agents. These terms mean just what they do for poisons; see *Delivery* (p. 437).

Resistance Roll: The HT roll to avoid the disease. Anyone exposed must roll, possibly at a penalty. Most diseases allow a roll at HT to HT-6. The *means* of exposure can modify this roll; see *Contagion* (p. 443). On a success, the victim does not contract

the disease. On a failure, he does, but he gets further rolls – once per "cycle" – to throw off the disease.

Delay: This is the incubation period – the time between initial exposure to the disease and the appearance of the first symptoms in those who fail to resist. This is 24 hours for a "generic" disease, but can vary considerably for real-life diseases.

Damage: The disease's effects in game terms. This is typically 1 point of toxic damage, but it might be higher – up to 1d – for virulent diseases. DR does not protect against disease! Symptoms (fever, sneezing, coughing, spots, rash, etc.) appear after the subject starts to suffer injury. Injury from disease will *not* heal naturally until the victim makes his HT roll to recover!

Cycles: Like a cyclic poison, a disease damages its victim at regular intervals until he makes a HT roll *or* a maximum number of cycles passes. The "default" interval between HT rolls is one day. The number of cycles varies with the deadliness of the disease; for instance, a potentially fatal disease might only inflict 1 HP per cycle but endure for 20-30 cycles.

Symptoms: A disease can cause attribute penalties, temporary disadvantages, etc. after the victim loses a specified fraction (typically 1/3, 1/2, 2/3, or all) of his HP to it.

Contagion: Some diseases are mildly or highly contagious – although sometimes not until after the incubation period.

Most diseases are caused by microorganisms and spread by infected people or animals – but some have other causes!

The combination of resistance roll, damage, and cycles determines "deadliness." By carefully selecting these statistics, the GM can distinguish between a virulent but mild flu that ends in a day or two (24-hour delay, HT-2, 1 point of toxic damage, 12-hour interval, six cycles) and a slower but usually fatal disease (72-hour delay, HT-5, 1 point of toxic damage, daily interval, 30 cycles).

Diagnosis

Once the symptoms of a disease become apparent, identification requires a successful roll against Diagnosis or Expert Skill (Epidemiology) – or Veterinary, for an animal illness. This cannot identify a totally new illness, but a good roll might give enough information to allow treatment.

Treatment

Appropriate remedies – herbs, drugs, etc. – can provide a bonus to the cyclic HT rolls to shake off certain diseases. At TL6+, antibiotics (e.g., penicillin) give +3 to recover from most bacterial diseases. At *any* TL, a physician's care provides the same bonuses to recover from disease that it gives to recover from injuries (see *Medical Care,* p. 424).

However, some diseases are drug-resistant, in which case ordinary medicine *gives no bonus.* At TL7+, drug treatments can often mitigate the *effects* of such illnesses – usually by reducing damage or lengthening interval – but these aren't cures. Radiation treatment, gene therapy, nanotech, magic, and psi might still work, however.

Immunity and Susceptibility

Differential Susceptibility: Members of a given ethnicity, sex, or race may be more or less susceptible to a particular disease. For instance, the GM might decide that dwarves are *immune* to the Purple Shakes, and that elves get +2 on their HT rolls against it . . . but that the mortality rate among male giants is 100% unless they are treated within two days. A successful Diagnosis or Physician roll reveals differential susceptibility, if applicable.

Natural Immunity: Some individuals are simply immune to a specific disease. If the GM rolls a 3 or 4 for your *first* attempt to resist a disease, you are immune! He should note this fact and not tell you – under normal circumstances, you have no real way of knowing about your immunity.

Contagion

If you enter a disease-ridden area or encounter a disease carrier, make a HT roll at the end of the day to resist the disease. On a failure, you catch the disease! Modifiers to this roll include the disease's basic virulence modifier and the *least advantageous* applicable modifier from this list:

Avoided all contact with possible victims: *+4.*
Entered dwelling or shop of victim: *+3.*
Spoke with victim at close quarters: *+2.*
Touched victim briefly: *+1.*
Used victim's clothes, blankets, etc.: *+0.*
Ate victim's cooked flesh (animal, we hope!): *+0.*
Ate victim's raw flesh (ditto!!): *-1.*
Prolonged contact with living victim: *-2.*
Kissing or other intimate contact with victim: *-3.*

Proper precautions – masks, antiseptics, etc. – provide a bonus *to those who know and understand them.* The GM should consider limiting such measures to PCs from cultures that understand the germ theory of disease (late TL5).

Acquired Immunity: Anyone who survives a given disease may be immune in the future. This depends on the illness. You only catch measles once, for instance – but mumps can come back over and over.

Vaccination: Vaccination won't cure disease, but it provides almost certain immunity. At TL5, vaccines exist for a few diseases – notably smallpox – but aren't widespread. At TL6+, new vaccines appear constantly, and most can be stored for long periods of time, like other medicines. Developing a new vaccine is difficult and time-consuming; use the rules under *New Inventions* (p. 473), rolling against Bioengineering skill. At TL10+, exotic treatments (e.g., nanomachine colonies) can give individuals or entire societies the Resistant to Disease advantage.

Infection

A microorganism that attacks open wounds may cause an "infection." Infections are possible anywhere, but some places (especially jungles) may harbor especially severe forms of infection.

Open wounds treated with antibiotics (TL6+) never become infected except on a critically failed First Aid or Physician roll. People wounded under less-than-clean circumstances (GM's decision) *and* who do not receive treatment must make a HT+3 roll, modified as follows:

Ordinary "clean" dirt in wound: *+0.*

Dung or other infected matter in wound: *-2.*

Locale harbors a special infection: *-3.*

These modifiers are *cumulative,* and replace those listed under *Contagion* (p. 443).

On a failure, the wound is infected. Treat this as any other disease. A typical infection requires a daily HT roll, modified as above, with failure indicating the loss of 1 HP. Most infections progress until the victim either makes a HT roll, ending the infection, or takes so much injury that he dies.

Treatment with antibiotics (TL6+) gives +3 to HT rolls. This usually halts the infection before serious injury can occur.

If drugs are unavailable, or if the patient doesn't respond, a surgeon can cut out the infected tissue if the injury from infection hasn't progressed beyond a certain point. On the head or torso, this limit is the patient's HP/2. On a limb or extremity, it is the amount of injury required to cripple the body part. Surgery cannot help infections more severe than this.

The surgeon must make a Surgery roll. This inflicts 2d of injury to the head or torso, or amputates a limb or extremity. On a success, it cures the infection. On a failure, damage or amputation occurs but the patient remains infected.

Age and Aging

As discussed under *Age* (p. 20), you can start your adventuring career at any age that falls within your race's usual lifespan. However, unless you are Unaging (p. 95), you will experience gradual decline once you age past a certain point.

Beginning at age 50, make a series of "aging rolls" each year to see if old age is taking its toll. (If you did not note an exact birthday, roll on the first day of every game year.) At age 70, roll every six months. At age 90, roll every *three* months!

If you have Extended Lifespan (p. 53), each level *doubles* the age at which you must make aging rolls (50 years), the ages at which aging rolls become more frequent (70 and 90 years), and the time intervals between aging rolls (1 year, 6 months, and 3 months). If you have Short Lifespan (p. 154), each level *halves* these numbers.

Aging rolls are a series of four HT rolls – one for each of your four basic attributes, in the following order: ST, DX, IQ, HT. You may *not* use any form of Luck (p. 66) on these rolls.

Modifiers: Your world's medical tech level *minus 3;* e.g., -3 at TL0, or +4 at TL7. +2 if you are Very Fit, +1 if Fit, -1 if Unfit, or -2 if Very Unfit.

On a failure, reduce the attribute in question by one level. A critical failure, or any roll of 17 or 18, causes the loss of *two* levels. *Exception:* If you have Longevity (p. 66), treat any roll of 16 or less as a success, and treat a 17 or 18 as an ordinary failure – and if your modified HT is 17+, only an 18 fails!

When you lose an attribute level to age, reduce your point value accordingly. Reduce all secondary characteristics and skills based on that attribute to reflect its new level. For instance, if aging reduces your IQ by one, your Perception, Will, and skills based on any of those three quantities also drop by one. If any attribute reaches 0 from aging, you die a "natural" death.

At the GM's option, you may lose advantages or gain disadvantages of equivalent point value instead of losing an attribute point. For example, your Appearance could decline, or you could gain Hard of Hearing.

Artificial Youth

In some settings, magic or technology can halt or reverse aging. Should you become younger through any means, you regain all attribute levels lost between your new age and your old one. This simply increases your point value; you do not have to "buy back" the recovered attribute levels. Even without magic or high technology, you can spend earned character points to raise your attributes to combat aging.

I'm 37. I'm not old.
– Dennis,
Monty Python and the Holy Grail

Chapter Fifteen
Creating Templates

The GM is responsible for establishing which professional, social, and racial origins are (and *aren't*) appropriate for PCs. No GM can hope to anticipate every possible character concept, but a *good* GM shares his expectations with his players and helps those who are struggling for ideas. One effective way to do this is to provide the players with a set of "templates": collections of traits that typify the kinds of characters that are likely to figure prominently in the campaign.

This section gives rules for template *design,* and is intended for GMs. It assumes you have read the rules for template *use* in Chapter 7.

Character Templates

A "character template" is a carefully structured list of the attribute levels, secondary characteristics, advantages, disadvantages, and skills the GM feels a PC should possess to fill a particular professional, social, or dramatic role in the campaign. The GM calculates all point costs in advance and gives the results with the template, reducing the amount of math involved in character creation.

The main purpose of a character template is to prevent new players from overlooking vital abilities when choosing from among all the options in Chapters 1-6. The secondary goal is to accelerate character design. Thus, a template should list only necessary traits – not everything that *might* fit. The player should always have room to customize his PC!

How **GURPS** *Works: Character Templates Aren't Rules!*

Character templates are not rules. They are just a character-design aid with *no effect* on point costs, success rolls, NPC reactions, character development, or any other aspect of game play. The traits on templates are *suggestions* as to what abilities a hero will need to fill his role in the game world. Make sure your players know this! They should feel free to customize or alter templates, or to create characters without using templates at all.

Types of Character Templates

Most character templates fall into one of the general categories below – a few will fall into more than one. There is no harm in mixing PCs built using different classes of templates within a single campaign.

Cultural Templates

Cultural background is a powerful defining concept in many settings. For instance, Alexander the Great was first and foremost a Macedonian, and this identified him throughout his adventures. A cultural template might specify the genetic traits of a closed breeding group, skills taught to all members of a culture, or the beliefs and prejudices of a given tribe, nation, or religion. It will often include Cultural Familiarity and Languages.

Character Templates and Player Perceptions

The character templates you offer your players will affect their view of the game world and the type of campaign you intend to run. Suppose you are planning a fantasy campaign. If you present only thief and warrior templates, your players will justifiably conclude that you intend to run a freebooting campaign set in a world where rough-and-tumble "professional adventurers" are common. But if you also include templates for farmers, herbalists, and minstrels, your players may infer that you intend a more staid campaign, set in a quasi-medieval world. Make sure your template list sends the right message!

Always make clear when templates are for PCs and NPCs alike – and when they *aren't.* Players usually assume that the abilities listed on templates reflect status quo in the game world. For instance, they will expect *enemy* thieves and warriors to have certain abilities . . . and spend their points and cash to prepare accordingly. If this assumption proves costly or fatal, you might end up with confused or angry players!

Finally, design your templates as a complementary set. If some templates outshine others, or are clearly of lower quality, the players might feel that you favor those who play certain character types – even if that is not actually the case.

Occupational Templates

Someone who does a certain job (e.g., a physician or a mechanic) should have the necessary job skills – see *Jobs* (p. 516). Not all *occupations* are *jobs,* however; you could create occupational templates for hereditary nobles, idle rich, slaves, students, etc. These latter templates might include Duties, codes of conduct (see *Self-Imposed Mental Disadvantages,* p. 121), and "entrance requirements." All occupational templates should suggest Wealth and Status appropriate to the occupation, and should specify attribute levels and advantages that would lead to success at – or successful adaptation to – that career.

Dramatic Templates

A dramatic template defines a character's role in the plot – often in terms of an archetype such as "wise man" or "trickster." Some roles are genre-specific ("screaming victim" is rare except in horror, for instance); others are universal (e.g., "femme fatale"). The dramatic template ensures that the PC has the traits he needs to advance the plot, *regardless* of his exact occupation or culture. This type of template attempts to define personality as much as ability; therefore, it often includes more mental disadvantages than other kinds of templates.

Concept

A character template is a partially built character. To design it, you need a "concept" – a clear idea of what it represents and where it fits in – just as for a fully realized character (see *Character Concept,* p. 11). Decide on the type of template you are designing and what role it will fill, and then visualize which traits would best meet the demands of that role in your campaign. Use your knowledge of the game world to help you here!

Example: We shall construct a "heroic knight" template for a fantasy campaign. This template is both dramatic (the "heroic" part) and occupational (the "knight" part). We could create separate templates for each aspect – or even treat one as a "lens" on the other (see *Lenses,* p. 449) – but we have chosen to keep things simple. We decide that a heroic knight should be strong, honorable, a wise leader, and a skilled warrior.

Flexibility

The concept behind a template should be sufficiently flexible that the player can easily individualize his character. Leave enough creative "space" that the player is not stuck playing a stereotype. There are two useful measures of flexibility: the number of abilities on the character template (its degree of detail) and the extent to which those abilities use up the player's "budget" for character creation (its point cost).

Degree of Detail

A "dense" character template includes *many* traits. It defines a particular role precisely . . . so precisely that it can rob a PC of individuality. A "sparse" template makes a few suggestions, perhaps only a skill or two. It makes the resulting PC easier to customize, but leaves inexperienced players wondering, "What's my role?" The secret is to strike a balance between the two: don't try to give the template every trait that might fit – just focus on the traits that *define* the role!

Template Cost

The more expensive the template, the more points you're spending for the player. Keep the campaign power

level in mind and come in under the point budget for PCs, leaving enough unspent points (and enough unused points in disadvantages, if you are enforcing such a limit) that the player can customize his character. If a template absolutely *must* tie up a lot of points, make it "interactive" (see p. 449).

Example: We'll design our heroic knight for a 150-point game with a -75-point disadvantage limit. This means we'll try to spend fewer than 150 points total, and take less than the full -75 points of disadvantages.

The character templates you offer your players will affect their view of the game world and the type of campaign you intend to run.

Selecting Traits

The next few sections offer concrete advice on selecting the actual traits that appear on character templates.

Attributes

The 9-13 range is suitable for most characters. "Adventuring" templates should have one or two above-average scores, but those for most normal jobs should leave everything at 10. Remember that an 11 or 12 is noteworthy, and that a 13 or 14 is exceptional – see *How to Select Basic Attributes* (p. 14). Dramatic templates are a special case, as it often serves the purposes of drama for an archetype to have extreme attributes. Still, try to avoid excessive stereotyping.

Example: We see our knight as a capable warrior, so we give him superior physical attributes: **ST** 12 [20], **DX** 12 [40], and **HT** 12 [20]. To reflect his wisdom and resolve, we give him **IQ** 11 [20] – he is supposed to be a wise leader, not a genius. This comes to 100 points.

Secondary Characteristics

It is usually best to leave Hit Points, Will, Perception, Fatigue Points, Basic Speed, and Basic Move at their base values. Tweaking these numbers is likely to confuse new players. Unless the concept absolutely requires exceptional talent in one of these areas (e.g., high Perception for a detective), just choose attributes that give fair secondary characteristics and leave fine-tuning to the adventurous player.

Advantages

For occupational templates, list the job's requirements (e.g., Languages for a translator) or benefits (e.g., Clerical Investment for a priest). Other possibilities include "tricks of the trade" (e.g., Combat Reflexes for a soldier) and talents that would lead a person to select this particular career (e.g., Night Vision for a thief).

For cultural templates, also consider genetic and cultural traits (e.g., "All Northerners have Temperature Tolerance"), as well as Cultural Familiarity (p. 23), Languages (p. 23), and Social Regard (p. 86).

For dramatic templates, include traits that are invariably found in literary and cinematic examples of the archetype (e.g., Charisma or Handsome appearance for a swashbuckler).

Justify each advantage using an argument similar to one of those above – which means that *most* advantages on a character template should be learned or social in nature. Also, try to avoid unusual advantages. If every single character of a given type has a rare advantage, it will dilute the value of the advantage and possibly strain the suspension of disbelief.

Example: A knight *requires* Status 2 [10]. His Wealth should be at least Comfortable [10], to cover his cost of living and buy his expensive equipment. This costs 20 points.

Disadvantages

For the most part, follow the advice given for advantages. In the case of occupational templates, avoid disadvantages that are liable to inhibit job performance (e.g., Honesty for a thief). Focus instead on those that are likely to *help* with the chosen career (e.g., Fat for a sumo wrestler) and those that are *expected* (e.g., Disciplines of Faith or Vows for a priest). Some professions tend to *lead to* disadvantages, a few of which might be so common that they merit a place in the template (e.g., Social Stigma for a thief).

Dramatic templates are often defined almost entirely by their mental disadvantages, and frequently have "good" disadvantages or tragic flaws – see *Disadvantages for Heroes* (p. 119).

Example: Our knight owes fealty to his liege lord, so we give him Duty (Liege lord, 9 or less) [-5]. Since he's a *heroic* knight out of fantasy, we also give him Code of Honor (Chivalry) [-15], Honesty (6) [-20], and Vow (Never refuse a request for aid) [-15]. This comes to -55 points.

Skills

Pick the skills needed for the character to be competent at the role the template describes. Avoid excessive numbers of skills, but include *all* necessary skills, a few skills that are complementary but not vital, and perhaps one or two skills that serve mostly to provide background color.

When assigning skill levels, assume that skill 12 suffices for "safe" jobs (e.g., accountant or librarian) and that skill 14 is plenty for "risky" jobs (e.g., assassin or surgeon) – including most "adventuring professions." Save skill 16+ for those who truly stand out in their field; don't water down the value of high skill by making it commonplace.

Of course, these guidelines assume relatively realistic characters. Many larger-than-life heroes have dozens of skills at high levels. It is up to the GM whether he wishes to encourage this pattern of skill buying in his campaign.

Listing Skills

When listing skills, include all relevant information in the following format:

Skill Name *(Difficulty)* Relative Level **[Point Cost]**-Actual Level

For instance, "Broadsword (A) DX+2 [8]-14." This might look odd now, but it makes things much more transparent when the time comes to customize the character!

It can also be helpful to break down skill listings as follows:

Primary Skills: Vital skills, at level 12+ – or at 14+, if they are likely to matter in life-or-death situations.

Secondary Skills: Helpful skills that it's hard to imagine the character not having, at level 11+.

Background Skills: Anything else that fits, chosen for descriptive reasons rather than utility, usually at a lower level than primary and secondary skills.

Examples: Our knight is an adventurer first, so we make his primary skills Broadsword-14 [8], Lance-14 [8], Riding (Horse)-12 [2], and Shield-14 [4]. We make his leadership abilities secondary: Leadership-11 [2] and Tactics-11 [4]. Finally, we add Armoury (Melee Weapons)-10 [1] and Heraldry-10 [1] as background skills, to cover his knowledge of arms and armor. Total cost is 30 points.

Setting the Price

Total the cost of everything on the character template. This is the "template cost": the number of points the player must pay to purchase the template.

If template cost comes to more than 90% of the campaign's starting points (see *Starting Points,* p. 10), players are liable to find it restrictive. To remedy this, lower attribute levels, remove noncritical advantages and skills, or add a few appropriate disadvantages. Alternatively, you can try to optimize the template (see below).

If you *still* can't get template cost down to a reasonable level, it is likely that the starting points you've selected are less than ideal for the heroes you see working well in the game world. It might be a good idea to revise the campaign power level! See *Power Level* (p. 487) for advice.

Example: Our knight has spent 100 points on attributes, 20 on advantages, -55 on disadvantages, and 30 on skills. That's 95 points, which is well within the recommended 90% limit for a 150-point campaign (135 points).

Optimization

Experienced players usually attempt to minimize the point cost and maximize the effectiveness of their characters. New players are unlikely to do so; therefore, it is a good idea to optimize templates so that characters built with them are not less efficient than scratch-built PCs. There are two main methods for doing this:

1. Select attribute levels that minimize the cost of the chosen skills. For instance, an Average skill at DX+2 level costs 8 points; six such skills would cost 48 points. An Average skill at DX+1 costs 4 points; six skills at this level would cost only 24 points. By lowering six skills from DX+2 to DX+1, you could free up 24 points – and if you then spent 20 points on DX, you could raise DX by one level, regain the original skill levels, *and* save 4 points!
2. Add advantages that give skill bonuses at discount rates – notably Talents (see p. 89).

If you have trouble justifying this, remember: templates are blueprints for *adventurers* – exceptional characters built with more points than the average person – so high attributes and rare advantages are going to be more common than in the general population.

Discounts

Avoid the temptation – often carried over from other RPGs – to offer a discount on template cost. A character built using a template should be *indistinguishable* from an equivalent character designed from the ground up.

Adjusting for Player Experience

When designing character templates, be sure that they take into account the character-creation habits of your experienced players. For instance, if all their warriors have Combat Reflexes and all their wizards have Magery 3, your templates should follow suit – even if the "typical" warrior or wizard in the setting lacks this level of talent. This puts the characters of inexperienced players who use your templates on an equal footing with those of more experienced players.

Writing it Up

Use the following format for the final character template (illustrated here using our heroic knight):

Heroic Knight

95 points

You are a brave knight out of fantasy or fairy tales – strong, honorable, a wise leader, and a skilled warrior.

Attributes: ST 12 [20]; DX 12 [40]; IQ 11 [20]; HT 12 [20].

Secondary Characteristics: Dmg 1d-1/1d+2; BL 29 lbs.; HP 12 [0]; Will

11 [0]; Per 11 [0]; FP 12 [0]; Basic Speed 6.00 [0]; Basic Move 6 [0].

Advantages: Status 2 [10]; Wealth (Comfortable) [10].

Disadvantages: Code of Honor (Chivalry) [-15]; Duty (Liege lord; 9 or less) [-5]; Honesty (6) [-20]; Vow (Never refuse a request for aid) [-15].

Primary Skills: Broadsword (A) DX+2 [8]-14; Lance (A) DX+2 [8]-14; Riding (Horse) (A) DX [2]-12; Shield (E) DX+2 [4]-14.

Secondary Skills: Leadership (A) IQ [2]-11; Tactics (H) IQ [4]-11.

Background Skills: Armoury (Melee Weapons) (A) IQ-1 [1]-10; Heraldry (A) IQ-1 [1]-10.

Customization Notes

Give the player a few thoughts on how he can make his character different from other PCs built using the same character template. For instance, you might include a brief list of useful traits to buy with leftover points, advice on how to flesh out the player-defined traits in the template (e.g., self-imposed mental disadvantages, Patrons, and the details of Ugly appearance), or thoughts on appropriate or necessary equipment.

Example: We mention that the player should specify his knight's coat of arms and liege lord. He also needs weapons, armor, and a mount! Since Wealth (Comfortable) cannot cover all that, we suggest using a few leftover points to purchase additional Wealth – or to buy his liege lord as a Patron who can provide these things.

For an occupational template, this is the place to note the job roll, monthly pay, and wealth level for the job – see *Jobs* (p. 516). Job *prerequisites* should appear in the template; there is no need to reiterate them here.

Additional Options

Character templates need not be "set pieces." With a little extra effort, you can greatly expand the versatility of templates by building in tools that let the player customize his character in the course of buying the template.

Lenses

You can treat common variations on templates as "lenses" through which to view the basic design. A lens is a package of advantages, disadvantages, and skills that adds to the base template, changing its emphasis. It might be specific to just one template or applicable to several (or *all*) templates in your campaign. Some lenses are mutually exclusive; others can "stack."

A lens should not add traits that oppose or that are redundant with those on the base template(s). If this is inevitable, explain what to do when conflict occurs. A lens should also be compatible with all other lenses the player can select at the same time (but don't worry about mutually exclusive lenses).

The player adds the cost of any lenses selected to the cost of the base template and writes down both sets of abilities.

Example: It is possible to represent the "heroic knight" in our example as a "warrior" template modified by "heroic" and "knight" lenses:

Warrior

101 points

You are a fantasy warrior – a barbarian, knight, swashbuckler, or someone else who lives by the sword.

Attributes: ST 12 [20]; DX 12 [40]; IQ 10 [0]; HT 12 [20].

Secondary Characteristics: Dmg 1d-1/1d+2; BL 29 lbs.; HP 12 [0]; Will 10 [0]; Per 10 [0]; FP 12 [0]; Basic Speed 6.00 [0]; Basic Move 6 [0].

Skills: Armoury (Melee Weapons) (A) IQ-1 [1]-9; Shield (E) DX+2 [4]-14; and two weapon skills, each (A) DX+2 [8]-14.

Lenses

Heroic (-9 points): You are wise, honorable, and a leader of men. Add +1 IQ [20], Honesty (6) [-20], Vow (Never refuse a request for aid) [-15], Leadership (A) IQ [2], and Tactics (H) IQ [4].

Knight (+3 points): You are an invested knight, with all the attendant privileges and duties. Add Comfortable [10], Status 2 [10], Code of Honor (Chivalry) [-15], Duty (Liege Lord, 9 or less) [-5], Heraldry (A) IQ-1 [1], and Riding (Horse) (A) DX [2].

Interactive Templates

Along with fixed character traits, you may wish to include a number of choices with identical point costs. These can be specific (e.g., High Pain Threshold *or* +1 ST; Chemistry-14 *or* Mathematics-14) or general (e.g., any DX/Average weapon skill at 15; any three IQ/Hard sciences at 14), as long as the point cost is the same. A good compromise is to set aside a pool of points that the player can spend on a specific list of options however he sees fit.

Once you are comfortable with template design, consider using this option for all your templates. It simplifies the player's choices without eliminating them *and* is an effective stepping-stone to unassisted character design. It is especially useful for mental disadvantages, because it gives the player more latitude in defining his character's personality.

Example: Not all knights use broadswords; many prefer the mace. On our heroic knight template, we could replace "Broadsword (A) DX+2 [8]-14" with "Axe/Mace *or* Broadsword, both (A) DX+2 [8]-14" and let the player choose.

We could also offer a choice of mental disadvantages. Instead of requiring Code of Honor, Honesty, and Vow, we could say: "A total of -50 points chosen from Charitable [-15*], Code of Honor (Chivalry) [-15], Honesty [-10*], Selfless [-5*], Sense of Duty [-2 to -20], Truthfulness [-5*], and Vow [-5 to -15]." Note how disadvantages with variable values offer a *range* of point costs, and how disadvantages that require self-control rolls are marked (*) to indicate that they might be at ×.5, ×1, ×1.5, or ×2 value, depending on the self-control number.

Racial Templates

The baseline character in ***GURPS*** is human, but nonhumans are common in many game worlds. The collection of traits that differentiate a nonhuman species from humanity is called a "racial template."

Unlike character templates, racial templates are not normally optional or customizable – every member of a species *must* purchase its racial template, exactly as written. Furthermore, racial templates are subject to a number of special rules that have ramifications in play, and may even include "hidden features" that can affect outcomes in the game.

Concept

Before building a racial template, you should develop a clear idea of what it is you are designing. A racial concept is *not* a character concept – you are creating an entire species, and must consider morphology, survival strategies (biological, technological, or magical), group behavior, and culture.

What Is a Race?

A "race" is normally a biological species – human, tiger, elf, Gray alien, etc. – but you need not limit yourself to this definition. A race might be a genetically engineered subspecies, a particular category of fantastic creature (for instance, "faerie" or "vampire"), or a specific make or model of construct (golem, robot, sentient computer program, etc.). What matters is that every member of the group possesses a common set of identifiable traits.

What Do They Look Like?

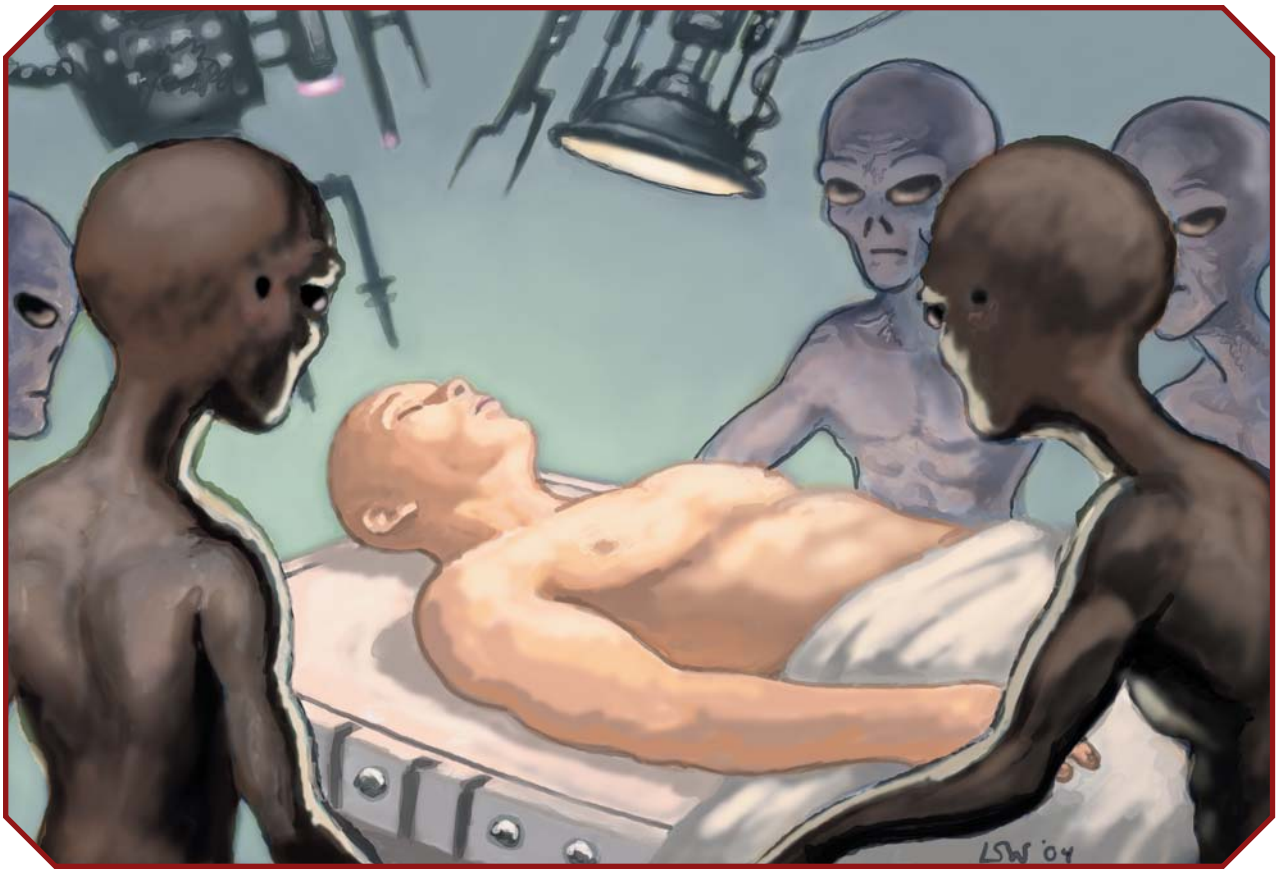
A race's appearance suggests many of its racial traits. For instance, a species with four arms needs to purchase Extra Arms, because it has two more arms than a human, which is an advantage. Likewise, a species with one eye should have One Eye, as its lack of binocular vision puts it at a disadvantage next to a human.

Be sure to distinguish between purely cosmetic features and those that actually affect play. Outward appearance is often just a "special effect," and special effects should not cost points – see *Features and Taboo Traits* (p. 452). Only genuine differences in *function,* relative to a human, call for definition in terms of attributes, advantages, and disadvantages. Assigning point values to racial characteristics unnecessarily is a sure-fire way to make a multiracial campaign confusing, if not unbalanced.

How Do They Think?

Decide how members of the race act, and lend some thought to the race's dominant cultural background. These things determine the race's mental traits, including racial skills. Here again, be careful to distinguish features that affect play from those that do not.

The most challenging problem is to determine how the race *thinks*. This is crucial if you expect people to roleplay



members of the race! Humanity's two primary motivations seem to be sex and material comfort. Other races might not share these drives. Of course, any biological creature must feel *some* instinct to preserve its young and itself, or the race will vanish. Races that lack this drive would have psychologies that humanity would find truly alien.

Selecting Traits

A racial template consists of attribute modifiers, secondary characteristic modifiers, advantages, disadvantages, quirks, and skills that apply to *every* member of the race. A race may also have features that do not have a point cost but that do have in-game effects.

Most of the *mental* and *physical* traits in Chapters 1-3 are suitable as racial traits. More rarely, *social* traits are appropriate – for instance, an entire race might enjoy Social Regard or suffer from Social Stigma.

As the GM, you are free to assign exotic (E) and supernatural (P) traits to racial templates as needed – even if such traits are otherwise forbidden (in which case nonhumans are likely to be the *only* ones who have such traits). A few traits explicitly note that they are *reserved* for racial templates, and cannot occur otherwise.

In all cases, make sure that the traits you choose are in line with the racial concept and, more importantly, *make sense.*

Racial Attribute Modifiers

If the ST, DX, IQ, or HT of an *average* member of a race differs from the human norm of 10, that race has a "racial attribute modifier." This costs ±10 points per ±1 to racial average ST or HT, or ±20 points per ±1 to racial average DX or IQ.

A member of a race with such modifiers pays for his personal scores as usual, and *then* applies his racial modifiers to find his final scores.

Example: A racial +10 to ST costs 100 points, while a racial -1 to IQ costs -20 points. A racial template with these modifiers notes "ST+10 [100]" and "IQ-1 [-20]."

A member of this race buys a personal ST 9 [-10], IQ 14 [80]. He then applies his racial attribute modifiers: ST+10 gives ST 19, and IQ-1 gives IQ 13.

Racial Secondary Characteristic Modifiers

These work much as do racial attribute modifiers. The main difference is the point cost: ±1 to HP costs ±2 points; ±1 to FP costs ±3 points; and ±0.25 to Basic Speed or ±1 to Will, Perception, or Basic Move costs ±5 points.

Example: A racial -0.75 to Basic Speed would cost -15 points. A racial template with this modifier would note "Basic Speed-0.75 [-15]."

A member of a race with such modifiers calculates his basic secondary characteristics from his attributes as usual, *after* applying all racial attribute modifiers. He may buy these characteristics up or down, as usual. After that, he applies racial secondary characteristic modifiers to find his final scores.

PC Races vs. NPC Races

A "player character race" is one that the PCs can belong to at the time of character creation. A "nonplayer character race" is one reserved for NPCs under the GM's control. There is no rule distinction between a PC race and an NPC race. As the GM, you are free to assign a race to either category – or even to move a race from one category to the other during the course of the campaign.

Try not to be too restrictive, however. ***GURPS,*** being a generic system, has rules for most situations. This makes it feasible to allow PCs to belong to races reserved for NPCs in other games (ghosts, monsters, robots, etc.) if the players and GM are up to the roleplaying challenge.

Player-Created Races

It is the GM's job to design the racial templates for his campaign. The rules given here have fewer arbitrary limitations and balancing factors than do those for creating individual characters, because this is intended to be a GM's system, and the GM is free to decide what is balanced in his campaign.

That said, the adventurous GM might allow an especially good player or group to design races for their characters. This can be a major time-saver for the GM in a campaign that calls for a plethora of nonhuman species!

A few tips for GMs who wish to allow player-created races:

- Watch out for abuse. The lack of balancing factors in these rules makes it possible to create a race that has a significant advantage in effectiveness over the human race. Do not allow such races – at least, not as PCs.
- Do not allow abilities (or *combinations* of abilities) that you do not want in the PCs' hands, however balanced they may be. In particular, keep an eye on exotic and supernatural traits. If a trait is strictly off-limits to *all* PCs, then the race of the PC should be unimportant.
- Player-generated races work best in game worlds that already have *many* different races, because "yet another race" will rarely upset the campaign. Be sure to have a few ready-made PC races on hand for players who do not wish to create their own, however – and to serve as examples for those who do.
- Be leery of player-created *NPC* races. In most game worlds, NPC races are supposed to be somewhat mysterious. Mystery is hard to maintain when the creator is a member of the party!

Example: A member of a race with DX+2, HT+1, and Basic Speed-0.75 buys a personal DX 12 [40], HT 12 [20]. His racial attribute modifiers make this DX 14, HT 13. These attributes give Basic Speed 6.75. Next, he buys his Basic Speed up to 7.75, for 20 points. At the very end, he applies his racial Basic Speed-0.75 to get a final Basic Speed 7.00.

Racial Advantages and Disadvantages

A nonhuman race could conceivably possess almost any advantage or disadvantage that an individual could . . . within reason. When in doubt, the GM should exercise common sense.

Traits related to build – Skinny, Overweight, Fat, Very Fat, Dwarfism, and Gigantism (see *Build,* p. 18) – are relative to the *racial* norm. They're valid for individuals, not races. To create an entire race that is smaller or larger than humanity, assign an appropriate Size Modifier (see *Size Modifier,* p. 19). This has no point cost – the advantage of longer reach cancels out the disadvantage of being a large target, while the disadvantages of being short balance the advantage of being hard to hit. Individual members of such races can have any build; e.g., an ogre with racial SM +1 could take Dwarfism and have a personal SM of 0.

Note that racial disadvantages do *not* count against the campaign disadvantage limit (see *Disadvantage Limit,* p. 11). This limit applies only to *personal* disadvantages. For instance, a player in a campaign with a -75-point disadvantage limit may take up to -75 points in disadvantages, regardless of which race he selects for his PC.

Racial Quirks

It can be useful to assign a few quirks on a racial basis to define a race's minor disadvantages or personality traits. Use these sparingly, however – players are obligated to roleplay their quirks, and too many racial quirks can result in a complicated, unplayable character.

Racial quirks do not count against the normal limit of five quirks.

Features and Taboo Traits

Many traits *distinguish* a race without actually increasing or reducing its capabilities. Such traits cost 0 points, and fall into two categories:

Features: A "feature" is just a note on how the race differs cosmetically or physiologically from humanity when that difference does not grant an advantage or a disadvantage. For instance, a human subspecies genetically modified to lack an appendix has a feature; so does a fantasy race that bears a magical mark from birth. Faster and slower maturation are features as well. A race's native environmental conditions are also features, if they differ from the human norm (humans are adapted to 1G of gravity, have a temperature "comfort zone" of 35° to 90°, and breathe 78% nitrogen/21% oxygen at 1 atm of pressure). A race that can tolerate a *broader* spectrum of conditions than humanity has an advantage, however!

Any biological creature must feel some instinct to preserve its young and itself, or the race would vanish. Races that lack this drive would have psychologies that humanity would find truly alien.

Taboo Traits: A specific advantage, disadvantage, or skill might be off-limits ("taboo") for the race – that is, no member of the race can possess that trait. Given the number of possible choices, and the small odds that a given character would actually take a particular trait, this is not considered a disadvantage. Often, "taboo traits" result from racial disadvantages; for instance, No Legs (Sessile) logically forbids movement-related traits. To keep a race fun to play, do not assign excessive numbers of taboo traits, and give a plausible cultural, psychological, or physiological reason for each one.

Racial Skill Bonuses and Penalties

A race with a particular gift for a skill or a set of skills has an advantage, while a race that is unusually inept has a disadvantage.

Racial talent for *one skill* costs 2 points for +1 to skill, 4 points for +2, or 6 points for +3 (the maximum bonus allowed). Write this as, for instance, "+1 to Forgery [2]" or "+3 to Fast-Talk [6]." This trait does *not* actually grant the skill – it gives a bonus whenever a member of the race rolls against that skill or its default.

Treat a racial knack for a *group of related skills* as a Talent (see p. 89). Each +1 to those skills costs 5 points for six or fewer skills, 10 points for seven to 12 skills, or 15 points for 13 or more skills. The maximum bonus is +4. If this is not a standard Talent, note which skills get the bonus. (Keep an open mind – some unusual things might be "closely related" for a race that thinks nothing like humanity!)

Racial ineptitude at *one skill* is a flat -1 point for -4 to skill. This is just a racial Incompetence quirk (see p. 164), and is subject to all the usual rules for Incompetence. To keep things balanced, no race can be incompetent at more than five individual skills (-5 points), and the affected skills must be important in the game world to qualify for points.

Evaluate racial incompetence at a *group of related skills* like a Talent, but put a minus sign in front of the cost. For instance, -2 with 7-12 skills would be a -20-point racial disadvantage. A race can have only one "group incompetence."

The bonuses and penalties above apply to *all* specialties of any affected skills.

Effects of Experience: When an individual improves a racially modified skill, disregard the racial modifiers and calculate the new level based solely on the points he spent. Apply the racial skill bonus to his *final* skill level. For example, a member of a race with +1 to Fast-Talk would pay only 1 point to have Fast-Talk at IQ. If he wanted to improve Fast-Talk to IQ+1 later on, he would pay 1 more point.

Racially Learned Skills

A "racially learned skill" is an automatic level of proficiency acquired by every member of the race. It is usually innate or instinctive. For instance, a flying race might possess racial Flight skill, while a race with padded feet might have Stealth skill on a racial basis.

Price racially learned skills just as if an individual character were learning them; see the *Skill Cost Table* (p. 170). Write them in the format used on character templates (see *Listing Skills*, p. 448), calculating the final skill level based on the racial average attribute score. For instance, a race with DX+4, HT-1 would have racial average DX 14, HT 9, and would write "Flight (A) HT [2]-9" and "Stealth (A) DX+1 [4]-15." The *actual* skill levels that an individual member of the race enjoys vary according to his personal attribute scores.

Effects of Experience: Members of a race may improve racially learned skills just as they would any other skill. For instance, if a race has Flight at HT, it would cost an individual member of that race 2 points to increase his skill to HT+1.

Racial Magic

Many races of fantasy and horror are magical. Below are two possible ways to handle magical powers.

Advantages: Any advantage might stem from the race's magical nature as a "special effect" (see *Advantage Origins*, p. 33). Such advantages require mana to work. If regions without mana are common in the campaign world, apply the limitation "Mana Sensitive," worth -10%, to the cost of such abilities.

Racially Innate Spells: Every member of the race might have the inborn ability to cast one or more spells; see Chapter 5. *Ignore* the usual prerequisites and buy the spells using the rules for racially learned skills (above). Add racial Magery, if any, to the race's skill level. Magery is not required for racially innate spells – but without Magery, the race's magic only works in areas of high or very high mana (see *Mana*, p. 235). A race that can *only* cast racially innate spells pays the usual 5 points for Magery 0, but may buy Magery 1+ with a -40% Accessibility limitation: "Racially innate spells only."

Setting the Price

The point cost of a racial template – called the "racial cost" – is the sum of the point values of its constituent traits. Anyone who wishes to play a member of the race *must* pay its racial cost. If racial cost is 0 points or more, treat the template as an advantage; if racial cost is negative, treat it as a disadvantage. (It costs 0 points to play a human, but there is no need to note this, as characters are assumed to be human *unless* they buy a racial template.)

A template with a negative racial cost does *not* count against the campaign disadvantage limit, if any (see *Disadvantage Limit,* p. 11). Individual mental, physical, and social problems are as likely for members of low-powered races as they are for humans and members of high-powered races!

Players must normally purchase *all* elements of a racial template as a unit, and may only "opt out" of a given trait with the GM's permission. Opting out of an advantageous trait saves points, while opting out of a disadvantageous one costs points. In both cases, pay racial cost normally and note the changes separately – for instance, "No Infravision [-10]" or "No Bad Sight [25]." See *Omitting Racial Traits* (p. 262) for additional details.

Sub-Races

A "sub-race" is a sizeable portion of a race that differs significantly from the racial norm. Examples include extreme sexual dimorphism, true biological subspecies, half-breeds, and radical mutations (or even upgrades, in the case of robots).

Sub-races should share most of the parent racial template, but with a few important differences (and a matching adjustment to racial cost). Write up sub-races exactly as you would "lenses" for a character template – see *Lenses* (p. 449).

Filling in the Blanks

After finalizing any racial template, try to answer the following questions. The answers will help *you* present the race to the players and help *them* role-play members of that race!

- What do they look like? How big? How tall? What shape? What color? Do they have hair? What color? Do they have eyes? Do they have distinctive markings? Do they have hands or claws? What direction do their joints bend?
- Were they created or did they evolve? Where? What environmental pressures combined to give them their advantages and disadvantages?
- How do they live? How do they govern themselves? Are they gregarious or solitary in nature? If they are gregarious, do they favor large cities, small villages, or family groups?
- How do they think? Do they have a racial philosophy? Do they have a religion? Do they have *many* religions? How do they react in an emergency? Do they like new things, or are they complacent? Can they be trusted?
- How do they get along with others? Do they fight among themselves? How do they react to new races? Suspiciously? Enthusiastically? Do they trade with other races? Are there other races they particularly like or dislike?

Character Cost vs. Racial Strength

Many GMs will want to create at least a few races with powers far beyond those of normal humans. In game terms, this means a high racial cost. This may create an apparent contradiction in the campaign: "If these guys are so great, why don't they control the whole world?"

The most obvious answer is "They do!" There's *no* reason why humanity has to be the dominant race of the campaign. Mankind could be an insignificant minor race or an audacious upstart to the ancient civilizations of the nonhumans!

However, the GM needn't forsake superhuman races in an anthropocentric campaign. The factors that allow *individuals* to excel are quite different from those that allow one *race* to dominate another. An anthropocentric story or campaign usually assumes that humanity has several advantages, relative to other races, that would never show up on a character sheet.

Humans are prolific. A woman can easily bear six to 12 children in her lifetime; a man can father children with a huge number of women. Other races might be strictly monogamous, tied to a complex fertility cycle, or generally infertile, allowing humanity to dominate them through sheer numbers. This is borne out in nature, where extremely capable species – such as the dominant carnivores – inevitably have smaller populations than "lesser" species.

Humans are aggressive. They tend to want money, property, and power for its own sake. A pragmatic race might *let* the humans move in and assume the burden of running things! They might insist on a few basic rights, but not necessarily political power. Of course, an extremely powerful or supernatural race might pursue goals that humans cannot comprehend, leaving humanity to do as it pleases.

Humans are organized. A super-race might never need to band together for protection from nature as humanity's ancestors did. Such a race might be unable to withstand an organized human military campaign or political program. Indeed, such a race might find real economic and cultural benefit in accepting organization by humanity.

This discussion applies equally to extremely *low*-powered races vis-à-vis humanity. The members of a hive mind or primitive horde might be no match for us individually, but be more prolific, aggressive, and organized than we are as a race!

Chapter Sixteen

Animals and Monsters

An "animal" is any *nonsapient* natural creature; for instance, a rhinoceros or a tiger. A "monster" is any fantastic or unnatural creature – either sapient, like a dragon, or nonsapient, like a flesh-eating slime – that lacks a civilization. Both are considered *characters,* with racial templates (see Chapter 15) that show how they differ from human beings.

Since animals are normally nonsapient and have few or no skills, and since monsters are most often intended as adversaries for the PCs, the GM need not create them as fully fleshed-out characters. If the GM controls a creature, he can simply refer to its unmodified racial template – or just list a few combat statistics, if the thing is intended as an opponent.

However, animals and monsters intended as PCs *always* require full statistics. The GM might wish to create some animal and monster NPCs as fully realized characters, too. This is the difference between "a wolf" and "the canny old wolf that terrorized the village"!

Common Animals

Below are descriptions of a few commonly encountered beasts. Use these as guidelines when assigning statistics to animals not listed here.

Apes

Apes are intelligent – too intelligent to be really predictable. Animal Handling rolls are at -1 with such creatures. Apes attack in close combat by grappling and biting, rather than by punching or kicking.

Chimpanzee

A peaceful plant-eater. A chimp won't fight unless it or its young are threatened.

ST 11; **DX** 12; **IQ** 6; **HT** 12.
Will 10; **Per** 10; **Speed** 6; **Dodge** 9; **Move** 7.
SM 0; 140 lbs.

Traits: Arm ST +3; Bad Grip 2; Brachiator; DR 1; Sharp Teeth; Wild Animal.
Skills: Climbing-14.

Gorilla

A great ape.

ST 15; **DX** 12; **IQ** 6; **HT** 12.
Will 10; **Per** 10; **Speed** 6; **Dodge** 9; **Move** 7.
SM +1; 400 lbs.

Traits: As chimpanzee.
Skills: Climbing-14.

Bears

When making reaction rolls for bears, remember that grizzly, polar, and cave bears are mostly carnivorous and ill-tempered. *Any* mother bear with cubs will be aggressive: -3 to reactions!

A bear walking or running on four legs is a two-hex creature. When it stands on its hind legs to fight, it is a one-hex creature.

Black Bear

A small, omnivorous bear.

ST 14; **DX** 11; **IQ** 4; **HT** 13.
Will 12; **Per** 10; **Speed** 6; **Dodge** 9; **Move** 7.
SM 0; 300 lbs.

Traits: Blunt Claws; DR 2; No Fine Manipulators; Semi-Upright; Sharp Teeth; Temperature Tolerance 2; Wild Animal.
Skills: Brawling-13.

Grizzly Bear

ST 19; **DX** 11; **IQ** 4; **HT** 13.
Will 11; **Per** 10; **Speed** 6; **Dodge** 9; **Move** 8.
SM +1; 800 lbs.

Traits and Skills: As black bear, plus Bad Temper (9).

Polar Bear

ST 20; **DX** 11; **IQ** 4; **HT** 13.
Will 11; **Per** 10; **Speed** 6; **Dodge** 9; **Move** 7 (Water Move 3).
SM +1; 1,000 lbs.

Traits and Skills: As grizzly bear, plus Swimming-13.

Cave Bear

A prehistoric creature.

ST 23; **DX** 11; **IQ** 4; **HT** 13.
Will 11; **Per** 10; **Speed** 6, **Dodge** 9; **Move** 7.
SM +1; 1,400 lbs.

Traits and Skills: As grizzly bear.

Cats

Cats are only domesticated in the sense that they tend to hang around human settlements. It is a very rare trainer who can teach a cat a trick it doesn't feel like learning . . .

House Cat

A domestic feline, kept as a pet, familiar, or mouser.

ST 4; **DX** 14; **IQ** 4; **HT** 10.
Will 11; **Per** 12; **Speed** 6; **Dodge** 10; **Move** 10.
SM -3; 10 lbs.

Traits: Catfall; Combat Reflexes; Domestic Animal; Night Vision 5; Quadruped; Sharp Claws; Sharp Teeth.
Skills: Brawling-16; Jumping-14; Stealth-14.

Lion

A big, lazy cat, found in both plains and jungle. Lions hunt in small groups.

ST 16; **DX** 13; **IQ** 4; **HT** 11.
Will 11; **Per** 12; **Speed** 6; **Dodge** 9; **Move** 10.
SM +1 (2 hexes); 500 lbs.

Traits: DR 1; Laziness; Night Vision 5; Quadruped; Sharp Claws; Sharp Teeth; Temperature Tolerance 1; Wild Animal.
Skills: Brawling-15; Running-13.

Tiger

A solitary hunting cat, usually a jungle dweller.

ST 17; **DX** 13; **IQ** 4; **HT** 11.
Will 11; **Per** 12; **Speed** 6; **Dodge** 10; **Move** 10.
SM +1 (2 hexes); 500 lbs.

Traits: Combat Reflexes; DR 1; Night Vision 5; Quadruped; Sharp Claws; Sharp Teeth; Temperature Tolerance 1; Wild Animal.
Skills: Brawling-15; Stealth-13; Swimming-13.

Animal and Monster Statistics

Creature statistics in this chapter appear in an abbreviated form.

Attributes: These are racial averages, suitable for a typical encounter. The GM might wish to increase ST for especially large specimens, or decrease it for young or scrawny examples. Find racial attribute modifiers for templates by subtracting 10 from the racial average score; e.g., the ST 14 listed for a black bear means its racial template would have ST+4.

Secondary Characteristics: These, too, are racial averages. They are derived from attributes using the usual formulas – but note that many animals have racial Will, Perception, and Move modifiers. For damage, see *Damage for Animals* (p. 460). Calculate Basic Lift normally, if needed. Assume that HP equal ST and FP equal HT, unless noted otherwise. Dodge is based on Basic Speed, and *includes* the +1 for Combat Reflexes, if applicable. Size Modifier (SM) and average weight also appear here.

Traits: A summary of the creature's most important meta-traits, advantages, and disadvantages, *from the perspective of interacting with humans.* Most creatures have other traits, but these only matter when creating a full-fledged racial template.

Skills: The creature's *significant* skills, at racial average levels. Assume that a creature with the Wild Animal meta-trait will also have Survival skill in its native habitat at a level equal to its Perception.

Individualizing Animals

The GM is not bound by the statistics given to animals, which describe *typical* creatures. Individuals may vary!

Attributes

ST: May vary significantly – perhaps by as much as 20%, for large creatures. High ST is *extremely* valuable for draft animals.

DX: Rarely varies by more than a point either way.

IQ: Realistically, this is fixed, as noted in the Domestic Animal and Wild Animal meta-traits (see *Mentality Meta-Traits,* p. 263). Even a one-point increase in IQ makes a beast a genius of its kind. However, allowing an occasional animal of *any* species to be IQ 6 makes for some interesting pets!

HT: May vary by one or two points in either direction.

Secondary Characteristics

Any change in attributes will affect these scores normally. In addition:

HP: May vary by up to 20% in either direction, especially on a large creature.

Will: May vary by one or two points either way. Strong-willed creatures tend to be ornery but hard to spook – which is desirable for war beasts, less so for pets.

Per: Rarely varies by more than a point either way. High Per is greatly prized in hunting animals!

FP: May vary by up to 20% either way.

Speed and *Move:* May vary a little bit. Even a one-point increase can grossly inflate the price of a horse or other mount.

Traits

Advantages and Disadvantages: These rarely vary much – but feel free to give an animal mental disadvantages and quirks that reflect its personality. Unique beasts might have other mundane traits; e.g., a horse with Danger Sense or Luck.

Meta-Traits: Morphology meta-traits should never change. However, Domestic Animal and Wild Animal are interchangeable for a few species.

Skills

These are unlikely to vary much without training – see *Animal Training* (p. 458).

Cost

Any improvement in an animal's stats will increase its market value. ST and FP are valuable for draft animals, Will for war beasts, Per for hunting animals, Move for mounts, and IQ and skills for *any* trained animal. Likewise, inferior stats will decrease value. In the absence of specific formulas, details are up to the GM. A normally wild animal with Domestic Animal and Mount skill would be worth a small fortune!

Deer

Deer are swift herbivores, frequently hunted for food.

Red Deer

A large deer, common in medieval Europe and still widespread today.

ST 12; **DX** 13; **IQ** 3; **HT** 12.
Will 10; **Per** 10; **Speed** 6.25; **Dodge** 9; **Move** 9.
SM +1 (2 hexes); 200 lbs.

Traits: Hooves; Impaling Striker (Antlers); Quadruped; Weak Bite; Wild Animal.
Skills: Running-13.

Dogs

Domesticated dogs are used for hunting or as pets (or, if large enough, as draft animals). There are many breeds; statistics can vary greatly. Cost ranges from negligible to $10,000+. A healthy, *trained* dog – even a mongrel – is always worth at least $200.

Large Guard Dog

ST 9; **DX** 11; **IQ** 4; **HT** 12.
Will 10; **Per** 12; **Speed** 5.75; **Dodge** 8; **Move** 10.
SM 0; 90 lbs.

Traits: Chummy; Discriminatory Smell; Domestic Animal; Quadruped; Sharp Teeth.
Skills: Brawling-13; Tracking-13 (bloodhounds have Tracking-15 or better!).

Falcons

These birds of prey are commonly used for sport hunting. A trained falcon – or one disturbed by a stranger – *might* attack a human. A diving falcon can reach Move 70!

Large Falcon

ST 3; **DX** 14; **IQ** 3; **HT** 10.
Will 10; **Per** 12; **Speed** 6; **Dodge** 9; **Move** 2 (Ground).
SM -4; 5 lbs.

Traits: Acute Vision 3; Domestic (or Wild) Animal; Enhanced Move 1 (Air Speed 24); Flight (Winged; Air Move 12); No Fine Manipulators; Sharp Beak; Sharp Claws.
Skills: Brawling-16.

Sharks

Some sharks are almost docile, feeding primarily on whatever fish happen to swim by at the wrong moment. Those sharks aren't any fun at *all.*

Tiger Shark

A large, aggressive shark.

ST 19; **DX** 13; **IQ** 2; **HT** 12.
Will 10; **Per** 12; **Speed** 6.25; **Dodge** 10; **Move** 7 (Water).
SM +2 (4 hexes); 900 lbs.

Traits: Bad Temper (9); Combat Reflexes; Crushing Striker (Snout); Discriminatory Smell; Doesn't Breathe (Gills); Enhanced Move 1 (Water Speed 14; Costs Fatigue 2);

Ichthyoid; Pressure Support 2; Sharp Teeth; Subsonic Hearing; Vibration Sense; Wild Animal.
Skills: Brawling-15; Survival (Open Ocean)-14.

Great White Shark

An apex predator!

ST 38; **DX** 10; **IQ** 2; **HT** 12.
Will 10; **Per** 10; **Speed** 5.5; **Dodge** 9; **Move** 7 (Water).
SM +3 (7 hexes); 7,000 lbs.

Traits: As tiger shark, plus Hard to Kill 2.
Skills: Brawling-12; Survival (Open Ocean)-14.

Snakes

Snakes are among the most common reptiles on Earth; they are found in temperate or warmer climates on six of the seven continents.

Python

A large constrictor. Statistics are for a 15' Indian python, but lengths can reach 30'!

ST 13; **DX** 12; **IQ** 2; **HT** 11.
Will 10; **Per** 10; **Speed** 5.75; **Dodge** 8; **Move** 4.
SM 0; 225 lbs.

Traits: Cold-Blooded (50°); Constriction Attack; Vermiform; Wild Animal.
Skills: Stealth-12; Wrestling-13.

Rattlesnake

A common poisonous snake. Even little ones are dangerous; the gigantic diamondback described here (8' long) is *deadly*. Modifiers to HT roll for venom: +1 if venom is immediately sucked out; +2 if antivenin (TL6+) is used.

ST 5; **DX** 13; **IQ** 2; **HT** 11.
Will 10; **Per** 10; **Speed** 6; **Dodge** 9; **Move** 4.
SM -1; 15 lbs.

Traits: Cold Blooded (50°); Fangs; Toxic Attack 2d (Cyclic, 1 day, 4 cycles; Follow-Up, Fangs; Resistible, HT-4); Vermiform; Wild Animal.
Skills: Brawling-15; Stealth-13.

Wild Boars

Wild hogs are hunted for food – but they're dangerous game. Boars are *smart*, evil-tempered, and likely to attack even when encountered by accident. They try to knock a man down with a slam and gore him while he's down. Sows are less aggressive and smaller (give them lower ST and weight).

Large Boar

ST 15; **DX** 12; **IQ** 5; **HT** 14.
Will 12; **Per** 12; **Speed** 6.5; **Dodge** 10; **Move** 8.
SM +1 (2 hexes); 400 lbs.

Traits: Bad Temper (9); Combat Reflexes; Cutting Striker (Tusks); DR 2; Quadruped; Wild Animal.

Small Boar

A javelina or peccary.

ST 8; **DX** 12; **IQ** 5; **HT** 12.
Will 12; **Per** 12; **Speed** 6; **Dodge** 10; **Move** 7.
SM -1; 45 lbs.

Traits: As large boar, but only DR 1.

Wolves

These wild carnivores hunt in packs. They can be domesticated, more or less, but never like a dog.

Timber Wolf

ST 10; **DX** 12; **IQ** 4; **HT** 12.
Will 11; **Per** 14; **Speed** 6; **Dodge** 9; **Move** 9.
SM 0; 120 lbs.

Traits: Discriminatory Smell; DR 1; Night Vision 2; Quadruped; Sharp Teeth; Temperature Tolerance 1; Wild Animal.
Skills: Brawling-14; Tracking-14.

Pets and Trained Animals

Ordinary trained animals are property purchased with cash, *not* advantages bought with points. The GM controls their actions – but the better a beast's training, the more likely it is to do what its owner wishes.

These rules do not apply to *unique* animal companions, such as familiars. For a creature like that, determine its point total as a character, and then see *Allies* (p. 36) to find its point cost as an advantage.

Animal Training

To train an animal, you must know the appropriate specialty of Animal Handling skill (p. 175). The level of training an animal can absorb depends strictly on its IQ:

IQ 2 – *Average reptile.* It can learn to come when called for food and recognize its master, and not to attack him (usually!).

IQ 3 – *Average horse or hawk.* It can learn commands appropriate to its work – hunting commands for a hawk, riding or pulling commands for a riding or draft animal, etc. – and general tolerance for all humans or for specific masters (trainer's choice). It knows its name and comes when called (if it feels like it).

IQ 4 – *Average dog.* As above, plus "fetch," "attack," "find," "sit," etc., as appropriate for the species. It tries to warn its owner of dangers it perceives, and fights – and even dies – for its master.

IQ 5 – *Average monkey.* As above, but with more complexity. The GM may allow anything he ever saw a trained animal do in the movies . . .

Find training time by comparing the IQ level of the training to the animal's actual IQ score on the table on p. 459. These times assume the trainer works with the creature for about four hours a day, in a pair of two-hour sessions.

This table gives the time needed to train the animal to the *general* level given above. To teach a specific new trick – if the GM agrees the animal can learn it – allow 14 days for an IQ 5 creature, 30 days for one of IQ 4, or 90 days for an IQ 3 animal.

IQ of Animal	IQ Level of Training 2	3	4	5
2	60 days	Imp.	Imp.	Imp.
3	30 days	360 days	Imp.	Imp.
4	7 days	180 days	360 days	Imp.
5	2 days	90 days	180 days	720 days

Imp.: Training to this IQ level is impossible.

Value of Trained Animals

Training may affect the value of a domestic animal, as follows:

IQ 2 creatures can learn so little that training doesn't enhance their value.

IQ 3 creatures are of little use unless trained. *Decrease* the value of an IQ 3 domestic animal by 1/3 if it is "unbroken" (that is, untrained). Any young specimen is automatically unbroken and therefore cheaper.

IQ 4 creatures are assumed to be trained to IQ 3 level when bought; if not, decrease price by 1/3, as above. When an IQ 4 creature is fully trained to IQ 4 level, increase its base value by 50%.

IQ 5 creatures follow the IQ 4 rule. In addition, when an IQ 5 creature is fully trained to IQ 5 level, *double* its base value.

If a *domestic* animal (anything with the Domestic Animal meta-trait) has higher IQ than normal for its species, it is worth *much* more when fully trained: multiply by 4 for +1 IQ or by 10 for +2 IQ. For example, an IQ 5 horse is worth 10 times base value.

If a *wild* animal (anything with the Wild Animal meta-trait) is captured and trained, its value goes up markedly – especially if the creature is intelligent or ferocious. Details are up to the GM. All Animal Handling rolls to train wild beasts are at -5.

Riding and Draft Animals

Below are descriptions of several domestic animals kept for riding and draft purposes. If you are using miniatures, a horse is considered a three-hex figure, with the rider in the middle hex. Donkeys and small mules are two-hex figures. For mounted combat rules, see p. 396.

Cost: The costs listed assume a beast trained to IQ 3 level (see above). Several factors can increase this price:

- Increases in *ST* raise cost by a percentage equal to the ST increase. (*Very* strong specimens might be worth more than this formula would indicate!)
- Increases in *IQ* raise cost as described under *Value of Trained Animals*.
- Increases in *Move* drastically raise a riding animal's value! *Double* cost for +1 Basic Move, and *quadruple* it for +2 Basic Move. Remember to multiply Basic Move for Enhanced Move, if any.

Other changes are up to the GM.

War-Trained Mounts

War-trained riding animals are worth more than other mounts. Before TL4, they are taught to enter battle and fight savagely, even if their rider is unhorsed. A trained warhorse is likely to attack *anyone* other than its owner who approaches it! At TL4+, they are not taught to fight, but to be reliable transportation, *not* afraid of gunfire or screams.

At *any* TL, it takes a year of war training (after "basic" training to IQ 3 level) to get the mount fit to ride into battle. This doubles its value. The statistics and cost given for the cavalry horse and heavy warhorse under *Riding and Draft Animals* assume a beast with this training.

Up to three more years of training are possible, giving +1 per year on all Riding and Animal Handling rolls in combat, and increasing base value by 50% per year.

Camels

A dry-plains native, the camel can go for four days without drinking. Its stubborn temper gives -4 to Animal Handling rolls.

ST 22; **DX** 9; **IQ** 3; **HT** 12.
Will 11; **Per** 12; **Speed** 5.25; **Dodge** 8; **Move** 7.
SM +1 (3 hexes); 1,400 lbs.

Traits: Bad Temper (12); Domestic Animal; Enhanced Move 1 (Ground Speed 14); Hooves; Peripheral Vision; Quadruped; Reduced Consumption 3 (Water Only); Stubbornness; Weak Bite.
Skills: Survival (Desert)-12.
Cost: $1,500.

Donkeys, Horses, and Mules

These animals were domesticated in Europe and Asia before recorded history. They were introduced to the Americas in the late 15th and 16th centuries.

Cavalry Horse

A light warhorse.

ST 22; **DX** 9; **IQ** 3; **HT** 11.
Will 11; **Per** 12; **Speed** 5; **Dodge** 9; **Move** 8.
SM +1 (3 hexes); 1,400 lbs.

Traits: Combat Reflexes; Domestic Animal; Enhanced Move 1 (Ground Speed 16); Hooves; Peripheral Vision; Quadruped; Weak Bite.
Skills: Brawling-10; Mount-12.
Cost: $4,000.

Donkey

Sturdy, but too small for an adult to ride.

ST 15; **DX** 10; **IQ** 3; **HT** 11.
Will 11; **Per** 12; **Speed** 5.25; **Dodge** 8; **Move** 5.
SM +1 (2 hexes); 500 lbs.

Traits: Domestic Animal; Enhanced Move 1/2 (Ground Speed 8); Hooves; Quadruped; Weak Bite.
Cost: $1,000.

Draft Horse

ST 25; **DX** 9; **IQ** 3; **HT** 12.
Will 10; **Per** 11; **Speed** 5.25; **Dodge** 8; **Move** 6.
SM +1 (3 hexes); 2,000 lbs.

Traits: Domestic Animal; Enhanced Move 1 (Ground Speed 12); Hooves; Peripheral Vision; Quadruped; Weak Bite.
Cost: $2,000.

Heavy Warhorse

ST 24; **DX** 9; **IQ** 3; **HT** 12.
Will 11; **Per** 12; **Speed** 5.25; **Dodge** 9; **Move** 7.
SM +1 (3 hexes); 1,900 lbs.

Traits: As cavalry horse, but with Bad Temper (12) and Enhanced Move 1 (Ground Speed 14).
Skills: Brawling-12; Mount-13.
Cost: $5,000.

Large Mule

ST 22; **DX** 10; **IQ** 3; **HT** 12.
Will 12; **Per** 12; **Speed** 5.5; **Dodge** 8; **Move** 6.
SM +1 (2 hexes); 1,400 lbs.

Traits: As donkey, but Enhanced Move 1/2 (Ground Speed 9) and sterile.
Cost: $2,000.

Pony

ST 18; **DX** 10; **IQ** 3; **HT** 11.
Will 11; **Per** 12; **Speed** 5.25; **Dodge** 8; **Move** 7.
SM +1 (3 hexes); 800 lbs.

Traits: As draft horse, but Enhanced Move 1 (Ground Speed 14).
Cost: $1,500.

Racehorse

Some are faster!

ST 20; **DX** 9; **IQ** 3; **HT** 11.
Will 11; **Per** 11; **Speed** 5; **Dodge** 8; **Move** 9.
SM +1 (3 hexes); 1,100 lbs.

Traits: As draft horse, but Enhanced Move 1 (Ground Speed 18).
Skills: Mount-12; Running-12.
Cost: $4,000+.

Saddle Horse

An ordinary riding horse.

ST 21; **DX** 9; **IQ** 3; **HT** 11.
Will 10; **Per** 12; **Speed** 5; **Dodge** 8; **Move** 6.
SM +1 (3 hexes); 1,200 lbs.

Traits: As draft horse.
Skills: Mount-11.
Cost: $1,200.

Small Mule

ST 18; **DX** 10; **IQ** 3; **HT** 12.
Will 12; **Per** 12; **Speed** 5.5; **Dodge** 8; **Move** 5.
SM +1 (2 hexes); 800 lbs.

Traits: As donkey, but sterile.
Cost: $1,000.

Elephants

Often domesticated. Intelligent, loyal, and hardworking.

ST 45; **DX** 12; **IQ** 5; **HT** 12.
Will 10; **Per** 10; **Speed** 4; **Dodge** 7; **Move** 4.
SM +3 (10 hexes); 12,000+ lbs.

Traits: Crushing Striker (Tusks); Domestic (or Wild) Animal; DR 4; Enhanced Move 1 (Ground Speed 8); Peripheral Vision; Quadruped (but replace No Fine Manipulators with One Arm); Trunk (Extra-Flexible; Long, +1 SM; Weak, 1/4 ST); Weak Bite.
Cost: $10,000.

Oxen

Oxen are steers trained to work in the fields. They are hardier and easier to keep than horses.

ST 27; **DX** 8; **IQ** 3; **HT** 12.
Will 12; **Per** 10; **Speed** 5; **Dodge** 8; **Move** 4.
SM +2 (3 hexes); 2,500 lbs.

Traits: Domestic Animal; DR 2 (Skull only); Enhanced Move 1 (Ground Speed 8); Impaling Striker (Horns); Neutered; Quadruped; Weak Bite.
Cost: $1,500.

Fantasy Monsters

Damage for Animals

Basic damage for a beast is *thrust* for its ST, found by consulting the *Damage Table* (p. 16). Modify this as follows:

A *bite* does thrust-1. Weak Bite, common for large herbivores, gives an extra -2 *per die*. A bite is *crushing* unless the creature has Sharp Teeth (cutting) or Fangs (impaling).

A *claw* does thrust-1, like a punch. Blunt Claws give +1 *per die*, and damage is *crushing*. Sharp Claws give no bonus, but inflict *cutting* damage.

A *kick* does thrust. Blunt Claws or Hooves give +1 *per die*, and inflict *crushing* damage; Sharp Claws give no bonus, but cause *cutting* damage. The Quadruped meta-trait includes Horizontal (p. 139), which gives -1 *per die* to kicking damage to creatures without Claws. For large herbivores, this cancels out the +1 per die for Hooves.

Most other attacks (horns, tusks, etc.) are Strikers (p. 88). These inflict thrust damage, at +1 *per die*. Damage type depends on the Striker.

Predators and combat-trained animals often have Brawling at DX+2 level or better. This adds +1 *per die* to basic thrust damage for *any* of these attacks!

Here are three sample monsters from fantasy. If the GM changed the names and filed off the serial numbers, they could work equally well in a science-fiction background!

Basilisk

This creature resembles a small snake with a hideous face and a crested head. It attacks with a "death gaze": if it meets its victim's eyes, it can kill using the power of its mind.

ST 2; **DX** 12; **IQ** 3; **HT** 12.
Will 10; **Per** 10; **Speed** 6; **Dodge** 9; **Move** 4.
SM -3; 2 lbs.
Traits: DR 1; Toxic Attack 3d (Malediction 1; Psychokinetic; Vision-Based); Vermiform; Wild Animal.

Gryphon

The gryphon is a beautiful creature, with the head, wings, and forefeet of an eagle, and the hindquarters of a lion. It is *immune* to abilities that affect

only mammals or only birds, as it is neither!

A gryphon can be tamed if captured young, but at -3 to Animal Handling skill. An untamed gryphon in good health might sell for $5,000; a tame one is priceless, and will not cooperate with anyone except its trainer.

ST 17; **DX** 12; **IQ** 5; **HT** 12.
Will 11; **Per** 12; **Speed** 6; **Dodge** 10; **Move** 6 (Ground).
SM +1 (2 hexes); 600 lbs.

Traits: Acute Vision 3; Combat Reflexes; DR 2; Enhanced Move 1 (Air Speed 24); Flight (Winged; Air Move 12); Quadruped; Sharp Beak; Sharp Claws; Wild Animal.
Skills: Brawling-14.

Strix

A strix (plural *striges*) is a bloodsucking, birdlike creature about the size of a crow, with a long beak and large eyes. Striges are nocturnal. A strix attacks with its long, barbed beak. If the attack penetrates armor, the strix sucks its victim's blood. Striges have *excellent* aim, and can even attack through the eyeslits of a helm. Only two striges can strike thus in a second, but a successful hit can also blind the eye!

ST 5; **DX** 15; **IQ** 4; **HT** 11.
Will 10; **Per** 10; **Speed** 6.5; **Dodge** 9; **Move** 2 (Ground).
SM -1; 18 lbs.

Traits: Bloodlust (9); Flight (Winged; Air Move 12); Night Vision 5; No Fine Manipulators; Vampiric Bite; Wild Animal.
Skills: Brawling-17.

Animals in Combat

To play animals realistically, remember that:

- Most animals fear man and flee rather than attack. Exceptions include a mother defending her young; an insect swarm defending its nest; an old or wounded "man-eater" predator; a creature so stupid it doesn't realize men are dangerous; a creature so powerful men *aren't* dangerous; or a large herbivore (bison, rhino, *Triceratops*), which might charge anything out of sheer orneriness.
- In a balanced ecology, predators are comparatively rare, prey species common.

Use the combat rules in Chapters 11-13 for animals, just as you would for humans, with special attention to *Multi-Hex Figures* (p. 392) and *Trampling* (p. 404). A few other notes:

Reach: A beast's reach is "C" ("close combat only") unless its description notes otherwise. Most animals initiate combat with a grapple or a slam, followed by an attempt to crush the foe or tear him to pieces in close combat.

Defense: Animals usually defend by *dodging*. Dodge is Basic Speed + 3, dropping all fractions. Most animals have No Fine Manipulators (included in Ichthyoid, Quadruped, and Vermiform) and, therefore, cannot parry. Those with manipulators (e.g., apes) *can* parry. Unarmed Parry is (DX/2) + 3 or (Brawling/2) + 3. No natural animal can block. Many animals have Combat Reflexes, which adds +1 to defenses.

Swarm Attack Examples

Bats. A "swarm" is about a dozen carnivorous bats. Flies at Move 8. Does 1d cutting damage per turn. Armor protects with its normal DR. Dispersed after losing 8 HP.

Bees. A "swarm" is about 1,000 common bees. Flies at Move 6. Stings for 1 HP of injury per turn unless the victim is *completely* protected. Dispersed after losing 12 HP. Will give up the attack if foe is chased 50 yards from hive. Note that bothering a hive may get *several* such swarms after you!

Rats. A "swarm" is about a dozen rats. It has Move 4. Does 1d cutting damage per turn. Armor protects with its normal DR. Dispersed after losing 6 HP.

Armor: A creature's hide, shell, fur, etc. may give DR, as indicated in its *Traits* entry.

Swarm Attacks

Treat a group of small creatures as a unit when it attacks. This "swarm" fills one hex on a combat map. A swarm attacks the victim(s) in its own hex (if you are not using a combat map, it attacks one person per second), and will not change victims without a good reason.

A swarm attack hits *automatically* – there is no attack or defense roll. Every turn until it is dispersed, it does the listed damage to its victim(s).

Special clothing (a wetsuit or beekeeper's suit, or high-tech airtight armor) may protect against some types of swarm. Against tiny creatures like insects, ordinary clothing gives *complete* immunity for two seconds, while low-tech armor protects for five seconds; then the bugs get in and the protection becomes worthless! Against larger creatures like rats, armor protects indefinitely with its normal DR.

Special tactics may work on some types of swarms. For instance, one can destroy bees with insecticide or baffle them by leaping into a pond. This is up to the players' cleverness and the GM's common sense.

Attacking a Swarm: Any attack against a swarm hits automatically. The swarm gets no defense roll. (A swarm of hard-to-hit creatures just requires more damage to disperse.) A swarm takes damage as if it were Diffuse – see *Injury to Unliving, Homogenous, and Diffuse Targets* (p. 380). *Shields* can crush *flying* creatures; a shield does 2 HP per turn, and can attack at the same time as a weapon. *Stomping* does 1 HP per turn to *nonflying* vermin, and can be done while attacking with a weapon.

Chapter Seventeen
Technology and Artifacts

Nearly every game world features gadgetry of some kind, ranging from primitive to futuristic . . . and often including things which are magical or just *weird*. These rules describe how to create and use all kinds of devices, what happens when they are damaged, and how to fix them.

Vehicles

A vehicle might be little more than a means of getting somewhere. But it *could* be a source of extra firepower . . . or even part of a character concept! A fighter plane or mecha might be the high-tech equivalent of a knight's trusty steed, and a party on the move might call a pirate ship or star cruiser "home" for adventure after adventure.

Vehicle Statistics

The tables in this section give statistics for common vehicle types, and note the skills required to operate them. Some vehicle systems, such as sensors or weapons, may require additional skills not listed here.

ST/HP: The vehicle's ST and HP. These are equal for a powered vehicle: the vehicle's mass determines both how powerful its engine must be (ST) and how hard it is to destroy (HP). For an *unpowered* vehicle, this score is marked with a †, and represents HP only; ST is 0. Unpowered vehicles have Injury Tolerance (Homogenous); others have the Machine meta-trait (p. 263), which includes Injury Tolerance (Unliving).

Hnd/SR: The first number is Handling; the second is Stability Rating. See *Control Rolls* (p. 466) for details.

HT: The vehicle's HT, a measure of reliability and ruggedness. *Fragile* vehicles have an additional code: "c" for Combustible, "f" for Flammable, or "x" for Explosive.

Move: The first number is Acceleration and the second is Top Speed, in yards/second (*double* this to get mph). These statistics are equivalent to a character's Move and his top speed with Enhanced Move. For ground vehicles, a * indicates a road-bound vehicle, while a ‡ indicates one that must follow rails. For spacecraft, divide Acceleration by 10 to find it in Earth gravities (G), and note that *c* means the speed of light (186,000 miles/second).

LWt.: Loaded Weight, in tons (1 ton = 2,000 lbs.), with *maximum* payload and a full load of fuel. Actual weight is often lower.

Load: The weight, in tons, of occupants and cargo the vehicle can carry, *including* the operator. To find cargo capacity, subtract the weight of occupants (for simplicity, assume 0.1 ton/person, including gear). To find "curb weight" (with fuel but no other payload), subtract Load from LWt.

SM: The vehicle's Size Modifier.

Occ.: The number of occupants the vehicle can carry in reasonable comfort, given as "crew+passengers"; e.g., 2+6 means two crew and six passengers. "A" indicates a vehicle built for long-term accommodation, with room to sleep, cook, etc. If the vehicle affords the occupants special protection, there is an additional code: "S" for Sealed (p. 82), "P" for Pressure Support (p. 77), or "V" for Vacuum Support (p. 96).

DR: The vehicle's DR. Some vehicles have different DR on various faces or locations. The table lists the two most important DR scores – for ground vehicles, this is usually the front DR and the average of side and rear DR.

Range: The travel distance, in miles, before the vehicle runs out of fuel. For unpowered or exotic vehicles, "–" means only provisions (food and water) limit range. "F" means the FP of the rowers or draft animals, and stored provisions, limit range. Spacecraft either omit this statistic or use the entry to give faster-than-light drive capabilities.

Cost: The vehicle's cost, in $. "K" means thousands; "M" means millions.

Locations: The vehicle's hit locations, besides its body. If a vehicle has multiple instances of a location, a quantity precedes the abbreviation; e.g., "3M" for a three-masted ship, or "14D" for 14 draft animals. A vehicle's hit locations determine both how it moves (see *Basic Vehicle Movement,* below) and what parts can be hit in combat (see *Vehicle Hit Location Table,* p. 554).

Code	*Location*
A	arm
C	caterpillar tracks
D	draft animals
E	exposed rider
G	large glass windows
g	small glass windows
H	helicopter rotors
L	leg
M	mast and rigging
O	open cabin
R	runners or skids
r	retractable
S	large superstructure or gondola
s	small superstructure
T	main turret
t	independent turret
W	wheel
Wi	a *pair* of wings
X	exposed weapon mount

Draft: For a watercraft, the minimum depth of water, in feet, it can safely operate in.

Stall: For an aircraft, the minimum speed, in yards/second, it must maintain to take off and stay airborne. "0" means it can hover.

Notes: Any special capabilities or problems the vehicle has. If the vehicle has complex systems, footnotes or a separate description will detail weapons and equipment.

Basic Vehicle Movement

When adventurers use a vehicle for transportation, it is usually enough to know *how fast it can move* (Top Speed, in yards/second) and *how far it can travel* (Range, in miles). The rules below are for those occasions when the details become important.

"Are you telling me that you built a time machine . . . out of a DeLorean?"

"The way I see it, if you're going to build a time machine into a car, why not do it with some style?"

– Marty McFly and Doc Brown, ***Back to the Future***

Long-Distance Movement

When covering significant distances, the following factors can be more important than Top Speed and Range.

Cruising Speed: Travel conditions, safety considerations, and the need to conserve fuel or energy mean that in practice, ground and air vehicles typically use only 60-70% of Top Speed when traveling long distances. An animal-drawn or rowed vehicle can only use its Top Speed for a few minutes – for the beasts or rowers, this is as fatiguing as running! The highest sustainable speed is about 75% of this, which is as fatiguing as hiking. If the beasts or rowers drop below 1/3 FP, halve Top Speed.

Endurance: Divide Range in miles by cruising speed in mph to determine endurance in hours for situations where "loiter" capability matters more than range. The vehicle must carry provisions in order to take advantage of endurance in excess of one day. Food and water are about 12 lbs. per person per day, but won't keep for more than a month before TL5 (at TL5+, canned goods and similar rations are available).

Ground Vehicle Table

TL	Vehicle	ST/HP	Hnd/SR	HT	Move	LWt.	Load	SM	Occ.	DR	Range	Cost	Locations	Notes
TEAMSTER														
0	Dogsled	27†	0/2	12c	6/6	0.29	0.14	+1	1	2	F	$400	14DER	[1]
1	Chariot	22†	0/2	11c	4/9*	0.29	0.2	+1	1+1	1	F	$330	2DE2W	[1]
3	Wagon	35†	-3/4	12c	4/8*	0.84	0.5	+2	1	2	F	$680	2DE4W	[1]
4	Coach	53†	-2/3	12c	4/9*	2.4	1.2	+3	1+9	2	F	$11K	4DO4W	[1]
DRIVING/TL (LOCOMOTIVE)														
5	Locomotive	152	-2/5	11	1/35‡	28	0.2	+5	1+1	8	700	$45K	8W	
DRIVING/TL (AUTOMOBILE)														
6	Roadster	42	-1/3	9f	2/22*	0.85	0.25	+2	1+1	4	200	$3.6K	O4W	
6	Sedan	46	0/4	10f	3/30*	1.3	0.5	+3	1+3	5	360	$8K	G4W	
6	Jeep	52	0/3	11f	2/32	1.6	0.4	+2	1+3	4	375	$10K	O4W	
7	Pickup Truck	55	0/4	11f	3/50	2.2	0.85	+3	2	5	450	$20K	G4W	
7	Sedan	53	0/4	11f	2/55*	1.8	0.6	+3	1+4	5	500	$15K	G4W	
7	Van	68	-1/4	11f	2/45*	3.5	1	+4	1+7	4	650	$25K	g4W	
7	Sports Car	57	+1/4	10f	5/75*	1.8	0.4	+3	1+3	4	500	$85K	GW4	
8	Luxury Car	57	0/4	11f	3/57*	2.1	0.6	+3	1+4	5	500	$30K	G4W	
8	SUV	68	-1/4	11f	3/50	4	1.5	+3	1+4	5	400	$45K	G4W	
DRIVING/TL (HEAVY WHEELED)														
6	2 1/2-Ton Truck	88	-1/4	11f	1/24*	8.5	3	+4	1+2	5	375	$17K	G6W	
7	Bus	100	-2/4	11f	1/30*	14.7	6.7	+6	1+66	4	400	$120K	G4W	
8	Semi-Truck	104	-1/5	12f	2/55*	10.3	0.3	+4	1+2	5	1,200	$60K	G6W	[2]
DRIVING/TL (MOTORCYCLE)														
6	Hvy. Bike	33	+1/2	10f	5/32*	0.4	0.1	0	1	4	200	$1.5K	E2W	
7	Scooter	29	+1/2	10f	3/27*	0.3	0.1	0	1	3	190	$1K	E2W	
7	Hvy. Bike	33	+1/2	11f	8/55*	0.5	0.2	0	1+1	4	200	$8K	E2W	
8	Sports Bike	30	+2/2	10f	9/78*	0.42	0.2	0	1+1	3	150	$11K	E2W	
DRIVING/TL (TRACKED)														
7	APC	111	-3/5	11f	1/20	12.5	1.6	+4	2+11S	50/35	300	$120K	2CX	[3]

[1] Draft animals are dogs for the dogsled, and horses for the chariot, wagon, and coach.

[2] Hauls a 48' semi-trailer. With the trailer, Hnd/SR is -3/4 and Move is 1/30*. Trailer is HP 100†, Load 24, SM +5, and DR 3.

[3] "APC" means "armored personnel carrier." The higher DR applies only to attacks from the *front*. Mounts a machine gun (7.62mm or .50) on an external mount on the roof.

Watercraft Table

TL	Vehicle	ST/HP	Hnd/SR	HT	Move	LWt.	Load	SM	Occ.	DR	Range	Cost	Loc.	Draft	Notes
BOATING/TL (UNPOWERED)															
0	Canoe	23†	+1/1	12c	2/2	0.3	0.2	+1	2	2	F	$200	O	3	
BOATING/TL (MOTORBOAT)															
7	Inflatable Boat	20	+2/2	11	2/12	0.6	0.5	+1	1+4	2	100	$2K	O	2	
7	Speedboat	50	+1/3	11f	3/20	2	1	+2	1+9	3	200	$18K	O	3	
SHIPHANDLING/TL (SHIP)															
2	Penteconter	85†	-4/3	11c	1/5	12.5	7.5	+8	55	3	F	$14K	MO	6	[1, 2]
3	Cog	147†	-3/4	12c	0.1/4	85	60	+7	18	5	–	$23K	M	13	[1, 3]
6	Tramp Steamer	750	-3/6	11f	0.01/6	14,000	9,000	+10	41+29A	30	7,200	$15M	g2S	25	

[1] A "penteconter" is a Greek war galley with a sail and a single bank of oars, favored by raiders and pirates. A "cog" (or "roundship") is a single-masted medieval sailing ship.

[2] Using oars, with 50 rowers. Under sail, Range is "–" and Move is 1/4 in a fair wind. Has a bronze ram, which adds +1 *per die* of collision damage.

[3] Wind-powered. Weight includes ballast.

Aircraft Table

TL	Vehicle	ST/HP	Hnd/SR	HT	Move	LWt.	Load	SM	Occ.	DR	Range	Cost	Loc.	Stall	Notes
PILOTING/TL (LIGHT AIRPLANE)															
6	"Barnstormer" Biplane	43	+2/3	10f	2/37	0.9	0.2	+3	1+1	3	85	$55K	O2WWi	23	
7	Light Monoplane	45	+2/3	10f	3/70	1.15	0.3	+4	1+1	3	500	$150K	G2WWi	25	
PILOTING/TL (LIGHTER-THAN-AIR)															
6	Blimp	120	-4/3	10	1/38	18	4	+10	10A	1	2,300	$3M	S	0	
PILOTING/TL (HEAVY AIRPLANE)															
6	Twin-Prop Transport	100	-2/3	12f	2/114	12.8	3	+7	2+21	4	1,500	$340K	g3WWi	34	
7	Business Jet	84	0/3	11f	4/275	9.2	1.6	+6	2+6P	5	1,300	$10M	G3WWi	55	
PILOTING/TL (HELICOPTER)															
7	Light Helicopter	47	+2/2	10f	2/90	1.5	0.5	+4	1+3	3	225	$400K	GH3Wr	0	
7	Utility Helicopter	70	0/2	10f	2/65	4.7	1.4	+5	2+12	3	300	$2M	gH2R	0	
8	Utility Helicopter	87	+1/2	11f	3/110	10	3.5	+5	3+14	5/20	370	$8M	gH3W	0	[1]
PILOTING/TL (VERTOL)															
9	Air Car	45	+2/3	11f	4/190	1.2	0.4	+3	1+3P	4	900	$500K	G4W	0	
PILOTING/TL (CONTRAGRAVITY)															
^	Grav Bike	30	+4/2	11	20/80	0.4	0.2	0	1+1	3	1,000	$25K	E	0	
^	Grav Jeep	50	+3/3	12	10/100	2	1	+4	1+5	4	2,000	$400K	O	0	

[1] Rotors have DR 20; all other locations have DR 5.

Spacecraft Table

TL	Vehicle	ST/HP	Hnd/SR	HT	Move (G)	LWt.	Load	SM	Occ.	DR	Cost	Locations	Notes
PILOTING/TL (AEROSPACE)													
9	Orbital Clipper	170	-2/3	10fx	30/9,000 (3G)	515	10	+9	2+4SV	4	$350M	–	[1]
PILOTING/TL (HIGH-PERFORMANCE SPACECRAFT)													
^	Shuttlecraft	136	+2/4	12	20/c (2G)	100	25	+6	1+10SV	100	$35M	3Rr	[2]
^	Star Freighter	500	0/5	11	15/c (1.5G)	1,000	400	+9	2+18ASV	100	$100M	3Rr2t	[2, 3]

[1] The orbital clipper is a Space Shuttle replacement that can boost to Earth orbit and make reentry. Uses ordinary Newtonian space flight. Cost drops to M$70 at TL10+.

[2] Uses reactionless or gravitic thrusters to accelerate to light speed (*c*) – or whatever fraction of *c* the GM sets as a limit. Star drives and force fields, if any, are up to the GM.

[3] Has hyperspectral sensors (Hyperspectral Vision, with 360° Vision and Telescopic Vision 10) and radar (Radar, 500,000 yards, Targeting). Its two independent turrets can, at extra cost ($0.5M apiece), mount laser cannon: Damage 6d×5(2) burn, Acc 10, Range 100,000/300,000, RoF 4, Rcl 1.

Convoys: Multiple vehicles traveling in convoy or formation move at 80% of the speed of the *slowest* vehicle, due to the need for station keeping. On a successful Leadership roll, use 100% of the speed of the slowest vehicle. For long journeys, roll daily.

Control Rolls

A vehicle operator must make a "control roll" – against Boating, Driving, Piloting, etc., as appropriate – in any potentially hazardous situation. The GM may require a roll every few hours in an ongoing situation such as a fierce storm, or every few *seconds* in combat!

Modifiers: The vehicle's Handling (Hnd) statistic modifies *all* control rolls. For sudden deceleration or tight turns, see *Pushing the Envelope* (p. 395). Visibility modifiers (-1 to -9 for darkness, fog, etc.; -10 for total darkness) apply if there is risk of collision; they aren't important when trying to weather a storm at 30,000 feet or in the mid-Atlantic, but they're crucial if you're zigzagging through mountains, landing or taking off in an aircraft, sailing just off a rocky coast, etc. See the relevant vehicle skill for other modifiers. The GM may assess situational modifiers as he sees fit.

On a failure, the operator does not perform the maneuver properly, or fails to avoid the hazard. Failure by no more than the vehicle's Stability Rating (SR) is a minor problem; e.g., a car skids off the road, or a ship loses a few hours of travel. More severe failure means a major problem; e.g., a crash. The GM may allow a second control roll, at a hefty penalty, to keep a major problem from becoming a total disaster; the modifiers should depend on the exact action(s) the operator takes. On a critical failure, disaster is inevitable!

Large vehicles may require a roll against both the master's Shiphandling skill and the crew's average Crewman skill. Use the *average* margin of success or failure.

Ground Travel

A ground vehicle moves on wheels, runners, tracks, or legs, as indicated by the notation in its Locations entry. The average speed it can sustain on a journey depends on the terrain and the weather. See *Hiking* (p. 351) for definitions of terrain and weather conditions.

Terrain: Figure cruising speed in mph from Top Speed in yards/second as follows:

- *Very Bad* (deep snow, swamp): Top Speed × 0.1 mph on wheels or runners, Top Speed × 0.15 mph on tracks, Top Speed × 0.2 mph on legs.
- *Bad* (hills, woods): Top Speed × 0.25 mph on wheels, Top Speed × 0.5 mph otherwise.
- *Average* (dirt road, plains): Top Speed × 0.5 mph on wheels, Top Speed × 1 mph otherwise.
- *Good* (paved road, salt flats): Top Speed × 1.25 mph.

For a road-bound vehicle (e.g., a normal car), use Top Speed only when traveling on a road. Off road, use the *lower* of Top Speed and 4 × Acceleration in these formulas.

Example: A luxury car with Move 3/57 gets an average travel speed of 57 × 1.25 = 71 mph on a paved road (Good). On a dirt road (Average), it could manage 57 × 0.5 = 28 mph. But off road in Average terrain, it would drop to 3 × 4 × 0.5 = 6 mph!

For a vehicle that follows rails (e.g., a locomotive), treat the rails as Good terrain. However, the vehicle cannot move *at all* off the rails!

These rates assume *sustained* travel at a safe cruising speed. A vehicle going flat out can move up to 60% faster (e.g., Top Speed × 2 mph over Good terrain, like a road), but the GM may require hourly control rolls to avoid a mishap, such as a collision.

Weather: This affects ground vehicles just as it does hikers. Treat sleds and snowmobiles as skates on ice and as skis on snow.

Water Travel

A powered vessel moves at Top Speed × 2 mph. A sailing craft moves at Top Speed × 2 mph in ideal wind conditions; actual speed can drop to a fraction of this – or even zero – depending on wind direction and strength. A rowed vessel can only sustain a speed of Top Speed × 1.5 mph (and even this will eventually fatigue the crew).

Currents can increase or reduce speed directly – typically by a few mph, depending on the current. Heavy seas (caused by high winds) usually reduce speed. An unpowered vessel faced with a storm may require Shiphandling and Seamanship rolls by captain and crew to avoid being blown off course or worse.

Draft: "Draft" is the distance between the vessel's waterline and its keel. In water shallower than this, it will run aground. Re-floating it requires waiting for a change in tide, or jettisoning ballast or payload. In waters of unknown depth, it is best to proceed slowly and cautiously! (Roll against Area Knowledge to recall depth, or against Navigation (Sea) to read charts.)

Air Travel

An aircraft's cruising speed is about Top Speed × 1.6 mph. Powered aircraft can reach Top Speed × 2 mph at the cost of burning 50% more fuel, reducing Range. *Supersonic* aircraft (Move 360+) can only use their full Top Speed at high altitudes where the air is thin (15,000' and above). At low altitudes, Top Speed rarely exceeds 350-400 (700-800 mph).

The GM should require control rolls for landings during bad weather or visibility, and when traveling at high speeds at very low altitudes or through mountains. Winds and storms affect balloons and airships much as they do sailing vessels.

Ground Speed: A powered air vehicle can usually taxi at up to 2/3 its stall speed.

Space Travel

It takes about (0.10 × velocity in yards/second)/(Acceleration in G) *seconds* to reach a given cruising velocity. A spacecraft moving at that velocity takes roughly (0.5 × distance in miles)/velocity *hours* to travel a given distance. For comparison, the moon is around 0.25 million miles from Earth, and Mars is 34 million miles away at its closest approach.

Example: To accelerate to a velocity of 90,000 yards/second in a spacecraft with an acceleration of 1.5G would take (0.1 × 90,000)/1.5 = 6,000 seconds, or about 1.7 hours. At a velocity of 90,000 yards/second, you would reach Mars in (0.5 × 34,000,000)/90,000 = 189 hours.

It is common to give interplanetary distances in "astronomical units" (AU). One AU is 93 million miles, the average distance from the Earth to the Sun. Interstellar distances are often given in light-years (5.865 trillion miles) or parsecs (3.26 light-years). Earth's nearest stellar neighbor, Alpha Centauri, is 4.3 light-years away.

For a spacecraft that uses a Newtonian reaction drive (e.g., any real-life rocket), Top Speed is really "delta-v": the maximum change of velocity it can perform before running out of reaction mass (rocket fuel, etc.). Each acceleration or deceleration "costs" a fraction of this delta-v.

To lift into low Earth orbit requires Move 8,700. To achieve planetary escape velocity and *leave* orbit requires an extra Move 3,600. For other planets, multiply these velocities by the square root of (M/R), where M is planetary mass in Earth masses and R is planetary radius in Earth radii. In addition to having sufficient delta-v, the spacecraft's acceleration must exceed the planet's gravity (1G, for Earth).

Travel through interplanetary space requires using up the required delta-v to achieve the desired velocity, coasting as described above, then using delta-v to slow to the velocity needed to enter orbit at the destination.

Example: A spacecraft in Earth orbit has a delta-v of 200,000. It uses 3,600 to break orbit and 90,000 to accelerate to a cruising velocity (Move 90,000). It drifts at that speed for 1.5 hours to reach the moon, and then use another 88,500 to decelerate to the moon's orbital velocity. Its remaining delta-v is 200,000 - 3,600 - 90,000 - 88,500 = 17,900.

Some superscience space drives don't have to worry about delta-v – the spacecraft can accelerate constantly! The only requirement for such a spacecraft to leave a planet is that its acceleration exceeds the planet's gravity. When it travels long distances, it requires time in hours equal to the square root of (50.8 × distance in *millions* of miles/Acceleration in G) to complete the trip.

If a spacecraft is capable of faster-than-light travel, its performance depends on what kind of superscience exists. The GM should design a drive to suit his campaign. See the Hyperjump enhancement on the Warp advantage (p. 97) for one possibility.

Vehicle Weapon Mounts

Any weapon built into a vehicle is considered "mounted." The *type* of mount determines the weapon's stability and arc of fire. For the effects of these mounts on ranged attacks from moving vehicles, see *Ranged Attack Modifiers* (p. 548).

Arm Mount (TL8): If a vehicle has arms or strikers, these may contain weapons or have hands to carry them. They attack using the rules for handheld weapons.

Carriage (TL3): Some ships have weapons on wheeled carriages or sleds, either on deck or firing through ports. Treat these as fixed mounts, but skill is not limited to control skill, as the gun crew can use ropes to aim the weapon.

External Open Mount (TL1): Also called a pintle mount, deck gun, etc. Such a weapon can elevate to fire upward or swivel to fire in other directions. However, it isn't actually *in* the vehicle; the weapon and its crew have no protection.

External Stabilized Open Mount (TL7): As above, but with gyro-stabilization to reduce penalties for firing on the move.

Fixed Mount (TL1): You aim the gun by aiming the vehicle; e.g., a cannon in the nose of a jet fighter. The weapon can only shoot in one direction. The mount specifies which: [F] to the front, [R] to the right, and so on. The operator rolls against the *lower* of his Gunner skill or his control skill to hit.

Hardpoint (TL6): Aircraft often mount weapon pods, bombs, or missiles on pylons under their body or wings. Treat these as fixed mounts, but apply a -1 to Accuracy. External weapon loads like this count as encumbrance.

Stabilized Turret (TL7): As below, but with gyro-stabilization to keep the weapon aimed at the target regardless of the vehicle's motion.

Turret (TL5): This is a turret (or head) with weapons built into it. It can swivel to change facing independently of the vehicle. *Large* turrets are usually powered.

Basic Vehicle Combat

"Vehicle combat" is any combat that involves handheld weapons fired from within a vehicle (e.g., bank robbers shooting from a getaway car), weapons mounted on a vehicle (such as a fighter jet, tank, mecha, or spy car), or attacks that use the vehicle itself as a weapon (ramming, punching and kicking with the arms and legs of a mecha, etc.).

In the rules below, a vehicle's "operator" is the person at the controls. A "control skill" is the skill the operator uses to direct his vehicle; e.g., Driving or Piloting. An "occupant" is *anyone* in or on the vehicle – operator, crew, or passenger.

Tactical Combat with Vehicles: When using the rules in Chapter 12 with vehicles, you can represent vehicles with models or multi-hex counters drawn at three feet to the inch.

Maneuvers

Treat a vehicle as an extension of its operator. It moves on the operator's turn, at his place in the turn sequence (as determined by his Basic Speed). To control his vehicle, the operator must take a Move or Move and Attack maneuver on his turn – but it's the *vehicle* that moves or attacks, while the operator remains at the controls. If the operator takes any other maneuver, or is stunned or otherwise incapacitated, his vehicle plows ahead with the same speed and course it had on the previous turn.

The vehicle's other occupants take their turns at *their* place in the turn sequence. They may use vehicle systems, provided they are stationed next to the appropriate controls *and* take a suitable maneuver: Concentrate to use instruments or electronics, Attack or All-Out Attack to fire vehicular weapons, etc.

Occupants leaning out windows, standing on a deck, etc. may find Attack or even All-Out Defense preferable to All-Out Attack, as they will have a defense if someone attacks them instead of the vehicle. This matters most for vehicles with an exposed rider (E), glass windows (G or g), or open cabin (O), and for crew manning exposed weapon mounts (X).

Bailing Out of a Moving Vehicle: Anyone who jumps or falls from a moving vehicle and hits the ground suffers a collision with an immovable object, at the vehicle's speed. If the vehicle was flying, add falling damage as well. For details, see *Collisions and Falls* (p. 430). To jump *between* two moving vehicles, make a DX or Jumping roll. Apply the penalty for relative speed given on the *Size and Speed/Range Table* (p. 550).

Movement During Combat

As explained under *Vehicle Statistics* (p. 462), a vehicle's Move score is split into two numbers: Acceleration and Top Speed. Acceleration functions just like Basic Move for a character; at this speed or less, the vehicle has no special restrictions on movement. At higher speeds – anything up to Top Speed – use the *High-Speed Movement* rules (p. 394), but substitute control rolls (see *Control Rolls,* p. 466) for DX rolls.

Acceleration: A vehicle can accelerate up to its Acceleration each turn. A diving flyer may add 10 × local gravity in Gs (1G on Earth) to this.

Deceleration: A powered, wheeled ground vehicle can decelerate by 5 yards/second per turn. An animal-drawn or tracked, walking, or slithering ground vehicle can decelerate by 10 yards/second per turn. Most air and water vehicles can decelerate by (5 + Handling) yards/second per turn (minimum 1 yard/second). These rates assume *safe* deceleration. It is possible

to decelerate further with a successful control roll, as explained under *Pushing the Envelope* (p. 395); failure means a loss of control.

Control Rolls

The operator must make a control roll whenever he attempts a risky maneuver or encounters an obstacle, and whenever his vehicle suffers knockback or major damage. On a failure, he loses control of the vehicle. If you are using a rulebook that supplies a "crash table" for that type of vehicle, roll on the table; otherwise, see the applicable paragraph below. In addition to these results, a failed control roll always erases any accumulated bonuses for Aim maneuvers, and gives a penalty equal to the margin of failure to any attack from the vehicle until the operator's next turn.

Air Vehicle: Failure by the vehicle's Stability Rating (SR) or less means the vehicle loses 5 yards of altitude and decelerates by 10 yards/second. If it was flying dangerously low or slow, it could hit the ground or stall; otherwise, it just blunders ahead. Failure by more than SR, or critical failure, means an uncontrollable dive, tailspin, etc. If the vehicle was climbing, it stalls, then starts to fall; otherwise, it dives at Top Speed each turn. Either way, on subsequent turns, the operator must make a Piloting-5 roll to pull out!

Ground Vehicle: Failure by SR or less means the vehicle skids and fails to go in the intended direction if you were trying to turn – or veers randomly left or right otherwise. The GM determines if it hits something. Failure by more than SR, or critical failure, means it rolls or spins out and crashes. It skids or rolls for a distance equal to 1/3 its current velocity before coming to a stop, and suffers falling damage based on the velocity it had when it lost control.

Space or Underwater Vehicle: Failure by SR or less means the vehicle charges ahead or veers randomly instead of performing the intended maneuver; if it was trying to avoid an obstacle, it fails to do so. A submarine also loses 5 yards of depth, which might lead to a crash. Failure by more than SR, or critical failure, results in severe stress. Make a HT roll for the vehicle; on a failure, it suffers stress-related damage: a leak, engine failure, etc.

Water Vehicle: Failure by SR or less means exactly what it does for a ground vehicle. In addition, anyone standing on an open deck must make a ST or ST-based Seamanship roll to hold on or be washed overboard. Failure by more than SR, or critical failure, means the vehicle capsizes! Those on deck are tossed overboard automatically. An "unsinkable" vehicle like a surfaced sub, rubber raft, or canoe can be righted. Other vehicles simply sink.

Shooting through a window is unwise if the vehicle is sealed, pressurized, or has vacuum support.

Attack

Mounted Weapons: Vehicle occupants can attack with the vehicle's built-in weapons, provided they are manning weapon stations. At TL6+, many armed vehicles have targeting systems (optical sights, radar, computers, etc.) that add a bonus to the gunner's effective skill, just like a telescopic sight. Most of these systems only work if the gunner takes an Aim maneuver. A good TL6 optical sight might add +2 to skill. A typical TL7-8 system, with computerized laser- or radar-directed fire control, would give +3.

Ramming: The vehicle operator can use the vehicle itself as a weapon; see *Collisions and Falls* (p. 430).

Melee Attacks: If the vehicle has arms or legs, the operator can use it to punch, kick, grab, etc. as if it were an extension of his body.

Handheld Weapons: The viability of handheld weapons depends on the vehicle and the situation. Shooters in or on open vehicles, like jeeps and motorcycles, can fire in almost any direction. Occupants of enclosed vehicles must shoot through or lean out of an open window, door, hatch, port, or firing slit. Shots fired through a glass windscreen "star" it, rendering it opaque; it takes a Ready maneuver to clear away the broken glass. Shooting through a window is unwise if the vehicle is sealed, pressurized, or has vacuum support – it may result in a leak or explosive decompression!

Weapon Fire from a Moving Vehicle

When using a weapon from a moving platform – be it a Tommy gun from a getaway car, or a javelin from atop one of Hannibal's elephants – it's usually harder to hit your target than when you're standing still or moving yourself. The penalty depends on how rough the ride is and whether you're using a weapon mount or a handheld weapon – see *Ranged Attack Modifiers* (p. 548).

It's even harder to shoot straight if you don't know when the vehicle will weave or dodge! If the vehicle dodged and *you* aren't the operator, you have an extra -2 to hit, or -4 if flying.

Aiming on the move is particularly difficult. The combined bonuses from aiming (Accuracy, extra turns of Aim, targeting systems, and bracing) cannot exceed the SR of a moving vehicle unless the sights or mount are stabilized. Also apply this limit when firing from a stationary vehicle that is bobbing in the water or floating in turbulent air. In space, only apply this limit when *maneuvering,* not when moving in a straight line.

It is also important to consider *apparent* relative speed. If two cars are rushing toward each other on a collision course, the speed of one, relative to the other, may be over 120 mph . . . but the *apparent* relative speed is zero. Only apply speed penalties for crossing targets. Ignore the speed of targets moving more or less directly toward or away from you.

If the operator fires a handheld weapon, he must take a Move and Attack maneuver. This gives him -2 to hit or a penalty equal to his weapon's Bulk, whichever is *worse* – his attention is divided between driving and shooting. Do *not* apply this penalty to mounted weapon attacks, ramming attempts, or vehicular melee attacks.

Defense

A vehicle's operator may maneuver evasively to avoid attacks on his vehicle. Treat this as a dodge; see *Dodging* (p. 374). A vehicle's Dodge score is (operator's control skill/2) + vehicle's Handling, rounded down. For example, a biker with Driving (Motorcycle)-14 on a motorcycle with Handling +1 has a Dodge of 14/2 + 1 = 8.

The GM may require Dodge rolls to avoid other hazards, such as baby carriages and potholes, or to maneuver through tight spots. These could be *instead* of control rolls, or to avoid disaster *after* failed control rolls!

Occupants who are free to move (not strapped in, etc.) may dodge attacks specifically targeted on them, but they get no defense against stray shots or attacks that penetrate the vehicle and go on to strike them.

Combat Results and Hit Location

A vehicle suffers damage like any other artifact. Certain hit locations have special damage effects – see the *Vehicle Hit Location Table* (p. 554) for details.

Hit locations for a given vehicle appear in the Locations column on the relevant vehicle table, or in the vehicle's text description. Assume that attacks are aimed at the vehicle's body (equivalent to the torso on a living being) unless the attacker specifically stated that he was targeting another location. Alternatively, roll randomly for hit location. In all cases, only exposed locations can be hit; e.g., if a tank is behind a hill and only its turret is visible, the turret is the only valid target.

Scaling Damage

Large vehicles such as tanks, warships, and starships can have huge DR and HP scores, and their weapons can inflict massive amounts of damage. To avoid excessive die rolling, it is best to adjust the damage scale.

Decade Scale (D-Scale): Use this for battles involving tanks or ships – or even supers. Divide DR, HP, and damage dice by 10 before combat starts. Round fractions of 0.5 or more *up*. (*Exception:* If the converted damage is under 1d, treat fractions up to 0.25 as 1d-3, fractions up to 0.5 as 1d-2, and larger fractions as 1d-1.) Convert damage multipliers to dice first; e.g., 6d×25 becomes 150d, which scales to 15d. Do *not* divide armor divisors.

Century Scale (C-Scale): Use this for combats involving *huge* vehicles, such as giant space battleships. Follow the rules above, but divide by 100 instead of by 10.

Example: A tank has DR 700 and 300 HP; its main gun does 6d×30(2) and its machine gun does 7d. In D-scale, it would have dDR 70 and dHP 30; its main gun would do 6d×3(2) and its machine gun would do 1d-1.

After the battle, multiply remaining HP by 10 or 100, as appropriate, to convert back.

An attacker can sometimes target a vehicle's occupants directly. This is only possible if the vehicle has an exposed rider (E), glass windows (G or g), or an open cabin (O), or if the occupants are on a ship's deck, cargo bed, etc. A rider has no cover; someone in an open or glass-windowed vehicle has partial cover (legs, groin, and half the torso). There is an extra -1 to shoot into or out of a window unless the occupant is actually leaning out.

There are usually dire consequences when a vehicle's operator is taken out of action.

Collisions

For the purpose of attack and defense rolls, any attempt to use a vehicle as a weapon is a slam (see *Slam,* p. 368), with the operator rolling against control skill to hit. If the intent is to ram, calculate collision damage normally. If the intent is to force another vehicle off the road, assess damage for a "side-on" collision, but damage is knockback only. For details, see *Collisions and Falls* (p. 430).

Who's at the Wheel?

There are usually dire consequences when a vehicle's operator is taken out of action (killed, fell off, abandoned the controls, etc.). A one- or two-wheeled vehicle, or a mecha walking on two or three legs, rolls over as if it had lost control. Other types of vehicle just charge ahead until they hit something – but roll 1d each turn. On a 6, or *any* roll greater than the vehicle's SR, the vehicle goes out of control. Someone else can regain control, but may need a few seconds to reach the controls, depending on where he was. If the former operator is incapacitated, skill rolls will be at -2 or worse while his body remains in the way!

Leaking

A leak occurs when a floating vehicle suffers penetrating damage to the body below its waterline, a balloon or airship takes *any* penetrating damage to the body, or a submerged vehicle takes penetrating damage to *any* location but an external mount. Use the *Bleeding* rule (p. 420), but replace the First Aid roll to stop bleeding with a Crewman roll to patch the hole.

Electronics

There is a wide variety of electronic gadgets in most TL6+ game worlds. Among the most important of these – for adventurers, at least – are communicators, sensors, and computers.

Communicators

Standard communicators are *radios*. They transmit signals by modulating the intensity, frequency, or phase of long-wavelength electromagnetic radiation. This limits them to the speed of light (186,000 miles per second); as a result, they are effectively instantaneous for planetary communications but have a noticeable delay over interplanetary distances. Note also that ordinary radio frequencies cannot penetrate more than a few yards of water.

Depending on the TL and equipment, communicators can send code, voice, text, video, or data. Many TL8+ communicators incorporate satellite links or computer systems as well. See *Communications and Information Gear* (p. 288) for the range, cost, and weight of some sample communicators.

Communicators use the rules under the Telecommunication advantage (p. 91), except that Electronics Operation (Communications) skill rolls replace IQ rolls. To extend range, make an Electronics Operation (Communications) roll at -1 per 10% added to range, to a maximum extension of 100%.

The Telecommunication rules also give several alternatives to radio, including laser and infrared communications. More exotic options are available in some settings.

Sensors

Sensors grant the operator one or more sensory advantages (Infravision, Telescopic Vision, etc.) while used. Statistics for a number of sensors appear in Chapter 8; see *Law Enforcement, Thief, and Spy Gear; Optics and Sensors;* and *Weapon and Combat Accessories* (all p. 289).

Sensors fall into four broad categories:

Hands-Free Sensors: Sensors worn as goggles, glasses, helmet visors, etc. They require a Ready maneuver to switch on or off, and function constantly once activated. Visual sensors replace unaided vision while active, but typically restrict peripheral vision. To get around this, take a Ready maneuver to switch off or remove the sensor.

Manual Sensors: Binoculars, hand telescopes, metal detectors, radar guns, and similar handheld devices are generally more powerful and longer-ranged than hands-free units, but require one or two hands to operate. To use the sensor, the operator must take continuous Aim maneuvers, which prevents him from moving quickly or attacking.

Sights: Sensors attached to a weapon, camera, etc. – usually to help aim it. To use the sights, the device to which they are attached must be ready (occupying one or two hands). If the sensor is attached to a weapon, the user benefits from it only while making an aimed attack. To observe through the sights without firing requires Aim maneuvers, just as for a manual sensor.

Vehicular or Mounted Sensors: Long-range sensors mounted in a vehicle or on a tripod. Most display information on a screen or similar readout. The user must sit, kneel, or stand next to the sensor to operate it. Some such sensors are "manual" (e.g., TL6-7 "analog" radar and sonar sets); the user must operate the controls by hand. Others are "hands-free" (e.g., digital sensors that display data on a head-up display); the user can take other actions while using them.

Using Sensors

If a sensor provides the user with a completely new sense (e.g., radar, for a human), he must roll against Electronics Operation (Sensors). If it just augments a sense he already possesses, he need only make an ordinary Sense roll – although an unusually complex sensor might call for a roll against Electronics Operation or another skill. For example, a human would make a Vision roll to use an ordinary telescope, but a large astronomical telescope might require an Astronomy roll.

Passive Visual Sensors

These systems work like normal vision, but extend the limits of human sight. They are available in all four categories described above.

Telescopic Optics: Telescopes, binoculars, electro-optical scopes, etc. give Telescopic Vision (p. 92):

Magnification	*Level*
2-3×	1
4-7×	2
8-15×	3
16-31×	4

Further levels follow the same progression.

Image Intensifiers (TL7): Most often called "night vision" devices, these electronically amplify ambient light to generate a monochrome (usually green) picture. They do *not* work in total darkness, fog, etc. They grant Night Vision (p. 71); the level varies from 7 at early TL7 to 9 at TL8+. Better systems include electro-optical magnification, giving Telescopic Vision 1-4 on portable systems, more on vehicular systems.

Thermal Imaging Sensors (TL8): These detect the infrared spectra emitted by objects at different temperatures, and use this information to build up a false-color television image of the environment. They *do* work in total darkness, smoke, etc. The user sees as if he had Infravision (p. 60), often with Telescopic Vision 1-3. Most are two to three times as heavy and four to six times as costly as image intensifiers.

Hyperspectral Imaging Sensors (TL9): These sensors process infrared, visible, and ultraviolet light to create a single image. This makes them extremely effective at picking out camouflaged objects. They give Hyperspectral Vision (p. 60) and Telescopic Vision. These devices are rare and *expensive* at TL8, but become standard vehicular sensors at TL9+, replacing thermal imaging sensors.

Active Sensors

"Active" sensors detect objects by bouncing energy off them and analyzing the returned signal. Radar (TL6), imaging radar (TL7), and ladar (TL8) emit electromagnetic radiation, while sonar (TL6) uses sound.

Active sensors never suffer darkness penalties. They can sense objects out to their rated maximum range at no range penalty; each doubling of range beyond that gives -2 to skill. The major limitation of all such sensors is that specialized but inexpensive detectors can detect the scanning pulse at up to twice their range. Each technology also has a number of *specific* capabilities and drawbacks; for details, see the Scanning Sense advantage (p. 81).

Before TL9, only vehicular or mounted units are likely to provide an actual picture of the surroundings. At TL6-8, a portable active sensor (e.g., a police radar gun) usually only gives the range and speed of objects it detects.

Computers

The programmable digital computer first appears at TL7 and rapidly becomes smaller, cheaper, and faster at higher TLs. In some settings, computers might even attain sufficient computing power to achieve sentience!

Complexity

Every computer has a "Complexity" rating. This is an abstract measure of processing power. Each Complexity level represents roughly a tenfold increase in overall capability over the previous level. A computer's Complexity determines what programs it can run. Each piece of software has a Complexity rating, too, and can only run on a computer of that Complexity level or higher; e.g., a Complexity 2 program requires a Complexity 2 computer or better.

Complexity also determines how many programs a computer can run simultaneously. It can run two programs of its own Complexity, 20 programs of one Complexity level less, 200 programs of two Complexity levels less, and so on. For instance, a Complexity 2 computer could run two Complexity 2 programs or 20 Complexity 1 programs – or one Complexity 2 program and 10 Complexity 1 programs.

The best mid-TL8 (2004-era) desktop systems are Complexity 4; more typical systems are Complexity 2-3.

Data Storage

Every computer has a data-storage capacity, rated in megabytes (MB), gigabytes (GB), or terabytes (TB). One GB is about 1,000 MB; one TB is roughly 1,000 GB or 1 million MB. Some computers have removable media (e.g., disks) as well; their capabilities depend on the setting.

Data Storage Table

Data	*Size*
Lengthy novel	10 MB
Complete national road atlas	100 MB
Navigation charts of entire ocean or country	1,000 MB (1 GB)
Plans of 100 small or 10 complex vehicles	1 GB
Detailed global navigation charts	100 GB
Public or school library	100 GB
City or college library	1,000 GB (1 TB)
Big city or university library	10 TB
Large university or copyright library	100 TB
Human mind	100 TB

Other Capabilities

A computer requires at least one "terminal" if humans are to use it. The computer may be integrated into this terminal or located remotely. At TL7-8, a terminal is, at minimum, a keyboard and monitor. At late TL8 and beyond, voice recognition, virtual-reality glasses and gloves, neural interfaces, etc. might replace such clumsy hardware.

It is possible to connect a single terminal to multiple computers, giving the user access to them all. Without special hardware, however, the user can only work with one computer at a time, and must take one second to switch between computers.

If two computers are compatible (GM's decision), it is possible to link them via cable or communicator. The person trying to establish contact must know the "address" of the other computer (telephone number, numbered location on a network, etc.) and any relevant passwords. Once in contact, two computers with suitable software can share data, and the less-powerful computer can act as a terminal for the more capable one.

Finally, any TL8+ computer equipped with a microphone or camera can act as a digital recorder, to the limit of its data-storage capacity.

Software

The programs available depend on the setting. Some general notes:

- *Complexity:* Every program has a Complexity rating, as defined above.
- *Capabilities:* Some programs simply provide entertainment (e.g., a video game) or a practical function (e.g., e-mail).

Others give the user a bonus to perform a specific task. For instance, financial software might give +1 to Accounting when preparing taxes. Treat such bonuses identically to those for good equipment (see *Equipment Modifiers,* p. 345).

Still others are *mandatory* for some tasks – notably technical tasks at TL8+. Without them, the user's skill will operate at a lower TL. For example, an engineer might require a Complexity 3 CAD/CAM program to design a jet; without it, his Engineer/TL8 (Aircraft) skill might function as Engineer/TL7. These programs are generally Complexity 2 at TL7, Complexity 4 at TL8, Complexity 6 at TL9, and so on. A program of higher than minimum Complexity provides a bonus or reduces the time required.

Programs intended for robots may grant advantages, disadvantages, skills, or even pre-programmed personalities! These can be hardwired or modular (see *Modular Abilities,* p. 71).

- *Cost:* Most programs have a cost in $. This is the price of a single, legal copy, with documentation. Each computer requires its own copy. It is possible to copy software for free, but this is often illegal. But a computer can run as many *instances* of a program as its Complexity allows; it does not require a separate copy per instance.

New Inventions

The GM may wish to let PCs invent new technology in the course of the campaign. The rules below cover *realistic* innovation at the inventor's tech level – or one TL in advance of that, at most. For rules governing larger-than-life inventors who can build more fantastic gadgets, see *Gadgeteering* (p. 475).

Before starting, the player must describe to the GM what he wants to invent and how he thinks it will work. This will help the GM determine the skills and equipment required, the cost and time involved, and the difficulty of the task. If the player's description is especially clear or clever, the GM should give +1 or +2 to all invention-related skill rolls.

They laughed at me at the university, the fools! But I'll show them! I'll show them all!

Required Skills

First, the GM decides on the "invention skill" needed for the task, based on the player's description of the invention. The inventor must know this skill to have *any* chance of success. Armor, vehicles, weapons, etc. require the relevant Engineer specialty. Other inventions might call for different skills: Alchemy for magic potions, Bioengineering for biotechnology, Computer Programming for software, Thaumatology for magic spells, and so on.

At the GM's discretion, a particular invention might *also* require skill in one or more related subjects. For instance, inventing a new telescope might require Astronomy skill. If so, the inventor rolls against the *lower* of this skill or his invention skill in the rules below.

Complexity

Next, determine the "complexity" of the invention. This is entirely up to the GM, who can assign complexity arbitrarily, base it on the minimum skill level required to come up with the invention, or relate it to the retail price of the item (especially for gadgets listed in worldbooks or real-world catalogs). Use the following table for inspiration:

Complexity	*Required Skill Level*	*Retail Price*
Simple	14 or less	Up to $100
Average	15-17	Up to $10,000
Complex	18-20	Up to $1,000,000
Amazing	21 or more	Over $1,000,000

For computer programs, use the numerical Complexity rating instead. If a cost or time calculation *requires* one of the four ratings above, treat Complexity 1-3 as Simple, 4-5 as Average, 6-7 as Complex, and 8+ as Amazing.

Concept

After determining complexity and required skills, the GM makes a secret "Concept roll" against the inventor's invention skill to see whether he comes up with a testable theory. This requires no special equipment – except perhaps a tablecloth to draw on and several gallons of coffee!

Modifiers: -6 if the invention is Simple, -10 if Average, -14 if Complex, or -22 if Amazing (for a computer program, apply a penalty equal to *twice* the Complexity rating instead). +5 if you have a working model you're trying to copy, or +2 if the device already exists but you don't have a model; +1 to +5 if the item is a variant on a existing one; -5 if the basic technology is totally new to the campaign (*regardless* of TL); -5 if the device is one TL above the inventor's TL.

Each inventor may roll once per day. Complexity doesn't affect the time required – the basic concept for an Amazing device is often a simple insight . . . it's the *implementation* that can get tricky.

On a success, proceed to the next step. On a failure, the inventor makes no breakthrough but may try again the next day at no additional penalty. On a critical failure, the inventor comes up with a "flawed theory" that *looks* good but that will never work in practice – go on to the next step, but note that it is doomed to failure.

Of course, if the inventor has somehow obtained actual blueprints for the device, he can skip this stage altogether!

Reinventing the Wheel

Adventurers may wish to "invent" devices of a *lower* TL than their own. Reduce complexity by one step per TL by which the inventor's TL exceeds that of the invention, to a minimum of Simple. If suitable historical reference materials are available, use the *higher* of the inventor's Research skill or his invention skill for the Concept roll.

Prototype

A success – or critical failure – on the Concept roll gives the inventor a theory he can test in the laboratory. The next step is to construct a prototype (working model). This requires a second roll against invention skill. The GM makes this "Prototype roll" in secret.

Modifiers: All modifiers listed for Concept rolls; +1 per assistant with skill 20+ in one of the skills required for the invention, to a maximum of +4; -1 to -10 (GM's discretion) if the inventor must make do with anything less than the most advanced tools and facilities for his TL.

On a success, the inventor proves his theory and creates a prototype. On a failure, he may try again, provided he has the time and money (see below). On a critical failure, an explosion or accident occurs. This inflicts *at least* 2d damage to the inventor and each assistant – and destroys the facilities, which must be rebuilt at full cost before making another attempt.

If the inventor was working with a flawed theory, he will never create a working prototype (this is why the GM rolls in secret!), but a *critical success* on the Prototype roll lets him realize that his theory was bad.

Time Required

Each Prototype roll requires 1d-2 days if the invention is Simple, 2d days if Average, 1d months if Complex, or 3d months if Amazing. Physically *huge* items (e.g., spaceships and military vehicles) may take longer, at the GM's discretion. Divide time required by the number of skilled people working on the project. Minimum time is always one day.

Cost

The facilities required to build a prototype cost $50,000 if the invention is Simple, $100,000 if Average, $250,000 if Complex, or $500,000 if Amazing. *Triple* these costs if the invention is one TL above the inventor's TL. Divide costs by 10 if the inventor has appropriate facilities left over from a related project of equal or higher complexity. Each inventor who wishes to attempt a Prototype roll must pay the facilities cost "up front" *before* making his first attempt.

In addition, each attempt to produce a prototype has a cost equal to the retail price of the item being built, as given in the appropriate game supplement or real-world source, or as set by the GM. *Triple* this cost if the invention is one TL in advance of the inventor's TL.

Testing and Bugs

The majority of prototypes have shortcomings, or "bugs." Critical success on the Prototype roll means there are no bugs; success by three or more gives 1d/2 minor bugs; and any other success gives 1d/2 major bugs and 1d minor bugs. Minor bugs are annoying, but not critical. Major bugs are catastrophic to the function of the device – and sometimes to the user as well!

To find bugs requires testing. Once per week of testing, roll vs. operation skill (e.g., Driving for a car, Electronics Operation for a radio) at -3. Each success finds one bug; a critical success finds *all* bugs. A failure triggers a major bug, if present, or finds nothing. A critical failure causes a problem similar to a major bug without encountering any *real* bugs; alternatively, the tester is convinced, erroneously, that no bugs remain.

Bugs that remain after testing surface on any operation skill roll that fails by 5 or more. A major bug always surfaces on a critical failure.

Production

Building a copy of the invention costs 20% of the retail price if you only need to buy parts, or full retail price if you must pay for parts and labor. Time required to produce each copy is *half* that required for a Prototype roll. For instance, each copy of a Complex item takes 1d/2 months.

A production line is more efficient. To set up a production line costs 20 times the retail price of the item. The production line makes one copy of the item in 1/7 the time it took to build a prototype or in (retail price/100) hours, whichever is *less*. Each copy costs 20% retail price for parts, or 50% for parts and labor.

Funding

As explained under *Tech Level and Starting Wealth* (p. 27), the higher the tech level, the greater the starting wealth. However, the cash outlay required for inventing and gadgeteering *doesn't* scale with TL – it's fixed. Thus, the lower the TL, the higher the relative cost of innovation.

This might model reality well, but it takes a lot of the fun out of being a low-tech gadgeteer. The GM may use these optional (but realistic) rules to remedy this:

Patrons: Historically, many inventors had wealthy patrons to pay their way. If you have a Patron with the +100% "Equipment" enhancement, you may attempt a *single* roll against your Patron's frequency of appearance when you start a new invention. On a success, the Patron foots the bill. Most Patrons will demand access to the invention; if you deny this, you are likely to lose your Patron!

Professional Inventors: You can pay the costs gradually by building the tools, facilities, etc. yourself. You *must* pay at least 10% "up front." Divide the remainder by your monthly income and add that many months to the time required. You earn *no* money during this time, but you must still pay your monthly cost of living. Independent Income (p. 26) can be helpful here – it might represent royalties from your *last* invention.

Investors: If your invention promises to be profitable, others might be willing to cover your costs. Make a Finance roll with the same modifiers as your Concept roll (this represents perceived risk). On a success, you receive funding. Note that your investors own shares of your invention and any profits!

Gadgeteering

Fiction is full of inventors who can design devices that are far ahead of their time. Below is advice on how to relax the requirements and restrictions of the *New Inventions* rules for such "gadgeteers." These benefits apply *only* to inventors with the Gadgeteer advantage (p. 56).

Inventing Gadgets

Before beginning, the player must describe the proposed gadget to the GM in a logical manner, and offer an explanation of how it is supposed to work. The item should not actually violate physical laws (which eliminates FTL travel, antigravity, teleportation, etc.) *unless* the GM rules that such "superscience" is possible in the game world.

The GM is free to accept or reject the design, depending on its feasibility. If he accepts the item, he assigns it a tech level (see *Tech Levels,* p. 511). The stronger, smaller, or more effective the gadget is, relative to an item that performs a similar function at the campaign's TL, the higher its TL should be.

Required Skills

This is unchanged from *New Inventions.* A gadgeteer must have a good understanding of the field in which he is working. The Gadgeteer advantage represents a broad, intuitive capacity for inventing – it does not grant specific scientific or technical knowledge. Most gadgeteers focus on one or two skills to start out with.

Complexity

Use the usual complexity levels, but do not confuse complexity with tech level. A ray gun that sells for $1,000 at TL10 is most likely an Average item, however amazing it might be in a TL8 setting.

Concept

Gadgeteers have far milder penalties on their Concept rolls. There is *no penalty at all* for a Simple invention, and only -2 for an Average one, -4 for a Complex one, or -8 for an Amazing one. For software, use Complexity (not twice Complexity). Ignore the -5 for a technology that is totally new to the campaign.

Complexity	*Base Cost*	*TL Increment*
Simple	$50,000	$100,000
Average	$100,000	$250,000
Complex	$250,000	$500,000
Amazing	$500,000	$1,000,000

A gadgeteer is not limited to inventions only one TL advanced. He may attempt to create a device of *any* TL, at a flat -5 per TL above his own.

Prototype

All the benefits listed for Concept rolls apply equally to Prototype rolls. Furthermore, the GM may choose to waive the penalty for questionable equipment. Many fictional gadgeteers work out of a basement or a garage!

Time Required: This is unchanged. However, the times under *New Inventions* assume an eight-hour day, which might not be enough for a cinematic gadgeteer! If the inventor pulls long shifts, he must make daily HT rolls as described under *Long Tasks* (p. 346). On a failure, he has no skill penalty – he just loses FP. If he reaches 0 FP, he collapses and must rest for 1d days to recover. Add this to the time required.

Cost: Calculate the cost of the necessary facilities using the table above. Use *Base Cost* for an item at the campaign TL, and add the amount under *TL Increment* for each TL beyond that. A gadgeteer may divide these costs by 10 if he has already paid for facilities for a similar project of equal or higher complexity *and* tech level.

Example: A gadgeteer working on a Complex item must pay a Base Cost of $250,000 for the necessary facilities. If his invention is a device three TLs above the campaign TL, he must add three times the TL Increment for a Complex gadget, or $1,500,000, bringing the total to $1,750,000.

As with regular inventions, there is also a cost for each attempt to build a prototype. For an invention at the campaign TL, this is just the retail price of the item. For a device from above that TL, start with the item's retail price at its native TL, double this for each TL of difference, and *accumulate* the cost!

Example: A gadgeteer working on an invention with a $4,000 retail cost would pay $4,000 per attempt to create a prototype if the device were at the campaign TL. If it were three TLs more advanced, he would double the cost three times and add: $4,000 + $8,000 + $16,000 + $32,000 = $60,000!

Gadget Bugs Table

When a gadgeteer invents a gadget of a *higher TL than his own,* the GM should roll 3d on the following table for each bug (or simply pick something appropriate).

3 – Roll 3d per use or hour of constant use. On a 6 or less, the gadget attracts the unwelcome attention of aliens, time travelers, Men in Black, Things Man Was Not Meant To Know, etc. (GM's choice.)

4 – The gadget is *huge!* If it would normally be handheld, it is so large that it needs a vehicle to move it around; if it would normally be vehicle-borne, it must be mounted in a *really big* vehicle (like a battleship) or a building; and so on.

5 – Each use or hour of constant use consumes $250 worth of resources – exotic chemicals, radioactives, etc.

6 – The device has 1d+1 side effects; see the *Random Side Effects Table* (p. 479).

7 – Anyone carrying the gadget is so inconvenienced by its awkward shape and balance that he has -2 to DX. Vehicles or vehicular gadgets give -2 to vehicle control rolls.

8 – The gadget has 1d-2 (minimum one) side effects.

9 – A powered device requires a *big* power supply – for instance, a vehicle power plant. If it would normally require this much power, it needs to be tied into a continental power grid, and causes brownouts whenever used. If the device is unpowered, treat this result as **10.**

10 – The gadget is twice as large, twice as heavy, and uses twice as much power as it should. If it's a weapon, halve its damage, range, and Accuracy instead.

11 – The gadget gets too hot to handle after being used, and must cool down for 10 minutes before it can be used again. (If used before it cools off, it burns out in a shower of sparks and inflicts 1d burning damage on the user.)

12 – Each use or hour of constant use consumes $25 worth of resources.

13 – The gadget is unreliable, and fails on any operation skill roll of 14 or more.

14 – The gadget requires minor repairs after every use, and does not work until repaired.

15 – The device recoils like a heavy projectile weapon (even if it isn't a gun). The user must make a DX roll for every use or be knocked down.

16 – The gadget is *very* unreliable, and fails on any operation skill roll of 10 or more.

17 – The device is overly complicated. If it is a weapon, it takes *five* seconds to ready (this represents pushing buttons, setting dials, etc.). Other gadgets require two hours of painstaking preparation before each use.

18 – On any critical failure using the device, it self-destructs . . . spectacularly. The user must make a DX roll at -2 or suffer 2d injury as a result. The gadget is *gone* – it cannot be repaired or cannibalized for parts.

Testing and Bugs

For a gadgeteer, success by 3 or more results in no bugs, while a lesser success gives 1d/2 minor bugs. There is no chance at all of a major bug. If the device is *above* the gadgeteer's TL, roll once on the *Gadget Bugs Table* (box) for each "minor" bug.

Production

The standard rules apply, but use the tech level-adjusted retail price in all calculations. In the example above, retail price would be $60,000 (not $4,000) for production purposes.

Quick Gadgeteering

Inventors with the Quick Gadgeteer advantage require *very* little time or money to do their work. They can throw together a useful gadget in minutes, using only the contents of a random glove compartment. This talent is *completely* unrealistic; most GMs will want to restrict it to highly cinematic campaigns!

Quick gadgeteers use the *Inventing Gadgets* rules (p. 475) like regular gadgeteers, with the following modifications.

This talent is ***completely*** *unrealistic.*

Concept

Apply the favorable modifiers given for regular gadgeteering, but each Concept roll requires only *1d minutes!*

Prototype

Apply the modifiers given for regular gadgeteering to the Prototype roll.

Time Required: A Simple gadget takes only 2d minutes to assemble, an Average one calls for 1d-2 hours (a roll of 1 or 2 indicates a 30-minute assembly time), a Complex one requires 1d hours, and an Amazing one takes 4d hours.

Cost: The quick gadgeteer is a master at cannibalizing parts and scrounging for equipment. If there are *many* sources of parts, the GM should allow a Scrounging roll to locate usable components. If the available resources are more limited, the GM may require a roll against a specialized skill; e.g., if the only thing available is a wrecked '65 Mustang, the GM might call for an Engineer (Automobiles) or Mechanic (Automobiles) roll to find the necessary hardware. These rolls are at no

modifier for a Simple gadget, -2 for an Average one, -6 for a Complex one, and -10 for an Amazing one. On a success, the total cost for the project is only (1d-1) × $100, with a roll of 1 indicating *no* cost.

If the gadgeteer *must* buy the needed items, calculate facilities and prototype costs as for a regular gadgeteer, and then divide by 100.

A critical failure on the Prototype roll ruins the parts – the gadgeteer must find new ones before construction can resume.

Gadgeteering During Adventures

Gadgeteers can also analyze and modify gadgets encountered during adventures.

Analysis

To figure out a mysterious piece of equipment, the gadgeteer rolls as if he were making a Concept roll to invent the item from scratch, using the same skills and modifiers. This takes 1d×10 minutes for a regular gadgeteer, or 1d minutes for a quick gadgeteer.

Modification

After successfully analyzing a gadget, the gadgeteer may attempt to modify it. He rolls as if he were making a Prototype roll, using the same skills and modifiers. This takes 1d hours for a regular gadgeteer, or 1d×10 minutes for a quick gadgeteer. All modifications in function are subject to GM approval!

Gadgets for Non-Gadgeteers

Anyone can own and use gadgets. Only those who can alter their capabilities or invent new ones must buy the Gadgeteer advantage. But it would be unfair to let non-gadgeteers have gadgets for free – Gadgeteer costs points as much for the gadgets themselves as for the ability to build them. The GM should adopt one of the following rules to maintain game balance.

Gadgets Cost Money

The GM may permit the PCs to hire a gadgeteer to design and built gadgets for them. Finding such a hireling should be an adventure in itself! In addition to the hireling's pay, the PCs must pay the standard facilities cost for development *and* 150% of the prototype cost per item. Work out these costs as described for regular (not quick) gadgeteering.

This option has a "hidden" point cost: to cover these expenses, the heroes almost certainly need to take high Wealth (p. 25) or trade points for money (see *Trading Points for Money,* p. 26).

Gadgets Require an Unusual Background

The GM might require gadget users to have one of these Unusual Backgrounds:

Unusual Background (Gadgeteer Friend): If an adventurer has a gadgeteer friend who equips him with useful inventions, he has an Unusual Background. This is an unabashed game-balance measure – it is *unbalancing* to let a single gadgeteer outfit an entire party at no point cost, however *realistic* that might be. *15 points.*

Unusual Background (Invention): The character possesses one specific gadget without being a gadgeteer. This must be a unique invention; if it weren't, it would just be Signature Gear (p. 85). The player must explain how his character came to have the item: he invented it through a lucky accident, his inventor grandfather left it to him, aliens planted the blueprints in his head telepathically, etc. The points in this trait buy a single, bug-free item. The owner can copy it, but he must pay the usual production costs. *5 points if the gadget is Simple, 15 points if Average, 30 points if Complex, or 50 points if Amazing.*

Futuristic and Alien Artifacts

Adventurers sometimes encounter advanced or alien devices. These rarely come with instruction manuals, and often rely on scientific principles unknown at the heroes' tech level. Gadgeteers may use the *Gadgeteering During Adventures* rules (p. 477) to deduce the function of mysterious artifacts. Everybody else must use the rules below.

First, the experimenter chooses an operation skill. This choice is often a guess – although the GM might provide clues that make it an *educated* guess. Those with the Intuition advantage can use it to narrow down their choice of skills.

Next, the GM decides whether the chosen skill is appropriate. An "appropriate" skill is one used to operate a device known to the experimenter that serves a purpose similar to that of the artifact. It need not be the artifact's *actual* operation skill. For instance, Guns is appropriate for a ray gun fired using Beam Weapons skill, while First Aid is wholly inappropriate.

Then the experimenter rolls against the chosen skill. If this is an appropriate skill, the GM rolls 3d, adds the investigator's margin of success or subtracts his margin of failure, and consults the *Enigmatic Device Table,* below. If the skill is inappropriate, treat the roll as a failure by 10; in other words, roll 3d-10 on the table.

Exception: If the experimenter rolls a critical success on an inappropriate skill, he realizes that the chosen skill doesn't apply and may try another skill.

Each attempt takes one minute. Repeated attempts are possible, but the roll on the table is at a cumulative -1 per attempt after the first. Someone else can start from scratch, though – other people often bring fresh insights to a problem.

Enigmatic Device Table

Roll 3d, apply the modifiers below, and consult the table. For repeated attempts by the same experimenter, reroll duplicate results.

Modifiers: A bonus equal to the margin of success, or a penalty equal to the margin of failure; +2 for Danger Sense; +4 for Intuition; +2 if the device has labels in a language the experimenter can read – or +4 for actual manuals (at the GM's option, a Research roll at -5 might turn these up); +1 to +5 for a simple device, or -1 to -5 for a complex one; -1 for manipulating the device at a "safe" distance using psi or magic, -2 for probing it using tools or robotic manipulators, or -4 for poking it with a stick, hitting it with a hammer, etc.; -1 per attempt after the first.

0 or less – The experimenter takes 3d damage and the device is destroyed. (If the device is indestructible, it vaporizes everything within 10 yards . . .)

1 – The device's primary effect is applied to the experimenter, if possible; if not, he takes 3d damage from the device.

2 – The device's primary effect is applied to someone nearby, if possible; if not, someone nearby takes 3d damage.

3 – The experimenter takes 2d damage.

4 – Someone nearby takes 2d damage.

5 – The experimenter takes 1d damage.

6 – Someone nearby takes 1d damage.

7 – The experimenter suffers superficial damage (e.g., his eyebrows are burned off).

8 – Someone nearby suffers superficial damage.

9 – The experimenter suffers an embarrassing mishap: he gets a body part stuck to (or *in*) the device, or suffers an unpleasant minor side effect.

10 – The experimenter forms an erroneous theory concerning the device's purpose, possibly being misled by a secondary function or side effect.

11 – Nothing happens. The experimenter gains no useful insight into the device's nature or operation, but at least it didn't do anything nasty . . .

12 – The experimenter locates one of the device's less-obvious controls (but doesn't learn what it does).

13 – The experimenter discovers the on/off switch (or safety, for a weapon).

14 – The experimenter gets a clue concerning the purpose of the device.

15 – The experimenter gets a clear demonstration of the device's primary function (possibly by blowing a large hole in something inanimate – and expensive – nearby). He can now operate this function, at -4 to skill.

16 – The experimenter discovers how to activate a single secondary function reliably (that is, with no skill penalty).

Anachronistic Devices

The tech levels given for equipment assume a "realistic" campaign. The GM is free to have any technology appear at an earlier TL – especially in a cinematic campaign. For each TL by which the listed TL of a device exceeds that of the campaign, *double* the cost and weight of the device.

Example: Steam engines are normally TL5, but dwarves in a TL3 fantasy setting might use steam-powered mining machinery. Such equipment would cost and weigh four times as much as usual.

17 – The experimenter deduces the location and general nature of *all* controls pertaining to the device's secondary functions, and can use these functions at -4 to skill.

18 – The experimenter figures out how to activate the primary function of the device at no skill penalty.

19 – The experimenter discovers *all* of the device's functions, and can use them at no skill penalty.

20 or more – As **19,** plus the experimenter finds a totally serendipitous – and useful – application of the device that the creators never thought of!

Weird Technology

"Alien" does not begin to describe some technology: gadgets that defy natural laws (including a few we haven't discovered); devices from bizarre dimensions; artifacts that mix magic with science, or that contain (or *are*) demons . . . Such things are best described as "weird."

Weird technology need not be advanced – it might have been around since the Bronze Age! In fact, weirdness rarely has *anything* to do with tech level. Part of what makes a technology weird is that it defies the standard notions of scientific progress. It's *different,* and even geniuses are at a loss to explain it.

Weird Science

An inventor may choose to roll against Weird Science skill (p. 228) to get a bonus to his Concept and Prototype rolls. This bonus is +5 if he is using the *New Inventions* rules (p. 473). It is only +1 if he is using *Gadgeteering* (p. 475), as those rules already give large bonuses for the borderline-weird concepts used by gadgeteers. The drawback is that the invention *will* have weird side effects. Roll 1d-3 for the number of side effects (minimum one), and then roll that many times on the *Random Side Effects Table,* below.

Gadgets

As mentioned above, even gadgeteers who do not use Weird Science are venturing into the realm of the weird. A buggy gadget can occasionally have weird side effects – see the *Gadget Bugs Table* (p. 476).

Experimental Devices

The GM can roll on the *Random Side Effects Table* whenever adventurers use an experimental device given to them by or stolen from a mad scientist.

Magic Items

There is no reason to limit strange side effects to technological devices! At the GM's option, when a wizard fails his roll to create a magic item by only 1, the enchantment works but the magic item acquires 1d-3 side effects (minimum one), determined by rolls on the *Random Side Effects Table.*

Random Side Effects Table

Roll 3d, or choose something appropriate.

3 – Each use causes a small, cumulative change in the user's body (mind). Roll against HT+4 (IQ+4) once per use. On a failure, the user acquires -1 point toward a physical (mental) disadvantage of the GM's choice.

4 – Each use inflicts 1d injury on the user (ignore DR).

5 – Each use causes 1 point of injury to the operator (ignore DR).

6 – The gadget transforms someone within 10 yards into *something else* (alien, animal, plant, etc. – GM's choice) for 10 seconds.

7 – The device makes an incredibly annoying, high-pitched noise when used. This gives everyone within 20 yards a headache for 10 minutes (-2 to DX, IQ, and self-control rolls), and the user gets a migraine (-4 to these rolls) for 20 minutes. Earplugs don't help, although Deafness does.

8 – Use of the gadget disrupts electronics: TVs and radios within one mile get nothing but static, other electronics within 100 yards fail on a roll of 7 or less on 3d. Within 10 yards, even simple electrical devices are affected. This is a classic side effect for UFOs! Magic items produce local mana disruptions instead, giving -3 to all spell rolls within 10 yards for the next 10 seconds.

9 – The device produces noxious fumes in a four-yard radius. Anyone in the area must make a HT+3 roll every second. On a failure, they are nauseated (see *Irritating Conditions,* p. 428) for five minutes.

10 – The gadget produces a loud hum in operation (+3 to Hearing rolls to notice it).

11 – Impressive but harmless special effects – beams of light, showers of sparks, etc. – accompany the use of the device. The source of the effects is obvious to any observer. Anyone in the area gets a Vision roll at +5 to notice something is going on.

12 – The gadget emits dense clouds of steam or smoke over a four-yard radius while in operation. Treat as a Fog spell (p. 253).

13 – Each use of the gadget attracts a swarm of vermin of the GM's choice. The swarm disperses 10 minutes after the device is shut off.

14 – Using the gadget renders the operator unconscious for 1d minutes.

15 – Each use of the device attracts the attention of demons or ghosts, or punches holes into random dimensions through which strange creatures appear.

16 – The device inflicts 1 point of injury (ignore DR) per use on everyone within 10 yards, including the user.

17 – Each use of the gadget opens a gate into a random dimension for one second. The user must make a DX roll to avoid falling into the hole before it closes.

18 – Roll for a *different* random side effect each time the device is used. (If this result comes up again, roll for *two* side effects, and so on!)

Magic Items

Objects of magical power are a staple of fantasy. The following rules are intended for game worlds that use the magic system in Chapter 5, and make a few basic assumptions:

- Anyone can use any magic item that doesn't explicitly require Magery.
- Wizards manufacture magic items using magic spells that produce fairly predictable results. However, magic is *not* technology, and magic items can have unpredictable side effects.
- Magic items retain their power indefinitely – their magic does not "wear out." But if the *item* breaks or wears out, it loses *all* of its magical properties and ordinary repairs cannot restore the magic.

The GM is free to change some or all of these assumption to suit his campaign!

Enchantment Spells

These spells allow mages to create magic items. They appear here instead of in Chapter 5 because enchantment creates magical artifacts, and uses many special rules that do not apply to ordinary spellcasting.

Enchant (VH)

Enchantment

This spell is a *prerequisite* for all other Enchantment spells. To enchant an item, the caster must *also* know this spell. The caster rolls against the *lower* of his skill with this spell and the specific spell he wishes to place on the item. If he has assistants, they must have skill 15+ with both spells, but the roll is based on the *caster's* skill.

Duration: Magic items are permanent until destroyed.

Cost and Time: See *Enchanting* (p. 481).

Prerequisites: Magery 2, and at least one spell from each of 10 other colleges.

Accuracy

Enchantment

Makes a weapon more likely to hit by adding to the user's effective skill.

Cost: See table below. *Divide cost by 10* if the subject is a missile (e.g., an arrow or a bullet).

Bonus	*Cost*
+1	250
+2	1,000
+3	5,000

Prerequisites: Enchant, and at least five Air spells.

Deflect

Enchantment

Adds a Defense Bonus to armor, clothing, a shield, or a weapon. This adds to all active defense rolls made by the user.

Cost: See table below.

DB	*Cost*
+1	100
+2	500
+3	2,000
+4	8,000
+5	20,000

Prerequisites: Enchant.

Fortify

Enchantment

Increases the DR of clothing or a suit of armor.

Cost: See table below.

DR Bonus	*Cost*
+1	50
+2	200
+3	800
+4	3,000
+5	8,000

Prerequisites: Enchant.

Power

Enchantment

Makes a magic item partially or completely "self-powered." Each point of Power reduces the energy cost to *cast* or to *maintain* any spell on the item by 1. Halve this bonus in a low-mana area (round down); double it in a high- or very high-mana area. Power has no effect on the energy cost of the *user's* spells!

If Power reduces the cost to *maintain* a spell to 0, treat the item as "always on" after the cost to cast is paid – but the wearer must stay awake to maintain the spell. If Power reduces the cost to *cast* to 0, the item is "always on" for *all* purposes, although the owner may turn it off if he wishes.

Cost: See table below.

Power	*Cost*
1 point	500
2 points	1,000
3 points	2,000
4 points	4,000

Double the cost for each additional point.

Prerequisites: Enchant and Recover Energy.

Puissance

Enchantment

Adds to the basic damage a weapon does when it hits.

Cost: See table below. *Divide cost by 10* if the subject is a missile (e.g., an arrow or a bullet). *Double* cost if the subject is a missile weapon (e.g., a bow or a gun).

Damage Bonus	*Cost*
+1	250
+2	1,000
+3	5,000

Prerequisites: Enchant, and at least five Earth spells.

Staff

Enchantment

Enchants a magic staff – see *Magic Staffs* (p. 240) for details. Though many magic items must be in the form of a wand or staff, they do *not* have to have this spell on them.

Cost: 30.
Prerequisites: Enchant.

ENCHANTING

"Enchanting" is the process of creating a magic item. It is a special kind of spell casting; see *Casting Spells* (p. 235). The caster *must* use ceremonial magic (see *Ceremonial Magic,* p. 238), and he and any assistants must know both the Enchant spell (see p. 480) *and* the specific spell being put on the item at level 15+ – or at level 20+, in a low-mana area. Unskilled spectators cannot contribute energy.

Enchanting always requires time and energy. A particular enchantment might also require a specific item or material (e.g., a gem), or the expenditure of cash for "generic" magic supplies.

A given magic item may carry any number of spells. Each one requires a separate enchantment. The presence of an enchantment has no effect on later enchantments.

Power of a Magic Item

Each magic item has a "Power," set when it is created. An item's Power equals the caster's skill with the Enchant spell or the spell contained in the item, whichever is *lower.* Since enchanting is ceremonial magic, the caster *can* spend extra energy to raise his effective skill, and hence the Power of the item.

Record Power for each magic item created or found (to learn the Power of a found item, the PCs must use Analyze Magic). If an item has several spells on it, each spell has its own Power. Whenever it would be important to know the skill level of a spell cast by a magic item, use the item's Power.

An item's Power must be 15 or more for the item to work. Apply a temporary -5 to Power in a low-mana area; thus, an item with less than Power 20 *does not work at all* in a low-mana zone. *No* magic item works in a no-mana region!

Interruptions

If a mage is interrupted while enchanting using the "slow and sure" method, note the following:

- He will be fatigued. Assume he is missing 1d FP.
- He must keep concentrating on his enchantment; therefore, any other spell use is at -3. (If he stops concentrating, he loses the day's work.)

A wizard who is bothered while *not* actively working on his enchantment is at *no* disadvantage!

Success Rolls for Enchanting

The GM makes all rolls to enchant magic items. As with other ceremonial magic, a roll of 16 fails automatically and a roll of 17-18 is a critical failure.

On a success, the item is enchanted. On a critical success, increase the Power of the item by 2d – and if the success roll was a natural 3, the item might have some further enhancement (GM's discretion). The caster knows that his spell went well, but he must use Analyze Magic to know *how* well.

On a failure, the results depend on the method used to enchant the item – see below. A critical failure always destroys the item and all materials used.

Quick and Dirty Enchantment

Use this method to create a magic item *quickly.* It requires one hour per 100 points of energy required (round up). Make the success roll at the end of that time. Succeed or fail, *all* the energy is spent when the GM rolls the dice.

A lone caster is limited to the energy provided by his FP and HP, but he may have assistants, who can contribute their own FP and HP as described for ceremonial magic. The caster is at -1 to skill for each assistant; therefore, the number of assistants allowed is the number that would reduce the caster's effective skill to 15. With more assistants, the enchantment won't work.

If anyone but the caster and his assistants is within 10 yards, the spell is at a further -1.

On a failure, the enchantment is perverted in some way. It might acquire unpleasant side effects (see *Random Side Effects Table,* p. 479), become an entirely different spell, or anything else the GM likes. The caster won't know his spell went wrong unless he uses Analyze Magic or tries the item!

Slow and Sure Enchantment

Use this method when the enchanter wants to be sure it's done *right*. It takes one "mage-day" per point of energy required. A mage-day represents a full eight-hour workday for one mage. For instance, an item that requires 100 energy points would take one mage 100 days, two mages 50 days, and so on. A mage may work on only one enchantment at a time; he may not "work two shifts," either on the same or different items.

All of the caster's assistants must be present every day. If a day's work is skipped or interrupted, it takes *two* days to make it up. Loss of a mage ends the project!

Make the success roll at the end of the last day. There is no FP or HP cost to the enchanters – they invested the energy gradually as the spell progressed.

On a failure, the enchantment didn't work. The time was wasted, and any materials used in the spell are lost. (*Exception:* If the enchanters were adding a spell to an already-enchanted item, it is unharmed, though *extra* materials are lost.)

Spells for Enchantment

The *Magic Items Table* provides information on several common enchantments.

Spell: The name of the spell.

Energy: The energy cost required to enchant an item with the spell. Note that this is *not* the same as the cost to cast that spell normally! See also *Enchantment Spells* (p. 480).

Item: The class of item required:

Code	*Class of Item*
A	armor or clothing
J	jewelry; e.g., an amulet or ring
S	staff – any rod-shaped piece of organic material up to 6 feet long
Sh	shield
W	weapon

Notes: Special rules for creation or use.

Using Magic Items

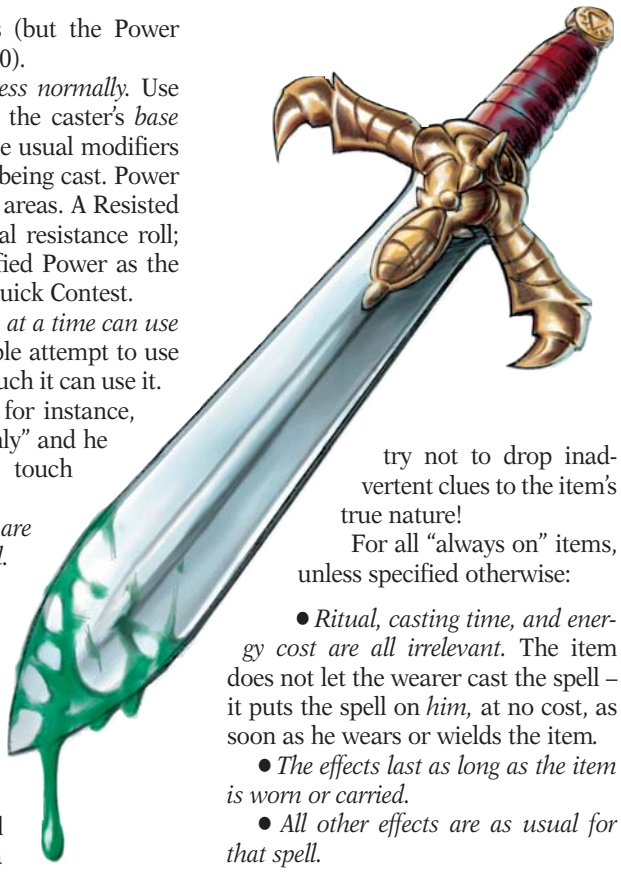
Magic items follow the rules given for the spell(s) they contain. Many give the user the power to cast the spell – perhaps only on himself, possibly on any subject. Some are "mage only"; that is, they only work for users who possess Magery. Unless specified otherwise:

- *There is no ritual.* The user just wills the item to work.
- *Casting time is as described for the spell.* High Power doesn't affect this.
- *Energy cost is the same as for a normal casting of the spell.* High Power does not affect this (but the Power spell *does* – see p. 480).
- *Determine success normally.* Use the item's Power as the caster's *base* skill and apply all the usual modifiers for the kind of spell being cast. Power is at -5 in low-mana areas. A Resisted spell allows a normal resistance roll; use the item's modified Power as the caster's skill in the Quick Contest.
- *Only one person at a time can use the item.* If two people attempt to use it, only the first to touch it can use it. If one *can't* use it – for instance, the item is "mage only" and he lacks Magery – his touch doesn't count.
- *All other effects are as usual for that spell.*

"Always On" Items

Certain magic items are "always on." For the item to work, the user must wear or carry it in the usual manner (a ring on a finger, a sword in a hand, and so on). These items don't let the wearer cast the spell – they automatically cast the spell *on the wearer* at no energy cost.

The powers of such items are not always obvious to a new owner. In the case of found items, the GM should try not to drop inadvertent clues to the item's true nature!



For all "always on" items, unless specified otherwise:

- *Ritual, casting time, and energy cost are all irrelevant.* The item does not let the wearer cast the spell – it puts the spell on *him,* at no cost, as soon as he wears or wields the item.
- *The effects last as long as the item is worn or carried.*
- *All other effects are as usual for that spell.*

Buying Magic Items

The cash price of magic items is up to the GM. In fantasy settings where "enchanter" is just another profession

Magic Items Table

Spell	*Energy*	*Item*	*Notes*
Accuracy	See p. 480.	W	[1]
Blur	100 per -1	J, S	[2]
Deflect	See p. 480.	A, Sh, W	[1]
Deflect Energy	200	J, Sh, W	[2]
Deflect Missile	200	J, Sh, W	[2]
Explosive Fireball	1,200	S	[3, 4, 5 ($500)]
Fireball	800	S	[3, 4, 5 ($400)]
Fortify	See p. 480.	A	[1]
Haste	250 per +1	A, J	[2]
Icy Weapon	750	W	[1, 5 ($2,000)]
Lightning	800	S	[3, 4, 5 ($1,200)]
Puissance	See p. 481.	W	[1]
Staff	See p. 481.	S	[1, 4]

[1] Always on. Works at all times without the addition of a Power spell.

[2] Allows the user to cast the spell, but only on himself.

[3] Allows the user to cast the spell exactly as if he knew it himself.

[4] Mage only. If the item has *any* spells with this restriction, it extends to *all* spells on the item.

[5] Cost of magical materials required.

and magic items are for sale in shops, a suggested price is $25 per energy point. For instance, a sword with Accuracy +2 would cost an extra $25,000.

In game worlds like this, enchanters might mass-produce low-energy cost items using the "quick and dirty" method. The GM is the final arbiter of what is possible, but note that a talented enchanter with skill 20 and five partners could spend 50 FP without breaking a sweat, much less spending HP. Realistically, this should *drastically* reduce the price of minor magic items.

At the GM's option, any magic item that a "typical" collaboration of wizards in the setting could enchant with an hour's work costs only $1 per energy point. In the example above, the cutoff might be 50 energy points – one arrow with Accuracy +1 or Puissance +1 would be $25, a magic staff would be $30, and a shirt with Fortify +1 would be $50 . . . but that sword with Accuracy +2 would still cost $25,000.

In game worlds where magic is basically unknown, magic items will not have a fixed, fair price.

In game worlds with few enchanters, magic items will be rare and prized, and even the most minor items will sell for $50 or more per energy point. This is likely to be the case in settings with secret magic – especially if the reason for the secret is an enchanters' monopoly.

In game worlds where magic is basically unknown, magic items will not have a fixed, fair price. If the buyer knows the item is authentic, the seller can often name his price!

In all cases, add the cost of magical materials (if any) and the cost of the item being enchanted to the cost for the enchantment itself.

Damage to Objects

For the purpose of these rules, *any* nonliving, fabricated object – including a character with the Machine meta-trait (p. 263) – is an "artifact." Handle attacks on artifacts just like attacks on living beings (see *Damage and Injury,* p. 377), with the following exceptions:

Rolling to Hit: Roll to hit normally, applying the object's Size Modifier. If an object's SM is not given, find it from the *Size and Speed/Range Table* (p. 550). *Inanimate* objects are often motionless and don't hit back; this makes them good targets for an All-Out Attack. No artifact gets a defense roll unless it is under sentient control (e.g., a robot, a weapon in hand, or a vehicle with a driver).

Damage Resistance (DR): An artifact has a DR that represents its innate "toughness." Wooden or plastic tools, gadgets, furniture, etc. usually have DR 2. Small metal, metal-wood, or composite objects, like guns and axes, typically have DR 4. Solid-metal melee weapons have DR 6. Some artifacts may be *armored;* for instance, a quarter-inch of mild steel is DR 14.

Injury Tolerance: Most artifacts have some level of Injury Tolerance (p. 60). Complex machines are Unliving. Solid objects, like furniture or weapons, are Homogenous. Things like nets and mattresses are Diffuse. See *Injury to Unliving, Homogenous, and Diffuse Targets* (p. 380) for the effects on damage.

Health (HT): This rates the likelihood the object will break under stress or abuse. Most machines and similar artifacts in good repair are HT 10. Swords, tables, shields, and other solid, Homogenous objects are HT 12. Cheap, temperamental, or poorly maintained items get -1 to -3 to HT; well-made or rugged ones get +1 or +2. Characters with the Machine meta-trait use their HT score.

Hit Points (HP): The amount of damage the object can take before it is likely to break or cease to function. For weapons and equipment without a listed HP score, consult the *Object Hit Points Table* (p. 557) to find HP based on weight and construction.

Detailed HP Calculation

Those who have a calculator or spreadsheet program handy may wish to calculate HP instead of using the *Object Hit Points Table.* HP are equal to 4 × (cube root of weight in lbs.) for complex, Unliving objects, and 8 × (cube root of weight in lbs.) for solid, Homogenous ones (round *up*). The GM may alter these values for unusually frail or tough objects.

Effects of Injury

Injury to artifacts works much like injury to living beings (see *Injuries,* p. 418), with the addition of a few special rules.

Less than 1/3 HP left – An artifact damaged this badly may suffer halved (or otherwise reduced) effectiveness, at the GM's discretion.

0 HP or less – Roll vs. the artifact's HT each second while it is under stress (but *not* if it isn't being used): a chair rolls each second someone sits on it, a car rolls each second its engine is running, and so on. On a failure, the object suffers a severe malfunction and is disabled. Most disabled artifacts don't function *at all* until repaired. Sentient machines fall "unconscious." Homogenous objects, such as swords, bend or break, but *might* remain partially usable (see *Broken Weapons,* p. 485). Ropes, cables, etc., are cleanly severed – not chopped to bits.

-1×HP – Artifacts don't "die," as they were never truly alive, but must still make HT rolls to avoid "death" as described under *General Injury* (p. 419). On a failure, the object is *destroyed*. For instance, a sword might shatter instead of merely bending or snapping. A destroyed computer loses all data stored in it – including memories, if it is sapient.

-5×HP – The artifact is automatically destroyed, as described above.

Shock: Most artifacts don't feel pain, but damage can temporarily disrupt their functionality unless they have appropriate backup systems (represented by High Pain Threshold). Apply the usual shock penalty to any *use* of that object. For example, if a vehicle suffers sufficient injury to impose a -3 shock penalty, the driver has -3 to his vehicle operation skill next turn.

Major Wounds: An artifact *can* suffer a major wound, referred to as "major damage." When a machine with many subsystems – like a vehicle – suffers a major wound, the GM may call for a HT roll. On a failure, one or more systems fail. For example, major damage to a tank might knock out its gun or cause a fuel leak. If using a rulebook that supplies a "major damage table" for a specific type of machine, roll randomly and apply the result.

Knockdown and Stunning: A nonsentient artifact ignores these effects. A *sentient* machine (IQ 1+) can suffer these results as a damage-induced malfunction. For instance, stun means the machine doesn't function that turn, but can function again after it recovers.

Crippling and Hit Location: A human- or animal-shaped artifact uses the normal rules; see *Crippling Injury* (p. 420). Other objects with distinct parts (e.g., a vehicle with a body, turret, and wheels) can suffer crippling injuries to specific hit locations; for vehicles, see the *Vehicle Hit Location Table* (p. 554). In all cases, a crippled location is "disabled."

Fragile Objects: Artifacts are often Fragile (p. 136). Those made of paper, dry wood, etc. are Combustible; those that contain *highly* flammable material, such gasoline or hydrogen, are Flammable. Artifacts containing unprotected explosives, sizeable stocks of ammunition, or volatile compressed gas are Explosive. Objects such as glassware, pottery, and televisions are Brittle.

Damage to Shields

Most medieval shields were wood, or wood with a thin layer of metal. After one good battle, a shield was worthless. Do *not* use this rule unless you are willing to tolerate some bookkeeping in the name of more realistic combat!

See *Shields* (p. 287) for the Defense Bonus (DB), DR, and HP of shields. If your shield's DB makes the difference between success and failure on *any* active defense (not just a block), the blow struck the shield squarely, and may damage it.

Apply the attack's damage to the shield. Subtract the *shield's* DR. If no damage penetrates the shield, there is no effect . . . but you experience full knockback!

If damage penetrates the shield's DR, mark it off against the shield's HP. Use the standard *Damage to Objects* rules; ordinary shields are Homogenous, with HT 12. If the shield is disabled or destroyed, it no longer provides its DB, but it still encumbers you until dropped. If it is *completely* destroyed (-10×HP), it falls off.

A powerful blow may punch through your shield! The shield acts as cover, with "cover DR" equal to its DR + (HP/4). Damage in excess of cover DR penetrates the shield and possibly injures you; see *Overpenetration* (p. 408). When using hit locations, roll 1d: on 1-2, apply damage to your shield arm; on 3-6, apply it to the location targeted by the attacker.

Damage to Buildings and Structures

The *Structural Damage Table* (p. 558) gives typical DR and HP for buildings, doors, walls, and similar inanimate structures. Most such structures are Homogenous. Assume that a structurally sound building in good repair has HT 12. Shoddy construction might reduce this to HT 9-11, while a quake-resistant building might have HT 13-14.

Any building "disabled" by going to 0 HP or less and failing a HT roll has one or more large breaches and loses electrical power, if any. At -1×HP or less, it must make HT rolls to avoid collapse – just as a character would roll to avoid death. It collapses automatically at -5×HP.

Anyone in a collapsing building takes 3d crushing damage, plus 1d per story overhead. A victim can attempt to dive for cover behind a structural member – see *Dodge and Drop* (p. 377). On a success, he receives DR equal to the building's exterior wall DR against this damage, but is still trapped in the rubble. On a critical success, he is totally unharmed!

Repairs

Most artifacts cannot heal naturally (although there are exceptions; e.g., exotic "living metal" machines). If they become disabled, they cannot recover until repaired. If they are crippled, the relevant parts require repair or replacement – they can't recover on their own.

To fix a damaged, disabled, or malfunctioning device requires a suitable skill: Armoury, Electrician, Electronics Repair, Machinist, Mechanic, etc. See individual skill descriptions for what each skill covers. The GM is the final judge of the necessary skill.

Minor Repairs: Each attempt to repair damaged equipment that still has positive HP requires half an hour and a successful skill roll. See *Equipment Modifiers* (p. 345) and *Time Spent* (p. 346) for common modifiers. As well, if the device costs $1,000 or less, roll at +1. Roll at -1 if it costs $10,001-$100,000, at -2 if it costs $100,001-$1,000,000, or at -3 if it costs over $1,000,000. Success restores 1 HP times the margin of success (minimum 1).

Major Repairs: An artifact reduced to zero or negative HP requires spare

parts that cost 1d × 10% of its original price. After obtaining these parts, use the rules above, except that all rolls are at an extra -2.

Replacement: If a device is *destroyed* (failed a HT roll to avoid destruction, or went to -5×HP or less), it is beyond repair. Replace it at 100% of its original cost.

Hiring Help: Those incapable of doing their own repairs can hire technicians. A typical rate is $20/hour – or higher, if unusual skills are required. Typical skill level is 9 + 1d.

Breakdowns

Most real-life equipment failure is due to mistreatment or routine wear – not combat damage. The GM may apply these rules to any complex artifact (anything Unliving).

Maintenance

Artifacts that have moving parts, that are unusually complex, or that are routinely under stress require regular maintenance to work properly. This *definitely* includes all weapons and vehicles, precision optics (cameras, night-vision gear, etc.), and any other equipment more elaborate than a screwdriver or a knife.

Machinery like this requires periodic "maintenance checks" against a suitable technical skill, as explained for the Maintenance disadvantage (see p. 143). The frequency of such maintenance varies. Most commercial ground vehicles require one or two man-hours of maintenance a week. Weapons, especially guns, need cleaning every day or so of use. Large, complex items, such as factories and fighter jets, require numerous man-hours of maintenance per day – if not *constant* care.

Missed or failed maintenance checks result in HT loss. This HT loss is cumulative, and affects all HT rolls described under *Effects of Injury* (p. 483) and *Slime, Sand, and Equipment Failure* (below). To restore lost HT, use the *Repairs* rules, above. Treat each point of HT restored as a separate major repair.

This rule does *not* apply to items without moving parts, equipment in storage (not just sitting out in the open!), or any artifact just sitting there, unused, if it has a sealed case.

Slime, Sand, and Equipment Failure

Harsh conditions may result in more frequent breakdowns, regardless of maintenance. Whenever an artifact that requires maintenance is carelessly exposed to the elements (e.g., dropped in a swamp, left out in a sandstorm, or buried in volcanic ash), make a HT+4 roll for it. Use its *current* HT – including any reductions for missed maintenance. If the item lacks a HT score, assume HT 10. In extreme environments (desert, swamp, jungle, etc.), make one extra roll per item per day, in addition to any rolls for specific mistreatment.

On a failure, the equipment breaks down, jams, or otherwise fails; it cannot function *at all* without minor repairs. On a critical failure, it requires major repairs. The GM may wish to keep the results secret and let the operator discover the malfunction during normal use!

Modifiers: +1 if the PCs take significant time out each day to clean and maintain their gear (GM's judgment); -1 or -2 if the abuse or the environment is unusually brutal.

Broken Weapons

If a weapon is *destroyed* – that is, it failed a HT roll at -1×HP or below, or went to -5×HP – it is completely useless. But if it is just disabled, it *might* still be usable.

An *extremely light* weapon (anything weighing 1 lb. or less, such as a dagger) or a *missile* weapon (sling, bow, firearm, etc.) is useless even when merely disabled.

Other weapons sometimes remain *partially* usable when disabled. Roll 1d and consult the appropriate paragraph below. Where the weapon effectively becomes a different kind of weapon, figure skill and damage according to the new weapon type!

Axe/Mace Weapons: On 1-3, the head breaks off, leaving you holding a light club. On 4-6, the weapon is smashed beyond use.

Polearms: On 1-2, you're left holding an 8-foot pole; treat as a long spear that does thrust+2 *crushing* damage. On 3-4, you're left with a quarterstaff, and there's a very clumsy (-4 to hit) axe with reach 1 lying in front of you. On 5-6, you're left with a light club and there's a clumsy (-2 to hit) "great axe" with reach 2 lying on the ground.

Rapiers and Smallswords: On 1-3, treat a broken smallsword as a dagger and a broken rapier as a smallsword; damage is still impaling! On 4-6, the blade snaps off at the hilt; the weapon is useless.

Spears: On 1-3, the head breaks off where it joins the shaft, leaving you with a quarterstaff. On 4-6, the spear breaks further down; you have a baton, and there's a spear with reach 1, doing normal damage, lying in front of you.

Swords (broadswords, greatswords, katanas, shortswords, etc.) and Sabers: On 1-3, the blade breaks off at the halfway mark, losing its tip. It can still make a cutting attack at -2 to damage, but it is useless as an impaling weapon: a thrust does thrust *crushing* damage. If the sword was reach 2, it is now reach 1. On 4-6, the blade snaps off at the hilt; the sword is useless.

Two-Handed Axe/Mace Weapons: On 1-3, the head breaks off where it joins the shaft, leaving you with a quarterstaff. On 4-6, the weapon breaks further down; you have a light club, and there's a very clumsy (-4 to hit) axe with reach 1 lying in front of you.

Other Weapons: Use the closest weapon listed above. The GM has the final say, and may choose to roll if there is more than one way for the weapon to break.

Chapter Eighteen

Game Mastering

The Game Master (GM) is the referee of a roleplaying game. But that's putting it too simply. He is like a mystery writer . . . a storyteller . . . an umpire . . . a cosmic bookkeeper . . . the "house" at a gambling casino . . . and (to the characters) a minor deity.

The GM is the final authority. Rules are guidelines . . . the designers' opinion about how things *ought* to go. But as long as the GM is fair and consistent, he can change *any* number, *any* cost, *any* rule. His word is law!

Many things are left up to the GM to decide. A game world gets realism from its completeness. The GM adds all the details that make it come alive. With a good GM, even a *bad* set of rules can be a lot of fun. With a *good* set, the sky's the limit. We semi-modestly believe that ***GURPS*** is a very good set of rules indeed – but without the GM, the rules are nothing.

Read on . . .

Customizing the Rules

Throughout ***Basic Set,*** we have included assistance for GMs who wish to tailor the rules to their liking. For quick reference:

- *New Advantages* (p. 117), *New Disadvantages* (p. 165), *Creating Techniques* (p. 229), *Alternative Magic Systems* (p. 242), *Other Powers* (p. 257), and *Creating Templates* (Chapter 15) provide guidelines for creating and customizing character abilities.
- *Character Development* (Chapter 9) presents options for handling character advancement.
- *Tactical Combat* (Chapter 12) and *Special Combat Situations* (Chapter 13) add optional extra detail to *Combat* (Chapter 11) for action-oriented campaigns.
- Sections titled "Optional Rule" offer tested, *optional* add-ons. Examples include *Limited Enhancements* (p. 111), *Wildcard Skills* (p. 175), *Malfunction* (p. 407), *Maintaining Skills* (p. 294), *Influencing Success Rolls* (p. 347), and *Extra Effort in Combat* (p. 357). Even a novice GM can quickly customize the rules by specifying which options are "turned on" in his campaign.

Choosing a Campaign Type

Before you make any other decisions, you should discuss the *style* of your campaign with your players. There are many alternatives:

- "By-the-book" vs. "tweaked" (with many GM rules interpretations).
- "Realistic" vs. "cinematic" (see *The Cinematic Campaign,* p. 488).
- "Humorous" vs. "serious."
- "Puzzles and mysteries" vs. "combat and adventure."
- "Death is common and permanent" vs. "death is rare or easily remedied" (by magic or high technology).

All of these are legitimate approaches to roleplaying, but if the players and GM have different expectations, *everyone* will end up disappointed. The game should be a story that develops in play – not a battle between the players and the GM*. To achieve this, a little mutual understanding is necessary. A few minutes of pre-game discussion can increase everyone's enjoyment.

"I want a story about great battles and wars and bravery and heroes and villains."

"I see . . . And what does your sister want?"

". . . She says she wants to hear a true story."

"Very well, then. I will give you both what you want. A story about great deeds. About armies of light and soldiers of darkness. About the places where they lived and fought and loved and died. About great empires and terrible mistakes. A true story."

– Luc Deradi and Emperor Londo Mollari, ***Babylon 5: In the Beginning***

Power Level

A crucial step in choosing a campaign type is determining the number of character points the PCs start out with. This has a direct impact on the campaign style: powerful heroes stampede through realistic challenges with cinematic ease, while a lighthearted romp for supers might be a deadly nightmare for normal humans.

As the GM, the surest way to choose a suitable power level is by "feel." During the course of your first few campaigns, you'll learn how your players spend their points – and how their PCs cope with the adventures you cook up. You can use this experience to choose a good power level for your next campaign. But that won't help you *this* time, so you might wish to choose the most appropriate power level off the list below.

Some example power levels, with suggested starting points for the heroes:

Feeble (under 25 points): Small children, mindless thralls, zombies, etc. Unsuitable for PCs in any but the darkest or most humorous of campaigns.

Average (25-50 points): Ordinary folks, such as accountants and cab drivers.

Competent (50-75 points): Athletes, cops, wealthy gentry . . . anyone who would have a clear edge over "average" people on an adventure.

Exceptional (75-100 points): Star athletes, *seasoned* cops, etc. With a little experience, these individuals could become full-time adventurers.

Heroic (100-200 points): People at the realistic pinnacle of physical, mental, or social achievement; e.g., Navy SEALs, world-class scientists, and millionaires. Most full-time adventurers *start* their careers at around 150 points.

Larger-than-Life (200-300 points): Leading roles in kung fu movies, fantasy novels, etc. Typical of the professional adventurer who has already made a name for himself.

Legendary (300-500 points): Protagonists of epic poems and folklore. This is the best power level for "gritty" supers and for mortals who rub shoulders with gods.

Superhuman (500-1,000 points): Those who have transcended humanity (e.g., supers who can take on tanks barehanded) and powerful creatures of fantasy (e.g., dragons who can best entire armies).

Godlike (over 1,000 points): True demigods who can do as they please most of the time.

High-Powered Campaigns

Player characters built on a high point total can tax the GM's ability to provide meaningful challenges, weaken the integrity of the game world, and push the limits of game balance. As a result, high-powered gaming merits special discussion.

"High-powered" is a subjective term – these guidelines assume PCs with well over 200 points. Even so, most of this advice stands at *any* power level!

Character-Design Problems

Some players spend *lots* of points in one area, resulting in PCs with abusive levels of ability. Others use their ample points to prepare for almost every conceivable situation, thereby poaching on the territory of more focused PCs. And still others try to do both, investing many points in a single trait and then coming up with "creative" ways to use that ability in place of almost everything else. A few countermeasures:

Offer a broad selection of abilities. In a high-powered game, there should be all manner of expensive options available to soak up points: great wealth, exotic advantages, magic, psionics, powerful racial templates . . . preferably *several* of these. Let your players know what is available, and use the expanded rules for special abilities whenever possible.

Divide starting points between "base points" and "experience points." Consider giving the players only a fraction of their starting points to begin with. Ask them to create focused, balanced characters for your approval. Once you approve a PC, give the player the rest of his points to spend *as if they were earned in play* – which means he cannot acquire large numbers of new advantages, or new skills that don't fit his character story.

* For those who *want* a battle between the players and the GM, we recommend our ***Munchkin RPG*** series: **www.sjgames.com/munchkin/rpg/.** Really.

Require certain abilities. Heroes can be worth a lot of points without giving the players control over every last point. A modest discretionary budget in combination with a fixed set of abilities works well. For instance, every super might have a package of "mutant abilities" (effectively a racial template) *and* get 200 points to spend however he wants; every commando might start with a 100-point "basic training" template *and* get 50 points to customize with.

Require certain categories of abilities. If required abilities seem too rigid, consider requiring PCs to have a certain number of points in a few *classes* of abilities. For instance, secret agents might have to spend at least 10% of their points on each of "social traits," "combat abilities," and "technical skills"; supers might have to spend at least 20% of their points on each of an attack, a defense, and a movement power.

Limit attribute levels. Attributes affect so many things in the game that a PC with lots of points in attributes can sometimes cause problems. To combat this, set an upper limit on individual attribute scores or on total *points* allowed in attributes.

Emphasize the value of relative skill level. When a character concept calls for many skills, there is a temptation to buy high attributes and put relatively few points into skills. This might be a cheap way to get good skill levels, but it leads to "attribute inflation." To encourage more balanced designs, tell your players that you intend to make heavy use of the *Relative Skill Level* rules on p. 171.

GM Limitations

Even *balanced* high-powered PCs can wreak havoc on your adventure or game world if you aren't ready for them! Here are a few ways to prepare for a high-powered game:

Know the heroes' abilities. There is a lot of information on the character sheet of a powerful PC. If you are not familiar with all of it, the game can grind to a halt when the player invokes a rarely used ability. Even worse, a forgotten ability can lay waste to your careful plans!

Know the rules. The more abilities the heroes have, the greater the number of special rules that will see use during the game. Do your reading *before* the game begins. This keeps things moving and prevents players who like to abuse high-powered abilities from ruining the game for everyone.

Fit the challenges to the heroes. Read through your campaign notes with the PCs' character sheets in hand. This simple procedure will often alert you to foes, mysteries, and dangers that will not challenge the heroes' abilities, and gives you an opportunity to patch these holes before the players drive trucks through them.

Present a variety of challenges. Make sure the heroes cannot meet every challenge with Guns-20 or Fast-Talk-25. Run the game in such a way that single-focus characters have to rely on their friends for help. At the same time, be sure that a few success rolls involve sufficiently large penalties that jack-of-all-trades characters have to defer to the true experts in the group.

Know the stakes. Campaign power level doesn't just determine the heroes' abilities and the scale of the threats they face – it sets an upper limit on any imbalance between the two. Challenges that are merely amusingly weak or annoyingly tough in a low-powered game might become boring or *lethal* when scaled up to a higher-powered one. Be ready to think on your feet! If the heroes are chewing up the opposition so easily that the players are yawning, have tougher reinforcements show up; if they are getting mauled, give them a lucky break.

Be flexible. Powerful PCs can do *more,* which makes it tricky to second-guess them. Again, you must think on your feet. Don't penalize your players when they finesse your plot with their abilities . . . but when they use their powers as blunt instruments to knock holes in the plot, be ready to come up with creative countermeasures that look like you planned them all along.

System Limitations

GURPS is designed to work at any power level, but it is impossible to offer a special rule for *every* combination of "problem abilities" possible in a high-powered game. When the rules do not handle a situation well, try one of these fixes:

Use optional rules. In many cases, optional rules exist specifically to deal with high-powered characters – for instance, *Maintaining Skills* (p. 294). Such rules can often make the difference between a playable and unplayable game.

> *"Psychic, though? That sounds like something out of science fiction."*
> *"We live on a spaceship, dear."*
> *– Wash and Zoe,* ***Firefly***

Exercise judgment. If a rule implicitly assumes a certain power level, and the PCs are beyond this, feel free to extrapolate. For instance, *Task Difficulty* (p. 345) lists penalties down to -10, but if your campaign includes heroes with skills of 25 or 30, there is nothing wrong with assigning a penalty of -15 or -20!

The Cinematic Campaign

For the most part, ***GURPS*** stresses realism. Heroes can get disappointed, injured, sick, or even dead. So it goes. The GM is expected to stretch realism in an emergency (defined as "whenever realism would ruin the game"), but the rest of the time, realism rules.

The "cinematic" campaign is one where realism *doesn't* rule – because if it did, it would constantly get in the way of the story. In a cinematic campaign, swashbuckling heroes can defeat dozens of foes because the story calls for it. Spacecraft whoosh or roar in the silence of space because fast things whoosh and powerful engines roar. *Rightness* always overrules mere *correctness.*

The cinematic style of play requires both players and GM to understand

and agree with this principle, and to cooperate in telling the story. ***GURPS*** includes some rules that can help – but everyone must realize that an epic story is apt to transcend the rules.

Cinematic Power Level

It is possible to run a cinematic game at *any* power level. Cinematic games are frequently high-powered games – and vice versa – but "cinematic" is a *style,* not a point level. Crack commandos in a grimly realistic campaign might have huge point totals, while many of Robin Hood's Merry Men would come in under 100 points yet be quite at home in a cinematic campaign.

Still, cinematic heroes should be markedly more capable than ordinary people . . . and perhaps even more talented than most heroes. Players find it easier to believe in cinematic stories if their characters are capable enough to accomplish what the story calls for them to achieve without *too* much "fudging" on the part of the GM.

How the players spend their points is somewhat more important. ***GURPS*** provides many abilities suitable for cinematic gaming. Epic heroes often have a Destiny. Most possess "luck" – although Daredevil and Serendipity are often more appropriate than plain Luck. The GM should permit Gadgeteer, Gizmos, Gunslinger, Rapier Wit, Trained By A Master, Weapon Master, and Wild Talent. He should also allow any skills associated with these traits, and might even want to use "wildcard skills" (see p. 175).

Cinematic Characters

Advantages and skills do not, by themselves, create cinematic heroes. The player must have a character concept that turns the *statistics* on the character sheet into a *person.* In particular, epic heroes need two things:

A motivation. Love and honor are classic, but not all cinematic characters are honorable, good, or even *nice.* Evil dreams and goals – such as blind, unreasoning vengeance – are perfectly acceptable as long as they are *appropriate.* However, obsession can lead to a simplistic character. The player must make a conscious effort to round out his character's personality.

A place in the world. Cinematic heroes have loved ones, mentors, lovers, ex-lovers, enemies, birthrights, family curses, and so on. They do not simply appear, play their role, and vanish – they need to be part of the game world, since their story is part of what *defines* the game world.

Cinematic Play

Cinematic campaigns have certain conventions:

A cinematic world is ordered. Events have reasons – reasons that relate to the story. These might not be obvious, but few things happen arbitrarily and nothing *significant* happens at random. This doesn't mean that the plot has to be linear or predestined. Reversals of fortune are common setbacks, and even if the final goal is set in stone, the way to get there is not.

The only details of importance are those that directly advance the story. Unnecessary detail is the bane of cinematic gaming. The GM must know the difference between important details and irrelevant ones. For instance, if the heroes must cross the Burning Wastes to reach the Dark Tower, they *will* find enough water along the way; the story would be very short if they didn't, and it would not advance the story much to play out their searches.

The GM must be prepared to overrule any die roll. If the dice determine every outcome, the players learn to put probability ahead of dash and style. Furthermore, the dice can be as tyrannical as a heavy-handed GM; the players are likely to revolt if a brave adventurer dies suddenly from a random disaster! On the other hand, the GM must not overrule the dice so often that the players feel as though nothing they attempt can change the outcome of the story.

The GM must allow dramatic actions to succeed. If the hero tries to swing from the chandelier, the player must have confidence that the GM will not sneer at him and announce that he has broken his back – and must now play a quadriplegic – because his hands slipped off the wax caked onto it. The GM *certainly* shouldn't bog down play by requiring endless skill rolls modified by the dimness of the tavern!

The players must not take inappropriate advantage of conventions. Yes, the heroes will make it across the Burning Wastes – but they must still make proper preparations. A player who remarks, "Don't worry about water. We're heroes; we're sure to find some," is playing in the wrong campaign. The players must provide dialog and attitudes in keeping with the style of the campaign.

The GM must handle heroic deaths satisfyingly. An epic death cannot be purposeless. If a PC dies, he dies *gloriously* – bravely saving his comrades' lives, or taking an impressive number of foes with him. Fate (in the person of the GM) will be generous. There is no need for stinginess, as the PC won't be around to be a problem later on! The players must not abuse this convention. A dying hero might be almost invincible . . . but only if he's selling his life to take action that directly advances the plot.

Damn the Rules, Full Speed Ahead!

Many gamers prefer a "rules-light" game, in which the action moves along quickly rather than being bogged down in die roll after die roll. This is similar to cinematic gaming, but it is possible to have a quick, *realistic* game just by choosing which rules you use. For instance, combat slows down a lot when the GM uses hit locations or critical hit and miss tables – so leave them out. Rather than fuss with the detail of selecting a dozen skills to round out a character, use a wildcard skill – and maybe a Talent or two (p. 89) to boost that skill even more. If the GM and players want a free-wheeling, fast-paced game, it's easy to do – just pare ***GURPS*** down to its essential elements and be willing to make a lot of judgment calls on the fly.

Starting a Game Session

There are a few things the GM should do before play actually starts, to make things easier for himself *and* the players:

Introduce the characters. If you are in the middle of a continuing campaign, you can skip this step! But if you are just starting out, each player should have the opportunity to describe "himself" or "herself." If there is an artist in the group, he may help by drawing the characters as they are described.

Check for skills, etc. improved since the last play session. In a continuing campaign, the PCs earn character points that they can spend to improve their abilities. Sometimes the PCs can study, work at jobs, etc. *between* play sessions. Therefore, some characters may have better skills or abilities than they did last game session. This is the time for the players to work out such matters with the GM. (If everyone in the group has net access, it might be better to work on this via e-mail between games, to avoid slowing things down.)

Fill out the GM Control Sheet. While the players are getting to know each other (or each other's characters), the GM should check over the character sheets, make sure everything balances, and copy necessary information onto a *GM Control Sheet*. This reference lists attributes, secondary characteristics, special advantages and skills, etc. for each PC. When the GM rolls in secret to determine who sees something, who *understands* something that everyone sees, who resists a spell, or who that bad-tempered dwarf takes a dislike to, this sheet is valuable.

Brief the players. Tell them what's going on, give them some idea what the adventure will be about, and (in a continuing campaign) refresh their memory about the last game session. There are many ways to do this. You can always just *tell* them. But it's much more fun to start play and *then* "set the scene." Let the characters immediately find a map or old book . . . meet someone who tells them an interesting rumor . . . befriend someone in need of help . . . witness a wrong that needs righting . . . or whatever.

Let the game begin!

Advance Preparation

There are several things for the GM to do well in advance, before the players arrive on the scene:

Prepare the adventure. If you are playing a prepared adventure, all you need to do is read through it, and possibly make up some character sheets. But if you are designing your own adventure, you may spend weeks of work – a labor of love – before it is ready for the players. In any event, be sure you're fully familiar with the adventure *before* the players show up!

Brief the players about the adventure. If your players are already familiar with the system, you should tell them in advance (*before* they arrive to start the game) what sort of characters are "legal" and how much money, equipment, etc. they are allowed – and perhaps give a hint about useful skills. If everyone has his character made up in advance, you'll be able to get right to the action when the players arrive.

Set up the play area. You need pencils, paper, and dice; maps and miniatures if you are using them (and a table to play them on); and a supply of snacks (for yourself, if not for the whole group)!

Who's Got the Sheets?

Much of the advice in this chapter assumes that you, as GM, have access to the character sheets during the planning process, or at least are maintaining a detailed GM Control Sheet. Some GMs ask the players to leave their character sheets with them, both because it helps them plan and because then the players can't lose them. However, there are situations (for instance, a campaign in which GM duties rotate through the group) where that's impractical – and some players really don't like to give up that much control. You should *at least* have a control sheet with each PC's primary abilities, updated as major changes happen. It's not as good as having the actual character sheets, but it's much better than trying to plan and run the game blind. Of course, a photocopy or digital copy is even better!

To Screen or Not to Screen?

Many GMs prefer to use folders, books, or other opaque items to screen their notes and die rolls from the players. Others find that it distances them from the game, and like being right out with everyone else. This is largely a matter of taste; we point out only that there are situations in which a GM should roll secretly, and you should have some easy way to do that.

Maps

The GM may wish to prepare maps in advance, to help him plan and to keep track of events. He may also give maps to the players as clues. And the players themselves might want to map their progress – whether it be through jungles, dungeons, or downtown New York City – to make sure they can find their way back . . .

Maps in ***GURPS*** use hexagons, or "hexes," to regulate movement and combat. Each hex is adjacent to six other hexes. See *Hexes* (p. 384).

Player-Made Maps

Whenever the PCs enter an area for which they have no map – be it a dungeon, a laboratory complex, or a network of jungle trails – the players will want to map it themselves. (That is, they will if they are smart!)

However, mapping is not trivial. Unless the party carries a tape measure and spends a lot of time using it, you should *not* tell them, "You go 12 yards down the stairs and turn north. The tunnel is seven feet wide and nine feet high. It goes north for 120 yards and then turns northeast. In another 20 yards, it opens out into a room 10 yards by 6 yards." That sort of information would require several minutes per measurement and a skill roll against Mathematics (Surveying) – not just a stroll through the tunnel!

Instead, give them information like this:

"You walk down the stairs – they go down a little farther than an ordinary flight of stairs. At the bottom, there's a tunnel going right. It's wide enough for two to walk side by side, and so high you can barely touch the ceiling with your swords. It goes on for a ways in a fairly straight line . . ."

"How far?" asks a player.

"Is somebody pacing it off? Okay. Around 128 paces. It then turns to the right a bit . . ."

"How much?"

"Did you bring surveying tools? Anybody got Absolute Direction? No? All right. Standing at the intersection, with the old tunnel behind you at six o'clock, the new tunnel looks like it turns away at between one o'clock and two o'clock. Got that? Now, it goes along for another 19 or 20 paces, and then opens out into a big room. The door is in the middle of the long wall. The room is roughly rectangular. From where you stand, it might be 10 yards long, 6 or 7 yards wide."

Very different, yes? But also much more realistic. The players receive only the information the PCs actually get with their senses. In the example above, the GM fudged all the distances a little bit, assuming that whoever was pacing would have a standard pace a bit less than a yard.

If you do this, the players might come up with ingenious ways to measure time and distance. Let them!

Note that if mapping is difficult in ordinary circumstances, it becomes next to impossible if the party is in a hurry! Suppose the group is being chased through the area described above. The GM would say:

"Okay. You're running? Stop mapping. Here's where you go. Down the stairs! Turn right! Run for several seconds! The tunnel bends to the right! Run a little farther! You're in a room!"

And so on. When the party stops running, they can sit down and try to remember where they went. (Eidetic Memory is a big help here!)

Mapping Overland Journeys

If the PCs are traveling through unexplored territory, the players may wish to keep a large-scale map. The GM may make it automatic if they are following rivers, canyons, and the like. If they are trekking through featureless wastes, or trying to map a specific tiny inlet of a great river, making a map good enough for others to follow requires a Cartography roll. This defaults to IQ-5, Geography-2, Mathematics (Surveying)-2, or Navigation-4. Absolute Direction is good for +3 to the roll.

This can be an adventure in itself: the party is sent to explore and map the trackless waste, virgin planet, mysterious dungeon, steaming jungle, dead city, or whatever.

Travel Maps

Draw these maps to any convenient scale. Examples include maps of continents, highways, and cities. These are purely for information; they are not "playing boards." In a modern adventure, the players have access to travel maps. In a far-past or far-future campaign, the travel map might be the GM's secret. (*Finding* a map can be a great adventure objective.)

Area Maps

The standard scale for these maps is 1" = 18' (6 hexes). Each hex is still one yard across – it is just drawn to a smaller scale. Use this scale to map an entire building, dungeon, arena, etc., and use a different sheet for each floor or level, indicating shafts and stairways. Mark each room (or other point of interest) with a letter or number for use with a map key.

For each room, the map key should give:

- Its size (although this might be clear from the area map).
- A general description.
- A description of the people or creatures in the room, if any. This may be as simple as "Two ordinary wolves," or as complex as "This room is empty except between midnight and 9 a.m., when two guards are there. There is a 50% chance that each one is asleep. They are ordinary guards from the Character List, but one of them also has a gold ring worth $200. They will surrender if outnumbered more than 2 to 1, but will not cooperate, even if threatened with death."
- If necessary, any special notes about the room, and descriptions of anything that might be found if the room were examined *carefully*.
- If necessary, a room map (see below) to show the precise location of furniture, characters, etc.

The GM should keep this sort of map secret from the players – although they can try to make their own map. He may wish to place a marker on the area map to show where the party is at any given moment.

Room Maps

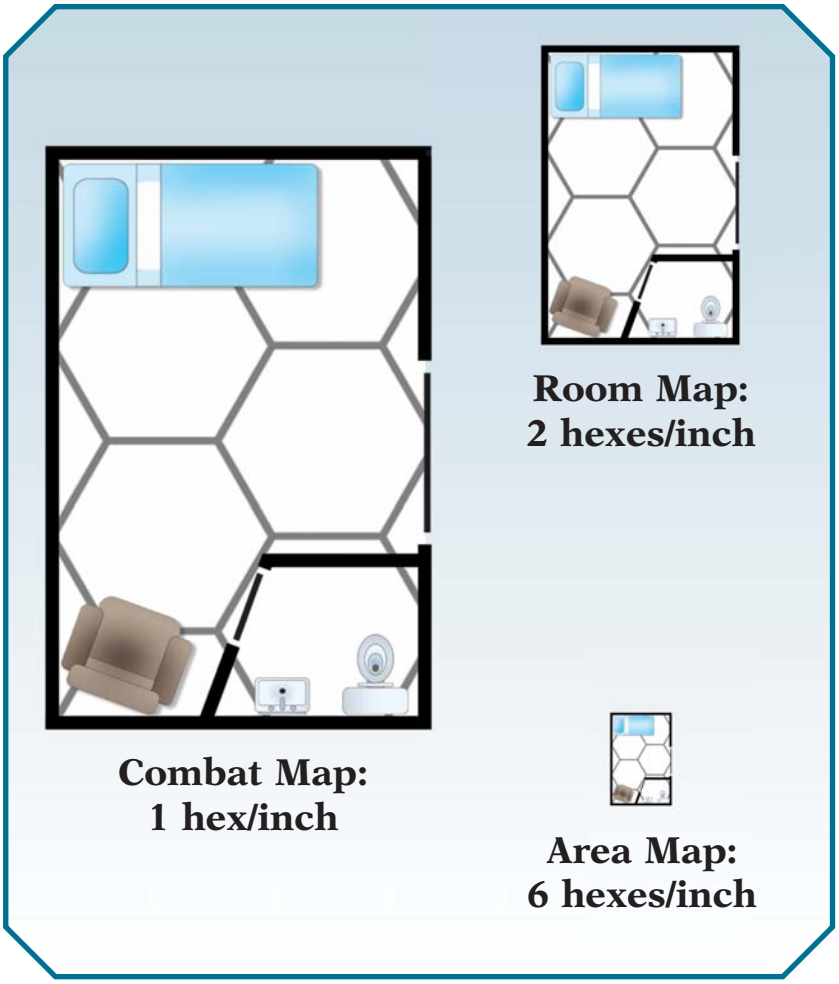
Draw these maps to any convenient scale. A useful scale is 1" = 6' (2 hexes) – half the size of a combat map. Use these maps when you need to sketch a room in some detail but do not want to draw up a combat map.

Combat Maps

Combat does not require combat maps – although they can be handy to help the players visualize the action. *Tactical Combat* (Chapter 12) *does* require combat maps.

Combat maps are drawn to a scale of 1" = 3'; each hex is three feet, or 1 yard, across. When the characters enter an area where combat might occur, lay out a map and have them place their figures on it to show exactly where they are. If combat occurs, play out the fight on the combat map.

Treat any partial hex as equal to a full hex. This allows a realistic representation of either a hex-walled room or an irregular cavern.



Running the Game

The GM's task during the game is simple. All he has to do is listen to the players describe what *they're* doing, then use the rules of the game to tell them what happens, so they can describe what they want to do next . . . and so on. Well, perhaps it's not *quite* that simple!

The sections below will help you, as GM, determine "what happens next" in a variety of situations. But the most important things are not "rules" at all, but guidelines for good GMing.

Use common sense. When *any* rule gives a silly result, follow common sense instead. No matter how much we playtest, *no* rules are perfect – including these. Don't let the players turn into "rules lawyers." *Your* decision is final.

Be fair. Give all the players an even chance, and try to keep all of them involved in the action. And when you change a rule or make a special exception, apply it equally to everybody.

Keep the action moving. A roleplaying game is like a story. As the GM, you're the author. Your main characters have free will, and often the story goes where *they* want it to go! But when things lag, it's your job to liven them up. Improvise an encounter . . . introduce a clue . . . do *something* to get things back on track, or to help the players get some ideas.

Don't lean on formulas. This *definitely* includes the various formulas in the rules! Use them when you need them – but don't let them become crutches. And don't let adherence to a formula spoil the game. For instance, if the hero really *needs* to lift that rock to keep the action going, let him lift it.

Thou shalt not kill. Not much, anyway. In some RPGs, life is cheap. A GM doesn't think he's doing a good job unless he slaughters half the party within the first hour of play. But most players don't find this fun. ***GURPS*** allows complete, detailed character creation. It's a shame to turn such carefully crafted characters into cannon fodder. Remember: good adventure stories don't kill off their heroes without a reason. This is discussed in greater detail below; see *Keeping The Characters Alive* (p. 496). Of course, if you and your players *really* like hack-and-slash games, go right ahead . . .

Settling Rules Questions

In any question of rules, the GM's word is *law.* The GM decides which optional rules to use, and settles any specific questions that come up. A

good GM discusses important questions with the players before deciding – and a good player accepts the GM's decisions.

The GM should know the rules thoroughly. When the rules do not cover a situation – or when a decision about the "real world" is needed – the GM can use several techniques:

Success rolls. A "success roll" is a roll that tests one of a character's attributes, skills, etc. – see Chapter 10. Use a success roll when a question arises about someone's ability to do some particular thing.

Random rolls. A random roll is often best for a question like "Are the keys in the car?" or "Does one of the soldiers have a horse the same color as mine?" The GM decides what the chances are, then rolls the dice. Some things have a 50-50 chance; others are highly unlikely. The GM decides what the odds should be, and leaves the rest to fate.

Arbitrary fiat. You don't have to use the dice at all. If there is only one "right" answer to fit the plot of the adventure – then that's the answer. "Luckily for you, the grenade bounced down the stairwell. Nobody was hurt. But now the guards are alerted!"

Dealing with the Players

Players are *individuals,* with opinions and biases, and there will be times when the GM needs to keep the peace. Here is some advice for doing just that.

Arguments

As the GM, you should *always* listen to reasonable suggestions from the players – and if you make a mistake, you should be willing to reverse your decision. But *you* are the final authority, and the court of last resort. If you make a decision that you think is fair, and someone insists on arguing . . . invite him to leave the game, temporarily or permanently. Games are fun. Arguments aren't. (The other players may step in and shut this down before you get a chance. Let them!)

"I changed my mind!"

Certain players try to "take back" actions when they suffer bad consequences. Don't let them do it unless they could *realistically* have changed their minds in time to avoid trouble.

If George says, "I'm dropping the nitroglycerine," and you roll the dice and tell him, "It just blew up. Take 3d damage," George can't take it back. But if George says, "I'm setting fire to the building," and then changes his mind – let him. "All right. You lit the match and found some newspaper, but then you changed your mind. Stomp out the newspaper." Buildings don't burn that quickly, so George had time to reconsider. (If George had used a flamethrower, of course, it would be different!)

In general, if a player announces that he is performing an *irrevocable* act . . . he really did it, and that's that.

Follow the Leader

If the players select a leader, the leader should speak for the party, telling the GM what they are doing – except in emergencies. Then, it's every man for himself. The leader can give orders, but he *cannot* enforce them unless his *character* can enforce them in the game world. If the leader appeals to you for help, tell him, "You're the leader. *You* keep discipline."

Table Talk

If your players are too noisy, tell them, "If you say it, your character says it." This means that the *characters* cannot be stealthy unless the *players* are quiet, and the *characters* cannot make a speedy decision unless the *players* decide quickly. Enforcing this rule can save the GM's sanity, especially if he has a large group.

Playing the NPCs

A "nonplayer character" (NPC) is anyone played by the GM. The GM gets to play dozens of characters throughout an adventure – from chance-met travelers to powerful patrons and villains.

As the GM, you may create your NPCs in any way you like. You should design *important* NPCs just like player characters, but you can give "cannon fodder" and "bit players" logical abilities by using templates (see *Character Templates,* p. 445) or by assigning appropriate traits on the spur of the moment without regard to point value.

Once you create an NPC – major or minor – *play the role!* Your NPCs will try to earn money, look important and admirable, protect their skins, and achieve their goals – just like anybody else! The more skilled you become at roleplaying, the better a GM you will be and the more fun you (and your players) will have.

Some of your NPCs will automatically be friendly to the PCs; others will be "natural enemies." These reactions will be preset when you work out the scenario. But many NPCs have no "automatic" response to the PCs. Instead, you will use the *Reaction Table* (p. 560) to see how they respond.

Playing the Adversary

When the GM plays an NPC who is an enemy of the PCs, he should try to limit his knowledge to those things that the NPC would really be aware of. The GM knows all about the party's strengths and weaknesses – but their enemies don't. One good way to solve this problem is to have another person play the adversary characters.

The GM should tell the Adversary as much as possible about the characters he is to play. But the Adversary should know no more than is "realistic" about the overall situation. In particular, he should know very little about the PCs and their abilities – especially at the beginning of an adventure! For total realism, you might even want *two* Adversary players – one for knowledgeable enemies who are familiar with the party, and one for stupid cannon fodder.

The Adversary is like an "assistant GM." His job is to roleplay the foes as well as possible. He should *not* play them as mindless killing machines (unless they really are). If the "appropriate" thing for those particular enemies to do is to attack, they should attack. But they might also throw rocks from ambush, shout insults, or even run away immediately!

In any disagreement between the Adversary and the GM, the GM's word is law. But a good GM gives the Adversary as much leeway as possible, and takes any disagreement into another room to avoid distracting the players.

Playing the Adversary is a good way to build up experience if you would like to be a GM someday.

Gaming Online

If you don't have a gaming group in your area, or you still want to game with college buddies who are scattered all over the country (or the world!), you may want to try roleplaying online. There are a number of ways to go about it:

Play by e-mail (PBEM). In this style of play, the GM describes the scene for everyone. Each player then sends his next "move" to the GM, who compiles everyone's moves, figures out what the NPCs are doing during that time, resolves all the actions, and sends out the next installment.

Advantages: no one is forced into hasty action; just about everyone with *any* sort of net access has e-mail, and it works just as well on a 10-year-old computer as it does on the newest model; the GM can attach files to the messages if he wants to show the players something their characters would see; games aren't held up waiting on the perpetually late player to arrive; and no one can steal your munchies.

Disadvantages: it is a *lot* more work for the GM, especially if he is a poor typist; a single encounter can take weeks to complete if the players are slow about replying; and it's just about impossible to run any detailed combats – in fact, many PBEMs actively *avoid* combat.

Play by real-time chat (IRC, M, instant message, etc.).* A compromise between e-mail and face-to-face gaming is using an online chat room or instant messaging service. This has many of the good and bad features of *both* approaches – games have to be scheduled, but the players don't have to be in the same physical location; it's possible to have real-time interaction among the players, but if someone is a slow typist, he bogs the game down (or gets left behind); no one steals someone else's munchies, but no one buys the GM pizza, either. Some chat sites do have dice rollers, however, which makes gaming easier.

Massively multiplayer online RPGs. These are computer games that allow the players and GMs to interact online. Some let you use any game system you like; others come with built-in rules.

We have made some efforts along this line, but so far nothing has come of them. It definitely seems that MMPORGs are the future of online gaming for many people. These are getting better all the time, and rather than discuss the state of the art as of this printing (which will be outdated in six months and laughably crude in two years), we'll just mention them and suggest that you ask around for help getting started.

Other Online Resources

Even if you aren't gaming online, there are lots – no, *lots* – make that ***LOTS*** – of great places to find support for your tabletop ***GURPS*** game. Here are a few:

Pyramid. Our online magazine is not a "house organ" – it covers games from across the industry – but it does have a lot of ***GURPS*** content, with more added just about every week. The archives of the print issues of *Pyramid* (and its ***GURPS***-only predecessor, *Roleplayer*) have many articles which have never been adapted in later ***GURPS*** publications. With an online chat zone (including gaming areas), message boards, and new content every week, *Pyramid* is a steal.

e23. Our new e-publishing venture has both out-of-print and brand new adventures and source material. It is also growing all the time, so check back frequently to see what new items we've added!

Our website. The SJ Games web page is loaded with extra content (and, eek, errata fixes) for almost every ***GURPS*** book ever published. It also includes downloadable software to help you run games in person or online. Our webforums cover everything we do, including, of course, ***GURPS***, and are a great place to ask questions.

URLs

And here are the URLs:

SJ Games main page: **www.sjgames.com**
GURPS main page: **www.sjgames.com/gurps/**
Forums: **forums.sjgames.com**
Pyramid: **www.sjgames.com/pyramid/**
e23: **e23.sjgames.com**
GURPS errata: **www.sjgames.com/errata/gurps/**
GURPS Online: **www.sjgames.com/gurps/online** – As of this writing there is nothing at that page but an announcement of a canceled project, but if something new happens, that's where it'll be.

Reaction Rolls

When the PCs meet an NPC whose reaction to them is not predetermined (see below), the GM makes a "reaction roll" on 3d. The higher the roll, the better the reaction. The GM then plays the NPC according to the guidelines on the *Reaction Table.*

The GM should keep this roll secret from the players. They don't know, for instance, whether that friendly-looking old farmer is giving them straight advice or sending them into a trap.

A reaction roll is *not* a success roll. There are three important differences:

1. There is no "target number" to roll against.
2. A high roll is *good,* not bad.
3. Reaction modifiers apply directly to the die roll. A reaction *bonus* is any factor that will make NPCs *friendlier,* while a reaction *penalty* is something that will bias NPCs *against* the PCs.

Some common reaction modifiers:

Personal appearance and behavior. This is especially true for the PC who does the talking! Above-average

appearance gives a bonus, as do such traits as Charisma, Fashion Sense, Pitiable, and Voice. In most situations, so does a high apparent Status. Below-average appearance and many disadvantages give a penalty.

Skills. A successful roll against a skill appropriate to the situation can give +2 to reactions. Examples include Administration when dealing with bureaucrats, Carousing when partying, and Politics when interacting with politicians. In a few cases, skill 20+ gives an *automatic* +2 to reactions. Diplomacy and Fast-Talk work this way if you are allowed to talk – as does Merchant skill, during commercial transactions. The GM may give similar bonuses for other skills.

Racial or national biases. Elves don't like dwarves, Frenchmen don't care for Germans, and so on. These are usually penalties, and take the form of a Social Stigma disadvantage for the PC or an Intolerance disadvantage on the part of the NPC.

Appropriate behavior by the players! Here's a chance to reward good roleplaying. A good approach should be worth +1 or more! A wholly inappropriate approach that antagonizes the NPCs should give the party -1 or -2 on the reaction roll. Don't tell the players, "You blew it!" – just roleplay the offended character, and let them figure it out.

Random reaction rolls are great when they add a note of unpredictability to the game – this is more fun for the GM, too! However, *never substitute random die rolls for reason and logic.*

Predetermined Reactions

Certain NPCs might have reaction modifiers (mostly bad) worked out in advance. For instance, a street gang might have a -5 reaction to *anybody.*

Predetermined reaction penalties sometimes come with a "best-case" reaction. Treat any reaction better than the best-case reaction as the best-case scenario; do not roll again. For instance, a mountain man might be a loner, with a -2 reaction to any outsider – and no matter what, his reaction will never be better than "Neutral." In this case, the GM would lower any reaction better than Neutral to Neutral.

> ***"I open the door, duck under the poisoned blade trap, step on every third brick, and make sure not to trip the hidden laser sensors."***
>
> If you're using a pre-packaged adventure, it is possible that some of the players have already seen it, or even played through it. (If you're *really* unlucky, one of them GMed it!) As soon as you get a hint that the players are acting from knowledge that they, themselves, should not have, it's time to throw them a curve ball, such as an unplanned encounter, a room that "shouldn't" be there, or a trap they weren't expecting – and, perhaps, to re-evaluate whether you want to be gaming with people who are willing to cheat at the expense of everyone else's fun. Or at least *yours.*

Predetermined *bonuses* and *worst-case* reactions (e.g., "never any worse than Neutral") are possible for unusually friendly NPCs.

Second Reaction Rolls

If the players get a reaction roll they don't like, they may change their approach and try again (unless the first roll started a fight!). Changes in approach include offering a bribe, offering a better deal, having someone else ask, presenting new information, and using a particular skill (see below). If the NPC, as played by the GM, feels that the PCs are becoming a nuisance, apply a cumulative -2 to each reaction roll after the first! The PCs can avoid this penalty by waiting a reasonable time between requests. "Reasonable" is entirely up to the GM!

Influence Skills

The PCs can substitute a roll against Diplomacy, Fast-Talk, Intimidation, Savoir-Faire, Sex Appeal, or Streetwise for a regular reaction roll in certain situations – see *Influence Rolls* (p. 359). The GM still applies any modifiers that would apply to the reaction roll, but treats them as modifiers to the skill roll.

Knowledge

One challenge of roleplaying is to limit a character's knowledge to the things he "should" know.

PC Knowledge

Part of the GM's job is to keep *players* from making use of information that their *characters* could not know.

Anachronistic technology. Players can't use high-tech knowledge that their *characters* could not have. If a medieval character wants to invent gunpowder, or build a compound bow, or use moldy bread for penicillin, you don't have to let him. Of course, *time travelers* can take knowledge into the past.

Similarly, modern characters should not be allowed free use of ancient techniques. Gunpowder is an example *here,* too . . . how many 21st-century people know *exactly* what to combine to make gunpowder – or how to mix, grind, sieve, and use it without blowing themselves up? Modern characters can always *try* to "remember" ancient techniques, by making appropriate (and difficult) rolls against History skill or the particular specialty involved.

Knowledge of history. If your game is set in the "real" past of Earth, the players – if they paid attention in school! – have advance knowledge of how things "really" came out. Don't let them use it – unless, of course, they are time travelers from the future. And remember that, in a game, history *can* be changed – so some of the things the players know *might not be true.*

Literacy. This is important – and lots of fun. If a PC is illiterate, *don't let him read anything!* It is amazing how many players claim -3 points for a written comprehension level of None in their native language . . . but assume they can still read maps, street signs, and shop windows!

NPC Knowledge

Likewise, the GM and the Adversary should not use knowledge that *their* characters could not logically possess. This is the main reason for having an Adversary in the first place . . . so the GM can't use his total knowledge of the PCs against them. The warnings under *PC Knowledge* apply equally to NPCs, but there are some additional things to watch out for:

Objectives of the party. The GM knows the players' true objectives; the Adversary *may* know. But when he plays "ignorant" characters, he must roleplay his ignorance. This might mean that an NPC acts hostile when he "should" be friendly, or vice versa. It also means that when the party sneaks into the castle, the guards can't *all* rush to protect the treasure room. They don't know for sure where the PCs are going!

Abilities of the party. All NPCs – *especially* adversary characters – should react according to the *apparent* strength of the party. A simple example: if the PCs are exploring a dungeon populated by roving bands of orcs, each new band should find out *the hard way* that the party's wizard uses the Explosive Fireball spell – until some orc escapes to spread the word.

Special weaknesses of the party. If (for instance) two members of the party are deathly afraid of snakes, the adversary characters shouldn't know this unless there is a way they could have found out. In fact, the GM shouldn't tell the Adversary things like this in the first place. Let him find out for himself! But even after he finds out, he can't use this sort of fact unless he is playing a foe who *should* know.

Keeping the Characters Alive

There is a basic contradiction in RPGs. On one hand, the players are looking for adventure, and adventures are dangerous. On the other hand, nobody wants to get killed! The GM must walk a fine line between a "giveaway" adventure – where nobody is in real danger – and a wholesale massacre.

The ***GURPS*** rules are designed for two main things: *good roleplaying* and *realism,* in that order. "Realism" means that, in any serious combat, someone is likely to get killed or badly hurt. And, since in real life nobody *wants* to get killed, "good roleplaying" means that most people try not to fight until they *have* to! That goes for your NPCs as well as the PCs.

Good roleplaying (and having a good adventure) is the *most* important thing, though. When good roleplaying conflicts with realism, roleplaying should win out. As the GM, you should try not to let such a conflict occur. But if it does happen, tip the scales toward *fun.*

> *If they really ask for trouble,* ***let them have it.***

In particular, try not to kill too many of the PCs! In a hack-and-slash game, where the PCs are no more than sets of numbers, a death is no loss. In a true roleplaying game, with fully realized heroes who took a long time to develop, losing a character can *hurt.* That is not to say that PCs can't die. They can. But in the best games, they don't die too often.

Keep in mind that RPGs are meant to be *fun.* They simulate the "reality" of heroic fantasy, not the reality of day-to-day life. An RPG is a story that the GM and the players write together. And in the best stories, the heroes (most of them, anyway) survive and triumph. This is more important than "logic." Logically, Luke Skywalker would have been shot down . . . Frodo and Sam would have starved in Mordor . . . Tarzan would have been lion-bait before he was six years old. A classic story defies logic, and *still* you believe it – because you want to. A good game is like that, too.

There are several techniques you can use to keep from killing off your "main characters." Some of these are totally contradictory. As GM, you're the boss. Use whichever methods you like.

Intelligent scenario design. Don't fill your adventures with traps and foes designed to slaughter the PCs. Design a scenario to make the players *think* and *roleplay,* and to give them a fair chance – or perhaps a better-than-fair chance, since they *are* the heroes.

Realistic NPC behavior. Most realistic NPCs won't risk their own lives unnecessarily. Not every encounter turns hostile; not every hostile encounter turns violent; not every violent encounter involves weapons. Of course, some game worlds are more violent than others, but "life is cheap" usually makes for a very poor game.

Even in a violent game world, enemy NPCs will often have a reason to take the PCs prisoner rather than kill them outright: interrogation, ransom, imprisonment, slavery, sacrifice, or what-have-you. Capture and escape are staples of adventure fiction, which is what the game is all about!

And if the PCs are *winning* a fight, your NPCs should try to save their skins. In real life, most guards, beasts, or bandits flee – regardless of duty, hunger, or greed – if a fight goes against them. Play them that way.

Realistic NPC abilities. In most game worlds, the PCs start off with more points than the *average* person. This means that most NPCs are no match for them, physically or intellectually. There are exceptions . . . interesting, dangerous exceptions. But the "man on the street" should have poorer attributes and fewer abilities than the PCs. For the most part, the PCs should be facing inferior foes. This not only keeps the game in balance – it preserves the "reality" of adventure fiction.

This is not to say that an "average" person cannot be dangerous. A 25-point thug can be a nasty fighter, if he takes a couple of disadvantages that don't affect combat and specializes in ST, DX, and combat training. He is more than a match for a 100-point intellectual in a fight. But a 100-point fighter can chop him to bits.

Safety-net rules. Make use of rules that serve to keep the PCs alive. Let them expend FP for bonuses to defense rolls (see *Extra Effort in Combat,* p. 357), or even spend bonus character points to buy successes (see *Influencing Success Rolls,* p. 347). In action-oriented campaigns, consider making Luck a *required* advantage to give the PCs "rules protection" from bad die rolls.

Deus ex machina. This is miraculous outside intervention that saves the day. The cavalry comes over the hill . . . the starship beams you up . . . the Governor issues a pardon. When the players did their best and things just went totally wrong, arrange a miraculous escape, against all odds. If it was good enough for Edgar Rice Burroughs, it's good enough for you. Needless to say, the beneficiaries of a *deus ex machina* should not gain bonus character points from the situation, since they did not escape on their own.

Cheat! When all else fails, roll the dice where the players can't see – and then lie about your roll. "It worked! You finally got the door open. You rush through and slam it behind you. The orcs cannot follow." When an "honest" roll would result in a bloody massacre, it is forgivable for the GM to cheat in the players' favor.

One last note: There *will* come a time when the players *insist* on getting themselves killed – through gross carelessness, total stupidity, or even (we can hope) good roleplaying, right down to the bitter end. You can't rescue them *every* time . . . that's no fun, either! If they really ask for trouble, *let them have it.* So it goes.

Game Time

"Game time" is the time that passes *in the game world,* as determined by the GM. It rarely passes at the same rate as time in the real world.

Time During Adventures

Combat is played in "slow" time. A turn in combat equals one second, but it might take a minute or more in the real world to resolve that turn, especially if the players are inexperienced or the battle is a large one. Since combat is usually a life-or-death situation, you need to give your players time to think.

Conversations, planning sessions, attempts to escape from traps, and similar situations are played in "real" time. If the players spend 10 minutes discussing how to best approach an NPC merchant . . . their *characters* spent 10 minutes talking outside the shop.

Routine travel, long tasks, etc., are handled in "fast" time. For instance, when the party is walking along a trail, the GM can simply skip the time between encounters: "You walk for another two hours, and then, coming toward you, you see two young women with long poles . . ." Tell the players when they meet someone, when they enter a town, when night falls, and so on. Just compress the rest of the time. Under some circumstances – a long sea or space voyage, for instance – the GM could compress *months* of uneventful time into "Nothing happens until July, unless you make it happen yourself." This is a good time for the characters to dream up some interesting deviltry, or to fill out Time Use Sheets for study and self-improvement (see *Time Use Sheets,* p. 499).

Time Between Sessions

If you can't finish an adventure in one session, just "pause" the game until the next session. For instance, if the party confronts a rampaging *Tyrannosaurus* just before the session ends, the *Tyrannosaurus* gets no closer in the real-world week before you can play again.

When in Doubt, Roll and Shout

Often, in spite of your most careful preparation, something surprising happens. It could be *anything.* No matter how much you plan ahead, your players *will* come up with something you didn't expect.

That's all right. If they *didn't* come up with anything surprising, your duties as GM would be much less fun. But you still have to cope with the problem.

Let's say, for instance, that the heroes have just discovered the Shrine of the Mother Goddess. Suddenly, they realize that they have been followed! A dozen huge, ape-like creatures stalk through the door and approach menacingly. There are no other exits.

There are several things the players might do, and you're prepared. If they want to fight, you know the combat stats for the ape-things. If they try to make friends, you've already decided that they'll be dragged away to the ape-cave and fattened up for dinner. If they try to flee, or use magic to make a barricade, you know there is a secret door behind the altar – if they can find it in time. If they try to call on the Mother Goddess, you've decided it won't work – they don't know the spells or rituals.

However, one of the younger characters *panics* when he sees the ape-things. Running to the giant statue of the Mother Goddess, he clasps her around the knees and bawls for help. He doesn't pray . . . he just *pleads,* like a terrified child. And you weren't *ready* for something like that!

Of course, you can just say, "Nothing happens. It doesn't work," whenever your players try something original. But that's no fun.

Or you can always say, "I wasn't ready for that. Do something else." But that's no fun either.

The good GM uses his imagination to match the players' creativity. In a really dramatic situation, like the one described above, just go with the flow! There's a very good chance that the Mother Goddess takes pity on that poor, sincere fool. Maybe she swats the ape-things out the door. Maybe she just picks up that one character and holds him safe, leaving the others to fight the apes. Who knows? You're the GM. In an unusual situation, *anything* is right if it's fair to the players and makes the story better.

Whatever you do, it's a good idea *not* to let the players know when you are improvising. Let them think you had it all planned in advance. If you want to admit *afterward* that you were just "winging it," that's up to you. But don't interrupt the flow of the game. Roll the dice, shout "You did it!" (or "You blew it!"), and keep going.

Time Between Adventures

If you are running a continuing campaign, you should keep track of time between *adventures,* so characters can study, travel, and age. This can always be the same amount of time, or the GM and players can simply agree on a "logical" time to pass between the end of one adventure and the beginning of the next. It is often a good idea to let a month or two go by, to allow time for healing, earning money at "ordinary" jobs, and study of new skills – see *Time Use Sheets* (p. 499).

There is also merit to shaking things up occasionally – ask the players what their PCs are doing, and then interrupt their activities with the next adventure! Once in a while, this can be really effective, especially if the adventure is meant to be a "double red alert" emergency. If the party is widely scattered, this might be a chance to try some new techniques, such as one-on-one adventures or play by e-mail. Let them deal with the crisis alone for a bit before bringing them back together. You don't want to do this *too* often, however, especially if some of the PCs were in the middle of training for a new skill or long tasks (enchanting, inventing, etc.). Even fictional heroes need some downtime . . .

Alternatively, you can let X days of real time equal one day of game time, all the time. For instance, if X is 7, one day equals one week; therefore, if it has been seven days since your last adventure, seven weeks have passed in the game world.

Ending a Play Session

At the end of each play session, the GM should do the following:

Discuss the adventure with the players. What went right and what went wrong – and why? If the session was part of a continuing campaign, the GM should be careful not to give away any secrets!

Award character points for good play (see below).

File away the play material. NPC records, GM Control Sheet, etc. will all be useful later – be sure to keep track of them! You can often "recycle" NPCs in later adventures.

Plan the next session with the players. This is especially important in a continuing campaign. Decide where the game will take up next week, how much game time will have passed, and anything else that the players need to know before the next session starts.

Awarding Bonus Character Points

At the end of each play session, the GM should award bonus character points for good play. "Good play" is anything that advances the heroes' mission or shows good roleplaying – preferably both. But roleplaying trumps mission success! If a player did something totally outside his character's personality (for instance, if a total coward performed a brave act), this should not be worth *any* points, even if it saved the day for the rest of the group!

The GM is free to award *any* number of points . . . but in general, he should give each player between zero and five points, averaging two or three points, *per session.* The low end is for bad roleplaying or mission failure, while the high end is for good roleplaying or mission success. Remember that a character gets *no* points for a session in which his Dependent is killed, seriously wounded, or kidnapped and not recovered!

The GM might also wish to give an award – perhaps equal to that for a successful play session – upon the conclusion of a lengthy adventure, story arc, or major plot thread. This is *in addition to* any points for the session during which the plot was resolved!

The GM should award bonus points separately (and probably secretly) to each player. The player should record his points on his character sheet if he intends to play that character again; the GM might also want to keep his own record. The player can use these points to develop and improve his character – see Chapter 9.

These are only guidelines. The GM can award as many or as few points as he wishes. Some games call for faster character advancement than others!

Avoiding Character Inflation

As GM, you should try to balance the number of points you give out. Characters should improve fast enough to keep things interesting, but not so fast that they outrun their foes and unbalance your campaign. Also, if the original characters are now

Time Use Sheets

A "Time Use Sheet" is a record prepared by the player that describes how his character spends the time *between* play sessions. (There's a sample on p. 569.)

The GM sets the amount of time covered by each sheet. An even number of weeks works best. At the end of each play session, the GM tells the players how much game time will pass before the next session. When they show up for the next session, they can bring the records of how they spent the intervening time.

When an adventure "stops in the middle" – when one play session ends at night in the inn, and the next one starts the next morning – obviously no Time Use Sheet is necessary. Use one when there is a hiatus in an adventure (for instance, when the PCs must wait two weeks to catch their ship). And use one *between* adventures, to give the characters a chance to rest, earn money, and improve their skills.

GMs: If this seems like too much bookkeeping, don't do it! Feel free to think of a substitute – or forget all this entirely – if it does not add to *your* players' enjoyment.

There are three major reasons to keep track of time outside of play:

Long Tasks

Characters may have important missions *between* play sessions. These might be tedious to game out, but vital – which is why you do them "between times" and cover them with a few die rolls. For instance, in a treasure-hunting adventure, the group's scholar might need to spend a few weeks in the library making Research rolls to find useful maps. Meanwhile, the thief is visiting taverns and making Streetwise rolls to pick up useful rumors. The GM checks their sheets, notes how much time they spent at it, and rolls (one or more times) to see what they found.

Study

Characters may wish to improve existing skills or gain new ones through study. (If some characters are students, this is unavoidable!) The GM keeps a running total of the time spent studying each skill. When it's enough to buy a skill increase, the skill goes up immediately. See *Improvement Through Study* (p. 292).

Jobs

Time spent at work counts as study of the skill involved (but at only 1/4 rate – that is, an eight-hour workday counts as two hours of study). It also pays enough to live on, and maybe a little extra. (In most societies, those who do *not* show up full-time for work will soon be fired, and hurting for money!) A job can be a great springboard to adventure in the hands of a creative GM. See *Jobs* (p. 516).

extremely powerful, new players – and their characters – are liable to feel useless unless you specifically bring them into the action.

Some of this depends on the background; superheroic types are *expected* to improve quickly (and their enemies improve, too), while ordinary cops or soldiers gain skills or promotions at a slower pace. In the final analysis, it's up to the GM to determine what is right for his own campaign and his own players.

Controlling Character Development

Given the chance, some players will spend points without regard for their characters' origins and stated goals. Of course, when a player asks to use bonus points to buy a wholly inappropriate ability, you can always say "no." But there are other options:

Discuss all improvements. Don't just let players buy whatever they want – ask them to explain *why,* especially if they wish to increase attributes! Attempts to make inappropriate improvements most often occur when the player discovers an unintended weakness in his character design and believes the new ability will compensate for it. If the desired ability doesn't fit the character concept, try to discover the perceived weakness and suggest more appropriate alternatives that address it directly.

Keep awards small enough that players must think about their purchases. If players must save points for many sessions to afford larger purchases (e.g., attribute levels and advantages), there is, in effect, a "waiting period." Many players will reconsider their "need" for character-distorting abilities during this time, and instead use their points to raise skills that will be useful during the current adventure. This leads to well-rounded veterans whose skills reflect their actual activities.

Don't make it too easy to learn new skills. If you let the PCs learn new skills whenever they have enough points, their skill lists will eventually grow indistinguishable from one another. If every PC can tackle every task, the players might conclude that their characters no longer have any need for companions. This can break up the party – and possibly the gaming group. It is realistic to learn *some* skills quickly under pressure, but you should feel free to rule that others (especially magic spells and secret martial-arts skills) are hard to learn except as part of a dedicated career.

Give awards other than points. Give out the occasional award in the form of specific abilities instead of discretionary points. Social advantages – Patrons, Rank, Reputation, Status, Wealth, etc. – make the best awards, as they often make sense as "rewards" in the game world. Another realistic possibility is direct improvement of a well-exercised ability. Few players will complain if you give them a skill level worth *four* points in a well-used skill instead of two discretionary points!

Writing Your Own Adventures

Sooner or later, every GM wants to write his own adventures – or at least modify store-bought ones to fit his own group. More power to you! Homegrown adventures can range from simple "dungeons" to entire worlds, intricately worked out over a period of years.

Where Do You Get Your Ideas?

You can get ideas from novels, movies, comics, RPG supplements, other GMs, and of course the players themselves. Whatever your source, you'll want to come up with enough new twists to keep your players (and yourself) interested.

Some GMs give their players a lot of voice in the type of adventures they will have. If the players want to hunt for treasure, the GM comes up with a treasure-hunting scenario. Other GMs see themselves as Blind Fate, and the players never know what will happen next. It's all a matter of taste.

Adventure Design

When you design an adventure, you are writing the outline for a story. The full story will begin when the PCs appear on the scene. To set the stage, you must prepare the plot, maps, character descriptions, etc. and a number of "encounters" involving these things.

Level of Difficulty

The first thing to decide is simply how "hard" your adventure is going to be. Are you planning an adventure for four beginning-level characters – or for a half-dozen experienced adventurers?

The rewards should be commensurate with the risks. In a fantasy campaign, don't let the PCs butcher two halflings and a senile goblin, and then rush back to town with a chest full of gold! (Or, if you do, have the king's taxman there to welcome them!) The *real* rewards in this game come in the form of bonus character points (p. 498). These result from good roleplaying, and have nothing to do with the amount of wealth you drag home.

Still, material things have their uses. Ask any fighter who can't afford to buy armor! Don't make wealth (or

power, or fame) too easy to come by, or you will unbalance your campaign.

Continuity

You should also decide whether the adventure needs to fit into (or kick off) a campaign, or if it is just a "one-shot."

In a campaign, each adventure has to follow naturally from the last one, and leave room for future adventures. It also has to take the PCs into account. If they are famous – or notorious – certain NPCs should recognize them. The adventurers should recognize some of the NPCs, too, and possibly some of the locations in the adventure. Most importantly, the adventure should not render the PCs unplayable no matter what the players do . . . because the whole point of a campaign is to keep playing the same characters!

In a one-shot adventure, however, you have no continuity to worry about. Future play balance is not an issue, and neither is character survival. You can experiment with certain death, transcendence to godhood, and other extreme outcomes without the risk of destroying a campaign.

Background

This is the setting of your story. In what game world does it take place? When and where? What are the events leading up to your tale? Who are the important NPCs, and what are their motives? In short, what is happening behind the scenes, and what is the "big picture?" If this adventure is part of a campaign, a lot of the background is set. If it is a "one-shot," the background can be sketchy. But if you're *starting* a campaign, give the background a lot of thought.

Plot

The "plot" is your plan for the things that are supposed to happen during the adventure. In a simple adventure, the GM guides the PCs from one "encounter," or scene, to the next. Each encounter starts when the heroes arrive; then it is played out, and the next one can begin.

In a more sophisticated adventure, certain things happen at certain times, regardless of the PCs' actions. If the heroes must solve a murder, for instance, some clues might vanish if they are not found in time – and others might not exist yet if the investigators come on the scene "too soon." The murders might even continue as the players investigate (that's one sure way to eliminate a suspect). Likewise, important NPCs may come and go, with little regard for the adventurers' wishes. And there is no limit to what can happen "offstage." Elections, wars, and alien invasions . . . many events can present new challenges.

This sort of plot is harder to write, and demands more from the GM during play. But it gives the players a sense of urgency that is missing in a plain, linear adventure.

Introduction

The purpose of the introduction is to get the *players'* characters into *your* plot so that the game can begin. If the players are not familiar with your game world, you should tell them a little bit about it. If they know the game world (or are part of a continuing campaign), you can just set the scene with a few words and start the action. You should *not* give them the whole background. In a well-designed adventure, one of the players' objectives is to find out what's *really* going on. Don't give away all your secrets right at the beginning!

The most hackneyed introduction of all (but still one of the best) is the Old Man in the Tavern: "You are all strangers in town, looking for adventure. You are sitting in the local tavern when an old man comes up to you . . ." The old man can ask for help, order the PCs out of town, sell them a map, offer to guide them to fame and fortune . . . it doesn't matter. Whatever he does, he is a mouthpiece through which the GM can give the players a little background and start them off in the right direction.

Dungeons

The term "dungeon" refers to a simple fantasy adventure. Typically, the PCs wander from room to room, killing monsters and grabbing treasure. There is often no rhyme or reason to the contents of the rooms – in children's fantasy games, every encounter may be rolled randomly!

However, a dungeon setting is good for a beginning adventure; it teaches basic game mechanics quickly. And an underground labyrinth does not *have* to be "kid stuff" – it can be part of a very realistic background.

A "dungeon" can also be a building, battleship, space station, etc. If the adventurers are dropped into a limited area, with little or no goal except to grab what they can and get out alive, it's a "dungeon."

A dungeon is easy to map, since its area is limited. When treasure-hunters go too far, they just run into a blank wall and have to turn around. The typical dungeon is a collection of rooms, connected by corridors, shafts, or tunnels.

Dungeon Inhabitants and Plot

The GM should populate his dungeon (or building, or whatever) with appropriate men, beasts, and monsters. If you are just creating a "hack-and-slash" dungeon, you don't need to worry about what they are doing there, what they eat, why they attack the party, or anything else – just stock the rooms and go.

Likewise, the "plot" for a hack-and-slash adventure will be very simple. "Joe the Barbarian, with his friends Ed the Barbarian and Marge the Barbarian, went down into a cave. They saw lots of monsters and killed them and took their treasure. A dragon ate Ed. Joe and Marge ran away. The End."

If you want to create a situation that actually makes sense, you have advanced to the level of *adventure* design. Congratulations. Read on . . .

Some other good "mouthpiece" characters for an introductory encounter:

- An officer briefing a group of soldiers, spies, supers, etc. to perform a mission.
- An injured stranger who staggers up and gasps a few cryptic last words.
- A strange story in the news (the "mouthpiece" in this case is the person the PCs contact to ask about it – a reporter, a scientist, etc.). The GM might instead let the party *witness* the mysterious event.
- A storyteller, herald, or town drunk, passing on an interesting rumor.
- A wealthy person who offers to hire the party for a dangerous mission.
- A retired adventurer telling about the treasure he couldn't quite get.
- A spirit or deity visiting the faithful (or fairly faithful) with commands – perhaps in a dream.
- A villain's henchman, delivering a threat, ransom demand, or boast.
- A friend of one of the characters – or, for that matter, a total stranger rescued from immediate danger – who needs help.
- A lawyer reading a will, which sends the party on a quest for an inheritance.

The "mouthpiece" NPC can end the introductory encounter by providing the maps, passwords, or whatever else the party needs to start the adventure.

Maps

As described under *Maps* (p. 490), you will need a number of maps – one per area you consider "important" to the adventure. Prepare combat maps in advance for any location where a fight is likely.

The experienced GM can save a lot of time by "recycling" maps. One house is a lot like another. One tavern is a lot like another. And so on. Of course, if you always use the same one, your players will kid you about it . . . "Aha, here we are, back in the Generic Tavern!"

Commercially produced combat maps (from SJ Games, or any number of other companies) can also save time. Often an interesting map suggests an appropriate encounter, helping you to design your adventure!

NPCs

Nonplayer characters – whether played by the GM or the Adversary – are vital to an adventure. The GM can even plan an entire adventure around a few interesting NPCs and what happens when the PCs become involved with them!

Design the most important NPCs *before* you work out the encounters and other details of the adventure. Their abilities, personalities, motivations, and backgrounds set the tone for the whole adventure, and give you ideas for encounters and lesser NPCs. Build important NPCs just like PCs, complete with full-scale character sheets and brief character stories, so you can roleplay them well.

Create less-important NPCs – spear-carriers, cannon fodder, shopkeepers, and the like – *after* you plan the first encounters. You do not need complete character sheets for these characters; all you need are notes on their important statistics. Some trivial characters require no planning at all! If you suddenly need to know (for instance) a skill for one of them, just roll 3d and use the result.

Finally, work out a few "generic" NPCs to use, as needed, in improvised or random encounters. For instance, in an adventure set in a fantasy city, you could prepare a few city guards, a couple of storekeepers, a couple of thieves, and maybe a strolling minstrel or wandering drunk. If you need them, you have them . . . and if you don't need them now, you'll have them for next time. Guards, like taverns, can be recycled over and over again!

Encounters

An "encounter" is a meeting with NPCs, animals, a trap, or anything else the GM wishes. There are three kinds of encounters: *planned, improvised,* and *random*. Ideally, as you run the game, your players should never know which kind is which!

Planned Encounters

The GM works these out in advance: when the adventurers come to *this* place, they meet *these* people (or animals, or whatever). All the important encounters in your adventure should be planned.

Be aware that few encounters go *exactly* as planned! You should always be ready to adapt to the characters' actions. Suppose a planned encounter involves the bouncer at the "Blue Boar" – but the PCs don't go near there. You can drop a hint to send them there, of course . . . but it might be easier to change your plans and let the innkeeper at their rooming house serve the same purpose. The more flexible you are, the more you can avoid the *appearance* of manipulating the players. And appearance is more important than reality!

Improvised Encounters

The GM makes these up in order to keep the adventure moving along planned lines. The simplest "improvised encounter" is the little old man (looking a lot like the one you met at the tavern) who appears in your path and says, "Turn around! You're going the wrong way!" Such encounters can provide extra clues, hints toward the "right path," etc.

Improvised encounters are often necessary when the players do something *really* unusual. For example, suppose you have the PCs encounter a traveling duke who is beset by bandits. The heroes drive off the bandits and save the duke, who offers to pay them generously to track down a family treasure. The players accept, but conclude that the bandits were after the treasure, too, and decide to hunt them down to find out what they know. Since you only intended the bandits as a means to introduce the duke, you *could* say, "You can't find the bandits. You must have scared them off." Or you could let the party find the bandits and defeat them in a meaningless battle. But it would be more *fun* to improvise an interesting encounter.

If the heroes skillfully track, overwhelm, and interrogate the bandits, you could reward them with a clue. Perhaps one of the bandits snatched the duke's heirloom cloak clasp, which broke open when he tried to pry the jewel from it – revealing a fragment of an old map!

Random Encounters

The GM might wish to generate some encounters at random. One technique is to use a "random encounter table": a list of encounters keyed to a roll of the dice. See *Sample Encounter Table* (p. 503) for a simple example. Some "adventures" consist

Traps

Fantasy adventures traditionally feature a variety of traps. The novice designer can overdo this, with a crossbow behind every door and a pit in every corridor. If this doesn't *kill* the whole party, it slows the game to a crawl as they check everything in sight for traps – and then check again, to make sure. But a few strategically located traps can make an adventure more interesting.

All of the above remains true in other genres! A criminal stronghold or millionaire's mansion might hold some unpleasant surprises in store for the unwary intruder. Primitive natives encountered by explorers might have some upsettingly sophisticated defenses.

Some common types of traps include poison needles, hidden crossbows (or guns, or lasers), hidden *giant* crossbows (or cannon, or homing missiles), pits (with spikes, snakes, or both), falling weights, rolling boulders, sliding walls (or descending roofs), slippery slides, poison gas, acid sprays, land mines, and many more. Think of the last hundred adventure stories you read!

Not all traps are deadly. The intent might be to cripple, capture, annoy, embarrass, or just frighten the victims. A burglar alarm is nothing more than a trap that only produces sound!

Traps, like rooms, should appear on the map key – or a trap in a room can be part of the room's description. For each trap, specify the following:

- How hard the trap is to notice, and what skills can detect it; e.g., "To spot the concealed pit, roll against Architecture-5, Vision-5, or Traps."
- How hard the trap is to disable or set off harmlessly; e.g., "To disable the trap door, roll against Carpentry or Traps+4."
- What sets off the trap; e.g., "The trap door swings open if anyone who weighs more than 50 lbs. walks on it."
- What happens if the trap is set off; e.g., "Unless the victim can make an Acrobatics or DX-6 roll to catch himself, he falls into the pit and takes 3d crushing damage."

Some GMs delight in the invention of fiendish traps to test their players' wits. Such "puzzle traps" require more than a simple skill roll to disable or escape – the *players* have to think their way out! A *very* simple example might be a sliding-wall trap that will crush the strongest adventurer to death . . . *unless* he opens the manhole in the floor. It's too small for him to fit into – but the lid is of such solid metal that, if held in place, it blocks the closing walls!

Much more complex traps are possible. Have fun. "Puzzle" traps can add flavor to an adventure when simple deathtraps become boring.

mainly of such tables, allowing play to proceed for hours with no planning at all! This is great for a quick game, but not in the same league with a "real" adventure.

Another method is to invent a character on the spot, rolling dice for any important statistics.

If you don't let random encounters become a crutch, they can provide variety and free you from planning every single encounter. Don't let the players know that you are rolling a totally random encounter, however. If they realize an encounter is not "part of the plot," they *will* act differently.

Finale

This is the climax of the adventure. Most adventures have only one finale (unless the party gets killed along the way). As the GM, you should guide the party, as subtly as you can, toward the "big ending" and resolution of the adventure.

The players' earlier actions affect the details of the finale, but its basic nature remains the same. If the players make "wrong" decisions along the way, it takes them longer to finish, and they should have a harder time dealing with the situation – but they *should* make it to the finale eventually. The exception might be a case where they have blundered *so* badly that the finale would certainly kill them all, in which case the merciful GM will drop a hint that they are in over their heads, and let them give up and run for home.

A more sophisticated adventure could have several possible finales, depending on decisions made by the players during the adventure. This sort of "branching-path" adventure is harder to design, but sometimes easier for the GM to run, as it calls for less improvisation.

Sample Encounter Table

A table of trivial roadside encounters for low-tech settings. Roll 1d per hour of travel.

1 – A group of farmers (roll 2d for number).
2 – One holy hermit.
3 – One not-so-holy beggar.
4 – One merchant with horse, wagon, and 1d/2 guards.
5 – A single horseman.
6 – Nothing.

Features of a Good Adventure

A good adventure (by the standards we use for our own publications) includes:

- Many opportunities for the PCs to use *noncombat* skills – including some difficult rolls, and some involving unusual skills (forcing the PCs to roll against defaults).
- Contests between PCs and NPCs – and possibly between PCs as well.
- Situations where the players have to think about the right thing to do . . . puzzles, moral choices, or both.
- Situations where proper use of social skills, like Fast-Talk or Diplomacy, will avoid combat.
- Situations where no possible use of social skills will avoid combat!
- Interesting descriptions of people, places, and things, to give the *players* the feeling that they are really there with their characters.
- A clear introduction, a plotline that builds tension or mystery, and a clear conclusion.
- Opportunity for roleplaying and character development. This should be present in even the most lighthearted hack-and-slash adventure! Fighters are interesting people, too – at least, they should be.
- A reward for characters who complete the adventure successfully, and a consequence for characters who fail!

Organizing a Continuing Campaign

Even more complex (and more interesting) than a full-scale adventure is a *series* of adventures involving the same characters. This is called a *campaign*. If a single adventure is the equivalent of a novel, a campaign is an epic trilogy – the kind that is still going after seven books!

A campaign consists of one adventure after another – or possibly several *overlapping* adventures at once. Each adventure may take many sessions to resolve. The GM decides what goes on in the game world in between game sessions – and especially between adventures. Important NPCs go about their own affairs. Wars, weather, politics, and trade can go on in the "background" of the campaign, giving rise to new adventures. Your players can be a good source of suggestions . . . and they will be tremendously pleased if their adventures affect the "whole world" in some way, whether they turn aside a catastrophic war or simply find a cure for the Queen's wart.

A large campaign can have dozens of players (not all playing at once!), several cooperating GMs, *planets* worth of mapped territory, and *hundreds* of significant NPCs, from kings and popes down to thieves and beggars.

DON'T PANIC. You don't have to do all this at once. Most campaigns just "grow," a bit at a time. One adventure leads to the next, and before you know it, you've been playing for a year and you've got a campaign going. Much of the flavor of a good campaign comes from the players themselves. The PCs' Dependents, Allies, Patrons, and Enemies become continuing NPCs . . . old foes reappear when they are least wanted . . . maps become more detailed each time you play. Players come and go, but the campaign goes on. And nobody learns to run a campaign by reading the rulebook. Experience is the best teacher.

To help, we've included a Campaign Planning Form on p. 567. Filling this out will put you well on your way to adventure!

Shared Campaigns and Travel Between Campaigns

Two or more GMs may agree to let PCs travel between their campaigns. In general, this simply means that one GM will replace another at a preordained time or place. The old GM may remove himself entirely, or introduce a character of his own and remain as a player.

The more similar the GMs' campaigns, the more closely they can be connected. If they operate in the same game world, and if the GMs interpret the rules in the same way and have the same "play style," then the border between their jurisdictions might be as trivial as a river-line or even a city boundary. This is sometimes known as a "shared" campaign.

One good system for GM cooperation involves (for instance) cities. A single "chief GM" is in charge of overall maintenance and development of the game world. A number of the campaign's players also have GM responsibilities of their own. Each such player designs and controls one city. The player controlling that city referees all adventures within its confines. Needless to say, that player's characters should take little part in the action there, even as NPCs. Even the best GM might become somewhat emotionally involved with the PCs he has developed over a period of months! The chief GM runs adventures outside the players' cities. Thus, several players can have the fun of GMing an occasional adventure, while doing no more support work and world-building than they care to.

The same system works in a space campaign, except that each player controls a whole solar system. In a setting with parallel worlds – like the Infinite Worlds campaign in Chapter 20 – each player might control an entire *universe!*

For this kind of campaign to work, the GMs must consult regularly. Minor "cultural" differences between cities or planets are acceptable – in fact, they're fun. But the GMs should agree among themselves about the overall nature and goals of the campaign, if PCs are allowed to move freely back and forth. If two or more GMs wish to "share" players and characters while maintaining significant differences between their worlds, they need a different procedure.

Chapter Nineteen
Game Worlds

A "game world" is a complete background setting for a game. It might be an original creation, or it might be based on history, current affairs, or a work of fiction (novel, movie, comic, TV series, etc.).

It takes many hours of research to "design" an accurate historical game world. Worlds based on fiction require research, too – to ensure that every detail conforms to the source, and to extrapolate logically where the original story gave no information. Creating an *original* world, and making it believable and interesting, is the biggest challenge of all.

Some things to consider when designing a game world:

- *Geography.* Map the world, indicating such features as oceans, major rivers, and mountain ranges. For an alien world, you also have to determine gravity, atmosphere, water coverage, climate, etc.
- *Inhabitants.* Create racial templates for the major sapient races (see *Racial Templates,* p. 450), and generate game statistics for common or *interesting* animals and monsters (see Chapter 16).
- *Civilizations.* Describe the major cultures, specifying customs, languages, laws, religions, etc. Mark major political boundaries on the world map. Make notes on economic considerations that will matter to the PCs: jobs, systems of currency, prices, etc.
- *Technology.* Decide what is possible in the realms of communications, medicine, transportation, weapons, and so forth. Don't forget to create price lists for PCs who want to go shopping for equipment!
- *Character abilities.* List any advantages, disadvantages, or skills that are unusually common, that work differently, or that do not exist at all. If a trait works differently, or is unique to the setting, describe it. Create character templates for common professions (see *Character Templates,* p. 445).

This chapter touches on some of these points, and provides advice to the GM who wishes to design his own world.

Cultures and Languages

You do not need to specify every culture and language in the game world, but you should list all the *important* ones. Adventurers operating outside their native culture and language have skill penalties – see *Culture* (p. 23) and *Language* (p. 23) for details.

Cultures

Cultures are extremely broad in ***GURPS,*** and usually encompass multiple nationalities (or *planets,* in futuristic settings). Populations and locations that share cultures change with time. For instance, "American" and "Italian" are distinct nationalities, but both are part of the "Western" culture – at least in the modern world. In 200 A.D., the "Anasazi" and "Roman" cultures would be quite distinct.

Languages

Languages can be considerably narrower; a few might even be exclusive to particular cities or social groups. They are rarely isolated, however. If two languages are close, those who know one at a given comprehension level can understand the other at one or two levels below that, and can improve their comprehension from that level. Worldbuilders should note such connections ahead of time.

Laws and Customs

Each game world has its own laws and customs. Furthermore, laws and customs vary from place to place (and time to time) *within* each world. In some worlds, it is possible to research these things in advance (the Law skill helps here). In other worlds, you must learn them the hard way (Law helps here, too, if you specifically investigate; Streetwise can find out "informally").

As a rule, the *use* of force or the *threat* of force is illegal or improper wherever you go. The stronger the local government (see *Control Rating,* below), the more true this is; government usually considers the use of force to be its own right and monopoly. Self-defense is sometimes an exception – but not always!

Note that public display of noncustomary weapons is a "threat of force," and leads to bad reactions even if it's technically legal. If you walk down a medieval village street in heavy armor, axes and polearms at the ready, the villagers will be *very* suspicious of your motives.

In general:

- Violating a *law* usually leads to some sort of trial (see *Trials,* p. 507) and possible punishment (see *Criminal Punishment,* p. 508).
- Violating someone's *rights* might lead to a "civil" trial and a fine – or just an informal beating.
- Violating a *custom* gives you a reaction penalty – possibly a big one – whenever you try to deal with a local. The offended locals might not even tell you what you are doing wrong!

Control Rating

"Control Rating" (CR) is a *general* measure of the control exercised by a government. The lower the CR, the less restrictive the government and the freer the people. Government type (see *Society and Government Types,* p. 509) does not *absolutely* determine CR – it is possible to have a very free monarchy, or a democracy where the voters have saddled themselves with thousands of strict rules.

Assign CR according to the following guidelines:

CR0 – *Anarchy.* There are no laws, taxes, or controls.

CR1 – *Very free.* Nothing is illegal save use of force or intimidation against other citizens. Taxes are light or voluntary. Only access to LC0 items is controlled (see *Legality,* p. 507).

CR2 – *Free.* Some laws exist; most benefit the individual. Taxes are light. Access to items of LC0 and LC1 is controlled.

CR3 – *Moderate.* There are many laws, but most benefit the individual. Taxes are moderate and fair. Access to items of LC0 through LC2 is controlled.

CR4 – *Controlled.* Many laws exist; most are for the convenience of the state. Broadcast communications are regulated; private broadcasts (like CB) and printing may be restricted. Taxation is often heavy and sometimes unfair. Access to items of LC0 through LC3 is controlled.

CR5 – *Repressive.* There are many laws and regulations, strictly enforced. Taxation is heavy and often unfair. There is strict regulation of information technology: computers, photocopiers, printing presses, transmitters, etc. *All* goods are effectively controlled; you can't buy anything without the appropriate ration coupons or paperwork.

CR6 – *Total control.* Laws are numerous and complex. The individual exists to serve the state. Many offenses carry the death penalty, and trials – if there are any at all – are a mockery. Taxation is crushing, taking most of an ordinary citizen's income. Censorship is common, and private ownership of *any* information technology is forbidden. *All* goods are controlled, and the government might even withhold basic necessities.

If a question of legality arises, or if you need to determine how severely the government checks and harasses newcomers, roll 1d. If the result is *lower* than the CR, then the act is illegal, or the authorities harass, delay, or even arrest the PCs (see *Law Enforcement and Jail,* p. 507). If it is *higher,* either the act is legal or the authorities overlook it. If it *equals* the CR, the situation could go either way: play out an encounter or make a reaction roll.

Travel Etiquette

The wise traveler avoids attracting too much attention. Travelers always stand out if they display technology more advanced than that with which the local citizens are familiar (see *Tech Levels*, p. 511). They also attract unwelcome attention if they violate local laws or customs. In general, any boisterous behavior or breach of peace should have "interesting" consequences.

Travelers should also remember that politeness to local dignitaries is always wise, and strangers met by chance might be more than they appear . . .

The GM should skip this die roll in any situation where there is only one logical outcome. For instance, *regardless* of CR, it is almost always unacceptable for airline and starship passengers to carry weapons.

Split Control Rating

A society does not *have* to have a single, uniform CR. If the GM wishes – and doesn't mind the extra work – he can specify *several* CRs for a society: one for basic human rights, another for taxation, a third for weapons, and so on. In worlds with magic, psionic powers, or super abilities, societies may have separate CRs for these things as well.

Legality

Each item of equipment has a "Legality Class," as defined under *Legality Class* (p. 267). Some modern-day examples include:

LC0 – *Banned.* Weapons of mass destruction; strategic missiles; orbital weapons platforms; intercontinental bombers.

LC1 – *Military.* Heavy weapons; air-defense radar; sensor jammers; armed vehicles; land mines.

LC2 – *Restricted.* Light assault weapons; silencers; surveillance technology (wiretaps, etc.); armored cars; burglar's tools (e.g., lockpicks); explosives; dangerous drugs.

LC3 – *Licensed.* Handguns; hunting guns; radio transmitters; most unarmed vehicles; ordinary drugs and medical equipment.

LC4 – *Open.* Nonlethal weapons (e.g., stunners); home computers; radio and television receivers; cameras; most tools; first-aid kits.

Spell Legality

In a society where magic is common, each spell might have a Legality Class as well. Damage-dealing spells would be on par with light concealable weapons (LC3), while most other spells would be LC4. There are many possible variations: societies that place a high value on privacy would put Knowledge spells in a lower LC; otherwise-tolerant societies might take exception to Necromantic spells; and all "witchcraft" might be LC1 (or 0!) in a puritanical society.

Control Rating and Legality Class

Legality Class interacts with Control Rating as follows:

LC = CR + 1 or more: Any citizen may carry the item.

LC = CR: Anyone but a convicted criminal or the equivalent may carry the item. Registration may be required, but there is no permit fee.

LC = CR - 1: A license is required to own or carry the item. To get a license, one must show a legitimate need or work for the government. Generally, a license costs 1d × 10% of the price of the item itself.

LC = CR - 2: Prohibited except to police SWAT teams, military units, and intelligence services.

LC = CR - 3 or worse: Only permitted to the military or secret police.

Law Enforcement and Jail

If you break the law, it will be the duty of *some* local official to do *something* about it. This can range from a polite request that you clean up your act, through arrest and jail pending a trial, to judgment and execution on the spot.

Arrest

In some places, police are also judge, jury, and executioner, empowered to make an instant decision and act on it. This has to do with local values, not CR! The only lawman in a CR1 frontier town and a secret policeman in a CR6 dystopia are equally likely to execute lawbreakers – but for very different crimes.

In societies that respect human rights – and in some legalistic societies that stand on procedure – the GM will secretly roll against the Law (Police) skill of the arresting officer. On a critical failure, the officer bungled the arrest so badly that the authorities release the prisoner without a trial. On a failure, the officer made a procedural error that the prisoner *might* be able to exploit. He or his lawyer gets a Law (Criminal) or Law (Police) roll to spot it; on a success, he identifies the error and the charges are dropped. This roll *cannot* be against default Law skill!

If you break the law, it will be the duty of some local official to do something about it.

Jail

"Jail" is where the accused is held pending trial. In theory, this is not the same thing as "prison," which is where convicted criminals serve sentences. In reality, the two are often one and the same.

Jails range from "honor systems" to dungeons with chains. Many game worlds have widely varying types of jail, depending on the crime, the accuser, the Status of the prisoner, and any timely bribes.

Jail time between arrest and trial is highly variable. It depends on local laws, whether a judge is available, and – if there is a judge – how busy his court is. In general, the higher the CR, the longer the possible wait.

Bail

The authorities *might* be willing to release a jailed prisoner on "bail": a sum of money that serves as a pledge that he will return for the trial. The amount required depends on the severity of the charges, the prisoner's Reputation and legal record, and the judge's reaction to the prisoner. If the prisoner flees ("jumps bail"), he will face additional charges.

Trials

A trial might be totally fair and honest . . . or entirely for show, with a predetermined outcome. It might be rigorously formal, or noisy and informal.

Trial by Ordeal

This is a trial in which Fate is supposed to decide guilt or innocence.

Example: Anyone accused of witchcraft is thrown into a pond. Anyone who floats is a witch, and is taken out and burned. Those who sink must have been innocent.

For a trial by ordeal, the GM should determine the success rolls needed to survive. (The above example would be hard to survive!) More examples: walk a beam across a canyon (roll DX-4 every 10 feet; those with Perfect Balance don't need to roll); hold a hot piece of iron (roll ST-3 *and* Will-3, at +3 for High Pain Threshold); find your way out of a maze (roll IQ; Absolute Direction gives +3).

Trial by Combat

Trial by combat is like trial by ordeal, in that Fate is supposed to judge guilt or innocence. As a rule, though, trial by combat provides the punishment as well: the guilty party dies. A trial by combat might be fair (evenly matched champions), loaded (uneven champions), or totally unfair (throw the prisoner into a pit with a monster).

Bribery

If the judge presiding over your trial is corrupt, bribery might buy you a reaction bonus – or even an automatic victory. But if the judge is honest, attempted bribery will cast doubt on your innocence, giving a reaction penalty and possibly bringing *further* charges.

Trial by Judge

In some societies, a noble, elder, magistrate, etc. unilaterally decides guilt or innocence. The GM determines the judge's reaction toward the accused by making a reaction roll, and bases the judge's decision entirely the result.

In some trials, an Influence roll against the appropriate Law specialty, by the accused or his lawyer, can replace this reaction roll; see *Influence Rolls* (p. 359). In other trials, the accused might not be allowed to have a lawyer, or even speak!

If two parties ask a judge to settle a dispute, make a reaction roll for both. The judge will find in favor of the party that gets the best reaction.

Modifiers: +1 to +3 for evidence or testimony that favors the accused, or -1 to -3 for evidence or testimony against him, *if* the judge is inclined to listen; reaction modifiers for the Reputation, Social Regard, Social Stigma, and Status of the accused; other reaction modifiers that the GM feels apply with *this* judge.

Adversarial Trials

In still other societies, trials are a Quick Contest of Law (Criminal) skill between the prosecution and defense, in the presence of a judge and possibly a jury. If the accused chooses to defend *himself,* he is at -1 to -3 due to his emotional involvement. (The saying "The lawyer who defends himself has a fool for a client" is often true!)

Record the results of the Quick Contest, and then make a reaction roll for the judge or jury (as appropriate).

Modifiers: A bonus equal to the defense's margin of victory, or a penalty equal to the prosecution's margin of victory, depending on the victor; +2 or more if the *player* roleplayed a compelling defense; +1 to +3 if the evidence supports the defendant, or -1 to -3 if it supports the prosecution; +1 or more for a plausible alibi; -1 or more for bad publicity; -2 if the defendant jumped bail (see *Bail,* p. 507); -3 if an eyewitness placed the defendant at the crime scene; any bonus or penalty for the defendant's Reputation.

The reaction *is* the verdict: a reaction worse than Neutral means "guilty"; a reaction better than Neutral means "not guilty." Neutral reactions go to the side that won the Quick Contest. If that was a tie, the result is an acquittal.

In the case of a conviction, punishment is left to the GM, playing the part of the judge. See *Criminal Punishment* (below) for ideas. If a PC behaves in a way that truly deserves punishment, the GM should not feel obliged to get him out of it, even if the penalty is serious.

Somebody's going to emergency,
Somebody's going to jail.
– Don Henley, "New York Minute"

Criminal Punishment

The severity of the punishment for a crime will depend on the crime, the victim, the accused, and the judge's reaction. Punishments are generally more severe in high-CR societies. Punishments might include:

- Fines or restitution.
- Public humiliation; e.g., the stocks (treat as a bad Reputation with those who witnessed the punishment).
- Prison sentences, sometimes at hard labor.
- Beating, stoning, flogging, etc.
- Branding (treat as a Social Stigma).
- Maiming – temporary or permanent.
- Deprivation of rights; e.g., loss of citizenship, loss of the right to carry weapons, or reduction in formal Status.
- Exile, temporary or permanent.
- Slavery, either to the government or to the victim of the crime.
- Imposition of a specific task or quest, possibly by a magical geas.
- Imposition of a psionic or magical bond or geas to make repeat offenses impossible.
- Combat in the arena (the worse the punishment, the worse the foe).
- Torture.
- Execution (not too useful in game terms, except as a threat to force the party to take immediate action to rescue the prisoner).

Society and Government Types

Mankind has lived under dozens of different societies. Futuristic, fantasy, and alien settings might offer dozens more – some of them very *different*. A few possibilities appear below, in order of increasing Control Rating (see *Control Rating,* p. 506). The GM should choose a society type for each major society in the game world.

Anarchy

There are *no* laws. The social conscience (or strength and weaponry!) of the population maintains order. "Anarchy" could mean a lawless mob . . . or a society of clear-eyed, strong-backed pioneers. CR0, but if your well-armed neighbors unanimously disapprove of what you're doing, it is effectively illegal!

Athenian Democracy

Every citizen (the definition of "citizen" can vary) votes on every action the society takes. Below TL9, this is only practical for groups under 10,000. At TL9+, information networks allow large populations to discuss and vote electronically. CR2 to 4.

Representative Democracy

Elected representatives form a congress or parliament. If the citizens are vigilant and informed, this is a benevolent government. If the citizens are badly educated, government policies are bad but popular (bread and circuses!). If the citizens are apathetic, factions or special-interest groups may dominate government. In all cases, conspiracies may operate to control the society. CR2 to 4.

Clan/Tribal

The society is one large, interlocking family made up of allied clans or tribes and ruled by the clan elders. Customs and tradition are very important. Younger clan members might feel forced to conform, or become rebellious to protest their lack of influence; seniors may channel this energy by encouraging sports, recreational combat, or adventuring. CR3 to 5.

Caste

As for *Clan/Tribal,* but each clan has a set role or profession. Those who don't follow their clan profession become clanless (a Social Stigma), unless there is a system for adoption into a new clan. Clans usually form a social hierarchy; e.g., administrators outrank warriors, who outrank street sweepers, and so on. Individuals are expected to associate only with those of equivalent status. There may also be rivalries among clans of the same type (different warrior families, for instance). CR3 to 6.

Dictatorship

All government is vested in a single ruler – king, dictator, etc. (If the ruler is a king, this is a *monarchy.*) Succession might be by inheritance, election, single combat, or any number of other means. This sort of government can act faster, for good or for evil, than most representative governments. Dictatorships (and other totalitarian states), if they endure long enough, sometimes develop a "balance wheel" in the form of custom. Though the ruler's will is law, there are unwritten laws that even he may not violate with impunity. CR3 to 6.

Technocracy

Engineers and scientists rule in the name of efficiency. Everything is carefully planned; of course, plans can go wrong. The better the technocrats are at running things, the less oppressive they are; if they're incompetent, they are also dictatorial. CR3 to 6.

Theocracy

This is rule by a religious group or leader. Freedom of religion is unlikely, and there is no distinction between religious and civil law. The leaders may or may not believe in their own religion; "miracles" might be faked or *genuine*. Theocracies range from benign utopias to totalitarian religious dictatorships. CR3 to 6.

Corporate State

Corporate officers rule the society. Most citizens are employees of the corporation. Society runs smoothly – it has to, or it can't be profitable! CR4 to 6.

The Big Picture

The GM should also decide how the major societies in the game world interact with one another. Possible political situations include:

World Government: One government rules the entire world (which might be a continent in a low-tech setting, an entire galaxy in a very high-tech one). Regional differences, if any, are strictly cultural or linguistic.

Coalition: A few powerful allies dominate the world. They squabble on occasion, but they usually present a united front. The individual societies are still quite distinct, and might have radically different government types.

Factionalized: A small number of rival "blocs" or superpowers dominate the world. Each bloc has enough economic and military might to rule the world, but the other blocs would sooner unite in opposition than let that happen. As a result, alliances shift regularly. Ties *within* blocs are more permanent.

Diffuse: There are dozens, if not hundreds, of clans, nations, and groups. No one can make any claim to world domination.

Feudal

Similar to monarchy (see *Dictatorship,* above), but subsidiary lords retain local power; therefore, the ruler must be careful to maintain the lords' support, or be overthrown. Since each lord rules his own territory, laws and personal freedoms will vary from dominion to dominion. CR4 to 6 (at least for the commoners).

VARIATIONS

One or more of these special situations may apply to most of the society types listed above:

Bureaucracy: A self-perpetuating "civil service" runs the society from day to day. Because these bureaucrats are not elected, they are largely insulated from public pressure. Government *seems* to run very smoothly – if there are difficulties, you aren't told about them. But there are high taxes, many laws, and lots of red tape. The government is unresponsive to citizens. There may not be a free press. CR4+.

Colony: A dependent region ruled by the mother society, usually through a governor. The colonists may have an elected council (through which they influence the governor), an elected representative to the mother government (with nonvoting power), or both – but they have no *direct* say in their own government. Colonies have less government than the mother society; reduce CR by 1 or more. Rebels and outcasts may be welcome if they have useful skills.

> *LIBERTY, n.: One of Imagination's most precious possessions.*
> *– Ambrose Bierce,* ***The Devil's Dictionary***

Cybercracy: A statewide computer system controls administration – and perhaps actual legislation! This is *impossible* before TL8, and highly unlikely before TL9. Government might be efficient, inhuman, or both. The system is only as good as its programmers and technicians. Trust the Computer . . . CR3+.

Restrictions

Powerful or advanced societies might attach "restricted" status to uninhabited regions – or even to weaker or more primitive societies. Examples include:

Embargoed: A stronger society might prohibit *all* trade with a weaker one. They usually enforce this through military means, and search visitors carefully to prevent smuggling.

Hazardous: The region harbors something dangerous: cannibals, vicious wildlife, magical storms, etc. Buoys, signs, flags, etc. warn travelers of the risk. The authorities don't move to prevent entry into the region . . . but they don't rescue travelers who get into trouble, either!

Prohibited: The region is *completely* off limits without special permission. This might be because the region is hazardous or quarantined – or because it contains some kind of secret (often military). The authorities might forcibly remove trespassers, prevent them from leaving, or simply destroy them on sight.

Protected: The authorities limit contact in order to protect native culture, wildlife, etc. Visitors might have to undergo medical quarantine before entering the region, or be prohibited from carrying certain equipment. They might even have to disguise themselves as natives!

Reserved: The region is off limits for colonization or development.

Matriarchy. Positions of authority are open only to females. Any CR is possible.

Meritocracy: No one may enter the government without passing a series of tests. A good meritocracy is likely to have competent leaders . . . but this can lead to a rigid caste system. CR3+.

Military Government: The military runs the state. A society led by a single commander-in-chief is likely to be a dictatorship; one where the commander must answer to a council (or *junta*) of officers is likely to be feudal. Military governments *can* be strong and honest, but most are totalitarian. CR4+.

Oligarchy: Regardless of the nominal form of government, leadership is in the hands of a small, self-perpetuating clique. CR3+.

Patriarchy: Positions of authority are open only to males. Any CR is possible.

Sanctuary: A sanctuary refuses to extradite the "criminals," "refugees," or "terrorists" hunted by other societies. This might be informal, or there might be a tribunal to decide each petitioner's fate. Lawmen or bounty hunters from elsewhere are outlaws here. CR is rarely over 4.

Socialist: The government directly manages the economy. Citizens get free or subsidized education, medical care, housing, etc., and the government tries to give everyone a job. The resulting expenses can stifle an economy at low TLs. Most wealthy, high-tech states have elements of "mild socialism," such as heavily subsidized health care and "safety-net" welfare benefits for the poor. Like any government expenditure, these benefits might raise local taxes. CR3+.

Subjugated: This society is under outside control – whether military (an occupying army), economic (a "puppet government," subservient to foreign masters), or something else (e.g., magical mind control). CR4+.

Utopia: A utopia is a perfect society in which all citizens are satisfied. CR always seems low . . . but is it? Real utopias are rare. Seeming utopias often have some dark secret – for instance, a hidden technocracy ruling by mind control. A sinister utopia is a real GMing challenge. A genuine utopia is an excellent "good guy" society for the heroes to save from conquest or other threats (but real utopias, unless threatened by destruction, are boring).

Tech Levels

"Tech level" (TL) is a *general* rating of a society's highest achievement in technology (or a certain type of technology). Tech levels run from zero on up. Each TL describes a set of technologies that become available after a certain point in time. The standard TLs, and associated eras on Earth, are:

TL0 – Stone Age (Prehistory and later). Counting; oral tradition.
TL1 – Bronze Age (3500 B.C.+). Arithmetic; writing.
TL2 – Iron Age (1200 B.C.+). Geometry; scrolls.
TL3 – Medieval (600 A.D.+). Algebra; books.
TL4 – Age of Sail (1450+). Calculus; movable type.
TL5 – Industrial Revolution (1730+). Mechanical calculators; telegraph.
TL6 – Mechanized Age (1880+). Electrical calculators; telephone and radio.
TL7 – Nuclear Age (1940+). Mainframe computers; television.
TL8 – Digital Age (1980+). Personal computers; global networks.
TL9 – Microtech Age (2025+?). Artificial intelligence; real-time virtuality.
TL10 – Robotic Age (2070+?). Nanotechnology or other advances start to blur distinctions between technologies . . .
TL11 – Age of Exotic Matter.
TL12 – Whatever the GM likes!

Note that TLs have start dates but *not* end dates. The innovations of a given TL fade as those of higher TLs displace them, but they rarely vanish completely. A blacksmith in 1850s England uses TL3 techniques to shoe the horses that pull the carriage the gentleman rides to catch his TL5 train to London – and those techniques might still exist in TL8, albeit as a quaint hobby. The GM should decide which "dated" technologies remain in use in his game world, and which items from earlier TLs are still commonly available for purchase.

Differences in tech level become very important when adventurers travel between societies. Technology is likely to seem like magic to anyone more than three or four TLs less advanced. If a WWII soldier (TL6) gets dropped back into the days of King Arthur (TL3) . . . things get interesting. Of course, time travel isn't necessary – even today, you can drop back three or four TLs if you visit the right part of the world.

A party *always* attracts attention if it displays technology from a higher TL than that of the locals. This attention might take the form of worship, awe, curiosity, envy, fear, or hatred – the greater the disparity in TL, the stronger the reaction.

The GM should set a "baseline TL," which describes *most* societies in the game world, most of the time. However, exceptions may exist.

Backward Societies

A society might have a lower TL across the board. This could be because it is impoverished, isolated (either geographically or economically), resistant to change (such as 17th-century China), or regressed (possibly in the wake of war or natural disaster). PCs from such societies will have the Low TL disadvantage (see p. 22).

Advanced Societies

Likewise, the TL of a particular society might be *higher* than that of the rest of the game world. If the GM chooses to introduce such advanced societies, he should ensure that PCs who wish to use their advanced technology pay the points and cash to acquire it honestly. PCs from such societies must have the High TL advantage (see p. 23).

Split Tech Level

Realistic societies rarely have the same TL in every field of endeavor; they tend to be advanced in some fields, backward in others. GMs who desire extra detail can rate each society for its TL in a few key areas. It is most efficient to list only those TLs that differ from the baseline; e.g., "TL8 (Communications TL7, Medical TL9)."

PCs have a personal TL equal to their society's baseline TL, but the TL of their technological skills matches that of their society in the relevant area.

Variations Within a Tech Level

The equipment listed for a TL does not appear all at once as soon as a society enters that TL. Instead, items appear gradually after that date.

Shortly after a TL begins, devices from the *previous* TL will be common – along with experts in skills associated with those items. A player could easily justify a PC with a personal TL one step below that of his society, or with one or two skills that are *several* TLs out of date.

As the TL wears on, devices from the *next* TL start to appear. If PCs wish to obtain such equipment, they must either invent it or buy a prototype – see *New Inventions* (p. 473). Access to prototypes is *not* sufficient to justify a PC with a personal TL above that of his society!

At the GM's option, adventurers may have a skill penalty of -1 or more when dealing with technology *of their own TL* that is more or less advanced than what they are used to. Treat this as an unfamiliarity penalty; see *Familiarity* (p. 169).

Finally, the GM should be aware that not every item of a given TL *must* appear in every society that attains that TL. The GM always has the final say as to which items are currently available – both to the PCs and in the game world in general.

Tech Level by Field

It is often important to know what a given TL implies for a particular area of knowledge – for instance, when using the *Building Up Local Technology* and *Split Tech Level* rules. The tables below outline the effects of TL on four sample fields. Many other such fields exist: architecture, communications, materials, etc.

Transportation

TL0 – Skis; dogsleds; dugout canoes.
TL1 – Bare horseback; the wheel (and chariots); shipbuilding; sails.
TL2 – Saddle; roads; triremes.
TL3 – Stirrups; oceangoing sailing ships (longships, roundships, etc.).
TL4 – Stagecoach; three-masted sailing ships; precise navigation.
TL5 – Steam locomotives; steamboats; early submersibles; balloons and early airships.
TL6 – Automobiles; continental railways; ocean liners; submarines; aircraft.
TL7 – Nuclear submarines; jet aircraft; helicopters; manned space flight.
TL8 – Satellite navigation; SSTO ("single stage to orbit") spacecraft.
TL9 – Robot cars; space elevators; manned interplanetary space flight.
TL10 – Fast interplanetary space flight.
TL11 – Manned interstellar space flight.
TL12 – Fast interstellar space flight.

Superscience! Reactionless thrust; contragravity; faster-than light (FTL) travel; matter transmission; parachronic technology; time machines.

Weapons and Armor

TL0 – Wooden and stone weapons; primitive shields; hides for armor.
TL1 – Bronze weapons and armor.
TL2 – Iron weapons; iron armor (including mail); siege engines.
TL3 – Steel weapons; early firearms; plate armor; castles.
TL4 – Muskets and pikes; horse artillery; naval broadsides.
TL5 – Early repeating small arms; rifled cannon; ironclads.
TL6 – Smokeless powder; automatic weapons; tanks; combat aircraft.
TL7 – Ballistic body armor; guided munitions; combat jets; nuclear weapons.
TL8 – Smartguns; blinding lasers; unmanned combat vehicles.
TL9 – Electrolasers; heavy laser weapons; battlesuits; combat robots; designer viruses.
TL10 – Compact laser and heavy particle-beam weapons; Gauss guns; nanotech armor; nanoviruses; antimatter bombs.
TL11 – Compact particle-beam weapons; disassemblers ("gray goo"); defensive nanites.
TL12 – Gamma-ray lasers; "living metal" armor; black-hole bombs.

Superscience! Monomolecular blades; force-field technology; gravitic weapons; nuclear dampers; disintegrators.

Power

TL0 – Human muscle power; dogs.
TL1 – Donkeys; oxen; ponies.
TL2 – Horses; water wheels.
TL3 – Heavy horses and horse-collars; windmills.
TL4 – Improved windmills; belt drives; clockwork.
TL5 – Steam engines; direct current; batteries.
TL6 – Steam turbines; internal combustion; alternating current; hydroelectricity.
TL7 – Gas turbines; fission; solar power.
TL8 – Fuel cells; advanced batteries.
TL9 – Micro fuel cells; deuterium-hydrogen fusion; high-temperature superconductors.
TL10 – Helium-3 fusion; antimatter.
TL11 – Portable fusion power.
TL12 – Portable antimatter power.

Superscience! Broadcast power; cold fusion; zero-point energy; total conversion; cosmic power.

Biotechnology/Medicine

TL0 – First aid; herbal remedies; primitive agriculture.
TL1 – Surgery; animal husbandry; fermentation.
TL2 – Bleeding the sick; chemical remedies.
TL3 – Crude prosthetics; anatomical science.
TL4 – Optical microscope makes cells visible.
TL5 – Germ theory of disease; safe anesthetics; vaccines.
TL6 – Antibiotics; blood typing and safe transfusions; heredity; biochemistry.
TL7 – Discovery of DNA; organ transplants; pacemaker.
TL8 – Genetically modified organisms; gene therapy; cloning.
TL9 – Human genetic engineering; tissue engineering; artificial wombs; cybernetic implants.
TL10 – Brain transplants; uploading; bioroids; uplifted animals.
TL11 – Living machines; cellular rejuvenation.
TL12 – Full metamorphosis; regeneration.

Superscience! Fast-growth clone tanks; psi drugs; regeneration ray.

Borrowed Technology

A society can be familiar with technology that it does not itself possess. This is frequently the case for low-tech societies with high-tech neighbors, and for colonies. A village with Iron Age technology (TL2) might be quite familiar with the TL3 steel weapons carried by travelers, and richer villagers might have a few, but local smiths could not duplicate or repair them. Express this as "TL2/3." PCs from such societies have a personal TL equal to the *lower* TL, but may learn the skills needed to use (but not repair or design) equipment of the *higher* TL.

Building Up Local Technology

There may be times when you need to improve the local TL. A group of castaways might have high-tech knowledge, but little or no equipment to work with. In that case, they need to "build the tools to build the tools" to use their technological knowledge. In extreme cases, your castaways might have to go all the way back to primitive mining to get the ore to refine to metal to build the tools to build the tools . . . ! Or a single traveler might want to impart his high-tech knowledge to the people he is visiting. (We assume that he has the cooperation of his hosts, or he doesn't have a chance.)

Any such situation is largely at the GM's discretion. But it *can* be done. Some of the best adventure stories of all time have revolved around one of these premises: *Swiss Family Robinson, Lord Kalvan of Otherwhen,* the *Riverworld* series, *A Connecticut Yankee in King Arthur's Court,* etc.

General guideline: a "science" is one of the categories of knowledge listed under *Tech Level by Field* (p. 512). It takes *two* years of work to move each science from one TL to the next, assuming that:

(a) you have an ample supply of labor;

(b) you have an ample supply of raw materials;

(c) you are fully familiar with the lower TL (all relevant skills at 12+); and

(d) you know where you're going, and are fully familiar with the higher TL (all relevant skills at 12+).

This rule is specifically for high-TL characters re-inventing or introducing technology to a low-tech society or situation. It does *not* cover inventions – for that, see *New Inventions* (p. 473).

Different Technologies

Some technologies (and some *societies*) do not fit nicely onto the standard tech-level charts. GMs who run into this problem might wish to use one of the *optional* rules below.

Technology Paths

Certain categories of inventions might appear in an order other than that suggested by the default TLs. In particular, there is *no* guarantee that TL9+ technologies will appear in the order ***GURPS*** predicts. Apply the *Split Tech Level* rule (p. 511) as liberally as you wish to simulate your favorite genre! For instance, in a "cyberpunk" society, computing, bionics, and biotechnology might be two to four TLs more advanced. In contrast, a "retro-tech" setting that mimics 1940s sci-fi might have computers frozen at TL6 but many other technologies at anywhere from TL9 to TL12. Any combination is possible!

Divergent Tech Levels

In other cases, a society has a single, *consistent* TL – but it got there along an unusual path. The GM can designate this "divergent TL" with the notation "TL(x+y)," where x is the TL at which the technology diverged, y is the number of TLs since the divergence, and the sum x+y is the *effective* TL for most purposes.

Example: TL(5+1) is effectively TL6 – but a *different* TL6 that split off at TL5. TL(5+1) devices produce similar results to TL6 ones, but look little like those devices and rely on different operating principles. A TL(5+1) "steampunk" world based on Victorian visions of the future might have steam cars, steam dirigibles, and high-speed telegraph lines instead of the automobiles, airplanes, and telephones of TL6.

Divergent TLs are not unique. There could be any number of versions of (for instance) TL(5+1), each different in its own way. The GM should specify what caused the split in each case, be it different thinking, different prevailing physics, or something else.

Characters used to a "normal" or "differently diverging" TL suffer an *additional* -2 penalty for unfamiliarity, over and above any penalties for TL differences, when dealing with divergent technology.

Superscience

"Superscience" technologies violate physical laws – relativity, conservation of energy, etc. – as we currently understand them. Examples of superscience technologies appear under *Tech Level by Field* (p. 512), and several articles of superscience equipment appear in Chapter 8.

By definition, it is impossible to set a firm TL for superscience – we might discover faster-than-light travel tomorrow, a thousand years from now, or never. Equipment TLs are always debatable, but superscience

Improving Skills in Alternate Tech Levels

An adventurer who wishes to learn a technological skill can save points if he already knows that skill at another tech level. Treat the skill at the new TL as a *different skill* that defaults to the known skill at the penalty listed under *Tech-Level Modifiers* (p. 168); e.g., Engineer/TL5 defaults to Engineer/TL7 at -3. Handle improving skills from "cross-TL" defaults identically to improving any skill from default; see *Improving Skills from Default* (p. 173). (If your skill is not high enough to let you start from a favorable default, ignore these rules and learn the skill normally.)

TLs are *arbitrary.* To reflect this, the rules give the TL of superscience developments as "^" instead of a number. The GM is free to assign such innovations to *any* TL. To note a superscience invention that appears at a specific TL in a particular game world, put a "^" after its TL; e.g., "TL3^" for a TL3 superscience item.

Remember: superscience doesn't *have* to change a society's overall TL, create a new technology path, or cause a divergent TL. It just adds totally new developments to all the usual technologies for a given TL in that society.

Tech Level and Genre

When designing a game world with a specific genre in mind, the GM should be sure to choose a TL that will meet his players' expectations for the genre. Some examples:

- *Sword & Sandal:* Gladiators, chariots, and amazons. TL1-2.
- *Medieval Fantasy:* Knights, wizards, and castles. TL3.
- *Warring Provinces Japan:* Samurai and ninja. TL3-4.
- *Swashbucklers:* Pirates and musketeers. TL4.
- *Wild West:* Cowboys and Indians. TL5.
- *Steampunk:* Fiction of Jules Verne and H.G. Wells. TL5, diverging to TL(5+1).
- *Pulp:* Archaeologists and detectives between the World Wars. TL6.
- *WWII:* Axis and Allies. TL6.
- *Cold War:* Capitalism vs. communism. TL7.
- *Modern Day:* You're living in it! TL8.
- *Cyberpunk:* Netrunners and cyborgs. TL9.
- *Space Opera:* Interstellar adventure. TL10+, plus superscience.

Economics

Each game world has its own economic situation. But *money,* in some form or another, is important in almost every setting.

Money is *anything* you can exchange for what you want. It varies from one game world to the next. In a high-tech world, everything might be done by credit card. In a low-tech world, gold and silver may be king.

For the sake of convenience, ***GURPS*** prefixes all prices with a dollar sign – $ – in all settings. The GM is welcome to translate this to credits, copper farthings, Martian foomphra, or whatever he feels is appropriate to the game world; see *Tech Level and Starting Wealth* (p. 27).

In a low-tech world, jewelry is also money. It might not have a set value imprinted on it, but it is small and portable, and easily traded for coins or bartered directly for needed goods. In fact, many societies exist largely by barter – which can be a test of the players' ingenuity.

Bankrolls and Possessions

List the money a character has on his person on his character sheet, just like his other possessions. If a *lot* of transactions are taking place, it might be wise to record money on a separate sheet of paper to avoid erasing a hole in the character sheet!

List the money a character does *not* carry with him separately, along with its location. The GM may arrange floods, bank robberies, tax increases, and other entertainments to deprive the PCs of their savings – or at least make them work to get their money back. The same is true of all other possessions the heroes do not carry with them.

Moving Money Between Worlds

If the PCs move between game worlds (see *Travel Between Game Worlds,* p. 520), they will naturally want to take some cash along. But what is "legal tender" in one world might be worthless in another. There are two principles for the GM to remember here:

1. Money in a new world isn't "legal tender"; it's a commodity. If you bring medieval gold coins to the 21st century, they will sell as curios – or as gold, for perhaps $400 a troy ounce. If you take American paper money to the 10th century, it will be worthless. So, rather than money, take along a few plastic hard-hats and maybe an MP3 player. ("What am I bid for this miraculous orchestra in a box?")

2. A cross-world trading operation can get very rich very quickly. If a GM allows cross-world travel, it is up to *him* to preserve balance by limiting the quantity or type of goods that traders can move between worlds. A suggested limit: only what the travelers can carry on their persons – and trips should *not* be frequent.

Buying and Selling

Players can buy and sell among themselves at whatever prices they can agree on. For outside transactions, the GM (or Adversary) should roleplay a merchant dealing in the needed goods or services. Most transactions do not require a reaction roll. Only make a reaction roll if the situation is in some way unusual. For instance, if the adventurers are new in town and have been swaggering around in armor and acting strangely, roll to see if the merchants will have anything to do with them!

In general, the GM should set prices reasonably, following the laws of supply and demand. Camels are valuable near the desert, worthless in the jungle. After a great battle, used armor might be on sale at scrap-metal prices. And so on.

The Merchant skill (p. 209) will help the PCs get good deals.

Equipment and Supplies

The GM should give the players a list of standard equipment and supplies, and their "normal" costs. The items and prices on the list will vary from game world to game world.

The players *will* want to buy things that aren't on the list. The GM should allow any reasonable purchase – as *he* defines "reasonable" – setting prices by comparison with things on the list. Real-world catalogs can be useful here!

For more information, see Chapter 8, *Equipment*.

Loot, and Disposing of It

Many adventures are overt quests for treasure. Many aren't. Nevertheless, it is customary to let the heroes find something of value if they successfully complete an adventure. If nothing else, this lets them buy their supplies for the next adventure . . .

The classic fantasy adventure sends successful adventurers home with chests of gold and jewels. Very convenient! If you are writing a more realistic adventure, invent more interesting forms of treasure.

Let's say the party was hired to guard a caravan. They drove off the bandits that attacked the caravan, tracked them to their lair, wiped them out, and took their loot. Now, assuming the heroes have enough pack animals, it will be a simple matter to take the goods into town. Locate a merchant (using Area Knowledge – or Streetwise, if necessary). Make the best sales approach possible. The GM makes a reaction roll for the merchant. If he's interested in the goods, he makes an offer, which the players can accept or reject. Simple.

But it doesn't have to be that simple. Identifying treasure, and turning it into cash, can be a major part of the challenge! Some possibilities:

- The treasure is not portable. How will they get it home?
- The treasure is not recognizable as such without a skill roll – or looks like treasure to the unskilled observer, but is really junk!
- The treasure is valuable only to certain collectors or specialists. Getting it to a buyer might be an adventure in itself.
- The treasure is illegal or immoral, making it *risky* to trade.
- The treasure is perishable or dangerous, and requires special handling.
- Somebody else is hunting the treasure.
- The treasure is not goods, but *information* – a clue to the *real* loot, or a major plot hook toward the overall campaign goal.

In spite of your best planning, the players will occasionally find "loot" you had not anticipated. For instance, the slavers had the PCs trapped in iron cages . . . and when they escape, they

Making Your Own Goods

Adventurers with appropriate skills may want to save money by making their own equipment. Use the following guidelines in this situation.

Starting equipment always costs "list price," even if the PC could have made it himself. Assume that buying materials and taking time out to make the item had the same impact on the PC's starting wealth as if he had bought the item.

Building equipment *in play* is legal . . . if the GM is willing to go along with it. Some things to consider:

1. What raw materials are needed, and how much will they cost? "Parts cost" is usually around 20% finished item cost.

2. How long will it take? PCs who build equipment between adventures can't earn income or learn skills during that time. PCs who build equipment *during* adventures are out of the action.

3. What skills are required, and what happens on a failure or critical failure? As a rule, failure just ruins the raw materials. Critical failure produces equipment that fails catastrophically when used!

It would take several books to list all possible items, raw materials, building times, and skills – so this *must* be left up to the GM.

Gold and Silver

A traditional assumption of fantasy games (and many fantasy novels) is that gold and silver are heavy, and inconvenient to carry around for purchases. If you are the GM, this is true only if you want it to be true.

Historically, gold and silver were *very* valuable – and many goods were cheap. For an authentic medieval English (14th-century) economy, treat the $ as a "farthing": a copper coin about an inch across. A silver penny is worth $4 and is less than half an inch across; 250 such coins ($1,000) weigh one pound. If silver and gold trade at 20 to 1 (a reasonable ratio for much of history), a pound of gold is worth $20,000! A man could carry a king's ransom in his backpack.

On the other hand, a GM who wants wealth to be less portable might assume that the $ is a one-ounce silver coin, like a silver dollar. A one-ounce gold piece would then be worth $20. At that rate, 12 coins (troy weight) would weigh a pound; a pound of gold would be worth only $240. In such a world, precious gems are the only way to carry a large amount of wealth in a small package, and caravans loaded with gold might actually exist!

take the cages with them to sell for scrap. This is when you improvise. If you have no clear idea what the goods are worth, just make the story interesting. If you want the party to have money, then there's a demand for scrap iron in the next village. If not, nobody is interested. Simple.

Controlling Inflation

The GM should be careful not to let the PCs get too rich too soon. Rather than drive up prices, make *expensive* things (ships, noble titles, etc.) available, and give the heroes opportunities to invest in interesting long-term, high-risk ventures (e.g., bankrolling an inventor). Alternatively, arrange an occasional catastrophe to keep the PCs broke – or simply an adventure where no amount of money can replace brains.

In a high-tech world, there is no limit to the advantages you can buy with money. In a low-tech environment, once you have one good suit of armor, one fine weapon, and a couple of fine horses, there's not much else you can buy to enhance personal prowess. But you can hire an army . . .

Finally, be realistic about the value of loot. Armor, combat vehicles, and similar military materials are likely to be damaged after a fight – the PCs will be lucky to get 1/3 "retail value" if they drag this kind of hardware into town. (A *very* realistic GM will assess the PCs maintenance costs for repairing their *own* vehicles, weapons, armor, etc., too.)

Wealth and Status

Wealth (p. 25) and Status (p. 28) are separate but related traits. It is up to the GM to determine the details of the relationship.

In many game worlds, those with high social standing must buy up Wealth by one level past Average per Status level above 0, but can have high Wealth without high Status. In others, wealthy characters must buy an additional level of Status per level of Wealth past Average, but can purchase high Status without Wealth. The GM might even enforce *both* requirements and rigidly associate Status levels with Wealth levels – but this excludes many good character concepts. In all game worlds, it is common for those with *negative* Status to have Wealth one level below Average per Status level below 0.

To keep things fun, the GM should forbid high Status to poor characters or high Wealth to low-Status ones only if the setting absolutely *demands* it!

Cost of Living and Status

Each PC must pay the monthly "cost of living" for his Status or accept the consequences, as explained under *Cost of Living* (p. 265). Assume the PCs are Status 0 – or "middle class" – unless they buy their Status up or down.

To calculate how much money a character has for discretionary use each month, subtract his cost of living and that of noncontributing dependents from his monthly pay (see *Jobs,* below). In a campaign that does not use jobs, either subtract cost of living from the PCs' adventuring income or ignore this rule entirely!

Jobs

The GM determines what jobs are available in the game world, either on his own or by encouraging the players to come up with ideas for jobs suited to their characters' talents. In a historical campaign, the GM can reduce his workload by inviting the players to research and submit reliable information about the jobs they want!

Regardless of whether the GM or the players come up with the job's *description,* the GM assigns its *prerequisites, job roll, monthly pay,* and *wealth level.* The next few sections explain these things.

Description

This includes the job's title, and tells exactly what kind of work the job entails. The GM should give hours, risks, guild or union affiliations, etc., and point to the occupational template (see *Character Templates,* p. 258) for the job, if any.

Prerequisites

A job's *prerequisites* are the skills – if any – needed to do the job. Most jobs specify a minimum required level in each prerequisite skill. This might be absolute ("Administration at 12+") or relative ("Administration at IQ+2 or better"); the former is likely if the employer requires testing, the latter if the employer awards jobs on the basis of experience. In either case, candidates must have at least one point in the skill – default skill will not suffice! Some jobs also require specific advantages, or forbid certain disadvantages.

Job Roll

At the end of every month in which a character works, he must roll against one of the prerequisite skills for his job. This is called a *job roll.*

For jobs with multiple prerequisite skills, the GM should specify whether the worker uses his *best* prerequisite, his *worst* prerequisite, or one specific skill at all times. This roll might be at a bonus for an easy job, at a penalty for a difficult one.

For jobs without prerequisites, the GM should specify either a flat success roll (e.g., "All characters roll vs. 12.") or an attribute roll (e.g., "Roll ST.").

Most jobs offer a fixed wage or salary. On anything but a critical success or critical failure, the worker collects the *monthly pay* for the job (see below). On a critical success, he gets a 10% permanent raise.

Other occupations are more variable; for instance, freelance jobs and work on commission. For these jobs, the worker earns the monthly pay if he makes his job roll *exactly.* For greater success, increase that month's income by 10% times the margin of success; a critical success *triples* the month's income! On a failure, decrease that month's income by 10% times the margin of failure.

For any kind of job, a critical failure is always *bad.* At best, the worker will earn no pay for the month. He might also face demotion (at least a 10% reduction in monthly pay), lost savings (due to damages, fines, etc.), loss of job, on-the-job injury (due to an accident – or possibly a fight, if the job is a violent one), or arrest (especially at a criminal "job"). The GM should be creative!

Monthly Pay

Each month on the job, a worker earns his *monthly pay* – modified for his job roll, as described above. Time spent adventuring is usually not "on

the job," although the GM might wish to make exceptions for vacations, work done while traveling, etc.

The GM may set any pay he likes. The first table at right suggests a fair monthly pay for someone of Average wealth working at a "typical" job for his tech level.

Actual pay at each TL varies within a range bracketed by the typical monthly pay of the previous TL and that of the next TL; e.g., from $2,100 to $3,600 at TL8. Unless the economy is under some sort of stress or outside control, jobs near the high end of this range will be *difficult* (significant penalty to the job roll), *dangerous* (severe consequences on a critically failed job roll), or *highly trained* (many or high-level skill prerequisites).

Campaign Tech Level	*Typical Monthly Pay*
0	$625
1	$650
2	$675
3	$700
4	$800
5	$1,100
6	$1,600
7	$2,100
8	$2,600
9	$3,600
10	$5,600
11	$8,100
12	$10,600

Wealth Level

The monthly pay numbers above are for workers of *Average* wealth. Assume that those of lower Wealth normally have jobs that pay less than this, while those of higher Wealth usually have jobs that pay more. Multiply the average pay and pay range for jobs suitable to a given wealth level by the starting wealth multiplier for that wealth level (see *Wealth,* p. 25).

Example: "Comfortable" wealth doubles starting wealth; therefore, Comfortable jobs pay twice as much. At TL8, this means that monthly income for those of Comfortable wealth is typically $5,200, but can range from $4,200 to $7,200.

The more a job pays, the higher the Status it can support. The second table at right sums this up.

If a PC lands a job associated with a higher wealth level than his own (which isn't easy – see *Finding a Job,* p. 518), the GM should let him earn the usual pay for that job. Most employers cannot get away with paying poorer workers less! However, if the PC's savings reach the starting wealth of the next-highest wealth level, he *must* pay the points to buy up his Wealth (see *Adding and Improving Social Traits,* p. 291). This continues until his personal wealth level equals that of his job.

Likewise, a wealthy PC may work at a job below his wealth level. He gets the usual pay for that job; he does *not* receive extra pay simply because he is wealthy! Such people often have Independent Income (p. 26) as well as a job in order to meet the cost of living for their (usually high) Status.

Job's Wealth Level	*Monthly Pay Multiplier*	*Typical Status Level*
Poor	1/5	-2
Struggling	1/2	-1
Average	1	0
Comfortable	2	1
Wealthy	5	2
Very Wealthy	20	3
Filthy Rich	100	4
Multimillionaire 1	1,000	5
Multimillionaire 2	10,000	6
Multimillionaire 3	100,000	7
Multimillionaire 4	1,000,000	8

Hirelings

A "hireling" is any NPC in the adventurers' employ. The GM controls hirelings; the players can give any orders they like, but the GM decides how they are followed!

A hireling provides an excellent way to add muscle or special talents to a party without introducing more PCs. A party may have any number of hirelings, but the GM should keep the number of important "personality" hirelings down to two or three at a time. The GM can manage any number of generic swordsmen – but keeping up with an important hireling, whose personality and character sheet are as detailed as any PC's, is challenging.

Creating Hirelings

The GM sets the hireling's abilities. If there is an occupational template (see *Character Templates,* p. 258) for the hireling's profession, the GM can save time by copying statistics from that template. (If the template is for heroic PCs as opposed to average members of a profession, apply a -1 or -2 to all attributes and skills.)

The GM keeps the hireling's record sheet; the players may not see it. Unimportant hirelings need only a card or a note; important hirelings require a full character sheet.

Finding a Hireling

The PCs can't pull a hireling out of thin air. When they need to employ someone, they must search for a suitable person – just as in real life. They might not always get what they want.

The recruiter may attempt an IQ roll once per week to find a hireling of the desired type. The GM may permit him to substitute an appropriate skill for IQ: Administration (for formal, corporate-style hiring), Current Affairs (if seeking prominent "world experts"), Propaganda (for aggressive recruiting), Streetwise (if seeking criminals), etc. The party may attempt only one roll per hireling per week. Modify this roll as follows:

City Size: The bigger the town or city, the better the odds:

Population	*Modifier*
Less than 100	-3
100-999	-2
1,000-4,999	-1
5,000-9,999	0
10,000-49,999	+1
50,000-99,999	+2
100,000 or more	+3

Finding a Job

A PC seeking a job that requires an employer (that is, one at which he is not self-employed) may roll against IQ once per week to see if he finds work. The Laziness disadvantage gives -5 here! Apply the following modifiers:

City Size: The more people in the town or city, the better his chances (see table).

Population	*Modifier*
Less than 100	-3
100-999	-2
1,000-4,999	-1
5,000-9,999	0
10,000-49,999	+1
50,000-99,999	+2
100,000 or more	+3

Overqualification: If his skill exceeds the minimum level required by the job, he is more likely to find work: +1 if his skill is one level higher, +2 if two or more levels higher. The GM may give further bonuses if the job hunter has additional abilities that would logically help him do the job (or impress a potential employer).

Advertising: He can advertise that he is *looking* for work: +1 if his budget is 5% the monthly pay of the job sought, +2 if 50%, +3 if 500%, and so on. This money might be for bribes, "business clothing" for interviews, handbills, placement fees, etc., depending on the job and the setting.

Scarcity: Higher-paying jobs are harder to find. Subtract *twice* the typical Status level of the job sought from the roll; e.g., a "Filthy Rich" job typically accompanies Status 4, so it would give -8. Negative Status gives a bonus! For instance, roll at +2 to find a "Struggling" job (Status -1).

Multiple Jobs: A seeker who is qualified for more than one job can look for more than one job at a time, at a cumulative -1 to *all* rolls per job after the first.

Advertising: +1 if the advertising budget is 50% the monthly pay of the job, +2 if 500%, +3 if 5,000%, and so on. This money covers the expense of business lunches, handbills, newspaper ads, "recruiting parties," etc.

Money Offered: +1 if the pay is 20% higher than normal for the job, +2 if 50% higher, and +3 if 100% higher or more.

Risk: -2 to find a hireling for a job that involves obvious risk of combat, unless seeking a guard, mercenary, or other "combatant" hireling. The GM decides which potential hirelings are "combatant."

Legality: -5 to find a hireling for an illegal job – and any critical failure on the roll results in legal complications. The GM may waive this -5 when the employer uses Streetwise skill for the search, but the critical failure result is the same!

On a success, the PCs find a candidate. The GM describes the potential hireling to the players, and can even take his part for an "interview." The players must then decide whether they actually want to hire that person. If they decide not to, they must start their search over again.

A failure might mean that a hireling simply is not available – especially in a small town. It is up to the GM whether to allow repeated attempts.

Of course, the GM is free to "load" the roll, if he feels the PCs absolutely should have (or should not have) a hireling of a specific type! For instance, if an adventure calls for a particular hireling, the GM can ensure that the hireling *will* appear. He may do this overtly (the NPC approaches the party in a bar and asks for a job) or covertly (the players say that they are looking for hirelings; the GM pretends to roll, but gives them a preplanned NPC).

Loyalty of Hirelings

A hireling might not always act in his employer's best interests. The GM should use the hireling's "loyalty rating" as a guide. Unless this is preset for a reason, generate it by making a reaction roll (see *Reaction Rolls*, p. 494) for "loyalty" when the PCs first encounter the hireling. The GM can even use this during the initial meeting or interview, to see whether the hireling lies about himself. Note that a very loyal potential hireling might exaggerate his abilities out of desire to join the party!

Slaves

In a game world where slavery is legal, the PCs may buy slaves as either workers or an investment – or they might be enslaved themselves! Anywhere slavery is legal, slaves make up a large part of the job market, and there is a 50% chance that any hireling found is actually a slave.

The price of a slave is generally equal to the amount the slave could earn in five years, if free and working at the typical pay rate for the *best* job he qualifies for. The GM may adjust this price for any number of reasons: extra skills, good or bad attitude toward slavery, physical appearance, health, etc. Slave traders rarely give a real bargain!

Loyalty of Slaves

Determine a slave's loyalty per *Loyalty of Hirelings* (above). However, slaves are less predictable than hirelings. After determining the slave's initial loyalty, roll 2d on the following table to determine a loyalty modifier:

2-7 – No modifier.
8 – He was enslaved for some crime, and resents it: -1 to loyalty.
9 – As above, but -2 to loyalty.
10 – His previous master was very cruel. If he is treated with kindness during the first week, apply +2 to loyalty; otherwise, no change.
11 – He has a fanatic hatred of slavery. If treated well, he may like his masters as people, but will still escape as soon as possible. If treated badly (or even "average" for a slave), his loyalty drops to 6.
12 – He has the Slave Mentality disadvantage (p. 154), and considers

Loyalty Checks

A "loyalty check" is a roll *made by the GM,* usually in secret, to see how a hireling behaves in a given situation. Check loyalty whenever a hireling is in mortal danger, or when violating his trust seems to be the wise, profitable, or easy thing to do.

To make a loyalty check, the GM rolls 3d against the hireling's loyalty rating (see *Loyalty of Hirelings*). On a roll equal to or less than his loyalty, the hireling "passed" the check and behaved loyally. A hireling with loyalty 20+ passes all checks automatically.

If the GM rolls *over* the hireling's loyalty, the hireling "failed" the check and served his own interests. This does *not* always mean total betrayal – it depends on the situation. It just means he let his employers down. He may repent and beg forgiveness; this is up to the whim (and dramatic ability) of the GM. If the PCs forgive a hireling with a loyalty of 16+, with or without punishment, his base loyalty goes up by 1.

The GM is free to modify a loyalty check for special circumstances. A huge bribe from a foe, for instance, would give most hirelings a penalty to their loyalty check.

It is up to the GM to decide when a check is necessary. This depends on the hireling. For a veteran, "mortal danger" does not mean "any combat." He would not fear an orc – or even a whole pack of orcs. But he might have to check loyalty if asked to battle a dragon!

Changes in Loyalty

Several factors can change loyalty, temporarily or permanently:

Higher Pay: +1 to loyalty per 10% by which the hireling's pay exceeds the norm for his job, whether it's a "salary" or a share in loot. This bonus persists for a month after the extra pay ceases. (This factor also affects slaves, if they are allowed their own possessions.)

Great Danger: Whenever a noncombatant hireling is exposed to a combat situation, check loyalty. Failure gives -1 to loyalty for a week. Repetitions might have a permanent effect.

Rescue: If the PCs risk their lives (or the mission) to rescue the hireling, make a reaction roll at +3 or more, depending on the nature of the rescue. A "Good" or better reaction means the hireling is grateful. His loyalty becomes the result of the roll or his original loyalty – whichever is *higher.* If one of the PCs was seriously injured or killed in the rescue, the GM should consider adding a permanent loyalty bonus *on top* of this!

Employers' Competence: Loyalty of a "continuing" hireling might change by one point at the end of an adventure, based on the party's performance. A botched mission reduces loyalty; great success increases it. This modifier is permanent.

Length of Service: After each year, make a loyalty check. A success gives a permanent +1 to loyalty. Thus, the best hirelings become better . . . but poor ones are unlikely to improve much.

himself truly the property of his owner. His loyalty is automatically 20. You need never check loyalty; he will not demur, even if given orders that condemn him to death.

Make loyalty checks for slaves as for any other hirelings. Modify loyalty by +1 or +2 if they are in a situation where they have nowhere to run!

Legal Complications

When slave-holding PCs enter an area where slavery is illegal, they must either dispose of their slaves or pass them off as free servants. Possible anti-slavery attitudes include: legal to own slaves, but not to buy or sell them locally; legal for non-citizens to own slaves while passing through, but illegal for permanent residents to own them; or illegal to own slaves at all.

A creative GM may impose other laws and customs regarding slavery. For instance, it might be legal to enslave members of some social groups or races, but not others. There might be ways for a slave to earn his freedom – some societies might even permit slaves to own property and *buy* their freedom.

Other Planes of Existence

A campaign can extend across several game worlds instead of being tied to just one. This makes it possible to explore themes that do not work well in a single-world campaign. For instance, the PCs might visit several radically different settings in the course of a single adventure, and the world – at least one world – could actually *end* without the campaign coming to an abrupt halt.

Multi-world campaigns greatly increase the players' options. They get to experience several settings and genres *while playing the same characters.* And if they grow tired of the current world, the GM can simply move the action to a new one. This can give a flagging campaign a new lease on life.

However, a multi-world campaign increases the GM's workload. Instead of having to design *one* world in detail, he has to create *many.* He must also address the question of travel between worlds, which can be as much work as designing a world!

Travel Between Game Worlds

One of the chief purposes of the ***GURPS*** design is to let players explore multiple game worlds without learning a whole new set of rules each time. A player can participate in several different campaigns, each in a different place or time, and play a different character in each campaign. Each character stays in his own world. But the *characters* can also move from one game world to another. This can happen in three ways:

1. A player can develop a character in one game world and then bring that character into another game world. An example might be a medieval wizard, hurled hundreds of years into the future by a magic spell, participating in a WWII adventure.

2. An entire campaign can move from one game world to another. For example, suppose the party is the crew of an interstellar trading ship. They crash-land on a primitive planet. Until they can make their way to the spaceport, on the other side of the world, they are effectively living in the 12th century!

3. The campaign can include multiple game worlds by design, along with the means to travel between them. See *Other Planes of Existence*.

Differences in Worlds

As a rule, the more different two worlds are, the harder it should be for PCs to move between them deliberately. Significant differences would include:

- Magical world vs. technological world.
- Very low-tech world vs. very high-tech world.
- Largely human or all-human world vs. world with many races.
- War-wracked, plague-ridden world vs. peaceful, decadent world.
- Fantasy world vs. strictly historical, "real" world.

Certainly, any or all of these differences could exist on a single planet! But they would not be found next door to each other.

Likewise, the GM should make travel between incompatible worlds *difficult*. This achieves an effect that is very rare in gaming; it improves both realism and playability. Players will appreciate the fact that "rule changes" come only with warning.

Possible obstacles to interworld travel include all the standard geographical barriers: high mountain ranges, wide oceans, extensive deserts or badlands, swampy jungles, etc. Magical barriers are also a possibility, as are intervening hostile lands. GMs may also have their different worlds located *literally* on different worlds. The problems of interplanetary travel at low TLs are not to be taken lightly, but powerful magic can do almost anything. Of course, such powerful magic is not likely to be within the PCs' control . . .

Alternate Earths

"Alternate Earths" are worlds that are like Earth . . . but different in some way. The differences might be tiny (Kennedy's picture is on the dime), huge (Kennedy is now King of the Western Hemisphere), or unbelievable (the Earth is ruled by intelligent lizards who have the same cultures, languages, and politics as us).

A "reasonable" alternate history is sometimes called a *parallel world*. Inventing parallel worlds is a great intellectual game. One way to approach it is to pick a historical event and ask, "What if this were different?" What if Lincoln had survived Booth's attack? What if Chamberlain had stood up to Hitler? What if Eric the Red had died in a brawl at age 16?

As the GM, you can invent any sort of alternate Earth. You can assume as many basic points of difference as you like. But it is interesting to see what logical consequences you can develop from *one* change. Pick any historical event – great or small – and ask yourself, "What if this had gone *differently?*"

For an entire campaign setting built around alternate Earths, with many examples, see Chapter 20.

Virtual Realities

A *virtual reality* (or "virtuality") is basically a synthetic plane of existence generated by high technology. Much of the advice given here for cross-world campaigns is equally valid in high-tech campaigns that feature an immersive "cyberspace" where the PCs can have adventures and interact with the real world indirectly.

The GM needs to be prepared to deal with another potential problem. Many players see little point in working hard to achieve goals in one world if they believe the fruits of their labors will be lost when the campaign moves to the next. This can lead to a game-disrupting sense of detachment. To prevent this, the GM must strengthen campaign continuity by creating storylines that span worlds . . . which adds even more work.

Any GM should know the limits of his time and ability, and consult with his players ahead of time. This is even truer for GMs who wish to run cross-world campaigns.

Types of Realities

Many different types of game worlds can exist in a cross-world campaign. These are often called "planes of existence" (or "planes"), "dimensions," "realities," "realms," or "universes" to distinguish them from distant lands or planets in the same physical universe, which are sometimes called "game worlds" as well.

Physical Realities

These are planes of existence that travelers can actually visit – either in body or in spirit – much as they would visit another country or planet. The

defining feature of such realms is that visitors possess a physical body during their stay. This might be their normal body . . . or it might be a "spirit body" that is corporeal *only within that realm.*

The most common physical reality is the *alternate world* (also known as an "alternate history" or "alternate timeline"). This is almost the same as the PCs' home world, but in this world, history diverged at some pivotal event, creating a different reality. (See *Alternate Earths,* p. 520.)

Almost as common is the *mirror world.* Mirror worlds look just like the PCs' home world, but the resemblance is cosmetic. No reasonable sequence of historical shifts could explain the differences! A good example is the world of faerie: it looks a lot like our world, but it is actually a magical realm ruled by powerful spirits. Another common example is the "evil parallel." Many things about the world are similar, but personalities and even governments are "opposite": republics become dictatorships, saints become fiends, and so on.

Some physical realities might be even more alien. At best, they might be as different as alien planets within our universe. At worst, the laws of physics might be different, or suspended. Humans might be unable to survive there!

Interpenetrating Planes

Two or more planes of existence might interpenetrate, with each location in one world corresponding to a similar location in all the others. Such realms are generally *distinct* from one another, and invisible to each other's inhabitants – although some gifted people, such as mediums and seers, might be able to perceive more than one reality at a time. Perhaps even *ordinary* people can occasionally see the inhabitants of the other realms, but regard them as ghosts.

This is a common way to look at "dream," "phantom," and "spirit" realms in fiction. Often, travelers to such planes do not *go* anywhere; they just shift their perceptions.

Phases

A *phase* is not a destination in itself, but an invisible sub-dimension of one specific reality. Unlike an interpenetrating plane, it is not distinct from its partner reality; it merely represents a physical or supernatural "wavelength" different from the standard one. The main use of such realms in fiction is to let travelers rapidly bridge the gap between two locations within the same physical reality.

An example of a phase is the ethereal state that those with Insubstantiality (p. 62) assume in order to walk through physical obstacles. Another example, common in science fiction, is *hyperspace:* the "space" into which stardrives shift starships for faster-than-light travel.

Voids

A *void* surrounds physical realities in much the same way that outer space surrounds stars and planets. A void differs from an interpenetrating plane in that it touches realities *without* overlapping them. It differs from a phase in that it is not a sub-dimension of just one reality, but a "super-dimension" that engulfs and connects *all* realities.

Like the ocean and outer space, the void in fiction is a dramatic device that serves one purpose above all others: it mediates travel – in this case, *interplanar* travel. For instance, popular interpretations of the "astral" plane suggest that it is a void that travelers must pass through when using magic or psionics to journey between realities.

Planar Cosmology

The GM must determine what planes of existence are present – in number and in type – and *how they interact.* The possibilities are endless! Here are some popular arrangements.

Worlds Within Worlds

In this model, realities are nested one within the next – like the layers of an onion. Alternate worlds or interpenetrating planes might exist on a more-or-less equal footing at some levels of this hierarchy, but the truly important events in the campaign always involve movement up or down the hierarchy, not across any one level.

This structure lets the GM hide secrets within secrets, and offers a classic explanation for many supernatural powers and beings: "They come from a higher plane." As a result, it is well suited to multiple-reality campaigns with a strong supernatural flavor.

Example: A fantasy campaign takes place in a fairly ordinary physical reality – a world with mountains, oceans, stars in the sky, etc. "Inside" this world, there is a phase called the Ethereal Plane; this explains magical effects such as teleportation and walking through walls. Surrounding the physical world is an inner void: the Spirit World, realm of ghosts. The Spirit World does *not* overlap the physical world; instead, it is a layer that dead souls (and powerful wizards!) must traverse on their way to an outer void known as the Astral Plane. The Astral Plane, in turn, allows travel to the alien "physical" realities of demons, gods, and other higher powers.

Parallel Worlds

This cosmology features multiple physical realities standing shoulder to shoulder. Most are true alternate realities, but a few might be mirror worlds. Some might even be "pressed so close together" that they interpenetrate. The defining feature is that there are no planes of existence within, between, or surrounding these worlds. All realities are on an equal footing, and travel involves a direct shift as opposed to a journey through some kind of intervening dimension.

This structure eliminates mystical journeys, speeds the act of travel, and provides a rational explanation for weird events ("ghosts" are just inhabitants of unusually close realities, "demons" are merely ugly interplanar voyagers, etc.). These features make it desirable for science-fiction campaigns centered on cross-world travel and trade.

This framework is conceptually simple, but the GM can make it as convoluted as he wishes. Travelers might only be able to visit "adjacent" worlds . . . and a satisfactory definition of "adjacent" could defy scientists' best efforts. It might take multiple hops to travel to some worlds, and while worlds might form a ring or other simple pattern, the GM could instead decree that they exhibit a brain-busting geometry that humans and their best computers simply cannot map. Use your imagination!

Mixing It Up

The GM is free to add any number of twists. For instance:

- Start with a hierarchy of realities, as explained under *Worlds Within Worlds,* but place parallel worlds on some tiers of the hierarchy.
- Start with worlds that abut on worlds, as described for *Parallel Worlds,* but make certain "worlds" fully realized hierarchies of dimensions instead of simple physical realities.
- Add any number of distinct phases to some or all of the worlds in the setting (e.g., each physical reality might have its own hyperspace *and* an ethereal plane).

Interplanar Travel

Many stories that feature multiple worlds assume that travel between those worlds is a one-way trip: unlucky (or lucky!) travelers somehow fall through the gap between worlds. But *regular* travel between worlds is an interesting possibility, as it lets explorers study, exploit, and perhaps even conquer entire worlds. In this case, the most important question to answer is, "How do the adventurers get there?"

Instantaneous vs. Time-Consuming Travel

Travel between worlds could be a "Poof! You're there!" phenomenon: the heroes just have to cast a spell, push a button, walk under a hill, etc. Or it might be a slow process, comparable to sea or space travel. Both approaches have pros and cons.

Instantaneous travel – like the Jumper advantage (p. 64) and Plane Shift spell (p. 248) – allows furious, universe-spanning action, with the heroes and their foes battling from one reality to the next. However, some players will try to *avoid* enemies (and Debt, Duties, etc.) this way, sapping drama instead of adding to it. This kind of travel also encourages brisk interplanar trade, which is great fun . . . until it destroys the campaign's economy. In general, if interplanar travel is to be quick, the GM should make the means of travel hard to come by, introduce reasonable risks (e.g., nasty surprises on failed Plane Shift rolls), limit what travelers can carry, and make it clear that some alternate worlds are *dangerous*.

If interplanar travel takes time, the GM must determine how much time passes, and at what rate relative to time in the PCs' home world. The primary advantage of time-consuming travel is that the trip itself is an adventure. The downside is that the campaign can get bogged down in travel. Many players grow bored if their characters must make long trips to achieve their goals. If the GM chooses this option, he should be prepared to build an adventure around each trip, or let the PCs spend their time on gainful long-term projects such as study, invention, and magical enchantment.

The most important question to answer is, "How do the adventurers get there?"

Physical Travel vs. Projection

Interplanar travelers sometimes visit other planes of existence in person, but this is not the only option. Visitors might instead journey to other realities in mind or in spirit.

Physical travel (teleporting between worlds, moving there in some kind of vehicle, etc.) lets the GM use classic "hooks" like money and physical danger to steer the campaign. It is also involves less bookkeeping: the PCs have the same abilities and equipment as in their home world. However, physical travel lets the PCs vanish bodily, perhaps along with their possessions, making it possible to escape the consequences of their actions. It also opens the door to commodities trading, which can have unwelcome economic effects. The GM should take care to create adversaries who can follow the PCs wherever they go, and should consider imposing strict limits on the physical goods that can accompany travelers (e.g., "You arrive naked.").

Projection involves traveling to other planes as a mind or spirit while the body remains behind. This solves many of the problems GMs have with cross-world campaigns. What belongs in each world *stays* in that world. The only thing that moves between worlds is information – and the GM can easily control that. There are two disadvantages. First, the GM must keep records for both the PCs' physical selves and their projections. (The GM *could* just say that the projection is the same as the original, but he would be discarding an interesting dramatic tool.) Second, players might feel that other realms aren't "real," and behave accordingly. The solution here is to let them . . . and then have the consequences of their actions show up in their "real" world!

Modes of Travel

Finally, the GM must decide on the actual mechanism used for interplanar travel. Options include:

Artifacts: Interplanar travel relies on magical, psionic, superscience, or weird science gadgetry. There are endless possibilities, from hyperdrives and parachronic conveyors to magic mirrors and stone circles. Be sure to specify whether the artifact goes with the traveler to the other side, or merely sends him there – and whether it's good for the return trip!

Right Time, Right Place: Anyone can reach other planes, but only under certain conditions: while dreaming, on certain days of the year ("When the stars are right!"), at specific places (such as the "hollow hills" of faerie myth, or a wormhole in deep space), and so on – and possibly more than one of the above.

Special Powers: Travelers need advantages (e.g., Jumper), magic spells (e.g., Plane Shift), or similar powers to move between worlds. To keep PCs with such abilities from going off and leaving the rest behind, the GM should either require *all* PCs to have such abilities or make sure that the person in charge of transportation has the power to convey his companions (and that the *player* is responsible enough to do so).

Chapter Twenty
Infinite Worlds

It's 2027. A future Earth, known as Homeline, is exploring hundreds of alternate Earths. It's also fighting an undeclared war with another world-jumping civilization . . . but that may be the least of its worries!

Welcome to Infinite Worlds.

Infinite Worlds is an example of a game setting. But it's more than that. It's also a framework that lets players create almost any kind of character, and that makes it easy for GMs to run cross-genre adventures.

The Infinite Worlds multiverse is *completely optional*. GMs who don't want to permit extradimensional excursions are free to prohibit them. Not everyone is comfortable with blaster-toting wizards fighting Nazi supersoldiers . . .

Although that doesn't *have* to be the way it works. Many worlds have yet to be discovered; many others are isolated. The PCs may start out completely unaware of the existence of other dimensions, but at some point in the campaign (possibly after months or even years of play), they discover that their world is just one of many. They find a way to travel to an alternate world, or perhaps they discover an extradimensional plot and end up recruited by the Infinity Patrol . . .

And everything changes.

The Campaign

Infinite worlds, infinite wealth.

In the year 1995, Dr. Paul Van Zandt, a physics professor, built the first working parachronic projector and used it to visit the timeline that became known as Earth-Beta, or simply Beta. He concealed his observations and continued his experiments. Six months later, following a mysterious fire that destroyed his Dartmouth laboratory, he resigned from teaching to set up a "consulting" firm.

In fact, Van Zandt had simply freed himself to continue his experiments without the supervision of academia – or of the Department of Defense, which had supplied grant money for his original project. Over the next few years, he refined his theories, contacted 23 more universes, and personally visited six alternate Earths. He also secretly gathered a number of trusted aides, the nucleus of the group that would become Infinity Unlimited. And he founded White Star Trading, an interworld trading corporation, to finance further experiments.

In February 1998, Van Zandt made headlines by publishing his results – and by formally incorporating Infinity Unlimited, with subsidiaries including White Star Trading, Parachronic Laboratories, and Infinity Development. Furthermore, Van Zandt offered to license his designs to any government or corporation interested in crosstime travel.

Infinite Worlds Glossary

alternate: Any timeline except the original Earth. Also "alternate world."

anchor: An echo that does not experience a quantum shift when "history is changed."

banestorm: A natural phenomenon that moves matter between worlds.

Centrum: A rival civilization with the ability to travel between worlds. A "Centran" is a native or agent of Centrum.

conveyor: A self-propelled device for traveling between alternate worlds.

Coventry: An alternate world maintained by the Infinity Patrol as a prison for those – both Homeliners and outtimers – who Know Too Much.

echo: An alternate world which is – or appears to be – identical to ours, but at an earlier point in its history.

Eraser: A memory-affecting drug used by I-Cops and others to keep the secret of parachronic travel.

hell parallel: An alternate world which has suffered a natural or manmade disaster that rendered it unliveable. More loosely, any really bad world.

homeboy: Anybody from one's world of origin.

Homeline: The original Earth.

I-Cop: An agent of the Infinity Patrol's Intervention Service.

Infinity Patrol: The paramilitary arm of Infinity Unlimited.

Infinity Unlimited: A private organization that controls parachronic technology as a monopoly and governs access to alternate timelines.

Interworld: The Centran equivalent to the Infinity Patrol.

nexus portal: A "natural" path between alternate worlds.

outtime: Any world except the original Homeline.

outtimer: Anyone from an alternate world.

parachronics: The study of alternate worlds. More specifically, the study of why alternate worlds exist, and how travel between them is possible.

parachronozoid: A creature with a natural world-jumping ability, especially one that leaves a tunnel or portal behind (those that don't are rather hard to spot!).

parallel: An alternate world that differs from ours only in that its history has been different (some are *very* different). A "close parallel" is different as the result of one identifiable historical change.

projector: A device that can send a conveyor across quanta.

quantum: An "energy level" in 8-dimensional space that contains many alternate timelines. Quantum levels are often abbreviated; e.g., Q7 for Quantum 7.

reality quake: A parachronic upheaval that buries some or all of an alternate's history beneath a new one.

The Secret: The fact that technological cross-world travel is possible. Outtimers are not supposed to learn this, unless recruited by Infinity or Interworld.

timeline: Another term for an alternate world.

weird parallel: An alternate world that has many similarities to our own, but also has differences which make these similarities seem unbelievable (such as a world where intelligent reptiles speak English).

zero point: The term for a location that has been "zeroed" – properly calibrated – for a safe conveyor jump between two specific dimensions.

Naturally, governments were outraged. The U.S. Congress immediately moved to nationalize and classify all parachronic technology. The Japanese, European, Chinese, and Russian governments all called for its internationalization and suppression.

The next day, Van Zandt addressed a closed session of the U.N. Security Council. No one knows what he said, but the world powers accepted his proposal . . . within certain limits.

Infinity Unlimited was organized as a corporation whose formal partners were the permanent members of the U.N. Security Council. Van Zandt retained the position of first CEO, but Security Council-appointed bureaucrats also sat on its board. Infinity Unlimited's charter was rewritten to keep control of the basic technology firmly in its hands.

Van Zandt won a key victory – almost unnoticed at the time – when he resolved a budget dispute by suggesting that Infinity Unlimited would be largely self-funding: after an initial infusion of funds, it would be "forced" to rely on profits from licensing parachronic technology. Many politicians were pleased that Infinity would not drain resources from the United Nations' limited funds, and believed this would serve as a cap on the organization's power. Few in the United Nations or the world appreciated, then, the true potential of the parachronic secret:

Infinite worlds, infinite wealth.

Infinity also received its own security organization, which Van Zandt insisted on calling the "Infinity Patrol." Initially small, and limited to protecting Infinity's exploration teams and installations, its role and power would expand dramatically over time.

It took time for the economic and political ramifications to sink in, but the revelation that the Earth existed within a potentially infinite series of alternate worlds shook the foundations of human belief. Science, religion, even the nature of identity was called into question. But some people adapted quickly (others still haven't), and many saw opportunities.

Soon, groups of intrepid explorers were probing the dimensions, led by the vanguard of Infinity Unlimited's Penetration Service: elite "time scouts" that the corporation recruited for its perilous first-contact missions. Trade opened with dozens of worlds. Natural resources flowed in from the untouched ore deposits of uninhabited alternate Earths. On the world that came to be known as "Homeline," the environment began to recover as the worst industrial wastes – and the most polluting industries – were sent to dead worlds already blighted beyond anything mankind could do. Political intrigues continued . . . but the economy of Homeline was no longer one of desperate scarcity.

Van Zandt retired immediately. "I plan to devote the rest of my life to travel and study," he said, "and I'm never going to touch a soldering iron again."

For a little while, it looked like the start of a utopia, at least for Homeline. And then the worm peeked out of the multidimensional apple: Centrum, a different reality-spanning culture, with its own ideas of what a utopia should look like.

Suddenly, infinite worlds meant infinite trouble . . .

The Interworld Treaty

The Interworld Treaty was ratified by most (but not all) U.N. member states. It represented a compromise between the interests of large and small states – and between business interests (championed by an uneasy alliance between Van Zandt and the United States) and U.N. and government bureaucrats. The treaty created a framework that was intended to prevent a "neo-colonial" land rush, limit the ability of governments to deploy military forces crosstime, and permit (but regulate) the commercial exploitation of certain worlds, while preventing cross-cultural disasters.

The most significant effect of the treaty was to centralize most power in Infinity Unlimited, while ensuring that checks and balances existed that would give the U.N. Security Council – and to a lesser extent, the U.N. Secretary General – a degree of oversight.

It works . . . at least, some of the time.

Dark Infinity

How Van Zandt persuaded the world's great powers to accede (mostly) to his terms is one of the "big secrets" of the Infinite Worlds setting. Some possibilities:

Conspiracy: Infinity Unlimited is the instrument of a vast, ruthless conspiracy that has dominated the corridors of power for centuries. The rise of Infinity was the culmination of centuries of preparation. But who won? Do the *Illuminati* control it?

The Menace from Beyond Time: The world's leaders caved in because of *what Van Zandt showed them.* They've suppressed this to prevent panic, but perhaps the truth is leaking out. Whatever the truth may be, it's obviously vitally important that humans spread across many worlds. If the GM wants to have a "new power" invade the hyper-cosmos, there's plenty of scope.

Deus Ex Paramachina: What if Van Zandt is much more than he seems? Could he be a visitor from another, more advanced timeline? A retired, wandering god? A rogue technomancer, exiled from the Four Realms? It seems odd that Infinity and Centrum developed parachronics so close together. Maybe it was planned. If so, who was responsible? Was conflict the *goal,* or did something go wrong? Maybe Centrum was supposed to be Infinity's ally . . .

An Infinity of Worlds

Infinity knows of several hundred alternate worlds, spread through an 8-dimensional space in a pattern that seems *almost* predictable. These worlds are divided between a number of different "energy levels," or *quanta.* It is easy to reach a world on the same quantum, hard to travel outside your own quantum.

Homeline is on Quantum 5 (Q5). Infinity can reach Q4 and Q6 fairly easily, and Q3 and Q7 with difficulty. Q2 and below, and Q8 and above, are completely inaccessible.

Centrum is located on Q8. They can reach Q7 and Q9 fairly easily, and Q6 and Q10 with difficulty. They cannot reach Q5 and below, or Q11 and above, at all.

The known worlds are distributed as follows:

Quantum 2 and below: Unknown!
Quantum 3: 39 known Earths.
Quantum 4: 89 known Earths.
Quantum 5: 68 known Earths, including Homeline and Earth-Beta.
Quantum 6: 379 known Earths.
Quantum 7: 126 known Earths.
Quantum 8: 45 known Earths, including Centrum.
Quantum 9: 43 known Earths.
Quantum 10: 52 known Earths.
Quantum 11 and above: Unknown!

Parachronic scientists agree that there must be an *infinity* of alternate worlds, although most are out of reach. They disagree strongly on *how big* an infinity. Neither Homeline's nor Centrum's technology can reach anywhere near an infinite number of worlds. But they are out there . . . somewhere.

There are almost certainly undiscovered timelines in all the quanta that Infinity and Centrum *can* reach. After the first 10 years of exploration, new discoveries settled down to a steady rate of about 10 per year.

A common misconception about the "infinite worlds" is that all possibilities must exist on some alternate world, somewhere. Of course, this *might* be true; until Infinity can reach all possible alternates, it will be hard to disprove. But even if an infinity of worlds exist, there could be many possibilities that don't exist. As one physicist explained it: "You can have an infinite number of apples without having any oranges."

Classes of Alternate Worlds

Infinity Unlimited's Penetration Service classifies alternate worlds as follows.

Empty

There is no *intelligent* life on the world. It is free for exploitation. Typical uses include colonization (usually on the very best worlds), industry (mostly on bad worlds), hunting preserves (including *prehistoric* ones!), and research (the whole timeline is set aside as a zoo, science station, etc.). "Disaster worlds" are sometimes exploitable, if only as waste dumps; others are reserved for scientific use.

Echoes

The Earths in these timelines, all in Quantum 6, seem to be following the "known" course of history exactly, but aren't as far along in that history as Homeline. These worlds are open for cautious, unobtrusive research and tourism – but if "history is changed," they shift to other quanta and become parallels. Centrum has been trying to do just that, as part of a program intended to move them closer to their own home dimension.

Parallels

The Earths in these universes diverged from the "known" course of history at some point. Infinity and Centrum penetrate most such worlds as time and manpower allow. Trade, development, conquest, etc., are possible without risk of a quantum shift.

Homeline's general objective with these worlds is "benevolent guidance" away from war, especially war with weapons of mass destruction – and, somewhat less benevolently, to ensure that they do not discover parachronic travel. Many people disagree with this, but the only coherent alternative anybody has ever come up with is "hands off." And the idea of, for instance, keeping hands off a parallel-world Hitler, as he is giving the orders for Dachau, is a bit much.

Anchors

An anchor is similar to an echo, but highly stable. No one is quite sure why – some theories suggest that quantum anchors were the "original" alternate worlds from which others split off. The first anchors were discovered when major interventions in certain Quantum 6 worlds failed to cause shifts. The half-dozen that exist in Q6 are fierce battlegrounds . . . because here, with no risk of a shift occurring, the dimension war can be fought without any subtlety at all.

Close Parallels

A "close parallel" is a world very much like Homeline at some past period, but with small differences. Examples include:

Earth-Beta: The first parallel to be discovered. Like Homeline in 2004 in most ways, save for the lack of the crosstime secret.

Cherokee: In this world, now in its year 1930, the Cherokee Nation was stronger and more successful in surviving Anglo incursions. When oil was discovered in Oklahoma, the Cherokee kept the land and the wealth – Big Oil is now an Indian-dominated business.

Holly: A music-lover's dream world. Buddy Holly's plane didn't crash; in that world, it's now 1989, and Holly and Ritchie Valens are both still rocking. (The Big Bopper went into politics, and is now in Congress.) Several other stars lived less self-destructive lives, and are still around, although Elvis is still dead. And the Monkees became a super-group, with Stephen Stills as a member.

Which One Is Ours?

Homeline obviously isn't "our" present-day world – the defining

change was the discovery of parachronic technology in the 1990s. But Infinity has discovered a couple of early 21st-century Earths, just a couple of decades behind Homeline, which "split off" by not inventing parachronics. There are certainly a few more out there. Since these worlds have technology only a few years away from that of Homeline, the policy is covert observation. If the GM wishes, *any* of these close parallels could be "our world, our time" – or at least one that is very close to it.

Where Am I?

It is quite possible for a crosstime traveler to encounter an alternative version of himself (sometimes older or younger) living in one or more close parallels. This offers considerable opportunity for infiltration and subversion, but there's also the risk that sentiment or narcissism can lead to a traveler losing his objectivity and violating the rules to help out or otherwise influence his "other self."

Farther Parallels

These worlds are *considerably* more divergent than the close parallels. A few examples (Quantum 5, except where indicated):

Attila: The Mongol invasion of Europe crushed Western and Islamic civilization. Eurasia and northern Africa are forest and grassland, ruled by warring nomadic tribes. Some urban civilizations exist in Japan and South America.

Campbell: Science-fiction editor John W. Campbell died in a traffic accident early in his career. As a result, many science-fiction writers never developed their talents, and SF didn't advance much past space opera. Apparently, this reduced the number of students who became interested in science and engineering, because scientific development has stagnated here since the end of WWII.

Cornwallis: It is 1984. Revolution failed in America and never came to France. The world is TL6, dominated by conservative, aristocratic monarchies . . . but a new revolution is brewing.

Gernsback: A TL(6+2) "techno-utopia." Nikola Tesla married Anne Morgan, daughter of industrialist J.P. Morgan. Backed by Morgan's money, Tesla's genius changed the world with inventions such as broadcast power. The transistor and modern electronics are unknown . . . but atomic power, ray guns, dirigibles, and air cars are common. There was no World War II – the League of Nations reigns, guided by the World Science Council. Gernsback is a covert battleground between Centrum and Infinity, each side coveting Gernsback's wealth (much of its technology, unfortunately, fails to work in other realities). Quantum 7.

Johnson's Rome: The Roman Empire is still intact, and cheerfully decadent, in the year 1206 A.D. . . .and Johnson Crosstime Incorporated is developing it as a vacation spot. The corporation is using systematic bribery and infiltration to take over the Empire. It is already turning a huge profit. Part of the program involves outlawing public tortures and the most brutal forms of gladiatorial combat, but most of the decadent attractions of Rome will remain intact. (There are many other recreational timelines; this is just one of the most successful.)

Midgard: A TL4 world. The Vikings conquered Byzantium and used its wealth (and the secret of Greek fire) to overthrow Christendom. It is now 1412: the dawn of a Nordic age of discovery, colonization, and piracy in the Americas. Quantum 7.

Ming-3: In our world, China turned its back on exploration in the 15th century. In Ming-3, it did not. It is now 1859, and the Middle Kingdom (currently TL5) rules a global empire. Quantum 7.

The Thousand-Year Reich: The common science-fiction nightmare of a Nazi victory in World War II exists on five known alternates in Q4 and Q5. The U.N., aided by Infinity, recruits and infiltrates agents into two of the "earlier" ones (local dates 1952 and 1961), with the hope of overthrowing the Axis governments. Two more are further along: one in 1970, and one in 1988. These are under careful observation. The 1988 world is actually *less* advanced than the 1970 one, having suffered a Third World War in which the Nazis destroyed Japan with nuclear weapons and lost many major cities in Europe and North America. The fifth and most worrisome Nazi world is Reich-5; see p. 543 for details.

Weird Parallels

A "weird parallel" is an alternate that resembles Homeline in many ways, but with such strange differences that it is hard to believe the similarities. According to parachronic physicists, these similarities are the reason why otherwise-improbable worlds are sometimes found on accessible quantum levels.

United States of Lizardia: The first weird parallel discovered by Infinity. "United States of Lizardia" (USL for short) is Homeline's name. Its inhabitants call it Earth, and in some ways, it's similar to 21st-century Earth . . . except that mammals never became dominant. The natives are bipedal, dinosaur-descended lizard men. Their most powerful nation is analogous to the United States, and occupies North America. Infinity's Penetration Service is covertly studying it.

Orichalcum: The legendary Empire of Atlantis exists alongside Heroic-Age Greece and Egypt. An island nation in the Atlantic, its inhabitants are blessed by the gods and skilled in many crafts – including the working of the wonder-metal *orichalcum.* This is a TL1-2 alternate Earth in Quantum 6.

Dead Worlds

A "dead world" is an alternate Earth where life never developed. In some cases, Earth is at a different distance from the sun, or has no moon. Dead worlds do not have breathable atmospheres. Over a dozen of these worlds are known. They can be exploited for mineral wealth. They are also a convenient dumping ground for wastes too loathsome to keep on the same world with any human being.

Myth Parallels

Some parallel worlds correspond – far too closely for coincidence – to myths or fiction of Homeline. On such a world, Robin Hood might be a real, living person, waging guerrilla war on the Sheriff of Nottingham . . . or mermaids might be real and common. The most logical explanation is that some writers are psychics or world-jumpers.

Most "myth" parallels are closed to everyone but researchers . . . except for the Robin Hood world, called "Nottingham." Infinity researchers decided fairly quickly that Robin Hood had just been a lot more "real" than anyone thought. That world is now a popular Time Tours destination.

Hell Parallels

"Hell parallels" is a general term for the distressingly large number of alternate worlds that have suffered some great disaster or holocaust. Some are closed due to continuing hazards; others are open to exploitation or research.

Nuclear War

More than 20 post-apocalyptic Earths are known, including a dead, radioactive planet; a dying world in the grip of nuclear winter; and a world where humanity has been knocked back into the Stone Age. On a few worlds, nuclear radiation seems to work differently, accelerating the evolution of those who survived the war; all but two of these are off limits. And on one world, Ragnarok, Infinity scouts arrived 10 years after the war and discovered about 20,000 survivors huddled in fallout shelters and isolated bases. In a massive humanitarian effort, these survivors were ferried to an uninhabited timeline and helped to get back on their feet.

Disease

On at least four known alternates, disease has wiped out or nearly wiped out mankind. Three of these worlds were depopulated by deliberate biological warfare. They are strictly off limits, their coordinates a secret (and with good reason: in two cases, the first scout died despite all precautions). The fourth world, called Ariane, was hit by mutant influenza in its year 1915, with over 99.9% mortality. The virus is fully controllable with TL8 medicine, and Ariane is being colonized, looted, and developed, despite occasional skirmishes with tribes of TL2 survivors.

Cosmic Catastrophe

A very large meteorite struck Lucifer-1, in Quantum 7, about 100 years ago. Few traces of human civilization survived. Continuing volcanism has rendered its air nearly unbreathable in most areas.

Lucifer-3 is worse: the surface of Earth – and quite possibly every world within several hundred light years – was sterilized by radiation from a nearby supernova or gamma-ray burster. Homeliners are systematically looting the ruins of its TL7 human civilization for surviving art treasures and refined raw materials.

On Taft-3, massive solar flares caused sterility and a more gradual collapse of civilization.

Few traces of human civilization survived.

Ecological Disaster

Several worlds appear to have been devastated by over-industrialization and careless exploitation at the hands of their human or other inhabitants – some recently, others long ago. On Lenin-2, this led to global warming, flooding, heavy weather, and a massive famine; the few million survivors are now living at TL3.

Other Roads to Hell

Other worlds have suffered a wide variety of more unusual disasters:

Drexler: "Gray goo" nanomachines devoured civilization (and the first scout).

Leviathan: Humanity is fighting a losing battle against an undersea civilization.

Steel: Mankind developed sapient machines in the 2010s. These rose up and exterminated most of humanity. Now it is 2026: a war-ravaged, post-apocalyptic Earth is divided into several Zones, ruled by rival artificial intelligences . . . the Zone Minds. Only a few pockets of human resistance remain. Worse, the arms race between rival Zones is spurring rapid technological development (they're now TL9). Centrum and Infinity both fear that at least one AI is researching parachronic technology, and are (separately) debating whether to secretly assist the human resistance forces.

Worlds That Break the Rules

There are a few worlds where physical laws don't work in the way we think of as "normal." The best known of these are the universes where crosstime travel itself works differently. For instance, Homeline and Centrum are the only known timelines from which a projector can operate, while Coventry (p. 540) cannot be reached by any means except a projector.

There are others with differences that have nothing to do with parachronics; for instance, the universes where superscience allows physical "impossibilities," such as gravity control or faster-than-light travel. In some cases, it's biology that follows different rules, allowing tiny humans or colossal beasts to exist.

And a few worlds are even stranger. There are timelines where no technology higher than "simple mechanics" works. This is because it is impossible to produce an artificial electrical discharge there . . . even though *natural* discharges work just fine. This gives scientists fits: how do the physical laws "know" the difference? The best-known example, Rustic, was discovered by a world-jumper. If a conveyor had gone there instead, it wouldn't have been able to return.

There are even worlds where psychic powers exist (Infinity is wary of any world with mind readers, for obvious reasons). Likewise, there are a few where magic works . . . and not always the same way. Such worlds are closed except to elite researchers and agents, and their existence is secret. But there are the inevitable rumors; for instance, many people believe that some Patrol agents have learned magic in order to function more effectively when visiting magical universes.

Of late, scouts are discovering more and more "rule-breaking" worlds – perhaps because most of the "close" worlds have already been found. Or maybe something is

happening to reality. GMs are encouraged to dream up such worlds as needed! Two examples:

Merlin: A close parallel until 1945, when the first A-bomb test created a huge, permanent banestorm in New Mexico. This resulted in a zone of high mana in the American Southwest, and a region of normal mana encompassing much of North and Central America. Magical fallout triggered the appearance of "supernatural" creatures. The United States has become a technomagic superpower that frightens even Infinity. Merlin is a TL7-8 alternate Earth in Quantum 3.

Yrth: A quantum sargasso (see *Marooned!,* p. 546) accidentally discovered by an Infinity world-jumper a few years ago. He had many adventures before finding a magical artifact that allowed him to escape! Yrth is a TL3 "medieval fantasy" world where powerful magic works in a reliable fashion. Elves, dwarves, goblins, dragons, and several other mythical races exist there. Humans are dominant, but local legends suggest that they are not the original natives. Infinity believes that a banestorm must have transported members of several human cultures to Yrth – either from Homeline during the Middle Ages or from a medieval echo.

Pocket Multiverses

"You know, back home, I'm a god."

A "pocket multiverse" is a set of closely coupled dimensions that share a set of inhabitants and metaphysical laws. Working magic is likely, but not certain.

The typical pocket multiverse consists of one baseline physical reality (which might contain an alternate Earth) and one or more attached alternate dimensions or interpenetrating planes populated by magical beings or spirits. There is often a "void" that surrounds all these dimensions.

Many pocket multiverses house powerful, even omnipotent godlike beings. Most such entities are tied to their realm and cannot leave – at least, not without leaving behind most of their power. However, magic or technology from *outside* the multiverse might allow these gods or their servants to leave. And rarely, a pocket multiverse "absorbs" another reality, bringing it *inside* the gods' domain!

A simple example of a pocket multiverse is a regular physical universe containing a parallel Earth; an interpenetrating, superimposed spirit world; and two alternate dimensions, a heaven and a hell. In this system, people who die really *do* go on to their punishment or reward; ghosts and spirits prowl the space between; angels and demons are quite real; and there may be a Creator.

Infinity researchers find operating in pocket multiverses complex, difficult, and dangerous. Parachronic technology does not always function in all parts of these systems!

Interdimensional Travel

The keys to crossworld travel are the parachronic *projector,* which can move matter between timelines, and the parachronic *conveyor,* which facilitates such transport. There are also nontechnological means of travel between worlds.

Parachronic Conveyors

A "parachronic conveyor" is a vehicle for interdimensional travel. There are different styles, but all involve an enclosed hull containing a parachronic field generator, a power system, and a control system.

Hull Type

Capsule: The standard conveyor is basically an enclosed box. It may be disguised for covert operations – for instance, as a hut, covered wagon, shed, phone booth, or trailer.

Mobile: Some conveyors are functioning, mobile vehicles. These usually mass from 1 to 20 tons, although larger and smaller designs exist.

"Mobot": An unmanned, robot-controlled vehicle. These are still experimental; Homeline cannot yet build a really robust artificial intelligence.

Parachronic Field Generator

A conveyor's generator may have *subquantum, quantum,* or *two-quantum* range. No one has yet developed a conveyor with greater range.

The generator also has a *mass capacity:* the maximum mass it can transport. The mass of the conveyor (including the generator) and its payload cannot safely exceed this limit.

The capabilities of the generator largely determine the cost of the conveyor, which is usually very high. This isn't all for the circuitry – much of the cost is licensing fees!

Subquantum Conveyors: These can jump between destinations at the same quantum level. Base cost is $10 million. Each ton of capacity adds $10 million and 10 lbs. LC2.

Quantum Conveyors: These can jump between destinations at the same quantum level. With the help of a projector, they can jump to or from *adjacent* quantum levels as well. Base cost is $20 million. Each ton of capacity adds $150 million and 10 lbs. LC1.

Two-Quantum Conveyors: These work like quantum conveyors, but can jump up to *two* quantum levels with the aid of a projector. Two-quantum jumps are always tricky! Base cost is $30 million. Each ton of capacity adds $300 million and 30 lbs. LC0.

Power System

A jump requires 200 kJ of energy per ton of capacity – delivered in a single pulse. A typical pulsed power system for the field generator costs $50 and weighs 5 lbs. per kJ.

Control System

A conveyor may have one of two types of control system:

Fixed: The conveyor can only jump between two specific realities, whose coordinates are hardwired. The operator cannot change these settings. This type of conveyor is typical of those available to most corporations, private users, etc. who have proper licenses. LC2.

Parachronic Coordinates

Levels of several different types of parachronic energy determine a world's "parachronic coordinates." The most important of these is the "T-Gamma force," which has levels that only come in whole numbers.

Suppose the T-Gamma force equation were composed of two numbers – there are really hundreds, but suppose it were only two. The formula for Homeline might be 5 + 0 = 5, so it is in Quantum 5. The formula for Earth-Beta, a close parallel, might be 4 + 1 = 5, so it's also in Q5. The next world might be 3 + 2 = 5, which is still in Q5. These similar formulas give the same result – 5 – so the associated worlds are similar to Homeline, as well as nearby.

But a world might also have a formula of 25/5 = 5, or -5 × -1 = 5, which gives 5 in a very different way. Such worlds are still in Q5, but very different.

By the same analogy, a parallel that is in Q7 but still very similar to Homeline might have the formula 7 + 0 = 7.

Programmable: The conveyor can jump to any reality within its range. To accomplish this, the operator must enter the coordinates into its guidance system manually. These units are much more tightly controlled. LC0.

Conveyor Operation

An unassisted parachronic conveyor can only jump to timelines in the same quantum. For a long-range conveyor to jump to a different quantum, it requires the assistance of a parachronic projector (see below). For a safe jump, the total mass of the conveyor and its payload cannot exceed the field generator's capacity. A typical conveyor, after subtracting its own mass, can transport anywhere from 500 to 2,000 lbs. of occupants and cargo.

A conveyor jump requires a lot of energy in a single pulse – more than a TL8 vehicular power plant can deliver. The necessary pulsed power system accounts for about half the mass of a conveyor. It can deliver enough energy for a single jump, after which it must be recharged. Most conveyors have an onboard fuel cell that can replenish the energy bank in about 30 minutes. This means the conveyor can't return *immediately* after making a jump!

A conveyor needs to be programmed with the precise parachronic coordinates of both its *location* and its *destination*. If a conveyor gets lost, it's in trouble: the crew may know where to go, but not how to get there from their current position. Finding the coordinates of a new universe is a huge research project, taking years of effort. Infinity and Centrum both have the parachronic coordinates of several hundred universes on file. In Homeline, most are publicly available, but some (for closed worlds, or those known to be controlled by Centrum) are secret.

Parachronic coordinates are used in conjunction with the actual space-time location of the conveyor to plot a "parachronic course." A different "jump program" is required for each location in real space (e.g., Times Square, New York) and each set of parachronic coordinates (e.g., Homeline to Earth-Beta). Infinity Unlimited charges about $500 for a pre-plotted jump program, from a commercial I-Port to the equivalent location in the target universe. To create a custom jump program (e.g., to depart from your garage in Queens instead of from Times Square) takes 5 to 10 days of supercomputer time . . . at a cost of $1 million to $20 million. For this reason, most legitimate travelers use the I-Ports.

Just prior to departure, the conveyor's operator must perform final jump calibrations to correct for local conditions and the conveyor's current mass. Solar neutrino and cosmic ray density, local electrical and magnetic fields, and similar factors can all influence the jump; a good operator will compensate, taking 10 minutes. The operator can take more or less time; see *Time Spent* (p. 346) for the effects on the skill roll for the jump.

Finally, the operator hits the "jump" button! This activates the conveyor's generator. (If the jump requires a projector, he hits the "ready" button instead. The conveyor jumps as soon as the projector's field is focused on it.) The conveyor vanishes, to reappear at the same point in space in a different universe.

Parachronic Projectors

A "parachronic projector" is a device that enables a quantum or two-quantum conveyor to cross quanta. It consists of an enclosed "stage" surrounded by equipment. It can be set to dispatch or retrieve a conveyor.

A projector's size depends on how much mass it can move. Van Zandt's first projector filled a large laboratory. The largest modern projectors can move up to 300 tons at once, and occupy most of a city block. An "average" projector requires enough hardware to fill a small auditorium, and can move two tons.

A projector requires a great deal of energy to operate. This can get expensive, but for a large projector, the cost *per unit of mass* remains low enough to be negligible – even when moving relatively low-value items, such as grain and ore.

Projectors are *very* costly. Infinity quotes a base price of $100 million for the simplest installation with a two-ton capacity; prices only go up from there. Thus, only governments, eccentric billionaires, and large corporations can afford their own projectors. But since the cost to transport people and goods is relatively low, projectors routinely handle a dozen transits per day.

Projector Operation

In order for a projector to *dispatch* a conveyor, the conveyor must be positioned on the projector's stage and "ready": programmed, powered-up, etc.

To *retrieve* a conveyor, the projector must be focused on a specific universe within two quanta. If a "ready" conveyor in the target universe occupies a point congruent with the stage, the projector snatches it back. Since "real time" interdimensional communication is impossible, retrieval operations rely on setting pickup times and alternates. For example, a cautious penetration expedition might arrange to have a projector turned on once every 24 hours. If they don't want pickup, they won't power up their conveyor.

It is relatively straightforward to use a projector to dispatch or retrieve a quantum or two-quantum conveyor over a one-quantum distance (e.g., from Q5 to Q4 or Q6, or vice versa), provided the conveyor has an operating, calibrated field generator.

To dispatch or retrieve a two-quantum conveyor over a *two*-quantum distance (e.g., from Q5 to Q3 or Q7, or vice versa) is trickier. A conveyor with an operating, calibrated field generator isn't enough – transit is only possible under special conditions, and these can only be predicted about four hours in advance. (Every hour, roll 3d. On a result of 7 or less, an hour-long window will open in four hours.) Only the computers and instruments on the *projector* can make this prediction; those in the conveyor have no option but to prepare for pickup and wait . . . and wait . . . and wait.

Operations and Accidents

When a conveyor jumps, roll against the operator's Electronics Operation (Parachronic) skill to see how the trip went. On a projector-assisted trip, both the projector operator *and* the conveyor operator must roll.

Modifiers: -3 or worse for damaged equipment. Electrical disturbances give a penalty, from -2 for severe electrical storms or solar flares to -6 for the electromagnetic pulse of a nuclear blast! ("Hardening" the electronics won't remove this modifier – this is an environmental effect, not equipment damage.)

On a success, the conveyor instantly disappears from its starting universe and reappears at the same point in the destination universe. On a failure, by either the conveyor operator or the projector operator, something went wrong! Usually, the transit happens anyway . . . but not as planned. Roll 1d – or 2d, for a two-quantum jump – and add it to the operator's margin of failure. If the conveyor and projector operators both failed, *add* their margins of failure! If the conveyor is overloaded, increase the total by one or more. Then look up the result on the table below.

2 – Timing error. Trip takes 1d minutes from the viewpoint of those "outside." There is no way to tell a simple timing error from a totally lost shipment . . . so *any* delay triggers a security alert, just in case! This is why parachronic operators have ulcers.*

3 – Timing error. Trip takes 1d minutes from the viewpoint of both those in transit and those "outside."*

4 – Timing error. Trip takes 4d minutes from the viewpoint of those "outside."*

5 – Timing error. Trip takes 4d minutes from the viewpoint of both those in transit and those "outside."*

6 – Positional error. Conveyor appears 1d feet too low, or off to one side. Minor damage to conveyor or projector, but not to passengers or cargo (unless it is *very* fragile).†‡

7 – Resonance error. Shipment appears and then vanishes, reappearing where it was coming from. A repeated attempt is allowed, but at -1 to skill.†

8-9 – Field-strength error. Electrical discharges do 1d-2 burning damage to all personnel, and temporarily disable all unshielded electronic equipment. The conveyor's field generator is disabled until it receives major repairs.†

10 – Positional error. Conveyor appears too high. The fall inflicts 1d crushing damage on each passenger and to breakable cargo. The conveyor's generator is damaged: -3 on trips until it gets minor repairs.†‡

11– Severe positional error. As **10,** but falling damage is 2d and the conveyor's generator is *disabled* until it receives major repairs.†‡

12 – Focus error. The conveyor goes somewhere unintended. It will appear in the same place, geographically, but it could be on any of an infinite number of timelines. Roll 1d: 1-3 means it's on the right quantum level but in a different timeline; 4-5 means it's on an adjacent quantum level; and 6 means it's two quantum levels off. It will take days, weeks, or even months for the computers at Infinity (or Centrum) to deduce its location. Until then, *there is no way to retrieve it.* If a projector was involved, there is also a 2-in-6 chance that *something* will arrive on the stage from a random crosstime location. It might be air, rubble, an artifact, or a living being . . . and it might be dangerous. In anything but an emergency, the projector will be taken offline for 1d days while researchers gather data (the hope is to build a controllable "snatcher" projector someday!).†‡

13 – Matrix error. The conveyor arrives in small pieces – it is totally destroyed. Grain, ore, etc., is unaffected; other cargo is killed or destroyed. The GM may wish to "fudge" this result for PCs (treating it as **12** or **14,** as desired).†

14 or more – Utter confusion! Roll twice more and apply *both* results. If either of these new rolls results in 14 or more, see *Fascinating Parachronic Disasters* (below) instead.†

* Travel time between worlds is theoretically zero. Sometimes, for no known reason, a trip seems to take longer. And sometimes, a trip seems instantaneous to the passengers but takes time from the point of view of the people on either end!

† When one of these results comes up, roll 1d: on a 1 or a 6, nothing happens; on 2-5, the corresponding time-delay result from the table (**2** through **5**) occurs *as well.*

‡ If this error would mean that the conveyor materializes inside a solid object, anything it displaces simply *vanishes.* No one has yet explained where it goes. This means that it is very foolish to stand on a projector stage or within the area corresponding to the focus of a projector! You could vanish. Worse, *part* of you could vanish.

Fascinating Parachronic Disasters

Roll 2d and consult the table below whenever result **14** comes up twice in succession on the previous table. Several of these results assume *living* cargo; reroll these if sending inanimate cargo.

Some of these results appear to violate parachronic science. Many of them have not happened to Infinity . . . yet. A hazard associated with any such event is the mob of researchers that instantly appear – to take possession of all equipment involved, and to debrief all witnesses to within an inch of their lives.

2 – Trip takes centuries, or even millennia, from the viewpoint of the shipment. Much less time passes for the "outside" world. Survival of living beings is unlikely – they might arrive and then crumble to dust! Rather than killing off PCs, the GM is free to substitute other temporal oddities, such as aging in reverse. Finding a cure could be an interesting adventure.

3 – Trip takes a very long time from the passengers' *mental* perspective, but no time from their *physical* perspective. Each passenger gains 3d points in assorted mental quirks and disadvantages, assigned by the GM in accordance with the passenger's personality. (This has happened twice.)

4 – Signal error. Living things arrive safely . . . except that everyone's mind ends up in the wrong body. This may be permanent, or it might wear off in 1d days. See *Mind Transfer* (p. 296) for the effects of mind swapping.

5 – Tau-factor error. Shipment appears as a "mirror image" of itself. Ores are unaffected. Foodstuffs are inedible. *Living* passengers acquire the Restricted Diet and Unusual Biochemistry disadvantages, and require a special diet to survive. If they are far from Homeline, all Survival rolls are at -5, reduced to -2 once someone realizes (from GM clues) what has happened. (This has happened twice, and is suspected in two other cases where the crew of a lost conveyor starved in "friendly" surroundings.)

6 – Frog error. The shipment arrives in a rain of tiny frogs, or some other bizarre "Fortean" phenomena. (This has happened six times, and four Infinity researchers have gone mad trying to explain it.)

7 – Bio-field error. All *nonliving* material in the shipment – including the conveyor – disintegrates or is lost elsewhere. This can leave travelers embarrassed or stranded, depending on whether they were arriving at a projector stage or leaving one.

8 – Living beings experience brief telepathy. Each passenger acquires 20 points worth of Telepathy abilities (see Chapter 6); the GM assigns these randomly. These last 1d days – roll separately for each person. (This has happened twice . . . that Infinity knows of.)

9 – The shipment appears *twice,* 1d minutes apart. (This has happened once; fortunately, it was an uncrewed conveyor. The second conveyor displaced the first one when it was partially unloaded. Was the duplicate some sort of "mirror" effect, or was it from another timeline? It is unknown what would have happened had there been passengers. Would *they* have been duplicated?)

10 – The shipment or conveyor is switched with a very similar shipment or conveyor belonging to Centrum (or to Homeline, if the mission was Centrum's).

11 – The shipment or conveyor is switched with a very similar shipment or conveyor belonging to some other, as yet unsuspected, race of crossworld travelers.

12 – The shipment or conveyor is switched with a shipment or conveyor belonging to some *completely alien* dimension-traveling culture. Mass is unchanged, but nothing else need be the same!

Parachronic Detectors

A "parachronic detector" is a device that can detect an incoming jump. To do so, it must be on the same reality as the jump, and the jump must occur within its range (see below). Roll against the operator's Electronic Operations (Sensors) skill. Success gives a bearing. Two or more stations within range can triangulate and determine the jumper's location to within a few percent of the actual range.

The sensor also records the jump's reality disturbance. An hour's analysis and a successful Physics (Parachronic) roll will reveal the source of the jump – conveyor, projector, or "anomalous" (e.g., a spell) – and its quantum of origin. A day's work and a roll at -5 identifies the *reality* of origin, if the researcher is familiar with it.

The portable unit most often carried by Infinity Patrol agents costs $560,000 and weighs 56 lbs.; it the size of a large backpack, and has a 1,000-yard range. Larger models are $1 million and 200 lbs. per mile of range.

When Infinity or Centrum takes over a timeline, standard operating procedure is to deploy a network of long-range detectors. However, their expense means that few worlds have *total* coverage. It is generally only cost-effective to deploy them in major centers.

Damaged Conveyors

Failed jumps, accidents, sabotage, and attacks can all damage a conveyor. Depending on its hull, a conveyor might be as flimsy as tinfoil or as robust as a tank – but should *any* damage penetrate its DR, assume that there is a 1-in-6 chance of significant damage to its delicate parachronic hardware.

The dramatic effect of damage is more important than the specifics. As a rule of thumb, it usually reduces the conveyor's capabilities: the conveyor still functions, but at -3 or worse to all Electronics Operation (Parachronic) rolls.

Severe damage (GM's decision) may cripple the conveyor completely. Until repairs are made, it cannot make a subquantum jump itself, nor can a projector retrieve it. In effect, it is "stranded."

Lost Conveyors

A conveyor can become entirely lost – that is, fail to arrive where it was expected – for a variety of reasons. These boil down to "operator error" and "bad luck."

If someone on Homeline was retrieving the conveyor with a projector, or expecting it to return under its own power, its loss will be noticed immediately.

If the conveyor was outbound from Homeline, the time before its loss is noticed depends on the shipment. Loss of a regular supply run to a major base will be reported as soon as possible, by sending a message capsule to the other end. However, it might take days or weeks to notice the loss of an exploration mission!

The sooner a conveyor's loss is noticed, the better the chances of recovery. The Infinity Unlimited computers can get to work on the problem, taking into account every known variable, down to the exact mass and capacitance of the conveyor. Sometimes, they can predict where it might have appeared. If they're lucky, this is a charted, habitable timeline. But sometimes it isn't.

Occasionally, the computers predict an *uncharted* location. In fact, this is how several new timelines were discovered. Even so, being randomly dumped onto a brand-new timeline, while it makes a great adventure, is a trip most travelers would rather avoid.

Lost/Moved Timelines

This is *not* "operator error" – but when it happens, it causes operator headaches! See *Timeline Shifts* (p. 544).

Paradoxes

Paradoxes don't happen, because parachronic travel is not true *time* travel. However, in an "echo" – a timeline that duplicates Homeline's history – any intervention that changes the flow of events can cause a quantum shift: an expensive nuisance at best, a disaster at worst. See *Timeline Shifts* (p. 544).

That said, a continuing nightmare of more imaginative types is this: What if one of the historical parallels is somehow Homeline's past, and visitors change it without noticing? But that hasn't happened . . . yet.

Natural Parachronic Phenomena

There are several unusual "natural" phenomena that can reach across dimensions.

Banestorms

A "banestorm" is a localized event that transports everyone within a certain area to another dimension. The phenomenon is most often circular, and may range in size from a few yards to a few miles across. On a planet with an atmosphere, it tends to manifest as a thick fog bank, mysterious thundercloud, heavy electrical storm, etc. that builds up slowly (e.g., a fog rolls in and blocks all light) and vanishes suddenly.

When a banestorm vanishes, so does everyone within its radius. These "passengers" reappear . . . elsewhere. And unlike a parachronic conveyor, a banestorm does not always transport its passengers to a spatial location that corresponds to their point of origin in their home dimension. Some geographical locations seem to be "preferred" pickup or delivery points. These places often earn a reputation – the Bermuda Triangle, for example.

There are few consistent patterns beyond this. Some worlds seem to be more prone to banestorm manifestations than others – and on a given world, certain *locations* seem to be unusually susceptible. Multiple banestorms can strike simultaneously. Researchers know of at least two special types of banestorm:

Twin banestorms exchange matter from two dimensions. A large land-based event can even exchange *terrain* between worlds.

Permanent banestorms transform an area of a single physical reality into one in which two dimensions co-mingle. This often has an effect on the area's mana level, increasing it for hundreds or even thousands of miles around.

No one knows what causes any type of banestorm. Theories include:

Banestorms are magical. Some evidence suggests that banestorms are magical in nature. Divination can often predict them. Powerful ritual magic can sometimes even summon them. Magic seems to be less successful at *controlling* them, however . . .

Banestorms are technological. Parachronic technology can certainly detect banestorms; a parachronic detector (p. 532) "goes crazy" 1d minutes before one appears. There is considerable debate as to whether parachronic technology can *cause* them. Parachronic Laboratories (p. 538) believes it might be possible to create an artificial banestorm using a "parachronic bomb" – but if they've got one, they don't admit it. Some theories suggest that *any* use of parachronic technology may intensify or even cause banestorms. And some evidence suggests that the technology need not be parachronic: on one world, Merlin, the first nuclear detonation to take place triggered a permanent banestorm.

Banestorms are alive. A few researchers believe that banestorms are living things!

Reality Quakes

Unlike a timeline shift (see p. 544), a "reality quake" is a parachronic convulsion that overturns the *past* of a given world, rewriting reality and changing its established history. This would normally go unnoticed, except that fragments of the previous past ("reality shards") often still remain, persisting as bizarre memories, inexplicable amnesia, or anomalous artifacts – especially in the "fracture zone," the name given to the "epicenter" where the two histories began to diverge. Some reality shards are even human – legendary figures, mysterious strangers, or individuals "duplicated" across worlds. Extremely powerful reality quakes sometimes overturn both the past and future of a world, hurling reality shards into nearby parallels.

Dimensional Highways

A "dimensional highway" is a path that runs across dimensions. Researching its history often reveals that it follows ancient straight tracks, ley lines, etc. At points along the road, nexus portals exist. These are usually periodic or locked, and as wide as the road itself. The road might end at a portal in one dimension and resume at a portal in the next – or it might continue in the original world as well, and after a stretch, lead to another portal to a third reality, and so on. Who built the roads? Nobody knows . . .

Nexus Portals

A "nexus portal" is a hole leading from one dimension to another. It is usually circular and less than 10 yards across, and allows light to pass through from both ends (that is, you can see its destination). Like a conveyor, a portal crosses realities without crossing space.

Most portals are *two-way:* you can enter or leave at will. Some, however, are o*ne-way:* you can enter but you can't leave. If you stick a limb or object partway through, you can't retrieve it – it's stuck until you or the object go *all* the way through.

A portal might be further qualified as:

Open: The portal is always present and can be traversed freely.

Periodic: The portal only appears sometimes: every full moon, once per century, etc. If it's two-way, the way out usually has the same cycle.

Locked: The portal only appears in the presence of a specific "key" – usually a magical or technological artifact. A parachronic detector or world-jumper can detect its presence.

Summonable: The portal only appears when summoned. This requires a specific action, which might be mundane (touch a specific object) or complex (use a specific sacred dagger to perform a blood sacrifice). Most such portals only remain open for a brief period after being summoned.

Variable: The portal is a junction between more than two realities. The destination might be random or selectable (via a key or action). If two people want to go to the same place, they should hold tight as they pass through!

Hidden: A hidden portal is invisible – you can step through it without realizing it was there. Such portals are often one-way! A parachronic detector can sense a hidden portal only at 1/100 its normal range – and only when the portal is actually used to traverse a dimension. A world-jumper can sense a hidden portal in his line of sight on an IQ roll.

Shiftrealms

Some geographical features (and a few man-made structures) are "unstuck" in reality. They shift between worlds, either randomly or on a regular cycle. These "shiftrealms" may appear and vanish entirely, or overlay or switch places with local reality. They can range in size from individual rooms to entire worlds. Researchers believe this may account for tales of mysterious vanishing islands (such as Avalon and Huy Breasil) and haunted forests.

Infinity's World Classes

Infinity applies one of the following formal classifications to each timeline.

Open

The world is open to visitation and colonization.

Protectorate

The world is a populated parallel under the protection and control of Infinity Unlimited or the United Nations. Depending on the world's status, limited trade and contact may be possible.

Research

The world is set aside for study. Most such worlds are parallels. Types include:

Anomalies: Worlds that show some interesting but not obviously dangerous variations in physical laws.

Cultural Preserves: Worlds left as "controls" to judge the effect of intervention on other, similar timelines.

Nature Preserves: Worlds with interesting wildlife, such as dinosaurs . . . or dragons.

Primitives: Parallel worlds inhabited by Bronze Age or earlier man. (There is continuing pressure to allow more exploitation of these worlds.)

Closed

The world is "off limits" to absolutely everyone save a few chosen researchers or Penetration Service agents . . . mostly because they pose a potential danger to Homeline. Infinity tries to keep the very *existence* of these worlds secret. Reasons for this include:

Hell Parallels: Timelines depopulated by uncontrollable disease, nanotech gone awry, or forces not yet understood. See p. 528.

High-Tech and Aggressive: The world would present an obvious danger if the locals learned about crosstime travel. The Nazi-dominated "Reich" parallels are the best example.

Mysterious Forces: Worlds that harbor magic, widespread psionics, or any ability under the general heading "super powers."

Nonhuman Intelligence: Timelines in which aliens are the dominant species.

Ultra-Tech: When a world has technology more advanced than Homeline's (or Centrum's), it is considered hazardous even if its culture seems benign. The researchers' objective here, of course, is to learn the native science without being caught! No Earths with interstellar travel have been discovered so far.

War Zone: The world is the site of a major struggle between Infinity and Centrum, or between different native factions.

There are a few "special" closed worlds that don't fit into any of the categories above; e.g., a mysterious parallel where the inhabitants suddenly began to shrink. They are usually closed for good, one-of-a-kind reasons!

Infinity Unlimited

Infinity Unlimited, usually called "Infinity," is the multinational corporate entity through which Homeline exploits the fruits of – and tries to control – parachronic technology. It is a huge, wealthy organization. It is not always efficient, but it is effective.

Infinity operates under the joint auspices of the United Nations Interworld Council (consisting of the ambassadors of the permanent members of the U.N. Security Council) and its own board of directors. The board is half elected by Infinity's own shareholders, half appointed by the Council.

Infinity owns, and has the right to police, *all* parachronic equipment. When others build such equipment, they do so by permission. Any use of projectors is under Infinity's direct supervision, and licensing fees are required. Infinity has the power to confiscate or destroy any unauthorized conveyor or projector – but in practice this right is limited when the device is in the hands of major powers operating on Homeline.

Infinity considers itself the custodian of all other timelines – although its practical hegemony extends only through Q4, Q5, and Q6. Its subsidiaries have a monopoly on the research and penetration of new timelines. As the "legal guardian" of the alternate worlds, Infinity leases development rights to other Homeline entities: governments, corporations, or even individuals. In effect, Infinity regards itself as the *owner* of any world below TL6, and limits or forbids contact with worlds of higher TL.

Infinity also requires that outtime interlopers "better the lot" of the people whose worlds they infiltrate and use. This is often interpreted very loosely . . .

Infinity's ability to enforce these policies is strong but hardly absolute. Many interests explore and exploit timelines clandestinely, simply because it is so *profitable* to find and monopolize a new world!

Infinity has a number of subsidiary organizations. Each performs a different task. They try to cooperate closely, but communications breakdowns and low-level infighting are not unknown. Additionally, no matter how carefully Infinity screens its employees, there is always the chance that Centrum infiltrators, government and corporate spies, and ordinary thieves are among them – leading to adventures with no outside enemy.

Crosstime Recruitment

Homeline and Centran crosstime organizations often employ locals, but they do so through front organizations – the outtimers have no clue that they're working for extradimensional bosses. In fact, it's a serious crime for *anyone* to divulge The Secret to an outtimer. However, the Infinity Patrol has limited authority to recruit talented outtimers. Its Centran equivalent, Interworld, enjoys similar powers.

Crosstime recruitment is supposed to occur only when an outtimer's talents are deemed to be a *significant* asset to the organization. A field agent who recruits a local will have to justify his actions to a board of inquiry. In practice, tolerance depends on the situation. World-jumpers (p. 544) are an exception. They're so valuable that every effort will be made to recruit them, no matter where they're from.

On the other hand, there have been cases where recruitment was initiated for personal reasons. For instance, an undercover Time Scout might fall in love with a talented outtimer and use his influence to recruit her into the service. In a case like this, Infinity *might* go along in order to keep a good agent . . . but it is more likely to court-martial the offender and send both lovers off to Coventry (p. 540).

The Patrol expects all recruits to go through training and indoctrination, and watches them carefully to ensure that they remain reliable. An outtime recruit whose true loyalties remained with his homeworld would be a great liability.

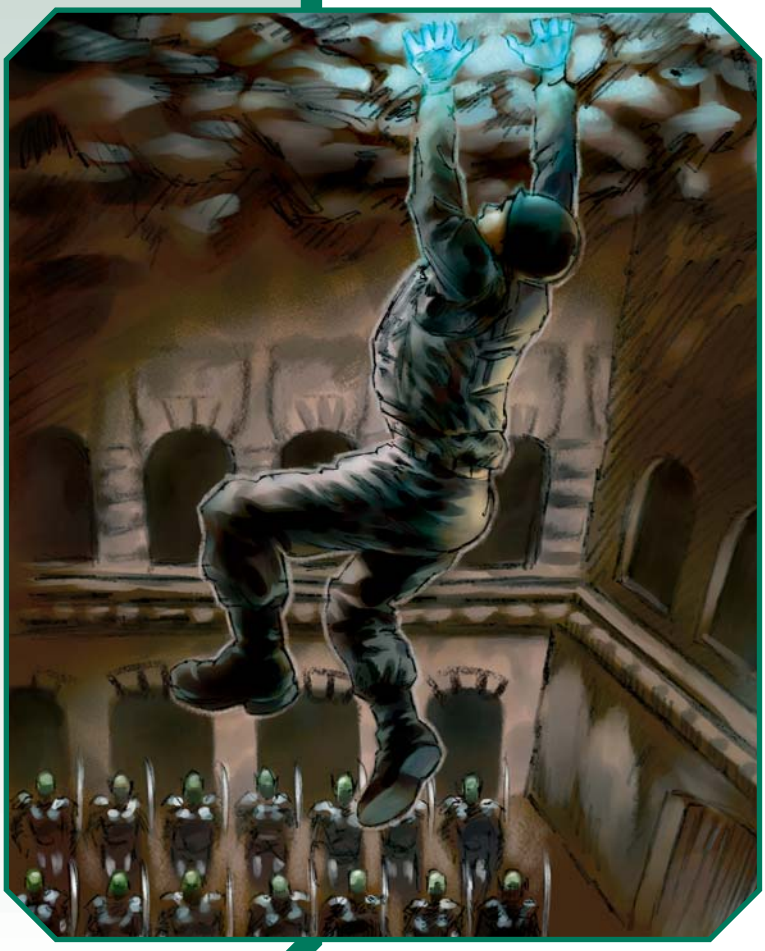
ISWAT

Interworld Special Weapons and Tactics, or ISWAT, is the elite black-ops section of the Infinity Patrol. It specializes in operations on closed worlds, weird parallels, and pocket multiverses, and routinely performs high-priority but *deniable* missions that can determine the fate of entire worlds.

ISWAT has an undisclosed number of operatives, who work in small teams. Some are highly trained I-Cops or special operations troops . . . but the majority are outtimers recruited for their unique talents. Rumor has it that these include famous historical or mythical figures plucked from alternate worlds; wizards, psis, and supers; nonhumans (including undead); slumming angels and reformed demons; and even retired pagan demigods. Many of these rumors are true.

ISWAT ops have three things in common: a dedication to the nebulously defined ideals of "peace and freedom," a love for action, and a very tight personal loyalty to their team members. The eight iconic characters on pp. 307-323 make up an ISWAT team. Such a team is an ideal PC group for *very* free-wheeling adventure.

Does Centrum have its own ISWAT? That's a very good question.



Infinity Development

This joint U.N.-Infinity organization is responsible for parceling out "trading territories" among the timelines. When a new world is opened for commercial exploitation, interested parties must submit bids to ID. Cash is just one consideration; bidders must also show how they will protect the local environment and population, keep security, and so forth. Outtime installations are always subject to inspection by ID bureaucrats, I-Cops, or both.

Many Homeline organizations object *strongly* to the implication that Infinity "owns" the other timelines . . . but that's the way it works.

Infinity Patrol

The Infinity Patrol is the "operations" branch of Infinity. In theory, it is

a private security force operating under a U.N. mandate – much like the various contractors (some armed) that the United Nations has hired in the past to clean up after wars. In practice, the Patrol is a supranational paramilitary agency under Infinity's control.

The Patrol's jurisdiction on Homeline is strictly limited to protecting Infinity premises – although they have close liaisons with both national police agencies and Interpol. Beyond Homeline, only its reach limits its influence, but it has limited powers on worlds that have large national presences. The Patrol is spread *very* thinly among the many timelines it polices.

The Patrol is a large organization, with 10,000 field agents and 50,000 other employees. It is multinational in character. The paramilitary "I-Cops" primarily recruit former police and military personnel, while the Penetration Service attracts adventurers and scientists of all sorts (geologists, anthropologists, biologists, etc.). The one constant is that everyone must pass rigorous psychological and loyalty examinations intended to weed out fanatic nationalists, criminals, radicals, and anyone else likely to betray the organization. Most of the time, this works – although some Patrol members undoubtedly have divided loyalties or hidden agendas.

A Patrol field agent might be an explorer, investigator, or soldier, but regardless of his job, he serves in one of the Patrol's two main branches:

Intervention Service: Popularly known as the "I-Cops," Intervention is the security and espionage arm of the Patrol. Its primary responsibilities are enforcing Infinity regulations and countering Centrum penetrations. Intervention is organized into 10 divisions, including Justice, Security, Internal Affairs, and Special Operations.

Penetration Service: The "Time Scouts" are responsible for surveying and opening new timelines. They also handle search-and-rescue operations for lost conveyors. One of their least-known but most dangerous jobs is crosstime intelligence gathering. Penetration's eight divisions include Contact, Echo Surveillance, Intelligence, and Search and Rescue.

Infinity Patrol Missions

The Patrol has many duties, including:

- *Enforcement:* Inevitably, some Homeline governments, corporations, and individuals use timelines in unacceptable ways: exploiting the natives, wasting resources, importing mercenaries and equipment for military adventures, and so on. This happens constantly, despite the I-Cops' best efforts. But the Patrol keeps trying to stop it. This is the job of the Justice division of Intervention, but Penetration Service agents often notice the problem first, when a "new" timeline turns out to have uninvited guests.

If an unauthorized penetration is discovered, the I-Cops go into action immediately. The policy is to shut down the penetration instantly if The Secret seems likely to be breached . . . but otherwise, to infiltrate the penetration in order to roll up the entire gang – not just the foot soldiers. An experienced Time Tours guide or retired scout might be approached for such a mission.

- *Homeline Security:* The Security division of Intervention is focused on monitoring and stopping crosstime infiltration of Homeline. It works closely with the Intelligence division of Penetration – and with the intelligence agencies of major world powers – to detect and neutralize threats. A major part of this job is keeping tabs on conveyors and projectors.
- *Outtime Security:* A pillar of Infinity's policy is that no timeline outside Homeline (and obviously Centrum) is to learn that crosstime travel even *exists* – let alone use it – except under close control. The Penetration Service works to discover which timelines are edging toward this technology (or any other means of dimensional travel), while the Intervention Service takes action to ensure that individuals and governments do not breach regulations, and punishes those that do. When necessary, Intervention uses extreme measures to keep The Secret (see p. 540).
- *Defense vs. Centrum:* This includes counterespionage against Centrum spies, espionage to learn more about the enemy, and the most "romantic" job in the Patrol: defending echoes against sabotage. Penetration and Intervention work together at these tasks. Penetration engages in surveillance, espionage, and counterespionage, while Intervention handles active police work and special-ops missions to counter Centrum operations once detected.
- *Rescue:* There are many reasons why crosstime travelers might fail to make it back on time, ranging from the trivial (conveyor blew a fuse) to the disastrous (eaten by dinosaurs, taken hostage by renegades, or burned as witches). It's also possible that they interfered with history and caused a timeline shift (see p. 544). So when travelers fail to check in, the Patrol sends out a rescue mission.

Who goes on the mission depends on who was lost – and where. On a "safe" timeline, the response might be two junior Penetration troubleshooters with a tool kit . . . but they'll be armed, just in case. For dangerous timelines, it might be an armed conveyor full of I-Cops.

In all cases, the Patrol's top priority is to safeguard The Secret; therefore, retrieving or destroying a lost conveyor can be more important than getting missing travelers out alive! For this reason, the Patrol often isn't called immediately if the missing party belongs to a group other than Infinity. Many crosstime corporations (such as Time Tours) have their own reaction forces. Other governments have their own security forces, too – some more competent than others. And in extreme cases, ISWAT (p. 536) might intercept the call and quietly take over the mission.

A rescue mission is a good, and potentially violent, adventure. And if it takes place in an echo, there is also the danger of causing an inadvertent quantum shift . . .

Penetration Missions

New timelines are discovered mathematically, although a lot of trial and error is also involved. Initial entry into a new timeline is always made using a robot with an extensive chemical and biological sensor package. Many timelines get no further visits . . . they're not suitable for human life. But when a timeline looks safe, a human has to go in.

The first scout's job is to get in, look around, and determine whether the timeline is inhabited – and, if so, by whom or by *what*. If it proves to be uninhabited, Penetration classifies it for colonization or other use and turns it over to Infinity Development.

But if the timeline is inhabited, it remains the property of Penetration, and the survey proceeds *very* carefully. The first scout isn't expected to bring back anything more than an estimate of the tech level and a recorded sample of the language. Later teams try to learn a bit more on each visit. If the timeline is similar to a known parallel or historical period, experienced agents can be brought in quickly. Otherwise, exploration happens one careful step at a time. The higher the timeline's technology, the more careful the explorers must be.

Only very well penetrated timelines are opened up to organizations like Time Tours. Usually, these are on Q4 and Q5, where Centrum's agents cannot reach. But certain Q6 echoes are also (carefully supervised) tour sites.

Naming New Worlds: A newly located timeline receives a code number based on its parachronic coordinates. Researchers inevitably end up coining informal names during the penetration process. Eventually, one name sticks and becomes official.

Penetration Adventures: An adventure or even a campaign could be built around the first penetrations of a new timeline – especially if it has high technology and is not a close parallel. One of the first steps is to grab a daily newspaper. Imagine the gradual penetration of, for instance, a world in which the Nazis won World War II . . . and it is now 1960.

Miracle Workers

Miracle Workers is the nonprofit, "do-gooder" side of Infinity. It works closely with various U.N. aid agencies. Despite being heavily financed by licensing profits from other parts of Infinity, as well as by outside donations, there is never enough time or money to help everywhere. And – to the great frustration of the staff – Miracle Workers is strictly forbidden to help out in the historical echoes, for fear of shifting the timeline.

Miracle Workers is not for profit, but is not in the business of handing out free lunches, either. When it resettles disaster victims, for instance, it usually requires those resettled to pay their way – most often by working for other Infinity operations. Still, these contracts are always more than fair to those being helped.

Miracle Workers supplies vaccines, antidotes, food crops, etc., in situations where these things would make a difference. The biggest challenge here is covering its tracks, except in those rare, usually depopulated timelines where Infinity simply moves in and takes over.

Parachronic Laboratories

This is Infinity's pure-research organization, dedicated to improving both parachronic technology and Homeline's understanding of the science behind crosstime travel. Infinity might ask agents of any of its organizations to test prototype equipment from "Paralabs." When a traveler survives a new and devastating conveyor accident, researchers from Paralabs are in the middle of the investigation . . . probably demanding that the victims do it all again, more slowly.

Outside Organizations

Many organizations, both government and private, have access to conveyors. All of these units are theoretically under Infinity's control, open to I-Cop inspection at any time. But conveyors are often falsely reported "lost" and put to clandestine uses – or simply stolen by untrustworthy agents or employees. This is a constant headache for the Patrol.

More than 30 non-Infinity organizations have their own projectors. Fortunately, these are easier to police, and every projector has its own full-time Patrol monitoring team.

The United Nations

The United Nations theoretically oversees Infinity in its many forms, but its "control" is loose on Homeline, and looser yet in the alternate worlds, Infinity definitely keeps secrets from the U.N. However, the U.N. has nearly unfettered access to Infinity facilities for operations such as humanitarian relief missions to other worlds.

Since U.N. members tend to protest interventions against their crosstime analogs, most crosstime U.N. interventions are either in very different parallels or intended to help the "local" U.N. survive and grow. At any given time, the U.N. may be actively intervening in two to four different timelines.

Governments

Several nations (notably China, France, Germany, Japan, Russia, the United Kingdom, and the United States) have significant "official" parachronic capabilities, with their own fleets of projectors and conveyors. In addition to engaging in mining, waste disposal, and research, these governments maintain "colony" worlds on permanent lease from Infinity.

For Infinity, the biggest problem with governments is their incessant "deniable" secret operations, as they try to circumvent the limitations Infinity places on them. Conveyors can and are built secretly, and the major powers undoubtedly have clandestine parachronic capabilities intended for covert exploration, weapon testing, outtime exploitation, or even war. The I-Cops often run into highly trained agents who they *know* are from Homeline. Sometimes they can even prove it.

Projectors can also be built secretly, but no one seems to have done so on Homeline yet – again, giving rise to speculation that Infinity has detection methods it isn't revealing. So far, no projector built off of Homeline has worked.

Research Foundations

The infinite worlds are fertile ground for scientific research. Scientists can study totally unspoiled biomes . . . or worlds that have been utterly destroyed by dozens of different disasters. Infinity permits almost any kind of *nondestructive* research. It would probably allow a little scientific destructiveness, too, if an artfully written proposal were to make the gains seem great enough.

Most research, by far, has been historical and social. The historical parallels offer answers to countless intriguing "what if" questions, and the echoes offer – or at least *seem* to offer – a window into Homeline's own past! Many expeditions are mounted to such worlds, to observe and to learn. These are bound by strict rules: they must keep The Secret of parallel worlds hidden, and they cannot change the history of the echoes, lest they be "lost" to a timeline shift (see *Timeline Shifts*, p. 544).

Crosstime Bounty Hunters

"Richard Z. Horn. Under arrest for a billion-dollar computer fraud, he jumped bail, hijacked a Time Truckers, Inc. conveyor, and disappeared on Cornwallis. The I-Cops found the abandoned conveyor, but after spending a week searching, they gave up looking for Horn – said he was no threat. But there's a $1,000,000 bounty on Horn, and a reward from Time Truckers as well. I was determined to collect both . . ."

There are a lot of places for a fugitive to hide among the hundreds of known parallel worlds. The I-Cops go after anyone who is a threat to security or the stability of an echo, but they lack the manpower to chase down anyone who doesn't pose a clear and present threat to Infinity's hegemony. The crosstime divisions of agencies like the FBI handle some of these cases. Freelance bounty hunters pick up many of the others.

Getting a crosstime bounty-hunting license from Infinity requires a careful background check and appropriate experience (being ex-Patrol helps; a good employment history with a reputable crosstime company like Time Tours is also a plus). Some bounty hunters work alone; others work for private agencies, the largest and most successful of which is Infinite Justice, based in Indiana.

Corporations

Crosstime exploitation can be *highly* profitable. Numerous businesses operate from Homeline.

Goods that are cheap on Homeline are often valuable elsewhere, and vice versa.

White Star Trading

Founded by Paul Van Zandt, White Star is the original interworld trading company – and probably the largest. Van Zandt financed most of his original development by trading back and forth with a single world.

Today, White Star has offices in hundreds of dimensions, always disguised as ordinary businesses. Some are small, handling a few hundred pounds of rare commodities a day; for example, a crate of new-release CDs from Holly, or a breeding pair of passenger pigeons. Others ship hundreds of tons of grain or ore daily, loading the cargo onto barges that go out of sight of land and then jump between worlds.

White Star was formerly part of Infinity, but antitrust considerations (and competitors' objections) led to its becoming legally and financially distinct. It still has a "cozy" relationship with Infinity, which makes many of its smaller competitors unhappy.

Other Traders

Many corporations of all sizes are getting rich through cross-world trading. Goods that are cheap on Homeline are often valuable elsewhere, and vice versa. As always, though, The Secret must be kept.

When a new timeline is opened up, the traders' agents are the first in, looking for new goods and new markets. Some are unscrupulous, dealing even in slaves and drugs; others are the best allies the Patrol has.

White Star dominates the interworld trading scene, but there is so much business that there's no need to hog it all. One of the largest corporations involved is Time Truckers, Inc., whose trained conveyor operators hire out to various businesses.

Time Tours, Ltd.

"If it's Tuesday, this must be 1066."

Time Tours is by far the best known of the "independent" companies using parachronic technology. Its business is sending groups of tourists on exciting expeditions into parallel timelines. The goal is not always pure sightseeing: one popular trip is the Dinosaur Safari, the ultimate challenge for hunters looking for *really* big game. The Patrol runs an official "customs check" when each tour returns, but unless the outtime world is known to contain some specific danger, this is mostly a formality.

Working for Time Tours can be challenging. Employees must organize, equip, and lead expeditions to many different timelines. The job includes keeping the tourists out of trouble . . . tourists who all too often can't manage the clothing or the language, and who will walk right into the Charge of the Light Brigade to get a good snapshot for the folks back home. As a result, Time Tours reserves the right to do whatever is needed – up to and including aborting the trip with no refund – to prevent "cultural contamination," or to correct it once it has occurred.

Keeping the Secret

Infinity and Centrum may be enemies, but there is one thing they agree on: the secret of parachronic technology must remain their monopoly. An "outtimer" who learns this secret – *The* Secret – must be hired, discredited, or made to vanish.

It's reasonable to expect highly trained Infinity personnel to keep the secret of parachronic travel; indeed, operatives likely to contact outtimers have prepared cover stories that fit local belief systems. If possible, anything that might reveal The Secret will be explained away as a mundane event – but if not, it's better the locals think they saw witches, fairies, or UFOs than get any inkling that humans with advanced technology are traveling across dimensions.

On the other hand, when a herd of *tourists* goes charging off into a parallel, there's a strong likelihood that somebody will let something slip . . .

Eraser

When outtimers see visitors appear or disappear, or witness some use of Homeline technology, the preferred solution is to make them forget. "Eraser" is a sedative and amnestic drug used by both Infinity and Centrum. A recipient must make a HT-3 roll to avoid its effects. On a failure, he falls unconscious. On awakening, his short-term memories – everything in the last 5d+45 minutes – are gone. Eraser comes in pill, injection, and gas form. It appears to have no untoward side effects, even in massive overdoses. The Infinity Patrol issues it to I-Cops and to civilian security personnel or guides engaged in authorized crosstime operations. It is not for sale at any price; authorized users must account for every dose acquired and used. Still, it turns up on the black market at an average price of $500 per dose. LC2.

Extreme Measures

When someone has seen too much and Eraser won't solve the problem, and he isn't a good subject for recruitment, troubleshooters are called in to deal with the security leak. Measures can range from dirty tricks intended to discredit the subject or change his perceptions, to commando raids aimed at eliminating all the witnesses and destroying all hard evidence. But where Centrum might kill, Infinity prefers to make the witness vanish. He is kidnapped . . . and taken to Coventry.

Coventry

Coventry is a Quantum 3 alternate in which humanity didn't develop. It has one important and useful peculiarity: unassisted conveyors can't enter or leave it – and neither can world-jumpers. And nobody knows why. This means the *only* access to Coventry is by projector-assisted conveyor from Homeline.

The I-Cops use Coventry to isolate people who Know Too Much: outtimers who stumbled onto a Homeline operation; Homeliners who broke regulations; scientists abducted from other timelines because the Patrol feared they were too close to developing parachronic technology; and even disgruntled ex-employees of Infinity! The population also includes some voluntary settlers, rescued from crosstime disasters.

All sorts of adventures are possible on Coventry . . . including a rescue attempt from within Infinity, by employees who are morally opposed to the whole concept. The world itself is a pastoral TL4, with TL8 medicine.

Ethical Problems

It would not be unfair to conclude that Infinity and Centrum regard outtimers – as a group, if not as individuals – as something less than "real" people with human rights. Infinity's PR department does its best to downplay this perception, but every time the I-Cops cart some outtimer off to Coventry, they send the message that Homeline is somehow "superior." And every time a filmmaker creates a historical epic by recording the bloody deaths of thousands of people in an outtime war, he reinforces the idea that the residents of other timelines are puppets for Homeline's entertainment.

Time Tours has competitors, but they're not different – just smaller and often shoddier. And some other companies offer vacations rather than tours. They emphasize luxury over excitement. Johnson's Rome (p. 527) is the best known of these.

Mining Companies

Many huge operations exist solely to wrest mineral wealth from uninhabited timelines. Most mining leases granted by Infinity are for otherwise-worthless worlds, many of which are uninhabitable without artificial aid. But there's a great deal of wealth to be had . . . and greedy miners have secretly raped several *habitable* timelines.

Waste-Disposal Companies

Radioactive waste, toxins, biohazards, and other noxious brews too foul to stay on an inhabited planet . . . don't have to. Infinity only permits waste dumping on genuine hell worlds – worlds that really *can't* get any worse – and requires disposal companies to take every precaution to ensure that wastes get to the projector site in complete safety.

The Very Rich

A very few, *very* wealthy individuals own conveyors for hobby purposes. Most of these people are glorified tourists or collectors, but there is the occasional sybarite who enjoys playing power games in "backward" settings. Their conveyor crews are all Infinity employees – which theoretically prevents the most flagrant abuses.

Crosstime Colonies

Infinity has opened several beautiful but empty worlds for colonization. Some companies have leased such worlds and sublet them to pioneers.

Several governments have sponsored colony worlds, too. Most such colonies are simply outlets for excess population, but some – five sponsored by the United States, three by the United Kingdom, and one each by France and Japan – are deliberate attempts to establish alternative societies. One, Uhuru, even declared its independence from the United States and made it stick.

There are also "secret" bases and colonies, sponsored by governments, corporations, and other organizations with clandestine conveyors. Some are hidden away on known timelines; others are on worlds as yet unknown to Infinity. A few have special purposes (mining, trading, research, etc.), but many are just groups of people trying to get away from it all.

Colonies vary from TL4 to fully modern.

The Manor Worlds

A few very wealthy lovers of nature – or privacy – live on the "manor" worlds, each of which is divided up into a few thousand private estates. If you're wealthy enough to buy or lease a private conveyor, you can have your own private Hawaii, or Ozarks, or St. Tropez, or Jamaica . . . with an instant commute, by conveyor, to Homeline!

Adversaries

Infinity is Homeline's chief guardian against outtime threats. As far as most Homeliners know, the only such menace is the rival world-jumping culture of Centrum. Actually, there are many *other* dangers out there . . . but Infinity keeps them secret to avoid causing panic on Homeline.

Centrum

Centrum is the only known human timeline other than Homeline to independently develop parachronic technology. It is also Homeline's fiercest enemy. Centran agents intrigue against the Infinity Patrol across the dimensions, and will settle for nothing less than total domination of the infinite worlds.

Centrum is a world government descended from a united Anglo-French Empire. One of the last historical figures to exist in both worlds was Eleanor of Aquitaine, who either created or stabilized the Empire and ruled it for over 20 years. The Empire grew and expanded, dominating Europe before 1700, Africa and Asia before 1850. The New World was colonized in an orderly fashion; the Indian tribes were enslaved or destroyed.

In 1902, the Empire collapsed in a worldwide civil war; the aristocracy had become decadent, and with nothing left to conquer, they turned on each other. Members of the technical and military class likely engineered the war. Educated, trusted, and trained to serve, they had grown contemptuous of their titled masters – and when they restored world government 50 years later, it was stamped in their image: a tightly-organized meritocracy called "the Centrum."

Centrum's rulers value science, order, and power for its own sake. Children are constantly tested and retested, and all training and promotion is based on talent and achievement.

Philosophically, the key difference between Centrum and Infinity is in their treatment of inhabited worlds. Centrum wishes to bring all worlds under its central control, creating a single transworld state whose boundaries span the dimensions. The Centran approach to conquest is to infiltrate a world, overthrow its government as inexpensively as possible, and take over – and then advance its technology and send its leading citizens to Centrum for education and indoctrination. After a probationary period, outtimers can eventually hope to become citizens of Centrum itself, although no world is currently judged "ready."

Centrum is a mid-TL8 society. Like Homeline, it developed parachronics a few decades ago.

Language

The native Centran language is a heavily accented dialect of English. Centrum wiped out all other languages on its own world two generations ago. Until recently, they did not even have any trained linguists . . . because they didn't need them!

All this puts Centrum at a *great* handicap in penetrating worlds or areas where the language is unlike English. They are currently experimenting with methods of teaching language quickly – but right now, any fluent speaker of, for instance, Japanese is certainly not a native Centran.

Interworld

This is the Centran equivalent to the Infinity Patrol. As an arm of a world government, Interworld is larger and more ruthless than the Patrol. It *might* even have a better grasp of parachronic science.

Almost without exception, Interworld agents are fanatically loyal to Centrum. They are also quite likely to have bionic implants – Centrum itself is fabulously wealthy, and can equip individual agents well. They kill mercilessly if necessary, but they respect talent, and often try to recruit talented outtimers. They have normal human feelings of loyalty toward friends, desire to protect children, and so on. They are not monsters or machines.

Crosstime Conflict

Centrum is on Quantum 8, while Homeline is on Q5. Since it's possible to jump one quantum easily and two with difficulty, Centrum's territories "overlap" Homeline's at Q6 (which Homeline can reach more easily) and Q7 (where Centrum has the advantage).

One might think that would provide a natural border. Unfortunately, it doesn't work that way. For one thing, Centrum is *aggressive*. For another, Q6 appears to have more usable worlds than all the other quanta put together (nobody knows why).

Centrum seems to have had crosstime travel for longer than Homeline, but initially used it mainly to enter empty worlds for resources. Their mastery of parachronic mathematics is definitely better than Homeline's. They can apparently detect whether a timeline is unstable, and plan an intervention to push it in the direction they want; see *Timeline Shifts* (p. 544). Homeline's scientists have not yet figured out how to do that – or at least, Infinity isn't admitting it.

Homeline became aware of Centrum's existence nine years ago, when an intruder was captured in one of Infinity's most secret labs. He told a very strange story under truth serum! Infinity released that first agent with an offer of friendship. Centrum immediately accepted, with apologies for their earlier penetration of Infinity's territory. But it quickly became obvious that their "friendship" was entirely treacherous; they didn't have enough experience in true cooperation to fake it believably. Eight years ago, they "stole" four timelines from Q6! A year later, the "infinity war" was a reality.

Apparently, Centrum does not have "historical echoes" of the sort Homeline does . . . or, if such echoes exist, they are in a quantum unreachable from Homeline. This deprives Infinity of a possible source of insight into Centran psychology.

Interestingly, Centrum seems to be at the exact same "time," measured by the stars, that Homeline is. Is this connected with the fact that it is the only known timeline, other than Homeline, that can support a parachronic projector? Nobody knows.

Crosstime Bandits

In the past five years, Infinity has shut down a dozen criminal crosstime operations. There are almost certainly many more.

The Men Who Would Be King: There is a steady stream of megalomaniacs who try to use advanced technology or historical knowledge to seize a position of power in another timeline. To discover them, the Patrol uses the same surveillance methods it uses to catch Centran agents. Indeed, it can be difficult to determine quickly whether infiltrators are Homeline adventurers or Centran operatives!

Time Raiders: Criminals who are just in it for the money – whether they're after crown jewels, the Mona Lisa, or a nuclear warhead – are harder to catch. The most subtle raiders strike an echo and grab the loot just before it was lost "in history," in an effort to avoid triggering timeline shifts that would bring the Patrol down on them. "Theft to order" for wealthy private collectors is where the steady money is . . . but everything from intellectual property theft to arms smuggling can be lucrative.

Illegal Immigration and Crosstime Slavery: This is a growing problem. Need cheap labor? Find a suitable dimension, hire a conveyor-load of would-be illegal immigrants, and take them crosstime instead of cross-border. If they go to the authorities, they'll be sent to Coventry, so they'll accept cheap wages in exchange for the promise of earning enough to buy false citizenship papers . . . Criminal organizations import everyone from prostitutes to soldiers to nuclear physicists. And sometimes blackmail isn't needed: "rescue" a platoon of Nazi soldiers from an echo's Stalingrad and they may be eager to serve as your loyal mercenaries. There's also a scary black market in famous movie stars, singers, and beauties. Only last month, agents of the Italian *Gruppo di Intervento Speciale* rescued a kidnapped Helen of Troy from a members-only brothel.

Replacements: Duplicates ("dupes") of many Homeline residents exist on close parallels like Earth-Beta. There have been cases where Homeliners have paid to have dead children, old lovers, or archenemies snatched from these worlds. In a few cases, the Homeline original was killed and replaced by a dupe. A typical scam: If Mr. Johnson is a millionaire businessman in Homeline but a homeless bum who lost everything in a market crash in Earth-Beta, the Mafia might grab Beta's Johnson and offer him a deal to replace Homeline's Johnson . . . as their comfortable puppet.

Reality Liberation Force

The RLF is a Homeline-based guerrilla organization that opposes the U.N. Interworld Council's "undemocratic and unjust hegemony and exploitation of other timelines." The RLF calls for an end to crosstime travel except for peaceful scientific purposes.

The RLF has wide popular support. Several mainstream groups, notably People Against Crosstime Exploitation (PACE), serve as RLF front organizations. The RLF also has many sympathizers in political and military circles – although most resent the Council, which they feel has usurped their authority, more than they oppose crosstime travel.

The Cabal: Masters of Infinity

A disturbing number of the magicians, psychics, parachronozoids (see p. 544), and supernatural entities that Infinity operatives encounter claim to have knowledge of a vast paranormal brotherhood known as "the Cabal." To hear them tell it, the Cabal has lurked in the shadows for millennia, manipulating events across the infinite worlds through secret societies and occult conspiracies. Which Earth (or Earths!) the Cabal calls home is one of the most perplexing – and potentially unpleasant – conundrums Infinity faces.

A particularly unsettling aspect of these rumors is their consistent claim that the Cabal has access to "higher dimensions of being," somehow "above" the infinite worlds, known as the Astral Realm, the Iconic Realm, and the Realm of Pure Spirit. Cabal members are said to cross these realms and the infinite worlds in search of arcane knowledge.

Perhaps most frightening of all, the Cabal is reputedly *fractured*. Renegade archmages and demon lords supposedly fight secret wars, with the infinite worlds as their pawns and battlefields. The losers become exiles, often bent on conquering parallel Earths beyond the Cabal's reach, where they can amass power and plot vengeance . . .

Reich-5

Reich-5, on Quantum 3, was the fifth "Nazi victory" parallel discovered by Infinity. It is presently in its year 2010, ruled by a brutally efficient world government dominated by Germany, Japan, and a Nazified United States. It is TL8 in most respects, but advanced in space technology and a twisted form of genetics – and possibly in psionic technology.

Naturally, Infinity strictly prohibited travel to this world, and hid its existence in order to prevent it from acquiring The Secret. But after a decade of containment, the unthinkable happened: Nazi parapsychologists in the SS-controlled province of Burgundy discovered a psionic world-jumper (or captured such a visitor from another timeline – Infinity isn't sure which) and gained expertise in harnessing and exploiting the power.

By the time Infinity learned of this, the Nazis had approximately two-dozen world-jumpers, of highly variable power and reliability (several had to use dangerous cocktails of drugs to unlock their powers), and were creating more through selective breeding, cloning, and bio-psionic technology. Worse, working in concert and using experimental psibernetic linkages, it seemed that some of these world-jumpers were able to transport loads of four or five times their own weight – sufficient to move squads of troops and even small armored vehicles.

Reich-5 soon began its first crosstime invasion: an infiltration of Nostradamus, a post-apocalyptic world where prophecy shaped reality. That the locals foresaw the invaders' coming did them little good; in fact, it reinforced the conquerors' sense of destiny. And matters only got worse.

Nostradamus proved to be at the junction of a "dimensional road" which the Nazi world-jumpers were able to detect and exploit. This road, which the Nazis call the "chronobahn," seems to span at least half a dozen dimensions as it wavers in and out of existence . . . And the Nazis *have* begun to explore it. They can still only shift small loads at some risk, but they may be learning more.

Reich-5 lags far behind Centrum and Homeline in parachronic theory – a weakness that is compounded by the fact that all of its researchers are highly eccentric "Aryan mystics" who seem intent on keeping secrets from the "materialists" in Berlin. Hence, Infinity has not yet activated contingency plans – for instance, to transport nuclear warheads to known Reich-5 military bases and government centers – and is instead focusing its efforts on destabilizing the regime. In any case, the "transdimensional SS" are *already* scattered across bases in an unknown number of dimensions.

As Infinity is slowly realizing, Reich-5 has the potential to dominate all of Quantum 3 – and perhaps move beyond, especially if it finds allies.

Parachronozoids

The rabbit-hole went straight on like a tunnel for some way, and then dipped suddenly down, so suddenly that Alice had not a moment to think about stopping herself before she found herself falling down a very deep well.

– *Alice's Adventures in Wonderland,* Lewis Carroll

"Parachronozoids" are creatures with natural world-jumping abilities. There is a wide variety of them, native to different dimensions. Some resemble ordinary or talking animals, such as white rabbits, beautiful stags, or black horses. Others are mystical. And a few are terrible, semi-material horrors that man was not meant to know.

All parachronozoids possess the Jumper (World) advantage (p. 64). Most have the Tunnel enhancement, allowing them to create interdimensional paths that can be followed. Of course, these paths close behind them after a time, with no guarantee that they will ever open again. This can have dire consequences for the unwary. For example, a hunter sees a beautiful white stag and gives chase, and as he follows, the world gradually fades away . . . and then the stag vanishes, leaving him stranded in another world!

Many parachronozoids also have the Warp advantage (p. 97), giving them the ability to jump across space as well as the dimensions.

Some parachronozoids seem drawn to those with latent or active psionic abilities (most often ESP or Teleportation). Others seek mana-rich areas, and there are rumors of ways to magically summon or lure them. Certainly, wizards have trapped and tamed such entities, using them as mounts or harnessing them to create world-jumping chariots.

And some are predators and vampires, stalking prey from dimension to dimension . . .

World-Jumpers

A "world-jumper" is anyone who possesses the Jumper (World) advantage (p. 64). This ability *seems* to be "psionic" . . . but nobody knows for sure.

Infinity has several people with this ability on its payroll, and is always on the lookout for more. Only a few are native to Homeline. At least one of them claims to have visited alternate worlds before Van Zandt did . . . and kept it quiet, because he thought he was insane. Infinity's world-jumpers are top couriers, special agents, and troubleshooters. Most observers believe Centrum has world-jumpers as well.

In Infinite Worlds, Jumper (World) functions normally for jumps within the same quantum. Jumps between quanta are at -5 per quantum level of difference. Those who have this trait always know by "feel" what quantum they are on.

Timeline Shifts

Of the 379 timelines Infinity knows of in Quantum 6, 281 are "historical echoes": worlds apparently identical to Homeline at earlier points in its history. No "future" echoes are known – although there *are* parallel worlds with higher technology or more advanced local dates. No echoes are known on any quantum except Q6.

Why is Homeline "reflected" so many times in another quantum? Nobody knows. The echoes are irregularly spaced through history. There are few echoes before 3000 B.C. and none before 12,000 B.C. Some periods have several echoes; a few have none.

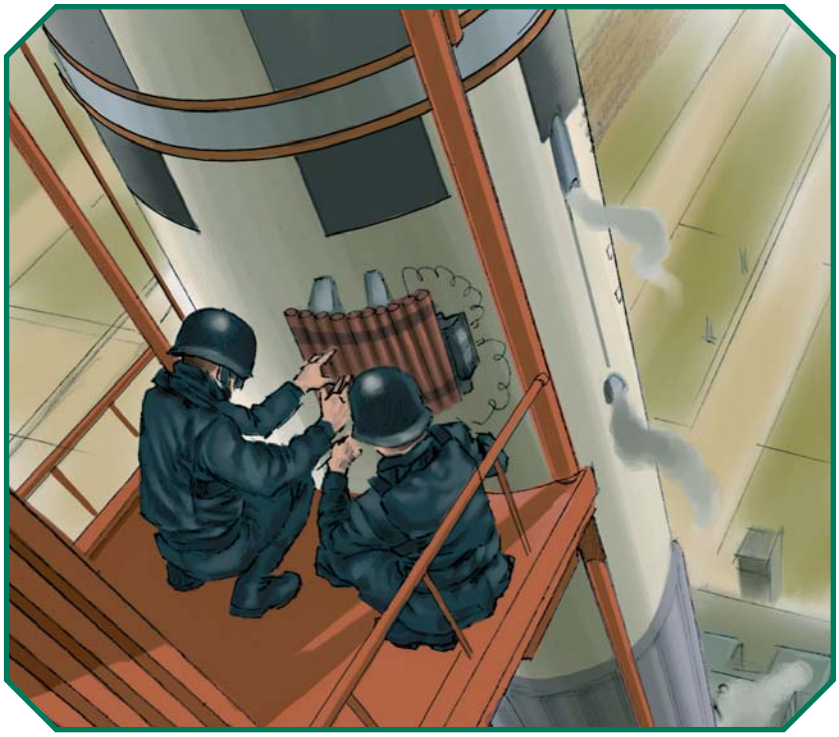
In *all* of the echoes, time is flowing more slowly than on Homeline – but the difference is so slight (a *maximum* of one year of difference for every 250,000 years that pass) as to be almost unnoticeable. Nevertheless, this slight deviation would explain the differences, if the original "event" that created the echoes occurred some 3.5 billion years ago – perhaps during the earliest appearance of life on Earth.

The echoes represent an incredible opportunity for research into history . . . but they also represent a significant hazard. Anyone visiting an echo is carefully cautioned against doing anything that might make a significant change in the timeline. This has nothing to do with ethics. It's a question of safety. The balance that holds the echoes in Q6 is a fragile one. If something happens to change the future course of history in an echo, it may simply vanish! The first few times this happened, it was thought that the world had been destroyed. But as Infinity was on the verge of shutting down all travel to the echoes, one of the lost worlds was rediscovered . . . in Q5!

Centrum seems to be able to instigate such shifts on purpose. Of the 24 echoes that have vanished from Q6 since Infinity discovered them, four are known to have moved "closer" to Homeline, going to Q5. Eleven are known to have moved to Q7, nearer to Centrum . . . and Centrum *deliberately* engineered at least six of these shifts. One bounced all the way to Q4, on the "other side" of Homeline. And eight of the missing timelines haven't been found at all.

Infinity regulations require that any visit to an echo be managed with extreme care – no casual or "tourist" trips are allowed. The I-Cops are

always alert for signs of Centrum's intervention. But they can't simply flood the echoes with agents – doing that would greatly increase the risk of instigating the very changes they want to avoid! Instead, they rely on strategically placed agents and regular patrols.



Centran Intervention

Centrum has intervened several times, in increasingly sophisticated ways, to try to move echoes "closer" to Q8. It is clear that Centrum has some method of predicting what sorts of changes will produce the desired effect.

However, Centrum's predictions are not infallible. In at least four timelines, massive Centran interventions seemed to have had no effect at all; these timelines appear to be "held in place" by something other than their similarity to Homeline (see *Anchors*, p. 526).

If Centrum *does* manage to pull off an intervention, the GM should decide how long it takes to come into effect. A shift may take hours or days to occur – it is never instant – and the Centran agents must stay in place throughout, in order to protect their work! Even then, it might be possible to reverse the shift by counteracting the effects of the intervention. As a result, once Centrum manages to shift a Q6 timeline to Q7 or Q8, Interworld agents attempt to eradicate *all* Homeline personnel. Such an attack is more likely to be covert than overt.

Examples of Centrum's Intervention

Successful interventions by Centrum include:

The atomic destruction of London in the year 1902. The first and last time Centrum attempted any such gross attack. It became a political issue among Centran leadership; the parties responsible were removed from power. Such extreme intervention is not generally effective in any event – the results are too unpredictable.

The execution of Princess Elizabeth in 1554, before she ascended the throne. Apparently, her sister Mary was influenced against her.

The sinking of ***HMS Beagle*** *with all hands in early 1833.* Charles Darwin was among those lost. This timeline did not "vanish" until late 1837, though.

The sabotage of Yuri Gagarin's space capsule in 1960. This triggered a round of witch-hunts and accusations within the Russian space program that eventually spilled over into the Strategic Rocket Forces and dangerously weakened Khrushchev's hold on power. This instability in the Kremlin may have contributed to the Cuba Incident of 1962, in the aftermath of which the U.S. and U.K. were able to enforce U.N. control over Soviet missile and space programs. This worldline migrated to Q8 shortly thereafter.

Long-Term Intervention

Infinity is concerned about the possibility of *very long-term* interventions. For instance, if a pivotal figure like Alexander the Great or Karl Marx were murdered as a child, no historical differences would show up for

Mysteries

Homeline's understanding of the infinite worlds is hardly perfect. Situations that "break the rules" can be springboards for adventure! Two examples:

Boojum: A perfectly ordinary timeline – *not* an echo and *not* on Q6 – vanishes. Four months later, it reappears. Six months later, it vanishes again. So . . . *something* can quantum-shift an ordinary timeline. Or maybe this timeline isn't ordinary! Either way, the Homeliners on Boojum are in a panic, as are the administrators and researchers at Infinity.

Centrum Beta: A newly penetrated Q7 timeline seems to be exactly like Homeline researchers *think* the world of Centrum was in the year 1895. Could it be an echo? Even an ordinary parallel would be interesting. Either way, why is it the only one they've ever found? And remember, Q7 is more accessible to Centrum than it is to Homeline; there are almost certainly Centran agents here!

years . . . but when they appeared, they would be huge. Possibly, Centrum can't compute the effects of such interventions – or perhaps, if echoes exist in part because of human culture, only a large and *sudden* shift in popular attitudes can effect a change. It could be that if a key individual is removed prematurely, someone else will appear to take his role in history. Thus, removing Hitler well before his rise to prominence might only result in a similar dictator appearing, with little change in events. Parachronic intervention is still an art rather than a science.

Intervention Adventures

Trying to stop a Centran intervention on an echo makes an excellent adventure for a PC team of I-Cops. The GM can make the following assumptions:

- The enemy agents are outnumbered and secretive. It is difficult and expensive to send anyone from Centrum to Quantum 6.
- The enemy plan requires split-second timing . . . because, if it didn't, they would have pulled it off already. Whatever the Centran method of computing an intervention, if the answer were always as simple as "Nuke London in 1902," they'd succeed a lot more often. However, the enemy *does* have backup plans.
- The Patrol gives the agents some general information about the enemy penetration. The means by which their superiors acquired this data is none of their business! They are simply told, for instance, "It's 1453 on echo Sigma-6A. There's evidence of Centrum penetration in Germany. If they're working close to home, their target might be Gutenberg's printing press . . . other teams are checking out other possibilities." That's one reason why counter-intervention teams are small: Homeline has to check out *everything*.

Intervention in Reverse

The GM can turn the whole thing around: Infinity has unraveled the secret of timeline intervention, discovered a string of Centran echoes in Quantum 7, and sent out strike teams to shift them toward Q5. Just work it all in reverse. The Homeline team has a specific assignment – something the computers predict will shift the timeline in a useful fashion if carried out successfully. The Centran opposition consists of lots of small teams . . . and if the Homeliners put one out of the way in too obvious a fashion, it tips off Interworld, who will reinforce the area very heavily.

Effects of Tampering with Echoes

It takes a *significant* change to cause a whole timeline to "move" to a different quantum level. A "significant" change is up to the GM, because nobody *knows* what kind of change is really significant. The mere presence of a group of strangers doesn't seem to make much difference. But there's always the chance of hitting a key moment in history: the visitor to reflected 1938 Washington gets the last seat on a train, so a senator is late to a meeting with the President, so a key military appropriation fails . . . so when World War II comes along, the United States loses.

In general, if a change seems like it can lead to a distinct "what if" variation in history, it's significant. However, a shift need not be permanent. One timeline was shifted to Q7 by Centrum aid to Benedict Arnold in 1780, turning the Revolutionary War in England's favor. An intrepid team of I-Cops in the cut-off world sabotaged the British fleet off Boston, turning the war around again . . . and the timeline returned to Q6! It appears that history is sufficiently "elastic" to absorb a deviation – if it can be exactly counterbalanced before too much time has passed.

For game purposes, assume that very minor changes do not create a shift – or, at least, not immediately. If outtimers do something that the GM thinks may "change history," he can allow a shift to happen in minutes or days. A shift is usually only one quantum, but can possibly be more. Choose the *direction* of a shift randomly, unless it was caused by agents in accordance with a specific plan designed around a correct understanding of how parachronics interact with history.

Locating a Shifted Timeline

Only Infinity and Centrum possess the sophisticated instruments and supercomputers needed to locate a lost timeline *quickly*. Such a search requires a full week of work and a successful Physics (Parachronic) roll. This roll is at +3 if the timeline is in the researchers' "home" quantum, at +1 if it's in an adjacent quantum, and at no modifier if it's two quanta away. If it's three or more quanta away, it can't be found!

With lesser equipment, the search takes weeks to years (GM's option) – possibly at a large penalty.

Marooned!

If a timeline shift takes the world you are on out of projector range (Q3-Q7 for Homeline; Q6-Q10 for Centrum), you're stuck! You have two options: try to undo the shift, or find alternate means of transportation (enemy conveyor, friendly world-jumper, etc.).

There are other ways to become stranded, including:

Quantum Sargasso: A "quantum sargasso" is a dimension that a world-jumper or conveyor can *enter* but not *leave*. A projector can focus on it, but it can't make pickup. The only way out is to find a nexus portal (p. 534) or use magic (e.g., Plane Shift, p. 248).

No Mana: There are worlds where magic simply *doesn't work*. A magical world-jumper, Plane Shift spell, etc. lets you enter these dimensions, but won't let you leave!

Appendix

Tables

Combat Modifiers

These three lists summarize the success rolls and modifiers used to attack and defend.

Melee Attack Modifiers

When attacking in melee combat, figure your *effective skill* by:

1. Taking your base skill with the weapon or unarmed attack you are using. (In some situations, another skill – e.g., Free Fall, Riding, or Environment Suit – will limit this skill.)

2. Applying the relevant conditional modifiers below. Modifiers are cumulative, but combined *visibility* penalties cannot exceed -10 (-6, if used to blindness). If *any* modifier marked with an asterisk (*) applies, adjusted skill after all modifiers cannot exceed 9.

A roll of this number, or less, is a hit.

Attacker's Maneuver

All-Out Attack (Determined): +4
Move and Attack: -4*

Attacker's Posture

Crawling or lying down: -4 (if crawling, can only make reach "C" attacks)
Crouching, kneeling, or sitting: -2

Attacker's Situation

Affliction (coughing, retching, etc.): see *Afflictions* (p. 428)
Bad footing: -2 or more (GM's option)
Grappled: -4
Holding a large shield: -2
Major distraction (e.g., all clothes on fire): -3 or more (GM's option)
Minor distraction (e.g., part of clothes on fire): -2
Mounted, and mount attacked on its last turn: -2
Mounted, and mount's velocity relative to target is 7+: -1
Shock: -HP of injury received last turn (maximum -4)
ST below that required for weapon: -1 per point of deficit
Wearing a shield in close combat: -DB of shield

Target (choose *one*)

Hit location: 0 for torso, -2 for arm or leg, -3 for groin, -4 for hand or foot, -5 for face, -7 for skull; *impaling* and *piercing* attacks can target vitals at -3 or eyes at -9
Hit location, through chink in armor: -8 for torso, -10 anywhere else (e.g., eyeslits)
Weapon, to *damage:* -5 to hit a reach "C" weapon (e.g., knife) or pistol; -4 to hit a reach 1 weapon (e.g., broadsword); -3 to hit a reach 2+ weapon (e.g., spear) or rifle

Violence, naked force, has settled more issues in history than has any other factor, and the contrary opinion is wishful thinking at its worst.

– Robert A. Heinlein

Other Actions by Attacker

Deceptive Attack: -2 per -1 penalty to foe's defense
Dual-Weapon Attack: -4/-8 with primary/off hand (-4/-4 w. Ambidexterity)
Evaluate: +1 per turn (maximum +3)
Off-hand attack: -4 (no penalty w. Ambidexterity)
Rapid Strike: -6 on both attacks (-3 w. Trained By A Master or Weapon Master)
Striking into close combat: -2
Wild Swing: -5*
Weapon, to *disarm:* as above, plus an extra -2 if not using a fencing weapon

Visibility

Cannot see *anything*: -10 (-6, if used to blindness)*
Cannot see foe: -6, or -4 if you know his location to within 1 yard*
Partial darkness, fog, smoke, etc.: -1 to -9 (GM's option)

Ranged Attack Modifiers

When making a ranged attack, figure your *effective skill* by:

1. Taking your base skill with your ranged weapon.
2. Applying the target's Size Modifier (SM).
3. Modifying for the target's range and speed; see *Size and Speed/Range Table* (p. 550).
4. Applying the relevant conditional modifiers below. Modifiers are cumulative, but combined *visibility* penalties cannot exceed -10. If *any* modifier marked with an asterisk (*) applies, adjusted skill after all modifiers cannot exceed 9.

A roll of this number, or less, is a hit. If using rapid fire, you score one *extra* hit for every *full* multiple of Recoil by which you make your attack roll.

Attacker's Maneuver

All-Out Attack (Determined): +1
Move and Attack: -2 or -Bulk of weapon, whichever is *worse*

Attacker's Situation

Affliction (coughing, retching, etc.): see *Afflictions* (p. 428)
Bad footing: -2 or more (GM's option)
Close combat: a penalty equal to the weapon's Bulk statistic (see *Weapons for Close Combat*, p. 391)
Damaged weapon: -HP of injury received last turn (maximum -4)
Major distraction (e.g., all clothes on fire): -3 or more (GM's option)
Minor distraction (e.g., part of clothes on fire): -2
Shock: -HP of injury received last turn (maximum -4)
ST below that required for weapon: -1 per point of deficit

Attacking from Moving Vehicle or Mount

If weapon is *not* in a stabilized mount, the combined bonus for Accuracy, Aim, bracing, and targeting systems cannot exceed the vehicle's SR.

Air vehicle: -1 if handheld weapon, 0 otherwise
Exposed rider hanging on side of vehicle/mount and shooting over/under it: -6
Ground vehicle, good road: -1 if handheld weapon, 0 otherwise
Ground vehicle, bad road: 0 if stabilized turret or stabilized open mount; -1 if fixed mount, hardpoint, or carriage; -2 if external open mount; -3 if handheld weapon
Ground vehicle, off-road: -1 if stabilized turret or stabilized open mount; -2 if fixed mount, hardpoint, or carriage; -3 if external open mount; -4 if handheld weapon
Space vehicle: 0
Turning in exposed saddle/seat of vehicle/mount to fire at foe behind: -4
Vehicle/mount dodged last turn and you're not operator/rider: -2, or -4 if flying
Vehicle/mount failed control roll: penalty equal to margin of failure
Water vehicle, calm water: 0 if stabilized turret or stabilized open mount; -1 if fixed mount, hardpoint, or carriage; -2 if external open mount; -3 if handheld weapon
Water vehicle, rough water: -1 if stabilized turret or stabilized open mount; -2 if fixed mount, hardpoint, or carriage; -3 if external open mount; -4 if handheld weapon

Opportunity Fire

Checking target before firing: -2
Hexes watched: 0 if 1 hex; -1 if 2 hexes; -2 if 3-4 hexes or a line; -3 if 5-6 hexes; -4 if 7-10 hexes; -5 if 11+ hexes watched

Other Actions by Attacker

Aim for one turn: +Accuracy of weapon
Braced weapon: +1 if stationary *and* took a turn to Aim
Dual-Weapon Attack: -4/-8 with primary/off hand (-4/-4 w. Ambidexterity)
Extra Aim: +1 for 2 seconds, +2 for 3+ seconds
Off-hand attack: -4 (no penalty w. Ambidexterity)
Pop-up attack: -2, and no Aim possible
Rapid fire: 0 if 2-4 shots; +1 if 5-8 shots; +2 if 9-12 shots; +3 if 13-16 shots; +4 if 17-24 shots; +5 if 25-49 shots; +6 if 50-99 shots; +7 if 100-199 shots; etc.

Target

To attack hit locations or weapons, use the penalties under *Melee Attack Modifiers* (p. 547). If the target has cover, you can either choose to take no penalty and roll hit location randomly (shots that hit a covered location always strike *full* cover, and hit *partial* cover on 4-6 on 1d) or target an exposed hit location (add an extra -2 if only partly exposed).

Shooting through light cover: -2
Target behind someone else: -4 per intervening figure
Target crouching, kneeling, sitting, or lying down: an *extra* -2 to hit torso, groin, or legs
Target only partly exposed: -2

Targeting Systems

Laser sight: +1
Scope: +1 per second of Aim, to a maximum of the scope's bonus
Vehicular targeting system: +1 to +3 if shooter took a turn to Aim
Unfamiliar weapon or targeting system: -2

Visibility

Blind, target completely invisible, or in total darkness: -10*
Cannot see foe: -6, or -4 if you know his location to within 1 yard*
Partial darkness, fog, smoke, etc.: -1 to -9 (GM's option)
Target has light concealment (e.g., bushes): -2

Active Defense Modifiers

When performing a dodge, block, or parry, figure your active defense roll by:

1. Taking your calculated Dodge, Block, or Parry score. (The Combat Reflexes and Enhanced Defenses advantages increase these values above their base.)
2. Applying the relevant conditional modifiers below. All modifiers are cumulative.

A roll of this number, or less, means you avoid the attack.

Defender's Equipment

Parrying with dagger or knife: -1 to Parry
Parrying with kusari or whip: -2 to Parry
Parrying with quarterstaff: +2 to Parry
Shield or cloak: +DB of shield (see *Shield Table*, p. 287), except vs. firearms
Unarmed parry vs. weapon: -3 to Parry (+0 vs. thrust, or w. Judo or Karate)

Defender's Maneuver

All-Out Attack: no defense possible!

All-Out Defense (Increased Defense): +2 to *one* of Dodge, Block, or Parry

Move and Attack: dodge or block only; you cannot parry

Defender's Posture

Crawling or lying down: -3

Kneeling or sitting: -2

Defender's Situation

Above attacker: +1 if 3' difference, +2 if 4', or +3 if 5'

Affliction (coughing, retching, etc.): see *Afflictions* (p. 428)

Bad footing: -1 or more (GM's option)

Below attacker: -1 if 3' difference, -2 if 4', or -3 if 5'

Can't see attacker: -4, and a block or parry requires a Hearing-2 roll

Close combat: only reach "C" weapons can parry

Distraction (e.g., clothes on fire): -1 or more (GM's option)

Encumbered: penalty equal to encumbrance level to Dodge, or to Judo, Karate, or any fencing Parry

Mounted: penalty equal to difference between 12 and Riding skill (no penalty for Riding at 12+)

Stunned: -4

Nature of Attack

Attack from behind: no defense possible (defense at -2 w. Peripheral Vision)

Attack from side or "runaround" attack: -2 (no penalty w. Peripheral Vision)

Attacker used laser sight: +1 to Dodge if dot is visible

Deceptive Attack: -1 per -2 the attacker took to his attack

Dual-Weapon Attack: -1 if both attacks strike the same target

Flail: -4 to Parry/-2 to Block (-2/-1 vs. nunchaku); fencing weapons can't parry at all

Successful feint: penalty equal to attacker's margin of victory

Thrown weapon: -1 to Parry, or -2 to Parry if *small* (1 lb. or less)

Other Actions by Defender

Acrobatic Dodge: +2 to Dodge if Acrobatics roll succeeds, -2 if it fails

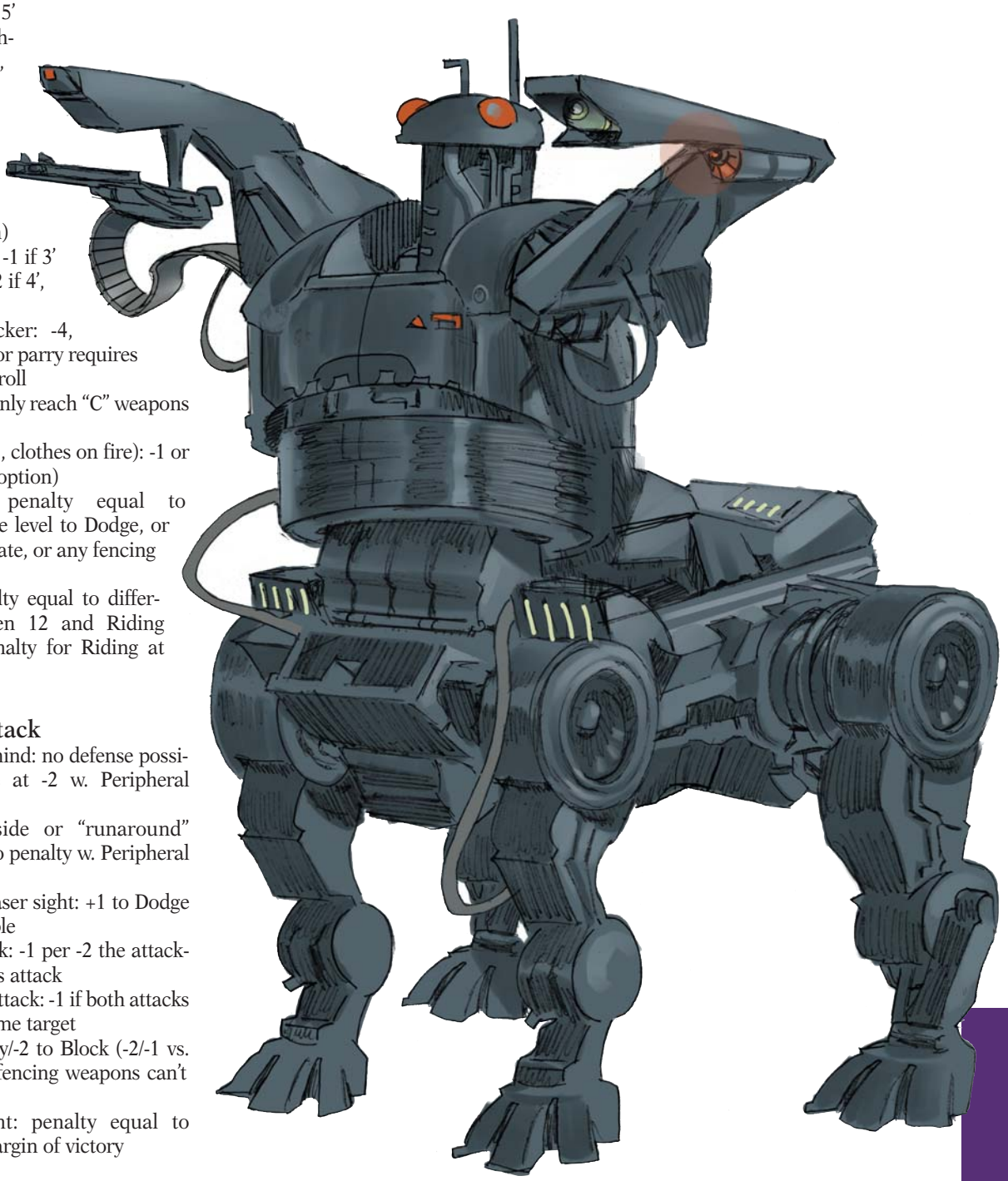
Dodge and Drop: +3 to Dodge vs. *ranged* attack

Feverish Defense: +2 (costs 1 FP)

Multiple parries: -4 to Parry per parry after the first, cumulative (*halved* for fencing weapons, and for Trained By A Master or Weapon Master)

Off-hand parry: -2 to Parry (no penalty w. Ambidexterity)

Retreat: +3 to Dodge, or to Boxing, Judo, Karate, or any fencing Parry; +1 otherwise



Size and Speed/Range Table

The main use for this table is ranged combat, but the GM can also use it for Sense rolls and other success rolls that size, speed, or range might believably affect.

This table uses the same progression for size as it does for the sum of speed and range, but the modifiers for size have the *opposite sign* from those for speed/range: large size give a bonus, while large speed and range give a penalty. Thus, if a target is twice as big but also twice as far away and twice as fast, the net modifier to hit stays the same.

Size of Target

The larger the target, the easier it is to hit. The modifier to hit an object due to its size is its "Size Modifier" (SM). Humans have SM 0. Objects larger than man-sized give a bonus to hit, while smaller objects give a penalty.

The statistics for most nonhuman races, vehicles, etc. include SM. You can find the SM of other things using the table. Simply look up the being or object's longest dimension (e.g., height, for a humanoid) in the "Linear Measurement" column, and then read across to the "Size" column to find SM. If size falls between two values, base SM on the next-highest size.

Box-, sphere-, or blob-shaped objects or characters add +2 to SM; elongated boxes, like most ground vehicles, add +1. If an object is much smaller in *two* of three dimensions (e.g., a steel cable 100 yards long but only 2" thick), use the *smallest* dimension instead of the largest.

Examples: A giant whose longest dimension is 4 yards has SM +2. A car with the same dimensions would have SM +3. A building 4 yards across would have SM +4.

Target's Speed and Range

In most combat between fighters on foot, and when attacking inanimate objects, you can ignore speed. Simply look up range in yards in the "Linear Measurement" column, and then read across to the "Speed/Range" column to find the speed/range modifier. If the range falls between two values, use the higher; e.g., treat 8 yards as 10 yards.

Note that there is no modifier at ranges of 2 yards or less – shooting a close target is no easier (and no *harder*) than attacking it in melee combat!

But for fast targets – including anything that requires the *High-Speed Movement* rules (p. 394) – the GM may rule that speed is important enough to consider. In that case, add speed in yards/second (2 mph = 1 yard/second) to range before looking it up in the "Linear Measurement" column.

Examples: A man 8 yards away is -4 to hit. A motorcycle rider 40 yards away, traveling at 30 yards/second (60 mph), has a speed/range of 40 + 30 = 70 yards, which gives -9 to hit. A missile passing within 5 yards while moving 1,000 yards/second has a speed/range of 5 + 1,000 = 1,005 yards, for -17 to hit.

Size and Speed/Range Table

Speed/Range	*Size*	*Linear Measurement*
0	-15	1/5"
0	-14	1/3"
0	-13	1/2"
0	-12	2/3"
0	-11	1"
0	-10	1.5"
0	-9	2"
0	-8	3"
0	-7	5"
0	-6	8"
0	-5	1 ft
0	-4	1.5 ft
0	-3	2 ft
0	-2	1 yd
0	-1	1.5 yd
0	0	2 yd
-1	+1	3 yd
-2	+2	5 yd
-3	+3	7 yd
-4	+4	10 yd
-5	+5	15 yd
-6	+6	20 yd
-7	+7	30 yd
-8	+8	50 yd
-9	+9	70 yd
-10	+10	100 yd
-11	+11	150 yd
-12	+12	200 yd
-13	+13	300 yd
-14	+14	500 yd
-15	+15	700 yd
-16	+16	1,000 yd
-17	+17	1,500 yd
-18	+18	2,000 yd (1 mile)
-19	+19	3,000 yd
-20	+20	5,000 yd (2.5 miles)
-21	+21	7,000 yd
-22	+22	10,000 yd (5 miles)
-23	+23	15,000 yd
-24	+24	20,000 yd (10 miles)
-25	+25	30,000 yd
-26	+26	50,000 yd (25 miles)
-27	+27	70,000 yd
-28	+28	100,000 yd (50 miles)
-29	+29	150,000 yd
-30	+30	200,000 yd (100 miles)
etc.	etc.	etc.

Continue this progression indefinitely, with each 10× increase in linear measurement giving +6 to SM or -6 to speed/range modifier.

Example: Erin the archer shoots at a dragon. It is 40 yards away and flying at Move 15 (30 mph): 40 + 15 = 55 yards. Erin rounds up to 70 yards, for a speed/range modifier of -9. The dragon is 6 yards long, which rounds up to 7 yards, for SM +3. Erin's final modifier to hit is -6.

By using the *sum* of range and speed, the table ensures that when one of range or speed is large relative to the other, only that factor has a significant impact on the outcome. Small variations in speed are negligible when firing at targets at extreme ranges, and vice versa. If a rocket is moving at 1,000 yards/second, it doesn't really matter whether it's 50 or 100 yards away. If an elephant is 1,000 yards away, it hardly matters whether it is walking at 1 yard/second or 2 yards/second.

Firing Upward and Downward: For every yard of elevation your target has over you, *add* one yard to effective range. For every two yards of elevation you have over your target, *subtract* one yard from effective range; if this would reduce effective range to less than half the real ground distance, use half the ground distance instead.

Sense Rolls: If making a Sense roll, or an Electronics Operation roll for sensors, do not add speed to range. Instead, *subtract* speed from range (but don't reduce it below 0). It is actually *easier* to notice a moving target!

Maneuvers

Taking an active defense may spoil your aim or concentration.

In combat, you may perform one maneuver on your turn. The following table summarizes these maneuvers and their effects.

Maneuver Table

Maneuver	*Description*	*Active Defense*	*Movement*	*Page*
Aim	Aim a ranged weapon to get its Accuracy bonus.	Any*	Step	364
All-Out Attack	Attack at a bonus or multiple times.	None	Half Move	365
All-Out Defense	Increased or double defense.	Any†	Varies	366
Attack	Attack unarmed or with a weapon.	Any	Step	365
Change Posture	Stand up, sit down, etc.	Any	None	364
Concentrate	Focus on a mental task.	Any*	Step	366
Do Nothing	Take no action but recover from stun.	Any‡	None	364
Evaluate	Study a foe prior to a melee attack.	Any	Step	364
Feint	Fake a melee attack.	Any	Step	365
Move and Attack	Move and attack at a penalty.	No Parry	Full Move	365
Move	Do nothing but move.	Any	Full Move	364
Ready	Prepare a weapon or other item.	Any	Step	366
Wait	Hold yourself in readiness to act.	Any	Varies	366

* Taking an active defense may spoil your aim or concentration.
† Gives +2 to Dodge, Block, or Parry, *or* allows two defenses against each attack.
‡ Defenses are at -4 if taking Do Nothing due to stun.

Postures

Posture Table

Posture	*Attack*	*Defense*	*Target*	*Movement*
Standing	Normal	Normal	Normal	Normal; may sprint
Crouching	-2	Normal	-2	2/3 (+1/2 per hex)
Kneeling	-2	-2	-2	1/3 (+2 per hex)
Crawling	-4*	-3	-2†	1/3 (+2 per hex)
Sitting	-2	-2	-2	None
Lying Down	-4	-3	-2†	1 yard/second

* Only reach "C" melee attacks are allowed.
† If attacker is at the same or lower elevation *and* farther away than his own height, he attacks your torso as if it were half exposed (-2 to hit), and cannot attack your groin, legs, or feet at all. If you also have your head down, he cannot attack your neck, eyes, or face.

Attack: The modifier when making a *melee* attack from this posture. There is no effect on *ranged* attacks.

Defense: The modifier to all active defense rolls.

Target: The modifier to hit your torso, groin, or legs with a *ranged* attack. No penalty to strike other hit locations, if they are visible from that posture.

Movement: The effect on movement. For tactical combat, movement point costs appear in parentheses, and note that a human occupies two hexes while crawling or lying down.

Hit Location Tables

Use these tables in conjunction with the *Hit Location* rules (p. 398).

Missing Parts: If a random roll indicates that a missing body part would be hit (e.g., the neck, on a target with Injury Tolerance (No Neck)), treat it as a *torso* hit.

Human and Humanoid Hit Location Table

Use this table for humans, humanoids (e.g., giants and goblins), and semi-upright creatures (e.g., apes and bears). If rolling randomly, roll 3d. If *deliberately* targeting a specific hit location, apply the listed penalty. For example, a random hit to the skull would occur on a roll of 3-4, while a deliberate attack targeting the skull would be at -7 to hit.

Winged Humanoids: A deliberate attack on a wing is at -2 to hit. If rolling randomly, a 9 indicates a wing hit (roll randomly to see which wing) and a 10 indicates a torso hit. For wounding purposes, treat wings as limbs.

Fish-Tailed Humanoids (Mermen): A deliberate attack on the tail is at -3 to hit. If rolling randomly, treat random leg hits as torso hits and random foot hits as tail hits. For effects, see *Quadruped, Hexapod, Centaur, and Avian Hit Location* (p. 553).

Human and Humanoid Hit Location Table

Roll	*Location (Penalty)*	*Notes*
–	Eye (-9)	[1, 2]
3-4	Skull (-7)	[1, 3]
5	Face (-5)	[1, 4]
6-7	Right Leg (-2)	[5]
8	Right Arm (-2)	[5, 6]
9-10	Torso (0)	
11	Groin (-3)	[1, 7]
12	Left Arm (-2)	[5, 6]
13-14	Left Leg (-2)	[5]
15	Hand (-4)	[6, 8, 9]
16	Foot (-4)	[8, 9]
17-18	Neck (-5)	[1, 10]
–	Vitals (-3)	[1, 11]

[1] An attack that misses by 1 hits the torso instead.

[2] Only *impaling, piercing,* and *tight-beam burning* attacks can target the eye – and only from the front or sides. Injury over HP/10 blinds the eye. Otherwise, treat as skull, but without the extra DR!

[3] The skull gets an extra DR 2. Wounding modifier is ×4. Knockdown rolls are at -10. Critical hits use the *Critical Head Blow Table* (p. 556). *Exception:* These special effects do not apply to *toxic* damage.

[4] Jaw, cheeks, nose, ears, etc. If the target has an open-faced helmet, ignore its DR. Knockdown rolls are at -5. Critical hits use the *Critical Head Blow Table. Corrosion* damage gets a ×1.5 wounding modifier, and if it inflicts a major wound, it *also* blinds one eye (*both* eyes on damage over full HP). Random attacks from behind hit the skull instead.

[5] Limb. Reduce the wounding multiplier of *large piercing, huge piercing,* and *impaling* damage to ×1. Any major wound (loss of over 1/2 HP from one blow) cripples the limb. Damage beyond that threshold is lost.

[6] If holding a shield, *double* the penalty to hit: -4 for shield arm, -8 for shield hand.

[7] Human males and the males of similar species suffer *double* shock from *crushing* damage, and get -5 to knockdown rolls. Otherwise, treat as a torso hit.

[8] Extremity. Treat as a limb, except that damage over 1/3 HP in one blow inflicts a crippling major wound. Excess damage is still lost.

[9] If rolling randomly, roll 1d: 1-3 is right, 4-6 is left.

[10] Neck and throat. Increase the wounding multiplier of *crushing* and *corrosion* attacks to ×1.5, and that of *cutting* damage to ×2. At the GM's option, anyone killed by a cutting blow to the neck is decapitated!

[11] Heart, lungs, kidneys, etc. Increase the wounding modifier for an *impaling* or any *piercing* attack to ×3. Increase the wounding modifier for a *tight-beam burning* attack to ×2. Other attacks cannot target the vitals.

Injury Tolerance and Hit Location

Diffuse: Ignore special knockdown, shock, and wounding modifiers. (Eyes, limbs, and extremities can still be crippled.) Impaling and piercing attacks can never do more than *1 HP* of injury. Other attacks can never do more than *2 HP* of injury.

Homogenous: Ignore special knockdown, shock, and wounding modifiers. (Eyes, limbs, and extremities can still be crippled.) Wounding modifier is ×1/2 for *impaling* or *huge piercing,* ×1/3 for *large piercing,* ×1/5 for *piercing,* and ×1/10 for *small piercing.*

No Brain: Hits to the skull or face get no special knockdown or wounding modifier. Hits to the eye can cripple the eye; otherwise, treat them as face hits, not skull hits.

No Vitals: Treat hits to the vitals or groin as torso hits.

Unliving: Hit location has its usual effect, except that *impaling* or *piercing* damage to any location but the eye, skull, or vitals gets a reduced wounding modifier: ×1 for *impaling* or *huge piercing,* ×1/2 for *large piercing,* ×1/3 for *piercing,* and ×1/5 for *small piercing.*

Non-Humanoid Hit Location Tables

Use the next two tables for the following categories of non-humanoid:

Arachnoid: A spider or similar eight-legged creature.

Avian: A creature with two wings, two legs, and no arms; e.g., a bird.

Cancroid: A crab, lobster, scorpion, or similar creature with forelimb pincers.

Centaur: Any humanoid-quadruped hybrid.

Hexapod: A six-legged creature; e.g., an insect. A *winged hexapod* also has wings, like a fly.

Ichthyoid: A fish, cetacean, or similar creature.

Octopod: An octopus or similar creature with "arms" that double as legs.

Quadruped: A creature with four legs and no arms. A *winged quadruped* also has a pair of wings, like a dragon.

Vermiform: Any slithering creature (snake, worm, etc.) or variant (winged serpent, snake-man with arms but not legs, etc.).

Quadruped, Hexapod, Centaur, and Avian Hit Location Table

Roll (3d)	Quadruped	Winged Quadruped	Hexapod	Winged Hexapod	Centaur	Avian
–	Eye (-9)	Eye (-9)	Eye (-9)	Eye (-9)	Eye (-9)	Eye (-9)
3-4	Skull (-7)	Skull (-7)	Skull (-7)	Skull (-7)	Skull (-7)	Skull (-7)
5	Face (-5)	Face (-5)	Neck (-5)	Neck (-5)	Neck (-5)	Face (-5)
6	Neck (-5)	Neck (-5)	Face (-5)	Face (-5)	Face (-5)	Neck (-5)
7-8	Foreleg (-2)*	Foreleg (-2)*	Foreleg (-2)*	Foreleg (-2)*	Foreleg (-2)*	Wing (-2)*
9-10	Torso (0)	Torso (0)	Torso (0)	Torso (0)	Torso (0)†	Torso (0)
11	Torso (0)	Torso (0)	Mid Leg (-2)*	Mid Leg (-2)*	Torso (0)†	Torso (0)
12	Groin (-3)	Wing (-2)*	Groin (-3)	Wing (-2)*	Groin (-3)	Groin (-3)
13-14	Hind Leg (-2)*	Hind Leg (-2)*	Hind Leg (-2)*	Hind Leg (-2)*	Hind Leg (-2)*	Leg (-2)*
15-16	Foot (-4)*	Foot (-4)*	Foot (-4)*	Mid Leg (-2)*	Arm (-2)*	Foot (-4)*
17-18	Tail (-3)	Tail (-3)	Mid Leg (-2)*	Foot (-4)*	Extremity (-4)	Tail (-3)
–	Vitals (-3)	Vitals (-3)	Vitals (-3)	Vitals (-3)	Vitals (-3)	Vitals (-3)

* If using random hit location, roll 1d: 1-3 is right, 4-6 is left. If it is somehow holding a shield, *double* the penalty to hit: -4 for a limb, -8 for an extremity.

† For centaurs, 9-10 means the animal body is hit, while 11 means the humanoid upper body is hit. *Deliberate* attacks on either are at no penalty.

Arm, Eye, Face, Foot, Groin, Leg, Neck, Skull, Torso, Vitals: Use the rules for humans and humanoids. "Arm" means a human upper-body arm for a centaur. "Foot" includes paw, hoof, etc. "Torso" includes fore- and hindquarters, thorax, abdomen, etc.

Extremity: For centaurs, roll 1d: 1-2 is a human upper-body hand, 3-4 is a forefoot, and 5-6 is a hind foot; odd numbers are left, even numbers are right.

Foreleg: The right or left front leg.

Hind Leg: The right or left back leg.

Mid Leg: The right or left middle leg of a six-legged creature.

Tail: If a tail counts as an Extra Arm or a Striker, or is a fish tail, treat it as a limb (arm, leg) for crippling purposes; otherwise, treat it as an extremity (hand, foot). A crippled tail affects balance. For a ground creature, this gives -1 DX. For a swimmer or flyer, this gives -2 DX and halves Move. If the creature has no tail, or a very short one (like a rabbit), treat as "torso."

Wing: Treat a wing as a limb (arm, leg) for crippling purposes. A flyer with a crippled wing cannot fly.

Vermiform, Octopod, Cancroid, Ichthyoid, and Arachnoid Hit Location Table

Roll (3d)	Vermiform†	Octopod‡	Cancroid§	Ichthyoid	Arachnoid
–	Eye (-9)	Eye (-8)	Eye (-9)	Eye (-8)	Eye (-9)
3-4	Skull (-7)	Brain (-7)	Skull (-7)	Skull (-7)	Brain (-7)
5	Face (-5)	Face (-5)	Face (-5)	Face (-5)	Neck (-5)
6	Neck (-5)	Neck (-5)	Neck (-5)	Fin (-4)	Face (-5)
7-8	Neck (-5)	Arm 1-2 (-2)*	Arm (-2)*	Torso (0)	Leg 1-2 (-2)*
9-11	Torso (0)	Torso (0)	Torso (0)	Torso (0)	Torso (0)
12	Torso (0)	Torso (0)	Torso (0)	Torso (0)	Groin (-3)
13-14	Torso (0)	Arm 3-4 (-2)*	Leg (-2)*	Fin (-4)	Leg 3-4 (-2)*
15-16	Torso (0)	Arm 5-6 (-2)*	Leg (-2)*	Fin (-4)	Leg 5-6 (-2)*
17-18	Torso (0)	Arm 7-8 (-2)*	Foot (-4)*	Tail (-3)	Leg 7-8 (-2)*
–	Vitals (-3)	Vitals (-3)	Vitals (-3)	Vitals (-3)	Vitals (-3)

* If using random hit location, roll 1d: 1-3 is right, 4-6 is left. If it is somehow holding a shield, *double* the penalty to hit: -4 for a limb, -8 for an extremity.

† For winged serpents, treat 15-18 as Wing (-2). For snake-men, treat 7-8 as Right Arm (-2), 13-14 as Left Arm (-2), and 17-18 as Hand (-4).

‡ For squid, treat 17-18 as Torso (0). All arms other than arms 1-2 are extremities for injury purposes, and targeted at -3.

§ For scorpions, treat 12 as Tail (-3).

Arm: For an octopod, arms 1-4 are those it is currently using for manipulation, while arms 5-8 are those it is using for locomotion. For a cancroid, an arm is a forelimb pincer. Handle wounding, etc. as for humans and humanoids.

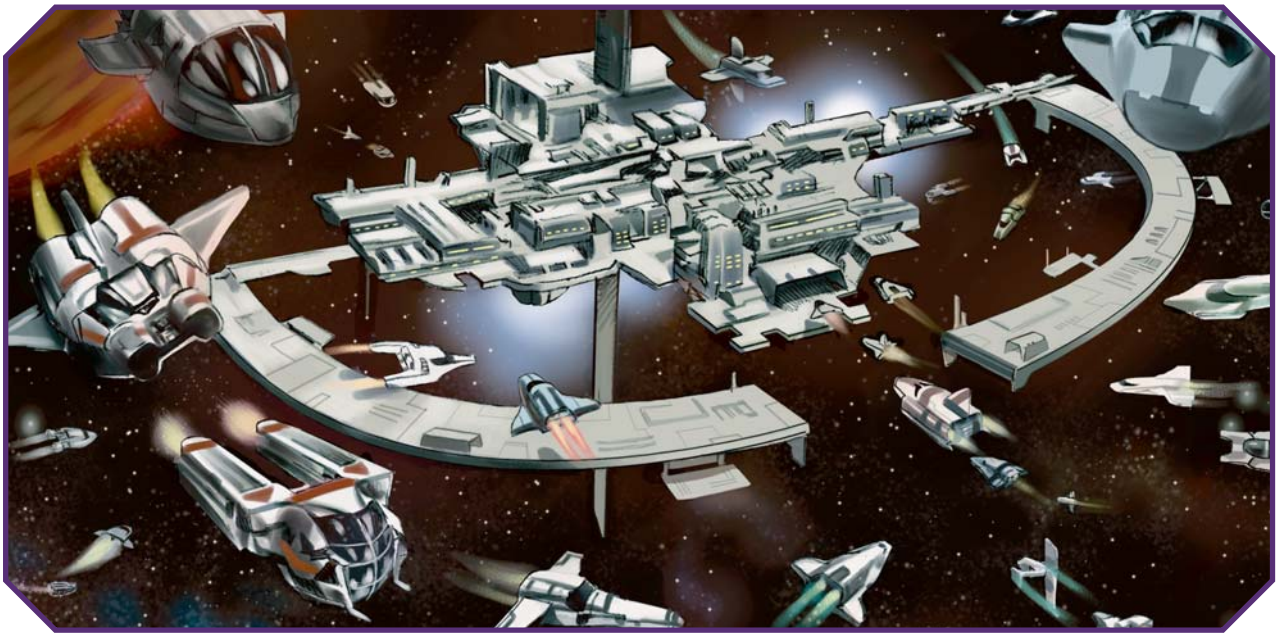
Brain: As skull, but only DR 1.

Eye, Face, Foot, Groin, Neck, Skull, Torso, Vitals: Use the rules for humans and humanoids.

Fin: An ichthyoid often has two or three fins or ray-like wings; roll randomly. Treat a fin as an extremity (hand, foot) for crippling purposes. A crippled fin affects balance: -3 DX.

Leg: For a cancroid, this is any of its true legs; roll randomly. For an arachnoid, legs 1-2 are the front pair, legs 3-4 are the mid-front pair, legs 5-6 are the mid-back pair, and legs 7-8 are the back pair. Handle wounding, etc. as for humans and humanoids.

Tail: See note under *Quadruped, Hexapod, Centaur, and Avian Hit Location Table.* For ichthyoids, most of the "tail" is considered the torso; this is just the tip.



Vehicle Hit Location Table

Every vehicle has a "body" hit location. To find a vehicle's other hit locations (if any), look up the vehicle on the relevant vehicle table and check the "Locations" column. See *Vehicle Statistics* (p. 462) for details.

To choose a random hit location, roll 3d on the table below. If *deliberately* targeting a location, apply the penalty in parentheses plus the vehicle's SM. For example, a random hit to a small glass window or exposed weapon mount would occur on a roll of 3-4, while a deliberate attack on either location would be at -7 to hit – or -3 on a vehicle with SM +4.

If a random location doesn't exist, is retracted, or isn't a logical target given the angle of attack (e.g., a window for a car attacked from below, or a vehicle with no windows), treat it as *body* hit. If multiple locations or possibilities exist (e.g., a roll of 3-4 for a vehicle with small glass windows *and* an exposed weapon mount), the attacker picks which was hit.

Body: The vehicle's hull. If a powered vehicle sustains a major wound, roll against HT. On a failure, the power or propulsion system is damaged, halving Move.

Caterpillar Track [C]: A track is hit. Most tracked vehicles have two tracks. Damage over HP/2 cripples one track, reducing ground Move to 0. Excess damage is lost.

Vehicle Hit Location Table

Roll	*Location (Penalty)*
3-4	Small Glass Window [g] or Exposed Weapon Mount [X] (-7)
5	Small Superstructure* [s] or Independent Turret [t] (-5)
6-7	Caterpillar Track [C], Draft Animal** [D], Helicopter Rotor [H], Mast [M], or Wing [Wi] (-2)
8	Arm [A], Large Superstructure* [S], or Main Turret* [T] (-2)
9	Body* or Exposed Rider [E] (0)
10	Body* (0)
11	Large Glass Window [G] or Open Cabin [O] (-3)
12	Arm [A], Large Superstructure* [S], or Main Turret* [T] (-2)
13-14	Caterpillar Track [C], Draft Animal** [D], Helicopter Rotor [H], Mast [M], or Wing [Wi] (-2)
15-16	Runner or Skid [R] or Wheel [W] (-4)
17-18	Vital Area (-3)

* Usually manned; see *Occupants and Vehicle Damage*, below.
** The modifier to target a draft animal deliberately is the *animal's* SM.

Draft Animal [D]: A harnessed animal is hit *instead* of the vehicle. The vehicle takes no damage, and its DR doesn't protect the animal.

Exposed Rider [E] or *Open Cabin* [O]: A person in an exposed position (e.g., riding a bike, sitting in a jeep, or sticking his head out a hatch) is struck *instead* of the vehicle. The vehicle takes no damage, and its DR doesn't protect the occupant. If no one occupies this position, treat as a body hit.

Exposed Weapon Mount [X]: A small external mount for a weapon, sensor, etc. is hit. Damage over HP/5 cripples it; excess damage is lost.

Helicopter Rotor [H] or *Wing* [Wi]: A main or tail rotor, or major wing or tail section. Damage over HP/2 (wing) or HP/3 (rotor) cripples it, causing an airborne vehicle to lose control and crash! Excess damage is lost.

Large Glass Window [G] or *Small Glass Window* [g]: A window or canopy is struck. Check for an occupant hit (see *Occupant Hit Table,* below). If a hit occurs, the attack strikes an occupant instead of the vehicle. A *closed* window gives half the vehicle's DR (round up).

Large Superstructure [S]: A large, raised structure – e.g., conning tower, bridge, or castle – that often houses officers' cabins or important control rooms. On an airship or a balloon, this is the gondola. If it sustains a major wound, roll against HT. On a failure, an important item of equipment is knocked out (GM's option).

Main Turret [T]: A turret large enough to be a vital part of the vehicle, such as a tank's turret. If it sustains a major wound, roll against HT. On a failure, a major item in the turret (e.g., a tank's main gun) is knocked out, or the turret jams and can't rotate (GM's option).

Mast [M]: A mast and associated sails and rigging. Damage over HP/(2 × number of masts on vehicle) cripples one mast, reducing a sailing vessel's Move by 1/(number of masts), rounded up; e.g., if three masts, loss of one results in 2/3 Move. Excess damage is lost.

Runner or Skids [R]: A skid, sled runner, or ski is hit. Damage over HP/3 cripples one skid, reducing ground Move to 0 and toppling a parked vehicle. Excess damage is lost.

Small Superstructure [s] or *Independent Turret* [t]: A turret or structure whose loss the vehicle could survive; e.g., the turrets on most naval vessels and infantry fighting vehicles. Damage over HP/3 cripples it, knocking out any weapons or equipment it contains. Excess damage is lost.

Vital Area: A powered vehicle (anything with a ST attribute) has vital areas: engines, fuel tanks, etc. The wounding modifier for a *tight-beam burning* attack is ×2; that for an *impaling* or any *piercing* attack is ×3! Unpowered vehicles (e.g., sailing ships and wagons) don't usually have vital areas – treat as a body hit.

Wheel [W]: A wheel is hit. Damage over HP/(2 × number of wheels on vehicle) cripples the wheel; effects are the same as for a character with an equal number of legs losing one leg. Excess damage is lost. If the wheel of a vehicle with tires sustains *any* damage, roll vs. HT. Failure means a flat tire that cripples the wheel until changed.

Notes on Vehicle Damage

In addition to hit location effects, note that:

- Most powered vehicles are Unliving; most unpowered vehicles are Homogenous. See *Injury to Unliving, Homogenous, and Diffuse Targets* (p. 380).
- Many vehicles are Fragile: "c" after HT means Combustible, "f" means Flammable, and "x" means Explosive.
- Large-area injury will affect exposed occupants *and* the vehicle's body; see *Large-Area Injury* (p. 400).

Occupants and Vehicle Damage

When damage penetrates a vehicle's DR, the occupants may suffer damage as well as the vehicle – the result of ricocheting projectiles, flying debris, etc. Whenever five or more points of damage penetrate an occupied location (usually the body, main turret, or a superstructure), roll 3d on the *Occupant Hit Table,* below. If an occupant is hit, he takes 1d cutting damage per five *full* points of penetrating damage the vehicle sustained. Roll randomly for hit location. The occupant's own DR protects him.

If occupant damage exceeds 4d, the GM may opt to divide it among multiple occupants in 4d (or smaller) increments; e.g., 7d damage might inflict 4d on one occupant and 3d on another.

Note that occupant damage is separate from damage to the *vehicle.*

Occupant Hit Table

Use this table when an attack penetrates an object containing occupants (e.g., a vehicle body). Cross-index the number of occupants with the vehicle or structure's Size Modifier, and then roll 3d against the resulting number; the more tightly packed the object, the higher the number. On a roll of this number or less, an occupant is hit. If multiple occupants could be hit, the GM determines who was hit randomly or by fiat.

Number of Occupants	*Size Modifier (SM)*										
	+1	*+2*	*+3*	*+4*	*+5*	*+6*	*+7*	*+8*	*+9*	*+10*	*+11*
1	10	9	8	7	6	5	4	3	3	3	3
2	12	10	9	8	7	6	5	4	3	3	3
3-5	14	12	10	9	8	7	6	5	4	3	3
6-10	16	14	12	10	9	8	7	6	5	4	3
11-20	17	16	14	12	10	9	8	7	6	5	4
21-50	17	17	16	14	12	10	9	8	7	6	5
51-100	17	17	17	16	14	12	10	9	8	7	6
101-200	17	17	17	17	16	14	12	10	9	8	7
201-500	17	17	17	17	17	16	14	12	10	9	8
etc.											

Critical Success and Failure

A roll of 3 or 4 is *always* a critical success.

A roll of 5 is a critical success *if your effective skill is 15+.*

A roll of 6 is a critical success *if your effective skill is 16+.*

A roll of 18 is *always a critical failure.*

A roll of 17 is a critical failure *if your effective skill is 15 or less;* otherwise, it is an ordinary failure.

Any roll of 10 greater than your *effective* skill is a critical failure: 16 on a skill of 6, 15 on a skill of 5, and so on.

Critical Hit Table

All doublings or triplings of damage refer to *basic damage* (not injury). In all cases, the target gets no active defense against the attack.

3 – The blow does triple damage.

4 – The target's DR protects at half value (round down) after applying any armor divisors.

5 – The blow does double damage.

6 – The blow does maximum normal damage.

7 – If *any* damage penetrates DR, treat it as if it were a major wound, regardless of the actual injury inflicted.

8 – If *any* damage penetrates DR, it inflicts double normal shock (to a maximum penalty of -8). If the injury is to a limb or extremity, that body part is crippled as well. This is only a "funny-bone" injury: crippling wears off in (16 - HT) seconds, minimum two seconds, unless the injury was enough to cripple the body part anyway.

9, 10, 11 – Normal damage only.

12 – Normal damage, and the victim drops anything he is holding, regardless of whether any damage penetrates DR.

13, 14 – If *any* damage penetrates DR, treat it as if it were a major wound, regardless of the actual injury inflicted.

15 – The blow does maximum normal damage.

16 – The blow does double damage.

17 – The target's DR protects at half value (round down) after applying any armor divisors.

18 – The blow does triple damage.

Critical Head Blow Table

Use this table only for critical hits to the head (*face, skull,* or *eye*). In all cases, the target gets no active defense against the attack.

3 – The blow does maximum normal damage *and* ignores the target's DR.

4, 5 – The target's DR protects at half value (round up) after applying any armor divisors. If *any* damage penetrates, treat it as if it were a major wound, regardless of the actual injury inflicted.

6, 7 – If the attack targeted the *face* or *skull,* treat it as an *eye* hit instead, even if the attack could not normally target the eye! If an eye hit is impossible (e.g., from behind), treat as **4.**

8 – Normal head-blow damage, and the victim is knocked off balance: he must Do Nothing next turn (but may defend normally).

9, 10, 11 – Normal head-blow damage only.

12, 13 – Normal head-blow damage, and if *any* damage penetrates DR, a *crushing* attack deafens the victim (for recovery, see *Duration of Crippling Injuries,* p. 422), while any other attack causes severe scarring (the victim loses one appearance level, or two levels if a *burning* or *corrosion* attack).

14 – Normal head-blow damage, and the victim drops his weapon (if he has two weapons, roll randomly to see which one he drops).

15 – The blow does maximum normal damage.

16 – The blow does double damage.

17 – The target's DR protects at half value (round up) after applying any armor divisors.

18 – The blow does triple damage.

Critical Miss Table

3, 4 – Your weapon breaks and is useless. *Exception:* Certain weapons are resistant to breakage. These include solid *crushing* weapons (maces, flails, mauls, metal bars, etc.); magic weapons; firearms (other than wheel-locks, guided missiles, and beam weapons); and fine and very fine weapons of all kinds. If you have a weapon like that, roll again. Only if you get a "broken weapon" result a second time does the weapon really break. If you get any other result, you drop the weapon instead. See *Broken Weapons* (p. 485).

5 – You manage to hit *yourself* in the arm or leg (50% chance each way). *Exception:* If making an *impaling* or *piercing* melee attack, or any kind of ranged attack, roll again. If you get a "hit yourself" result a second time, use *that* result – half or full damage, as the case may be. If you get something other than "hit yourself," use that result.

6 – As **5,** but half damage only.

7 – You lose your balance. You can do *nothing* else (not even a free action) until your next turn, and all your active defenses are at -2 until then.

8 – The weapon turns in your hand. You must take an extra Ready maneuver before you can use it again.

9, 10, 11 – You drop the weapon. *Exception:* A *cheap* weapon *breaks;* see **3.**

12 – As **8.**

13 – As **7.**

14 – If making a *swinging* melee attack, your weapon flies 1d yards from your hand – 50% chance straight forward or straight back. Anyone on the target spot must

make a DX roll or take half damage from the falling weapon! If making a *thrusting* melee attack or any kind of ranged attack, or parrying, you simply drop the weapon, as in **9.**

15 – You strain your shoulder! Your weapon arm is "crippled." You do not have to drop your weapon, but you cannot use it, either to attack or defend, for 30 minutes.

16 – You fall down! If making a ranged attack, see **7** instead.

17, 18 – Your weapon breaks; see **3.**

Unarmed Critical Miss Table

Use this table only for critical misses on *unarmed* attacks (bites, claws, grapples, head butts, kicks, punches, slams, etc.) or parries, including those by animals.

3 – You knock yourself out! Details are up to the GM – perhaps you trip and fall on your head, or walk face-first into an opponent's fist or shield. Roll vs. HT every 30 minutes to recover.

4 – If attacking or parrying with a limb, you strain it: take 1 HP of injury and the limb is "crippled." You cannot use it, either to attack or defend, for 30 minutes. If biting, butting, etc., you pull a muscle and suffer moderate pain (see *Irritating Conditions,* p. 428) for the next (20 - HT) minutes, minimum one minute.

5 – You hit a solid object (wall, floor, etc.) instead of striking your foe or parrying his attack. You take crushing damage equal to *your* thrusting damage to the body part you were using; DR protects normally. *Exception:* If attacking a foe armed with a ready impaling weapon, you fall on his weapon! You suffer the weapon's damage, but based on *your* ST rather than his.

6 – As **5**, but half damage only. *Exception:* If attacking with natural weapons, such as claws or teeth, they *break:* -1 damage on future attacks until you heal (for recovery, see *Duration of Crippling Injuries,* p. 422).

7 – You stumble. On an attack, you advance one yard past your opponent and end your turn facing away from him; he is now behind you! On a parry, you fall down; see **8.**

8 – You fall down!

9, 10, 11 – You lose your balance. You can do *nothing* else (not even a free action) until your next turn, and all your active defenses are at -2 until then.

12 – You trip. Make a DX roll to avoid falling down. Roll at DX-4 if kicking, or at *twice* the usual DX penalty for a technique that requires a DX roll to avoid mishap even on a normal failure (e.g., DX-8 for a Jump Kick).

13 – You drop your guard. All your active defenses are at -2 for the next turn, and any Evaluate bonus or Feint penalty against you until your next turn counts *double!* This *is* obvious to nearby opponents.

14 – You stumble; see **7.**

15 – You *tear* a muscle. Take 1d-3 of injury to the limb you used (to one limb, if you used two), or to your neck if biting, butting, etc. You are off balance and at -1 to all attacks and defenses for the next turn. You are at -3 to any action involving that limb (or to *any* action, if you injure your neck!) until this damage heals. Reduce this penalty to -1 if you have High Pain Threshold.

16 – You hit a solid object; see **5.**

17 – You strain a limb or pull a muscle, as in **4.** *Exception:* An IQ 3-5 animal fails so miserably that it loses its nerve. It will turn and flee on its next turn, if possible. If backed into a corner, it will assume a surrender position (throat bared, belly exposed, etc.).

18 – You knock yourself out; see **3.**

Fighters that cannot fall down (e.g., snakes, and anyone already on the ground): Treat any "fall down" result as 1d-3 of general injury instead. Details are up to the GM – perhaps your opponent steps on you!

Fliers and swimmers: Treat any "fall down" result as being forced into an awkward flying or swimming position with the same effective results (-4 to attack, -3 to defend).

HP and DR of Objects and Cover

Use the table below to determine the HP of nonliving artifacts.

Weight: The artifact's weight. If this falls between two values, use the *lower* of the two.

Unliving/Machine: The HP of an Unliving object of this weight. This includes anything with complex or moving parts; e.g., electronics, firearms, powered vehicles, robots, and most other machines.

Homogenous/Diffuse: The HP of a Homogenous or Diffuse object of this weight. This includes anything that lacks a complex internal structure; e.g., fabric (cloaks, drapes, etc.), furniture, and muscle-powered melee weapons.

If you have a choice between extra makeup or extra weapons, always take the weapons.

– Laurell K. Hamilton

Object Hit Points Table

Weight	*Unliving/ Machine*	*Homogenous/ Diffuse*
1/64 lb.	1 HP	2 HP
1/8 lb.	2 HP	4 HP
1/2 lb.	3 HP	6 HP
1 lb.	4 HP	8 HP
2 lbs.	5 HP	10 HP
3 lbs.	6 HP	12 HP
5 lbs.	7 HP	14 HP
8 lbs.	8 HP	16 HP
11 lbs.	9 HP	18 HP
16 lbs.	10 HP	20 HP
27 lbs.	12 HP	24 HP
43 lbs.	14 HP	28 HP
64 lbs.	16 HP	32 HP
91 lbs.	18 HP	36 HP
125 lbs.	20 HP	40 HP
216 lbs.	24 HP	48 HP
343 lbs.	28 HP	56 HP
512 lbs.	32 HP	64 HP
729 lbs.	36 HP	72 HP
1,000 lbs.	40 HP	80 HP

Optionally, calculate HP as 4 × (cube root of empty weight in lbs.) for Unliving objects and 8 × (cube root of empty weight in lbs.) for Homogenous or Diffuse ones. Round *up* in both cases. The GM may alter HP for unusually frail or tough objects.

HP and DR of Structures

The table below gives DR and HP for some common objects. All of these structures are Homogenous (see *Injury to Unliving, Homogenous, and Diffuse Targets,* p. 380). For the effects of damage, see *Damage to Buildings and Structures* (p. 484). Assume a structure in good repair has HT 12, should this become important (e.g., when rolling to see if a rope snaps under stress).

DR: The structure's Damage Resistance.

HP: The structure's Hit Points. Optionally, this can be calculated for buildings: HP = 100 × (cube root of building's empty weight in tons), and typical weights per 1,000 square feet (sf) of area are 50 tons for wood frame or mud brick, 100 tons for steel frame or brick, and 150 tons for stone.

Notes: "No Crushing" indicates a structure so resilient that crushing damage cannot destroy it. Structures marked "Combustible" or "Brittle" are Fragile (p. 136).

Structural Damage Table

Object	*DR*	*HP*	*Notes*
Ropes and Cables			
Rope, light (3/8" diameter)	1	2	Combustible; No Crushing
Rope, heavy (3/4" diameter)	2	3	Combustible; No Crushing
Steel cable (1/4" diameter)	14	22	No Crushing
Steel cable (1/2" diameter)	28	28	No Crushing
Steel cable (1" diameter)	56	36	No Crushing
Bars, Poles, Logs, and Trees			
Bronze/iron bar (1/2" diameter)	6	12	
Bronze/iron bar (1" diameter)	12	23	
Bronze/iron bar (2" diameter)	24	46	
Steel bar (1/2" diameter)	11	22	
Steel bar (1" diameter)	22	44	
Steel bar (2" diameter)	44	88	
Wood (1" thick)	1*	14	Combustible
Wood (2" thick)	2*	18	Combustible
Wood (4" thick)	4*	23	Combustible
Wood (8" thick)	8*	30	Combustible
Wood (16" thick)	16*	37	Combustible
Doors and Walls (per 1-hex or 10-square-foot area)			
Brick Wall (3" thick)	8*	54	
Brick Wall (6" thick)	16*	67	
Brick Wall (9" thick)	24*	77	
Brick Wall (18" thick)	48*	97	
Concrete, reinforced (8" thick)	96*	80	
Concrete, reinforced (2' thick)	288*	115	
Concrete, reinforced (5' thick)	720*	156	
Glass, plate (1/5" thick)	1	3	Brittle
Iron/bronze (1/4" thick)	12	36	
Iron (1/2" thick)	25	46	
Iron (1" thick)	50	58	
Steel, mild (1/8" thick)	7	30	
Steel, mild (1/4" thick)	14	38	
Steel, mild (1/2" thick)	28	47	
Steel, mild (1" thick)	56	60	
Steel, mild (2" thick)	112	75	
Stone wall (1' thick)	156*	94	
Stone wall (3' thick)	468*	135	
Stone wall (8' thick)	1,250*	188	
Wallboard (1/2" thick)	1*	18	Combustible
Wood (1" thick)	1*	23	Combustible
Wood (2" thick)	2*	29	Combustible
Wood (3" thick)	3*	33	Combustible
Wood (6" thick)	6*	42	Combustible
Wood (12" thick)	12*	54	Combustible
Buildings			
Farmhouse (1,000 sf)	2*	370	Combustible
Mansion or manor (10,000 sf)	6*	1,000	Combustible
Modern House (2,000 sf)	6*	580	Combustible
Pillbox (10'-thick concrete)	1,440*	460	
Skyscraper (50-story, 500,000 sf)	10	3,700	Combustible
Stone Keep (5'-thick walls)	780*	1,200	

* Repeated *impaling, piercing,* and *large piercing* attacks against the same small spot (an area with SM 0 or less) lower DR *at that specific point* as if it were semi-ablative; repeated *burning, corrosion, crushing, cutting,* or *huge piercing* attacks at that same spot reduce DR at that point as if it were ablative. DR never falls below 1 for wood or 3 for brick, concrete, or stone. For rules governing semi-ablative and ablative DR, see the Damage Resistance advantage (p. 46).

Cover DR

The following table gives the DR per inch of thickness that common materials afford as *cover.* This isn't always identical to an object's *own* DR! For details, see *Cover* (p. 407).

Cover DR Table

Material	*DR/Inch*	*Notes*
Aluminum	20-30	
Brick	5-8*	
Concrete	6-9*	
Concrete, reinforced	10-12*	
Glass, window	5-8	Brittle
Glass, bullet resistant	10-20	Brittle
Iron	40-60	
Sandbags	3	
Steel, mild	50-60	
Steel, hard	60-70	
Stone	8-13*	
Wood	0.5-1*	Combustible

* Repeated damage to a small area lowers DR, as explained under the *Structural Damage Table.*

NPC Reactions

When the PCs meet an NPC whose reaction to them is not predetermined, the GM can opt to make a "reaction roll" on 3d. The higher the roll, the better the reaction. The GM then follows the guidelines on the *Reaction Table,* below. For more information, see *Reaction Rolls* (p. 494).

Many factors can influence a reaction roll. A reaction *bonus* is any factor that makes NPCs *friendlier,* while a reaction *penalty* is something that biases NPCs *against* the PCs. Some common modifiers:

Reaction Table

Roll 3d and apply the modifiers described above.

0 or less: Disastrous

General reaction: The NPC hates the PCs and acts in their worst interest.

In a *potential combat situation,* the NPCs attack viciously, asking no quarter and giving none.

Commercial transactions are doomed: The merchant has nothing to do with the PCs. Make a "potential combat" roll at -2.

Requests for aid are denied totally. Make a "potential combat" roll at -4. If combat is called for but not possible, the NPC works against the PCs in any way possible.

Requests for information are met with anger. Make a "potential combat" roll at -2.

Loyalty: The NPC hates the PCs or is in the pay of their enemies, and takes the first good chance to betray them.

1 to 3: Very Bad

General reaction: The NPC dislikes the PCs and acts against them if it's convenient to do so.

In a *potential combat situation,* the NPCs attack, and flee only if they see they have no chance. (A fight in progress continues.)

Commercial transactions are next to impossible. The merchant asks three times the fair price, or offers 1/3 the fair price.

Requests for aid are denied. Make a "potential combat" roll; no reaction better than "Neutral" is possible.

Requests for information are met with malicious lies.

Loyalty: The NPC dislikes the PCs, and will leave their service (probably taking everything he can carry) or sell them out as soon as possible.

4 to 6: Bad

General reaction: The NPC cares nothing for the PCs and acts against them if he can profit by doing so.

In a *potential combat situation,* the NPCs attack unless outnumbered. If they are outnumbered they flee, possibly to attempt an ambush later. (A fight in progress continues.)

Commercial transactions go badly. The merchant asks twice the fair price, or offers half the fair price.

Requests for aid are denied. The NPCs go about their business, ignoring the PCs.

Requests for information are denied. NPCs lie maliciously or demand payment for information. If paid, the NPC gives true, but incomplete, information.

Loyalty: The NPC has no respect for the PCs. He leaves or betrays them given even moderate temptation, and is a sluggish worker.

7 to 9: Poor

General reaction: The NPC is unimpressed. He may become hostile if there is much profit in it, or little danger.

In a *potential combat situation,* the NPCs shout threats or insults. They demand that the PCs leave the area. If the PCs stick around, the NPCs attack unless outnumbered, in which case they flee. (A fight in progress continues.)

Commercial transactions are unprofitable. The merchant asks 120% of the fair price, or offers 75% of the fair price.

Requests for aid are denied, but bribes, pleas, or threats might work. The PCs may roll again, at -2.

Requests for information are unproductive. The NPCs claim not to know, or give incomplete data. A bribe may improve their memory; roll again if a bribe is offered.

Loyalty: The NPC is unimpressed with the PCs or dislikes the job; he thinks he's overworked and underpaid. He'll probably betray them if offered enough, and would certainly take a "better" job if he thought he had one.

10 to 12: Neutral

General reaction: The NPC ignores the PCs as much as possible. He is totally uninterested.

In a *potential combat situation,* the NPCs are inclined to go their own way and let the PCs go theirs. (If a fight is in progress, the NPCs try to back off.)

Commercial transactions go routinely. The merchant buys and sells at fair prices.

Requests for aid are granted – if they are simple. Complex requests are denied, but the PCs can try again at -2.

Requests for information are successful. The NPC gives the information requested if it is simple. If the question is complex, the answer is sketchy.

Loyalty: The NPC views the PCs as "just another boss," and this is just another job. He works hard enough to keep them happy, but no harder. He does not leave unless he is sure the new job is better, and does not betray them unless the temptation is very strong.

Continued on next page . . .

• *Personal appearance and behavior:* Especially true for the PC who does the talking! Above-average appearance, Charisma, Fashion Sense, Pitiable, and Voice all give a bonus; so does high apparent Status, in most situations. Below-average appearance and numerous disadvantages give a penalty.

• *Skills:* A successful roll against an appropriate skill (Administration to deal with bureaucrats, Carousing when partying, etc.) can give +2 to reactions. A few skills (e.g., Diplomacy and Fast-Talk) give an *automatic* +2 to reactions at skill 20+.

• *Racial or national biases:* These are usually penalties, and take the

Reaction Table (cont'd)

13 to 15: Good

General reaction: The NPC likes the PCs and is helpful within reasonable, everyday limits.

In a *potential combat situation,* the NPCs find the PCs likeable, or else too formidable to attack. The PCs may request aid or information; roll again at +1. (If a fight is in progress, the NPCs flee.)

Commercial transactions go pleasantly. The merchant buys and sells at fair prices, and volunteers useful information or small bits of help if possible.

Requests for aid are granted if the request is reasonable. The NPCs' attitude is helpful. Even if the request is silly and must be denied, they offer helpful advice.

Requests for information are successful. The question is answered accurately.

Loyalty: The NPC likes the PCs or the job. He is loyal, works hard, and accepts any reasonable hazard that the PCs accept.

16 to 18: Very Good

General reaction: The NPC thinks highly of the PCs and is quite helpful and friendly.

In a *potential combat situation,* the NPCs are friendly. The PCs may ask for aid or information (roll again at +3). Even sworn foes find an excuse to let the PCs go . . . for now. (If a fight is in progress, the NPCs flee if they can, or surrender otherwise.)

Commercial transactions go very well. The merchant accepts the PCs' offer unless they tried to buy below 80% of the fair price or sell above 150% of the fair price. In that case, he offers those rates. He also offers help and advice.

Requests for aid are granted unless they are totally unreasonable. Any useful information NPCs have is volunteered freely.

Requests for information are successful. The NPC answers in detail and volunteers any related information he has.

Loyalty: The NPC works very hard, and risks his life if need be. Under most circumstances, he puts the PCs' interests ahead of his own.

19 or better: Excellent

General reaction: The NPC is extremely impressed by the PCs, and acts in their best interests at all times, within the limits of his own ability.

In a *potential combat situation,* the NPCs are extremely friendly. They may even join the party temporarily. The PCs may ask for aid or information; roll again at +5. (If a fight is in progress, the NPCs surrender.)

Commercial transactions go extremely well. The merchant accepts the PCs' offer unless they tried to buy below 50% of fair price or sell above 200% of fair price. In that case, he offers those rates. He also offers help and advice.

Requests for aid are granted. NPCs help in every way within their power, offering extra aid.

Requests for information are extremely successful. The question is answered completely. If the NPC doesn't know everything the PCs need, he exerts himself to find out. He may even offer to help: roll a request for aid at +2, with no reaction worse than "Poor" possible.

Loyalty: The NPC worships the PCs or their cause, works incredibly hard, puts the PCs' interests ahead of his own at all times, and would even die for them.

form of a Social Stigma disadvantage for the PC or an Intolerance disadvantage on the part of the NPC.

● *Appropriate behavior by the players:* A good approach should be worth +1 or more! A wholly inappropriate approach should give the party -1 or -2.

Remember that reaction rolls are meant to flesh out a situation, NOT to control it! In general, the GM should reserve them for incidental encounters, unplanned situations, etc. He should decide in advance how he intends to play the NPCs in *vital* encounters . . . but he can still *pretend* to roll, so that the players won't know for sure what is going on!

General Reactions

Make this roll to see, in general, how any NPC feels about the PCs. When nothing else seems appropriate, make a general reaction roll and wing it! The GM can use any modifiers he thinks appropriate, especially those for personal appearance.

Potential Combat Situations (and Morale Checks)

Roll in any encounter where combat is possible but not *certain.* For a foe in a pitched battle, no roll is necessary. For a group of armed strangers on a wilderness trail, a reaction roll is appropriate unless the GM has predetermined their actions.

When NPCs are losing a fight, the GM can make a combat reaction roll *during* the fight as a "morale check." A "Good" or higher reaction indicates flight or surrender, as appropriate – not sudden friendship.

Special Modifiers for Combat Reactions

+1 to +5 if the PCs seem notably stronger than the NPCs.

-1 to -5 if the PCs seem notably *weaker* than the NPCs.

-2 if the PCs have no language in common with the NPCs.

-2 if the PCs are intruders on the NPCs' home turf.

Commercial Transactions

Roll when the PCs try to buy or sell goods, find a job, or hire someone. If no bargaining is involved, no roll is necessary – unless there is a chance that the merchant won't deal with the PCs at all.

As used below, "fair price" means the normal price, at that particular time and place, for the goods or services in question. The PCs can try to get a better price, at a -1 penalty for every 10% difference. Likewise, offering more than the fair price, or asking less than the fair price, will give a +1 bonus for every 10% difference.

If the players vary their offer, determine the NPC's counteroffer based on the proposed price instead of the fair price, if that is *less* favorable to the PCs. *Example:* If they ask 120% of the fair price and get a "Bad" reaction, the NPC will offer half of that, or 50%.

Bargaining never reduces the price below 50% of "fair" unless the NPC has an ulterior motive!

Special Modifiers for Transactions

-1 per 10% by which proposed price favors the PC, relative to the *fair* price.

+1 per 10% by which proposed price favors the NPC.

+1 if the PC has Merchant skill at *any* level.

+2 if the PC has Merchant skill at level 20+.

Requests for Aid

Roll when the PCs ask for any sort of help. (If appropriate, make a roll for a "potential combat situation" first!) Examples include an interview with a bureaucrat; an attempt to get a newspaper editor or police captain to listen to your story about the mad scientist's plot; or just a cry for help to the bystanders watching you get mugged!

Special Modifiers for Request for Aid

+1 if the request is very simple.

-1 to -3 (or more) if the request is very complex or unreasonable.

-1 if the request would inconvenience the NPC or cost him money.

-2 or more if the request would endanger the NPC's job or social status.

-1 or more if the request would physically endanger the NPC. This depends on the degree of the risk and the bravery of the NPC!

Requests for Information

Roll when the PCs ask NPCs for directions or advice, "Have you seen this man?," etc. *Note:* If the NPC is a professional information dealer, roll for a commercial transaction instead. If the PCs are interrogating the NPC, they must use the Interrogation skill.

Remember that no NPC can tell more than he knows. Sometimes an NPC will tell the truth *as he knows it* . . . but be terribly mistaken! And certain NPCs may pretend to know more than they do, in order to earn money or impress the PCs.

If there is a question as to whether a given NPC (or PC, for that matter) knows some specific fact, roll against his IQ or an appropriate skill.

Special Modifiers for Information Requests

-1 for a complex question; -2 for a *very* complex question.

-3 if the NPC thinks it's none of the PCs' business!

-3 or more if an answer would endanger the NPC.

+1 to +4 if the PCs offer a bribe. To be effective, a bribe must be appropriate in size; use the *Money Talks* rule for Contacts (p. 44), reading the bonus as a reaction modifier. It must also be *discreet*. Not everyone will take a cash payoff. You don't offer a newspaper reporter a $50 bill – he would be insulted – but buy him a good dinner and he'll appreciate it.

+2 to +4 if the NPC is a librarian, historian, scribe, teacher, etc. Most such people are naturally disposed to help any seeker of knowledge.

Loyalty

When the PCs hire someone, the GM should determine his loyalty. This determines only the NPC's *attitude* – not his competence. If the NPC is important, the GM should predetermine both his skills and his general attitude. Otherwise, a random roll is fine.

When the PCs take service with an employer, the GM should also determine (randomly or otherwise) how the employer feels about them.

Loyalty reactions are known to the GM, but not to the players (unless they successfully use Empathy). The GM should record each NPC's loyalty secretly, and let it guide him in determining all that NPC's later behavior. Note that loyalty can change; see *Changes in Loyalty* (p. 519).

Special Modifiers for Loyalty

+1 per 10% the PCs offer above the going pay rate.

-1 per 10% the PCs offer below the going pay rate.

+2 or more if the PCs are serving a cause that the NPC believes in, or a leader to whom the NPC is very loyal.

+ or - as appropriate for the PCs' reputation in the area (if any).

Glossary

Experienced gamers will recognize some of these terms – but ***GURPS*** uses several of them differently, and also coins a few of its own. See also *Glossary of Magical Terms* (p. 234), *Glossary of Psi Terminology* (p. 254), and *Glossary of Arms and Armor* (p. 268).

active defense: An active attempt to avoid an attack: a block, dodge, or parry. See p. 374.

advantage: A useful trait that gives you an "edge" over another person with comparable attributes and skills. See Chapter 2.

adventure: The basic "unit" of play in a roleplaying game, representing a single mission or plot. It might require several sessions of play, or just one play session. See p. 500.

Adversary: An "assistant GM" who plays "enemy" non-player characters. The Adversary knows only as much about the game world and the player characters as the GM tells him. See p. 493.

affliction: A debilitating or incapacitating condition (choking, paralysis, unconsciousness, etc.), most often caused by a non-damaging attack. See p. 428.

armor divisor: A rating of an attack's armor-defeating power, given in parentheses after its damage dice. Divide Damage Resistance by this number before you subtract it from basic damage to find penetrating damage. See p. 378.

Associated NPC: A non-player character linked to a player character by an advantage (Ally or Patron) or disadvantage (Dependent or Enemy). See p. 31.

attack roll: A success roll against a combat skill to see if you can hit your target. See p. 369.

attributes: The most basic traits that describe a character: Strength (ST), Dexterity (DX), Intelligence (IQ), and Health (HT). For all four, the human norm is a score of 10, and higher is better! See p. 14.

base skill: Your actual learned level in a skill – the number recorded on your character sheet – before any modifiers. See p. 171.

basic damage: The result of a damage roll, before accounting for the target's Damage Resistance. See p. 378.

Basic Lift (BL): The weight you can pick up in one hand in one second in combat. All carrying, lifting, and throwing capacities are multiples of Basic Lift. See p. 15.

Basic Move: A secondary characteristic, computed from Basic Speed, which rates ground speed (in yards per second) without encumbrance. See p. 17.

Basic Speed: A secondary characteristic, computed from HT and DX, which measures reflexes. See p. 17.

BL: See *Basic Lift*.

block: The active defense of interposing your shield or cloak to stop an attack. See p. 375.

bonus points: Character points awarded by the GM as a reward for good roleplaying or for advancing the mission. You can use these to add or improve beneficial traits, or to buy off disadvantages. See p. 498.

build: Your height and weight, along with associated traits such as Size Modifier. See p. 18.

buy off: To spend bonus points to get rid of a disadvantage. See p. 121.

campaign: A continuing series of adventures. A campaign will usually have a continuing cast of player characters, and the same GM (or team of GMs). It may move from one game world to another, with a logical reason. See p. 504.

character: Any being – person, animal, robot, etc. – played by the GM, the Adversary, or a player. See Chapter 1.

character points: The unit of "currency" spent to buy traits for a character. The more points you have, the more capable you are. Point costs often appear in brackets; e.g., "Combat Reflexes [15]" means Combat Reflexes costs 15 points. See p. 10.

character sheet: A written description (possibly including a picture) of a character, including a complete list of his traits and their point costs. See p. 13.

character story: The fictional life history of a character, invented by the person playing that character. See p. 11.

character template: A list of traits the GM feels a character should have to fill a specific role in the campaign. This is a "quick reference," not a strict requirement. See p. 258.

cinematic: A style of play where the needs of the story always outweigh those of realism, even when this would produce improbable results. See p. 488.

close combat: Combat between fighters less than one yard apart. See p. 391.

comprehension level: A measure of your command of a language. Your spoken ability (fluency) and written ability (literacy) may differ. See p. 24.

Contest: A competition between two characters in which each tries to make his success roll, to see who gets the better of the other. See p. 348.

Control Rating (CR): A general measure of governmental control in a society: the higher the CR, the more restrictive the society. See p. 506.

controlling attribute: The attribute most closely associated with a skill, used to calculate your base skill level. See p. 167.

CR: See *Control Rating*.

critical failure: A skill roll missed so badly that something disastrous happens to the character who tried the roll. See p. 348.

critical hit: A blow so well struck that the foe does not get to make a defense roll. It may also do special and unusual damage. See p. 381.

critical miss: An attack that fails so badly that the attacker is hurt, drops his weapon, etc. See p. 382.

critical success: A skill roll that succeeds so well that the character has an extra or unusual degree of success. See p. 347.

d: Short for "dice," which are always ordinary six-sided dice. "3d" means "roll three dice and add them up." See p. 9.

Damage Resistance (DR): The protection against damage afforded by skin, armor, force fields, etc. When an attack hits a target, subtract the target's DR from the damage roll. See p. 46.

damage roll: A die roll made to see how much damage you do when you hit with your weapon. Damage is measured in "dice plus adds." For a "3d+2" weapon, roll 3 dice and add 2 to the total. Higher is better (for the attacker!). See p. 378.

damage type: The *kind* of injury a weapon causes, which determines its wounding modifier. See p. 269.

default: Your level with a skill on which you have spent no points. This is usually equal to one of your four attributes or another skill, minus a significant penalty. See p. 173.

Defense Bonus: A bonus to all defense rolls. The most common Defense Bonus is that for carrying a shield. See p. 374.

defense roll: A die roll made after your foe's attack roll succeeds, to see if you can use an active defense to avoid being hit. See p. 374.

Dexterity (DX): A measure of a character's agility and coordination. See p. 15.

disadvantage: A problem that renders you less capable than your other traits would suggest. See Chapter 3.

disadvantage limit: The maximum number of extra character points you can claim from all traits with negative point costs. The GM sets this value, if he wishes. See p. 11.

dodge: The active defense of ducking or evading an attack. See p. 374.

DR: See *Damage Resistance.*

DX: See *Dexterity.*

earned points: Same as *bonus points.*

effective skill: Your base skill plus or minus any modifiers for the task at hand. See p. 171.

encounter: One "scene" of an adventure, usually a meeting between the PCs and one or more NPCs. See p. 502.

encumbrance: The weight of all objects you are carrying. The greater your encumbrance, the slower your movement will be. See p. 17.

enhancement: An extra capability added to a trait. This increases the point cost of the trait by a percentage. See p. 102.

extra effort: Pushing your physical abilities beyond their usual limits by spending FP. See p. 356.

Fatigue Points (FP): A secondary characteristic, computed from HT, which measures resistance to exhaustion. Strenuous activity and the use of some special abilities "cost" FP temporarily. See p. 16.

feature: A trait (usually racial) that can affect game play but that costs 0 points. See p. 260.

FP: See *Fatigue Points.*

Fright Check: A Will roll made to see how you react in a frightening situation. See p. 360.

Game Master (GM): The referee, who chooses the adventure, talks the players through it, judges the results, and gives out bonus points. See Chapter 18.

game time: Time that passes in the game world. See p. 497.

game world: A background for play; a setting. "World" might mean "planet," but it could also refer to a region and historical period . . . or an entire universe. See Chapter 19.

GM: See *Game Master.*

Health (HT): A measure of a character's energy and vitality. See p. 15.

hex: A hexagonal space on a game map. Different maps have different scales. A hex on a combat map is one yard across. See p. 384.

Hit Points (HP): A secondary characteristic, computed from ST, which rates a character's ability to absorb punishment. Physical threats such as accidents, attacks, and hazards can temporarily deplete HP. See p. 16.

HP: See *Hit Points.*

HT: See *Health*.

Influence roll: A Contest of skill against Will made to see if a character is affected by an Influence skill. Reaction modifiers always apply to Influence rolls. See p. 359.

Influence skill: A skill used to influence others: Diplomacy, Fast-Talk, Intimidation, Savoir-Faire, Sex Appeal, or Streetwise. See p. 494.

injury: Temporary Hit Point loss due to an attack, found by subtracting the target's Damage Resistance from the attack's basic damage and modifying the resulting penetrating damage for damage type. See p. 419.

Intelligence (IQ): A broad measure of a character's brainpower. See p. 15.

IQ: See *Intelligence.*

job roll: A monthly success roll made to determine your performance at a job. See p. 516.

LC: See *Legality Class.*

Legality Class (LC): A statistic that rates society's willingness to allow easy access to a piece of equipment. The lower an item's LC, the more likely it is controlled or illegal. See p. 267.

life history: Same as *character story.*

limitation: A restriction on the use of a trait. This reduces the point cost of the trait by a percentage. See p. 110.

major wound: A single injury equal to half the target's HP or more. See p. 420.

maneuver: An action you may choose on your turn in combat, such as Attack, Change Posture, or Feint. See p. 363.

margin of failure: The amount by which you overshoot your effective skill on a failed success roll. See p. 347.

margin of success: The amount by which you beat your effective skill on a successful success roll. See p. 347.

margin of victory: A numerical comparison of the winner's margin of success or failure to the loser's in a Contest. See p. 348.

melee combat: Combat with melee weapons (axes, swords, etc.) or bare hands. See p. 369.

melee weapon: A (usually) muscle-powered weapon held in the hand and used to strike the foe directly; e.g., an axe. The opposite of *ranged weapon.* See p. 271.

mental trait: A trait associated with your mind, and that will come with you should you move to a new body. See p. 32.

meta-trait: A single trait that is actually shorthand for a collection of traits that represent one simple concept. *Example:* Machine. See p. 262.

modifier: 1. A number added to or subtracted from the target number of a success roll – or the actual die roll, for a reaction roll – in order to allow for a specific situation. See p. 344. **2.** An enhancement or a limitation. See p. 101.

Move: Movement speed in yards per second. Find ground Move by modifying Basic Move for your encumbrance level. See p. 17.

nonplayer character (NPC): Any character played by the GM or the Adversary. See p. 493.

NPC: See *nonplayer character.*

parry: The active defense of using a hand or a weapon to ward off an attack. See p. 376.

party: A group of PCs taking part in the same adventure. See p. 8.

PC: See *player character.*

penetrating damage: The amount by which an attack's damage roll exceeds the target's Damage Resistance. Find this by subtracting the target's DR from basic damage. If DR is greater than the damage roll, penetrating damage is 0. See p. 379.

Perception (Per): A secondary characteristic, computed from IQ, which rates general alertness. See p. 16.

perk: A 1-point advantage. See p. 100.

physical trait: A trait associated with your body, and that you will leave behind if you switch bodies. See p. 32.

player: A gamer who plays the role of a character participating in adventures refereed by the Game Master (GM). See p. 7.

player character (PC): A character created and played by one of the players. See p. 7.

points: See *character points.*

posture: Your bodily profile in combat: standing, crouching, kneeling, sitting, prone, or lying down. See p. 364.

power level: The average point total of the PCs in a campaign. See p. 487.

prerequisite: A trait you must have in order to buy some other trait. If the prerequisite is a skill, you must have at least one point in it. See p. 169.

quirk: A -1-point trait taken to flesh out a character. It is not necessarily a disadvantage. See p. 162.

racial template: A package of traits that all characters of a given race must purchase. See p. 260.

ranged weapon: A thrown or missile weapon; a weapon used at a distance. See p. 372.

reaction modifier: A penalty or bonus to reaction rolls. A bonus means you are especially likeable; a penalty means you are disreputable, obnoxious, unattractive, etc. See p. 494.

reaction roll: A die roll made by the GM to determine an NPC's reaction to a request or proposal made by the PCs. Higher is better. See p. 494.

real time: The time that passes in the real world, as opposed to *game time*. See p. 497.

relative skill level: The difference between the base skill level and controlling attribute for a skill. For example, if you had DX 12 and a DX-based skill at 14, your relative skill level would be +2. See p. 171.

repeated attempt: The second or later attempt at a success roll, after a failed initial attempt. Often subject to special penalties. See p. 348.

resistance roll: A Contest of skill against Will or HT, made to see if a character is affected by a supernatural ability such as magical mind control. See p. 241.

roleplaying game: A game in which players take on the personalities of imaginary individuals, or *characters*, in a fictional or historical setting, and try to act as those characters would. See p. 7.

sapient: Capable of possessing Languages and learning technological skills. This requires IQ 6+. See p. 15.

scenario: Same as *adventure*.

score: The numerical value of an attribute, secondary characteristic, or skill.

secondary characteristics: Several statistics determined from basic attributes: Damage (Dmg), Basic Lift (BL), Hit Points (HP), Will, Perception (Per), Fatigue Points (FP), Basic Speed, and Basic Move. See p. 15.

self-control roll: A roll to resist one of your mental disadvantages. Roll against the self-control number of the disadvantage. Lower is better. See p. 120.

self-imposed mental disadvantage: A mental disadvantage that comes from a belief or an honor code as opposed to a mental defect. See p. 121.

Sense roll: A success roll against Perception, made to see whether you notice something with one of your senses. See p. 358.

setting: Same as *game world*.

Size Modifier (SM): A numerical index of size, used as a modifier to rolls to see you or to hit you in combat, among other things. See p. 19.

skill: A number defining your trained ability in one specific area of knowledge or narrow class of tasks. See Chapter 4.

SM: See *Size Modifier*.

social trait: A trait associated with your identity. Identity might be primarily physical or mental, depending on the setting. See p. 32.

sourcebook: A game supplement that contains information that is not associated with any particular setting; for instance, a catalog of statistics for animals, vehicles, or weapons, or a collection of additional rules for magic, psionics, or martial arts.

specialty: A narrow focus within a skill. Some skills require you to pick a specialty; others leave this optional. See p. 169.

ST: See *Strength*.

starting points: The number of character points the GM gives the players to build their characters with at the start of the campaign. See p. 10.

starting wealth: The amount of discretionary cash a PC has available at the start of the campaign. See p. 26.

statistics: The numerical values that describe a character, piece of equipment, etc., taken collectively. Often called "stats."

step: A small amount of movement (1 yard, for most humans) allowed as part of a combat maneuver. It can come before or after the action portion of the maneuver. See p. 368.

Strength (ST): A measure of a character's physical muscle and bulk. See p. 14.

stun: The result of an enemy blow, surprise, or a failed Fright Check. A stunned character defends at -4, and cannot initiate any action until he recovers. See p. 420.

success roll: A die roll (on 3 six-sided dice) made whenever a character attempts to do something, to determine whether he succeeds. Lower is better. See Chapter 10.

super: A comic-book style hero or villain with superhuman powers.

supplement: Anything designed to add to the basic ***GURPS*** rules. The most common types are *sourcebooks* and *worldbooks*. See p. 566.

tactical combat: Combat played out with figures on a map. See Chapter 12.

tech level: See *technology level*.

technique: A trait that represents training at one specific task covered by a skill. See p. 229.

technological skill: Any skill that has a tech level (marked "/TL") and that takes a penalty when used with the equipment or ideas of a different tech level. See p. 168.

Technology Level (TL): A number indicating a society's technological sophistication: the higher the TL, the more advanced the society. Used to describe characters, equipment, and skills native to that technological era. See p. 22.

template: A partially completed character sheet that contains all the traits needed to play a role (*character template*) or a member of a given race (*racial template*). See Chapter 7.

TL: See *Technology Level*.

trait: A character "building block" that affects game play and costs character points to add, modify, or remove. Includes attributes, secondary characteristics, advantages, disadvantages, quirks, skills, and techniques. See p. 13.

turn: One second of combat action by a specific character. It starts when he picks a maneuver and ends when he picks his next maneuver. It overlaps the turns of other combatants, but it is not entirely simultaneous with them. See p. 362.

wealth level: A description of a character's financial situation. Positive wealth levels are an advantage, and increase starting wealth; negative wealth levels are a disadvantage, and reduce starting wealth. See p. 25.

Will: A secondary characteristic, computed from IQ, which measures resistance to fear, stress, social pressure, and supernatural powers. See p. 16.

Will roll: A success roll against Will, made to determine whether a character has the "willpower" to do (or not do) something. See p. 360.

worldbook: A game supplement that gives a detailed background for a particular game world, along with rules for the special situations, abilities, hazards, rewards, etc., found there.

wounding modifier: A conversion factor between penetrating damage and actual injury. This depends on damage type, and also on the nature of the target. See p. 379.

Ludography

With so many supplements already in print for the first three editions of ***GURPS,*** there's lots of support material available to jump-start your game. The following books are still in print and easy to use with ***GURPS Fourth Edition***. The descriptive material, of course, is usable as is. Rules adaptation will be minor . . . e.g., recalculating point totals and changing the names of some abilities.

Sourcebooks

"Sourcebook" supplements are not associated with particular game worlds. They provide support material that the GM can mix and match in almost *any* campaign.

Atomic Horror. B-movie "reality" of the 1950s: commie spies, giant ants, and bug-eyed aliens.

Best Of Pyramid 1 and ***Best Of Pyramid 2.*** Digests of selected ***GURPS*** articles from SJ Games' *Pyramid* magazine.

Cliffhangers. Two-fisted heroism in the spirit of 1920s and '30s pulp fiction.

Cops. Police adventure of all kinds, from no-nonsense procedurals to the excesses of action movies.

Covert Ops. Secret wars – whether they involve commandos, criminals, spies, or terrorists.

Horror. Terrifying tales, supernatural suspense, and gory splatter.

Illuminati. How to run a conspiracy campaign: high weirdness, Men in Black, and Secret Masters.

Magic Items 1, Magic Items 2, and ***Magic Items 3.*** Treasuries of magical artifacts.

Space. Adventures in space, from "hard" science fiction to "ray gun and cutlass" space opera.

Special Ops. Hard-core military action involving elite troops.

Steampunk. Historical science fiction in the spirit of Verne and Wells, with steam-powered difference engines and giant airships. The ***Screampunk*** supplement gives advice on adding in horror elements. ***Steam-Tech*** is a catalog of steampunk gear; the game stats will require some conversion, but the ideas behind the items are usable as is.

Transhuman Space. Optimistic future history where biotechnology, cybernetics, and nanotechnology redefine "human" and make it possible to colonize the solar system. Ten supplements flesh out the setting; all but ***Personnel Files*** and ***Spacecraft of the Solar System*** should be usable in ***GURPS Fourth Edition*** with very little trouble.

Warehouse 23. Warehouse of *weird* items, from UFOs to the Spear of Destiny.

Worldbooks

A "worldbook" presents one particular game world in detail. It gives extensive advice on how to run a campaign there, recommends suitable characters, and includes rules for setting-specific abilities, artifacts, creatures, and so on.

Players of Infinite Worlds, ***GURPS Fourth Edition's*** official setting, will find these books extremely valuable. The historical worldbooks can be used as guides to "echo" timelines, and the others provide more-fantastic parallel worlds.

Age of Napoleon. The world, especially Europe, during the life and times of Napoleon Bonaparte (1769-1821).

Alternate Earths and ***Alternate Earths 2.*** Samplers of "what if" worlds, split off from Earth's actual timeline. Highly recommended for Infinite Worlds games.

Arabian Nights. The Islamic Middle East of the seventh through 13th centuries.

Cabal. Horror-conspiracy setting in which the Earth – in fact, the entire *universe* – is controlled by a secret alliance of powerful wizards and demigods.

Celtic Myth. Britain and Ireland, from prehistory up to the fifth century, with special emphasis on folklore and myth.

Egypt. Ancient Egypt, from prehistory to the end of the Ptolemaic Period (30 B.C.).

Goblins. Twisted, humorous version of Georgian England populated by deformed (and mostly insane) goblins.

Greece. The Heroic Age (1600 B.C.-1150 B.C.) and Classical Age (800 B.C.-323 B.C.) of ancient Greece.

Imperial Rome. Rome during the Republic (509 B.C.-28 B.C.) and Empire (27 B.C.-476 A.D.).

In Nomine. Adaptation of SJ Games' ***In Nomine*** RPG. The PCs are angels and demons involved in the struggle between Heaven and Hell.

IOU. *Anything* goes at Illuminati University, as long as it's weird. The only entrance requirement is your sense of humor!

Mars. The planet Mars, in reality and as it appears in speculative fiction.

Middle Ages 1. England, 410-1485: the end of Roman rule to the death of Richard III.

Old West. The 19th-century American West. Cowboys, Indians, frontiersmen, and the Gold Rush.

Vikings. Scandinavia during the "Viking Age" of the eighth through 11th centuries.

WWII. A detailed and self-contained World War II game setting. Has several supplements which cover the nations, technology, and militaries of WWII; of special note for Infinite Worlds games is ***Weird War II.***

Y2K. An anthology of late 20th-century fatalism by noted ***GURPS*** authors.

Licenses

These worldbooks are based on popular books, films, or other games. They can be used for standalone ***GURPS*** campaigns, for ***Infinite Worlds*** crossovers, or as source material for fans of the original property.

Alpha Centauri. Adaptation of *Sid Meier's Alpha Centauri,* a computer game from Electronic Arts Inc. "Transhuman" science fiction set on an alien world.

Blue Planet. Futuristic adventure on an alien water world. Adapted from the Fantasy Flight Games RPG.

Castle Falkenstein. A world of steampunk and sorcery. Adapted from the R. Talsorian Games RPG. Supported by a supplement on the Near East, ***The Ottoman Empire.*** Easily usable with Infinite Worlds.

Discworld Roleplaying Game. Based on the humorous fantasy of Terry Pratchett. Supported by ***Discworld Also.***

Hellboy Sourcebook and Roleplaying Game. Based on Mike Mignola's *Hellboy* comics. Defend the Earth from paranormal threats and evil Nazis! Prime material for an Infinite Worlds game.

Traveller. The ***GURPS*** version of the classic Game Designers' Workshop RPG. Space adventure at its finest! There are dozens of supplements; see our website for a list. ***GURPS Traveller: The Interstellar Wars*** will include ***GURPS Fourth Edition*** rules for the ***Traveller*** setting.

Lensman. Space opera on a galactic scale, set in the starkly astounding world of E.E. "Doc" Smith's Lensman novels.

Myth. High-powered fantasy in a world of never-ending conflict. Adapted from the *Myth* and *Myth II* computer games, from Bungie Software Products Corporation.

New Sun. Dark fantasy . . . in a futuristic world. Based on the award-winning novels of Gene Wolfe.

Planet of Adventure. Based on the works of Jack Vance. Classic science-fiction adventure on the planet Tschai.

Uplift. Far-future space adventure in the universe of David Brin's Uplift series.

Campaign Planning Form

GM: _____ Date: _____

Campaign name: _____ Starting year: _____ Rate game time passes: _____
Genre: _____ Realistic or cinematic? _____ Are there multiple planes of existence? _____
General theme of campaign: _____

Campaign Background

Campaign's base city, nation, empire, or planet: _____ (Suggestion: provide a map.)
Society/government type: _____ Control Rating: _____ Exceptions to general CR: _____
Tech level: _____ Exceptions to general TL: _____
Brief description of important neighboring powers, political/economic situation, etc.: _____
_____
Suggested or required reading for players: _____

Information for PCs

Starting point value allowed for PCs: _____ Disadvantage limit: _____
Especially useful/useless character types: _____
_____ (Suggestion: provide character templates.)
Especially appropriate/inappropriate professions: _____
_____ (Suggestion: provide job descriptions.)
PC races allowed: _____ (Suggestion: provide racial templates.)
Starting wealth: _____ Starting Wealth levels allowed: _____
Starting Status levels allowed: _____ Starting TLs allowed: _____
Languages available: _____
Cultural Familiarities available: _____
Required advantages, disadvantages, and skills: _____
Especially *appropriate* or *inappropriate* advantages, disadvantages, and skills: _____
_____
_____
Appropriate Patrons (and base value): _____
Appropriate Enemies (and base value): _____

Special Abilities Allowed for PCs

- Exotic/supernatural traits: _____
_____
- Cinematic skills: _____
_____
- Are PC mages allowed? _____ General mana level: _____ Do areas of higher/lower mana exist? _____
  Are any of the spells from Chapter 5 off limits? _____
- Are PC psis allowed? _____ Are any of the powers from Chapter 6 off limits? _____
- Are PC gadgeteers allowed? _____ Are there special limits on gadgeteering? _____
- Unusual Background cost(s) for these abilities: _____
- Legal or social restrictions on these abilities: _____

Other Notes

Book 1 optional rules or variants (advantages, disadvantages, skills, etc.): _____
_____
_____
Book 2 optional rules or variants (success rolls, combat, injury, etc.): _____
_____
_____

*This form, those on the following pages, the Character Sheet, and other **GURPS** forms and support material may also be downloaded at* **www.sjgames.com/gurps/resources/.**

GM Control Sheet

Character Name and Player	Reaction + or -	ST DX IQ HT	Will Per	Basic Speed Move	DR	HP Current HP

SPECIAL ABILITIES

Character	Abilities

REQUIRED ROLLS

Character	Roll	To Avoid

Name: _____ Reaction +/-: _____ Point Total: _____
Appearance: _____ Advantages, Disadvantages, Quirks: _____

_____ **ST** HP: _____ _____
_____ **DX** Basic Damage
_____ **IQ** *Thrust*: _____
_____ **HT** *Swing*: _____
FP: _____ _____
Will _____ Per _____
Basic Speed: _____ Move: _____
Encumbrance: _____
Dodge: ____ Parry: ____ Block: ____
Shield DB ____ Size Modifier ____

Skills: _____

Weapon Statistics: _____

	Head	Torso	Arms	Hands	Legs	Feet
DR						

NPC Record Card

To make it easy to keep track of NPCs, all necessary data can be kept on a 3" × 5" card. A box-ful of foes is easy to use; you can even use a paper clip to fasten the appropriate ***Cardboard Heroes*** figure to each card.

Name: Dai Blackthorn Reaction +/-: 0, usually Point Total: 250
Appearance: Short; Honest face Advantages, Disadvantages, Quirks:
Absolute Direction, Danger Sense, Flexibility, Perfect Balance, Warp; Overconfidence (12), Sense of Duty; Dislikes deep water (quirk)

8 **ST** HP: 10 _____
15 **DX** Basic Damage
12 **IQ** *Thrust*: 1d-3
12 **HT** *Swing*: 1d-2
FP: 10 _____
Will 12 Per 15
Basic Speed: 7.00 Move: 7
Encumbrance: None (0)
Dodge: 10 Parry: 10 Block: N/A
Shield DB N/A Size Modifier 0

Skills:
Acrobatics-15, Body Sense-16, Fast-Draw (Knife)-15, Guns (Pistol)-15, Knife-17, Shortsword-15, Thrown Weapon (Knife)-17

Weapon Statistics:
Fine Large Knife: 1d-3 cut/1d-2 imp (thrown: 1d-2 imp, Acc 0, Range 6/12, Bulk -2)
Holdout Pistol: 2d pi, Acc 1, Range 125/1,500, RoF 3, Shots 5+1(3), Bulk -1, Rcl 3

	Head	Torso	Arms	Hands	Legs	Feet
DR	0	0	0	0	0	0

Time Use Sheet

Character _____ Played by _____
Period of time covered _____

Time use:

Sleep: 56 hrs/week (+/-7 per level of Extra/Less Sleep)	
Meals, personal care, etc	20
Job: time spent depends on job (if unsure, assume 40 hrs)	
Travel (depends on adventure and situation)	
Religious observances, etc	
Entertainment	
Study of _____ skill	*
Study of _____ skill	*
Study of _____ skill	*
Study of _____ skill	*
Study of _____ skill	*
Study of _____ skill	*
Long Task: _____	
Long Task: _____	
Long Task: _____	
TOTAL: per week	168 hours

Automatic Cultural Familiarity and Language study: If you are in a foreign land and interacting with the locals in day-to-day life, you can claim an automatic 4 hours per day toward both the local Language and Cultural Familiarity with the local culture (see p. 23).
Hours of automatic Cultural Familiarity study (4/day): _____
Hours of automatic Language study (4/day): _____

Automatic study on the job: If your job involves a skill (and most do) you can count ¼ of the time spent on the job as "study." This time may be split between multiple, job-related skills.
Hours of automatic job study (¼ time spent at work): _____

Study bonuses for magical intervention, mechanical education, etc.:
Skill: _____ Study equivalent (hours): _____
Skill: _____ Study equivalent (hours): _____
Skill: _____ Study equivalent (hours): _____
Skill: _____ Study equivalent (hours): _____

Other notes:

* Every 2 hours of self-teaching, 1 hour of education, or 0.5 hour of intensive training counts as 1 hour toward learning the skill.

Purchaser may copy this form for personal use only.

INDEX

This index covers both books of the ***Basic Set***. The pages are sequentially numbered; Book 2 starts on p. 337.

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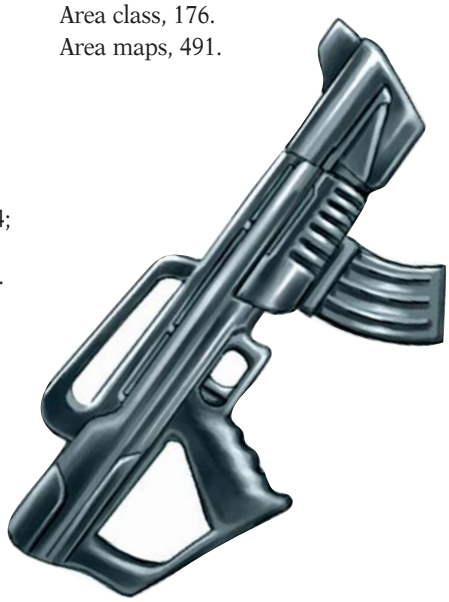

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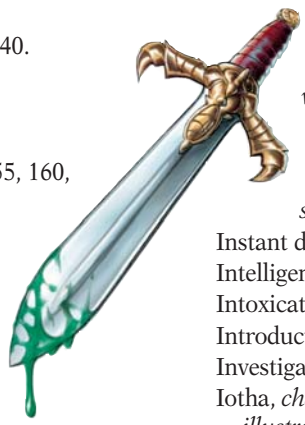

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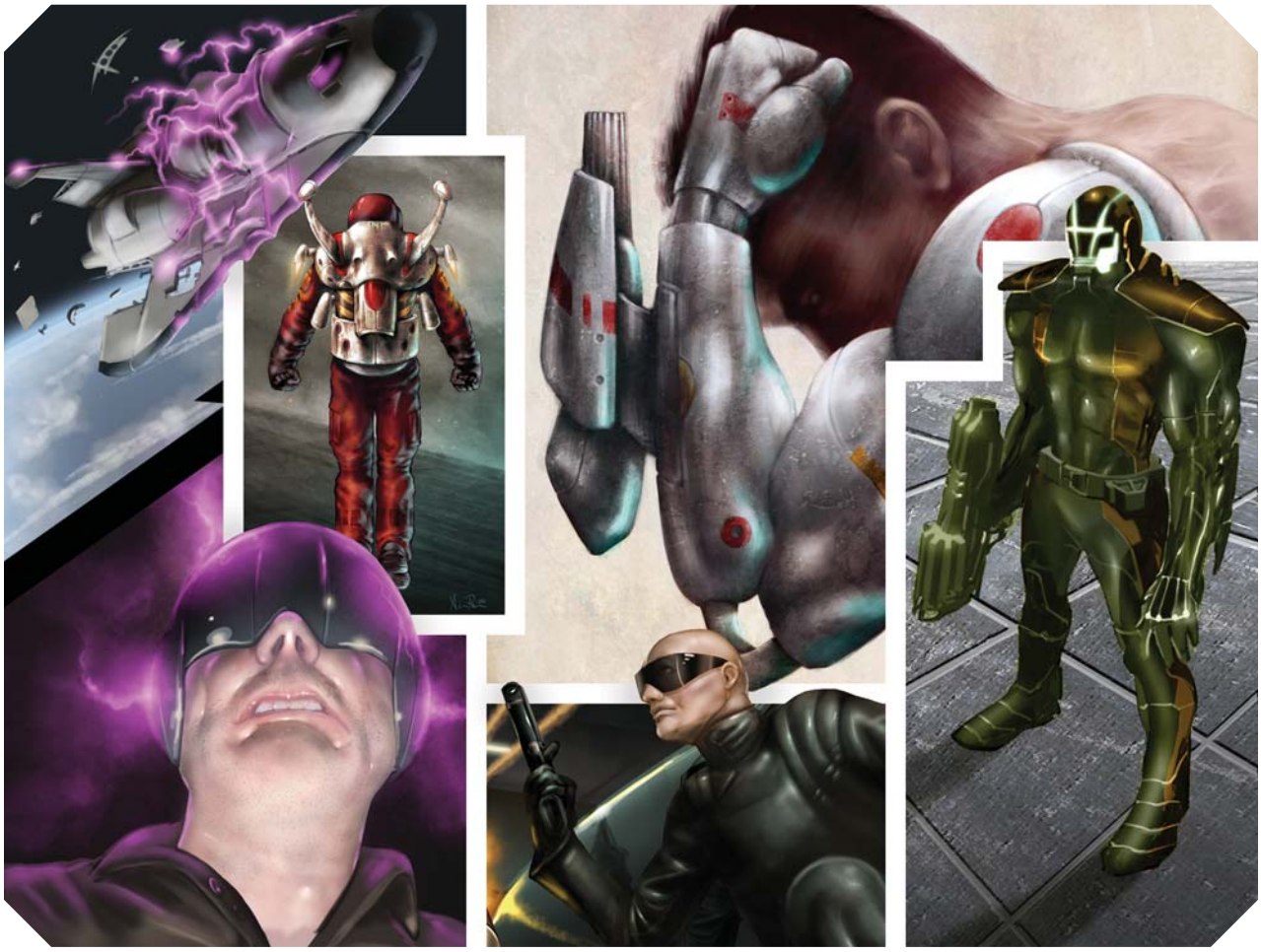

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Introduction

GURPS Ultra-Tech is a sourcebook of science-fiction gadgets and weapons. It's a resource for space, alternate future, techno-thriller, cyberpunk, or supers games – any setting that requires technology from tomorrow and beyond.

The equipment described within spans the "future" tech levels from TL9 (a few decades from now) to TL12 (the age of miracles). The emphasis is on personal gear of all sorts, from hyperspectral goggles and neutrino communicators to gamma-ray laser rifles and dreadnought battlesuits. ***Ultra-Tech*** also provides plenty of details on future medicine, but since ***GURPS Bio-Tech*** covered genetics, biomods, and drugs, this book emphasizes hard tech – cybernetics, ultra-tech medical equipment, neural interfaces, and mind uploading. As technology advances, the line between man and machine may become increasingly blurred. ***Ultra-Tech*** provides rules for establishing the capabilities and limitations of artificial intelligence, as well as templates for robotic or total cyborg bodies, from handy technical 'bots to shapeshifting nanomorphs.

Ultra-Tech is a catalog for players, and a resource for the GM. Ultra-technology can propel adventures into action, add color and atmosphere to a science-fiction setting, serve as the object of a quest, or power a villain's sinister design. There's no need to make every gadget in this book available at once – that can be overwhelming! It's up to the Game Master to decide exactly what gear to use . . . but to help out, we've provided a chapter of suggestions on integrating equipment into the game and establishing alternative technology paths so that the technology fits the campaign.

Publication History

This is the third edition of ***GURPS Ultra-Tech***; it has been revised to the ***GURPS*** *Fourth Edition* rules. The oldest material included here dates back to the three chapters of equipment in the first edition of ***GURPS Space*** (by Steve Jackson and William A. Barton). This material was incorporated into ***GURPS Ultra-Tech*** (by David Pulver). ***GURPS Ultra-Tech 2*** added more gadgets, including some adapted from ***GURPS Cyberpunk*** (by Loyd Blankenship). Material in the present edition was also inspired by technology in ***GURPS Psionics, GURPS Robots***, and ***Transhuman Space***.

About the Authors

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About *GURPS*

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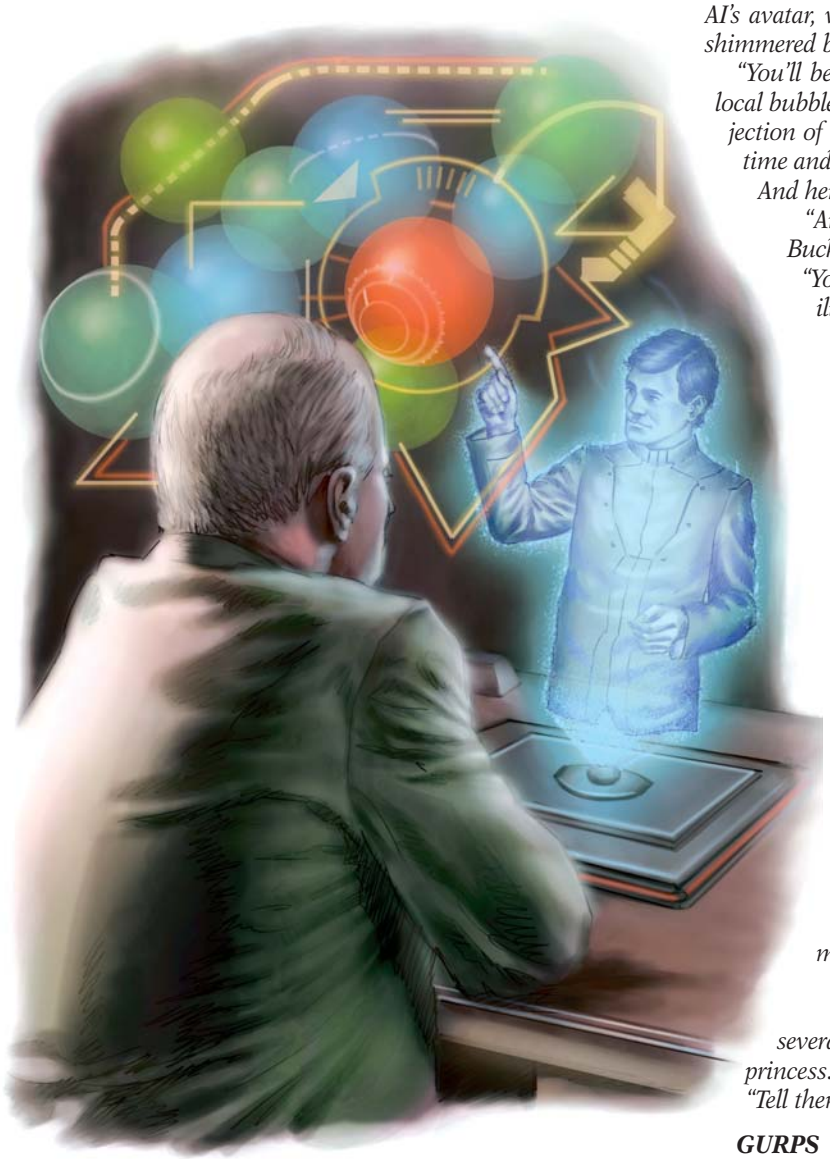
Rules and statistics in this book are specifically for the ***GURPS Basic Set,*** *Fourth Edition.* Page references that begin with B refer to that book, not this one.

Chapter One
Ultra-Technology

The trouble with commanding the Imperial Secret Service's clandestine Galactic Operations Directorate, Colonel Erasmus reflected, was that whenever you had an unexpected caller, it was always bad news.



Today's visitor was Merlin, the AI who ran the psychohistory division. It didn't waste any time.

"I have some very bad news," said the Artificial Intelligence.

Colonel Erasmus forced a smile. "Of course you do." The AI's avatar, who seemed to get younger each time they met, shimmered before his desk. "I'm a little busy."

"You'll be busier. We have an evolving singularity in the local bubble." Merlin waved a hand, and a holographic projection of the Terran Sector materialized, extending across time and space. "Observe. The Bubble client states – here. And here . . ."

"An expansionist threat from the Thearchy of Buckminister?" Erasmus shook his head in disbelief. "You've fried a circuit, Merlin. They're a safe-tech civilization, steadily regressing to retro-tech. If they invade, it'll be the Ludenburg Star Empire all over again." He smiled wistfully. "Infantry with auto-rifles and steel helmets, pouring out of hyperdrive ships . . . I even saw some horse cavalry. It was almost fun."

"This won't be. Your data is obsolete, Erasmus. The new synod's given its backing to the Accelerationist faction in the clergy – scientific progress now glorifies the Creator. I've plotted their cultural dynamism. Take a look at this."

Holographic equations appeared, hanging in the air. It had been a while since Erasmus had taken techno-sociology, but he could still decipher them. "A radical superscience culture in 40 years?"

"So I predict. They're got their own AIs now. Last month, they began experimenting with nanotechnology. Combine that with their existing FTL technology . . ."

"Apocalypse now. I get it. Unfortunately, all my operatives are a little busy."

"Anything important?"

"Preventing a nuclear war. Tracking down several grams of stolen antimatter. Finding a missing princess. The daily grind. I expect results soon."

"Tell them to hurry."

GURPS Ultra-Tech is a catalog of technologies and equipment from TL9 (extrapolations of existing developments) to TL12 (devices that verge on the miraculous). This chapter provides general background and rules for ultra-technology, along with guidelines for adjusting the availability of equipment in a campaign.

Ages of Technology

The following is an overview of a typical sequence for the development of ultra-technology.

TL9 – The Microtech Age

Major advances occur in the material science, especially in the fabrication of nano-scale materials, the development of composite materials, and in polymer-based electronics. This leads to the widespread use of devices such as printed computers, flexible batteries, and bio-compatible implants, as well as products such as video wallpaper and chameleon suits.

Micro-mechanical electromagnetic systems – tiny sensors and actuators – drastically shrink many electronic and mechanical devices. The results are dramatic, ranging from vehicle surfaces that can change their aerodynamic properties to labs-on-a-chip and artificial gills.

Fuel cells and gas turbines are miniaturized and used as power cells for electronics and other portable devices. On a larger scale, nuclear fusion and solar power free society from dependency on fossil fuels, although they may remain economically important.

Computers, sensors, and communicators are faster, smarter, and smaller, and can be built into almost anything. Wearable computers are inexpensive.

Quantum computers can solve problems and break encryption by computing every possible solution at once, but quantum communication systems trump that with unbreakable encryption. Neural interfaces link mind and machine, and cybernetic implants do not merely replace injured body parts, but actually enhance them.

Mobile robots are commonplace, used in everything from nursing to vehicle operation to combat. However, they lack self-initiative, and many are teleoperated. Androids that can look human (even if they don't act human) are expensive but available.

Improvements in material technology lead to affordable space transport systems, such as single-stage-to-orbit shuttles or space elevators. Cheaper access to orbit may boost other space technology, such as nuclear engines for interplanetary journeys, beamed power from solar satellites, and life support technology. Industry and even colonists may go into space, taking advantage of the gravity-free environment to mine asteroids or develop better industrial processes.

Small arms technology still relies on conventional guns (with improved ammunition and smart electronics) but specialized non-lethal energy weapons such as electro-lasers and sonic nauseators appear. So do the first bulky laser sniper rifles, heavy electromagnetic railguns, and laser cannon.

Antimatter is now routinely manufactured. It's used in medicine (as a radiation source) but is too expensive to be used as a fuel or explosive. It is still useful in space propulsion and weaponry, as a catalyst for triggering "clean" nuclear explosions. Mini-nukes increase the risk of nuclear war by blurring the boundaries between conventional and nuclear arms.

Body armor advances even more rapidly than weapons. Comfortable climate-controlled suits can protect the entire body, and space suits become lightweight vacc suits. Advances in micro-turbines and robotics make powered suits feasible, both exoskeletons (for civilian and military applications) and battlesuits.

Perhaps the most significant developments are in bioscience. Functional organs can be grown with tissue engineering and transplanted into the body. Wonder drugs and other treatments can be delivered in smart capsules. Not all diseases are cured, but lifespans may increase substantially.

Superscience: Monomolecular wire and plasma weaponry are developed. It's common for faster-than-light drives, parachronic travel, reactionless drives, or other superscience transport systems to appear. TL9 cultures can spread out rapidly to other worlds.

TL10 – The Robotic Age

Artificial intelligence becomes smarter and cheaper, and the first volitional AIs – machines that can think like people – appear. Inexpensive sapient machines are commonplace. Swarms of tiny microbots can be built, and biomechanical nanomachines can perform prodigious feats of medicine and genetic engineering.

People who can afford to take full advantage of TL10 medicine may live for centuries or more. As science gains a greater understanding of the human mind, more complex neuro-tech and cybernetics become available . . . it's possible to cybernetically possess bodies, control minds, and record sensory information.

Molecular nanotechnology is routinely used in manufacturing. Many products can be self-assembled "from the bottom up" using methods analogous to the way biological organisms grow. The tools used are biomechanical in nature, combining proteins and engineered viruses with metals and other inorganic materials. Bio-nanomachines construct most biotech products and are used in medicine and genetic engineering, but molecular manufacturing is still limited to making specialized components and products that can be assembled in "wet" environments. Macro-scale products using metals, semiconductors, diamond-hard materials, and ceramics still rely on "top down" manufacturing techniques.

One example of the new bio-nanotech products is pseudo-alive polymers that are capable of self-repair. These "living bio-plastics" make a range of tough, lightweight, and self-maintaining equipment possible.

Material and power generation technology continues to improve. Super-strong composite materials are relatively inexpensive. Weapons technology takes a quantum leap with the development of power cells that can power

effective man-portable electromagnetic guns and high-energy lasers, although conventional weapons may remain in use with smarter ammunition. Nuclear fusion reactors are small enough to power battle tanks and fighter-sized spacecraft.

Superscience: Gravity control technology leads to artificial gravity and contragravity being used in personal vehicles, houses, and weapons, as well as reactionless space drives. Nuclear dampers can neutralize the threat of nuclear weapons. New superscience weaponry becomes available, notably plasma guns and exotic sonic beams.

TL11 – The Age of Exotic Matter

Technology achieves precise control over the atomic structure of objects. A mature molecular nanotechnology is available, capable of inexpensively fabricating most products with atomic-level precision. Nanofactories (pp. 91-93) make products out of diamond-hard material ("diamondoid").

Not everything can be built in nanofactories, however. The most advanced TL11 products tinker with the subatomic structure of matter to create exotic materials. This may involve replacing electrons with super-massive particles (such as muons) to create hyperdense matter. Depending on its stability, this may be used as a catalyst for fusion reactions (resulting in more compact power plants), or as a component in computer hardware, armor, and other equipment.

Antimatter is another exotic material that comes of age at TL11. As its price of manufacture drops, it begins to see use as a means of compact energy storage. Antimatter rocket engines are also available.

A vast array of powerful beam weapons are now available, including portable particle beams (blasters) and X-ray lasers. In response, armor becomes stronger and smarter, and is usually made of diamondoid composites and exotic alloys. Most armor is powered, from skintight smartsuits to nuclear-powered dreadnought battlesuits.

Nanotechnology dominates medicine. The standard way to heal someone is to take him apart (using the chrysalis machine) and put him back together again in perfect condition. Minds can be copied without destroying the original body.

Superscience: Contragravity is miniaturized, resulting in personal flying belts and small, hyper-agile robot missiles. Force screen generators protect vehicles and installations, but are not yet suitable for personal use. Ranged gravity projectors are available, leading to tractor and pressor beams and gravitic weapons. Hypergravity technology can produce stabilized hyperdense armor and compact nuclear reactors. Matter transmission can teleport people from place to place, as long as there is hardware to send and receive. Superscience sensors can "scan" for just about anything, and even see through walls. Ranged neurotech devices such as dream nets and neural disruptors are introduced. Recorded minds can be played back into living bodies.

TL12 – The Age of Miracles

TL12 societies use their understanding of the universe to produce devices and effects that are incomprehensible to less advanced cultures. The TL11 advances in nanotechnology and exotic matter are fully integrated into civilization, along with new devices such as living metal, gamma-ray lasers, and self-replicating nanomachine swarms.

Simple pills can regenerate the body in a matter of hours, or grow new cybernetic implants a matter of days. Pocket antimatter reactors power vehicles, and spaceships and cities run on total conversion of mass to energy. Entire planets can be moved, or disassembled to build a shell around a star. Devastating personal weapons are developed, while nanomachines can directly imprint consciousness into human brains.

Most aspects of a TL12 civilization can be run by intelligent machines, and most people might *be* machines, whether wholly or in part. Sentient robots could reproduce themselves rapidly, spreading like a plague to terraform (or eat!) a planet in a matter of months, or build any industry that is required. Raw materials are easy to come by. While asteroid belts may be already used up, TL12 cultures can dismantle Jupiter-sized gas giants for parts.

Of course, if several TL12 nations existed in the same area and no one wanted to leave, they would soon run out of gas giants. Then things might get nasty . . .

Superscience: Matter transmitters can "beam up" or "beam down" without a receiving booth at the other end. Regeneration rays may supersede nanotechnology for rapid treatment of injuries. Force fields can alter the flow of time. Disintegrators and reality disruptor weapons can destroy almost any target that is not protected by superscience defenses. Fortunately, personal force fields and stasis fields can stop them.

Even Higher TLs

Incredibly advanced technologies are difficult to conceptualize, never mind use in play. Even so, it's hard to resist the question of "What's next?"

One option is to assume an age of technological stagnation sets in. TL12 science may answer all the fundamental questions of the universe, and technological progress may not be possible. There is no TL13; science catalogs what exists rather than explaining it. Engineering is no longer about invention, but merely application.

Another possibility is to continue a straight-line progression. TL13 devices are like TL12 but weigh or cost half or two-thirds as much, and so on. Or superscience developments can have their TL bumped up to TL13+. They may represent bold new inventions, or artifacts from civilizations that ruled the galaxy eons ago.

Tech Level

Tech Level (TL) is an index of a society's average technological achievement, especially in its baseline technology.

Technological Progression

How quickly a society advances in Tech Level can be a crucial element of a science fiction setting, especially one that proceeds from Earth's present.

A rapid pace of technological change lets the GM add advanced technology to our own world without having to make many changes in present-day culture or international politics. Most cyberpunk worlds are examples of this. Rapid change suggests a dynamic society that is struggling to come to terms with the latest developments.

At the other extreme, many events common to science fiction settings require centuries or millennia: the establishment of large extraterrestrial populations, the rise of new civilizations or empires, or the terraforming of planets. If the GM wants to combine these long-range social and political developments with TL9 or TL10 equipment, it's necessary to have a slow pace of technological change. This may take the form of a superscience technology (such as FTL travel) appearing at TL9, followed by a long period of slower technological growth.

The table below depicts five examples of TL progression: accelerated, fast, medium, slow, and retarded. Each has a set of "typical" start dates for TL9+ technologies, from the perspective of a present-day terrestrial human baseline in which TL8 began around 1980. These progressions can easily be adapted to other start dates for alien or alternate-history cultures.

TL Progression Start Dates

TL	*Accelerated*	*Fast*	*Medium*	*Slow*	*Retarded*
9	2020	2025	2030	2040	2050
10	2050	2075	2120	2200	2500
11	2100	2200	2500	3000	7000
12	2200	2600	4000	8000	20000

Accelerated progression is extremely fast, in keeping with some optimistic futurist or transhumanist speculations. At this speed, humans will reach TL12 before we can do much in the way of colonizing the universe. Perhaps we won't even bother, if the "inner space" of nanotechnology and virtual reality provides everything we need.

Fast progression is an optimistic pace of development which recognizes that societies take some time to assimilate technologies. It assumes that the pace of invention begins to flag as certain fundamental physical limits are approached; it's harder to play with atomic or subatomic technologies.

Medium progression could result from "bumps in the road" such as wars or disasters, or the influence of political movements or religious orthodoxy that impose a cautious approach to the sciences. This provides plenty of time for humanity to establish interstellar colonies or change society drastically without progressing beyond TL10.

Slow progression might be the result of multiple wars, resource exhaustion, or powerful anti-technology movements that put the brakes on progress. A slowly developing society may have organizations devoted to controlling "dangerous" technology.

Retarded progression usually stems from technological stagnation, often in conjunction with a Dark Age that causes a major decline or fall of civilization. This gives plenty of time for interstellar empires to be established without technology changing humanity beyond recognition, and pushes the development of TL12 civilization into the very far future.

Other options can also exist. A civilization could reach a particular TL plateau and then freeze or regress due to cataclysmic events or social changes. A society might be stymied by physical limits, such as one that develops underwater or on a world with few metals. Societies could also take a path where the main TL remained constant, but where steady progress was made in superscience, or even in psionics or magic.

Technology Paths

The standard ***GURPS*** tech levels represent just one of many paths that describe how different technologies pace one another in development. The tech levels of the various items in this book should be treated simply as guidelines – a culture may develop some technologies more rapidly than others. This might result from accident, economics, a ban on research in certain areas, or the way the laws of physics work in that particular universe.

Apply the *Split Tech Level* rule (p. B511) as liberally as you wish to simulate a particular world or genre. For instance, in a "cyberpunk" society, computing, bionics, and biotechnology might be one or two TLs more advanced. In contrast, a "retro-tech" setting that mimics 1940s sci-fi might have computers frozen at TL6 but other technologies anywhere from TL9 to TL12. Any combination is possible! A few "alternative technology" concepts appear below. Feel free to use them, modify them, combine them, or create your own.

Unlimited Technology

This is the "default" technology path – simply use every technology available at the assigned TL, whether it is radical tech, baseline, or superscience! In recent years, this has actually emerged as a dynamic science fiction sub-genre, sometimes called "the New Space Opera."

Unrestricted tech can be challenging for the GM, especially at TL11 and TL12, due to the enormous range of possibilities and the array of resources it provides to adventurers. However, it allows for future worldbuilding on a grand scale, in which space opera and superscience meld with self-replication machines and nanotechnology to create baroque wonders and marvels.

Conservative Hard SF

In this path, technology is restricted to cautious extrapolations of present-day science. This type of setting may lack the sound and fury of space opera or radical hard SF, but it does bring a certain constancy to the campaign. If characters cannot rely on a technobabble device to produce a *deus ex machina*, the world may seem more real to the players – and more exciting as a result.

To create a conservative hard SF technology list, *omit* all new gadgets and technologies introduced after TL9. A conservative hard SF setting can still be specified as being TL10-12 . . . if a TL9 gadget indicates it improves in some way at higher TLs, it still does so. For example, computers get their +2 Complexity per TL of introduction, but any new software or computer technology introduced at TL10+ is unavailable. This is a general principle; the GM is free to make whatever exceptions suit the setting.

A truly hard SF campaign will have no superscience at all, but a few carefully-chosen superscience inventions, such as a faster-than-light travel, may be added without changing the flavor too much.

Technology progression is usually medium or slow.

Radical Hard SF

A radical hard SF setting emphasizes the transformational possibilities of technologies such as artificial intelligence, genetic engineering, nanofactories, robotics, self-replicating machines, uploading, and mega-engineering. Humans (or other races) may evolve their own bodies or minds into barely recognizable configurations.

To create a radical hard SF technology path, set the campaign at TL10-12 but omit most or all superscience technology. As with conservative hard SF, a few examples of superscience may creep in, usually justified by a grand unified theory (GUT) that reconciles gravity and quantum physics.

Technology progression is usually medium, fast, or accelerated.

Cyberpunk

In this technology path, advances in cybernetics, medical science, and some computer technologies race ahead of other technologies. This is often combined with either an accelerated or fast TL progression. The increase in computer power is assumed to drive rapid developments in other fields, especially cybernetics, neural interfaces between mind and machine, and biotechnology, creating a "future shock" climate in which society is constantly struggling to adapt.

Cyberpunk worlds are usually TL8 to TL10. They have some or all of these features:

- Medical and biotech (Chapter 8) developments are strongly emphasized, and cybernetics or uploading may be one or two TLs more advanced than the general TL.
- Neural interfaces (pp. 48-49) and sensies (pp. 57-58) are common technologies, and may also be ahead of the general TL.
- Volitional AI (p. 25) is often present. Depending on the TL of the computer hardware, it may be available in mobile robots, or found only in the most powerful computer systems owned by large corporations and governments.

A few superscience elements often creep in. Many cyberpunk settings include monowire (p. 103), neural disruptors (pp. 121-122), and downloading (pp. 220-221). However, even a cyberpunk game with *no* superscience can be cinematic in other respects; e.g., with the adoption of cinematic combat or computer hacking rules!

Nanotech Revolution

GURPS Ultra-Tech assumes that dry molecular nanotechnology (the engineering of matter using nanomachines) is not mature until TL11. Some futurists don't share this tame view. They predict a mature molecular nanotechnology will arrive within 30 to 50 years, creating a society that can build nearly anything for practically nothing.

Such a rapid nanotechnology revolution requires at least a TL9 background in chemistry and biotechnology. After it begins, spinoff factors will result in development in many other technologies, partly due to a vast increase in computing power and materials technology, and partly because nanomachines may be able to rapidly replicate and improve themselves.

It is simpler to assume that nanotechnology speeds up all technological progress than to pick and choose which technologies appear "early." This is the accelerated TL progression, although *even faster* progress may be possible in some settings. A common Nanotech Revolution trope is the idea that super-intelligent computers, uploaded people, or other speedy nanotech entities will progress a TL every few years – or even every few months! The result may be a so-called "singularity" in which the world becomes unrecognizable. "Normal" humans might see a singularity as a bizarre apocalyptic horror setting. The super-minds could even evolve out of our reality completely, leaving behind dazed (and possibly altered) survivors in a transformed world.

A Nanotech Revolution is often a Radical Hard SF path – thus, a revolution in nanotech won't quickly produce things like contragravity, force fields, or hand-held plasma guns. Just as often, however, the super-sapient entities produced may discover new physics that lead directly to the invention of superscience technologies at TL11+. For some notes on this, also see *Superhuman Minds and the Singularity* (p. 26).

Emergent Superscience

Matter transmission or force screens at TL9? Go ahead! ***Ultra-Tech*** assigns a default TL for most superscience technologies to give GMs a ready-to-use catalog and provide handy guidelines for gadgeteering. However, there is no reason superscience can't appear earlier. Most such technologies require exotic breakthroughs (or breakdowns) in the laws of physics, but these breakthroughs can occur at any TL.

The classic emergent superscience example is the invention of a faster-than-light drive, star gate, interdimensional travel, or time machine at TL9. This allows humans like ourselves (rather than what we may transform into) to spread through the universe.

In a realistic setting, it might take at least a decade or two for a radical new theory to lead to real-world developments, but science fiction is full of instances where a theoretical breakthrough is quickly turned into functional hardware. By carefully adjusting the TL of superscience technologies, the GM can construct a society that resembles our own, then explore the changes a particular super-invention might bring.

High Biotech

In this path, inventions in biotechnology outpace inorganic chemistry and metallurgy. This is a common way to differentiate odd alien technologies from human ones, especially on metal-poor worlds, but it can also be applied to a particular human society. In such a culture, biochemical weapons, most biotechnological and medical technologies, wonder drugs, and non-cybernetic body modifications will appear one or more TLs in advance of everything else. The overall tech level is usually at least TL8, but the biotech TL is significantly higher.

Some High Biotech settings are fairly conservative, following slow or retarded progression paths. Nevertheless, if the biotech TL is set high enough (usually TL11+), biological analogs of other devices may also be available, at the GM's option. For instance, automeds or infrared goggles might be genetically-engineered living creatures!

This idea can also be reversed. In a "low biotech" setting, the inventions and gadgets described above lag one or more TLs behind everything else. This could result from a moratorium on biotechnological research for religious or ethical reasons. A human colony world that has regressed to a primitive state might lag in biotechnology because human biology differs from all other life forms on the planet. This would keep experiments on animals from easily translating to humans.

A High Biotech setting can also lead to a Nanotech Revolution through the development of "wet" bio-nanotechnology. GMs will find ***GURPS Bio-Tech*** an invaluable resource for creating cultures that follow this technology path.

Retrotech

While science-fiction writers predicted robots, starships, and nuclear power, the invention of microchips and genetic engineering caught most by surprise. As a result, many famous science-fiction settings feature advanced physics and inferior electronics or biology. This isn't bad: it can make for a more exciting space-opera campaign. Without the crutch of smart computers and advanced cybernetics, adventurers have to rely more on their own skills and less on those of their machines.

A retrotech setting is best defined as TL6 or TL7 *plus* whatever elements of emergent superscience the GM wishes to add. It doesn't have to be space opera; if the superscience is tightly controlled (e.g., limited to star drives), it can feel like many 1940s and 1950s novels, which were hard SF at the time they were written. For example, a game modeled on 1950s military science fiction may feature mercenaries with steel helmets and assault rifles deployed in contragravity vehicles from starships, with space battles fought by autocannon and nuclear missiles rather than lasers. For a less retro feel, adding a limited set of non-superscience TL8-9 technologies – usually beam weapons, space drives, and energy or power supplies – will cover most space-opera scenarios.

Retrotech settings can have any TL progression. One common variation is to make them static or regressing. Such a civilization may still be recovering from or slipping into a dark age, in which science and engineering is no longer practiced. Most of society would have a base TL5-7 but still have access to a limited selection of TL8-12 devices (stardrives, blasters, giant robots, flying cities, etc.). New gadgets might still be built in automated robot factories, but no one really understands the principles behind them, and they are often operated by castes or guilds that may jealously guard what secrets they know.

Safe-Tech

In this technology path, physics and engineering have advanced dramatically (often to TL10-12), but developments that alter the way people think, modify the human body or brain, drastically extend lifespan, or threaten to replace humans with machines are retarded or suppressed. This may be due to ethical qualms, an accident of history, or a taboo resulting from past wars or disasters.

Without advances in these areas, tomorrow's people won't be much different from today's, except for the quality of their technological toys. This sort of background is popular in supers and science-fiction settings, especially those rooted in the 1960s-1970s. If combined with a hard science path, it may even be realistic!

To maintain a "safe-tech" feel, remove the following technologies:

- Genetic engineering, except expensive immortality drugs reserved for a wealthy elite (these help perpetuate a conservative mindset).
- Neural interfaces (pp. 48-49) and cybernetics (pp. 207-221), except for bionics intended to replace missing body parts.
- Molecular nanotechnology, especially nanofacs (pp. 91-93).
- Swarmbots (p. 35-37).
- Volitional AI (p. 25) and mind emulations (p. 220).

Safe-tech settings often de-emphasize networked computers (including today's Internet) and augmented reality (pp. 56-57).

In a safe-tech setting, restricted technologies are usually possible, but haven't been invented, or have been invented and rejected. Individual researchers (often of the "eccentric genius" or "mad scientist" gadgeteer type) and people working with alien technology may have produced examples of all the above technologies, as well as various types of superscience. However, these are unique prototypes, costing at least 100 times normal and defying easy reproduction. Moreover, the lack of organized research in these areas means that breakthroughs tend to go out of control, harbor fatal flaws, or be stolen by criminals. This often results in the premature demise of the researchers and a further reinforcement of any bans.

Safe-tech cultures may "freeze" the social and political sciences, as well, since those fields are as likely to transform society as AI, nanotech, or cybertech. This often leads to a belief that "representative democracy (or democratic socialism, or feudal monarchy, or whatever) is the ultimate form of government." Safe-tech cultures are full of monolithic planetary governments allied in tight confederations and empires with the power to impose bans on forbidden technology.

The enemies of a safe-tech culture are often those societies that embrace radical technology. Common adversaries include races of cyborgs, killer robots, single-sex clones, or genetically-engineered super-warriors.

Safe-tech civilizations normally follow a slow or retarded technological progression.

Psi-Tech

A psi-technology path is based around the understanding of the scientific basis of psi powers, and their widespread integration into society. It includes the development of *psychotronics* – devices that are intended to protect against, amplify, or enhance psi abilities, or which work using their principles.

However, the major development of psi-tech is not a gadget but a technique: the ability to locate, identify, train, and perhaps even genetically engineer people who possess psi powers. This may result in psi abilities becoming an open and accepted part of society, with telepathic detectives, judges, and psychologists, precognition solving crimes before they happen, doctors with healing powers, couriers (or burglars, or SWAT teams, or ordinary commuters) who teleport, and so on.

Societies may possess psychotronic superscience *without* following a psi-tech technology path, due to deliberate secrecy, the rarity of psi abilities, or popular distrust or fear of psionics. In such cases, psi-tech may be secretly controlled by private or government institutes, or defensive gadgets such as shield helmets and psionics might be the only available psionic technology.

Psi-tech paths may have any technology progression, but slow or retarded is common. A society that focuses on developing the mind may neglect other technologies.

Gadget Control

GURPS Ultra-Tech is intended to spark adventures or open up story possibilities. The tech level, superscience indicator, technology progression, and technology path rules are there to provide guidance, but it is up to the GM to decide what is and is not available in a campaign. *All* technologies in ***GURPS Ultra-Tech*** are completely optional. The GM should use whichever items seem fun, ignore those that don't, and change statistics as needed to fit his own campaign or play style.

Creating an Equipment List

Players will want to choose equipment for their characters. The GM is responsible for deciding what limits, if any, to place on their choices.

Tech Level

This is the most basic parameter. The GM sets the default campaign TL, as detailed under *Tech Levels* (p. B511) and in the Technology Path guidelines discussed in this chapter.

Legality Class

In some campaigns, the GM may wish to restrict starting equipment by Legality Class, with any exceptions requiring an Unusual Background. For example, if the PCs are cyberpunk detectives at the local precinct, the GM might restrict them to LC2 and up, since police won't normally have access to heavy weapons or cutting-edge spy gear.

Gadget Restrictions

GMs should always feel free to ban individual technologies or gadgets, alter their TLs, or change their statistics, especially when trying to simulate a particular cinematic or literary background.

There are many reasons a technology or device may be unavailable – see *Preventive Measures*, p. 12. GMs may wish to create a list of what technologies are (or are not) available – or what was changed – so that players can refer to it.

Scenario-Based Restrictions

Another way to restrict available technology is to start the campaign with a particular scenario. For example, in a "disaster leads to a space lifeboat crash-landing on an alien planet" adventure, the interstellar castaways may have nothing more than the survival gear in the lifeboat.

In other situations it may be helpful to restrict PCs to "no more than" a particular encumbrance level worth of gear – perhaps Heavy for soldiers on a mission, but None for tourists.

The GM may wish to restrict starting wealth to conform to these concepts (most castaways are effectively Dead Broke, for instance). Alternatively, if they are likely to have full access to their wealth soon after the adventure begins, starting equipment may simply represent what the characters have on them . . . they are free to shop when they reach civilization.

Preventive Measures

If a technology or gadget seems like it may cause problems in a particular campaign, there are various ways to handle it.

It Doesn't Exist

The device was never invented, period – and maybe it can't be invented. Instead of banning it outright, it's also possible to increase its TL to well beyond the campaign's standard TL. This lets the device appear as an alien artifact, or in the hands of a more advanced culture.

> *Any sufficiently advanced technology is indistinguishable from magic.*
>
> *– Arthur C. Clarke,* ***Profiles of the Future***

No One's Making It

The gadget exists, but it isn't being manufactured locally, because most people prefer something else. For example, there are dozens of different weapon technologies described in Chapter 6, from gauss guns to plasma flamers – but many organizations or cultures will stick with one or two preferred weapon classes. Even if field-jacketed gravitic-focus particle beams can be manufactured, the local gun shop may not stock them if plasma guns are what most people carry.

Change How It Works

Sometimes a simple change can have far-reaching effects. Are disintegrators fun, but too powerful compared to other weapons? Declare that the disintegration effect is harder to sustain over distance, and divide their range by 10. This tweaking is particularly easy to justify for super-science technologies.

Reliability and Maintenance Issues

The GM may decide a technology is new, and that the equipment using it is difficult to maintain or unreliable. The *Gadget Bugs Table* (p. B476) offers suggestions for flaws that might plague new hardware.

Introduce Countermeasures

If one gadget is too powerful, invent another that nullifies or counters it, and make sure it is available to the PCs and their opposition. If a countermeasure already exists but is at too high a TL, it can also appear earlier. Be careful: this sort of arms race can result in competing gadgetry overshadowing the other abilities of the adventurers.

Legality and Expense

Increasing cost or decreasing legality are simple ways to make a device rare. Don't be afraid to radically increase the price, especially for items that don't exist today – after all, who knows how hard they are to build? Multiplying the list price of contragravity devices or sapient computer software by 10 can easily be explained by taxes, liability costs, and other measures.

However, price and legality control works best for defining what starting PCs and NPCs will use; cunning players find ways to have their characters acquire almost anything, no matter how illegal or costly.

Items also can be made *more* available. If the GM wants a world where every street punk has cybernetics and a neural interface, reduce their cost by up to 90%. This can be justified as the result of war surpluses, overproduction, or a corporation "dumping" the product to increase demand or drive a competitor out of business!

Retroactive Measures

What if an already-introduced gadget is unbalancing the campaign? A device can be banned by fiat, but there are subtler ways to remove unwanted technology.

Moral Outrage

The GM can have current events take place that change Legality Class. For instance, if monowire swords seem too powerful, the PCs might see a news item that a psychopath used a monowire sword to kill 23 toddlers. Before long, pressure from outraged citizens and religious groups leads the government to make monowire blades utterly illegal – LC0 or LC1 – and to assign the death penalty for any crimes committed using them. After this, adventurers probably will be more circumspect about using monowire!

The same sort of thing could affect PCs even if they belong to an organization allowed to use powerful or exotic equipment. An international agreement (like the Hague Convention) may outlaw the use of certain weapons. On the local level, police or agents might be forbidden from using a particular weapon, such as X-ray lasers. Perhaps an NPC

police officer in another jurisdiction accidentally shot a civilian and an investigatory commission blamed the "excessive" X-ray laser, not the officer's bad aim.

There are other changes in legality can be caused by social pressure, such as the rise of a religious or moral faction that believes drugs, brain implants, cybernetics, or sentient computers are immoral. Even if no law is passed, displaying or using such "questionable" gear may result in reaction penalties!

Product Recall

The GM can start circulating news reports that a particular technology is dangerous in some way. Previously, the manufacturer covered it up, but now it's been revealed that . . .

News Flash!

Rainbow lasers suffer catastrophic coolant leaks resulting in explosions! "Sooner or later, the laser will malfunction," said one source, "and when it does, boom, like a grenade!" After an explosion that killed six Marines in training last June, the Interstellar Marine Corps is removing all man-portable rainbow lasers from active service. Goliath Weaponry GmbH, maker of all military laser coolant systems, has issued a galaxy-wide recall. The fix may require a reduction in laser power levels.

Shocking new research shows uploading only effective in one out of three cases! The mind emulation deteriorates after a few years, leading to massive psychosis and instability. A Special Justice Group probe reveals that a conspiracy of uploading-industry corporation executives has kept this fact secret for decades! Major indictments are expected shortly, and individuals who have been uploaded are advised to contact a lawyer and neurologist as soon as possible.

Special Justice Group Consumer Safety Alert! Plastics presently used to manufacture all neural-interface sockets give off toxic chemicals that studies have linked to brain cancer.

This method lets the players decide whether or not to risk having their characters use the technology. If they abandon it, they can at least have the satisfaction of joining a class-action lawsuit against the manufacturers. If the adventurers keep using the devices they have, the GM now has a perfect excuse to have it malfunction or misbehave – they've been warned – or have them shunned by others for carrying "hazardous" equipment.

If the GM feels kind, a "downgraded but safe" version of the technology could appear a few months (or years) later – or even be developed by a PC with Engineer skill using the New Invention rules.

Like all methods of removing technology from play, product recalls can lead to players feeling that their GM is stripping their characters of just rewards. The GM should be especially sensitive when "recalling" items that are central to a particular PC's identity, such as a soldier's powered armor or a space knight's force sword.

Buying Equipment

Legal equipment can usually be purchased from shops or from catalogs. Very expensive items (in general, anything costing more than a campaign's average starting wealth), or those that require licenses, may require dealing directly with a manufacturer, authorized dealer, or other specialist. Expensive but commonplace civilian gear such as cars will be easy to purchase, but specialized items may take longer to arrange. Administration skill rolls (or bribes!) may help. TL11+ goods may be routinely made in nanofactories or replicators, reducing or eliminating the waiting period for most items.

Black Markets

If an item is illegal to own, expensive to acquire, or rare, it may be available from one or more outlets in the underground economy – the black market.

Availability

Acquiring goods usually requires a Contact (pp. B44-45) who knows how to reach the local black market merchants. Alternately, Streetwise (p. B223) can be used to locate new connections. The PCs should specify what they are looking for, and the GM decides on the local availability of the item. A failure may result in the unwanted attention of the local cops or criminal syndicates, while a critical failure may mean that the PCs walk into a police "sting" operation, are ambushed by other criminals, or acquire dangerously defective goods.

Modifiers: Subtract the local Control Rating (p. B506) and Cultural Familiarity modifiers (p. B23); +1 if the area includes a major shipping port, is bordering a low-CR country, or has ineffectual (i.e., corrupt or undermanned) law enforcement; -3 in an unfamiliar area.

Markets

The term "black market" describes any businesses that operate illegally. Some sell proscribed services, while others circumvent tax or safety laws to undercut legitimate competitors. The GM may set up various niches within the "black market" that cater to specific customers, and that require specialized Contacts or skill penalties (see above) to deal with. Some examples of specialized black markets include:

Electronics: This can include prototype or custom-made computers, pirated copies of brand-name goods, and banned software ("Guaranteed to break the intrusion countermeasures on that military mainframe . . . but owning it will get you a death sentence. You still want it?"). Failure means the product you bought doesn't work as advertised or was fake. A critical failure means a knock on the door (or the head) by the legal owner or patent holder – who might have found you thanks to a tracking device in the gadget itself!

Medical: This can include cut-rate surgical, unlicensed implant clinics, stolen bionics (perhaps with the previous owner still attached), and cheap drugs or nanosymbionts. Failure means you don't find what you're looking for, or the seller can't provide the amount requested. A critical failure may leave you with scars, placebos, or an angry amputee on your trail.

Entities: Androids, robots, slaves, organs, and illegal clones (your own, or someone else's). Failure means you receive a defective product, or that having it around will be a risk to life and limb. A critical failure means you're the target of a raid or your new acquisition has a hidden homicidal streak.

Weapons: Stolen or smuggled firearms, banned ammunition, and purloined military vehicles and combat robots ("An Imperial grav-tank, fresh from the Guard armory"). Failure means you can only get an inferior version of what you were looking for. Critical failure means it will malfunction on first use, or that someone is tracking it. Caveat emptor.

Legality and Antiques

The GM may allow obsolete weapons and other devices to be available at an increased Legality Class. For every two full TLs by which a device is obsolete, its LC can increase by 1, to a maximum of 2 beyond its starting LC (up to LC4).

When calculating TL for these purposes, use the TL of the particular gadget, not the TL at which it was introduced or the last TL at which it improves.

Example: A TL10 gauss rifle is LC2. But two TLs later, it's been obsolete for decades, centuries, or even millennia! As such, the weapon – or an exact replica – has its legality class increased by 1, making it LC3.

Prices

The black market operates in competition with the normal market for many goods. To sell goods readily available from legal channels, it can only compete by making things easier to acquire (which is rare), or by selling for a lower price (by not charging for taxes, selling cheap copies, or fencing stolen goods). Easily copied media and textiles can sell for as little as 5% of normal price, but most other items sell for 60% of normal price.

The black market is opportunistic: if an item is hard to acquire legally, it has an edge over the legitimate market and will exploit it ruthlessly. Successful haggling with the Merchant skill can bring the price down, but black market dealers rarely have any incentive to offer big discounts!

Local availability and demand is a major factor in the final price. The inhabitants of a war-torn country may sell military weapons at a huge discount to anyone with hard currency, while electronics and food are sold at outrageous markups. A rich, peaceful country with thriving black markets in cheap alcohol and pirated movies may not have LC3 or lower weapons available for *any* price.

Wear and Care

This section covers the terminology and statistics of equipment in this book, and expands on the rules discussed on pp. B483-485.

Maintaining Gadgets

Simple objects don't require much maintenance. If an object costs less than 0.1% of average starting wealth ($30 at TL9, $50 at TL10, $75 at TL11 or $100 at TL12) the GM may assume it's so simple that it will work indefinitely.

At the GM's option, some items – especially those that are complex or regularly placed under stress – may require periodic "maintenance checks." See *Maintenance* (p. B485) for details. GMs are also welcome to ignore maintenance, or only impose it in dramatic situations where the characters are cut off from spare parts.

GMs who do not want to bother with maintenance details at all can assume ultra-tech items incorporate embedded diagnostics, self-repairing components, etc. that make maintenance unnecessary, at least for a period covered by a warranty! "Self-repairing" devices such as living metal gadgets already have such systems.

Repairing Gadgets

If a gadget breaks down, it requires either a minor or a major repair. Performing repairs requires the appropriate repair skill. Use:

- Armoury (p. B178) for weapons and defenses.
- Computer Operation (p. B184) for software problems.
- Electronics Repair (p. B190) for electronic devices.
- Electrician (p. B189) for power transmission systems, power cells, and their interfaces.
- Machinist (p. B206) for manufacturing plants and tools.
- Mechanic (p. B207) for robots, power plants, and vehicles.
- Sewing (p. B219) for fabric (other than body armor).

Some complex systems may require more than one skill, depending on what broke down. Except for software repairs, appropriate tools are needed – see *Tool Kits* (p. 82). Major repairs also require a substantial investment in parts; if these are lacking, Machinist skill (p. B206) may be used to fabricate them. For detailed rules for repairs, see pp. B484-485.

Powering Gadgets

Many gadgets require power. For simplicity, they are assumed to use standardized detachable *Power Cells* (p. 18). The size of cell is a rough measure of how much energy the gadget requires. The larger the cell, the more power the gadget consumes. The cost and weight of power cells and alternatives such as solar power are covered in Chapter 2.

Integrating and Modifying Equipment

These modifications can be added to just about any gadget that has both a specified cost and weight (i.e., not software, drugs, etc.).

Disguised

A gadget or weapon may be disguised as something else of similar shape, such as a laser rifle built into an umbrella. Double the cost for a mass-produced disguised item; multiply cost by 5 for a custom-built one.

Styling

Styling alters the device's appearance in as "fashionable" a manner as possible. All sorts of options are possible, including airbrushing, sculpted curves and designs, embedded gemstones, or even built-in lighting. It will cost 2 to 10 times as much depending on the complexity of the styling and possible reaction bonus for possessing it.

Rugged

Rugged gadgets are built to withstand abuse, harsh weather, and physical damage. Rugged systems incorporate modifications such as shock-mounted brackets, heavy-duty heat sinks, and redundant power supplies. A rugged gadget gets a +2 HT bonus and has twice its normal DR. Add 20% to weight and double the cost.

Cheap and Expensive Gadgets

Cheap gadgets use inexpensive materials, older electronics, etc. They are generally 1.5 times normal weight (excluding the weight of any power cells) but half normal cost.

Expensive gadgets use lightweight materials or have been deliberately designed to save weight. They are generally 2/3 normal weight (excluding the weight of any power cells) but cost twice as much.

Plug-in Gadgets

Electronic gadgets can plug into other gadgets, either directly or using data cables. This allows them to link their functions, or to turn multiple functions on or off with a single Ready maneuver. Most often, this permits a computer to talk to (and control) multiple devices as peripherals, but other combinations can exist.

Linking devices usually takes between 10 seconds and a minute, assuming the gadgets are compatible. If they aren't, or if a particular combination is very complex, the GM may require a toolkit and Electronics Operation roll. Useful devices for linking gadgets include optical cable (p. 43), cable jacks (p. 42), and microcommunicators (p. 43). A neural interface (pp. 48-49) is a device for mentally linking a person to one or more gadgets.

Most electronics can be preprogrammed for a few simple remote functions. Almost all electronics have a simple "clock" function, so they can be set to turn features on or off or activate various functions at a specific time, or upon receiving particular input.

For example, a recorder could be plugged into a communicator to play a message at a certain time, or upon receiving a specific signal, or to act as an answering machine. A detonator plugged into an inertial compass could go off when the subject reached a specific destination. Wireless connectivity is also possible: plug in a communicator set to a specific frequency, and you can talk to the device using a computer and communicator.

Adjusting for SM

Some gadgets have a notation "adjust for SM" after their weight, cost, and power requirement. This means the weight, cost, and number of power cells are multiplied by a factor depending on the user's Size Modifier. For ordinary-sized humans (SM 0) there is no change. However, if used by larger or smaller individuals, or if added to vehicles or robots with a higher or lower SM, multiply as follows:

SM	*Modifier*	*SM*	*Modifier*
SM -3	×1/20	SM +4	×20
SM -2	×1/10	SM +5	×50
SM -2	×1/5	SM +6	×100
SM -1	×1/2	SM +7	×200
SM +1	×2	SM +8	×500
SM +2	×5	SM +9	×1,000
SM +3	×10	SM +10	×2,000

Devices that must be aimed are difficult to operate remotely. A gun with a communicator plugged into it could fire, but unless it also had a plugged-in sensor, the firer wouldn't know whether there was a target. And unless a gun with a sensor was attached to something like a powered tripod (p. 151), it could only be fired at someone who crossed its sights. As always, the GM should rule on whether a particular piece of gadget programming is possible.

Combination Gadgets

Want to invent a device featuring an inertial locator, multi-mode ladar, and neutrino communicator in one handy unit? Here's how.

If the gadgets can be used all at once, the weight is that of the heaviest gadget plus 80% of the weight of the others, the weight savings being due to shared housing and components.

If only one of the combined gadgets can work at once, the weight is based on the highest weight among all gadgets plus 50% of the other gadget weights, due to shared electronics and mechanical parts. (Make this calculation using the empty weight of the gadget, after subtracting the weight of any power cells and ammunition.)

The same applies to cost, based on the costliest of the gadgets. LC is always based on the lowest LC among all component gadgets.

Combined gadgets may end up using several different power cells. To make them all run off the same size of power cell, adjust endurance based on relative cell size. Since a D cell is 10 times the power of a C cell, a gadget that switched to using C cells will operate for one-tenth as long. Don't forget that changing the types of power cells will modify the gadget's actual weight – subtract the weight of the old power cell(s), and add the weight of the new one(s).

Gear for Nonhumans

GURPS Ultra-Tech assumes equipment is built for humans or humanoids. If equipment is designed for aliens, it may have different controls or displays to accommodate alien hands or senses. The latter could be quite odd, such as olfactory readouts, or colors or sounds in frequencies outside our range of perception.

Alien gadgets that are awkward to use will impose a penalty to skill equivalent to the Bad Grip disadvantage (-2 to -6). Gadgets that require missing senses or limbs may be unusable without technologies or advantages to emulate them. Adapting incompatible alien hardware is +10%-100% of the original cost (and possibly weight).

Hardware for nonhumans and robots is assumed to have identical statistics, although the GM may wish to adjust these to reflect differences in alien physiology (for instance, see Increased Life Support, p. B139). The exceptions to this are suits, force fields, and other surface-based accessories, where statistics will vary depending on size and surface area. See *Adjusting for SM* (above).

Equipment Statistics

Most gadgets detailed in subsequent chapters use a standard format for statistics.

TL

The gadget's Tech Level. This is given parenthetically after the gadget's name, e.g., Neutrino Communicator (TL11^). This is the first TL at which the gadget can be reliably manufactured at the listed cost. This is not a hard-and-fast rule: see *Variations Within a TL* (p. B511) for guidelines on the usual exceptions. In addition, it is common for gadgets to continue to be used at higher TLs.

Superscience: An ^ after TL indicates the gadget requires superscience technology. The GM may wish to omit the gadget, or to reassign the TL.

Cost, Weight, Power, LC

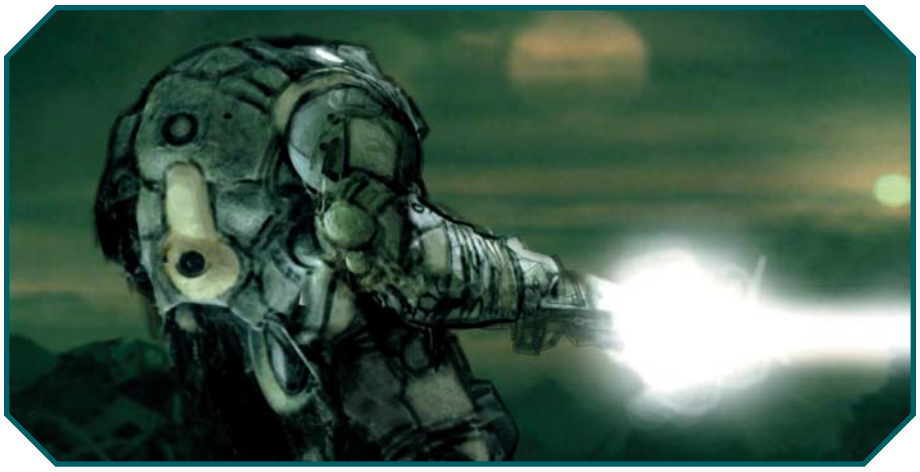
Many gadgets list these four statistics at the end of their description. For example, "$20,000, 20 lbs., D/12 hr. LC4."

Cost

This is the price in generic ***GURPS*** dollars. The price *does not* include power cells, fuel, or ammunition.

Weight

This is the gadget's mass, as well as its weight, under a normal Earth gravity (1 G). It is given in pounds (lbs.), or in some cases in tons (of 2,000 lbs.). Weight *does* include any power cells, fuel, or ammunition.



Power

If a non-weapon gadget requires power, the letter designation for the type of power cell it uses is listed, along with the number of cells, if it requires more than one. See *Power Cells* (pp. 18-20). This is followed by a parenthetical operating time, usually in hours (hr.), days, or weeks (wk.). Thus, "D/12 hr." means the device requires one D cell that operates it for 12 hours of continuous use; "2A/3 days" means two A cells that collectively power it for 3 days. In some cases, a gadget's endurance is listed in "uses" or "shots" rather than time.

Some items rarely use power cells – they're usually plugged into a building's electrical system or built into a vehicle. These have the notation "external power." Some items such as computers have both notations: they're used with an external power supply, but also have power cells as a backup.

Legality Class (LC)

LC measures how likely an item is to be legally or socially controlled. If a LC is omitted, it means the item is not likely to be controlled even by the most repressive regime. For details of LC, see p. B267 and p. B507.

Specialized Equipment

Certain types of equipment are described in a different format.

Robots: Sentient machines big enough to see are described using racial templates or as animals. See *Machines as Characters* (pp. 29-35).

Weapons: These use the format on p. B268-271, with the exception that beam weapons list a power cell type instead of ammunition weight. "7/2C" means the weapon is powered by a pair of C cells, which are included in its 7 lb. weight.

Armor, Suits, and Protective Gear: These use the format described on p. B282.

Software: Computer programs have a Complexity rating, which is the minimum Complexity of computer that can run it (see *Software,* p. B472).

Vehicles: These are described using the format on p. B464.

Equipment Bonuses

GURPS Ultra-Tech includes examples of basic, good, fine, or even best-quality equipment in terms of *Equipment Modifiers* (p. B345). Better quality equipment is *usually* heavier and more expensive. A gadget's quality grade is always followed by "(quality)" in item descriptions, e.g., "provides a +2 (quality) bonus to Electronics Repair (Armoury) skill." Quality is basic if there is no bonus, good if the bonus is +1, fine if at least +2 but less than +TL/2, and best if +TL/2.

Gadgets may also add an intrinsic bonus to skill because the underlying technology is easy to use or doesn't fail very often – an example is the bonus that higher-TL surgical instruments provide. This is comparable to a ranged weapon's Accuracy. Any bonus that *isn't* marked "(quality)" is an intrinsic bonus. It has nothing to do with quality, and applies whenever you use that variety of gadget. An intrinsic bonus "stacks" with the quality modifier, if any.

HP, HT, DR

HP: A gadget's hit points are calculated from its weight. Use the chart on p. B558. Almost all gadgets will use the Unliving/Machine column.

HT: A gadget is assumed to have HT 10 unless otherwise noted. Rugged gadgets (p. 15) are HT 12.

DR: Use the guidelines on p. B483. Most gadgets are made of plastic with DR 2. Weapons are normally DR 4, or DR 6 for solid metal melee weapons. Armor, suits, vehicles, etc. have their specified DR. Rugged gadgets have twice their normal DR.

Bulk

Bulk: A general measure of size and handiness. The larger the penalty, the more bulky the item. Bulk modifies weapon skill when you take a Move and Attack maneuver with a ranged weapon, and serves as a penalty to Holdout skill when you attempt to conceal the gadget.

Chapter Two
Core Technologies

"Novacorp's multisensory holographic controls cater to the sensory modalities of all major and minor species in the quadrant! Perfect for multi-species crews – even includes olfactory-based displays for exotics like the T'wuffle and Yezendi."

"Just like the ads say, they were great – until that computer virus cross-linked the T'wuffle and Terran systems. Then every time we got an incoming comm signal, we were hit by a smell like an overripe banana. Took us weeks for my Tek-Rat to fix it, and we were late for our rendezvous. The syndicate wasn't happy, let me tell you. Damn ultra-tech! Sometimes I think I should have stayed home and driven an air-cab like Uncle Joe."

– Captain Zeke Morrigan, Free Trader ***Antares***

This chapter presents rules for three core technologies: power supplies, computer systems, and robots.

Power

Equipment is useful . . . when it works. But a laser pistol without power may not even be a good club. Many ultra-tech devices need a power supply, as specified in the equipment description. Personal equipment uses power cells (see below). Larger devices typically use external power – plugging them into an building or vehicle power supply. Other options for powering gadgets are described on pp. 20-21.

Power Cells

Equipment, robots, and vehicles often use standardized power supplies, known as power cells. All power cells are assumed to be compact and relatively inexpensive. They may be advanced electrical batteries, micro fuel cells, superconductor loops, or even more exotic power supplies.

Fuel cells combine hydrogen or methanol with oxygen (often in the form of water, which contains oxygen) in an electrochemical reaction. Fuel cells are more complex than batteries, incorporating a fuel tank and microelectronics to control fuel flow.

Superconductor loops are made of materials that are electrical superconductors, storing electricity without any losses due to resistance. Most superconductors at TL7-8 require bulky cooling systems to keep them at cryogenic temperatures; ultra-tech superconductor loops can operate at or near room temperature.

Exotic power cells might use exotic radioactive materials, antimatter, or other technologies – see also *Cosmic Power Cells* (pp. 19-20).

All power cells are assumed to store power without running down when not in use; they have an indefinite shelf life.

Sizes of Power Cells

There are several sizes of power cells, designated by letter from AA (the smallest) to F (the largest). Power cells increase in power exponentially. An A cell is 10 times as powerful as a modern AA cell, a B cell has 10 times the power of an A cell, and so on.

AA cell: These tiny cells operate devices with minimal power requirements, like very small robots or brain implants. $1, 0.0005 lbs. (2,000 AA cells weigh 1 lb.)

A cell: These small cells are often used in clothing or consumer goods that require low power outputs. They're about the size of a watch battery, or postage stamp-sized for flexible cells (see below). $2, 0.005 lbs. (200 A cells weigh 1 lb.)

B cell: These power wearable computers, tiny radios, small tools, and other devices with modest power requirements, including some low-powered weapons. A typical B cell is the same size as a pistol cartridge or an AA battery. $3, 0.05 lbs.

C cell: These are the most common energy source for personal beam weapons, tools and high-power electronics. Equipment designed for larger or smaller cells often has an adapter for C-cell operation. An ultra-tech battlefield may be littered with expended C cells. Each cell is about the same size as a pistol magazine. $10, 0.5 lbs.

D cell: These power military beam weapons and heavy equipment. They are often worn as a separate power pack. They're about the size of a thick paperback book. $100, 5 lbs. LC4.

E cell: These power small vehicles, battlesuits, support weapons and other power-intensive systems. They're about the size of a backpack. $2,000, 20 lbs. LC4.

F cell: These power medium or large vehicles and cannon-sized beam weapons. They're about the size of a compact car engine. $20,000, 200 lbs. LC4.

Flexible Power Cells (TL9-12)

These flat polymer power cells are used for powering clothes, printed computers, and similar devices. They are attached like stamps and peeled off when exhausted. Gadgets noted as using flexible cells use them *instead* of normal power cells; they're also embedded into smart labels, smart paper, and similar disposable items. AA and A flexible cells are the usual cost; others are 4 times the normal cost.

Non-Rechargeable Power Cells (TL9-12)

Normal power cells are assumed to be rechargeable. Non-rechargeable cells are also available. They last twice as long, or provide twice as many shots, but may not be refueled or recharged. They are otherwise identical to normal or flexible power cells.

Replacing Power Cells

It takes three seconds to replace an A, B, or C cell with a new one, or 5 seconds to replace a tiny AA or hefty D or E cell, or 20 seconds to replace an F cell. Cells can only be replaced if the user is strong enough to lift them out

Fast-Draw (Ammo) skill can be used to reduce the time for cells loaded into weapons. A successful skill roll reduces the replacement time by one second.

Life-support systems, flying belts, and other items that cannot afford power interruptions often have two or more cells, so that if one is drained another takes over immediately. They are also usually equipped with a warning system to notify the user that one cell has been expended.

Jury-Rigging Power Cells

A device will usually be designed to use a specific size, type, and TL of cells. In an emergency, a device can use different cells or other power sources. Ten cells that are one size category smaller can substitute for a single larger cell, e.g., a D cell can be replaced by an array of 10 C cells (or 100 B cells, or 50 B cells and 5 C cells, etc.). Rigging this requires a roll against Electrician-2 and 10 minutes of work per attempt; critical failure damages the gadget. The GM may also rule that different nations or cultures use different voltages or sizes for their cells. This means an Electrician roll, at a penalty set by the GM, will be required to use familiar energy cells in strange equipment (or vice versa). At the GM's option, TL11+ and superscience devices may be *adaptive*, eliminating the need for these concerns (and skill rolls).

Lower TL cells can be used to power a higher TL device, but this is always a jury-rig; be sure to apply TL modifiers (p. B168). High-TL devices using lower TL cells will, at best, function like the lower-TL version of that same device. A bad roll on the jury-rig could result in failure to operate, or even damage the device. Low-TL devices can use higher-tech cells, getting increased operating time but no other improvement in efficiency.

If the TL of the cells is more than 1 greater than the device's TL, the GM may require an Engineer roll, with appropriately cinematic results on a failure. ("The TL12 power cells just destroyed your flashlight, but before it melted, the beam went through the wall.")

Exploding Power Cells

At the GM's option, power cells may contain volatile chemicals or energy storage systems that can explode if destroyed. Treat them as an explosive of the same weight as the cell but with a REF that depends on TL: 1/8 at TL9, 1/2 at TL10, 2 at TL11, or 4 at TL12.

Cosmic Power Cells (TL12^)

Some superscience technologies require "cosmic" power levels far beyond those of ordinary power cells. These use high-energy power sources (such as fusion, antimatter, or total conversion) that are contained in force field or exotic matter shielding, which also safely dissipates excess heat and protects against dangerous radiation.

Cosmic power cells provide unlimited power to ordinary devices; there is no need to worry about their operating duration! A very few rare superscience devices are noted as *requiring* cosmic power cells to function; these are given an endurance or number of shots. Cosmic power cells have the same weight as normal cells, but are 100 times as expensive, e.g., a cosmic C cell costs $1,000. Cosmic cells are LC2 (LC1 for E and F cells).

If a cosmic power cell explodes, treat it as an explosive with the cell's weight and REF 5,000.

External Power

Many large items of equipment are described as using *external power*. This means they're designed to be plugged into a building or vehicle's power system, or into a generator (see below) rather than using a power cell. They operate as long as the power is available. In addition, any device can have a power adapter (same cost and weight as its usual power cell) which lets them run off the external power supply.

Generators

A generator can be used to provide external power to equipment. Explorers, military units, and other expeditions use them for base camps, and they may be the only power supplies available for isolated habitations or anyone living "off the grid" (e.g., in a abandoned building). They're also used as emergency power supplies.

Fission Generators (TL9)

Fission reactors produce power by splitting the nucleus of heavy fissionable elements such as uranium. The reactor and electric generator designs available at TL9 are much more compact and far less expensive than TL7-8 reactors. (They are still heavy, due to the shielding required.) A typical semi-portable system fits in a truck bed, and provides external power for five years before maintenance and refueling (50% of cost). $100,000, 1,000 lbs. LC2.

Fusion Generators (TL10)

When fusion reactors first appear at TL9, they are gigantic installations that require heavy radiation shielding and frequent maintenance. At TL10+ fusion reactors produce less radiation (due to the use of harder-to-ignite but more efficient aneutronic fusion reactions) and are significantly lighter.

Semi-Portable Fusion Reactor (TL10): A small nuclear fusion reactor. It fuses hydrogen into helium, liberating energy in the process. $200,000, 100 lbs. Its internal fuel supply operates it for up to 20 years; refueling and maintenance is $20,000. LC3.

Portable Fusion Reactor (TL11): This is a compact reactor using antimatter or exotic matter (such as muons) to catalyze a fusion reaction. This could also be a superscience "cold fusion" device available at TL10^. $100,000, 50 lbs. Its internal fuel supply operates it for up to 10 years; refueling and maintenance is $10,000. LC2.

If TL^ force field, hypergravity, or nuclear damper technology is available, fusion plants may be an order of magnitude smaller. Divide cost by 5 and weight by 10.

Antimatter Generators (TL11-12)

These reactors produce energy through the mutual annihilation of matter and antimatter, with a 100% conversion of mass to energy. Unfortunately, antimatter takes more energy to manufacture than it can produce, and any failure of the containment system may result in a significant explosion. As a result, antimatter power is primarily used in applications where very high power densities are more important than fuel costs or safety – e.g., high-performance starships, combat vehicles, or weapon systems.

Semi-Portable Antimatter Generator (TL11): An installation that can fit in a truck bed. Provides external power for five years (TL11) or 50 years (TL12). $200,000, 100 lbs. LC2.

Portable Antimatter Generator (TL12): A backpack-sized antimatter power plant. Provides external power for up to five years. $10,000, 10 lbs. LC2.

Energy Collection

Energy collectors gather energy from natural sources. Major installations may use hydroelectric, solar, or geothermal power sources, but solar power is the most common means of energy collection.

Solar Panels

Solar panels convert light into electricity. They work in any environment where strong light (such as sunlight) is available. The primary development at ultra-tech TLs is in inexpensive production of thin-film solar cells.

Solar Power Array (TL9)

This semi-portable array of solar panels is a generator that provides external power. It takes a minute to deploy, and covers about 400 square feet. $10,000, 500 lbs. The size assumes an earthlike level of sunlight; multiply cost and weight by relative light levels for other environments. LC4.

Civilization and Power

In many societies, fossil fuels and nuclear fission will continue to be a convenient source of power at TL9. Power plants tapping renewable sources such as hydroelectric power, wind power, geothermal energy, or ocean currents will also continue to be used where local geography and climate makes them economical.

Other developments that are possible at higher TLs:

TL9: Hydrogen fuel cell power plants supplement or replace fossil-fueled generators, perhaps using renewable energy sources such as solar power to electrolyze water into hydrogen. Solar power stations in orbit beam microwave energy down to the planet. Giant fusion reactor installations may be in limited use.

TL10: Building-sized fusion reactors are common. Cheap superconductor cables improve the efficiency of power distribution. Vast solar power arrays are built close to stars, using solar energy to manufacture antimatter, or beaming it to other parts of the system. Some antimatter power plants are available, but too expensive for widespread use.

TL11: Fusion and solar power remains the dominant energy source, but antimatter is an affordable fuel for situations where high power levels are more important than efficiency. Fields of nanotech "solar plants" grow like weeds and distribute electrical power via superconducting roots or reflective beams.

TL12: Power plants harness the energy in rotating black holes. Superscience power plants tap cosmic energies or convert ordinary matter into energy with 100% efficiency.

Solar Paint (TL9)

These cheap plastic solar cells can be painted onto any surface, including clothing or rooftops. A coating of solar paint is only 20% of the cost and weight of regular solar panels, but it requires twice the surface area and has no DR. LC4.

Beamed and Broadcast Power

Devices may operate on power "beamed" or "broadcast" from a central station, as long as they remain within line of sight. Buildings may have receivers on the roof to turn beamed power into "wall power." There may be many beam stations on a civilized ultra-tech planet; a colony may have only a few, or just one. A satellite or spaceship can beam power to ground units in line of sight below it. This means that nobody has to worry about powering vehicles or devices . . . until something happens to the power station.

A power company may send its customers a monthly bill. A customer's bill is typically 1% of the cost of his power receivers (see below).

Beamed Power (TL9)

These use microwave beams to carry the power. The receiver for beamed power weighs the same as the normal power cell it is replacing, but operates indefinitely as long as it is in line of sight of the transmitter, plus 1/10th as long as the power cell when outside line of sight (it has a stored-power backup system). Cost is the same. Usually, only D cells and larger are designed to receive beamed power. Beamed power transmitters are usually 10 times the cost and double the weight of an equivalent power cell per mile or fraction of a mile of range; they power one system at a time.

Solar Power Satellites (TL9): Large solar panels are sometimes placed in geostationary orbit, to capture sunlight before it has been filtered by the atmosphere. They beam power down to receivers on the ground or to other space stations.

Broadcast Power (TL10^)

Broadcast power works like beamed power, but does not require line of sight transmission. Broadcast power receivers are 10 times as expensive as normal power cells, and are available in any size, not just D and up. Broadcast power transmitters are generally double the cost and weight of an equivalent power cell per yard of radius.

Computers

Computers are a vital part of most ultra-tech societies. It's possible that general-purpose programmable computers will still be common. Alternatively, most computers may be simple terminals connecting to networks, or dedicated special-purpose systems.

Hardware

Every computer has a "Complexity" rating. This is an abstract measure of processing power. Each Complexity level represents a tenfold increase in overall capability over the previous level. A contemporary (mid-TL8) desktop system is Complexity 3-4.

A computer's Complexity determines what programs it can run, and may be a prerequisite for certain options, such as Sentient. Software also has a Complexity rating, and can only run on a computer of that Complexity level or higher; e.g., a Complexity 2 program requires a Complexity 2 computer or better.

Complexity determines how many programs a computer can run simultaneously. It can run two programs of its own Complexity, 20 programs of one Complexity level less, 200 programs of two Complexity levels less, and so on. For instance, a Complexity 2 computer could run two Complexity 2 programs or 20 Complexity 1 programs – or one Complexity 2 program and 10 Complexity 1 programs.

Computers are also rated for their data storage (hard drive space, etc.) in terabytes (TB). A terabyte is a thousand gigabytes or a trillion bytes.

Computer Models

These are standard sizes of "ordinary" computer that lack any sort of self-awareness. With various options (see below) they can represent numerous types and models.

These systems include the processor, the power supply, the casing, and a storage system, plus an operating system. Computers may also have a cable jack (p. 42) and microcommunicator (p. 43) at no extra cost, although these may also be omitted in order to isolate the computer for security purposes.

Displays and controls are not included. Even so, the computer can be used "as is" via a neural interface (pp. 48-49), or installed into a robot body or vehicle. Also, if the computer is equipped with AI software, users can interact with it just by talking to it. Otherwise, they should be equipped with a terminal (pp. 23-24) or a communicator.

Tiny Computer (TL9)

The smallest multi-purpose computer in regular use. It's used as a wearable computer or implant, or built into gadgets or robots. It is Complexity 3 and stores 1 TB (at TL9). $50, 0.05 lbs., 2A/20 hr. LC4.

Small Computer (TL9)

This is used as a notebook or wearable computer, or the brain of a small robot. It has Complexity 4 and stores 10 TB (at TL9). $100, 0.5 lbs., 2B/20 hr. LC4.

Personal Computer (TL9)

A workhorse system. Almost every middle-class household may have a system like this, serving as the "house brain." Small businesses and departments of large businesses also use them, as do many vehicles and robots. A personal computer is Complexity 5 and stores 100 TB data (at TL9). $1,000, 5 lbs., 2C/20 hr or external power. LC4.

Microframe (TL9)

A high-end cabinet-sized machine, common in labs, large vehicles, as a network server, or on an office floor (often with several terminals networked to it). Other applications include commercial spacecraft, mobile asteroid-mining complexes, university learning centers, and so on. Merchant ships use a microframe as the ship's main computer. Large warships frequently use microframes as the backup control systems of fighting, damage control, maneuvering and tactical-planning stations. A microframe is Complexity 6 and stores 1,000 TB (at TL9). $10,000, 40 lbs., external power. LC3.

Mainframe (TL9)

These powerful computers are often used for control and systems-monitoring functions for a starship, major business, manufacturing complex, or laboratory. A mainframe is Complexity 7 and stores 10,000 TB (at TL9). $100,000, 400 lbs., external power. LC3

Macroframe (TL9)

This size of computer is often found administering the traffic, sewage, power, maintenance, and bureaucracy functions for an entire city. They are also found as the main computer aboard large ships and used to run cutting-edge science projects. Macroframes are usually the property of government agencies or major corporations. They are Complexity 8 and store 100,000 TB (at TL9). $1,000,000, 4,000 lbs., external power. LC3.

Megacomputer (TL9)

This is a computer the size of an entire building! Systems this large may be placed in charge of running entire countries, although they're sometimes also installed in capital ships or giant cybertanks. They're often upgraded for even more performance – with a genius option, a megacomputer can cost billions! A megacomputer is Complexity 9 and stores 1,000,000 TB (at TL9). $10,000,000, 40,000 lbs., external power. LC2.

At TL10, add +2 to each model's Complexity. Each further TL adds +1 to Complexity (e.g., +2 at TL10, +3 at TL11, +4 at TL12). Each TL after TL9, multiply storage capacity by 1,000 (i.e., replace TB with petabytes at TL10, exabytes at TL11, zettabytes at TL12.)

Many items of equipment are also described as having integral computers. These use the device's power supply and operating duration rather than their own.

Customizing Hardware

Various options are available to customize computer hardware. Multiple options can be chosen, but each option can only be taken once. Modifiers to Complexity, cost, etc. apply to the hardware statistics. Cost and weight multipliers are multiplied together. For examples a computer that is Fast (which multiplies cost by 20) and Hardened (which doubles cost) is 40 times the normal cost. Complexity and LC modifiers are additive, but LC cannot go below LC0.

Compact (TL9): A lighter but more expensive computer. Double the cost, halve the weight. Halve the number of power cells and the operating duration.

*Fast (*TL9): A powerful computer, with capabilities equivalent to a system one size larger. This option may not be combined with Slow or Genius. +1 Complexity. Multiply the cost by 20.

Genius (TL9): The computer is on the cutting edge of processor design. This option may not be combined with Fast or Slow. Add +2 to Complexity. Multiply the cost by 500, and reduce LC by 1.

Hardened (TL9): The computer is designed to resist electromagnetic pulses, microwaves, and other attacks that target electrical gadgets. Add +3 to HT to resist these effects. Double the cost, double the weight.

High-Capacity (TL9): The computer can run 50% more programs simultaneously (three programs of its own Complexity, and so forth). Cost is 1.5 times normal.

Printed (TL9): The computer is *printed* on a flexible surface, such as fabric (so it can be rolled up) or even skin (a digital tattoo). It requires four square feet per pound of weight; an average person has about 20 square feet of skin across his body. It must use solar cells or flexible cells for power. Breaking the surface destroys the computer. This option is not compatible with quantum computers. -1 Complexity, and divide data storage by 1,000.

Quantum (TL9): A quantum computer drastically reduces the time required to perform certain processes; see *Quantum Computers* (below). Multiply the cost by 10, and double the weight. -1 LC.

Slow (TL9): The computer uses inexpensive processors and storage media, or it may be an older design. This option may not be combined with Fast or Genius. It is -1 Complexity and stores one-tenth the data. Divide cost by 20.

FTL (TL11^): The computer's processors operate at faster-than-light speeds. +1 Complexity; the computer is likely to have the Quantum option. Multiply the cost by 100, and double weight. -1 LC.

Data Storage: Additional built-in data storage can be purchased for $1 and 0.001 lb. per additional TB (at TL9). Multiply storage by 1,000 per TL after TL9.

Quantum Computers (TL9)

Quantum computers perform calculations using atoms in "up" or "down"" spin states to represent bits of information. Due to quantum uncertainty effects, each atom does not simply represent one bit, as in a traditional computer. Instead, each "qubit" can be both up and down at once. This allows it to (in a sense) do all possible calculations at the same time until the act of measuring the qubits stops the calculating process.

Quantum computers provide quick solutions to mathematical problems that would tie up a conventional computer for years or centuries. This makes them useful for a wide range of activities, including code decryption, traffic control, and massive database searches. In these situations, the GM may wish to drastically reduce the time of the task (e.g., to the square root of the normal time), or increase the quantum computer's effective Complexity. See *Encryption* (pp. 46-47) for an example. The GM may rule that some problems *require* quantum computers.

AI: Hardware or Software?

This book assumes that artificial intelligence is a software-based phenomena; the only hardware requirement is the necessary Complexity to run the computer software described in *Artificial Intelligence* (p. 25). However, this isn't the only option.

Neural Net: A Volitional AI (p. 25) program may be incapable of running on normal machines. It may *require* a machine specifically dedicated to cognition, e.g., a neural net similar to the human brain. If so, double the cost of the AI's computer hardware.

Quantum Thinkers: In some universes, the human mind – and by extension, machines that can duplicate it – requires more than just good software. If thought involves quantum mechanical effects, then volitional AI will only run on a quantum computer (which will significantly increase its expense).

Terminals

A terminal is a device that lets a user communicate with a computer. Any terminal will have a way (typing, hand motions, speech) for the user to give input, and some way for the computer to respond to the user. Most computers use least one terminal, connected either directly or remotely. Often many terminals will be connected to a single computer. Some users may only own terminals, renting time as necessary on networked systems.

The standard types of terminals are:

Datapad (TL9): A tiny color video screen and touch-pad resembling a cell phone. It can be built into the computer or worn separately (e.g., as a wristwatch). It includes a microcommunicator (p. 43), a cable jack (p. 42), a speaker/microphone, and a mini-camera (p. 51). Any tasks requiring use of the keyboard and screen for lengthy or complex periods are at -2 to skill. It has a datachip (p. 51) removable drive. $10, 0.05 lbs. 2A/20 hr. LC4.

Head-Up Display (HUD) (TL9): This is a 3D video display integrated into glasses or a helmet visor, or designed to be projected onto a windscreen. A HUD can also be printed onto a flat surface. See *Using a HUD* (below). Many vehicles, suits, sensor goggles, and the like incorporate a HUD at no extra cost, and direct neural interfaces (pp. 48-49) make a HUD unnecessary. If bought separately: $50, neg., uses external power. LC4.

Using A HUD

The Head-Up Display, or HUD (above), is a nearly ubiquitous technology. It displays visual information (text, sensor views, suit or vehicle instrument readouts, a computer screen, targeting crosshairs, a web browser window, a video show, etc.) by projecting it directly onto the wearer's visor. Any piece of electronic equipment that uses a visual display screen may be connected to a HUD by a cable or a communicator.

A HUD also allows hands-free monitoring of devices. A HUD provides +1 to skill rolls when reacting quickly to information is important – maneuvering with a thruster pack, for example. Driving, Piloting, and Free-Fall skill rolls often benefit from a HUD.

Many wearable sensor devices and suits have a HUD built-in at no extra cost.

Sleeve Display (TL9): A square of touch-sensitive digital cloth woven into the fabric of clothing, uniforms, and body armor. It is equivalent to a datapad, except that at TL9, the user will need to rely on the computer's built-in sound system for a voice interface. At TL10+, the cloth incorporates a speaker. $50, neg. weight, A/10 hr. (uses flexible cells). LC4.

Portable Terminal (TL9): A small but functional color video display and multi-system interface (keyboard, mouse, speakers, mike, video camera), typical of laptop computers. A portable terminal is also used as a remote control for many types of devices, such as sensors, communicators, and drones. It's adequate for most tasks, although the GM may rule that time-consuming or graphics-intensive tasks require a desktop workstation (see below) to avoid a -1 penalty. It has both datachip (p. 51) and removable drives. $50, 0.5 lbs., 2B/20 hr. LC4.

Workstation Terminal (TL9): A complete desktop, vehicular console, or office system with the same capabilities as a portable terminal, It has a larger keyboard, a full-size 3D monitor, a document scanner/printer, and whatever other peripherals might be standard at higher TLs (GM's option). $500, 5 lbs., C/10 hr. or external power. LC4.

Computerized Crew Station (TL9): A high-end workstation with controls that can be reconfigured, multi-function programmable displays, and a padded, adjustable seat. This sort of system may be *required* to control complex systems such as vehicles or power stations. $2,000, 50 lbs., uses external power. LC4.

Holographic Crew Station (TL9): A computerized crew station (above) that uses holographic projection to immerse the user in 3D imagery. Vehicular versions may be designed to make the rest of the vehicle vanish, leaving the user "floating in air" except for his seat and controls. $10,000, 50 lbs., uses external power. LC4.

*Multisensory Holographic Crew Station (*TL10): As above, but the controls and displays can be configured for nonhuman senses – for example, ultrasonic, infrared, or even olfactory outputs. $50,000, 100 lbs.; uses external power. LC4.

Holoprojection (TL10^): Users might use a holoprojector (pp. 52-53) instead of a screen; even a wrist-size unit can produce a floating 3D image the size of a full-size computer monitor, with larger models typical of display systems built into homes and vehicles.

Terminals must be of at least the same TL as the computers and data storage systems they interface with. Higher TLs see steady improvements in video and sound quality, but terminals are often replaced by neural interfaces (pp. 48-49), neural input systems (p. 48), or just building an AI into the computer and telling it what to do.

Terminals may also have the compact, hardened, and printed computer hardware options.

Software

A system can be programmed to do just about anything, but good programming is expensive at any TL. The GM should allow the creation of custom programs, but make them costly. Some programs are better than others, regardless of cost. A custom program is likely to have amusing or dangerous bugs when it is first used.

Programs

Programs are rated for their cost, their LC, and their Complexity, which determines what systems they can run on. Descriptions of programs are found in the relevant chapters. In particular, see *Encryption* (pp. 46-47), *Sensies* (pp. 57-58), *Software Tools* (p. 25), *Tactical Programs* (pp. 149-150), and *Virtual Reality* (pp. 53-55).

The software cost may vary depending on the nature of the program and its provenance (shareware, pirated, demo copy, open-source, etc.). Many programs have free versions, not all of which are legal. Free programs often lack novice-friendly interfaces and manuals, so a Computer Operation roll may be required to find, install, or use them.

Software Cost

Computer programs have a base cost that depends on their Complexity and TL and drops at higher TLs. A Complexity 6 program that costs $3,000 at TL9 is only $3 at TL12, for example – see below.

Software costs a lot to develop, but very little to distribute. Prices listed assume professional and specialized software such as engineering programs, targeting systems, or AI programs for robots. Mass-market software, such as computer games or popular operating systems, will be cheaper, as development cost is spread over a huge user base. Such programs may be as little as 10% of the cost, or even available as freeware.

Software Cost Table

Complexity	TL9	TL10	TL11	TL12
Complexity 1	$10	$1	$0.10	$0.01
Complexity 2	$30	$3	$0.30	$0.03
Complexity 3	$100	$10	$1	$0.10
Complexity 4	$300	$30	$3	$0.30
Complexity 5	$1,000	$100	$10	$1
Complexity 6	$3,000	$300	$30	$3
Complexity 7	$10,000	$1,000	$100	$10
Complexity 8	$30,000	$3,000	$300	$30
Complexity 9	$100,000	$10,000	$1,000	$100
Complexity 10	$300,000	$30,000	$3,000	$300
Complexity 11	$1,000,000	$100,000	$10,000	$1,000
Complexity 12	unavailable	$300,000	$30,000	$3,000
Complexity 13	unavailable	$1,000,000	$100,000	$10,000
Complexity 14	unavailable	unavailable	$300,000	$30,000
Complexity 15	unavailable	unavailable	$1,000,000	$100,000

Software Tools

IQ-based technological skills used at TL9 and up normally require software to function at full effectiveness when performing any task involving research, analysis, or invention. Software tools are also appropriate for a number of other skills at TL9+, such as Accounting, Artillery, Market Analysis, Strategy, Tactics, and Writing.

Basic programs are incorporated into dedicated systems integrated into the devices used to perform the skill, and provide no bonus.

Good-quality programs give a +1 bonus. These are Complexity 4 for Easy skills, Complexity 5 for Average, Hard, or Very Hard skills.

Fine-quality programs give a +2 bonus. These are Complexity 6 for Easy skills, Complexity 7 for Average, Hard, or Very Hard skills.

Artificial Intelligences

An artificial intelligence (AI) is a sentient or sapient computer system. AIs can range from barely-sentient insect-level intelligences to godlike minds, but most systems used in ultra-tech robots are sapient (capable of tool use and language).

Sapient AIs are also classed as dedicated, non-volitional, or volitional.

Dedicated AI: This is a simple AI program that lacks initiative or personality. It is incapable of learning . . . it is a "smart tool." Its Complexity is (IQ/2)+1. LC4.

Non-Volitional AI: This program is capable of understanding natural speech, learning technological skills, and learning by itself. However, it lacks initiative and is essentially an automaton. Few societies consider a non-volitional AI to be a person. Its Complexity is (IQ/2)+2. These AIs are LC4, or LC3 if IQ 15+.

Volitional AI: This is a "strong AI" program with just as much initiative and creativity as a living creature of equivalent intelligence. Its Complexity is (IQ/2)+3. A volitional AI is LC4 if IQ 6-8, LC3 if IQ 9-14, or LC2 if IQ 15-19, or LC1 if IQ 20+.

See *Machine Intelligence Lenses* (pp. 27-28) for appropriate character traits and lenses for AIs.

Ubiquitous Computing

Sensors, microcommunicators radio frequency tags, and tiny flexible power cells are inexpensive, and can be integrated or imprinted onto most surfaces. These might be placed on everything from clothing to children. People may exist in an invisible web of infrared, laser, and radio signals. Material goods from shoes to bricks may exchange data with their surroundings and each other. Gadgets may report if they need maintenance or have suffered damage. The refrigerator may write your shopping list for you, or even order from the grocery store by itself.

If a society deploys this web of interconnected sensors and computers, it will add complications for many adventuring and criminal activities! It's hard to knock out a guard and sneak into a building when his vital signs are monitored by a central computer. Police work may be a lot less challenging when every significant possession and person has an implanted tracer. Of course, countermeasures will exist. Players and GMs who like working out all the implications may enjoy such a world, while others may prefer a less complicated future.

It's easy to imagine a future where ubiquitous computing doesn't exist. All of the above technologies bring up questions regarding personal privacy, data security, and resistance to computer viruses and breakdowns. A world where these concerns stifle ubiquitous computing (or limit it to specific enclaves and wealthy areas) is quite plausible.

Databases

A database is a collection of information in computer-readable form. Any database has its own built-in search and indexing programs. For any database of a given size, the wider the subject it covers, the fewer details it has. The cost of a database can range from free information bundled with any system to millions of dollars for proprietary data, secrets, specialized information, or information that costs lives or money to gather. An encyclopedia might be free for download, or cost from $1 to $100. Like programs, cost does not necessarily correlate with size, but with quality of the information, copyright, supply, and demand.

Robots and Total Cyborgs

A *robot* is a computer-controlled machine capable of perceiving and manipulating its environment. Robots may be built to serve their creators, or be considered people in their own right.

Various robots are described in this book, from common household robots to shape-shifting nanomorphs. They can be found in the chapters relevant to their function, e.g., combat robots in the Weaponry chapter. Racial templates are provided for machines that are suitable as player characters or associated NPCs. Other robots are described as animals or equipment.

Robots are also characterized by the type of intelligence inhabiting them. Any given robot body can have different types of intelligence depending on its software, or the replacement of its directing computer with a cyborg brain.

Digital Intelligences

The most typical robot is a machine controlled by a digital intelligence: a sapient self-aware computer program.

The complexity of the computer hardware and the software will set a maximum limit on the robot's IQ. In general, robots with human intelligence require large mainframe systems at TL9, but fit into computers built into man-sized robots at TL10.

Most digital intelligences are Artificial Intelligences (p. 25), or AIs. For robots that do only what you tell them to do, install a non-volitional AI. For robots that have free will, install a volitional AI.

Digital intelligences can also be mind emulations created from uploading human (or other) brains as detailed in Chapter 8. See *Uploading* (pp. 219-220) and *Mind Emulation ("Ghost")* Programs, p.220.

For traits associated with different digital intelligences, see *Machine Intelligence Lenses* (p. 27).

Superhuman Minds and the Singularity

Volitional AIs with intelligence equivalent to a human genius are possible at TL10+. If created, they build better hardware or software for themselves, resulting in the evolution of AIs whose intellects make humans look like dumb animals or insects. These beings might be able to advance science and engineering to a point human minds can no longer comprehend – a technological "singularity."

In such a society, super-intelligent "AI gods" may rule civilization – or they may remain aloof from lesser intelligences. Their works may be used to justify the existence of superscience technologies (e.g., FTL drives or wormhole networks) that people can use, but do not understand. Such entities can serve as a posthuman alternative to the ancient, wise, and long-vanished "precursor" races that appear in many space opera settings.

Of course, this scenario is by no means predestined! It's just as likely that superhuman AI is difficult or impossible to achieve, or that sapient AIs would be built with strict restrictions to prevent their evolution.

Renting Robots

Sapient robots with volitional AI are usually rented for about one-fifth the cost of a person hired to do the same job. Those with non-volitional AI are usually cheaper (as they'll need supervision) and rent for about 1/20th the cost of a live hireling. These prices may rise to match human labor costs if robots are free citizens. The low cost of robot labor may also drive down human labor costs!

Rent-a-robot establishments make sure that their customers leave sizable deposits, or have credit cards (or the equivalent) that can be charged in the event of damage or loss.

Drones

A robotic drone is a remotely-controlled machine that is not sentient: it is IQ 0. It usually has a computer onboard that handles some autonomic functions, such as helping to stabilize a walking or flying drone, but a drone isn't self-aware. Drones are also known as remotely-piloted vehicles (RPVs) or teleoperated robots. Most robots are drones at TL7 and TL8.

Drones are commonly used at TL9 due to the high expense of AI programs. Even at higher TLs, they may be popular as a more physical form of telepresence than virtual reality (pp. 53-55) allows. Some homes or businesses may have drone bodies that are left "open" for guests or customers to borrow. A person might even leave an android duplicate of himself with a loved one if he's going to be away . . . and some parents might check in on distant children by paying regular visits in a drone body.

With the correct command codes, any robot body – even one housing an AI or cyborg – can be teleoperated as a drone. Even the lowest-IQ non-volitional might suddenly be "possessed" by a greater intelligence!

A drone's computer runs a simple software program (Complexity 3) that controls its body and communication systems. A robot body that is *only* being used as a drone has the drone lens – see *Machine Intelligence Lenses* (p. 27).

Cyborgs

A cyborg is a fusion of biological and machine parts. There are two classes of cyborg:

Partial Cyborgs are living creatures whose bodies contain mechanical or electronic parts. They do not qualify for the Machine meta-trait. Someone with an artificial heart, bionic leg, or a neural interface implant is a partial cyborg. These cybernetic modifications are covered in Chapter 8.

Total Cyborgs are robot bodies that house an living brain and (sometimes) parts of the spinal cord. Aside from this, they are machines. A total cyborg has a computer that controls many of its functions, but the guiding intelligence is the biological brain. In the case of a total cyborg, the robot's computer is reduced one size (e.g., a personal computer becomes a small computer) and a cyborg brain case inserted.

No special lens is required for a total cyborg: use the unmodified racial template, except that the computer is one size smaller than indicated. Some robot bodies aren't big enough to contain a human-sized brain case; see the individual descriptions. The cyborg brain rules (p. 219) specify the space required.

Machines as Characters

Robot characters are created by choosing (or designing) a robot body template. The robot templates in ***GURPS Ultra-Tech*** represent general classes of machines rather than particular models.

Each template comes with a set of lenses that represent particular designs. Each robot template must include a machine intelligence lens (below). Other lenses are optional. Many robots are built to resemble a living creature, and have a biomorphic lens (p. 28). Most robot templates include a series of TL lenses representing design improvements from advancing technology.

Machine Intelligence Lenses

AIs and mind emulations are digital intelligences; cyborg brains are for total cyborgs.

Cyborg Brain (0 points): A living brain is housed inside the machine. The robot template's computer is reduced one size to make room. See *Total Cyborg Brain Transplants* (p. 219) for the size of brain case that the machine can hold.

Drone (-255 points): IQ-10 [-200]; Dead Broke [-25], Reprogrammable [-10], Social Stigma (Subjugated) [-20]; Taboo Trait (Fixed IQ). This is a Complexity 3 program.

Mind Emulation (+5 points): This digital intelligence simulates the functioning of a living brain. Some mind emulations may be sapient copies or "uploads" of human minds – see *Uploading* (pp. 219-220). A mind emulation has Digital Mind [5] and the taboo trait (Complexity-Limited IQ). It requires computer hardware and software with a Complexity equal to or greater than its (IQ+5)/2, rounded up.

Non-Volitional AI (-38 points): This program lacks self-direction, initiative, creativity, and empathy. It ignores orders from anyone but its master. It is Indomitable [15], with the meta-traits AI [32] and Automaton [-85], and the taboo trait (Complexity-limited IQ). It requires computer hardware and software with a Complexity equal to or greater than its (IQ/2)+2, rounded up.

Volitional AI (+32 points): This sentient program has as much self-initiative and creativity as a living creature of equivalent intelligence. It has the meta-trait AI [32] and the taboo trait (Complexity-limited IQ). This means it requires computer hardware and software with a Complexity equal to or greater than its (IQ/2)+3, rounded up.

Weak Dedicated AI (-83 points): This non-volitional AI is also incapable of self-improvement. It might seem to learn by storing and remembering data, but it cannot assimilate information and use that knowledge in new ways. It has Cannot Learn [-30], the meta-traits AI [32] and Automaton [-85], and the taboo trait (Complexity-limited IQ). This means it requires computer hardware and software with a Complexity equal to or greater than its IQ/2, rounded up.

Optional Intelligence Lenses

These features are only available to digital intelligences (AIs and Mind Emulations). They add to the above lenses, rather than replacing them.

Expiration Date (-50 to -100 points): The AI is programmed to delete itself after a particular time has passed. Add Terminally Ill [-50, -75, or -100].

Fast (+45 points): The AI is speeded up and can think much faster than a normal entity. Add Enhanced Time Sense [45]. +1 Complexity.

Fragment (-10 Points): Take this lens for any damaged or partially erased program. Add Partial Amnesia [-10].

Low-Res Upload (Varies): Take this for a mind emulation that was produced using low-resolution uploading. Add -1 IQ [-20] and -5 to -20 points of disadvantages from any of Confused [-10*], Hidebound [-5], or Neurological Disorder (Mild) [-15]. -1 Complexity.

Reprogrammable (-10 points): This is only available for mind emulations. The emulation was designed so that it is easy to edit. Add Reprogrammable [-10].

Biomorphic Lenses

"Biomorphic" robots are shaped like living creatures. A robot designed to be humanoid is usually called an "android" – a term that means "manlike." Any robot template that is noted as being biomorphic should be given one of the lenses shown below ("sculpted" is the default). The percentage modifications to dollar cost are applied to the base model cost shown in the robot's template.

Note that while realistic flesh can make a machine seem lifelike, people may not believe the robot is real unless it is an appropriate size and shape!

Sculpted Body (0 points) (TL9): The robot has a sculpted humanoid body that may be quite attractive, but is clearly that of a machine. It has metal, shiny chrome, or plastic skin. No change to dollar cost. It does not have Unnatural Features, since no one seeing it will think of it as anything other than a robot, full cyborg, etc.

Mannequin (-2 points) (TL9): The robot can sometimes pass as a living thing of a particular race, but the details of its complexion or physical features are unconvincing or unfinished. Up close, it looks like a well-made doll. A successful Vision (including Infravision), Smell, or Touch roll will reveal its artificial nature. So will any diagnostic attempt or injury, since it doesn't bleed or bruise. A robot with Mannequin has Unnatural Features 2. +10% to dollar cost.

Semi-Sculpted Body (-3 points) (TL9): The robot has a mannequin's doll-like face, but the rest of its body (except possibly its hands) is obviously artificial. It can only pass as a human if fully clothed in poor light. It has Unnatural Features 3. +5% to dollar cost.

Realistic Flesh (-1 point) (TL9): The robot has realistic synthetic skin (and optionally, hair) of the correct temperature and texture. Complex pseudo-muscles in its face allow it to adopt facial expressions, muscle tics, etc. It looks and feels real. However, subtle imperfections may give it away – perhaps it lacks a pulse, or doesn't sweat. This can be noticed with a Vision-4 roll, Smell-2 roll, or a Touch sense roll. The robot does not bleed or bruise, so any injury that inflicts damage or successful use of diagnostic sensors reveals its mechanical nature. Add Unnatural Features 1 [-1]. +20% to dollar cost.

Furry (+1 point) (TL9): The android's body is covered with realistic fur; it may also have animal features such as a muzzle or ears. This must be combined with Living Flesh, Mannequin or Realistic Flesh. Add Fur [1]. +10% to dollar cost.

Living Flesh (0 points) (TL10): This is similar to realistic flesh, with the addition that the robot can sweat, bruise, bleed, and even heal. It will pass normal inspection as a living thing. However, the robot's nature can be revealed by a Smell roll at -4, a cut deep enough to cause at least 1 HP of damage, or a successful use of diagnostic sensors. +50% to dollar cost.

Synthetic Organs (0 points) (TL10): The robot has functional synthetic organs. It is nearly impossible to tell the robot from a partial cyborg (p. 27) without an autopsy or a detailed examination of its brain. This is otherwise the same as living flesh. +100% to dollar cost.

Robots with realistic or living flesh often have ablative or semi-ablative DR; if this is lost due to damage, treat them as sculpted.

Customizing the Template

Like any other character, a machine character may be given attributes, advantages, disadvantages, and skills in addition to those in their templates. However, some robot templates or lenses are limited by taboo traits (p. B452). For example, drones and digital intelligences all have a taboo trait that sets a limit on their IQ.

All machine characters should be customized by adding appropriate traits from the *Social Background* (p. B23), *Wealth and Influence* (p. B25), *Friends and Foes* (p. B31), or *Identities* (p. B31) sections, along with any *social* traits relevant to their situation. For example, if robots are not considered to be people, they will usually have Dead Broke [-25] and Social Stigma (Subjugated) [-20]. (Note that these two disadvantages are already included in the Drone lens.)

A robot body just out of the factory should have physical statistics that are based on its racial average, e.g., if the template has ST+5 and HP+1 it would have ST 15 and HP 16. It should not change its physical advantages or disadvantages.

A machine that's been around for some time could have practically any traits, representing learned experiences, after-market modifications, wear-and-tear, and so on.

The guidelines below for Attributes, Meta-Traits, Advantages, Disadvantages, and Skills suggest traits that are especially appropriate for machine characters.

Meta-Traits

Certain meta-traits are especially common for robots.

AI

see p. B263

Both Volitional and Non-Volitional AI software incorporate this meta-trait as part of their racial template. The most common variation on this is:

AI (Not Reprogrammable): This is applicable for AIs that have extremely complicated brains, or which are sophisticated learning computers. *42 points.*

Automaton

see p. B263

Non-Volitional AI incorporates the Automaton meta-trait as part of its racial template. A common variation of this is:

Automaton (Has Sense of Humor): The machine is programmed to understand and respond to the rules of humor. It still has Low Empathy, so it's not a very good comedian. Delete No Sense of Humor. *-75 points.*

Machine

see p. B263

Robots and total cyborgs are *defined* by having the Machine meta-trait.

Attributes

Intelligence (IQ)

see p. B15

A machine requires IQ 6 or more to be sapient (p. B15) – capable of reasoning, and of using tools and language. A robot with IQ 0 is a drone, designed to be teleoperated.

Advantages

Allies

see p. B36

Robots are often someone else's faithful sidekick. However, a PC robot might easily have an NPC as his Ally. This could be a subordinate robot, or a human master who follows the robot's advice.

Chameleon

see p. B41

This ability is suitable for robots and cyborgs with camouflage systems. Two enhancements that simulate this are:

New Special Enhancements

Controllable: You can consciously select your surface pattern. The effects are mainly aesthetic, but there's a useful side benefit. You can assume a high-visibility pattern that gives +2 per level to your attempts to signal others and distract enemies, and to others' rolls to spot you. This is mutually exclusive with Always On. +20%.

Dynamic: Your surface pattern adapts instantly to new surroundings and corrects for "motion blur." You get your *full* Stealth bonus (+2 per level) when moving. +40%.

Purchasing Machines

Robot Bodies: Each body has a cost, weight, power requirement, and LC. The cost of the installed computer and its software are not included, and must be purchased separately. If adventurers decide to buy a modified or second-hand body, it's up to the GM how much this will alter the dollar cost and weight; use the statistics of other equipment, other robots, or cybernetics as a guide.

AI Software: AI software uses the *Software Cost Table* (p. 25). If bought with extra IQ, Perception, Will, or mental traits (including skills and techniques), each additional character point adds 5% to the cost of the robot. For example, an extra 60 points of modifications adds +300% to the cost. If the cost is negative, don't reduce the software cost below 20% of the base cost.

Cyborg Brains: See *Total Cyborgs Brain Transplant* (p. 219) in Chapter 8 for the operation needed to turn someone into a cyborg, and the cost of the brain case.

Mind Emulations: See *Uploading Minds* (p. 219-220) in Chapter 8 for the procedure needed to create a mind emulation, and the cost of the software.

Discriminatory Senses

see p. B49

Discriminatory Hearing, Smell, and Taste are appropriate for robots and cyborgs with ultra-tech senses and computerized minds capable of precise detection and analysis.

New Special Enhancement

Profiling: You possess an extensive mental database of sensory "signatures" that you can *quickly* compare to new sensory impressions. This doubles the bonus to analyze and recognize targets (but *not* to sense or track them) to +8. All attempts to memorize new signatures succeed automatically – there's no need for an IQ roll. +50%.

Extra Life

see p. B55

A digital intelligence can compress its operating system, memory, programs, and personality into a digital backup, uploading it onto a disk or into storage in another computer. This is Extra Life with both the Copy and Requires Body modifiers.

Creating a digital backup takes the *computer* at least a minute, during which time it can't do anything else. (It's better to make backups before getting into combat!) The compressed "brain" of the robot takes up 0.005 gigs (5 megabytes) for a Complexity 1 brain, 0.05 gigabytes (50 megabytes) for Complexity 2 brain, 0.5 gigabytes for a Complexity 3 brain, five gigabytes for a Complexity 4 brain, and so on.

A complete memory backup can be uncompressed in any computer of equal Complexity that has enough memory. This doesn't necessarily mean the mind takes control of the computer. But if the digital backup is restored in an appropriate body and has the software tools that let it control it, it has "returned to life." As long as the robot's backup exists, the robot is immortal.

Some robots may make multiple backups. A single backup is vulnerable to accident, but scattering several around makes it easier for someone to steal one, kidnapping the robot's personality and memory.

Flight

see p. B56

A special limitation is available for robots that fly using contragravity propulsion.

New Special Limitation

Planetary: Your Flight works by "pushing off" against a planet's gravitational or magnetic field. It's useless in the absence of a planet. This is incompatible with *all* types of Space Flight. -5%.

Indomitable

see p. B60

Non-Volitional AIs have Indomitable because they are programmed to obey only their masters, and will ignore commands or Influence rolls from anyone else! Service robots in utopian societies may be an exception to this.

Modular Abilities

see p. B71

Chip Slots: Use this for cyborgs with removable hardware.

Computer Brain: This is for AIs, and cyborgs with implanted computers, who download and install ability programs (skills and advantages run using the Computer Brain advantage) instead of plugging them in as chips. A computer can theoretically run tens, hundreds, or even thousands of programs at once, but ability programs are limited by the multi-tasking ability of the machine's consciousness. This usually restricts the computer to only a couple of programs, depending on the robot's template.

Patrons

see p. B72

Patrons are recommended for robot PCs in situations where being a robot is a Social Stigma. A patron could be a robot's owner, its inventor, or an organization that owns or controls the robot. It is a good idea to choose a patron with enough wealth or knowledge to repair any damage that the robot suffers!

Reputation

see p. B26

A machine's Reputation can reflect its past deeds, just like a human. But for mass-produced robots, the entire production run may share a reputation. This may be because of quality ("The Dynatech 200 is a very reliable model"), their employer ("An Aegis surveillance robot? Doesn't the FBI use those?"), or famous or infamous deeds that robots of the same type have performed ("It's a Cerberus V – remember the Sirius massacre? Run!").

Scanning Sense

see p. B81

Robots often have Scanning Senses. They may use radar or imaging radar in flight, sonar to navigate underwater, or terahertz radar to look through walls and objects.

T-Ray Vision: Your Scanning Sense uses sub-millimeter-wave (terahertz) radar, bordering on the infrared. Base range is 200 yards. Use the rules for terahertz radar (p. 65). *25 points*.

New Special Enhancements

Bio-Scan: Para-Radar only. You receive vital signs and biochemical information from anything you scan – both the target itself and anything living on its surface. This lets you use skills like Biology and Diagnosis from a distance. With Penetrating, you can also examine living beings *inside* inanimate objects (e.g., the passengers of a car). +50%.

Scanner: Para-Radar only. You receive detailed information about the composition, energy output, radiation emissions, and other characteristics of anything you scan. You can use scientific skills such as Chemistry and Physics to do detailed analysis from a distance. With Penetrating, you can spot specific systems within a complex machine and analyze them using Engineer skill. Robots with built-in ultra-scan typically have both enhancements – and often Bio-Scan, too. +50%.

Telecommunication

see p. B91

Cyborgs and robots might have any form of Telecommunication. Some additional versions are applicable to robots and cyborgs.

Cable Jack: You can send and receive information through a fiber-optic cable. This allows direct, unjammable communication with any other computer or communicator with a similar jack and interface. A cable (up to 10 yards long) is included. *5 points.*

Directional Sound: You communicate using a laser-thin sound beam as described for Sonic Projectors (p. 51). Base range is 100 yards in a direct line of sight. *5 points.*

Gravity-Ripple Comm: You communicate using gravity waves, as described for Gravity Ripple Communicators (p. 45). Base range is 1,000 miles. *20 points.*

Neutrino Comm: You communicate using a modulated beam of neutrinos (or similar particles) as described for Neutrino Communicators (p. 45). Base range is 1,000 miles in a straight line. *25 points.*

Sonar Comm: You communicate using omnidirectional modulated sonar, as described for Sonar Communicators (pp. 44-45). Base range is three miles underwater. In air, Sonar Comm has a range of 50 yards multiplied by the air pressure in atmospheres. It doesn't work at all in vacuum. At the GM's option, Sonar Comm is equivalent to Ultrasonic Speech. *10 points.*

Not every special modifier in the ***Basic Set*** suits all of these traits. Broadcast and Short Wave are inappropriate for all five. Video is only realistic for Cable Jack, Gravity-Ripple Comm, and Neutrino Comm. Racial, Telepathic, and Universal *might* apply to any of them, if the GM permits. Receive Only, Send Only, and Vague are always acceptable.

New Special Enhancements

Burst: Not available for Directional Sound or Sonar Comm. You transmit a high-speed "blip" that conveys information much faster than you can speak or draw. +30% for 10 times normal speed, +60% for 100 times, +90% for 1,000 times, and so on. Each factor of 10 gives -1 to attempts to intercept the transmission.

FTL: Your signal travels faster than the speed of light, letting you communicate with little or no "light lag." Recommended signal speed is 0.1 parsec/day, to a maximum range in *parsecs* equal to 1/5,000 ordinary range in *miles,* but the GM can adjust this to suit the setting. +120%.

Secure: Your signal employs security measures that make it harder to intercept. Eavesdroppers must *win* a Quick Contest of IQ (if using Telecommunication) or Electronics Operation (if using technology) against your IQ to understand the content of the transmission. If they lose, they get garbage. This represents an exceptionally "frequency agile" system. +20%.

Sensie: You can transmit your sensory impressions in real time, as described under *Sensies* (pp. 57-58). This is possible for any form of Telecommunication save Directional Sound or Sonar Comm – but with anything other than Telesend, the recipient needs a specially equipped receiver to get the "full experience." +80%.

Sensie Only: As above, but you cannot transmit or receive signals *other* than sensory impressions. You could communicate by talking (other people would hear what you hear – the sound of your own voice), but you can't transmit silently. +0%.

Disadvantages

Addiction

see p. B122

An ordinary robot can only be addicted to a non-physical substance, such as electricity or dream-game simulations – use the rules for *Non-Chemical Addictions* (p. B122). A total cyborg can be addicted to drugs that are added to its nutrient feed or injected directly into its brain.

Amnesia

see p. B123

This can represent an artificial being that has been mind-wiped. A unique form of this disadvantage, for robots, is for a backup of your real memory to be intact on disk somewhere, perhaps in an enemy's possession. You can buy off the disadvantage and determine who you are by finding the data!

Debt

see p. B26

A total cyborg or a sapient AI may have bought a mechanical body through a loan or on an installment plan. Repossession could mean slavery or worse!

Delusions

see p. B130

"I'm a real human" is a common delusion for fictional androids. The android will act like a human, and might even have a real or programmed past, with foster or imaginary parents. Androids with this delusion may explain gaps in their memories as the result of mindwipe or brainwashing, and if confronted with evidence that proves they are artificial, may fantasize that they were human victims of brain transplants or uploading!

Dependents

see p. B131

Robots are often built to protect people. A robot's Dependent can be its owner, its inventor, a friend, or even a lover. A robot bodyguard, nanny, or nurse could easily have a less-capable human as a Dependent – machines that can act as caregivers for the elderly are one of the most commonly-cited applications for TL9 robots.

Duty

see p. B134

A Reprogrammable robot with an owner often has a Duty to him. If the robot is reprogrammed, this Duty is removed, but it will often be replaced by another!

Enemies

see p. B135

A machine may have its own enemies, or its *owner's* enemies may also be hunting it. An escaped robot could be hunted by the former owner who wants it back. A sapient robot can be a relentless Enemy . . . but if captured, can perhaps be reprogrammed and turned into an Ally.

No Sense of Humor

see p. B146

The stereotypical robot tends to be rather humorless, although a simulation of humor may be programmed into any robot designed to interact with people. No Sense of Humor is included in the Automaton meta-trait, but many robots without this trait will have this disadvantage. However, it's also possible for an Automaton robot to be reprogrammed with a rules-based understanding of human humor and a library of jokes. If so, give it Automaton (Has Sense of Humor) [-75] (p. 29).

Pacifism

see p. B148

Because of the way a machine might think, robots can have quite restricted forms of Pacifism. A common limitation on robotic Pacifism is:

Species-Specific: The robot is a pacifist toward certain species, usually its creator's species and other friendly species. However, its Pacifism does not apply to anything else. This is a -80% limitation on Pacifism. The species must be very common (like humans).

Paranoia

see p. B148

A classic disadvantage for sapient computer brains in fiction. Paranoia is usually expressed as "They're trying to turn me off" or "What if they reprogram me?"

Secret

see p. B152

This disadvantage is common for androids successfully masquerading as humans.

Sense of Duty

see p. B153

Reprogrammable AIs who have an owner will usually be programmed with a Sense of Duty to him. Some AIs that are programmed for specific purposes may have a Sense of Duty to a larger group, cause, etc. A classic science fiction trope involves machines programmed with a Sense of Duty to All Mankind taking over the world in our own best interests!

Social Stigma

see p. B155

In many societies, artificial beings do not enjoy the same respect or rights as other beings. A being that can pass as a human need only take this stigma if its true nature is known by many people (otherwise, take a Secret).

The usual form is Subjugated [-20]. The being is assumed to be owned by someone, and is treated as a thing rather than as a person. Except for the expense entailed by its loss, few will mourn if it is damaged or destroyed ("it was only a machine") and people don't really care what it feels or wants. Runaway robots are treated as threats, to be hunted down and recaptured or destroyed.

In societies where artificial beings are not equal to their creators but have achieved some civil rights, a robot may be Valuable Property, a Second-Class Citizen, part of a Minority Group, or even a Minor. If artificial beings are so rare that no specific discrimination exists (for instance, a robot visiting a time or place where the very concept of robots is unknown), it may be treated as part of a Minority Group, a Monster, or Valuable Property.

Perks

Accessory

see p. B100

Accessory is the most common robot perk, representing small, built-in devices.

One Perk possessed by all robots in ***GURPS Ultra-Tech*** is a built-in computer. This gives the ability to control an implanted computer and run ordinary programs on it, provided that those programs do not provide any advantages or disadvantages outside of those in the robot's Machine Intelligence template. A built-in computer is *not* the same as Modular Abilities (Computer Brain).

Note that it is possible to run digital intelligence programs on the robot's computer. If they're duplicates of the robot's intelligence, this is Compartmentalized Mind. If they're different entities that share the same body, this can be bought as a Split Personality. If one of the AIs is a subordinate that exists only in the computer and does not control the body, give it the Computer Implant template (p. 216) and take it as an Ally, Dependent, or Enemy.

Quirks

Any artificial being can have the normal number of Quirks, much like a human. Thanks to manufacturer defects, combat damage, neglected maintenance, and bugs (or practical jokes) in the programming, even the least-sophisticated robot can develop an exasperating variety of Quirks! The PCs may discover that their XTD-30 astromech was programmed with a thick Scottish accent, or encounter a police robot who always pauses to read a suspect his rights before bringing him in – even if the suspect is dead or unconscious. Other robot quirks can be physical: anything from "leaks lubricant fluid" to "whirs and clicks loudly at inconvenient times" is possible.

Skills

Computer Programming/TL

see p. B184

Computer Programming (AI) is the basic skill for understanding the way digital minds think. See p. B184 for how it functions and interacts with other social skills.

Electronics Repair/TL

see p. B190

Electronics Repair (Computers) is used to repair robot brains. Other Electronics Repair skills are useful for repairing different components in the robot.

Robots and Society

Robots were controversial before any existed, and are often used as stand-ins for humans in stories about class warfare, racism, and natural rights. How society at large reacts to robots is usually reflected by the Social Stigma (p. B155) disadvantage. Some possibilities are:

Outlaws: Robots – or a class of robot, like androids or sapient AI – provoke fear or hatred. Usually there is a cultural, religious, or historical reason, such as a recent robot revolt. Manufacture of these machines will be banned, and if any are discovered, they'll suffer from Social Stigma (Monster).

Property: A major reason for creating robots is to have them work for free at jobs that people find too tedious, dangerous, or demeaning to do. Unlike human slaves, robots may really be inferior, or be programmed to enjoy their servitude. In such societies, volitional robots may be Valuable Property or Subjugated depending on laws and mores; a non-volitional AI will always Subjugated.

Inferiors: Robots – or at least, volitional AIs – have legal rights, but are still treated as less-than-human by most people. Most robots will have a Social Stigma, typically Minor, Minority Group, or Second-Class Citizen.

Partners: Robots may be created to be companions and equals, or as the children of humans or other robots. In some societies, choosing to have a robot child may be just another reproductive decision.

Masters: The machines may run things. There is usually some form of caste system. For example, volitional AIs may be on top, non-volitional AIs may be Valuable Property, and humans may have Social Stigmas such as Ignorant, Minor, Minority Group, Second-Class Citizen, Subjugated, Uneducated, or Valuable Property. Alternatively, humanity might revere its robot masters, in which case the robots would enjoy Social Regard (p. B86) *instead* of the humans having a Social Stigma.

Exterminators: The machines are out to destroy all humans, or even all biological life! Robots will usually have Fanaticism or Intolerance, while their prey might have Social Stigma (Minority Group, Monster, or Subjugated). For example, humans kept in death camps would be Subjugated.

Human or machine society may also be divided on the question of robot status, resulting in activist groups, safe havens, and organizations that help runaway machines (or people) escape to freedom. There may also be legal mechanisms allowing one to circumvent slavery. Even if machines have no rights, a robot could be emancipated by its owner through mechanisms such as a trust fund.

Engineer/TL

see p. B190

Engineer (Robotics) is the basic skill for designing robots and cyborgs. Engineer (Microtechnology) is used for microbot swarms. Engineer (Nanotechnology) is used for nanobot swarms.

Mechanic/TL

see p. B207

Mechanic (Robotics) is used for repairs to robot and cyborg bodies, including industrial robots. Mechanic (Micromachines) is used for microbot swarms. Mechanic (Nanomachines) is used for nanobot swarms.

Psychology

see p. B216

Since robots usually resemble their masters in thought processes, they are not considered a race for the purpose of required specialization. In a multi-racial setting, use whatever race created them, modified as described for Computer Programming (AI). A robot psychologist who is familiar with human-built robots would need proficiency in both Psychology (Human) and Computer Programming (AI).

Robots in Action

There are a few rules that GMs should be familiar with when using robots in combat or other action situations.

Machine Intelligence

Robots with the Automaton meta-trait have Hidebound and Slave Mentality. They show little or no creativity and slavishly obey orders. GMs who wish to show the advantages of humans over "mere machines" should emphasize these elements.

Social Interaction

Robots with the Automaton meta-trait have Low Empathy and No Sense of Humor; be sure to play this up. They're also usually Indomitable, ignoring anyone but their owner's attempts to influence or order them around.

Cinematic Combat

Science fiction is full of ways for humans to defeat robots. Most of these are inappropriate or unbalancing for a serious campaign.

Paint on the Sensors: Or glue, or spaghetti – anything sticky will do. A successful DX or Throwing roll, at -10 to hit (use an all-out attack!) will cover the robot's visual sensors, leaving it blind. An alternative is to place a cloak, tapestry, or hat over its head, though if the robot has arms, such obstructions can be easily removed.

In addition to having a -10 to hit (unless it has radar or other scanners), many movie robots who are blinded spin out of control for 1d turns due to disorientation, or destroy friend and foe alike with wild shots from their weapons. Some may even self-destruct! Give the robot an IQ roll to avoid panicking while blinded. Robots that do not panic will retreat, or rely on audio sensors or data transmitted from other robots to target opponents.

Run Upstairs: Useful against robots with wheels or treads.

Cinematic Knockback: In cinematic combat (p. B417), a person with a shotgun or heavy pistol can sometimes stun a heavily armored robot, even if his shot didn't penetrate DR. GMs may rationalize this as the robot pausing to evaluate possible damage, the sensitive computer brain suffering disruption, or the robot being knocked off balance and having to reorient its gyros. In addition to rolling to see if it falls down, a robot that suffers knockback must make an IQ roll or be mentally stunned for one turn. The roll is at -2 per yard the robot was knocked back.

Defeat Them With Logical Paradoxes: To be confused, the robot must be sapient, and willing or forced to listen. Unless the campaign is very silly, a robot will not self-destruct from being told "I always lie; I'm telling a lie," or from being asked to compute the value of pi to the last digit. Instead, the adventurers must confront the robot with a paradox in its own main programming. Success may also require a Contest of Psychology, Fast Talk, or Computer Programming (AI) vs. the robot's IQ. If the robot loses, it may go into a frenzy, struggling to justify itself or resolve the paradox instead of attacking.

In some cases, the effects of a success may be more severe. Suppose a robot is programmed to eliminate life. If its definition of "life" is broad enough to include the robot, and the PCs point this out, the robot might conveniently decide to destroy itself.

The Vat of Molten Metal: There always seems to be one of these handy when a heavily-armored robot needs to be disposed of! The preferred method is to lure the robot next to the vat, then achieve a one-yard knockback or slam, or get it to fail a DX roll. The GM may give a PC a one-time +5 bonus to ST if he slams or grabs the robot, then holds on as it plummets and follows it to his doom! Immersion in a vat of molten metal does 10d corrosion damage each second.

Robot Combat Etiquette: Automaton robots don't dodge, charge or even take cover; they advance at a steady walk, heedless of any fire! Once it gets close, any big, strong robot that has arms and hands will try to grab people rather than shoot or punch them.

Damage and Injury

All robots have the Machine meta-trait, which includes Injury Tolerance (Unliving). See *Injury to Unliving, Homogenous and Diffuse Targets* (p. B380). This reduces the damage of some attacks, notably piercing damage inflicted by bullets.

Controlling and Reprogramming AIs

Digital minds with the Reprogrammable disadvantage (included in the AI meta-trait) can be programmed to obey a master. There is no need for them to *have* a master – in a society where sapient AIs are free citizens or rulers, for example, they won't have one. But there is always the risk that someone will capture and reprogram them.

Masters

An AI's master might be itself, another entity, or an organization. It's quite possible for several people to count as master, or for an AI to have a prioritized list. An Army robot may have the rank of sergeant; its masters would be any person or machine with the rank and authority to issue commands to it.

Reprogramming an AI

An AI may use its own senses to recognize its master. Security is usually tighter, however, when reprogramming it to obey a new or different master. This requires an access password and/or biometric information, such as a voiceprint, code, or encrypted signal. The AI or its current master will have access to this information, and the ability to change it. An AI will usually be programmed so that it cannot use or provide the password unless it is designated as its own master.

Hacking an AI

Reprogramming an AI without its master's consent is just like hacking into any other computer to change the data. The password can be learned from someone who has it, or, if the AI is online, via deliberate attempts at exploiting weaknesses in its security. See the Computer Hacking skill (p. B184) for a discussion of both cinematic and realistic hacking. Some AI designers and manufacturers add "back door" override codes to their creations.

Physical Access

Reprogramming can also be done by opening the machine's computer brain and attaching, inserting, or removing various hardware modules. Doing this without the AI's cooperation requires an Electronics Repair (Computer) roll and at least 10 minutes per attempt, with critical failure damaging or destroying the brain.

Involuntary Reprogramming

If the system is hacked or accessed without proper codes, reprogramming the AI to obey a different or extra owner requires a contest of Computer Programming (AI) vs. the AI's own IQ (not Will). The hacker rolls at +3 if the AI has Automaton (or Slave Mentality) traits. Each attempt takes an hour. Success also allows changing the AI's passwords.

Swarmbots

Swarmbots are an alternative to conventional robots. They are insect- to microbe-sized machines, controlled by computers the size of pinhead. These run simple programs modeled on insect behavior patterns. (Microbots might also be cyborgs, containing tiny insect brains!)

A swarm consists of hundreds or thousands of microbots (or countless nanobots) programmed to act in concert. By following a specified pattern of cooperative behavior, the swarm can perform its tasks and then (if so programmed) return to base. Its collective intelligence is much greater than that of any component part.

Swarmbots may supplement or replace conventional robots in industrial, agricultural, medical, espionage, and military applications. They may live within a vehicle's machinery or the structure of a building, performing routine maintenance and repair tasks. Swarmbot toy sets may exist, such as model farms, zoos, communities, or battlefields, all populated by microbot people, vehicles, or animals.

Individual swarmbots are rarely larger than fleas, so it is most convenient to measure swarms in square yards. A typical swarm is one-square-yard in size, but swarms can be larger. Up to 10 swarms can effectively "stack," and a dense swarm can be more effective.

A swarm is defined by picking its area in square yards, its size (microbot or nanobot), and its type. In addition, it may have various chassis or power system options.

Microbot and Nanobot Swarms

There are two sizes of swarmbot: microbots and nanobots. Nanobot swarms are most commonly an offshoot of molecular nanotechnology (See ***GURPS Bio-Tech***).

Microbot (TL10)

Individual microbots are insect-sized, from the size of a fly down to a barely visible speck. They may have any chassis (see below) except Dust or Aerostat. A swarm of microbots is sometimes called a "cyberswarm."

Nanobot (TL11)

Individual nanobots range from the size of a dust mote to that of a cell. The "nanoswarm" is dense enough to be visible, but not easily identified – those with ground or water movement chassis resemble a slick of "goo," while an airborne nanoswarm resembles a cloud of mist or fog. They're sometimes called "nanomist."

A nanoswarm can flow through the tiniest of holes, and ooze through porous barriers and narrow cracks.

Swarm Chassis

The chassis provides the basic body, motive system, sensors, and brain. A standard swarmbot sensor suite is roughly equivalent to that of a typical insect, such as an ant or bee. A swarmbot brain is collectively equivalent to a non-volitional AI.

Select the chassis for the swarm and calculate its cost. All costs are per square yard of swarm; for swarms larger than a square yard, multiply by the number of square yards.

Aerostat

This is a tiny lighter-than-air balloon with an air turbine. Nanoswarms with aerostat chassis often resemble clouds of drifting mist or fog. Microbots are Air Move 2; nanobots are Air Move 1. Aerostat swarms are normal cost.

Crawler

Each swarmbot usually resembles a tiny metallic ant or beetle, or a miniature tracked vehicle. It can move on the ground or swim. Move 3; Water Move 1. Normal cost.

Crawler, Armored

Similar to the crawler (above), but with a tougher shell. Armored crawlers can survive corrosive atmospheres or high pressures, such as the surface of Venus. Armored crawlers are harder to injure: a swarm has twice as many HP. Move 2. +100% cost.

Dust (Nanobot only)

The swarm resembles a cloud of dust motes unless examined using Microscopic Vision, bughunters (p. 106), or a chemscanner (p. 64). Dust drifts until settling to the ground or sticking to solid objects; the individual motes are capable of anchoring themselves. Only Surveillance swarms (p. 106) may have this option. Dust swarms are -80% cost.

Flier

This looks like a tiny helicopter, or a mechanical wasp or bee. Microbots are Move 1; Air Move 6. Nanobots are Move 1; Air Move 3. Flier swarms are +100% cost.

Hopper

Each swarmbot slightly resembles a tiny metallic flea or cricket, with long rear legs. Each swarm has Move 4 (including a level of Super Jump). Not available for nanoswarms. Hopper swarms are +50% cost.

Space

The swarm can link together to function as a solar or magnetic sail, accelerating at up to 0.0001 G within the inner solar system (or faster if accelerated by an external laser cannon or particle beam). It can also crawl on the ground at Move 1. Normal cost.

Swimmer

The swarm's components resemble tiny robot submarines, tadpoles, or water insects, with teeth and arms. Water Move 4 for microbot swarms, or Water Move 1 for nanobot swarms. Swimmer swarms are normal cost.

Contragrav (CG) Flier (TL11^)

These use gravitic propulsion. Microbots are Move 1; Air Move 20. Nanobots are Move 1; Air Move 10. CG Flier swarms are +200% cost.

Disguise

Most swarms can be disguised as a swarm of insects, or built to resemble something else of appropriate size (such as miniature toy soldiers). This costs an extra $1,000/square yard. A space swarm's disguise is only effective when crawling or drifting. Aerostat swarms cannot be disguised in this way.

Swarms can be given chameleon systems (pp. 98-99) for the same cost as a suit of armor (the swarms have much less weight, but similar surface area).

A disguised swarm's true identity can be determined if it takes damage.

An RTG-powered swarm (see below) also shows up on radiation detectors at very close range (a few yards).

Power Supply

Various types of power supply are available.

Power Cells (TL10)

Swarms use tiny batteries or nanocatalytic fuel cells that are similar to but far smaller than AA cells. These power each bot for 12 hours at TL10, 72 hours at TL11, or 5 days at TL12. Each square yard of a swarm's power cells is roughly equivalent to a single C cell.

A swarm that isn't doing anything consumes minimal power, as does a space swarm that is flying using its solar or magnetic sail. It can remain operational indefinitely.

For Flyer swarms, each hour of flight consumes as much power as two hours of crawling.

The swarm can recharge by entering a swarm hive (p. 37) and hooking up to an attached power supply; this is just like recharging a C cell. Alternatives to conventional energy cells are detailed below.

Beamed Power (TL10)

The swarm is powered by beamed microwaves (and designed to avoid being fried by them). Use the *Beamed Power* (p. 21) rules; each square yard requires as much power as a C cell. +50% to cost.

Gastrobot (TL10)

These "live off the land" while performing their duties. They eat more than a similar-sized swarm of insects: each swarm consumes about 0.1 lb./hour of biomass. They breathe air, and cannot survive in vacuum or very low pressures. Combat-capable gastrobots can hunt and kill animals to survive. +100% cost.

Radio-Thermal Generator (RTG) (TL10)

Each swarmbot has a miniscule radio-thermal generator. These use tiny amounts of radioactive material, the decay of which releases energy enough to power the microbot for a year. The swarm can be detected by Geiger counters or other radiation detectors at close range. Due to the radioactive material in their power supply, RTGs are usually limited to space or other hostile environments. +100% cost. LC1.

Solar Cell (TL10)

The robots in this swarm have built-in solar panels as well as batteries. They recharge energy sufficient for (TL-7) hours of operating time for each hour they remain dormant in full sunlight. +50% cost.

Organovore (TL11)

These can feed on *anything* carbon-based, from trees and people to rubber tires and plastics. Each swarm consumes about 0.1-0.5 lbs./hour. +200% to cost. LC3.

Broadcast Power (TL11^)

The swarm incorporates broadcast power receivers; use the *Broadcast Power* (p. 21) rules, treating it as a C cell receiver. +100% to cost.

Swarm Types

A swarm's function depends on the specialized tools, manipulators, programming, and sensors of its robots. (A swarm might actually represent several different types of microbots working together.) Individual swarm types are described in appropriate sections, e.g., terminator swarms in the Weapons chapter. The table below provides a quick reference to the types and their cost per square yard.

Swarm Type Table

Swarm Type	Cost	TL	LC	Page
Bughunter	$4,000	10	3	106
Cannibal	$15,000	12	1	169
Cleaning	$1,000	10	4	69
Construction	$1,000	10	4	86
Decontamination	$1,000	10	3	87
Defoliator	$1,000	10	3	87
Devourer	$8,000	10	1	169
Disassembler	$10,000	11	1	169
Explorer	$500	10	4	80
Firefly	$100	10	4	74
Forensic	$4,000	10	3	107
Gremlin	$2,000	10	2	164
Harvester	$2,000	10	4	87
Massage	$200	10	4	41
Painter	$500	10	4	87
Paramedical	$6,000	10	3	201
Pesticide	$1,000	10	3	87
Play	$200	10	4	41
Pollinator	$1,000	10	4	87
Repair	$500*	10	4	87
Security	$1,000	10	3	104
Sentry	$5,000	10	3	169
Stinger	$1,500	10	2	169
Surveillance	$500	10	3	106
Terminator	$1,500	10	1	169
Option				
Self-Replicating †	×10	12	0	37

* + $250 per equipment type it can repair.
† Only for defoliator, devourer, or pesticide.

Multi-Function Swarms: A microbot swarm built at TL11 or a nanobot swarm built at TL12 may combine two types into one: add their costs together. It can only do one thing at a time.

Swarmbot Operation

A swarm can take orders from any computer running an appropriate program (see below). Swarms can send and receive radio, laser, or infrared signals, with a range of about 0.01 miles for infrared or laser and 0.1 miles for radio. The operator must know the command codes for that swarm. Orders are limited to actions related to the swarm's equipment package, movement, or recharging.

Swarm Controller Software: Lets a user command and control microbot swarms using a radio, laser, or infrared communicator. The GM can make a secret Electronics Operation (Robots) roll to see if the swarm understands the orders (apply penalties for confusing instructions). Failure means the swarm does not do exactly what was intended. A separate program is needed for each swarm type. Complexity 4, normal cost. LC is that of the swarm.

Combat

Swarms capable of combat usually attack any entity they find while following a preprogrammed path – e.g., to "sterilize" an area or to sweep a security perimeter. Swarms may be programmed to differentiate by species or even by sex, using chemical sensors equivalent to Discriminatory Smell (this will not work on targets in airtight armor).

Multiple Swarms

Friendly swarms can work together, but swarms generally avoid "stacking" unless commanded to do so.

Fighting Swarms

Cannibal, Disassembler, Devourer, Gremlin, Sentry, Stinger, or Terminator types may make attacks. Use the rules for *Swarm Attacks* (p. B461), except that only Stinger swarms are slowed by clothing. The *Attacking a Swarm* rules also apply – the swarm is treated as Diffuse, but it can be stomped or swatted.

All swarms are assumed to have the Sealed advantage. Any swarm with the Gastrobot power plant has the equivalent of Doesn't Breathe (Oxygen Combustion, -50%); others have Doesn't Breathe and Vacuum Support.

Swarmbot Hive (TL10)

This container can house a square yard of swarmbots, allowing them to recharge from external power. $200, 10 lbs. LC4.

Swarm Statistics Table

Type	ST	DX	IQ	HT	BL	HP	Will	PER	Basic Speed	Basic Move
Microbot	2	10	TL-7	10	0.8 lb.	10	10	TL	TL/2	varies
Nanobot	1	10	TL-8	10	0.2 lb.	20	10	TL-1	TL/2	varies

A one-square-yard swarm weighs about two pounds.
Record the swarm's Move, endurance in hours, HP, and any damage it inflicts.

Personal Gear and Consumer Goods

This is a brief list of odds-and-ends that might be found in the hands or on the body of the average person.

Personal Items

These are examples of equipment ordinary people may carry with them at all times.

Attaché Case (TL9)

A briefcase made of tough, high-impact armorplast, it has DR 8 (TL9), DR 12 (TL10), DR 16 (TL11), or DR 24 (TL12). It can be fitted with any standard lock or security system (see p. 102). It can also be coordinated with any outfit, thanks to a varicloth surface with a few dozen different patterns programmed into it. A fingerprint lock system prevents anyone but the owner from changing the pattern. $80, 2 lbs., LC4.

Pocket Pack (TL9)

This is a collection of six items which many technicians and spacers find invaluable; it is standard issue on well-run ships. It includes a penlight (pp. 74-113), a Swiss army knife (screwdriver, scissors, small knife, file, tweezers, bottle opener, and toothpick, $10, 1/8 pound), a roll of vacuum-proof sticky tape ($2, 1/8 pound, 150 yards × 2 inches), a marking pen ($4 and 1/16 pound, will write on metal or glass, in temperatures from -150° to 400°, in zero gravity and in vacuum), a single meal's worth of food tablets ($5, 1/4 lb.), and a candy bar ($1, 1/8 pound, in a vacuum-proof wrapper). $25, 0.75 lbs.

Grooming and Style (TL9-10)

Cleaning Gel (TL9): A quick-hardening gel that the user applies, then peels off along with any dirt. Using it is akin to the ancient technique of applying olive oil and scraping it off. Bottle with seven applications: $7, 1.5 lbs.

Smart Brush (TL9): A motorized micro-brush and vacuum cleaner used to remove dirt without water, often used in the field, on desert planets, or on spacecraft. $50, 0.5 lbs., B/24 hr.

Depilatory Cream (TL10): Painlessly removes hair, and prevents growth for long periods (different brands do so for a month, a year, or permanently). Comes in bottles good for several topical or one whole-body application. $10, 0.1 lb.

Digital Shampoo (TL10): Often included with shampoos and soaps, these electrostatic films assemble when exposed to water and bind to hair, turning it into a programmable video screen. Hair-care products can break down the hair films or reinforce them, acting as high-tech styling gels and conditioners. Most become useless after a month, but weekly applications are common. $10/application.

Smart Hairspray (TL10): This hair coating is based on slipspray (p. 83) or buzzfabric (p. 39) technology. When applied, the hair automatically sheds dirt and maintains flexibility. $2/application (lasts 1 week).

Grooming Spray (TL10)

This device looks like a deodorant stick with a small control at the base. It is an applicator-programmer that releases a swarm of microscopic machines ("groomers"). The user sets the groomer to "mark," then sprays out boundary-marker machines that delineate the area to be groomed; the spray nozzle adjusts to cover an area from a square inch to a square foot. Then the user resets to one of a dozen "groom" settings and releases groomers into the bounded area, which they won't leave.

The groomers trim body, facial or head hair or fur down to the setting-specified minimum length in millimeters (a setting of zero will depilate). They also can be set to remove dirt or dandruff, or to apply dye. The job takes about 30 seconds. Used 'bots self-destruct within an hour or two: they are non-toxic and will degrade harmlessly if exposed to ultraviolet light or intestinal flora. Grooming spray is $10, 0.1 lb. (30 uses). LC4.

Bioplas Contact Lenses (TL10)

These correct vision problems (if genetic engineering hasn't done away with those already) and change eye color. They cost $20.

At TL10+, all sensor-equipped contacts are made out of bioplas. They can be worn indefinitely, due to bioplastic's ability to "breathe" and eat bacteria, and normal scanners cannot detect them.

Clothing

Ultra-tech clothing can be woven of fibers that conduct electricity. Examples include silk organza, which uses a mix of normal silk and a silk thread wrapped in thin copper foil, as well as a variety of specialized plastic optical fibers. Electronic components may be sewn directly to the fabric or attached to the metallic yarn. Other devices can be temporarily fastened onto the fabric as necessary. This means the clothing functions as a databus that allows different electronic devices to talk to each other, or share power supplies, without the need for additional communicators. Power is usually supplied by a combination of woven solar power, body heat, and piezoelectricity generated from the flexing of the fabric when the user moves.

"Smart clothing" is available at TL9+ at no extra cost. However, there are many other applications for these fabrics.

Imprint Circuits (TL9)

Simple microcircuits and microprocessors can be printed onto cloth (or even flesh). For $10, a solar-powered

electronic device such as a chronometer or calculator can be imprinted onto nearly any surface. Artistic designs made out of multicolored LEDs are also available.

Computer Clothing (TL9)

General-purpose computers can also be clothing. A small computer (p. 22) with the printed (p. 23) option will fit on a single garment such as a shirt or dress. At TL9 it is Complexity 3 and stores 10 GB. Complexity increases by +2 per TL, and data storage is multiplied by 1,000 per TL. $100, 0.5 lbs., 2B/20 hr. LC4.

Varicloth (TL9)

This cloth uses imprinted circuits to alter its color and pattern. A sweater, dress, jacket, shirt, pair of pants, or skirt may be bought with a half-dozen different color patterns programmed into it. Running a finger over a sensor concealed in the garment switches it to the next pattern. The cost is three times the cost of normal clothing.

Buzz Fabric (TL10)

Clothes, furniture covers, or other rough fabric surfaces can be engineered to clean themselves. Buzz-fabric fibers contain microscopic circuitry and brushes that eject dirt and grime. A buzz-fabric wearer can be totally clean moments after falling down in a mud puddle. Dirt is ejected, not destroyed: buzz fabric on a horizontal surface like a rug or mat would be a lot easier to clean (since grime would not be ground into it), but you would still have to go over it with a vacuum cleaner to remove the residual dirt and dust!

Buzz fabric sheds water, and dries five times faster than normal cloth. This makes it very popular for rainwear. Despite its nickname, buzz fabric doesn't make an audible noise. It costs twice as much as normal clothing or fabric, and versions are available for flexible armor and most types of environmental suits. Double the armor or suit's basic cost in most cases; for bioplastic, add only 20% to cost.

Responsive Fabric ("Memswear") (TL10)

Clothing, footwear, and imitation-leather goods can be made with integrated microelectromechanical systems (MEMS). These tighten or loosen to produce a stylish and comfortable fit.

While responsive fabric is not quite one-size-fits-all apparel, it offers more tolerance than ordinary "dumb" clothing. Responsive fabric can also change porosity, adjust to temperature and humidity, and absorb sweat stains.

Responsive fabric costs three times as much as ordinary clothing. If it incorporates buzz fabric or varicloth (above), it costs four times as much. Including both costs five times as much as normal clothing. TL10+ bioplastic suits such as the biosuit or bioplas bodysuit already incorporate responsive fabric technology.

Swimwear (TL9)

This is a full-body ultra-smooth low-drag swimsuit and optional set of swim fins. Fins take four seconds to attach or remove, and add +1 to Basic Move for the purpose of figuring Water Move. When wearing fins on land, Move suffers a -1 penalty.

Biomimetic Swimsuit (TL9): +1 to Basic Move for the purpose of figuring Water Move; with fins, the total bonus is +2. This design is inspired by fish skin, with a surface texture that decreases drag and turbulence by making water spiral off the body. $100, 0.2 lbs. ($150, 0.3 lbs. with fins).

Bioplas Swimsuit (TL10): +2 to Basic Move for the purpose of figuring Water Moves; with fins, the total bonus is +3. This suit is similar to the biomimetic swimsuit, but incorporates a layer much like slickskin (p. 214). It also heals any rips automatically. The fins are detachable. $100, 0.1 lb. ($150, 0.2 lbs. with fins).

Suitspray (TL9-11)

This spray tube contains a smart polymer that sticks to bare flesh, then solidifies into a skintight fabric with the look and feel of a silk body stocking. It provides as much warmth as light summer clothing, while being porous enough to allow the wearer's skin to breathe. Various colors are available, including skin tone, metallic colors, and translucent models. It has no DR.

Donning suitspray requires spraying it over the body. It adheres to flesh but remains semi-liquid for about 30 seconds, enabling it to be lathered about for full coverage. The smart polymer can sense if it is not stuck to flesh, and if so will easily peel off instead of adhering. Thick body hair may stick through it; depilatory cream or the equivalent is a good idea. Most people prefer to put it on while in a bathroom with a mirror; this ensures full body coverage. Otherwise, embarrassing patches may be overlooked, although these can be easily fixed with an extra squirt or two.

Suitspray takes about 20 seconds to spray on, half that if someone else is helping. It does not wash off in ordinary water, but rinsing with a special soap or a sonic shower (p. 70) will remove it within 30 seconds. (So will 10 seconds of stunner fire, or any hit by a screamer.) Suitspray is popular with those who don't mind showing off their bodies and who prefer not to carry bulky clothes when they travel; it also makes a good thermal undergarment. In some hotels, a shower may dispense a suit for a small fee ($4 added to the bill).

Suitspray (TL10): A can holding enough suitspray to cover an adult human. $4, 0.25 lbs. Flakes off in two days if not removed. LC4.

Video Suitspray (TL10): As above, but incorporates digital ink, transforming the body into a low-res video screen. This is usually controlled by a wearable computer, and is equivalent to programmable camouflage (p. 99). A can is $20, 0.25 lbs. LC4.

Slicksuit Spray (TL10): Suitspray that incorporates a layer similar to slickskin (p. 214). It has the same effects as slickskin, but wears off after a day. The user should avoid spraying it on the soles of his feet or palms of his hands. A can is $40, 0.25 lbs. LC3.

Living Suitspray (TL11): A thin layer of self-regenerating bioplas (pp. 170-171) increases the durability of the suitspray to one month. $20 ($40 for the video or slicksuit options, $100 for both), 0.25 lbs. LC4.

Swarmwear (TL10)

Any cloud of aerostat microbots (p. 36) can be programmed to hover in close formation around their master, forming a body suit, a trailing cloak, or a veil and cloak. The swarm will not cover the eyes or mouth unless commanded to do so.

Swarmwear does not interfere with movement: the swarm tracks the user's body with its sensors and adjusts to his motion. Up to four square yards of swarms can combine around a SM 0 person.

Swarmwear is usually a single color (depending on the swarm's own paint scheme). Chameleon swarms can change to multiple colors or patterns if desired.

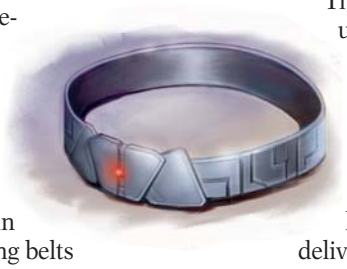
A one-square yard swarm is wispy; a two-square yard or larger swarm covering a single person will be opaque. Swarmwear can only act upon the wearer or anyone touching him.

A person using swarmwear can't move any faster than the swarm's top speed (unless they land on him, which prevents them from performing their normal functions).

A swarmclad person has DR 1, if covered by a swarm thick enough to be opaque.

Clothing Belt (TL11^)

This is a specialized form of holobelt (p. 98). It uses a belt-mounted miniature holotech projector to cast a three-dimensional image around part or all of the user's body. A dedicated computer allows the user to program whatever image he desires, and have the image match his movements. No image is as clear or realistic as a real holobelt's, making the clothing belt useless as a disguise. However, anyone can program in a set of clothes, a mask or a simple cartoon-like face, fiddling with it until it looks right. Since the holograms emit light, spectacular fashion effects are possible.



In regions with warm climates and in climate-controlled space habitats, clothing belts may replace clothing among those who can afford them. Waste heat from the belt helps the wearer keep warm. $1,000, 0.5 lbs., 2B/2 days. LC4.

Entertainment

The most popular ultra-tech entertainment systems may be dreamgames (p. 55) or sensie (pp. 57-58) media, but there are other ways to have a good time!

Cybervox (TL9)

This is a combination sound mixer, synthesizer, and digital recorder. A cybervox can analyze, record, duplicate, and modify any sound (short of dangerous ultrasonic or subsonic frequencies), including music and speech. It can be used as an electronic musical instrument. Often worn on a shoulder strap; some are built into guitars or other instruments. It provides a +1 (quality) bonus to appropriate Electronics Operation (Media) or Musical Instrument tasks. $200, 2.5 lbs., C/10 hr. LC4.

Electronic Ecstasy (TL9)

These devices use neural technology to produce continuous sensory pleasure. In some worlds, these devices may replace drugs as a major vice . . . but unlike drugs, they require nothing more expensive than electrical current.

Euphoria Machine (TL9)*:* This device runs off a power cell (or house current). The user must connect to it via direct neural interface (pp. 48-49). It electrically stimulates the brain's pleasure centers for as long as it is worn. This is *very* addictive.

It's possible to wear a low-power device and still function (sort of). The user suffers the Euphoria irritating condition (p. B428), and must roll vs. Will each week to avoid addiction. It is small enough to be discreetly attached to a belt or headband. $100, 0.1 lb., A/100 hr. LC3.

Ecstasy Machine (TL9)*:* A more powerful device, usually worn in bed. It works the same way as a euphoria machine, and can function at "low power" as one. It can also be set for a level of pleasure so intense the user can do nothing else: this is the Ecstasy incapacitating condition (p. B428). Roll vs. Will-3 each day that the device is used to avoid addiction. An ecstasy machine is $500, 0.5 lbs., 2A/24 hr. LC2.

Neurostimulator (TL9): This is usually a handheld device or implant. It uses direct neural induction to produce the low-power Euphoria irritating condition (p. B428) of the euphoria machine. It does not require a neural interface, but works only as long as it is in contact with bare flesh, plus a second after. The intensity increases to incapacitating ecstasy if applied to erogenous zones.

The neurostimulator takes a few seconds to build up to full intensity. It is ineffective as a weapon, but it can provide a +2 (quality) bonus to both Erotic Art skill and to Interrogation skill with a cooperative or restrained individual. $100, 0.2 lb., A/1 hr. LC3.

Neural disruptors (pp. 121-122) and neurolash (pp. 165-166) weapons are available that deliver an extremely powerful (but transitory) pleasure jolt.

Holoventure (TL10^)

Holotech projection technology (see *Holoprojector*, pp. 52-53) and sophisticated computers permit the creation of realistic adventure-theme parks without the need for virtual reality. For $150/day, gamers can join a party of like-minded individuals for several days of escapism in the setting and genre of their choice.

Special effects, from wizardly lightning bolts to vast battles, are easily accomplished by holotech projections and sonic projections, aided by occasional live actors and remote-control robots. Using sophisticated laser and visual sensors, a Complexity 8+ computer monitors the interaction between the live adventurers and the holograms, and makes them react accordingly. It can even "overlay" holographic images onto a living person.

Holoventure technology is not restricted to recreational use. They are used in military or exploration training exercises, and less sophisticated systems can provide special effects for stage productions.

Psychosonic Instrument (TL11^)

This instrument melds ordinary music with subsonic or psionic waves that alter the listener's moods and emotions. Anyone can use Musical Instrument (Psychosonic) skill to play it; it adds +2 (quality) to skill. A master can influence minds using Musical Influence skill; see p. B210 for its effects.

A psychosonic instrument normally works only on a general family of species (e.g., mammals). Each extra setting adds +50% to cost. It's available in a variety of styles, e.g., psychosonic organ, synthesizer, or guitar. $20,000, 5 lbs., B/10 hr. LC3.

Recreational and Personal Robots

These include specialized recreational robots and general-purpose bodies useful for housing digital intelligences or cyborgs. Even when AI is common, this sort of robot may be popular as a teleoperated puppet.

Android (TL9-12)

111 points

This general-purpose humanoid robot body comes in male, female, and androgynous versions. Custom designs, including those that resemble real people, are also possible. Higher-TL models are cheaper and more reliable.

Attribute Modifiers: ST+3 [30].
Secondary Characteristic Modifiers: HP+7 [14].
Advantages: Absolute Direction [5]; Doesn't Breathe [20]; DR 5 [25]; Machine [25]; Payload 1 [1]; Protected Vision [5]; Radio (Burst, +30%; Secure, +20%) [15].
Perk: Accessories (Personal computer) [1].
Disadvantages: Electrical [-20]; Restricted Diet (Very Common, power cells) [-10].

Lenses

Choose a TL lens, a machine intelligence lens (pp. 27-28), and a biomorphic lens (p. 28) for the robot.

TL9 Model (-5 points): Add Maintenance (one person, weekly) [-5]. $75,000, 150-250 lbs., 2D/8 hr. LC4.
TL10 Model (+11 point): Add HT+1 [10]; Maintenance (one person, bi-weekly) [-3], Reduced Consumption 2 [4]. $50,000, 100-250 lbs., 2D/24 hr. LC4.
TL11 Model (+24 points): Add HT+2 [20]; Maintenance (one person, monthly) [-2] and Reduced Consumption 3 [6]. $30,000, 70-250 lbs., 4D/1 week. LC4.
TL12 Model (+38 points): Add HT+3 [30]; Reduced Consumption 4 [8]. $25,000, 50-250 lbs., 4D/1 month. LC4.

Optional Lenses

Some, none, or all of these options are possible:

Child Body (-30 points): A smaller robot body, the size of a 9- to 12-year-old. Remove the ST bonus. Halve the body weight and number of power cells (e.g., D instead of 2D). -40% to cost.
Artificial Womb (TL10) (+2 points): The android has an artificial flexible womb. If stocked with eggs, it can become pregnant. Add Payload 2 [2]. $10,000. LC3.

Petbot (TL9-12)

71 points

This is a small mechanical beast with a head and four legs. It may look cute or fierce, depending on the market. Typical models resemble small dogs, house cats, miniature dinosaurs, and so on, although they usually have modified paws or claws with opposable thumbs that give them some manipulatory ability.

Robots of this type are often used for home security, keeping track of children, or pest control. They can be equipped with a range of sensors and "natural" weapons.

Attribute Modifiers: ST-3 [-30].
Secondary Characteristic Modifiers: SM-2; HP+1 [2]; Basic Move+5 [25].
Advantages: Absolute Direction (Requires signal, -20%) [4]; Doesn't Breathe [20]; Discriminatory Smell [15]; DR 5 (Cannot Wear Armor, -40%) [15]; Extra Legs (4 legs) [5]; Infravision [10]; Machine [25]; Radio (Secure, +20%) [12]; Sharp Claws [5]; Sharp Teeth [1]; Ultrahearing [5].
Perks: Accessories (Small computer; fire extinguisher) [2].
Disadvantages: Bad Grip 1 [-5]; Electrical [-20]; Horizontal [-10]; Restricted Diet (Very Common, power cells) [-10].

Lenses

Select one of the TL options. Also select a machine intelligence lens (pp. 27-28) and a biomorphic lens (p. 28).

TL9 Model (-5 points): Add Maintenance (one person, weekly) [-5]. $15,000, 20-50 lbs., 2C/8 hr. LC4.
TL10 Model (+1 point): Add Maintenance (one person, bi-weekly) [-3], Reduced Consumption 2 [4]. $10,000, 20-50 lbs., 3C/24 hr. LC4.
TL11 Model (+4 points): Add Maintenance (one person, monthly) [-2] and Reduced Consumption 3 [6]. $7,000, 20-50 lbs., D/1 week. LC4.
TL12 Model (+8 points): Add Reduced Consumption 4 [8]. $5,000, 20-50 lbs., D/1 month. LC4.

Recreational Swarms (TL10)

These are microbot or nanobot types. See *Swarmbots* (pp. 35-37).

Massage Swarm (TL10)

These swarmbots are similar to a cleaning swarm (pp. 69-70), but they are equipped and programmed to deliver relaxing or erotic tactile sensations to their subject. They use Professional Skill (Massage)-10 and Erotic Art-10, (+1 per TL after introduction), or provide a +TL/2 (quality) bonus to someone directing them. $200/square yard. LC4.

Play Swarm (TL10)

These swarmbots are equipped to play and interact with one another in an amusing fashion. For example, a "farm in a box" might contain 'bots that look and act like tiny animals, agricultural robots, human farmers, and so on. $200/square yard. LC4.

Chapter Three
Communications, Sensors, and Media

The Galactic Operations Directorate's elite agents were only assigned to max-priority missions. Rafe was on Sargon, trying to abort a nuclear war. Gabby was going after the Yezendi antimatter syndicate. And me? My orders came via ultra-secure causality comm – on a channel that came not from Colonel Erasmus, but from the Emperor himself. The mission: find his wayward teenage daughter, Princess Kalindy, who had once again given her Imperial Household minders the slip.

The Household hadn't been able to trace her bioscan, but they were always too high-tech. I went low-tech, visited her room, and used a chemsniffer to key on her latest programmable perfume, a unique fragrance she'd designed herself.

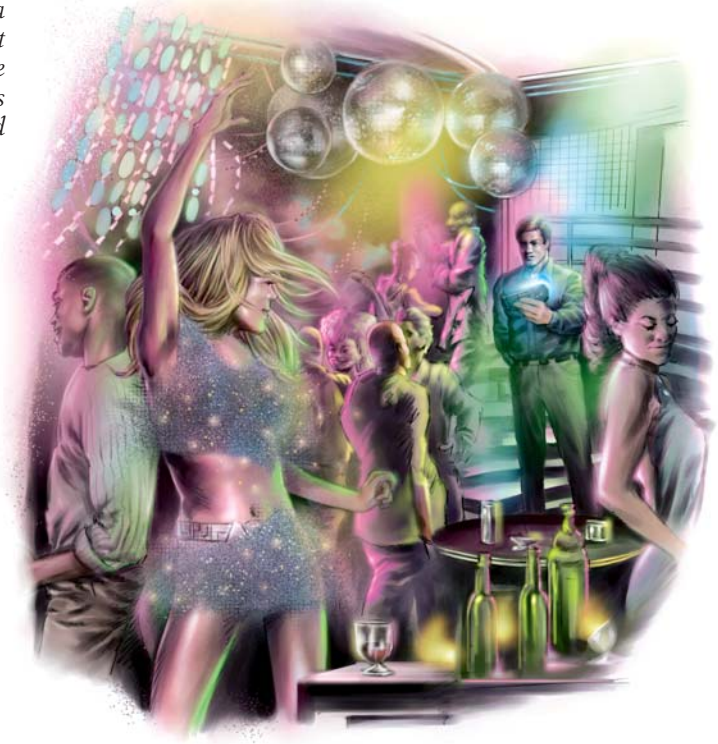
Two hours later, I finally tracked her down, dancing up a storm at the Radium City holoventure club. She spotted me and waved.

"How'd I do?"

I kissed her. She was wearing memswear sandals, a translucent firefly swarmwear dress, and nothing else . . . except the holodistort belt she'd borrowed from me, which subtly disguised her face and sensor-signature. With the hyperspectral video glasses and terahertz scanners the paparazzi were using these days, I figured you couldn't be too careful. After all, I'd schooled Kalindy in counter-evasion myself. Among other things.

– Special Agent Michael, Imperial Secret Service

This chapter describes communicators, information-recording, entertainment and sensor technology, as well as a variety of personal gear.



Communication and Interface

Secure and reliable communications are the key to any venture – business, military or personal – at any TL.

Cable Jack (TL9)

This basic communications system is simply a plug for a fiber-optic optical cable. These are the backbone of many planetary communication networks at TL9+. Optical cable provides a high-bandwidth data link for computers and other electronic gadgets, transferring 1 TB per second.

Cable Jack (TL9): A socket and cable for plugging into other cable jack-equipped gadgets or into a building's network. It can be added to any gadget with greater than negligible weight. $5, negligible weight.

Optical Cable (TL9): Fiber-optic cable costs $0.10 and weighs 0.01 pounds per yard. It comes in various lengths. Use Electronics Repair (Communications) skill to lay or install datacable networks.

See also *Networks* (pp. 49-50).

Communicators

Communicators send and receive voice transmissions. If connected to a terminal (pp. 23-24) or a computer, they can exchange text, video, or data.

Most communicators only send and receive to others of the same type (e.g., radio to radio) or to individuals with an appropriate Telecommunication advantage (see p. B91), except as described under *Plug-In Gadgets* (pp. 15-16). There are a few exceptions: laser retinal imaging (p. 44) and neural communicators (p. 46) can beam signals to anyone.

All communicators use Electronics Operation (Comm) skill (p. B189) to operate and Electronics Repair (Comm) skill (p. B190) for servicing and repairs. No roll is required for operation under normal circumstances (unless the user is unskilled).

Communicators are either broadcast or directional. Broadcast (omnidirectional) signals can be picked up by every communicator tuned to the same frequency within range. Directional signals are beamed toward a particular target, and unless noted, are limited by line of sight; terrain and the curve of the horizon block the beam. To overcome line-of-sight restrictions, relay stations may be used. If the communicator has enough range (usually a few hundred miles), the relays may be orbital satellites.

Communicator ranges are given in yards or miles. Interplanetary comm ranges are measured in astronomical units (AU), which are multiples of the average distance from Earth to the Sun (93 million miles). Interstellar ranges are in parsecs (3.26 light years, 206,000 AU, or 19.2 trillion miles).

Comm signals can propagate beyond the listed "effective" range, but these are more difficult to pick up. To extend range, the operator may make an Electronics Operation (Communications) roll at -1 per 10% added to range, to a maximum extension of 100%.

Communicator signals usually travel at the speed of light (186,000 miles per second). This is effectively instantaneous for planetary communications, but across space, the time lag between sending a message and receiving a reply may be significant. A light-speed message crosses one AU in approximately 500 seconds.

When transmitting large files, the data transfer rate of a communicator is important. Data transfer rates are specified for different communication systems. Repeating the same data several times takes longer, lowering the effective data transfer rate ("bandwidth"), but gives a significant boost to range: 1/4 speed doubles the range; 1/100 speed multiplies the range by 10, and 1/10,000 speed multiplies the range by 100. This technique is commonly used for deep-space transmissions.

All ultra-tech communicators (except neurocomms) are routinely equipped with encryption systems; see *Encryption* (pp. 46-47).

Standard Comm Sizes

Communicators are available in standard sizes:

Micro: These "comm dots" are too small for humans to use directly, but they're built into many electronic devices that share data with each other. The short range makes detection unlikely. Not all comms have a micro-sized version.

Tiny: This button-sized communicator may be wrist-mounted (with a video display), worn as a voice-activated badge or ear piece, or built into many other devices such as helmets.

Small: Available as a palm-sized handset, or built into powered armor helmets or vehicles. It has a small video display.

Medium: This hefty communicator is usually worn on a shoulder strap or backpack, or built into vehicles. It has a video display.

Large: A vehicle-mounted unit, often with a sizable antenna.

Very Large: A room-sized installation, often with a large antenna, used for dedicated communications relay stations or spacecraft.

Communicators with Different Ranges

The relative size of a comm – micro, tiny, small, medium, large, or very large – determines its range. Not all comms come in all sizes. The listed range for a given size assumes that both transmitter and receiver are that size. If they differ, use the range given for the smaller comm modified for the size of the larger ones as follows:

Size Difference	*Modified Range*
One size greater	3× shorter range
Two sizes greater	10× shorter range
Three sizes greater	30 × shorter range
Four sizes greater	100 × shorter range
etc.	etc.

Example: We want to see whether a medium radio (with a 100-mile range) can be picked up by a tiny radio (one-mile range). We use the shorter of the two ranges (one mile) × 10 (medium radio is two sizes greater) = a 10-mile range. As long as both radios are within 10 miles of each other, they can talk without a skill roll being required to extend range.

IR Communicators (TL9)

An "IR comm" is an infrared directional communicator similar to a TV remote. Its beam scatters somewhat and can bounce off solid objects. Make an Electronics Operation (Communications) roll to take advantage of this (e.g., trying to communicate round a corner by bouncing a signal off a wall). Roll vs. Electronics Operation (EW) to eavesdrop on another IR communicator's beam if you within a few degrees of the beam path. The data transfer rate is 10 GB/minute.

The beam is invisible, but infrared or hyperspectral vision can see it at up to double its range if it is aimed directly at the observer, or in dust or fog.

Large (TL9): 25-mile range. $2,000, 50 lbs., 2D/10 hr. LC3.
Medium (TL9): 2.5-mile range. $500, 5 lbs., 2C/10 hr. LC4.
Small (TL9): 500-yard range. $100, 0.5 lbs., 2B/10 hr. LC4.
Tiny (TL9): 50-yard range. $20, 0.05 lbs., 2A/10 hr. LC4.
Micro (TL9): 5-yard range. $5, neg., AA/100 hr. LC4.

Ranges are doubled at TL10, multiplied by 5 at TL11, and multiplied by 10 at TL12.

Laser Communicators (TL9)

"Laser comms" use a modulated multi-frequency laser beam to transmit a highly-directional signal. The narrow beam and line-of-sight requirement makes it hard to eavesdrop on a laser comm signal; someone must be in the direct path of the beam to intercept it. The beam is invisible and eye-safe, and tunes itself automatically to penetrate snow, fog, etc. Laser comms may be tuned to use blue-green frequencies to reach underwater. The signal range is 1% of normal underwater, with a maximum range of 200 yards.

Due to their range and directionality, laser comms are favored by soldiers and adventurers for secure line of sight communication. All incorporate gyrostabilized tracking systems to help maintain communications. They're also often installed on building rooftops or pylons for secure comm links; such "free space optics" can be a cheaper solution than stringing fiber optics. The data transfer rate is 1 TB per minute.

Very Large (TL9): 50,000-mile range. $40,000, 400 lbs., external power. LC3.
Large (TL9): 5,000-mile range. $10,000, 50 lbs., 2D/10 hr. LC3.
Medium (TL9): 500-mile range. $2,000, 5 lbs., 2C/10 hr. LC4.
Small (TL9): 50-mile range. $400, 0.5 lbs., 2B/10 hr. LC4.
Tiny (TL9): 5-mile range. $100, 0.05 lbs., 2A/10 hr. LC4.
Micro (TL9): 1,000-yard range, but usually broadcasts at lower output with a range of five to 10 yards. $20, neg., AA/100 hr. LC4.

Ranges are doubled at TL10, multiplied by 5 at TL11, and multiplied by 10 at TL12.

Laser-Retinal Imaging (TL9)

Any laser communicator with this hardware upgrade may beam graphics or text files directly into the retina of a single eye. It's tricky to aim; treat as a ranged-weapon attack aimed at the eye (-9 to hit), but assume the laser has Acc 12, or Acc 18 if mounted on a tripod or vehicle. Roll Electronics Operation (Communications) to hit. If the subject is standing still or walking slowly, the laser can continue to track once a hit is achieved (i.e., no further rolls are required).

The subject doesn't need a communicator to receive a signal, making this a good way to send covert messages over a few miles. However, he can interrupt a retina message by closing his eyes or turning his head. Glare-resistant optics will also filter out a message.

Another disadvantage is that the laser can only send images. It can flicker several hundred images per second, but most subjects would only see a blur at that speed – the subject's comprehension limits the data-transfer rate. Sending text limits the transmission to the subject's reading speed (which the sender must estimate!). Since the transmission is one-way, the sender may have no idea whether the subject read the information.

Fitting a laser comm with the computer chips for laser-retinal imaging costs $1,000, but adds no weight. LC3.

Radio Communicators (TL9)

These broadcast communicators use radio waves. All incorporate spread-spectrum technology in which communications clarity and reliability is improved by spreading the signal over a range of frequencies. The frequency hopping also keeps the transmitter from being "bright" in any given frequency, making it very hard to detect.

Radio range may drop by a factor of 10 in urban environments or underground. The data transfer rate is 0.1 GB per minute, but range drops significantly (divide by 10) when transmitting real-time audio-visual signals.

Very Large (TL9): 10,000-mile range. $20,000, 400 lbs., external power. LC3.
Large (TL9): 1,000-mile range. $4,000, 50 lbs., 2D/10 hr. LC3.
Medium (TL9): 100-mile range. $1,000, 5 lbs., 2C/10 hr. LC3.
Small (TL9): 10-mile range. $200, 0.5 lbs., 2B/10 hr. LC4.
Tiny (TL9): 1-mile range. $50, 0.05 lbs., 2A/10 hr. LC4.
Micro (TL9): 200-yard range, but usually broadcasts at lower output with a range of one to two yards. $10, neg., AA/100 hr. LC4.

Ranges are doubled at TL10, multiplied by 5 at TL11, and multiplied by 10 at TL12.

Sonar Communicator (TL9)

This uses a modulated sound beam for broadcast communication. It travels at the speed of sound: almost a mile per second underwater or 0.2 miles per second in air (at sea level). A sonar comm is designed for underwater operation, but ultra-tech models are also tunable to operate in air – if one is so used, it has 1% of the listed range multiplied by the air pressure in atmospheres. Sonar communicators do not work in vacuum. The data transfer rate is very slow: 0.1 MB/minute.

Its signals can be detected (but not understood!) at twice the comm range by passive sonars, or by anyone with Ultrahearing or Vibration Sense advantages. The only way to *jam* the signal is with powerful, specialized sonar jammers (p. 99) – but underwater explosions cause transient interference.

Large (TL9): 300-mile range. $5,000, 50 lbs., 2D/10 hr. LC3.
Medium (TL9): 30-mile range. $1,000, 5 lbs., 2C/10 hr. LC3.
Small (TL9): 3-mile range. $200, 0.5 lbs., 2B/10 hr. LC4.
Tiny (TL9): 600-yard range. $40, 0.05 lbs., 2A/10 hr. LC4.
Micro (TL9): 60-yard range. $10, neg., AA/100 hr. LC4.

Ranges are multiplied by 1.5 at TL10, doubled at TL11, and multiplied by 3 at TL12.

Sonic Communicator (TL9)

A sonic projector (p. 52) can be used to beam voice or audio signals.

Gravity-Ripple Communicators (TL10^/11^)

These communicators use gravity waves generated by artificial gravity technology. The signal is omnidirectional; eavesdroppers must roll against Electronics Operation (EW) to listen in.

Gravity waves reach underwater and penetrate solid objects at no penalty. Intense gravity sources such as neutron stars, pulsars, and black holes can disrupt the signal. Only very large comms are available at TL10^, with all other sizes appearing at TL11^. The data transfer rate is 1 GB/minute.

Very Large (TL10/11^): 100,000-mile range at TL10, or 1,000,000 miles at TL11^. $200,000, 400 lbs., external power. LC3.

Large (TL11^): 100,000-mile range. $50,000, 50 lbs., 2D/10 hr. LC3.

Medium (TL11^): 10,000-mile range. $10,000, 5 lbs., 2C/10 hr. LC4.

Small (TL11^): 1,000-mile range. $1,000, 0.5 lbs., 2B/10 hr. LC4.

Tiny (TL11^): 100-mile range. $200, 0.05 lbs., 2A/10 hr. LC4.

Micro (TL11^): 10-mile range. $50, neg., AA/100 hr. LC4.

Ranges double at TL12.

Neutrino Communicators (TL10^/11^)

This directional communicator uses a modulated beam of neutrinos (or anti-neutrinos). It is nearly *impossible* to jam or intercept, and functions in *any* environment – it can reach underwater or penetrate solid objects at no penalty, and isn't blocked by the horizon.

Neutrino transmission uses specialized particle accelerators; at TL11, these are fairly compact. However, at non-superscience TLs, neutrino *detection* requires massive installations. At TL8, a typical detector contains several hundred thousand gallons of industrial cleaning liquid and is buried nearly a mile underground. Using superscience, much more compact receivers are available, using force fields or hyperdense matter.

The data transfer rate is 1 TB/minute. Only very large comms are available at TL10^, with all sizes (except micro) at TL11^.

Very Large (TL10^/11^): 100,000-mile range at TL10, or 1,000,000 miles at TL11^. $500,000, 400 lbs., external power. LC3.

Large (TL11^): 100,000-mile range. $100,000, 50 lbs., 2D/10 hr. LC3.

Medium (TL11^): 10,000-mile range. $20,000, 5 lbs., 2C/10 hr. LC4.

Small (TL11^): 1,000-mile range. $5,000, 0.5 lbs., 2B/10 hr. LC4.

Tiny (TL11^): 100-mile range. $1,000, 0.05 lbs., 2A/10 hr. LC4.

Ranges double at TL12.

Causality Communicators (TL11^)

This *instant* FTL comm uses superscience analogous to the principle of quantum entanglement. Sets of identical particles are created, trapped, then separated. Despite this, they remain connected on a quantum level, so that when data is encoded in one particle, its counterpart(s) instantaneously change in the same way, regardless of separating distance. Thus, information can be transmitted and received, even though no actual signal exists to be jammed or monitored. The particles (and their identical counterparts) are used up as data is encoded in them.

Causality comms are rated for their message capacity, which is the maximum bytes of potential data that can be exchanged before the entangled particles are used up. The same amount of data is used whether transmitting or receiving. Suppose commlink A and B share 10 entangled gigabytes. After commlink A sends a 2 GB message and commlink B sends an 8 GB reply, they have exhausted their message capacity.

There are two components to this system:

Causality Comm: A device for reading, storing, and manipulating entangled particles, used in conjunction with any computer terminal. $1,000, 0.1 lb. per GB of storage capability (minimum 1 GB). To be useful, it must be charged with a set of entangled message particles whose counterparts are stored elsewhere. LC3.

Entangled Message Particles: These cost $10,000 per GB *or fraction* of message capacity times the membership of the set (i.e., double the cost for a pair of entangled particles, multiply by 3 for a triplet, etc.). At the GM's option, faster-than-light travel may disrupt the entanglement and break the link.

For both components, replace GB with TB at TL11^ and petabytes (PB) at TL12^.

Postage Costs

Interstellar "post offices" may have their own causality communicators and message particles. The cost of sending a message will be based on how expensive or time-consuming it is to replace them. If entangled message particles must be shipped at slower-than-light velocities across hundreds of parsecs, then the cost of sending an "instant letter" may be enormous!

FTL Radios (TL11^-12^)

This is a faster-than-light broadcast communication system; perhaps it transmits signals through subspace or hyperspace. The signal usually travels at high but not infinite velocities. A typical comm speed is 0.1 parsec/hour, which allows real-time communication within a solar system (5.7 AU/second), but may take days or even months to cross interstellar distances. Communication speed may be faster, slower, or even instantaneous.

The data transfer rate is 1 TB/minute. In some settings, the curvature of space may prevent FTL radios from operating within 100 diameters of a planet or star. Only very large systems are available at TL11^; at TL12^, smaller sizes are available. The medium, small, and tiny comms are "local FTL" systems useful for transmissions in or near a solar system.

Very Large (TL11^/12^): 2-parsec range at TL11^, 10 parsecs at TL12^. $4,000,000, 400 lbs., external power. LC3.

Large (TL12^): 1-parsec range. $1,000,000, 50 lbs., 2D/10 hr. LC3.

Medium (TL12^): 0.1-parsec range. $200,000, 5 lbs., 2C/10 hr. LC4.

Small (TL12^): 0.01-parsec (2,000 AU) range. $40,000, 0.5 lbs., 2B/10 hr. LC4.

Tiny (TL12^): 0.001-parsec (200 AU) range. $10,000, 0.05 lbs., 2A/10 hr. LC4.

FTL radios require cosmic power cells or external power.

Black Hole Communicator (TL12)

This uses an electrically-charged quantum black hole manipulated by (enormously strong) magnetic fields, which cause it to vibrate in place. It functions like a gravity ripple comm (p. 45), but does not require superscience.

Its signals travel at light speed, but can be detected clearly over long distances (base range is 1 parsec) by a gravity communicator or a gravity scanner. It is powered by the black hole, and can also provide the same energy of a fusion generator. $2,000,000, 2,000 lbs. LC1.

Neural Communicator ("Neurocomm") (TL12^)

A refinement of neural disruptor technology, this device beams precise electromagnetic signals directly into another person's brain. This is essentially mechanical telepathy, but the signal travels at light speed.

A neurocomm transmits only: no receiver is needed. Any sentient living brain with IQ 1+ can receive neural comm signals, including total cyborgs. Plants, bacteria, digital intelligences, and entities with less than IQ 1 cannot receive neurocomm signals.

Humans and similar races perceive neurocomm signals as "voices in the head," at the volume of a loud whisper. Other races may perceive them as analogs to their primary communication sense (sound, smell, or whatever).

A neurocomm does not translate its transmissions. Signals sent in another language, or to a non-sapient race, will be unintelligible noise. However, a neurocomm connected to a computer running a translation program can translate signals before transmission. Unintelligible neurocomm signals are as annoying as someone constantly whispering gibberish into your ear.

A neurocomm comes with a built-in neural input (p. 48) pad. Effects similar to a neurocomm can be achieved via two individuals with direct neural interfaces (pp. 48-49), each controlling a high-bandwidth communicator.

Neurocomms can transfer data only to individuals who have neural interfaces connected to computers or data storage systems. The transfer rate is 0.1 GB/minute.

Large (TL12^): 10-mile range. $100,000, 50 lbs., 2D/10 hr. LC2.

Medium (TL12^): 1-mile range. $40,000, 5 lbs., 2C/10 hr. LC2.

Small (TL12^): 200-yard range. $10,000, 0.5 lbs., 2B/10 hr. LC3.

Tiny (TL12^): 20-yard range. $2,000, 0.05 lbs., 2A/10 hr. LC3.

For an upgraded version, see *Mental Translator* (p. 48).

Receive-Only or Transmit-Only Comms

Most communicators are available as cheaper, lighter, receive-only or transmit-only designs. (Sonic, black hole, and causality comms are not.)

Receiver: This is 20% of a two-way comm's weight and 10% its cost. Its power cell is one size smaller, so a C cell would be replaced by a B cell. A micro comm would operate 10 times as long on its AA cell.

Transmitter: This is 80% of a two-way comm's weight and 90% of its cost.

Exception: For gravity-ripple, neutrino, and FTL comms, the receiver and transmitter are each 50% of weight and cost; each has half as many cells.

Encryption

Secure data transmission is vital in a modern society. Messages, electronic mail, and signals may be routinely encrypted to ensure their security.

Encryption Systems (TL9)

Encryption systems use mathematical formulas ("keys") to conceal (encrypt) a signal into seemingly-random

gibberish. If the recipient has the key, his system will decrypt the message, transforming it back to meaningful information.

The most common encryption systems are "public-key" systems. The encryption key is publicly distributed, and can used by anyone to encrypt a message sent to its owner. The only way to decrypt that message is with a private decryption key, which is securely stored in the owner's computer or communicator. Cracking public keys involves factoring *very* large numbers and thus very capable computers; successful use of Cryptography skill represents the use of various hacks and short-cuts.

Ordinary encryption systems use mathematical keys based on pseudo-random numbers. They are rated for the Complexity of computer that will take a hour per attempt to crack them. They come in two levels, basic and secure.

Basic Encryption (TL9): This is defined as whatever encryption standard is complex enough to be reasonably secure, but not so complex that it slows down operations by taking up excessive bandwidth or computer processing time. A Complexity 8 computer may attempt to break this encryption once per hour. Add +2 to the required Complexity per TL after TL9. This standard is adequate for business transactions and personal privacy. It can be built into all TL9+ communicators and computers at no extra cost, although some societies may restrict encryption to the government. LC4.

Secure Encryption (TL9): A more complicated system, often used to secure classified government or military information. There may be a delay of one or two seconds as messages are sent or data is processed. This standard is often subject to legal restrictions. Breaking it in an hour requires a Complexity 10 computer. Add +2 to the required Complexity per TL after TL9. A secure encryption chip for a computer or comm is $500; neg. weight. The chip also lets the system generate or encrypt one-time pads (below). LC2.

Cryptography skill is used to crack encryption systems. Rather than the modifiers on p. B186 (which are for manually-devised *codes* rather than mathematical ciphers), apply modifiers for the quality of the decryption program (p. 23) and for the time spent (p. B346) relative to the base time (see above).

The encryption standard specifies the Complexity of computer required to make an hourly attempt at decrypting it. A higher-Complexity computer reduces the time by a factor of 10 per +1 level over it (six minutes for +1, 36 seconds for +2, three seconds for +3, or in real time as the message arrives for +4 or more). Using a computer of lower Complexity multiplies the time by 10 for each -1 Complexity (10 hours, 100 hours, 1,000 hours, etc.).

Decryption Program (TL9): Contains a database of hacks and shortcuts. Gives a +1 (quality) bonus to Cryptography skill. Complexity 2, $500. LC3.

Quantum Computers (TL9): A quantum computer (p. 23) adds +5 to its Complexity for the purpose of decryption. Also, if the quantum computer is of lower Complexity than the encryption, each -1 under triples the time required (3 hours, 10 hours, 30 hours, etc.) rather than causing a 10-fold increase.

One-Time Pads

There is one way to ensure that an encrypted message is not broken: the "one-time pad" system. The message is encrypted using a completely random key that is only used *once*. Unlike public-key encryption, the encryption and decryption keys are the same. Thus, both the sender and recipient must already have the key.

To use one-time pads, one or more of them are generated and passed to the parties who wish to use them to communicate (e.g., before sending a spy on a mission). That way, the only signal that need be sent is something like "use pad #231."

One-time pads are only for data transmission. The key must be at least as long as the message it encodes (i.e., it takes up as much bandwidth). Secure encryption systems have hardware-based random number generators that use electrical or atmospheric noise or nuclear particle decay to generate the true random numbers suitable for one-time pads.

The other disadvantage of one-time pads is that safe delivery often requires a physical courier or advance arrangement – transmitting them as public key-encrypted messages risks someone decrypting them, which defeats the entire point. Delivery and retrieval of disks containing a one-time pad are an opportunity for adventure. However, a faster alternative is to use quantum communications to transmit a one-time pad key, since any eavesdropper on a quantum channel would be detected.

Quantum Communications (TL9)

In quantum theory, certain pairs of physical properties are complementary, in that measuring one property necessarily disturbs the other. By using quantum phenomena to carry information, a communication system can be designed which always detects eavesdropping.

A laser communicator, neutrino comm, or optical cable can have a quantum channel option. Laser or neutrino comm range is 10% of normal when using it. If both sender and receiver use quantum channels, the result is highly secure: If anything intercepts the signal, the users are alerted instantly. Multiply the cost of a laser or neutrino comm with a quantum channel by 10; multiply the cost of optical fiber systems by 100. LC3.

Translators

Fast, accurate language translation is important in any multilingual society, and may be vital if many different alien races co-exist. Advanced computers and artificial intelligence can put a skilled translator in everybody's pocket.

Translator Program (TL9)

This computer program translates conversation from one language into another in real time. It can be used with any computer with an appropriate interface. Spoken languages require a microphone or speaker, whether built-in or provided by a linked communicator. Some users speak

into their communicators (or use a neural interface) and let the computer's speaker talk for them.

Each translation (e.g., English-Portuguese) is a separate program. The program's level of comprehension can never exceed the input; a native-level English-to-Portuguese program will translate broken English into broken Portuguese.

Broken (TL9): This translates speech at the Broken comprehension level (p. B24). Each language requires at least a 10GB database. Complexity 3.

Accented (TL9): This translates speech at the Accented comprehension level (p. B24). Each language requires at least a 30GB database. Complexity 4.

Native (TL9): This translates speech at the Native comprehension level (p. B24). Each language requires at least a 100GB database. Complexity 5.

Reduce program Complexity by 1 if either language is an artificial construct (e.g., Esperanto) designed for ease of learning and/or translation. If this is the case for both languages, the modifier is cumulative.

Increase Complexity by 1 if translating languages between different species, unless both think in a very similar fashion (e.g., elves and humans). Complexity also increases by 1 if the system translates from one sense to another, such as sign language to a spoken language, or between different frequencies (from ultrasonic signals to a human voice). Appropriate input and output sensors will also be needed.

Use the normal cost of software for common language combinations such as English-Japanese. Unusual combinations such as Finnish-Korean are double cost. Obscure combinations (e.g., Icelandic-Maori) are 5 times normal cost, or unavailable. If your computer' complexity permits, you *can* run two common combinations in series (e.g., Icelandic-English followed by English-Maori) to simulate an obscure one cheaply. However, compounded errors give a final comprehension level one grade below that of the least-capable program, while the extra step introduces a one-second delay that can be deadly in tactical situations! What is "obscure" or "common" will vary by time and place.

Universal Translator Program (TL11)

This dedicated AI program can analyze and translate entirely new languages with as little as an hour of exposure, provided that it has access to someone who is actually attempting to teach it, or it can listen in on multiple varied conversations such as the ones on media channels.

After an hour, it reaches Broken comprehension. After six hours, it reaches Accented comprehension. After a day, it reaches Native comprehension. Its comprehension cannot exceed that of the speakers it is observing.

Non-verbal languages can be handled if appropriate sensors and "speakers" are available; cost varies widely. Complexity 9. LC4.

Mental Translator (TL12^)

This psychotronic upgrade to the neural communicator (p. 46) translates the user's language into a "universal" signal that *any* IQ 1+ species can understand. Nonsapient animals (IQ 1-5) will be limited to simple concepts. A mental translator costs 10 times as much as a neural communicator.

Neural Interfaces

Neural interfaces capture and amplify nerve impulses and/or muscle movements, translating them into digital commands for an electronic device or a computer interface. Neural interfaces let a person move a computer cursor just by thinking about it, or fire an interface-equipped gun without having to pull a trigger. A neural interface also permits commands to be entered "with the speed of thought" . . . which is often not much faster than speech.

There are three categories of neural interface: cybernetics (discussed at length in Chapter 8), neural input receivers, and direct neural interfaces. All require some training before they can be effectively used. The interface software must be taught to recognize the user's brain or muscle patterns. Apply familiarity penalties when switching from a normal device to a neural-interface controlled device – or vice versa.

Neural Input Receiver (TL9)

These systems pick up neural signals indirectly from the user's muscle movement, eye/facial movement, or brain waves. They pick up basic commands (equivalent to a few menu options), but cannot transmit sensory feedback back to the user. They're built into wearable devices such as goggles or contact lenses for hands-free operation, usually in concert with a physical HUD display.

Neural Input Headset (TL9): Picks up brain waves. It can replace a computer mouse or equivalent device. $50, 0.1 lb. A/100 hr. LC4.

Neural Input Pad (TL11): Senses neural impulses when touched. It is used in elevators, doors, smart guns, and other gadgets with simple controls. $50, neg. weight. LC4.

Direct Neural Interface (TL9-11)

Usually referred to as a "neural interface," this sophisticated device allows the user's brain to communicate with computers and control complex equipment. It can do anything that a neural input device can do, and much more.

The interaction is two-way: data displays, physical feedback, and other sensory information can be transmitted directly into the user's brain. There is no need for a user to touch controls or see physical data displays. He can have the equivalent of a HUD (p. 24) overlaid on his visual field, so he can "live" in augmented reality (pp. 56-57). A direct neural interface is required for certain technologies, such dream teachers (p. 59), sensies (pp. 157-158), and total virtual reality (p. 54).

When using a neural interface, the user is opening up his nervous system and brain to intrusion – or even being hacked. Like any networked computer, the user's safety depends on his encryption systems, the products he uses, and those associates or superiors to whom he grants access.

There are several versions of direct neural interface available. At TL9, all require implants. At higher TLs, less invasive interfaces are possible.

Neural Interface Implant (TL9): This involves implanting sensitive electrodes in the brain along with an implanted communicator. See *Direct Neural Interface Implant* (pp. 216-217) in the *Cybernetics* section.

Neural Interface Helmet (TL10): This "crown of thorns" helmet invades the skull with tiny nanowires. They inflict no damage, but users may find the idea disturbing! The helmet takes four seconds to don or remove; yanking it off before disconnecting causes 1d injury. It includes a cable jack (p. 42) and radio micro communicator (p. 44). $10,000, 2 lbs., C/100 hr. LC3.

Neural Induction Helmet (TL10^): The same system, but a non-invasive neural induction process "writes" data to the brain. $5,000, 2 lbs., B/100 hr. LC3.

Neural Induction Pad (TL11^): A tiny version of the helmet above, worn as a hair ornament or built into a device. $500, neg. weight. LC4.

Neural Induction Field (TL11^): This works like a neural induction helmet, except that it covers an area. Anyone entering the field is connected to the systems it controls. A chair-sized field is $50,000, 25 lbs. Larger fields are $200,000 and 100 lbs. plus $10,000, 100 lbs., per square yard the field covers; they're usually built into a floor. LC2.

Brainlocks (TL9)

Any neural input device or neural interface may include a brainlock. This is an interface programmed to only accept a user who has a specific brainwave pattern. The "user list" can be hard-wired into the system (making it impossible to change); otherwise, any interfaced user can use a password to alter the lock's parameters.

If attached gadgets have multiple functions, only some might be brainlocked. An elevator operated by induction pad may allow anyone to travel between the first and ninth floors, while restricting access to the executive suite. A brainlock can also grant partial access to computerized records or other data, based on Security Clearance or other criteria. A brainlock has no extra cost. LC4.

Networks

These consist of numerous "nodes" –computers and communications systems connected on a permanent or semi-permanent basis. They can range from local intranets linking a handful of individuals to galactic information webs.

Ultra-tech networks generally combine message relay and data access functions, allowing people to store and find information on the network as well as using it to transmit and receive data.

Data networks usually store and retransmit a variety of information (news, knowledge, personal mail, discussion groups, etc.), using either decentralized or centralized computers and data storage systems.

Some groups may set up their own private networks, but larger networks run by telecom companies or the government usually exist. Subscription costs are infinitely variable; those given below are only suggestions.

Planetary Network (TL9)

Most civilized ultra-tech worlds have networks that cover the entire planet. In some societies, a planetary network may be composed of multiple decentralized networks, like the Internet. Others may be business or state monopolies. In theory, the latter makes access easier, since everyone uses the same software with the same provider. In practice, it gives the owner immense control over information distribution. With enough computer power, a state could theoretically monitor the on-line actions of every user and censor any communication it doesn't want on the net.

A planetary network consists of a high-bandwidth communications backbone (often using optical cables), an infrastructure of repeater stations, communication satellites and other relays, supporting databanks and software, and the people or machines that maintain it. A subscription to a service provider is usually included in cost of living as part of the utility bill, or provided by the government. If paid for separately, it might cost $10-60/month.

All subscribers with compatible communication gear may call or send messages to anyone on the network at no extra cost. Accounts include voice and e-mail addresses, where the user can be reached or have messages left for him. Messages to people *outside* the network may or may not be available; if so, it usually costs extra (e.g., $0.10-$1/minute). The definition of "outside" can include rival planetary networks (if any exist), spacecraft or stations, or other worlds.

Messaging over interplanetary distances will suffer from light speed lag (limiting the user to recorded messages or email) unless using faster-than-light comms. Interstellar comm linkages may or may not be available, and the fees are likely to be orders of magnitude higher!

Storage of data on the provider's system is usually included. Storing lots of information (backed-up mail, personal virtual realities, etc.) in a provider's system costs extra, e.g., $1 per terabyte per month at TL9. Storage space expands by a factor of 1,000 for each higher TL.

A subscriber's account lets him access whatever is publicly available on the network – news channels, entertainment, commercial sites, library search engines, virtual reality parks, etc. Some networks may be as loose as the current Internet; others may be tightly regulated by businesses or states. Net providers or other users may charge extra for various services, such as downloading some types of information, accessing virtual-reality simulations or sensies, or special high-speed service.

Cable Connection

Most users connect to a planetary network through a cable box hooked into an optical cable land line between the building and the service provider. A typical cable box has radio, laser, and infrared micro communicators; it can connect to computers, terminals, entertainment consoles, phones, and other hardware. The data transfer rate is one terabyte/second. Most landlords and network service providers provide cable boxes; if purchased, a box is $100, 0.2 lbs., external power. LC4.

Mobile Access and Cellular Communicators

Subscribers using compatible communicators can route calls through a planetary network regardless of distance, provided they're in range of a local repeater station. Repeaters are found in most areas, except for trackless wilderness, ocean, the territories of isolationist regimes, and areas where the infrastructure is down due to disaster, war, or deliberate jamming.

In places where there are no working repeater stations, network access is usually available via satellite connection. The user's comm needs at least a 10-mile range (sonic or sonar comms are useless). Long distance charges may apply.

Compatible communicators vary depending on the service provider and the TL. Most TL9 cellular networks are based on radio or laser systems, but others (except neural or sonic) are possible. There may be an extra fee of $10/month for each mobile comm address the user has.

Cellular Communicator (TL9): A comm that can *only* access a planetary data network is available at half the normal cost. Usually it's a tiny or small radio, but it could be anything except a neural communicator.

Operating a Service Provider

A planetary network provider requires computer systems on which the data and user-access programs operate, as well as the enough bandwidth to handle the number of users. If the service provider is also the telecommunication company, it has to worry about maintaining the communication channels and setting up new ones if they become overloaded.

Rental costs for lines capable of high-speed access to a global network depend on the state and sophistication of the net. Continuing costs may vary from $5 to 30 per line per month. If the number of regular users is more than 20 times the number of lines, the system is likely to become clogged.

Data Security and Data Havens

In most societies with CR2+, network service providers are required to turn over information on their users' activities to the authorities. Data havens operate illegally, or in regions whose governments have promised not to monitor data flow, or where there are no governments. They charge 10 to 1,000 times as much as mundane providers, but promise not to provide information to others. Some can be trusted. All may be prime targets for spies and hackers . . . and one scandal can destroy a data haven's reputation.

Mail and Freight

Many things can be done through networks and communicators, but sometimes a package has to be delivered in person. The possibilities depend on the available vehicle technology and the population density. Some examples:

Suborbital Express Mail (TL9)

Need to get something from New York to Tokyo in less than an hour? Hypersonic aircraft and spaceplanes may offer high-priority suborbital courier service at 10 times the speed of sound. Typical price: $100 per pound.

Homing Couriers (TL10)

Why wait at home for a courier when you can provide your GPS coordinates to a football-sized messenger robot who flies to you? A homing courier could even deliver a package to a moving vehicle, which is very useful if you've just run out of ammunition during a car chase. Typical prices: $50 per pound for same-day delivery, $500 per pound for same-hour, or $5,000/lb. for a super-rapid delivery arriving within several minutes.

Matter Transmission (TL11^)

If matter transmission technology (pp. 233-235) is cheap enough, everyone's personal mailbox may be a matter transmitter. Courier firms may also operate matter transport systems.

Media and Education

As communications and computers get better at processing information, technology finds better ways to store, present, and disseminate it. This section covers devices for recording, playing back, and imparting information of all kinds, for all purposes – including education and entertainment.

Word Processing Software

Voice Processor (TL9): A smart voice-interactive word processing suite, with dedicated AI editing capabilities. It converts ordinary speech to text, giving +1 (quality) to Writing skill for composition, and +2 for editing. Voice processors are very common programs. Complexity 5, 10% of typical software cost.

Thought Processor (TL11): Requires a neural interface (pp. 48-49). It interprets the user's thoughts and translates them into text. Running one while asleep and dreaming can produce interesting results. +2 (quality) bonus to Poetry and Writing skills for composition. Complexity 9.

Recording and Playback

Ultra-tech data storage and retrieval is usually digital. Many people do not bother with dedicated recorder or playback systems – computers can store digital recordings, and wearable displays or terminals play back audio and video. However, various specialized equipment is also available.

Digital Data Storage Media (TL9-12)

Modular digital media are similar to lower-TL computer disks and digital video disks, but use three-dimensional data storage with greater capacity.

Data Bank (TL9): This is a large unit used as a modular backup or expansion for computers. It has a cable jack. It is $100, 1 lb. per 100 TB. Multiply storage space by 1,000 for every TL after its introduction.

Datachip (TL9): About 1/4-inch square. Chip readers may be built into many other electronic devices. It holds 1 TB at TL9; multiply storage space by 1,000 for every TL after its introduction. $1, 0.01 lb. A datachip drive is built into many devices; purchased on its own, it's $5, 0.02 lbs., AA/100 hr.

Data Dot (TL9): Used for covert information storage, this tiny unit holds 1 GB at TL9. Multiply storage space by 1,000 for every TL after its introduction. $0.1, neg. A data dot drive accessory is $5, 0.01 lb., AA/200 hr.

Digital Cameras and Camcorders (TL9)

Passive visual sensors (pp. 60-61) can be used as digital cameras, but camera systems produce higher-quality images. They have a removable datachip (above), plus internal data storage capacity with the same capacity. Each terabyte of storage holds about 12 hours of uncompressed, studio-quality imagery, or two weeks of compressed imagery (which is good enough for most purposes). Use Photography/TL skill to take good pictures. All systems include a datachip drive (above), a microphone jack, and a display that can be used for simple editing tasks; treat as improvised equipment for any complicated audio-video production.

Flatcam (TL9): A palm-sized digital audio-visual recorder. It has a Night Vision 7 image-intensification lens and 4× optical magnification. This is basic equipment for Photography skill. $50, 0.1 lb., A/10 hr.

Pocketcam (TL9): A high-quality digital audio-video camcorder with 16× optical magnification and Night Vision 8 image intensification. It gives a +1 (quality) bonus to Photography skill. $200, 0.25 lbs., B/10 hr.

Portacam (TL9): A professional-quality movie camera for news gathering, intelligence work, or video production. It provides 16× parabolic audio magnification, 64× optical magnification, and Night Vision 9. It gives a +2 (quality) bonus to Photography skill, and can be mounted on a tripod (p. 151) for extra stabilization. $2,000, 4 lbs., C/40 hr. LC4.

3D Cameras (TL9): These are built with specialized lenses to capture the depth needed for 3D imagery. They can also be used to record holotech projections (pp. 52-53). The cameras listed above are available in 3D at five times normal cost at TL9. At TL10+, 3D cameras cost the same as normal cameras. 3D images use 100 times as much storage space as flat images.

At each TL after TL10, double visual and audio magnification.

Media Players (TL9-10)

Book Reader (TL9): The size of a slim paperback, this dedicated device is built as a digital text display, with a screen optimized for maximum readability. It can also read texts aloud. It stores a terabyte of text internally (multiply by 1,000 per TL after introduction) and has a datachip drive, a cable jack, and a radio microcommunicator. $20, 0.1 lb. 2A/100 hr.

Data Player (TL9): An inexpensive palm-sized viewing screen and speaker for audio, video, text, or other data. It has a datachip drive (above), a cable jack, and a radio microcommunicator for connecting to a HUD, computer, or ear phones. $5, 0.05 lb., A/100 hr.

Entertainment Console (TL9): This Complexity 4 computer (+2 per TL after introduction) is +1 Complexity when running computer games, virtual reality, and sensie programs. It includes a datachip drive, portable terminal (p. 24), and cable jack. $500, 1 lb., 4B/5 hr. or external power. LC4.

Video Wall (TL9): A flat, flexible, low-wattage video display pasted or painted on a wall. $10 and 0.05 lb. per square foot. Uses external power.

Multi-Media Wall (TL9): As above, but also ripples to generate sound, allowing a directional speaker effect. Many residences have these; they are also used for ad walls and other displays. $20 and 0.05 lb. per square foot. External power.

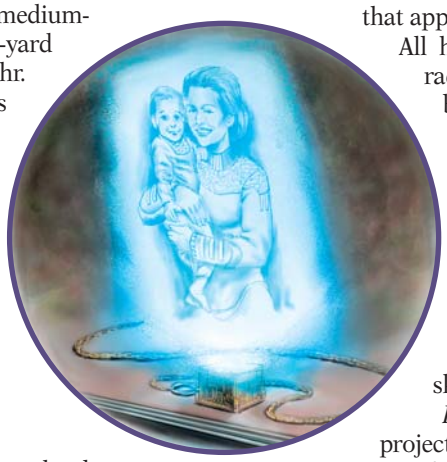
3D Media Wall (TL10): Higher resolution, providing realistic depth. $50, 0.05 lbs. per square foot. External power. LC4.

Scent Synthesizers (TL9)

A programmable odor generator used for air conditioning, parties, and art, with a specialized molecular assembler that produces realistic scents. Programming a known scent from the library takes one minute; creating a new one takes at least an hour and a Chemistry roll. Original or artistic scents may require days to perfect. It cannot generate biochemical agents such as pheromones or sleep gas, but it can create odors that mask other odors (-5 on rolls to detect things by smell), or produce a nauseating odor (treat as a mild form of riot gas (p. 159); roll vs. HT at no penalty to resist).

Odor Synthesizer (TL9): Fills a medium-sized room or vehicle; affects a five-yard radius outdoors. $500, 1 lb., B/100 hr. The cartridge is good for 100 mixes (each lingers for a minute). LC4.

Programmable Perfume (TL9): A wearable unit. Some scents may be complementary, but it is a good idea to wash off one before trying another. Affects a two-yard radius, including the wearer. $200, 0.1 lb., A/100 hr. LC4.



Sonic Projector (TL9)

This uses acoustic heterodyning technology to transform a spoken or recorded message into a directional sound beam. The sound appears to emanate from the location the beam is directed at, rather than the projector. It has a microphone for voice transmission, and a datachip drive for playing recorded sounds.

It can be used for communication, so that the recipient hears a voice that seem to be right beside him, even if the sender is hundreds of yards away. Personal, theater, or concert sound systems often integrate sound projection technology to create 3D audio that emanates from multiple locations around the listener.

Stores, billboards, or vending machines can use a sonic projector to address targeted ads to individuals passing by (cameras and AI programs identify the most likely customers). It's also useful for covert operations – for example, a softly-spoken message can be beamed to a distant target without anyone noticing. This can be used for psychological manipulation.

Complex effects (e.g., beaming a recording of someone walking behind a subject, so he thinks he's being followed by invisible footsteps) require an Electronics Operation (Media) skill roll. Focusing on a moving target requires an attack roll: it is Acc 6, Bulk -2; use Beam Weapons (Projector) skill.

A sonic projector requires an atmosphere to conduct sound, and is not designed for underwater use (for that purpose, see *Sonar Communicator*, pp. 44-45). The signal travels at about 0.2 miles per second (at sea level).

Various projector sizes are available:

Large (TL9): 200-yard range; can project up to four signals simultaneously. $500, 2 lbs., 2C/10 hr. LC4.

Medium (TL9): 100-yard range. $200, 0.5 lbs., 2B/10 hr. LC4.

Small (TL9): 10-yard range. $50, 0.05 lbs., 2A/10 hr. LC4.

Range is multiplied by 1.5 at TL10, doubled at TL11, and tripled at TL12.

Holoprojectors (TL10^)

This is the superscience version of holography – the ability to project three-dimensional images at a distance, into empty space or around objects. This technology allows projection of images, movies or still shots. Most devices also use sonic projectors (above) to create sounds that appear to emanate from the holographic image. All holoprojectors incorporate cable jacks and radio micro communicators, allowing them to be remotely controlled for use as displays, entertainment systems, or decoys.

Holoprojector (TL10^): The projection range is 12 yards. The visual projection can fill up to 216 cubic feet (2 × 2 × 2 yards). The projection area can also be moved at up to 12 yards/second, although doing so without disrupting the illusion requires an Electronics Operation (Media) skill roll. $8,000, 4 lbs., C/1 day. LC4.

Holotech Player (TL10^): This simple holoprojector is the size of a sugar cube, and can project a single image or short sequence (up to 30 seconds) with a range of one yard; the sequence or image is permanently stored in the device. It is often built into lockets and other keepsakes. $10, 0.1 lb., A/1 day. LC4.

Mini Holoprojector (TL10^): This pocket-sized holoprojector has a range of seven yards, filling an area up to 54 cubic feet (1 × 1 × 2 yards). The projection area can be moved at seven yards/second, but doing so without disrupting the illusion requires an Electronics Operation (Media) skill roll. Mini holoprojectors are often built into other devices, such as a computer, a helmet, a "magic wand," or an implant. $2,000, 1 lb., B/1 day. LC4.

Super Holoprojector (TL10^): This powerful projector has a range of 33 yards, and can fill up to 5,000 cubic feet (e.g., 25' × 20' × 10'). Super holoprojectors may be used for entertainment, but are also popular for government propaganda, "playing god" with low-tech natives, and delivering villainous ultimatums. The zone can move at up to 33 yards/second, but doing so without disrupting the illusion requires an Electronics Operation (Media) skill roll. $200,000, 100 lbs., D/6 hr. LC4.

Holotech Editing Program (TL10)

Software for creating or editing holotech and 3D camera images. It can be used to produce computerized holographic animation, special effects, etc. Use Electronics Operation (Media) skill. Complexity 6 software, normal cost. LC4.

Interactive Holoprojection (TL10^)

This artificial intelligence software lets a holoprojector-user control projections "on the fly," usually via a neural input device or direct neural interface. The operator combines objects from an image library with various pre-programmed and artificially-intelligent behavior sets. All imagery must remain in the projector area.

The operator takes a Concentrate maneuver to project animated, three-dimensional images of anything he can visualize. The images and sounds can occupy any frequency range, including spectra that are beyond human perception. They persist for as long as the device is operating.

In combat, a holoprojection can deceive and distract. Roll a Quick Contest of Electronics Operation (Media) against the Perception of anyone in a position to notice it. (GMs may roll once for multiple foes with the same Per.). Success means the projection seems real *to that individual* (although if he *knows* it's a holoprojection, he'll just be impressed!)

To make a holoprojection disturbing enough to cause a Fright Check, win a Quick Contest of Artist (Holoprojection) against the higher of IQ or Perception for each victim. To trick someone into believing in an projection of someone he knows, roll the *lower* of Acting, Electronics Operation (Media), or Artist (Holoprojection) skill against the *higher* of a target's IQ or Perception.

Roll a new Quick Contest when someone fooled suddenly changes how he's interacting with the projection; e.g., he attacks a holographic monster, or falls through a chair that isn't there. If he wins or ties, the operator can't simulate a believable response to his action (such as the monster dodging, or the chair slipping) and the victim catches on.

Modifiers: A victim gets +4 if someone who knows about the projection warns him, or if you critically fail in a Quick Contest against someone else. He gets +10 if you create the holoprojection unsubtly and in plain sight, or if he examines it with a sense you can't deceive – most often touch. Inappropriate projections give a further +1 to +10, while believable ones (e.g., you pull out a holographic gun) give from -1 to -5.

It's hard to animate a convincing semblance of a holographic person for direct, personal interaction, such as dueling or conversation. Multiple fake people are progressively more robotic and unresponsive; anyone rolling a Quick Contest to spot the projection is at +4 per construct after the first. Holotech projections obstruct vision but are otherwise intangible. They glow in the dark; apply a -1 penalty on rolls to fool or otherwise distract someone per -1 darkness penalty (unless the object would ordinarily be glowing in the dark).

Once images have been created, the user can hand off control to the program's AI. Such holoprojections can respond in simple ways, but can't *change* or respond to other's actions unless the user concentrates. In particular, illusionary people can't converse.

Interactive holoprojection requires a computer running Complexity 6 software plus an interface for controlling the holoprojector. Apply a -6 to skill if attempting to control interactive holoprojection through anything other than a neural interface! LC4.

Virtual Reality (VR)

A virtual reality rig simulates the sensory input of a computerized environment and transmits it to the user. Virtual reality may be used for socializing, meetings, entertainment and gaming, sex, educational and training simulations, art, advertising, shopping, court sessions, and as a sophisticated control interface.

The simplest form of virtual reality is a visual display. The user dons goggles or a helmet that blocks out the real world and replaces it with a wrap-around view of computer-generated imagery. VR displays are popular means of receiving sensor input from computer games or simulations, from scientific and other sensors, and from sensors and instruments on vehicles or robots. Most remote-control drones use some form of VR display as part of their control system.

VR often serves as a symbolic interface between a user and a set of controls or instruments, "superimposing" itself on normal reality. This is *augmented reality.* For instance, a computer operator can use a VR rig to dispense with a physical keyboard. The user dons goggles and gloves plugged into a computer, which generates the virtual image of a keyboard in front of him. The user moves his fingers as if typing, the gloves sense the finger movements, and keystroke input is generated in the computer. Feedback may give the user a tactile sensation of typing. The same can apply to control of other electronic systems.

Multi-User VR

Virtual reality also permit social interaction over a distance. If a computer user has a VR rig, he can interact with people and objects in a virtual-reality environment as if they were real. At TL9+, phone conversations and face-to-face meetings often give way to encounters in shared virtual realities.

When someone enters a VR environment of this sort, his appearance will depend on the nature of the environment program and his own interface program. Service providers have a library of avatars on line that the user can choose from, if he hasn't taken the time to design his own.

Most multi-user VR environments resemble a computer-generated version of reality. People can move about it and interact with the other denizens as they would in the real world. It may be hard to distinguish between other VR users and computer programs.

Everything is only as real as the program and hardware makes it. Avatars may be insubstantial, or react as if solid. Many environments are designed so their physics mirror the real world, but others have different physical laws where everyone is weightless, or people have "magical" powers, or water is solid, or whatever. Depending on the level of access granted by the system's operator, some users may be able to do things others cannot, or even control the overall VR program from within the simulation. Within a large simulation, different sites may have different rules.

Service providers may offer a mix of private VR spaces and open public forums, such as virtual parks, bars, shopping malls or streets. Virtual malls may sell physical goods and services. They can incorporate simulations that allow the user to try out the goods in question – to test drive a virtual car, or try on virtual clothes. (*Caveat emptor*: what looks good in VR may not be as good in reality.) If the goods are software, they can be delivered immediately; if they are hardware, they come by courier. At high TLs, a purchase order may signal a local fabricator or nanofac to manufacture the goods.

Travel speed in a virtual reality may be limited to walking, but some users may be granted the ability to teleport, fly, etc., or board virtual public or private transportation.

Many service providers allow subscribers to design and rent their own personalized locations, either in public forums or in private-access areas. Corporations may have VR offices. Individuals should take care before using VR for confidential meetings. A system operator can design software to monitor or record events in "private" spaces.

Access to large "public" VR environments may be free (perhaps sponsored by corporations, or treated as the equivalent of public parks). Other VR sites may have dues ranging from $1 per month to $1 per minute, although the latter charge is likely only for sophisticated game sites or private clubs. Price may depend on how congested communications bandwidth is.

How a user interacts with a virtual reality depends on his VR rig. All VR rigs must be linked to a computer that is running a virtual-reality program.

VR Gloves (TL9)

This simple set of gloves, used in conjunction with a HUD (p. 24), allows a user to manipulate virtual objects using the gloves. It requires a computer of at least Complexity 2 to use. $20, 0.3 lbs. (plus a HUD). LC4. VR gloves can also be incorporated into any set of body armor or other suit gloves.

Basic VR Suit (TL9)

The user has VR gloves, plus small movement "tracers" attached to various points on the body. He can move around a virtual reality and have a "body" there, but only experiences full tactile stimulation in his hands. The suit takes 10 seconds to put on or remove, and requires a Complexity 3+ computer. It can be worn with any armor or clothing. $200, 1 lb. LC4.

Basic Neural VR (TL9): Someone with a direct neural interface (pp. 48-49) can omit the suit and run the equivalent of basic VR through a Complexity 4 program. Standard software cost. LC4.

Full VR Suit (TL9)

This consists of a sealed helmet, gloves, and a sensor-equipped body stocking. The helmet blocks out the real world, creating 3-D images, sound, and scents. The body stocking and gloves house feedback sensors and pressure devices. The suit allows the user to move about a virtual reality and manipulate objects as if they were real (subject to the constraints of the program). The suit will sense the user's movements and provide tactile force-feedback (including sexual stimuli, if this feature is enabled), although not strongly enough to suffer any injury. It takes a minute to put on, 30 seconds to remove. It requires a Complexity 5+ computer. $2,000, 5 lbs. LC4.

Full Neural VR (TL9): Someone with a direct neural interface (pp. 48-49) can omit the suit and run full VR through a Complexity 5 program. Standard software cost. LC4.

Total VR (TL9)

This is only available as a computer program accessed through direct neural interface (pp. 48-49). It provides the same effects as a full VR suit, with the difference that all the user's senses are engaged. The only limit is whatever safety factors are programmed into the system.

If safety interlocks are engaged, the user may feel discomfort or dislocation, but not pain. If they are not engaged, a person in a total VR simulation can feel real pain. He won't suffer injury, but psychological damage can result if he is hurt, killed, or tortured in VR. This is best simulated by requiring Fright Checks.

Some total VR systems include "consent-level" protocols limiting how much "reality" (in terms of discomfort or pain) the user is willing to take. Another standard feature is a "safeword" function. If the user speaks a specific code word, he is immediately pulled out. Sabotage or system-operator connivance might neutralize such features. Total VR is a Complexity 6 program. Standard software cost. LC4.

VR Manager (TL9)

This program manages the interactions of multiple users within a shared virtual reality. The VR manager must be run on whatever computer is maintaining the virtual environment. Each program can handle about 10 users. For more people, run more programs. The manager can grant varying degrees of access to individual users to design characters or places within the environment. Its Complexity and cost depends on the most complex virtual-reality interface it can support:

Complexity 4: Supports VR gloves or basic VR.
Complexity 5: Supports up to full VR.
Complexity 6: Supports up to total VR.

The level of "reality" experienced is the lower of the VR interface or the VR manager. Someone with a deluxe VR rig running in an environment maintained by a Complexity 4 VR manager would participate as if he only had a basic VR rig – the software can't handle the full capabilities of the hardware. On the other hand, a user who connects a basic VR rig or program to a Complexity 6 total VR sim will miss most of the details.

VR Environmental Database (TL9)

This stores a virtual environment, which is accessed by a VR manager. Users of interactive networks might also store their own environmental databases (e.g., personal

character avatars) on their own systems, to be uploaded to the VR manager.

Memory requirements vary widely depending on the number of different objects stored in it and their level of detail. A forest of identical trees is much smaller than a small room with a hundred different knickknacks. Some typical database sizes are:

Imagery Database

Virtual character	0.001 TB
Virtual room	0.001 TB
Virtual house or park	0.01 TB
Virtual mansion or wilderness	0.1 TB
Virtual street or mall	1 TB
Virtual neighborhood	10 TB
Virtual town	100 TB
Virtual city	1,000 TB
Virtual small nation	10,000 TB
Virtual large nation	100,000 TB
Virtual planet	1,000,000 TB
Virtual interplanetary state	10,000,000 TB
Virtual interstellar state	100,000,000 TB
Virtual galactic empire	1,000,000,000 TB

Virtual wilds, streets, malls, cities, and worlds include simulations of animals or people as well as live users, but they are not really "alive" until someone else encounters them. Large areas may also use "generic scenery" to fill in backgrounds. A virtual city may only have a few thousand specific building interiors, assembling other rooms from "cut and paste" programs whenever individuals visit them.

Divide the required database space by 10 for a "cartoon" level of imagery; multiply by 10 for "lifelike" imagery with fewer generic details. "Lifelike" imagery experienced with full or total VR is nearly indistinguishable from reality.

Packaged Characters and Settings: At TL9, prices are about $1,000 per TB for off-the-shelf realities or standard character avatars. These costs drop by a factor of 1,000 per TL beyond TL9; however, customized settings and characters, may cost 10 times as much as generic material. Many system managers prefer to program their own characters and environments.

Private Realities

Some commercial computer networks will allow users to construct (or rent) private VRs on the network that only they are allowed to access. See *Planetary Network* (p. 49) for a price per terabyte per month.

VR-Enabled Software

Many software programs support a VR interface, including repair programs and games. See *Augmented Reality* (pp. 56-57).

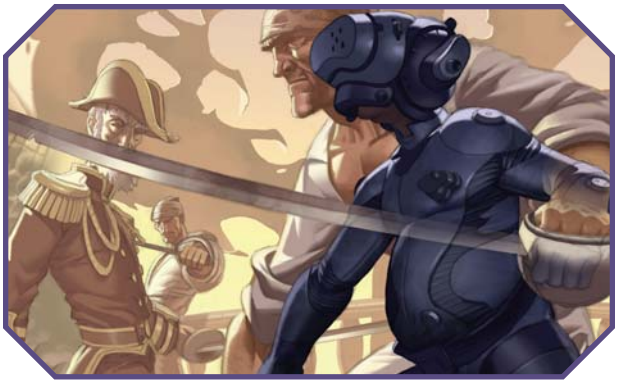
Interactive Total VR: Dreamgames (TL9)

These are interactive total VR games and simulations. The user connects and is plunged into the setting and fiction genre of his choice. Suddenly he is Colonel Orion of the Imperial Marines leading a battlesuit assault, or the richest person in the world, or an English noblewoman captured by pirates in the Caribbean . . . and he can direct the action.

The most popular sorts of such games are action-packed adventures, romances, pornographic odysseys, and "horatios" (dramas where the character rises from humble beginnings to vast wealth, and enjoys the fruits of his labors). Some of the stories have preset lengths – usually 10 minutes of real time – but each real-world minute seems like 10. More elaborate setups have stories that can go on for hours of real-time. Players participate in 20- and 30-minute sessions, picking up each time where they left off.

Dreamgames may also be used for education and training, or to rehearse for missions or operations. They vary widely in the degree of interactivity that the user is allowed, depending on the sophistication of the program and any built-in or directing artificial intelligence. It's possible that dreamgames will be among the most sophisticated types of ultra-tech software.

The realism of dreamgames varies wildly; most make concessions so that the games are more cinematic, exciting, and action-oriented. Depending on the availability of the necessary computer systems and direct neural interfaces, people may own their own dreamgames, visit parlors, or play them over the net.



Playing dreamgames can be addictive. Use the rules for non-chemical addictions (p. B122): addiction to dreamgames is generally cheap, legal, and incapacitating [-10]. (Dreamgame addicts might also have the Delusion that one or more of their games is the real world, and "reality" is the game, or that a character from the game is real.) Addiction can be especially serious if running the dreamgame using a computer implant.

By TL10, direct neural interfaces are relatively inexpensive, and even cheap computers have the processing power to run dreamgames. Much informational and instructional software uses dreamgame-style interactive techniques. Since anyone can plug one into his own home computer, dreamgame addiction could become a serious social problem.

Individual dreamgames are usually Complexity 6+ programs, but due to massive distribution, commercial games are usually one-tenth standard cost. Specialized corporate, government, or military training sims will be full cost. Some high-end programs may be Complexity 7+, and correspondingly more expensive. Most dreamgames are LC4.

Augmented Reality

This superimposes information onto a user's perception of the real world. It requires a video display linked to a digital camera or other imaging sensor, and a networked wearable or implanted computer.

An augmented reality system recognizes objects (including faces) and situations, and provides a helpful stream of context-appropriate data, often as audio messages or text boxes in the user's visual field.

Hardware

Augmented reality is usually presented with vid glasses (p. 60) or with a computer implant (pp. 215-216). A HUD (p. 24) and a camera (p. 51) is also sufficient equipment; either or both could be part of a helmet. A cyborg with bionic eyes and a computer implant running optical-recognition and database programs could keep everything in his skull. Digital minds can use augmented reality without any special interface: it's the world they live in.

Memory Augmentation (TL9)

This "mug shot" database is a common AR program. It uses stored or net-accessible databases ranging from the commonplace (such as celebrities) to the job-specific (a cop's database of wanted criminals). Most people accumulate personal databases of people they meet or expect to meet, co-workers, and so on.

If the user's wearable camera (or eyes, if he uses a brain implant) spots someone whose face is in the database, the program will automatically display that person's name and a brief identifier. The program can be told to ignore of relatives and other constant companions. Similar remembrance-agent programs and databases can be acquired for other tasks, such as recognizing artwork, wildlife, and vehicles.

For instance, a bounty hunter's computer might be linked to a database of "Earth's Most Wanted." If he saw someone on that list, the computer would make a match and instantly send him the file, which would appear before his eyes. Then he might zero in on the weapon his target was carrying and upload its specs.

Memory augmentation can be used with data-mining programs that continually search private or public networks for content relevant to the user's current situation, then present that information as appropriate. For example, if the user encounters a person who isn't in his standard database, that person's picture and identity are very likely to be available online.

Video and Sensory Processing (TL9)

Augmented reality can digitally process what the user sees, improving his vision. For example, enhancing the edges in an image helps in face recognition. It can also replace what he sees and hears, immersing him in a virtual reality (see below).

Visual Enhancement (TL9)

This gives +1 to Vision rolls. Complexity 4, $1,000. LC4.

Cosmetic Filter (TL9)

A common augmented reality program, this controls the audio-video display on a communication system. When activated, the video uplink picks up the user's image as usual, but filters it through a preprogrammed "ideal" of beauty before transmitting it to the receiver. The user still looks like himself, but the program tightens sagging jowls, erases crow's feet and wrinkles, and removes or minimizes blemishes. The user's video Appearance rises by one level, but cannot exceed Very Handsome. Any enhancement above Attractive has the Off-the-Shelf Looks (p. B21) modifier applied. Cosmetic filters designed for one species often produce very strange results for another species! A cosmetic filter is Complexity 4, $400. LC4.

Video Masking (TL9)

This works like a cosmetic filter (above), except that it can change the user's features and voice. The user may resemble another person, or adopt a persona created by the program. Complexity 5, $800. LC4.

Smart Diagnostics

Many TL9+ objects incorporate built-in sensors to monitor their own status. This could be a milk carton checking to see if the milk is spoiled, or a precision machine measuring microstresses in its components. The data from these sensors can be continuously uploaded to local (or planetary) networks, and accessed by looking at the object.

Virtual Tutors (TL9)

These systems simplify tasks such as repairing a car engine or building a prefabricated house. A mechanism may have dozens (or thousands) of different parts tagged with microcommunicators (p. 43) and positional sensors. Integral databases know where each part goes, and virtual tutoring software can track both the parts and the user's own hand movements, aiding in assembly, disassembly, preparation, or maintenance.

For example, when a repair technician (human or machine) walks up to a broken device, the device's components transmit diagnostics and positional information to the tech's computer. The computer then presents step-by-step guides for the technician to follow. Since all the parts and tools are tagged, often with additional sensors that monitor things such as stress, current flow, etc., an object-specific "virtual repair manual" can warn the technician if he is taking apart or putting the object back together the wrong way, or if there are internal faults.

The same technology can apply to other tasks requiring rote manual actions. Each widget, brick, pipe, or module

has a chip and sensor in it that knows where it goes and whether it's been installed correctly. Augmented reality has enabled a resurgence in unskilled labor, since these technologies permit untrained individuals to perform complex tasks.

Virtual Tutor (TL9)

This augmented reality program coaches the user in a specific task, such as assembling electronics or fixing a car engine. The user has an effective skill of 12. Complexity 3 if the task normally uses an Easy skill, Complexity 4 if it uses a harder skill or if it uses several skills in concert (such as building a house). Any necessary parts must be purchased as instructor kits (p. 81). Normal cost. LC4.

Invisible Friends

Computers may be inhabited by digital minds. If so, it may be popular to have a computer manifest through augmented reality as a virtual companion standing or sitting a few feet away from its owner. The "invisible friend" might truly only be visible to the user, or the image could be transmitted to anyone else sharing the same network who would be in a position to see the person.

SENSIES

Sensies are recordings or transmissions of another person's sensory experiences. They are sensory telepathy, transmitted through total virtual reality (p. 54) media. Users require direct neural interfaces (pp. 48-49) and experience full sensory input as if they were really there.

Transmitting or recording a sensie requires a specialized device that picks up the subject's sensory experiences. If it's recorded, a sensie can be replayed by anyone with a direct neural interface; they'll see and feel everything the original subject did.

Sensies don't have to be made from humans. Recording a nonhuman allows a user to "become" a cat, a bird, or an alien. (Commercial sensies of very simple creatures like butterflies or worms usually have more understandable virtual reality experiences dubbed over the simple-minded experience of the actual creature).

Sensies operate at real-time speed. That is, one second experienced in a sensie is a second in the real world. Some edited sensie programs come with multiple viewpoints, so that you can try out the show or story line from the perspective of more than one character in it. Most such programs limit the user to a choice of the male or female lead characters.

Sensie Uses

Sensies may be a new form of entertainment media (see below). But they're also useful for surveillance and control. Although they can't read thoughts, an implanted sensie recorder can monitor exactly what a person sees, hears, smells, etc. – see *Braintaps* (p. 215). Those seeking to keep tight control of subordinates, children, prisoners, slaves – or entire populations – may *require* the use of sensies.

Sensie Mass Media

Sensies could rival total virtual reality as a future media, since they offer the added realism of experiencing what a person actually felt. This may make them popular for news reporting and various forms of live "reality" programming. Ordinary people may also distribute their experiences, much as bloggers write about their daily lives online.

Commercial sensies may come in many varieties. Pornography, drama, and travel and sports shows are all very popular. The most popular programs treat the user to sunbathing, eating exotic food, scuba diving, skiing, skydiving, zero-gee free-fall, and so on.

Many sensies are edited to remove any unpleasant sensations the viewpoint character may experience, such as sunburn, pain, hunger, or cold. However, black-market sensies may feature injuries, painful deaths, rape, or torture. These find a market with jaded masochists, or as torture devices. Normally these are illegal, since the person making the sensie was harmed or killed. (Violence against other actors in the sensie can be simulated, but what the viewpoint character experiences must be real.) A sensie of this sort will impose one or more Fright Checks on the user, at a penalty determined by the GM.

Sensie Stars

Anyone using a sensory uplink can make a sensie transmission, but some people have a gift for recording a satisfying sensory experience. These individuals make good "sensie stars." High HT attributes and Acute Senses are valuable traits to have.

Experiencing a Sensie

A sensie is experienced from a live or recorded transmission of another individual's sensory experiences. Someone accessing a sensie experiences all the sensory data of the original subject: seeing through his eyes, hearing what he hears, sharing tactile sensations, etc.

There are two ways to experience a sensie:

In *immersion* mode, the user is unable to use his own senses and is submerged in the transmission. If the transmission includes pain or physical afflictions, the user also feels pain and suffers shock effects, but takes no damage. The GM should require Fright Checks if the experience includes terrifying events, severe injury, torture, or death. Since the user's own senses are immersed, and he might miss almost anything that didn't wreck the headset or media player, a common safety measure is to make sure the computer is programmed to turn off the sensie in the event of a fire or burglar alarm!

In *surface* mode, the receiver experiences the transmitted sensory perceptions, but they are muted. The receiver can still function, but he will be distracted. This imposes a -3 on other activities, unless the task is one that would benefit from intimate knowledge of what the subject is feeling; e.g., attempting to interrogate or seduce him. The user suffers only half the transmitter's shock penalties, and makes any required HT, Will rolls or Fright Checks at a +4 bonus. Most commercial sensory interface experiences are transmitted in surface mode.

Experiencing a real-time sensie in immersion mode requires a transmission speed of at least one gigabyte per second; surface mode requires at least 0.1 gigabyte per second. This generally means that one has to "jack in" to experience a sensie.

Sensie Equipment

Creating or experiencing sensies require a neural interface (pp. 48-49) and appropriate software.

Sensie Player (TL9): This software lets someone experience sensie media. They must use a direct neural interface (pp. 48-49) to connect their mind to a computer running this program. This lets them access recorded or live sensie feeds stored on their computer, or transmitted over networks or via communicator. Complexity 6, standard software cost. LC4.

Sensie Uplink (TL9): This software lets someone transmit or record his sensory experiences as sensie media. The link requires a direct neural interface (pp. 48-49) that is in communication with a computer running this program. The data is then sent to a recorder, or broadcast using a communicator or net connection. Complexity 7, standard software cost. LC4.

Braintaps (TL9): These specialized cybernetic implants only record and transmit sensies; see *Braintap* (p. 215).

Anything with a digital mind – AIs and mind emulations – can record its experiences without the need for any kind of sensie player, since it experiences everything in digital form already.

A typical sensie program occupies about 100 GB/hour, recorded in standard digital media. Cost is about $10 per hour for mass-market entertainment sensies, but may be considerably more for specialized ones such as tutorials. Sensie-rental fees are usually about 20% of the purchase price.

Sensie Editor (TL9)

This is a software suite that someone who can play sensies (*see Sensie Hardware*, above) can use to edit raw sensory recordings. The user can wipe portions of a recorded sensie, compress time with smooth jumps, fadeouts or transitions, tone down sensory experiences, or splice several recordings together. It also can be used to analyze a sensie recording to tell whether it is "raw" or edited, what kind of equipment was used, etc.

Sensie editors are necessary to make commercial-quality sensies from raw recordings. For instance, if sensie superstar Selena Usagi records her latest travel sim "Beautiful in Bali," and takes an hour-long walk down a moonlit beach before skinny-dipping in the warm tropical ocean with her co-star, the editor might condense it to the most stimulating 10 minutes. The quality of the sensie-editing job matters as much as the actual experience that generated the sensie; experiencing a poorly edited sensie can be disorienting and unpleasant! Electronics Operation (Media) skill is used to operate a sensie editor. Complexity 6 program; $5,000. LC4.

Mass Media

Mass media are designed to reach large audiences. It's likely that old media such as printed matter, television, musical recordings, and online text-and-graphics will continue to be popular. Advances in computer and digital recording and storage technologies will also make it simpler to translate between media – books can be scanned rapidly, text can be converted into spoken words or vice versa, etc.

Major new media may include:

Augmented Reality (pp. 56-57): Traditional text, video, audio, and other media may be delivered at all times as an overlay on daily life.

Total VR (p. 54) and Sensies (above): Fully-interactive sensory experiences offer high levels of realism and excitement, and create new frontiers for artistic effects. Their

main limitations are high bandwidth requirements (which make laser or cable the most practical delivery systems), and the need for expensive and invasive neural interfaces. They might be *too* addictive or disorienting, although a generation that grew up with them may have no problems!

Media Walls (pp. 51-52): Cheap audio-video walls may create a renaissance in billboard technology or (with spray-on or paint-on screens) video graffiti.

Holotech Projections (pp. 52-53): Using super holo-projectors (p. 52), giant-sized images may tower over entire communities.

Depending on society, mass media could be dominated by individuals (like much of the contemporary Internet), media corporations, criminals, or governments. In totalitarian societies, some or all forms of mass media may be controlled by the state. An oppressive government could use sensies and augmented reality to control not only what you read or watch, but your entire sensory environment.

Teaching and Learning Aids

Virtual reality (pp. 53-55), augmented reality (pp. 56-57), and sensies (pp. 57-58) provide excellent teaching aids. In addition, various specialized teaching equipment is available.

AI Tutors (TL9)

Perhaps the biggest advancement in education is the use of AI software (p. 25) to provide a tutors for children and adults. AI tutors can train the user in mental skills, languages, or learnable mental advantages. By using full or total VR, they can train the user in *any* skill.

Non-Volitional AI is less useful than a human teacher: teaching proceeds at half the normal speed (equivalent to self-study). Volitional AI is equivalent to a human teacher.

AI tutors need Teaching skill and the trait or skill the user will study. See *Purchasing Machines* (p. 29) for the cost of skilled AI software.

An AI tutor may also serve as a child's personal assistant and companion. A volitional AI might even learn and grow with the child, gaining in intelligence and personality as the child matures. It might become a life-long partner – a virtual parent, sibling, or lover.

Training Robots (TL9)

Robots can be used as training aids in everything from sports to combat training to medicine. At TL9, they provide more realism than virtual reality, and are particularly useful for dangerous situations – for example, as opponents in live-fire combat training, or as victims for rescue teams to practice their skills upon.

It may be common to employ sapient robots for young children; a child's robot pet or toy may also be his AI tutor (above), babysitter, playmate, and bodyguard. As the child matures, the same software may be moved to robots appropriate for a teen or adult. A shape-shifting nanomorph (p. 111) might even physically change with the child.

Virtual Education (TL9)

Virtual reality allows the user to study IQ-based skills or languages with a distant teacher as if he were present. If the user has access to a Basic VR (p. 54) rig or better system, DX-based skills can also be learned. HT-based skills require total VR.

Dream Teacher (TL10)

This is an advanced form of total virtual reality. It transforms the user's dream-state into a teaching environment via direct neural interface; it is sometimes known as a "dream sensei." The user goes to sleep (or is sedated) while connected via direct neural interface (pp. 48-49) to a computer that is running a dream teacher program. As he sleeps, the program interfaces with his dreams to create lifelike simulations that reinforce rote aspects of a skill and teach new situations. A dream teacher will interact with the user's sleeping mind to create new scenarios that are exciting and relevant to him.

Dream teacher programs allow the user to perform Intensive Training (p. B293) while sleeping in any IQ-based skill or language. DX- and HT-based skills are not quite as effective; although they do actually "program" the nervous system, the learning speed is the same as Education (p. B293), since efficient training in these skills also requires the development of muscle memory.

Like total virtual reality and sensies, dream teachers require the user to have a neural interface connected to a computer running appropriate software. The software requires an individual program for each skill or disadvantage. Programs are Complexity 6 for Easy skills, 7 for Average skills, 8 for Hard skills and languages, or 9 for Very Hard skills. Behavior modification programs are Complexity 7 for -1 point disadvantages, Complexity 8 for -2 to -10 point, Complexity 9 otherwise. Use standard software costs. Most dream teacher programs will be LC4. Behavior modification programs and programs that teach military or espionage skills will be LC3 or lower.

Instaskill Nano (TL12)

Injections of nanomachines that rearrange brain structure to impart knowledge. Instaskill comes in many varieties, each corresponding to a specific IQ-based skill or technique, or a language. Each "dose" gives the user one point in a specific skill or technique, Cultural Familiarity, or towards Broken or Accented comprehension in a language. It only works if a character has zero to one points in the trait; a character with two or more points is unaffected. It takes a day (TL12) or an hour (TL12^) before it takes effect.

Multiple doses of the same or different skill should not be taken until after assimilation; if doing so anyway, roll vs. IQ to avoid suffering Phantom Voices [-5] (p. B125) for days equal to the margin of failure, or permanently on a critical failure. This also prevents further use of instaskill until the problem wears off (if it does). $30,000/dose. LC3.

Sensors and Scientific Equipment

This section presents scientific equipment and devices that extend the range of human sensory perception.

Passive Visual Sensors

These systems work like normal vision, but extend the limits of human sight. They include light-intensifying, infrared, ultraviolet, and hyperspectral sensors.

Passive sensors often incorporate levels of telescopic magnification. Each doubling in magnification lets the user ignore -1 in range penalties on Vision rolls when using the sensor. The user can also "zoom in" on a particular target by taking an Aim maneuver. This doubles the benefit against that target (useful for making a more precise identification) but eliminates the bonus to spot other targets.

All passive sensors incorporate a digital camera (pp. 51-52).

All these sensors provide anti-glare protection (p. 171) and DR 2 for the eyes.

Passive Visual Sensor Configurations

Ultra-tech passive visual sensors come in standard models:

Binoculars: A manual hand-held viewer. It limits the user's vision to a 120° forward arc (see *No Peripheral Vision*, p. B151) and requires one free hand and Aim maneuvers to use. Binoculars incorporate a built-in HUD (p. 24), a laser rangefinder, and a digital camera (p. 51). They can be used as basic equipment for Photography skill.

Goggles or Visor: These are wearable hands-free optics with a wide field of view, but lower magnification than equivalent binoculars. They also incorporate a built-in HUD (p. 24) and digital camera (p. 51), but the simple controls for the latter give a -5 (quality) modifier to Photography skill.

Imaging Sensor Array or Surveillance Camera: A security system or vehicle-mounted sensor. It does not come with a display; it requires a separate terminal (pp. 23-24) as its interface. It limits the user's vision to a 120° forward arc (see *No Peripheral Vision*, p. B151), but is often mounted on a rotating turret or tripod. It can be used as a digital camera with a +1 (quality) bonus to Photography skill.

Video Glasses: These resemble ordinary sunglasses (providing DR 2 for the eyes). They have the same capabilities as goggles, but less magnification. It takes a Ready maneuver to don or remove them.

Video Contacts: These rigid gas-permeable contact lenses contain intricate microcircuitry and auto-focusing systems. They have the capabilities of goggles, but much less magnification. It takes a day to adjust to wearing contacts; until then, vision rolls are -1. It takes six seconds to insert or remove both lenses; before TL11 they should be taken out every week and cleaned. They're powered by body heat or piezoelectricity.

These passive visual sensor configurations can include night vision optics, infravision, and hyperspectral vision – see below.

Night Vision Optics (TL9)

These devices use near-infrared and computer-enhanced light intensification to amplify ambient light levels. They are rated for their level of Night Vision. Each level (to a maximum of nine) lets the user ignore -1 in combat or vision penalties due to darkness. However, they have no effect on the -10 penalty for *total* darkness.

They come in the classes detailed under *Passive Visual Sensor Configurations* (above), with various levels of telescopic magnification and night vision.

Electro-Optical Binoculars ("Televiewers") (TL9)*:* Night Vision 9 and 64× magnification. $500, 0.6 lbs., 2B/100 hr. LC4.

Electro-Optical Surveillance Camera (TL9): Night Vision 9 and 4× magnification. $250, 0.6 lbs., 2B/100 hr. Often uses external power. LC4

Night Vision Contacts (TL9): Night Vision 7 and 1× magnification. $200, neg. LC4.

Night Vision Glasses ("Night Shades") (TL9): Night Vision 8 and 2× magnification. $250, 0.1 lb., A/10 hr. LC4.

Night Vision Goggles or Visor (TL9)*:* Night Vision 9 and 4× magnification. $1,000, 0.3 lbs., 2B/100 hr. LC4.

Multiply telescopic magnification by 2 at TL10, or 4 at TL11+.

Infrared Imaging Sensors (TL9)

This is technically known as thermal imaging, and is equivalent to the Infravision advantage. These sensors detect the infrared (heat) spectra emitted by objects at different temperatures, then build up a false-color television image of the environment.

Infrared sensors lets the user observe or fight at no penalty even in absolute darkness, if the target emits heat (this includes all living beings and most machines). The sensors give a +2 on all vision rolls to spot such targets, since their heat stands out from the background. It can also distinguish targets that are colder than their surroundings (there is no bonus). Infrared sensors can be used to follow a heat trail when tracking: add +3 to Tracking rolls if the trail is no more than an hour old.

Infrared sensors do not distinguish real colors (which may limit the ability to use some controls), and only allow the user to judge the general size and shape of heat-emitting objects. Roll at -4 to distinguish objects of similar size and shape. The GM may also require a Vision-4 roll to read by reflected heat. Flare, fiery explosions, infrared lasers and other sudden flashes of heat can blind the imaging system, just as a flash of light can blind ordinary vision.

Infrared sensors usually come with one or more levels of telescopic magnification. The user can switch freely between normal vision and infravision.

The infrared sensors described below also have a daylight TV optical channel as well. This gives telescopic magnification at the same level without providing infravision. It takes a Ready maneuver to switch settings.

They come in the styles and features described under *Passive Visual Sensor Configurations* (p. 60), with various levels of telescopic magnification.

Infrared Imaging Sensor Array (TL9): 64× magnification. $40,000, 50 lbs., 2D/12 hr. LC3.

Infrared Binoculars (TL9): 16× magnification. $2,500, 3 lbs., C/10 hr. LC4.

Infrared Surveillance Camera (TL9): 4× magnification. $250, 0.6 lbs., 2B/100 hr. Often uses external power. LC4.

Infrared Goggles or Visor (TL9): 2× magnification. They're an integral feature of many suit helmets, but if purchased separately are $500, 0.6 lbs., B/10 hr. LC4.

Infrared Video Glasses (TL9): 1× magnification. $500, 0.1 lb., A/10 hr. LC4.

Infrared Contacts (TL10): 1× magnification. $300, neg. weight. LC4.

Double magnification one TL later, or quadruple the magnification two TLs later. However, many users are more likely to upgrade to hyperspectral vision (below).

Hyperspectral Imaging Sensors (TL9)

These optical sensors electronically fuse passive radar, infrared, visual, and ultraviolet imagery into a single false-color television image. The integrated picture often reveals details that are invisible to those who see in only one of these frequencies.

If there is any light at all, hyperspectral imaging grants near-perfect night vision with no vision or combat penalties. In total darkness, it functions exactly like infrared sensors (above). It also gives +3 to all Vision rolls, all Tracking rolls, and all rolls to spot hidden clues or objects with Forensics, Observation, or Search skill. These capabilities are not cumulative with other passive visual sensors or similar advantages.

Hyperspectral imaging sensors all incorporate the above capabilities plus one or more levels of telescopic optics. If the hyperspectral imaging is turned off, the sensors function as daylight television systems.

Hyperspectral Imaging Sensor Array (TL9): 32× magnification. $160,000, 50 lbs., 2D/12 hr. LC3.

Hyperspectral Binoculars (TL9): 16× magnification. $10,000, 3 lbs., C/10 hr. LC4.

Hyperspectral Surveillance Camera (TL9): 4× magnification. $2,000, 1 lb., C/100 hr. Often uses external power. LC4.

Hyperspectral Goggles or Visor (TL9): 1× magnification. An integral feature of many suit helmets, or available for $2,000, 0.6 lbs., B/10 hr. LC4.

Hyperspectral Video Glasses (TL11): 1× magnification. $1,000, 0.1 lb., A/10 hr. LC4.

Hyperspectral Contacts (TL11): 1× magnification. $1,200, neg. weight. LC4.

Magnification doubles for every TL after introduction.

Passive Electromagnetic Sensor Arrays (PESA) (TL10-12)

These are similar to hyperspectral imaging sensors, but they see even farther into the electromagnetic spectrum. They provide Hyperspectral Vision (Extended Low Band), allowing the user to "see" microwave emissions.

PESA Sensor Array (TL10): 32× magnification. $160,000, 50 lbs., 2D/12 hr. LC3.

PESA Binoculars (TL10): 16× magnification. $10,000, 3 lbs., C/10 hr. LC4.

PESA Surveillance Camera (TL10): 4× magnification. $2,000, 1 lb., C/100 hr. Often uses external power. LC4.

PESA Goggles or Visor (TL10): 1× magnification. An integral feature of many suit helmets, or available for $2,000, 0.6 lbs., B/10 hr. LC4.

PESA Video Glasses (TL12): 1× magnification. $1,000, 0.1 lb., A/10 hr. LC4.

Indirect Passive Sensors

These sensors are omnidirectional, and do not require a line of sight.

Chemsniffer (TL9)

An artificial nose that registers the presence of almost any odor by comparing it to a database. The user must set the chemsniffer for a *particular* odor or scent. When so programmed, it allows the use of Electronics Operation (Sensors) skill for tasks that would require Smell rolls. It can recognize people, places, and things by scent (provided they've been scanned before, or are common items). It can't detect anything in a sealed environment, underwater, or in vacuum.

The sensor has a computerized database of olfactory "signatures" that can *quickly* be compared to new sensory impressions. The sensor can record a new signature by analyzing a scent (see below). Its bonus is *not* cumulative with the Discriminatory Smell or Acute Taste and Smell advantages. A chemsniffer gives +4 on any Electronics Operation (Sensors) roll to detect targets, +4 to Tracking skill, and +8 to analyze or recognize targets by scent.

Personal Chemsniffer (TL9): This takes 10 seconds to analyze a new smell. Incorporates a built-in tiny computer. $2,000, 2 lbs., A/1 wk. LC4.

Dedicated Chemsniffer (TL9): Optimized to detect a single particular category of scents, e.g., explosives, human beings, drugs, etc. $100, 0.2 lbs., A/1 wk. LC4.

Tactical Chemsniffer (TL9): Takes only three seconds for the system to scan a new scent. Can track 10 different scents at the same time. $100,000, 40 lbs., B/1 wk. LC3.

Higher-TL models give +1 to skill (equivalent to Acute Smell) per TL beyond TL9.

Electronic Support Measures (ESM) (TL9)

This system detects and classifies electromagnetic emissions. On a successful Electronics Operation (EW) roll, this sensor detects radar or radio signals and reveals the distance to each source. Signals are usually detected at twice their range; low-probability intercept signals are detected at 1.5 times their range.

The system will also function as a laser sensor, detecting ladar, targeting laser, and laser comm signals that are beamed directly at it.

The brief warning the ESM system provides gives a +1 bonus to Dodge any attack aimed with an active targeting sensor that the ESM can detect.

The operator may take more time and make an Electronics Operation (EW) roll to analyze the signal. Each attempt requires a Concentrate maneuver; success distinguishes a random emission from a targeting lock, and can determine known types of emitters ("that's a Terran Guard YM-2 tactical radar"). An ESM can also be set to detect and analyze signals autonomously, using its own Electronics Operation (EW) skill for this purpose.

ESM Detector (TL9): A hand-held or belt-mounted system, often used as a counter-surveillance device. It has Electronics Operation (EW)-10. $250, 0.25 lbs., A/1 wk. LC3.

Tactical ESM Detector (TL9): A heavier and more expensive model. Adds a +1 (quality) bonus or uses Electronics Operation (EW)-12. $1,000, 2 lbs., B/1 wk. LC3.

These systems are also commonly built into suits, vehicles, etc. See also *Personal Radar/Laser Detector* (p. 188).

Sound Detector (TL9)

This is a sensitive array of microphones and sound-profiling software that provides the superhuman ability to distinguish between sounds.

The user can *always* identify people by voice, and can recognize individual machines by their "sound signature." In tactical situations, sound detectors are often programmed to respond to particular sounds made by specific weapons, engine noises, breaking armor, etc.

The system can memorize a sound by monitoring it for at least one minute, then adding it to the signature library. It gives +4 on any Hearing roll, +4 to Shadowing skill when following a noisy target, and +8 to Electronics Operation (Sensors) rolls made to analyze and identify a particular sound. Sound detectors can also magnify sounds from a distant point for eavesdropping purposes; this requires an Aim maneuver.

Sound detectors only work in air (hydrophones are used under water). They are useless in vacuum. They can detect an air sonar at double its range.

Personal Sound Detector (TL9): This device can zoom in and amplify a particular sound by 8×. Must be connected to a Complexity 4+ computer. $1,000, 1 lbs., A/1 wk. LC3.

Tactical Sound Detector (TL9): A sensitive "phased array" of microphones, often built into a vehicle hull. It can amplify a particular sound by 32×. It must be connected to a Complexity 4+ computer. $30,000, 30 lbs., B/1 wk. LC3.

Double amplification per TL after introduction.

Hydrophone (TL9)

These are sensitive underwater microphones connected to discriminatory sound signature-profiling software. This can detect and track *moving* or *noisy* objects in the water, provided the hydrophone is submerged. To do so, make an Electronics Operation (Sonar) roll at the detection bonus shown below. Consult the Size and Speed/Range Table (p. B550); apply separate bonuses for the target's size and speed, and a penalty for the range to the target. Swift currents will generate "noise" that interferes with the sense. Find the speed of the current on the table and assess the relevant speed penalty.

A successful roll reveals the size, location, speed, and direction of movement of the target. It reveals the target's general class based on sounds (e.g., "whale" or "nuclear sub"), location, and vector, giving +8 to identify it, +4 to shadow it, and +3 to hit it with an aimed attack. It does not provide any information about the object's shape or color. Once the object is detected, it can be attacked. The modifiers that applied to the skill roll also apply to the attack roll, but can never give a bonus to hit over the +3.

Hydrophones automatically detect anyone using sonar or sonar communicators at twice that system's range (or 1.5 times range if it is low-probability intercept sonar).

Small Hydrophone (TL9): +8 to the detection roll. $5,000, 5 lbs., B/1 wk. LC3.

Medium Hydrophone (TL9): +10 to the detection roll. $25,000, 25 lbs., C/1 wk. LC3.

Large Hydrophone (TL9): +12 to the detection roll. $100,000, 100 lbs., D/1 wk. LC3.

Search Hydrophones (TL9): This system is used for underwater research, fishing, or perimeter surveillance. It does not provide a targeting bonus, but costs 1/10 as much. LC4.

Add +2 to detection per TL after introduction.

Gravscanners (TL9/11^)

These devices detect the strong gravity waves produced by operating gravitic devices; see *Gravity Control* (pp. 78-79). They can also detect massive objects (a million tons or more) such as giant spacecraft, asteroids, planets, stars, or black holes. They provide an estimate of the bearing and strength of the gravity emanation. They can *receive* messages from gravity ripple comms (p. 45) but they cannot send them.

Electronics Operation (Sensors) skill is used to operate them.

Very Large Gravscanner (TL9): +6 to detection. Does not require superscience technology (unlike the smaller sensors). $500,000, 1,000 lbs., external power. LC4.

Large Gravscanner (TL11^): +12 to detection. $50,000, 100 lbs., D/24 hr. LC4.

Medium Gravscanner (TL11^): +6 to detection. $5,000, 10 lbs., C/24 hr. LC4.

Small Gravscanner (TL11^): No modifier to detection. $500, 1 lb., B/24 hr. LC4.

Add +6 to detection per TL after introduction.

Radscanner (TL10)

This detects electrical or magnetic fields and radiation sources of all kinds (including radar and radio signals, not just radioactivity). The user must set the sensor to detect a particular type of radiation, such as radio waves or gamma radiation.

The detector can provide range, strength, and bearing. It does not emit a scanning signal. Detection requires a roll against Electronics Operation (Sensors) skill.

Range depends on the strength of the source – for sensor or communicator signal detection, range is usually twice the radiating system's range. If detecting other sources of radiation, add modifiers from the Size and Speed/Range Table. If attempting to detect operating power cells, the skill roll is at -12 for an AA cell, -9 for an A cell, -6 for a B cell, -3 for a C cell, 0 for a D cell, +3 for an E cell, +6 for an F cell.

Radscanners also analyze radiation. Make a Physics or Electronics Operation (EW) roll.

Large Radscanner (TL10): +18 bonus to detection (or ×1,000 range when detecting signals). $100,000, 150 lbs., external power. LC4.

Medium Radscanner (TL10): +12 bonus to detect radiation sources (or ×100 range for signals). $10,000, 5 lbs., B/24 hr. LC4.

Small Radscanner (TL10): +6 bonus to detection (or ×10 range for signals). $1,000, 0.5 lb., AA/24 hr. LC4.

Radscanners add a +2 bonus to skill at TL11, or +4 to skill at TL12.

Active Sensors

Active sensors detect objects by bouncing energy off them and analyzing the returned signal. Radar and imaging radar emit radio or microwaves; ladar emits laser light; sonar uses sound, etc. All ultra-tech active sensors incorporate embedded digital image processing that translates the raw analog data into a comprehensible image.

Active sensors are rated for the type of sensor and a range in miles or yards. An Electronics Operation skill roll is required to use an active sensor to detect hidden targets or fine detail. Active sensors can sense objects out to their rated maximum range at no range penalty; each doubling of range beyond that gives -2 to skill.

The scanning wave of an active sensor can be detected by specialized detectors. Normally, this is at twice its range. (Most scanners radiate energy that could, theoretically, be detected at a longer range, but ultra-tech sensors operate on multiple frequencies that make detection difficult.) The detector required depends on the sensor.

Unless otherwise noted, assume an active sensor scans a 120° arc in front of it (see *No Peripheral Vision*, p. B151).

Special Modes

Targeting: Active sensors are available in tactical versions that incorporate a rangefinder mode. This works the same way for all active sensors: it generates a narrow targeting beam. It requires an Aim maneuver to "lock onto" a particular target that has already been detected. This determines its precise range and speed, and gives +3 to hit with an aimed range attack used in conjunction with targeting software (pp. 149-150).

Low-Probability Intercept (LPI): The sensor uses a rapid frequency-agile burst of radar energy. This halves range, but results in a radar signal that can only be detected at 1.5 times the halved range rather than twice the normal range.

Disruption or Blinding: Some sensors have the ability to emit high-power narrow beams that can be used as weapons – see the individual sensor descriptions.

Vehicular Arrays (TL9)

Aircraft, submarines, or spacecraft often have very large active sensor arrays that cover a sizable fraction of their surface area on one or more facings. Active arrays operate indefinitely off vehicle power; the cost and weight are included as part of the vehicle, as the capabilities depend on the vehicle's surface area.

Ladar (TL9)

This high-resolution sensor emits laser energy, then analyzes the returned signal to build up a picture of the user's surroundings. A ladar can discern a target's size and shape, and pick out other physical details, such as the shape of a face. It can't determine flat detail such as writing. Anyone who can sense the signal you emit can detect the ladar, out to twice its own range.

Ladars are of limited use in detecting unknown targets due to the narrowness of the beam – make an Electronics Operation (Sensors) roll at -4 to spot a previously unknown target. However, they are excellent for identifying targets that have already been spotted by other sensors (roll at +4, even to detect fine detail such as a face).

Ladar can be used to "lock onto" a target that has already been detected. This determines its precise range and speed, and gives +3 to hit that target with an aimed ranged attack. This bonus is not cumulative with that from other active sensors that have locked onto the target.

Ordinary radar detectors do not detect ladar; specialized laser sensors (pp. 62, 188) are required. Ladar cannot penetrate solid objects. It has 10-50% range in falling rain or snow, and can be tuned to use blue-green frequencies. It functions at 1% range underwater, with an maximum range of 200 yards.

Large Ladar (TL9): A powerful ladar, usually vehicle-mounted. It has a 100-mile range (200 mi. at TL10, 500 mi. at TL11, 1,000 mi. at TL12). $200,000, 100 lbs., D/8 hr. LC4.

Medium Ladar (TL9): A portable ladar set. It can be worn as a pack, or mounted on a tripod, vehicle, or robot. It has a 30-mile range (60 mi. at TL10, 150 mi. at TL11, 300 mi. at TL12). $20,000, 10 lbs., C/8 hr. LC4.

Small Ladar (TL9): A mini ladar with a 10-mile range (20 mi. at TL10, 50 mi. at TL11, 100 mi. at TL12). It comes in a hand-held version, or attaches to a shoulder mount (p. 151), and plugs into a HUD (p. 24). $2,000, 1 lb., B/8 hr. LC4.

Small, Medium, or Large Tactical Ladar (TL9): A military-style target-acquisition ladar. It can track up to 10 targets at once out to the listed range, and gives +3 to hit any of them with an aimed attack. Cost is 5 times normal. LC2.

Ladar Smartskin (TL9)

This is a phased array ladar integrated into the vehicle's surface area. It functions as a tactical ladar with a range specified in the vehicle's description, and as a laser communicator (p. 44) with a range equal to its detection range.

Tactical Ladar Arrays: These have an "optical countermeasures" mode – see *Blinding Lasers* (pp. 113-114). Weight and cost are included in the vehicle statistics; the array can't be added later.

Laser Chemscanner (TL9)

Chemicals absorb laser energy at known wavelengths. This system uses a laser to detect airborne chemical compounds, as well as surface contaminants such as a slick of chemicals coating an object or the ground. It is most often used to identify chemical weapons or pollution levels in the atmosphere. It can also analyze the light scattered from swarms of microbots or nanomachines that are too small to otherwise resolve, identifying them by matching the patterns with known models.

A dedicated laser chemscanner is half as expensive as a ladar, but has twice the range. A chemscanner mode for a ladar adds 20% to its cost.

Multi-Mode Radar (TL9)

This provides a search mode for locating potential targets, and an imaging mode for identifying them as they get closer. The GM can assume that most moving targets that fit the radar's criteria are detected automatically. If a target is using radar countermeasures or being stealthy, the GM can require an Electronic Operation (Sensors) skill roll, or a quick contest of skill between the radar operator and the target's Stealth.

Search Radar: This searches a fan-shaped, 120-degree area in front of the user, hunting for rat-sized or larger moving targets and displaying them as blips on a screen. Darkness, smoke and bad weather do not impair it, but it cannot see over the horizon or through solid obstacles. It provides a digital readout of target speed, altitude, position, and approximate size. This mode is good for tracking vehicle-sized or larger targets, or any moving targets. It can't distinguish a moving human from a moving animal or robot of similar size. Background items make spotting stationary human-sized or smaller objects on the ground virtually impossible in anything but open terrain. Non-moving targets are impossible to distinguish from ground clutter unless the user has seen that particular "blip" moving.

Imaging Radar: This uses millimeter-wave radar. It has a shorter range than search radar, but can spot small objects and determine their shape. An Electronics Operation (Sensors) roll is needed to distinguish fine relief (e.g., to identify a face). Imaging Radar can see through thin fabric or vegetation. It gives a +3 to Search rolls to locate objects like concealed weapons, and may ignore penalties for spotting objects hidden behind light brush. Ordinary radar detectors detect Imaging Radar at -4. Imaging Radar does not work underwater. The effects are similar to the Imaging Radar advantage. It has roughly 1/10th the range of the radar in search mode.

Switching settings takes a Ready maneuver. If desired, a longer cable can connect the radar and its control panel – this sometimes proves tactically desirable, since radar emissions can be detected over quite a distance.

Large Radar (TL9): A powerful multi-mode radar suite, usually vehicle-mounted. It has a 100-mile range in search mode, 10-mile range in imaging mode. $100,000, 100 lbs., D/8 hr. LC4.

Medium Radar (TL9): A portable radar set. It can be worn as a pack, or mounted on a tripod, vehicle, or robot. It has a 30-mile range in search mode, three miles in imaging mode. It has no display screen of it own, but can be plugged into a computer monitor, HUD, or interface. $10,000, 10 lbs., C/8 hr. LC4.

Small Radar (TL9): A mini radar set with a 10-mile range in search mode, 1 mile in imaging mode. It's available in a hand-held version, or one that mounts on the shoulder and plugs into a HUD. $1,000, 1 lb., B/8 hr. LC4.

Small, Medium, or Large Tactical Radar (TL9): Military-style multi-mode radar. It can track up to 10 targets at once out to the listed range, identify them at 1/10 that range, and give +3 to hit any of them with an aimed attack. Cost is 5 times normal. LC2.

Double range at TL10, multiply it by 5 at TL11, and multiply it by 10 at TL12.

Tactical Active Electromagnetic Sensor Array, (AESA) (TL9)

Ultra-tech vehicles sometimes have large multi-mode tactical radar antenna arrays buried in their hulls, often covering a good fraction of their surface. These arrays are rated for their range in miles; see the vehicle descriptions.

AESA arrays are powerful enough to be used in *disruption mode*. This uses a narrow microwave beam to jam or burn out enemy electronic systems. See *Microwave Disruptors* (p. 121) for the combat statistics of AESA arrays.

A vehicular AESA operates indefinitely off vehicle power. Cost and weight are included in the vehicle's statistics, as the capabilities depend on the vehicle's surface area.

Sonar (TL9)

This is an active sonar using ultrasonic sound waves. Sonar can spot small objects and determine their shape, but an Electronics Operation (Sonar) skill roll is required to distinguish fine relief (e.g., to identify a face). Sonar can be "jammed" or fooled by explosions and other loud noises. Individuals or devices with Ultrahearing can detect sonar.

Sonar gadgets must be designed for air or water. Standard range is for underwater sonars. Air sonars have shorter ranges: 1/10th normal, multiplied by air pressure in atmospheres (one atmosphere on Earth). All sonars are ineffective in vacuum.

Electronics Operation (Sonar) rolls are used to detect objects. Ambient noise from sea life and other ships will interfere with detection; apply a -1 penalty for being near noisy sea life, or -6 for detecting an object in a busy, cramped harbor.

A sonar can sense objects out to its rated maximum range at no penalty; each doubling of range beyond that gives -2 to skill. Detection is limited to a 120° arc. Under ideal conditions, sonars can be detected at twice their own range, but ambient noise can interfere.

Large Sonar (TL9): A powerful multi-mode sonar suite, usually vehicle-mounted. It has a 20,000-yard range. $20,000, 100 lbs., D/8 hr. LC4.

Medium Sonar (TL9): A portable sonar, often used by small boats or underwater robots. It has a 2,000-yard range. $2,000, 10 lbs., C/8 hr. LC4.

Small Sonar (TL9): A small sonar used by divers, underwater battlesuits, and robots. It has a 200-yard range. It comes in a hand-held version or one that mounts on the shoulder and plugs into a HUD. $200, 1 lbs., B/8 hr. LC4.

Tactical Sonar (TL9): Military-style multi-mode targeting sonar. It can track and identify up to 10 targets at once out to the listed range, and gives +3 to hit any of them with an aimed attack. It is 10 times the cost of ordinary sonar. LC2.

Double range at TL10, multiply it by 5 at TL11, and multiply it by 10 at TL12.

Terahertz Radar (TL9)

This uses the "t-ray" wavelengths that lie between infrared radiation and the millimeter-waves used by imaging radar. A terahertz radar can penetrate clothing, brush, or thin walls (up to a few inches thick) to see inside objects. It can also be used to spot small objects and determine their shape, and eliminates penalties to spot objects behind light cover. It gets +4 to locate concealed weapons, and while it still requires an Electronics Operation (Sensors) roll to distinguish fine relief, this roll is also at +4. Only special-purpose sensors can detect its radar emissions. It doesn't work underwater.

Large Terahertz Radar (TL9): 2,000-yard range. $200,000, 100 lbs., D/10 hr. LC4.

Medium Terahertz Radar (TL9): A portable radar set. It has a 600-yard range. $20,000, 10 lbs., C/8 hr. LC4.

Small Terahertz Radar (TL9): 200-yard range. $2,000, 1 lb., B/10 hr. LC4.

Tactical Terahertz Radar (TL9): It can track up to 10 targets at once out to the listed range, and gives +3 to hit any of them with an aimed attack. It is 5 times normal cost. LC2.

Double range at TL10, multiply it by 5 at TL11, and multiply it by 10 at TL12.

Ultrascanner (TL11^)

This is a multi-function superscience sensor suite. It ranges and images the target, analyzing its emissions and composition. It can even see through solid objects, scanning the interior of the target and providing details on any occupants and machinery. It works in any environment. Ultrascanning sensors are common "space opera" sensors.

An ultrascanner can be tuned to function in any of these additional modes:

Imaging: This setting functions like imaging radar (p. 65), except it can operate underwater, and cannot be detected or jammed by systems that affect normal radar.

Scan: This functions like imaging radar (p. 65) except it can operate underwater, and cannot be detected or jammed by systems that affect normal radar. It can also penetrate up to 6" of solid matter. It gives detailed information about the composition, energy output, radiation emissions, and other characteristics of non-living objects. It allows detailed analysis from a distance with scientific skills such as Chemistry and Physics. It can be used to detect specific systems within a complex machine, and analyze them using Engineer skill.

Bioscan: This setting provides the vital signs and biochemical information the target and anything living on its surface. It lets the operator use Biology and Diagnosis skills at a distance, and can examine living beings *inside* inanimate objects, such as the passengers of a spaceship.

Search: This setting functions like ordinary radar (p. 64), except it can operate underwater, and cannot be detected or jammed by systems that affect normal radar.

Radscan: The sensor can also operate in passive mode, as a radscanner (p. 63).

The following types are available:

Large Ultrascanner (TL11^): It has a 10-mile range (100 miles in search mode). In radscanner mode, +12 to detection. $200,000, 100 lbs., external power. LC3.

Medium Ultrascanner (TL11^): It has a 3-mile range (30 miles in search mode). In radscanner mode, +9 to detection. $20,000, 10 lbs., C/4 hr. LC3.

Small Ultrascanner (TL11^): This sensor has a 2,000-yard range (10 miles in search mode). In radscanner mode, +6 to detection. $2,000, 1 lb., B/4 hr. LC3.

Tactical Ultrascanner (TL11^): In search, bioscan, or imaging mode, it can track up to 10 targets at once out to the listed range, identify them at 1/10 that range, and give +3 to hit any of them with an aimed attack. Five times normal cost. LC2.

Double range at TL12^, and add +2 to detection for radscan.

Combination Sensors

Extensible Sensor Pod (ESP) (TL9-12)

This expensive sensor suite is used by special ops teams or battlesuit troopers for urban warfare. Often, only recon specialists will be equipped with it. It's a backpack unit with a short periscope, tipped with a multi-sensor head. It swivels, and can be extended up to a yard vertically or horizontally. This lets the user see around corners or over cover. If shot at, the periscope is SM -8, HP 4, and DR 20).

The pod has a sound detector (p. 62) and a hyperspectral imaging sensor (p. 61), both with 4× (TL9), 8× (TL10), 16× (TL11) or 32× (TL12) magnification, plus a tactical terahertz radar (p. 65) with a range of 100 yards (TL9), 200 yards (TL10), 500 yards (TL11), or 1,000 yards (TL12). Terahertz radar can see through thin walls and brush, which is very useful for house-to-house fighting! The user will need a HUD and either a terminal or a neural interface to use it. $50,000, 10 lbs., 2C/100 hr. LC3.

Ultra-ESP: This superscience upgrade replaces the terahertz radar with an ultrascanner (TL11^, above) that has the same range. Otherwise, it's identical.

Tactical Sensor Turret (TL9)

This battlefield sensor system uses a rotating mini-turret to look in any direction. It includes a set of hyperspectral imaging sensors with 10× (TL9), 20× (TL10), 50× (TL11), or 100× (TL12) magnification and a tactical ladar (p. 64) with a range of 10 miles (TL9), 20 miles (TL10), 50 miles (TL11), or 100 miles (TL12).

It must be controlled from either a terminal (pp. 23-24) or neural interface (pp. 48-49).

Two versions are available:

Sensor Turret: A ball turret installed on the roof or in the nose of vehicles. It can also be placed on top of a building. $300,000, 70 lbs., external power. LC3.

Sensor Periscope: The same system on a telescoping mast that can be extended up to seven yards (21') above the roof of the vehicle or base camp it is installed in. Often used by submarines, and by specialized armored fighting vehicles that need to look over hills. $350,000, 150 lbs. LC3.

Scientific Equipment

This section describes laboratory equipment and specialized sensing tools.

Portable Laboratories (TL9)

These provide the scientific equipment necessary to conduct research "in the field, " away from specialized analysis systems and large research facilities. Portable labs include an array of scientific instruments, a dataport for linking them to a personal computer, and sealed sub-compartments for storing solid, liquid, and gaseous samples. They fulfill the basic equipment requirements for gathering and analyzing samples at the lab's TL.

Portable labs are available for the Archaeology, Biology, Chemistry, Farming, Forensics, Geology, Metallurgy, Paleontology, and Pharmacy skills. For example, a suitcase chemlab allows anyone with Chemistry skill to analyze complex compounds, including planetary atmospheres, and exotic alloys. It can also manufacture small quantities of explosives and other chemical compounds.

Many of these labs incorporate "laboratory on a chip" systems that purify, separate, pump, stir, filter, and transfer miniscule samples of gases, liquids, cells, or bacteria with single-molecule accuracy.

Portable labs do not improve by TL; instead, they allow use of higher-TL applications of the skill.

Suitcase Lab (TL9): Fulfills basic equipment requirements for using the skill. Takes at least 10 seconds to set up or pack. $3,000, 10 lbs., 4C/10 hr. LC4.

Pocket Analyzer (TL9): These systems are basic equipment for analysis of small samples. They are -5 for other tasks. $500, 0.6 lbs., 2B/5 hr. LC4.

Semi-Portable Lab (TL9): Contains good-quality scientific equipment; it takes a minute to set up or pack. +1 (quality) bonus to the skill. $15,000, 40 lbs., 2D/10 hr. LC4.

Mobile Lab (TL9): Enough lab equipment to fill a room; it takes at least 15 minutes to set up or pack. +2 (quality) bonus to the skill. $75,000, 200 lbs., external power. LC4.

Sensor Gloves (TL10)

These gloves are equipped with sensitive tactile, pressure, chemical, and biometric sensors. They can weigh items by lifting them, measure the hardness and smoothness of materials, detect chemicals, read ink printing, and scan any of this information into computer memory by touch. The user's fingertips can sense residual heat in a chair, or feel faint vibrations in the floor as someone approaches. Add +4 to any task using the sense of touch; e.g., a Forensics roll to note the similarities or differences between two pieces of fabric, or a Search roll to feel out tiny concealed objects.

At higher TLs, the gloves are more sensitive: add +2 at TL11, or +4 at TL12. They can be built into armor or suit gloves. The bonuses from Sensor Gloves are not cumulative with bonuses from the Acute Touch or Sensitive Touch advantages. Each glove: $1,000, 0.2 lbs., A/2 wk. LC4.

Wristwatch Rad Counter (TL9)

This measures and displays the amount of radiation that the user is exposed to, and can be programmed to set off an alarm if dosage exceeds a designated level. The same unit can present information on an HUD, or be built into a helmet visor. $100, neg., A/6 mo.

Timescanner (TL9^/11^)

A timescanner is a device that can be used to see into the past; it is useful for archaeologists, detectives and genealogists. When activated, it provides a holographic image of whatever happened within a two-yard radius of the scanner. Nothing outside that area can be seen – it can't be used as a "window" to scan the surrounding landscape. The place being scanned is relative to the nearest large mass (large being continent-sized). Thus, a timescanner can only be used to scan planetary surfaces.

A timescanner must be set for an arbitrary point in time in the past, e.g., 31 years, 84 days, 11 hours, and 50 minutes ago. Make a skill roll against Electronics Operation (Sensors or Temporal). A successful roll means the scanner has locked onto the correct period. Failure means that the mark was missed by 10% times the margin of failure (plus or minus, roll randomly). A critical failure means that it could be seeing *anywhen*. Other than visual evidence ("Why are they wearing togas? Are you sure this is 1945?"), there is no way to tell if the scanner is focused on the correct time.

The more distant the period to be scanned, the longer it takes the scanner to reach it. It takes 90 minutes to focus on something within the last 24 hours, three hours to focus on something within the last 10 days, six hours to focus on a point three months distant, 12 hours to focus on a point within the last two and a half years, 24 hours to focus on something within 25 years, two days to focus on something within 250 years, and so on. Each tenfold increase in temporal distance doubles the amount of time that it takes the scanner to reach that period.

After the scanner is ready, it projects the visual image of the area it occupies, which continues in "real time" until the scanner is deactivated. This can be unhelpful if, in the time being scanned, the area presently occupied by the scanner is filled with solid material.

For example, archaeologists take a timescanner to the ruin of an ancient palace. They set it up, then use astronomical data to choose an early morning exactly 3,200 years ago, the approximate date it was built. It takes four days for the scanner to reach back that far (whether it shows brief glimpses of intervening periods is up to the GM), and start relaying images.

What the archaeologists see is two halves of different rooms – a wall once bisected the area now occupied by the scanner. In one room, the scanner shows a bit of rug, and the corner of a chair. In the other room, the archaeologists can see half a bed, holding the bottom half of someone sleeping under a fur cloak. If they want to see more, they would have to wait for someone to come into the timescan field (perhaps the sleeper will get up and move into view). They could also try again, either resetting the time to be observed or physically moving the scanner. Either action breaks the lock.

If temporal technology is possible, timescanners are often developed at relatively low TLs. Portable models become available at very high TLs.

Timescanner (TL9^): A room-sized facility. $800,000, 10,000 lbs., external power. LC2.

Time Viewer (TL11^): A semi-portable unit. $100,000, 100 lbs., E/32 days. LC2.

Chapter Four

Housing, Tools, and Survival Gear

The Yezendi antimatter syndicate was smuggling its product to both blocs on Sargon, a balkanized powder keg with too many people and too many nukes. The syndicate was only shipping in a few grams – but with it,, the rival alliances could upgrade the fission triggers on their nukes into clean fusion devices. That would make a nuclear war thinkable – and unjammable. It was up to me to stop it happening.

I had an inside line: a smuggler's wife named Adrienne Morrigan, who had discovered what they were up to and couldn't live with it. The syndicate killed her. But not before she'd passed me the location of their covert antimatter storage facility: Leonidas City, under the old mag-lev subway tunnel beneath Spinnaker Joe's Garage.

Thanks to the datachip Adrienne had stolen, I also had a list of the off-world tech defenses that her husband had shipped in – laser grids, hyperspectral cameras, security bots – and with the right equipment, I knew I could get in.

I didn't have everything I needed – but I did have an ace in the hole. My stealth luggage concealed a suitcase nanofac – the spy's best friend. I programmed it to build:

A mini tool kit and X-ray laser torch.

An antimatter storage field box.

A monowire switchblade.

A full suit of ablative body armor with a multispectral chameleon surface.

– Special Agent Gabrielle, Imperial Secret Service

Without advanced tools and materials, there wouldn't be any "ultra-tech." This chapter describes manufacturing systems, architectural technologies, and essential equipment for use at home or in the field.

Housing and Food

Ultra-tech domestic technologies may just be background details, but they can also be pressed into service by adventurers. The heroes, or their foes, may reprogram a cleaning robot as a spy or saboteur, or use domestic nanocleanser to clean up telltale forensic evidence.

Domestic Equipment and Appliances

These may be common ultra-tech household items, or luxuries for the rich.

Housebot (TL9-11)

58 points

This small domestic robot serves as a waiter, janitor, or homemaker, depending on how it is configured. Its internal payload space can accommodate a garbage can, vacuum cleaner, microwave oven, ultrasonic dishwasher, or a reservoir for cleaning agents. It is designed to run quietly, to avoid disturbing people while working. It moves on wheels at TL9, or on legs at TL10+. At higher TLs, these robots are often replaced by cleaning swarms or utility fog.

Attribute Modifiers: ST-3 [-30]; HT+2 [20].
Secondary Characteristic Modifiers: SM-1; HP+5 [10].
Advantages: Absolute Direction (Requires signal, -20%) [4]; Doesn't Breathe [20]; DR 5 (Can't Wear Armor, -40%) [15]; Infrared Communication (Reduced Range 5, -20%) [8]; Machine [25]; Silence 2 [10]; Payload 2 (2 lbs. cargo) [2]; Radio (Secure, +20%) [12].
Perks: Accessory (Cleaning equipment, tiny computer) [2].
Disadvantages: Electrical [-20]; Restricted Diet (Very Common, power cells) [-10]; Striking ST -2 [-10].

Model Lenses

Pick *one* of the following lenses:

TL9 Model (-30 points): Bad Grip -1 [-5]; Maintenance (one person, weekly) [-5], Wheeled [-20]. $4,000, 20 lbs., C/8 hr. LC4.
TL10 Model (+6 points): Extra Legs (four) [5], Reduced Consumption 2 [4]; Maintenance (one person, bi-weekly) [-3]. $1,000, 20 lbs., C/24 hr. LC4.
TL11 Model (+9 points): Extra Legs (four) [5], Reduced Consumption 3 [6]; Maintenance (one person, monthly) [-2]. $1,000, 20 lbs., C/1 week hr. LC4.

Responsive Beds (TL9)

This bed can adjust to the shape of the sleeper, responding to voice commands to become softer, firmer, or bouncier as desired. Adds +1 to Erotic Art skill if used inventively, and adds +TL/2 to any Will rolls made to get to sleep.

Single: $500, 100 lbs.
Double: $700, 140 lbs.

Sleep Set (TL10-11)

A programmable ultrasonic or neural induction headset that gives the user the equivalent of the Deep Sleeper perk, and also provides Protected Hearing.

TL10: $400, 0.4 lbs., A/1 day.
TL11: $200, 0.1 lbs., A/3 days.
TL12: $100, 0.025 lbs., A/10 days.

Autokitchen (TL10-12)

This automated kitchen is fitted with a complete set of robotic manipulator arms. It can cook on command using its own skill, or it can duplicate the moves of a live chef. One chef could control a dozen or more autokitchens scattered around the world.

TL10: Cooking-10. $20,000, 400 lbs.
TL11: Cooking-11. $10,000, 200 lbs.
TL12: Cooking-12. $5,000, 100 lbs.
All use external power. LC4.

Domestic Nanocleanser (TL10)

This "smart soap" is a solution of microscopic cleaning robots that work to remove stains, grime, dirt, dandruff, and loose skin flakes from surfaces. Domestic nanocleanser can serve as a shampoo, soap, or detergent. A teaspoon of nanocleanser powder poured into water will clean anything immersed in it in 10 to 60 seconds. It also comes in premixed liquid-detergent form, useful if water is unavailable.

Washing in nanocleanser can be unsettling to those unused to its tingling sensation, but it can also be pleasant. The robots themselves are biodegradable and non-toxic, smart enough not to scrub hard enough to scratch, and programmed to break down harmlessly if exposed to ultraviolet light or the interior of a living body.

Domestic nanocleanser can disrupt forensic evidence such as bloodstains, skin flakes and other organic residue. While it doesn't work as well as the Mask spray (p. 160), treating an area with it imposes a -3 penalty on any Forensics rolls made to locate or analyze such evidence. TL10+ Forensics will be able to identify the brand of nanocleanser used, which may itself be a useful clue!

A bottle of nanocleanser lasts for about a week of routine domestic cleaning or one major cleaning job, such as thoroughly wiping down an apartment to remove evidence.

Nanocleanser adds a quality bonus of +5 (TL10) or +6 (TL11-12) to Housekeeping skill rolls to clean up things. A bottle is 1/2 pound and costs $10. A bar (for washing hands, etc.) is 0.1 lb. and costs $1.

Domestic Nanomist (TL11): A spray that covers a 3-yard radius. $10, 0.5 lbs. LC4.

Cleaning Swarm (TL10)

This common swarm is programmed to move around a predetermined area, removing dust and grit, and polishing smooth surfaces with tiny brushes. Its sensors determine when material might be damaged by its actions; a cleaning

swarm can safely polish lenses, and even harmlessly clean people! Each square yard of swarm can thoroughly clean one square yard area per minute. Some large craft and buildings have permanent colonies of cleaning swarms to polish windows, ports, and sensors. The swarm gives a +2 (quality) bonus to Housekeeping skill. Aerostat cleaning swarms may be popular installations in doorways, bathrooms, and showers. $1,000/square yard. LC4.

Domestic Android (TL10)

General-purpose androids (p. 41) are often purchased as humanoid butlers or maids.

Sonic Shower Head (TL10)

This is found in many homes and starship cabins, and on water-poor worlds. An ultrasonic spray unit clipped to a wall simultaneously cleans and massages the user. It uses building or ship's power. $400, 10 lbs., LC4.

Food Factory (TL11-12)

This machine converts any biological substance (grass, meat, appropriate chemicals) into edible food, removing toxins and harmful microorganisms while adding vitamins and nutrients. As long as the factory has a source of compatible protein, food can be created indefinitely, though its store of vitamin supplements will run out after one man-year of use. It can use nearly any organic substance, terrestrial or alien. It works automatically, taking one to six hours (depending on the quality of the raw material) to process enough for a single meal. The processor can also distill simple organic compounds, such as alcohol.

Kitchen Foodfac (TL11-12)

Produces "simulated" food and drink that looks and tastes like a meal prepared by someone with Cooking-12. For people who still like to cook, it also can create high-quality ingredients instead of finished food; it adds a +1 (quality) bonus to Cooking skill.

TL11: $40,000, 25 lbs., D/300 meals, or external power. LC4.

TL12: $10,000, 10 lbs., D/1,000 meals, or external power. LC4.

A gourmet foodfac is 4 times the normal cost. It produces fine quality food and adds a +2 (quality) bonus to Cooking skill.

Survival Foodfac (TL11-12)

A lightweight, no-frills model for emergency use in the field, low-rent tenements, etc. It produces a dry, flaky cake with a remarkable similarity to pet food. Flavor additives can make it more palatable. One hundred additive packets (each good for one meal) weigh five pounds and cost $10.

TL11: $10,000, 10 lbs., C/30 meals. LC4.

TL12: $3,000, 3 lbs., C/100 meals. LC4.

Antigrav Hammock (TL11^-12^)

The user can float in mid-air above the antigrav plate, which incorporates a low-powered tractor field to hold him in position. Antigrav beds are useful for long-term medical treatment – as there is no contact with a mattress, there are no bedsores, and no irritation for rashes, burns, or other injuries. These hammocks also have their recreational uses (+1 to Erotic Art).

TL11^: $20,000, 20 lbs.

TL12^: $5,000, 5 lbs.

Multiply weight and cost by 1.5 for a double hammock that sleeps two.

Uses external power. LC4.

Floating Furniture (TL11^-12^)

Chairs, tables, and serving trays can use contragravity generators to float in mid-air, or move up to three yards/second. They are controlled by voice or neural interface. Floating furniture costs 10 times as much as ordinary furniture at TL11, or 2.5 times as much at TL12. Floating furniture often uses external power or broadcast power.

Floater Chair (TL11^): $1,000, 20 lbs., D/1 day. LC4.

Floater Chair (TL12^)*:* $250, 10 lbs., D/3 days. LC4.

Utility Fog (TL12)

This is a nanobot aerostat swarm (p. 36). It consists of countless cell-sized nanobots ("foglets"), each equipped with a dozen hooked arms. The bots can lock together to form a solid object upon voice command. Utility fog allows free motion through it while it is in cloud form.

One cubic yard of utility fog can form objects of up to one pound in weight; larger fogs can form more massive objects. Utility fog swarms can form ordinary solid materials like chairs as well as mechanical and electronic devices. Objects formed from utility fog cannot include exotic elements, special alloys, or organic components, nor can the fog create other types of nanomachines. Thus, a rocket engine, a power cell, and many high-energy weapons may be impossible. The GM should feel free to use this requirement to limit things he doesn't want constructed out of thin air. In general, very tough objects can't be formed: the maximum DR is 12.

Once solidified, an object can be moved. On command, it will dissolve back into fog, remaining where it was moved to. The fog can't be moved in its cloud form.

Utility fog has a base cost of $10,000 per square yard; this includes the aerostat option. Other *Swarm Chassis* options (pp. 35-36) are possible. Legality Class depends on the minimum LC of the item its program allows it to make.

Housing and Construction

In some ultra-tech societies, construction remains much as it has been since TL6, with the only changes being electronics and appliances. Other possibilities are more exotic, including buildings composed entirely of nanomachines or force fields.

The Intelligent House (TL9)

Houses, apartments, hotel rooms, and passenger ship cabins may include a voice-activated computer system that controls climate, domestic appliances, security, and communications. The system is programmed to respond to the occupants' voiceprints. Cheaper apartments tie into the landlord's main building computer, which provides similar services, but with less security. Very cheap tenements can be prone to malfunctions . . .

Media wallpaper permits the illusion of vast space to be created. Most ceilings, and usually at least one wall, may be used as a giant-sized computer or video screen.

Domed Cities (TL9)

An entire town or city may be enclosed by a transparent dome. A low-tech version for a terrestrial habitat could be wire-reinforced shatterproof glass, mist-plated with aluminum to cut sun glare while still letting in light. From the outside it would appear like a giant mirror; from the inside it would be almost invisible. A dome about two miles wide and a mile high would weigh about 4,000 tons. With TL11^ superscience, force field domes are also possible – see *Under the Screen* (p. 72).

Space Habitats (TL9-11)

Large, manufactured habitats are usually built using titanium, aluminum, and steel mined from moons or processed from asteroids. Gravity can be simulated by rotation, and power drawn from solar collectors or reactors. A thick shell of slag left over from mining and ore-processing operations can provide radiation shielding.

O'Neill Cylinders (TL9)

These are the largest and most expensive space habitats. They are giant cylinders (or paired cylinders) a few miles wide and several miles long, rotating to simulate Earth-normal gravity. Inside is a complete environment with park and urban landscapes. An O'Neill cylinder can house a few million people. Large populations may be supported by additional agricultural habitats.

Stanford Torus (TL9)

Smaller than the O'Neill cylinder, but still very large. A typical torus is shaped like a bicycle wheel, with gravity and landscaping on the floor of the outer rim. The spokes are elevators that lead to a central microgravity hub. A typical model houses 10,000 to 100,000 people. Radiation shielding is a major expense.

Bernal Sphere (TL9)

This is a sphere of any size, with smaller cylinders attached around it. The central sphere rotates; the cylinders do not. The sphere is simple to build, but the rotation only simulates gravity in a strip around its equator. This can be inconvenient without superscience artificial gravity.

Asteroid Hives (TL9)

Instead of using an asteroid as raw material, it can be completely or partially hollowed out, with people living in tunnels inside. A large asteroid such as Ceres could support billions of inhabitants.

Dyson Trees (TL10)

These genetically-engineered trees (or living machines resembling trees) are adapted to space conditions and planted on comets. They grow to enormous size in microgravity. Their leaves serve as solar collectors, and their bodies house cities.

Macrohabitats (TL10/10^)

If microgravity is tolerated or TL10^ contragrav generators (p. 223) are used, space habitats could be thousands of miles across without exceeding material strength limits. A large asteroid or moon might be dismantled into dozens or hundreds of continent-sized habitats.

Super O'Neill Colony (TL11)

If manufactured using carbon nanocomposites and diamondoid, the largest enclosed space station that is structurally sound while rotating to simulate Earthlike gravity would be a cylinder 550 miles in diameter and 2,750 miles long. It could comfortably house 75 billion people.

The Flexible House (TL10):

At TL 10, an intelligent house (above) can have a *sapient* brain that handles everything from doing the dishes to tutoring the children. It is smart enough to anticipate the owner's desires, which may be good or bad. When someone says a house or apartment has personality, they may mean exactly that.

Within the house, domestic products can be made of smart, self-repairing materials. Living carpets may clean themselves. Beds, tables, and chairs may assume different shapes, textures, and colors to fit the occasion, or be absorbed into the walls and floor when not in use. Artifacts and interior partitions may change color with a word to the house computer.

These houses give a +2 (quality) bonus to Housekeeping skill. A typical three-bedroom home is $100,000.

Castles in the Air (TL10^)

Contragravity generators let unmodified humans live nearly anywhere in Earthlike comfort. Floating buildings, or even cities, are possible, usually with multiply-redundant power plants in case of failure. With TL11+ biotechnology, the cities might even be alive! A less extravagant dwelling is the contragrav houseboat, which can be tethered just above the trees – or above the clouds.

Contragravity lets mineral-rich high-G worlds be settled without having to worry about exoskeletons or creating variant humans. Artificial-gravity generators can supply normal gravity to asteroids and small moons, and sprawling orbital cities can be constructed without worrying about providing spin.

Phantom Places (TL10^)

Holotech projectors can create illusionary partitions and art images; redecoration is as easy as changing programs. Any room in the home or apartment might seem to be floating in starry space, or hidden in a tropical jungle. Scented air conditioning and realistic audio effects can complete the illusion.

Star Habitats (TL10-12)

An entire star can be partially or completely enclosed. Societies might build them in systems lacking habitable planets, or to collect power for major industrial projects like large-scale antimatter construction. (A sun-like star has an output of around 4×10^{26} watts). These projects generally require self-replicating machines (p. 92) to build.

All of these structures could also enclose larger or smaller bodies – a ring or sphere around a small red dwarf star would be easier to build. Stellar structures are generally so large that the curvature of the horizon would be invisible; standing on the inside of a Dyson sphere would be like standing on a flat surface with a large bowl overhead. Common examples are:

Dyson Bubble (TL10)

A loose array of light sails and solar energy collectors which beam energy to other habitats. It would require the mass of a large asteroid to be dismantled and used to manufacture solar collectors. This type of Dyson sphere could be built as part of a project to power lightsail-equipped starships.

Classic Dyson Sphere (TL11)

A shell of energy collection platforms and habitats orbiting independently around a star. The star would be dimmed, but possibly still visible through gaps in the shell, although the whole sphere would shine very brightly on infrared. It requires dismantling a number of planets.

Rigid Dyson Sphere (TL12^)

A solid shell around a star, with the inner side sculpted into continents, oceans, etc. with a surface area of over 600 million Earths. It would be a microgravity environment unless artificial gravity generators were used. Building it requires dismantling a solar system and using exotic materials. Multiple, layered spheres are also possible.

Ringworld (TL12^)

This is a solid ring around a star, with the inner side sculpted into continents, oceans, etc., rotating for gravity. A typical ringworld has an area of 20,000 Earths. The rotational stresses involved require superscience building materials. It is also unstable: a space drive or tractor-beam anchoring system is needed to keep the ringworld from drifting into its sun. Variations such as giant disks or tangled tubes are also possible.

The House that Lives (TL11)

Biotech developments may make it economical (though not always fashionable!) to grow living houses with warm fleshy walls, cell-like membranes for doors, and extrudable furniture. A living house thrives on human waste products and other garbage. It may also have security features that let it *digest* intruders; a classic cinematic plot has such a house being sabotaged so that it devours the occupants.

At TL11, a typical three-bedroom home drops to $50,000. LC3.

Under the Screen (TL11^)

By generating a low-power barrier screen (p. 191) over a city, planners can dispense with solid domes or underground dwellings – and won't have to worry about bad weather, either. Or a homesteader can buy a smaller field generator and power plant and set up on the asteroid of his choice. Of course, if the field goes down, he's in trouble – unless he has a backup generator on.

With a powerful force screen and an antigrav generator, a research station could be built deep within a gas giant's crushing atmosphere, or hovering within a star. The engineering problems would be immense, but think of the view!

The House in the Fog (TL12)

At TL12, houses are often filled with utility fog (pp. 70-71) that replaces some or all solid interiors.

Force Field Houses (TL12^)

Advanced houses may be made almost entirely of structural force shields (p. 192). They might be filled with utility fog, or use internal force field projections, tractor beams, and gravitic fields for furnishings, overlaid with holoprojections as necessary.

Pocket Universes (TL12^)

If the forces that created our universe were purely physical, it might be possible to replicate or at least model them artificially, possibly with a high-energy particle accelerator. This is playing God on a grand scale.

If a "new universe" were created, it might occupy its own separate space, usually with some anchor point in our own space that allows its creators to visit or observe it. A telegate (pp. 233-234) could anchor it to a specific point in our own universe. Sometimes a volume of normal space is "pinched off" to become the pocket universe.

The physical laws in such a pocket universe could be similar or different. Time might pass more quickly or slowly there (at least from our perspective). A pocket universe is generally smaller than our own; it might range from microscopic to the size of a galaxy. Most vary in size from a room to a solar system. It is usually stable, although some pocket universes may expand or contract over time. Its size may be a function of its age (if such universes expand) or the amount of energy that was used to create it.

Pocket universes with normal physics might provide the ultimate hiding places from any mundane form of detection, or just extra rooms in a house. The most common example of a pocket universe is an object that is bigger on the inside that it is outside – often a building, vehicle, or container.

Extradimensional sensors, weapons, communicators, or drives that require interaction with the outside are rarely usable from within the pocket dimension unless they themselves work across dimensions (GM's option). The GM may also rule that certain systems, such as matter transmitters or parachronic conveyers, can operate even if stored extradimensionally. It may be possible to create dimensional "windows" that allow weapons, sensors, communicators, etc. to direct their emissions into real space; these are points of vulnerability, however, and can be targeted by anyone seeking access to the extradimensional room.

A typical pocket universe is a bubble several yards across. The lower half contains a small total-conversion power plant, life support, gravity generators, and the equipment which originally created and now maintains the pocket.

The upper hemisphere can be furnished as the owner desires, perhaps incorporating a suite of rooms, a laboratory, even soil and a garden. Using this technology, what looks like a small shuttle could have the capacity of a dreadnought, or a phone booth could conceal a palace. Entry requires access to a special extradimensional teleporter, such as a telegate (pp. 233-234) fixed to its coordinates.

Pocket universes require specialized, expensive hardware to create. If normal space is "pinched off" into a pocket universe, cost scales with size: find the universe's Size Modifier (see p. B550), add 10, and multiply by $10 million; minimum cost is $10 million. For example, a sphere 100 yards in radius would be 200 yards across (SM +12) and get +2 SM due to its shape, for a final SM +14. It would cost $240 million to create. The equipment used to pinch off the pocket universe weighs one ton per $10 million cost. Cost and weight include an appropriate total conversion reactor or other exotic power supply. LC2.

Dimensional Interface (TL12^)

When a pocket universe is created, the "other side" will also need a dimensional aperture or anchor (basically a wormhole). This has the same statistics as a normal-range telegate (pp. 233-234), but is 10 times the cost. If damaged or powered down, the contents of the pocket dimension are inaccessible. The destruction of the dimensional interface may result in the components (and anyone in them) being totally lost. The GM may rule that interfaces for sensors and other systems that require windows are 100 times normal cost.

Foodstuffs

Ultra-tech food includes familiar agricultural-based products and various cheap and nutritious (but not always tasty) foods produced from algae, fungi, nanofabrication, or chemical synthesis. Space habitats and other closed environments may make extensive use of recycling, and even convert dead inhabitants into edible form. TL9+ biotechnology permits unusual tastes that could never be found in nature, as well as "pharm foods" with built-in vitamins, nutrients, or drugs. At TL11-12, food can be synthesized in nanofacs (pp. 91-93) or replicators (pp. 93-94).

Meal Pack (TL9)

These packaged meals have little weight or volume, yet supply the nutrition and calories needed to keep a person active for extended periods. Although long-term use could cause some discomfort or weight gain, they are usually tasty and provide enough variation for almost everyone to have a favorite. Stored meal packs have a safe shelf-life of 10 years. They come in dozens of variations, with randomly selected main courses, side dishes, and dessert. The packages can heat or cool themselves, and are sealed against the outside environment. $2, 1 lb. per meal.

Higher-TL meal packs have the same weight, but possess a longer shelf-life: 20 years (TL10), 50 years (TL11), or 100 years (TL12).

Survival Rations (TL9)

These are designed to put the maximum amount of nutrients into the smallest sealed package; the flavors are limited. They have a safe shelf-life of 15 years, provided the package is not tampered with. Each meal is $5, 0.5 lbs. Higher-TL rations taste somewhat better (but do not match the flavor of meal packs), and possess an extended shelf-life: duration is 30 years (TL10), 70 years (TL11), or 150 years (TL12).

Food Tablets or Paste (TL9)

These tablets or paste-filled tubes provide all the vitamins and calories that an active person requires. They also incorporate appetite suppressants. A one-day supply (usually split into six to 12 individual meals) is $10, 0.75 lbs.

Cyborg paste is a nutrient formula designed for cyborgs that still require some sustenance for their organic parts. It comes in a feeding tube that is inserted into the cyborg.

Food Vats (TL10)

These create an endless supply of imitation vegetables, lean meat, fish or other foodstuffs. Gengineered cells from plant or livestock tissue are cultured in growth tanks and supplied with nutrients. This creates a continuously growing biomass, which is harvested whenever food is required or it gets too big for its vat. In some societies vat-grown food may replace other animal or plant products, which might be considered unhealthy or even barbaric.

Careful control of the growth process allows for tailored products (for example, combining different types of cells), and additives can be usd to alter the taste.

Expedition Gear

This section covers gear suited for "outdoor activities" like climbing, diving or orienteering, as well as general adventuring.

Lights

An ordinary light source can be more useful than the most sophisticated sensors!

Flashlights and Searchlights (TL9)

These can project an infrared, ultraviolet, or visible light beam, which is also tunable from a wide flashlight cone to a pencil-thin red or blue-green laser pointer (range is multiplied by 10). It can function as a blinding weapon in a pinch – see *Dazzle Laser* (p. 113). The light eliminates darkness penalties out to its listed range. Use 75 times this distance for signaling range. Multiply all ranges by 2 at TL10, 5 at TL11, and 10 at TL12.

Penlight (TL9): This emits a five-yard beam. It may be helmet or belt-mounted, or attached to a firearm accessory rail. $3, 0.1 lbs., 2A/24 hr.

Mini Flashlight (TL9): This projects a 15-yard beam. May be helmet-mounted or attached to a firearm accessory rail. $10, 0.25 lbs., B/24 hr.

Heavy Flashlight (TL9): This projects a 50-yard beam, and can be used as a baton. $20, 1 lb., 2B/24 hr.

Searchlight (TL9): Heavy-duty searchlights are often mounted on vehicles or buildings. A searchlight projects a 2,000-yard beam. $500, 10 lbs., C/12 hr. LC4.

Glow Sticks (TL9)

These chemical lights glow when snapped and shaken; they don't require power cells. Each provides (TL-8) days of light illuminating a two-yard radius. They're available in different colors, white light, and infrared light. $2, 0.1 lb.

Firefly Swarm (TL10)

This is a swarm of glow-in-the-dark microbots. They can be ordered into small spaces for illumination, serve as mobile lamps, or provide a diffuse candle-like glow for romantic occasions. They can turn on or off, change colors or dim their lights on command, and glow in the infrared, ultraviolet, or visible spectrums. They can't provide the equivalent of full daylight (unless multiple swarms are stacked) but they are bright enough to read by. A firefly swarm is $100/square yard. LC4.

Navigation Instruments

Precise navigation is essential for explorers, travelers, and soldiers.

Global Positioning System (GPS) Receiver (TL9)

At TL9+, this is a built-in feature of many gadgets rather than a separate device. If a planet has an orbital navigation satellite network, the GPS system links the user to it, enabling him to always know his exact position if he consults a properly-scaled map. It is accurate to about 5 yards. The system can also store the coordinates of a location it has visited (called a "way point"). It can then direct the user to that way point or transmit the data via communicator to other GPS systems. With a computer, it can show the user's position on a moving-map display.

Inertial Navigation (TL9)

These devices indicate the direction and distance traveled from any preset point on a planetary surface. It can be set for the location at which the user is physically present, or for any other coordinates (make a Navigation roll if the precise coordinates are uncertain). An inertial navigation system lets the user always know which way is north. He can retrace any path he has followed within the past month, no matter how faint or confusing. It does not work in environments such as interstellar space, but it *does* work underground, underwater, and on other planets.

*Inertial Compass (*TL9-12): This palm-sized inertial navigation system includes a tiny computer (p. 22), a GPS (above), and a video screen. If digital maps are available, the compass can superimpose the user's position and path on the map and display it on its screen. The compass can also connect to an HUD. It gives a +3 bonus to Navigation (Air, Land, and Sea). Price and weight depend on TL:

TL9: $120, 0.2 lbs., A/200 hr.
TL10: $60, 0.1 lbs., A/200 hr.
TL11: $30, 0.05 lbs., A/200 hr.
TL12: $15, 0.025 lbs., A/200 hr.

Inertial Navigation System (TL9):

An extremely precise system. It has the capabilities of an inertial compass, but adds a +TL/2 (quality) bonus to Navigation (Air, Land, and Sea). $5,000, 20 lbs., B/100 hr. LC4.

Containers and Load-Bearing Equipment

These are used to carry equipment or cargo, and to keep it safe in hostile environments.

Hovercart (TL9)

A flat round cart, two feet in diameter, that floats quietly on an air cushion generated by a ducted fan. It can be towed or pushed at the pusher's Move. Hovercarts are often seen around air and spaceports, used for moving cargo and luggage; other versions serve as baby carriages and shopping carts. They can carry 500 pounds over smooth ground or water, and make a humming sound audible to a normal Hearing roll at 30 yards. Voice-controlled robot versions with Move 4 are available at double cost. $300, 4 lbs., C/12 hr. LC4.

Pressure Box (TL9-12)

This pressurized container is used for carrying fragile items or pets through vacuum or hostile environments. Its internal dimensions are 2 × 1 × 1 feet. It includes a 12-hour air tank and its own life-support pack that regulates the environment. It provides a room-temperature environment from -459°F to +200°F, as well as DR 10 and radiation PF 5. The modular walls can link together to form a larger container from several boxes. Sealing or unsealing the pressure box takes six seconds; linking boxes together takes 10 seconds per box at TL9-10, two seconds at TL11-12.

TL9: $900, 10 lbs., 2C/2 day. LC4.
TL10: $600, 7 lbs., 2C/1 wk. LC4.
TL11: $450, 5 lbs., C/2 wk. LC4.
TL12: $300, 2.5 lbs., C/6 wk. LC4.

Contragrav Modules (TL11-12^)

Also called "sky hooks," contragrav modules are flat, saucer-shaped disks with rings and brackets for attaching loads. They generate a contragravity lift field that can support up to 1,000 pounds. They can be set to stay suspended in the air, or ordered to float up or down at five yards per second. They may also be pushed along or towed.

*TL11^*: $100,000, 15 lbs., D/1 hr. LC4.
*TL12^*: $25,000, 7.5 lbs., D/3 hr. LC4.

Gravpack (TL11^)

This backpack is made out of reflex ballistic fabric, and includes a contragrav generator that screens the interior of the pack from the local gravitational pull. Weight carried in the pack is not counted toward encumbrance – it's treated like the Payload advantage. The pack can cancel up to 120 pounds of weight.

Due to its bulk, only one gravpack can be worn at a time. Furthermore, while weight is canceled, mass is not; with the generator activated, the user will be at -1 DX per 40 pounds carried until he gets used to dealing with the load's inertia without its weight. If the same mass is worn in a pack for more than a day, the penalty can be ignored. $15,000, 15 lbs., C/12 hr. LC4.

Survival and Camping Gear

Ultra-tech technology doesn't just make exploration easier or more comfortable. It can open up new frontiers for adventurers.

Envirobag (TL9-12)

This is an insulated, heated sleeping bag designed for extremes of temperature. It has the same performance as a Heat Suit (p. 177). It can also be sealed and hooked up to air tanks.

TL9: $160, 3 lbs., C/24 hr.
TL10: $80, 2 lbs., C/72 hr.
TL11: $40, 1.5 lbs., C/10 days.
TL12: $20, 1 lb., C/2 weeks.

Filtration Canteen (TL9)

This canteen holds a quart of water. It removes impurities, salts, microbes, and poisons. It can filter salt water, but not raw sewage or toxic waste. On its own, it adds a +1 (quality) bonus to Survival skill when living off the land; it's also included in survival kits.

One quart can be purified in 30 minutes (TL9), 10 minutes (TL10), three minutes (TL11) or instantly (TL12). The filter must be replaced every 100 quarts at TL9, or 1,000 quarts at TL10; a color change signals when it's time to change. An "exhausted" filter still has a few quarts of capacity, but only the GM knows how many. At TL11-12, the filter is permanent.

The canteen is $180, 1 lb. (empty) or 3 lbs. (full). LC4.

Gripboots (TL9)

This smart climbing footwear is amazingly tough, but still provides tactile feedback about the rock conditions to the wearer. In addition, the boot can change shape for a better grip, and can grow crampons or a forward-placed spike on command. Add +1 per die to the damage the wearer inflicts with a kick. Gripboots give a +1 equipment modifier to Climbing, or +2 on ice. Combat statistics are identical to assault boots (p. 173). $500, 2 lbs. LC4.

Modular Cage (TL9)

This kit allows the user to assemble any size or shape of cage, with a maximum volume of 10 cubic yards. Assembling a cage takes three minutes per cubic yard of

volume; several cages may be combined to build a larger one. Traps skill is required to build anything but a simple cubical cage, or to assemble a cage quickly in half the time.

Cage bars are 1/2" in diameter. DR depends on TL: 70 (TL9), 100 (TL10), 150 (TL11) or 200 (TL12).$1,000, 200 lbs. LC4.

Modular Environmental Cage (TL9)

This is similar to a modular cage, but it takes three times as long to put together. Once assembled the cage is sealed and, if connected to an external air and power supply, can duplicate and maintain nearly any planetary environment (except for gravity). A 6" airlock allows access for feeding. $10,000, 400 lbs. LC4.

Pressure Tent (Personal) (TL9)

This airtight tent is strong enough to be inflated to one atmosphere in a vacuum. The metallized fabric incorporates minor (PF 2) radiation protection, but users planning a long stay in a vacuum or trace atmosphere are advised to place the tent in a sheltered location (such as a cave) to provide protection from solar and cosmic radiation. The tent's air tanks hold man-days of air equal to the tent's capacity. Entering or leaving through the one-man lock takes one minute. The tent has DR 10 (TL9), DR 15 (TL10), DR 20 (TL11) or DR 30 (TL12).

One-Man Tent (TL9): $1,500, 60 lbs. LC4.
Three-Man Tent (TL9): $3,000, 100 lbs. LC4.
Eight-Man Tent (TL9): $15,000, 200 lbs. LC4.

Double the endurance at TL10+.

Rocket Piton (TL9)

A pistol-grip launcher which fires a rocket-propelled, explosive-set piton. It can shoot an attached line up to 200 yards. A successful Climbing roll (made by the GM) means the piton is securely lodged and will support weight; a critical failure means the firer only thinks it is! Roll vs. DX-4 to hit if used as a weapon. It inflicts 1d+2 impaling damage, with Acc 2, range 70/200, RoF 1, Bulk -3, Rcl 2, Shots 1(5). $40, 2 lbs. Reloads are $1, 0.5 lb. per shot. LC4.

Smart Pitons (TL9)

A piton is a spike with a ring on it, through which a rope can be run. High-tech pitons adjust to the shape of the crack they're in, and report on their status via an integral microcommunicator. They come free on command. While a piton will report if it is obviously loose, it cannot check its own stability under load, so the climber must also do a manual check. Used properly, they give +1 to Climbing skill. 10 pitons: $100, 1 lb. LC4.

Spider Cage (TL9)

Biological survey teams and trappers favor this capture device. It has a starfish-like shape consisting of a floor base surrounded by a few dozen jointed arms. Stepping on the base triggers a pressure sensor, causing the hinged bars to spring up and bend forward at high speed to form a roofed cage. If the victim is not surprised, a successful Dodge roll allows jumping away in time. The padded bars cause minimal injury, but the closing cage will do 1d-2 crushing damage if the victim is larger than the area of the trap.

A spider cage uses bars of padded memory metal (p. 90) with DR 20. The separation between the bars is 2" wide. It also features a door on the side (some of the bars swing out in unison) with a conventional electronic and mechanical lock. It adds a +2 (quality) bonus to Survival skill rolls made for trapping creatures. $2,000 and 10 lbs. for a cage capable of trapping a creature with SM 0. Double cost and weight per +1 SM; halve it for each -1.

Splat Piton (TL9)

This two-inch sphere has a ring attached for a rope. When broken against rock or another hard surface, a fast-drying glue is released. In one minute, the ring can safely support 16 tons.

The sphere may be fired out of a mortar as far as 50 yards, unreeling a light line. The line unreeled must be used to pull a climbing rope through the piton ring. If a climbing rope is launched, range drops to 10 yards. A catalyst can unstick the glue, allowing the piton to be removed. It is not reusable. $10, 0.05 lbs. LC4.

Vapor Canteen (TL9)

This canteen draws moisture from the atmosphere. How quickly it works varies with the amount of water vapor in the air – with an Earth-standard humidity of 50%, the time required to extract a quart of water is four hours (TL9), three hours (at TL10), two hours (at TL11), or one hour (at TL12). It has a capacity of one quart, and adds a +2 (quality) bonus to Survival skill for an individual living off the land. $450; 2 lbs. (empty) or 4 lbs. (full), B/100 quarts. LC4.

Vapor Collector (TL9)

A larger version of a vapor canteen for base camps, settlements, etc. It is 60 times faster, producing one quart every four minutes at TL9. It is standard for expeditions and military or police outposts; it frees them from the necessity of establishing a post near a water source. Sabotaging the vapor system is a favorite ploy of villains in adventure stories. The plot is so hackneyed that real adventurers laugh at it, and may not be prepared if it happens. It adds a +2 (quality) bonus to Survival skill for a group living off the land. Usually connected to a water tank, but has an internal capacity of 20 quarts (five gallons). $10,000, 120 lbs., E/30 days. LC4.

Smart Rope (TL10)

This is a cable constructed of memory metal and plastic fibers, or non-metallic bioplastic; it also includes a radio microcommunicator (p. 44). A smart rope has half the support strength of rope (p. 81). It gives a +3 (quality) bonus to Knot-Tying skill, and can be ordered via radio signal to "flex" or go "rigid."

In flex mode, the rope behaves exactly like ordinary rope. In rigid mode, the rope locks into its current position

as if it were a stiff metal wire. In this position, it cannot be untied. Removing a rigid rope without ordering it into flex mode requires cutting through it. If a smart rope is severed, the pieces lose their "smart" properties, but retain the flexible or rigid quality the rope had when cut. Smart rope may be purchased in a variety of standard lengths, starting at one-yard increments. Smart rope is twice as expensive as ordinary rope; other statistics are identical. LC4.

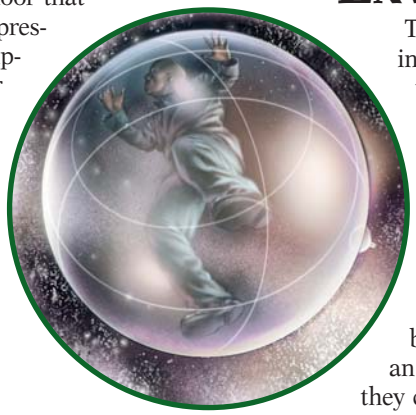
Survival Watch (TL10)

A heavy-duty wristwatch built to survive in extreme environments. It includes a biomonitor (p. 197), a chronometer, a GPS (p. 74) receiver, an inertial compass (pp. 74-75), a magnetic compass, a homing beacon (p. 105), and a tiny computer (p. 77) with a small 2-D display (about one square inch).

The watch is usually voice controlled. It is waterproof, and can survive 10 atmospheres of pressure or a vacuum. It is powered by a small flywheel battery that can be recharged by body motion. If not worn, it goes to sleep for up to five years, turning off all functions except timekeeping. A vigorous shaking will power the watch up to full operation. $300, 0.5 lbs., B/3 months. LC4.

Survival Module (TL10)

A programmable bioplastic box the size of a hardcover book. When activated, it draws air out of the surrounding environment and inflates itself, becoming a comfortable two-person cabin that can hold four in a pinch. It has transparent plastic windows, pull-out inflatable tables, chairs and beds, and an airlock door that takes four seconds to cycle. It is pressurized, with a complete life-support system including an air filter and reducer/respirator. If oxygen is unavailable, air tanks will be required.



The survival module has a tendency to blow away in a strong wind when set up but unoccupied. However, it can be weighted or tied down. $600, 4 lbs., C/2 wk. LC4.

Air Tube (TL11)

The size of a thick marker pen, this device stores air in a safe, hypercompressed form. When the user bites down on the tube, it provides a steady stream of air. It can operate for (TL-3) minutes, but the user must stay within 30 feet of the surface. It leaves a visible bubble trail. $50, 0.2 lb.

Bioplas Pressure Tent (TL11)

This is identical to the pressure tent (p. 76) but is made of pseudo-living bioplas (pp. 170-171). It contains a regenerative life support system similar to that of the space biosuit (p. 178).

Its skin absorbs sunlight and recycles waste, giving it an extended air supply. There is some waste, but it is effective for six weeks when augmented by power cells (see below). A small tank contains enough air to pressurize it; this also provides (occupancy) man-hours of air after power is exhausted. The tent is self-sealing for punctures up to an inch in diameter, and more extensive damage is slowly repaired. It lives off the occupant's waste products.

One-Man Tent (TL11): $3,000, 10 lbs., D/6 wk. LC4.
Three-Man Tent (TL11): $5,000, 15 lbs., 3D/6 wk. LC4.
Eight-Man Tent (TL11): $7,000, 25 lbs., E/8 wk. LC4.

Survival Foam (TL12)

This is a can of fast-hardening nanotech or high-biotech foam used to create a life-sustaining cocoon. It is similar to the life support gel in a survival cocoon, but more advanced.

A can of survival foam will seal someone in hibernation for up to a week, even in hard vacuum or temperature extremes from -200 to 400 degrees. It takes five seconds to harden, making the foam useless as a weapon. The user experiences an unpleasant drowning sensation combined with disorientation, but will be unconscious within seconds equal to his HT.

A survival-foam cocoon has DR 5 and HP 32. It can be chipped off (which risks damage to the subject if done too quickly) or instantly dissolved with a neutralizer spray ($10 and 1/2 pound for a can with enough to free three people). The user will lose 1 HP for every week after the first that he is encased in survival foam, due to slow muscle deterioration and nutrient loss. $700, 2 lbs./can. LC3.

Environmental

These are technologies and devices for establishing livable environments in hostile conditions. For wearable masks, suits, etc., see Chapter 7.

Rescue Bubble (TL9-12)

This device is a man-sized plastic bag with a self-inflation system and self-sealing flap. To use it, pull the bag on, and activate the seal. Once the seal is closed, the bag inflates automatically, forming an airtight bubble. Rescue bubbles found in vehicles are often connected by an air hose to an external life support system, but they can be disconnected. If this happens, each bubble provides 15 minutes of air.

It takes four seconds to don and inflate the bubble (make a Survival or Vacc Suit skill roll to halve the time). If disconnected, it is flexible enough to move in, at a Move of 1. It floats in water. Bubbles are usually built into vehicle seats or worn on belt packs. Opening it while inflated spills its air. The tough plastic has DR 1.

TL9: $800, 4 lbs.
TL10: $600, 3 lbs.
TL11: $400, 2 lbs.
TL12: $300, 1.5 lbs.

The compressed air cartridge can be recharged from a life support system in about an hour, allowing the bubble to be repacked and reused.

Survival Cocoon (TL11-12)

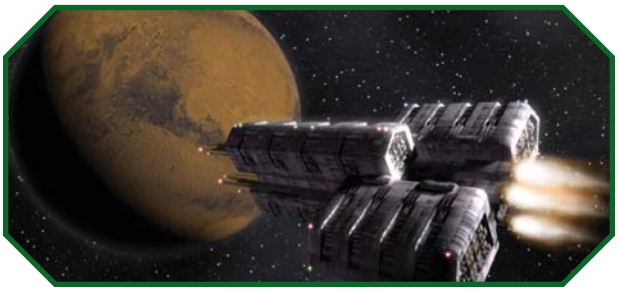
This rescue bubble is equipped with an emergency hibernation system that can flood the cocoon with life-support gel, placing the user into hibernation. The gel also makes the bubble reflective to improve the chances of rescue; it can be detected by radar at 10 times the radar's normal range.

While in the cocoon, the user will be safe for a week. After that, he loses 1 HP for every week due to slow dehydration, lack of nutrition and exercise, etc.

TL11: $1,500, 3 lbs. LC3.
TL12: $1,000, 2 lbs. LC3.

Worldscaping (TL9-12)

This is ecological engineering on a planetary scale. *Terraforming* is the process of making an uninhabitable planet more Earthlike. Of course, nonhumans might seek to "xenoform" Earth or other worlds to make them more suited to their own preferences.



Mars-Type Terraforming (TL9)

Warming the climate and thickening the atmosphere of a Mars-like world involves factories or the impact of ammonia-rich asteroids to produce greenhouse gases to warm the surface. This releases carbon dioxide from ice caps and the frozen surface, triggering a runaway "global warming." After a century or so, the planet's environment may be suitable for simple plants and for humans wearing respirators. Over 100,000 years, the plants can manufacture a human-breathable atmosphere. The time scale can vary, depending on how similar a candidate for terraforming is to Mars.

Fast Mars-Type Terraforming (TL10-12)

This deploys advanced genetically-engineered plants or self-replicating plant-like machines. Divide the time required for completion of the terraforming project by 10 (TL10), 100 (TL11), or 500 (TL12).

Venus-Type Terraforming (TL11)

A world like Venus is terraformed either by constructing a giant sunshade to cool it down, or smashing a massive asteroid into it to blow away most of the atmosphere. After waiting for conditions to stabilize, replicating machines can manufacture a new atmosphere. The process would take about 500 years before it was suitable for plants and respirator-equipped humans, and 1,500 years before it was habitable. At TL12, this period is reduced to 100 years and 300 years.

Terraforming through Matter Conversion (TL12^)

Replicator (pp. 93-94) technology may be able to fabricate new atmospheres. By building self-replicating machines that can transform the atmosphere and create an ecosystem, full terraforming takes only a century or two. A giant replicator powered by the energy collected from a Dyson sphere might even envelop the planet and change it all at once.

Gravity Control (TL10-12^)

Gravity control technologies create localized zones in which gravity is higher (artificial gravity) or lower (gravity screening or contragravity) than usual.

Artificial gravity makes space colonization much easier, allowing people to live comfortably on comets, asteroids, and small moons. Spaceships and stations can be built in any shape desired; there is no need to design them as spinning wheels or equip them with rotating sections to simulate gravity through centrifugal force. Artificial gravity may also be used on planets with "normal" gravity to accommodate people from higher-gravity worlds.

Artificial gravity generators often take the form of "gravity plates" built into the floor of a vessel or habitat. A spacecraft might be equipped with a +2G gravity plate. In deep space, the gravity could vary from zero (turned off) to 2G (on "max gravity"); humans used to Earthlike gravity would keep it on 1G. On Earth, the same gravity plates could vary the gravity from 1G (the local gravity) to 3G. Reducing gravity below the local value requires the use of contragravity. It's possible to have both systems installed.

Gravity plates are rated for the cubic volume and the strength of the gravity field over local gravity (e.g., +1G). They generate a vertical field from a generator grid. Those used in normal dwellings or vessels rarely exceed +1G unless created for beings used to a higher-G field. For example, since the Moon has about 0.16G, a gravity plate would only need to produce +0.84G to simulate a terrestrial gravity field.

Gravity Plates (TL10^)

These are installed in vehicles or buildings.
TL10^: $400, 0.4 lbs. per cubic foot of area per +1G.
TL11^: $100, 0.1 lbs. per cubic foot of area per +1G.
TL12^: $25, 0.025 lbs. per cubic foot of area per +1G.
They use external power.

Gravity Screen Chambers (TL11^)

These use contragravity technology for the comfort of visitors from low-gravity or microgravity worlds, or for zero-gravity play, sports, sex, or training. Gravity screen chambers can also be a useful part of an installation or vessel's security system, allowing defenders to harass intruders by selectively reducing or restoring the gravity. It takes one second to adjust gravity.

Gravity screen chambers may also be an important part of manufacturing facilities. Many specialized chemical and metallurgical industrial processes function best in zero gravity. The chambers allow these processes to performed on a planet instead of a space station.

The contragravity zone is generated by a grid enclosing the affected area, using building or vehicle power. It is $1,000, 0.5 lbs., 0.25 kW per square foot of enclosed walls, floor, and ceiling space, e.g., screening a 10'-square cubicle is 600 square feet of GC grid. Unlike a contragravity vehicle, the power supply may be external to the CG grid itself. LC4.

Crossing a Gravity Gradient

Crossing into an area of higher or lower gravity can be dangerous, and even standing still while a gravity field is suddenly turned on can be tricky.

Different Gravity: See p. B350 for general effects of low or high gravity.

Falling: Roll vs. DX to avoid falling down if the gravity shifts up or down by 10% or more. Each doubling or halving of gravity adds an extra -2 modifier, e.g., going from a 1G to a 5G field requires a roll vs. DX -4.

High Acceleration: If the gravity suddenly increases, use the rules for high acceleration on p. B434 to see if a HT roll or falling damage applies.

Nausea: Sudden exposure to zero gravity may trigger space adaptation syndrome (p. B434).

Gravity Mat (TL12^)

A flexible, roll-up artificial gravity generator that may be set to increase local gravity by up to 1G over a 2 × 2 × 2.5 yard area (270 cubic feet). This replaces the local gravity. Gravity mats are typically used by individuals on worlds with uncomfortable gravity, but they can also be built into vehicles or houses. $27,000, 32 lbs., D/1 hr; it can use flexible power cells, but usually uses external power. LC4.

Industrial Megaprojects (TL 10-12)

In addition to terraforming worlds, other massive engineering projects may be possible at high TLs. (For transportation megaprojects, see Chapter 9.)

Moving Black Holes (TL10)

Black holes the mass of asteroids *might* exist in nature (smaller ones would have evaporated). Such a million billion ton mini-black hole can be moved by placing a magnetic sail in orbit and feeding matter into it in a controlled fashion to generate thrust.

Artificial Black Holes (TL11)

High-energy particle accelerators can create tiny (but unstable) black holes. These can then be fed matter until they're stabilized and moved. They can also be used as power systems, planet-devouring weapons, and for starmaking (see below).

Planetary Brain (TL11)

Self-replicating machines (p. 79) may transform much or all of a planet's functional mass into machinery – perhaps even a giant hyper-sapient computer. At TL12^, it may be possible to do this with a white dwarf or neutron star.

Starlifting (TL11)

This is the extraction of hydrogen, helium, and other elements from a star, either for industrial use, or to extend the star's lifespan by preventing its transformation into a red giant. Methods include increasing the stellar rotation until material begins to drift off the equator, or squeezing the star using intense magnetic fields from particle accelerators. Either technique generally requires creating a Dyson sphere or ringworld (p. 72) around the star to house the necessary machinery.

Stellar Midwifery (TL11)

Red dwarfs are the most common type of star, but they are too dim to make their planets habitable. A red dwarf star's power could be amplified by using a Dyson Bubble-scale array of solar sails to reflect back some of its light, boosting its temperature and increasing its fusion power. The effect would not last forever, but would be quite useful for the lifetime of a civilization.

Starmaking (TL12)

Jupiter-sized gas giants and brown dwarfs may be stellarformed. This involves maneuvering a small black hole (about 10% of the mass of Earth's moon) into the gas giant or brown dwarf. Once inside, it will begin swallowing mass and producing a great deal of radiation – enough to effectively turn the body into a small star, with a useful lifespan of a few million years. This is useful if the technology exists to create black holes, and if an extra (or more powerful) sun would be an asset to colonization efforts.

Weather Control Satellites (TL10-12)

A weather control satellite can shift the weather in a 1,000-square-mile region. It can only make changes that fit within the region's normal climate, such as diverting (or creating) a storm during hurricane season. Roll vs. Meteorology skill to control the system; roll weekly for long-term effects or daily for violent weather. Failure can produce unpredictable results (-3 on rolls to fix them), while critical failure may cause a disaster (-6 on rolls to fix). A weather control satellite must be controlled by a Complexity 8 computer. Long-term support from weather control satellites provides a +3 bonus to Farming skill for raising crops.

TL10: $1 billion, 4 × 200,000 lbs. LC1.
TL11: $300 million, 4 × 60,000 lbs. LC1.
TL12: $100 million, 4 × 20,000 lbs. LC2.

Exploration, Safari, and Salvage Robots

Robots can go places that are too dangerous for people, and sometimes they're just a more cost-effective way to do the job.

Robot Mule (TL9)

This is a rugged robot cargo cart that moves on big tires and does what it's told. It has no limbs. It can also be ridden, although the passenger must give it commands. Widely used by expeditions, military units, tourists, and others. LC4.

ST 20; **DX** 10*; **IQ** 6*; **HT** 12.
Will 10; **Per** 10; **Speed** 6; **Dodge** 9; **Move** 6.
SM -2; $3,000, 150 lbs., D/8 hr. LC4.

Traits: Absolute Direction; Accessories (Small computer); A.I.; Automaton; DR 10; Electrical; Ground Vehicle; Machine; No Legs (Wheeled); Payload 2 (16 lbs.).
Skills: Area Knowledge-10.
* May be teleoperated.

Scout Robot (TL9)

36 points

This is a compact machine about 10 inches long, usually with a fish- or bee-shaped body. Variants are available for different environments. It has a sensor head, two manipulator arms, and a single hardpoint that can be equipped with anything from a camera or searchlight to a carbine or submachine gun.

Attribute Modifiers: ST-7 [-70]; HT+2 [20].
Secondary Characteristic Modifiers: SM-4.
Advantages: Absolute Direction [5]; Doesn't Breathe [20]; DR 15 (Can't Wear Armor, -40%) [45]; Extra Arm (Weapon Mount, -80%) [2]; Machine [25]; Protected Hearing [5]; Protected Vision [5]; Radio (Burst, +30%; Secure, +20%; Video, +40%) [19]; Radiation Tolerance 5 [10]; Sealed [15].
Disadvantages: Electrical [-20]; Maintenance (one person, weekly) [-5]; Restricted Diet (Very Common, power cells) [-10]; Restricted Vision (Tunnel Vision) [-30].
Availability: $5,000, 4 lb. 2B/8 hrs.

Configuration Lenses

Also select one of these lenses:

Aerial Scout (TL9) (+107 points): This uses ducted fans for quiet flight, and is equipped with surveillance sensors. Add Aerial [0]; Enhanced Move 1 (Air) [20]; Flight [40]; Hyperspectral Vision [25]; Parabolic Hearing 3 [12]; Telescopic Vision 2 [10].

Submarine (TL9) (+62 points): This uses water jets, and is equipped to operate in the ocean depths. Add Enhanced Move 1 (Water) [20], Pressure Support 2 [10], Sonar (LPI, +10%; Multi-Mode, +50%) [32]; Aquatic [0].

Contragrav (TL11^) (+115 points): Uses contragravity instead of ducted fans. Add Aerial [0]; Enhanced Move 1 (Air) [20]; Flight (Planetary, -5%) [38]; Hyperspectral Vision [25]; Parabolic Hearing 3 [12]; Silence 2 [10]; Telescopic Vision 2 [10].

Explorer Swarm (TL10)

The most efficient way to perform exploration tasks over a large area may be to saturate it with swarms of tiny mobile robots. This swarm usually explores in a spiral pattern, using contact sensors to take minute chemical samples of materials encountered. Explorers may be programmed to look for mineral or chemical traces, explosives, water, organic molecules, etc.

After a predetermined search pattern, the swarms return to a TL10+ portable lab (pp. 66-67), which may be equipped to collect and analyze these samples, or beam the data out. By analyzing where and when the swarm found items or encountered impassable barriers (such as water, if the swarm cannot swim or fly), a computer can build up a map of the area explored. $500/square yard. LC4.

Tools and Construction Materials

This section lists the tools and construction materials found at each TL. These technologies range from the mundane to the miraculous, and everything in between.

Tools and Tool Kits

These are general-purpose equipment for work and repairs.

Laser and Plasma Torches (TL9-10)

These are close-focus energy beam projectors that excel at heavy cutting and welding. A torch projects a continuous jet: in combat, treat this as a melee attack that uses Beam Weapons (Projector) skill, and can't be parried except by a force blade. The jet inflicts tight-beam burning damage.

BEAM WEAPONS (PROJECTOR) (DX-4, other Beam Weapons-4)

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
9	Heavy Laser Torch	4d(2) burn	C,1	no	$800	12/Dp	7†	15 min.
9	Heavy Plasma Torch	4d+1(5) burn	C,1	no	$2,000	40/Dp	8†	15 min.
9	Laser Torch	2d(2) burn	C,1	no	$100	3/C	5	15 min.
9	Mini Laser Torch	1d(2) burn	C	no	$50	0.25/B	1	3 min.
9	Mini Plasma Torch	1d+2(5) burn	C	no	$100	1/B	3	3 min.
9	Plasma Torch	2d(5) burn	C,1	no	$250	5/C	6	15 min.
10	Fusion Torch	8d+2(5) burn	C	no	$2,000	40/Dp	8†	15 min.

Power Tools (TL9-12)

A box of power tools for shaping wood and other construction materials. A box of ultra-tech power tools may include a nail gun (p. 82), and either an industrial water knife (below), a vibroblade (p. 164) a chainsaw, or a laser torch (p. 80). The tools provide a +3 (quality) bonus to Carpentry skill.

TL9: $1,000, 10 lbs., 3C/3 hr. LC4.
TL10: $700, 7 lbs., 2C/7 hr. LC4.
TL11: $500, 5 lbs., 2C/20 hr. LC4.
TL12: $300, 3 lbs., C/30 hr. LC4.

Rope (TL9)

These are synthetic lines and ropes made of polymer fibers or artificial spider silk (TL9), carbon nanotubes or biphase composites (TL10), or even more exotic materials.

1/8" diameter (TL9): Supports 400 lbs. 10 yards of line: $2, 0.1 lb.
3/16" diameter (TL9): Supports 1,000 pounds. 10 yards of rope: $5, 0.25 lbs.
3/8" diameter (TL9): Supports 4,000 pounds. 10 yards of rope: $20, 1 lb.
3/4" diameter (TL9): Supports 16,000 pounds. 10 yards of rope: $80, 4 lbs.

This is the safe working load; the theoretical breaking strain is five times as much. If exceeding the safe load, roll vs. the rope's HT 12 at -1 per multiple of working load whenever it is stressed to see if it snaps. Strength doubles each TL after introduction.

Instructor Kits (TL9)

The trouble with buying devices in kit form is that it requires a lot of skill to assemble them . . . or it used to. Instructor kits have radio frequency tags and dedicated computer chips on all the components, from circuits to screws or bricks. If the user has a HUD or neural interface, the device will show exactly where and how a component fits into other components. It will signal when it has been properly put together, indicate what tool is needed, and so on. These all appear on handy pop-up diagrams overlaid on the user's visual field.

Instructor kits are available for most ultra-tech devices, as well as homes, model kits, and ships-in-a-bottle. They cost 50% of the cost of the device, and take one man-hour per $1,000 of cost to assemble. They require an appropriate skill roll – usually Mechanic or Electronics Repair – but this is made at +5 to skill if the user can read the virtual tag as he builds it. This makes assembly easy, even if the user has only a default level of skill. A failed skill roll means more time is required; a critical failure means something breaks or malfunctions later.

Industrial Water Knife (TL9)

This device resembles a thick hacksaw with a five-inch gap where its blade should be, plus a switch and power cell built into the handle and an attached hose. When connected to a water source and switched on, a jet of hypervelocity water crosses the gap, forming a "blade" capable of slicing through flesh, wood, and even thin metal.

Since the water recirculates through the system, little splashes off – the knife only uses one gallon per hour. Water knives are also safer than a chainsaw. If the blade can't cut through something, the only "danger" is a spray of harmless water.

Water knives do not have to be sharpened or cleaned, though a special self-sterilizing version is used for medical and similar applications. This version cycles the water through filters after each use, removing most contaminants. It is used in the most common industrial role for water knives: slicing meat at slaughterhouses and restaurants.

A C cell powers the knife for 10 hours. Most water knives come with a backpack which holds two gallons, and connects to the knife with a two-yard hose. Users often place the backpack on the floor while at work. The tank for a self-sterilizing water knife is heavier and more expensive; its filters require replacing with each change of the power cells. Replacement filters cost $20.

Portable Antimatter Trap (TL9-12)

This is a portable magnetic bottle for storage and transfer of antimatter. It can safely store up to 10 micrograms of antimatter at TL9, and is designed to interlock with antimatter reactors for safe transfer. If the power supply is turned off or the power cells removed while containing antimatter, the result is an explosion: antimatter has an REF (p. B415) of 10,000,000,000, and a single microgram can do 6d×9 cr ex damage!

The power will not turn off instantly: a built-in capacitor stores enough for 30 seconds of operation. Unless it is sabotaged or deactivated, a warning system will sound a buzzer and display a countdown to detonation. A biometric lock (p. 104) prevents unauthorized tampering or release, and the trap itself is ruggedized (p. 15). It also has a redundant power cell socket so that cells can be changed without turning it off.

Industrial Water Knife

DX-5 or any Axe/Mace-4

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*
9	Industrial Water Knife	4d(2) cut	C	No	$160	4*	10†

* Weight and cost of backpack is extra: $40 and 18 lbs. for a normal backpack, or $200 and 26 lbs. for a self-sterilizing knife.

A standard unit is $20,000, 20 lbs., 2D/10,000 hr. LC3 (without antimatter). Multiply storage capacity by 10 per TL after TL9.

Portable Antimatter Storage Field (TL10^): As above, but incorporating gravitic or force field technology; maximum antimatter storage is one gram at TL10, increasing tenfold per TL afterward. The annihilation of a single gram of antimatter will produce a 43-kiloton explosion. $40,000, 20 lbs., 2D/1,000 hr. LC3 (without antimatter).

Monowire Spool (TL9^)

A spool of 100 yards of superstrong monowire (p. 103), with a handle on each end. Monowire has DR 10 and HP 1. Used as rope, it will support a working load of 1,000 lbs. A standard spool is $1,000 and 0.1 lbs. See *Monowire Fences* (p. 103) for some other ways adventurers may use it. LC3.

Tool Kits (TL9-12)

Tool kits are used for repair skills (p. B190): Armoury, Electronics Repair, Electrician, Machinist, and Mechanic. They determine the equipment modifiers that apply when using these skills.

Each kit contains a variety of powered and unpowered tools and an array of spare parts. All kits have power cells for the tools in the kit. Even without power, the tools may still be usable for minor jobs at -2 to skill.

Normal kits do not drop in price or weight as TL increases, nor do they gain in effectiveness. As gadgets get more complex, so do the tools required to fix them. See *Repairs* (p. B485) and *Breakdowns* (p. B486) for the rules on repairing gadgets, including maintenance requirements and costs of spare parts.

Different tool kits are required for each skill and each specialty. There is no single Armoury kit – if you want to repair a pistol, use an Armoury (Smallarms) kit.

Armoury (Vehicle Armor) or Mechanic (Vehicle Type) tool kits and workshops can perform major repairs on vehicles up to 10 tons. For larger facilities, multiply the cost and weight of the kit by vehicle weight/10. For example, a Mechanic (Submarine) kit (2,000 ton-capacity) is 200 times the normal cost and weight.

Portable Tool Kit (TL9)

This is the standard tool kit. Most examples fit in a heavy tool box or backpack. It provides basic equipment for the specific skill and specialization it is designed for, and gives a -2 (quality) modifier for other specializations within that skill. Most kits for Armoury, Electrician, Mechanic, or Machinist specializations are $600, 20 lbs., 10B/10 hr. Those for Electronics Repair, Armoury (Force Shields), and Mechanic (Micromachines or Nanomachines) are $1,200, 10 lbs., 10A/10 hr. LC4.

Mini-Toolkit (TL9)

This is a belt-sized tool kit. It gives a -2 (quality) equipment modifier for the specific skill and specialization it is designed for. Mini-Tool Kits for most Armoury, Electrician, Mechanic, or Machinist specializations are $200, 4 lbs., 5B/10 hr. Those for Electronics Repair, Armoury (Force Shields), and Mechanic (Micromachines or Nanomachines) are $400, 2 lbs., 5A/10 hr. LC4.

Portable Workshop (TL9)

An elaborate version of the portable tool kit. It has everything necessary for emergency repairs, plus a wide range of spare parts that can be tooled to specific requirements. It is a modular system that can be set up in any large vehicle or building; it takes an hour to pack or unpack. It gives a +2 (quality) bonus to skill, or +1 if not unpacked.

Most workshops for Armoury, Electrician, Mechanic, or Machinist skill are $15,000, 200 lbs., 10C/100 hr. Workshops for Electronics Repair, Armoury (Force Shields), and Mechanic (Micromachines or Nanomachines) are $30,000, 100 lbs., 10B/100 hr. LC4.

Robotic Workshop (TL10-12)

This automated workshop can attempt to fix any piece of broken or damaged equipment. It uses its sensors and programmed repair manuals to diagnose the problem, then repairs it with its tool-equipped manipulator arms. It has skill 13 in whatever skill and specialty the workshop is designed for; add +1 per TL over TL10. However, it can only maintain and repair devices that are in its database (or closely related). If the workshop encounters a problem it can't fix, it calls for help using a built-in tiny radio.

If a human technician is directing a robotic workshop, it is as good as a portable workshop, with an additional +1 bonus due to its extensive technical database and usefulness as an automated assistant. It is double the cost and weight of an equivalent workshop, and requires twice as many power cells; it has the same LC.

Micro-Manipulator Tool Bench (TL9)

This is a robot arm with micro-scale manipulators and sensors, designed to be controlled by VR gloves (p. 54) or a neural interface (pp. 48-49). It gives the user super-fine motor skills, adding +TL/2 to DX for tasks such as Jeweler, and DX-based rolls to do *fine* work with Artist, Machinist, or Mechanic skills. $2,000, 4 lbs., C/100 hr. LC4.

Nail Gun (TL9-10)

A tool for rapidly and accurately driving nails. It has a targeting system incorporating a computerized laser, passive infrared, and imaging radar rangefinder that can see through up to six inches of wood or similar low-density material (including flesh). It uses this system to automatically determine the force needed to drive a nail to the desired depth.

To attack with a nail gun, use DX-4 or Guns (Pistol) skill. It inflicts 1d+1(2) piercing damage, with Acc 0 (+3), Range 5/25, RoF 10, Bulk -3, Rcl 1, Shots 50(5). Nail velocity is variable (see *Liquid-Propellant Slugthrowers*, p. 139) and its blueprint display system is equivalent to a smartgun feature.

All of this makes the nail gun a highly accurate weapon system in a pinch. However, its sensors are programmed *not* to fire if its targeting system detects something that matches the warmth and consistency of living flesh. Disabling this safety feature requires an Electronics Operation (Security) roll, one minute per attempt. The gun cannot detect flesh underneath armor with DR3 or better.

Smart Nail Gun (TL9)

Uses binary liquid propellant. $250, 4 lbs. Its A cell powers the targeting system for a day. Its magazine holds 50 nails (0.5 lbs.). A separate propellant bottle (1 lb.) holds enough propellant to fire 1,000 nails. LC4.

Gauss Nail Gun (TL10)

An electromagnetic nail gun. The magazine holds 50 nails (0.5 lbs.), but it also needs a power cell. LC4.

TL10: $300, 3.5 lbs. B/300 shots.
TL11: $100, 1.5 lb. B/1,000 shots.
TL12: $30, 0.75 lbs. B/3,000 shots.

Slipspray (TL9)

This aerosol lubricant can turn smooth ground (e.g., a floor or a road) into a nearly frictionless surface. Anyone crossing it at faster than Move 1 must make a DX roll (at +3 if crawling, -3 if sprinting) every second to avoid falling. Vehicles must make a control roll (p. B469) at -5 to avoid losing control. Slipspray breaks down in about an hour in air. A can covers 100 square feet, spraying 10 square feet per second from up to 2 yards away. $30, 0.5 lb. LC3.

Super Adhesives (TL9-10)

Pulling two objects apart that have been glued together requires a Regular Contest of ST vs. ST 23. The bond is limited by the strength of the weaker of the two objects (so flesh bonded to something else could be torn away, inflicting 1d-4 damage).

Gecko Adhesive (TL9)

Sticky adhesive based on gecko setae (feet hairs). The pads have millions of tiny artificial hairs, covered by a protective coating. A small electrical pulse from an included wand causes the hairs to extend or release. A one-square-inch patch can hold 800 lbs. indefinitely in any environment, including in the vacuum of space and underwater. $0.10 per square inch for double-sided pads, and $1 per foot length of 2" wide single-sided gecko tape.

Molecular Glue (TL10)

This glue bonds nearly any substance and comes in non-conductive and conductive (metal-impregnated) varieties. It sets in 10 seconds. The glue can only be removed by a special solvent, which takes one minute to weaken each dose of the glue. A dose of solvent can weaken up to 10 applications of molecular glue. Each application of molecular glue is $0.50, but a dose of solvent is $1. LC4.

Construction Foam (TL10)

Construction foam is a liquid polymer with suspended nanoparticles that "foams-up" with nitrogen and cures with oxygen. As a result, it expands in air, hardening to form a durable substance. A barrier has DR 2 per inch of thickness and HP based on the weight of foam used (see *Object HP Table*, p. B558; the foam is homogenous). Construction foam is usually combined with additional chemicals so that it cures much more rapidly. Most applications are mundane, such as creating temporary structures, sealing electronics components, and quick casts for injured limbs. Riot police and soldiers also use construction foam for temporary walls and bunkers, usually by forming barriers and filling them with water or earth.

Construction foam does not burn easily (30 points of burning damage will set it aflame), but does decompose when exposed to flame, turning into a foul black sludge and releasing toxic fumes. These cause 1 HP toxic injury per minute of exposure if breathed. The foam will not cure if it stays wet, but is waterproofed once it has hardened. Construction foam floats.

Three gallons can form five cubic feet of hardened foam; a barricade three yards long, a yard high, and a foot thick takes about 16 gallons of foam and has DR 24, HP 36. It comes in a variety of applicator types, from spray cans to large storage tanks for use in construction. Construction foam costs $10 and weighs 5 lbs. per gallon.

Construction Foam (TL10): This requires one minute to completely harden.

Construction Foam (TL11-12): This requires only 10 seconds to harden (TL11) or 2 seconds (TL12. It is non-toxic.

Industrial Nanocleanser (TL10)

This industrial-strength version of domestic nanocleanser is designed to eliminate bacteriological spills, rotten food, dead bodies, and other biological or medical waste. Any organic target covered by industrial nanocleanser takes 1d-1 corrosion damage each minute for five minutes. Inorganic sealed DR takes no damage. If sprayed on plants, industrial nanocleanser will strip all foliage within a minute.

Industrial nanocleanser removes all forensic evidence such as blood stains, skin flakes and other organic residue. As with domestic nanocleanser, TL10+ Forensics will be able to identify the exact brand used.

An application of industrial nanocleanser can cover up to 30 square feet. $100, 1 lb. LC3.

Morph Axe (TL10)

A standard morph axe is a climbing tool made of memory metal (p. 90). It can go from straight-handled to bent-handled, from pick to hammer to adze to hook to crowbar to walking stick, on command. It can be used to cut steps, climb vertical frozen walls, or stop a climber's potentially disastrous slide on ice, and is sharp enough cut rock if the wielder has ST 12 or better. In combat, it requires Axe/Mace skill and does swing+1 damage . . . cutting, impaling, or crushing, depending on configuration. Otherwise, treat as a hatchet. $500, 2 lbs.

At the GM's option, any morph tool with more than 10 forms, or with illegal forms, can cost at least double.

A morphing tool that includes any explicit weapon forms is a concealable weapon, and probably LC3. It could become any weapon form appropriate for its weight . . . a quarterstaff could turn into an axe, a spear, or an oversized broadsword. $500 per pound of weight, minimum $1,000.

Sonic Probe (TL10)

The sonic probe is a multipurpose sensor the size of a cigarette package. It can be used as a short-ranged ultrasonic scanner that can give the user a rough image of the interior of objects or containers; it has a small screen on the device, but the data is usually uplinked to a HUD. Roll against Electronics Operation (Sonar) to use; the probe has a maximum range of six inches, and the skill penalty is -1 for each 10 DR it must penetrate.

The probe's imaging ability lets it serve as basic equipment for simple medical Diagnosis rolls for physical injuries, Mechanic rolls to find out what is wrong with a small device, Explosives rolls to disarm bombs (unless set to be triggered by vibrations!), and similar tasks. Its scanning abilities make it a useful tool for picking mechanical combination locks (+2 to Lockpicking skill) in conjunction with a lockpick. The sonic field can also be intensified and tuned to assist in cleaning delicate objects . . . or brushing teeth. $500, 0.25 lbs., B/12 hr. LC4.

Grav Hammers (TL11^-12^)

These devices use gravity projector technology.

Grav Hammer (TL11^): A focused short-range pressor beam designed to be used as a jackhammer. To attack with it, use Beam Weapons (Pistol) or DX-4. It does 2d cr damage with Acc 0, Range C/1, RoF 1, Bulk -2, Rcl 1. $100, 1.5 lbs., C/15 min. LC4.

Grav Ram (TL11^): A wide-area grav hammer used to smash down doors, drive posts, etc. To attack with it, use Beam Weapons (Rifle) or DX-4; it does 4d cr damage with Acc 0, Range C/1, RoF 1, Bulk -4, Rcl 1. $1,000, 10 lbs., D/15 min. LC4.

Increase damage to 3d (hammer) and 6d (ram) at TL12^.

Grav hammers do crushing damage and inflict *double* normal knockback. The beams are silent and invisible, except for the thud of impact on the target.

Repair Nanopaste (TL11-12)

This single-use paste consists of specialized nanomachines. Unlike swarms, they have no real mobility. The user must spray them onto a damaged object. They use their own mass to replace any badly-damaged components.

Repair paste does not *require* any skill to use, but a skilled user can speed up the process by knowing the best places to apply it. A successful roll made against an appropriate repair skill + 2 will halve the time required for repair paste to work, and add +1 to the HP that it heals.

Dedicated Repair Paste (TL11): This repair paste comes in applications designed for a specific item of a given type and TL, e.g., a laser pistol repair paste, or tiny radio repair paste. Each tube of paste holds one application, which repairs 1d-2 HP after an hour. If the result is negative, the nano botched the job, inflicting damage instead of repairing it. If the wrong repair paste is sprayed on an item, it will take an hour to inflict 1d-1 HP damage. It cannot damage sealed objects. Each application is $500, 1 lb. LC3.

Programmable Repair Paste (TL12): Identical to dedicated repair paste, except that the nanomachines are not designed for a particular type of equipment. The user programs it by uploading the gadget's manual into the paste, which takes about five minutes to reconfigure itself. Programmable repair paste comes in versions specific to a given repair skill, such as Armoury or Electronics Repair. Unlike a tool kit, a specialty does *not* need to be specified. Each application is $1,000, 1 lb. LC3.

Universal Repair Paste (TL12^): This can heal any gadgetry (except one built from force fields), or any character with the Machine meta-trait. It incorporates its own diagnostic systems and does not require programming. Each application repairs 1d-2 HP after an hour, and is $2,000, 1 lb. LC3.

Universal Molecular Bonder (TL12^)

A molecular bonder is a small tool which can also be used as a weapon. It projects a beam that alters the surface molecules of all substances it contacts, bonding objects together regardless of their composition. In order for it to work, the objects must be touching each other.

The user must project the beam for an entire second; it cannot be used while moving. Use Beam Weapons (Projector) skill; as a weapon, the molecular bonder has Acc 2, RoF 1, Range 1. Misses may have unforeseen effects if the wrong things were bonded together. The strength of

the molecular bond is limited by the strength of the weakest of the two objects, so flesh bonded to something else can be torn away. This requires a Will roll; success does 1d-4 damage.

Pocket Molecular Bonder (TL12^): Affects 1 square foot (which could bond someone's foot to the floor, or a hand to a weapon). $3,000, 4 lbs., C/1 min. LC3.

Heavy Molecular Bonder (TL12^): Affects 10 square feet (about one hex). $15,000, 20 lbs., D/1 min. LC3.

X-Ray and Gamma-Ray Laser Torches (TL11-12)

A torch projects a continuous jet: in combat, treat this as a melee attack that uses Beam Weapons (Projector) skill, and can't be parried except by a force blade. The jet inflicts tight-beam burning damage with the radiation and surge damage modifiers.

These are available in handheld, pocket, and heavy backpack models.

BEAM WEAPONS (PROJECTOR) (DX-4, other Beam Weapons-4)

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
11	Backpack X-Ray Laser Torch	4d(5) burn rad sur	C,1	no	$1,600	12/Dp	7†	15 min.
11	Pocket X-Ray Laser Torch	1d(5) burn rad sur	C	no	$100	0.25/B	1	3 min.
11	X-Ray Laser Torch	2d(5) burn rad sur	C,1	no	$200	3/C	5	15 min.
12	Heavy Graser Torch	4d(10) burn rad sur	C,1	no	$2,400	12/Dp	7†	15 min.
12	Pocket Graser Torch	1d(10) burn rad sur	C	no	$150	0.25/B	1	3 min.
12	Graser Torch	2d(10) burn rad sur	C,1	no	$300	3/C	5	15 min.

Gravitic Tools (TL12^)

These devices can reach *inside* a solid object to manipulate it; the user focuses on a point where the gravitic "hand" manipulates. This makes them useful for all sorts of difficult repairs. Medical versions are also used in surgery.

Gravitic Screwdriver (TL12^)

This device houses a short-ranged gravitic manipulator. It has a range of one foot, and its controls can be worked by one hand. The user can apply a pencil-thin beam of controlled gravitic force to a single object with about the same dexterity as a thumb and forefinger working together.

The gravitic screwdriver can levitate objects that weigh up to one-quarter pound, turn screws without touching them, suck dust off ancient pottery, remove foreign objects from jammed mechanisms, and perform many other tasks. It excels at picking mechanical locks and pockets. It gives an additional +1 (quality) bonus to any applicable skill in situations where the GM thinks it would be useful. $500, 0.2 lbs., B/2 hr. LC4.

Gravitic Waldos (TL12^)

A set of precision gravitic manipulators. They are sometimes nicknamed long-arm gloves. They can reach inside solid objects, but only have ST 2.

Universal Tools (TL12)

These living metal devices can change shape into various tools.

Portable Universal Tool: Basic equipment for *any* repair skill. $12,000, 2 lbs., C/100 hr. LC4.

Universal Mini-Tool: Provides a -2 (quality) equipment modifier for *any* repair skill. $4,000, 0.25 lbs., B/100 hr. LC4.

Shifting shape takes two seconds.

Universal Assemblers (TL12)

The mechanical equivalent of stem cells, these nanomachines are similar to cannibal nano. With the proper programming, they can build anything.

Assembler Goo: These nanomachines can transform anything they're in contact with – carbon, people, etc., though they prefer nanopaste – into a desired target object of equal or lesser weight. This requires hours equal to the *higher* of the target object's weight (in lbs.) or 1% of its cost (in $), divided by the weight of the assemblers used (also in lbs.) To break down tough objects, add hours equal to DR. The process inflicts 1d corrosion damage on the matter being transformed per HP of the item to be assembled. Assemblers contain the equivalent of a radio microcomm so that they can be easily programmed. They cost $10,000/lb.

Worker Robots

"Robot" was derived from the Czech word for "worker," and that is what these machines are intended to do. These machines are useful for various tasks, including cargo-handling, salvage, working with hazardous materials, and exploration.

Techbot (TL9-10)

135 points

This is a general-purpose technical robot. It has a cylindrical body and a pair of arms, and moves on either legs or tracks, depending on the model. It can operate in a wide variety of environments, and may be used for everything from working in a garage to hazardous waste disposal. Its payload space usually holds tools.

Its weapon mount is built into its rotating head; it can carry a weapon up to 6 lbs. weight, which is more likely to be a laser or plasma torch than an actual weapon.

Attribute Modifiers: ST-2 [-20].
Secondary Characteristic Modifiers: SM-1; HP+6 [12].
Advantages: Absolute Direction [5]; Doesn't Breathe [20]; DR 15 (Can't Wear Armor, -40%) [45]; Extra Arm (Weapon Mount, -80%) [2]; Machine [25]; Microscopic Vision 3 [15]; Radio (Burst,+30%; Secure, +20%; Video, +40%) [19]; Payload 2 [2]; Protected Senses (Hearing, Vision) [10]; Radiation Tolerance 5 [10]; Sealed [15]; Vacuum Support [5].

Perks: Accessory (Personal computer, fast option) [1].
Disadvantages: Cannot Float [-1]; Electrical [-20]; Restricted Diet (Very Common, power cells) [-10].

Lenses

Choose a TL lens for the robot and select a machine intelligence lens (pp. 27-28).

TL9 Techbot (-40 points): This moves on a pair of articulated tracks. High Manual Dexterity 1 [5]; Maintenance (one person, weekly) [-5]; No Legs (Tracked) [-20]; Numb [-20]. $20,000, 50 lbs., D/8 hr. LC4.
TL10 Techbot (+21 points): This model has a bipedal barrel-shaped body. HT+1 [10]; High Manual Dexterity 2 [10]; Reduced Consumption 2 [4]; Maintenance (one person, bi-weekly) [-3]. $10,000, 50 lbs., D/24 hr. LC4.
TL10^ Contragrav Techbot (+59 points): A spherical body with no legs. As TL10 techbot, plus Flight (Planetary, -5%) [38]; Aerial [0]. +$10,000.

Bush Robot (TL11-12)

490 points

These are multipurpose robots resembling a walking leafless bush. A bush robot has six arms branching into multiple "fingers," each of which branches into a set of smaller fingers, and so on, down to nanometer scale. Each set of fingers is capable of independent sensing and operation; a "bushbot" can perform complex repairs or surgery without special tools. Massive processing capability is needed to control these "bush manipulators" – the robot's brain is equivalent to a microframe computer, and is distributed throughout its body.

These highly adaptable robots may be standard general-purpose machines, as well as popular bodies for sapient volitional AIs and mind emulations.

Attribute Modifiers: HT+2 [20].
Secondary Characteristic Modifiers: HP+7 [14]; Per+2 [10].
Advantages: 360° Vision [25]; Absolute Direction [5]; Ambidexterity [5]; Discriminatory Taste [10]; Doesn't Breathe [20]; Double-Jointed [15]; DR 15 (Can't Wear Armor, -40%) [45]; Enhanced Tracking 2 [10]; Extra Arms 4 (Extra Flexible, +50%) [60]; Extra Attack 2 [50]; High Manual Dexterity 4 [20]; Hyperspectral Vision [25]; Injury Tolerance (No Brain, No Eyes) [10]; Ladar [20]; Laser Communication [15]; Machine [25]; Microscopic Vision 6 [30]; Protected Vision [5]; Radio (Burst +30%; Secure, +20%) [15]; Sealed [15]; Sensitive Touch [10]; Quick Gadgeteer (Not for inventing new gadgets, -50%) [25]; Vacuum Support [5]; Vibration Sense [10].
Perks: Accessory (Compact microframe computer) [1].
Disadvantages: Electrical [-20]; Restricted Diet (Very Common, power cells) [-10].

Lenses

Choose a TL lens for the robot. Also select a machine intelligence lens (pp. 27-28). Cyborg is not available!

TL11 Model (+4 points): Add Maintenance (one person, monthly) [-2] and Reduced Consumption 3 [6]. $150,000, 75 lbs., 3D/1 week. LC4.
TL12 Model (+8 points): Add Reduced Consumption 4 [8]. $100,000, 50 lbs., 3D/1 month. LC4.

Optional Lenses

These are additional upgrades that may be added to bush robots:

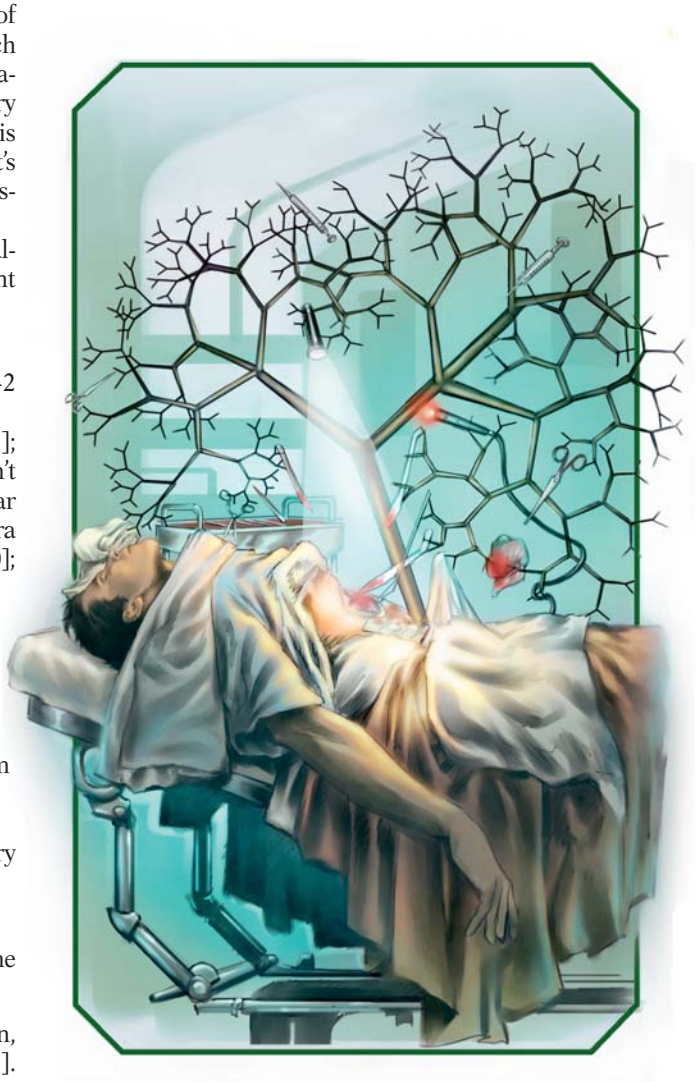
Contragrav (TL11^) (+38 points): Capable of flight! Add Flight (Planetary, -5%) [38]. +$10,000.
Budding (TL12) (+21 points/copy): Some bushbots can bud off parts of themselves as smaller copies. Take up to five copies with Duplication (Duplicate is -1 SM, +0%; Shared Resources, -40%) [21/copy]. +$20,000 per copy it can bud.

Worker Swarms

These are equipment packages for microbot swarms (TL10) or nanobot swarms (TL11).

Construction Swarm (TL10-11)

This swarm is designed to tunnel, dig ditches, etc. Each bot is equipped with small arms and digging jaws. A square yard of swarm can dig as if it had ST 3 (not ST 1) and a pick and shovel (see p. B350). Construction swarms are often



employed for mining, or civil or military engineering. They can also pile up loose earth and rock into ramparts, dikes, or walls. $1,000/square yard. LC3.

Decontamination Swarm (TL10-11)

Decontamination swarms remove traces of most biotoxins, persistent chemicals, nanotechnology, or radioactive fallout. The type of hazard removed depends on the individual swarm's specialization. A square yard of swarm can decontaminate a one-square-yard area to a soil depth of 2" every minute, and can do so 20 times before requiring replacement. It has Hazardous Materials (Biological, Chemical, Nanotech, or Radioactive) skill at TL+2, and serves as basic equipment for hazmat disposal. $1,000/square yard. LC3.

Defoliator Swarm (TL10-11)

This swarm kills plants but has no effect on other living creatures. Even so, a large swarm might serve as an ecological sabotage weapon. It takes the swarm 10 seconds to strip a square yard clean of bushes or foliage. It can be programmed to carefully trim plants; this takes one minute per square yard. It may also be programmed to affect specific plants (for example, weeds) or to mow lawns. $1,500/square yard. LC3.

Harvester Swarm (TL10-11)

These can harvest crops with an effective Farming skill of TL+2. $2,000/square yard. LC4.

Painter Swarm (TL11)

These swarms are programmed to spread paint or ink. Simply upload a particular design, provide paint, and they will go to work. Each square yard of swarm can paint 1 square yard per minute. They can paint for five minutes before requiring paint refills, and can refill themselves if a supply is available. $500/square yard. LC4.

Pesticide Swarm (TL10-11)

The swarm is equipped to hunt down fleas, spiders, and other pests. Flier swarms can also destroy flies and mosquitoes. They will inflict 1d corrosion damage per turn to swarms composed of real insects! The swarm's actions are harmless to humans, although they can be entertaining or distracting. Like defoliator swarms, they can be an ecological threat. $1,000/square yard. LC3.

Pollinator Swarm (TL10-11)

The swarm functions as artificial bees, spreading pollen or seeds. This is useful if normal insects are not available, or cannot adapt to the local climate or ecology. Base cost is $1,000/square yard. LC4.

Repair Swarm (TL10-11)

The swarm has the tools and programming to repair a single, specific model of equipment, plus appropriate Armoury, Electronics Repair, or Mechanic skills at TL+2 (specify which). A single swarm fixes things at about 1/10 the speed of a human, but up to 10 swarms can combine to make repairs. Base cost is $500 per square yard, plus $250/square yard per additional model of equipment the bots are programmed to fix, to a maximum of four types of equipment per swarm. LC4.

Heavy Equipment, Salvage, and Rescue Gear

These are used for heavy lifting, salvage, cargo transfer, and emergency tasks.

Blast Foam (TL9)

Ballistic foam forms a non-conductive polymer-ceramic blanket. Designed to be sprayed over a bomb, it hardens in 3 seconds and forms a thick layer that can absorb explosions, contain fragments, and sterilize chemical, biological, and radiological agents. Each second of spray can coat a square yard, providing ablative DR 40 against crushing and burning damage, and ablative DR 20 against other types of damage. If the foam contains the blast, it is also treated as sealed with radiation PF 5. Each square yard of foam weighs 10 lbs.

Anyone completely coated with the foam may suffocate (p. B436); he can inflict his normal thrusting damage on the foam to try to escape. A canister of foam that can cover three square yards is $100, 30 lbs. LC3.

Fire Extinguisher (TL9)

This multi-purpose dry chemical extinguisher can put out ordinary blazing combustibles, flammable liquids, or electrical fires. Three sizes are available:

Fire Extinguisher Tube (TL9): A pocket device with a four-second discharge and two-yard range. $10, 1 lb. LC4.

Small Fire Extinguisher (TL9): A standard extinguisher bottle with a 10-second discharge and a three-yard range. $50, 3 lbs. LC4.

Large Fire Extinguisher (TL9): A heavy backpack model with a handheld projector connected to the pack. Three-yard range, 30-second discharge. $200, 10 lbs. LC4.

Multiply the duration of the discharge by 1.5 (TL10), 2 (TL11), or 3 (TL12).

Any fire extinguisher can also be used as a weapon. Use Liquid Projector (Sprayer) skill, using the jet rules: that is, it's treated as a melee weapon. Treat a hit to the face as an Affliction with the Contact Agent modifier. On a failed HT-3 resistance roll, the victim is stunned, and suffers the Blindness disadvantage for seconds equal to the margin of failure.

Tractor-Pressor Beam (TL11^)

A tractor-pressor beam can move things directly toward or away from it. It manifests as an invisible force that acts under the operator's conscious direction at a distant point.

The operator can move objects as if pushing or pulling them with two hands that have a specified ST. Objects can only be moved if the beam has strength enough to lift it at a Move equal to the beam's ST, modified as usual for encumbrance level.

A tractor beam requires constant concentration to use. In combat, this means the operator must take a Concentrate maneuver on his turn. No rolls are necessary

for ordinary lifting and movement. For more complex actions, the GM might require the user to make an Electronics Operation (Tractor Beam) skill roll.

It takes a Ready maneuver to move an unresisting object, or an Attack maneuver to affect an active opponent. A tractor beam cannot strike blows, manipulate objects, hold an enemy in place, or prevent him from attacking.

To affect a foe, roll against Gunner (Beams) to hit. The foe cannot grab hold of the force, but he can try to break free as usual. The turn after you grapple a foe, use a Move maneuver to pick him up off the ground, provided it has ST to lift his weight, and begin moving him. Someone in this position can't run, retreat, or do anything that relies on ground contact, but can perform any other action that is possible while grappled.

"Tractor" setting causes objects to move until they're in contact with the generator, whereupon they're held there until the ability is turned off.

"Pressor" shoves objects away from the generator until they reach its maximum range.

It takes a Ready maneuver to switch between tractor or pressor modes.

In either case, objects in the beam can only move or be moved in the opposite direction if the mover wins a Quick Contest of his ST against that of the beam.

Heavy Tractor-Pressor Beam (TL11^): Projects a ST 400 beam with a 10,000-yard range. It can snatch aircraft out of the sky, or grapple shuttlecraft and pull them in. $10,000,000, 20,000 lbs. Vehicle power. LC3.

Light Tractor-Pressor Beam (TL11^): Projects a ST 100 beam with a 100-yard range. Used as a crane. $200,000, 220 lbs. E/15 min. LC3.

Utility Tractor-Pressor Beam (TL11^): Projects a ST 50 beam with a 10-yard range. Used as a forklift. $20,000, 25 lbs. D/15 min. LC3.

TL12 beams have twice the ST and 10 times the range. Gravitic manipulators (p. 85) are a related technology. They have much greater manual dexterity, but less strength.

Pressor Beam (TL11^)

These only *repel* objects; they have no tractor setting. They are half as expensive as tractor-pressor beams, but are otherwise identical.

Tractor Beam (TL11^)

These only *attract* objects; they have no pressor setting. They are half as expensive as tractor-pressor beams, but are otherwise identical.

Demolitions

Explosives have many uses, from civilian mining and construction sites to safe-cracking, sabotage, booby-traps, and terrorism.

Explosives (TL9-11)

Ultra-tech demolitions and explosive capabilities benefit from advances in chemistry and high-energy physics. Explosives are rated for their relative explosive force (REF) compared to TNT; see p. B415. Some common types are described below:

Antimatter (TL9): A microgram of antimatter (see *Antimatter Trap*, pp. 80-81) is $25,000 (at TL9), $2,500 (TL10), $25 (TL11), or $5 (TL12). LC0.

Plastex B (TL9): This is a powerful moldable high explosive. It is very stable and can only be detonated with an explosive detonator. It is roughly four times as powerful as TNT (REF 4). $20 per pound. LC2.

High-Energy Explosive (TL10): An exotic explosive that stores energy in metallic hydrogen. It is approximately six times as powerful as TNT (REF 6). $40 per pound. LC2.

Plasma Explosive (TL11): These are rapid-discharge power cells, or power cartridges with the safety features removed. Plasma explosives have REF 10 at TL11, and REF 20 at TL12. Their damage also has the surge damage modifier (p. B105), so additional safety precautions are necessary when using them near electronics. $100 per pound; includes a built-in detonator. LC2.

For more exotic types, see also *Warheads and Ammunition* (pp. 152-159).

Detonators for explosives can use communicators or timers. They are $20, neg. weight, LC3.

Taggants (TL9)

Commercial and military explosives may be embedded with taggants: inert materials that will not be destroyed in the explosion, and which can be analyzed later to determine the type of explosive, manufacturer, and lot number. Taggants add +TL/2 to Research or Forensics rolls to find the origin of the explosive.

Not all explosives have taggants – companies may resist including them to avoid liability, and military or black ops teams may not want them (unless they want to blame someone else for the blast). A chemistry lab can be used to test a sample; decontamination swarms (p. 87) can be used to remove taggants! There is no extra cost for taggant-equipped explosives. However, if taggant use is required by law, any explosives *without* taggants will be one lower LC.

Manufacturing

Ultra-tech manufacturing equipment can be very portable. An expedition, spacecraft, or military unit may be able to make many supplies itself, rather than waiting for resupply. This could be carried into the consumer sector as well, with shops or homes having their own manufacturing facilities. This is most likely in societies with dispersed populations, such as colonial worlds. In highly-populated centers with an excellent transport infrastructure, it will be cheaper to centralize manufacture and distribution.

Many of these systems use the cost of goods as a rough indicator of how long it takes to manufacture things. This is an abstraction intended to apply to ordinary products; factor out cost changes from artistic or collector value, non-intrinsic value (e.g., paper currency), age, and source (black market, second-hand, etc.).

Industrial Equipment

These may be used to equip corporate facilities, colonies, or large ships.

Factory Production Line (TL9)

This is a production line for assembling a *specific* product from existing components. Each can assemble one copy of a device every (retail price/100) hours. Computer chips and other small gadgets take longer: multiply time required by 5 if the item's weight is under 0.1 lbs., by 20 if under 0.01 lbs., by 100 if under 0.001 lbs., etc.

The per-item production cost is 50% of the gadget's retail cost, including parts and labor. (The production line requires a supply of component parts.) The cost of the production line is $20 times the retail cost times the small gadget multiplier above. The production line weighs 1 lb. per $100 the production line costs (minimum 20 times item weight). It uses external power. LC is the same as the item. Big factories may have hundreds or thousands of parallel lines for higher-speed production.

Example: A factory makes a $200 computer chip that weighs 0.005 lbs. A single production line makes one chip every $200 / 100 = 2 hours × 20 = 40 hours, or about 18 chips/month. The production line costs $200 × 20 × 20 = $80,000 and weighs $80,000/100 = 800 lbs. However, 18 chips/month isn't many. A proper "computer chip fabricator" complex might have 2,000 production lines costing a total of $160 million, and weighing 1,600,000 lbs.

Future Economies

TL11 and TL12 offer the potential of vast increases in wealth, thanks to molecular nanotechnology, inexpensive artificial intelligences, and total conversion of matter. However, ***GURPS*** prescribes conservative levels of starting wealth at these TLs. What's going on?

The assumption is that GMs and players will be more comfortable with a setting in which the PCs have a familiar level of wealth. If everyone is unimaginably wealthy, what are their motivations? But if a "reasonable" justification for more modest wealth is required, it's available.

In space operas, a higher power, such as the galactic emperor and his bureaucracy, or the benevolent space patrol, or the military, usually has control of the majority of this wealth. It is squandered on building vast planet destroyers, mobile star-traveling planets, enormous battle fleets, ringworlds, or massive terraforming and resettlement projects. The average standard of living doesn't improve that much, it's just that the very rich have more levels of Multimillionaire.

In transhumanist settings, the vast increase in wealth may result in the dominant race in a society (which may or may not be humans) all being Filthy Rich or better. However, the working proletariat – in this case, usually vast numbers of low-sapient computers – controls Average (or less) wealth.

In more socialist settings, the wealth is spread evenly among everyone, regardless of race . . . but thanks to the ability of digital intelligences to rapidly replicate, the ability to create wealth with nanotechnology and transmutation is matched or exceeded by the ability of free beings to reproduce themselves. While such beings also do work and create wealth (and require little in the way of living space), the net result is a modest improvement in average wealth, even as populations skyrocket.

Robotic Production Line (TL9)

A production line can be designed that is capable of producing devices without any direct human involvement at all. Necessary raw materials must still be delivered. It requires its own mainframe (or fast microframe) computer of the appropriate TL to supervise. A robotic production line is 10 times the cost and double the weight of a production line, but goods are manufactured for the price of parts alone (20% of cost). Delivery fees for parts may increase this to 30%.

Fabricator (TL9)

This is a programmable factory capable of making, repairing, or modifying most manufactured goods, assuming parts such as sheet metal, circuit boards, and chemicals are available.

Fabricators incorporate multi-axis lathes, grinders, laser welders, and mills. They create custom parts and assemble pre-built components into a final product inside their manufacturing chamber. They also incorporate rapid-prototyping 3-D printer systems that spray down layers of liquid plastics, epoxies, and metal powders to manufacture solid objects. At TL10+, these can build most solid objects by painting materials, layer by layer, until the object takes form. With appropriate blueprints, a fabricator can build just about anything that fits inside it.

TL9 fabricators are incapable of assembling microtech items. At TL10+, fabricators can assemble devices one molecular layer at a time. Multiply the time required to fabricate microtech gadgets by 5 if item weight is under 0.1 lb., by 20 for under 0.01 lbs., by 100 for under 0.001 lbs., etc.

Fabricators require databases with the appropriate blueprints. Construction data for controlled devices such as military lasers will be very hard to come by, though a good programmer who is also a technician could write one himself, given enough time.

Fabricators are not as efficient as production lines; they're designed to produce a wide variety of high-tech items in small quantities. Military units, ships, and small space stations often have "minifacs" to make spare parts and miscellaneous gadgets. Start-up colonies may purchase a few fabricators, and neighborhoods may have them instead of hardware stores.

The GM may judge how long any one item takes to build. Most items can be built in one hour per $50 of value, if the fabricator has access to new, packaged parts for everything it needs. If it is working from scrap, printer cartridges, or salvaged materials, one day per $500 would be more appropriate. Fabricators are not capable of atomic-level assembly of items, and a critical shortage of an element can stop production. A fabricator can start an adventure just by flashing a red light and announcing that it can't finish the current project until you give it three ounces of selenium and a quarter-carat gem-quality ruby.

The cost of an item would be about 60% of base price if working from specialized parts – or 50% if using generic scrap or printer cartridges. Since a full-size production line produces items for 50% of cost, and merchants buy in bulk at a discount, owning a fabricator does not mean you can get rich quick.

Memory Materials

Many items in this book are made of *memory plastic* (including "bioplastic" or "bioplas") or *memory metal*. These materials "remember" their shape, giving them remarkable durability. They first appear at TL8, but at higher TLs – TL9 for plastic, TL10 for metal, and TL11 for complex machines and electronics – they can flex or even change shape *on command*.

Fabricators also serve as basic equipment for the Machinist skill; larger systems provide a bonus to skill due to their utility in making spare parts.

Industrial Fabricator (TL9): A full-size factory; it adds +TL/2 (quality) to Machinist skill. For every $500 or 5 lbs. of goods it can fabricate per hour, it is $500,000, 1,000 lbs., industrial power. LC3.

Minifac (TL9): A workshop-sized unit. It can fabricate $50 or 1 lb. of product per hour. It adds +3 (quality) to Machinist skill. $50,000, 100 lbs., external power. LC4.

Suitcase Minifac (TL10): A portable system that fits in a carrying case, or a large backpack. It adds +1 (quality) to Machinist skill and can fabricate $10 or 0.1 lbs. of product per hour. $5,000, 10 lbs., C/8 hrs. LC2.

Fabrication speed doubles each TL after introduction.

Robofac (TL10)

All ultra-tech factories incorporate a wide variety of automated, programmable machine tools. However, these are a step up: fabricators that can operate with no human involvement, with all operations and maintenance directed and performed by machines.

Robofacs can reconfigure themselves to manufacture almost any product. The largest robofacs may cover several city blocks, and cost billions – but they make the difference between a civilized planet and a colony world. An unmanned colony expedition carrying genetic material, exo-wombs, and a robofac can develop a world in an astoundingly short time, producing both living things and industry.

Universal robofacs function exactly like universal fabricators, but they are also capable of fully autonomous control with their own Machinist skill.

Industrial Robofac (TL10): A full-size factory; it has Machinist-14. For every $1,000 or 10 lbs. of goods it can fabricate per hour, it is $1,000,000, 1,000 lbs., industrial power. LC3.

Robotic Minifac (TL10): A workshop-sized unit. It can fabricate $100 or 1 lb. of product per hour. It has Machinist-13. $100,000, 100 lbs., external power. LC4.

Portable Robofac (TL11): Fits in a carrying case, or a large backpack. It has Machinist-12, and can fabricate $10 or 0.1 lbs. of product per hour. $10,000, 10 lbs., C/8 hrs. LC2.

Fabrication speed doubles each TL after introduction.

Blueprints (TL9-12)

The instructions to build a gadget. For many commercial goods, blueprints are licensed rather than sold outright. The licensing agreements require royalty payments based on the quantity of goods produced – typically 10%-50% of the base cost of the item. This royalty may exceed 90% on goods whose main cost is their artistic value, information content, or trademark (e.g., designer clothes). LC is equal to that of the item.

3D Blueprints (TL9): These are used with fabricators (p. 90) and robofacs (above). They are Complexity 2 for devices costing up to $100, Complexity 3 for devices up to $1,000, etc.

Molecular Blueprints (TL11): These are usable with nanofacs (below). They are Complexity 3 for devices costing up to $100, Complexity 4 for devices up to $1,000, etc.

Wet Nanofabrication Systems (TL10)

Early industrial nanofactories require highly controlled environments. They use a mix of protein-based nanobots and top-down manufacturing techniques, which is sometimes referred to as "wet" nanotechnology.

Vatfac (TL10)

This is a large biofactory unit that can grow food, pulp, industrial bacteria, or similar products. It can feed up to 20 people, or half as many if creating a variety of imitation flesh, and other foods. $100,000, 200 tons, external power.

Nanofacs (TL11-12)

Nanofactories ("nanofacs") are molecular manufacturing systems that utilize programmable general-purpose assemblers – cell-sized robots reprogrammed to build molecular components in an orderly fashion "from the bottom up."

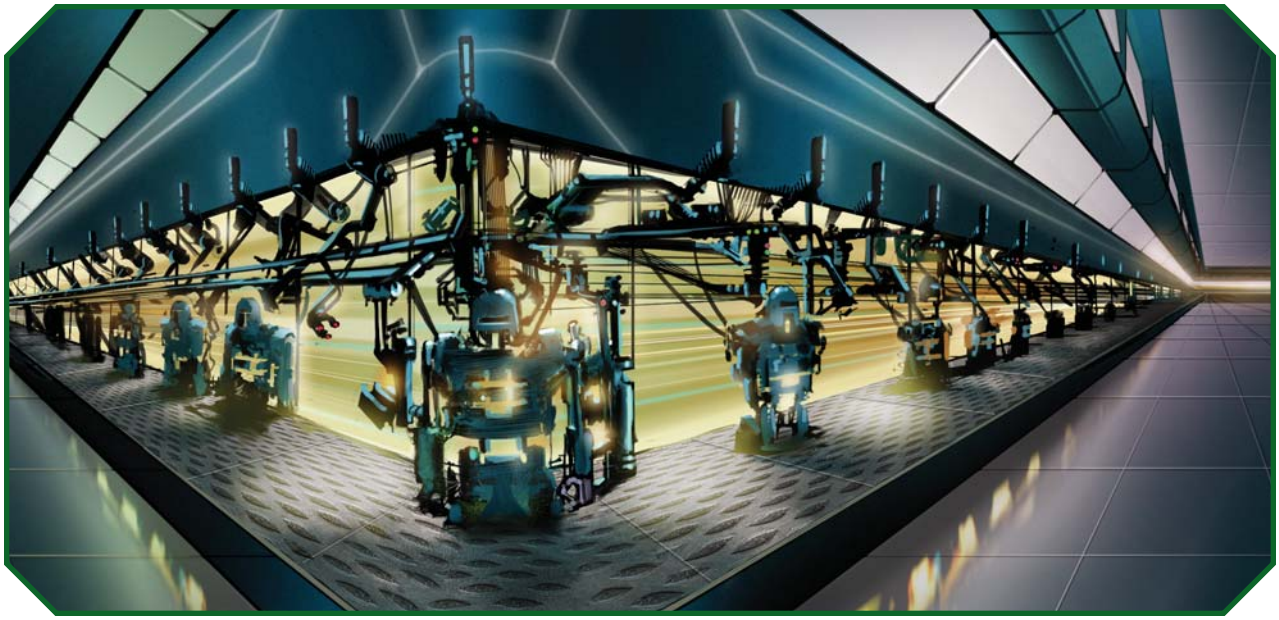
At the core of a nanofac is a set of manufacturing chambers, surrounded by a cooling system (the process generates prodigious amounts of heat) and feed lines connected to material storage tanks. The storage tanks house assemblers and a feedstock of prefabricated parts and industrial chemicals. The assemblers are cell-sized robots equipped with their own computer brains, jointed arms, plugs, and sockets. Prefab parts are molecular structural fibers, motors, brackets, fasteners, and molecular computers.

The nanofac's operator selects a design program for the assemblers to follow. A fluid mixture of prefab parts, assemblers and chemicals is pumped into the manufacturing chambers. The assemblers begin work, seizing the prefab parts and snapping them together or bonding them chemically. The molecular-scale parts undergo sorting and assembly in stages, gradually forming complicated structures. Countless microscopic nanobots swirl into the tank, and begin building the object from the inside out. The desired object quickly takes shape within the manufacturing chamber. When it is completed, it is totally seamless, with no tool marks, rivets or other evidence to show it was manufactured. It seems to have been grown, not built.

The fabrication nanobots themselves have limited onboard computing power, simplifying their design and limiting the possibility of "rogue" nanomachinery escaping the factory. Most fabrication nano is delicate: the construction process relies on a carefully controlled environment within the manufacturing chambers and even minor deviations can result in flawed subassemblies.

Nanofacs build complex objects using convergent assembly. Large objects are constructed out of subassemblies created in their own small manufacturing chambers. The subassemblies are built from sub-subassemblies, which are built in still smaller chambers, etc. In this way objects can be created quickly and efficiently, in sizes limited only by the number and volume of chambers and the supply of feedstock.

Nanofacs cannot change the atomic structure of objects. If an object includes rare elements, for example, they must be provided. Similarly, a nanofac can not make antimatter, though it can build a particle accelerator that does.



Von Neumann Machines

A defining characteristic of biological organisms is the ability to replicate. What if machines also had that capability?

A well-equipped robotic factory (p. 90), nanofac (pp. 91-93), or replicator (pp. 93-94) can gather resources, fashion parts, and build additional copies of itself at other locations, which can in turn copy themselves, and so on. This "universal constructor" technology can be used in extraterrestrial colonization for manufacture of parts that are too expensive to import.

Self-replicating machines are necessary for megaprojects. Operating at maximum theoretical efficiency, it would take 40 to 60 years to perform any planetary-scale project, such as converting a moon or a gas giant into machinery or another structure. In practice, the actual times would likely be far longer due to engineering complications, such as the difficulty of operating in harsh environments like a planetary core. Multiply construction times by 100 at TL10, by 10 at TL11, or by 2 at TL12.

Because they must devote time to mining or gathering resources, or building tools to make the tools, self-replicating factories are less efficient than ordinary factories that can import parts. Practical systems are often designed with a secondary purpose: after building a certain number of copies, they redesign themselves into a cooperative network of specialized machines and factories, which then begin building some other product.

The possibility of self-replicating robot weapons (or construction systems run amok) may lead to tight regulations. Such systems might be required to have human overrides and supervision.

Self-Replicating Swarms (TL12)

Nanobot swarms (p. 35) are an alternative to large, complex robot factories. Swarms may be simple enough that they can "live off the land."

A self-replicating swarm is a devourer, pesticide, or defoliator swarm that is designed to consume appropriate matter and make copies of itself. It can double its size every hour or so as long as it has something to eat. It requires a gastrobot or organovore power supply.

The simplest self-replicating swarm will eat anything carbon-based that is not a replicator swarm. This is sometimes referred to as "gray goo," since it can transform an entire planetary ecosystem into a barren wasteland. Even before consuming a planet down to the bedrock, gray goo can cause ecological catastrophe due to the direct damage it inflicts and the waste heat produced by the conversion process.

Swarms can be programmed to eat only certain targets (including enemy replicator swarms!), but this will limit their ability to reproduce if they're short of food.

A self-replicating swarm costs 10 times as much as an ordinary devourer, pesticide, or defoliator swarm. LC0.

Nanofacs do make some previously valuable materials inexpensive, such as synthetic diamond made out of carbon.

Nanofacs can build biological material such as food by assembling proteins and sugars, but they are unsuited for creating liquids or gases. Complex living things cannot be manufactured by a standard nanofac, but specialized systems can be designed to build almost anything within the above constraints.

A big gadget built piecemeal from smaller modules usually takes an additional hour of work (and an appropriate Armoury, Electronics Repair, or Mechanic skill roll) to put together per $1,000 it cost, multiplied by the number of modules used. Some parts such as armor plate and weapon barrels only retain full structural integrity if produced as single units. It is up to the GM whether any large device can be effectively assembled from modules or not.

Nanofacs come in a variety of sizes, rated for the greatest mass of object they can manufacture. The time required to manufacture a product in hours is expressed by both cost and weight, since more complicated structures take longer. However, the cost is also based on the cost of acquiring an object at that TL. High-quality diamonds that are very expensive at lower TLs might cost less than $500 per pound at TL11.

The major cost for manufacture is likely to be licensing fees for the design programs used, which may cost anywhere from 1% to 80% of the cost of the item.

Operating a nanofac requires Machinist skill. Repairs also require Mechanic (Nanomachines) skill. Fabrication time is based on both the cost and the material weight; use whichever takes longer.

Industrial Nanofac (TL11): A full-size factory. For every $10,000 or 20 lbs. of goods it can assemble per hour, it is $2,000,000, 1,000 lbs., industrial power. It must be connected to a suitable feedstock source. LC1.

Nanofac Workbench (TL11): A table-sized nanofac, roughly 6 feet × 3 feet × 3 feet. It can assemble $500 or 1 lb. of product per hour. $200,000, 100 lbs., external power. It must be connected to a suitable feedstock source. LC2.

Suitcase Nanofac (TL11): A portable system that fits in a suitcase or backpack – very useful for a black ops team! It can assemble $50 or 0.1 lbs. of product per hour. It must be connected to a suitable feedstock source. A suitcase nanofac and feedstock supply can be implanted *inside* a human-sized robot or cyborg. $20,000, 10 lbs., D/4 hrs. LC2.

Double the fabrication rate (in dollars only) at TL12.

Feedstock Pipes (TL11)

Societies that have integrated nanofacs into daily life may develop "public utility" services that allow houses or businesses to draw feedstock material from a central source. Users could open a tap and cause prefab molecular parts and assemblers, or raw chemicals, to flow into the nanofac. The supplier may be the state or a corporation. The price might be metered by weight or composition and treated as a utility bill.

Feedstock must equal the weight of gadgets. Replacement tanks of assemblers, raw materials cost about $1-10 per pound of goods; exotic or volatile materials are more expensive. Nanofac maintenance costs are very low – there are few moving parts, and the assemblers are very efficient with their feedstock.

Replicators (TL12^)

Replicators represent the ultimate alchemy: the ability to swiftly transform one object into another. The item is placed within the machine, analyzed by a molecular scanner, and then removed, after which the replicator can make any number of copies.

Replicators require incredible amounts of energy ($E=mc^2$); or a stock of elemental hydrogen, and not so much energy; or a stock of the required elements, and less energy still; or (for organic objects) a little bit of energy and a stock of water, amino acids, and trace elements. Replicators can synthesize elements and molecules if they have to, but it's cheaper if they don't. They generally reduce material into plasma, then reorganize it into solid, liquid, or gas. They usually do not *create* matter, and require an amount of matter equal to the mass of whatever object is being replicated.

Universal replicators can transform (almost) anything into anything, including making repairs or healing people or things. The "almost" is up to the GM – exotic superscience materials may exist that cannot be replicated.

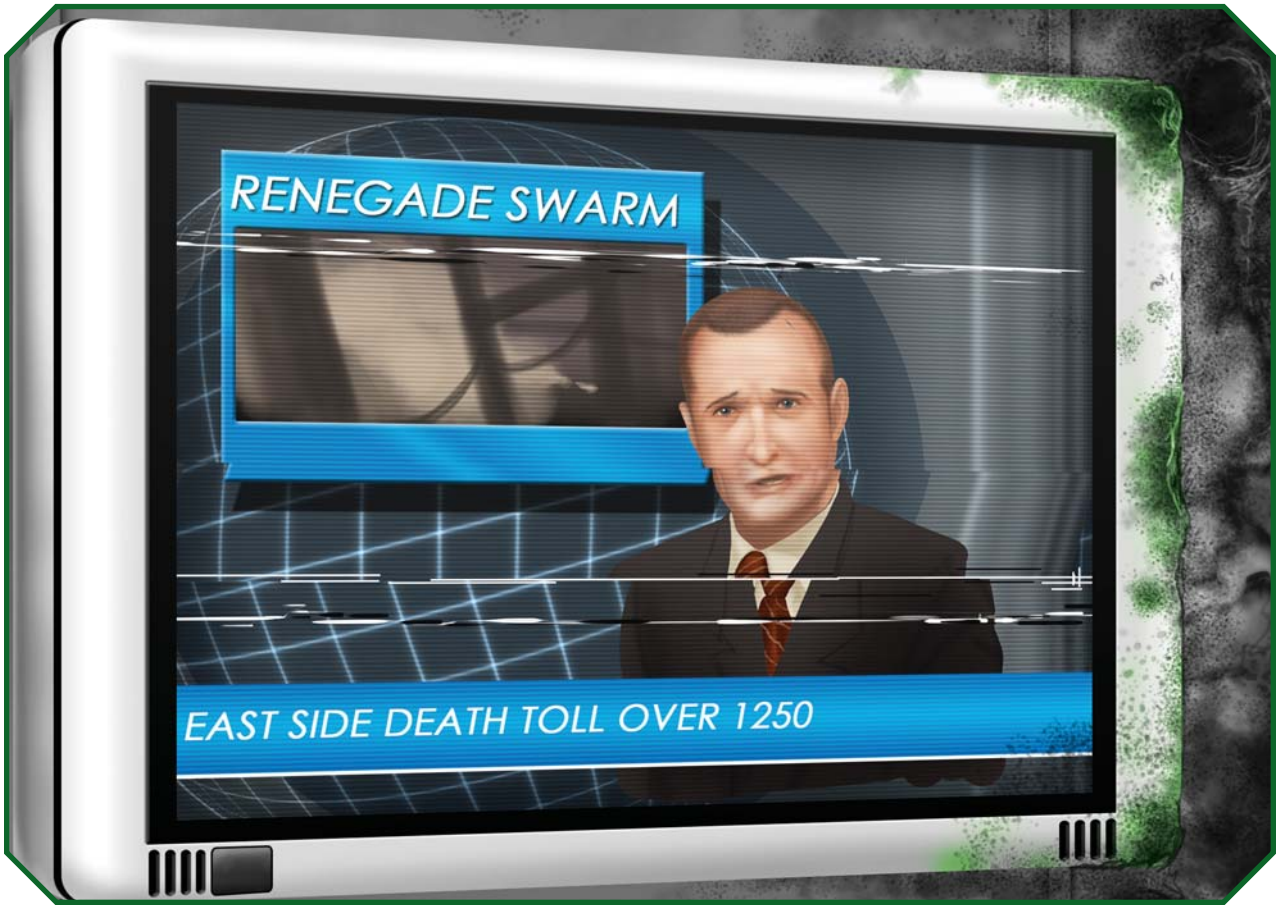
In theory, universal replicators can also be used to resurrect or upload people. However, the GM may decide that the fidelity of the recording is limited. There may be tiny deviations at the atomic or quantum levels, enough that the replicator cannot duplicate a person's memories exactly. See *Uploading*, pp. 219-220.

Industrial Universal Replicator (TL12^): Building-sized. It can replicate objects up to 500 lbs. in 10 seconds. No feedstock is required. $100,000,000, 10,000 lbs., 10F*/150 sec., per 500 lbs. capacity. LC1.

Suitcase Universal Replicator (TL12^): A portable system. It can create objects up to 0.25 lbs. in 10 seconds. $200,000, 2 lbs., C*/300 sec. LC1.

Workbench Universal Replicator (TL12^): A table-sized device, capable of creating up to five lbs. in 10 seconds. $2,000,000, 100 lbs., D*/150 sec. (but usually runs on building power). LC1.

* Requires cosmic power cells (pp. 19-20) rather than ordinary cells. If this technology is unavailable, replicator technology is unlikely to be cost-effective.



Replicator Software and Templates

These are the atomic-level "blueprints" of an object. In societies where replicators are common, people may sell replication templates and licenses rather than the objects themselves.

Replicator Templates (TL12^): Usable with replicators (p. 93). Most designs typically require at least one terabyte of storage space. They cost up to 10 times as much as a device (assume $50,000 for a template that can be used for replicating a particular person). Complexity 8+.

Psi Amplifiers

If psionic powers are scientifically understood, it may be possible to use technology to amplify them. Such devices are called psi amplifiers ("psi amps").

"Psi amps" boost a psi's Talent level in a particular power, such as Psychokinesis. This boost can increase the psi's Talent beyond the usual four-level limit. Optionally, each +1 bonus may instead add +1 level to any leveled psionic ability (e.g., Telekinesis or Innate Attack). The user can always choose to use less than the maximum boost, which reduces the danger should psychotronic feedback (below) occur.

A psi amp should be attuned to the user, and can only be attuned to one person at a time. This requires a successful roll against Electronic Operations (Psychotronics) skill. Failure wastes an hour; critical failure damages the device. It is possible to use a psi amplifier that is not properly attuned, or is attuned to someone else, but any roll of 15+ when using the device is treated as a critical failure.

The power surge a psi experiences when using an amplifier can be dangerous. If the user ever suffers a critical failure while using an amplified ability, he suffers psychotronic feedback. This burns out the machine, which requires minor repairs. The user must also make a HT+3 roll, at a penalty equal to the boost. Failure means he suffers a seizure (p. B429) for seconds equal to the margin of failure (along with the usual 1d FP loss afterward); failure by 5+ results in psionic feedback that leaves the user unconscious, suffering the Coma mortal condition (p. B429).

Amplifier Throne (TL9^)

This is a throne-like chair, with a helmet, biofeedback monitors, and a computer. The user sits in the chair, and power floods through him to be channeled into psionic energy. Unless the user is very powerful, machines amplifying teleportation will move the user, but not the machine! The device adds up to (TL-5) to the user's Talent in a particular power. $200,000, 1,000 lbs., external power. Machines that can amplify more than one power at once are available – add $100,000, 500 lbs. per extra power. LC3.

Backpack Psi Amplifier (TL9^)

These devices work in the same fashion as standard psionic amplifiers, but use a backpack-sized power pack connected to a helmet, and run off a D cell. Portable amplifiers can increase the user's Talent by up to (TL-7) in a particular power. $40,000, 20 lbs., D/1 week. Add $20,000 and 10 lbs. per extra power it can amplify. LC3.

Psi-Amplifier Helmet (TL10^)

This is low-powered psionic amplifier. It adds a maximum of (TL-9) levels of Talent to a particular power. $25,000, 4 lbs., C/1 week. Add $10,000 and +2 lbs. per extra power it can affect. LC3.

Psi-Amplifier Headband or Belt (TL11^)

This adds a maximum of (TL-10) levels of Talent to a psi power. $6,000, 1 lbs., B/1 day. Add $3,000 and +0.25 lbs. per extra power it can boost. LC3.

Chapter Five
Covert Ops and Security

Operations, this is Security Control. Motion sensors show unauthorized entry in the tunnel outside the antimatter storage bay. The laser fence at checkpoint 4 was triggered, no idea if they hit anything. Any of your techs or the client's guys down there?"

"That's a negative, Control. Another rat?"

"Maybe. If it was a rat, it should have shown up on infrared. Flood the area with nerve gas, then send in a security robot – one with the new sensor suite."

– Syndicate security log (23:09)

My cammo suit was good against radar, infrared, ladar, and the human eye. I was ready for all the ultra-tech toys they'd brought in. I didn't realize they'd installed local sonic sensors as well. Low tech – but if it weren't for the ablative armor, I'd have been toast when that laser grid opened up.

Sniff. What's that? Nerve gas. Well, at least they still think I'm human.

– Special Agent Gabrielle, Imperial Secret Service

This chapter covers gadgets intended for law enforcement, secret agents, criminals, and special ops teams . . . although as technology advances, many of these gadgets may also be used by ordinary citizens to maintain their own security.

Deception and Intrusion

Sometimes the most important items in an adventurer's toolkit are the ones that allow him to get into places where he shouldn't, find out things that he isn't supposed to, and get away undetected. At times like that, technology may be the only ally that he can trust! This section presents devices that are useful to commandos, spies, and thieves – anyone who has to tangle with a security system or elude detection.

Burglary, Infiltration, and Sabotage

These gadgets are useful for cracking security measures, or entering hard-to-reach places.

Items listed elsewhere that are helpful for burglars include explosives (pp. 88-89), laser torches (pp. 80, 85), plasma torches (p. 80), sonic probes (p. 84), and tool kits (p. 82).

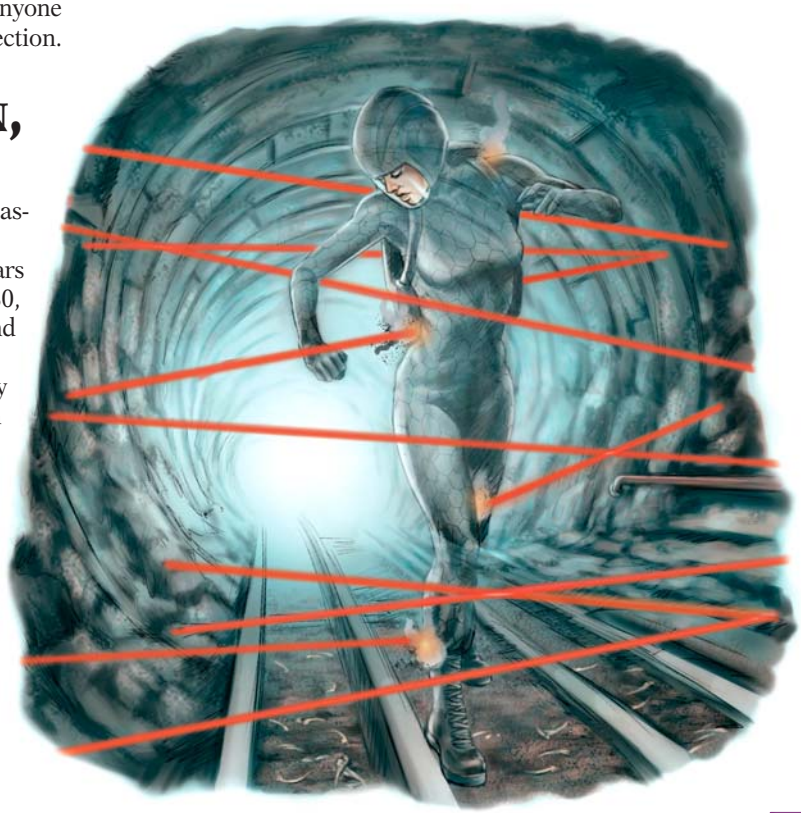
Gadgets mentioned elsewhere that are especially useful for infiltration include diver propulsion (p. 228), flight packs (p. 230), and stealth drop capsules (p. 232). Demolitions (pp. 88-89) and gremlins (p. 169) are useful for sabotage operations. Portable fabricators (p. 90), nanofacs (p. 91) and replicators (pp. 93-94) are extremely useful for any black ops team!

Electronic Lockpick (TL9)

This sensor/decoder gives a +3 to Lockpicking and Electronics Operation (Security) skill on attempts to pick any electronic or combination lock. $1,500, 0.2 lbs., A/2 hr., LC2.

Biometric Cracker Tools (TL9)

This sensor/decoder gives a +3 to Lockpicking and Electronics Operation (Security) skill on attempts to defeat any biometric scanner. $4,000, 10 lbs., A/2 hr., LC2.



Electronic Thumb (TL9)

An electronic thumb counters retina and fingerprint scanners. The pocket-sized gadget has the size and shape of an eyeball, and lights from within to display a retina pattern. The other end has the shape of a thumb and warms to body temperature. Its memory plastic pad can be reconfigured to match any thumbprint in the device's memory. New thumb and retina prints can be downloaded into it by connecting it via cable to an appropriate database. Getting a thumb or retina print for the database may not be easy – high-quality photos of the target's eye and an actual thumb impression are needed. $5,000, 0.25, A/100 hr. LC3.

Electromagnetic Autograpnel (TL10)

This uses an electromagnetic coil gun to silently fire a grappling hook up to 30 yards. Make a Climbing or Guns (Grenade Launcher) roll to hit, at -2 if unfamiliar with this gadget (see p. B169). An electromagnetic winch on the gun lifts up to 800 pounds at up to five yards per second. The reel contains 30 yards of 1/8"-diameter rope (p. 81). Ascent and descent speed improves at higher TLs: seven yards/second (TL11) or 10 yards/second (TL12). $500, 5 lbs., C/15 min. LC4.

Gecko Gear (TL10)

These gloves and footwear let the user cling to walls and ceilings and move at half his Basic Move; no use of Climbing skill is necessary. Gecko gear designed for humanoids can support only 50 lbs. per limb in contact with the surface, including the user's body weight. An adult human won't be able to carry much gear with him. If the user's weight requires three or four limbs in contact, he will be limited to crawling. Each pad is $500 and 0.1 lbs. weight. They can be built into armor or other suits. LC3.

Sonic Screen (TL10)

Worn strapped onto a belt, this forms a portable privacy field (p. 106) which moves with the wearer. The field is three yards in diameter. Sounds from outside the field cannot be perceived by someone inside the field (-10 to detection), and vice versa. The field also provides DR 10 against sonic attacks. Assassins and thieves use sonic screens to make the victims' cries inaudible. $5,000, 2.5 lbs., C/1 hr. LC3.

Variable Lockpick (TL10)

A memory-metal lockpick with a small imaging radar, an ultrasound imager, and its own contact mike. It reconfigures its shape into one of several hundred alternative forms after performing a sensor analysis of the lock. It includes a fiber-optic scope. Gives +4 to Lockpicking skill to open mechanical locks. It fits in a wallet., $50, neg., A/12 hr. LC2.

Exophase Field Generator (TL12^)

Everything in an exophase field enters an insubstantial state – one that has only limited interactions with ordinary matter and energy. Exophase fields are sometimes explained as moving the user into a parallel universe, altering his subatomic structure, or turning him into an odd form of "dark matter."

The user is still affected normally by gravity and by gravitic beam weapons. Other physical and energy attacks cannot harm him (nor can he harm others), although he's still vulnerable to psionic and nonmaterial magical attacks.

The user can pass through solids, but must still breathe. When moving through a solid object, treat this as if swimming underwater for purposes of suffocation.

The user cannot re-materialize inside a solid object; attempting to do so will simply prevent materialization. If he runs out of power while inside a solid object, he is destroyed.

Someone using an exophase field is blind, deaf, and cannot be detected by any active sensors or any sonic sensors. The field's outline *is* visible as a sort of ghost-image across the electromagnetic spectrum – this is a side effect of whatever keeps it anchored in reality. Most users turn the field off to check their position, or use an inertial navigation system.

The user can interact normally with someone else in an exophase field. Whether he can affect (or be affected) by someone who has the Insubstantiality advantage depends on the form of Insubstantiality. An exophase cannot pass through a force shield that can stop solid objects, or a reality stabilizer. The GM may rule that certain other materials, energy barriers, or magic spells are impenetrable to exophasing.

Only objects within the exophase can be carried. Objects released from it materialize.

A human-sized exophase field generator that surrounds the user and anything he is carrying (up to light encumbrance) is $500,000, 10 lbs., D/15 min. Adjust this for SM (see p. 16); users may also wish to add weapons or other gear. LC1.

Stasis Key (TL12^)

This reality stabilizer (pp. 194-195) creates an energy pulse which will cause any active stasis web to collapse. The stasis web generator is unharmed.

Stasis Disruptor (TL12^): 10-yard range. $5,000,000, 540 lbs., 2E/15 min. LC2.

Stasis Key (TL12^): Contact range. $5,000, 1 lb., 2B/15 min. LC3.

Forgery and Counterfeiting

Most ultra-tech forgery involves the gaining of passwords, personal information, or biometric data through computer hacking, the breaking of encryption, corruption, theft, coercion, or simple carelessness. However, some special tools are also available.

Document Fabricator (TL9-10)

This is a dedicated terahertz scanner and specialized 3-D printer that is used to copy and manufacture the special

dyes, fibers, films, foils, inks, papers, and plastics used in TL8+ identity documents or currency. Higher-TL document fabricators incorporate better scanners and molecular nanotech. With a sample to analyze, they can forge documents from any prior TL.

Desktop Doc-Fab (TL9): Table-sized. Provides a +2 (quality) bonus for Forgery and Counterfeiting skills at its own TL, increasing to +TL/2 for any *lower-TL* documents. Most documents take an hour per attempt to scan plus a minute per copy to print. $20,000, 50 lbs., 4D/10 hr. LC2.

Suitcase Doc-Fab (TL10): Suitcase-sized. Provides a +1 (quality) bonus for Forgery and Counterfeiting skills at its own TL, increasing to +TL/2 for any *lower-TL* documents. Somewhat slower than the desktop version: most documents take about two hours per attempt to scan, plus five minutes per copy to print. $4,000, 10 lbs., 4C/10 hr. LC2.

Programmable Wallet (TL11)

This wallet contains a miniature dedicated nanofac (pp. 91-93). Using pre-fab "blanks" of smart material, it can change their molecular composition to become identity cards with an integral Counterfeiting and Forgery-15 skill; this takes only a minute. It's often used when visiting lower-TL cultures lacking molecular nanotech. It has a -5 (quality) modifier to Forgery or Counterfeiting at its own TL, but counts as basic equipment for lower-TL documents. $500, 0.2 lb., 2B/15 min. LC1. A pack of 100 blanks of various sizes (for passports, paper money, ID cards, etc.) is $100, 0.1 lb. LC2.

HoloPaper (TL11^)

This device can instantly morph to create a realistic falsified document at Forgery-15, suitable only for fooling a visual search. It will not defeat examination at its own TL or higher, but is quite realistic for lower TLs. $100, 0.1 lb. LC2.

Disguises and Smuggling

This section covers innovations in personal concealment and the smuggling of people or items. Distortion chips (p. 99) are another useful technology.

Disguise Kit (TL9)

An elaborate set of prosthetic devices, skin-tinting chemicals, and hormone sprays for disguising one person's appearance. Many components incorporate microelectromechanical systems that can mimic muscle twitches, realistic limps, and other key characteristics.

Suitcase Disguise Kit (TL9): Provides a +1 (quality) bonus to Disguise skill. $200, 10 lbs. LC3.

Disguise Fabricator (TL9): Designed specifically for intelligence agents. Provides a +2 (quality) bonus for the Disguise skill. $800, 50 lbs. LC2.

Shape-Memory Disguises (TL9)

Memory-plastic and memory-metal technology can disguise weapons and other suspicious items as innocuous devices of the same general shape and size. Another possibility is to break the contraband down into several parts, each of which appears to an unrelated piece of equipment.

Single-Function: While disguised, the gadget doesn't function (except as much as its basic shape allows). It costs five times as much as a normal version of the original gadget.

Multi-Function: Both the disguise and the disguised gadget are fully functional. Cost is 20 times the sum of the cost of *both* the gadgets. Both gadgets must be of similar (+/-10%) weight.

Shape-memory devices usually incorporate a power cell (an AA cell for devices up to 0.1 lb. weight, A cell for up to 1 lb., B cell for up to 10 lbs. etc.) to provide an electrical impulse that triggers the change. The cell powers 60 changes, and can be removed and inserted later if power cells would be suspicious. A simple gadget may also use a piezoelectric material that changes if shaken vigorously for 10 seconds.

A gadget with a shape-memory disguise has *half* its normal LC (rounded up). An LC3 pistol would be LC2 as a shape-memory gadget, but an LC1 gadget is still LC1.

Stealth Luggage and Cargo (TL9)

Perfect for the professional courier or smuggler, these items use the latest in electronic countermeasures and stealth materials to spoof scanners and sniffers. A hidden liner compartment provides safety for small packages, while a biometric lock (p. 104) provides security. The liner compartment holds one-tenth the luggage's capacity and provides a +2 (quality) bonus to Smuggling skill. It is sealed to defeat chemical sniffers and dogs.

Attaché Case (TL9): Holds up to 20 lbs. (or two cubic feet). $400, 2 lbs. LC3.

Travel Bag (TL9): Holds 100 lbs. (or five cubic feet). $1,200, 10 lbs. LC3.

Trunk (TL9): Holds 400 lbs. $4,000, 40 lbs. LC3.

Shipping Container (TL9): Holds 10,000 lbs. Up to four people can hide in the liner compartment, but they'll need breathing gear. $10,000, 1,000 lbs. LC3.

These items may have a programmable camouflage (p. 99) surface at an extra 50% to cost. Distortion chips or fields (p. 99) can also be added.

Voice Mask (TL9)

This wearable mike obscures the speaker's voice. He can set it to sound human, but different than his normal voice, or to change his apparent age, race, or sex. It will also alter the speaker's voiceprint. $200, 0.1 lb., B/20 hr. LC3.

Active Flesh Mask (TL10)

A full-face mask of a *specific* person, complete with micromotors that move the face in realistic fashion. This is a custom design, and detailed measurements of both the user and the subject's face (which can be taken by medical examination, or remotely by T-ray scanner, X-rays, or ultrascan) are needed. It takes 10 seconds to put on, two seconds to remove.

The mask adds +3 to Disguise skill, cumulative with quality modifiers. When impersonating somebody, the GM may treat this as a perfect disguise, but Acting skill will still be required to convince someone who knows the individual being mimicked. The mask's legality class reflects legal uses in media productions and as a prosthetic for people with extensive facial injuries. It includes a voice mask (p. 98). $10,000, 1 lb., B/24 hr. LC3.

Dynamic Holotech (TL10^)

This holographic projector casts a preset three-dimensional image. It will not fool sensors that do not use visible light, such as infrared or hyperspectral imaging. A disk inappropriate to a given planet is more likely to draw attention to the user than it is to conceal him. Because it projects light, it glows in the dark.

Holobelt (TL10^): Casts an image around the wearer, roughly man-sized, for concealment. The image must be bigger than the person concealed! Standard hologram disks let the user choose between a native-looking rock, tree, mailbox, bush, animal, etc., or plug in a disk taken from a 3-D camera. All attacks on the user are at -1 to hit, and aimed shots to specific body areas are not possible unless the image closely resembles the user's body. $2,000, 2.5 lb., C/10 hr. LC3. Prerecorded holodisks are usually about $50.

Holofield (TL10^): A larger model of the holobelt, used to disguise buildings, camps, and vehicles. The field will cover a radius of up to 10 yards. New images can be captured via a 3-D camera or synthesized with a computer. $50,000, 25 lbs., D/10 hr. LC3.

Cannibal Nanokit (TL11)

Want to be prepared, but don't want to carry a ton of hardware? Need to sneak past low-tech customs with a concealed firearm? No problem. Just buy a few tubes of cannibal nano. It's a tube, can, or canister of white gooey paste, with countless nanomachines programmed to cannibalize *other* objects to build a single, specific gadget.

To use it, the paste is applied to a suitable object that has raw materials similar to whatever is to be built. Mechanical devices such as guns and engines require objects made of metal. Plastics are often broken down to make gasses, propellants, etc. Electronic devices or energy weapons require other electronic systems to cannibalize. Within these restrictions, a cannibal nanokit is flexible. It can turn a toaster into a gyroc pistol, or a motorcycle into a suit of powered armor.

It takes the nanokit one minute to build the object per pound of finished weight; the nanokit will usually eat all objects in close proximity. Whether the result works or not depends on whether the nanokit has enough suitable material. In doubtful cases, the GM can roll 3d vs. the kit's TL+1, with modifiers for availability.

Whatever is cannibalized is, of course, destroyed (or rather, transformed). The process also produces residual heat, so it's best to start it on a nonflammable surface such as a counter top or concrete garage floor, and to turn off smoke detectors.

Cannibal nanokits are specific to one gadget or weapon. A single kit may build several closely related gadgets as long as they can all be fused into one object, such as a gun with laser sight, or a helmet with built-in infrared goggles.

A tube of cannibal nano costs 300% of the intended gadget's cost, and is limited to constructing gadgets or weapons that appear at least a TL before the nano's own TL. Its weight and volume are 1% of the gadget's normal weight and volume. The LC of cannibal nano is generally the same as the equipment it builds. The exceptions are any weapons or armor, which have half their normal LC (round down).

It's easy to disguise a small container of cannibal nano. It only takes 0.01 lbs of nano to build a one-pound laser pistol. That could be disguised as lip gloss, or domestic nanocleanser. A cannibal nanokit designed to build a cybersuit (pp. 184-185) would weigh less than a pound, and could be disguised as a bottle of shampoo. And since TL11 lip gloss or shampoo may well use nanomachines, a cursory scan or inspection would turn up nothing unusual!

ECM and Stealth

These electronic countermeasures are used to jam or deceive surveillance sensors.

Chameleon Surface (TL9-12)

A suit can be equipped with sensor-controlled active camouflage that changes color and pattern to match the local background environment, in both the visual and infrared spectra. This provides a bonus to the user's Stealth skill when attempting to avoid visual and infrared detection.

At TL9, a chameleon surface's bonus is halved against hyperspectral or ultraviolet vision. It is fully effective at TL10+.

The system can also be manually controlled, allowing the user to "paint" the surface with whatever color scheme or markings are desired (as *Programmable Camouflage*, p. 99), or to give a mirrored skin equivalent to reflec armor (p. 173).

Thermo-Optic Chameleon Surface (TL9)

This may be added to an outfit covering the entire body, or to a vehicle surface. It gives +4 to Stealth skill against ordinary and infrared vision, +2 against hyperspectral or ultraviolet vision, and +1 against extended high- or

low-band hyperspectral vision. This bonus is halved (round down) if moving. $4,000, 4 lbs. (adjust for SM). LC3.

Multispectral Chameleon Surface (TL10)

This version gives +8 to Stealth skill against ordinary and infrared vision, +4 against hyperspectral or ultraviolet vision, and +2 against extended high- or low-band hyperspectral vision. This bonus is halved if moving. $6,000, 4 lbs. (adjust for SM). LC3.

Dynamic Multispectral Chameleon Surface (TL11)

This version is identical to the multispectral chameleon surface, except that it is not affected by movement. $8,000, 4 lbs. (adjust for SM). LC3.

Ultimate Chameleon Surface (TL12)

This version gives +4 to Stealth skill against extended high- or low-band hyperspectral vision, and +8 to Stealth skill against other hyperspectral, ultraviolet, infrared, and normal vision. $10,000, 4 lbs. (adjust for SM). LC3.

Chameleon Cloak (TL9-12)

A large cloak that can be wrapped around a person or object to conceal it. It works the same way as a chameleon surface, but the bonus is halved again, cumulative with other modifiers (round down!) when moving! It can also be used just like any other large cloak. It is half the cost and weight of an equivalent chameleon surface. LC3.

Chameleon Net (TL9-12)

This camouflage net works much like a large chameleon cloak, and can hide vehicles, heavy equipment, or campsites. It covers 25 square yards, and is 10 times the cost and weight of an equivalent chameleon surface. LC3.

Deception ECM (TL9-10)

These devices detect and mimic incoming active sensor pulses to give a distorted or false reading of the user. Most models can jam radar and imaging radar *or* sonar. Superscience versions use a "distortion field" that is effective against all active scans!

They can also be set to spoof rather than just jam. If so, there is no penalty to detection, but the sensor operator must succeed by an amount *greater* than half the detection penalty (e.g., 2 for deceptive radar), or he is fooled into detecting something *else*.

Deceptive Radar Jammer (TL9): This jams all types of radar signals: -4 to radar, -2 to imaging radar. Spoofing is only possible for non-imaging radar; successfully doing so can change the user's apparent size and course by up to +/-6 SM or 60°. $2,000, 2.5 lbs., C/10 hr. LC2.

Deceptive Sonar Jammer (TL9): This emits deceptive sonar signals: it gives a -4 to sonar detection. Successfully spoofing sonar can change the user's apparent size and (if desired) course by up to +/-6 SM or 60°. $2,000, 2.5 lbs., C/10 hr. LC2.

Distortion Field Belt (TL10^): -6 to *all* active sensors. Successful spoofing can provide a pre-set, seemingly accurate, but completely false image (within the limits of the spoofed sensor) and/or change the apparent size and course by up to +/-6 SM or 60°. $10,000, 2.5 lbs., C/10 hr. LC2.

*Holo-Distort Belt (*TL10^): Combines a distortion field belt with a holobelt (p. 98). $12,000, 3 lbs., 2C/10 hr. LC3.

Distortion Chip (TL10^): A small distortion field that protects a one-foot radius around it. It is usually hidden in clothing or luggage, or attached to a weapon or other device to evade or spoof Search rolls that use active sensors. $500, 0.05 lbs., A/4 hr. LC2.

Increase the penalty by -2 per TL after introduction. Except for the distortion chip, these jammers protect a roughly human-size area. Larger objects like vehicles need bigger jammers: multiply cost, weight, and number of C-cells by the square of the vehicle's *longest* dimension in yards. (Substitute a D cell for 10 C cells, an E cell for 100 C cells, etc.)

Infrared Cloaking (TL9)

This system reduces an object's heat signature to defeat infrared and thermal imaging detection. It subtracts -4 (at TL9), -6 (at TL10), -8 (at TL11), or -10 (at TL12) from rolls to detect it via infrared vision or similar sensors. $1,500, 3 lbs. (adjust by SM). LC3.

Programmable Camouflage (TL9)

This electronic-camouflage system allows the wearer to choose a color scheme from any of eight different patterns – desert, snow/arctic, jungle, forest, underwater, urban, black, or high-visibility orange, useful for rescue and underwater operations. The time required to reset the suit depends on TL: four seconds (TL9), three seconds (TL10), two seconds (TL11), or one second (TL12). A suitable camouflage pattern gives a +2 to Camouflage rolls, but a -1 to Camouflage rolls in non-matching terrain, and a -2 in highly-contrasting terrain (i.e., wearing an arctic pattern in the jungle).

Programmable camouflage systems are a significantly cheaper alternative to sensor-controlled systems, and are commonly used by civilians hunters, survey scouts or lightly-equipped military forces. This can be added to any outfit that covers most of the wearer: $1,000, 2 lbs. (adjust for SM). LC4.

Radar Stealth (TL9)

Many suits of personal armor incorporate radar-absorbent material as part of their structure. This subtracts -4 at TL9, -6 at TL10, -8 at TL11 or -10 at TL12 from detection by radar, imaging radar, or terahertz (T-ray) radar. Integral radar stealth systems are incorporated with many armor suits. They may also be added to any sealed suit: $1,500, 3 lbs. (adjust for SM). LC3.

Scent Masking (TL9)

This works like a sealed chemical protection suit in reverse – instead of preventing chemicals from entering the clothing, it prevents chemicals from leaving. It provides +4 to Tracking when trying to cover your scent trail. Available for any sealed suit. $200, 1 lb. LC4.

Invisibility Surface (TL10-12)

This active optical camouflage system renders the user nearly invisible. Its fabric incorporates thousands of embedded nanocameras and projectors (or a quantum dot array) to create a seamless "projection stealth" system. Controlled by a fast dedicated computer, this captures images of the user's surroundings, then displays photorealistic imagery that can fool observers from multiple angles and perspectives.

The user is invisible. He gets +9 to Stealth rolls in most circumstances. The invisibility is effective against living things and machines, and will fool cameras. The user casts a visible shadow. He also appears as a shadow when silhouetted *directly* against the sun or any other extremely bright light source (such as a searchlight); reduce the Stealth bonus to +3 under these conditions. When he moves, there's a faint shimmering that others can spot with a Vision-6 roll, and target in combat at -6 to hit.

The suit can also function as a video display terminal. The user can "paint" the suit with any desired color or pattern; this reduces the power drain by a factor of 10.

At TL10, an invisibility surface is only effective against visual and infrared (or thermal) imaging.

At TL11, it is also effective against ultraviolet and hyperspectral imaging, unless that has either the extended high- or low-band options.

At TL12, it is effective against extended high- and low-band hyperspectral imaging.

Invisibility Surface (TL10-12)

Any suit that covers most or all of the wearer may have an invisibility surface. The cost and weight includes coverage for gloves, boots, and a helmet or hooded mask. $20,000, 4 lbs., 2C/30 min. LC2.

Invisibility Cloak (TL10-12)

This optical camouflage cloak can be wrapped around a person or object to conceal it. This works like an invisibility surface, but provides only a +3 bonus when moving. $10,000, 4 lbs., C/15 min. LC2.

Invisibility Net (TL10-12)

This invisibility cloak is large enough to hide vehicles, heavy equipment, or a base camp. It covers 25 square yards. $200,000, 50 lbs., 2D/8 hr. LC2.

Computer Intrusion

These hardware devices retrieve data from computers or their interfaces. For online intrusion, use software tools (p. 25) for Computer Hacking or Computer Programming. For hacking encryption, see *Quantum Computers* (pp. 23, 47).

Computer Monitoring Gear (TL9)

Computer equipment emits radio signals when in use. This gadget picks these up. It can detect whatever data is being typed or displayed on an interface screen at a distance, allowing someone to eavesdrop on computer activity. It cannot read what is stored inside the computer. It can scan through walls, provided they are not shielded.

Using the device requires an Aim maneuver for the duration of the surveillance; roll against Electronics Operation (Surveillance) to get clear data. Optionally, all TL9+ interfaces may be *automatically* shielded against these emissions (due to different design principles). However, the system remains useful when infiltrating lower-TL worlds!

Mini Scanner (TL9): 100-yard range; -1 to skill per 10 yards range. $500, 0.1 lb., A/10 hr. LC2.

Long-Range Scanner (TL9): 1,000-yard range; -1 to skill per 100 yards of range. $5,000, 5 lbs., C/10 hr. LC2.

Keyboard Bug (TL9)

This pinhead-sized adhesive bug can be stuck to the bottom of a terminal's keyboard. It uses induction to read the keystrokes, recording everything that gets typed in its memory. It can record a gigabyte at TL9; multiply by 1,000 per TL afterward. The bug can be retrieved manually, or it can be programmed to send out the data as a coded burst transmission using its microcommunicator (p. 43). It runs for a year. $200, weight is negligible. LC3.

SQUID (TL9/11)

A superconducting quantum interference device is used to interrogate a computer brain to retrieve data, *even if that system is offline*.

Contact SQUID (TL9): This SQUID must be physically attached to the target computer; it can then assist in reading the data stored within. $20,000, 5 lbs., 2C/10 hr. LC3.

Ranged SQUID (TL11): This can probe a computer even at a distance. It is usable at 10 yards at TL11, or 100 yards at TL12. Hardened computers cannot be probed at a distance, but can still be scanned through direct contact. $200,000, 50 lbs., 2D/10 hr. LC2.

Memory Scan (TL10^): Any ultra-scan (p. 104) active sensor with this modification can scan a computer that it has detected. +200% to the ultra-scan sensor's cost. LC2.

Future Crime

Technology can lead to new vices, such as pleasure robots, sensie addiction, or direct neural stimulation, any or all which may be legally regulated. It can also lead to variations on existing crimes, such as hijacking robots, illegally copying a mind, or transforming a person into a cyborg against his will. Some societies may declare certain technologies criminally dangerous – for example, volitional AI, nanofactories, uploading minds, or time travel – and prosecute anyone who employs them.

Advancing technology can also impact the way existing crimes are perceived. Future societies could have very different attitudes to the ownership of data or the protection of personal privacy, depending on the ways that different technologies are used. If ultra-tech medicine (see Chapter 7) can make injury or death into an inconvenience, assault and even murder may be taken less seriously, as long as the victim is easy to restore. Similarly, the existence of nanofacs (pp. 91-93) or replicators (pp. 93-94) may turn the theft of physical goods into a trivial misdemeanor.

Security and Surveillance

Even as technology gives thieves and spies the ability to bypass old security systems, it creates new ones to replace them. In addition, as the average criminal becomes more sophisticated, so does the cop who has to track him down. This chapter covers security systems that protect against both physical and electronic intrusion, as well as advanced law-enforcement tools that allow police and security forces to track, identify and detain criminals more effectively – or simply suppress a riot.

It might be possible to build an impregnable security system – but the more layers of security that are added, the harder it is get anything else done. If an executive has to go through six different scans every time she enters or leaves her office for a cup of coffee, or a computer requires 20 minutes of identity verification before it will let anyone use it, personal convenience and efficiency will be sacrificed.

Most systems compromise between security and ease of use. A system that is too complex or too sensitive can easily be degraded, overloading its monitors with input. The simplest method of fooling an electronic security system is to convince the human component of the security system that the electronic element is malfunctioning. After receiving several false alarms, a human operator or self-programming computer may ignore input from a sensor or just turn it off, leaving a hole in the defenses.

Barriers, Mines, and Traps

Many dangerous traps have low LC. Even low-CR societies frequently ban lethal traps, on the principle that property is not as important as life.

In addition to the systems described here, construction foam (p. 83), force screens (pp. 190-192), stasis webs (pp. 193-194), and wards (p. 193) make useful barriers.

Armored Doors (TL9-12)

Still the most basic way to keep somebody out. A heavy door made of an inch of composite armor will be HP 50 with DR 100 (TL9), 150 (TL10), 200 (TL11), or 300 (TL12). It is $1,000, 200 lbs. per 10 square feet. Typical materials include ceramic composites at TL9, metal-matrix composites at TL10, diamond-carbon composites at TL11, and hyperdense alloys at TL12.

The lock is usually in the adjacent wall rather than the door.

Laser Fences (TL9-12)

These project a continuous beam between two emitters, which may be built into fence posts, doorways, or corridors. Each emitter weighs 10 pounds and may be no more than 10 yards apart.

Open: The standard "cinematic" beam fence, this produces a fixed or moving pattern that can be avoided with an Acrobatics-3 or Escape-3 roll.

Tight: A tight grid of beams, or a thick, continuous energy field. It can't be avoided; anyone passing through takes damage. (It does, however, require more power to generate.) A computer-controlled system could start with an open pattern, then switch to a tight pattern if an intruder avoids the beams.

Laser Fence (TL9): This inflicts up to 6d(2) tight-beam burn damage. $5,000 per post for an open fence, double cost for a tight fence. LC3.

Electrolaser Fence (TL9): An electrical fence using energy beams instead of wires. It delivers a HT-6 (2) affliction attack plus linked 1d-3 burn damage; use the rules for military electrolasers (p. 119). The fence can be set to "stun" or "kill." $5,000 per post for an open fence, double cost for a tight fence. LC3.

Rainbow Laser Fence (TL10): This inflicts up to 6d(3) tight-beam burn damage. $3,000 per post for an open fence, double cost for a tight fence. LC2.

X-ray Laser Fence (TL11): This inflicts up to 6d(5) tight-beam burn damage with the radiation and surge damage modifiers. $4,000 per post for an open fence, double cost for a tight fence. LC2.

Graser Fence (TL12): This inflicts up to 6d(10) tight-beam burn damage with the radiation and surge damage modifiers. $6,000 per post for an open fence, double cost for a tight fence. LC2.

All of these fences use external power.

Electronic Locks (TL9)

An electronic lock may be mounted on doors, consoles, briefcases, and anything else that needs to keep people out. It uses a numeric keypad, or a small electronic key card. Picking it requires Electronic Repair tools (p. 82) or an electronic lockpick (p. 95).

Simple Lock (TL9): Typical of homes, hotel or shipboard staterooms, etc. No modifier to Lockpicking rolls. Uses building power. $25. LC4.

Complex Lock (TL9): Typical of secure installations. -4 to skill. $200. LC4.

Electronic locks may also incorporate a scanlock (p. 104) for additional security.

Remote-Controlled Weapons (TL9)

These are usually connected to sensors with a cable and controlled by a computer, either manually or via an AI. Roll vs. Traps-9 to spot them first.

Defense Globe (TL9): A remote-control weapon mounted in a small turret, usually disguised as an ordinary light fixture or smoke detector. Install any ranged weapon up to 4 lbs. weight, such as a blaster pistol or a sonic stun pistol. It is SM-6, HP 8, and can't use active defenses. Beam weapons use building power. $100/lb. of weapon, plus the cost of a weapon and a smart sight (p. 149).

Spray Canisters (TL9): These do not require sophisticated mounting systems; they're normally disguised as building fire extinguishers, or placed in air ducts. They can be built by adding optical cable or a communicator (pp. 43-46) to a spray tank (p. 134). Numerous types of gas and nano can be deployed – see *Gases and Clouds* (pp. 159-160). $100 for installation.

Safes and Vaults (TL9)

These delay or deter thieves. Safes use electronic locks (above) and biometric scanners (p. 104) to limit access to valuables; add normal cost and weight to the safe.

A particularly nasty trick is to station defensive robots or swarmbots *inside* a safe.

Wall Safe (TL9): A typical home or business safe; one cubic foot, DR 100, HP 25. $100, 50 lbs. LC4.

Small Safe (TL9). A high-security safe; five cubic feet, DR 300, 80 HP. $500, 0.5 ton. LC4.

Armored Vault (TL9). A small walk-in vault. 50 cubic feet, DR 400, 100 HP. $30,000, 2 tons. LC4.

MT Vault (TL10^): An MT booth (p. 233) may be placed inside a room in a hidden location. Even its users may not know where it is! LC3.

Safe DR is multiplied by 1.5 at TL10, doubled at TL11, and tripled at TL12; HP are unchanged.

Sonic Barrier (TL9)

This generates a curtain of high-intensity sound, inaudible until someone tries to cross it. It can be turned on or off remotely. There may be a faint ripple in the air (make a Vision roll to notice) from the sonic field. It inflicts a HT-6 affliction attack on anyone trying to cross, with the effect of a sonic nauseator (p. 125) beam weapon. $3,000, 10 lbs. per 10 square yards of field, external power. LC4.

Wire Fences (TL9-11)

The fencing materials described here are designed to be easily stored and quickly deployed. A typical "unit" of fencing stretches up to 15 yards when uncoiled or unfolded, and stands four feet tall. All fencing is free-standing, and flexible enough to form a curved enclosure or surround an odd-shaped area. Stakes and other fixtures can make the fencing more permanent. Multiple layers of fencing can be "stacked" for extra protection.

It takes one man-minute per yard to deploy fencing. If protective gloves, wirecutters, and fasteners are not available, the time required is tripled.

Cutting Wire (TL9)

Cutting wire comes coiled into tight rolls. The wire is wound with triangular segments of memory metal that extend when the wire is subjected to an electric pulse, forming thousands of small jagged cutting edges. Once "popped, " the wire cannot be returned to its original form. The inner core of the wire is flexible and shear-resistant, making it difficult to cut. Passing through an area of cutting wire requires a roll at DX-5 each yard. Failure deals 1d-1 cutting damage, and may require a Will roll to avoid yelping or cursing as the barbs tear clothing and skin. The easiest way to cross cutting wire is to lay something on top of it – a log, a sheet of metal or thick plastic, a body – and climb over. A 15-yard coil of cutting wire is $100, 15 lbs. LC4.

Fragwire (TL9)

This looks like ordinary wire, but the core is tightly coiled memory-metal. When cut, the wire explodes outward with a loud *ping*! The burst of sharp fragments does 1d-1 cutting damage over a two-yard radius. Fragwire is often wound around cutting or sensor wire to dissuade infiltrators. While fragwire does little harm to armored troops, it is an effective deterrent against civilian trespassers. A 15-yard coil of fragwire is $200, 30 lbs. LC2.

Sensor Wire (TL9)

This wire includes an optical-fiber core. Each end of a strand terminates in a short wire plug that can be connected to another strand of wire or a hidden transmitter. If the wire is cut or snapped, the signal running between the two emitters is interrupted and the communicator sends an alert. Each coil has a unique identification code, allowing security monitors to determine exactly where the wire was breached. A 15-yard coil of sensor wire costs $150 and weighs 15 lbs. LC4.

Monowire (TL9^)

Deadly and nearly invisible, monowire (p. 82) can cut an intruder to pieces without warning. People who prefer less lethal defenses use fragwire or sensor wire, or mix an outer perimeter of ordinary wire with an inner perimeter of monowire.

Any roll to see monowire requires a Vision or Traps roll at -4 (-1 if a searcher is specifically looking for it). Anyone walking through a monowire "spiderweb" will take 2d(10) cutting damage per strand. This damage is reduced to 1d(10) if moving very slowly, and increased to 3d(10) if running. Care must be taken to avoid injury when stringing monowire, since it is hard to see and cuts almost anything. On a critical failure when using it, the user takes 1d(10) cutting damage to one hand. LC3.

Neural Disruptor Field (TL10^)

This device is built into furniture or flooring. It produces an area effect identical to a neural disruptor (p. 121). The grid can be left on, activated by sensors, or activated by remote control. Anyone moving through or ending his turn in an activated field must roll against HT-1 or suffer the effects of the neural disruptor. Add +1 to HT to resist for every DR 2 of sealed armor worn.

The effect lasts for as long as the power remains on and the victim remains on the grid, and for minutes equal to the margin of failure afterward. Neural disruptor fields producing a specific effect such as agony or paralysis are $10,000 to install, plus $1,000 per square yard. (Tunable fields are double cost.) Neural disruptor fields run on building or ship power. LC3.

Gravity Web (TL10^)

This is a set of gravity plates (p. 78) mounted in a room or corridor as a remote-controlled security system. They can increase the gravity to slow, disorient, or immobilize intruders. See *Crossing a Gravity Gradient* (p. 79) for the effect of suddenly entering an area of different gravity.

Dream Net (TL11^)

This technology is an *invasive* neural induction device combined with a sensory interface transmitter. A dream net grid can be concealed in an area of floor or ceiling, a doorway, or furniture such as a console, chair, or bed. The induction field extends one foot from the field generator.

Someone moving into an activated dream net must make a Will-4 roll each second or be trapped. The field will not affect someone with the Sealed or Digital Mind traits, or who is wearing a sealed suit. Failure means the person's body becomes paralyzed while his mind plunges into a computer-controlled sensory recording or dreamgame. Someone passing through a dream net feels a sense of dislocation even if he makes the Will roll to resist; if he *wants* to interface, he can remain in the net until he fails the roll.

Dream nets used for security often employ nightmarish simulations – or a virtual-reality prison with a live or computerized interrogator. On the other hand, a dream net may simply send the user to someone's private virtual-reality coffeehouse to have a nice chat with the owner. A dream net may be set to cycle continuously, or to release the user after a period of time. A benign dream net may allow the user to voluntarily log out by saying something like "program off."

Physically removing a user from the dream net before the program has run its course will end the interface, but doing so without shutting off the simulation may cause shock and disorientation. The subject must make a Will roll. On a failure, he is stunned for seconds equal to the margin of failure; on a critical failure, he will be unconscious for 1d hours.

Some dream nets may be placed just inside doors or other portals. If a dream net uses a skillfully-constructed dreamgame or neural virtual reality, the subject may not even realize he was trapped! For example, someone who steps through a door into a hallway may find himself in a dreamgame simulation of the same hallway and building. The GM can allow an IQ-4 roll to notice any sense of dislocation under such circumstances. People intending to engage in mind games or brainwashing often use these techniques. $70,000, 50 lbs. per square yard, external power. LC3.

Disintegrator Field (TL12^)

This projects a matter-disrupting field that can disintegrate anyone passing through. The fence is designed to be turned on or off remotely. It inflicts 8d×10 corrosion damage that bypasses all DR. Bullets, missiles, etc. are also disintegrated: treat it as DR 280 vs. projectiles. It may be based on either disintegrator (p. 130) or reality disintegrator (p. 131) technology; refer to either for defenses that stop it. Two emitter posts are used, up to five yards apart. It projects a two-dimensional vertical barrier. $20,000, 10 lbs. per 10 square yards of field, external power. LC1.

MT Interceptor (TL12^)

This device detects and diverts matter transmissions. When operating, any matter transmission into or out of the maximum range will be detected, and can be diverted to the interceptor. This may be performed selectively, affecting only unauthorized transmissions. The area of effect may also be adjusted, out to the maximum radius.

The device detects the origin, destination, and mass of the transmission, but nothing else. Successful diversion requires a Quick Contest of Electronics Operation (Matter Transmission) Skill. If rolling against a system that does not normally require an operator, such as a booth-to-booth matter transmitter, roll against the TL of the system.

An MT interceptor is rated for the maximum mass it can divert, and for its area of effect. Objects of greater mass are unaffected. The system is usually built around a cargo platform, which may be sealed off for safety and security reasons. MT interceptors use external power.

If different types of matter transmission technology exist, a single device is normally effective only against one type. The GM decides whether it can intercept people using the similar Warp advantage (roll vs. their Will) or magical Teleport spells (roll vs. skill.)

Local MT Interceptor (TL12^): Maximum range is a 200-yard radius, enough to cover most vehicles or buildings. It can receive up to 2,000 lbs. $1,000,000, 2,000 lbs. LC3.

Regional MT Interceptor (TL12^): Maximum range is a 10-mile radius. It can also receive up to 2,000 lbs. $100,000,000, 200,000 lbs. LC3.

Security Scanners

Security scanners are fixed sensor installations designed to identify intruders.

Biometric Scanner (TL9)

This is a multipurpose identity scanner. It can identify a fingerprint, a retina print, a voiceprint, or a DNA print, if this data is in a database accessible to it. Fingerprints and retina prints must be taken from a one-yard range, while DNA prints require a hair or blood sample. At TL9, it takes 10 seconds to scan a fingerprint, retina print, or DNA print; voiceprints can be scanned in one second. At TL10+, all scans take one second.

Handheld Biometric Scanner (TL9): A handheld device used by security personnel to check identities. $1,000, 1 lb., A/1 day.

Biometric Scanlock (TL9): Integrated into a lock on a door, case, or other device. Cost, weight, and power are the same as the handheld scanner.

Surveillance Sensors (TL9)

Security sensors are designed to detect an intruder and then take action, whether sounding an alarm, activating gas, or closing doors. They run indefinitely using vehicle or building power; most have backup power cells. Make a Traps-2 roll to spot them. Electro-optical cameras (p. 60), infrared cameras (p. 61), hyperspectral cameras (p. 61), short-range terahertz radars (p. 65), and imaging radars (p. 65) are among the most common types. Add $100/lb. to cover the mount and installation costs.

Portal Scanners (TL9-10)

These are short-range, ultra-high resolution sensors that scan whatever passes between them. The device usually consists of transmitter and receiver with a one- to three-yard range. They can be concealed in doorways or luggage conveyer belts, and may be set to trigger automatic doors, weapons, or force fields if they detect anything. They are remotely controlled, with information displayed on a video screen or other interface. They work automatically, but their results must be interpreted by the Search skill roll of a person or AI.

X-ray Scanner (TL9): This device uses X-rays to see inside objects, and is much lighter than lower-TL systems. It comes with a microcommunicator, a data port, and X-ray analysis software. Add +4 to Explosives (EOD) skill when using it to defuse a bomb, and to Search skill when examining the contents of a package. $2,000, 5 lbs. (2.5 lbs. per module), C/4 hr. LC3.

T-Ray Portal Scanner (TL9): This illuminates its target with tunable terahertz radiation. The absorption spectra of the resulting image is analyzed and cross-referenced with a database to check for chemicals of interest. This is good for locating drugs or other chemicals, explosives, and weapons. Gives +4 to Search skill for identifying non-living objects. $10,000, 10 lbs., C/4 hr. LC3.

Explosives Scanner (TL9): A nuclear quadrupole resonance (NQR) scanner excites a specific material (typically nitrogen) into a higher quantum mechanical energy state using a radiofrequency beam. When the material "relaxes" it gives off a distinct signal. The scan provides an unambiguous yes/no answer to the presence of all chemical explosives, but does not detect energy-based explosives. It provides +4 to Search skill to detect chemical explosives. $4,000, 10 lbs. C/4 hr. LC3.

Ultrascan Portal (TL10^): This uses para-radar to perform an fast atomic-level scan of the target's body, including a detailed bio-scan. It gives a +TL/2 (quality) bonus to Search rolls to find *anything*, and can match a person by their genetic code against a database. It can be fooled by distortion fields (p. 99). $10,000, 10 lbs., D/100 hr. LC3.

Security Swarm (TL10)

A swarm of data-gathering microbots with short-range infrared, tactile, visual, and chemical sensors. They search anyone they contact with Search-12 and Diagnosis-8, crawling over the subject's body and noting what is carried where. They are limited to performing either a skin search

(+3 to Search skill) or a body cavity search (+5 to Search skill); see *Search,* p. B219. They also record the subject's physical dimensions (height and build), species, gender, and can note if he's running a fever.

Since a swarm can't store data from more than one sweep, it should be uploaded to a computer and reviewed. It can also be accessed in real time as it is used. In addition to performing their own search, security swarms can be teleoperated to remotely perform skin or body cavity searches; as such, they provide a +1 (quality) bonus to Search skill. $1,000/square yard. LC3.

Surveillance and Tracking Devices

Passive sensors (pp. 59-63) and audio-visual recorders (p. 51) are the basic tools of surveillance. Active sensors (pp. 63-66) are useful if the subject lacks appropriate detection gear, or if letting him know he's being watched isn't a problem.

The devices that follow are useful for covertly obtaining information, or for following people or objects.

Com Tap (TL9)

This device can tap into an optical or electrical cable line. It is a 100-yard, hair-thin optical cable ending in a clip head, connected to a pocket-sized unit which includes both a monitor and a recorder that uses standard computer storage media. An Electronics Operation (Surveillance) roll is needed to succeed without damaging the line being tapped into; tapping an optical cable is at -3 to skill. $500, 0.1 lb., A/100 hr. LC3.

Homing Beacon (TL9)

This tiny tracer (SM -11) can be set to activate when it receives a coded signal (sleeper mode), or to broadcast continuously. Its signal can be picked up by radio emissions scanners up to 10 miles away. $40, neg., AA/100 hrs. (1 year in "sleeper" mode). LC4.

At higher TLs, its range is ×5 at TL10, ×20 at TL11, ×100 at TL12.

Nanobug (TL9)

A pinhead-sized sensor/recorder unit (SM -18) with an adhesive backing, which is usually placed somewhere where it can scan an entire room. Its camera and microphone can record constantly, listen for a specific voice before recording, scan at specific times of day, or scan when its sensors detect light or motion in the room. It includes a microcommunicator (p. 43) that can transmit recorded data in a short "burst" upon receiving a coded radio command. It can also be set to transmit after a specific time has passed. Once it transmits, it may be programmed to erase everything it has stored and begin recording again, or to self-destruct. It will also self-destruct if tampered with (roll vs. Explosives (EOD)-3 or Traps-3 to defuse). $100, AA (1 year).

Emissions Nanobug (TL9): As above, but instead of audiovisual sensors, it has field-emission sensors that can read data being sent to or from an electronic device that the bug is in direct contact with. It cannot read stored data that is not being accessed.

Microbot Nanobug (TL10): A single, tiny microbot spy (SM -16). As a regular nanobug, above, but add any microbot swarm chassis (pp. 35-36) at 1% the usual cost. Mobility is as per a cyberswarm. One hit destroys it.

Laser Microphone (TL9)

This device turns any window or faceplate into a bug by reflecting an invisible laser beam off the glass and picking up vibrations caused by speech within the room. The user may roll Electronics Operation (Surveillance) to hear whatever is behind the window as if he were present on the other side of it. Extraneous noise such as loud music or running faucets is easily filtered out. Very heavy curtains, anti-laser coating, or triple-glazing may defeat this method; bug stompers and privacy field white-noise generators (pp. 62, 188) always do. Laser sensors (p. 106) can sense a laser mike.

Laser Microphone (TL9). Range 3,000 yards. $200, 2.5 lbs., C/10 hr. LC3.

Pocket Laser Mike (TL9). Range 300 yards. $40, 0.1 lb., A/1 hr. LC3.

Range is doubled at TL10, multiplied by five at TL11, and multiplied by 10 at TL12.

Surveillance Worm (TL9)

A flexible robotic snake only 0.1" wide and 2" long. These devices replace lower-TL endoscopes for examinations of body cavities or small cracks. Its light source illuminates a two-yard cone, and TL10+ worms also have Infravision. The user can see whatever the worm is looking at, but has No Depth Perception (p. B145).

The worm uses myoelectric muscles to flex and bend. It can be controlled via fiber-optic cable (to avoid emitting any signals), or it can operate using its built-in microcommunicator. A series of surveillance worms can also relay signals to each other.

Surveillance worms provide +3 on Search attempts. A Vision-5 roll is required to spot the worm. $4,500, 2 lbs.

Computer Pill (TL10)

Designed to be disguised as a piece of candy, a raisin, a pill, or a seed, this is a disposable organic computer that activates once swallowed. It attaches itself to the user's stomach, remaining in the body. It has its own microcommunicator, which only has a range of a few feet inside a body. That's enough to contact any radio communicator implanted in or carried by the person who consumed the pill.

The computer is complexity 3, stores 1 TB, and costs $50. Its integral power supply operates it for one week. Increase Complexity by +2 and data storage by a factor of 1,000 per TL after introduction.

Messenger Pill: A computer pill that incorporates a genetic scanner that can determine if it's been swallowed by the right person (or family, or species, or whatever). If the scan comes up with a match, the pill will try to call the communicator of its host. If not, it self-destructs, and is dissolved by the body's own digestive system.

Messenger pills are double normal cost.

Surveillance Swarm ("Surveillance Dust") (TL10)

This microbot swarm (p. 35) mounts tiny video cameras and audio sensors, collectively equivalent to a nanobug (see p. 105). The swarm is programmed to remain in a particular place, observe for a period of time, and then return; it can also transmit information or be ordered to go to a different location. Base cost is $500/square yard; modify this for *Swarm Chassis* (pp. 35-36). LC3.

Counter-Surveillance and ECM

These devices are used to warn of or defeat surveillance attempts.

Bug Detectors (TL9)

RF Bug Detector (TL9): Detects and locates radio transmitters and microphones. This requires a Quick Contest between the operator's Electronics Operation (Surveillance) skill and the Electronics Operation (Surveillance) skill of whoever hid the bug. Locating a bug involves sweeping the room with the device (range 1 yard). The detector has a range of one yard, and takes 10 seconds to scan 100 square feet. $200, 0.1 lb., A/10 hr. LC4.

Multispectral Bug Sweeper (TL9): A countersurveillance radio frequency detector integrated with IR sensors and sensitive microphones. Adds +2 (quality) to Electronics Operation (Surveillance) skills when used to sweep for transmitters (infrared, sonic, and radio), comm taps, microphones, recorders, sound detectors, and other bugs. It can scan automatically with its own skill of (TL+5). It can check or monitor comm lines, or everything within a 10-yard radius. It folds up into a small briefcase. $10,000, 5 lbs., C/10 hr. LC3.

GUT Bug Sweeper (TL11^): An advanced system that can also detect transmitters using gravity-ripple or neutrino comms. $20,000, 5 lbs., C/10 hr. LC3.

Bug Stomper (TL9)

This is a pocket-sized "pink noise" generator, which prevents audio surveillance device from picking up anything but static within three yards of the device. It will jam the listening ability of a programmable bug, but not its visual sensors. It has no effect on laser mikes, and a bug of a higher TL can filter out the noise. $600, 0.25 lbs., B/24 hr. LC3.

Bughunter Swarm (TL10)

This microbot swarm (p. 35) is equipped with emissions sensors. Each square yard of bughunters can sweep one square yard per minute to locate nanobugs, comm taps, surveillance swarms, or other surveillance devices. They have Electronics Operation (Surveillance) at TL+2 for this function only, or give a +2 (quality) to a director's skill. $4,000/square yard. LC3.

Privacy Field (TL10)

This sonic generator creates a spherical interference pattern that blocks all normal sound waves. No one inside the field's boundaries can hear any sound originating outside the field, and no sounds within the field are audible to anyone outside it. The generator can only be used in an atmosphere, with the diameter of the field increasing with atmospheric density. In a standard atmosphere, the bubble has a four-yard radius. A privacy bubble will block audio bugs, but not laser listening devices. It also gives DR 15 against sonic weapons fired across its boundaries. $5,000, 4 lbs., D/100W.

Enforcement and Coercion

This equipment is used to enforce laws, control populations, and compel obedience. It can also easily be used for sinister purposes, such as torture and mind control.

Forensics and Lie Detection

Forensic equipment is used to analyze clues, usually at crime scenes. In addition to this specialized gear, investigators use chemsniffers (p. 61), portable labs (pp. 66-67), medscanners (p. 200), ultra-scan (p. 66), or even time-scanners (p. 67).

Lie detectors help determine whether the subject believes he is telling the truth. It's up to the investigator to decide if that subject is correct, or if he has a faulty memory, is delusional, or was brainwashed. Within these limits, ultra-tech gear using advanced neurotech is much more reliable than the polygraphs used at lower TLs.

Verifier Software (TL9)

This computer program monitors a person's facial expression, especially facial movements near the eye muscles; different programs are needed for nonhumans. Creating software for other races requires knowledge of the

race's biology and psychology. The software uses passive visual sensors (p. 60), and has Detect Lies-12. Complexity 4. LC3.

Neural Veridicator (TL10)

This provides highly accurate lie detection by monitoring brain waves transmitted through a braintap neural interface (p. 215). It gives a human or computer a bonus of +TL/2 to Detect Lies skill.

Neural veridicators are *completely* reliable, providing an automatic success on a Detect Lies roll. However, people can forget, delude themselves, be fooled, or have their memories altered by brainwashing technology. A veridicator does not provide absolute truth; it just tells if someone believes they are telling the truth.

Veridicator Helmet (TL10): This incorporates a dedicated neural interface and veridicator software. The user wears the helmet; a light goes on or a buzzer sounds if he's lying. $12,000, 2 lbs., B/24 hr. LC3.

Veridicator Program (TL10): Complexity 6. LC3.

Forensic Swarm (TL10)

These swarms can provide detailed information on the room's occupants and visitors for the past several years by analyzing the buildup of organic and inorganic detritus: skin flakes, blood, clothing fibers, food residue, presence of other nano, etc. When gathering forensic evidence, each square yard of swarm can sweep one square yard per hour. The data collected from people or animals will reveal their sex, race, blood type, genetic pattern and approximate age. It can form the basis of a computer simulation of what they might look like, but will not identify someone unless he is listed in a database available to the investigator. Forensic swarms can also perform pathological analysis without an autopsy.

A forensic swarm gives a +3 (quality) bonus to Forensics skill for gathering evidence. Analyzing the data requires Forensics (or Biology) skill or an appropriate expert-system program. $4,000/square yard. LC2.

Restraint and Riot Control Devices

This equipment is used by security forces to restrain individuals, or to control and disperse crowds of demonstrators or rioters. Other useful equipment includes:

Barricades: Construction foam (p. 83), construction swarms (pp. 86-87), slipspray (p. 83), and wards (p. 193) allow quick erection of barricades to channel crowds and block streets. Holoprojectors (p. 52) may create illusionary barriers to divert an unwary mob.

Dispersion: Techniques useful for scattering crowds without leaving a field of stunned, injured, or dead bodies are microwave pain beams (MAD, p. 120) and sonic nauseators (p. 125). Launchers or sprays may deliver riot gas (p. 159), sonic nauseators (p. 125), warbler warheads (p. 157). Shock clubs (p. 164) and neurolashes (p. 165) let an officer defend himself, and can be a painful but nonlethal deterrent.

Shields: Riot shields (p. 188), or force shields (pp. 192-193) can be used not only as defenses, but also to push or slam rioters.

Cufftape (TL9)

This looks like duct tape, but the sticky side is a memory polymer that tightens if the prisoner struggles. A two-foot-long strip has ST 20, and is sufficient to restrain arms or legs. Each failure to escape does one point of damage to the taped area. Cufftape has DR 1; six points of cutting, corrosion, or burning damage severs it. $10, 0.5 lb. per 100-foot spool. LC3.

Razortape (TL9)

This cufftape has a thin strand of sharp wire embedded in it. On a successful attempt to break free using brute force (a Quick Contest of ST), the wire does thrust cutting damage using the escapee's own ST. $40, 0.5 lb. per 100-foot spool. LC2.

Monowire Razortape (TL9^): As razortape, but it costs twice as much and does +1d damage. The damage has an armor divisor of (10).

Electronic Cuffs (TL9)

This is a rigid pair of handcuffs or leg irons, padded to avoid abrasions and used for restraining people or animals. It is controlled by an embedded remote-controlled microcommunicator, and incorporates a homing beacon (p. 105) for tracking the prisoner.

To break free of the restraints, win a Quick Contest of ST or make an Escape roll at -6 (-8 if both arms and legs are cuffed). The first try takes one second; further attempts require 10 minutes of struggle. Also available with collar and 10' leash (same weight) for animals, slaves, etc. It may incorporate neuronic restraints or a neural pacifier (p. 108).

Electronic Cuffs (TL9): This has ST 20 and DR 10. $40, 0.25 lbs., A/1 wk. LC4.

Heavy-Duty Electronic Cuffs (TL9): ST 40 and DR 15. Uncomfortable to wear. $100, 0.5 lbs., A/1 wk. LC3.

At higher TLs: Add +5 to DR and ST per TL over TL9.

Explosive Collar (TL9)

This locked, plastic-alloy collar attaches around a prisoner's neck. It contains an inertial compass, secure radio, and a tiny computer (p. 22) – none of them usable by the wearer – along with explosives equivalent to a 15mm HE warhead (p. 154). The radio and computer constantly broadcast the prisoner's exact coordinates.

A coded signal can detonate the explosive liner, decapitating the wearer. The collar can also be broken (it has DR 10 and 2 HP), but any attempt to damage it that fails to immediately remove it results in detonation next to the subject's neck. Disarming the explosives requires appropriate tools and a Traps-4 roll; failure means the collar explodes. $200, 0.25 lbs., B/100 hr. LC2.

Power Damper (TL9^)

A neural-feedback device that is designed to restrain people with psionic powers, or possibly another type of biologically-based super power; each origin may require a different device. It prevents the subject consciously using an advantage associated with that power origin.

The subject can attempt to overcome the device by deliberately pushing himself: each time he tries to use an advantage that would be impeded by the device, he must win a Quick Contest of Will against the device's Will. He may add his relevant Talent, if any. If he succeeds, he overloads the device, which burns out. If he fails, he cannot try again for *hours* equal to the margin of failure.

A power damper may be combined with neuronic restraints (below), triggering a "punishment circuit." This activates the neurolash after any attempt to overcome the damper.

Power-Damper Band (TL9^): A small headband. The damper can also be built into electronic cuffs, a collar, or a sensory restraint. It has an effective Will 18. $2,000, 0.1 lb., B/100 hr. LC3.

Power-Damping Field (TL9^): This covers a 2-yard radius; it is usually built into a cell, giant test tube, or similar small prison. Effective Will 20. $20,000, 70 lbs., E/100 hr. LC3.

Add +2 to the device's effective Will for every TL after TL9^.

Sensory Control Restraints (TL9)

A single-piece device containing a video visor (p. 60) and ear muffs designed to control the reality perceived by the wearer. It can also see and hear what the prisoner does (and if desired, record it). The visor can blank out the prisoner's vision or hearing, restore it, or let the controller overlay false sounds and images. It can be controlled by any external interface with the proper codes. It includes a tiny computer, and at high TLs could even have its own AI. It has DR 6.

Smart Blindfold (TL9): Locks onto the head, covering eyes and ears. Gives a +1 (quality) bonus to Interrogation skill against the wearer. $100, 1.5 lbs. C/100 hr. LC2.

Restraint Mask (TL9): A flexible helmet that covers the entire head and locks into place; it takes six seconds to attach or remove. It blocks the senses of smell and taste, and also includes a removable gag/feeding tube and respirator tube. Gives a +2 (quality) bonus to Interrogation rolls against the wearer. $500, 2 lbs. 2C/100 hr. LC2.

Sensory Deprivation Tank (TL9): *Completely* removes all sensation except that permitted by the operator by suspending the subject in a sense-deadening liquid medium (or a contragravity field, at TL10^). Treat as a restraint mask, but the bonus to Interrogation rolls increases to +3 after the subject has been in the tank for an hour. Long stays may require Fright Checks: use the *Size and Speed/Range Table*, reading "yards" as "hours" and rolling every time an interval passes at the listed penalty. The tank includes a restraint mask, a respirator, and feeding tubes. $10,000, 200 lbs., D/100 hr. LC3.

At higher TLs, a combination of neural interfaces (p. 48) and either sensie (p. 57) or total virtual reality (p. 54) technology are used for sensory control.

Neuronic Restraints (TL10)

An add-on for electronic cuffs or collars, these use a tailored electrical impulse to deliver a neurolash effect (pp. 165-166) if tampered with, or if triggered by communicator.

They are available in all standard neurolash settings, although the seizure, pain, paralysis, and ecstasy effects are the most common (the latter is sometimes also purchased for recreational purposes). The effect is identical to a neurolash strike (roll vs. HT-5 to resist). However, since the victim is restrained and the effect can be continued each turn, neuronic restraints are very effective!

This option can also be built into sensory restraints (above). A neurolash delivering pain or pleasure in a sensory deprivation tank is especially effective; add an extra -1 to the roll to resist. $200, 0.25 lbs., B/100 sec. LC2. Tunable versions are +50% per setting.

Neural Pacifier (TL10)

Used legally by police, prison guards and hospitals, this restraint band projects a soothing hypnagogic field into the wearer's brain, keeping him sedated and compliant without risking drugs or injury.

The neural pacifier has two settings: sleep and control. On "sleep," it places the wearer into a deep slumber. He cannot be awakened until the device is removed or turned off. On "control," the headband projects frequencies that allow the user to retain consciousness while suppressing aggressive tendencies, making the subject easily led. It effectively gives him the Slave Mentality disadvantage.

The device can be resisted. After it is activated, the wearer gets a roll against the *higher* of HT-3 or Will-3 each second to avoid succumbing to the effects. Once a roll is failed, the effects persist for as long as the device remains on. $500, 0.25 lbs., B/100 hr. LC3. This option can also be built into sensory restraints (above).

Stasis Chamber (TL12^)

If correction is not important, stasis technology can provide the ultimate prison! See pp. 193-194.

Interrogation, Brainwashing, and Animal Control

Unlike passive lie detection gear, these systems are used to actively retrieve information, as well as to alter, erase, or enslave the minds of people or animals. See also *Drugs and Nano*, pp. 204-205.

Beamed Audio Sound System (TL9)

This device has numerous deception applications. One obvious use is to distract or lure away sentries by beaming recorded voices or other suspicious noises that appear

to come from one direction, then approaching from a different direction.

Beamed audio can also be used to psychologically manipulate victims by beaming whispers to them from hundreds of feet away. This is merely annoying to anyone who knows what is going on, but targets unaware of this technology may believe they are going mad, talking to divine or supernatural entities, or, if the voice was engineered to sound like their own, talking to some part of themselves. Beamed audio may even be used to hypnotize someone over a distance; the normal rules and limits for Hypnotism skill apply to any such attempt.

Biopresence Software (TL9)

This software allows the user to teleoperate another living entity's body (the host). The host must have a puppet implant (p. 218), and the user must be in telecommunication with the host, or physically jacked into him. The user must be using a direct neural interface (p. 48) connected to the computer running this software, or be a digital mind.

Control can be achieved automatically if the user has the appropriate passwords for full access to the puppet's mind; gaining these may require Computer Hacking skill.

The user remotely teleoperates the host's body, completely suppressing the host's personality. His own body is in a trance; he may choose to return at any time, and must do so if the host falls unconscious or dies or if the communications link is interrupted. Sleep does not break the link, but if it is ever jammed or out of range, the operator loses control.

The user gains the host's ST, DX, HT, and secondary characteristics calculated from these scores, as well as the host's physical advantages and disadvantages. The user keeps his own IQ, Perception, Will, and mental traits. Social traits may or may not apply. The user's IQ-, Perception-, and Will-based skills are unchanged. Other skills remain at the same relative skill level. For instance, if the user has Guns at DX+3, then he would have Guns-12 in a DX 9 body and Guns-14 in a DX 11 body.

The user has no access to the subject's memories.

If someone has biopresence software and appropriate equipment implanted in his body, the GM may require him to take the Puppet advantage (p. B78) for each Ally or Dependent (or group of them) whose mind he has access codes for.

The software is Complexity 7, double standard cost. LC3. Note that this is similar to the Possession (p. B76) advantage with the Telecontrol enhancement, and the Mindlink Required and No Memory Access limitations.

Brainwipe Machine (TL9-10)

This technology is much less subtle than neural programming. It involves using focused energy fields or nanomachines to alter brain structure and destroy memories.

Brainwipe is used to punish criminals or dissidents, and to erase sensitive information from the minds of those who know too much. Brainwipe causes classic amnesia, erasing all memories of the subject's personal life. It leaves personality and abilities intact. After brainwipe, a victim's skills and mental disadvantages remain unchanged. He can function in society, but can't remember his name, or anything from his past, even when confronted with the evidence. It can only be used to give the subject the Amnesia disadvantage.

Clinical Brainwipe Machine (TL9): This is a room-sized device incorporating a specialized diagnostic bed (p. 197). At TL9, it's the only system available; at higher TLs, it gives a +1 (quality) bonus to operator skill. $100,000, 100 lbs., D/10 days. LC2.

Portable Brainwipe Machine (TL9): A helmet-sized device, plus an attached briefcase-sized control unit. $10,000, 5 lbs., C/24 hr. LC2.

Message Bomb (TL9)

A smart grenade (pp. 146-147) may be equipped with a tiny speaker and player. This lets it be programmed to deliver an audio message. This is usually set to play when the grenade is used with a time-delay fuse, typically for the purpose of warning civilians ("You have 20 seconds to leave the area. 19, 18 . . ") or delivering some pronouncement ("Free Antares! Death to the Terran Empire!") before detonation. The maximum duration of the message is 10 minutes, doubled per TL after TL9. Add $10 per weapon. LC3.

Neural Programmer (TL9)

This technique uses a neural interface to "get inside" the subject's head, then alter his perceptions through subtle and overt applications of total virtual reality (p. 54).

The subject must be fitted with a neural interface (pp. 48-49) and connected to a computer system running neural programmer software. He is then put through multiple scenarios, some realistic, some bizarre or even hellish. The operator does not require a neural interface. Neural programming may add or remove a permanent self-imposed mental disadvantage (p. B121). It may give the subject a set of false memories or beliefs, which take the form of Delusions (p. B130). It can also induce a Phobia (p. B149).

The process is handled as a regular contest of Brainwashing skill vs. the subject's Will; add the equipment bonuses given below, and apply a penalty of -1 to skill for every -5 points or fraction the disadvantage is worth. Base time is one day, but more or less time can be taken – see *Time Spent* (p. B346).

The process cannot actually *erase* memories (see *Brainwipe Machine*, p. 109) but it can give the subject the Delusion that a brainwashing, kidnapping, or other traumatic event was actually a dream or a false memory.

Neural programmer software is Complexity 7. Good-quality software (+1 quality bonus) is Complexity 9; fine-quality software (+2 quality bonus) is Complexity 11. LC1.

Mechanical Mind Probe (TL10-11)

This device, also called an extractor, probes a subject's mind and retrieves memories. As the operator questions the subject, the extractor stimulates the brain to recall specific memories. It then uses electrochemical means to read those memories as they are formed.

Use of the device takes a specified time (varying by TL) per attempt, and requires a successful Electronics Operation (Medical) skill. Critical success retrieves the exact memory the questioner wishes to evoke. Success retrieves some of the desired memories, mixed up with exaggerations, errors, or unrelated associations. Failure retrieves fragmentary memories of no interest to the interrogator, or obviously false memories. Critical failure results in the subject's brain constructing false memories that seem realistic.

All memories are in the form of a raw sensie feed. Its length depends on the duration of the probe. This information must be accessed via neural interface before the user knows whether the attempt succeeded or failed; see *Sensies* (p. 57-58).

A mind probe may be used as a fast or slow probe. A slow probe is safe, but takes eight hours per attempt. A fast probe takes only an hour per attempt, but is dangerous to the subject: whether the probe succeeds or fails, he must roll vs. the *lower* of his HT or the operator's skill. Failure means brain damage (-1 to IQ); critical failure means he suffers the Coma mortal condition, and cannot be further interrogated until he recovers. Repeated fast mind probes can reduce a subject to a drooling idiot.

Clinical Mind Probe (TL10): This is a room-sized scanning device incorporating a specialized diagnostic bed (p. 197). At TL10, it's the only system available; at higher TLs, it gives a +1 (quality) bonus to operator skill. $200,000, 200 lbs., D/10 days. LC2.

Portable Mind Probe (TL11): A helmet-sized device, plus an attached briefcase-sized control unit. $20,000, 10 lbs., C/24 hr. LC2.

A mechanical mind probe can also incorporate a brainwipe setting, equivalent to a similar-sized brainwipe machine (p. 109), for +50% to cost and no extra weight.

The time required for fast and slow scans is halved at TL11, and again at TL12.

Black Ops Robots

Robots are perfect for many security and intelligence missions. They don't fall asleep during boring patrols or on surveillance missions, they can be relied on to sacrifice themselves or act without remorse as necessary, and they may willingly self-destruct or wipe their memories to avoid capture.

In addition to the types covered below, bush robots (p. 86), combat androids (p. 167), scoutbots (p. 80), and warbots (pp. 167-168) are often used for these jobs. Nursebots (p. 202) or medical bushbots (p. 203) also make effective interrogators.

Robobug (TL9)

-32 points

This is a single robot the size of a large insect. It is bigger than most microbots, but still small enough to easily escape notice. It is designed for surveillance, forensics, scouting, or assassination. It may also patrol power conduits or air ducts, performing security or maintenance tasks. Its weapon mount can hold a weapon up to 0.01 lbs. weight, such as a micro-laser or a drug injector.

Attribute Modifiers: ST-9 [-90].
Secondary Characteristic Modifiers: SM-9; Basic Move -3 [-15].
Advantages: Absolute Direction (Requires signal, -20%) [4]; Clinging [20]; Doesn't Breathe [20]; DR 1 (Can't Wear Armor, -40%) [3]; Extra Arm (Weapon Mount, -80%) [2]; Machine [25]; Peripheral Vision [15]; Protected Vision [5]; Radio (Burst, +30%; Reduced Range 1/10, -30%; Secure, +20%; Video, +40%) [16]; Sealed [15]; Sharp Teeth [1].
Perks: Accessories (Flashlight, tiny computer) [2].
Disadvantages: Bad Sight (Nearsighted) [-25]; Electrical [-20]; Restricted Diet (Very Common, power cells) [-10].

Lenses

Choose a TL lens (see below), configuration lens (see below), machine intelligence lens (p. 27) and biomorphic lens (p. 28). Consider the optional upgrade lenses.

TL9 Model (-80 points): Add Increased Consumption 3 [-30], Maintenance (one person, weekly) [-5], Mute [-25], and Numb [-20]. $100, 0.01 lbs., 2A/1 hr. LC4.
TL10 Model (+5 points): Add Discriminatory Smell [15], Infravision [10], Disturbing Voice [-10], and Increased Consumption 1 [-10]; $50, 0.01 lbs., 2A/4 hr. LC4.
TL11 Model (+27 points): Add Discriminatory Smell [15], Infravision [10], and Reduced Consumption 1 [2]. $20, 0.01 lbs. 2AA/12 hr. LC4.
TL12 Model (+44 points): Add, Discriminatory Smell [15], Hyperspectral Vision [25], and Reduced Consumption 2 [4]. $10, 0.01 lbs., AA/1 day. LC4.

Robobugs come in various shapes, not all of them bug-like.

Crawler (+16 points): A spider-bot that crawls along the ground. Add Extra Legs (6 legs) [10] and Super Climbing 2 [6].
Flier (+41 points): A dragonfly-like ornithopter. Add Extra Legs (4 legs) [5] and Flight (Small Wings, -10%) [36].
Rodent (-35 points): A mouse-sized robot. Add the Quadruped [-35] meta-trait.
Toy Soldier (-15 points): A humanoid robot, like a miniature figure. Delete Peripheral Vision [15].
Worm (-35 points): A serpentine robot slim enough to squirm through a keyhole-sized opening, along a drain pipe, or even down a throat to explore someone's stomach. Add the Vermiform [-35] meta-trait.
Vehicle (-80 points): A tiny robot all-terrain vehicle, like a toy car. Add Enhanced Move 1 (Ground) [20] and Ground Vehicle [-100], with wheels or tracks. Half cost.
Contragrav (TL11^) (+38 points): A small flying sphere with a pair of arms. Add Flight (Planetary, -5%) [38] and Aerial [0]. +20% cost.

Optional Upgrade Lenses

Chameleon (TL10) (+21 points): Add Chameleon 3 (Extended, Infravision, and Ultravision +40%) [21]. +$100. LC3.
Nuclear (TL11) (+10 points): Add Doesn't Eat or Drink [10]. +$100. LC3.
Water Jets (+10 points): Add Amphibious [10]. +50% cost.

Nanomorph (TL12)

518 points

This is a shapeshifting nanotech robot. Its intelligence is distributed through its body, and its smart matter structure is capable of rapid self-repair. In addition to assuming whole new shapes, it can also extrude spikes or talons at will. Unlike most robots, nanomorphs have bioconvertor power systems that consume food, although they aren't very fussy about what they eat – they devour most organic substances, including plastics!

Attribute Modifiers: ST+5 [50]; DX+2 [40]; HT+4 [40].
Secondary Characteristic Modifiers: HP+5 [10]; Basic Speed+0.50 [10]; Basic Move+3 [15].
Advantages: Absolute Direction [5]; Appearance (Handsome) [12]; Doesn't Breathe [20]; Enhanced Move 1/2 (Ground) [10]; Hyperspectral Vision [25]; Injury Tolerance (Homogenous) [40]; Long Talons [11]; Machine (Not Unliving) [5]; Protected Senses (Hearing, Vision) [10]; Radio (Burst, +30%; Secure, +20%) [15]; Recovery [10]; Regeneration (Very Fast) [100]; Regrowth [40]; Sealed [15]; Sensitive Touch [10]; Slippery 2 [4]; Striking ST +5 [25]; Super Jump 1 [10]; Universal Digestion [5].
Perks: Accessory (Fast personal computer) [1].
Disadvantages: Electrical [-20].

Lenses

Choose a TL lens and machine intelligence lens (pp. 27-28); cyborg is unavailable.

Consider these options:

TL11 Model (Bioplastic) (+140 points): Nanomorphs can be made of plastic rather than living metal. Add DR 15 (Flexible, -20%) [60] and Morph (Mass Conservation, -20%) [80]. $50,000, 100 lbs. LC3.
TL12 Model (Living Metal) (+255 points): Living metal nanomorphs can transform into just about anything, and are stronger and tougher than bioplastic versions. Add ST+5 [50], DR 15 [75], and Morph (Unlimited, +50%; Mass Conservation, -20%) [130]. $150,000, 150 lbs. LC3.

Optional Lenses

Budding (+21 points/copy): Some nanomorphs can bud off copies of themselves, just like bush robots. Add Duplication (Shared Resources, -40%) [21]. +50% cost per bud.
Contragrav (+38 points) (TL11^): Add Flight (Planetary, -5%) [38].

Chapter Six
Weaponry

"Cerberus Unit Three, this is Control. Proceed to checkpoint 4 antimatter bay to investigate possible intruder."

"Cerberus Three to Control. I confirm unauthorized human life form in area. Am closing . . . Have achieved visual identification: life form is humanoid, unarmored, in damaged ablative suit, standing beside open access panel with large container. Target is holding small hand weapon. Running weapon library scan. Weapon identified as small switchblade or knife. Threat level minimal."

"Cerberus Three, this is Security Control. You are authorized to subdue the intruder."

"Affirmative. Sonic stunner firing. Hit achieved. No effect on target. Intruder closing fast. Intruder is . . ."

"Cerberus Three, report. Your telemetry is breaking up."

"Am in close combat with intruder and sustaining damage. Warning! Initial scan in error. Intruder reclassified as armored combat android with monowire switchblade. Upgrading threat level to maximum."

"Cerberus Three, you are authorized to use lethal force."

"Firing – negative capability. Left weapon mount holding plasma gun is no longer attached to this unit. Am sustaining heavy damage. Warning! Total systems failure is imminent. Total sys . . ."

"Security Control to all Cerberus units, proceed to antimatter bay! Red alert!"

– Syndicate security log (23:11)

To adventurers, police, and soldiers, perhaps the most important tools of all are weapons – a grim commentary on the nature of sapient life in the universe.

Weapon Tables

Weapon Tables in this chapter follow the format described on pp. B268-271 – refer to this section for an explanation of all table entries.

Most beam weapons use standardized power cells instead of magazines; as such, the type and number of power cells (e.g., 2C) is listed instead of an ammunition weight. Normally, the power cell's weight is included in the weapon's loaded weight; however, if the notation "p" is added, it means the power cell is worn as a separate belt or backpack, and that its weight is *not* included.

The notation (∞), found in some superscience weaponry entries, means the weapon has an infinite "cosmic" armor divisor. Only special forms of DR, noted in the weapon type description, apply vs. direct hits.

See pp. B104-105 for the meaning of special damage notations such as double knockback (dkb), incendiary (inc), and surge (sur).

Beam Weapons

These are directed energy weapons. They include lasers, blasters, and other "death rays," as well as stunners and other nonlethal energy weapons.

Lasers

Lasers are among the most versatile of beam weapons, with a wide range of offensive and defensive applications.

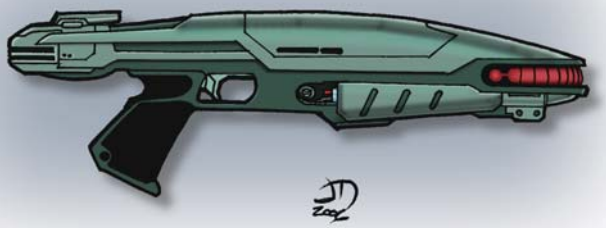
Laser weapons can be broadly classified by the effect on their target:

Dazzle lasers cause temporary blindness.

Blinding lasers cause permanent damage to eyesight or optics.

High-energy lasers blind, and inflict physical burn damage.

Chemical lasers are obsolete at TL10 – it is assumed that all lasers are solid-state, using a solid crystalline material as the lasing medium. They require no hazardous chemicals and are compact, light, and easy to use. Another option is the free electron laser, usually found on vehicle systems – see pp. 117-118.



Laser Dazzler

A laser dazzler is a low-energy laser that fires a wide beam of coherent light. Dazzlers temporarily blind eyes and optical sensors, and are designed for personal defense and riot control. They also have a more sinister use: if the beam blinds someone performing a dangerous activity such as operating a vehicle or climbing, the target could suffer an accident. If the accident is fatal, there will be no evidence of the assault . . . unless the victim had laser sensors and recorded the attack.

A laser dazzler delivers a Vision-based affliction attack against anyone struck. To be affected, the target must be looking at the laser. The victim gets a HT roll to resist, at the penalty noted on the weapon table; add +3 to HT if he is beyond 1/2D range. DR has no effect, but Protected Vision adds +5 to resist. A Nictitating Membrane adds +1 per level. Failure to resist inflicts Blindness (p. B125) for minutes equal to the margin of failure.

Laser dazzlers deliver cone attacks – see *Area and Spreading Attacks* (p. B413).

Weapons

Dazzler Carbine (TL9): A long-range dazzler weapon, most often used for police or covert operations (disrupting crowds, blinding suspects, causing vehicle accidents).

Penlights, Flashlights, and Searchlights (TL9): Ultra-tech flashlights have a "laser dazzle" setting; see *Flashlights* (p. 74) for descriptions. The combat statistics are presented below.

Dazzle Mode

Any high-energy laser (see pp. 114-116) may be designed with a dazzle mode. Switching to or from this mode takes a Ready maneuver. When in dazzle mode, the laser fires a low-power laser beam that is identical to the effect of a dazzle laser, except that it does not have a cone effect – it must strike the target's face or eyes. A HT-5 roll is needed to resist the affliction. Dazzle mode uses up negligible power. The setting adds +10% to laser cost.

Blinding Lasers (TL9)

These weapons emit a medium-power laser beam that can cause permanent blindness, or fry optics, without burning flesh. The beam is wide enough that it need only be aimed at the target, not the eyes.

Dedicated blinding lasers are rare at TL9+, since more effective high-energy lasers are also available. However, military active sensors, targeting systems, and electronic warfare systems that utilize lasers often incorporate a "high-power optical countermeasures" mode that is designed to blind sensors, including eyes.

A blinding laser delivers a Vision-based affliction attack. Anyone hit who is looking toward the laser can be affected. The victim gets a HT-10 roll to resist (HT-7 past 1/2D range). Protected Vision adds +5 to resist; a Nictitating Membrane adds +1 per level.

Failure to resist inflicts crippling Blindness (p. B125).

Dazzle Laser Weapons Tables

BEAM WEAPONS (PROJECTOR) (DX-4, or other Beam Weapons-4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC	Notes
9	Dazzler Carbine	HT-5 aff (3 yd)	6	1,500/4,500	5/C	1	9,000(3)	6†	-2	1	$500	3	[1]
9	Laser Penlight	HT-4 aff (1 yd)	6	100/300	0.1/A	1	900(3)	1	-1	1	$3	4	[1]
9	Mini Laser Flashlight	HT-5 aff (1 yd)	6	170/500	0.25/B	1	3,600(3)	1	-1	1	$10	4	[1]
9	Heavy Laser Flashlight	HT-5 aff (1 yd)	6	330/1,000	1/2B	1	3,600(3)	1	-2	1	$20	4	[1]
9	Laser Searchlight	HT-5 aff (2 yd)	12	7,000/20,000	10/C	1	1,800(3)	1	-5	1	$500	4	[1]

[1] Projects a cone with the specified width at maximum range.

Weapons

Blinding Mode: A high-energy laser (below) may be designed with a Blinding Mode, enabling it to fire a medium-power laser beam. Modify the laser's statistics as shown on the table below when using this mode. Changing to or from this mode requires a Ready maneuver. This mode adds +10% to cost.

Military Ladar: These are military sensor arrays that can focus laser energy into a beam powerful enough to function as a weapon. The weapon statistics of these arrays are given here; the sensor statistics are covered in Chapter 3.

High-Energy Laser (TL9)

The generic laser weapon is assumed to be a high-energy laser. It emits near-infrared or visible coherent light in a narrow, tightly-focused beam that can burn through armor or explode flesh into steam. The beam usually has a duration of only a few microseconds; lasers cycle multiple times per second.

Lasers inflict lower damage than equivalent-sized projectile weapons, particle beams, or plasma guns, but they're far more accurate and completely recoilless.

High-energy lasers are available in different sub-types depending on the frequency of light used: infrared (below), blue-green (below), ultraviolet (p. 115), X-ray (p. 117), and gamma-ray (p. 118). All inflict tight-beam burning damage, but with various armor divisors and damage modifiers.

Laser eye injuries are especially dangerous. If an eye takes enough laser damage to cripple it, the result is *always* permanent crippling (giving the victim the One Eye disadvantage, or if he only has one eye, Blindness).

High-energy laser beams are silent and invisible, but in dusty air, there will be a slight glow from incinerated dust particles.

Rain, fog, smoke, snow, and similar weather or atmospheric conditions interfere with all high-energy lasers, adding extra DR to the target equal to the vision penalty (per yard). Thus, if a yard of smoke would be -10 to vision, then each yard gives DR 10; if every 100 yards of haze gives -1 to vision, then 1,000 yards provides DR 10.

A high-energy laser beam can pass through material transparent to its particular frequency of light, which includes most glass, plastic canopies, etc. Increase the laser's armor divisor to (10) when it strikes glasses, visors, windows, etc. unless the material was specifically designed to be laser-resistant. Assume that TL9+ transparent armor *is* laser-resistant.

Chemical Infrared Lasers (TL9)

A few early TL9 high-energy lasers are chemical lasers, as noted in their descriptions. They are continuous-beam weapons powered by highly reactive, energetic and corrosive chemicals – usually hydrogen-fluorine or oxygen-iodine. Chemical lasers should be issued to robots or troops in sealed suits, as fumes from the exhaust inflict 1 HP of toxic damage per second to anyone within a yard of the weapon. Carrying a man-portable chem-laser poses similar risks to a flamethrower – if the chemical tank is damaged, the spill can injure the wielder.

Mirrored surfaces are not effective against a high-energy laser: any laser powerful enough to inflict damage destroys the mirror, ruining its reflectivity. In cinematic games, however, a shield-sized mirror will provide its Defense Bonus vs. a visible-light laser.

High-energy lasers inflict tight-beam burning damage with a (2) armor divisor.

Infrared Lasers (TL9)

IR lasers emit a coherent beam of near-infrared frequency light. They are the most common high-energy laser at TL9, as they are more efficient to generate than other frequencies and propagate well in both air and space.

IR lasers inflict tight-beam burning damage with a (2) armor divisor. They can't penetrate more than a few inches of water, which reduces their underwater Range to 0/1.

Option: Blue-Green (TL9)

The standard laser light frequency for high-energy laser weapons shown on the weapon table is red or near-infrared light, but there are other alternatives. One of the most popular is the shorter blue-green wavelengths. Blue-green lasers require more power to generate, but permit greater ranges, and can also propagate underwater.

Any high-energy laser except a chemical laser can be designed to use a blue-green wavelength. Blue-green lasers inflict the usual tight-beam burn damage with the (2) armor divisor. Double the Range, but halve the RoF; treat each shot as consuming two shots for purpose of power drain. Blue-green lasers can fire underwater.

Blinding Laser Table

BEAM WEAPONS (PROJECTOR) (DX-4, or other Beam Weapons-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*	*Notes*
9	Blinding Mode	HT-10 aff	var.	var.	var.	var.	10×	var.	var.	1	var.	var.	[1]
9	Military Ladar	HT-10 aff	24	×0.1/0.3	–	1	–	–	–	1	–	–	[2]

[1] Use the high-energy laser's statistics for everything noted as var., with the exception that each shot in blinding mode counts as one-tenth of a normal shot (i.e., it has 10 times as many shots).

[2] Multiply range shown by the sensor system's detection range, e.g., a ladar with a 100-mile range has a blinding laser range of 10/30 miles.

High-Energy Laser Table

BEAM WEAPONS (PISTOL) (DX-4, other Beam Weapons-4, or Guns (Pistol)-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
10	Heavy Laser Pistol	4d(2) burn	6	300/900	3.3/2C	10	56(3)	6	-2	1	$2,400	3
10	Holdout Laser	2d(2) burn	3	100/300	0.35/B	10	22(3)	3	-1	1	$300	3
10	Laser Pistol	3d(2) burn	6	200/600	1.5/C	10	33(3)	4	-2	1	$1,100	3
11	Laser Crystal	1d-1(2) burn	3	15/45	–	1	1	0	0	1	$100	2

A blue-green laser's underwater range depends on the water's clarity. The maximum Range can never exceed 150 yards in crystal-clear water, 60 yards in average water, or 15 yards in murky water. It is possible to fire into or out of water (out to normal ranges) as long as the maximum range *through* the water is not exceeded.

Option: Ultraviolet (TL9)

Some high-energy lasers fire a beam in the near-ultraviolet wavelength. An ultraviolet laser has superior range (in vacuum) compared to infrared or blue-green lasers, but its beam is rapidly absorbed by atmosphere. The beam is invisible, but it ionizes air molecules when fired in atmosphere of greater than trace density, producing a visible green glow along its path.

An ultraviolet laser has triple the usual Range, but due to its lower efficiency, its Damage is halved. Treat half-dice as a +2 modifier, e.g., 5d(2) becomes 2d+2(2). UV lasers are mainly used for space combat and on airless worlds. In atmosphere, the Range cannot exceed 500 yards divided by atmospheric pressure.

Mounted Lasers

Area Defense Laser (TL9): This is built to engage lightly armored targets, such as TL9 spacecraft and ballistic missiles, at a range of a few hundred miles.

Point Defense Laser (TL9): This is a vehicle-mounted system. It is designed to destroy soft targets like missiles, aircraft, and personnel at a range of several miles, with minimal collateral damage.

Semi-Portable Laser (TL9): This continuous-beam chemical-powered weapon is the size of a heavy machine gun. Its chemical tank is separate, and has SM-2, DR 10, HP 12. If disabled, the chemical splash inflicts 2d corrosion damage over a 2-yard radius.

Laser Cannon (TL10): A large vehicle-mounted weapon. It is a standard spacecraft and air defense system.

Strike Laser (TL9-10): A smaller version of the laser cannon, often used by fighter aircraft, and as a defensive weapon for armored vehicles or spacecraft.

Gatling Laser (TL10): A rapid-fire laser weapon. Infantry use these on a tripod; they're also often vehicle mounted or used as "small arms" by powered troopers.

Laser Pistols

Heavy Laser Pistol (TL10): A bulky but rapid-firing military-style laser sidearm, often used as an alternative to a machine pistol.

Holdout Laser (TL10): A favorite of spies and assassins, this is a tiny weapon disguised as an innocuous object, such as a wrist communicator or pen. Its mechanism uses nonmetallic ceramics and exotic composites, so with the power cell removed, an ordinary scanner cannot distinguish it from a civilian electronic device.

Laser Pistol (TL10): The basic laser sidearm. On some worlds, it may be as ubiquitous as six-guns in the Old West.

Laser Crystal (TL11)

An 1/8-inch-diameter solid-state laser projector with an integral one-shot power cell. It is surgically inserted just under the skin; this takes only a minute in an automed (p. 196). Firing is triggered by a specific nerve impulse – if implanted in a finger, it might be fired by clenching the fist while pointing at the target. When fired, it burns through the skin (a thin enough layer that no damage is taken). It's possible to equip multiple fingers and fire them simultaneously; treat this as a single attack with a RoF equal to the number of laser crystals.

Laser Rifles

Assault Laser (TL9): This is an early-TL9 chemical-pumped laser. It is most often used for microgravity combat. If its chemical power pack is attacked, it has SM-4, DR 10, HP 7; if disabled, it inflicts 1d corrosion damage in a 1-yard radius.

Laser Sniper Rifle (TL9): A bulky but accurate chemical laser rifle, used as a battlefield sniping weapon. Its backpack chemical tank has the same vulnerability as the chemical laser carbine.

Dinosaur Laser (TL10): A big laser sniper rifle, capable of stopping a battlesuit or a dinosaur (hence its nickname). Also called a "heavy laser." These are mostly military weapons, but are sometimes used as an "elephant guns" for big game.

Laser Carbine (TL10): A compact "assault" version of the laser rifle, favored by vehicle crews and special ops teams. Its low bulk makes up for its lack of range.

Laser Rifle (TL10): The standard infantry combat laser, capable of full automatic fire. In some settings, it may be as ubiquitous as the flintlock rifle was in its day.

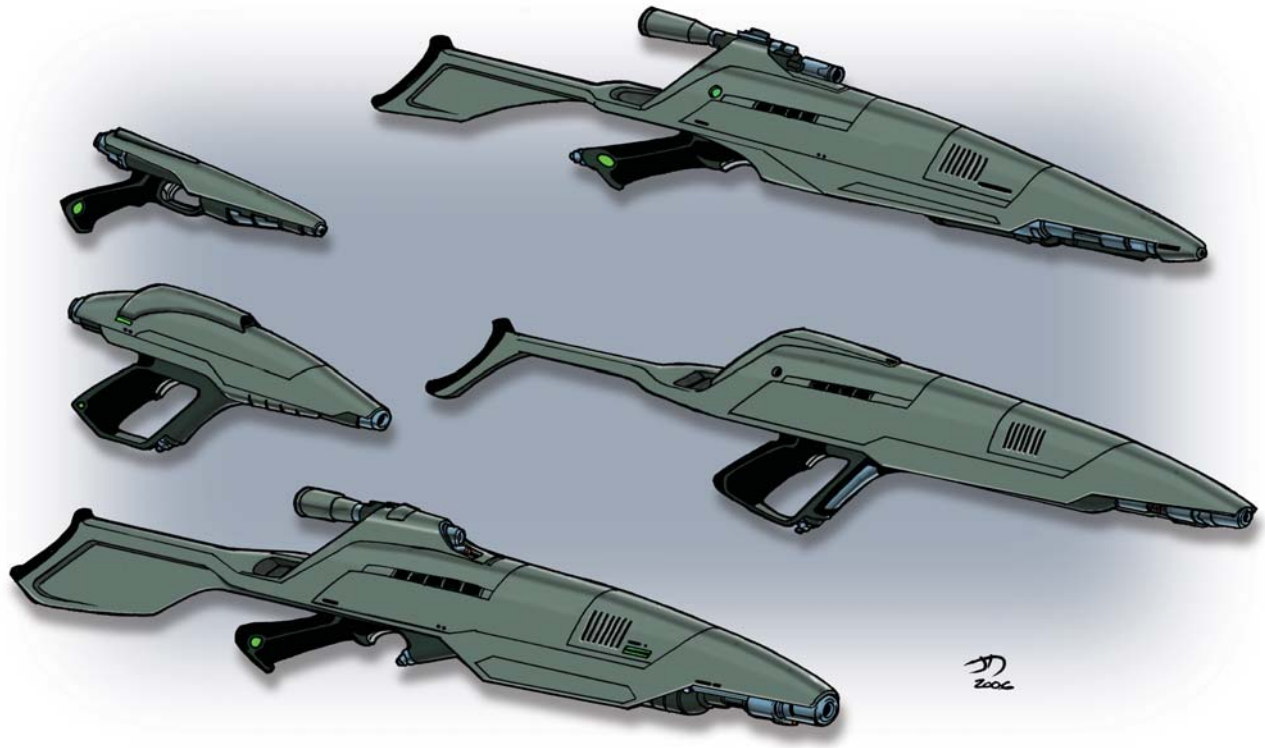
Survival Laser (TL10): A carbine version of the heavy laser pistol. Survival lasers are designed to be broken down into four pocket-sized components, which take one minute to assemble or disassemble. Although the survival laser is not very powerful, it is a good choice as a survival weapon due to its excellent accuracy (useful when shooting small game) and the modest drain it imposes on power cells. It is also a favorite weapon of assassins.

BEAM WEAPONS (RIFLE) (DX-4, other Beam Weapons-4, or Guns (Rifle)-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
9	Assault Laser	4d(2) burn	12+1	700/2,100	10/4p	1	40(5)	7†	-5	1	$10,000	2
9	Laser Sniper Rifle	5d(2) burn	12+2	1,100/3,300	20/4p	1	20(5)	10†	-8	1	$20,000	1
10	Dinosaur Laser	8d(2) burn	12	1,300/3,900	19/Dp	1	35(5)	10†	-5	1	$19,000	1
10	Laser Carbine	5d(2) burn	12	500/1,500	5.6/2C	10	28(3)	5†	-3	1	$4,600	2
10	Laser Rifle	6d(2) burn	12	700/2,100	8/Dp	10	83(5)	7†	-4	1	$8,000	2
10	Survival Laser	4d(2) burn	12	300/900	3.3/2C	6	56(3)	6†	-3	1	$2,400	3

GUNNER (BEAMS) (DX-4, or other Gunner-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
9	Area Defense Laser	6d×5(2) burn	18	36,000/110,000	8,000/10Fp	1	83(5)	200M	-10	1	$2,000,000	1
9	Point Defense Laser	3d×5(2) burn	18	9,000/27,000	1,000/Fp	1	66(5)	70M	-10	1	$250,000	1
9	Semi-Portable Laser	6d(2) burn	18	1,400/4,300	70/Ep	10	100(5)	18M	-8	1	$32,000	1
10	Gatling Laser	6d×2(2) burn	18	2,900/8,700	70/Ep	4	100(5)	18M	-8	1	$70,000	1
10	Laser Cannon	6d×10(2) burn	18	72,000/220,000	8,000/10Fp	1	83(5)	200M	-10	1	$4,000,000	1
10	Strike Laser	6d×5(2) burn	18	18,000/54,000	1,000/Fp	1	66(5)	70M	-10	1	$500,000	1



Rainbow Lasers (TL11)

These weapons fire powerful nanosecond pulses of laser light. The light's interaction with the atmosphere does most of the work of focusing the beam, so that laser needs only a small lens. A rainbow laser beam is *polychromatic*, appearing as a needle-thin line of blue-white light.

A rainbow laser inflicts burning damage with a (3) armor divisor. It is effective in atmospheres with a density ranging from very thin through superdense. In vacuum or trace atmospheres, the laser defocuses. Its range is divided by 10, and its damage loses its armor divisor. Rainbow lasers have an underwater range of only two yards.

Weapons

Rainbow lasers come in similar varieties to visible light lasers. At TL11, rainbow lasers may be used in conjunction with blasters as standard military weapons – they have less penetration, but superior accuracy, range, and RoF.

Rainbow Laser Table

BEAM WEAPONS (PISTOL) (DX-4, other Beam Weapons-4, or Guns (Pistol)-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
11	Heavy Rainbow Laser Pistol	4d(3) burn	6	900/2,700	3.3/2C	10	56(3)	6	-2	1	$2,400	3
11	Holdout Rainbow Laser	2d(3) burn	3	300/900	0.35/B	10	22(3)	3	-1	1	$300	3
11	Rainbow Laser Pistol	3d(3) burn	6	600/1,800	1.5/C	10	33(3)	4	-2	1	$1,100	3
12	Rainbow Laser Crystal	1d-1(3) burn	3	50/150	–	1	1	0	0	1	$100	2

BEAM WEAPONS (RIFLE) (DX-4, other Beam Weapons-4, or Guns (Rifle)-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
10	Dinosaur Rainbow Laser	8d(3) burn	12	4,000/12,000	9/Dp	1	35(5)	7†	-5	1	$9,000	1
10	Rainbow Laser Rifle	6d(3) burn	12	2,000/6,000	8/Dp	10	83(5)	7†	-4	1	$8,000	2
10	Rainbow Laser Carbine	5d(3) burn	12	1,500/4,500	5.6/2C	10	28(3)	5†	-3	1	$4,600	2
11	Rainbow Survival Laser	4d(3) burn	12	900/2,700	3.3/2C	6	56(3)	6†	-3	1	$2,400	3

GUNNER (BEAMS) (DX-4, or other Gunner-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
11	Rainbow Gatling Laser	12d(3) burn	18	8,000/24,000	70/Ep	4	100(5)	16M	-8	1	$70,000	1
11	Rainbow Laser Cannon	6d×10(3) burn	18	200,000/600,000	4,000/10Fp	1	83(5)	45M	-10	1	$2,000,000	1
11	Rainbow Strike Laser	6d×5(3) burn	18	50,000/150,000	500/Fp	1	45(5)	27M	-10	1	$250,000	1

X-Ray Lasers (TL11)

These free-electron laser weapons use a particle accelerator to generate a beam of coherent, deep-penetrating X-rays. They inflict tight-beam burning damage with a (5) armor divisor and the surge damage modifier.

If an X-ray laser had the same diameter lens as an ordinary laser, its range would be *thousands* of times greater! But it's difficult to build large X-ray lenses, so practical weapons have tiny focal arrays. The range is still great . . . in vacuum. X-rays are quickly absorbed by atmosphere; Range drops to 7/20 yards in a standard atmosphere. (For thinner or thicker atmospheres, divide this range by the relative air pressure.) X-ray lasers have no range underwater.

This minimal atmospheric range means X-ray lasers are best used as space combat weapons, or for boarding actions and close-range assassinations. To mitigate this, superscience X-ray lasers are often field-jacketed (p. 133). A field-jacketed X-ray laser is a terrifying weapon, with tremendous range and penetration in all environments.

X-Ray Laser Weapons

These weapons are available in the same models as TL10 high-energy lasers (p. 114), but they appear one TL later.

X-Ray Laser Table

BEAM WEAPONS (PISTOL) (DX-4, other Beam Weapons-4, or Guns (Pistol)-4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST
11	Heavy X-Ray Laser Pistol	4d(5) burn, sur	6	17/50 mi.	3.3/2C	10	56(3)	6
11	Holdout X-Ray Laser	2d(5) burn, sur	3	1/3 mi.	0.35/B	10	22(3)	3
11	X-Ray Laser Pistol	3d(5) burn, sur	6	5.5/17 mi.	1.5/C	10	33(3)	4

BEAM WEAPONS (RIFLE) (DX-4, other Beam Weapons-4, or Guns (Rifle)-4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST
11	X-Ray Dino Laser	8d(5) burn, sur	12	72/220 mi.	19/Dp	1	35(5)	10†
11	X-Ray Laser Carbine	5d(5) burn, sur	12	27/83 mi.	5.6/2C	10	28(3)	5†
11	X-Ray Laser Rifle	6d(5) burn, sur	12	40/120 mi.	8/Dp	10	83(5)	7†

GUNNER (BEAMS) (DX-4, or other Gunner-4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST
11	Semi-Portable X-Ray Laser	12d(5) burn, sur	18	160/480 mi.	70/Ep	10	100(5)	18M
11	X-Ray Laser Cannon	6d×10(5) burn, sur	24	4,000/12,000 mi.	8,000/10Fp	1	83(5)	200M
11	X-Ray Strike Laser	6d×5(5) burn, sur	24	1,000/3,000 mi.	1,000/Fp	1	66(5)	70M

[1] Range cannot exceed 20 yards in a standard atmosphere unless field-jacketed (p. 133).

Gamma-Ray Lasers (Grasers) (TL12)

The gamma-ray laser is the ultimate high-energy laser. Its effect is similar to an X-ray laser, but with superior penetration and even greater range. A graser inflicts burning damage with a (10) armor divisor and the surge damage modifier.

Graser beams are rapidly absorbed by air, but have better propagation than an X-ray laser. The maximum range in air cannot exceed 70/200 yards in a standard atmosphere (for thinner or thicker atmospheres, divide this range by the relative air pressure). They have no range underwater. As with X-ray lasers, superscience weapons can be field-jacketed (p. 133).

Grasers replace X-ray and visible-light lasers for space combat, or in all roles if field-jacketed. Even if not field-jacketed, they may be useful as close-assault weapons.

Graser Weapons

These come in the same models as high-energy lasers (p. 114), but two TLs later.

Pulse Lasers (TL9-12)

The standard high-energy laser is a beam laser. An alternative is the pulse laser, which fires a wider pulse of higher-energy coherent light with an extremely short duration. A hit causes a surface explosion, concussion and blunt trauma – sometimes enough to knock a person down. Its range is superior to a beam laser, but it has less penetration.

Pulse lasers aren't listed on the weapon tables; rather, they're available as an option that may be taken for all lasers except chemical and rainbow lasers. Change the damage from burning to crushing, add the explosive

Gamma-Ray Laser Table

BEAM WEAPONS (PISTOL) (DX-4, other Beam Weapons-4, or Guns (Pistol)-4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST
12	Graser Pistol	3d(10) burn, sur	6	10/30 mi.	1.5/C	10	33(3)	4
12	Heavy Graser Pistol	4d(10) burn, sur	6	50/150 mi.	3.3/2C	10	56(3)	6
12	Holdout Graser	2d(10) burn, sur	3	17/50 mi.	0.35/B	10	22(3)	3

BEAM WEAPONS (RIFLE) (DX-4, other Beam Weapons-4, or Guns (Rifle)-4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST
12	Dinosaur Graser	8d(10) burn, sur	12	200/600 mi.	19/Dp	1	35(5)	10†
12	Graser Carbine	4d(10) burn, sur	12	80/240 mi.	5.6/2C	10	28(3)	5†
12	Graser Rifle	5d(10) burn, sur	12	120/360 mi.	8/Dp	10	83(5)	7†

GUNNER (BEAMS) (DX-4, or other Gunner-4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST
12	Graser Cannon	6d×10(10) burn, sur	18	12,000/36,000 mi.	8,000/10Fp	1	83(5)	200M
12	Semi-Portable Graser	12d(10) burn, sur	18	480/1,400 mi.	70/Ep	10	100(5)	18M
12	Strike Graser	6d×5(10) burn, sur	18	3,000/9,000 mi.	1,000/Fp	1	66(5)	70M

[1] Range cannot exceed 200 yards in a standard atmosphere, unless field-jacketed (p. 133).

Bulk	Rcl	Cost	LC	Notes
-2	1	$4,800	3	[1]
-1	1	$600	3	[1]
-2	1	$2,200	3	[1]

Bulk	Rcl	Cost	LC	Notes
-5	1	$38,000	1	[1]
-3	1	$9,000	2	[1]
-4	1	$16,000	2	[1]

Bulk	Rcl	Cost	LC	Notes
-8	1	$130,000	1	[1]
-10	1	$8,000,000	1	[1]
-10	1	$1,000,000	1	[1]

damage modifier, and reduce the armor divisor one step, e.g., (10) to (5) for grasers, (5) to (3) for X-ray lasers, or delete it entirely for ultraviolet, infrared, and visible-light lasers. Double the range. The other statistics remain the same.

It's also possible to design a laser that can function as both a beam and a pulse weapon. A pulse-beam laser is +100% to cost; switching modes takes a Ready maneuver.

Electrolasers

Electrolasers use a pair of low-power far-ultraviolet laser beams to create an ionized path through the air, then transmit an electrical discharge that follows this to the target. In effect, they're an electric stun gun that uses a laser beam instead of a wire. They're also called "zap guns" or "stat guns."

Low-Power Electrolasers (TL9)

These are non-lethal weapons. They deliver both an electrical shock and a minor laser burn.

Bulk	Rcl	Cost	LC	Notes
-2	1	$3,300	3	[1]
-2	1	$7,200	3	[1]
-1	1	$900	3	[1]

Bulk	Rcl	Cost	LC	Notes
-5	1	$28,000	1	[1]
-3	1	$13,000	2	[1]
-4	1	$24,000	2	[1]

Bulk	Rcl	Cost	LC	Notes
-10	1	$12,000,000	1	[1]
-8	1	$190,000	1	[1]
-10	1	$1,500,000	1	[1]

The laser beam inflicts 1d-3 burn damage. It needn't penetrate to carry the charge. Smoke, fog, rain, or clouds give extra DR equal to the visibility penalty. For example, if rain gives a penalty of -1 per 100 yards, a target 200 yards away gets an extra DR 2.

An electrolaser's shock is a HT-based affliction attack with a (2) armor divisor (each 2 DR on the location struck provides +1 to HT). Add +3 past 1/2D range. If the victim fails to resist, the shock stuns him. He may roll against HT every turn at the same penalty (but *without* the DR bonus) to recover. Electrolasers also affect machines that are Electrical.

Electrolaser weapons produce a "zap" sound, no louder than a silenced pistol, and the beam is visible. They are most effective in dry climates. In humid conditions they are less accurate; the electrical bolt jumps off the laser path to paths of lower resistance. This gives a -2 to hit in moist, humid environments, and a -6 to hit in rain, drizzle, or heavy fog. In a vacuum or trace atmosphere, there is no air to ionize; the electrolaser only inflicts 1d-3 burn damage from the laser, with no additional linked effect.

Police and civilians often use electrolasers; they're also popular for prisoner control, kidnappings and covert operations, and even subduing animals. Electrolasers are available in holdout, pistol, carbine, and rifle configurations at TL9.

Electrolaser Weapons

Electrolaser Carbine (TL9): This compact rifle is one of the most common ultra-tech stun weapons. At TL9-10, police on patrol may carry one of these in their vehicle, for use in long-range suspect takedowns.

Electrolaser Pistol (TL9): A wireless successor to dart-firing electric stun guns. It is popular as a police and prison guard weapon.

Heavy Electrolaser (TL9): A heavy-duty electrolaser used against armored foes or large animals. Its ultraviolet carrier beam causes a more severe burn than lower-powered weapons, so it's best used on targets that have some protection (heavy clothes, fur, etc.).

Holdout Electrolaser (TL9): A palm-sized zap gun popular for covert ops, kidnappings, and self-defense. Its electroshock capabilities also endear it to slavers and torturers.

Underbarrel Electrolaser (TL9): This electrolaser is designed to be attached under the barrel of any weapon with Bulk -3 or more, providing a backup stun capability. Use the Bulk, ST, and sighting bonuses of the weapon it is installed in.

Semi-Portable Electrolaser (TL9): Also called a "tripod zapper," this powerful long-range electrolaser is usually mounted on a vehicle or tripod. Like the heavy electrolaser, its carrier beam can inflict nasty burns.

Lethal Electrolasers (TL9)

Any electrolaser may have an optional "kill" setting that uses up two shots instead of one. It takes a Ready maneuver to change settings.

On "kill" the weapon transmits a higher-amperage current. Any HT roll that fails by 5 or more triggers the Heart Attack mortal condition (p. B428). For electrical machines, a "heart attack" results in the target's electrical systems burning out until repaired.

These are popular assassination weapons. Lethal electrolasers are all LC2.

Electrolaser Table

BEAM WEAPONS (PISTOL) (DX-4, other Beam Weapons-4, or Guns (Pistol)-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
9	Electrolaser Pistol *linked*	HT-4 (2) aff 1d-3 burn	4	40/80	2.2/C	3	36(3)	4	-2	1	$1,800	4
9	Holdout Electrolaser *linked*	HT-2 (2) aff 1d-3 burn	2	10/20	0.3/B	1	22(3)	3	-1	1	$250	4

BEAM WEAPONS (RIFLE) (DX-4, other Beam Weapons-4, or Guns (Rifle)-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
9	Electrolaser Carbine *linked*	HT-4 aff 1d-3 burn	8	160/470	3.7/2C	3	72(3)	4†	-4	1	$3,900	3
9	Heavy Electrolaser *linked*	HT-6 (2) aff 1d-2 burn	8	400/1,100	20/Dp	1	83(3)	10†	-5	1	$20,000	3
9	Underbarrel Electrolaser *linked*	HT-3 (2) aff 1d-3 burn	4	90/270	1.8/C	1	66(3)	4	–	1	$1,300	4

GUNNER (BEAMS) (DX-4, or other Gunner-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
9	Semi-Portable Electrolaser *linked*	HT-8 (2) aff 1d-1 burn	12	600/1,900	70/Dp	10	100(5)	18M	-8	1	$70,000	1

Microwave Weapons

Microwave weapons project electromagnetic beams with wavelengths longer than infrared light, but shorter than radio waves. Vehicle-mounted microwave beams first appear at TL8, followed by personal weapons at TL9+. Microwave beam weaponry is usually used to stun people or machines, depending on the frequency used.

Microwave Area Denial (MAD) (TL9)

These "pain beam" weapons use microwaves to heat the surface of the target's skin to about 130°F, activating pain receptors without causing actual burning. The sensation is similar to touching a hot light bulb all over the surface of the body. MAD weapons are often used for riot control: they can disperse a crowd without leaving piles of unconscious bodies or messy clouds of gas.

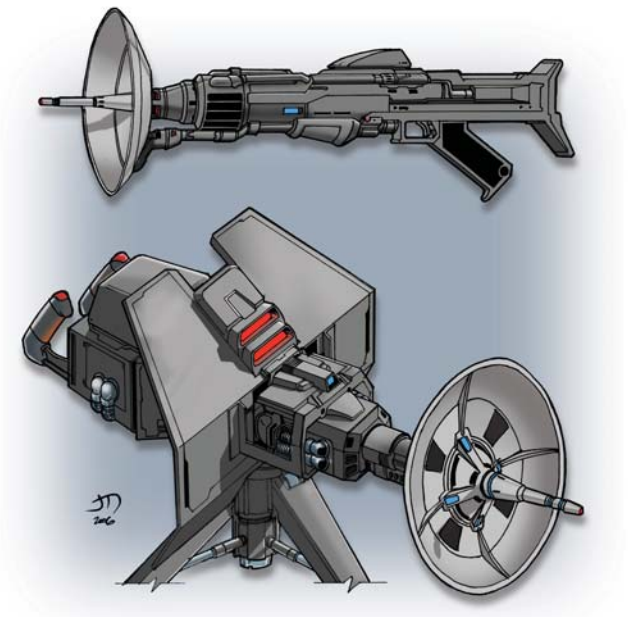
MAD beams deliver a HT-based affliction attack (modifier varying by weapon) with no armor divisor; add the target's DR to HT to resist. If he fails to resist, he suffers from the Agony affliction (p. B428) for as long as he is in the beam, and for one second afterward.

MAD beams are ranged cone attacks – see *Area and Spreading Attacks* (p. B413). Due to the need for a large antenna to focus the beam, the projectors are vehicle or tripod-mounted.

MAD Weapons

Portable MAD (TL9): A weapon the size of a light machine gun, used as a portable anti-riot device. It's sometimes built into vehicles as a secondary weapon.

Tactical MAD (TL9): A large semi-portable projector capable of breaking up a crowd at a thousand yards. It's usually tripod-mounted or built into a vehicle.



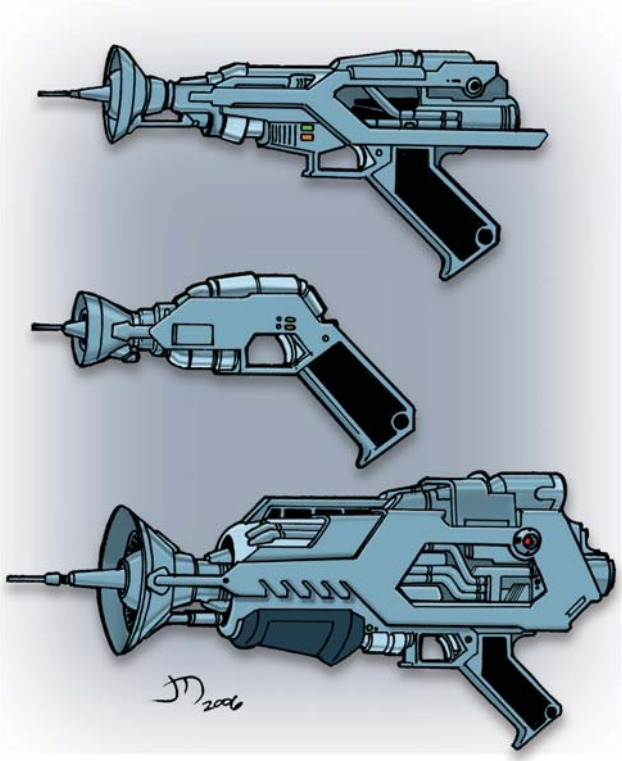
MAD Weapons Table

BEAM WEAPONS (PROJECTOR) (DX-4, other Beam Weapons-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
9	Portable MAD	HT-3 aff (1 yd)	12	400/800	20/Dp	1	83(5)	10†	-5	1	$10,000	3

GUNNER (BEAMS) (DX-4, or other Gunner-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
9	Tactical MAD	HT-4 aff (3 yd)	18	600/1,200	70/Dp	1	100(5)	18M	-8	1	$70,000	3



Microwave Disruptor (TL9)

These are refinements of the single-shot explosively-pumped high-power microwave pulse weapons of TL8. They generate a directional pulse that can scramble and overload electronics and electrical systems. Criminals use them to hijack robots for later resale, while saboteurs and terrorists use them to attack vital circuitry.

Microwave disruptors project ranged cone attacks – see *Area and Spreading Attacks* (p. B413). Any target in the cone is struck by an affliction attack. This only afflicts electrical systems and those with the Electrical disadvantage. Make a HT roll or be shut down (or unconscious) for minutes equal to the margin of failure. Add +3 to resist beyond 1/2D range. The target's SM adds to the HT roll to resist.

Microwave disruptors are contact agents that ignore DR unless the target is sealed. Disruption can propagate along radar or communications antennas, power lines and communication cables. Treat a target with unshielded electronic access as unsealed.

Microwave disruptors come in holdout-sized "scramblers" for sabotaging computers or other electronics, and heavier carbines and semi-portable weapons for disabling robots and vehicular targets. Very large microwave disruptors are rare, since most large vehicles are sealed; EMP warheads (p. 157) are more effective.

Microwave Disruptor Weaponry (TL9-10)

Most microwave disruptors are personal weapons requiring Beam Weapons (Projector) skill to use.

EMP Gun (TL9): The basic portable microwave weapon, capable of stopping a robot or vehicle, or frying a room full of electronics.

Pulse Carbine (TL9): A more compact version of the EMP Gun, primarily used as an anti-robot weapon.

Scrambler (TL9): A pocket holdout microwave pulse weapon, useful for disabling a small security robot or performing sabotage on computers or other electronics.

Tactical Disruptor (TL9): A semi-portable microwave cannon, usually tripod-mounted or installed in a vehicle or robot. It requires Gunner (Beams) skill to use.

Neural Weapons

These weapons use precisely-focused pulsed electrical or radio-frequency beams to affect the brain or nervous system at a distance. They are superscience weapons, but may be explained as improvements on electrolasers and microwave MAD beams. They only work on beings with a functional nervous system. Someone with Injury Tolerance (Diffuse, No Brain, Homogenous, or Unliving) or the Machine meta-trait is immune. A neural weapon won't affect giant blobs, plant-creatures, silicon-based entities, and so on.

A neural weapon designed to affect terrestrial life may have an unpredictable effect on aliens, and vice versa. Depending on how alien they are, they might receive a HT bonus (e.g., +3 to resist), be unaffected, or may be affected *differently*. For example, a pain beam may cause the effect of an ecstasy beam.

Neural beams are silent and invisible. There are two categories: neural disruptors and mind rippers.

Neural Disruptors ("Nerve Guns") (TL11^)

This family of weapons stimulates the nervous system, causing pain, pleasure, seizures, or other effects. They are popular for covert operations, as self-defense or dueling weapons, or as coercive weapons for slavers, prison guards, and security forces.

High-Power Microwave Weapon Table

BEAM WEAPONS (PROJECTOR) (DX-4, other Beam Weapons-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
9	EMP Gun	HT-3 aff (1 yd)	6	90/270	1.8/C	1	33(3)	4	-2	1	$650	2
9	Pulse Carbine	HT-4 aff (1 yd)	12	160/480	5/2C	1	28(3)	5†	-3	1	$2,000	2
9	Scrambler	HT-2 aff (1 yd)	3	40/120	0.3/B	1	11(3)	3	-1	1	$120	2

GUNNER (BEAMS) (DX-4, or other Gunner-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
9	Tactical Disruptor	HT-8 aff (3 yd)	18	600/1,200	70/Dp	1	50(5)	18M	-8	1	$32,000	1

Neural disruptors project ranged cone attacks – see *Area and Spreading Attacks* (p. B413). The beams are ranged contact agents – ignore DR unless the target is sealed, in which case there is no effect. They deliver an affliction attack. The victim gets a HT roll to resist, at a penalty dependent on the weapon. Add +3 to resist beyond 1/2D range. Failure means the victim suffers a particular affliction for minutes equal to the margin of failure. The affliction suffered depends on the type of beam fired:

Agony: The victim suffers the Agony incapacitating condition* (p. B428). After recovery, he suffers Moderate Pain (p. B428) for an equal length of time.

Ecstasy: As above, but the victim suffers Ecstasy* followed by Euphoria (p. B428).

Neural Stun: The victim suffers the Unconsciousness condition (p. B429).

Paralysis: The victim suffers the Paralysis incapacitating condition (p. B429).

Seizure: The victim suffers the Seizure incapacitating condition (p. B429).

* If struck by an Agony or Ecstasy attack, a failure by 5+ causes a Heart Attack mortal condition (p. B429).

Tunable Weapons: Each extra setting after the first adds +50% to cost. Changing settings is a Ready maneuver.

Personal Neural Disruptor Weapons

Most neural disruptors are personal weapons that require Beam Weapons (Projector) skill to use.

Holdout Neural Disruptor (TL11^): An easily-concealed pocket-sized nerve gun with no handgrip. Depending on the weapon setting, it may be popular as an interrogation device or recreational toy.

Nerve Pistol (TL11^): The most popular neural weapon. In some cultures, these may be the standard weapons of police and security forces, supplanting sonic stunners. Also called a neural disruptor pistol.

Nerve Rifle (TL11^): A powerful neural disruptor sometimes used as a police sniper weapon.

Tactical Nerve Disruptor (TL11^): A large semi-portable weapon, usually vehicle- or tripod-mounted. It is often deployed in prison guard towers or police vehicles. It requires Gunner (Beams) skill to use.

Death Beam Setting (TL12^)

At this setting, any failed resistance roll causes the Heart Attack mortal condition (p. B429). Add +1 to the TL of neural disruptors with death beam settings.

Tunable: A death beam may have nonlethal neural disruptor settings such as agony or paralysis. Add +50% to cost for each setting.

Mindrippers (TL12^)

These weapons are closely related to neural disruptor and ultrascanner technology. They perform a high-energy neurological scan of a single target that may simultaneously record and fry the target's brain. They're useful because they simultaneously destroy and capture an opponent.

A mindripper functions exactly like a mind disruptor (p. 132), except that failure to resist causes the Coma mortal condition (p. B429). Failure by 5+ results in a permanent Total Amnesia disadvantage even *after* the subject recovers.

A mindripper also *uploads* the subject, storing a copy in its internal database. This copy is enough to make a low-res "fragment" mind emulation (p. 220) if the subject failed by 1-4, or high-res if he failed by 5+.

Less invasive ways of making a mind emulation exist, but they require special medical equipment and can't be performed over a distance!

Weapons

Long-Range Mindripper (TL12^): A semi-portable weapon, sometimes built into vehicles or robots, or tripod-mounted.

Short-Range Mindripper (TL12^): A bulky pistol-type weapon.

Particle Accelerators

These are deadly versions of the particle accelerators used in physics research. An electric field (or in some superscience versions, gravitic field) accelerates stored particles to near-lightspeed velocities and focus them into a tight beam.

As the particles strike the target, they disrupt its atomic structure, causing it to heat up rapidly to very high

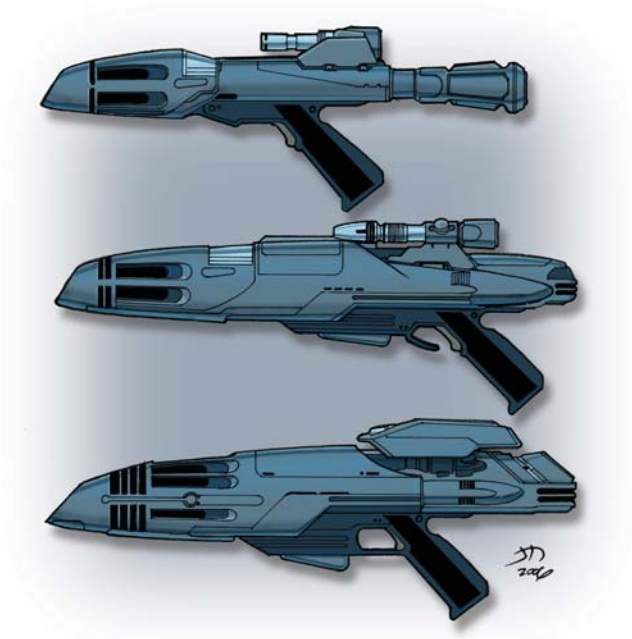
Neural Weapon Table

BEAM WEAPONS (PROJECTOR) (DX-4, other Beam Weapons-4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC
11^	Holdout Nerve Disruptor	HT-2 aff (1 yd)	3	10/30	0.3/B	1	22(3)	3	-1	1	$500	4
11^	Nerve Pistol	HT-3 aff (1 yd)	6	23/70	1.8/C	1	66(3)	4	-2	1	$2,600	4
11^	Nerve Rifle	HT-4 aff (1 yd)	12	40/120	5/2C	1	56(3)	5†	-3	1	$8,000	4
12^	Short-Range Mindripper	HT-2 aff (1 yd)	6	4/12	5/2C	1	56(3)	7	-3	1	$40,000	1

GUNNER (BEAMS) (DX-4, or other Gunner-4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC
11^	Tactical Neural Disruptor	HT-8 aff (3 yd)	18	160/480	70/Dp	10	100(5)	18M	-8	1	$130,000	1
12^	Long-Range Mindripper	HT-4 aff (1 yd)	18	70/200	70/Dp	10	100(5)	18M	-8	1	$700,000	1



temperatures. They have greater penetrating power than most laser beams, and can damage deep internal components. They can even cause a target to explode from the massive amount of energy being transferred. A particle beam strike will also damage electrical systems with a shower of secondary radiation.

Charged Particle Beams ("Blasters") (TL10-11)

These particle beam weapons accelerate ionized particles – usually electrons – to near-light velocities. They work best in an atmosphere – the beam collides with air molecules, creating enough ions of the opposite charge so that the beam is self-neutralized and remains coherent. The beam resembles a linear lightning bolt. In a vacuum, range is reduced, since the particles repel one another, but the beam is invisible.

Blasters inflict burn damage with a (5) armor divisor and the surge damage modifier. In a vacuum or trace atmosphere, the beam's Acc is halved (round up) and the beam's Range is divided by 5.

These weapons scompete with Gauss guns (p. 141), plasma guns (p. 127), rainbow lasers (p. 116), and field-jacketed X-ray lasers (p. 117) as standard TL11 lethal weapons.

Personal Weapons

These require Beam Weapons (Pistol or Rifle) skill to use.

Blaster Carbine (TL11): Compact assault weapons with the same power as a blaster rifle, but reduced range. Popular with vehicle crews and special ops teams.

Blaster Pistol (TL11): A long-barreled particle beam pistol. It is sometimes known as an "electron pistol." It is most often used as a military sidearm by combat-armored troops – especially if fighting robots, where its surge effects are useful.

Blaster Rifle (TL11): A standard military weapon of TL11 troops. It's also called an electron rifle.

Heavy Blaster (TL11): An oversized blaster rifle with a backpack power supply, often used by powered troopers or as a squad support weapon.

Heavy Blaster Pistol (TL11): A large and powerful "magnum" blaster pistol, this is a favorite sidearm for Space Patrol officers, swaggering space pirates, and powered armor troopers. Its bulk makes it hard to conceal, but it will (barely) fit into a standard holster.

Holdout Blaster (TL11): A palm-sized blaster similar to the holdout laser (p. 115).

Mounted Weapons

These are usually vehicle- or tripod-mounted; they require Gunner skill to use.

Blaster Cannon (TL10-11): A multi-ton weapon installed in the turret or hull of a spacecraft or tank.

Semi-Portable Blaster (TL11): This infantry support weapon can fire a bolt capable of burning through three inches of steel. It is usually carried by heavy powered troopers, or installed on a vehicle or tripod mount.

Particle Beam Table

BEAM WEAPONS (PISTOL) (DX-4, other Beam Weapons-4, or Guns (Pistol)-4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC
11	Blaster Pistol	3d(5) burn, sur	5	300/900	1.6/C	3	40(3)	4	-2	1	$2,200	3
11	Heavy Blaster Pistol	4d(5) burn, sur	5	500/1,500	3.3/2C	3	33(3)	6	-3	1	$5,600	3
11	Holdout Blaster	2d(5) burn, sur	3	130/500	0.35/B	3	13(3)	3	-1	1	$600	3

BEAM WEAPONS (RIFLE) (DX-4, other Beam Weapons-4, or Guns (Rifle)-4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC
11	Blaster Carbine	5d(5) burn, sur	10+1	500/1,500	5.6/2C	3	17(3)	5†	-3	1	$9,200	2
11	Blaster Rifle	6d(5) burn, sur	10+2	700/2,100	10/2C	3	10(3)	7†	-4	1	$18,000	2
11	Heavy Blaster	8d(5) burn, sur	10+4	1,200/3,600	20/Dp	3	20(5)	10†	-6	1	$40,000	1

GUNNER (BEAMS) (DX-4, or other Gunner-4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC
10	Blaster Cannon	5d×10(5) burn, sur	15	30,000/90,000	4,000/10Fp	1	20(5)	160M	-10	1	$2,000,000	1
11	Blaster Cannon	5d×20(5) burn, sur	15	120,000/360,000	4,000/10Fp	1	20(5)	160M	-10	1	$2,000,000	1
11	Semi-Portable Blaster	6d×2(5) burn, sur	15	2,800/8,400	70/Ep	3	50(5)	18M	-8	1	$140,000	1

Antiparticle Beams ("Pulsars") (TL11-12^)

These weapons accelerate a beam of antimatter particles, usually positrons or anti-hydrogen atoms. Their interaction with normal matter results in an explosion when they strike the target. They require a trapped store of antiparticles as "ammunition," but the amount is negligible and is included in the weapon's cost.

Antiparticle beams inflict crushing damage with a (3) armor divisor and the explosive, radiation, and surge damage modifiers. Their armor penetration is slightly less than a charged particle beam, but the overall energy delivered is greater.

Antiparticle beam range in atmosphere cannot exceed 1,000 yards divided by atmospheric pressure unless the beam is field-jacketed (p. 133).

Antiparticle Weapons

Pulsars are available in the same styles as blasters (p. 123). Due to their explosive and radiation effects, they're less likely to be used as civilian weapons, hence their lower LC.

Antiparticle Beam Table

BEAM WEAPONS (PISTOL) (DX-4, other Beam Weapons-4, or Guns (Pistol)-4)

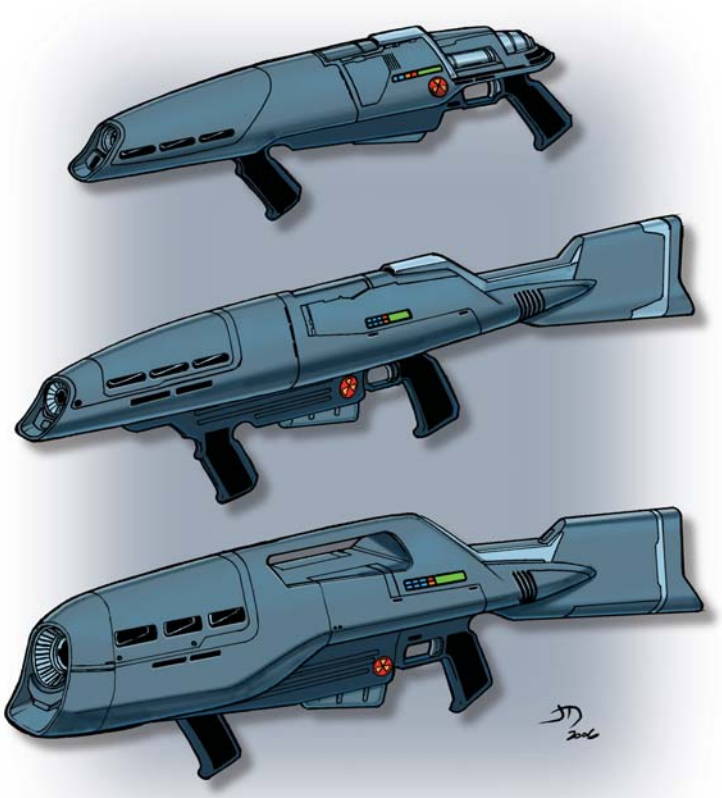
TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
12	Heavy Pulsar Pistol	8d(3) cr ex	5	400/1,200	3.3/2C	3	33(3)	6	-3	1	$5,600	2
12	Holdout Pulsar	4d(3) cr ex	3	130/500	0.35/B	3	13(3)	3	-1	1	$900	2
12	Pulsar Pistol	6d(3) cr ex	5	300/900	1.6/C	3	40(3)	4	-2	1	$3,300	2

BEAM WEAPONS (RIFLE) (DX-4, other Beam Weapons-4, or Guns (Rifle)-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
12	Heavy Pulsar	8d×2(3) cr ex	10+4	1,200/3,600	20/Dp	3	20(5)	10†	-6	1	$60,000	1
12	Pulsar Carbine	10d(3) cr ex	10+1	500/1,500	5.6/2C	3	17(3)	5†	-3	1	$14,000	1
12	Pulsar Rifle	6d×2(3) cr ex	10+2	700/2,100	10/2C	3	10(3)	7†	-4	1	$27,000	1

GUNNER (BEAMS) (DX-4, or other Gunner-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
11	Antiparticle Cannon	8d×10(3) cr ex	15	40,000/120,000	5,000/Fp	1	20(5)	160M	-10	1	$3,000,000	0
12	Antiparticle Cannon	8d×20(3) cr ex	15	120,000/360,000	5,000/Fp	1	20(5)	160M	-10	1	$3,000,000	0
12	Semi-Portable Pulsar	6d×4(3) cr ex	15	2,800/8,400	70/Ep	3	60(5)	18M	-8	1	$100,000	1



Omni-Blasters

At +100% to cost, a blaster may incorporate a stun setting, firing a non-lethal energy bolt similar in nature to an electrolaser beam. A stun setting usually feels like a powerful electrical shock. Unlike an electrolaser, a blaster's stun bolt works in any environment. It takes one turn to "switch to stun."

When set to stun, the victim takes no damage, but must make a HT roll to resist suffering an unconsciousness affliction. The penalty is -1 for every die of damage the blaster usually inflicts, up to a maximum of -10. The victim adds one-third of his DR to HT – that is, the blaster gets a (3) armor divisor instead of its usual (5). A failed roll results in the victim falling unconscious for minutes equal to the margin of failure.

Sonic Weapons

Sonic beam weapons project focused sound waves to hurt, incapacitate or kill. Their range is multiplied by air pressure in atmospheres, up to a maximum of two times the listed range. They won't work in a vacuum or trace atmosphere unless physically touching the target (range C).

Sonic weapons will work underwater if designed for that medium. Underwater sonic weapons get double range, but their statistics are otherwise identical.

Sonic Nauseators (TL9)

These weapons use acoustic heterodyning technology to process ordinary audible sound into a complex ultrasonic signal. The original sound is bound within the column of ultrasonic frequencies, becoming a tight beam that can travel hundreds of yards with no distortion or loss of volume. It causes pain, temporary hearing loss, and nausea. The weapons are not as reliable for self-defense as other weapons, but are effective for riot control.

Nauseator beams are audible only to the target, and the beam is invisible. Nauseator range is multiplied by air pressure in atmospheres. It has no range in vacuum or underwater.

Nauseators emit a cone attack – see *Area and Spreading Attacks* (p. B413). The effect is a hearing-based affliction attack that ignores DR, but has no effect on someone who cannot hear. A victim gets a HT roll to resist at the penalty noted for the weapon; add +5 for Protected Hearing and +3 beyond 1/2D range. Failure means suffering the disadvantages Hard of Hearing and the Moderate Pain (p. B428) irritating condition for minutes equal to the margin of failure on the target's HT roll. Failure by 5 or more results in Deafness (making the target immune to further attacks) and retching (p. B429), plus loss of sphincter control, resulting in the Bad Smell disadvantage until cleaned up. The weapons are sometimes nicknamed "bowel disruptors" due to these unpleasant consequences.

These weapons are usually deployed as an alternative to electrolasers (p. 119), with a shorter range but wider beam and different effects.

Nauseator Weapons

Nausea Carbine (TL9): A short rifle-sized weapon. It is often used by police or troops assigned to riot squads.

Nausea Pistol (TL9): A handy pistol-sized version.

Tactical Nauseator (TL9): A tripod or vehicle-mounted riot-control weapon. It's often installed in specialized anti-riot vehicles, or set up to defend embassies and similar buildings that may be threatened by mobs of civilian attackers.

Sonic Screamers (TL9^)

These lethal sonic weapons fire a beam that vibrates, heats, and even liquefies the target. Although the primary beam is an inaudible subsonic or ultrasonic frequency, the nickname comes from a tooth-jarring whine produced as a side. Particularly baroque sonic designs may even have an audio trigger, modulating the user's battle cry or singing into an energy pulse!

These are superscience weapons. One possible explanation is that high levels of pulsed power are used to create discharges between electrodes in an insulating tube. The arcs ionize the air within the tube, causing a sudden expansion that generates a pressure pulse. Rapidly cycling these pulses creates a powerful acoustic wave in the form of a traveling vortex strong enough to damage the target.

Screamers deliver a cone attack – see *Area and Spreading Attacks* (p. B413) – that "shakes and bakes" victims, doing corrosion damage. Living targets suffer the symptoms of Hard of Hearing (p. B109) if the damage exceeds 1/2 HP or Deafness if over 2/3 HP; this doesn't heal until the injury that caused it recovers.

Screamer Weapons

Screamer Carbine (TL9^): A short, stubby weapon with a large, bell-shaped aperture; this is the most common screamer. Its short range limits its military utility. Like a shotgun, it is used for close-range hunting, home defense, and house-to-house combat.

Screamer Pistol (TL9^): A pistol-sized version, also called a "sonic disruptor pistol."

Tactical Screamer (TL9^): A heavy semi-portable weapon used by powered troopers, or mounted on a tripod or vehicle. It's also called a "tripod screamer."

Sonic Stunners (TL10)

These advanced stunners fire a narrow, intense beam of ultrasonic sound that can shut down the target's nervous system. Unlike a nauseator, a sonic stunner can affect someone who is deaf.

A hit requires a HT roll to resist at the penalty noted for the weapon. Add +3 beyond 1/2D range, and +1 per 5 DR the victim has at the point struck. If he fails, he suffers the Unconsciousness (p. B429) incapacitating condition for minutes equal to the margin of failure on his HT roll. The beam is narrow enough that if a limb or extremity is hit, it is incapacitated instead of the victim being rendered unconscious.

Sonic stunners may supplant nauseator (above) and electrolaser (p. 119) weapons.

Sonic Stun Weapons

Sonic Stun Cannon (TL10): A semi-portable weapon, usually tripod- or vehicle-mounted. Like the tactical nauseator, it's used by anti-riot vehicles and for nonlethal perimeter defense.

Dinosaur Stunner (TL10): A powerful stunner capable of stopping an elephant. Hunters use it to capture big game.

Sonic Stinger (TL10):A nonlethal alternative to the hold-out laser, the stinger is a tiny sonic stunner that can be disguised as an everyday item or strapped to the wrist.

Sonic Stunner (TL10): An effective palm-sized stunner, this self-defense weapon is also popular for covert operations. It has no grip and is held like a small flashlight or attached to the wrist.

Sonic Stun Pistol (TL10): A handgun-sized sonic stunner. It is effective enough that it can be issued as the standard sidearm for police or security guards.

Sonic Stun Rifle (TL10): A basic stun rifle. Like its electrolaser equivalents, it may be general issue to security and police.

Sonic Weapon Table

BEAM WEAPONS (PISTOL) (DX-4, other Beam Weapons-4, or Guns (Pistol)-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
10	Sonic Stinger	HT-1(5) aff	1	2/6	0.02/A	1	18(3)	1	0	1	$15	4
10	Sonic Stunner	HT-2(5) aff	1	10/30	0.3/B	1	22(3)	3	-1	1	$120	4
10	Sonic Stun Pistol	HT-3(5) aff	3	30/100	1.8/C	1	66(3)	4	-2	1	$650	4

BEAM WEAPONS (PROJECTOR) (DX-4, other Beam Weapons-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
9	Nausea Carbine	HT-4 aff (1 yd)	6	17/50	5/2C	1	56(3)	5†	-3	1	$2,000	4
9	Nausea Pistol	HT-3 aff (1 yd)	3	9/27	1.8/C	1	66(3)	4	-2	1	$650	4
9^	Screamer Carbine	4d cor (1 yd)	6	33/100	5/2C	1	56(3)	5†	-3	1	$4,000	4
9^	Screamer Pistol	3d cor (1 yd)	3	18/54	1.8/C	1	66(3)	4	-2	1	$1,300	4

BEAM WEAPONS (RIFLE) (DX-4, other Beam Weapons-4, or Guns (Rifle)-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
10	Dinosaur Stunner	HT-6(5) aff	6	130/400	20/Dp	1	83(3)	10†	-5	1	$10,000	3
10	Sonic Stun Rifle	HT-4(5) aff	6	60/180	5/2C	1	56(3)	5†	-3	1	$2,000	4

GUNNER (BEAMS) (DX-4, or other Gunner-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
9	Tactical Nauseator	HT-8 aff (3 yd)	9	70/200	70/Dp	10	100(5)	18M	-8	1	$35,000	2
9	Tactical Screamer	8d cor (3 yd)	9	130/400	70/Dp	10	100(5)	18M	-8	1	$70,000	2
10	Sonic Stun Cannon	HT-8(5) aff	9	230/700	70/Dp	10	100(5)	18M	-8	1	$32,000	2

Plasma Weapons

Real plasma torches are short-range cutting tools; these weapons use plasma superscience to fire coherent streams or bolts of ionized gas.

Flamers (TL9^)

These weapons fire a low-velocity jet of high temperature plasma. Hydrogen fuel is fed into a magnetic containment chamber, heated and compressed to form a plasma, and then released as a continuous stream.

Flamers are effective incendiary and terror weapons, with a role similar to that of the flamethrower. They're also useful for disposing of vermin or microbot swarms.

Flamers inflict burning damage, but not tight-beam burning damage.

Flamer Weapons

Assault Flamer (TL9^): This rifle-sized plasma weapon is often used by armored infantry involved in spaceship boarding actions and house-to-house fighting.

Hand Flamer (TL9^): This large pistol is used as a military sidearm or a terror weapon.

*Heavy Flamer (*TL9^): An energy-based flamethrower with a backpack power supply.

Semi-Portable Flamer (TL9^): Also called a tripod flamer, this heavy, semi-portable infantry weapon can be terrifying even to a fighter in heavy armor. A heavy flamer can be mounted on a tripod or carried by a soldier in powered battlesuit. They are also popular in combat engineering and urban assault vehicles.

Plasma Flamer Table

BEAM WEAPONS (PROJECTOR) (DX-4, other Beam Weapons-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
9^	Assault Flamer	5d burn	6	50/150	5.6/2C	1	28(3)	5†	-3	1	$2,300	2
9^	Hand Flamer	4d burn	3	30/90	3.3/2C	1	56(3)	6	-2	1	$1,200	3
9^	Heavy Flamer	8d burn	6	130/390	20/Dp	1	35(5)	10†	-5	1	$10,000	1

GUNNER (BEAMS) (DX-4, or other Gunner-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
9^	Semi-Portable Flamer	6d×3 burn	12	150/450	70/Ep	1	100(5)	18M	-8	1	$35,000	1

Plasma Guns (TL10-11^)

These weapons use a laser to zap a hydrogen pellet into a high-temperature plasma state. The plasma is magnetically confined for an instant, focused into a bolt, and then released at hypersonic velocities. When fired in atmosphere, the plasma bolt will ride a laser beam, which is used to create an evacuated channel, ensuring the plasma does not explode immediately upon contact with air.

The most powerful plasma guns are styled "fusion guns" since the star-hot temperatures in the ignition chamber are equivalent to that within a fusion reactor.

Plasma bolts have greater range, force, and accuracy than a flamer beam, but dissipate rapidly compared to laser or particle beams. However, they deliver a powerful explosive punch, thanks to their combination of thermal and kinetic energy effects, and are among the most energy-efficient beam weapons in terms of sheer destructive energy. The ionized plasma bolt can also short out electrical systems. Plasma bolts are bright and create a loud report as the bolt burns through air, followed by a noisy explosion when it strikes the target.

Plasma beam weapons first appear at TL10^ in the form of heavy weapons. At TL11^ lighter rapid-pulse versions are available. A plasma gun inflicts burning damage with the explosive damage modifier. This is *not* tight-beam burning damage. Unlike most beam weapons, plasma guns have significant recoil.

Plasma weapons do not use standard power cells. Instead, they use magazines with plasma power cartridges. Each round contains a hydrogen fuel and a one-use power cell.

Personal Plasma Guns

Heavy Plasma Gun (TL10^): Favored by powered troopers as an assault rifle, or as a squad support weapon, this is one of the most devastating portable TL10 beam weapons.

Fusion Gun (TL11^): An even more powerful version of the heavy plasma gun.

Heavy Plasma Pistol (TL11^): A big plasma handgun that can blast a basketball-sized hole in a man's torso. It is almost too deadly for regular issue, and is usually found only in the wildest frontier regions.

Plasma Battle Rifle (TL11^): An rifle-sized plasma gun with a backpack power supply. It is capable of semi-automatic fire.

Plasma Pistol (TL11^): The smallest plasma gun, equivalent in size to a blaster pistol. It has a shorter range than a blaster, but delivers more destructive energy. An unarmored human struck by a plasma pistol bolt is usually nothing but charred bones.

Mounted Plasma Guns

Plasma Cannon (TL10^): This heavy vehicle-mounted weapon is a short-ranged but effective alternative to particle beams and lasers. It's usually mounted on tanks, although some spacecraft may use it for close combat.

Plasma Gatling Cannon (TL10^): A light-weight multi-barrel plasma cannon with a high rate of fire. An effective anti-missile and anti-aircraft weapon, devastating against infantry or lightly-armored vehicles.

Semi-Portable Plasma Gun (TL10^): A powerful weapon designed for use on a tripod mount or by heavy battlesuits.

Fusion Cannon, Semi-Portable Fusion Cannon, Fusion Gatling Cannon (TL11^): These advanced versions fire hotter and higher-velocity plasma bolts.

Gravity Weapons

Gravitic weapons are offensive manifestations of artificial gravity, tractor/pressor beam, or hypergravity technology.

Force Beams (TL10^)

These tightly focused pressor beams (p. 88) deliver a kinetic impact that can knock a person down or break bones. Unlike sonic stunners or electrolasers, they can affect targets in vacuum and inflict blunt trauma even through heavy armor. They're also favored by super-gadgeteers, since they're no more lethal than a powerful punch.

Force beams inflict crushing damage with the double knockback modifier. The beams are silent and invisible.

Kinetic Stun Setting (TL10^)

Any force beam can fire a kinetic stun setting that spreads the beam over a wider impact point.

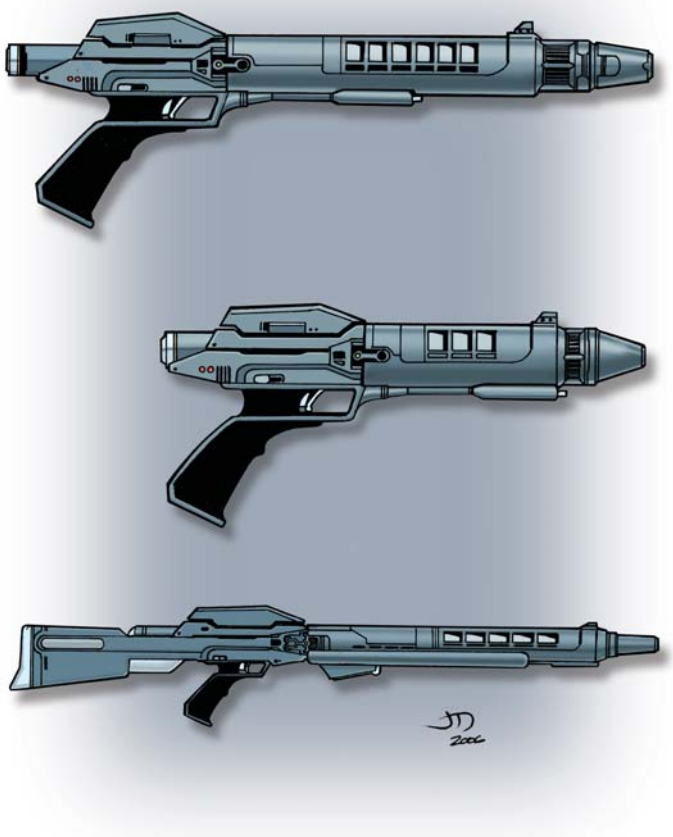
On "stun" the beam has no wounding effect (no HP are lost). It has its usual double knockback modifier, and can still inflict blunt trauma and knockback.

Force Beam Weapons

Force Beamer (TL10^): The ranged equivalent of brass knuckles. The impact of this palm-sized weapon's force beam feels like the kick of a mule.

Force Cannon (TL10^): A vehicle-mounted cannon intended to crack open vehicular armor. It's especially useful against unbalanced vehicles such as mecha.

Force Pistol (TL10^): A bulky gravity-beam handgun, favored for its impressive "stopping power." Its beam can hammer a man back 12 feet.



Force Rifle (TL10^): This weapon can stun an elephant or smash someone through a brick wall. This is a lethal weapon against foes without armor.

Heavy Force Cannon (TL10^): A force cannon suitable for mounting on ships.

Semi-Portable Force Beam (TL10^): This assault cannon is usually tripod- or vehicle-mounted, or carried by powered troopers. A human struck by its beam may be thrown back 50 feet, breaking every bone in his body.

Plasma Gun Table

BEAM WEAPONS (PISTOL) (DX-4, other Beam Weapons-4, or Guns (Pistol)-4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC
11^	Heavy Plasma Pistol	10d(2) burn ex	4	500/1,500	3.3/2C	3	33(3)	9	-3	2	$5,600	3
11^	Plasma Pistol	7d+2(2) burn ex	4	375/1,100	1.6/C	3	40(3)	6	-2	2	$2,200	3

BEAM WEAPONS (RIFLE) (DX-4, other Beam Weapons-4, or Guns (Rifle)-4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC
10^	Heavy Plasma Gun	3d×5(2) burn ex	8+3	750/2,250	20/Dp	3	20(5)	15†	-6	2	$40,000	1
11^	Heavy Fusion Gun	20d(2) burn ex	8+4	1,000/3,000	20/Dp	3	20(5)	15†	-6	2	$40,000	1
11^	Plasma Battle Rifle	3d×5(2) burn ex	8+2	750/2,250	10/2C	3	10(3)	10†	-4	2	$18,000	2

GUNNER (BEAMS) (DX-4, or other Gunner-4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC
10^	Plasma Cannon	6d×25(2) burn ex	12	7,500/22,500	5,000/10Fp	1	40(5)	240M	-10	2	$2,000,000	1
10^	Plasma Gatling Gun	6d×5(2) burn ex	12	1,500/4,500	250/5Ep	10	100(5)	50M	-9	2	$320,000	1
10^	Semi-Portable Plasma Gun	20d(2) burn ex	12	1,000/3,000	70/Ep	3	100(5)	27M	-8	2	$140,000	1
11^	Fusion Cannon	4d×50(2) burn ex	12	10,000/30,000	5,000/10Fp	1	40(5)	240M	-10	2	$2,000,000	1
11^	Fusion Gatling Gun	8d×5(2) burn ex	12	4,000/12,000	250/5Ep	10	100(5)	50M	-9	2	$320,000	1
11^	Semi-Portable Fusion Gun	6d×5(2) burn ex	12	1,500/4,500	70/Ep	3	100(5)	27M	-8	2	$140,000	1

Gravity Beam Weapon Table

BEAM WEAPONS (PISTOL) (DX-4, other Beam Weapons-4, or Guns (Pistol)-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
10^	Force Beamer	3d cr dkb	3	100/300	0.35/B	1	22(3)	3	-1	1	$150	4
10^	Force Pistol	4d+2 cr dkb	6	300/900	3.3/2C	1	56(3)	6	-2	1	$1,200	4

BEAM WEAPONS (RIFLE) (DX-4, other Beam Weapons-4, or Guns (Rifle)-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
10^	Force Rifle	8d cr dkb	12	700/2,100	8/Dp	1	83(5)	7†	-4	1	$4,000	3

GUNNER (BEAMS) (DX-4, or other Gunner-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
10^	Force Cannon	6d×10 cr dkb	18	18,000/54,000	1,000/Fp	1	66(5)	70M	-10	1	$500,000	1
10^	Heavy Force Cannon	6d×20 cr dkb	18	72,000/220,000	8,000/10Fp	1	83(5)	200M	-10	1	$4,000,000	1
10^	Semi-Portable Force Beam	8d×2 cr dkb	18	2,900/8,700	70/Ep	1	100(5)	18M	-8	1	$32,000	1

Graviton Beams (TL11^)

A refinement of force beam (p. 128) technology, these weapons project oscillating hypergravity fields that crush or vibrate internal organs or components while leaving the outside unharmed. Heavy graviton beams may envelop and crush a man-sized target.

Graviton beams are silent and invisible, but the victim will feel crushing pressure and suffocating pain as the beam squeezes him.

Graviton beams are focused on a discrete point in space rather than affecting everything in the beam's path.

Graviton beams inflict crushing damage with the No Knockback damage modifier. Although their damage is low, they are a cosmic attack that ignores all normal DR. Force screens protect against them, but do so at 1/100 of normal DR.

Graviton Beam Weapons

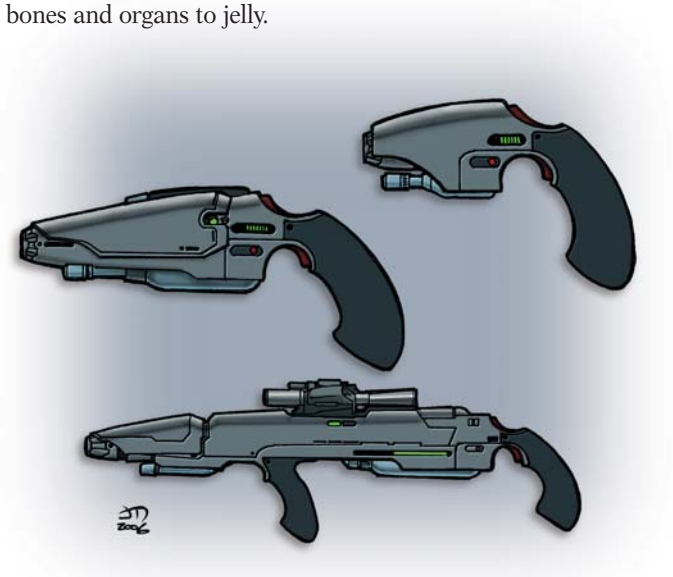
Graviton Beamer (TL11^): A pocket-sized holdout weapon. It has limited lethality, but can reach through the heaviest armor to grind bones and squeeze organs. It is sometimes used as a torture device.

Graviton Cannon (TL11^): Also called an "implosion beam." A single shot can reduce a man to a walnut-sized sphere, or crush a spaceship's insides one compartment at a time!

Graviton Pistol (TL11^): A basic gravity-beam pistol, somewhat more powerful than a beamer. One shot will usually cause enough shock to stop an average person.

Graviton Rifle (TL11^): Also called an assault gravbeamer. It crushes a fist-sized area, inflicting enough damage to leave a man unconscious!

Semi-Portable Graviton Beam (TL11^): A heavy personal weapon with a foot-wide area of effect. Its beam can reduce bones and organs to jelly.



Graviton Weapon Table

BEAM WEAPONS (PISTOL) (DX-4, other Beam Weapons-4, or Guns (Pistol)-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
11^	Graviton Beamer	1d(∞) cr	1	100/300	0.35/B	1	22(3)	3	-1	1	$600	3
11^	Graviton Pistol	1d+2(∞) cr	6	200/600	1.5/C	1	33(3)	4	-2	1	$2,200	3

BEAM WEAPONS (RIFLE) (DX-4, other Beam Weapons-4, or Guns (Rifle)-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
11^	Graviton Rifle	3d(∞) cr	12	700/2,100	8/Dp	1	83(5)	7†	-4	1	$16,000	2

GUNNER (BEAMS) (DX-4, or other Gunner-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
11^	Graviton Cannon	6d×5(∞) cr	18	72,000/220,000	8,000/10Fp	1	83(5)	200M	-10	1	$1,800,000	1
11^	Semi-Portable Graviton Beam	6d(∞) cr	18	2,900/8,700	70/Ep	1	100(5)	18M	-8	1	$130,000	1

Nucleonic Beams

Like nuclear dampers (p. 193), these weapons interfere with the strong or weak nuclear forces that bind matter together.

Disintegrators (TL12^)

Disintegrators fire a beam that causes matter to disintegrate. The process is not instant, but most weapons can destroy a man-sized target in a second. Denser materials take a bit longer to flash out of existence, but the hardness doesn't matter.

Disintegrators use a narrow focusing beam, but the disintegration effect can encompass a larger area, and may be selectively specified at the moment of firing. A shot can disintegrate a person without affecting the floor he's standing on, or vaporize someone's weapon, or even take out two people standing together. This is an area effect attack (p. B413) with the Selective Area (p. B108) enhancement.

Disintegrators inflict corrosion damage with a cosmic armor divisor (∞) that ignores DR, except for force screens (p. 190) and stasis webs (p. 193). Force screens protect with 1/10 of normal DR; stasis webs completely block them. Anyone reduced to -10×HP or less is disintegrated; otherwise, the beam bores a hole into or through the victim. They inflict large-area injury (p. B400); unless noted otherwise, they can focus on a one-yard radius.

Disintegrators require tremendous amounts of energy, and use cosmic power cells (p. 19).

Weapons

Disintegrator Pistol (TL12^): Perhaps the ultimate handgun, this weapon fires a beam that can obliterate a man.

Disintegrator Rifle (TL12^): This rifle can destroy a light armored vehicle in a single shot, or completely disintegrate smaller targets such as people.

Heavy Disintegrator Cannon (TL12^): This terrifying weapon may be the main armament of TL12^ military starships and main battle tanks. Almost any target will be annihilated unless protected by force screens; a barrage can lay waste to a city.

Holdout Disintegrator (TL12^): A small, easily concealed weapon of unmatched destructive power for its class.

Light Disintegrator Cannon (TL12^): A smaller version of the heavy disintegrator cannon. It is still capable of disintegrating a tank-sized target in a single shot.

Semi-Portable Disintegrator (TL12^): An oversized weapon carried by powered troopers, or mounted on a tripod or vehicle. It can disintegrate a car-sized vehicle, or drill a hole several feet across through a larger target.

Disintegrator Table

BEAM WEAPONS (PISTOL) (DX-4, other Beam Weapons-4, or Guns (Pistol)-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
12^	Disintegrator Pistol	6d×6(∞) cor	6	1,000/3,000	2.5/2C	10	22(3)	4	-2	1	$5,000	2
12^	Holdout Disintegrator	7d×5(∞) cor	3	500/1,500	1/C	10	17(3)	3	-1	1	$1,500	2

BEAM WEAPONS (RIFLE) (DX-4, other Beam Weapons-4, or Guns (Rifle)-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
12^	Disintegrator Rifle	6d×7(∞) cor	12	5,000/15,000	5.6/2C	10	10(3)	5†	-3	1	$4,600	1

GUNNER (BEAMS) (DX-4, or other Gunner-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
12^	Heavy Disintegrator Cannon	6d×200(∞) cor	18	720,000/2,200,000	8,000/10Fp	10	83(5)	200M	-10	1	$40,000,000	0
12^	Light Disintegrator Cannon	6d×100(∞) cor	18	180,000/540,000	1,000/Fp	10	66(5)	70M	-10	1	$5,000,000	0
12^	Semi-Portable Disintegrator	6d×40(∞) cor	18	30,000/90,000	70/Ep	10	100(5)	18M	-8	1	$320,000	1

Conversion Beams (TL12^)

These weapons convert a few milligrams of the target into antimatter or energy. Either way, the result is a devastating explosion. Conversion beams are almost identical to the disintegrators described above, but they have a (10) armor divisor instead of ignoring DR. They also inflict follow-up dice of burning damage equal to their corrosion damage, with no armor divisor but with the explosion, radiation, and surge damage modifiers.

Reality Disruption Beams

These exotic weapons cause localized space/time warps or probability disruptions. They're often related to FTL, matter transmitter, parachronic, or time travel technology.

Ghost Particle Beam (TL11^)

This fires a beam of exotic particles that passes through solid material as if it wasn't there. After a fraction of a second, the particles decay into an explosive combination of high-energy particle-antiparticle pairs and gamma rays. Probability field manipulation ensures the particles decay nearly simultaneously at a desired point in space and time . . . inside the target.

These are indirect-fire weapons operated using Artillery skill. A ghost particle beam is not affected by atmosphere and ignores intervening cover. It is also invisible and intangible – the only visible effect is a brilliant explosion inflicting burning damage with the cosmic, radiation, and surge modifiers. The cosmic modifier means that if the beam hits the desired target, *ignore* the target's DR; it is an internal explosion, doing three times normal damage (see p. B415). This only applies on a direct hit. Do not ignore DR for the collateral damage from the explosion. Reality-stabilized force screens (pp. 190-192) protect against ghost particle beams with one-fifth of the screen's normal DR.

Weapons

Ghost particle beams require precise stabilization and targeting systems. They are only available as vehicle-sized weapons.

Reality Disintegrator (TL12^)

These weapons erase the target from existence. Some alter probability so that the target no longer exists, at least in this universe! Others project a field of "nothingness" incompatible with the existence of normal matter, or are ranged matter transmitters that will scatter a target's component particles across space.

Reality disintegrators are identical to disintegrators (p. 130), except for the defenses effective against their cosmic armor divisor. Force screens and DR protect only if they are reality-stabilized (p. 192).

If reality disintegrators disrupt probability or scatter the target across multiple dimensions, someone with Temporal Inertia (p. B93) may be immune!

Displacer (TL12^)

A displacer is a matter transmitter weapon that rips open a warp in space and sends its target *elsewhere*. It is targeted on an area rather than an individual – use the Area Effect rules (pp. B413-414).

A wormhole forms at the target point. Anything inside is sucked into the rift. If an object's shortest dimension is greater than the radius of effect, it is too large to fit through the warp and will be unaffected. A displacer *will* affect a target in a stasis field, provided the field diameter is small enough.

A reality stabilizer (p. 194) or reality-stabilized force screen (pp. 190-192) can protect against a displacer: roll against the reality stabilizer's HT (usually HT 12) to resist the beam.

Where a particular displacer transports its target is up to the GM. Interstellar space, another parallel dimension, the heart of a sun, the past, or solid ground a few miles (or light years) away are all possibilities. The attacker does not have any control over the effect, but it's usually more fun to send heroes and important NPCs to interesting places than to kill them.

The effect might be totally random, or it might follow specific rules, such as warping the target into the same place but 10d centuries into the past, or into an adjacent parallel world. If the effect is too safe and predictable, however, characters may start to use it as a cheap form of transportation. If displacers send their victims very, very far away, some societies might use displacers as a punishment: a cross between exile and disintegration! It is also possible that the inventors and users of displacers may *think* they have a space/time disruptor . . . not knowing that the targets may survive!

Weapons

Displacer Cannon (TL12^): A heavy displacer cannon, capable of creating a warp large enough to spirit away a small house or a tank-sized vehicle!

Portable Displacer (TL12^): This bulky, barely man-portable weapon tears open a two-yard radius wormhole. It's sometimes nicknamed a "tachyon shotgun."

Ghost Particle Weapon Table

ARTILLERY (BEAMS) (IQ-5)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
11^	Ghost Particle Cannon	6d×10(∞) burn ex	15	18,000/54,000	1,000/Fp	10	66(5)	70M	-10	1	$1,000,000	1
12^	Heavy Ghost Particle Cannon	6d×20(∞) burn ex	15	72,000/220,000	8,000/10Fp	10	83(5)	200M	-10	1	$8,000,000	1

Displacer Weapon Table

BEAM WEAPONS (RIFLE) (DX-4, other Beam Weapons-4, or Guns (Rifle)-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
12^	Portable Displacer	spec. (2 yd.)	18	200	70/2Dp	1	8(5)	15†	-8	1	$100,000	1

GUNNER (BEAMS) (DX-4, or other Gunner-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
12^	Displacer Cannon	spec. (10 yd.)	18	1,000	8,000/F	1	8(5)	M	-10	1	$12,000,000	1

Psionic Beams

These psychotronic devices work on the same principles as psi abilities.

Mind Disruptors (TL12^)

These weapons are similar to neural disruptors (p. 121), but instead of emitting electromagnetic fields, they are psionic in nature. They are very effective against opponents who lack psionic shielding, but do not affect anyone with IQ 0 or the Digital Mind advantage.

Different versions of mind disruptor are available. All require a Will roll to resist (at +3 beyond 1/2D range). Mind Shields add to the roll to resist. Normal DR is ineffective against them. The options are:

Hypnogogic Beam ("Eraser"): The standard mind disruptor fires a beam of telepathic noise. It's sometimes called a dazer or eraser. If the victim fails to resist, he suffers the Daze incapacitating condition (p. B428). He is unable to act until struck or shaken, or until a number of *minutes* pass equal to the margin of failure. If he fails by 5 or more, he falls unconscious (p. B429), and then will be dazed as above after recovery. The dazer also disrupts short-term memory: victims never remember what happened to them during the second they were shot, or the second before that. This can be useful for covert operations!

Death Beam: This beam carries a hypnotic compulsion to die. If the resistance roll fails, the victim suffers the Choking incapacitating condition (p. B429) for seconds equal to twice the margin of failure. There's nothing lodged in his throat, but he will lose 1 FP per second unless he doesn't need to breathe. If he fails by 5 or more, he suffers the heart attack mortal condition.

Insanity Beam: This beam unleashes bizarre and terrifying visions from the victim's subconscious mind. He suffers the hallucinating incapacitating condition (p. B429) for one minute times the margin of failure. If he fails by 5 or more, the result is a coma (p. B429) in which he is tormented by horrific dreams. If the subject survives the coma, he gains the Nightmares (12) disadvantage for 1d weeks after.

Tunable Mind Disruptors

Add +50% to cost for each extra setting that a mind disruptor possesses. It takes one second and a Ready maneuver to change settings.

Psionic Neutralizer

If psychotronic technology exists, *psionic neutralizer* is another possible setting for neural disruptors or mind disruptors. This beam scrambles the areas of the target's nervous system that control psi powers. Anyone struck loses all his psionic powers for a number of minutes equal to the margin of failure.

Mind Disruptor Weapons

Mind disruptors come in the same models as neural disruptors (p. 121), from tiny holdout disruptors to heavy projectors. See the table below for statistics.

Mind Disruptor Table

BEAM WEAPONS (PROJECTOR) (DX-4, other Beam Weapons-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
12^	Heavy Mind Disruptor	Will-6 aff	12	90/270	20/Dp	1	83(3)	10†	-5	1	$100,000	2
12^	Holdout Mind Disruptor	Will-2 aff	3	10/30	0.3/B	1	22(3)	3	-1	1	$1,200	2
12^	Mind Disruptor Pistol	Will-3 aff	6	23/70	1.8/C	1	66(3)	4	-2	1	$6,500	2
12^	Mind Disruptor Rifle	Will-4 aff	12	40/120	5/2C	1	56(3)	5†	-3	1	$20,000	2

GUNNER (BEAMS) (DX-4, or other Gunner-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
12^	Tactical Mind Disruptor	Will-8 aff	18	160/480	70/Dp	10	100(5)	18M	-8	1	$320,000	1

Options

These options can be combined with TL9-12 or superscience beam weapons to create extremely powerful or efficient weapon systems. It's possible to add superscience upgrades to weapons that do not themselves require superscience. For example, a laser rifle (TL10) may be upgraded with grav focus (TL10^) technology.

Superscience Power Cell (TL^)

Many science fiction settings assume beam weapons can fire continuously for extended periods. The superscience power cell option multiplies the weapon's number of shots by 5. Note that the Shots listed for all beam weapons in the ***GURPS Basic Set*** assume superscience power cells; divide Shots by 5 if using mundane cells.

Field-Jacketed (TL10^)

A field-jacketed beam is enclosed in a force field or space-folding effect that prevents interference with atmosphere (or lack of atmosphere, as the case may be). This technology allows ultraviolet, X-ray, and gamma-ray lasers to be effective in atmosphere, and charged particle beams, electrolasers, and sonic weapons to work normally in vacuum. Beam weapons that cannot otherwise function underwater also do so at normal efficiency.

At the GM's option, field-jacketing a laser or other beam may make it visible, even in vacuum. This may explain the pretty colors observed in space opera movies!

Field-jacketing can be added to all beam weapons (although some types may not need it). It's a standard superscience space opera effect, and doesn't have to cost anything. A field-jacketed weapon may also be twice as expensive as one without this feature.

Gravitic Focus (TL10^)

This uses a hypergravity field to create a synthetic virtual lens that can focus and/or accelerate an energy beam. The technology trades beam energy for range, and permits space battles over thousands or millions of miles, rather than hundreds.

Grav-focusing is available for any type of laser, for microwave beams, and for any type of particle beam. It is usually used only on larger weapon systems, such as vehicular laser cannon.

Each level of grav-focus halves the damage but multiplies the range by 10. Up to (TL-9) levels of grav focus are possible. Gravity focus can always be turned off. If so, the weapon inflicts its normal damage. Each level *doubles* the weapon's cost.

FTL (TL11^)

Any beam weapon may take this option. The beam travels instantly to the target at many times light speed. Treat the beam as field-jacketed (above) – that is, it ignores any of the usual environmental restrictions that might affect it (so a laser beam can travel underwater, etc.). In addition, its 1/2D range becomes the same as its max range. Accuracy does not increase, but the user suffers only half the usual speed/range penalties. For example, a target 100 yards away is -5, not -10.

These beams may be subject to setting-specific restrictions similar to those that apply to faster-than-light travel. They usually only function in vacuum (although the GM may rule otherwise) and may only function when far away from a sizable gravity well, such as that of a planet. These beams also imply the existence of instantaneous faster-than-light communications and sensors, which would use similar technology.

Hotshots and Overheating

Ordinary beam weapons have cooling systems, but sustained fire can overheat them. The GM can ignore heat in most situations, but have the weapon overheat if dramatically appropriate. In general, firing more than (RoF × 10) shots will overheat the weapon. This can be avoided by either a 10-second pause between each attack, or by not firing any shots for a full minute.

Beam weapons can be overloaded to fire *hotshots.* A hotshot counts as two shots. Multiply damage (or radius of effect, or HT/Will penalty) by 1.3, or add +1 damage per die. When firing a hotshot, the weapon has a malfunction number of 14. Plasma guns that use power cartridges cannot fire hotshots, but can be loaded with "hot" power cartridges (p. 127) which have the same effect.

Some beam weapons are "Gatlings." They do not overheat, but they may not fire hotshots.

Effects of Overheating: If a beam weapon has overheated, it can still be fired, but will malfunction on a 14 or more (12 or more if firing hotshots while overheated) until it has been allowed to cool for at least a minute.

If a beam malfunctions, roll on the table on p. B407.

Fluid Projectors

These weapons project streams of liquid or gas. They are fired using Liquid Projector skill (p. B205).

Sprays

These are pressurized aerosol spray cans or tanks. Their utility as ultra-tech weaponry comes from exotic biochemical or nanotech fillers.

Weapons

Pocket Aerosol (TL9): A palm-sized disposable tank that sprays a single dose. It is used for black ops or self-defense. Respiratory agents must be sprayed into the face, but there's no location penalty to hit due to the size of the cloud. Contact agents can be sprayed onto the body.

Spray Can (TL9): The size of a can of bug spray, it holds 10 doses of gas. It can spray up to three doses at once to fill a one-yard radius. The cloud lasts 10 seconds indoors, but dissipates quickly in a strong wind.

Spray Tank (TL9): A spray gun attached by a short hose to a tank, which can be worn as a backpack. The tank has DR 10, but is under pressure: any penetrating damage can rupture it, releasing the entire store of chemicals. This has the same effect as a 100mm biochemical warhead (p. 153). Spray tanks are often integrated into buildings as part of their security systems.

Vortex Ring Projectors

These advanced gas projector weapons consist of a reservoir tank, a chamber for mixing the delivery gas with a propellant, and a wave-shaping chamber that forms the ejected cloud into a *vortex ring* – a high-velocity smoke ring. This allows the weapon to deliver doses of gas at long range. Vortex rings retain their momentum and cohesion for a long distance, and are not affected by light winds. They break up, depositing their payload, on direct collision with a solid object . . . but will bounce from a glancing impact. Thus, they can be bounced around corners, if the user is skilled and knows where his target is. Each bounce gives -2 to hit and -10% to range per bounce; e.g., a weapon with Range 30 could bounce four times at -8, but this would limit the total path length to 18 yards.

Vortex ring projectors can fire almost any gas. Some of the more exotic "gas missiles" include carbon dioxide to choke internal combustion engines, Halon to extinguish fires, and even explosive vapors. On a smaller scale, vortex ring projectors may be the enabling technology behind high-efficiency medical inhalers.

Vortex ring projectors are regular ranged weapons that deliver a linked area-effect release of whatever gas they are loaded with. The vortex ring also has enough velocity to inflict crushing damage with double knockback.

Weapons

Underbarrel Vortex Ring Projector (VRP) (TL9): A vortex ring projector that can be clamped under the barrel of a rifle or other long arm in place of a grenade launcher. Use the Bulk, ST, and sighting bonuses of the weapon it is installed in.

Vortex Pistol (TL9): A vortex ring sidearm the size of an ordinary automatic pistol.

Backpack Vortex Ring Projector (TL9): A heavy flamethrower-like device sometimes used by combat engineers or police for house-to-house fighting or riot control. It's also occasionally used for non-combat applications, such as projecting fire-extinguishing foam.

Fluid Projector Table

LIQUID PROJECTOR (SPRAYER) (Defaults to DX-4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
9	Backpack Vortex Projector *linked*	spec. (2 yards) 1d-3 cr dkb	3	30	12/12p	1	10(5)	10†	-4	1	$1,200	3
9	Pocket Aerosol	spec.	Jet	1	0.1	1	1	1	-1	1	$10	4
9	Spray Can	spec. (1 yard)	Jet	2	1/0.5	1	10(5)	2	-2	1	$25	4
9	Spray Tank	spec. (1 yard)	Jet	3	8/5	1	10(5)	4	-4	1	$400	4
9	Underbarrel Vortex Projector *linked*	spec. (1 yard) 1d-3 cr dkb	2	20/40	5/3	1	10(3)	–	–	1	$150	4
9	Vortex Pistol *linked*	spec. (1 yard) 1d-3 cr dkb	2	15	1.8/0.8	1	5(3)	7	-2	1	$100	4

Guns and Launchers

The simplest way to kill or injure at a distance is with a projectile. Guns and launchers can carry inert slugs, explosives, or chemical weapon. The difference between them is that a launcher fires a self-propelled projectile, such as a rocket, that continues to accelerate after it has left the weapon.

Guns and launchers are described with the name of the weapon followed by a designation for the ammunition it fires. The designation is a projectile diameter in millimeters and a letter code used to differentiate it from others of the same diameter. The damage on the weapon tables assumes a solid projectile, but all guns and launchers (except ice guns) may also fire weapons with more exotic warheads. See *Warheads and Ammunition*, pp. 152-159.

Ammunition Tables

Projectile weapons require ammunition. The weight of a loaded magazine of ammunition is given in the Weapon Tables, after the weapon's weight. The price of ammunition is not included, however, and adventurers may also wish to buy individual rounds.

Ammunition Tables provide the following information about individual rounds of ammunition:

TL: The tech level of the ammunition.

Name: The name of the ammunition, e.g., 7mmCL.

WPS: The weight per shot, in pounds.

CPS: The cost per shot, in dollars. This is increased if using specialized warheads (pp. 152-159).

LC: The legality class of the ammunition (if firing ordinary solid projectiles).

Different weapons can't share magazines except where indicated, but if the ammunition is identical, it's possible to remove individual rounds from one magazine and load them into another; e.g., ammo taken from any 7mmCL weapon will work in any other 7mmCL weapon.

Conventional and ETC Guns

These weapons use the expanding gases from a burning chemical propellant to push a projectile down a barrel. In many ultra-tech settings, ordinary TL7-8 slug throwers continue to be used even at high TLs; see ***GURPS High-Tech*** for a full range of suitable hardware.

Conventional Small Arms (TL9)

These firearms are conservative, evolutionary developments of mid-TL8 weapons. They use light polymer-cased or caseless telescoped ammunition, in which a projectile is embedded into a block of solid propellant. This reduces the ammunition's weight and bulk so that more shots can be carried. The propellant is ignited with an electrical system; this is integrated into the weapon's smartgun electronics and uses the same power cell.

Preloaded Barrels: Some conventional guns replace their ammunition feed and ejection systems with alternating propellant charges and projectiles stacked *inside* the gun barrel. These are fired electronically, singly or in very rapid sequence. The theoretical rate of fire can exceed a million rounds per minute, but the shots that fit into a barrel limit the effective rate of fire! In practice, the rounds can be fired fast enough that any recoil impulse is minimized. The whole barrel must be changed to reload; most guns of this sort have more than one barrel.

Pistols

These ultra-tech versions of 20th-century handguns feature advanced composite construction and caseless ammunition.

Heavy Pistol, 10mmCLP (TL9): This powerful pistol uses the same round as the machine pistol (below).

Holdout Pistol, 7.5mmCLP (TL9): This is a small, easily concealed semi-automatic pistol. It files rounds at a higher velocity than many TL7-8 pistols of the same caliber.

Magnum Pistol, 15mmCLP (TL9): This semi-automatic pistol fires a powerful magnum round. Its size makes it hard to conceal, and only a strong person can shoot accurately with it.

Medium Pistol, 7.5mmCLP (TL9): The standard TL9 semi-automatic pistol, with a sturdy plastic and alloy frame and a high-capacity magazine.

Submachine Guns

These are compact fully-automatic assault weapons with pistol grips, folding front foregrips, and retractable telescoping stocks. They are favored by special forces, police SWAT teams, and criminals.

Machine Pistol, 10mmCLP (TL9): This weapon fires the same medium-velocity pistol-caliber round as the 10mm pistol. Police SWAT teams like them – the gun has good stopping power, but errant rounds are unlikely to tear through walls (or targets) and hit bystanders.

Personal Defense Weapon (PDW), 5.7mmCL (TL9): A PDW fires a small, high-velocity bullet that resembles a miniature rifle round, with better accuracy and range than the pistol ammo used in a submachine gun. This weapon has a big magazine that runs horizontally alongside the weapon. An ergonomic handgrip completely encloses the firing hand.

Urban Assault Weapon, 10mmCLP (UAW): A double-barrel weapon with a 10mm machine pistol and 18.5mm shotgun (use the underbarrel shotgun statistics). It's intended for use by SWAT teams and special operations soldiers, especially in buildings.

Rifles

These weapons incorporate shoulder stocks, and are designed to be used two-handed. Too large to holster, they come with carrying slings.

Anti-Materiel Rifle, 15mmCL (TL9): The 15mm AMR is a large-caliber sniper weapon powerful enough to cripple light vehicles more than a mile away. Special forces and recon units use them to pin down or neutralize high-value targets such as command posts, guided-missile teams and combat robots. This gun becomes especially fearsome when upgraded with electrothermal or liquid propellant! The rifle's Acc assumes an integral 8× telescopic sight (+3 bonus).

Assault Carbine, 7mmCL (TL9): This bullpup-configuration assault rifle is a basic but effective infantry weapon.

Gatling Carbine, 5.7mmCL (TL9): This triple-barreled, electric-motor-driven chaingun boasts a carbine format no larger than an ordinary assault rifle. It fires the same 5.7mm round as the PDW (p. 135). Its long magazine slides and locks into the back of the weapon. A separately loaded B cell provides power for 19,500 shots.

Hunting Rifle, 7mmCL (TL9): This plastic-and-alloy semi-automatic rifle fires the same high-velocity ammunition as the assault carbine.

Payload Rifle, 25mmCL (TL9): A bulky semi-automatic rifle, similar to an anti-materiel rifle, that fires a medium-velocity 25mm cannon shell. This provides a long-ranged alternative to a grenade launcher. It has a very effective muzzle brake.

Storm Carbine, 10mmCL (TL9): Sometimes you need more punch than an assault carbine can provide. This weapon fires a more powerful 10mm caseless round, making it popular with troops who expect to face armored opponents. Its drawbacks include heavier ammunition and noticeably higher recoil.

Storm Rifle, 10mmCLR (TL9): A heavier semi-automatic version of the storm carbine, this fires a higher-velocity, full-sized ("10mm Caseless Long Rifle") bullet. It's used as a sniper or hunting weapon.

Machine Guns

These automatic weapons are designed to be fired in long bursts from a bipod or tripod mount. They use an ammunition belt, which is sometimes contained within a cassette. When firing on the move, machine guns can be carried in an articulated weapon harness or a gyrostabilized weapon harness (p. 150).

Assault Cannon, 25mmCL (TL9): This is a tripod- or vehicle-mounted automatic cannon firing medium-velocity shells, similar to those of the payload rifle (above).

Light Support Weapon (LSW), 7mmCL (TL9): This light machine gun comes with a folding bipod for accurate prone firing. The LSW normally employs a belt feed, but it fires the same bullet as the assault carbine (above), and can use its magazines if necessary.

Minigun, 7mmCL (TL9): This portable, tripod-mounted Gatling gun boasts six rotating barrels and an electric action, firing up to 100 rounds per second. A separately loaded C cell powers it for up to 15 minutes.

Storm Chaingun, 10mmCLR (TL9): This is an electric-motor-driven, machine-gun version of the storm rifle (above). It uses a 100-shot belt contained within an ammo cassette. It can also use the same 30-shot 10mmCLR magazines as the storm rifle, but it cannot fire storm-carbine ammunition. The storm chaingun incorporates a folding bipod for accurate prone firing. A separately loaded B cell provides 15 minutes of power.

Heavy Chaingun, 15mmCL (TL9): This electric-motor-driven, single-barrel machine gun fires the same round as the anti-materiel rifle. It is used for perimeter defense or as a vehicular weapon. Normal humans can't handle its weight without a tripod, but powered troopers can use it as a handheld weapon. A separately loaded C cell provides 15 minutes of power.

Shotguns

Shotguns are a special category of slugthrower: low-powered, short-barrel smoothbores firing large rounds, often with multiple projectiles. Most ultra-tech conventional shotguns fire 18.5mm (12 gauge) plastic-cased ammo.

Civ Shotgun, 18.5mmPC (TL9): A semi-automatic shotgun used as a hunting and police weapon, although it also finds its way into the hands of criminals who can't get anything better. It is fitted with a plastic shoulder stock.

Close Assault Weapon (CAW), 18.5mmPC (TL9): A fully-automatic assault shotgun favored for house-to-house fighting.

Underbarrel Shotgun, 18.5mmPC (TL9): A modular pump-action shotgun that can be clamped under any weapon with Bulk -3 or more. Use the Bulk, ST, and sighting bonuses of the weapon it is installed in.

Shotgun Pistol, 18.5mmPC (TL9): A wide-bore pistol that fires shotgun ammunition. It is ideal for house-to-house work or for firing from a vehicle. It's also a favorite police undercover weapon, despite its substantial recoil.

Mortars and Grenade Launchers

Underbarrel Grenade Launcher (UGL), 25mmPC: This is a tube-fed pump-action grenade launcher firing medium-velocity plastic-cased shells. It may be clamped under the barrel of any weapon with Bulk -3 or more. Use the Bulk, ST, and sighting bonuses of the weapon it is installed in.

Underbarrel Grenade Launcher (UGL), 40mmPLB (TL9): This grenade launcher fires low-velocity shells. Like its 25mm counterpart, it's designed to be clamped under another weapon with Bulk -3 or more. Each "magazine" is actually a preloaded barrel stacked with five 40mm shells and propellant charges. It can fire up to three grenades before any recoil impulse is felt. Use the Bulk, ST, and sighting bonuses of the weapon it is installed in.

Mortar Box, 40mmPLB (TL9): A four-tube version of the 40mm UGL. Designed for remote control firing, it has a cable jack and its own short-range radio (p. 44).

Mortar Box, 64mmPLB (TL9): A larger version of the 40mm mortar box, consisting of a pod holding six mortar barrels, each containing five stacked 64mm shells. This potent "area denial weapon" can deliver as many as 30 shots in a single salvo!

Cannon

Tank Cannon, 100mm (TL9): A medium tank gun with an automatic loader. It is often upgraded with liquid propellant or electrothermal options, or loaded with APEP (p. 152) ammunition.

Light Anti-Armor Weapons

Splat Gun, 15mmPLB (TL9): Designed to destroy light armored vehicles and battlesuit troopers, this is a favorite weapon of mercenaries fighting on low-tech worlds. It is a bulky, multi-barrel weapon resembling a short, thick bazooka, with a pistol grip, a padded shoulder stock, and a bipod. Nicknamed the "splat gun," it has six preloaded barrels stacked with 15mm shells and propellant. Its electronic ignition can fire up to 30 shells before any recoil impulse is felt. The shooter can also fire a smaller number of shells by adjusting a selector switch (this is a Ready action).

Conventional Smallarm Table

GUNS (PISTOL) (DX-4, or most other Guns at -2)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
9	Heavy Pistol, 10mmCLP	3d pi+	2	180/2,000	2.5/0.7	3	20+1(3)	10	-3	3	$540	3
9	Holdout Pistol, 7.5mmCLP	2d pi	1	100/1,200	1/0.2	3	18+1(3)	6	-1	2	$240	3
9	Magnum Pistol, 15mmCLP	4d+1 pi++	2	235/2,600	3/1	3	9+1(3)	11	-2	4	$870	3
9	Medium Pistol, 7.5mmCLP	2d+2 pi	2	150/1,900	2/0.5	3	30+1(3)	9	-2	2	$450	3

GUNS (SMG) (DX-4, or most other Guns at -2)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
9	Machine Pistol, 10mmCLP	3d pi+	2	180/2,000	3/1	3	30+1(3)	10	-2	3	$750	2
9	Personal Defense Weapon, 5.7mmCL	4d pi-	4	350/3,000	4.5/1	10	100+1(5)	9†	-3	2	$1,000	2
9	Urban Assault Weapon,											
	SMG barrel, 10mmCLP	3d pi+	4	200/2,100	8/1	10	40+1(3)	9†	-3	3	$2,100	2
	Shotgun barrel, 18.5mmPC	1d+1 pi	2	100/500	– /0.75	2	5+1(3i)	10†	–	1		

GUNS (RIFLE) (DX-4, or most other Guns at -2)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
9	Anti-Materiel Rifle, 15mmCL	15d pi+	6+3	2,000/9,000	30/2	3	10(3)	12B†	-6	4	$8,000	3
9	Assault Carbine, 7mmCL	6d pi	4	700/4,000	7/1.5	15	50+1(3)	9†	-4	2	$1,600	2
9	Gatling Carbine, 5.7mmCL	4d pi-	4	350/3,000	10/2	40	200(5)	9†	-4	2	$2,400	1
9	Hunting Rifle, 7mmCL	6d+1 pi	4	750/4,200	7/0.3	3	10+1(3)	9†	-5	2	$800	3
9	Payload Rifle, 25mmCL	10d pi++	4	700/8,500	38/10	3	8+1(3)	12B†	-6	4	$8,000	2
9	Storm Carbine, 10mmCL	7d pi++	4	700/2,100	8/2	10	50+1(3)	10†	-4	3	$1,800	2
9	Storm Rifle, 10mmCLR	9d pi++	4	1,300/5,800	10/1.2	3	12+1(3)	10†	-4	3	$2,700	3

GUNS (SHOTGUN) (DX-4, or most other Guns at -2)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC
9	Civilian Shotgun, 18.5mmPC	4d+4 pi++	3	100/500	6/0.75	3	5+1(3)	10†	-5	4	$450	3
9	Close Assault Weapon, 18.5mmPC	4d+4 pi++	3	100/500	10/1.5	10	10+1(3)	11†	-5	4	$800	2
9	Shotgun Pistol, 18.5mmPC	4d pi++	1	100/500	4/0.7	3	5+1(3)	10	-3	5	$330	3
9	Underbarrel Shotgun, 18.5mmPC	4d+ pi++	2	100/500	1.5/0.75	2	5+1(3i)	10†	–	4	+$300	3

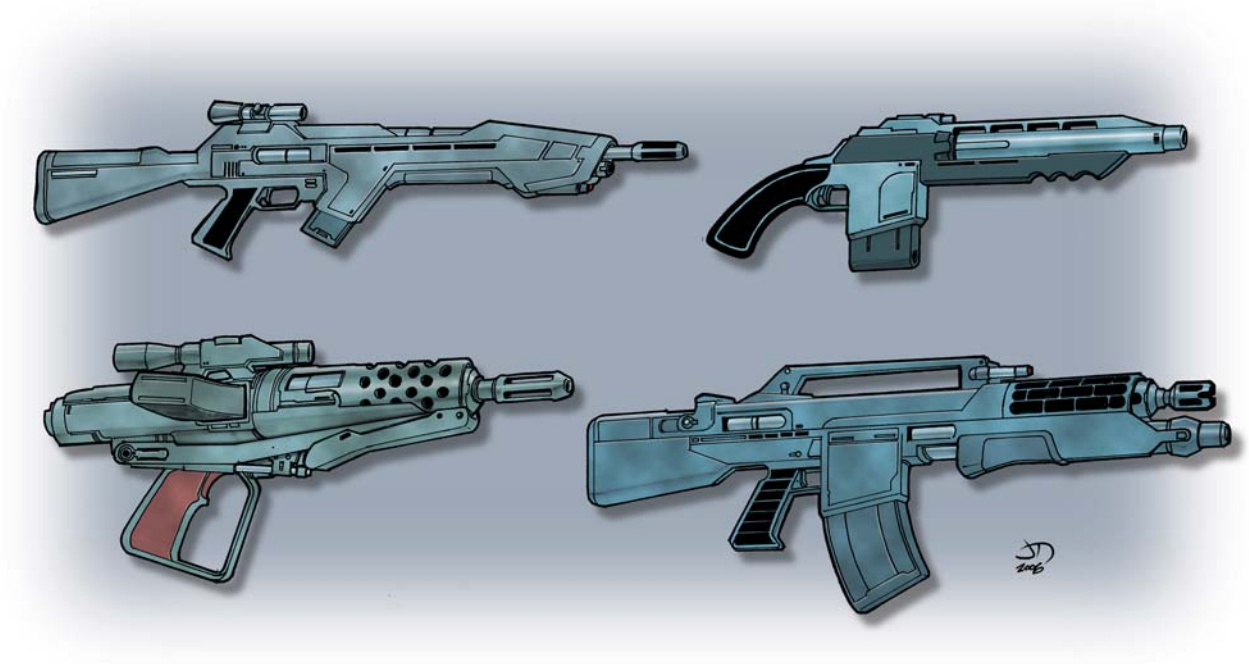
Infantry Support Weapons Table

GUNS (GRENADE LAUNCHER) (DX-4, or most other Guns at -4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC
9	Underbarrel Grenade Launcher, 25mmPC	4d pi++	4+2	360/2,200	1.5/0.8	1	3(3)	10	–	3	+$300	1
9	Underbarrel Grenade Launcher, 40mmPLB	1d pi++	2	75/450	3/2	3	5(5)	10	–	1	+$200	1

GUNS (LIGHT MACHINE GUN) (DX-4, or most other Guns at -2)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC
9	Light Support Weapon, 7mmCL	6d pi	4	700/4,000	15/5	15	200(5)	9B†	-5	2	$3,000	1
9	Storm Chaingun, 10mmCLR	9d pi++	5	1,300/5,800	20/6	10	60(5)	11B†	-6	3	$11,000	1



GUNS (LAW) (DX-4, or most other Guns at -4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC
9	Splat Gun, 15mmPLB	3d+2 pi++	4	220/2,000	20/10	30	30(30)	10†	-6	1	$3,000	1

Mounted Weapons Table

ARTILLERY (CANNON) (IQ-5)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC
9	Mortar Box, 40mmPLB	1d pi++	2	75/450	12/8	4×4	16(20)	12M	-6	1	$1,000	1
9	Mortar Box, 64mmPLB	6d×2 pi++	3	360/3,000	160/80	6×5	30(30)	25M	-10	1	$6,000	1

GUNNER (CANNON) (DX-4, or other Gunner-4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC
9	Tank Cannon, 100mmCL	6d×25	6	3,000/10,000	2,500/40	1	1(4)	150M	-10	4	$100,000	1

GUNNER (MACHINE GUN) (DX-4, or other Gunner-4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC
9	Assault Cannon, 25mmCL	10d pi++	4	700/8,500	75/12	8	34(5)	20M	-8	2	$17,000	1
9	Heavy Chaingun, 15mmCL	15d pi+	6	2,000/9,000	75/12	12	50(5)	20M	-8	2	$34,000	1
9	Minigun, 7mmCL	6d pi	4	700/4,000	33/10	100	400(5)	15M	-7	2	$14,000	1

Conventional Ammunition Table

Pistol Ammo

TL	*Ammo*	*WPS*	*CPS*	*LC*
9	7.5mmCLP	0.006	$0.12	3
9	10mmCLP	0.014	$0.28	3
9	15mmCLP	0.060	$1.2	3

Rifle and PDW Ammo

TL	*Ammo*	*WPS*	*CPS*	*LC*
9	5.7mmCL	0.013	$0.26	3
9	7mmCL	0.027	$0.54	3
9	10mmCL	0.04	$0.8	3
9	10mmCLR	0.06	$1.2	3
9	15mmCL	0.2	$4	3

Shotgun Ammo

TL	*Ammo*	*WPS*	*CPS*	*LC*
9	18.5mmPC	0.092	$1.8	3

Payload Rifle and Cannon Ammo

TL	*Ammo*	*WPS*	*CPS*	*LC*
9	25mmCL	1	$20	2
9	100mmCL	40	$400	1

Splat Gun Ammo

TL	*Ammo*	*WPS*	*CPS*	*LC*
9	15mmPLB	0.27	$7	2

Grenade Launcher and Mortar Ammo

TL	*Ammo*	*WPS*	*CPS*	*LC*
9	25mmPC	0.22	$4.4	3
9	40mmPLB	0.4	$10	3
9	64mmPLB	2	$40	2

Electrothermal-Chemical (ETC) (TL9-10)

These weapons augment chemical energy with electrical power. A controlled plasma burn provides a smoother and more complete utilization of propellant, increasing the projectile velocity without a significant increase in recoil.

They are introduced in armored vehicle cannon in late TL8. By TL9 they are commonly available, and by mid-to-late TL9 appear in small arms. Conservative forces and civilians continue to use them through TL10.

ETC weapons are not shown on the weapon table. Instead, all conventional slugthrowers are also available in ETC-boosted versions.

ETC guns have 1.5 times the piercing damage and range of a conventional caseless-propellant gun. They are also twice as expensive.

They require electrical power as well as ammunition, although this power requirement is much less than an electromagnetic gun or a beam weapon. The grip or stock of an ETC slugthrower incorporates a removable A cell (for pistols), B cell (for SMGs, PDWs, shotguns, rifles), or C cell (for heavy weapons) to provide electrical power. Each power cell can fire 10 magazines of ammunition.

Liquid-Propellant Slugthrowers (TL9)

Liquid propellants are an advanced option for chemical propellant. Propellant and oxidizer are kept in a separate bottle, then squirted into the firing chamber and ignited electrically when the trigger is pulled. Binary propellants are often used; the chemicals are inert until combined in the firing chamber.

Liquid propellant is a bit more powerful and easier to store, but its chief advantage is precise control of propellant velocities. In additional to standard velocity, they have two other options:

Boosted velocity dumps extra propellant into the firing chamber: increase the piercing damage by +1 per die and multiply range by 1.3. Each counts as 1.5 shots for purposes of draining the propellant bottle.

Low velocity dumps much less propellant into the firing chamber, making the weapon subsonic. Reduce the piercing damage and range by half! Rolls to hear the weapon fire are made at -3. Each counts as 1/4 shot for draining the propellant bottle.

Liquid propellant weapons use the same statistics as conventional caseless weapons, but they get 1.5 times as many shots per magazine and are 1.5 times as expensive. (The mechanical design is more complex, so this technology is often limited to specialized sniper and artillery weaponry.) A propellant bottle can fire three magazines of shots and takes five seconds to reload. Additional propellant bottles weigh as much as a normal loaded magazine.

Gas-Powered Air Guns

These use air or carbon dioxide, compressed and stored in liquid form. When the trigger is pulled, the liquid is released and expands into a gas, propelling the projectile.

Gas-powered air guns are quiet and have no muzzle flash. They are often used as sporting weapons, and tend to have a higher Legality Class than other weapons.

Weapons

Needler, 3mm (TL9): A small-caliber air gun that can fire a bullet, or a drugged dart holding one dose of any injectable biochemical poison. Also called a "needle pistol."

Needle Rifle, 3mm (TL9): A higher-powered air rifle, otherwise similar to the needle pistol.

Paint Carbine, 15mm (TL9): A large-caliber, low-velocity air gun used to fire plastic pellets containing paint or biochemical liquid ammunition (p. 153). It is electrically powered (a B cell can fire 10 magazines of ammunition) and capable of automatic fire. It may be designed as a replica of an actual rifle or carbine.

Paint Pistol, 15mm (TL9): A large-caliber, low-velocity air gun used to fire plastic pellets containing paint or biochemical liquid ammunition (p. 153). Some models are designed as replicas of pistols.

Tangler, 25mm (TL9): A compressed gas gun about the size of a shotgun, with a folding stock. It fires a 25mm projectile at a very low velocity. It usually fires tangler (p. 155) ammunition, but can also fire other 25mm warhead rounds or solid metal slugs.

Tangler Pistol, 25mm (TL9): A pistol-sized tangler that uses a less powerful compressed air charge.

Wrist Needler, 3mm (TL9): A needler designed to be strapped to the wrist and concealed up a sleeve. It incorporates a simple neural input sensor reading muscle signals. A trained shooter can fire it with no more effort than pointing a finger, but it's tricky to use without practice. Double penalties for lack of familiarity.

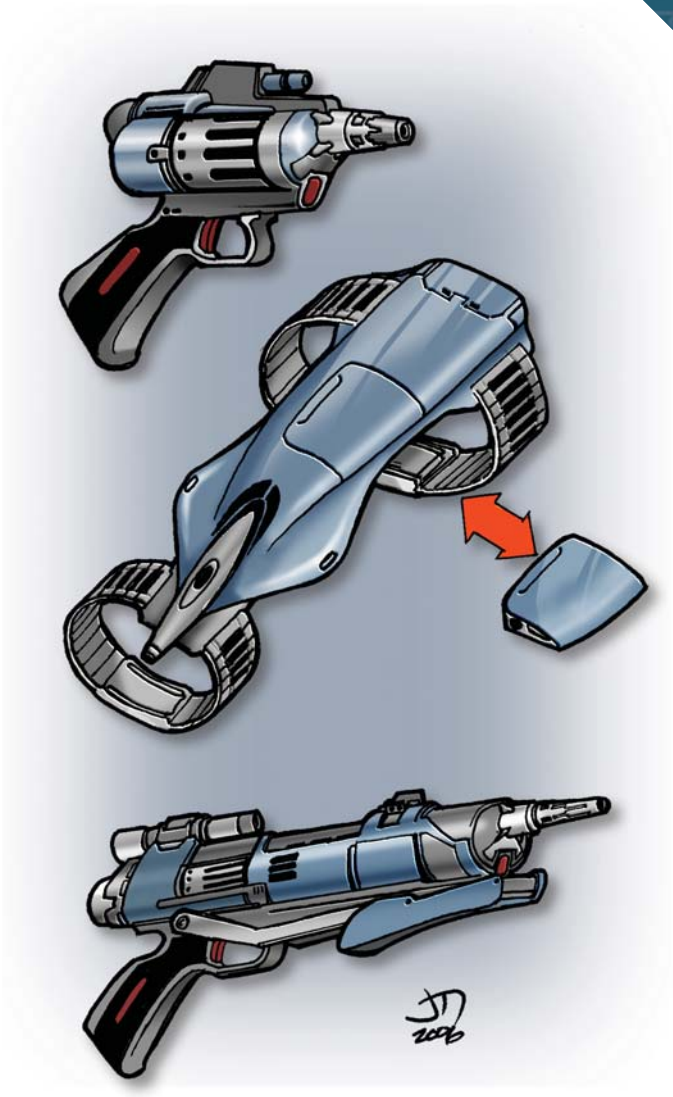
Ice Gun (TL10): These use compressed gas to fire needles of frozen liquid. The needles dissolve without a trace in the target's body. They are intended for survival or assassination. Each 20-shot magazine includes a self-contained refrigeration unit. Pour a cup of water into the magazine, activate the refrigeration unit, and in half an hour (five minutes at TL11, one minute at TL12), 20 new ice needles will be ready to fire. A single C cell can freeze 100 magazines' worth of ice needles.

An ice gun may also deliver drugged rounds. A dose of any hypo-injected drug or poison can be pre-frozen into a sliver and fired, with the normal follow-up effect if it penetrates. Add the cost of 20 doses of that drug or poison.

Partisan Needler, 3mm (TL10): This spring-rifle weapon is designed for low-tech guerrilla fighters, or for use by people planning a long stay in cultures that can't produce sophisticated ammo. The solar-powered flywheel foundry in the stock makes its own ammunition. It can produce 140 needles in an hour using a 2×3×1-inch metal block ($1), which can be made by any village blacksmith with access to ore. After that, it must recharge for 10 hours in the sun.

Option: Non-Metallic

All these weapons except the partisan needler may be made of non-metallic materials for 1.5 times normal cost, allowing an unloaded weapon to bypass ordinary metal detectors.



Gas-Powered Air Gun Table

GUNS (PISTOL) (DX-4, or most other Guns at -2)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
9	Needler, 3mmN	1d+2 pi-	1	50/150	1/0.3	3	100(3)	7	-2	2	$500	3
9	Paint Pistol, 15mm	1d-4 pi++	1	14/90	1/0.5	3	20+1(3i)	8	-2	2	$100	4
9	Tangler Pistol, 25mmT	1d pi++	1	20/130	2/0.5	1	4+1(3i)	10	-3	2	$300	4
9	Wrist Needler, 3mmN	1d-2 pi-	1	25/100	0.1/0.03	3	25(3)	3	-1	2	$200	3
10	Ice Gun, 3mm ice	1d-1 (0.25) pi-	1	50/150	1/0.3	3	20(3)	7	-2	2	$600	2

GUNS (RIFLE) (DX-4, or most other Guns at -2)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
9	Needle Rifle, 3mmN	2d pi-	4	75/300	5/1	3	100(3)	7†	-4	2	$600	4
9	Paint Carbine, 15mm	1d-4 pi++	2	20/130	4/1	10	50+1(3i)	6†	-2	2	$400	4
9	Tangler, 25mmT	1d pi++	2	30/190	5/1	3	8+1(3i)	7†	-4	2	$600	4
10	Partisan Needler, 3mmN	2d pi-	4	75/300	12/1	3	140(3)	10†	-5	2	$1,500	4

Air Gun Ammunition Table

TL	*Ammo*	*WPS*	*CPS*	*LC*
9	3mmN	0.005	$0.1	4
9	15mm	0.025	$0.5	4
9	25mmT	0.12	$2.4	4

Electromagnetic Guns

These weapons use magnetic fields to accelerate projectiles to very high velocities. This translates into high accuracy, range, and kinetic damage. They do not require chemical propellant, which makes storing ammunition safer (less risk of fire or explosion) and reduces the magazine weight and volume. They appear as heavy weapons at TL9, and personal weapons at TL10+.

The electromagnetic pulse produced when an electromagnetic gun fires may be detectable, but it will usually be difficult to localize. The only noise is the crack of the projectile breaking the sound barrier. Ammunition velocity can also be varied, exactly as for a liquid-propellant slugthrower (p. 139). The primary disadvantage of electromagnetic guns is their high power consumption.

Electromagnetic guns may use Gauss guns or railgun technology. Gauss guns – also called coilguns or mass-drivers – accelerate a conductive projectile down a series of coils via a quickly changing magnetic field, and can achieve very high rates of fire. Railguns use two conductive rails to generate a current flow that accelerates a saboted projectile to high velocities. In game terms, both use the same rules, differing only in their combat statistics. Railguns usually do more damage and have superior range to equivalent-size Gauss guns, but tend to have slower rate of fire.

Pistols

Gauss Minineedler, 3mm (TL10): One of the smallest machine pistols available, this is an ultra-compact holdout version of the Gauss needler.

Gauss Needler, 3mm (TL10): A short-ranged but rapid-firing machine pistol.

Gauss Pistol, 4mm (TL10): A long-barreled hypervelocity pistol with more kinetic energy than a 15mm magnum pistol, but only a fraction of the recoil.

Submachine Guns

Gauss Machine Pistol, 4mm (TL10): The Gauss machine pistol's compactness, high rate of fire, and stopping power make it popular with military officers, special forces, and terrorists.

Gauss Personal Defense Weapon (PDW), 4mm (TL10): A compact assault weapon that accelerates bullets to a velocity between that of the Gauss pistol and Gauss rifle.

Rifles

Sniper Railgun, 7mm (TL9): An early sniper railgun used by and against battlesuits and combat robots, or for shooting down aircraft. It fires a 7mm dart at 10,000 feet per second, with twice the power of a 15mm sniper rifle. It has a comparatively low recoil, and can be fired without a bipod.

Portable Railgun, 10mm (TL10): This long-barreled, semi-automatic Gauss rifle fires 10mm slugs at hypersonic velocities. Used as a heavy sniper rifle, its advantage over conventional weapons is its larger ammunition capacity and lighter weight, especially when loaded.

Gauss Needle Rifle, 3mm (TL10): This weapon fires 3mm darts at very high rate of fire.

Gauss Rifle, 4mm (TL10): This may be a standard military rifle at TL10. It is an automatic weapon that accelerates a 4mm bullet to almost 5,000 feet per second.

Shotguns

Gauss Close Assault Weapon (CAW), 18.5mm (TL10): Essentially a Gauss auto-shotgun, this is a fearsome close-combat weapon firing a swarm of 12-gauge projectiles at 150% of the velocity of a conventional shotgun.

Gauss Shotgun Pistol, 18.5mm (TL10): Similar to the Gauss CAW (above), but in pistol format. This big-bore, snub-nosed semi-automatic is a favorite police sidearm, due to the many types of warheads it can fire.

Machine Guns

Gauss Minigun, 4mm (TL9): This weapon spits out high-velocity projectiles at up to 10,000 rounds per minute. It is used as a heavy machine gun and point-defense weapon. The cryogenic cooling jacket surrounding the barrel and the huge ammo cassette allow sustained automatic fire.

Gauss Heavy Machine Gun (HMG), 7mm (TL10): This tripod-mounted 4mm machine gun fires the same round as the Gauss rifle from a 4,000-round ammo cassette.

Gauss Light Support Weapon (LSW), 4mm (TL10): A heavy-barrel version of the Gauss rifle, used as a machine gun or battlesuit sidearm. It can fire 3,000 rounds per minute.

Cannon, Grenade Launchers, and Mortars

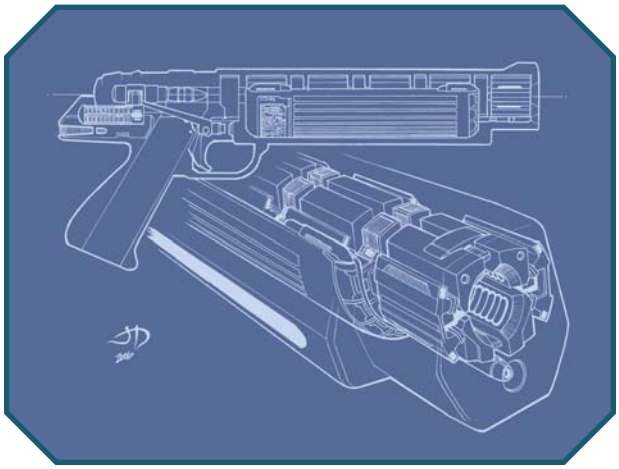
Electromag Grenade Launcher (EMGL), 40mm (TL10): An EMGL is a stubby, shotgun-like Gauss gun, similar in shape to 20th-century grenade launchers.

Electromag Auto Grenade Launcher (Auto EMGL), 40mm (TL10): A bulky weapon firing the same round as the EMGL, but at higher velocities. It's used as a tripod-mounted infantry support weapon, or by powered troopers.

Electromag Mortar, 64mm (TL10): This heavy base-mounted tube is a standard semi-portable infantry artillery piece. It's also found mounted in vehicle turrets.

Railgun, 40mm (TL10): An electromagnetic cannon with a very long barrel, firing a projectile at hypersonic velocities. It's a suitable main gun for a tank or small warship.

Underbarrel Electromag GL, 25mm (TL10): This is a Gauss grenade launcher that can be attached under any weapon with Bulk -3 or more. It's also called a mini-GL. Use the Bulk, ST, and sighting bonuses of the weapon it is installed in.



Electromagnetic Gun Table

ARTILLERY (CANNON) (IQ-5)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC	Notes
10	Electromag Mortar, 64mm	6d×3 pi++	4	1,000/6,000	50/10	1	4(5)	12M	-10	2	$40,000	1	[4]

GUNS (PISTOL) (DX-4, or most other Guns at -2)

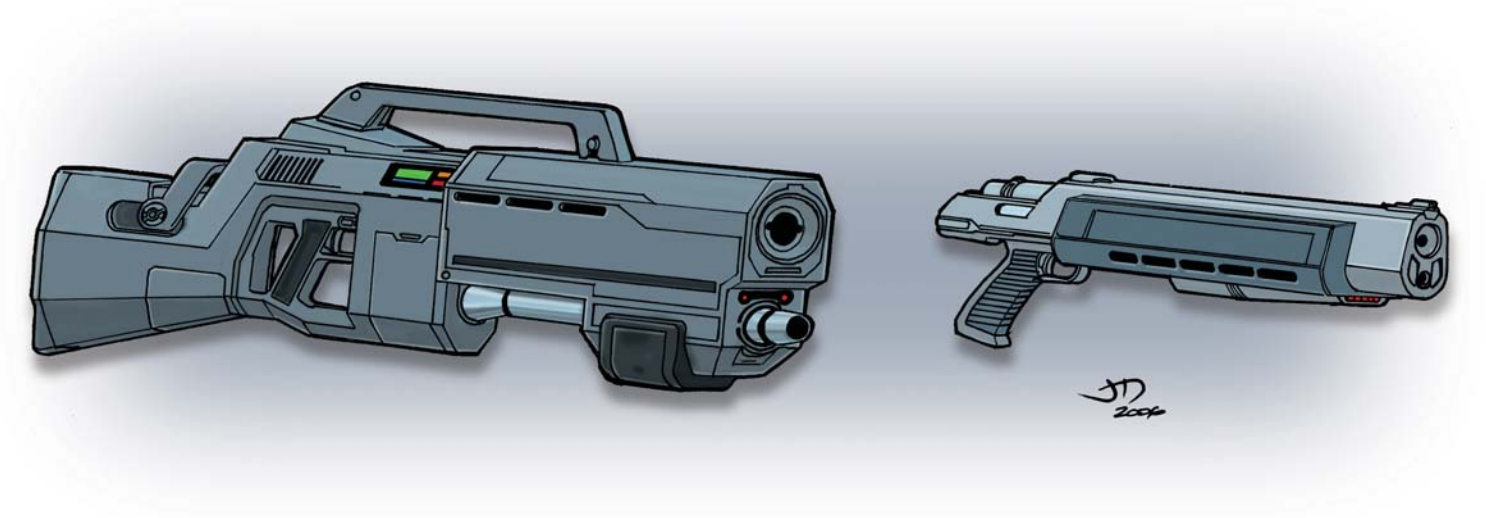
TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC	Notes
10	Gauss Minineedler, 3mm	1d(3) pi-	1	50/200	0.1/0.03	4	25(3)	3	-1	2	$800	3	[1]
10	Gauss Pistol, 4mm	3d(3) pi-	3	500/2,100	2/0.5	3	40(3)	9	-2	2	$1,700	3	[3]

GUNS (SMG) (DX-4, or most other Guns at -2)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC	Notes
10	Gauss Machine Pistol, 4mm	3d(3) pi-	3	500/2,100	3/0.5	20	40(3)	9	-2	2	$1,700	2	[2]
10	Gauss Needler, 3mm	2d(3) pi-	2	100/300	1.5/0.5	12	100(3)	7†	-2	2	$2,000	2	[2]
10	Gauss PDW, 4mm	4d(3) pi-	6+1	700/2,900	4.6/1	16	80(3)	9†	-3	2	$3,600	2	[3]

GUNS (RIFLE) (DX-4, or most other Guns at -2)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC	Notes
9	Sniper Railgun, 7mm	6d×2(3) pi	7+3	2,400/10,000	20/1.4	1	30(3)	11B†	-6	2	$18,000	2	[4]
10	Gauss Needle Rifle, 3mm	2d+1(3) pi-	4	500/2,000	6/1	20	100(3)	8†	-3	2	$3,000	2	[3]
10	Gauss Rifle, 4mm	6d+2(3) pi	7+2	1,200/4,800	8.5/1.4	12	60(3)	10†	-4	2	$7,100	2	[3]
10	Portable Railgun, 10mmG	5d×3(3) pi+	4	3,000/12,000	20/1.5	3	25(3)	10†	-6	3	$18,000	1	[3]



GUNS (SHOTGUN) (DX-4, or most other Guns at -2)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC	Notes
10	Gauss CAW, 18.5mm	8d pi++	4	200/1,000	10/1.5	15	30(3)	10†	-4	3	$2,400	2	[3]
10	Gauss Shotgun Pistol, 18.5mm	8d pi++	2	200/1,000	3/0.5	3	10(3)	10	-3	4	$2,000	3	[3]

GUNS (GRENADE LAUNCHER) (DX-4, or most other Guns at -4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC	Notes
10	EMGL, 40mmG	4d pi++	3	150/1,000	10/3	1	3(5)	8†	-5	2	$7,000	1	[3]
10	Underbarrel EMGL, 25mmG	4d pi++	4+2	360/2,200	2/1	1	3(3)	10	–	2	$1,000	1	[3]

GUNS (LMG) (DX-4, or most other Guns at -2)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC	Notes
10	Gauss LSW, 4mm	6d+2(3) pi-	7+2	1,200/4,800	20/7	20	300(5)	12B†	-5	2	$13,000	1	[3]

GUNNER (CANNON) (DX-4, or other Gunner at -4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC	Notes
10	Auto EMGL, 40mmG	8d pi++	4	300/2,000	64/10	1	20(5)	14†	-8	2	$54,000	1	[4]
10	Railgun, 40mm	6d×25(3) pi	8	8,000/29,000	4,000/150p	20	200(5)	57M	-10	2	$630,000	1	[5]

GUNNER (MACHINE GUN) (DX-4, or other Gunner at -4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC	Notes
10	Gauss HMG, 7mm	16d(3) pi	8	3,000/12,000	64/20	20	200(5)	20M	-8	2	$44,000	1	[4]
10	Gauss Minigun, 4mm	10d(3) pi-	8	1,800/7,200	64/20	100	1,000(5)	20M	-8	2	$44,000	1	[4]

[1] Powered by a B cell.
[2] Powered by two B cells.
[3] Powered by a C cell.
[4] Powered by a D cell.
[5] External power.
The weapon's power cell provides enough energy for firing its specified number of Shots, and is included in the weight.

Electromagnetic Gun Ammunition Table

TL	Ammo	WPS	CPS	LC
10	3mm	0.004	$0.04	3
10	4mm	0.006	$0.06	3
10	7mm	0.024	$0.24	3
10	10mmG	0.08	$0.8	3
10	18.5mm	0.037	$0.37	3
10	25mmG	0.09	$0.9	3
10	40mmG	0.33	$5	3
10	40mm	6	$60	2
10	64mm	2	$20	2

Grav Guns

Gravguns use a pressor beam to accelerate hyperdense slivers to a high fraction of light speed, neutralizing recoil with inertial compensation systems. In atmosphere, each shot is preceded by a low-power laser beam, which creates an evacuated channel through which the projectile can pass. The rounds turn to plasma and explode as they hit the target, inflicting impaling damage with the incendiary modifier and a (10) armor divisor.

Grav Needler Weapons

Grav Mini-Needler (TL11^): A small holdout pistol powered by two B cells.

Grav Needler (TL11^): A hypervelocity machine pistol with a rapid rate of fire. Powered by a C cell.

Grav Needle Rifle (TL11^): A grav gun assault rifle, capable of turning a light armored vehicle into Swiss cheese with a single burst. Powered by a C cell.

Gravitic Railgun (TL11^): A tank-sized gravitic cannon firing darts at near-light speed. External power.

Heavy Grav Needler (TL11^): A rapid-fire machine gun powered by a D cell.

Sniper Grav Gun (TL11^): A long-barrel sniper version of the grav needler rifle. Powered by two C cells.

Grav Gun Table

GUNS (PISTOL) (DX-4, or most other Guns at -2)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC
11^	Grav Minineedler	2d(10) imp in	1	50/200	0.1/0.03	4	100(3)	3	-1	1	$200	3

GUNS (SMG) (DX-4, or most other Guns at -2)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC
11^	Grav Needler	3d(10) imp in	5	500/1,500	1.5/0.5	20	500(3)	7†	-2	1	$2,000	2

GUNS (RIFLE) (DX-4, or most other Guns at -2)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC
11^	Grav Needle Rifle	4d(10) imp inc	10	2,000/6,000	6/1	20	1,000(3)	8†	-3	1	$10,000	2
11^	Sniper Grav Gun	8d(10) imp inc	11	4,000/12,000	10/1	3	1,000(3)	9†	-4	1	$18,000	1

GUNS (LMG) (DX-4, or other Guns at -2)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC
11^	Heavy Grav Needler	8d(10) imp inc	10	4,000/12,000	20/4	100	4,000(5)	11†	-5	1	$32,000	1

GUNNER (CANNON) (DX-4, or other Gunner at -4)

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost	LC
11^	Gravitic Railgun	6d×15(10) imp inc	15	10,000/30,000	1,000/10Fp	20	2,000(5)	34M	-10	1	$2,000,000	1

Grav Gun Ammunition Table

TL	Ammo	WPS	CPS	LC
11	Grav Needler Round	0.001	$0.01	3
11	Grav Railgun Round	0.3	$30	2

Gyrocs

Gyrostabilized rocket launchers fire spin-stabilized rockets the size of bullets. Primitive TL7 rocket pistols such as the Gyrojet were notably inaccurate and slow to accelerate. TL9 developments in rocket fuels and micro-electromechanical systems stabilize even unguided rockets, and allow miniaturized homing systems at extra cost. (Not all "gyrocs" actually use gyrostabilization – some have smart skins that steer them in flight via tiny aerodynamic bumps or fins.)

Since they are propelled by a rocket motor, gyrocs have a flat trajectory with a maximum range similar to the 1/2D range. Gyroc launchers are also light compared to conventional guns – almost half a typical gyroc weapon's weight is its ammunition. They're effectively recoilless, and quieter than ordinary guns. The hissing sound the rockets make is hard to localize: a Hearing roll is needed to spot the firer by sound alone.

Gyrocs have a few disadvantages. They're less accurate than conventional bullets. Also, like most rockets, they take some time to accelerate: divide their piercing damage by 3 at one or two yards and by 2 at three to 10 yards. This limits their utility as civilian or police weapons unless using specialized (e.g., explosive) ammunition. Gyroc ammo is also bulky and expensive, which limits the number of shots their magazines can be loaded with. Users often rely on homing ammunition (see *Gyroc Micromissiles*, below), substituting precision for volume of fire.

Gyroc Weapons (TL9)

Gyrocs are available in several configurations. Typical gyroc weapons include:

Gyroc Carbine, 15mm: This is a popular infantry weapon, especially when loaded with armor-piercing explosive rockets (such as HEMP ammunition, p. 155).

Gyroc Launch Pistol, 15mm: A semi-automatic magazine-fed rocket pistol.

Gyroc Light Support Weapon, 15mm: An electrically powered machine gun-sized gyroc with a large ammunition cassette and full automatic fire capability. A B cell provides up to 15 minutes continuous fire.

Gyroc Pistol, 15mm: A simple and compact weapon – basically a four-shot revolver. Different rockets can be loaded in each chamber.

Holdout Gyroc, 15mm: Also called the "sleeve gyroc," this is an single-shot rocket launcher. It's often worn attached above the wrist.

Underbarrel Gyroc, 15mm: An alternative to a grenade launcher, this compact weapon is designed to be clamped onto (or built into) an assault rifle for extra firepower. Use the Bulk, ST, and sighting bonuses of the weapon it is installed in.

Gyroc Micromissiles (TL9)

Gyrocs are often equipped with homing projectiles (sometimes called "micromissiles" or "viper gyrocs") – see *Homing Projectiles*, p. 146. Micromissiles are quite expensive, so troops may not be issued full magazines of them, receiving a few as "silver bullets" in addition to the regular gyroc ammo load.

Gyroc Launcher Table

GUNS (GYROC) (DX-4, or most other Guns at -4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*	*Notes*
9	Gyroc Carbine, 15mm	6d pi++	2	1,900	4/1	3	10(3)	7†	-3	1	$500	2	
9	Gyroc Launch Pistol, 15mm	6d pi++	1	1,900	2/0.7	3	6(3)	10	-2	1	$300	3	
9	Gyroc LSW, 15mm	6d pi++	2	1,900	12/3	10	30(5)	10†	-4	1	$1,400	1	
9	Gyroc Pistol, 15mm	6d pi++	1	1,900	1/0.4	3	4(3i)	9	-2	1	$200	3	
9	Holdout Gyroc, 15mm	6d pi++	0	1,900	0.25/0.1	1	1(3i)	6	-1	1	$50	3	
9	Underbarrel Gyroc, 15mm	6d pi++	2	1,900	1.5/0.7	3	6(3)	6†	–	1	$150	2	[1]

[1] May be attached to any weapon of Bulk -3 to -6; use that weapon's Bulk.

Gyroc Ammunition Table

TL	*Ammo*	*WPS*	*CPS*	*LC*
9	15mm gyroc	0.1	$5	3
9	15mm micromissile	0.1	$50	3

Rockets and Missiles

These are missile launchers larger than the gyroc weapons. The standard weapons are solid propellant rockets, but superscience reactionless-drive missiles are also possible.

Infantry Missile Launcher (IML) (TL9-10)

This is a single-shot launch tube with a pistol grip and an electronics system. It holds one mini-missile, but can be reloaded after each shot if extra missiles are carried. It is light enough (six pounds loaded) that every soldier could carry one.

The launcher fires a supersonic missile with a 64mm warhead. It produces a dangerous backblast when fired, doing 2d burning damage to everyone within a cone up to two yards behind the launcher.

Each missile costs $100 without a warhead; homing missiles (p. 146) cost more. The usual warhead is a solid "kinetic kill" projectile inflicting the listed piercing damage. The warhead costs $10; multiply this figure for the more expensive warheads listed under *Warheads and Ammunition* (pp. 152-159).

Multiple Light Anti-Armor Weapon System (MLAWS), 64mm (TL9-10)

The MLAWS is a six-tube launcher with a loaded weight of 35 pounds. It is quite hefty, but its lack of recoil allows an ordinary person to fire it. The MLAWS is used as a squad support weapon, although it's not uncommon to see them attached to post mounts on vehicles or hung under the pylons of attack aircraft. The MLAWS fires the same missile as an IML (see above), with the same options and backblast hazard.

Tactical Missile Launcher (TML), 100mm (TL9)

This bulky launch tube holds a single pre-packaged missile. An unguided rocket costs $400; missiles with guidance systems cost more. The basic warhead is a 100mm solid "kinetic kill" projectile that inflicts the listed piercing damage. This costs $40; multiply this figure for the more expensive warheads listed under *Warheads and Ammunition* (pp. 152-159). It has a potentially lethal backblast when fired, doing 4d burning damage to everyone within a cone up to three yards behind the launcher.

Reactionless Missiles (TL11^)

Any of the above missiles can have superscience reactionless drives. The missiles have no backblast and get five times the normal max range (1/2D range and speed don't increase). The missiles are twice as expensive; the costs of the launchers and warheads are unchanged.

Missile Launcher Table

ARTILLERY (GUIDED MISSILE) (IQ-5, or other Artillery at -4)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
9	IML, 64mm	6d×3 pi++	3	500/4,000	4/2	1	1(5)	7†	-4	1	$2,000	1
9	MLAWS, 64mm	6d×3 pi++	3	500/4,000	35/12	1	6(5)	11B†	-8	1	$23,000	1
9	TML, 100mm	6d×30 pi++	3	2,000/10,000	35/25	1	1(20)	11B†	-8	1	$10,000	1
10	IML, 64mm	6d×5 pi++	3	750/6,000	4/2	1	1(5)	7†	-4	1	$2,000	1
10	MLAWS, 64mm	6d×5 pi++	3	750/6,000	35/12	1	6(5)	11B†	-8	1	$23,000	1
10	TML, 100mm	6d×50 pi++	3	3,000/15,000	35/25	1	1(20)	11B†	-8	1	$10,000	1

All statistics are for "baseline" high-velocity rockets with solid warhead. Most weapons will fire homing projectiles (below) with a more specialized warhead!

Homing Projectiles

Ultra-tech projectile weapons may contain sensors and steering systems that enable the projectile to home in on a target by itself.

Gyroc, missile, and rocket launchers often fire homing projectiles. Guns may fire homing projectiles if the homing system can fit in the bullet or shell – this requires high TLs for small caliber rounds. Homing projectiles use the *Homing Weapon* rules (p. B413). The firer rolls against Artillery (Guided Missile) to *aim.* On a success, the missile gets its Acc bonus. The weapon's "1/2D" range is its speed in yards/second. The missile's skill and type of homing attack depends on the type of homing systems installed:

Infrared Homing ("Viper") (TL9)

These inexpensive systems are available for 15mm or larger projectiles at TL9, 10mm or larger at TL10, 7mm or larger at TL11, and all projectile sizes at TL12.

They make a Homing (Infravision) attack. They have a skill of 13, +1 per TL after introduction. Add 300% to the base projectile cost (i.e., a projectile costs four times as much).

Multi-Spectral Homing (TL9-12)

These sophisticated guidance systems are available for 40mm or larger projectiles at TL9, 25mm or larger at TL10, 15mm or larger at TL11, and 10mm or larger at TL12.

They can be set for "passive" homing, making a Homing (Hyperspectral Vision) attack. They can be set for "anti-radiation" to track any radio or radar signals the target emits, making a Homing (Detect Radar and Radio) attack. Finally, they may be set for "active" homing, making a Homing (Imaging Radar) attack.

They have a skill of 14, +1 per TL after introduction. Add 900% to the base projectile cost (i.e., a projectile costs 10 times as much).

Multiscanner Homing (TL11-12^)

These superscience guidance systems are available for 15mm or larger projectiles at TL11, and 10mm or larger at TL12. They make a Homing (Penetrating Para-Radar) attack, guided by the same technology as the ultrascanner (p. 146). They can even home in on targets behind thin walls, and will attack targets behind cover if their sensors suggest they have a chance of penetrating. They have a skill of 12, +1 per TL after introduction. Add 900% to the base projectile cost.

Brilliant Weapons (TL9-12)

These are robotic missiles capable of autonomous flight and target selection. Unlike a normal homing weapon, which the user locks onto a target he can see or otherwise detect, a brilliant weapon is simply released to look for targets on its own. See *Robot Weapons* (pp. 168-169) for examples of various brilliant weapons.

Hand Grenades

Traditional hand grenades are convenient and deadly weapons in close combat – and a powered suit (pp. 181-186) or robotic body can throw them much further than humanly possible!

There are three standard grenade sizes:

Hand Grenade: This is the standard grenade, about the size of a baseball. It has the same effect as a 64mm warhead. $40, 1 lb.

Mini Hand Grenade: An easy-to-conceal grenade the size of a golf ball. It has the effect of a 40mm warhead. $10, 0.25 lbs.

Thimble Grenade: A tiny grenade one inch in diameter. It has the same effect as a 25mm warhead. $2.5, 0.06 lbs.

The effect of a grenade, its TL, and its LC depends on the grenade's warhead. See *Warheads and Ammunition* (pp. 152-159). The cost given is the base cost for a high explosive fragmentation grenade. Other warhead types may have a multiple to cost, e.g., a stasis grenade is 500 times normal cost.

Standard ultra-tech grenades have an activator handle and a two-second delay. To use the grenade, take one second to "pull the pin" and arm the grenade. The grenade will explode two seconds after the user releases the grenade (usually by throwing it).

Smart Grenades (TL9)

These grenades incorporate a computer chip and micro-communicator (p. 43). A smart grenade can be controlled by any computer terminal, usually a wearable system. To activate them, the user must first press an arming switch on the grenade (this is manual, to prevent unauthorized remote activation). The grenade sends out a signal, and if the user is in range, a grenade arming display pops up on the user's interface. He can then select any menu option for the grenade.

The options are: a specified *time delay* (up to two weeks), *command detonation* (detonates by radio command; each grenade carried has its own frequency), *impact fusing* (goes off if struck, dropped, or thrown against a hard surface), or *anti-tamper fusing* (as per command or delay, but goes off if touched). The user can reprogram the grenade if he uses its unique code, or he can lock the grenade so that its commands cannot be changed.

It takes three Ready maneuvers to program a smart grenade. Smart grenades *also* have a conventional pin that can be pulled, turning the grenade into an ordinary grenade that will go off two seconds after the grip is released. Sometimes a regular fuse is enough, especially when there's no time to mess around with computer menus!

At TL9, a smart grenade option adds $100 to the grenade's cost, after all modifiers for the type of warhead. At TL10+ the cost is trivial – all hand grenades can be smart at no additional expense.

Smart grenades may have a message option – see *Message Bombs* (p. 109).

Saucer Grenades (TL9)

These grenades come in a aerodynamic disk shape, and are sheathed in a flexible rubberized plastic. They are armed the same way as other grenades, and come in both ordinary and smart versions. Their effect is the same as a mini-grenade, but they're bulkier due to their shape; only one can fit in a large pocket.

Use Throwing skill to hurl them, but instead of using the throwing rules, treat them as a thrown weapon with the statistics shown below. The rubberized sheath allows them to be bounced around corners: roll at -3 to get the grenade to do this. If a saucer grenade misses and scatters (p. B414), and an obstacle blocks it before it travels the full scatter distance, the grenade will bounce back the remaining yards in the opposite direction.

Limpet Mines (TL9)

Limpets are similar to hand grenades, but are not balanced for throwing. Instead, they can stick (or unstick) to almost any surface upon receiving the correct communicator pulse. They can also be used as handheld weapons (with any preset delay) by slapping them on a target, from a human to a starship.

Limpets may be worn on armor as defensive decoys: e.g., limpets filled with prismatic smoke can be set to trigger instantly if laser sensors detect a laser beam. To remove a limpet without the proper code, roll vs. ST-5, one try per second. Pulling one off of flesh does one point of damage. Otherwise, limpet mines have the same statistics as smart grenades.

Saucer Grenade Table

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	Cost	ST	Bulk
9	Saucer Grenade	40mm warhead	2	×3/×5	0.5	1	T(1)	$40	5	-1

Typical Weapons by TL

An enormous variety of weapons are possible, and individuals, organizations or cultures will have their own favorites. Some suggestions are given below.

TL9

Personal Sidearm: 10mm auto pistol, 3mm needle pistol, 15mm gyroc pistol, or a nonlethal electrolaser pistol, nauseator pistol, tangler pistol, or vortex pistol.

Paramilitary or Special Ops: 5.7mm PDW, 10mm machine pistol, 15mm gyroc carbine, urban assault weapon, 40mm grenade launcher. Snipers may use a 10mm sniper rifle, a 15mm anti-material rifle, or a laser sniper rifle. Biochemical, strobe, and tangler grenades are popular.

Infantry: 7mm assault carbine or 10mm storm carbine, with 25mm grenade launcher. Concussion, fragmentation, and shaped-charge grenades are popular.

Squad Support or Powered Infantry: 7mm LSW, 7mm sniper railgun, 25mm payload rifle, 40mm grenade launcher, or MLAWS launcher.

Holdout: Holdout pistol, sleeve gyroc, wrist needler.

Melee Weapons: Stun wand, superfine knife, zap glove. In superscience settings, monowire blades or whips are popular!

TL10

Personal Sidearm: 4mm Gauss pistol or laser pistol; sonic stunners.

Paramilitary or Special Ops: 4mm Gauss PDW, heavy laser pistol, gyroc carbine, or laser carbine; 40mm electromagnetic grenade launcher; snipers use a 10mm portable railgun, a dinosaur laser, or a laser rifle.

Infantry: 4mm Gauss rifle or laser rifle, with 25mm underbarrel EMGL; HEMP grenades are popular.

Squad Support or Powered Infantry: 4mm Gauss LSW, 15mm portable railgun, 40mm EMGL, Gatling laser, or MLAWS missile launcher.

Holdout: Gauss needler, holdout laser.

Melee Weapons: Neurolash; vibroblade knife; in superscience settings, the monowire switchblade is highly effective.

TL11

Personal Sidearm: Blaster pistol or rainbow laser pistol, often with electrolaser setting. In superscience settings, plasma pistols and neural disruptors, or force-jacketed X-ray lasers.

Paramilitary: Blaster carbine, rainbow laser carbine; snipers use a rainbow dinosaur laser. Superscience settings add force-jacketed X-ray laser carbines or dino lasers.

Infantry: Blaster rifle or rainbow laser rifle. In superscience settings, plasma rifles or force-jacketed X-ray laser rifles.

Squad Support or Powered Infantry: Heavy blaster, rainbow Gatling laser, or superscience fusion gun or force-jacketed X-ray Gatling laser.

Holdout: Holdout blaster, or holdout rainbow laser.

Melee Weapons: Hyperdense blades. In superscience settings, force swords and other force blade weapons are popular.

TL12

Personal Sidearm: Graser pistol or pulsar pistol, or superscience disintegrator or mind disruptor pistols.

Paramilitary or SWAT: Graser carbine or pulsar carbine, or superscience mind disruptor rifle. Snipers use a dinosaur graser.

Light or Mechanized Infantry: Graser rifle or pulsar rifle, or superscience disintegrator rifle.

Squad Support or Powered Infantry: Gatling graser or heavy pulsar; superscience semi-portable disintegrator.

Holdout: Holdout graser; superscience holdout disintegrator or mind disruptor.

Melee Weapons: In superscience settings, stasis switchblades and force whips may be popular.

Firearm Accessories

In combat, any edge can mean the difference between life and death – and technology is a great way to get that edge. This section presents devices and modifications to enhance almost any weapon.

Smartgun Electronics

Every TL9+ firearm has a laser sight (p. 149), a HUD link (below), a recognition grip or transponder ring (p. 150), and a diagnostic computer (p. 151) for free. These electronics are powered by an integral B cell, which is included in the basic weight of the gun. A tiny computer (p. 22) may also be included. However, these components can be ignored if they are not standard in a particular setting.

Targeting Systems

These help the shooter find his target and hit it.

HUD Link (TL9)

Connected to a heads-up display (p. 24), this shows augmented-reality targeting imagery in the user's field of view. The link shows him exactly where his firearm is pointing (+1 Acc within 300 yards, not cumulative with the Acc bonus for other targeting systems), the number of shots remaining, and – if using a laser sight or other active targeting device – the distance to the target. The user can exploit this to see around corners, exposing only his weapon.

Multispectral Laser Sight (TL9)

This device projects a low-powered eye-safe laser beam, placing a laser spot at the point where the weapon will hit. A standard feature of all TL9+ firearms, it helps the user aim or intimidate opponents.

A laser sight gives a +1 to skill when used out to the weapon's 1/2D range, provided the dot is visible to the shooter. It can be set to use any one of these frequencies:

Visible Light: This projects a visible red, blue, or orange spot. The laser beam itself is visible only in dusty or smoky environments – which might describe many firefights!

Infrared: An infrared laser beam projects a dot that is invisible without an infrared or hyperspectral vision system.

Ultraviolet: The dot of this ultraviolet laser beam is invisible without an ultraviolet or hyperspectral vision system.

Compact Targeting Scope (CTS) (TL9-12)

This video sighting system provides infravision at TL9 or hyperspectral vision at TL10-12. It has telescopic optics for normal viewing in daylight, and interfaces with the weapon's HUD sight. It provides a +2 bonus to aimed shots at TL9-10, +3 at TL11, or +4 at TL12.

The scope can also be used as a passive sensor, providing Infravision or Hyperspectral Vision with Restricted Vision (Tunnel Vision). It has 4× magnification at TL9-10, 8× at TL11, or 16× at 12. The user must aim the weapon at the target he is observing. $1,000, 0.5 lbs., A/100 hr. LC4.

Enhanced Targeting Scope (ETS) (TL9-12)

A powerful video sighting system used by snipers or heavy weapons gunners. It provides hyperspectral imaging (p. 61), plus telescopic optics for normal viewing in daylight. It interfaces with the weapon's HUD sight.

The weapon's sight automatically measures wind conditions, air temperature, and even local gravity conditions, adjusting the weapon's velocity to compensate.

The scope adds a +3 bonus to aimed shots at TL9-10, +4 at TL11, or +5 at TL12. Used as a passive sensor, it provides Hyperspectral Vision with Restricted Vision (Tunnel Vision) with 8× magnification at TL9-10, 16× at 11, or 32× at TL12. The user must aim his weapon at the target he's observing. $8,000, 2 lbs., B/400 hr. LC4.

Tactical Programs

These programs augment the tactical or strategic acumen of police and military personnel by automating error-prone tasks. They assist the user without replacing him.

Silhouette (TL9)

This optical recognition program specializes in identifying targets of military interest and providing background or technical data. The quantity and accuracy of supporting information depends on the databases used. High-quality commercial databases offer expensive subscriptions and constantly updated content, but lack detail. Military databases are usually encrypted and contain very detailed information, including hyperspectral emission profiles, countermeasure tactics, and usage instructions. Military databases require Military Rank or Security Clearance. Complexity 5; double normal cost.

TacNet (TL9)

A software tool (p. 25) useful for combat troops, TacNet helps a leader monitor a combat force by tracking and displaying their positions, firing arcs, blind spots, command relationships, and more. This gives a bonus to Tactics if all parties are in communication. Complexity 5 (+1 Tactics), LC3 or Complexity 6 (+2 Tactics), LC2. 10 times normal cost.

Targeting (TL9)

This software tool augments the capabilities of a HUD link (above) by improving target acquisition speed, ballistic modeling, environmental compensation (adjusting for air pressure, wind, humidity, temperature, etc.), and

prioritizing targets for threat assessment. The program gives a bonus to a single Gunner or Guns specialization if used with a HUD link. Complexity 3 (+1 skill) or Complexity 4 (+2 skill). Five times normal cost. LC2.

Target Tracking

Used in conjunction with a sensor system (see Chapter 3) such as a radar, radio direction finder, or hyperspectral optics, this tracks up to 10 distinct targets or emission sources at a time. It displays size, signal strength, bearing, vectors, and other appropriate information on a moving-map display. Complexity 2; five times normal cost. Add +1 to Complexity and double cost per tenfold increase in tracking ability. LC4.

Targeting with Active Sensors

The most accurate way to aim a weapon is to slave a targeting program (p. 149) to a "tactical" active sensor (see Chapter 3) that has locked onto a target. This feeds real-time ranging data to the gunner and shows the gunner exactly how to move the weapon (or vehicle, if a fixed weapon) to hit the target.

This can only be used for a mounted weapon (i.e., one using Gunner skill). The combination of targeting program and active sensor gives the maximum possible targeting bonus. *Replace* all bonuses for scopes, computers, sensors, etc. with a bonus equal to the weapon's base Acc. In other words, its Acc is effectively doubled. (Acc does still increase normally with Aim maneuvers – +1 after one second, +2 after two seconds, etc.)

In order to gain this bonus, the target must be in range of the active sensor, and the program must be able to provide data directly to either the vehicle operator or whoever is operating the weapon mount.

Other Accessories

These accessories can be added to most of the weapons in this chapter.

Accessory Rails (TL9)

Firearms often have accessory rails for attaching optional systems such as sights and grenade launchers. Up to four accessory rails per weapon are allowed (under barrel, over barrel, side of stock, top of stock) but this will vary with weapon size and configuration. $100 and 0.2 lbs. each.

Gyrostabilized Weapon Harness (TL9)

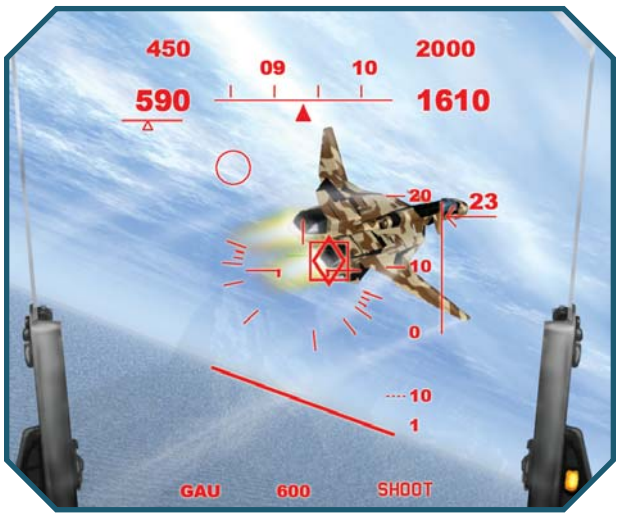
This articulated weapon harness (below) cancels the penalty for a Move and Attack (see p. B365). It is $1,000, plus $200 and 1 lb. per pound of loaded weight. LC4.

Access Control (TL9)

This electronic access system limits usage to authorized persons. The weapon will not fire for unauthorized users. Access control can be assigned to individual owners, but in military and paramilitary organizations it is common to set it so everyone in a unit can share the same weapons. Deactivating or reprogramming the safety system requires an Armoury (Small Arms) or Electronics Operation (Security) roll at a -2 penalty. The first attempt takes 10 seconds; subsequent attempts require 10 minutes per try.

Transponder Ring: A ring worn by the user that contains a radio transmitter with a one-inch range. The transmitter sends a coded authorization message to the weapon, which will not fire unless the correct ring is worn. The ring may be permanently built into an armored suit glove, if desired. $100. LC4.

Recognition Grip: A multi-function biometric scanner built into the grip. It can respond to palm prints or voice prints. It may also require both identifiers for maximum security. $100. LC4.



Self-Destruct Anti-Theft (TL10^)

A miniature biosensor in the weapon's handgrip automatically scans the genetic pattern of the holder. If that pattern matches one of the authorized users in its memory, the weapon will fire. If not, the weapon will lock its firing circuits and begin a destruct sequence. It may or may not warn its holder!

To abort the destruct sequence, the unrecognized holder must give the weapon's computer a verbal authorization code. If the correct code is not given in 10 seconds, the gun self-destructs, doing 6d×4 explosion damage.

With the correct code (a single word and number combination, e.g., "Wolf 323") the weapon can be reprogrammed to accept the biopattern of the holder. Each code is unique to each weapon. Special codes are also possible, such as one to delete biopatterns, or one which causes the weapon to destroy itself immediately when fired. Any attempt to circumvent the anti-theft system requires proper tools and a roll against Electronics Operation (Security)-3. Each attempt takes half an hour; failure activates the destruct sequence, while critical failure causes an immediate explosion. $100. LC3.

Articulated Weapon Harness (TL9)

This is used to steady very heavy weapons. It straps on and has a chest plate in front, with a supporting arm and

three hydraulic joints positioned to allow universal motion and easy suspension. It has the same effect as a bipod (ST requirement of the weapon is reduced by 2/3 and the weapon counts as braced), but can be used while standing up or moving. The user must still operate the weapon normally, using his own hands to aim and fire it.

The harness must be built for a specific weapon, and is generally limited to weapons with Bulk -4 or more. It is $50 and 0.5 lbs. per pound of loaded weight for the weapon it is built for – e.g., a harness for a 20-lb. machine gun is $1,000, 10 lbs. LC4.

Diagnostic Computer (TL9)

These smart integrated electronics give +1 to skill rolls to fix damage or malfunctions. Diagnostic computers are standard in all TL9+ firearms at no extra cost.

D-Tag (TL9)

This is a tiny receiver built into a weapon or other item. Upon receiving a coded signal on a specific radio frequency, it sends out a return signal. D-tags are often built into police equipment, and some regimes may put them in weapons sold to civilians. A successful Electronics Operation (Security) roll is required to find it; a second roll (at -2) must be made to deactivate it without disabling the weapon or notifying the authorities. $20. LC4.

IFF Interrogator (TL9)

Friendly fire casualties are a constant problem on chaotic battlefields. An IFF interrogator identifies friends and foes before a soldier pulls the trigger on the wrong target.

A TL9 interrogator is an eye-safe IR or UV laser (usually built into a weapon's standard laser sight) that emits a pulse-coded message at the target. TL10+ versions may differ in the type of signal beamed to the target, but the process is the same. This message contains an identification number, communication response frequency, and an encrypted code.

If the target is wearing an IFF system (p. 188), then it can decipher the code and transmit a brief message in reply. The interrogator then identifies the target as friendly, unidentified, or known hostile. Feedback is displayed on the soldier's HUD sight or augmented reality display, but blinking LEDs on the interrogator also provide positive response.

IFF systems have some disadvantages: over-reliance on technical identification, difficulty using the IFF interrogator in cluttered environments, and the potential for compromising the user's presence. The range of the IFF system is also limited: assume a range of 500 yards at TL9, doubling for each additional TL. Beyond this range, the GM may require Electronics Operations (Sensors) rolls to get a clear identification, with potentially disastrous results in the case of failure. $100.

Power Holster (TL9)

This is available for any pistol-type weapon or knife. It consists of three parts: a wrist sensor unit, a homing sensor on the handgrip of the weapon, and a break-away holster. When the wrist sensor detects nerve impulses that mean the wearer wants to draw, the holster ejects the weapon toward the hand. This lets the weapon be readied instantly. Each make of item requires a separate holster. A power holster adds +TL/2 to the Knife, Pistol, or Ammo specialization of Fast-Draw. $1,000, 2 lbs., B/100 uses. LC4.

Sniper Mirror (TL9)

A laser gunner using a visible-light laser may set up a high-quality optical mirror for ambushes. The sniper can fire at the target's image in the mirror; the beam will reflect off and strike the target. The mirror can be remotely controlled with a communicator.

The range is equal to the range of the target to the mirror, plus the range from the mirror to the sniper. The sniper is at -4 to skill when performing this maneuver.

When strategically placed (the GM may require a Tactics or Traps roll), these mirrors allow a laser sniper to fire around corners, and may confuse the enemy about the direction from which fire is coming. The standard mirror is about two feet across when in use, but folds to the size of a paperback book. $500, 1 lb. LC4.

Tripod (TL9)

A tripod may be added to any mounted weapon (M notation next to ST), allowing it to be set up on the ground rather than on a vehicle.

Ignore a weapon's ST requirement when it is tripod-mounted. Removing the weapon from its tripod or reattaching it takes at least three Ready maneuvers.

A tripod provides a 180° arc of fire and allows the weapon to be elevated or depressed. The weapon requires two hands to use, and the user must usually sit or kneel behind the tripod. A typical tripod can mount a weapon that requires ST 25 or less, or any non-weapon sensor that weighs up to 125 pounds. $1,250, 25 lbs. LC4.

Powered Tripod Mount (TL9)

A tripod can have an electric motor built into it. If the weapon has a sensor such as a radar or motion detector plugged into it (see *Plug-in Gadgets*, pp. 15-16), it can be remotely controlled via computer. If the computer has appropriate AI software, it can fire autonomously. A typical powered tripod can fire any weapon that requires ST 25 or less, or direct any non-weapon sensor up to 125 lbs. weight. $5,000, 50 lbs. D/100 hr. LC4.

Shoulder Servomount (TL9)

This is a strap-on half-backpack with a gyrostabilized servo arm. It holds a single weapon over the user's shoulder. The weapon is aimed with a heads-up display, and can swivel to fire at any target in front of the user.

The device has the same effect as a gyrostabilized weapon harness, with the addition that the user does not use his hands to control the weapon. This is equivalent to the Extra Arm (Weapon Mount) advantage.

A servomount weapon should be used with a HUD. If not, the user fires the weapon at a -2 penalty, and may not take Aim maneuvers. An AI can also control a servomount, freeing up the user for other activities, such as firing a handheld gun.

It's possible to wear up to two shoulder servomounts, one over each shoulder. The gear is heavy, so shoulder servomounts are most often used by battlesuit troopers, or by nonhuman or disabled warriors who lack usable limbs.

A shoulder servomount is $5,000 plus an extra $1,000 and 3 lbs. per pound of weapon loaded weight. Thus, a servomount for a seven-pound weapon is $12,000 and 21 lbs. LC3.

Smartgrip (TL10)

A smart-matter pistol grip and trigger can be added to any firearm. It automatically adjusts to the user's strength and hand shape. This makes the weapon easier to fire, reducing the ST requirement by 1. $500, LC4.

Gravitic Compensator (TL11^)

This inertia-damping gravitic field generator reduces the weapon's recoil and negates most of its weight. It can be added to any gun or beam weapon. When activated, it reduces Recoil to 1 and ST to 0. $100, 1 lb. and B/10 hr. per 10 pounds or fraction of loaded weight (excluding the weight of the gravitic compensator). LC4.

Warheads and Ammunition

The default warhead for guns and missiles is an inert metal projectile, such as a jacketed lead slug. However, most ultra-tech weapons routinely fire more sophisticated (and deadly) rounds. The warheads described below are additional options.

For mines and hand grenades, there is no default warhead; each grenade or mine must be given one of the options described below.

Some types of warheads are only available for certain size classes – for example, swarm warheads must be at least 25mm.

The warhead sizes are notional. Feel free to rename a 25mm warhead "20mm" or "30mm" if that better fits a particular weapon description.

Conventional

Conventional rounds are ordinary kinetic-energy, chemical, or explosive warheads.

Armor-Piercing Hard Core (APHC) (TL9)

These bullets or darts have a dense, armor-piercing core. Add a (2) armor divisor for most guns or missiles; this is not available for Gauss and rail guns, which already use similar ammunition. If the gun caliber is below 20mm, damage type degrades: pi++ drops to pi+, pi+ to pi, and pi to pi-. There is no effect on pi-. Unavailable for hand grenades or mines. Double normal cost. LC2.

Armor-Piercing Discarding-Sabot (APDS) (TL9)

A sub-caliber tungsten dart encased in a plastic sheath that falls away when the round leaves the barrel. APDS works like APHC, but has a higher velocity: add 50% to range and +1 damage per die. This option is unavailable for railguns (which already use saboted ammunition), hand grenades, or mines. Five times normal cost. LC1.

Armor-Piercing Enhanced Penetrator (APEP) (TL9)

An APDS round with a core made of tungsten-reinforced bulk amorphous metal (at TL9). This provides equivalent or superior performance to depleted uranium without toxic residue. Double range and give a (3) armor divisor to most guns and missiles; this is not available for Gauss and rail guns, which already use similar ammunition. Reduce the class of piercing damage by one step (to a minimum of pi-) unless the gun is 20mm caliber or larger. Unavailable for hand grenades or mines. Ten times normal cost. LC1.

Armor-Piercing Hardcore Explosive (APHEX) (TL9)

A warhead with a high-density penetrator and a small charge fused to explode after penetrating. APHEX inflicts normal piercing damage with a (2) armor divisor, along with the damage shown below as a follow-up attack:

APHEX Warhead Table

Warhead	*Damage*
10mm	1d-4 cr ex [1d-2]
15mm	1d-2 cr ex [1d-1]
18.5mm	1d-1 cr ex [1d]
25mm	1d cr ex [1d+1]
40mm	2d cr ex [2d]
64mm	4d cr ex [3d]
100mm	8d cr ex [5d]

Add +1 per die to the crushing explosive damage at TL10-12. Damage in brackets is cutting fragmentation damage.

This warhead is only available for 10mm or larger rounds; it is unavailable for hand grenades or mines. The normal armor divisor of Gauss guns and electromagnetic guns is downgraded to (2) when using APHEX ammunition.

Biochemical Aerosol (TL9)

This releases an airborne chemical agent (see *Gases and Clouds*, pp. 159-160). The cloud fills the indicated area, usually lasting for about five minutes if there's no wind. The effect depends on the agent.

Biochemical aerosol is available for any 10mm or larger round. A 10mm round will only affect a target if he's struck in the face; it carries too little gas to affect a significant area. Grenades and satchel charges inflict the damage shown below. Guns and launchers *replace* their normal piercing damage with the damage shown below. The table also shows the number of doses required to fill a typical warhead – for example, filling a hand grenade (64mm) will require 150 doses of the chemical.

Biochemical Aerosol Table

Warhead	Damage	Doses
10mm	spec. (face)	1
15mm	spec. (1 yard)	3
18.5mm	spec. (1.5 yard)	5
25mm	spec. (2 yards)	10
40mm	spec. (4 yards)	40
64mm	spec. (7 yards)	150
100mm	spec. (10 yards)	300

They are normal cost *plus* the cost of filler times the number of doses. See *Gases and Clouds* (pp. 159-160) for the cost of various fillers, their effects, and their LC.

Biochemical Liquid (TL9)

This is designed to release a ground-covering heavier-than-air liquid or foam. The effects are the same as biochemical aerosol, but with a different burst radius. Most liquids are persistent, remaining until cleaned up or evaporated.

Biochemical liquid is available for any 15mm or larger round.

Biochemical Liquid Table

Warhead	Damage	Doses
15mm	spec. (1 yard)	1
18.5mm	spec. (1.5 yards)	2
25mm	spec. (2 yards)	4
40mm	spec. (4 yards)	16
64mm	spec. (9 yards)	8
100mm	spec. (18 yards)	16

They are normal cost *plus* the cost of filler times the number of doses. See *Foams and Liquids* (pp. 160-161) for the cost of various fillers, their effects, and their LC.

Flare (TL9)

These release a pillar of smoke and burn brightly, removing all combat penalties for darkness over their illumination radius. They may start fires if in contact with flammable material, and will do 1d burning damage to anyone directly struck. They work normally underwater.

When a flare is set off, anyone within 1% of the illumination radius who is looking in that direction must succeed at a HT roll or be blinded for seconds equal to the margin of failure; this is a vision-based affliction effect. Roll at HT-3 if the flare is set off in darkness.

Flares burn for five minutes. They are visible to the horizon if fired at ground level and for up to 20 miles if fired in the air (weather and intervening terrain permitting). Flares are usually equipped with a small parachute or contragrav generator to allow them to stay in the air for the duration of the burn.

Flares are available for any 15mm or larger round. The radius shown under damage is the illumination radius.

Flare Table

Warhead	Damage
15mm	spec. (150 yards)
18.5mm	spec. (185 yards)
25mm	spec. (250 yards)
40mm	spec. (400 yards)
64mm	spec. (600 yards)
100mm	spec. (1,000 yards)

Flares are double normal cost. LC4.

High Explosive (HE) (TL9)

A warhead with a large explosive charge and a fragmenting case. This is the basic warhead for fragmentation hand grenades, and is also commonly used by grenade launchers and light artillery. It is available for any 10mm or larger round.

HE projectiles (except hand grenades) that are built at TL9 incorporate a programmable fuse that can be set for either impact or, if the target is at least 40 yards distant, for proximity detonation – see below.

Grenades and satchel charges with HE warheads inflict the damage shown below. When set for impact detonation, guns and launchers with HE warheads inflict their normal piercing damage with a (0.5) armor divisor, plus a follow-up attack causing the damage shown below.

HE Warhead Table

Warhead	Damage
10mm	1d cr ex [1d-2]
15mm	2d cr ex [1d-1]
18.5mm	2d+2 cr ex [1d]
25mm	4d cr ex [1d+1]
40mm	8d cr ex [2d]
64mm	8d×2 cr ex [3d]
100mm	6d×5 cr ex [5d]

Add +1 per die to the crushing explosive damage at TL10-12. Damage in brackets is cutting fragmentation damage. HE warheads are normal cost. LC2.

Proximity Detonation

If the warhead is fused for proximity detonation, a sensor will detonate it when it is in the air, close to the intended target. Use the *Attacking an Area* (p. B414) rules: roll to hit at +4, and the square of the margin of failure is the distance missed by. Proximity-fuse airbursts can attack areas in space or the air as well as an area of ground.

A proximity detonation round inflicts only fragmentation damage, typically in a cone in the direction of the shot. If used for indirect fire, apply the rules for *Airbursts* (p. B415): the fragments rain down from above, bypassing any cover that is not overhead and negating attack penalties to hit crouching, kneeling, sitting, or prone targets. Most HE rounds use laser proximity fuses, which are immune to radio-frequency jamming.

High Explosive Concussion (HEC) (TL9)

This has a light body to minimize fragmentation. It is available for any 10mm or larger round. Grenades and satchel charges with HEC warheads inflict the damage shown below. Guns and launchers with HEC warheads inflict their normal piercing damage with a (0.5) armor divisor (no armor divisor for electromagnetic guns), along with a linked attack causing the damage shown below:

HEC Warhead Table

Warhead	*Damage*
10mm	1d cr ex
15mm	2d cr ex
18.5mm	2d+2 cr ex
25mm	4d cr ex
40mm	8d cr ex
64mm	8d×2 cr ex
100mm	6d×5 cr ex

Add +1 per die at TL10-12. Concussion warheads are normal cost. LC2.

Hollow-Point (HP) (TL9)

These bullets expand in flesh, causing bigger wounds. This improves damage type: pi- becomes pi, pi becomes pi+, and pi+ becomes pi++. However, HP ammo has trouble penetrating barriers or armor; add an armor divisor of (0.5). Unlike lower-TL hollow-point ammo, ultra-tech hollow-points never have problems expanding. They're unavailable for grenades, mines, or weapons of 15mm+ caliber. Normal cost. LC4.

Shaped Charge (TL9)

This is a precision shaped charge with secondary explosive and fragmentation effects. The explosion forges the warhead into a high-velocity, high-temperature metal jet which can punch a small hole through most types of armor.

These warheads are available for any 25mm or larger round. Grenades and satchel charges use the damage listed below, and must be placed on the target rather than thrown. Guns and launchers replace their normal piercing damage with the damage shown below.

Shaped Charge Warhead Table

Warhead	*Damage*
25mm	5d×3(10) cr inc + linked 2d cr ex [1d+1]
40mm	6d×4(10) cr inc + linked 4d cr ex [2d]
64mm	6d×7(10) cr inc + linked 8d cr ex [3d]
100mm	6d×10(10) cr inc + linked 8d×2 cr ex [5d]

Add +1 per die to the crushing incendiary damage at TL10-12. Damage in brackets is cutting fragmentation damage. Shaped charge warheads are double normal cost. LC1.

Memory Baton (TL9)

These expanding memory-plastic slugs are available for all weapons of 15mm or larger caliber. Change damage to crushing, add a (0.25) armor divisor and double knockback modifier, and reduce range to 1/5 range. They're unavailable for grenades or mines. Five times normal cost. LC4.

Monochain (TL9^)

This duplex-type round consists of two slugs with a foot-long strand of monowire slung between them. They spread apart after leaving the barrel, creating a high-speed flying garrote that slices anything in its path. Monochain has half the damage and range of an ordinary solid round, but gets +1 to hit. If it hits a neck, face, skull, extremity, or limb (or anywhere on a foe who has SM -2 or less) it does cutting damage with a (10) armor divisor. Unavailable for mines or hand grenades. Five times normal cost. LC2.

Shotshell (TL9)

Multiple-projectile rounds are available for grenade launchers, shotguns (including Gauss shotguns), and gyrocs. Divide the damage by 4, reduce the damage type from Pi++ to Pi, halve Range, add a ×9 multiplier to RoF, and reduce Rcl to 1. Normal cost. LC4.

Smart Explosively Forged Projectile (SEFOP) (TL9)

This is a multi-purpose sensor-fused round capable of top attack. The round will detonate several feet away and usually above the target, forging the warhead into a high-density slug that attacks from overhead.

SEFOP warheads are only available for homing projectiles. If fired to overfly the target, they may choose to attack the side they are facing or the top. If the warhead attacks from the top, it ignores penalties due to posture and cover that does not protect from above.

SEFOP warhead damage replaces the piercing damage of the weapon. TL10+ SEFOP warheads can also be programmed before firing to function as APHEX warheads. Decide which mode to use before the weapon is fired.

SEFOP Warhead Table

Warhead	Damage
15mm	4d (2) imp inc
18.5mm	5d (2) imp inc
25mm	5d × 3 (3) cr inc
40mm	6d × 4 (3) cr inc
64mm	6d × 7 (3) cr inc
100mm	6d × 10 (3) cr inc

Add +1 per die at TL10-12. SEFOP warheads are five times normal cost. LC2.

Tangler (TL9)

A tangler warhead releases a mass of sticky weblike polymers. Anyone struck is grappled and rooted in place. The victim cannot select the Move or Change Posture maneuvers or change facing, and is at -4 to DX. The ST of this effect depends on the warhead size; see the table below. Additional hits *layer* over a victim; each extra layer further increases ST.

To break free, the victim must win a Quick Contest of ST or Escape skill against the ST of the attack. Each attempt takes one second. If the victim fails to break free, he loses 1 FP but may try again. Alternatively, he may try to destroy the tanglestrands. Innate Attacks hit automatically; other attacks are at -4. External attacks take no penalty, but risk hitting the victim on a miss (see *Striking Into a Close Combat,* p. B392). The tanglestrands have DR = ST/3 (round down). Each point of damage reduces ST by 1. At ST 0, it is destroyed and the victim is freed.

The 64mm and 100mm tangler warheads fill a one-yard radius: anyone standing next to the target struck will also be affected, as an area-effect attack. Hand grenades and mines use the warhead damage. Guns and launchers replace their piercing damage with the damage shown below.

Tangler Warhead Table

Warhead	Damage
25mm	ST 15 (+1 per additional layer)
40mm	ST 24 (+2 per additional layer)
64mm	ST 36 (+2 per additional layer); 1-yard radius
100mm	ST 60 (+3 per additional layer); 1-yard radius

Tangler warheads are double normal cost. LC4.

Thermobaric (TL9)

These volumetric-slurry warheads produce high temperatures and massive overpressures by releasing a flammable explosive mixture and then igniting the cloud. They are used in mortars, missiles, and grenades, and their devastating effectiveness is one reason for the popularity of sealed combat armor.

They are available for 25mm and larger warheads. Hand grenades and mines use the warhead damage. Guns and launchers with thermal warheads replace their normal piercing damage with the warhead damage shown below.

Thermobaric warheads rely on combining with air for much of their blast. Divide the damage by 4 in trace or vacuum conditions, and by 2 in very thin atmospheres.

Warhead	Damage
25mm	8d cr ex inc
40mm	8d×2 cr ex inc
64mm	6d×5 cr ex inc
100mm	6d×10 cr ex inc

Add +1 per die at TL10-12. Thermal warheads are five times normal cost. LC1.

Burrow Darts (TL10)

These needles or bullets flex and change shape once they enter flesh, enlarging the wound channel and burrowing into the body. Burrow darts are only available for guns doing small piercing or piercing damage (i.e., under 10mm). They have a (0.5) armor divisor, plus a special cyclic follow-up attack: if even 1 point of injury was inflicted, the darts will burrow, inflicting 1 HP of injury each turn until the victim is dead, or seconds have passed equal to the caliber in mm. Digging a burrowing projectile out requires a sharp instrument and a First Aid roll (at -1 per second it has burrowed). Success or failure does one 1 HP of injury; success also removes the projectile. If a victim tries to remove a burrowing projectile from his own body, remember to also apply the shock penalty from its damage. Triple normal cost. LC2.

High Explosive Multi-Purpose (HEMP) (TL10)

This shaped-charge warhead can be miniaturized to fit into a bullet-sized projectile. HEMP is available for any 10mm or larger round. Grenades and satchel charges with HEMP warheads must be placed on the target rather than thrown. Guns and launchers replace their normal piercing damage with the damage shown below.

HEMP Warhead Table

Warhead	Damage
10mm	8d(5) imp inc + linked 1d-2 cr ex [1d-2]
15mm	5d×2(5) imp inc + linked 1d cr ex [1d-1]
18.5mm	6d×2(5) imp inc + linked 1d+1 cr ex [1d]
25mm	6d×3(10) cr inc + linked 2d cr ex [1d+1]
40mm	6d×5(10) cr inc + linked 4d cr ex [2d]
64mm	6d×8(10) cr inc + linked 8d cr ex [3d]
100mm	6d×12(10) cr inc + linked 8d×2 cr ex [5d]

Add +1 per die to the impaling incendiary or crushing incendiary damage at TL11-12. Damage in brackets is cutting fragmentation damage. HEMP warheads are double normal cost. LC1.

Stingray (TL10)

A stingray round is a charged capacitor sheathed in an insulator which is burned off in flight. This warhead is only available for 10mm or larger rounds, and not for hand grenades or mines. A stingray round inflicts half normal piercing damage with a (0.25) armor divisor, then discharges a linked attack that inflicts the lethal electrical damage (p. B432) shown below:

Stingray Round Table

Warhead	*Damage*
10mm	1d-3 burn sur
15mm	1d-1 burn sur
18.5mm	1d burn sur
25mm	1d+1 burn sur
40mm	2d burn sur
64mm	3d burn sur
100mm	5d burn sur

Stingray rounds are five times normal cost. LC2.

Swarm (TL10)

This is a padded container designed to release swarmbots (pp. 35-37). They are available for 40mm or larger warheads. The number of one-square-yard swarms carried by the warhead is shown below.

Hand grenades and mines use the warhead effect. Guns and launchers replace their normal piercing damage with the warhead damage shown below.

Swarm Warhead Table

Warhead	*Damage*
40mm	spec. (1-square-yard swarm)
64mm	spec. (4-square-yard swarm)
100mm	spec. (16-square-yard swarm)

They are five times normal cost *plus* the cost of the swarm. See *Swarmbots* (pp. 35-37) for the cost of various swarms, their effects, and their LC.

Armor Piercing Hyperdense Dart (APHD) (TL11)

"Hypercore" is a long fin-stabilized dart with a hyperdense metal penetrator. It has armor divisor (5) and double range. Reduce the class of piercing damage by one step (to a minimum of pi-) unless the gun is of 20mm or larger caliber. Unavailable for hand grenades and mines. Ten times normal cost. LC1.

Nuclear and Antimatter

In most societies, these weapons are strictly controlled. Their deployment is a matter for the highest levels of government, or the goal of a mastermind's sinister plot. An entire adventure may hinge on a single nuclear warhead, or the repercussions of its use.

However, that doesn't always have to be the case. Tactical nuclear warfare is common in some military science fiction, with every platoon, squad, or even infantryman issued one or more mininukes . . . usually in conjunction with a battlesuit to give them some chance of survival.

Mininuke (TL9)

A mininuke uses a small laser diode, nuclear isomer, metallic hydrogen explosive, or microscopic pellet of antimatter to trigger a nuclear fusion; similar technology is also used to create the fuel pellets for nuclear pulse drive spacecraft. This results in a "clean" nuclear fusion explosion with limited or no radioactive fallout (although there is still radiation from the blast itself).

Nuclear weapons are rated for their yield in kilotons of TNT. They inflict crushing damage with the explosion damage modifier, plus additional linked burning damage with the explosion, radiation, and surge damage modifiers. About half the energy is in the blast wave, and the rest is in the heat and radiation pulse. (Mininukes produce more radiation and less concussion than larger bombs.)

A mininuke has a dial-a-yield setting that can be set from 0.01 kilotons to one kiloton of explosive force. This takes a Ready maneuver. The *minimum* size of the mininuke depends on TL: 100mm at TL9, 64mm at TL10, 40mm at TL11, and 25mm at TL12.

Mininuke Warhead Table

Warhead	*Damage*
0.01 kiloton	6d×200 cr ex
linked	4d×200 burn ex* rad sur
0.1 kiloton	6d×600 cr ex
linked	6d×400 burn ex* rad sur
1 kiloton	6d×2,000 cr ex
linked	4d×2,000 burn ex* rad sur

* Divided by distance from the blast center, rather than by 3 × distance.

Cost is 1,000 times normal. LC0.

Micro-Antimatter Warheads (TL10)

These warheads contain small amount of antimatter in a shielded magnetic or force field "bottle." When the warhead is detonated, it reacts with ordinary matter and is annihilated, converting 100% of its own mass, and the same mass of ordinary matter, to energy. This inflicts burning damage with the explosion and surge damage modifiers, plus linked toxic radiation damage.

Unlike mininukes, antimatter warheads are not dial-a-yield weapons. They create an intermediate explosion greater than conventional munitions but smaller than a nuke, with a high gamma radiation output but no significant nuclear fallout. The *minimum* size of the micro-antimatter warhead depends on TL: 100mm at TL10, 40mm at TL11, and 10mm at TL12 . . . at which point large-caliber TL12 pistols and rifles can fire antimatter bullets.

There are three typical sizes of antimatter warhead: 0.1 micrograms, 1 microgram, and 10 micrograms:

Micro-Antimatter Warhead Table

Warhead	Damage
0.1 micrograms	6d×4 burn ex sur*
linked	6d × 10,000 tox rad†
1 microgram	6d×12 burn ex sur*
linked	6d × 100,000 tox rad†
10 micrograms	6d×40 burn ex sur*
linked	6d × 1,000,000 tox rad†

* Divided by distance from the blast center, rather than by 3 × distance.

† Divided by square of the distance.

The cost is 10 times that of a normal round, plus the cost of the antimatter (see *Demolitions*, pp. 88-89). LC0.

Energy

Energy warheads contain a disposable power cell or explosive power cartridge and some form of energy emitter. Some energy warheads destroy themselves while emitting energy. Others activate for several seconds, and can be picked up or attacked.

EMP (TL9)

This uses an explosive power cartridge to energize a non-nuclear electromagnetic pulse. Anything electrical (or anyone with the Electrical disadvantage) in the radius of the special effect (below) must make a HT-8 (2) resistance roll or be knocked out of action for seconds equal to the margin of failure. Robots become unconscious, while total cyborgs suffer the Seizure incapacitating condition (p. 429), ignoring FP loss if they have the Machine meta-trait.

EMP warheads are available for any 15mm or larger round. Grenades and satchel charges inflict the damage shown below. Guns and launchers replace their normal piercing damage with the damage shown below.

EMP Warhead Table

Warhead	Damage
15mm	spec. (1 yard) + 1d-4 cr ex
18.5mm	spec. (1 yard) + 1d-3 cr ex
25mm	spec. (2 yard) + 1d-2 cr ex
40mm	spec. (4 yard) + 1d cr ex
64mm	spec. (8 yard) + 2d cr ex
100mm	spec. (16 yard) + 4d cr ex

EMP warheads are 10 times normal cost. LC2.

Expendable Jammer (TL9)

These neutralize all enemy radio equipment within a certain radius, swamping it with static. They are available for any 10mm or larger round.

When a jammer goes off, it gives a -10 penalty to all Electronics Operation (Comm) rolls made to operate radio and radar equipment in the radius of effect. The enemy will know immediately that a jammer is operating, but not where it is.

Jammer Warhead Table

Warhead	Radius
10mm	10-yard radius
15mm	15-yard radius
18.5mm	20-yard radius
40mm	40-yard radius
64mm	60-yard radius
100mm	100-yard radius

Jammers include a digital timer that can trigger at any time desired. This feature is often used as a diversion. They are five times normal cost. LC3.

Strobe (TL9)

Strobe warheads emit intense light, pulsing at frequencies that can induce seizures in many individuals. Anyone within the area of effect who is facing the strobe warhead when it goes off suffers a vision-based affliction attack. Failing the HT roll results in stunning and Blindness for seconds equal to the margin of failure. Failing by 5 or more (or *any* failure by someone with the Epilepsy disadvantage) results in an incapacitating seizure for minutes equal to the margin of failure. The effects dissipate with distance: add +1 to HT to resist for every yard away from the center of the effect.

The strobe option is available for any 25mm or larger warhead. Strobe grenades and satchel charges inflict the damage shown below, and guns and launchers replace their normal piercing damage with this damage.

Strobe Warhead Table

Warhead	Damage
25mm	HT-3 aff (3-yard radius)
40mm	HT-4 aff (4-yard radius)
64mm	HT-6 aff (6-yard radius)
100mm	HT-10 aff (10-yard radius)

Strobe warheads are four times normal cost. LC3.

Warbler (TL9)

Warblers are sonic area denial warheads that produce an ear-splitting shriek. This hearing-based affliction area effect dissipates with distance: add +1 to resist for every yard from the center of the effect. A failed HT roll results in both Deafness and moderate pain (p. B428) for minutes equal to the margin of failure. A failure by 5 or more causes lingering hearing loss (recover as per a crippling injury).

The warbler continues to function for up to 10 seconds. Repeated resistance rolls will be required if someone fails to succumb but remains in the zone – most people without hearing protection *leave*! Anyone within the area of effect is also at -10 on any Hearing rolls; anyone within twice the radius is at -5, and anyone within five times the radius is at -2.

The warbler option is available for any 25mm or larger warhead. Hand grenades and mines use the warhead damage. Guns and launchers replace their normal piercing damage with the warhead damage shown below.

Warbler Warhead Table

Warhead	Damage
25mm	HT-3 aff (3-yard radius)
40mm	HT-4 aff (4-yard radius)
64mm	HT-6 aff (6-yard radius)
100mm	HT-10 aff (10-yard radius)

Warbler warheads are four times normal cost. LC3.

Force (TL10^)

These warheads emit an omni-directional gravity pulse. They are related to pressor beam (p. 88) technology. A force warhead inflicts crushing damage with the explosive and double knockback damage modifiers. Force warheads are often preferred for fighting in vehicles or buildings, since they are not incendiary and produce no fragmentation.

The force option is available for any 15mm or larger warhead. Grenades and satchel charges inflict the damage shown below. Guns and launchers inflict the damage shown instead of their normal piercing damage.

Force Warhead Table

Warhead	Damage
15mm	2d cr dkb ex
18.5mm	2d+2 cr dkb ex
25mm	4d cr dkb ex
40mm	8d cr dkb ex
64mm	8d×2 cr dkb ex
100mm	6d×5 cr dkb ex

They are five times normal cost. LC2.

Plasma (TL10^)

Plasma warheads are essentially one-shot power cartridges. When armed, the warhead's internal plasma generator compresses a pellet of hydrogen fuel, then releases it as a blast of ionized plasma. Guns that fire small-caliber plasma warheads are often confused with energy weapons.

Plasma is available for any 10mm or larger warhead. Plasma warheads inflict burning damage with the explosion and surge damage modifiers.

Hand grenades and mines use the warhead damage. Guns and launchers with plasma warheads replace their normal piercing damage with the warhead damage shown below.

Plasma Warhead Table

Warhead	Damage
10mm	1d+2 burn ex sur
15mm	3d burn ex sur
18.5mm	3d+2 burn ex sur
25mm	6d burn ex sur
40mm	6d×2 burn ex sur
64mm	6d×4 burn ex sur
100mm	6d×10 burn ex sur

Plasma warheads are 10 times normal cost. LC1.

Implosion (TL11^)

These warheads generate a spherical hypergravity tractor-beam effect. The power cell burns out in a microsecond, but not before the bomb creates a powerful implosive force, pulling everything in range toward it before collapsing into a pinhead of matter surrounded by a shell of debris.

Implosion warheads inflict linked crushing damage with the double knockback damage modifier, and toxic damage with the explosion and radiation damage modifiers. The knockback effect pulls victims toward the center of the explosion rather than away. The toxic damage is divided by the distance, rather than by three times the distance, from the blast.

The implosion option is available for any 40mm or larger warhead. Grenades and satchel charges inflict the damage shown below. Guns and launchers inflict the damage shown instead of their normal piercing damage.

Implosion Warhead Table

Warhead	Damage
40mm	6d×25 cr dkb ex + 6d×40 tox rad ex
64mm	6d×50 cr dkb ex + 6d×60 tox rad ex
100mm	6d×100 cr dkb ex + 6d×100 tox rad ex

Implosion warheads are five times normal cost. LC0.

Psi-Bomb (TL12^)

A psi-bomb generates a burst of deafening psychic "noise." Smaller psi-bombs are employed much like present-day stun munitions – shielded special ops teams use them to stun unprotected individuals without causing damage to property or innocent bystanders. Larger psi-bombs can be dropped on unprotected troops prior to an assault, or used in a continuous bombardment to wear down the morale of civilians or soldiers alike.

Psi-bombs are available for 25mm or larger hand grenades, mines, guns, and missiles. They deliver an area-effect affliction attack. (Guns and missiles with psi-bomb warheads replace their piercing damage with the warhead's effect.) They have no effect on anyone with a Digital Mind or IQ 0.

Everyone within the radius of effect must make a Will-5 roll to resist a stunning affliction attack; DR has no effect, but a Mind Shield adds its bonus. Anyone who fails is stunned, and must roll at a -5 penalty to recover. Failure by 5 or more results in unconsciousness for minutes equal to the margin of failure. Victims who fail to resist also lose the last two seconds of their short-term memories.

Psi-Bomb Table

Warhead	Damage
25mm	spec. (2 yard radius)
40mm	spec. (4 yard radius)
64mm	spec. (8 yard radius)
100mm	spec. (16 yard radius)

Psi bomb warheads are 10 times normal cost. LC2.

Message Psi-Bomb

As above, but instead of psychic noise, the message psi-bomb generates a pre-recorded psychic "shout." This may be a single image, a short sentence, or even an emotion. They are easier to resist (roll vs. Will-2 instead of Will-5) and do not cause unconsciousness. They are sometimes used for signaling, sometimes for propaganda.

On a failure by 5 or more, the victim hears a psychic "echo" of the message looping through his mind after recovering from being stunned. This lasts minutes equal to the margin of failure, and is an irritating condition. Treat it as moderate pain (p. B428) due to the distraction effect. LC3.

Terror Psi-Bomb

These induce a feeling of fear. As above, but instead of a Will roll to resist an affliction attack, the victim rolls a Fright Check at -5 (Mind Shield still provides the usual bonus). The attack may be accompanied by a fearsome image, or it may simply be an overpowering sense of dread. The usual rules for failed Fright Checks apply.

Stasis (TL12^)

This warhead generates a spherical stasis web (p. 193), enveloping anything within the area of effect that is not protected by appropriate force fields (p. 190). The result is a stasis bubble, a mirror-surfaced sphere. If the target was at ground level, the sphere will be half buried, but it can be dug up and carried off if desired. The duration of the stasis web must be set before it is used; most military bombs are set for anywhere from an hour to a few months.

Stasis is available for any 40mm or larger warhead. Hand grenades and mines use the warhead damage. Guns and launchers replace their normal piercing damage with the warhead damage shown below.

Stasis Warhead Table

Warhead	*Damage*
40mm	spec. (2-yard radius)
64mm	spec. (3-yard radius)
100mm	spec. (5-yard radius)

Stasis warheads are 500 times normal cost. LC0.

Vortex (TL12^)

These contain tiny wormhole or hyperspace generators designed to detonate within an atmosphere and gravity field.

An activated vortex warhead sucks everything within its listed radius of effect into hyperspace, or through a wormhole to a random location. How easy or difficult it is to return is up to the GM. Objects larger than the radius of effect will not fit through.

Vortex is available for any 40mm or larger warhead. Hand grenades and mines use the warhead damage. Guns and launchers replace their normal piercing damage with the warhead damage shown below.

Vortex Warhead Table

Warhead	*Damage*
40mm	spec. (2-yard radius)
64mm	spec. (3-yard radius)
100mm	spec. (5-yard radius)

Vortex warheads are 1,000 times normal cost. LC0.

Biochemical and Nanotech Weapons

Advances in chemistry and biochemistry make more potent chemical weapons available at every TL – from lethal nerve gas to subtle pheromones. At higher TLs, nanotechnology is deployed in terrifying weapons that can reconfigure minds or devour entire ecosystems.

This section presents the gases and drugs most commonly used in combat, including lethal and nonlethal biochemical weapons, as well as ultra-tech chemical obscurants.

Gases and Clouds

These come in many varieties, from sleep gas and nerve gas to smoke and prismatic smoke. They create a cloud with a radius depending on the dispersal mechanism (see below). Chemical clouds may disperse within a few seconds or linger for minutes, depending on the wind. Most chemical clouds last for 300 seconds before dispersing; in winds of one mile per hour or more, divide this duration by the wind speed in mph. Most chemicals have no effect once dispersed, but some virulent poison gases cause injury even when greatly diluted.

The usual dispersion methods are a biochemical warhead (p. 153), an aerosol spray (p. 134), or a vortex ring projector (p. 134).

Riot Gas (TL9)

A non-lethal incapacitating gas often used for crowd control. Any living being within the cloud who breathes the gas must make a HT-4 roll to resist every second. If the roll fails, he is nauseated (p. B428) for as long as he remains in the cloud. If it fails by 5 or more, he will become violently ill, retching (p. B429) for as long as he remains in the cloud; after leaving it, he will be nauseated for minutes equal to his margin of failure. $2 per dose. LC3.

Musk (TL9)

This malodorous fluid boasts a chemical formula similar to skunk oil. Highly persistent and almost impossible to wash away, it is used by police to mark demonstrators or fleeing suspects, and can also be a self-defense weapon! Anyone sprayed suffers the Bad Smell disadvantage. The effects wear off after two weeks. Each hour of washing with high-tech detergents can reduce the duration of the stench by one day. A sealed suit protects the wearer but not the suit. $2 per dose. LC4.

Nerve Gas, Lethal (TL9)

Nerve gases are aerosolized liquids which disrupt the enzyme that transmits nerve signals. After exposure, the nerves become uncontrollable, resulting in a loss of motor function, breathing problems, pain, vomiting, convulsions, and death.

This is an area-effect contact agent with no delay and a HT-6 roll to resist (HT-3 if touching a contaminated area after the initial attack). Failure to resist inflicts 1d toxic damage. This is repeated at one-minute intervals until six cycles have passed.

Loss of 1/3 HP results in coughing and the Neurological Disorder (Mild) disadvantage. Loss of 1/2 HP results in being nauseated plus the Neurological Disorder (Severe) disadvantage. Loss of 2/3 HP adds the Neurological Disorder (Crippling) disadvantage. The victim suffers only one disorder due to the nerve gas, with the severity increasing as he loses HP. The severity of the disorder is decreased as the victim recovers HP, and the disorder is removed when the HP lost are less then 1/3 HP. $10 per dose. LC0.

Sleep Gas (TL9)

An advanced sedative, such as an engineered variant of the heroin molecule, mixed with a skin-penetrating agent. It causes rapid incapacitation. It is a contact agent that requires a HT-6 roll to resist. Failure results in unconsciousness lasting for minutes equal to the margin of failure, followed by ordinary sleep. $0.50 per dose. LC2.

Smoke (TL9)

Smoke is used to obscure or mark an area. Screening smoke is white, gray, or sand-colored and gives a -10 penalty for visually aimed attacks or sighting through them (see Obscure, p. B72); it also blocks ladar. Smoke clouds take one second per five yards of burst radius to form. They linger for one to four minutes, depending on weather conditions.

Colored Smoke: used to mark targets or landing zones, but also difficult to see through (-7 penalty). $0.1 per dose. LC4.

Hot Smoke: Has the same effects as normal smoke. It also penalizes Infravision, Hyperspectral Vision, and Night Vision. $0.15 per dose. LC4.

Prism Smoke: Has the same effects as hot smoke, but also blocks most lasers. It has no effect on X-ray or gamma-ray lasers. $0.2 per dose. LC4.

Electromagnetic Smoke: Has the same effects as hot smoke, but is also effective against Radar and Imaging Radar. $0.3 per dose. LC4.

Anti-Tangler Aerosol (TL10)

This dissolves sticky foam (tangler) bonds in one second. $1 per dose. LC4.

Mask (TL10)

This agent neutralizes a wide spectrum of signature traces left behind by living beings. Any Forensics roll to detect chemical traces left by an individual or to track people by scent suffers a penalty of -6 if the trail passes through a Masked area. The masking agent itself is easily identified and tracked, making it somewhat less helpful to spray yourself with it! $30 per dose. LC2.

Paralysis Gas (TL10)

Paralysis gas is an advanced nerve gas. It is a nonlethal area contact agent that may be delivered via chemical warhead, spray, or vortex ring. For every turn spent in a para-gas cloud, the victim must make a HT-6 roll to resist. If he fails by 1 or 2, he falls down and cannot move that turn. If he fails by 3 or more, he falls and is paralyzed for minutes equal to the margin of failure. On a critical failure, the paralysis gas causes 1d damage and results in a coma (p. B429). Paralysis gas is often used in riot control and security systems. $10 per dose. LC2.

Pheromone Spray (TL10)

Pheromone spray is a biochemical agent which enhances sexual attractiveness to members of the same species; aliens are almost never affected. It is a respiratory agent that requires a HT-2 roll to resist. Failure results in the Lecherousness (9) disadvantage for as long as the victim is in the cloud, plus minutes equal to the margin of failure. $20 per dose. LC3.

Radiant Prism (TL10)

A combination of prism and electromagnetic smoke. It lasts half as long, but also impairs infrared- and radar-aimed attacks or sighting (-5 penalty). If this smoke is breathed without a filter, it inflicts one point of damage per second. $3 per dose. LC3.

Foams and Liquids

These agents may be dispensed by liquid projectors or in biochemical liquid warheads.

Firefoam (TL9)

These fire-retardant chemicals put out any fire doing (TL-8) dice of damage or less within its area of effect, and temporarily reduce the damage of larger fires for 3d seconds. $1 per dose.

Metal Embrittlement Agent (MEA) (TL10)

This category of chemical agents induces rapid corrosion. Each agent is designed to weaken a specific metal,

inflicting 3d corrosion damage per hour to any object mostly made of that alloy, or with exposed vital parts made of it. If an SM +2 or larger object is completely within the area of effect, multiply the damage by the object's SM. The effect continues for 12 hours or until the object is decontaminated. $5 per dose, LC2.

Disassembler Nanoglop (TL11)

This consists of disassembler nanomachines in the form of a viscous slime rather than a diffuse cloud. At TL11-12, disassembler nanoglop fills much the same role as napalm. It has half the burst radius of normal chemical rounds; if that reduces burst radius to less than a yard, it means that it only affects a target that was directly hit.

Anyone in the affected area is covered with sticky nanoglop. The effect is the same as a disassembler nanocloud, but the greater density of the nanoglop *doubles* damage! The glop persists for only 15 seconds. If it misses, it splatters on the ground and begins eating through that. Disassembler nanoglop costs the same as disassembler clouds (p. 169).

Replicator Nanoglop (TL12): This has the same effect as replicating disassemblers (p. 169).

Poisons

Poisons may also be delivered by a hypo or by drug rounds, or as a contact poison (below). Two ultra-tech poisons:

Nerve Poison (TL9)

This is also available as a drug – a single dose injected into the body (by hypo, needler, etc.) requires a HT-7 roll to resist. Failure inflicts 1d toxic damage. This is repeated at one-minute intervals, until six cycles have passed.

Loss of 1/3 HP results in coughing and the Neurological Disorder (Mild) disadvantage. Loss of 1/2 HP results in being nauseated plus the Neurological Disorder (Severe) disadvantage. Loss of 2/3 HP adds the Neurological Disorder (Crippling) disadvantage. The victim suffers only one disorder due to the nerve gas, with the severity increasing as he loses HP. The severity of the disorder is decreased as the victim recovers HP, and the disorder is removed when the HP lost are less then 1/3 HP. $10 per dose. LC0.

Sleep Poison (TL9)

A sleep dose for hypos and dart guns is available. The victim must roll vs. HT-6.

Failure results in the subject becoming drowsy (p. B428), while failure by 5 or more results in unconsciousness, lasting for minutes equal to the margin of failure. $0.50 per dose. LC2.

Contact Poisons (TL9)

Contact versions of both nerve and sleep poisons may be placed on a blade (but not a vibroblade), smeared on a flat surface such as a doorknob, etc. As contact poisons, these are less effective. The HT roll not to succumb is at +2. Contact versions cost 10 times as much. The GM may require a roll against DX or Poisons skill to avoid an accident if applying it in haste. LC1.

Metabolic Nanoweapons

These nanomachines are designed to enter a living body and wreak havoc. They won't affect someone with Immunity to Metabolic Hazards, such as a machine. Metabolic nanoweapons can be delivered the same way as any other poison:

Blood Agent: This is a liquid spray that must enter a mucous membrane (eyes, mouth, open wound, etc.) to have effect. Use the *Blood Agent* rules (p. B437). Double normal cost.

Contact Agent: A nanoweapon mist designed to penetrate skin. Double cost for a gel that may be smeared onto an object, 10 times normal cost as a gas. Use the *Contact Agent* rules (p. B437).

Digestive Agent: A pill that can be dissolved in food or drink. Use the digestive agent rules (p. B437). Normal cost.

Follow-Up Poison: The nanoweapon must be injected, often via a hypo or drug projectile. Use the *Follow-Up Poison* rules (p. B437). Normal cost.

Respiratory Agent: A mist of active nanoparticles that must be breathed to have effect. Use the *Respiratory Agent* rules (p. B437). Five times normal cost.

Nanoburn (TL10)

An ultra-tech nerve agent using a suspension of nanomachines designed to invade the body and break down bodily functions, Nanoburn is effective against all carbon-based life forms. A HT-6 roll is required to avoid being paralyzed for three minutes times the margin of failure. If paralyzed, the victim takes 1d-1 toxic damage every three minutes over the next 30 minutes. Normal nerve poison antidotes are ineffective, but the drug Torpine (p. 206) stops the damage once taken. Aegis Nano (p. 206) is effective. $5 per dose. LC1.

Nanotracers (TL10)

These nanomachines function like a homing beacon (p. 105) except that they diffuse within the body. They are very difficult to remove without blood filtration (which requires a life support unit) or using Aegis or pharmophage nano (p. 206).

It takes one minute for nanotracers to spread through the body before they can begin signaling. They may use a radio signal, or they may cause the body to exude coded chemical cues which can be tracked by appropriate chemsniffers or someone with Discriminatory Smell. These will persist for a day or more, giving a +5 bonus to any tracking rolls to anyone who knows what the cues are and can detect them.

Nanotracers are designed to *hide*. Aegis nano (p. 206) get a roll against their skill to find them when they first enter the body, but roll at a penalty of -2 for TL10 nanotracers, -4 for TL11, and -6 for TL12.

Diagnostic nano can also find nanotracers: roll each hour of searching, at the penalties listed above. If diagnostic nano has identified them, Aegis nano can automatically destroy them. $100 per dose.

Splatter Nano (TL11)

Splatter is available only as a follow-up poison. Each "dose" contains thousands of cell-sized nanobot microbombs that circulate through the bloodstream. Upon command or after a programmed time delay, they explode and rip apart the victim's arterial system.

Splatter inflicts 1d toxic damage after it has circulated for at least a minute through the body. Each extra minute spent circulating in the body adds an extra +1d damage, to a maximum of 30d. Multiple doses increases the damage, e.g., three doses do 3d per minute to a maximum of 90d. Splatter comes in either timed or remote-control versions. Remote versions are triggered by receiving a specific coded radio pulse.

Aegis nano (p. 206) may be able to hunt down the splatter nanomachines before they detonate. Roll a Quick Contest of Skill each minute, with both nano types having a skill of 12 if they are TL11 or a skill of 14 if they are TL12. Each time the Aegis nano win a contest, the detonation damage is reduced by -1 per die. If the Aegis nano win six times, the splatter nano are exterminated.

The splatter nano may also detonate before the Aegis nano can extinguish them. For instance, suppose a dose of splatter is set to go off after a delay of five minutes. The Aegis nano get five contests of skill. They win three and lose or draw two. That means that damage becomes -3 per die, or 5d-15 instead of 5d. $100 per dose. LC2.

Shrike Nano (TL11)

Shrike nanomachines track down and eliminate defending Aegis nano (p. 206), clearing the way for other intruders. Each minute that shrike nanomachines are in the body, roll a contest of skill between the shrike nano and the Aegis nanomachines. If the Aegis nano wins, one dose of shrike nano is killed. If the shrike nano wins, the Aegis nano in the target's body is killed. Otherwise, they are still fighting.

Aegis nano defends with a skill of 10 at TL10, a skill of 12 at TL11, and a skill of 14 at TL12. Shrike nano have skill of 12 at TL10, a skill of 14 at TL11, and a skill of 16 at TL12. Their skill can be upgraded by doubling the number of doses the subject is injected with. Each doubling adds +1 to skill. If a user is impatient, shrike can be used simultaneously with other forms of invasive nano, in the hope that the shrike kills the Aegis nano before Aegis destroys the invaders. $500 per dose. LC2.

Dominator Nano (TL12)

These nanomachines enter the body, trick their way past the blood-brain barrier, and reconfigure deep neural structures in the subject's brain, altering his personality. This technology is similar to Instaskill (p. 59).

Each dose of dominator nanomachines is designed to permanently instill (or erase) a specific mental disadvantage or set of mental disadvantages. It only affects mundane mental disadvantages that are not self-imposed and that do not require a particular subject or object. The GM may also disallow any disadvantage that seems implausible, such as Unluckiness. Dominator nano often instills Amnesia, Cowardice, Non-Iconographic, Pacifism, Paranoia, and Slave Mentality.

Dominator nano has a six-hour delay and requires a HT-6 roll to resist. Failure results in the victim gaining (or losing) the programmed disadvantage. Superscience (TL12^) versions of dominator nano take effect after only a minute's delay.

Dominator nano's effects are permanent, but can be canceled by other nano, psych implants, etc. The attack has no effect if the user already has that disadvantage, or if he doesn't have the disadvantage that is to be erased.

Dominator nano costs $100 times the combined value of the mental disadvantages. For example, erasing or adding a -5-point disadvantage would cost $500 per dose. At double cost, dominator nano can reverse the changes it has wrought after a specified duration has passed. Superscience dominator nano is twice as expensive.

Some types of dominator nano erase disadvantages that a society finds offensive, or add those it considers desirable. Such types are LC2 and may be available to licensed physicians. Other types are LC1.

Parasite Seed (TL12)

A parasite seed is a template for a bioplas nanomorph (p. 111). To be activated, the apple-seed-sized capsule must be injected into or swallowed by an organic life form. It then releases nanomachines that begin transforming that being, using its body mass as raw material to construct a nanomorph. Each hour, the subject makes a HT-4 roll. Any success kills the parasite seed.

Any failure reduces the victim's HT by 3. When HT is reduced to 0, the victim dies and his body is transformed into that of a nanomorph: apply the nanomorph template.

The parasite seed includes the nanomorph's own AI, which overwrites that of the host's mind. It may also trap and store his mind as a ghost program. $10,000 per dose ($100,000 for mind-trapping seeds). LC1.

Melee and Thrown Weapons

No matter how advanced ranged weapons become, there will be times and places – stealthy assassinations, boarding actions, riot control, or just a startown brawl – where hand-to-hand combat cannot be avoided.

Physical Weapons

These weapons inflict damage by cutting, crushing, or impaling their victims, or by delivering explosive devices. Some are powered; others use ultra-tech material science.

Karatands (TL9)

These memory plastic gloves are flexible, but harden into an edge when the user strikes someone. They have the same effect as brass knuckles, but they're not as obvious. They can also be installed in flexible armor. $100 each, neg. weight. LC3.

Limpet Mine Dispenser (TL9)

A close-combat weapon designed to attach to a battlesuit or robot's arm. It is a "sleeve dispenser" for sticky limpet mines to slap onto the target. The mines attach themselves with molecular suction pads, then detonate after a preset interval.

To plant one, use Brawling or DX. A successful hit does no immediate damage; instead, it sticks a limpet mine onto the target.

The dispenser may be programmed to set mines with a time delay from 0 (going off at the end of the attacker's turn) to 100 seconds. Removing a limpet mine requires a Ready action and a successful ST roll, minus one-tenth the DR of whatever the mine is stuck to or -20, whichever is less.

If the mine was stuck to flesh, it does 1 HP damage when pulled off. If a mine is slapped on a part that cannot be reached (for instance, the small of the back), it can't be removed without help.

Limpet-mine dispenser magazines hold 10 limpet mines. Each mine has a 25mm warhead, and is identical to a shaped-charge limpet mine grenade. Limpet mines can also be stuck to the floor, walls, etc. for use as booby traps, but may not be thrown.

Rocket Striker (TL9)

A great axe, pick, scythe, spear, or warhammer may be fitted with a rocket striker, a small liquid-fuel engine that amplifies the force of the user's swing, thrust, or throw. A button on the weapon's haft triggers the rocket engine; skilled users activate it at the right moment. It has enough fuel for six boosted attacks at TL9 (doubled per TL after introduction).

The rocket striker must be activated before the to-hit roll. It adds +6 to Striking Strength. However, it also adds +3 to the weapon's ST requirement – it is easier to lose control of the weapon! This drawback does not apply to thrown spears. Add $500 and 1 lb. LC3.

Superfine Blade (TL9)

Superfine blades are advanced alloy, ceramic, or crystalline blades superior to steel. Any edged weapon that does cutting or impaling damage can have a superfine blade. It adds +2 to cutting and impaling damage and has a (2) armor divisor. Superfine blades are six times normal cost. LC4.

Monowire Blade (TL9^)

Monowire weapons owe their superior cutting ability to a strand of super-strong wire a few molecules thick, which is stretched along the edge of a reinforced sword or knife.

Monowire blades inflict +2 cutting damage and get a (10) armor divisor. Since the monowire is only along a blade's edge, it cannot cut into a flat surface. Any melee or thrown weapon that inflicts cutting damage can be made in a monowire version for 10 times normal cost. This upgrade is incompatible with superfine or vibroblade weapons. For other rules, see p. B406. LC3.

Monowire Whip (TL9^)

This is a weighted length of monomolecular wire attached to a short handle. It is a dangerous weapon, especially in the hands of an unskilled user (who may lose control of the weapon and injure himself with it). A control allows the wielder to vary length from one to seven yards, changing both reach and ready time. Adjusting the length requires a Ready maneuver.

When used to snare an opponent or a weapon, the whip cuts into its target, inflicting thrust+1d(10) cutting damage every turn it is pulled taut until the victim escapes. A "drop weapon" critical miss indicates the wielder hit himself or a friend. LC2.

Monowire Switchblade (TL10^)

This weapon combines elements of both a monowire blade and whip. It consists of a weighted monomolecular memory wire attached to a powered knife hilt. As long as the hilt feeds an electric current into the "smart" wire, the wire remains rigid like a sword. Toggle switches in the hilt allow the user to play out more wire to vary the blade length from 0 inches (retracting the blade into the hilt) to 15 feet, or to turn the current on or off. If the current is cut off, the wire becomes a flexible razor-sharp monowire whip. Changing length or switching the current on and off requires a ready action.

Limpet Mine Damage Table

BRAWLING or DX

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
9	Limpet Mine Dispenser	varies	C,1	no	$200	2/0.6	–	See above

Monowire Whip Table

MONOWIRE WHIP (DX-6, Kusari-3, or Whip-3)

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
9^	Monowire Whip	sw+1d-2(10) cut	1-7*	-2U	$900	0.5	5	See above

As a rigid weapon, the monowire switchblade's reach may vary from C to 5. It does swing + 1d + R(10) cutting damage, where R is its current reach (treat C as 0). It cannot thrust. The switchblade requires Force Sword skill when rigid. It can parry normally. The user must have enough room to swing the weapon: reach 3 to 5 isn't possible without that many yards of vertical or horizontal space. As a flexible weapon, the monowire switchblade's reach may vary from one to five yards, and it functions like a monowire whip (p. 163). If it runs out of power, the memory wire can no longer stay rigid, and the weapon functions only as a whip. B/10 hr. LC2.

Monowire Switchblade Table

FORCE SWORD (DX-5 or any sword skill at -3)

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
10^	Monowire Switchblade	sw+1d+R(10) cut	C-5	0	$2,000	0.5	5	See above

MONOWIRE WHIP (DX-6, Kusari-3, or Whip-3)

–	*or*	sw+1d-2(10) cut	1-7*	-2U	–	–	5	

Vibroblade (TL10)

These blade weapons vibrate thousands of times per second. Any edged weapon that does cutting or impaling damage can be a vibroblade. Turning on the vibro effect takes a Ready action. A successful Fast-Draw roll activates it as the blade is drawn.

A vibroblade adds +1d to cutting damage and has a (3) armor divisor. This armor divisor increases to (5) if the blade is also superfine, or (10) if it is also hyperdense (below). If the vibro effect is turned off, it functions like an ordinary blade (with the normal benefits of superfine or hyperdense construction, if applicable).

The blade vibrates so rapidly that its movement is invisible, and it is impossible to tell a vibroweapon from a regular weapon of the same type. A Hearing roll made from one yard away will detect a faint hum that marks a vibroweapon for anyone familiar with it. Anyone parrying (or whose weapon is parried by) a vibroblade will recognize its nature as the blade cuts into their own.

Vibroblades are not compatible with monowire or nanothorn blades.

Vibroblades are powered by C cells; the cell powers them for 300/weapon weight seconds. Thus, a half-pound knife operates for 600 seconds. Vibroblades cost 10 times as much as regular melee weapons (30 times as much if also superfine). LC3.

Vibroblade damage improves at higher tech levels. Add +1 at TL11, or +2 at TL12.

Hyperdense Blades (TL11)

Any bladed weapon can have an edge of collapsed matter. Hyperdense blades add +2 to cutting and impaling damage and have a (5) armor divisor. Multiply the weapon's weight and ST requirement by 1.5 (round up).

Hyperdense blades cost $500 times the weight of the original weapon (before the modification) or 10 times normal cost, whichever is higher. LC3.

Nanothorn Blades (TL11^)

Nanothorn blades use branching monomolecular nanostructures that fit into and rip apart intermolecular bonds. The edge of such a weapon appears to be a smoky haze, and matter in contact with the blade appears to disintegrate. A nanothorn blade is available for any cutting weapon. It replaces the weapon's normal cutting damage with corrosion damage, with a (10) armor divisor. 20 times normal cost, or four times normal cost to upgrade a monowire whip or switchblade to use a nanothorn blade. LC1.

Stasis Switchblade (TL12^)

A stasis blade consists of a monomolecular wire (p. 103) stiffened by a stasis web (pp. 193-194). Its effect is identical to a monowire switchblade, but the blade may extend out to reach 30. Due to the stasis web, the switchblade cannot be broken and can be used to parry a force blade or similar energy-based attack. LC2.

Stasis Switchblade Table

FORCE SWORD (DX-5 or any sword skill at -3)

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
12^	Stasis Switchblade	sw+1d+R(10) cut	C-30	0	$20,000	0.5	5	See above

MONOWIRE WHIP (DX-6, Kusari-3, or Whip-3)

–	*or*	sw+1d-1(10) cut	1-30*	-2U	–	–	5	

Energy Weapons

These include contact energy-discharge weapons, as well as weapons that generate a blade of energy.

Electric Stun Wands (TL9)

Also called shock clubs or stun sticks, these batons use low-powered electric currents to disorganize nerve function – an effect called electromuscular disruption.

They are often carried by police officers. Some are jointed, to prevent a victim taking damage even when struck by an adrenaline-charged riot policeman; others do damage as a baton.

The victim gets a HT-5 roll to resist. Nonmetallic armor gives a bonus equal to its DR, and the stun effect has a (0.5) armor divisor: add +2 to HT for every DR 1. On a failure, the victim's voluntary muscles convulse, and he is knocked down and paralyzed. He may roll vs. HT-5 each second to recover; however, the user may take a Concentrate maneuver to hold the baton in contact. This prevents recovery until it is removed, but drains a charge each second. DR does not add to HT on recovery rolls.

Stun wands are wielded using Shortsword skill. They use a B cell and strike 20 times before losing power. $100, 1 lb. LC4.

Zap Glove (TL9)

A zap glove looks like a heavy glove, but it contains electrical insulation (for the wearer) and a high-voltage generator. A person can attack with a zap glove by touching the victim. Boxing, Brawling or Karate allow the zap and normal damage simultaneously; Judo, Wrestling or a normal grapple apply the zap before any other effect. No attack roll is needed in social situations such as shaking hands.

A zap glove has two settings: "stun" and "kill." Changing settings takes a Ready maneuver. On "stun," the effect is the same as an electric stun wand. On "kill," the zap glove does 2d burning damage and uses the rules for lethal electrical damage (p. B432).

A B cell in the lining of the glove provides sufficient power for 10 zaps (each zap on "kill" setting counts as two). The glove protects the hand with DR 5. It can also be built into existing armor or vacc suit gauntlets. This increases the armor's cost and weight by $400 and one pound. A zap glove is LC3.

Electric Stun Wand Table

BOXING, BRAWLING, KARATE, or DX

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
9	Zap Glove	HT-6(2) aff	C	No	$400	1	2	See above
	or "kill"	2d burn	C	No	–	–	2	

SHORTSWORD (DX-5, Broadsword-2, Force Sword-4, Jitte/Sai-3, Knife-4, Saber-4, Smallsword-4, or Tonfa-3)

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
9	Electric Stun Wand	sw cr	1	0	$100	1	5	See above
	linked HT-5(2) aff	–	–	–	–			
	or	thr cr	1	0	–	–	5	
	linked HT-5(2) aff	–	–	–	–			

Neurolash (TL10)

These contact neural disruptor weapons use neural induction technology to stimulate paralysis, pain, or orgasmic pleasure in the brain and nervous system. Neurolash weapons are used for covert operations, pranks, as self-defense or dueling weapons, or by slavers, prison guards, and police of oppressive regimes.

Neurolash effects are affliction attacks identical in effect to a strike from a neural disruptor (pp. 121-122). Neurolash weapons come in all standard neural disruptor versions.

A neurolash is usually integrated into a baton or whip, but it may be added to any melee weapon. It delivers a HT-5 (2) affliction attack. A neurolash generator is not compatible with force blade, sonic, vibro, or monowire weapons. Add $500, .5 lbs., and a B cell (20 strikes). LC3.

Neuroglove (TL10)

The neuroglove delivers a neural shock by touch. It functions like a neural lash, but the larger contact area of the glove makes it more effective: it delivers a HT-6 (2) affliction attack. It can be used to strike with, or to ambush unsuspecting victims by shaking hands with them. It is also a favorite interrogation tool. Pain neurogloves delivering an Agony affliction are the most common, but gloves delivering all neural disruptor effects are available.

A neuroglove resembles an ordinary winter glove, and has DR 2. Any damage to the hand that penetrates its DR has a one-in-six chance of wrecking it as a weapon. $500, 0.5 lbs., B cell (20 strikes). LC2.

Tunable Neurolash (TL11)

A tunable neurolash or glove can be set to deliver different types of neurolash effect. Add +50% to the cost for each setting after the first one. It takes a Ready maneuver to change settings.

Tunable neurolash weapons are available in normal or high-power versions. High-power neurolash weapons can deliver a contact effect identical to a death beam, i.e., any failed resistance roll causes the Heart Attack mortal condition. LC3, or LC2 if high-power.

Neurolash Weapon Table

BOXING, BRAWLING, KARATE OR DX

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*
10^	Neuroglove	HT-6(2) aff	C	No	$500	0.5	2

SHORTSWORD (DX-5, Broadsword-2, Force Sword-4, Jitte/Sai-3, Knife-4, Saber-4, Smallsword-4, or Tonfa-3)

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*
10^	Neurolash Baton	sw cr	1	0	$520	1.5	6
	linked HT-5(2) aff	–	–	–	–		
	or	thr cr	1	0	–	–	6
	linked HT-5(2) aff	–	–	–	–		

WHIP (DX-5, Kusari-3, or Monowire Whip-3)

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*
10^	Neurolash Whip	sw-2(0.5) cr	1-3*	-2U	$560	6.5	8
linked	HT-5(2) aff	–	–	–	–		

Sonic Shuriken (TL10^)

This throwing weapon is designed for use by assassins and commandos. A sonic shuriken appears to be a one-inch plastic disk. When activated and thrown it emits a disk of coherent sound twice its own diameter. Due to its small power source, the sonic blades only last for a second, but this is enough time for it to hit its target.

For an extra $50, a sonic shuriken may be fitted to spray a drug, poison or virus along the disk (two doses are required). This is a follow-up attack – if the shuriken penetrates armor, it delivers the drug or poison.

A sonic shuriken uses an A cell, which is completely drained after one use. It is reusable if its power cell is replaced. Because they use only A cells and are so easy to conceal (Bulk 0), these weapons are favorites with assassins. LC2.

THROWN WEAPON (SHURIKEN) (DX-4 or Throwing-2)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*Cost*	*ST*	*Bulk*
10^	Shuriken	thr (3) cut	1	×0.5/×1	0.1	1	T(1)	$400	5	0

Force Swords (TL11^)

A force sword is an energy weapon that consists of a powered hilt, similar in size and appearance to a regular sword hilt. When activated, a blade of annihilating energy extends from the hilt and is held in shape by a force field.

A force sword may be activated as it is being readied on a successful Fast-Draw roll. Otherwise, it takes a Ready maneuver to activate it. In either case, it takes one second for the blade to form and stabilize.

A force sword inflicts tight-beam burning damage with a (5) armor divisor. Wounds that are injured are cauterized.

The force field is solid enough to allow it to parry objects or other force blades as well as containing the energy beam. The blade cannot break, and damages any weapon or body part it parries. It also damages any weapon or body part which parries or blocks it unless the defense roll was a critical success. Only another force sword or a sonic blade is unaffected.

A force sword can also be used as a very powerful cutting tool, doing its regular damage against any material.

Force Sword Weapons

Force Blade (TL11^): Generates a knife-like blade of energy up to 18." A good weapon for the startown docks when a force sword is a bit too fancy. C/300 seconds. LC3.

Force Glaive (TL11^): A suitable weapon for the guards of the galactic emperor. This collapsible staff contains a generator for an elongated force blade. When the blade is inactive, the weapon can be used as an ordinary baton or staff. 2C/420 seconds. LC2.

Force Sword (TL11^): The basic force sword: a powered hilt that generates a brilliant beam of annihilating energy. This weapon is as elegant as it is deadly. C/300 seconds. LC2.

Variable Force Sword: For an extra $500, the force sword's magnetic field may vary from dagger-sized to the length of a bastard sword. Changing the length requires a Ready action, and allows the reach to be altered from C to 2.

Force Whip (TL12^)

This is a *flexible* field of matter-disrupting energy with a 25' reach. It is more clumsy and random than a force sword, but very difficult to counter! B/100 seconds. LC2.

Force Sword Table

FORCE SWORD (DX-5 or any sword skill at -3)

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*
11^	Force Blade	6d(5) burn	C, 1	-1	$2,000	0.5	2
11^	Force Glaive	9d(5) burn	2, 3	0	$14,000	6	7†
11^	Force Sword	8d(5) burn	1, 2	0	$10,000	2	3

FORCE WHIP (DX-5, Kusari-3, Monowire Whip-3, or Whip-3)

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*
12^	Force Whip	4d(5) burn	1-8*	-2U	$5,000	1.25	3

Combat Robots

Combat robots may not be as flexible or versatile as human soldiers, and sophisticated machines may be individually more expensive. But they obey orders, they can survive where people can't, and they have no mothers to weep for them.

Warbots and Combat Androids

A warbot is a fighting machine designed to replace soldiers and supplement combat vehicles.

A combat android is a humanoid machine that can use the same equipment and facilities as ordinary soldiers. Some are also disguised as living beings.

Combat Android (TL9-12)

371 points

This is a humanoid combat machine, strong and heavily armored. Depending on the choice of traits, it could be designed as an assassin, bodyguard, police officer, or soldier.

Attributes: ST+10 [100]; DX+3 [60]; HT+2 [20].
Secondary Characteristic Modifiers: None.
Advantages: Absolute Direction [5]; Detect (Radio, Lasers, and Radar; Signal Detection, +0%) [20]; Discriminatory Hearing [15]; Doesn't Breathe [20]; Hyperspectral Vision [25]; Machine [25]; Sealed [15]; Silence 1 [5]; Temperature Tolerance 20 (-85° to 210°) [20]; Ultrahearing [5]; Vacuum Support [5]. 60 points chosen from among Ambidexterity [5], Appearance [var.], Combat Reflexes [15], Enhanced Time Sense [45], High Pain Threshold [10].
Perk: Accessory (Microframe computer) [1].
Disadvantages: Electrical [-20]; Restricted Diet (Very Common, power cells) [-10].

Lenses

Select *one* of these TL lenses. Then choose a machine intelligence lens (p. 27) and biomorphic lens (p. 28), and consider the optional lenses detailed below.

TL9 Model (+145 points): Add DR 30 [150]; Maintenance (one person, weekly) [-5]. $300,000, 150-300 lbs., 2D/8 hr. LC2.
TL10 Model (+231 points): Add DR 45 [225], Maintenance (one person, bi-weekly) [-3], Reduced Consumption 2 [4], and Telescopic Vision 1 [5]. $200,000, 100-300 lbs., 2D/24 hr. LC2.
TL11 Model (+329 points): Add DR 60 [300], Maintenance (one person, monthly) [-2], Reduced Consumption 3 [6], and Telescopic Vision 5 [25]. $150,000, 70-300 lbs., 4D/1 week. LC2.
TL12 Model (+483 points): Add DR 90 [450], Reduced Consumption 4 [8], and Telescopic Vision 5 [25]. $50,000, 50-300 lbs., 4D/1 month. LC2.

Optional Lenses

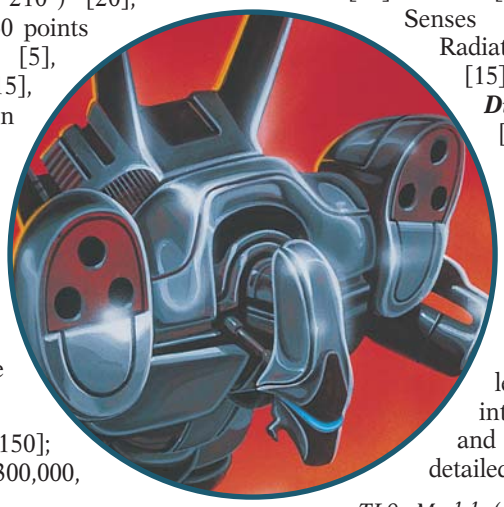
Combat Exoskeleton (-20 points): The robot resembles a metallic skeleton. Add Numb [-20].
Infiltrator (+40 points): The robot is covered with living flesh and appears human. It is optimized for black ops, undercover, or bodyguard missions. Add DR 30 (outer layer) (Ablative, -80%) [30] and Mimicry [10]. Add +20% to model price.
Chameleon (+21 points): Add Chameleon 3 (Extended, Infravision, and Ultravision, +40%) [21].
Nuclear-Powered (+20 points): Add Doesn't Eat or Drink [10]; *remove* Restricted Diet (Very common, power cells) [-10].
Weapon Mount (+2 points): Add Extra Arm 1 (Weapon Mount, -80%) [2].

Warbot (TL9-12)

289 points

The warbot is a nonhumanoid fighting machine the size of a subcompact car. It weighs half a ton (without weapons) and is available in submarine, walking tank, and aircraft versions. All models have a pair of manipulator arms.

Attribute Modifiers: ST+15 (Size, -30%) [105]; DX+2 [40].
Secondary Characteristic Modifiers: SM+3; HP+15 (Size, -30%) [21]; Per+5 [25].
Advantages: Extra Arms 3 (Weapon Mount, -80%) [6]; Hyperspectral Vision [25]; Lifting ST +15 (Size, -30%) [32] Machine [25]; Payload 5 [5]; Protected Senses (Hearing, Vision) [10]; Radiation Tolerance 5 [10]; Sealed [15].
Disadvantages: Electrical [-20]; Restricted Diet (Very Common, E cell) [-10].
Availability: $200,000, 1,000 lbs. *plus* the cost of its brain. LC2.



Lenses

Select *one* of these TL lenses, plus a configuration lens. Then choose a machine intelligence lens (pp. 27-28) and consider the optional lenses detailed below.

TL9 Model (+115 points): Add DR 50 (Cannot wear armor, -40%) [150], Maintenance (3 persons, weekly) [-15], and Numb [-20].
TL10 Model (+229 points): Add DR 75 (Cannot wear armor, -40%) [225], Maintenance (one person, weekly) [-5], Reduced Consumption 2 [4], and Telescopic Vision 1 [5].
TL11 Model (+329 points): Add DR 100 (Cannot wear armor, -40%) [300], Maintenance (one person, monthly) [-2], Reduced Consumption 3 [6], and Telescopic Vision 5 [25].
TL12 Model (+483 points): Add DR 150 (Cannot wear armor, -40%) [450] and Reduced Consumption 4 [8].

Configuration Lenses

Select *one* of these lenses.

Submarine (+62 points): Basic Move becomes Water Move; ground Move is 0. Add Absolute Direction [5], Aquatic [0], Enhanced Move (Water) 1 [20], Pressure Support 1 [5], and Sonar (Increased Range 10×, +30%; LPI, +10%; Targeting, +20%) [32].

Walking Tank (+87 points): An insectoid ground combat machine. Add Absolute Direction [5], Enhanced Move 1 (Ground) [20], Extra Legs (4 legs) [5], Radar (Increased Range 10×, +30%; LPI, +10%; Multi-Mode, +50%; Targeting, +20%) [42], Super Jump 1 [10], and Vacuum Support [5].

Vertol (+142 points): This robot can fly and hover using ducted fans. Basic Move becomes Air Move; ground Move is 0. Add 3D Spatial Sense [10], Aerial [0], Enhanced Move (Air) 3 [60], Flight (Small wings, -10%) [36], Noisy 3 [-6], and Radar (Increased Range 10×, +30%; LPI, +10%; Multi-Mode, +50%; Targeting, +20%) [42].

Vertol (Contragrav) (+140 points): The machine uses contragravity generators for lift and thrust; this is TL10^. Its Basic Move becomes Air Move; ground Move is 0. Add Aerial 0], [Enhanced Move (Air) 3 [60], Flight (Planetary, -5%) [38], and Radar (Increased Range 10×, +30%; LPI, +10%; Multi-Mode, +50%; Targeting, +20%) [42].

Robot Weapons

Robotic missiles are designed to destroy the target in a suicidal attacks. Robot mines are simple automated weapons that wait for targets to appear – sometimes for years or millennia – before making their attack.

Genius Missiles (TL9-11)

The most advanced ultra-tech homing missiles are small, autonomous combat robots. They seek out and destroy their targets using programmed tactics such as loitering and stealthy low-altitude approaches. As far as the game rules are concerned, they're trained animals. Although not very bright by AI standards, they're sometimes classed as "genius missiles" (to distinguish them from TL8 smart and brilliant missiles). Another, more accurate term is "sentient missiles."

Instructing a genius missile requires an Artillery (Guided Missile) skill roll. Use the guidelines on p. B458 for what the missile can do. Missiles are very good at recognizing sensory profiles of particular targets, and can receive new target information and other updates through their communications links.

Genius missiles are also useful as reconnaissance machines – firing one over a hill and seeing what it sees! If the user is worried about hacking, they can be told to "go dark" and receive no other commands.

Hunter Missile (TL9)

An arm-sized missile powered by a turbojet engine. It can fly at up to 1,000 mph, but can't slow down below 1/4 its speed. A hunter missile's Payload may be any 64mm warhead. It can be fired from a 64mm missile launcher, such as the IML or MLAWS (p. 145). It flies for one minute and then will crash and self-destruct.

A hunter missile uses a low-probability intercept multi-mode radar (2,000-yard range) as its main sense. It can also detect laser, radar and radio emissions and use that to find targets. It can receive command updates via radio, and use inertial guidance to fly to map coordinates.

The hunter missile's maximum straight-line range is 16 miles.

ST 3; **DX** 14; **IQ** 5; **HT** 12.
HP 6; **Will** 5; **Per** 12; **Speed** 6; **Dodge** 9; **Move** 0 (Ground).
SM -4; 5 lbs.
Traits: Absolute Direction; Aerial; AI; Automaton; Blindness; Deafness; Detect (Lasers, Radio, and Radar, Signal Detection); Electrical; Enhanced Move 2 (Air speed 480); Flight (Cannot Hover; Limited Use, Fast Reload, 1 minute; Air Move 120); Injury Tolerance (No Head, No Neck); Mute; No Manipulators; No Sense of Taste/Smell; Noisy 4; Numb; Payload 3; Radar (LPI, Multi-Mode); Radio (Burst, Secure).
Cost: $2,500 ($500 at TL10). LC2.

Striker Missile (TL9-10)

A larger, smarter, and faster version of the hunter missile. It has a maximum speed of 2,000 mph and a maximum range of 32 miles. Its radar has a 4,000-yard range, but it can turn that off and use Hyperspectral Vision instead. A striker missile's Payload may be any 100mm warhead. It can be fired from any 100mm missile launcher such as the Tactical Missile Launcher (p. 145).

The TL10 version uses much cheaper nanoelectronics, but is otherwise similar.

ST 6; **DX** 14; **IQ 6**; **HT** 12.
HP 12; **Will** 5; **Per** 12; **Speed** 6; **Dodge** 9; **Move** 0 (Ground).
SM -2; 17 lbs.
Traits: Same as Hunter Missile except delete Blindness, add Hyperspectral Vision, upgrade to Enhanced Move 3 (Air speed 480), and give Radar (Increased Range ×2).
Skills: Aerobatics-10, Observation-11.
Cost: $17,000 ($3,400 at TL10). LC1.

Floater Missile (TL10^)

Similar to the Striker Missile, but its reactionless thrusters and contragravity technology enhance maneuverability and range (320 miles).

ST 3; **DX** 14; **IQ** 6; **HT** 12.
HP 6; **Will** 6; **Per** 13; **Speed** 8; **Dodge** 11; **Move** 0 (Ground).
SM -4; 5 lbs.
Traits: Absolute Direction; Aerial; AI; Automaton; Blindness; Deafness; Detect (Lasers, Radio, and Radar, Signal Detection); Electrical; Enhanced Move 2 (Air speed 480); Flight (Limited Use, Fast Reload, 10 minutes; Air Move 120); Injury Tolerance (No Head, No Neck); Mute; No Manipulators; No Sense of Taste/Smell; Noisy 4; Numb; Payload 3; Radar (LPI, Multi-Mode);

Radio (Burst, Secure).
Skills: Aerobatics-12, Observation-11.
Cost: $5,000 ($1,000 at TL11). LC1.

Smart Shuriken (TL11^)

A razor-sharp missile that uses contragrav to reach speeds of 200 mph. It may be shaped like a knife, wedge, card, or disk. At low speed it is dangerous and highly maneuverable, and can hide and sneak up on foes, but its most lethal attack is to accelerate up to its full speed and ram. This uses the rules for sharp collisions (see p. B430): it inflicts half-normal collision damage but that damage is *cutting*.

A smart shuriken can be fired from a 25mm missile launcher or simply *thrown* – often, after hitting or missing all programmed targets, it returns to the thrower's hand. It can fly for 10 minutes; then it's immobile until its C cell is replaced.

ST 1; **DX** 14; **IQ** 5; **HT** 12.
HP 1; **Will** 5; **Per** 10; **Speed** 6; **Dodge** 9; **Move** 0 (Ground).
SM -10; 0.1 lb.
Traits: Aerial; AI; Automaton; Blindness; Electrical; Enhanced Move 3 (Air speed 96); Flight (Limited Use, Fast Reload, 10 minutes; Air Move 12); Injury Tolerance (No Head, No Neck); Machine; Mute; No Manipulators; No Sense of Taste/Smell; Noisy 4; Numb; Radar (LPI, Imaging).
Skills: Brawling-12; Stealth-10.
Cost: $500. LC2.

Devourer Swarm (TL10)

These swarmbots have small diamond jaws; a swarm can chew through almost any barrier or armor, given time. They inflict 1d(2) corrosion damage per second to anyone caught within the swarm. This is considered an area-effect attack, and only sealed DR will protect against it. High-density swarms are most effective! $8,000 per square yard. LC1.

Gremlin Swarm (TL10)

The swarm is equipped with tiny drills and cutters. It is programmed to crawl inside electronic or mechanical devices , then jam up the works by slicing through wires, eating circuits, and so on. Only sealed machinery or electronics, or devices lacking small moving parts, will be safe. The sabotage is not immediately obvious.

Each square yard of swarm does one point of damage per turn to unsealed machinery, ignoring armor DR. The machinery acquires a malfunction number (p. B407) of 17, with an extra -1 each time it loses 10% of its HP. Check non-weapon devices for malfunction when they are turned on and each minute they are in use

Damage caused by gremlins doesn't physically destroy an object, but is treated like other damage for repair purposes. $2,000 per square yard. LC2.

Sentry (TL10)

These microbots are equipped with weapons optimized for combating other microbots. Each hex inflicts 2d damage per turn on other microbot swarms. $5,000 per square yard. LC3.

Stinger Swarm (TL10)

These tiny robots have stinging needles with soporific venom. The swarm does one point of Fatigue damage per turn to living beings (only) in contact with it unless they have Sealed protection. $1,500 per square yard. LC2.

Terminator Swarm (TL10)

These microbots have tiny jaws or poison needles. The swarm does one point of toxic damage per turn to living beings (only) in contact with it, unless they have Sealed protection. $1,500/square yard. LC1.

Disassembler Swarm (TL11)

This cloud of nanomachines is programmed to break down matter; the nanobots stick to anything in the area of effect and begin to eat, reducing the target to powder or goo. A disassembler swarm inflicts 1d-2(10) corrosion damage per second to anyone caught within the swarm. This is considered an area-effect attack, and only sealed DR will protect against it.

Used as a digging tool, disassemblers can turn packed earth or stone into fine powder, digging two inches within the radius of the cloud every second.

Specialized disassembler nano can be manufactured not to eat certain chemical compounds, or to only eat certain compounds, or to last for shorter or longer times than the standard 30 seconds. It's possible to design disassemblers that won't touch organic materials, that will only eat organics ("kill the people but leave the buildings standing"), or that will eat anything except a certain complex polymer or alloy being used to line the container in which they are stored.

Disassembler costs $10,000 per square yard for standard types, possibly more for custom models. It is not available as a microbot swarm. LC1 (for most types).

Cannibal Swarm (TL12)

This swarm is programmed to cannibalize other objects to build a single, specific gadget. It must first find an object that contains raw materials suitable for the task. Creating mechanical devices such as guns and engines requires objects made of metal. Plastics can be broken down to make gas and propellants. Creating electronic devices requires cannibalizing other electronic systems; any such device in the area takes damage as per a disassembler swarm (above). Whatever is cannibalized is destroyed – or, more accurately, transformed.

Each cannibal swarm is specific to one gadget or weapon. However, a swarm may build several closely related gadgets that are put together into one object. For example, a swarm may build a gun with a laser sight, a helmet with built-in infrared goggles, or a robot. The maximum weight of the gadget is 10 pounds per square yard of the swarm.

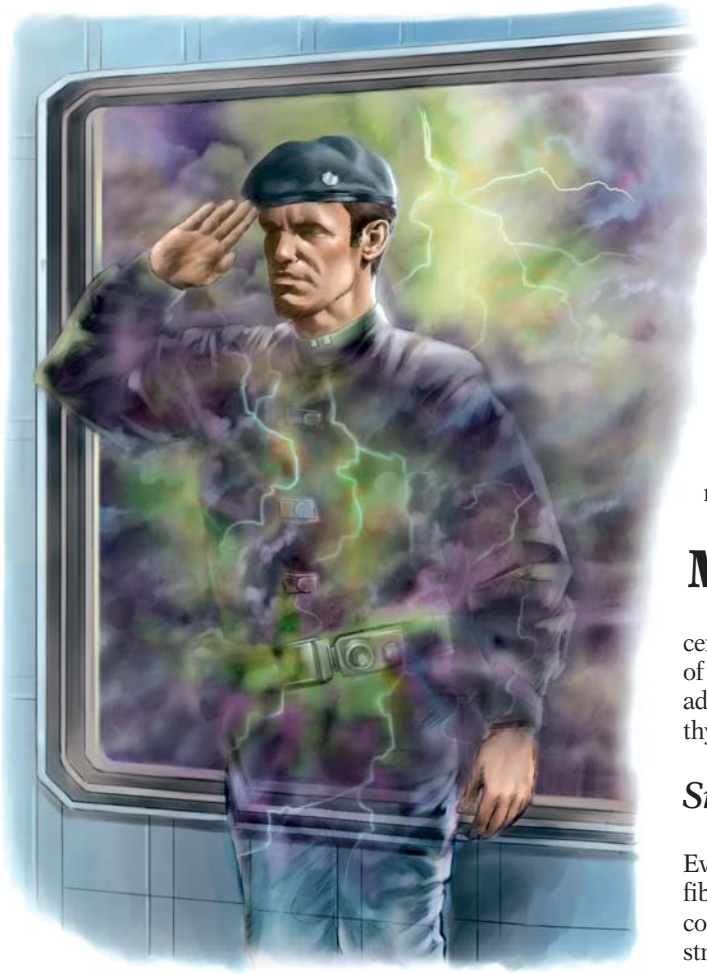
Assembly takes one minute per pound of gadget weight, divided by the size of the swarm in square yards. The process produces residual heat, so it is best to employ it on a nonflammable surface (such as a concrete floor) and turn off the smoke detectors. A cannibal swarm's cost is 15 times that of the intended gadget or $15,000 per square yard, whichever is greater. Cannibal swarms are LC1 or the LC of whatever they build, whichever is lower.

Chapter Seven
DEFENSES

The location of the Imperial Secret Service's Galactic Operations Division headquarters was top secret. The only way in or out was by a long-range matter transmission booth. It kept unwanted visitors away, and made it hard for the enemy to know where to aim an antimatter bomb.

Colonel Erasmus thought this was a sensible precaution. It made him feel better about living inside a force field floating deep inside a gas giant's atmosphere. His eye strayed to the synthetic diamond window, and to the vast lightning storm that raged above the ammonia clouds. If the field ever collapsed, he consoled himself, it would be quick.

Suddenly, the MT booth sparkled into life. Dancing motes of energy solidified into the colonel's best operative. Today he looked like a young Terran, and wore a chameleon-surface biosuit and a beret.



"Special Agent Raphael, reporting as ordered," the infiltration cyborg said, stepping out of the booth and saluting.

Erasmus returned the salute, then paused, nonplussed. Raph was standing in front of the picture window, and his biosuit had changed color. Now he was the flickering color of the Jovian storm. It was distracting.

"Turn off that damn cammo, Special Agent."

"Sorry, sir." Raphael subvocalized a command, and the suit returned to the GOD's regulation black and silver. "I just returned from the field."

"Have a seat." A floating grav chair drifted over. "I heard Sargon was rough."

"My teams have arranged for all the nuclear dampers to be secretly buried. We've blanketed Sargon from pole to pole. As long as they stick to fission-triggered warheads, they can go nuclear all they like." He smiled wickedly. "I wonder what they'll do when 7,000 atomic warheads turn into wet firecrackers?"

Colonel Erasmus sighed. "Try to get antimatter nukes. Actually, they already are, to make clean tactical weapons. But Gabrielle is handling that. I have another job for you. What do you know about the Thearchy of Buckminster?"

Defenses and weapons compete in a constant arms race. As weapons become more deadly, stronger and more effective defenses are developed to protect against them . . . leading to more powerful weapons. This chapter covers both general defenses, such as armor and force screens, and specific defenses, such as protective fields that shield against particular weapons, or electronic countermeasures designed to warn against or defeat attack.

Enemy action is not the only danger. Filter masks, vacc suits, and powered exoskeletons are just some of the gear that can protect the wearer in hostile environments and on the battlefield.

Materials

Ultra-tech armor may be made of tough synthetic fibers, ceramics, plastics, or alloys similar to lower-TL armor. All of these technologies improve at higher TLs due to ongoing advances in material technology, but two materials are worthy of special mention.

Smart Bioplastic (TL10)

This is a tough, flexible, pseudo-alive smart material. Every square inch of it contains electrically-active muscles, fibers and nerve endings. A coded electrical impulse can command these muscles to move, allowing an item constructed of bioplas to change its shape!

Bioplastic is very resistant to damage. If it has access to normal air and solar radiation, it can repair itself, healing any damage it has suffered at 1 HP every six hours. (Items with 20 HP or more heal faster – see *High HP and Healing*, p. B424.) Bioplastic items in regular use include bioplas armor (p. 174), biosuits (p. 179), and survival modules (p. 79). Bioplastic can even be used to make houses.

Living Metal (TL12)

Living metal devices are assembled using advanced nanotech, but the microscopic construction robots remain active within the object after it is built. Unless the object has been totally destroyed (-5 × HP or worse), any damage to the object will be regenerated in a matter of hours. Living metal items with fewer than HP 20 heal at 1 HP per hour; items with more HP heal faster (see *High HP and Healing*, p. B424).

This repair speed assumes that no parts are missing. If part of the original device is missing, but the proper material is available very close by, the construction robots can use it to replace missing parts; this halves the "regeneration" speed for that percentage of the device that must be rebuilt from scratch.

Implications of this include:

Any broken fragment of a living metal device can regrow the whole device under the right circumstances.

It is dangerous to set a broken living metal device on a metal surface; you may return to find the device repaired, or partially repaired, and the surface pitted where the robots took material from it!

A million-year-old device made of living metal will seem as new as the day it was first built. Corrosion and other damage will have been repaired as quickly as it occurred.

Powerful radiation can "kill" the robots, eliminating their self-repair capacity. Worse, it might "mutate" them, causing them to rebuild the device differently! The robots can withstand single bursts of up to 1,000 rads, or up to 500 rads in an hour.

Most metallic equipment can be made of living metal for double its normal cost.

Body Armor and Protective Gear

The armor tables follow the same format as those in the ***GURPS Basic Set***; see p. B282 for an explanation of abbreviations and location coverage. Some items have special features or restrictions; these are detailed in the item's description.

Threat Protection

High DR doesn't provide much defense against chemical weapons, great heat, microbes, and so on. These dangers demand specialized protection that corresponds to particular advantages. Below are several common classes of "threat protection" used in descriptions of protective gear:

Climate Control: The equipment provides protection against climatic extremes equivalent to the Temperature Tolerance advantage. Climate control systems remove waste heat as well as providing insulation and air conditioning. They extend the wearer's comfort zone to the range noted. If the suit is not sealed, treat as if it were merely air conditioned and insulated. If the wearer's own comfort zone is greater, the equipment may fail before its user does!

Air Supply: The equipment provides air for the wearer. The air supply times listed are an approximation (different people use air at different rates), and assume an external pressure of one atmosphere or less. For game purposes, assume that most adults use about the same amount of air per hour, and that children under 12 use half as much. It takes 10 seconds to hook up a tank and two seconds to jettison it. Air refills are $5 per hour, but most vehicles with life support systems incorporate air compressors that can top them up for free.

Glare-Resistant: The equipment screens out bright light. It is equivalent to Protected Vision (p. B78, and works against the deleterious effects of "dazzle," "flash," and "strobe" weapons.

Hearing Protection: The equipment screens out noise, and is equivalent to Protected Hearing (p. B78).

Radiation PF: The equipment has a radiation Protection Factor. Divide radiation by the PF before applying its effects, as if the user had Radiation Tolerance (p. B79).

Pressurized: The equipment is resistant to pressures greater than one atmosphere. Pressurized comes in three levels, each equivalent in effect to a level of Pressure Support (p. B77). This protects against crushing ocean depths and superdense atmospheres like those of Venus and Jupiter.

Sealed: Impervious to penetration by liquids and gases. This corresponds to the Sealed advantage (p. B82). It prevents all harm from noncorrosive bioweapons, chemicals, and nano, as well as ordinary rust and waterlogging.

Vacuum Support: Protects the wearer or occupants from the deleterious effects associated with vacuum and decompression (other than lack of air). This corresponds with the Vacuum Support advantage (p. B96).

Body Armor

These unpowered suits and armored garments require no special skill to use.

All body armor can come in any desired color, including camouflage patterns. It takes three seconds per piece to don or remove most body armor.

Body Armor Styles

Ultra-tech body armor is available in a variety of standard styles.

Bodysuit: This outfit covers the torso, groin, arms, and legs. The neck, head, or extremities are uncovered, making it easy to add customized boots, gloves, and helmets.

Gloves: A pair of armored gloves. They're made of thinner material than other armor types to avoid compromising the wearer's manual dexterity.

Jacket: This is a heavier outfit that covers the torso and arms. It zips up and has plenty of pockets.

Suit: This head-to-toe outfit includes a hood and face mask with eye slit. It's a useful exploration suit, supers costume, or ninja suit. It is also used as the basis for tailored armor (pp. 174-175).

Trousers: A pair of long pants, protecting the groin and legs (but not the feet). It is not obviously armor, and can pass for a normal pair of work pants or jeans.

Vest: A sleeveless t-shirt covering the torso.

All concealable armor styles can pass as normal clothing, although bodysuits and complete suits are likely to be conspicuous.

Additional styles can be created using the tailored armor (pp. 174-175) rules.

Ballistic Armor (TL9-11)

This armor uses flexible materials to resist high velocity projectile attacks as well as cutting blows. It's the ultra-tech successor to modern bulletproof vests. On a practical level, TL9+ ballistic armor's major advance is that it can provide full protection for areas other than the torso without sacrificing mobility.

Since bullets are among the most effective ways to deal damage at TL9-10, ballistic armor is widespread at these tech levels. At TL11+ it often declines in popularity, superseded by armor optimized against beam weapons.

Ballistic armor is flexible with a split DR: it provides full protection against piercing and cutting attacks, and uses its reduced DR against all other types of damage.

As material technology advances, ballistic armor continually improves. Examples of progressively-better ballistic armor types are reflex, nanoweave, and monocrys armor.

Reflex (TL9): This ballistic armor is a fabric woven from para-aramid fibers (such as Kevlar), polyethylene, or synthetics inspired by the molecular structure of spider silk. It is soaked in a "shear thickening fluid" of hard ceramic nanoparticles suspended in liquid. During normal handling, the armor is very flexible, but when a bullet or fragment strikes it, it becomes a rigid material.

Nanoweave (TL10): This armor is similar to reflex armor, but is reinforced for extra strength by woven carbon nanotubes. Nanoweave armor can be fitted with various accessories, using "smart" properties that can be engineered into it.

Monocrys (TL11): This is a single-crystal weave of synthetic diamondoid fibers, also called "nanocrystal." It is very light, but diamondoid materials melt at high temperatures, which means that monocrys is not particularly useful against beam weapons.

For heavier, non-concealable versions of reflex, nanoweave, and monocrys, see the descriptions of tactical vests (p. 173) and tactical suits (p. 178).

Concealable Ballistic Armor Table

TL	Armor	Location	DR	Cost	Weight	LC	Notes
9	Reflex Bodysuit	body, limbs	12/4*	$900	6	3	
9	Reflex Gloves	hands	6/2*	$30	neg.	4	
9	Reflex Jacket	arms, torso	12/4*	$450	3	3	
9	Reflex Suit	all	12/4*	$1,200	8	3	
9	Reflex Trousers	groin, legs	12/4*	$280	2.8	3	
9	Reflex Vest	torso	12/4*	$300	2	3	
10	Nanoweave Bodysuit	body, limbs	18/6*	$900	6	3	
10	Nanoweave Gloves	hands	9/3*	$30	neg.	4	
10	Nanoweave Jacket	arms, torso	18/6*	$450	3	3	
10	Nanoweave Suit	all	18/6*	$1,200	8	3	
10	Nanoweave Trousers	groin, legs	18/6*	$280	2.8	3	
10	Nanoweave Vest	torso	18/6*	$300	2	3	
11	Monocrys Bodysuit	body, limbs	24/8*	$900	6	3	
11	Monocrys Gloves	hands	12/4*	$30	neg.	4	
11	Monocrys Jacket	arms, torso	24/8*	$450	3	3	
11	Monocrys Suit	all	24/8*	$1,200	8	4	
11	Monocrys Trousers	groin, legs	24/8*	$280	2.8	3	
11	Monocrys Vest	torso	24/8*	$300	2	3	

* Flexible.

Tactical Vest (TL9-11)

This thick, sleeveless, jacket-like vest covers the torso and groin, with front and back pockets for inserting rigid ceramic or alloy plates.

A tactical vest is made of similar materials to concealable body armor, but is heavier, and is obviously body armor. It provides full protection against cutting and piercing damage, and reduced protection against all other attacks. Its trauma plates provide full protection against all damage types. It takes three seconds to insert or remove the plates.

Tactical Vest Table

TL	Armor	Location	DR	Cost	Weight	LC	Notes
9	Reflex Tactical Vest	torso, groin	18/7*	$900	9	2	
	trauma plates	torso	+34	+$600	+9	2	
10	Nanoweave Tactical Vest	torso, groin	24/10*	$900	9	2	
	trauma plates	torso	+46	+$600	+9	2	
11	Monocrys Tactical Vest	torso, groin	36/15*	$900	9	2	
	trauma plates	torso	+69	$600	+9	2	

* Flexible.

Assault Boots (TL9-12)

These armored boots add metal or ceramic inserts to the sole of a ballistic fiber. At TL9-11 they provide their full DR against attacks to the underside of the foot (e.g., stepping on a stake, a contact-detonation mine, etc.) but half DR against attacks from other angles. TL12 boots provide full protection from all angles.

Hiking: Ultra-tech combat boots incorporate smart-matter responsive fabrics and biomaterials that treat or prevent blistering from long marches. They count as the best quality equipment and add +TL/2 to Hiking skill.

Assault Boots Table

TL	Armor	Location	DR	Cost	Weight	LC	Notes
9	Assault Boots	feet	12/6	$150	3	4	
10	Assault Boots	feet	18/9	$150	3	4	
11	Assault Boots	feet	30/15	$150	3	4	
12	Assault Boots	feet	50	$150	3	4	

Laser-Resistant Body Armor (TL9-11)

Ultra-tech lasers are capable weapons at TL9 and become common at TL10, resulting in the development of flexible body armor optimized to counter them.

Ablative Armor (TL9)

This is similar to reflex armor, but made of plastic fabric designed to vaporize when struck by a laser beam. Since the armor is damaged by the attack, ablative armor is more useful against a single assassin than it is in a lengthy combat mission!

Ablative armor has a split DR. Its full DR is used against the burning or crushing explosive damage inflicted by any type of laser (including X-ray and graser models). This DR is also semi-ablative: For every 10 points of basic laser damage rolled, remove one point of DR from the location struck, regardless of whether the attack penetrated or not.

Its lower DR is used against all other attacks, and is not ablative.

Reflec (TL9)

Reflec is a light, highly-reflective armor of polished metallic fibers that reflects laser fire. It is useless against other attacks, but can be worn over other armor. Reflec has a split DR: It gets its full DR against microwaves and lasers (but not X-ray or gamma-ray lasers), but provides no protection against other weapons.

Reflec is an excellent radar reflector: any stealth benefits against radar are negated, and add +1 (+2 if wearing a full suit) to rolls to detect its wearer.

Reflec is not superscience, but is a cinematic technology. Realistically, mirrored material is not very effective against laser weapons, although it will function against microwave beams.

Any rigid helmet can be made reflective for $50. It gains +20 DR vs. lasers and microwaves.

Ablative Nanoplas (TL10)

This is advanced ablative armor made of tailored carbon nanotubes. It has higher DR, but it is otherwise equivalent to TL9 ablative armor.

Retro-Reflective Armor (TL11^)

This superscience reflec armor is embedded with polished, metallic fibers covered with millions of tiny spherical lenses. The micro-mirrors reflect laser fire *back at the attacker.* The armor "bounces back" half the damage from visible-light or near-infrared lasers that the DR actually *resisted*. The remaining damage affects the wearer normally.

If he wasn't suspecting the reflection, the attacker doesn't get an active defense against the first attack reflected back at him. He gets his usual defenses against subsequent reflected attacks, or if he knew the armor would be retro-reflective. Retro-reflec only works against direct hits!

Laser-Resistant Armor Table

TL	Armor	Location	DR	Cost	Weight	LC
9	Ablative Jacket	arms, torso	24/4*	$450	3	3
9	Ablative Suit	all	24/4*	$1,200	8	3
9	Ablative Trousers	groin, legs	24/4*	$280	2.8	3
9	Reflec Helmet	head	20/0*	$25	0.5	4
9	Reflec Jacket	torso, arms	20/0*	$150	1	4
9	Reflec Suit	all	20/0*	$300	2	4
10	Ablative Nanoplas Jacket	arms, torso	36/6*	$450	3	3
10	Ablative Nanoplas Suit	all	36/6*	$1,200	8	3
10	Ablative Nanoplas Trousers	groin, legs	36/6*	$280	2.8	3
11^	Retro-Reflective Helmet	head	40/0*	$250	0.5	4
11^	Retro-Reflective Jacket	torso, arms	40/0*	$1,500	1	4
11^	Retro-Reflective Suit	all	40/0*	$3,000	2	4

* Flexible.

Bioplas Armor (TL10)

Bioplas is a strong, pseudo-alive smart matter material that is light and comfortable to wear – see *Smart Bioplastic* (p. 171). Flexible armored suits and clothing are made out of this material. Like other bioplastic equipment, it can heal rips and tears if it has access to moisture and heat, such as sweat and body heat. Bioplas is also a popular material for swimwear and other sports clothing.

Bioplas is flexible armor with a split DR. Unlike ballistic body armor, bioplas provides its full DR against burning and piercing damage, but gets only one-third DR vs. other damage types. Thus, it's very effective against a bullet or most energy beams, but not that much use against a powerful blow or a vat of acid.

See *Space Biosuit* (p. 179) for a sealed environmental suit version.

Bioplas Armor Table

TL	Armor	Location	DR	Cost	Weight	LC
10	Bioplas Bodysuit	body, limbs	15/5*	$1,800	3	3
10	Bioplas Gloves	hands	15/5*	$60	neg.	4
10	Bioplas Suit	all	15/5*	$2,400	4	3

* Flexible.

Transparent Bioplas (TL10)

This is an option for any bioplas outfit and the space biosuit (p. 179). It does not protect against laser fire, but otherwise is the same as any other bioplas vest or suit. The suit adjusts around the user's body, and is almost invisible when worn. (A Vision roll from a yard or less will spot it, and anyone touching the wearer will notice it.) Transparent bioplas also comes in translucent colors; by covering up strategic areas, a wearer of a tinted bodysuit can look as if he or she is wearing a swimsuit while protecting the entire body. Transparent bioplas costs twice as much as ordinary bioplas, but is otherwise identical.

Energy Cloth (TL12)

This light and easily-concealed armor is an ultra-tech ballistic fiber similar to monocrys. Its hyperdense "fabric" is resistant to nearly all forms of attack. It is flexible, but gets its full DR against *all* damage types.

Energy Cloth Table

TL	Armor	Location	DR	Cost	Weight	LC
12	Energy Cloth Bodysuit	body, limbs	30*	$2,000	6	3
12	Energy Cloth Gloves	hands	15*	$50	neg.	4
12	Energy Cloth Jacket	arms, torso	30*	$1,500	3	3
12	Energy Cloth Suit	all	30*	$4,000	8	4
12	Energy Cloth Trousers	groin, legs	30*	$1,400	2.8	3
12	Energy Cloth Vest	torso	30*	$1,000	2	3

* Flexible.

Tailoring Armor

Individuals as concerned with fashion sense as personal safety may wear flexible armor in styles other than those described on the armor tables. This option enables executives, politicians, secret agents, celebrities and bodyguards to rely on discreet protection while appearing to be unarmored; it also works well for armored supers costumes. Specialty shops may design tailored armor to order using computerized manufacturing systems such as fabricators or nanofacs.

Example: A few months after a terrorist attack on the Emperor's Ball, Captain Alice Iwakura is asked to attend another formal affair. This time she plans to be better prepared. Arriving in a ballistic nanoweave jacket and trousers won't cut it. What to wear?

Armor Type

Select ballistic (p. 172), reflec (p. 173), ablative (p. 173), bioplas (p. 171), or energy (p. 174) body armor. Record the statistics of the suit version of that armor type. Its DR, cost, weight, and LC will be used as the basis of the rest of the outfit.

Example: We choose a TL10 tailored nanoweave bodysuit (p. 172) as the basis of our outfit. To start with, it has DR 18/6, covers all locations, and is $1,200, 8 lbs. and LC3.

Coverage

Choose the locations that are covered by the outfit. Each location has its own multiplier; add the multipliers for all locations covered. This will give the "coverage multiplier" of the entire outfit. The numbers add up to 1 (all locations covered).

Coverage Table

Multiplier	*Location*
0.05	skull
0.05	face and eyes
0.025	neck
0.125	both arms
0.05	both hands
0.25	torso
0.10	groin
0.25	both legs
0.10	both feet

Outfits may be designed that only protect a location (other than eyes or face) from the front (such as a low-cut dress) or the back (such as a cape). Halve the multiplier.

Outfits can be designed to protect only part of a location. For example, a miniskirt protects just part of the legs; a bikini bottom provides skimpy coverage to the groin. Halve the coverage multiplier for *half-coverage*; multiply by 0.25 for *skimpy* coverage (about 25% of the area). If a partly-covered location is struck, make an activation roll (see p. B116) using 3d to see if the protected area was struck. This is an 11 or less for armor with half-coverage, or 8 or less for skimpy coverage. Any armor on the upper torso *always* protects the vitals, and any armor on the face always protects the eyes.

Example: Alice considers nanoweave evening dresses. Her final selection is cut low in front and backless. It covers half the front torso (0.25 × 0.5 × 0.5 = 0.0625), the groin, (0.10) and half her legs (0.25 × 0.50 = 0.125) for a total multiplier of 0.0625 + 0.10 + 0.125 = 0.2875. We multiply the armor's weight and cost by the total multiplier to get $345 and 2.3 lbs. Her chosen outfit will protect the front of her torso (if she rolls 11-) from the front only, her groin, and her legs (if she rolls 11-).

Style

Now that the coverage has been selected, decide whether the clothing is heavy, normal, light, or diaphanous. This will multiply DR, cost, and weight, and may affect LC.

Heavy: Trench coats, winter clothing, etc. If it's supposed

to be anything else, it's easily recognized as a protective outfit. Multiply weight, cost, and DR by 1.5. Reduce LC by 1.

Normal: The outfit can pass as typical civilian attire, such as shirts, jackets, skirts, and trousers. Use the base values.

Light: This is typical of T-shirts, evening wear, summer wear, and many undergarments. It can be easily worn *under* clothing. Multiply weight, cost, and DR by 2/3. Increase LC by 1.

Diaphanous: This is typical of wispy lingerie or swimsuits. It doesn't look like armor at all, and can be worn under other outfits. Multiply weight, cost, and DR by 1/2. Increase LC by 1.

Example: We decide Alice's evening dress is Light, which multiplies weight, cost and DR by 2/3. It now has DR 18/6 × 2/3 = DR 12/4, costs $345 × 2/3 = $230, and weighs 2.3 lbs. × 2/3 = 1.53 lbs. It is LC3 + 1 = LC4.

Cut

Finally, decide whether the outfit is of average cut (no extra cost), stylish (four times cost) or a fashion original (20 times cost). These multipliers are cumulative with all others, including accessories that were added to the outfit, except power supply costs.

Example: It's an exclusive party, so Alice orders a fashion original: 20 × $230 = $4,600. She is now dressed to kill, with an evening gown that has DR 12/4 over half her front torso, the groin, and half her legs, costs $4,600, weighs 1.53 lbs. and is LC4.

Accessories

Any appropriate accessories or clothing options (e.g., buzz fabric) may be added at the usual cost.

Rigid Body Armor

These are non-flexible pieces of non-sealed armor used to protect particular body parts.

Headgear (TL9-12)

This armor protects the head or eyes. It is made of rigid armor plastic or composites.

Armored Shades (TL9-12)

Sunglasses with armored lenses are available. They are glare-resistant and can be built into any of the video glasses described in Chapter 3.

Light Infantry Helmet (TL9-12)

These helmets resemble those used by 20th-century soldiers. They have no built-in electronics, and are often worn with armored shades (above) or an optional visor attachment. The visor is glare-resistant, and is often fitted with a HUD (p. 24), although this is not standard.

Rigid Body Armor Table

TL	*Type*	*Location*	*DR*	*Cost*	*Weight*	*LC*
9	Armored Shades	eyes	10	$100	+0.1	4
9	Light Infantry Helmet	skull	18	$250	3	3
	+ *Visor*	eyes, face	15	+$100	+3	3
10	Armored Shades	eyes	15	$100	+0.1	4
10	Light Infantry Helmet	skull	24	$250	3	3
	+ *Visor*	eyes, face	20	+$100	+3	3
11	Armored Shades	eyes	20	$100	+0.1	4
11	Light Infantry Helmet	skull	36	$250	3	3
	+ *Visor*	eyes, face	30	+$100	+3	3
12	Armored Shades	eyes	30	$100	+0.1	4
12	Light Infantry Helmet	skull	48	$250	3	3
	+ *Visor*	eyes, face	40	+$100	+3	3

Clamshell Armor (TL9-12)

This hinged cuirass consists of sloped, molded composite laminate reinforced by an inner layer of flexible armor. It is favored by soldiers who don't want to carry around the weight of a full suit of armor, but do want plenty of protection where it counts.

Clamshell Armor Table

TL	*Type*	*Location*	*DR*	*Cost*	*Weight*	*LC*
9	Heavy Clamshell	torso	45	$900	18	2
9	Light Clamshell	torso	30	$600	12	2
10	Heavy Clamshell	torso	60	$900	18	2
10	Light Clamshell	torso	45	$600	12	2
11	Heavy Clamshell	torso	90	$900	18	2
11	Light Clamshell	torso	60	$600	12	2

Environmental Gear and Suits

These masks and suits are designed to protect the user from the environment as well as from injury. Environmental suit styles vary widely; civilians often paint suits in garish colors for easy recognition, but outfits worn for combat, stealth, or hunting are usually camouflaged.

Air Masks and Breathing Gear (TL9-10)

These are used when a fully-equipped suit is unavailable or inappropriate. Each mask covers the entire face, providing the Protected Vision and Protected Smell advantages.

All masks take three seconds to put on, one second to remove. In all instances, a warning light blinks when power (or air, or filtration) capacity is 90% gone. All systems contain microcommunicators (p. 43) for presenting remaining capacity on a HUD.

Air Mask (TL9)

This mask is used in environments with an unbreathable but otherwise harmless atmosphere. It requires air tanks (below) or a filter (below). It takes two seconds to put on and one to take off.

Air Tanks (TL9-12)

Lightweight tanks that store pressurized air mixtures for breathing. Higher-TL systems use lighter tanks and higher pressurizations, increasing the duration of use. All

durations assume the use of rebreather systems that recycle and reuse air.

Large Tank: Holds 24 hours (TL9), 36 hours (TL10), two days (TL11),or three days (TL12) of air. $200, 10 lbs.

Medium Tank: Holds 12 hours (TL9), 18 hours (TL10), 24 hours (TL11), or 36 hours (TL12) of air. $80, 4 lbs. LC4.

Mini Tank: Holds 10 minutes (TL9), 15 minutes (TL10), 20 minutes (TL11) or 30 minutes (TL12) of air. $50, 0.5 lbs. LC4.

Small Tank: Holds four hours (TL9), six hours (TL10), eight hours (TL11), or 12 hours (TL12) of air. $60, 2 lbs. LC4.

Artificial Gill (TL9-12)

An artificial gill extracts oxygen from water and mixes it with buffer gases, allowing the user to breathe normally while submerged in any body of water that contains dissolved air. This includes most terrestrial seas, but not polar waters and some freshwater bodies. The gill is backpack-mounted, and includes a mask, an intake system, and a device for separating dissolved air from the water. It takes three seconds to put on and one to take off. At higher TLs, a gill uses nanocatalytic systems to reduce weight and improve efficiency. It runs on a D cell; endurance is eight hours (TL9), 24 hours (TL10), three days (TL11), or 10 days (TL12).

Filter Mask (TL9)

This mask can filter out ordinary contaminants such as dust, pollen, smoke, and even tear gas. It is only effective against nerve gas or other contact agents if combined with a Sealed outfit. The filter medium must be replaced periodically; cost varies from a $10 cartridge (to filter heavy dust or pollen) to replacing the whole mask (in a chemical-warfare environment). It takes two seconds to put on and one to take off.

Respirator (TL9)

This makes thin or low-oxygen atmospheres breathable by concentrating the oxygen. It includes goggles to protect the eyes from the effects of thin air. It takes three seconds to put on and one to take off. It runs on a B cell for one day (TL9), three days (TL10), 10 days, (TL11) or a month (TL12).

Reducing Respirator (TL10)

This mask makes dense or very dense oxygen atmospheres breathable by chemically reducing the partial pressure of oxygen. It includes glare-resistant goggles to protect the eyes from the burning effects of too much oxygen. It requires power and a monthly chemical recharge ($50, 1 lb.). It takes three seconds to put on and one to take off. It runs on a C cell for three days (TL10), 10 days (TL11), or a month (TL12).

Filter Skin (TL11)

A spray-on smart symbiotic nanoskin that covers the entire body, which is effectively sealed. However, it allows the skin to "breathe" by selectively passing air molecules in and sweat out. It's often worn with a filter mask. One spray lasts for 24 hours (TL11) or a week (TL12).

Environmental Gear Table

TL	*Type*	*Location*	*DR*	*Cost*	*Weight*	*LC*
9	Air Mask	eyes, face	10	$100	1	4
9	Artificial Gill	eyes, face	10	$2,000	25	4
9	Filter Mask	eyes, face	10	$100	3	4
9	Respirator	eyes, face	10	$300	3	4
10	Reducing Respirator	eyes, face	10	$500	5	4
11	Filter Skin	all	0	$20	1	4

Civilian Survival Suits (TL9-10)

These are flexible, multi-environmental, and fully-insulated survival suits, including gloves and a hood with clear plastic visor. The suits are light and comfortable. With the hood sealed and the addition of an air mask or respirator, they protect against atmospheric pollutants or chemical or biological contamination; use NBC Suit skill, but there is no DX penalty.

These suits are popular with natives of hostile regions, survey teams, and rangers; while not armor, their compound-fiber fabric is resistant to damage. The suits are generally legal, but people may frown upon individuals wandering about with the mask sealed. The suits don't protect the face when the mask is mask rolled up.

Survival suits are often equipped with programmable camouflage (p. 99) for safari or tactical purposes. At TL11+, biosuits (p. 179) or life support belts (p. 194) replace survival suits.

Desert Environmental Suit (TL9)

This full-body survival suit insulates the wearer from the extremes of desert heat and cold. It provides climate control (-20°F to 120°F). It also recycles 90% of the wearer's body fluids, collecting pure water in a reservoir from which the wearer may drink; the user can survive on one-tenth as much water as normal. The water recycling system also acts as part of the suit's cooling system. If the suit is out of power, it can't recycle.

Drysuit (TL9)

A one-piece, light underwater survival suit that is sealed and insulated. It is useful for diving in cold or toxic water. It covers the user's entire body except the face. With an aqualung or gill mask, the suit is sealed and provides climate control (-50°F to 90°F).

Heatsuit (TL9)

A heated suit for survival in freezing conditions, including a mask to protect the face. It provides climate control (-250°F to 100°F). With a respirator (above), it's useful at very high altitudes or on some alien worlds. If the heatsuit runs out of power, it still provides some benefit due to its insulation: climate control is -50° to 90°F.

Protective Suit (TL9)

A simple sealed suit, with a fireproof and chemical-retardant coating but no other features. Cargo handlers, hazmat teams, hangar-bay crews, and some industrial workers often wear them, usually in white or a bright color such as orange or yellow. A rip in the suit causes the smart fabric to change color at the rip. It is sealed with the addition of an air mask (p. 176).

Expedition Suit (TL10)

This suit uses nanocatalytic filtration systems and transistor thermocouples woven into the fabric for heating, cooling, and recycling liquid waste. It recycles 95% of the user's body fluids and provides climate control (-120°F to 120°F). It prevents heat exhaustion with micropores which enable it to "breathe." These pores can also seal shut in hostile environments. Worn with an air mask (p. 176), it is sealed. If the suit runs out of power, it provides climate control (-50°F to 90°F) and cannot recycle.

Gill Suit (TL10)

This full-body suit is identical to the drysuit (p. 177) in all respects, except that its surface absorbs oxygen from water. This allows the user to breathe underwater as long as the power supply lasts. It includes a belt-mounted power pack.

Civilian Survival Suits Table

TL	*Type*	*Location*	*DR*	*Cost*	*Weight*	*Power*	*LC*
9	Desert Environment Suit	all	2*	$1,000	10	C/1 wk.	4
9	Drysuit	all	2*	$200	5	–	4
9	Heatsuit	all	2*	$500	10	C/24 hr.	4
9	Protective Suit	all	2*	$50	3	–	4
10	Expedition Suit	all	5*	$1,500	6	2C/1 wk.	4
10	Gill Suit	all	5*	$2,000	10	D/24 hr.	4

* Flexible.

Flexible Sealed Combat Suits (TL9-12)

These are sealed suits made of flexible armored fabric. All come with pockets, attachment points, and harnesses for weapons or gadgets.

Reflex, Nanoweave, and Monocrys Tacsuits (TL9-11)

These tactical suits are chemically-coated, contamination-proof coveralls made of flexible ballistic fabric: reflex armor at TL9, nanoweave at TL10, or monocrys at TL11. The suit has a split DR: it provides full DR against cutting and piercing damage, and half DR against other damage types. NBC Suit skill is used to get in or out of the suit quickly or gauge its state of repair, but a tactical suit does not limit DX. In fact, the suit is very comfortable to wear, thanks to its internal microclimate control system.

Tacsuits incorporate biomedical sensors (p. 187). With an air mask (p. 176) or combat infantry helmet (p. 180), the suit is sealed and provides climate control (-40° F to 120°F).

Energy Tacsuit (TL12)

This is identical to the ballistic tacsuit, except that it is made of energy cloth with a self-sealing nanogel layer. It is flexible armor providing full DR against all damage types.

Tacsuit Table

TL	*Type*	*Location*	*DR*	*Cost*	*Weight*	*Power*	*LC*
9	Reflex Tacsuit	all	20/10*	$3,000	15	C/12 hr.	2
10	Nanoweave Tacsuit	all	30/15*	$3,000	15	C/18 hr.	2
11	Monocrys Tacsuit	all	40/20*	$3,000	15	C/24 hr.	2
12	Energy Tacsuit	all	50*	$6,000	15	C/36 hr.	2

* Flexible. See above for the split DR explanation.

Counterpressure Vacc Suits (TL9-12)

These suits come in reflex, nanoweave, and monocrys versions. They get full DR against cutting or piercing damage, and use their reduced DR vs. other attacks.

These vacc suits do not inflate. They incorporate a mechanical counter-pressure (MCP) system which uses elastic layers in direct contact with the skin to prevent the expansion of gases and water vapor in blood vessels and tissues. This is more flexible and comfortable than the pressurized suits used at TL7-8.

Several types are available. All require Vacc Suit skill to use.

Skinsuit (TL10-11)

A form-fitting elastic garment resembling a body stocking, with a rigid collar ring for attaching a helmet. A skinsuit is much thinner than a conventional vacc suit (see below), omitting radiation shielding and heavy-duty climate control. It is often worn as normal day-to-day clothing by space crews who done a full suit only for extravehicular excursions. It is also worn on worlds with poisonous atmospheres but moderate climates. The suit does not include air tanks (p. 176), which must be provided separately. With the addition of a vacc suit helmet (p. 180), it is sealed, providing climate control (-50° F to 150°F) and vacuum support.

Vacc Suit (TL9-11)

A vacc suit covers the whole body, including a rigid, removable helmet and life support pack. It's usually festooned with exterior pockets, sticky patches, straps, and hooks for access to equipment, plus at least two lifeline hooks for safety when outside a vessel. The suit has a back-mounted life-support pack (LSP), which provides heat regulation, cooling, and energy for the suit's systems. It also includes an air tank with a 12-hour air supply.

The suit has built-in biomedical sensors (p. 187). It is sealed with the addition of a vacc suit helmet (p. 180), providing climate control (-459° F to 250°F) (p. 171), pressure support (p. 171) up to 10 atmospheres, radiation protection (PF 2) (p. 171), and vacuum support (p. 171). A vacc suit takes 30 seconds to put on or take off, though this time can be halved with a successful Vacc Suit skill roll.

Different vacc suit models are available:

Civilian Vacc Suit (TL9): An ordinary vacc suit worn by most spacers at TL9 and TL10.

Reflex, Nanoweave, and Monocrys Vacc Suit (TL9-11): A heavy-duty tactical vacc suit reinforced with impact-resistant ballistic armor. It has a split DR: Use the higher DR against piercing and cutting damage, and the lower DR against all other damage types.

Smart Vacc Suit (TL10): An improved civilian vacc suit design using advanced nano-catalytic systems to reduce the life support system's bulk.

Energy Vacc Suit (TL11): A tactical vacc suit made of energy cloth armor. Its DR protects against all types of attacks.

Space Biosuit (TL10)

This flexible "living" counterpressure vacc suit resembles a form-fitting jumpsuit. Made of smart bioplastic, it absorbs sunlight and recycles waste, giving it an extended air supply (some wastage occurs, but the suit provides full life support for six weeks as long as its power supply can be charged). A small belt pack contains the air needed for recycling and a power pack to supplement the solar power system.

The space biosuit is self-sealing for punctures up to an inch in diameter, and more extensive damage is slowly repaired. It is powered by the user's body heat and lives off his waste products. The suit also includes flexible bioplas gloves and a transparent hood-helmet, which are stored in the belt pack when not in use. These meld seamlessly with the suit when worn. No clothing or armor can be worn under a space biosuit.

The suit is sealed with the hood on, providing climate control (-459° F to 250°F), pressure support up to 10 atmospheres, and vacuum support. Like bioplas, the biosuit has a split DR: use its higher DR vs. most attacks, but its lower DR against corrosion, crushing, and toxic damage. The suit is also a standard computer (p. 22) with the "printed" option for flexibility.

Counterpressure Vacc Suit Table

TL	*Type*	*Location*	*DR*	*Cost*	*Weight*	*Power*	*LC*
9	Civilian Vacc Suit	all	6*	$10,000	25	2C/24 hr.	4
9	Reflex Vacc Suit	all	20/10*	$12,000	30	2C/24 hr.	2
9	Skinsuit	all	2*	$1,500	4	–	3
10	Smart Vacc Suit	all	6*	$5,000	15	2C/36 hr.	4
10	Space Biosuit	all	15/3*	$10,000	5	2C/6 wk.	3
10	Nanoweave Vacc Suit	all	30/15*	$12,000	30	2C/36 hr.	2
11	Monocrys Vacc Suit	all	40/20*	$12,000	30	2C/48 hr.	2
12	Energy Vacc Suit	all	50*	$20,000	30	2C/72 hr.	2

* Flexible.

Sealed Combat Armor (TL9)

These enclosed suits of rigid combat armor are designed to resist ultra-tech rifle fire as well as explosive and biochemical munitions. Thanks to advances in micro-climate control systems and power supplies, they are comfortable to wear, but more expensive than flexible armor. They may be issued to regular infantry soldiers operating in high-threat environments, or limited to special units such as SWAT or hostage-rescue teams. Descriptions of various types are given below.

Combat Hardsuit (TL9-12)

This is a sealed suit of combat armor designed for operations in a terrestrial environment. It is heaviest over the torso, but articulated plates and molded pieces also protect the rest of the body. An anti-radiation layer provides radiation PF 2.

It incorporates an inner garment including biomedical sensors (p. 187), a waste relief system (p. 187), and a micro-climate control system (p. 171). The back of the torso clamshells open so the user can step into the armor (it takes three seconds to step in or out). The helmet is *not* included. When worn with either a combat infantry helmet (p. 180) or space helmet (p. 180) the suit is sealed, with climate control (-140° F to 140°F) and radiation protection (PF 5).

A hardsuit isn't pressurized and can't operate in vacuum, but with air tanks and a mask or appropriate helmet, it can operate in areas with unbreathable or contaminated air.

Space Armor (TL9-12)

This complete suit of articulated and pressurized plate armor enables its wearer to operate in almost any environment. It could be the standard "space marine" combat armor. Other space crews may also suit up before entering a battle or visiting a hostile environment, and engineering crews may wear it for dangerous damage control tasks – the suit provides good protection against radiation and explosions.

The suit includes biomedical sensors (p. 187) and a climate control system. It is sealed if worn with a space helmet (below), providing climate control (-459° F to 250°F), pressure support (10 atm.), radiation protection (PF 10) and vacuum support. Each suit has a split DR: use its higher DR for attacks to the torso, and its lower DR for attacks to other areas.

Sealed Combat Armor Table

TL	Armor	Location	DR	Cost	Weight	LC
9	Combat Hardsuit	all	50/30	$10,000	30	2
9	Space Armor	all	50/30	$20,000	45	2
10	Combat Hardsuit	all	75/45	$10,000	30	2
10	Space Armor	all	75/45	$20,000	45	2
11	Combat Hardsuit	all	100/60	$10,000	30	2
11	Space Armor	all	100/60	$20,000	45	2
12	Combat Hardsuit	all	150/90	$10,000	30	2
12	Space Armor	all	150/90	$20,000	45	2

Sealed Helmets

These helmets protect the entire head. They take three seconds to attach or remove. Each helmet has a split DR: use its higher DR for attacks to the skull, and its lower DR for attacks to the face and the eyes.

Combat Infantry Helmet (TL9-11)

This rigid full-face visored helmet is usually worn with either the combat hardsuit (p. 179) or a tacsuit (p. 178). It has built-in GPS (p. 74), hearing protection (p. 171), a small radio (p. 44), and an infrared visor (p. 61). Filter masks (see p. 177) are built into the cheek pieces. With the visor locked into place, the helmet provides an airtight seal to hardsuits and tacsuits.

Space Helmet (TL9-12)

These enclosed helmets are designed to be worn with suits that are sealed or provide vacuum support. There are three styles:

Bubble Helmet (TL9-12): A fishbowl helmet made of rigid transparent plastic or diamondoid. The user should wear his own vision and communication gear.

Space Combat Helmet (TL9-12): A heavily-armored combat helmet often worn in conjunction with space armor (pp. 179-180). It has hearing protection (p. 171), a small radio (p. 44), and an infrared visor (p. 61).

Visored Space Helmet (TL9-12): An enclosed helmet with a transparent faceplate. This incorporates a small radio (p. 44), an infrared visor (p. 61), and hearing protection (p. 171).

Flexible Space Helmet (TL10-12): Essentially a pressurized bag, this is made of light, flexible plastic, inflated by a puff of air from the suit. It can be rolled up and stored in a pocket; the user must wear his own communications and vision gear.

Sealed Helmets Table

TL	Type	Location	DR	Cost	Weight	Power	LC
9	Bubble Helmet	head	6	$2,000	5	B/24 hr.	4
9	Combat Infantry Helmet	head	18/12	$2,000	5	B/12 hr.	2
9	Space Combat Helmet	head	40/30	$3,000	7	2	
9	Visored Space Helmet	head	20/15	$2,000	4	B/24 hr.	3
10	Bubble Helmet	head	9	$2,000	5	B/36 hr.	4
10	Combat Infantry Helmet	head	27/18	$2,000	5	B/18 hr.	2
10	Flexible Space Helmet	head	5*	$500	0.5	–	4
10	Space Combat Helmet	head	60/45	$3,000	7	–	2
10	Visored Space Helmet	head	30/22	$2,000	4	B/36 hr.	3
11	Bubble Helmet	head	20	$3,000	5	B/36 hr.	4
11	Combat Infantry Helmet	head	36/24	$2,000	5	B/24 hr.	2
11	Flexible Space Helmet	head	8*	$500	0.5	–	4
11	Space Combat Helmet	head	80/60	$3,000	7	–	2
11	Visored Space Helmet	head	40/30	$2,000	4	B/48 hr.	3
12	Bubble Helmet	head	30	$3,000	5	B/36 hr.	4
12	Combat Infantry Helmet	head	54/36	$2,000	5	B/36 hr.	2
12	Flexible Space Helmet	head	10*	$500	0.5	–	4
12	Space Combat Helmet	head	100/60	$3,000	7	–	2
12	Visored Space Helmet	head	60/45	$2,000	4	B/48 hr.	3

Second Skin (TL11)

This genetically-engineered symbiont is often used by scouts and rangers, as well as colonists who wish to live a normal life on marginally-habitable planets. It covers the user's entire body, forming a transparent membrane over the eyes and a self-regenerating filter for the lungs. It lives off body wastes and heat, and can regenerate itself to heal tears or replace its filtering membranes. While it is worn, the user must drink slightly more fluids than usual. It is warmer to the touch than normal flesh, but otherwise appears normal.

Second skin protects the user against ultraviolet radiation and mild atmospheric irritants (sulfur trioxide, for example, or industrial pollutants), but not against extremely corrosive atmospheres. The mouth and nose membranes filter out pollutants and provide some protection against both respiratory and contact agents such as nerve gas: +3 on HT to resist. This bonus is cumulative with modifiers for the Resistant advantage.

In combat, second skin serves as ablative armor. It has DR 4 (ablative) against burning or corrosion damage. Each point of DR lost also reduces the lifespan of the skin by two months. The skin breaks down after eight months of normal wear; time spent in a polluted atmosphere counts double. Growing a skin around a person costs $3,000 and takes three hours using an adult-sized biofab (p. 204). LC4.

Powered Suits

Powered suits enhance the wearer's strength and mobility. They come in two styles: open *exoskeletons* and enclosed *battlesuits*. Most powered suits provide a bonus to Lifting ST (p. B65) and Striking ST (p. B88).

Exoskeletons

A powered exoskeleton (or "exo") is an open framework of artificial "muscles." When the user moves, the sensors in the suit react to and match his movements. The wearer uses the physical attributes of the exoskeleton rather than his own.

Exoskeletons provide little protection, but unless noted, they may be worn over clothing or any flexible armor.

Full-Body Exoskeletons

These are attached to the body and limbs. They provide a bonus to Lifting ST and Striking ST. Battlesuit skill limits DX and DX-based skills; see p. B192. With the power on, a full-body exoskeleton's weight is *not* counted toward encumbrance.

Heavy Exoskeleton (TL9)

A rugged, heavy-duty exoskeleton designed for cargo loading and construction work. It's often used as a substitute for a fork-lift truck or construction robot. It is very strong, but the oversized arms are not suited for fine work.

It stands eight feet tall (SM +1). The wearer gains Lifting ST+12 and Striking ST+8. In addition to any penalties for low skill, the wearer is Ham-Fisted (-3 DX).

The exoskeleton has a built-in laser torch (p. 80), a mini tool kit (p. 82) for Mechanic skill, and a fire extinguisher tube (p. 87).

Light Exoskeleton (TL9)

This is a lower-powered but less bulky exoskeleton. It grants the wearer Lifting ST+10 and Striking ST+6.

Ranger Exoskeleton (TL10)

Basically a battlesuit without the armor, this light but powerful exoskeleton is used for military or paramilitary operations. Its leg braces and motors boost the wearer's agility as well as his strength. It grants Lifting ST+12, Striking ST+12, and Super Jump 2.

Stealth Exoskeleton (TL10)

This lightweight exoskeleton can be concealed under heavy clothing, such as a jacket or trousers. It can only be worn over skimpy clothing. It's useful for covert operations, and visitors or first-generation colonists may wear stealth exoskeletons as normal clothing on high-gravity worlds. It's also useful for natives of low-gravity worlds visiting a planet like Earth. The stealth exoskeleton gives Lifting ST+4 and Striking ST+4.

Lower-Body Exoskeleton (TL9)

Lower-body exoskeletons are worn by porters, soldiers, and anyone else who needs to carry heavy loads without straining. They include an exo-supported backpack capable of carrying up to a 70-pound Payload; when the power is on, this load is *not* counted toward encumbrance. Battlesuit skill only limits DX and skills for tasks that require lower-body agility, such as melee attacks or jumping.

Power Sleeve (TL9)

A bulky "power glove" and arm brace that enhances gripping power. The glove can also be set on "auto-grip," which makes it "freeze" in any desired position; the user can then slip his hand out of the glove and leave it clamped onto something. It gives Arm ST+6 for crushing, gripping, and holding to the arm it is worn on (the user can wear one glove on each arm, if desired). It requires Battlesuit skill, but this only limits DX and skills for tasks involving the power-sleeved arm.

Exofield Belt (TL12^)

This belt projects an invisible force field around the user that not only protects him, but also follows his movements and enhances his physical strength and mobility. The exofield belt gives Lifting ST+20 and Striking ST+20, as well as Super Jump 3. It is operated using Battlesuit skill. Its weight *is* counted toward encumbrance. The field provides no DR or enhancement when the power is turned off.

Powered Exoskeleton Table

TL	*Armor*	*Location*	*DR*	*Cost*	*Weight*	*Power*	*LC*
9	Heavy Exoskeleton	all	20/0	$50,000	200	E/24 hr.	3
9	Light Exoskeleton	body, limbs	10/0	$25,000	50	D/12 hr.	3
9	Lower Body Exoskeleton	groin, legs	8/0	$12,000	30	2D/24 hr.	4
9	Power Sleeve	one arm and hand	8/0	$2,000	2	C/12 hr.	4
10	Ranger Exoskeleton	body, limbs	20/0	$50,000	50	D/12 hr.	3
10	Stealth Exoskeleton	body, limbs	12/0	$10,000	10	2C/8 hr.	4
12^	Exofield Belt	body, limbs	50	$100,000	1	C/1 hr.	3

If an exoskeleton has a split DR, use the higher DR against any *swinging* melee attacks, falls, or collisions. Use the lower DR against *all other damage types*.

Battlesuits

A battlesuit is an armored exoskeleton. Its strength-amplifying feature lets a battlesuit trooper carry squad-support weapons like heavy machine guns or semi-portable blasters. Many battlesuits have built-in tactical systems such as sensors or weapon mounts, and are designed for hostile environments.

Battlesuits are much more expensive than ordinary combat armor, and require more training to use, but they greatly increase effectiveness. A single battlesuit trooper with heavy weapons can be as effective as an entire squad, and nearly as mobile as an armored vehicle. Gadgeteers also love to build futuristic battlesuits: an ultra-tech suit in the modern world lets even a normal person become a super-powered hero or villain.

Battlesuits do not run any faster, since the user's speed is limited by the length of his legs, but suits with strong leg muscles can move quickly by using a series of jumps, which may provide both the Super Jump advantage and an increase in Basic Move. Wearing a suit is not fatiguing; except for the helmet, the armor's weight does not count as encumbrance while powered up. If the suit loses power, the wearer can still move (unless he's in a combat walker), but he must use his own ST to carry the weight!

Unless otherwise noted, a battlesuit opens at the waist so that the user can easily step in or out. This takes three seconds, plus another three to screw on the separate helmet, if there is one. However, it takes 30 seconds to do this *and* perform all the subsystem checks, power everything up, and connect all features (such as the waste relief and biomedical telemetry). This time is halved on a successful Battlesuit skill roll. It's also possible to omit the check-out procedure and just start moving, but if so, the GM should feel free to have internal systems fail ("due to your rush, the suit filter wasn't properly locked down – looks like that nerve gas will affect you after all").

At TL9-10, most battlesuits should be fitted to the wearer. Refitting takes two hours and requires an Armoury (Body Armor)+2 roll. Failure means another attempt is required. Critical failure damages the suit, which will need minor repairs before it is usable, or suffer a fault that will not be apparent until it is used in action. It is possible to use an unfitted suit, provided the user is the same size, shape, and sex as the last wearer (height/weight should be no more than 2% off). However, the wearer will suffer a -1 penalty to DX and all DX-based skills.

At TL11+, nanogel systems based on smart bioplastic layers are routinely built into all battlesuits. A nanogel system fits like a glove and adjusts itself to conform to any wearer within 10% of the weight and height of whatever average it was built for.

Flying Battlesuits

Many battlesuits are used with flight systems, since the suit's strength amplification makes it easy to carry extra gear. For maximum flexibility, these systems are not included in the suit designs, but are usually worn as external packs or belts. See *Flight Pack* (pp. 230-231) for various options. Flight systems interface with battlesuits, allowing the suit's own navigation displays to be used for flight control.

Underwater Battlesuits

Units operating underwater will use an aquatic propulsion pack (p. 228) or a contragrav belt (p. 231) for submerged mobility. A few suits have integral aquatic propulsion.

Combat Walkers (TL9)

These early designs have a barrel-shaped torso that blends into the head. There is no neck or waist articulation; the user must rely on sensors to see behind him and cannot twist his torso around. The suit's hands are also crude (but very strong) grippers. Combat walkers built for humans stand eight feet tall (SM +2).

A combat walker is more mobile than a tank, but its agility remains limited. The suit can sit or kneel, but the user cannot crawl, get up from a prone position, jump, or swim. On the other hand, the walker is covered with depleted uranium composite laminate over high hardness steel alloy, and can shrug off fire from light anti-tank weapons.

The suit's exoskeleton provides Lifting ST+20 and Striking ST+20. Due to its longer legs, it also adds +1 to Basic Move. While wearing the suit, the wearer suffers Bad Grip 2 (p. B123). The entire suit's weight is ignored for encumbrance. However, if the combat walker loses power, the wearer is effectively paralyzed until he leaves the suit.

The suit has several standard accessories: a GPS (p. 74), hearing protection (p. 171), biomedical sensors (p. 187), and a waste relief system (p. 187). Its helmet electronics include a hyperspectral visor (p. 61), a medium radio (p. 44), and a small laser comm (p. 44). The helmet has audio sensors so the user can hear outside the suit, but it lacks olfactory sensors; unless the hatch is opened, the

user suffers from No Sense of Smell/Taste (p. B146) when dealing with the outside world. The suit's surface has a tactical ESM (p. 62), and incorporates infrared cloaking (p. 99) and radar stealth (p. 100).

A combat walker is slightly more roomy than most other battlesuits. This means that it is a "one size fits all" suit that does not require special fitting to each user. It has a hatch at the back that the user must climb into; due to its height, the suit should be in a kneeling posture to enter, or it takes an extra second to clamber into it. Entry and exit are otherwise similar to most battlesuits.

Different variations of combat walker are described below. Combat walkers become obsolete at TL10+, and are replaced with heavy battlesuits (p. 184).

Infantry Combat Walker (TL9)

This is the standard model, designed for operations in terrestrial conditions. It is sealed (p. 171), with a filter mask (p. 177), climate control (-20° F to 140°F) (p. 171), and radiation protection (PF 10) (p. 171). It can be equipped with air tanks (pp. 176-177), but these add to its weight.

Marine Combat Walker (TL9)

This model can swim underwater using ballast tanks and a waterjet propulsion system. It has Water Move 4, and a built-in small sonar (p. 65). It is sealed, and provides climate control (-20° F to 150°F), pressure support (10 atm.), and radiation protection (PF 10). It has a large air tank, giving a it a 24-hour air supply at TL9.

Space Combat Walker (TL9)

This battlesuit is designed for operations on hostile alien worlds. It can walk underwater, but cannot float or swim. It has vacuum support, and can operate underwater or in superdense atmospheres. It is sealed, and provides climate control (-459° F to 300°F), pressure support (30 atm.), radiation protection (PF 10), and vacuum support. It has two large air tanks, giving a it a 48 hour air supply at TL9.

Powered Combat Armor (TL9)

This is a standard medium-weight combat battlesuit. It is seven feet tall, made of articulated plates of metal-matrix composites with an inner layer of reflex armor. Powered combat armor is intended to resist rifles or light machine guns, but can't stand up to anti-tank weapons. It is small enough to fit through ordinary doors, making it a superb tool for house-to-house fighting, urban warfare, and boarding actions. It may be assigned to elite forces or every soldier, depending on resources and doctrine.

Powered combat armor gives +10 to Lifting and Striking ST and Super Jump 1. Biomedical sensors (p. 187) and a waste relief system (p. 187) are standard features. The suit's surface has a tactical ESM (p. 62).

The helmet comes with a filter mask (p. 177), a GPS (p. 74), hearing protection (p. 171), a small radio (p. 44), a small laser comm (p. 44), and a hyperspectral sensor array (p. 61). The helmet has olfactory and audio sensors so the user can hear and smell outside the suit.

With the helmet on, the suit is sealed. It provides climate control (-459° F to 250°F), pressure support (10 atm.), radiation protection (PF 10), and vacuum support. It has a large air tank with 24 hours of air at TL9. In a contaminated but breathable atmosphere, it can operate using the standard filter mask.

Powered combat armor incorporates infrared cloaking (p. 99). Chameleon surfaces (pp. 98-99) are common but not standard.

Note: This suit is similar to the Battlesuit on p. B285.

Zero-G Worksuit (TL9)

This suit is more like a miniature spaceship than a vacc suit. It is a rigid pressurized cylinder with a transparent helmet dome; the whole thing is slightly larger than a man. It has no legs, but is propelled by an integral thruster pack mounted in the base. The suit's thrusters accelerate or decelerate it at up to three yards/second^2, with enough fuel for 300 seconds of acceleration. A Piloting (High-Performance Spacecraft) roll is required to quickly change direction.

In addition to its normal suit sleeves, it has three ST 15 waldoes – remote-controlled arms – for heavy duty work; they can be used as normal arms but at a -3 DX penalty. Any two waldoes may be used at once. One waldo also mounts an integral laser torch (p. 80). A waldo's grip can be power-locked onto a structure (e.g., a ship's hull) to hold the suit steady while the other limbs are used for work.

It is sealed, providing climate control (-459° F to 300°F), radiation protection (PF 10), and vacuum support. It has two weeks of air. A small (eight-inch diameter) airlock in its side is used to transfer small items (such as tools, food, or air) without breaking suit integrity. It has a built-in medium radio (p. 44). The suit is powered by an E cell, and has sockets for a second cell.

Like a combat walker (p. 182), a zero-G worksuit does not need to be specially fitted to each user.

Commando Battlesuit (TL10)

This is a lightweight, agile, form-fitting powered armor suit. It may be popular with commandos, SWAT teams, or costumed heroes.

Its exoskeleton gives +15 to Lifting and Striking ST and Super Jump 2. Biomedical sensors (p. 187) and a waste relief system (p. 187) are standard features. The suit's surface has infrared cloaking (p. 99), radar stealth (p. 100), and a tactical ESM (p. 62).

The helmet comes with a filter mask (p. 177), an inertial compass (p. 74), hearing protection (p. 171), a small radio (p. 44), a small laser comm (p. 44), and a hyperspectral visor (p. 61). The helmet has olfactory and audio sensors so the user can hear and smell outside the suit.

With the helmet locked down the suit is sealed, providing climate control (absolute zero to 500°F), pressure support (20 atm.), radiation protection (PF 10), and vacuum support. It has a large air tank (p. 176) with 36 hours of air at TL10. In a contaminated but breathable atmosphere, it can operate using the filter mask.

Heavy Battlesuit (TL10)

These highly-mobile suits can fight in almost any environment. They have enough life support to keep the user alive for days in a contaminated war zone. They are smaller than TL9 combat walkers, but still stand seven feet tall and are bulky (SM +1).

The armor is a thick shell of laminated nanocomposites and ceramic armor over an inner layer of shock-absorbing liquid armor. This gives torso protection equal to at least three inches of steel plate. It also has integral superconductor-based electromagnetic armor, which doubles the suit's DR against shaped-charge warheads and plasma bolts. The electromagnetic armor operates off a separate D cell and is good for 10 uses.

A powered exoskeleton amplifies the user's muscles and ground speed (see below). Except for the helmet, the armor's weight does not count as encumbrance while powered up. It is powered by an integral radiothermal generator which operates it for up to 10 years.

The suit's helmet includes a filter mask (p. 177), an inertial compass (p. 74), hearing protection (p. 171), a hyperspectral visor (p. 61), a small laser comm (p. 44), and a medium radio (p. 44). The suit's body incorporates biomedical sensors (p. 187), trauma maintenance (p. 189), a provisions dispenser (p. 187) with a week's provisions, tactical ESM (p. 62), and a waste relief system (p. 187). The suit also has infrared cloaking (p. 99) and radar stealth (p. 100).

With its helmet on, it is sealed, and has climate control (-459° F to 500°F), pressure support (10 atm.), radiation protection (PF 5), and vacuum support. It has two large air tanks with a 72-hour air supply at TL10.

The suit's exoskeleton grants Lifting and Striking ST+20. It has Basic Move +2 and Super Jump 1.

Command Battlesuit and Scout Battlesuit

These variations have almost identical statistics.

Command Battlesuit (TL10): A suit designed for officers, not quite as strong as a heavy battlesuit, but with equivalent armor and greater mobility. It includes a medium laser comm (p. 44) and a large radio (p. 44). Its exoskeleton grants Lifting and Striking ST+18, Basic Move +3, and Super Jump 2.

Scout Battlesuit (TL10): A variation on the command battlesuit for reconnaissance and special ops units. It has a chemsniffer (p. 61), and a deceptive radar jammer (p. 99). The helmet has a small genius computer (p. 22). Its exoskeleton is less strong but faster: it grants Lifting and Striking ST+16, Basic Move +4, and Super Jump 3.

HEX Suit (TL10)

The Hostile Environment eXosuit is a suit of powered space armor reinforced for operations in extremely dangerous environments, such as the hellish surfaces of Mercury or Venus. The HEX is most often used by explorers and workers, but might be issued to military forces.

The suit is eight feet tall (SM +1). Its bulbous, heavily-armored body is reinforced and shielded to resist extremes of pressure, temperature and radiation, and it has a heavy-duty life support system. It is sealed, providing climate control (-459° F to 800°F), pressure support (50 atm.), radiation protection (PF 100), and vacuum support. It has 120 hours of air and water.

Its exoskeleton provides Lifting ST+8 and Striking ST+4, and cancels the weight of the suit for encumbrance. Unlike most other battlesuits, it does not otherwise increase the wearer's mobility. The suit requires 60 seconds to put on or take off.

Standard accessories include a waste relief system (p. 187), a provisions dispenser (p. 187) with a week's water and rations, and an automatic backscratcher. The helmet has hyperspectral goggles (p. 61), a small multi-mode radar (p. 65), and a medium radio (p. 44).

Battlesuit skill is used to operate the suit, and *does* limit DX and skill use (see p. B192). Unlike most ultra-tech suits, the HEX suit is nearly as clumsy as a TL7 vacc suit.

Cybersuit (TL11)

An advanced form of "smart" body armor, the cybersuit resembles a skin-tight vacc suit with a small backpack. Its armor is a multi-layered, three-dimensional molecular weave of diamond-based fibers with microscopic computer-controlled electric motors. The fabric of the suit acts like artificial muscle, reading the wearer's every movement with pressure sensors, then duplicating each movement instantly and without resistance. More pressure sensors covering the suit's surface feel the shape of whatever the user touches and transmit it through the suit.

The suit's muscles are normally programmed to match the user's normal strength and running or jumping ability, but the user can set it to amplify ST and mobility instead. If the user lacks Battlesuit skill, he may choose to deactivate the suit's strength-augmentation feature (removing the ST enhancement and Super Jump). If so, no DX penalties are applied for lack of skill. Even without strength augmentation, suit weight does not count toward encumbrance.

Cybersuits incorporate a built-in responsive clothing (p. 39) feature, and can perform minor fitting adjustments so that "one size fits all." It takes only three seconds to don and one second to remove. The suit incorporates a dynamic chameleon surface (pp. 98-99) that automatically changes color, pattern and infrared signature to blend in with its surroundings. If the wearer desires, he can use voice control to override the suit chameleon circuits. Civilian spacers often use this feature to decorate their suits with garish colors or designs.

Its built-in systems include a filter mask (p. 177), hearing protection (p. 171), a hyperspectral visor (p. 61), a small radio (p. 44), infrared cloaking (p. 99), radar stealth (p. 100), and a tactical ESM (p. 62). It is sealed and provides vacuum support. The suit itself is also a standard computer (p. 22) with the printed option. Like the space biosuit, the cybersuit absorbs sunlight and recycles waste and exhaled carbon dioxide, giving it an extended air and water supply. The suit's backpack also includes a D cell, good for a day of operation without sunlight, and a week's supply of concentrated rations.

Any cybersuit may also incorporate smartsuit options (pp. 189-190).

Cybersuit (TL11-12)

This is the standard cybersuit. In some TL11 societies, cybersuits might be the most common form of light military armor; they might also be worn by space explorers, belters, and traders. The suit's augmentation grants the wearer Lifting and Striking ST+5 (+8 at TL12), Basic Move +1, and Super Jump 1. The suit provides climate control (-459° F to 250°F), pressure support (30 atm.), and radiation protection (PF 5).

Military Cybersuit (TL11)

A tougher, thicker cybersuit with greater strength augmentation and tougher armor made of flexible sapphiroid-diamondoid material. It takes three seconds to put on and one second to remove. The entire suit acts as artificial muscle, granting its user Lifting and Striking ST+10, Basic Move +1, and Super Jump 2.

The suit adds tactical ESM (p. 62), infrared cloaking (p. 99), and radar stealth (p. 100) to the features of the civilian model. Its flexible printed computer is also upgraded from standard to microframe (p. 22).

The suit is sealed and provides vacuum support, powered by a small radiothermal generator for up to 10 years. The suit provides climate control (-459° F to 1,000°F), pressure support (100 atm.), and radiation protection (PF 10).

Dreadnought Battlesuits (TL11)

These heavily-armored battlesuits incorporate portable nuclear fusion reactors, giving them unsurpassed endurance compared to earlier powered armor. A single suit can support its operator for months or even years, although he'd probably go crazy if he were stuck in there all the time.

A dreadnought battlesuit is about the size of a heavy battlesuit (SM +1; about eight feet tall), but has more mass. Its armor is composed of titanium carbide-diamondoid nanolaminate over inner shock- and radiation-absorbing layers of liquid armor, stabilized metallic hydrogen, and bioplas.

A dreadnought suit's laminated armor gets doubled DR vs. shaped charge warheads (including HEMP). Like the heavy battlesuit, it also has integral superconductor-based electromagnetic armor: this increases the suit's protection to triple DR against any shaped-charge warheads or plasma bolts. The electromagnetic armor operates off a separate D cell and is good for 20 uses.

The suit has a full regenerative life support system, which provides continued temperature, air, and water (but not food). It is designed for operations in a wide variety of hostile environments. With its helmet on, it is sealed, and has climate control (-459° F to 1,000°F), pressure support (100 atm.), radiation protection (PF 20), and vacuum support.

Its helmet includes a filter mask (p. 177), an inertial compass (p. 74), hearing protection (p. 171), a hyperspectral visor (p. 61), a medium laser comm (p. 44) and a medium radio (p. 44).

The suit's body incorporates biomedical sensors (p. 187), trauma maintenance (p. 189), a provisions dispenser (p. 187) with two weeks of provisions, and a waste relief system (p. 187). There are olfactory and audio sensors so the user can hear and smell outside the suit. The suit's surface has a tactical ESM (p. 62).

Its powerful amplified muscles give it Lifting and Striking ST+30, Basic Move +3, and Super Jump 3.

The suit has radar stealth (p. 100) and infrared cloaking (p. 99), but the latter capability is nullified while the nuclear reactor is operating. (This also affects any added chameleon systems, which will not provide any Stealth bonus vs. hyperspectral or infrared vision.) To avoid this problem, a backup power cell system can operate the suit for 12 hours. The reactor needs an hour to cool off after being shut down.

Nanosuit (TL12)

This appears to be a thick belt or collar, but on the wearer's mental command, it flows over the body like a liquid, spreading into a thin but extremely strong coating that envelops his entire body. It is made of active titanium carbide living metal.

A neural interface (p. 48) is required to control the suit, which is a flexible distributed microframe. Battlesuit skill (p. B192) is required to operate it properly, but the suit gives a +2 skill bonus.

The nanosuit layer mimics and amplifies the user's movements, to provide Lifting ST +10, Striking ST+10, Enhanced Move (Ground) 1 and Super Jump 2. In addition to functioning as body armor, the suit can be given various smartsuit options (pp. 189-190).

The nanosuit is sealed, with climate control (-400° F to 500°F), pressure support (10 atm.), radiation protection (PF 10), and vacuum support. It can absorb oxygen from water and air, acting as a filter mask (p. 177) and a TL12 artificial gill (p. 177). It does not have an integral air supply – the user needs an air tank or some other source of oxygen to operate in space or on airless worlds. The nanosuit's surface is a tactical ESM (p. 62), and it uses a printed power cell.

Warsuit (TL12)

A warsuit is armored with living metal laminate armor reinforced by an outer layer of hyperdense collapsium. It absorbs shock and radiation with inner layers of liquid armor, stabilized metallic hydrogen, and bioplas. Its armor is Hardened (p. B47) against attacks, and has three levels of Hardened against shaped-charge warheads and plasma bolts.

Its portable antimatter reactor can power it for five years. The suit has a full regenerative life support system, which provides temperature control, air, and water (but not food). It is designed for operations in a wide variety of hostile environments. With its helmet on, it is sealed and has climate control (absolute zero to 10,000°F), pressure support (1,000 atm.), radiation protection (PF 100), and vacuum support.

The helmet includes a filter mask (p. 177), an inertial compass (p. 74), hearing protection (p. 171), a hyperspectral visor (p. 61), a medium laser comm (p. 44), and a medium radio (p. 44). The suit's body incorporates biomedical sensors (p. 187), trauma maintenance (p. 189), a provisions dispenser (p. 187) with two weeks of provisions, and a waste relief system (p. 187). There are olfactory and audio sensors so the user can hear and smell outside the suit. Its surface has a tactical ESM (p. 62).

The suit's powerful amplified muscles give it Lifting and Striking ST+40, Basic Move +3, and Super Jump 4. It has radar stealth (p. 100) and infrared cloaking (p. 99), but the latter capability is nullified while the antimatter reactor is operating. (This also affects any added chameleon systems, which will not provide any Stealth bonus vs. hyperspectral or infrared vision.) To avoid this problem, a backup power cell system can operate the suit for 12 hours. The reactor needs an hour to cool off after being shut down.

Battlesuit Table

TL	*Armor*	*Location*	*DR*	*Cost*	*Weight*	*Power*	*LC*
9	Combat Walker	all	200/120	$300,000	800	E/24 hr.	1
9	Marine Combat Walker	all	200/120	$320,000	900	E/24 hr.	1
9	Powered Combat Armor	all	70/50	$80,000	150	E/18 hr.	1
	+ *Helmet*	head	70/50	+$10,000	15	C/18 hr.	1
9	Space Combat Walker	all	200/120	$330,000	950	2E/48 hr.	1
9	Zero-G Worksuit	all	40	$60,000	150	E/48 hr.	3
10	Commando Battlesuit	all	105/75	$80,000	150	E/24 hr.	1
	+ *Helmet*	head	105/75	+$10,000	15	C/24 hr.	1
10	Heavy Battlesuit	all	150/100	$200,000	480	10 yr.	1
	+ *Helmet*	head	150/100	+$10,000	20	10 yr.	1
10	HEX Suit	all	140	$200,000	2,000	2E/1 wk.	3
11	Cybersuit	all	40*	$35,000	30	D/1 wk.	3
11	Military Cybersuit	all	80*	$50,000	50	10 yr.	2
11	Dreadnought Battlesuit	all	200/150	$200,000	500	10 yr.	1
	+ *Helmet*	head	200/150	+$10,000	15	10 yr.	1
12	Nanosuit	all	100*	$70,000	20	D/4 wk.	2
12	Warsuit	all	300	$500,000	500	5 yr.	1

Battlesuits with split DR use the higher DR against attacks to the torso (and skull, for helmets or suits that cover all locations); the lower DR protects other locations.

* Flexible.

Typical Armor by TL

There are many different types of armor; these are simply guidelines as to who might be using them. "Paramilitary" refers to corporate security forces, second-line troops, terrorists, and riot police. "Mechanized infantry" are soldiers who ride into battle in armored personnel carriers.

TL9

Civilian and Police: Reflex jacket, trousers, vest or tailored armor. For spacers, a civilian vacc suit or zero-G worksuit.

Light Infantry or Paramilitary: Reflex tactical suit or vest; light infantry helmet.

Mechanized Infantry or SWAT: Combat hardsuit (or space armor), or powered combat armor.

Heavy Powered Infantry: Combat walker.

TL10

Civilian and Police: Nanoweave jacket, trousers, vest or tailored armor. For spacers, a skinsuit or nanoweave vacc suit.

Light Infantry or Paramilitary: Nanoweave tactical suit or vest; light infantry helmet.

Mechanized Infantry or SWAT: Combat hardsuit, space armor, or commando battlesuit.

Heavy Powered Infantry: Heavy battlesuit.

TL11

Civilian and Police: Bioplas or monocrys jackets, trousers, vests, and tailored armor. For spacers, a bioplas space suit.

Light Infantry and Paramilitary: Bioplas or monocrys tactical suits, or a cybersuit.

Mechanized Infantry or SWAT: Military cybersuit.

Heavy Powered Infantry: Dreadnought battlesuit.

TL12

Civilian and Police: Energy cloth jackets, trousers, vests, and tailored armor. In superscience settings, a force screen belt.

Light Infantry and Paramilitary: Energy cloth tactical suits or a nanosuit. In superscience settings, a force screen pack.

Heavy Powered Infantry: Warsuit.

Defense Systems

There is more to defense than just heavy armor. These are a variety of specialized systems, some designed to be integrated into suits, others for use on their own.

Miscellaneous Accessories

Magnetized Plates (TL9): These can be put on the soles of any boots. They let the wearer walk along metallic bulkheads and ship hulls in microgravity or zero-G. Move is normal with Vacc Suit skill and halved without. $100, 0.5 lbs. LC4.

Provisions Dispenser (TL9): A sealed helmet or suit that covers the head can be equipped with a concentrated food and water supply in a handy helmet-mounted dispenser. The provisions can be consumed "hands-free" without taking off the helmet. Built into many suits; if bought separately, $50, 1 lb.

Waste-Relief System (TL9): The suit collects and packages the wearer's waste products in a hygienic manner. Worth every penny if the suit is worn for more than a few hours! Built into many suits; if bought separately, $1,000, 2 lbs.

Other Defenses

These are miscellaneous protective systems, designed to deal with specific hazards rather than general damage. If the system is included in a suit as a standard feature, there is no extra cost or weight, and the system runs off the suit's power supply.

Ablative Foam (TL9)

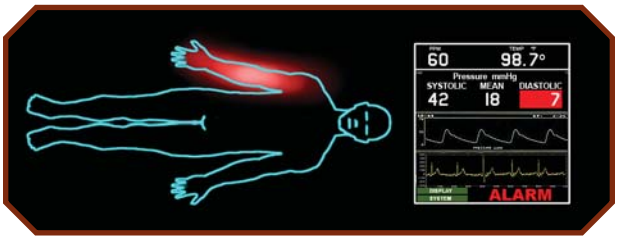
Ablative foam can be applied to skin or to body armor. It is a half-inch-thick layer of sticky foam, available in a variety of camouflage colors. It gives DR 8 vs. burning damage only, but is treated as Hardened (p. B47) against laser attacks. It ablates more rapidly than ablative body armor, losing 1 DR for every point of damage inflicted to a location.

A spray can covers one person or a square yard; a spray tank covers a car-sized vehicle or up to 10 square yards. Only one layer of foam can be used on a person, while up to three layers can be applied to vehicle armor. Application takes three seconds per square yard or person. The foam is also radar absorbent; -3 for radar to detect anything covered with it, not cumulative with other modifiers for radar stealth systems. $100, 2 lbs. for a can; $500, 10 lbs. for a tank. LC4.

Armor Without Faceplates (TL9)

Any helmet or armor that covers the entire head can be built with no faceplate. All the sensor information is presented on a display inside the helmet. It includes a 360-degree scan, so that the user has Peripheral Vision. The sensor suite costs $1,000 and includes a basic HUD, audio microphones, and a simple (and unjammable) low-light optical-circuit TV camera.

Any critical hit to the "eyes" location by an beam weapon will burn out the TV scanner on a roll of 10 or less on three dice. Many prefer to make do with old-fashioned visors, which are fairly sophisticated anyway.



Biomedical Sensors (TL9)

These embedded sensors monitor cardiopulmonary function, blood pressure, oxygen saturation, posture, and activity level. The sensors also note the location and size of any penetrations into the armor. This permits remote monitoring of physiological status over a communications system; the patient data can also be encrypted and stored in a built-in storage device. This data gives medics a +1 (quality) bonus to Diagnosis when examining the wearer in person, or allows Diagnosis skill to be attempted without the wearer being present at a -2 penalty. $200, 0.2 lbs., A/24 hr. LC4.

Electromagnetic Armor (EMA) (TL9-10)

This armor upgrade is designed to dissipate the penetrator jet created when a shaped-charge warhead hits the exterior. When the round hits, embedded sensors trigger an electromagnetic pulse in the armor that disrupts the stream. Electromagnetic armor effectively doubles the armor DR vs. shaped-charge warheads and plasma bolts. Laminate armor with the EMA upgrade has triple the armor DR against shaped-charge warheads and plasma bolts.

EMA requires power and is limited in the number of times it may be used, a "use" being any penetration of the armor that is blocked only thanks to the doubling (or tripling) of DR. It draws on the suit or vehicle's power plant or energy banks; the number of uses is specified in the descriptions of vehicles equipped with it.

Vehicular EMA (TL9): This is integrated into layered armor in vehicles such as tanks (p. 226).

Battlesuit EMA (TL10): This uses superconductor technology to integrate the armor into battlesuits. A minimum thickness of armor is required to insulate the suit, so EMA is only available for the heavy battlesuit (p. 184), dreadnought battlesuit, and warsuit (p. 185).

EMA is an integral feature rather than an add-on; its presence is noted in particular vehicle and armor designs.

IFF Comm (TL9)

This software upgrade can be used with any directional communicator. It allows the user to send an "Identify Friend or Foe" signal and sets up an automatic response to any valid friendly IFF signal. IFF comms are compatible with the IFF interrogators (p. 151).

An IFF signal is an encrypted interrogation code. If the target has IFF comm software activated, and if it has the proper codes, its communicator will automatically reply with its own coded "friend" response. Once an IFF comm has identified a friendly target, it will pass this data to any navigational, sensor, or targeting displays it is linked to. If the target fails to respond, or any information does not match the IFF comm's database, it will be indicated as potentially hostile.

IFF comm software is Complexity 2, $500. LC3.

Life Jacket (TL9)

This small life jacket inflates automatically if totally submerged. Once activated, it reduces Swimming skill by 3, but the wearer won't sink even if he wants to. One jacket will support 200 pounds × (TL-7) in water. $20, 2 lbs.

Nasal Filter Plugs (TL9)

This pair of chemical-biological filter plugs fits in the wearer's nostrils. They do not provide full protection against gas, but as long as the wearer keeps his mouth closed and breathes only through his nose, the plugs add a +5 bonus to HT to protect against breathed gas (such as sleep gas), strong odors, or avoid infection from airborne microorganisms. They provide no protection against agents absorbed through skin.

Inserting the plugs takes three seconds if in hand. A DX roll can cut this to two seconds, but critical failure means the user drops one of the plugs instead of inserting it.

In a surprise gas attack, the user must make an IQ roll to close his mouth and insert the plugs before breathing a whiff of gas. Combat Reflexes adds +6 to IQ for this purpose, and Hazardous Materials skill (p. B199) can substitute for IQ if it is higher.

The filters only work perfectly for about four hours of continuous use. The HT bonus then declines by -1 every two hours; after 10 hours the plugs offer no protection at all. $100, neg. weight. LC4.

Near Miss Indicator (TL9)

This miniature acoustic sensor can attach to any combat helmet. It only works in conjunction with a HUD (p. 24), and does not function in vacuum. The NMI's sensor detects the flight path of projectiles (but not energy beams) as they pass across the user's field of vision, then displays them as visible traces. This gives a +2 to Vision rolls to locate the source of enemy fire. $1,000, neg. weight, A/24 hr. LC4.

Personal Radar/Laser Detector (TL9)

This alerts the user if he's in the path of a radar or ladar beam at up to twice that beam's range (1.5 times normal range for LPI radars, see p. 63). It cannot detect radars of a higher TL than its own. TL9+ soldiers often carry radar detectors built into combat helmets. $50, 0.5 lbs., A/10 days. LC4.

Psionic Mind Shield (TL9^)

This psychotronic device generates a telepathic mind shield that warns the user of mental attacks and defends against them. Add the shield's TL-6 to IQ or Will whenever the user resists an advantage with the Telepathic limitation. The shield also resists attempts to locate the user's mind using psionic abilities. Such abilities must win a Quick Contest against the wearer's Will + the shield's (TL-6) to find him.

At the GM's option, an artificial mind shield may protect against spells listed under *Communication and Empathy Spells* (p. B245) or *Mind Control Spells* (p. B250).

Mind Shield Helmet (TL9^): The shield circuits warn the wearer when a telepath fails to penetrate the shields, but provide no warning if the telepath succeeded. The warning can take the form of a beeper, a silent signal, or a message in the user's HUD. Lightweight caps (DR 1, cover only the skull) are $1,000, 1 lb., 2B/100 hr. LC3.

Mind Shield Circuitry (TL9^): This can be built into any type of helmet: $1,000, 0.5 lbs., 2B/100 hr. LC3.

Telepathic Barrier (TL9^): This psionic stealth coating can be used to shield vehicle crews, building occupants, or even entire cities from telepathic detection and manipulation. It uses external power. $1,000, 0.5 lbs. per square foot. Sealing a 10' cube requires an area of 600 square feet; a typical civilian vehicle is about 300 square feet.

Mind Shield Headband (TL10^): A more compact version of the standard telepathic mind shield, worn as a headband or tiara. $1,000, 0.1 lb. B/100 hr. LC3.

Radiation Badge (TL9)

This is a tiny device (often worn on the wrist) that detects the local radiation level; it includes a touch-sensitive display and micro-communicator. It can provide the actual radiation level or be set to trigger an alarm if the radiation exceeds a specified amount. The same unit may be built into a helmet visor or connected to a HUD. $100, neg. weight, AA/1 month. LC4.

Riot Shield (TL9)

Police on riot-control duty often use this large, rectangular shield of transparent armorplas. It has DB 3 and DR 30/HP 60. It does not impair the user's vision, but lasers ignore its DR. $100, 4 lbs., LC4.

Suit Patches (TL9)

Environment suits and sealed battlesuits usually have a front pocket containing 10 sticky emergency patches. Damage that penetrates the suit can be patched manually. This requires three seconds and a Vacc Suit skill roll. If the first attempt fails, each further attempt is at a cumulative -1. Every three seconds of delay or failed attempt means a loss of 10 minutes' worth of air. Extra packets of suit patches are $10, 0.1 lb.

Trauma Maintenance (TL9)

This medical system is available for any battlesuit or flexible powered suit with biomedical sensors (p. 187). It includes an auto-injector and 10 doses of drugs. The user can manually trigger it, or it can be preset to inject a specific drug if vital signs warrant it; e.g., a painkiller if injured or a stimulant if fatigued. The injector might also be remotely controlled by a superior officer, or loaded with non-medical drugs; e.g., to trigger berserker rage. It has its own power supply to make it independent of suit power loss. $2,000, neg. weight., A/1 year. LC4.

Desert Environment System (TL10)

This recycling system can be added to any sealed suit, giving it the same water recycling capabilities as a desert environment suit (p. 177). $1,000, 2 lbs. LC4.

Microbot Arteries (TL10)

These may be added to any armor. Microbot arteries contain room for one square yard of microbots *inside* the suit, allowing them to travel to any location covered by the armor. Suits with microbot arteries usually carry paramedical swarms (p. 201) or repair swarms (p. 87) to heal the user or repair damage to the suit. A battlesuit may have two different sets of microbot arteries. $500, neg. weight. LC4.

Reactive Armor Paste (TL10)

This sensor-embedded directional-explosive paste comes in tubes and can be lathered onto armor or flesh. It explodes outward to disrupt impacts and beam-weapon strikes.

Reactive armor paste will only detonate if struck by a high-velocity attack such as a bullet, beam, or explosion. It reduces the damage from attacks *before* armor DR. It is especially effective against crushing damage from a direct hit by an explosive shaped charge, such as a HEMP or HEAT warhead. One detonation protects against all hits from a rapid-fire attack.

Each time the paste detonates, the wearer takes 1d crushing damage with the explosive modifier. Reactive armor paste is normally placed on armor, which will protect against this damage.

Reactive armor paste is only good for a limited number of uses. If it's already protected a location once, then roll 1d each time a successive attack strikes the same location. Subtract 1 for every prior attack that resulted in a detonation. If the result is 0 or less, an unprotected area has been hit and the paste has no effect.

Reactive armor paste typically provides DR 20 (DR 200 vs. shaped charges). Multiply DR by 1.5 at TL11, and double it at TL12. Enough paste to cover a full-body suit is 4 lbs. and $200. Use the tailored armor rules for partial coverage. LC 2.

Smartsuit Options (TL10-11)

These options are available for smart vacc suits (p. 179), energy vacc suits(p. 179), space biosuits (p. 179), cybersuits (p. 184), and nanosuits (pp. 184-185). They make full use of the mutable capabilities of smart matter materials. Some of the possible suit features are:

Interphase (TL10)

This "smartsuit-built-for-two" feature allows two or more suits in physical contact to merge into a single, larger suit – like a big bioplastic sleeping bag – that contains all the original occupants. This takes 10 seconds and requires that all parties be cooperative, restrained, or unconscious. Once the suits are interphased, everyone within shares life support and can interact in ways that are difficult or impossible in separate suits; such skills as First Aid and Erotic Art are at only -1. A lone user can use First Aid on *himself* (still at -1) without opening his suit by activating interphase and causing his suit to balloon. It's impossible to walk while wearing a sack, but the occupants can hop or roll at Move 1. Separating the suits takes 10 seconds; any suit wearer can initiate his suit's separation. $1,000 for a biosuit or nanosuit; $5,000 for a smartsuit or cybersuit. LC4.

Rainbow (TL10)

The suit can change its color on request, or even become transparent (though not invisible). This lets the suit mimic different kinds of clothing – for example, the user could make arms, head, and legs transparent to create the illusion of swimwear. The helmet's colors and transparency can also be adjusted.

The rainbow option is not as effective as a chameleon suit, but does allow the user to don a camouflage pattern (-2 to be spotted) if desired. It can also give the suit a chrome pattern, for the equivalent of a reflec armor surface (p. 173). $400 for biosuit or nanosuit; $2,000 for a smartsuit or cybersuit. LC4.

Morphwear (TL10)

The suit can reconfigure itself to mimic normal clothing, with the hood retracting into the body and the legs, torso, and sleeves separating and billowing as necessary to duplicate anything from a formal suit to a cocktail dress. A large library of outfits can be programmed; in combination with the Rainbow setting, the suit can duplicate most types of full clothing, and create the illusion of skimpy outfits by becoming selectively transparent.

While it is activated, the morphwear function compromises the suit's ability to protect against hostile environments and halves DR. The suit can change back to its protective form in two seconds. $1,000 for a biosuit or nanosuit, $5,000 for a smartsuit or cybersuit.

Smartcloak (TL11)

The suit can split open, then re-configure itself into a cloak with a hood. This takes one second. It can be used in combat exactly like a heavy cloak (p. B287), with the exception that it weighs the same as the suit and has the suit's DR.

If a person is nude but wearing a biosuit in smartcloak mode, it can be commanded to flow around the wearer and enclose him in the biosuit. This takes one second. To pressurize the suit, the user should then don the belt pack. $1,000 for a biosuit or nanosuit, $5,000 for a cybersuit. LC3.

Beam-Adaptive Armor (TL11)

This type of armor reconfigures itself to optimize against particular beam weapon types. The optimization is against a specific sub-type of beam weapon, such as a blue-green laser, neural disruptor, or charged particle beam. Adaptive armor has triple normal DR against that particular type of beam, and normal DR against all other attacks.

Beam-adaptive armor reconfigures *automatically* to adapt one second after a beam attack of a known type penetrates the armor, or does more than half the damage needed to penetrate DR. If struck by several beam types in a single turn, the armor reconfigures against the most powerful attack. It can also be manually adjusted.

Adaptive armor can be used with any TL11-12 armor. It costs $1,000 per pound of armor weight. More expensive versions may optimize against two ($4,000 per pound), three ($9,000 per pound), or four ($16,000 per pound) beam types at a time.

This option is also available for swarmbots (pp. 35-37). Add $1,000 to the cost of the swarmbot chassis.

Living Metal Armor (TL12)

Combat hardsuits, space armor, battlesuits, and cybersuits may be made of living metal (p. 171). The armor incorporates a composite structure, with layers or cells filled with nanoassemblers and channels for feedstock. When damaged, the nanoassemblers attempt to fix it, using materials provided in the feedstock or cannibalizing the surrounding area for the required substances. These structures can seal a hole within two seconds, or repair one HP or point of DR per hour. Routine maintenance is also performed.

Bodyguards

The job of a bodyguard is to protect his principal . . . with his own life, if necessary. Not all bodyguard jobs are equally hazardous. The minions of a hated dictator re in daily danger. The guards of a businessman trying to operate in a failed nation must be constantly alert for kidnapping attempts. The wealthy and famous are mobbed by paparazzi more often than they are actually menaced. Even the leader of a democracy at peace may become a target for random maniacs, but it won't happen often. Of course, some leaders and some wealthy men, flaunt their guards as a status symbol, whether they're needed or not.

Some bodyguards deter violence with their threatening presence. Others may blend into the background until they're needed, or be disguised as personal assistants, domestic staff, chauffeurs, lovers, pets, or even children.

Robots are the most common ultra-tech bodyguards. Combat androids (p. 167), nanomorphs (p. 111), and petbots (p. 41) are especially useful. Trained animals can be useful bodyguards, especially if upgraded with neural uplift (pp. 218-219), or controlled via puppet implants (p. 218) and biopresence software.

A person's *clothing* can be an effective bodyguard – see swarmwear (p. 40).

A good bodyguard is often trained and equipped for medical emergencies involving his charges – see *Medical Equipment* (pp. 196-206). A bodyguard team may incorporate medics: see the combat medic lenses for the Nursebot (p. 202) and Medical Bushbot (p. 203).

Force Fields

These superscience devices generate a protective energy field. Some force fields are effective against many types of attack, while others are more specialized.

Force Screens

A force screen is a general-purpose defensive field that can stop both solid objects and energy beams. Force screens may be related to gravitic or space-warp technology. They allow individuals, vehicles, or habitats to look unprotected while resisting enemy fire or hostile environments. A discreet shield belt is more elegant than a bulky armored suit, but may offer the same protection. Similarly, a Tudor mansion, complete with gardens, could sit on the Moon or the hellish surface of Venus.

A force screen provides DR that protects the user (or vehicle's) entire body, including the eyes. Its effects are applied *before* armor DR. Effects that rely on touch only affect someone protected by a force screen if carried by an attack that penetrates the screen's DR.

A force screen's Damage Resistance is semi-ablative: every 10 points of basic damage rolled removes one point of DR, regardless of whether the attack penetrates DR. A partially-ablated screen regenerates 1 DR per second for every 10 DR the field started with (minimum 1 DR). Thus, a DR 50-59 screen regenerates DR 5 per second.

A force screen does not normally impede the user's ability to attack, communicate, reach, or see out of the screen. This could represent either a one-way screen, or the user's ability to selectively open portals through it.

A force screen is normally sealed, and provides total pressure and vacuum support. It also provides a radiation PF equal to its DR. Since gases cannot pass through the screen, life support will be needed to avoid suffocation.

(These advantages and limitations are ignored if the screen has the velocity or energy options.)

It takes a Ready maneuver to turn a force screen on or off. A force screen only provides DR when it is on. However, it may regenerate DR while it is off.

Barrier Screens (TL11^)

A barrier screen is a hemispherical or spherical shell that surrounds a screen generator rather than conforming to the user's shape. It's used by spacecraft, flying grav vehicles, or ground bases. Unless it is an energy or velocity screen, it won't form if something solid is in the way.

A barrier screen is effectively a solid object with a Size Modifier based on the screen's diameter (+2 since it's a sphere or hemisphere; see p. B19). The screen will function as cover and block movement into or out of it.

When targeting something protected by a barrier screen, use the normal SM of the target. If an attack misses by a margin of failure that is equal to or less than the difference between the target's SM and that of the screen, the shot hits the screen. Any penetrating damage that gets through will not strike the target unless the attack affects an area. On the other hand, this damage will reduce the screen's semi-ablative DR, and if there are multiple occupants spread about inside the screened area (e.g., a force screen around a campsite) someone else could still be hit. Use the *Occupant Hit Table* on p. B555.

Heavy Force Screen (TL11^): A powerful barrier screen, used to protect fortified strong points, tanks, or warships. The standard field diameter is 15 yards (SM +7), but larger fields are possible at increased weight, cost, and power consumption; see below.

Medium Force Screen (TL11^): This screen is used by light armored vehicles, to defend secure buildings, and by combat or exploration vessels. The minimum field diameter is 10 yards (SM +6), but other sizes are possible.

Light Force Screen (TL11^): This screen is small enough to be (barely) man-portable, and is often used to protect light vehicles, such as grav cars, or to generate a hemispherical field suitable for campsite perimeter defense. The minimum field diameter is five yards (SM +4), but other sizes are possible.

Screen statistics are shown on the *Force Screen Table*. They may be adjusted for screen options.

Force Screen Table

TL	Screen	DR	Cost	Weight	LC
11^	Heavy Force Screen	4,000	$1,500,000	1,500	1
11^	Medium Force Screen	1,000	$250,000	250	2
11^	Light Force Screen	200	$25,000	25	3

The light, medium, and heavy force screens are barrier screens based on a sphere that is five, 10, or 15 yards in diameter, respectively; all use external power. For larger areas, multiply the weight and cost by the ratio of change. For example, increasing a medium force screen's coverage from 10 to 30 yards triples the weight and cost.

If the screen size is increased, recalculate its Size Modifier using the diameter of the screen and the guidelines on p. B19, i.e., use the *Size Modifier Table* but at +2 to SM due to the spherical or hemispherical shape. Thus, a 30-yard screen is SM +9.

Conformal Force Screens (TL12)

A conformal screen is somewhat form-fitting: it follows the user's contours, but can be adjusted to flow over and protect worn or carried equipment, up to a maximum of extra-heavy encumbrance. (Once the screen is on, if the user picks up anything else, it will take a Ready maneuver to adjust the screen to cover it.) Conformal screens have the same SM as their intended wearer, or the object they are built to protect.

Personal Force Screen (TL12^): A belt-mounted screen, also built into some suits, robots, and small vehicles. Its power cell lasts for 15 minutes of continuous use.

Tactical Force Screen (TL12^): A powerful man-portable screen, often carried in a backpack or built into a robot. Its power cell lasts for an hour of continuous use.

Conformal Force Screen Table

TL	Screen	DR	Cost	Weight	Power	LC
12^	Personal Force Screen	60	$8,000	2.5	C/15 min.	3
12^	Tactical Force Screen	150	$20,000	10	D/1 hr.	2

Force Screen Variants

Numerous types of force screen are possible; some examples are given below, and others can be created by the GM. It's possible that one of these variants might be the *only* type of screen available to a particular technology path.

Options can be combined, except where noted. Modifiers are cumulative.

Adjustable

The user can opt to reinforce half the screen, increasing its DR by 50%, at the expense of the other half (reducing its DR by 50%). For example, if the front half of the screen is reinforced, this multiplies its current DR by 1.5 against front attacks, but halves the screen's DR against attacks from the right, left, and back; see p. B388 for a facing diagram. It takes a Ready maneuver to adjust the screen. +100% to cost.

Cloaking

Has the same effect as a TL12 invisibility surface (p. 100), except that the user is also invisible to active sensors such as ultra-scan, sonar, radar, and ladar. +100% to cost, and halves the operating duration due to excessive power drain.

Energy

This only affects energy attacks (beams, force swords, electrical attacks, energy explosions, fire, etc.). The screen is not sealed and provides no pressure or vacuum support. If energy screens are the only type available, guns will have an advantage over beam weapons. -50% to cost.

Kinetic

This screen only affects solid, liquid, or gaseous matter (bullets, fragments, punches, acid, falls, etc.), not energy attacks (see above). It does not protect against radiation, and may not be combined with an energy screen. If kinetic screens are the only type available, beam weapons will have an advantage over projectile weapons; -50% to cost.

Opaque

The screen is *not* transparent from the outside, although the occupants can see through it. Senses and sensors cannot detect anything in the screen unless they are only blocked by reality stabilizers and/or stasis fields. Its sensor-absorbing properties make it invisible to active sensors such as radar and ladar. The screen itself is a non-reflective black, which counts as camouflage in space or at night; it occludes other bodies, and is therefore not invisible. The screen does not block the other emissions of its user, so passive sensors are unaffected. In the case of an opaque barrier screen, there is no penalty to target the center of the screen, but other occupants cannot be deliberately attacked. They may be struck at random, as described in the barrier screen rules above. No extra cost.

Permeable

The screen is configured to allow air to pass through. This lets the user breathe, but removes the sealed advantage. It can be turned on or off with a Ready maneuver. +50% to cost; there's no need for this option if the screen has the velocity or energy options.

Reality-Stabilized

This type of force screen includes the effect of a reality stabilizer (pp. 194-195), allowing it to block matter transmission and reality disruption attacks that would enter the screen. (It's still possible to use these effects from within the screen, or against targets outside it.) Reality-stabilized screens may be a standard capability for force screens in settings where matter transmitters and reality-disintegrating weapons are common. +100% to cost.

Safety Switch

A force screen may be fitted with a safety switch; it will detect any incoming attack slower than the speed of light and turn on the belt to protect the wearer. This conserves power, and helps protect against sneak attacks. It cannot react to beam attacks (other than sonic or plasma weapons) in time to stop them, but it switches on automatically after a beam attack is fired at the user, whether he is hit or not. +10% to cost.

Velocity

This screen only blocks fast-moving attacks, such as bullets, explosions, fragments, or energy beams. It won't resist anything moving slower than 100 mph. In particular, it won't protect against melee attacks, thrown weapons, or falls and collisions under Move 50. It *will* stop arrows, sling stones, crossbow bolts, bullets, and almost all explosions. (An explosion detonated in contact with the body will penetrate the screen – if a hand grenade goes off a few feet away, the user will be protected, but a limpet mine would still be effective.) The screen is not sealed and provides no pressure or vacuum support, but there's no need to worry about suffocation. Velocity screens are a useful "swashbuckler option" for GMs who wish to combine swordplay and ultra-tech weapons. -10% to cost.

Force Screen Habitats

By generating a field over a city, it may be possible to dispense with solid domes or underground dwellings – and you won't have to worry about bad weather, either. A homesteader could buy a smaller field generator and power plant and set up on the asteroid of his choice. With a sufficiently powerful force screen and contragrav generator (p. 223), a research station could be built deep within a gas giant's crushing atmosphere, or even within a star. The engineering problems would be immense, but think of the view!

Force Shields

These rigid energy barriers feel like a solid wall, but exist only as long as the power is maintained. A force shield is normally transparent, but its outlines may be visible if struck by an attack. Gas or liquid will not pass through a force shield – if it encloses the subject, it's effectively sealed. This may lead to suffocation if there is no air supply.

Force shields are effective against all physical attacks: energy beams will be absorbed, melee attacks will hit an apparently solid wall, and any projectile failing to penetrate loses its kinetic energy and falls to the ground. An object or beam that strikes a force shield and inflicts enough damage to penetrate its DR will pass through it, but the field will reform as long as power remains.

Force Shield Bracelet (TL11^)

This is a solid bracelet worn on the wrist (leaving the hand free). The bracelet generates a flat, circular force shield with hardened DR 100. The size of a larger shield, this grants DB 3.

The force shield serves the same purpose as a medieval shield – to physically block attacks. Duelists might use one of these in conjunction with a force sword. Its advantage is that the shield vanishes when the generator is turned off, and the wrist-generator itself is light, giving it the agility of a buckler with the protective qualities of a large shield. Use Shield (Buckler) Skill. $1,500, 0.5 lbs., B/30 min. LC3.

Reflective Force Shield (TL12^)

As above, but a successful block roll against a ranged beam attack lets the defender attempt a separate DX roll to

return the blocked damage to the attacker! $3,000, 0.5 lbs. B/30 min. LC2.

Force Ward (TL11^)

These stationary devices project a two-dimensional force shield barrier with hardened DR 100. A typical ward generator casts a field two yards high and a yard wide, sufficient to block a doorway or narrow corridor. Larger or smaller wards are also possible. Multiple ward generators can be linked together to create a wider barrier. If the ward is used as a fence, half this field will be underground.

The generator and control unit is mounted on one side of the ward, and cannot be reached without passing through the field. Permanent wards built into doorways or airlocks are often linked to security scanners. $10,000, 25 lbs., D/24 hr. LC3.

Nuclear Dampers

A nuclear damper manipulates nuclear force over a distance in order to control radioactive decay and suppress nuclear fission explosions.

Dampers neutralize nuclear warheads within their radius of effect. They can prevent the nuclear detonation of fission warheads, as well as fusion warheads that use fission triggers, such as the hydrogen bombs typical of TL7-9. A damper field doesn't affect "clean fusion" weapons that use lasers or antimatter to trigger fusion.

Fission and fission-fusion bombs generally have chemical explosive triggers, and these will still explode normally. Thus, a nuclear warhead that is set off within a damper field will usually be destroyed, but fail to produce a nuclear explosion.

Nuclear Damper Projector (TL10^)

This device projects a spherical nuclear damper field with a radius of 100 yards. The field can be generated at a range of up to five miles, but must be focused on a particular target area. Use Gunner (Beams) skill to quickly focus it (e.g., to intercept a nuclear missile in flight). It has Acc 24 and RoF 1 when used in this fashion.

The large area of effect means even a "miss" may still catch the target (see *Attacking An Area,* p. B414). If the damper engages a flying target, the attack roll would have to miss by 10 or more for the field to fail to envelop the target. $10 million, 2,000 lbs., external power. LC1.

Portable Nuclear Damper Projector (TL10^)

This is a small, short-range damper. It has an area of effect of only two yards and a range of only 200 yards. It is used for nuclear bomb disposal, and is typically mounted on a tripod. As a ranged weapon, it has Acc 18, RoF 1. $200,000, 50 lbs., 2D/24 hours. LC2.

Nuclear Damper Field (TL11^)

A portable nuclear damper field prevents any nuclear fission or fission-triggered fusion explosion from occurring within a 10-mile radius around the damper field generator. It does not interfere with controlled release of nuclear energy (e.g., in a power plant). It will not prevent the detonation of ultra-tech fusion warheads that are triggered by means other than a fission explosion.

A nuclear weapon exploding outside the area of effect of the damper may still damage anything within the damper field; the field prevents detonation, but does not provide a shield against blast or radiation. This is a portable damper field, capable of being installed in a small installation or mounted in a large vehicle or trailer. Larger or smaller fields may also exist! $20 million, 4,000 lbs., external power. LC1.

> *"A world without nuclear weapons would be less stable and more dangerous for all of us."*
>
> *– Margaret Thatcher*

Nuclear Jammers (TL11^)

These are nuclear dampers that *also* affect nuclear fission reactors and radiothermal generators. A fission reactor will cease to function if targeted by a nuclear damper projector or if within a nuclear damper field.

It will resume functioning afterward, but the interruption may disturb its normal operation – roll vs. the reactor or generator's HT, with failure indicating a malfunction (in a fission reactor, this could lead to a nuclear accident). A successful Mechanic (Power Plant) roll will diagnose any problems and reveal whether it is safe to restart, or whether further repairs are needed.

Nuclear jammers are otherwise identical to nuclear dampers; they have the same cost, weight and power requirements. In some settings, all nuclear dampers may also be nuclear jammers. *Tunable* nuclear jammers that can be set to affect or not affect fission reactors are double normal cost. LC1.

Stasis Webs

Stasis is an induced state in which almost no time passes. Several types of stasis-web generator are available, but their operation is similar. The duration of the web can be set for any length of time between five minutes (the minimum) and a billion years; an atomic clock registers how much relative time has passed within the web, and deactivates the field when the time is up.

Something protected by a stasis web is effectively outside the normal space-time continuum, and cannot be affected by anything within it. It could fall through the heart of a star or survive for a billion years. One second of time in the field equates with the passage of roughly 30 trillion years. Since only (relative) microseconds or nanoseconds will pass for the occupants of a stasis web, they cannot take any action while within the web.

The standard web has a damage divisor of 10,000,000; that is, divide any damage passing through the field by that value. In effect, it's invulnerable. (This equates with a high level of cosmic Injury Tolerance (Damage Reduction), see ***GURPS Powers***). If there are other fields with different strengths, the time ratio is equal to the cube of the damage divisor.

The stasis generator is always within the web itself. Viewed from the outside, an object encased in a stasis web is inside a perfectly reflecting mirror, and no sensors of any type can penetrate into it. The only way to deactivate a stasis web from outside it is a reality stabilizer (below). Anything only partially in a stasis web (e.g., an arm or leg) will be sheared off when the web is activated. Velocities are retained while in stasis, so a falling object will continue to fall, a spacecraft will continue on course, etc.

Stasis Cube (TL11^)

A stasis cube is a box which generates a stasis web around itself. It takes two seconds to set the duration, and one more to activate the cube, which is then surrounded by the web. It holds as much as a backpack (about 40 pounds of equipment). $40,000, 5 lbs., C/10 uses. LC3.

Stasis Chamber (TL12^)

This is a stasis cube the size of a large coffin, used as a suspended animation chamber, a vault, or a prison. It is essential to make sure it has the right time setting. Once activated, there is no way, short of a reality stabilizer, to turn it off until the duration expires. It can hold one person in a suit with equipment, or two with no equipment, or 10 cubic feet of cargo. The generator is designed to be activated from outside the chamber, but a timer is included so that the user can set the web duration, then climb into it. $200,000, 20 lbs., 2D/10 uses. LC3.

Stasis Grid (TL12^)

This is a stasis web generator built into a storage unit, building, or vehicle. The grid must completely enclose the object, covering all its sides. The stasis web is often designed to be triggered from within a vehicle or building as a last-ditch defensive measure. It may also be built to be activated externally, which is common for safes and medical stasis units. Like other stasis webs, a timer must be set and only a reality stabilizer can deactivate the stasis web until that time has passed. A stasis grid costs $2,000, weighs 0.2 lbs. and runs off vehicle or building power. Thus, a stasis web generator covering a coffin-sized 6' × 3' × 2' box (72 square feet) is $144,000, 14 lbs. LC2.

Stasis Belt (TL12^)

This device generates a stasis web around the user and anything he is carrying. The duration of the web depends on how long it was set for. It takes two seconds to change the duration setting on an inactive stasis web, and one second to turn it on. $20,000, 3.5 lbs., C/10 uses. LC2.

Other Force Fields

These are exotic force fields designed for special purposes.

Life Support Field (TL11^)

This low-powered force screen gives DR 5 vs. energy attacks, divides radiation dosage by 10, and adds 60 degrees to the "hot" end of the user's comfort zone. It can hold in air and heat, and will block gas or liquids from penetrating or escaping, provided the pressure differential is less than two atmospheres. A life support field will keep out anything with less than ST 1 (such as insects), and also deflect rain, snow, and normal hail.

A life support field can also be adjusted to make it *breathe*; it takes one second to change the setting. This lets gas molecules pass through it (so the user won't suffocate), but will continue to keep out liquid droplets, insects, rain, hail, and so on.

A life support field is easily breached by any application of strength. Walking or reaching through it meets only slight resistance, like pushing through mud.

Life-Support Belt (TL11^)

This device projects a conformal life support field around the wearer, extending out a few inches. Unless the wearer has an air supply or the field is set to breathe, the air begins to go bad within 15 minutes – start rolling for suffocation. Heat is lost more slowly, at two degrees per minute.

Activating the belt requires one turn, or it may be activated instantly by voice. An optional safety module ($100) will also activate it the instant pressure drops. It takes one turn for the field to form. $1,000, 0.25 lbs., B/12 hr. LC4.

Umbrella Field (TL11^)

A large life support field generator that is useful for camping (no need to stake a tent), holding outdoor events, or picnicking. Large versions can cover stadiums or even cities! It protects a 10-yard radius. $100,000, 25 lbs., D/24 hr. LC4.

Umbrella Shield (TL11^)

This generates a parasol-shaped life support field that keeps off rain and pests. It may be handheld, or built into a hat, disguised as a hair ornament, etc. The field has a one-yard radius, like a horizontal force shield bracelet. $100, 0.1 lb., B/24 hr. LC4.

Reality Stabilizer (TL11^)

A reality stabilizer creates an interference zone of spatial-temporal inertia that will block the functioning of certain superscience technologies.

No temporal and parachronic superscience devices will function within a reality stabilizer other than the stabilizer itself. Stasis fields will collapse, tau fields won't work, time portals cannot open, etc. This also applies to parachronic tech such as conveyers and projectors (p. B529). Faster-than-light and teleportation superscience technologies that are based on interdimensional travel, hyperspace, or wormhole effects are ineffective, although teleportation based on matter-energy conversion will still work. Pocket universes will continue to exist, but access to them through wormholes will be blocked. The interference applies to devices operating within the reality stabilizer field, and to external devices trying to penetrate, transport, or scan into its area of effect.

It is up to the GM whether the Jumper or Warp advantage and related non-technological abilities such as planar summoning or travel spells will function inside a reality stabilizer. In general, they'll probably fail if they have a high-tech origin. Otherwise, they'll ignore the field, or suffer a penalty equal to the field's TL.

Reality stabilizer fields are normally invisible, but failed attempts to penetrate them may result in side effects such as flickering auras around the field perimeter.

Local Reality Stabilizer (TL11^): This generates a field that covers a 200-yard radius, sufficient to stabilize space-time around an installation or spacecraft. $2 million, 400 lbs., external power. LC3.

Portable Reality Stabilizer (TL11^): This pack-sized unit generates a field that covers a five-yard radius. This can protect several people against portable space-time weapons, or ward a room against unwanted teleporters, timescanners, and other exotic intrusions. $50,000, 20 lbs., D/12 hr. LC3.

Individual Reality Stabilizer (TL11^): This belt-sized unit generates a field that protects a single person, or two individuals huddled close together. It covers a one-yard radius. $10,000, 2 lbs., C/12 hr. LC3.

Hypertime Fields (TL12^)

A hypertime field is a bubble of *hyper-accelerated time* – a sort of reverse stasis web. From the perspective of those within the area of effect, everything *outside* the field appears to stop, frozen in time, while they are free to act.

No energy or matter within the hypertime field can leave its boundaries. It is impossible for someone inside the field to take any action that will affect someone outside of it; from within the field, the edge resembles a stasis field (a silver mirror) and is just as impenetrable. If the generator is deactivated, runs out of energy or is destroyed, the field collapses, and time resumes its normal course.

A hypertime field allows those within it to "step out of time." This has numerous applications – for example, someone could get work done, heal rapidly, or study, all while within the field and "outside of time." There are also tactical applications. For example, suppose someone carrying a hypertime generator is surrounded by a few dozen foes, but only one is within range of the generator. The field is activated; time freezes outside the field, while within it the two fight. After a fierce close-range duel with force swords, one of them kills the other but is wounded. He will then have several subjective minutes to perform first aid. When the generator is deactivated, it will appear to those outside the field that the loser suddenly dropped dead from a dozen wounds, and the wounded victor has materialized in a different position.

Hypertime field power drain and duration are based on subjective time *within* the field. The power supply must always be inside the field along with the hypertime field generator.

Hypertime fields are miraculous tech that could be unbalancing if widely used. GMs may wish to limit their use to bizarre alien artifacts, sinister villains, and so on.

Any hypertime generator can also function as a tau-shield generator at double normal cost.

Local Hypertime Field Generator (TL12^)

This creates a hypertime bubble that covers up to a 10-yard radius, suitable for protecting a building or base camp. These make excellent hospitals, repair bases, science labs, nurseries, or schools. If powered by a fusion generator, the generator may operate for years of subjective time. $1,000,000, 100 lbs., external power. LC1.

Personal Hypertime Field Generator (TL12^)

This is a man-portable hypertime generator. It could be worn as a backpack, but is also often a feature of a single autodoc, diagnostic bed, or study. It covers a one- to four-yard radius around the generator; the area of effect is adjustable when the field is turned on, but can't be changed until it is deactivated. $400,000, 50 lbs., 2D/8 hr. LC1.

Tau-Shield (TL12^)

This circuitry can be incorporated into any sealed full-body armor or vacc suit, or into a force screen. It generates a tactical chronowarp with two settings: tactical and infinity. The user can change the setting at the start of his turn.

On tactical setting, the tau-shield speeds up the wearer as if he had up to nine levels of Altered Time Rate (p. B38). While the suit is on this setting, the wearer seems to shimmer, as if covered in liquid crystal. The first level lets the wearer experience time *twice* as fast as a normal – that is, experience two subjective seconds for each real second that passes. Each level past the first increases this ratio by one: three times as fast at the second level, four times as fast at the third level, and so on. Each level lets the wearer take one additional maneuver on his turn in combat, allowing him to run very fast by taking multiple Move maneuvers, make multiple All-Out Attacks, etc. The wearer's turn doesn't come any sooner, however!

On infinity setting, the tau-shield functions much like a stasis belt (see p. 194), freezing the wearer in space-time. He becomes an invulnerable mirror statue for whatever duration he preset before activating this function (anything from a second to several billion years). While in this state, the user enjoys total immunity to most attacks (see *Stasis Web*, pp. 193-194) but he cannot do anything until the duration runs out, since he is frozen in time.

The tau-shield's D cell can maintain the tactical setting for up to 180 minutes divided by (levels of Altered Time Rate). Each use of infinity consumes 18 minutes of power. $500,000, 2 lbs., C/180 min. (see above). LC2.

Chapter Eight
MEDICAL AND BIOTECH

Adrienne Volkova had undergone updates before, once every year or so, when she got around to it. But this time, waking up from the procedure seemed to take forever. Maybe she shouldn't have stayed up all night partying, she reflected. She still had her exams to finish. Of course, the local college guys were ***so*** *lame – that's why she preferred the spaceport bars.*

"Adrienne Volkova-Morrigan? Can you hear me?"

Adrienne ***what****? She opened her eyes. Something that looked like a giant mechanical thorn bush was leaning over her. Some sort of high-end medical robot.*

"Uh . . . you aren't my regular doctor, are you? Anyway, my name's not Morrigan, it's Volkova."

"Ah, I see. I'm Dr. Gilbert," the bush robot said. It had a nice, fatherly voice. "How are you feeling, Adrienne?"

"Uh, okay. A bit dizzy." She looked around. She was in some sort of recovery room. The walls were a soft pink, and there was a big bouquet of flowers beside the bed – violets and roses, her favorites. This wasn't the room she'd been in before! "What's going on?"

"You had a temporarily fatal accident. I can assure you that you are now in perfect health. You are about to be released from hospital into the care of your husband. He's waiting outside."

"My ***husband****?"*

"Ah, I see. At Imperial General, we do strongly recommend ***weekly*** *updates of mind uploads. Perhaps we can interest you and your children in our family medical plan?"*

This chapter describes the equipment and technologies used to heal or modify living things . . . including replacement of some or all of their biological parts with machines.

Biomedical Equipment

To the average citizen, better medicine and biotechnology can be the most important technological advances in an ultra-tech society.

Medical Gear

These devices are useful for first aid, diagnosis, surgery, and long-term patient care. This section also describes static medical robots and microbots, which are treated as equipment. For mobile machines, see *Medical Robots* (pp. 202-203).

When determining physiology modifiers (p. B181), automeds, smart bandages, robots, and similar gear are treated as specialized for the designer's species. Versions optimized for treating different species (including animals) may be available, usually at double normal cost.

Anti-Toxin Kit (TL9)

This is an antidote for one specific non-nanotech toxin; 10 uses. $25, 0.5 lb. LC4.

Automed (TL9)

This is a coffin-sized trauma pod. A single patient enters it, and the lid is shut. The pod can treat the patient on its own, or be controlled remotely.

The automed is equipped with robot arms, surgical tools, and diagnostic sensors. Its dedicated computer can treat its patient with Diagnosis-12, Electronics Operation (Medical)-12, First Aid-13, Physician-11, and Surgery-13 (all increasing at +2 per TL after introduction). It has no imagination, so new diseases or strange problems may stump it – in which case it does its best to sustain the patient and call for help.

An automed may also be used to diagnose or treat patients by manual or remote control. Used this way, it can function as a crash kit (p. 198), as diagnostic probes (below), and as a portable surgery (p. 200); however, do not add their equipment modifiers when the automed uses its own skills. It's common for automeds to be teleoperated by AIs rather than living doctors.

An automed can sustain patients on life support, as a transport ESU (p. 198). It has 100 uses of bandage spray (below) and an internal pharmacy with room for 200 doses of drugs. The drugs are chosen and stocked by the automed's owners, and can be dispensed as needed. There is also a medium-range radio (p. 44) connected to the medical sensors, an internal camera, and a speaker. $100,000, 250 lbs., E/200 hr. LC4.

Bandage Spray (TL9)

This spray-on antiseptic bandage seals and disinfects minor wounds while acting as an analgesic. It comes in flesh-tone, colored, and transparent versions. First Aid using bandage spray receives a +2 (quality) bonus to skill.

One-Use Bandage Spray (TL9): One use. $3, 0.1 lbs. LC4.

Bandage Spray Can (TL9): Six applications. $15, 0.5 lbs. LC4.

At TL9, the spray can stop bleeding and restore 1 HP in 10 seconds. It works more rapidly at higher TLs as anticoagulants, wound-cleaning, and cell-repair nano are incorporated, taking five seconds at TL10, three seconds at TL11, and two seconds at TL12.

Biomonitor (TL9)

A non-invasive monitor that records basic vital signs: pulse, heartbeat, blood pressure, etc. It has a small display, and stores its data internally on a standard disk so that a doctor can review the patient's medical history.

Biomonitor Bracelet (TL9): A doctor consulting or monitoring it receives a +1 (quality) bonus to Diagnosis skill for the wearer. $50, 0.1 lb., A/100 hr. LC4.

Biomonitor Autoinjector (TL9): As above, but incorporates a hypo or patch with 10 doses of drugs. It injects a programmed drug when a specific physical or stress-related psychological condition occurs, e.g., unconsciousness, heart attack, Bad Temper or Berserk disadvantage, transforming into a werewolf, etc. If an appropriate drug is available, the device can serve as a Mitigator (see p. B112) for such conditions. $200 (plus drug dosage), 0.15 lb., A/100 hr. LC4.

Diagnostic Sensors (TL9): A "doc in a box" that connects to a set of sensors which must be attached over the body. It gives readouts on the patient's vital signs, including pulse, electrocardiogram, blood pressure, and respiratory rate. This provides a +2 (quality) bonus to Diagnosis. $500, 0.5 lb., 2B/1,000 hr. LC4.

Diagnostic Bed (TL9)

An examination table equipped with a full range of biological and medical scanners, including a CAT scan, a PET scan, T-rays, ultrasound, and X-rays. The patient lies on the table and scan results are projected onto an overhead screen.

Diagnostic Bed (TL9): Provides a +3 (quality) bonus to Diagnosis skill for most medical conditions, save those requiring detailed and non-invasive brain imaging (see *HyMRI*), (p. 198). If the imaging results from a diagnostic bed is combined with diagnostic probes (below) or laboratory tests, the total bonus to skill is +TL/2.

$25,000, 250 lbs., E/100 hr. LC4.

Diagnostic Web (TL11): This system always adds +TL/2 to skill. It extends a web of molecular sensors that painlessly penetrate the subject's body, performing lab testing without diagnostic probes (below). $30,000, 150 lbs., E/100 hr. LC4.

Diagnostic Probes (TL9)

A solution of tiny medical biosensors which can be injected into a patient as part of a diagnostic procedure. Injecting them requires only a hypo, but retrieval requires an automed, diagnostic bed, chrysalis machine, or ESU. If they've had at least two hours to circulate, their data gives a +3 (quality) bonus to Diagnosis skill. If the data is combined with readings from an imaging scan performed by a diagnostic bed (above) or HyMRI (p. 198), the total quality bonus to skill is +TL/2.

At TL10+ a diagnostic bed can communicate with the probes without removal being required. If not removed, they'll work for a month and then degrade harmlessly. $200 per dose. LC4.

Disposable Hypo (TL9)

A tiny one-use syringe, no longer than a fingernail. It is preloaded with a dose of a drug, poison, or metabolic nanoagent in injectable form. If the drug costs $5 or more, the hypo is included at no additional cost. Otherwise, $0.50 plus the cost of the drug, 0.01 lb. LC4.

Disposable Test Kit (TL9)

This tests for a specific disease, toxin, drug, or condition (e.g., pregnancy or malnutrition). No skill is required; the kit produces a color change to indicate a positive result. Available in versions that test urine or blood. $5, 0.1 lb. LC4.

Emergency Support Unit (TL9)

This is a life support system for patients who can no longer sustain their own bodily functions. See *Mortal Wounds* (p. B423) for the effect of trauma maintenance: the patient rolls to survive each day rather than each half-hour, and may use the higher of his Physician's skill or his HT.

Attaching a mortally-injured patient to an ESU requires an Electronics Operation (Medical) roll; each attempt takes 10 seconds. The system also includes diagnostic biosensors (p. 197). An ESU can function as a Mitigator (-60%, see p. B112) for any Terminal Illness disadvantage caused by organ failure or similar problems.

An ESU can maintain the biological functions of someone who is dead (unless they're at -5 × HP or worse), preserving the body intact for later use. It can also perform whole-blood transfusions. A "blood-wash" to remove toxins or nanomachines takes two hours.

Hospital ESU (TL9): A standard trauma maintenance unit, usually integrated into a hospital bed (the bed is not included). It provides a +2 (quality) bonus to Physician skill or HT rolls for trauma maintenance. $15,000, 120 lbs., 4D/200 hr. LC4.

Transport ESU (TL9): A lightweight but shock-resistant and stabilized version of the hospital ESU, attached to a stretcher or installed in a vehicle. It is used for safe transport of critically injured patients. It provides a +1 (quality) bonus to Physician skill or HT rolls for trauma maintenance. $10,000, 60 lbs., 2D/100 hr. LC4.

Wearable Life Support Unit (TL9): Takes over the function of a specific failed organ, such as the heart or kidneys. It is only useful as a Mitigator for terminal illness caused by organ failure. $2,000, 4 lbs., 4C/100 hr. LC4.

Suitcase ESU (TL10): A lightweight system that can be attached to a prone patient. It is often used by paramedics or built into robots. $5,000, 12 lbs., D/50 hr. LC4.

First Aid Kits (TL9)

These kits contain basic medical instruments appropriate to the TL.

First Aid Kit (TL9): Contains a bandage spray can (p. 197), ointments, etc. It gives a +1 (quality) bonus to First Aid skill, or +2 when using the bandage spray to treat bleeding. $50, 2 lbs. LC4.

Crash Kit (TL9): Contains a defibrillator, an oxygen mask, sutures, a bandage spray can, and no-shock drugs. It provides a +2 (quality) bonus to First Aid skill and counts as improvised equipment (-5) for Surgery skill. $200, 10 lbs. LC4.

Hibernation Chamber (TL9)

This chamber slows down a living subject's metabolic activity through chemical means. It reduces oxygen consumption, body temperature, food and water consumption. It is the lowest-TL means of achieving "suspended animation."

It takes an hour to reduce the subject to a hibernation state, after which he is unconscious and his life support requirements drop by a factor of 10. He also "ages" at roughly one-tenth the usual rate. The subject may be kept unconscious indefinitely if the chamber is equipped to provide for life support. Once the chamber is opened, the subject will be at 0 FP (or his current total, if less). He can recover FP normally, although stimulants may also be used.

Hibernation is used to give critically ill patients awaiting organ transplants more time, to keep patients suffering severe blood loss alive long enough for surgery, and to reduce life support requirements during long voyages.

Hibernation Chamber (TL9): Houses a single person. It is equipped with life support systems to keep the patient alive at his low metabolic rate, stimulate muscles, etc. These must be connected to an external life support source, but the occupant uses up one-tenth the normal life support requirement. $20,000, 200 lbs., external power. LC3.

Suspended Animation Tube (TL10): Has a self-contained regenerative life system that maintains all needs for as long as the power holds out. It will auto-revive if power is about to fail. $50,000, 750 lbs., 5E/10 years (or indefinite with external power). LC3.

Hibernation Case (TL10): A compact unit that fits inside a trunk. Designed mostly for storing organs and pets, but a child, dwarf, or small teenager (SM -1) could fit inside. It will auto-revive if power is about to fail. $10,000, 125 lbs., 5D/1 month. LC3.

Hibernation chambers are specific to classes of species (e.g., mammals) and may not work on some races.

HyMRI Scanner (TL9)

A conventional magnetic resonance imaging (MRI) scanner uses powerful electromagnets to stimulate the protons in the patient's body into emitting radio energy, which is used to produce a non-invasive image. HyMRI augments this with an inhaled laser-polarized inert gas such as an isotope of xenon or helium. This increases the resolution, especially in the lungs and nearby heart and brain.

Use Diagnosis skill to operate the scanner. It is basic equipment for the noninvasive diagnosis of brain and spinal disorders, as well as for mind emulation (p. 220), and provides a +TL/2 (quality) bonus for diagnosing heart-lung problems.

An MRI is not safely usable on anyone with magnetic or ferrous material in their body, e.g., cybernetics or fragments. If in doubt, a diagnostic scan should precede its use.

Hospital HyMRI (TL9): A large device that the patient must lie inside. $250,000, 500 lbs., 2E/10 hr (or external power). LC3.

Portable HyMRI (TL10): A helmet-sized device clamped over the patient. This is only usable for imaging the head. $25,000, 50 lbs., 2D/1 hr. LC3.

At TL11+, diagnostic beds incorporate the equivalent of a HyMRI at no extra cost.

Plasti-Skin (TL9)

This antiseptic and hemostatic patch can serve as a pressure bandage or a tourniquet. When the flesh beneath it heals, the patch falls off. It reduces the time required for bandaging (p. B424) from 60 seconds to 20 seconds, and the hemostatic proteins incorporated into it stop bleeding immediately after successful application.

Plasti-skin is normally a different color than flesh (so the bandage can be easily identified). However, versions that assume the color of the underlying skin are available to

cover tattoos and scars – these are useful as disguises. A field dressing pack with four applications is $2, 1/8 lb. LC4.

Pneumohypo (TL9)

This hypo injects drugs with a charge of compressed air. It must be touching the patient to inject its drug. If used as a weapon, it can penetrate DR 1, or normal clothing, has Reach C, cannot parry, and uses Knife skill (or DX-4). Its vial holds one dose of a drug.

These devices are about the size of a penlight, and are included in all medical kits at no extra cost. Air cartridges providing 100 charges of compressed air are $10. It takes three seconds to remove an empty drug vial or air cartridge and replace a new one. $20, 0.1 lb. LC4.

> *During the first week out, the senior surgeon announced that any who wished could avail themselves of cold-sleep. Within a day or two the bunkroom was half deserted, the missing passengers having been drugged and chilled and stowed in sleep tanks aft, there to dream away the long weeks ahead.*
>
> *– Robert A. Heinlein,* ***Between Planets***

Physician's Equipment (TL9-12)

Anyone under the care of a competent physician (Physician skill 12+) who has a stock of drugs and medical supplies gets +1 on all rolls for natural recovery. The *healer* may also make a Physician roll to cure the patient. Only one physician may roll per patient, but a single physician can care for many patients.

The exact number of patients a physician can attend to and the frequency with which he may roll to cure them depend on the TL of his Physician skill; see the *Medical Help Table,* below. On a success, the patient recovers 1 HP; on a critical success, he recovers 2 HP. This is in addition to natural healing. However, a critical failure *costs* the patient 1 HP!

Medical Supplies (TL9): Drugs and other disposable supplies sufficient for 50 patient-days of Physician treatment (TL9-10), 100 patient-days (TL11), or 200 patient-days (TL12). Gives a +1 (quality) bonus. Without this gear, the doctor operates as if at the TL6 level. $500, 5 lbs. LC4.

Medical Bed (TL9): A robotic nursing bed with built-in instruments, waste-relief systems, and an automated programmable drug dispensary for treating one patient. Adds +3 (quality) to Physician skill; allows two Medical Care rolls daily at TL9, three at TL10, four at TL11, or five at TL12. $10,000, 100 lbs., D/100 hr. LC4.

Biomonitor (TL9): If a patient has been wearing a biomonitor bracelet (p. 197) for at least a day, its accumulated data makes it easier to treat him. This gives +1 to Physician skill. $50, 0.1 lb., A/100 hr. LC4.

Suit Doc (TL10): An array of intelligent diagnostic sensors and general-purpose medical drug injectors that can be built into any sealed suit. It can perform ongoing Medical Care (p. B424-425) on the wearer as if he were under the care of a doctor operating at its TL who has Physician-10. A suit doc's drug pack is good for five days (TL10), 10 days (TL11), or 20 days (TL12). Extra suit doc drug packs are $50 and 0.5 lbs. $5,000, 5 lbs., C/100 hr. LC3.

Medical Help Table

Medical TL	*Frequency of Rolls*	*Patients per Doctor*
9	2 × daily	50
10	3 × daily	50
11	4 × daily	100
12+	5 × daily	200

Diagnostic Smart Bandage (TL9)

This is a sensor-equipped hemostatic plasti-skin bandage containing smart drug patches. A diagnostic smart bandage is manually applied; this takes 20 seconds, but otherwise use normal Bandaging rules (p. B424). It adds +2 (quality) bonus to skill when performing Bandaging, and its hemostatic proteins always stop bleeding.

After its application, the bandage will begin treating the patient for shock (p. B424), delivering a cocktail of drugs that help keep him calm, warm, and comfortable. After 10 minutes of this treatment, the bandage gets a First Aid-12 roll to determine its success. This is not quite as effective as a human medic: success restores only 1d HP rather than 1d+1, and there is no special result on a critical success. As usual, a critical failure results in a 2 HP loss.

Diagnostic Smart Bandage (TL9): Described above; four applications are $20, 0.4 lbs. LC4.

Diagnostic Smart Bandage Spray (TL10): Takes only three seconds to apply; uses a smart aerosol. One application is $5, 0.1 lb. LC4.

Surgical Equipment (TL9)

A complete set of surgical equipment provides a +(TL-6) bonus to Surgery skill rolls in *addition* to the equipment quality modifiers described below. See *Surgery* (p. B223 and p. B424).

Surgical Instruments (TL9): A complete set of surgical tools, including laser scalpels, forceps, bio-glue, sonic probe, and sutures. (This is also included in the crash kit, p. 198.) It is basic equipment for the Surgery skill. $300, 15 lbs., 5B/20 hr. LC4.

Operating Theater (TL9): An entire room full of specialized equipment. Its instruments include manipulators that can be controlled via virtual reality gloves and an augmented reality interface; the surgeon still needs steady hands, but he's not putting them inside the patient. As a result, smaller incisions are needed and recovery times are halved.

It provides a +2 (quality) bonus to Surgery skill. $200,000, 1,000 lbs., 20C/40 hr. or external power. LC4.

Portable Surgery (TL9): A complete set of equipment that fits in the back of a utility vehicle, a trailer, or a hospital cart. This equipment is favored by "street docs" and military units. Its capabilities are the same as that of an operating theater, but it gives a +1 (quality) bonus to Surgery skill and +2 (quality) bonus to First Aid. A portable surgery takes five minutes to pack or unpack. $50,000, 250 lbs., 5C/40 hr. (or external power). LC4.

Specialized Operating Theater (TL9): Dedicated to a particular Surgery specialization. It gives a +TL/2 (quality) Surgery bonus in that specialization, but is only basic equipment otherwise. $1,000,000, 1,000 lbs., 20C/40 hr. or external power. LC4.

Specialized Portable Surgery (TL9): As above, but dedicated to a particular Surgery specialization, such as brain surgery or cybernetics. It provides a +2 (quality) bonus to Surgery skill in that specialization, but is only useful as basic equipment for other types of surgery. $100,000, 250 lbs., 5C/40 hr. or external power. LC4.

Pocket Medic (TL9)

This is a static robot the size of a paperback book. If clamped onto a wounded area, it will treat injuries. It has a hypo, anesthetic spray gun, and small surgical arms. It dispenses bandage spray (p. 197), then treats for shock with First Aid-12 (+1 per TL after TL9). After it is finished, it signals for removal. If its sensors indicate that first aid has failed, or that the patient is not responding to treatment, it calls for a physician. It has a built-in short-range radio (p. 44). $1,200, 2 lbs., B/10 hr. LC4.

Medscanner (TL10^)

This multi-purpose medical scanner can detect internal injuries, genetic problems, diseases, implants, and more. No space opera medic should be without one!

Medscanner (TL10^): A pocket-sized device with a one-yard range. It gives a +3 (quality) bonus to Diagnosis skill. $1,000, 0.25 lbs., B/10 hr. LC4.

Diagnostic beds built at TL11^ or TL12^ can be assumed to use medscanners; the main advantage is that no instruments need be physically attached to the patient and they may also perform as a HyMRI (p. 198). Otherwise, see *Diagnostic Bed* (p. 197).

Nanostasis (TL10)

This is a means of safely shutting down a person's metabolism, putting him into a state of permanent suspended animation, in which no special preservation tank is needed. It uses nanomachines to install protective scaffolding and fixatives around and within every cell in the patient's body. Once placed in stasis, an organism does not require any oxygen or food, and cannot age or deteriorate, although it remains vulnerable to physical damage. Reversal of nanostasis requires similar bio-nanotech to remove the preservatives and restart bodily functions.

A living being placed into nanostasis is not dead. However, it is inanimate and unconscious, with IQ 0 and the Immunity to Metabolic Hazards, Injury Tolerance (Unliving), and Unaging advantages.

Nanostasis can also replace the need for anesthesia during TL10+ surgery.

Nanostasis is safe, but the subject will be disoriented for hours (sometimes days) afterward. Upon revival, the process supervisor makes a Physician roll. Critical failure means the patient has the Confused (9) disadvantage for 20-HT hours, and Amnesia (Partial) for at least a week; roll vs. HT weekly to recover. Failure produces the same effects, but roll vs. HT daily to regain memory. On a success, Confused lasts only (20-HT)/2 hours and there is no memory loss. Critical success means immediate recovery.

Nanostasis Tank (TL10): A growth tank (p. 204) modified to place someone into nanostasis, or to revive him. It takes five hours for the process to slow and then completely stop

the patient's metabolism. Afterward, he can be safely removed. Reviving a patient takes eight hours. The tank uses up one package of nanomachines ($5,000, 0.1 lbs.) per patient. $300,000, 250 lbs., E/200 hours. LC3.

Nanostasis Pod (TL10): An armored and radiation-shielded (DR 50, PF 100) pod that contains a nanostasis tank and automatic suspension and revival equipment (Physician-14 for this purpose only). It powers down when not in use; it is designed to keep someone preserved for centuries. It can revive its occupant at a pre-set date. $500,000, 500 lbs., E/200 hours (when not powered down). LC3.

At TL11, see *Chrysalis Machine* (below).

Neural Inhibitor (TL10)

A two-inch-wide disk with adhesive bonding material on one side. When applied to the bare skin of a living being with an approximately terrestrial vertebrate nervous system, it cuts off nerve impulses.

Its effects depend on where it is placed. If a neural inhibitor were attached to a person's forearm, his hand would be paralyzed, but he'd feel no pain from a hand or forearm injury, and surgery could be performed without anesthesia. If it were placed near the neck over the spinal cord, he would be paralyzed from the neck down. Use on the skull induces unconsciousness until removed. If the subject is not cooperating, treat these effects as a HT-6 affliction attack; the victim may roll to resist each second in contact.

A neural inhibitor gives a +1 (quality) bonus to First Aid to treat shock (p. B424). $200, 0.1 lb., A/10 hr. LC 3.

Paramedical Swarm (TL10)

This swarm of microbots is designed for autonomous patient care. It is made up of teams of specialized microbots. Some taste blood and perform diagnosis, some cut away damaged tissue, clean wounds, sew up cuts, and inject drugs, and some enter the body to perform internal repairs or diagnosis.

The swarm may perform First Aid, cleaning and repairing damaged tissue and injecting no-shock drugs. Each square yard of swarm can treat one person at a time. A paramedical swarm has Diagnosis-10 and First Aid-10; add +1 skill per TL after introduction. It provides its own basic equipment for both skills, but it cannot benefit from other types of medical equipment. Paramedical swarms can't treat somebody in a sealed suit, but a swarm can be housed in microbot arteries (p. 189). $6,000/square yard; see *Swarmbots* (pp. 35-37) for additional microbot swarm rules and options. LC3.

Regeneration Tank (TL10)

A regeneration tank is a biofab (p. 204) optimized for rapid whole-body cell repair. The tank contains mechanisms for controlling nanomachines as they permeate the user's body, instructing and assisting every viable cell in what repairs to make. Nonviable cells are programmed to self-destruct, or are removed and replaced with clones of healthy cells.

A Physician roll is required to supervise the procedure. Success means it works normally; failure takes twice as long as usual. It can heal everything up to permanent crippling injuries, at 1 HP per 12 hours, or radiation at 10 rads per day. Missing limbs and organs regrow in six weeks. $500,000, 600 lbs., 2E/200 hr. LC3. A regeneration tank requires nanomachines and feedstock: a week's supply is $1,000, 1 lb.

Rejuvenation Tank (TL10)

This specialized regeneration tank reverses the aging process. Its nanomachines reset cellular clocks, killing senescent or dying cells and replacing them with healthy ones.

Rejuvenation requires three months of treatment (TL10), six weeks of treatment (TL11) or a week (TL12), after which the subject's body is restored to young adulthood and full health. All age-related disadvantages and attribute losses are removed, as are any crippling injuries.

Rejuvenation is a risky procedure. The process supervisor must make a Physician roll. On a critical success, the patient is rejuvenated and fully recovered. Success means that the patient is rejuvenated but suffers Confused (9) (p. B129) for 1d days as he adjusts to his rejuvenated body. Failure means the structures of his memory were permanently disrupted: he has Partial Amnesia (p. B123). A critical failure results in either a messy death (such as being turned into a mass of cancer cells) or revival with no mind at all. Rejuvenation treatments may also have other limits, such as sterility or a set limit on the number of rejuvenations one can sustain.

A rejuvenation tank can also function as a regeneration tank. $300,000, 600 lbs., 2E/200 hr. LC2.

Suitcase Doc (TL10)

This device must be placed atop a patient's torso or other injured part (this takes a Ready maneuver). After that, it is autonomous. It unfolds, extruding surgical manipulators, anesthesia and life support tubes, and diagnostic sensors as necessary. It uses its manipulators to cut away clothing and treats the patient using Diagnosis-10, First Aid-12, Physician-10, and Surgery-10 (+2 per TL after TL10). It incorporates diagnostic probes (p. 197), suitcase ESU (p. 198), and a crash kit (p. 198).

If the doc encounters a problem it can't handle, it calls for help on its short-range radio. It also carries 10 uses of bandage spray and an internal pharmacy with up to 20 doses of drugs. $10,000, 20 lbs., 2C/10 hr. LC3.

Chrysalis Machine (TL11)

A chrysalis machine is a pod that spins a life-support web around the patient, completely enfolding him. Each cell is surrounded with biological repair and support machinery, which take over control from the patient's own DNA. The machine instructs the cells to begin self-repair procedures, and if necessary, takes apart the patient cell by cell and rebuilds him in accordance with its own programming.

A chrysalis machine can function as a high-speed regeneration tank, healing injury at 1 HP per hour. Crippled limbs or organs are restored when the lost HP are recovered. A chrysalis machine can also function as a nanostasis tank (p. 200) and rejuvenation tank (p. 201); it does so at 12 times normal speed.

A chrysalis machine can revive the dead, provided the body was not totally destroyed (-10 × HT or worse). Roll against Physician skill to do so, at -2 for every hour the subject has been dead. Success restores the patient to life. Failure by 1 or 2 restores the patient with personality intact, but with substantial memory loss (treat as Partial Amnesia). Failure by 3 or more restores the body with no mind or personality, although downloading (p. 220) could potentially fix that.

As long as there are some traces of genetic material remaining (the body may be crushed or burned, but not disintegrated) the chrysalis can clone the original using genetic reconstruction. Unless a mind emulation (p. 220) is available, the result will be a blank-minded clone.

A chrysalis machine can direct itself using its own dedicated computer's Physician-13 skill (15 at TL12), or be controlled by an operator. $500,000, 600 lbs., 2E/200 hr. LC2.

Implant Seed (TL11)

A pill-sized device that contains a swarm of nanomachines. Once inside the body, it uses the patient's biomass as building materials to grow a cybernetic implant. This could be benign – a neural interface, for instance – or something unwanted, such as a hostile puppet implant.

An implant seed can only grow cybernetic implants that require minor or simple operations (at TL11). Other implants, such as cybernetic arms, are either too complex or too large to be assembled.

Each seed is designed to grow into a particular type of cybernetic. Construction time is one hour per $50 cost. The seed may be programmed to lie dormant for a period of time before beginning construction.

Halfway through the growth process, an implant seed will be large enough to appear on scans performed using a diagnostic bed (p. 197) or medscanner (p. 200). At that point, it can be detected and removed before it starts functioning. See *Detecting and Removing Cybernetics*, p. 208.

An implant seed costs twice as much as a normal cybernetic implant at its TL; it has the same LC.

Pocket Regenerator (TL12^)

Regeneration fields are precision energy fields used to stimulate cell regrowth in living tissue. They may be related to hypertime (p. 195) or neural disruptor (p. 121) technology. The pocket regenerator is a pen-sized device with a regeneration field that can close wounds quickly. It has a range of one inch, and can be used through light clothing. Each use of a pocket regenerator combines the effects of bandaging and treating shock (p. B424) into a single treatment that only takes a minute. It requires either an Electronics Operation (Medical) or First Aid roll. $1,000, 0.5 lbs., B/15 min. LC4.

Regeneration Ray (TL12^)

This is a bed or chamber equipped with a powerful regeneration field. The patient lies inside and is bathed in the energy, which restores cellular function. A regeneration ray can heal injuries and repair the ravages of age. It does not cure poison or disease, but it can restore HP lost to them.

A regeneration ray can be used as a pocket regenerator with a +2 (quality) bonus to the user's skill. Short treatments can be used as part of TL12 Medical Care (p. B424): the regeneration ray gives a +6 (quality) bonus to Physician skill.

In addition to these minor applications, a regeneration ray can be used at high power levels. This takes an hour to set up, followed by an hour of treatment. High-power use requires a Physician roll. Success heals *all* damage sustained by the patient. Any attribute points lost to age or prior mortal wounds are restored, and any lasting crippling injuries are cured. Permanent crippling injuries are not restored immediately, but missing body parts will grow back as if the user had the Regrowth advantage. Critical success usually has no extra effect, but in a cinematic game it might trigger some favorable mutation, justifying spending character points on improved attributes or advantages.

Failure means something goes wrong: the subject takes 3d toxic damage, and no further regeneration ray or pocket regenerator treatments are possible for 1d weeks. Critical failure *seems* to work, but an unfavorable side effect appears 1d weeks later, such as the unexpected growth of tissue or a body part (an Unnatural Feature), cellular damage (a level of Slow Healing), or a bizarre mutation. All side effects also change the genetic code – any clones made from tissue sampled after the treatment will also possess them.

Regeneration rays are large, bulky devices. $1,000,000, 2,000 lbs., E/20 hr. LC3.

Medical Robots

Most medical robots are static equipment or tiny microbots (both covered under *Medical Equipment*). However, the need for cheap nursing assistance for an aging population may lead to the development of mobile medical robots.

Nursebot (TL9-12)

209 points

This man-shaped robot caregiver can assist the elderly and disabled, both at home and in clinics and hospitals. Its long, dextrous fingers have retractable surgical instruments, which can function as claws if used in combat. Its oversized head contains infrared and sonar systems for patient imaging.

Some nursebots can pass as human, although a sculpted humanoid version is more common.

Attribute Modifiers: ST+3 [30]; HT+2 [20].
Secondary Characteristic Modifiers: HP+7 [14].
Advantages: Absolute Direction [5]; Ambidexterity [5]; Discriminatory Taste (Profiling, +50%) [15]; Doesn't Breathe [20]; DR 2 [10]; High Manual Dexterity 2 [10];

Infravision [10]; Machine [25]; Microscopic Vision 2 [10]; Penetrating Vision 1 (Blockable, Dense Substances, -30%) [7]; Radio (Burst, +30%, Secure, +20%, Video, +40%) [19]; Sealed [15]; Sensitive Touch [10]; Sharp Claws (Switchable, +10%) [6]; Vacuum Support [5].

Perks: Accessories (Personal computer; surgical instruments) [2]; Sanitized Metabolism [1].

Disadvantages: Electrical [-20]; Restricted Diet (Very Common, power cells) [-10].

Lenses

Select one of these model lenses, then combine it with a machine intelligence lens (pp. 27-28) and a biomorphic lens (p. 28).

TL9 Model (-5 points): Add Maintenance (one person, weekly) [-5]. $150,000, 150 lbs., 2D/8 hr. LC4.

TL10 Model (+1 point): Add Maintenance (one person, biweekly) [-3], Reduced Consumption 2 [4]. $100,000, 150 lbs., 2D/24 hr. LC4.

TL11 Model (+4 points): Add Maintenance (one person, monthly) [-2] and Reduced Consumption 3 [6]. $70,000, 150 lbs., 4D/1 week. LC4.

TL12 Model (+8 points): Add Reduced Consumption 4 [8]. $50,000, 150 lbs., 4D/1 month. LC4.

Medical Bush Robot (TL11-12)

475 points

This is a mobile "robot bush" equipped with branching manipulators and sensors. It is a variant of the technical bush robot (p. 86). A "medical bush" can perform the most delicate forms of surgery without any additional tools.

Attribute Modifiers: HT+4 [40].

Secondary Characteristic Modifiers: HP+7 [14]; Per+2 [10].

Advantages: 360° Vision [25]; Absolute Direction [5]; Ambidexterity [5]; Chameleon 1 [5]; Discriminatory Taste [10]; Doesn't Breathe [20]; Double-Jointed [15]; DR 10 (Can't Wear Armor, -40%) [30]; Enhanced Tracking 2 [10]; Extra Arms 4 (Extra Flexible, +50%) [60]; Extra Mouth 5 [25]; Extra Attack 2 [50]; High Manual Dexterity 4 [20]; Hyperspectral Vision [25]; Injury Tolerance (No Brain, No Eyes) [10]; Machine [25]; Microscopic Vision 6 [30]; Penetrating Vision 1 (Flesh only -40%; Sense-Based: Touch, -20%) [4]; Protected Vision [5]; Radio (Burst +30%, Secure, +20%, Video, +40%) [19]; Sealed [15]; Sensitive Touch [10]; Sharp Teeth [1];Vacuum Support [5]; Vibration Sense [10].

Perks: Accessories (Microframe computer; surgical instruments) [2].

Disadvantages: Electrical [-20]; Restricted Diet (Very Common, power cells) [-10].

Lenses

Select a TL model lens and combine it with any machine intelligence lens (pp. 27-28) except a cyborg brain. Consider the optional lenses.

TL11 Model (+4 points): Add Maintenance (one person, monthly) [-2] and Reduced Consumption 3 [6]. $220,000, 75 lbs., 3D/1 week. LC4.

TL12 Model (+8 points): Add Reduced Consumption 4 [8]. $120,000, 50 lbs., 3D/1 month. LC4.

Optional Lenses

Budding (+21 points/copy) (TL12): Some bushbots can bud off smaller copies of themselves. Take up to five copies with Duplication (Duplicate is -1 SM, +0%; Shared Resources, -40%) [21/copy]. $20,000 per copy.

Combat Medic (+177 points) (TL11): An armored "thorn bush." Upgrade DR to DR 60 (Can't Wear Armor, -40%) [180] and Chameleon to Chameleon 4 (Extended, Infravision, Radar, and Ultravision, +60%) [32]. +20% cost and weight.

Psychiatric Equipment

This equipment is for monitoring and manipulating the mind.

Brainscanner (TL9)

A brainscanner observes the human brain by the mind's electrical activity. A high-resolution 3D structural scan of the subject's brain is assembled using a HyMRI or similar system. Other real-time electrical recording technologies such as magnetoencephalography (MEG) or electroencephalography (EEG) are used to record the firing of individual brain cells and map those impulses to the scan.

Brainscanners can also be used to create a "persona map," a model of the way a person thinks. The subject must be conscious, but cooperation is not required. Roll against Electronics Operation (Medical); one roll is allowed each day. Updates are performed at +1 and generally take a few hours.

Careful study of a recent persona map can reveal a person's main mental advantages, disadvantages, and quirks. It requires two hours and a successful Psychology skill roll, which provides a +2 bonus to Psychology and +1 to other social skills when dealing with that individual.

Scanning Net (TL9): This is a network of electrodes, superconducting quantum-interference devices (SQUID), and other sensors that must be attached to the subject's head. It must be used in conjunction with a prior HyMRI scan. $6,000, 4 lbs. LC4.

Implant Net (TL9): A neural interface (p. 48) or biomonitor implant (p. 208) allows brain scans without the use of a scanning net. This provides +1 to all tasks that require a brainscan.

Deep Brainscanning (TL10)

This is an *interactive* brainscan. The person running the scan must fit the subject with a neural interface (pp. 48-49), then stimulate the parts of the brain associated with memory recall. The subject is conscious but in a dreamlike state through most of the process. Roll every week rather than daily. Success provides data that gives triple the bonus of a brainscan, and which is sufficient to design a shadow mind emulation (p. 220).

Biotech Equipment

Equipment for growing life forms and for biotechnology research. Portable labs (pp. 66-67) for Biology skill are also useful.

Growth Tank (TL9)

An artificial womb that can be used to grow a life form to infancy or adulthood. It's no faster than natural growth. An organism developing in a growth tank has the same awareness as a baby in its womb. If kept past the fetal stage, it will not develop mentally beyond infancy unless additional stimulation (such as an educational dreamgame) is provided.

Incubator Growth Tank (TL9): Can carry a human infant to term. $10,000, 10 lbs., external power. LC3.

Adult Growth Tank (TL9): Big enough to allow a human to grow to adulthood inside it. $200,000, 200 lbs., external power. LC3.

Larger and smaller tanks are $1,000 and 1 lb. for each pound of body weight they can support.

Biofab (TL10)

This is a specialized wet nanofactory that can assemble organs or even a complete life form. A biofabricator can assemble living things rapidly (about a year of growth every week). It can grow an adult human in about 18-20 weeks.

Incubator Biofab (TL10): Can carry a human infant to term. $200,000, 50 lbs., D/20 hr. (but usually runs on external power). LC2.

Adult Biofab (TL10): Big enough to allow a human to grow to adulthood inside it. $4,000,000, 1,000 lbs., E/20 hr. (but usually runs on building power). LC2.

Larger and smaller tanks are $20,000 and 5 lb. for each pound of body weight they can support.

Nanofacs and Replicators (TL11-12)

Nanofacs (p. 91) and replicators (p. 93) can also assemble living things. When calculating the speed of assembly, assume an adult human costs $100,000 and an embryo $25,000.

Drugs and Nano

Miraculous drugs are a staple of science-fiction medicine. See *Ultra-Tech Drugs*, p. B425, for guidelines on designing futuristic drugs. Drugs can also include nanomachines which perform specific medical, maintenance, or protective tasks.

A drug may be a pill, injection, aerosol, contact agent, or aerosol contact agent. Many drugs are available in multiple forms. Most pills require 30 minutes or more to take effect, but can be dissolved in drinks. Contact agents such as patches take at least five minutes, while aerosols and injections take effect almost immediately. Double cost for aerosols or contact agents, or multiply by 10 for aerosol contact agents.

Assume that each doubling of dosage gives an extra -1 to the roll to resist.

Analgine (TL9)

This drug masks pain for a period equal to half the user's HT in hours. Unfortunately, the user is also Numb for the same period. $50 per dose. LC3.

Antirad (TL9)

One dose halves the effective amount of rads from a new exposure; two doses will halve exposure again, and so on. Antirad is preventative; it does not heal radiation damage. It comes as an injection or pill for $150 per dose.

Hyperstim (TL9)

This drug *instantly* awakens an unconscious person, regardless of his HP or FP. Someone using this drug cannot fail a HT roll to avoid unconsciousness. After the drug wears off, roll vs. HT. Failure causes 1 HP damage, while critical failure also results in a heart attack. $100 per dose. LC2.

Morphazine (TL9)

This drug puts the patient into a deep, dreamless sleep. The user gets a HT-3 roll to resist; failure results in the user falling asleep for eight hours times the margin of failure. It is a reliable, powerful sleeping pill, often available only through prescription. If injected, it works in one second. $10 per dose. LC3.

Soothe (TL9)

Places the user in a dreamy state of euphoria. Roll HT-3; if the roll is failed, the drug causes the Euphoria irritating condition and High Pain Threshold advantage for five minutes times the margin of failure. The user has no memory of events that occur while under the drug's influence. $15 per dose. LC4.

Crediline (TL9)

A psychoactive drug designed for interrogations and drug-assisted psychotherapy. It is often abused by criminals. The subject becomes trusting and talkative. He must roll HT-3 or suffer the Gullibility (9) disadvantage for (25-HT) minutes. $240 per dose. LC2.

Ascepaline (TL10)

Accelerates cellular regeneration: anyone using it regenerates 1 HP every 4 hours. Each dose lasts a day, and a week should elapse before another dose is taken. If not, roll vs. HT+2 for the second dose, HT+1 for the third, etc. Failure means the user's natural ability to heal *without* the drug is permanently damaged: the user gains Unhealing (Partial) (p. B160). He may still use Ascepaline, however. $20 per dose. LC3.

Purge (TL10)

This cleanses the user's system of foreign biochemicals. If the user makes a HT roll, it neutralizes any active drugs (including recreational drugs and alcohol) within 2d minutes. Failure means that the dose had no effect; critical failure also nauseates the user (-3 DX for 1 hour). Purge will not counteract drug addiction or cure side effects that remain after the drug that caused them wears off. Purge has no effect on TL11+ drugs or most deadly poisons, but it will counteract sleep gas. $20 per dose. LC4.

Memory-Beta (TL10)

Stimulates the user's memory. After taking a dose of the drug, he can remember nearly anything that has happened to him that he concentrates on recalling. An IQ roll is required to focus on something specific, and some stimulus is required to recall buried memories. If the IQ roll fails, the user gets lost in his own memories, reliving bits and pieces of his life. A critical failure results in the user being captured by some especially strong memory, whether of joy, tragedy, terror or even birth. This may trigger buried phobias or other psychological traumas. $250 per dose. LC3.

Biomedical Nanomachines (TL10-12)

These travel through tissue examining, dismantling, and rebuilding damaged molecular structures. Early versions are the size of bacteria, and specialized to repair specific types of molecular damage. More advanced machines are the size of viruses, with onboard computers, manipulators, and motive systems.

These machines are powered by the same chemicals that power the body's own cells. Cell repair machines produce some heat, but the resulting rise in body temperature is no greater than that produced by ordinary exercise.

Tailored Immune Machines (TL10)

Ultra-tech medicine may use biomedical nanomachines to seek out and destroy disease-causing microorganisms or tumors. It's also possible to get expensive nano that wards off these problems and stays in the body for weeks or permanently; see ***GURPS Bio-Tech***. Alternatively, medics may use cheaper tailored nanomachines designed for a specific purpose. This requires successfully diagnosing the problem. After it is diagnosed, prescribing the correct treatment requires a successful Physician roll.

A dose of tailored nano specific to a particular disease is $50 per dose and LC4; pharmacies, automeds, and hospitals usually stock a large range. Tailored immune machines for exotic ailments such as a rare disease or biological weapon may be harder to find, and cost $500 per dose. Tailored immune machines for unknown diseases require a new invention (but see *Programmable Immune Machines*, below).

If the correct nano is taken (by injection or pill) it cures the patient in 3d hours at TL10 or 1d hours at TL11+. If it was incorrectly proscribed, it will have no effect; another try with a different selection may be possible. If one dose works, the GM may allow the same nano to work on any patient with an identical problem.

Programmable Immune Machines (TL11)

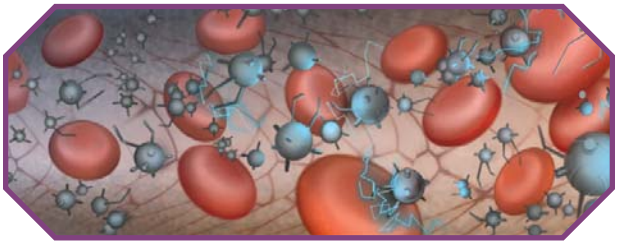
These general-purpose nanomachines are programmed to eradicate disease-causing microorganisms or tumors. They work like tailored immune machines, except that a successful diagnosis followed by a Physician roll lets the user program the nano dose to treat a specific disease. There's no need to buy or make new nanomachines for each illness. Programming usually takes an hour per attempt (apply a -2 penalty to skill for rare diseases). Programming a cure for a previously unknown disease takes a successful diagnosis and at least a day per attempt. The skill roll is at -4. $500 per dose. LC3.

Quickheal (TL11)

This is a topical application of nanomachines. It restores 1d HP of injury after an hour. The patient must also have received First Aid; Quickheal won't close a gaping wound. No more than one dose can be taken per hour. $100 per dose. LC4.

Critical Repair Nano (TL11)

These specialized treatments reset cellular control mechanisms. They can remove heart scarring and repair spinal or nervous system damage. A patient using critical repair nano can remove the Wounded disadvantage or regain the point of HT lost on a failed roll to recover from a mortal wound. $10,000 per dose. LC4.



Respirocytes (TL11)

These function like oxygen-carrying red blood cells, but with many times the transport capability. They store extra oxygen, transport it, and release it in response to need. They also extract carbon dioxide and absorbed nitrogen from muscle tissue, carrying it to the lungs for excretion.

Respirocytes provide +2 FP and Doesn't Breathe (Oxygen Storage × 25, -50%). They last until the oxygen has been used up or the user reaches 0 FP due to extra effort or exertion; then additional respirocytes are needed. $500 per dose. LC4.

Torpine (TL11)

This puts the user into a healing trance; he becomes unconscious for 24 hours. At the end of that time, *all* damage taken is totally healed. However, the user comes out of the trance at 1 FP. He is famished from the demands on his system, and must eat to recover lost FP. Torpine also speeds up the metabolism; treat each day on torpine as equivalent to 10 days for aging purposes. $250 per dose. LC3.

Fast Regeneration Nano (TL12)

These nanobots rush to any point of injury and begin performing repairs. They provide Regeneration (Fast) for one hour. However, each HP regenerated costs the subject 1 FP due to heat build up. Since the nano are not under the user's control, it's possible to be cooked by one's own nano if they are struggling to heal injuries. $500 per dose. LC3.

Aegis Nanobots (TL11)

This injection of "active shield" nanobots dwells permanently inside the user's body, patrolling his bloodstream and policing his cells to keep out unfriendly nanomachines. They are effective against both metabolic nanomachines and nanotech assaults that do not require a HT roll to resist, such as nanotracers (p. 161) and splatter (p. 162).

Biotech Techniques

These technologies are covered in detail in ***GURPS Bio-Tech***, but their capabilities are summarized here.

Human Cloning (TL9): Babies that are the genetic twins of humans (along with other animals) can be reliably created.

Bodysculpting (TL9): Cosmetic surgery can completely change a person's appearance.

Tissue-Engineering (TL9): Replacement organs and other body parts can be grown to order and grafted onto the body. These include specialized biomods that are the biotech equivalent of cybernetics.

Variant Races (TL9): Genetically-engineered subraces of humanity or other species can be created. These are treated as racial templates. Once the research is done, parents might acquire a genetically-engineered embryo, ready for transplant. A typical price is $25,000 for a racial template that does not have any traits a normal person could not have, or $50,000 (or more) for one that does; add an extra +$1,000 per character point the template costs over 0 points.

Biogenesis (TL10): Functional biological beings or devices can be assembled using bio-nanotechnology or nanomachines. These are "living robots" patterned on biological models.

Metamorphosis (TL11-12): A chrysalis machine or similar nanotechnology can make radical physical alterations, changing a person's racial template. At TL12, an injection or aerosol of nanomachines can trigger these changes.

Aegis confers immunity against all known types of intruding nanomachines, whether biological or not. The nanobots are programmed to recognize benign nanomachines and will not attack them. They do not confer immunity against new types unless updated (see below). However, if an unknown nanomachine allows a HT roll to resist, they give a +8 bonus to the resistance roll.

Against invading nano that do not give a HT roll to resist, Aegis nano engage in a contest of their skill against the intruder's skill to destroy it. Aegis nanobots have a skill of 15 vs. known nano and skill of 12 vs. unknown nano. See the description of Splatter and Shrike (p. 162) invasive nanomachines for examples of how this may work. If creating new nano, the GM should decide what effect Aegis will have on it.

Aegis nano can receive updates if the user has a neural interface. The cost is minimal: 1% per year for a subscription. Organizations such as police or military forces may provide this for free.

Aegis nano permanently grants Immunity to Known Nanomachines (Requires updates, -10%) [9] and Resistant to Unknown Nanomachines (+8) [5]. $5,000. LC3.

Cybernetics and Uploading

The earliest cybernetic systems were prostheses such as hearing-aid implants and pacemakers. Late in TL8, cybernetics that linked the user's nervous system with electronics were developed, allowing paralyzed individuals to control computers. This set the stage for bionic eyes and advanced limb replacements. In some settings, cybernetic limbs and organs may be unnecessary, thanks to easy-to-grow transplants. In others, cybernetic replacement may be much more common.

Cybernetics that *enhance* a person's abilities are a different matter. Many simple cybernetic implants are for convenience. An implanted, voice-activated communicator is easier to use than a pocket phone. Neural interfaces (p. 48) allow hands-free use of many gadgets, sometimes with greater efficiency. Combat implants can also provide a crucial edge. An opponent with a laser in his forearm, a battle computer in his brain, and armor under his skin is trouble.

Social Effect of Cybernetics

Cybernetic implants blur the line between a person and his gadgetry, making a man's abilities less important than his neurosurgeon's. Still, not everyone will want cybernetics. A spy may benefit from concealed armor and implanted claws, but it will take surgery to remove if they're spotted when he's walking through Customs. If he's captured and his captors find his implant communicator, they may be less than gentle about confiscating it.

Those who receive cybernetics will have to deal with their own differences – and with how others view them. Becoming a machine might be considered a Social Stigma in many societies. Cybernetics could also lead to reaction penalties in a society where Intolerance against robots or cyborgs exists.

Cybernetics are not always controversial. They might be a standard medical treatment or fashion choice, no more unusual than a prosthetic leg or plastic surgery is at TL8. If a lot of war veterans have bionic replacements, they could even be a mark of distinction: "Yes sir, got that leg after fighting in the Battle of Three Suns, back when I was a sergeant in the High Marines. No, never could afford to replace it with a transplant." In some societies, certain types of cybernetics, like neural interface implants, may mark the user as a member of an elite group (aerospace pilots, for example) or a particular subculture.

Statistics

Cybernetic modifications usually provide advantages or mitigate disadvantages; these traits are listed under *Statistics* along with the total point cost. The *Body Modification* (p. B294) rules apply, with the exception that the more detailed *Operations* rules below supersede the *Surgical Modifications* rules on p. B295.

Cybernetic advantages often have the limitation Temporary Disadvantage (Electrical, -20%), which means the advantage is vulnerable to electrical surges, power draining, etc. See *Electrical, p.* B134.

Cybernetic replacement parts for specific body locations are bought as a crippling disadvantage with the Mitigator (-70%) limitation. This limitation is assumed to include the effects of the Electrical, Maintenance (1 person, monthly) (p. B143), and Unhealing (p. B160) disadvantages for that body part.

Cybernetic implants generally supercede (or mitigate) existing natural or biological traits. Thus, if someone with Night Vision 1 gains a bionic eye that provides Night Vision 2, the levels don't stack together. Modify the character's point total accordingly; if paying character points for the advantage, base the cost on the net change (if positive).

Availability

Each modification specifies the type of procedure, the cost of the cybernetics, and the LC. Procedures are classified as simple, minor, complex, or radical – see below.

Procedure

Installing cybernetic modifications involves opening up the patient and, except for simple procedures, performing neurosurgery to connect the device to the user's nervous system.

Surgery skill is used to install cybernetics, and Surgery (Cybernetics) may be a common specialization at TL9. Most hospitals are reliable enough that no skill rolls are required for surgery the characters pay for (although cyber-surgery accidents or malpractice can be part of an adventure plot). If they do their own work, or a black-market surgeon is hired, the GM should require a Surgery skill roll (see p. B223).

The table below shows the procedures' difficulty modifiers (use the parenthetical value for brain or eye surgery), the time per attempt, and the injury caused by a failed roll (this is applied to the body part operated on). Success installs the modification, but it won't work until after the specified recovery period. The fee is the surgical fee charged at a clinic or hospital – ignore it for characters who do their own work.

Surgical Procedures Table

Procedure	*Modifiers*	*Time*	*Injury*	*Recovery Period*	*Fee*
Simple	+4 (+2)	15 min.	1 HP	1 hour	$100
Minor	+2 (+0)	1 hour	1d/2 HP	1 day	$1,000
Major	0 (-2)	2 hours	1d HP	1 week	$10,000
Radical	-3(-5)	4 hours	3d HP	4 weeks	$100,000

All damages and recovery times assume the surgeon is using robotic instruments; without them, double recovery time and damage. (Increase damage from a failed Simple procedure to 1d/2 HP.)

A modification is not functional until the recovery time has passed. If a disadvantage is mitigated by the modification – e.g., One Hand for a Bionic Hand – the patient will suffer the disadvantage until the recovery time is completed.

On a critical success, halve the recovery time. A critical failure may inflict double damage, or may result in the inadvertent installation of defective cybernetics. These may break down at a dramatically appropriate time, or cause an inconvenient disadvantage. Leaking toxic chemicals, bad installation, electrical faults, or infection might lead to Chronic Pain, Neurological Disorder, Unfit, Terminal Illness, or Wounded. A problem may also be specific to the attempted modification, such as a malfunctioning ear implant leading to Motion Sickness.

At TL10+, the recovery time of most cybernetic surgeries drops as advanced biotech and nanosurgical techniques simplify the procedures.

Biofabrication (TL10)

Some surface implants – notably skin coatings and dermal armor – can be grown by immersing the patient in a vat of micromachines inside a biofab, which assembles the implant as if it were a 3D printer. This technique is also used to add synthetic flesh and tactile sensors to robots and total cyborgs. Nanosurgeons make the neurological connections between skin and body.

This process requires a Physician roll (modified by the quality of the tank) and takes the specified number of hours. The patient is unconscious. On a failed Physician roll, the process must be repeated. On a critical failure, something goes gruesomely wrong, resulting in 1d corrosion damage for every 2 hours the process took.

Detecting and Removing Cybernetics

A diagnostic bed (p. 197), medscanner (p. 200), or X-ray scanner (p. 104) can detect concealed implants on a successful Electronics Operation (Medical) or Diagnosis roll.

Cybernetics can be safely removed in the same fashion they are installed, but the operation is easier: add +1 to Surgery rolls. If the parts don't need to be removed intact, add +2 and halve the time required.

Cybernetics may be rigged to cause unpleasant effects (e.g., see *Bomb Implant*, p. 210) if removal is attempted. A successful Traps-4 roll is required to notice a cyber-trap before it goes off; roll at no penalty if specifically looking for it. Disarming a booby trap requires an appropriate Traps roll prior to the surgery.

Second-Hand Cybernetics

Second-hand parts may be available, usually at 20-70% (1d+1 × 10%) of the cost of the cybernetics. This may or may not be a bargain, and there may be damage that is not immediately evident. Because of their value, bionics are rarely discarded until they are totally destroyed, giving new meaning to the phrase "loot the bodies." Salvaged cybernetics are usually worth 10-35% (1d+1 × 5%) of the original value depending on their condition.

> *His left eye was artificial and his face bore dozens of tiny, threadlike scars; for not even the marvelous plastic surgery of that age could repair entirely the ravages of space-combat.*
>
> *– E.E. "Doc" Smith,* ***Galactic Patrol***

Salvaging cybernetics from a corpse is much faster than installing them in a living person. It takes only one-third the procedure time and, if paying someone, costs 1/10th as much. A Mechanic (Robotics) skill roll can be substituted for surgery. Failing the roll means the parts require major repairs; critical failure destroys them.

Repairing Cybernetics

Use Mechanic (Robotics) skill to repair physical damage or malfunctioning cybernetics, or to diagnose second-hand parts to see if they have any hidden flaws. Minor damage to bionic body parts can be repaired from the outside, without surgery. For implants and major damage, the part must be completely removed before any repairs can take place.

Powering Cybernetics

Cybernetic devices are assumed to be powered by body heat and motion. Exceptions are noted in the descriptions. Bionic limbs require cell replacement or recharging on a monthly basis (this is part of the maintenance requirement subsumed in their Mitigator limitation).

Body Modifications

These include modifications to the body's limbs and organs, as well as implanted devices.

Biomonitor Implant (TL9)

This implant monitors vital signs: pulse, heartbeat, blood pressure, respiration, brainwaves, blood sugar, and alcohol levels, as well as the overall condition of the user's other cybernetics. It includes a small wrist display, and can connect to a neural interface (p. 48) or computer implant (p. 215). It gives a +2 bonus to any First Aid, Diagnosis or Physician rolls on the cyborg, as long as the medic can see the display. Halve the bonus if the user can see it but has to describe it to the medic. If the medic has a neural interface or a computer, he can jack it into a port beside the visual readout and monitor the cyborg directly.

Statistics: Accessory (Biomonitor) [1]. *1 point*.

Availability: Minor procedure (simple at TL10-12). $100. LC4.

Bionic Arm or Hand (TL9)

This is slightly stronger than the original, but constrained by the limits of the flesh-and-bone shoulder it is attached to.

One Bionic Arm (TL9)

Statistics: Arm ST+2 (One arm; Temporary Disadvantages, Electrical, -20%, and Maintenance, 1 person, weekly, -5%) [5]; DR 2 (One arm, -40%) [6]; One Arm (Mitigator, -70%) [-6]. *5 points*.

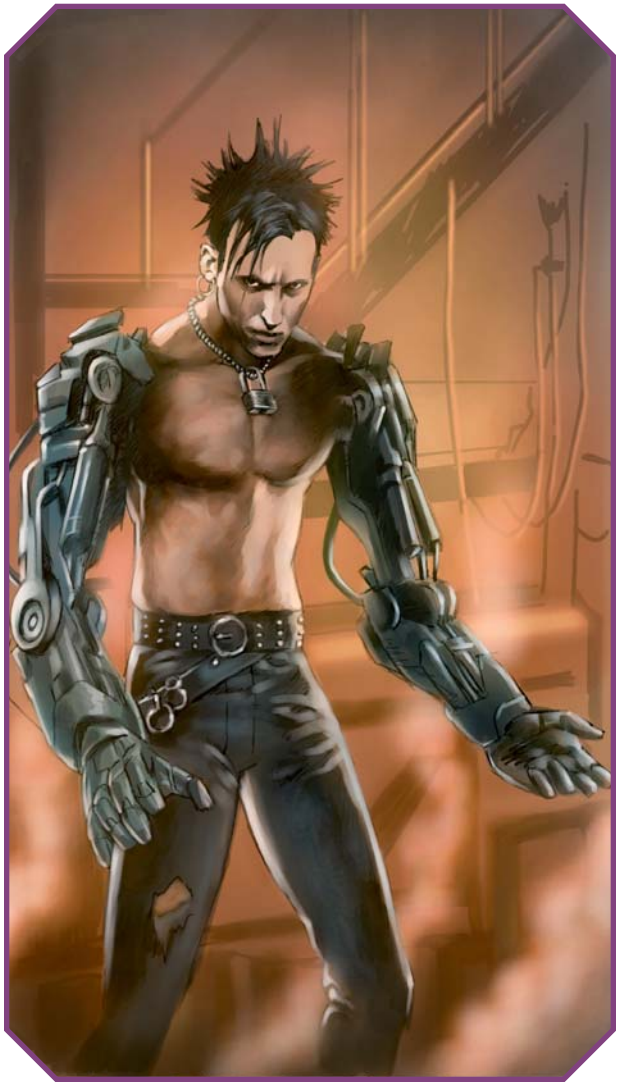
Availability: Major procedure. $12,000. LC4.

Two Bionic Arms (TL9)

Statistics: Arm ST+2 (Both arms; Temporary Disadvantages, Electrical, -20%, and Maintenance, 1 person, weekly, -5%) [8]; DR 2 (Arms, -20%) [8]; No Fine Manipulators (Mitigator, -70%) [-9]. *7 points*.

Availability: Two major procedures. $24,000. LC4.

If the recipient *already* has one existing bionic arm, use the Availability entry for one bionic arm.



Bionic Hand (TL9)

A cybernetic hand and wrist.

Statistics: Arm ST+1 (One arm, Temporary Disadvantage, Electrical, -20%) [3]; DR 2 (One hand, -80%) [2]; One Hand (Mitigator, -70%) [-4]. *1 point*.

Availability: Major procedure. $8,000. LC4.

Bionic Ears (TL9)

Crude cybernetic implants to repair damaged or lost hearing were available at TL8; these are much more advanced, providing some benefits over natural ears.

Bionic Ear (TL9)

Statistics: Hard of Hearing (Mitigator, -70%) [-3]. *-3 points*.

Operation: Minor procedure. $500. LC4.

Bionic Ears (TL9)

Statistics: Protected Hearing [5]; Deafness (Mitigator, -70%) [-6]. *-1 point*.

Operation: Two minor procedures. $1,000. LC4.

Advanced Bionic Ears (TL9)

These ears are connected to a computerized sound-profiling database.

Statistics: Discriminatory Hearing (Temporary Disadvantage, Electrical, -20%) [12]; Protected Hearing [5]; Deafness (Mitigator, -70%) [-6]. *11 points*.

Operation: Two minor procedures. $5,000. LC4.

Bionic Eyes (TL9)

The eye is a complex organ, but TL9 cybernetics may be able to replace it with something that works just as well or better than the original. Standard features are roughly equivalent to night vision contact lenses, including a video display option and low-light and telescopic (2×) optics.

One Bionic Eye (TL9)

Statistics: Accessory (Video Display) [1]; Nictitating Membrane 2 (One eye, -50%) [1]; Night Vision 2 (Temporary Disadvantages, Electrical and No Depth Perception, -35%) [2]; Telescopic Vision 1 (Temporary Disadvantages, Electrical and No Depth Perception, -35%) [4]; One Eye (Mitigator, -70%) [-4]. *4 points*.

Availability: Major eye procedure. $5,000. LC4.

Two Bionic Eyes (TL9)

Statistics: Accessory (Video Display) [1]; Nictitating Membrane 2 [2]; Night Vision 2 (Temporary Disadvantage, Electrical, -20%) [2]; Protected Vision [5]; Telescopic Vision 1 (Temporary Disadvantage, Electrical, -20%) [4]; Blindness (Mitigator, -70%) [-15]. *-1 points*.

Availability: Two major eye procedures. $10,000. LC4.

Bionic Leg (TL9)

A single cybernetic leg is limited by the capabilities of the remaining original leg. A pair of legs are more useful.

One Bionic Leg

Statistics: DR 3 (One leg, -40%) [9]; Missing Legs (Mitigator, -70%) [-6]. *3 points*.

Availability: Major procedure. $8,000. LC4.

Two Bionic Legs

Statistics: Basic Move +1 (Temporary Disadvantages, Electrical, -20%, and Maintenance, 1 person, weekly, -5%) [4]; Super Jump 1 (Temporary Disadvantages, Electrical, -20%, and Maintenance, 1 person, weekly, -5%) [8]; DR 3 (Legs, -20%) [12]; Legless (Mitigator, -70%) [-9]. *15 points*.

Availability: Two major procedures. $16,000. LC4.

Bionic Vital Organs (TL9)

Complete cybernetic replacement of the heart, lungs, or other vital organs is usually performed only to save a life. This may be combined with additional implants that improve on the original organ.

Bionic Organ Transplants (TL9)

One of the most common operations, this extends TL8 medicine with better pacemakers, artificial lungs, etc. The procedure is common, and therefore cheaper than most cybernetics.

Statistics: Hard to Kill (Temporary Disadvantage, Electrical, -20%) +2 [4]; Terminally Ill (Up to one month; Mitigator, -70%) [-30]. *-26 points*.

Availability: Major procedure (minor at TL11-12). $7,000. LC4.

Boosted Heart (TL10)

This combination of a cybernetic heart upgrade and arterial reinforcement allows the recipient to temporarily boost his metabolism beyond human norms. It can be added to either a healthy or a bionic heart.

Statistics: Basic Speed +1 (Costs Fatigue 1, -5%; Temporary Disadvantage, Electrical, -20%) [15]; Immunity to Heart Attack (Temporary Disadvantage, Electrical, -20%) [4]. *19 points*.

Availability: Major procedure (minor at TL11-12). $10,000. LC4.

Bionic Voicebox (TL9)

This implant replaces the recipient's voicebox, and may include an artificial tongue if the original was damaged. Someone with a damaged or recovering voicebox can croak or gurgle, but cannot actually speak. These implants can also be used to give animals the power of speech, although at IQ 5 or less, they can only parrot words.

Cybervoder (TL9)

Statistics: Cannot Speak (Mitigator, -70%) [-3]. *-3 points*.

Availability: Minor procedure. $1,000. LC4.

Silvertongue Implant (TL10)

Statistics: Cannot Speak (Mitigator, -70%) [-3]; Voice (Temporary Disadvantage, Electrical, -20%) [8]. *5 points*.

Availability: Minor procedure. $5,000. LC4.

Bomb Implant (TL9)

This explosive charge is attached to a timed or radio-triggered detonator and placed in the subject's head or torso. Implanted bombs could be suicide devices under the control of the implantee, or used to insure the loyalty of untrustworthy subordinates. Implanted bombs are often wired into other implants to prevent tampering – *see Detecting and Removing Cybernetics* (p. 208).

An ounce of TL9 explosive will inflict 6d crushing damage with the explosive modifier; wounding to the victim is tripled (as per a vital hit) for a torso charge in the vitals, or quadrupled (as per a skull injury) for one buried in the head. An exploding skull inflicts 1d-3 cutting fragmentation damage to anyone nearby.

A nasty variation on the implanted bomb is to place it under the control of a computer implant (pp. 215-216) which shares the victim's consciousness. Such a system is much harder to fool than a guard with a radio trigger!

Statistics: An implanted bomb may qualify as an Involuntary Duty.

Availability: Simple procedure. Use the cost and LC of a smart grenade (p. 146); a 25mm or 40mm can fit in the torso, a 15mm in a limb, 10mm elsewhere in the body.

Boosted Reflexes (TL9)

These implanted glands release chemicals on mental command, triggering a controlled adrenaline-like response.

Statistics: Basic Speed +2 (Costs Fatigue, 2 FP, -10%) [18]. *18 points*.

Availability: Major procedure (minor at TL10-12). $9,000. LC3.

Cyber Claws (TL9)

The recipient's hands or feet are equipped with ceramic or metal claws. The claws are retractable, triggered by muscle contractions.

Statistics: Sharp Claws (Switchable, +10%) [6].
Availability: Minor procedure. $6,000. LC3.
Halve the cost and treat as a simple procedure if adding these to a bionic hand or arm.

Filter Implant (TL9)

A self-regenerating particle-filtration system integrated into the recipient's lungs.

Statistics: Filter Lungs [5].
Availability: Minor procedure (simple at TL11-12). $2,500. LC4.

Flesh Pocket (TL9)

This is a surgically implanted pocket or pouch, sealed by a flap of skin. It can be used to smuggle small objects. A flesh pocket is normally installed in the torso; up to five levels are possible. Each level allows the pocket to hold up to Basic Lift/10 lbs. If placed elsewhere, a maximum of one level can be installed, and the amount of weight that can be carried is divided by 4 (leg), 8 (arm), or 16 (head or neck).

Statistics: Payload 1-5 [1/Level]. *1-5 points.*
Availability: Simple procedure. $200 per level. LC3.

Gyrobalance (TL9)

This is a miniature electronic gyroscope implanted in the inner ears (*both* ears – but treat as a single operation), and interfaced to improve the recipient's sense of balance.

Statistics: Klutz (Mitigator, -70%) [-2]; Perfect Balance (Temporary Disadvantage, Electrical, -20%) [12]. *10 points*.
Availability: Minor procedure. $7,000. LC4.

Hidden Compartments (TL9)

A cybernetic arm or leg may have a compartment large enough for any small object of up to Basic Lift/10 lbs. weight.

Statistics: Payload 1 [1].
Availability: Simple procedure. $500. No operation required if purchased with the limb. LC4.

Implant Radio (TL9)

This "implant communicator" is a radio (p. 44) with a range of one mile. It is spliced into the recipient's auditory nerve; the user may speak normally or subvocalize. A character with an implant radio can use it to subscribe to a cell phone or net service provider.

Statistics: Radio (Reduced Range, 1/10, -30%; Secure, +20%; Temporary Disadvantage, Electrical, -20%) [7]. *7 points*.
Availability: Simple procedure. $100. LC4.

Implant Video Comm (TL9)

This implanted radio communicator (p. 44) is spliced into the recipient's optic nerves to provide a video display. It has a range of one mile, and can be used to subscribe to a cell phone or net service provider.

Statistics: Radio (Reduced Range, ×1/10, -30%; Temporary Disadvantage, Electrical, -20%; Video, +40%) [9]. *9 points*.
Availability: Minor procedure (simple at TL10-12). $200. LC4.

Memory Flesh (TL9)

These synthetic flesh implants allow the recipient to shift between two different sets of facial and bodily features: his own and another set specified when it is installed.

Statistics: Alternate Form (Cosmetic, -50%, Temporary Disadvantage, Electrical, -20%) [5]. *5 points*.
Availability: Radical procedure (major at TL10-12). $20,000. LC3.

If the subject already has bioplastic skin (p. 212), this is a minor procedure.

Subdermal Armor (TL9)

This flexible armor is implanted *under* the skin. At TL9, the skin is peeled off and the armor inserted, then replacement skin is grafted back on. At TL10+ it may be possible to use nanotechnology to actually grow the armor under the skin. A careful tactile examination, a diagnostic bed, or a medscanner can detect the armor, but it is invisible to the naked eye and does not appear on metal detectors. It provides DR 12 vs. piercing and cutting damage and DR 4 vs. other damage.

Statistics: DR 8 (Limited, Piercing and Cutting, -20%; Tough Skin, -40%) [16]; DR 4 (Tough Skin, -40%) [12]. *28 points*.
Availability: Radical procedure (major at TL10-12). $2,000. LC2.

Smart Tattoos (TL9)

These tattoos are made with video ink. They can follow preprogrammed scripts, or even act in response to changes their sensors detect in the skin (sweat, temperature, etc.). A tiger tattoo might roar when it detects anger, or purr when the wearer is aroused.

Statistics: Distinctive Features 1 (Switchable, -10%) [0]. *0 points*.
Availability: Simple procedure. $200. LC4.

Stinger (TL9)

This concealed implant houses a single disposable hypo (p. 197) sheathed under a fingernail or in a body cavity. The recipient has no ability to manufacture drugs or toxins; he must buy hypos loaded with injectable drugs, poisons, or metabolic weapons. It takes 10 seconds to remove and replace a hypo in the mount.

A fingernail-mounted stinger attacks just like a jab with a disposable hypo. It has reach C, does 1 HP damage for penetration purposes, but with no wounding, and delivers a follow-up attack based on whatever agent was loaded into it. If the user has claws rather than normal fingernails, the injection can be a follow-up attack to the claw's damage.

A body-cavity stinger is mostly useful to deliver a surprise attack during an intimate moment; the GM may allow a Touch-8 sense roll to notice the tiny mount before it can be used. A stinger in the mouth can also be a follow-up attack to a bite.

Statistics: Extra Arm (Switchable, +10%; Takes Recharge, -10%; Weapon Mount, -80%) [2]. *2 points.*

Availability: Minor procedure. $500 (hypos not included). LC3.

Weapon Mounts (TL9)

These are modular weapons installations attached to a cyborg's body. Each can mount a single weapon that weighs no more than the recipient's Basic Lift. Mounted weapons cost cash – *not* points – and their weight counts as encumbrance.

A mounted weapon is plugged-in, not built-in. The user can swap it for another weapon with a suitable interface. It takes five seconds to mount or remove a weapon.

Concealing a weapon mount is similar to hiding a firearm of similar bulk. A Bulk -5 rifle built into one's arm will have a protruding muzzle, while a Bulk -1 holdout pistol may have only a tiny gun-port built into the user's palm.

All mounted weapons can be detected by searches. Enemies or the authorities can unplug and confiscate them, just like carried weapons.

Bionic Arm or Hand Mount (TL9)

This is a weapon mount built into an existing bionic arm or hand (p. 209). It may be mounted above or below the arm, or fire out through the palm. The weapon's weight may not exceed Basic Lift if in an arm, or half of Basic Lift if in a hand.

Statistics: Extra Arm (Weapon Mount, -80%) [2].

Availability: Minor procedure. $100/lb. of weapon weight. LC of weapon.

Heavy Weapon Arm (TL9)

This weapon mount replaces the user's arm with a socket joint and a hardpoint for attaching a weapon, usually rifle-sized. The mounted weapon must weigh equal to or less than the user's Basic Lift.

Statistics: To replace one arm with a weapon mount, take Extra Arm (Weapon Mount, -80%) [2] and One Arm [-20]. *-18 points.*

Availability: Minor procedure. $100/lb. of weapon weight. LC of weapon.

Accelerated Reflexes (TL10)

A system of electronic nerves and computer hardware that replaces large sections of the nervous system.

Statistics: Extra Attack 1 (Temporary Disadvantage, Electrical, -20%) [20]. *20 points*.

Availability: Radical procedure (major at TL12). $50,000. LC2.

Bioplastic Skin (TL10)

This modification covers the recipient's body with a sheath of living smart bioplastic (p. 171). It is thin and sensitive enough that it looks and behaves like normal skin, and even heals itself. It is invisible armor covering the entire body. It has DR 15 vs. burning or piercing damage, DR 5 vs. other types of damage.

Statistics: DR 10 (Limited, Burning and Piercing damage, -20%; Tough Skin, -40%) [20]; DR 5 (Tough Skin, -40%) [15]. *35 points*.

Availability: Major procedure. $20,000. LC3.

If installed first, bioplastic skin reduces the cost and difficulty of certain other cybernetic skin modifications.

Cyberhair (TL10)

This implant replaces sections of ordinary hair with thin cybernetic tendrils attached to a reinforced scalp. Cyberhair does not grow and cannot be cut by ordinary razors or scissors, but it can coil close to the scalp when the recipient needs a "haircut."

Cyberhair can be used as a simple manipulator, which may be useful if the user is grappled or tied up. It must be at least shoulder-length to be effective.

Shoulder-Length Cyberhair (TL10)

Statistics: Extra Arm 1 (Extra-Flexible, +50%; Short, -50%; Temporary Disadvantages, Electrical, -20%, and Maintenance, 1 person, weekly, -5%; Weak, 1/4 body ST, -50%) [3]. *3 points*.

Availability: Major procedure (minor at TL11-12). $3,000. LC4.

Waist-Length Cyberhair (TL10)

Statistics: Extra Arm 1 (Extra-Flexible, +50%; Temporary Disadvantages, Electrical, -20%, and Maintenance, 1 person, weekly, -5%; Weak, 1/4 body ST, -50%) [8]. *8 points*.

Availability: Major procedure (minor at TL11-12). $4,000. LC3.

Knee-Length Cyberhair (TL10)

Longer and tougher, with a reinforced scalp to support the hair's capabilities.

Statistics: Extra Arm 1 (Extra-Flexible, +50%; Long, +100%; Temporary Disadvantages, Electrical, -20%, and Maintenance, 1 person, weekly, -5%; Weak, 1/2 body ST, -25%) [20]. *20 points*.

Availability: Major procedure (minor at TL11-12). $10,000. LC3.

Variskin (TL10)

The recipient's skin is replaced or coated with smart film. He can change its color and texture to blend in with the surroundings. If nude, he gets +2 to Stealth skill when perfectly still, or +1 if moving. Clothing reduces this to +1 when perfectly still. It takes one second to alter skin pigment, and unnatural colors such as green or chrome are possible. The skin can also function as a video display terminal for data run through neural interface or computer implant.

Statistics: Accessory (Video terminal) [1]; Chameleon 1 (Controllable, +20%) [6]. *7 points*.

Availability: Minor procedure (simple at TL11+). $1,000. LC2.

If the patient has bioplastic skin (p. 212) the procedure is simple.

Gill Implant (TL10)

This implant allows the recipient to breathe underwater, using a device that extracts oxygen from water (it's not a true set of fish gills). It uses two C cells per day of operation.

Maintenance involves opening an access panel in his chest or back, cleaning filters, and installing new power cells.

Statistics: Doesn't Breathe (Gills, -50%; Temporary Disadvantages, Maintenance, 1 hour, daily, -10%, and Electrical, -20%) [4]. *4 points*.

Availability: Major procedure (minor at TL11-12). $8,000. LC4.

Hive Implant (TL10)

This implanted swarmbot hive (p. 37) can carry a single swarm measuring one square yard. It includes recharging ports hidden by a skin flap, allowing the swarm to recharge from a power system or the included C cell. The swarm and a control system (such as an implant computer and advanced com implant) must be acquired separately.

Statistics: Accessory (Swarmbot Hive) [1]; Payload 1 [1]. *2 points*.

Availability: Minor procedure. $1,000. LC4.

Intestinal Recycler (TL10)

The human digestive system is imperfect, so waste matter always contains useful chemicals that could have been metabolized and used by the body. This implant collects waste matter and reprocesses it.

Statistics: Reduced Consumption 2 [4]. *4 points*.

Availability: Major procedure (minor at TL11-12). $4,000. LC4.

Nanoweave Subdermal Armor (TL10)

Advanced flexible armor implanted under the patient's skin. It has DR 18 vs. piercing and cutting damage and DR 6 vs. other damage.

Statistics: DR 12 (Limited, Piercing and Cutting, -20%; Tough Skin, -40%) [24]; DR 6 (Tough Skin, -40%) [18]. *42 points*.

Availability: Major procedure (minor at TL11-12). $5,000. LC2.

Polyskin (TL10)

A combination of micromachines, smart bioplastic implants, and artificial glands that allow the recipient to alter his appearance. He can adjust apparent weight, skin color and tone, and facial structure.

The system can be purchased for the face or for the entire body. It can also be combined with sexmorph (p. 214).

If the recipient already has TL10+ bioplastic skin (p. 212) divide the dollar cost of the implant and the recovery time by 2.

Polyskin Body (TL10)

Statistics: Elastic Skin (Temporary Disadvantage, Electrical, -20%) [16]. *16 points*.

Availability: Radical procedure. $36,000. LC2.

This is only a major procedure if the recipient already has bioplastic or living metal skin.

Polyskin Face (TL10)

Statistics: Elastic Skin (Face only, -25%; Temporary Disadvantage, Electrical, -20%) [11]. *11 points*.

Availability: Major procedure. $15,000. LC2.

Reinforced Skeleton (TL10)

Micro- or nanomachines can reinforce a patient's skeleton with carbon fibers, transforming his bones into structures with the strength of metal. Implants take over the function of bone marrow and produce blood cells. Weight does not increase. While the reinforced bones do not show up on metal detectors, they can be identified with X-rays, diagnostic beds, and other advanced sensors.

Statistics: HP+5 [10]; DR 20 (Skull only, -70%) [30]; DR 10 (Limited, Crushing, -40%; Tough Skin, -40%) [10]. *60 points*.

Availability: Radical procedure (major at TL11-12). $50,000. LC3.

Ripsnake (TL10)

This cybernetic assassin's weapon is a concealed bionic limb linked to the user's nervous system. It uncoils from a natural body opening (usually the mouth) when deployed, and can attack semi-autonomously.

In certain situations, a ripsnake can deliver an automatically successful attack to the vital organs. For example, if a would-be assassin with a ripsnake concealed in his mouth kisses someone, it can coil out and down his victim's throat.

Statistics: Extra Attack 1 (Ripsnake Only, -20%) [20]; Impaling Striker (Cannot Parry, -40%; Long, +1 SM, +100%; Temporary Disadvantage, Electrical, -20%) [12]. *32 points*.

Availability: Major procedure. $26,000. LC2.

Sexmorph (TL10)

This suite of sphincter valves, synthetic hormone glands and memory or bioplastic implants allows the recipient to switch gender in 10 seconds. If desired, a user can also adopt a neuter phase (no obvious genitalia or breasts) or transsexual phase (male genitalia, female breasts, or vice versa) with voice and features as desired.

Statistics: Hermaphromorph (Temporary Disadvantage, Electrical, -20%; transsexual form also, +20%) [5]. *5 points*.

Availability: Major procedure (minor at TL12). $10,000, LC3.

Slickskin (TL10)

The recipient's skin is covered with a switchable smart matter nanofilm. When activated, most of his skin becomes virtually frictionless. The palms of the hands and the soles of the feet are not affected.

Statistics: Slippery 3 [6]. *6 points*.

Availability: Major procedure (minor at TL11-12). $12,000. LC3.

Thermal Imaging Eyes (TL10)

This is a pair of bionic eyes with tiny infrared imaging cameras, day/night telescopic optics, and a HUD (p. 24) chipped into the optic nerves.

Statistics: Accessory (HUD) [1]; Infravision (Temporary Disadvantage, Electrical, -20%) [8]; Nictitating Membrane 2 [2]; Telescopic Vision 1 (Temporary Disadvantage, Electrical, -20%) [4]; Blindness (Mitigator, -70%) [-15]. *0 points*.

Availability: Two major procedures (minor if replacing existing bionic eyes). $8,000. LC4.

Hyperdense Skeleton (TL11)

A reinforced skeleton (above) impregnated with hyperdense nanoparticles for additional damage resistance. A hyperdense skeleton increases body weight by 10 to 20 percent.

Statistics: HP+5 [10]; DR 40 (Skull only, -70%) [60]; DR 20 (Limited, Crushing, -40%; Tough Skin, -40%) [20]. *90 points*.

Availability: Radical procedure (major at TL12). $100,000. LC2.

Hyperspectral Eyes (TL11)

These bionic eyes are similar to thermal imaging eyes (p. 214), except that multispectral cameras replace the infrared cameras.

Statistics: Accessory (HUD) [1]; Hyperspectral Vision (Temporary Disadvantage, Electrical, -20%) [20]; Nictitating Membrane 3 [3]; Telescopic Vision 1 (Temporary Disadvantage, Electrical, -20%) [4]; Blindness (Mitigator, -70%) [-15]. *13 points*.

Availability: Two major procedures (minor if replacing existing bionic eyes). $12,000. LC4.

Monocrys Subdermal Armor (TL11)

This diamondoid nanocrystal mesh grown under the patient's skin provides DR 24 vs. piercing and cutting damage and DR 8 vs. other damage.

Statistics: DR 16 (Limited, Piercing and Cutting, -20%; Tough Skin, -40%) [32]; DR 8 (Tough Skin, -40%) [24]. *56 points*.

Availability: Major procedure. $10,000. LC2.

Living Metal Skin (TL12)

A thin, flexible, sensor-equipped nanoskin of living metal replaces the recipient's own skin. The endoskeleton is self-sealing and enhances strength.

Statistics: Filter Lungs [5]; DR 20 (Flexible, -20%) [80]; Lifting ST +5 [15]; Nictitating Membrane 5 [5]; Sealed [15]; Striking ST +5 [25]; Super Jump 1 [10]; Temperature Tolerance 5 [5]. *160 points*.

Availability: Radical procedure. $40,000. LC2.

Brain Implants

Brain implants are inserted into the recipient's skull and linked to his central nervous system. Some societies may see brain implants as sinister. Others may consider altering the mind to be more socially acceptable than modifying the body.

Brain implants are riskier than other implants. Critical failure on major or radical procedures may cause brain injury, resulting in a loss of one point of IQ, or a disadvantage like Epilepsy or Phantom Voices.

Braintap (TL9)

A braintap is an advanced form of implant communicator that lets the recipient transmit his experiences as sensies (p. 57). Others can use the receiver to experience or record the sensory information experienced by the braintapped character.

Braintaps are used by sensie stars, journalists, or anyone else who wants to record his personal experiences. A normal braintap can be turned on or off by the user, but remote-controlled braintaps are also possible. It is possible to implant a braintap in an animal. If well-trained, such animals make very useful scouts or familiars. A braintap can also be implanted without someone's knowledge, during other surgery – a favorite trick of intelligence agencies.

Remote-Controlled Cybernetics

Cybernetics may be implanted in someone against their will and remotely controlled. This won't cost the recipient any character points, since it isn't an advantage for him. Usually only brain implants are designed for remote control, but other options are possible, such as remote-controlled bionic arms, ripsnakes, cyberhair, or digital skin.

Communicators can always be remotely controlled. Other cybernetics will need a remote-controlled communicator implant (any type) or an implanted digital mind (p. 216).

Braintap Jack (TL9)

This incorporates a plug-in cable jack (p. 42) plus a sensie transmission module. If the user has a computer implant (below), he can store data in it.

Statistics: Cable Jack (Send Only, -50%; Sensie, +80%) [7].

Availability: Major procedure (minor at TL10-12). $3,000. LC4.

Wireless Braintap (TL9)

This incorporates a radio transmitter with a one-mile range and a sensie-transmission module. If the user has a computer implant, he can store data in it.

Statistics: Radio (Secure, +20%; Reduced Range, ×1/10, -30%; Send Only, -50%; Sensie, +80%) [12].

Availability: Major procedure (minor at TL10-12). $12,000. LC3.

Computer Implant (TL9)

This is a computer implanted in the recipient's head and controlled through its own direct neural interface. It takes only a thought to call up a file or access a database. Data scrolls across the periphery of the user's vision, and he hears the computer as a voice in his head.

The implant includes an optical-recognition feature using the user's eyes and ears as sensors. It can speed-read documents, for example, and store them in its database. (It takes normal time to read them later, though one could ask the computer to provide a synopsis).

The interface can also run "virtual tutor" (p. 56) augmented reality programs that not only talk but show how to do things by overlaying instructions on the user's visual field. Although several programs could theoretically be run at once, the user can only focus on one at a time. A computer implant is most useful with an implanted communicator.

The recovery time represents the amount of time needed to master the computer's functions.

Computer Implant (TL9)

The user should also have a neural jack (p. 217) or implant radio (p. 211).

Statistics: Accessory (Tiny computer) [1]; Photographic Memory (Temporary Disadvantage, Electrical, -20%; Recorded data only, -20%) [6]. *7 points.*

Availability: Major procedure (minor at TL10-12). $4,000 + the cost of a tiny computer (p. 22) with the compact option. LC4.

Chip Slots (TL9)

A chip slot is a sterile dime-sized skull socket, covered with a cap, into which modular brain implants ("chips") can be inserted. Each chip interfaces directly with the recipient's brain and nervous system, providing knowledge and ability. Chips containing individual skills, techniques, or mental advantages can be manufactured and purchased.

Chips: Chips themselves are tiny plugs that weigh 0.05 lbs. (just under an ounce). Skill chips cost $1,000 per character point at TL9, $500 per point at TL10, $200 per point at TL11, or $100 per point at TL12. Most are LC3.

Statistics: Variable. Buy the Chip Slots advantage (p. B71) with the limitation (Temporary Disadvantage, Electrical, -20%). A suggested maximum number of slots is (TL-7). A suggested maximum points per chip is (TL-7) × 5.

Availability: Major procedure (minor at TL10-12). Cost is $5,000 per slot plus $3,000 per point of abilities that a chip can hold. LC3.

Skip Slot (TL9)

This is a general-purpose chip slot optimized for skills. Running a chip with 4-points in skills, it can give someone an easy skill at attribute+2, an average skill at attribute+1, a hard skill at attribute+0, or a very hard skill at attribute-1. It can also add +1 to any existing skill level.

Statistics: Chip Slots 1 (4) (Temporary Disadvantage, Electrical, -20%) [14].

Availability: Major procedure (minor at TL10-12). $17,000. LC3.

Implanted Digital Mind

A person may directly control his own implant computer, but it is also possible to implant one that contains an artificial intelligence or a mind emulation (p. 220).

A computer implant with a mind of its own is usually an NPC. If obedient, it will be an Ally. It appears constantly (quadruple cost), since it's an implant; if programmed to obey it will have the Minion enhancement. (A computer implant that is a Dependent or Patron is conceivable, but may be difficult to justify.) It's also possible for a character to have a computer implant who is a not a friend. It may even be an Enemy; if so, the character usually has an Involuntary Duty that explains why the implant hasn't been removed.

The computer implant is simply an entity that happens to reside inside the user. If the host is injured by an attack, use the Overpenetration rules (p. B408). The implant may be damaged by any hit to the skull that exceeds the host's DR, the DR of his skull, and an additional cover DR equal to half the host's HP. The implant's own DR will also protect it.

The implant's consciousness is not affected by the host's own loss of consciousness.

An implanted digital mind should pay points for any of the body's cybernetics that it controls – see *Remote-Controlled Cybernetics* (p. 215). Cybernetics can be jointly controlled; in this case, the host and the implant both pay points for it.

Computer Implant Template

-17 Points

An implanted computer can be a PC or associated NPC! This is a built-in computer implant with a mind of its own. The template's Mindlink is with the person it is implanted into. If it's a PC, the person it is implanted into is usually an Ally or Dependent.

Combine this with any AI template (p. 25) or the Mind Emulation template (p. 220).

Attribute Modifiers: ST 0 [-100]; HT+4 [40].

Secondary Characteristic Modifiers: HP +2 [4]; Basic Move -6 [-30].

Advantages: Absolute Direction (Requires signal, -20%) [4]; AI [32]; Doesn't Breathe [20]; Doesn't Eat or Drink [10]; DR 5 (Can't Wear Armor, -40%) [15]; Injury Tolerance (No Eyes, No Head, No Neck) [17]; Machine [25]; Mindlink [5]; Mind Reading (Mindlink Required, -40%*; Sensory Only, -20%; Touch-Based, -20%) [6]; Sealed [15]; Radio (Burst, +30%; Secure, +20%; Video, +40%) [19].

Perks: Accessories (Tiny computer) [1].

Disadvantages: Electrical [-20]; Quadriplegic [-80].

Features: Taboo Trait (Fixed ST, DX, HT, HP).

Availability: Major procedure (minor at TL10-12). $4,000 plus the cost of a tiny computer (p. 22) and AI software (p. 25) or a mind emulation (pp. 26, 220) program. LC4.

* Works the same way as the identical limitation for Possession (p. B76).

Lenses

Puppeteer (TL9) (+100 points). The computer can use biopresence software to possess the body of its host. This can also be combined with any of the above subrace options. Add Possession (Mindlink Required, -40%; No Memory Access, -10%; Telecontrol, +50%) [100]. If the host has a biopresence implant so that possession is automatic, add Puppet [5], increasing the cost to +105 points. Add the cost of biopresence software (p. 109).

Mind Interface (TL10) (+6 points). The computer implant can sense the surface thoughts of its host. Remove the Sensory Only limitation on Mind Reading. This can be combined with Puppeteer. +$10,000. LC3.

Neural Interface Implant (TL9)

A neural interface (pp. 48-49) permits the user to control electronic devices using his mind. It picks up electronic impulses and translates them into electrochemical signals in his brain. There are two models in common use, and some people may implant both:

Neural Jack (TL9)

This is a socket implanted in the body (usually the back of the neck, base of the spine, or skull) with a communications interface. The user can plug an optical cable (p. 43) into it and connect to a phone line, modem, etc.

Statistics: Cable Jack (Sensie, +80%) [9]. *9 points*.
Accessibility: Major procedure (minor at TL10-12). $4,000. LC3.

Wireless Neural Interface (TL9)

This is a wireless neural interface radio with a one-mile range. It can also function as a radio communicator.

Statistics: Radio (Reduced Range, ×1/10, -30%; Secure, +20%; Sensie, +80%) [17]. *17 points*.
Accessibility: Major procedure (minor at TL10-12). $5,000. LC3.

Neurotherapy Implant (TL9)

Computer chips may be surgically implanted into the brain to restore misbehaving or damaged functions, or to act as a bridge between injured and healthy areas.

A neurotherapy implant can be implanted to neutralize mental or physical disadvantages that impair brain or neurological function, such as Dyslexia, Epilepsy, Killjoy, Non-Iconographic, Neurological Disorder, and Short Attention Span.

If brain damage such as a stroke or bungled brain surgery causes DX or IQ loss or other disadvantages (e.g., Blindness or Mute, or partial paralysis resulting in a disadvantage such as One Arm), the GM may also allow the implant to fix it.

Statistics: Add the Mitigator (-70%) limitation for the disadvantage.
Availability: A persona map of the patient is required before a neurotherapy implant can be installed; see *Brainscanner* (p. 203). This data is used to program the implant. Major procedure (minor at TL10-12). $500 per -1 point of disadvantage. LC3.

Psych Implant (TL9)

This implant stimulates areas of the brain to produce psychological reactions. Moderate regimes use them as an alternative to prison or psychiatric treatment – repressive ones rely on them for mind control.

A psych implant gives the subject an additional mental disadvantage. Common implants induce Combat Paralysis, Gullibility, Pacifism, or Slave Mentality, and are used to restrain violent individuals or render the subject easily controllable. Illegal implants are available that compel Berserk, Dyslexia, Paranoia, or a Phobia. An implant can not create self-imposed mental disadvantages such as Code of Honor.

The disadvantage is not active until after the recovery period, although the subject will feel a growing urge to act in the fashion indicated. Any implant-induced disadvantage ends when the implant is removed. However, anyone who has worn a psych implant for three or more months may acquire the disadvantage permanently. After the implant is removed, the implantee should make a Will roll at +4 to avoid the disadvantage continuing, with a penalty of -1 for each doubling of time, e.g., Will+3 at six months, Will+2 after a year, Will+1 after two years, etc.

Therapeutic implants also exist which *negate* mental disadvantages, such as Bad Temper or Phobias; use the rules for Neurotherapy Implants. After several months the effect may become permanent. Roll vs. Will as above when the implant is removed – if the roll fails, the disadvantage is gone. The GM may require it to be bought off with character points.

Statistics: A disadvantage granted by a psych implant will have the (Temporary Disadvantage, Electrical, -20%) limitation. A disadvantage that is negated by a psych implant will have the (Mitigator, -70%) limitation.
Availability: A persona map of the patient is required; see *Brainscanner* (p. 203). This data is used to program the implant. Major procedure (minor at TL10-12). $1,000 per -1 point of disadvantage added or mitigated. LC3.

Biological Operating System (BOS) Implant (TL10)

This implant controls biofeedback systems and diagnostic monitors, as well as nanomachine drug factories that that help the user manage his body's physiological state.

Statistics: Alcohol Tolerance [1], Deep Sleeper [1], Metabolism Control 1 [5], No Hangover [1]. 8 points.
Availability: Major procedure (minor at TL11-12). $10,000. LC3.

Sensie Transceiver Implant (TL10)

These brain implants enable a person to transmit or receive live or recorded sensory impressions from another person. They are essentially two-way braintaps.

Sensie Transceiver Jack (TL9)

This incorporates a plug-in cable jack (p. 42) plus a sensie transceiver module. If the user has a computer implant (p. 215), he can store data in it.

Statistics: Cable Jack (Sensie Only, +0%) [5].
Availability: Major procedure (minor at TL10-12). $2,500. LC4.

Wireless Sensie Transceiver (TL9)

This incorporates a radio transmitter with a one-mile range and a sensie-transmission module. If the user has a computer implant, he can store data in it.

Statistics: Radio (Secure, +20%; Reduced Range, ×1/10, -30%; Sensie Only, +0%) [9].
Availability: Major procedure (minor at TL10-12). $4,500. A/1 year. LC3.

Cognitive Enhancement (TL10)

This implant establishes new connections between itself and different parts of the brain., Normal neurons are replaced with cybernetic duplicates. The benefits provided are capabilities at which electronic computers exceed the capabilities of human brainpower, such as spatial awareness, memory and processing speed.

Statistics: Choose from IQ+1 to IQ+3 [20/level], 3D Spatial Sense [10], Eidetic Memory [5], Enhanced Time Sense [45], Intuition [15], Language Talent [10], Lightning Calculator [2 or 5], Oracle [15], Mathematical Ability [10/level], Musical Ability [10/level], Single-Minded [5],Visualization [10]. The maximum points available per operation are 15 at TL10, 45 at TL11, and 60 at TL12. Then add Temporary Disadvantage (Electrical, -20%).

Availability: Major procedure. $5,000 × point cost (before applying Temporary Disadvantage). LC3.

Puppet Implant (TL9)

A puppet implant allows someone else to remotely control a cyborg's body. The teleoperator must have appropriate software, hardware, and access – see *Biopresence Software*, p. 109. A puppet implant requires a communications implant or sensie implant.

Statistics: This may count as the Involuntary form of Duty (p. B133) if someone else holds the access codes.

Availability: Radical procedure (TL9), or major procedure (TL10-12). $45,000. LC2.

Personality Implant

The combination of a puppet implant and a computer implant (pp. 215-216) housing a digital mind is also called a personality implant. It can take possession of the cyborg. Personality implants might be used for coercive purposes – for example, a cult leader might implant them in his followers. They could also be voluntary, with people owning and accessing personalities that are programmed to obey them, or storing the personas of deceased friends, lovers, or ancestors in their heads.

Backup Brain (TL11)

This computer and sensor system monitors the user's chemical and electrical thought processes, reshaping its own neural network to imitate them. The backup brain will configure itself into an electronic duplicate of the user's mind after a number of months equal to the user's IQ. After it has successfully mimicked the user, a simple operation can shut down the organic brain and give the backup brain control of the user's body.

The advantage of doing so is twofold: the implant is more resistant to brain damage, and it does not suffer IQ losses due to aging or brain disease. A backup brain implant can also be transplanted into a clone body. (This is a radical cybernetic operation.) If successful, the result will be a clone controlled by a computer that behaves exactly like the original person.

If the user dies, the brain implant may survive, preserving the user's memory and personality. This is the case whether or not the ordinary brain has been shut down. If the user was killed by any injury that left his head intact, the implant will always survive. If the brain implant user was killed by a head injury, the implant will survive unless the head was totally destroyed (i.e., damage to the head alone was greater than 5 × HT). If the implant survives, it can be salvaged and transplanted into a cloned body.

Statistics: Once the implant has taken over, the user's ability to avoid IQ losses from aging and sometimes evade death is the Extra Life (Copy) advantage

Availability: Radical procedure. $25,000. LC3.

Cybernetic Uplift

These modifications are normally added to pets or working animals in order to give them additional capabilities.

Enhanced Voicebox (TL9)

This implant gives an animal that can't speak the ability to form human words, much like a parrot can. It can be added to any mouse-sized or larger animal.

The animal's Cannot Speak disadvantage is nullified as long as the implant is functional. Giving a non-sapient (IQ 5 or less) animal a voicebox does not mean that it can actually learn a language, but it can be taught to speak a few words.

Finger Paws (TL9)

Finger paws can be added to a bionic or organic leg on an animal with walking paws, such as a rat, dog, cat, or tiger. The paws are replaced with crude hands that can be used both for walking and grasping objects. Neural implants help the animal become comfortable with its new digits.

Statistics: Basic Move -1 [-5]; Bad Grip 1 [-5], Foot Manipulators (2 arms) [-6]; No Fine Manipulators (Mitigator, -70%) [-9]. *-25 points*. This replaces No Fine Manipulators [-30].

Availability: Two major operations (minor at TL11-12). $10,000. LC3.

Neural Uplift (TL9)

This procedure improves the intelligence of a non-sapient animal by implanting computer components that emulate higher neural and brain functions. It may not be added to an animal with IQ 6+.

Statistics: IQ+1 (Temporary Disadvantage, Electrical, -20%) [16]; Wild Animal *or* Domestic Animal (Mitigator, -70%) [-9]; Stress Atavism (Mild, 12) [-10]. *-3 points*. This replaces Wild Animal or Domestic Animal [-30].

Availability: Radical procedure (major at TL10-12). Reduce difficulty of the procedure by one step (e.g., major to minor) if performed on an animal with a racial IQ 1-3. $5,000 × average racial IQ *before* the cybernetic uplift operation. LC3.

Total Cyborg Brain Transplants

A total cyborg is someone whose entire body has been replaced with artificial parts. Only his brain, parts of the spinal cord, and a few other nerves remain human.

Robot bodies large enough to house human brain cases have a total cyborg mentality lens. The most common are androids, but other types are possible. Robot templates with No Brain, Diffuse, or Homogenous are precluded, which is why there are no total cyborg versions of bush robots or nanomorphs.

In general, a TL9 machine can hold a human-sized cyborg brain case (brain and life support system) if it was designed to hold a computer at least as large as a microframe. It replaces the computer with one that is one size smaller. At TL10+, life support systems can be made compact. The robot body need only have been built for a personal computer to have room for a human-sized brain. Nonhuman brains may require a larger or smaller volume.

Total cyborgs may not have other cybernetics, with the exception of brain implants.

Statistics: The character takes on the robot body's racial template with the Cyborg lens; his brain is the same. See *Mind Transfer* (p. B296).

Availability: Radical operation (major at TL10-12). $40,000 for the brain case, plus the cost of robot body. The cyborg's body is functional after the operation.

Uploading

Memories are encoded within the physical structure of the brain. Uploading is the process of copying this into a digital form. Uploads can create a *mind emulation* – a computer program that emulates the workings of the original person's mind. A mind emulation is not just a recording, but a working model of the way a particular brain functions.

Destructive Uploading (TL10)

This technology involves the preservation and destructive analysis of the subject's brain so that chemically stored memories can be recorded as digital media. For example, the subject's brain may be placed into biostasis, then sliced by robotic surgeons into tiny segments, each of which is scanned at very high resolution.

This procedure is fatal and may be controversial: Is it suicide or transcendence? Individuals may choose destructive uploading to obtain a form of immortality, often out of a desire to live as a posthuman entity in a superhuman robot body. They may also have no choice; with destructive uploading, the dead can be revived and interrogated. (See *Uploading the Dead*, below).

Destructive uploading requires the patient (or his preserved brain). The surgery is performed using a TL10+ surgical facility, chrysalis machine, or automed. Make a Physician roll at -5, and an Electronics Operation (Medical) roll at -5.

Success means the data was gained. If either roll fails by 1, it means only enough data for a low-res copy (p. 220) was gained; if either roll fails by 2, it means only enough data for a very-low-res copy is gained. If either roll fails by 3+, or is a critical failure, the upload fails. Only one try is possible; success or failure destroys the brain.

Bush Robot (TL11): A bush robot (p. 86) can use its branching molecular arms and sensors to perform destructive uploading without any special equipment. It uses Surgery skill instead of Physician skill.

Non-Destructive Uploading (TL10)

This process uses advanced scanning systems to record the mind *without* destroying the brain. This makes it far easier to make copies which exist at the same time as the original person. It might use an advanced form of magnetic resonance imaging (HyMRI) or other non-invasive scanner. It may also require physical probes. These might be a development of the scanning, tunneling microscope (STM), or use sensors placed in the brain to assist in mapping it.

Since the original is not destroyed, it is practical for people to store "backup" copies of themselves. This is very useful if mind downloading (pp. 220-221) is possible, allowing the original mind to be replicated in a new body.

A typical upload-resolution scan takes an hour per attempt and a successful Electronics Operation (Medical) roll. Multiple tries are possible. The GM should roll secretly in case a critical failure occurs.

TL10 Imaging: This can only make low-res scans (p. 220). On a critical failure, the user has made a very-low-res scan without realizing it.

TL11 Imaging: This can make normal scans, or take low-res scans very quickly (in 10 minutes and at +2 to skill). On a critical failure, the user has made a scan of the next lower resolution without realizing it.

Uploading the Dead

As long as the brain is intact, it is possible to upload a dead person's mind and retrieve a mind emulation. Either invasive or noninvasive methods can be used. Uploading is impossible when the brain suffers total destruction (-10 × HP), exposure to 5,000+ rads, or death from a failed HT roll that resulted from damage to the skull or eye.

Deep structures containing long-term memories may survive for hours after death, but not indefinitely. Use the usual success rolls, but apply a -2 penalty for working with a corpse, as well as an additional -1 penalty per hour past death unless the brain is preserved or in nanostasis. Uploading a corpse preserved via freezing is at an extra -3 due to cell damage from freezing. Memories from the last 1d × 20 minutes before the person died will usually be lost in the uploading process. This means someone revived via uploading might have no memory of how he died.

Uploading via Backup Brain (TL11)

See *Backup Brain, p.* 218.

Mind Emulation (TL10)

A successful upload provides the necessary "braintape" of the subject. Bringing it to life requires coding that into a mind emulation – a model of the living brain.

Ghost Compiler (TL10): Required to allow someone with Computer Programming skill to create a ghost mind emulation (below). Complexity 10, normal cost. LC2.

Ghost-Editor Program (TL10): This allows someone to use Brainwashing skill on a mind emulation. Complexity 11, normal cost. LC1.

Where does a mind emulation go after it's been uploaded? There are several possibilities:

Low- and Very-Low-Res Copies

Sometimes an uploading or downloading procedure doesn't work out right – or shortcuts are taken. The result is a low- or very-low-res copy.

Low-Res: This is an imperfect copy. It can be deliberately made at +2 to skill and 50% of the normal time and cost, or it may be the result of an accident. A low-res mind-emulation (above) or mind download (below) will have only half as many points in skills. The subject may also suffer from Partial Amnesia [-10]. If so, the subject has a 50% chance of having the Flashbacks (Mild) [-5] disadvantage, representing partial memories.

Very-Low-Res: This is a badly degraded copy. If a mind emulation or download is made from it, the copy has -1 IQ [-20] and Total Amnesia [-25]. It has a personality, but only one-quarter its normal points in skills (round down). Advantages based on emotional sensitivity – e.g., Charisma, Empathy, Fashion Sense, Rapier Wit – are lost. The subject has a 50% chance of gaining Flashbacks (Mild) [-5] as above.

Backup Storage

A mind emulation can simply be stored, unconscious, as data; if non-destructive uploading is possible, old backups may be regularly deleted and replaced by newer updates. A mind emulation requires about 100 TB. The location and security of one's backups may be a paramount concern, with specialized facilities that are devoted to protecting them. Insurance agencies, organizations, or governments might maintain "memory vaults" that store backup copies of members or citizens. Backups could be awakened, interrogated, enslaved, or worse if they fell into the wrong hands, and entire adventures could revolve around recovering one.

Treat an accessible backup as the Extra Life (Copy) advantage.

Robot Bodies

A mind emulation can be run in a computer brain in a robot body. A person might want to return to a body that resembled his original form, a younger and healthier version, or a completely new shape.

Ghost Comps and Communities

A mind emulation might reside in a computer rather than a robot. Mind emulations may travel by copying themselves, or move through expansive virtual realities. Entire communities of emulations and AIs may exist on a computer network, or a single gigantic computer system.

Computers in Biological Shells

A computer brain running a mind emulation may be implanted in a biological body – perhaps even the original body, or a clone of it, depending on its condition after the emulation was created. Use the rules for living flesh androids (p. 28). The body may wear out, but the computer can always be removed or the data copied to a brain in a new body.

Multiple Bodies, Multiple Possibilities

It's possible to copy a mind emulation many times over. Mind emulations may take advantage of this by existing in many different forms at the same time!

Downloading Minds

Superscience may allow an uploaded mind to be imprinted on a living brain. See *Downloading Minds* (below).

Mind Emulation Templates

Any computer with sufficient Complexity (see below) can run a sapient mind emulation. A mind emulation differs from an AI in lacking the Automaton meta-trait and possessing other metatraits. This creates a sub-race (p. B454) version of the template.

Mind Emulation ("Ghost") Programs

A mind emulation's Complexity depends on the IQ of the being that was uploaded: Complexity 4 + (IQ/2), rounded up. Thus, someone with IQ 10 requires a Complexity 9 program. Lower Complexity by 1 for beings with the "Fixed IQ" taboo trait (as in the Domestic and Wild animal metatraits); e.g., a dog with IQ 5 requires only a Complexity 6 emulation.

A mind emulation has the advantage Digital Mind [5] and the taboo trait "Complexity-Limited IQ," and optionally one or more of the lenses under *Optional Intelligence Lenses* (p. 28). For a nonhuman, also apply the race's IQ, Perception, and Will modifiers, and all racial mental traits.

Downloading Minds

This is the transfer of an uploaded mind into a living brain. It may use nanomachine or replicator technology to replicate every neural connection in the original brain, rebuilding the new brain into a copy of the desired mind. It could also be a highly sophisticated form of regeneration ray (p. 202) technology.

Campaign Effects of Uploading

What does uploading mean for adventurers? In game terms, having a backup copy in storage means the character has the Extra Life advantage (p. B55). If he creates multiple living copies, the extras usually become NPCs. See *Multiple People* (p. B296) for the rules ramifications of backups or extra uploads.

Even the existence of backup copies can have profound effects on the campaign. First and foremost, adventurers can never be sure that someone is *permanently* dead. Digital recordings are easy to hide; cell samples used for downloading can be frozen. Even if the law says a foe is legally dead, and no longer has access to his money or property, he can return to haunt them as a ghost in the machine. As a result, assassins and kidnappers will attempt to destroy or steal digital copies of minds as well – maybe even first. This also applies to the PCs; some foes will attack their copies before going after them. And if a government sentences someone to death or prison, it will try to track down all his mind emulations, so his friends or followers don't revive him.

Another problem with mind emulations are that they diminish fear of death. As a result, it works best if legal or ethical constraints make it a "last resort" way to save characters. GMs may wish to discourage players with backups from casually committing suicide rather than facing tricky situations such as being imprisoned. One way is to point out that the people back home may not know their friend is dead, and may never revive him. Of course, instructions could be left to have a copy made after the PC is missing for several years, but enemies or accident might destroy the copy before the character could be revived, or the character may not be dead at all. A PC might return after being shipwrecked on a low-tech planet for five years, only to find that his instructions have been followed. He has been presumed dead and downloaded into a new copy – and his new self has spent all his fortune, remarried, or blackened his good name.

For ethical (and possibly technical) reasons, downloading is normally performed on a "blank mind" – for example, a clone that was developed in a coma, with no memories or personality of its own. However, downloading into another person's brain may also be possible.

Downloading requires an Electronics Operation (Medical) roll. Success means the mind emulation replaces the original's memories and personality (if it had any). Failure means that the transfer process fails and destroys the brain of the body that was going to receive the download. Critical failure, or any failure by 5 or more, means the transfer seems to work, but there's a hidden flaw. The subject may suffer Partial Amnesia or a Split Personality, or the wrong emulation may have been transferred!

The difficulty of downloading depends on how different the new body's brain structure is from the mind emulation's original body. This allows someone to become a person of a different sex, age, or species. Such downloads are useful for spies or students of alien cultures, or as punishment or torture ("work off your bad karma as a dog"). However, the GM is free to rule that two species are too dissimilar for a transformation to be possible.

If downloading to the brain of another person of the same species, roll at -1 to skill. For transfer to a different species, apply physiology modifiers (p. B181).

The effects of successful downloading are covered under *Mind Transfer* (p. B296). That is, the old racial template is replaced by that of the new body. The *Mind vs. Brain* (p. B296) rule should apply except in science-fantasy settings; downloading an emulated human mind into a cat's brain would result in a drop in IQ, for example.

A failed download will result in a low-res copy (p. 220). A critical failure results in a very-low-res copy. It may take some time to realize this, however; the GM should roll secretly.

Clinical Mind Transference Equipment (TL10^): The host body must be placed inside this coffin-sized unit. $500,000, 250 lbs., E/200 hr. LC3.

Portable Mind Transference Equipment (TL11^): This mind transference unit is suitcase-sized. It need only be attached to the host's head. $50,000, 25 lbs., D/20 hr. LC2.

Downloading Nanosurgery (TL12): The new host body's brain is restructured via surgical nanomachines, using the mind emulation data as a template. This requires a chrysalis machine plus $100,000 worth of nanobots. LC2.

Replicator-Based Downloading (TL12^)

A replicator (pp. 93-94) can materialize a brain or body for transplant purposes. Use the rules for replicators; the quality of the resulting download depends on the quality of the original scanning information used to make the template. The necessary template is a Complexity 10 program. LC2.

Personality Overlays

"Overdubbing" a conscious mind may either overwrite that mind (destroying it and creating the new person), or result in an unstable blend of both minds. If the latter, the effect is a Split Personality (p. B156) with -10 to -30 additional points of different mental disadvantages for each personality. Flashbacks, Manic-Depressive, On the Edge, and Paranoia are all appropriate.

Incarnation

If a mind emulation of a formerly biological entity can be downloaded into flesh, why not a digital mind? A former AI struggling to live as a biological entity could be a very interesting character!

Chapter Nine
Vehicles

It was a slow night. They still hadn't fixed Weather Satellite One, so the blizzard just kept on coming, most flights to the spaceport were grounded, and sensible people were staying indoors. But an old guy's got to work, and I'd flown my hack in worse. Long time ago, I flew all-weather combat vertols for the Army.

I'd just got a cup of ethanol from Tata Potata to keep me warm, and I was parked on Fifth and Lenin across from the bar, hoping for a late call. That's when I saw the hunchback in heavy coat run out of Spinnaker Joe's Garage carrying a big suitcase.

"Hey buddy – you need a cab?"

He stepped into the pool of light from the street lamp and that's when I saw he wasn't a human – it was a Yezendi. Blue skin, spines, the works. Probably a warrior caste, and here in Leonidas, that meant Syndicate. Bad news – like the red radiation warning symbols on the suitcase. Then the alien ripped open the coat, revealing a grav belt pack, and rose into the air in majestic silence, vanishing into the blizzard.

Freaking contragravity. Can't stand it. Since they started importing it, no one wants an air car. But I spoke too soon. About five seconds later, a dame came running out wearing the remains of a suit of ablative armor.

"Taxi!"

I was on my break, and she looked like trouble, so I flashed the "No Service" sign. She didn't take no for an answer. Without waiting, she grabbed the door and pulled. There was faint crack as the lock broke, and she slung herself inside. My air car sank on its suspension. She must have weighed a quarter ton.

"You're an android." Then, brilliantly, "I guess you're too heavy for a grav belt."

"Never ask a lady her weight, old man." She muttered something about antimatter, then scanned my instrument panel. "You got radar?"

"Yeah."

"Then follow that alien!"

Transportation is every bit as important as communicators or computers, and adventurers are constantly in need of new ways to get around. This chapter covers vehicles, matter transmission, and other transportation technology.

Planetary Travel

The problem of efficiently moving masses of people and cargo confronts every society, especially heavily populated and urbanized ones.

Slidewalks (TL9)

In large space habitats or the downtown core of crowded cities, roads and sidewalks might be replaced by the slidewalk, a passenger conveyor belt similar to a high-speed horizontal escalator. The slidewalk is made up two sets of belts running in opposite directions with a platform in between. Each set operates at five-mph intervals from 5 mph to 30 mph. The slowest belts are nearest the platform.

While walking is easy, running on a slidewalk is difficult. Add or subtract two mph for each point of Move to the slidewalk's speed to give the speed of travel. Make a DX+3 roll each turn to avoid falling. This roll is -1 per 10 mph if running in the direction that the slidewalk is moving, or at -3 per 10 mph if running in the opposite direction. Running on a slidewalk is ill-mannered, and may be illegal. GMs can impose reaction penalties or legal penalties depending on the culture.

Self-Driving Vehicles (TL9)

Many ultra-tech vehicles are fitted with an inertial guidance system, a global positioning system, anti-collision radar, and computer autopilots. Taxis may be totally automated – just insert a credit card and give the destination; $2 per person per mile is the usual fare. In densely-populated metropolitan areas, or in regions with high Control Ratings, manually-controlled vehicles may be illegal. All vehicles might be required to lock into an automated Municipal Traffic Control system. After a destination is indicated, the system takes control of the vehicle and guides it to the specified destination. This makes it hard to sneak around, and easy for the government to corral fugitives in vehicles.

Mag-Lev Trains (TL9)

Subway and commuter trains may use magnetic levitation (mag-lev) for propulsion, eliminating rail friction and allowing speeds of up to 300 mph. Mag-lev lines are most efficient when constructed in evacuated tunnels, removing all air resistance and enabling the trains to reach supersonic speeds. If intercontinental tunnels are built, 1,000-mph mag-lev trains replace aircraft and surface shipping. The capital investment for an evacuated mag-lev system is enormous; only very wealthy societies can afford one. Operating costs are comparatively low, however, so a railway with the capital investment paid off can have cheap fares. Government subsidies may help pay for the infrastructure.

Mag-lev is also cheap on worlds with no atmosphere. Under these circumstances, fares average $20 per person (or $100 per ton of cargo) per 1,000 miles.

Super Airships (TL9)

In atmosphere, cargo and passenger airships may be the most economical long-distance transport. Airships are cheap and reliable, though limited to worlds with dense or standard atmospheres and reasonably placid weather. Airships average 50 mph over long hauls, and streamlined vessels using airfoils and aerostats may fly faster than 100 mph. Fares are usually $10 per 100 miles, per person or per half ton of cargo. Airships need only minimal facilities, and can get by with no more than a mast to tie up to, so they are an attractive option for undeveloped planets.

Ballistic Liners (TL9)

Hypersonic suborbital space planes can carry 100 or more passengers to anywhere on an Earth-sized planet in less than three hours. The cost is $500 to $1,000 per person or ton of cargo. Suborbital vehicles require extensive take-off and landing facilities, and are unlikely to make stops at small towns, frontier outposts, or lonely archaeological sites.

Transcontinental Tunnels (TL9)

Robots and advanced boring machines can dig tunnels between continents for about $10 million per mile. (In contrast, the Channel Tunnel between France and the United Kingdom is 31 miles long and cost about $20 billion.) These are generally used for supersonic mag-lev rail lines.

Fusion-Powered Watercraft (TL10)

Surface ships are one of the most economical ways to move massive cargoes over intercontinental distances. Vehicle-sized fusion reactors are likely to be used in both spacecraft and ocean-going vessels.

Contragravity (TL10^)

Contragravity generators transform electrical energy into lift and in some cases, into thrust as well. This field can push against or neutralize gravity.

The primary application is flight. Contragrav revolutionizes planetary transportation. Silent and graceful flying cars can land and park on anyone's rooftop, or fly through doors into top-floor garages. On worlds with open societies, people become even more cosmopolitan due to ease of travel. People may still cluster, or they may spread out: a neighbor could be someone living within a few hundred miles.

With the sky full of commuters (and even floating buildings or cities), traffic control may be a challenge. Densely populated worlds require all privately-owned flyers to be monitored by a planetary traffic-control system; if a collision seems imminent, the traffic computer yanks control away from both pilots. Disabling the traffic-cop circuits requires an Electronics Operation (Security)-2 roll and takes 10 seconds; failure locks the vehicle down and alerts the authorities.

Wearable contragravity devices such as the grav belt are the ultimate personal transportation. Grav belts are light enough to wear at all times, whether shopping in the mall or exploring an alien world. They may revolutionize society as much as the automobile did. Authoritarian governments and parents may hate them because of the mobility they give individuals. Explorers, light infantry, and joyriding teenagers will love them. Why walk when you can fly?

Contragravity gets adventurers into action, and can also be dramatic and atmospheric. On the down side, if flying is easy, there isn't much point in sailing, driving, or walking. It's hard to get excited about a "man against nature" adventure where the heroes must cross a thousand miles of mountainous, monster-infested jungle when they can just strap on their grav belts and flit over it.

Lift Tubes (TL11^)

Buildings may incorporate lift tubes (also called "g-tubes") – high-speed tractor beams (p. 88) used as vertical or horizontal "people movers." They may be mostly for cargo, but could also be used in luxurious hotels, starliners, military bases, amusement parks, etc. They are intimidating, but very safe – far more people fall off slidewalks and break their necks then are killed in lift-tube failures.

Space Travel

Space travel is covered in detail in other ***GURPS*** books. The key issue is whether superscience technologies exist or not. Without superscience, space flight is usually expensive

and slow; interplanetary travel takes months, and interstellar flight takes decades, centuries, or millennia. With superscience – specifically reactionless or faster-than-light drives – interstellar travel may take only a few days, and interplanetary travel may be a matter of hours.

The first step into space – getting into orbit – is often the most difficult, especially from a world like Earth. A variety of technologies for getting into space are possible, including space shuttles, contragravity (p. 223), and space elevators.

Space Elevator (TL9)

A space elevator, or beanstalk, is a super-strong cable running from the equator on a planetary surface into geostationary orbit (about 21,700 miles up for Earth). The beanstalk is built using carbon nanotube cables, thickest at the base, narrower at the top. A counterweight – either an extension of the cable (useful for snagging and hurling spacecraft) or an asteroid or space station – is attached to the other end. Elevator cars run up and down the cable, taking anywhere from a day to a week to reach the top. After the construction cost has been paid, it might cost as little as $3/lb. to reach orbit.

Beanstalks may range from satellite-sized systems with hair-thin cables to giant mega-structures with bus-sized elevator cars for passengers and cargo. The cost of construction is $40 billion per ton/day of cargo capacity (assume that passengers require about a ton each due to safety and life support requirements). Multiply cost by the square of local gravity, e.g., a lunar beanstalk (1/6 G) is 1/36 as expensive. The cost of construction may increase if space junk, satellites, or low-orbiting moons must be cleared away first! LC2.

Riding a beanstalk elevator to or from orbit costs $500 and takes from six hours to a week, depending on elevator speed. The best elevator cabins resemble those of trains, with food service, entertainment, and a spectacular view.

VEHICLES

Descriptions and statistics for several vehicles are provided below, from flying belts to grav tanks. For a key to vehicle statistics, see pp. B462-463.

All of these vehicles have a minimum of equipment, and can be customized using the gear described elsewhere in this book. Every 20 lbs. of equipment added subtracts 0.01 tons from the vehicle's Load.

Vehicle Systems

These systems are often found in ultra-tech vehicles.

Crashweb: An "smart" airbag that provides ablative DR equal to TL for seated vehicle occupants involved in a crash or collision. An activated crashweb will prevent the user from doing anything until he gets free (DX-2 roll to do so each turn).

If a collision is expected and the occupant is not worried about surviving it, he can turn off the crashweb. This feature is common in military designs or libertarian societies, but civilian passenger vehicles sold in CR3+ societies may require the crashweb to be operational. To disable a crashweb in such a civilian vehicle, make an Electronics Repair (Security) roll; each attempt takes one minute.

Full Life Support: A vehicle with full life support is completely sealed (p. 171). It recycles air and water supply for its occupants as long as it has power. It can function normally in vacuum or other hostile environments. Its climate control system provides a comfort zone extending from absolute zero to 500° F. Some vehicles can moderate even higher temperatures.

Limited Life Support: This functions like full life support as long as it has power, but does not recycle air or water; it only has enough for a limited duration, specified in man-days. Six man-days of support can provide air and water for one adult for six days, two for three days, and so on. The vehicle can replenish this supply if it has a source of breathable air or drinkable water.

NBC (Nuclear-Biological-Chemical) Kit: This is an environmental control system equipped with sensors to detect contaminants, filters, and an overpressure system (the interior is kept at a higher pressure than outside) to keep impure air out. Much like a filter mask (p. 177), it defends against nuclear fallout, germs, and chemicals such as pollution or poison gas. Only people entirely inside the vehicle may benefit from an NBC kit.

ATVs

These ground vehicles are designed for off-road travel in trackless wilderness. Ultra-tech ATVs aren't just designed for Earth – they're built for hostile environments on alien worlds as well.

Wheeled ATV (TL9)

This is an eight-wheeled all-terrain vehicle used by survey teams and prospectors. The wheels have oversized self-inflating tires and independent electric motors. The vehicle is powered by a pair of F cells, giving it a range of 500 miles. Its tough composite hull can survive up to 30 atmospheres of pressure. It has full life support (p. 224) and radiation PF 2.

Standard equipment includes headlights, a one-man airlock, an inertial navigation system (p. 74), a large radio (p. 44), a personal computer (p. 22), and three workstation terminals (p. 24). An auxiliary solar panel can operate all onboard systems except the motors indefinitely, allowing the vehicle to be used as a base camp.

Use Driving (Heavy Wheeled) skill to operate it. It has a watertight hull and auxiliary hydrojet propulsion system, and can swim at Move 1/4.

Exo-Spider (TL10)

This is a car-sized eight-legged vehicle designed for the roughest terrain, such as icy mountains or craters. It is powered by a closed-cycle turbine engine with a range of 360 miles. Its hull can withstand 30 atmospheres of pressure, and it has limited life support (10 man-days) and radiation PF 10.

It has the same equipment as the wheeled ATV (above), except that it is equipped with a holographic crew station (p. 24). Use Driving (Mecha) skill to operate it.

Personal Vehicles

These are standard commuter vehicles. They could be family cars or police cruisers.

Smart Car (TL9)

This is an electric car with a motor in each wheel, a light alloy and composite body, and a fuel cell power plant. It runs for six hours with a cruising range of 400 miles.

It is equipped with a computerized crew station (p. 24), an inertial compass (p. 74), an infrared surveillance camera (p. 61), a rugged personal computer (p. 22), small ladar (p. 64), a small cellular radio (p. 50), and an entertainment console (p. 51). Each occupant has a crashweb (p. 224). The car has a biometric lock (p. 104) on its doors, and the vehicle is also equipped with headlights and tail lights.

The driver uses Driving (Automobile) skill to operate it, although the vehicle is often driven under computer control.

Dynamic Car (TL10)

This four-wheeled electric vehicle is powered by superconductor cells. It can operate for 12 hours with a cruising range of 1,000 miles. The vehicle's reconfigurable smart skin subtly adjusts the shapes of the body and the wheels for optimum aerodynamics and ground traction.

The car has the same systems as the smartcar described above, but its body has programmable camouflage (p. 99) allowing it to change color and pattern on command. The interior features self-adjusting memswear (p. 39) seats. If empty, it can fold into a SM+2 box for ease of parking. A $100, LC3 hack lets it do this on command, doing thrusting crushing damage to occupants based on its ST.

Flying Cars

Ultra-tech advances in composites, flight-control software, and miniaturized power plants make the old dream of flying automobiles possible.

All flying cars have these standard systems: computerized controls, headlights, an inertial compass (p. 74), a personal computer (p. 22), and a small multi-mode radar (p. 65). Other details depend on the model, as described below.

Air Car (TL9)

This is a streamlined automobile with a bubble canopy. It flies using thrust from four pod-mounted ducted fans, but it also has an ordinary wheeled suspension and electric drivetrain that lets it operate like an ordinary car. It can hover in mid-air, or take off and land vertically, or fly as fast as a light airplane with a range of 900 miles. The quoted performance statistics are for ducted-fan flight; as a ground vehicle, the air car has Handling/SR +1/3 and Move 3/45* on the ground, with an 1,800 mile range.

The vehicle has two doors and four seats. It is operated with Piloting (Vertol) and Electronics Operation (Sensors); Navigation (Air) is also useful!

It can fly with only two engines, but if a total systems failure occurs or it runs out of fuel while airborne, it deploys a landing parachute that will usually bring it down safely (assume Parachuting-11). All occupants are also provided with crashwebs (p. 224).

Ground Vehicle Table

TL	*Vehicle*	*ST/HP*	*Hnd/SR*	*HT*	*Move*	*LWt.*	*Load*	*SM*	*Occ.*	*DR*	*Cost*	*Locations*
9	Smart Car	46	+1/5	12	3/60*	1.4	0.6	+3	1+4	5	$20,000	G4W
9	Wheeled ATV	100	-1/4	12	2/40	10	2	+5	1+9PVS	40	$200,000	g8W
10	Dynamic Car	40	+2/5	12	6/75*	1.1	0.6	+3	1+4	10	$30,000	G4W
10	Exo-Spider	80	+2/2	13	8/16	5	1	+4	1+4PVS	70	$200,000	g6L

Grav Jeep (TL10^)

This is an open-topped contragravity vehicle that resembles a streamlined automobile with no wheels. It has a personal computer (p. 22) and a small intertial compass (p. 74). A pair of F cells give it a 2,000-mile range. The pilot uses Piloting (Contragravity) skill.

Supersonic Air Car (TL11)

This is a streamlined high-performance air car. It has a sealed cabin and 48 hours of limited life support. It's capable of Mach 2 thanks to its miniature nuclear-powered air-ram engine, which provides unlimited range (and requires refueling every five years). The supersonic air car has a pair of gull-wing doors with two front seats and two rear seats. Its electronics include holographic controls (p. 24), an inertial compass (p. 74), and medium multi-mode radar (p. 65). Use Piloting (Vertol) skill to fly it.

Grav Speeder (TL12^)

This is a saucer-shaped contragravity craft capable of outstanding agility and hypersonic speed. It is powered by an antimatter reactor with a five-year power supply. Its inertial dampers neutralize all acceleration forces experienced by those inside, which is essential as it can make "impossible" 100G maneuvers. It has a modular equipment bay for up to 200 lbs. of additional accessories. It requires Piloting (Contragravity) to operate; Electronics Operation (Sensors) is also helpful.

Flying Cars Table

TL	*Vehicle*	*ST/HP*	*Hnd/SR*	*HT*	*Move*	*LWt.*	*Load*	*SM*	*Occ.*	*DR*	*Cost*	*Loc.*	*Stall*
9	Air Car	45	+2/3	11f	4/190	1.2	0.4	+3	1+3P	4	$500,000	G4Wr	0
10^	Grav Jeep	50	+3/3	12	10/100	2	1	+4	1+5	4	$400,000	O	0
11	Supersonic Air Car	50	+4/4	11	10/600	2	0.8	+3	1+4P	12	$500,000	g	0
12^	Grav Speeder	50	+10/5	13	50/1,500	1.6	0.6	+4	1+3P	100	$2,000,000	g	0

TANKS

In the future, tanks may be obsolete . . . or may still be a battle-winning combination of protection, mobility, and firepower. Ultra-tech tanks improve all these areas, but their greatest advantage is better situational awareness, thanks to virtual-reality sensors and their own miniature air forces of drones or swarms. Even so, friendly infantry are still vital to avoid ambush in cities or rough terrain! Adventurers may see tanks as dragons that require cunning and courage to slay, or the cavalry that charges to the rescue.

The tanks described below are all designed to be easily transported by aircraft or spacecraft. Larger ones are possible!

Light Battle Tank (TL9)

This tank has a tough composite-laminate hull that is reinforced by electromagnetic armor (p. 187), but it relies on stealth and sensors to get the first shot. It runs quietly on rubber-band tracks, powered by a hybrid diesel-electric engine. The crew (a driver and commander-gunner) are stationed in the hull, protected by a NBC kit (p. 224).

Its unmanned turret is armed with a 100mm tank cannon (p. 136) with the electrothermal upgrade (p. 139) and a coaxial 15mm chaingun (p. 136). Atop the turret is a smaller turret with a strike laser (p. 115) for air defense and missile interception. The rear hull houses 10 tactical missile launchers (p. 145) in fixed upward-facing mounts.

Electronics include two holographic crew stations (p. 24), a hyperspectral imaging sensor (p. 61), a medium laser comm (p. 44), a medium radio (p. 44), a tactical ESM (p. 62), and a tactical sound detector (p. 62).

It is operated by a driver who uses Driving (Tracked) and Electronics Operation (Sensors) and a commander/gunner with Artillery (Guided Missiles), Gunner (Beams, Cannon, Machine Gun), and Electronics Operation (Comm, ECM, Sensors).

Hovertank (TL10^)

This tank rides on a cushion of air, using auxiliary jump jets to cross rough terrain. The hull is sealed with full life support (p. 224). The main turret has a 40mm railgun (p. 141) or a plasma cannon (p. 127) in a stabilized mount. The vehicle also has a small turret with a strike laser (p. 115) in a stabilized mount for point defense. Electronics include two holographic crew stations (p. 24), hyperspectral imaging sensors (p. 61), a medium laser comm (p. 44), a medium radio (p. 44), and a tactical sound detector (p. 62). The vehicle is protected by infrared cloaking (p. 99), a multispectral chameleon surface (p. 99), radar stealth (p. 100), and a tactical ESM (p. 62).

Crew and skill requirements are the same as the light tank with the exception that Driving (Hovercraft) is used. LC1.

Grav Tanks (TL10^)

Grav tanks combine the agility of an attack helicopter with the armor and firepower of the main battle tank. The grav tank has the same capabilities as the hovertank, but is capable of transonic flight using contragravity. Use Piloting (Contragravity) instead of Driving skill.

Tanks Table

TL	Vehicle	ST/HP	Hnd/SR	HT	Move	LWt.	Load	SM	Occ.	DR	Cost	Locations
9	Light Battle Tank	150	-2/5	11	2/25	30	1	+5	2S	500/200	$2,000,000	2CTt
10	Hovertank	150	-3/4	11	2/50	30	1	+5	2S	700/300	$3,000,000	Tt
10^	Grav Tank	150	+1/5	11	10/500	30	1S	+5	2SV	700/300	$3,500,000	Tt

Hovercraft

These ground-effect vehicles ride on a cushion of air. Hovercraft are less maneuverable than conventional ground vehicles, but can travel on land and water.

Armored Hovercraft (TL9)

This armored vehicle is designed to transport a squad of soldiers and provide them with fire support. It is also very effective as a coastal patrol (or smuggling!) craft. It uses a gas turbine or fuel cell power plant, and has a range of 800 miles.

Its crew compartment holds two, and is accessed through a top hatch. A powered rear ramp leads into a compartment that can carry up to eight passengers and cargo. Electronics include two holographic crew stations (p. 24), hyperspectral sensors (p. 61), an inertial navigation system (p. 74), a medium laser comm (p. 44), a medium radio (p. 44), a personal computer (p. 22) with the hardened option, tactical AESA (10 mile range) (p. 65), and a tactical ESM (p. 62). Defenses include infrared cloaking (p. 99) and radar stealth (p. 100).

It has a small stabilized turret atop the hull. Its primary sensors are in a telescoping mast-mounted periscope (the X location) that extends up to 15 feet for over-the-horizon reconnaissance. It is protected by composite armor.

It has a small independent turret that is a stabilized mount; it can be fitted with up to 400 lbs. of weapon systems appropriate to its TL. At TL9, a typical weapon mix would be a 25mm autocannon (p. 136), an MLAWS (p. 145), and two 40mm mortar boxes (p. 136). Appropriate skills are Artillery (Guided Missile), Driving (Hovercraft), Electronics Operation (Sensors), and Gunner (Machine Gun).

Hover Jeep (TL9)

This open-topped light hovercraft is suitable for both civilian and military uses. It is powered by a single F cell for six hours, giving it a range of 240 miles. It has two front and four rear seats. The pilot uses Driving (Hovercraft) skill. Its equipment is fairly austere: headlights, a computerized crew station (p. 24), a HUD (p. 24), an inertial compass (p. 74), a medium radio (p. 44), and a personal computer (p. 22).

Hovercraft Table

TL	Vehicle	ST/HP	Hnd/SR	HT	Move	LWt.	Load	SM	Occ.	DR	Cost	Locations	Notes
9	Armored Hovercraft	130	-2/4	11f	5/50	20	2	+5	2+8S	150/70	$500,000	tX	
9	Hover Jeep	50	-1/3	12	3/40	2	1	+4	2+3	10	$40,000	OX	

Minisubs

These are vehicles designed for underwater research, salvage, and special operations. All three subs described below share certain characteristics.

Each has a bridge with a pair of holographic crew stations (p. 24) plus a variable number of passenger seats, and a one-man airlock.

Other equipment includes a medium hydrophone (p. 63), a medium sonar (p. 65), microframe computer (p. 22), a periscope (15') with a medium radio (p. 44) and thermal imaging sensors (pp. 60-61), and a medium sonar comm (p. 44). A sound baffling system gives a -3 penalty on rolls to detect the submarines with hydrophones, but only when they are moving at speeds below 50 mph.

A stabilized turret is standard for all the minisubs described below. Civilian versions equip the turret with a searchlight (p. 74) and heavy laser torch (p. 80); military or paramilitary models often carry a blue-green strike laser (p. 115).

Deep-Sea Minisub (TL9)

This is a 30-foot-long submarine that can dive into the deepest parts of the ocean or explore the seas of alien worlds. It is saucer-shaped, with a spherical pressure hull surrounded by an unpressurized engineering section that houses twin hydrojet propellers. It uses a nuclear power plant which gives it unlimited range, and it can safely operate at a depth of up to 10 miles. Another feature is a pair of ST 30 robot manipulator arms that an operator can control with his own DX and skills, using either virtual reality gloves or a neural interface.

Supercav Minisub (TL9)

This is a short-range sub designed for underwater courier, attack, or patrol duties. The vessel has a streamlined wedge-shaped body, and is propelled by vortex-combustor ramjet engines that combine aluminum dust with water (this serves as both oxidizer and reaction mass). It uses a gas generator to create a supercavitating bubble around the vehicle, reducing its drag and permitting very high underwater speeds. The supercav minisub can dive to a depth of 900 feet and has a range of 200 miles.

Nuclear Minisub (TL10)

This is a fusion-powered multi-purpose minisub. Its features are identical to the deep-sea minisub except that it has ST 45 arms, full life support (limited only by the food that is carried aboard) and unlimited cruising range. The reactor is good for 200 years.

Diver Propulsion Systems

These gadgets let single divers travel long distances underwater. Naval black ops teams find them particularly useful, and in underwater colonies, everyone might use them.

Aquasled (TL9)

This one-man underwater propulsion system resembles a small sled equipped with a hydrojet propulsion system. The diver grips the control handles on the sled and is pulled forward. It has a headlight and depth gauge; it may carry up to 10 pounds of other gadgets, such as weapons or sonar. It runs for eight hours on a D cell and weighs 60 lbs. LC4.

Underwater Jet Pack (TL10)

This is a backpack underwater propulsion system using a vortex-combustor ramjet. It has a range of 10 miles and weighs 40 lbs. It takes three seconds to strap on or remove. An extra fuel cylinder is $40 and 20 lbs. LC4.

Minisub and Diver Propulsion System Table

TL	*Vehicle*	*ST/HP*	*Hnd/SR*	*HT*	*Move*	*LWt.*	*Load*	*SM*	*Occ.*	*DR*	*Cost*	*Loc.*	*Draft*
9	Aquasled	15	0/2	12	2/15	0.13	0.1	-1	1	5	$2,000	E	2
9	Deep-Sea Minisub	150	0/3	12	1/6	28	1	+6	6PS	100	$25,000,000	2Argst	10
9	Supercav Minisub	135	+1/3	11	8/150	20	0.5	+5	2PS	30	$30,000,000	gst	6
10	Nuclear Minisub	150	0/3	12	2/18	28	1	+6	6PS	150	$50,000,000	2Argst	10
10	Underwater Jet Pack	11	0/1	12	6/12	0.11	0.1	-3	1	5	$600	E	2

Tilt-Rotor Transport

Tilt-rotor airplanes have two oversized propellers that can swivel between a vertical position (to fly like a helicopter) and horizontal position (for efficient, high-speed airplane flight). They are especially useful for military special ops, but may also be popular commuter and cargo aircraft.

The tilt rotor has two computerized crew stations (p. 24) for the pilot and co-pilot, with a cabin and cargo area to the rear. Access is provided by two side doors and a rear cargo door under the tail. The aircraft is sealed with limited life support (60 man-hours). Other onboard systems include an inertial navigation system (p. 74), a personal computer (p. 22), a medium multi-mode radar (p. 65), and a medium radio (p. 44).

A tilt-rotor pilot uses Piloting (Light Airplane) when in fixed-wing flight (required for speeds over 150 mph) and Piloting (Helicopter) when in a helicopter mode. Electronics Operation (Comm, Sensors) and Navigation (Air) skills are useful. A co-pilot is not required, but can share the workload.

Tactical Tilt-Rotor (TL9)

This is an armored special ops version of the tilt rotor. It has the same capabilities as the tilt-rotor transport plus infrared cloaking (p. 99), radar stealth (p. 100), and a large radar (p. 65). A small independent turret is under the nose. The pilot or co-pilot will usually have Gunner (Beams or Machine Gun) skill.

Utility Vertol

These are wingless direct-lift transport vehicles, similar to the air car (p. 225) but larger. They perform the same roles as helicopters do at TL7-8, but their lack of wings or rotors lets them maneuver in built-up areas. Typical missions include aerial assault, flying ambulance, logistics support, and VIP transport.

Utility Vertol (TL9)

This is a streamlined vehicle like a wingless cargo jet, with a tail assembly, four pods containing vectored-thrust ducted fan engines, and a retractable skid undercarriage. It is lightly armored, but its redundant systems enable it to fly despite systems failures or combat damage.

It has a front cockpit with two crew seats for a pilot and a co-pilot; behind that is a small cabin with eight passenger seats and a cargo bay. There are doors on either side of the fuselage, and two under the tail. All seats are provided with crashwebs (p. 224). Electronics include a pair of computerized crew stations (p. 24), an inertial navigation system (p. 74), a medium multi-mode radar (p. 65), a medium radio (p. 44), two personal computers (p. 22), and a large radar (p. 65). Military models add additional stealth systems – see the Defenses chapter for various options. It has a sealed hull with an NBC kit (p. 224).

The pilot uses Piloting (Vertol) skill. Other useful skills are Electronics Operation (Communications and Sensors) and Navigation (Air). A co-pilot is common, and will have the same skills.

Nuclear-Powered Vertol (TL11)

This has the same capabilities as the utility vertol, but is equipped with a nuclear air ram giving unlimited range (for five years). Instead of ducted fans, it sucks in air, heats it, and expels it for thrust. It can operate in any atmosphere of greater than trace density. In addition to the air ram, the vehicle is equipped with an underbelly ducted fan used for "cool" takeoffs and landings that do not rattle buildings or scorch the tarmac.

Tilt-Rotor and Vertol Table

TL	*Vehicle*	*ST/HP*	*Hnd/SR*	*HT*	*Move*	*LWt.*	*Load*	*SM*	*Occ.*	*DR*	*Cost*	*Loc.*	*Stall*
9	Tactical Tilt-Rotor	130	-1/4	12f	4/200	20	3	+6	2+18	30	$40,000,000	gt3WrWi	0
9	Tilt-Rotor Transport	130	-1/4	11f	4/200	20	4	+6	2+28	6	$20,000,000	G3WrWi	0
9	Utility Vertol	90	+3/3	11fx	4/200	10	2	+5	2+8S	30	$12,000,000	g3Rr	0
11	Nuclear-powered Vertol	100	+3/4	11	10/350	12	4	+5	2+12PSV	90	$24,000,000	g3Rr	0

Grav Bikes and Platforms

These are small vehicles that use superscience contragravity (CG) generators for lift and propulsion. Grav vehicles are quiet, unless they are hybrid machines that use contragravity only to cancel lift and some other propulsion system for thrust.

Contragravity Platform (TL10^)

The most basic contragravity vehicle, this is an open flying disk with a control pedestal. One or two people can stand on it. It's a versatile, simple, and slow. It uses a D cell for power with a range of 50 miles. LC4.

Grav Bike (TL10^)

This flying motorcycle is similar to a grav speeder, but smaller and more agile. It has two saddle seats and an aerodynamic windshield. Its electronics include a built-in small computer (p. 22), a portable terminal (p. 24), and a windscreen HUD (p. 24). Use Piloting (Contragravity) skill. Its three E cells give it a range of 1,000 miles.

Hoverbikes and Hover Platforms (TL10^)

These are identical to the grav bike and contragravity platform, but they use repulsorlift systems based on pressor beam technology. They can only rise two yards off the ground, but they require significantly less power than an equivalent contragravity vehicle. No statistics are listed for them; use the values for a grav bike or hover bike, but double the range.

MICROPLANES

These are portable aircraft that can be stored in kit form and assembled with a few tools.

Dragonfly Microlight (TL9)

This small propeller airplane is often used as a recreational aircraft or carried by explorers, but it is also useful for covert insertions. The wings and body are constructed of transparent, high-strength polymers over foamed metal structural membranes. The Dragonfly can be broken down for transport into two backpack modules, each weighing a mere 35 lbs. Assembly or disassembly takes a single person only nine minutes; a Mechanic+2 roll and a tool kit are required.

It carries one person in an open saddle. It lands and takes off on skids; it has a range of 100 miles, or more if it can glide with a good tail wind. Its construction provides it with radar stealth (p. 100).

Backpack Dragonfly (TL10)

This advanced version of the Dragonfly folds into a single 35-lb. backpack. No assembly is required. It takes three seconds for the aircraft to unfold or contract.

Nightwing Microjet (TL11)

The Nightwing is a technological marvel: a supersonic combat jet that can fit in the back of a cargo van. In unassembled form it consists of four 200-lb. modules. Thanks to smart connections, these systems can be linked together in 20 minutes, forming a small but highly capable multi-mission jump jet.

The assembled Nightwing is a diamond-shaped flying wing, 12 feet long and 15 feet wide, with a blended pilot canopy, variable-geometry swing wings, and vectored-thrust turbojet engines. Its responsive "skin" is a semi-transparent electrically-active bioplastic membrane, giving it an ethereal appearance and a very low radar signature. It has a range of 1,200 miles.

Its equipment includes a holographic crew station (p. 24), an inertial navigation system (p. 74), a ladar smartskin (p. 64) with a 10-mile range, a medium laser comm (p. 44), a medium radio (p. 44), a personal computer (p. 22), and a tactical ESM (p. 62). The aircraft is sealed with limited life support (12 man-hours) (p. 224).

The Nightwing has two payload bays, each configurable to accept one 100-lb. gadget. Typical modules include a large tactical ladar (p. 64), a cargo container (100 lbs.), an extra fuel tank ($400, adds two hours to range), or a strike module with a stabilized mount for any weapon weighing up to 70 lbs. Modules must be changed on the ground; each attempt requires a tool kit, a Mechanic+3 roll, and one minute.

Grav Bike and Microplane Table

TL	*Vehicle*	*ST/HP*	*Hnd/SR*	*HT*	*Move*	*Lwt.*	*Load*	*SM*	*Occ*	*DR*	*Cost*	*Loc.*	*Stall*
9	Dragonfly	16	+2/5	12	5/35	0.14	0.11	+2	1	2	$4,000	E2R2Wi	15
10	Backpack Dragonfly	16	+2/5	12	5/35	0.13	0.11	+2	1	2	$6,000	E2R2Wi	15
10^	Contragravity Platform	10	0/1	12	5/15	0.21	0.1	-2	1+1	3	$10,000	E	0
10^	Grav Bike	30	+4/2	11	20/80	0.4	0.2	0	1+1	3	$25,000	E	0
11	Nightwing	36	+6/4	12	10/600	0.5	0.15	+3	1+1P	30	$540,000	gr3WrWi	0

FLIGHT PACKS

These are strap-on aerial propulsion systems. Most flight packs are controlled by a panel built into an arm curving in front of the user; computer autopiloting is standard, so only one hand is required to operate them. Instrument readouts are usually projected into a helmet HUD, but the pack can connect to a neural interface for hands-free operation.

It takes four seconds to strap on a flight pack, two seconds to remove it. All of these "vehicles" require Piloting (Flight Pack) skill to operate.

Helipack (TL9)

This is a pair of three-foot wide ducted fans attached to a backpack harness and control unit. It's useful for emergency rescue work, and thanks to the relatively quiet power plant, has some military applications. It won't operate in a trace or vacuum atmosphere. It requires two yards of clearance to either side of the wearer – he can't fly through narrow passages or doors. The helipack weighs 200 lbs. and uses an E cell for power. It has a range of 200 miles. LC3.

Contragravity Belt (TL10^)

The "grav belt" is a personal contragravity harness – a belt and a small backpack – that lets the wearer fly at up to 80 mph. The belt is designed to support one wearer, although he may carry someone else in his arms if Load permits. 20 lbs., 2D/4 hrs. LC3.

Nuclear Jetpack (TL11)

This fusion-powered jetpack is intended for use by battlesuits. It sucks in air, heats it with a reactor, and expels it as a hot plasma jet for thrust. The plasma wash does 2d burning damage with the radiation damage modifier to anyone directly below and behind within two yards. The user is a beacon on infrared: while the jetpack is in use, stealth systems and countermeasures have no effect, and he is +3 to be spotted.

Gravity Cloak (TL12^)

A successor to the grav belt, this is a much lighter system. It might take the form of a flexible cloak made out of solid-state gravitic circuitry. Fastened around the neck and at each wrist, it generates a contragravity field, enabling the user to fly in the same manner as with a grav belt. It may be controlled through arm movements (at -2 to skill) or through a neural interface built into the cloak fastening (which also contains a C cell). It takes two seconds to put on, one to remove. 5 lbs., C/1 hr. LC3.

Zero-G Thrusters

These are microgravity flight rigs used for short-range travel outside of spacecraft or space stations. They use cold-gas thrusters to provide maneuverability, and can be easily donned, doffed, and serviced by a single individual. Use Free Fall skill to operate them.

Hand Thruster (TL9)

A hand thruster propels the user with bursts of compressed gas. Each burst accelerates or decelerates a normal-mass human by one yard per second in the direction opposite to that in which the thruster is pointed. A successful roll against Free Fall or Vacc Suit skill is necessary to point the thruster in the desired direction. The unit's cylinder is good for 30 one-second bursts. A hand thruster weighs four pounds, including the cylinder; extra cylinders cost $10, weigh one pound and take three seconds to replace.

Thruster Pack (TL9)

A strap-on unit for short jaunts in free fall. It consists of a thruster pack, a pair of arms with reverse thrusters, and a control arm that curves in front of the user. Maneuver jets are located at strategic points along the entire pack; a built-in autopilot assists the wearer. It takes 10 seconds and a Vacc Suit roll (which can be tried again every five seconds if missed) to strap into the thruster pack. The large cylinder allows 100 seconds of full acceleration. Successful Free Fall rolls allow the user to control his speed and direction. It weighs 40 pounds, including one cylinder. Extra cylinders cost $30, weigh 10 lbs. and take five seconds to replace.

Flight Pack and Thruster Pack Table

TL	*Vehicle*	*ST/HP*	*Hnd/SR*	*HT*	*Move (G)*	*Lwt.*	*Load*	*SM*	*Occ*	*DR*	*Cost*	*Locations*	*Stall Speed*
9	Hand Thruster	6	+1/1	12	1/30 (0.1G)	0.1	0.1	-5	1	5	$50	–	–
9	Helipack	17	+2/2	12	3/30	0.34	0.3	-2	1	10	$20,000	E	0
9	Thruster Pack	14	+3/1	12	3/300 (0.3G)	0.12	0.1	-2	1	10	$2,000	E	–
10^	Contragravity Belt	10	+2/1	12	10/40	0.16	0.15	-3	1	3	$12,000	E	0
11	Nuclear Jetpack	18	+2/1	11	5/30	0.35	0.3	-2	1	20	50,000	E	0
12^	Grav Cloak	7	+2/1	12	10/40	0.15	0.15	-3	1	3	$6,000	E	0

Drop Capsules

These are designed to let their occupants enter atmosphere safely. They have small rocket engine clusters that provide limited maneuverability, but careful landing is a manner of good navigation. De-orbiting takes two or three rotations around a planet with an Earthlike atmosphere (more for a planet with a thinner atmosphere, such as Mars). During this time, radio, radar, and all passive sensors will be blinded due to plasma effects.

Life pods and drop capsules incorporate a computer with Navigation (Space)-12, or the user can override this and program his own landing. Critical success means the user lands within a mile of where he intended. Success means he's within 5d × 100 miles, less 200 miles times his margin of success (e.g., success by 5 reduces the radius by 1,000 miles), minimum one mile. Failure means he could be anywhere on the planet. Critical failure means a disaster of some sort: landing in rough terrain, getting stuck in orbit without fuel to deorbit, or optionally, a too-steep reentry that results in the capsule burning up (a fate best left to NPCs).

Life Pod (TL9)

This is a four-person escape capsule designed to let people evacuate a spacecraft or space station in the event of disaster.

If launched from a vessel in deep space, a life pod is designed to maneuver a safe distance away from a damaged vessel and broadcast a distress signal.

If launched from a vessel in planetary orbit, the pod provides its occupants the option to land; if they are not responsive, it will do so if its library data indicates it is safe to do so (e.g., it won't try to land on a gas giant!). Reentry is handled by an autopilot. After a series of braking parachutes have reduced speed, the capsule uses a parachute to descend to a soft landing. If it lands in water, air bags are automatically inflated, and the capsule will float.

A life pod is equipped with padded acceleration seats for four people and a pair of lockers holding 200 lbs. of cargo. These are usually stuffed with medical and survival kits, but in an emergency the lockers can be emptied, allowing an extra person to cram into each locker.

The capsule is equipped with a medium radio beacon (p. 44), an inertial navigation system (p. 75), and 90 man-days of limited life support (p. 224). Its internal energy bank will power its beacon and life support system for up to a month.

The pod's surface is equipped with a programmable camouflage (p. 99) intended to give it a radar-reflective surface or adjust the exterior for high visibility. The pod is controlled by a personal computer (p. 22) and a simple crew console. Its maneuvering rockets require Piloting (High-Performance Spacecraft), but most pods are equipped with an AI so they can be used by unskilled escapees. LC4.

Drop Capsules (TL10)

A drop capsule is a re-entry capsule protected by an ablative shield, allowing an occupant or cargo canister to be safely dropped from a spaceship in low orbit. It takes two minutes to load a drop capsule. The capsule must be launched from a vehicle bay or missile launcher on a trajectory that will de-orbit it.

Re-entry is handled by an autopilot. After a series of braking parachutes have reduced descent speed, the capsule breaks up a mile or so above the surface. A conventional parachute, parawing, or grav belt can then be used. The drop capsule is not reusable. A drop capsule's split DR is DR 100 ablative armor (all of which is usually gone after the re-entry) on its underside, plus DR 20 from its composite body. LC3.

Stealth Capsules (TL10)

These are similar to standard drop capsules, but are made of material with a low sensor signature and packed with ECM equipment and decoys. They have radar stealth (p. 100) and sensor jammers (p. 99). A stealth capsules automatically launches radar and infrared decoys and activates its own jamming systems, giving itself an extra -5 to be struck by homing missiles. It may also deploy a spare parachute to "jink" itself off a sensor screen. This generally triggers a second roll (at -5) by the sensor operator to avoid losing contact. A stealth capsule is somewhat more cramped than a drop capsule. LC2.

Drop Capsules Table

TL	*Vehicle*	*ST/HP*	*Hnd/SR*	*HT*	*Move*	*LWt.*	*Load*	*SM*	*Occ.*	*DR*	*Cost*	*Locations*
9	Life Pod	50	-5/1	13	1/1,000 (0.1G)	1	0.5	+2	4SV	100/20	$100,000	–
10	Drop Capsule	50	–	13	–	1	0.5	+2	2SV	100/20	$10,000	–
10	Stealth Capsule	50	–	13	–	1	0.3	+2	1SV	100/20	$50,000	–

Matter Transmission

Matter transmission is instant travel from place to place. Depending on what limits exist for it and how cheap it is, matter transmission may render most other forms of transportation obsolete.

Technologies

The simplest way to explain matter transmission is that it creates a junction between two separate points. This might be a wormhole, a macroscopic analogue to a quantum jump, a hyperspace bridge, a space warp, or some other superscience. This type of matter transmission is often closely related to faster-than-light drive or communications technology.

Another form of matter transmission could involve matter-to-energy conversion. This involves scanning the subject, converting him into energy, beaming the pattern to a distant location, and then converting him back. The transmission beam's limitations will depend on the type of energy used (for some examples, see the various communicators in Chapter 3). It may or may not be composed of particles that travel through normal space and can be blocked by solid objects. This form of MT also implies ultrascan (p. 66) and replicator (p. 193) technology – including the possible duplication of people – and the existence of powerful total conversion power plants and energy beams.

Matter transmission is usually assumed to be instant, or nearly so, working at faster-than-light speeds. It could also be limited to the speed of light; over a short distance, the practical difference is negligible.

A few specific implementations of matter transmission are described; many more are possible, and each will have different effects.

MT Booths (TL10^)

This type of matter transmission requires enclosed matter transmission (MT) booths and is only possible booth-to-booth.

A typical booth is the size of a shower stall or old-style phone booth. A typical model can transport up to 400 lbs. at a time, usually one or two people. Range is limited to 20 miles (due to conservation of energy effects) but multiple booths can be linked in relay for longer distances, allowing a traveler to hop across a planet in a matter of seconds. Interplanetary or interstellar teleportation is impossible, so booths are only useful on the surface of planets (or in large ships or space stations).

Public booths may be common. If so, travelers can go from one booth to any other booth within 20 miles for $1 per jump. Longer jumps cost more, but since the computer automatically transfers the cargo from booth to booth, it still takes only seconds. Addresses are given verbally to the booth's computer, which is programmed to act as an "address book" of destination codes. It takes only two seconds to use a booth, but there might be a line of people waiting for it.

This form of matter transmission reduces travel time in civilized areas to near zero, but doesn't affect the rest of the campaign very much; it is ideal for those who want to introduce matter transmission at lower TLs. If MT booths are commonplace, streets may disappear and people could start to think of addresses in terms of teleport coordinates. It's possible to go anywhere on a world without seeing anything but the inside of a booth.

Matter Transmission Booths (TL10^)

The default assumption is that MT booths are expensive. There may be public booths, but well-off individuals or organizations can also afford to buy their own. They'll probably put it in the lobby or get an unlisted booth number to prevent just anyone dropping in! A private model can be linked with another dedicated booth within 20 miles, or be linked to the general network for $1,000 per month. $100,000 each, 1,000 lbs., external power. LC3.

Cheap Matter Transmission Booths (TL11^)

Another option for matter transmission is that full-size booths are cheap, costing 10%-20% of the prices above. If so, everyone may have a matter transmission booth, and houses may not even bother with doors – though they might lock the door to the booth. $20,000 each, 200 lbs., external power. LC4.

Longer Ranges (TL10-11^)

It's possible that teleport booths may have greater ranges; this is up to the GM. A system with continental range (3,000 miles) is 10 times the normal cost and weight. A planetary-range system is 100 times cost, weight, and power; an interplanetary-range system is multiplied by 1,000; an interstellar range system by 10,000. The GM may impose an arbitrary limit on maximum range, whether it is 10 light years or 1,000 light years.

Other Spinoffs (TL11^)

If matter transmission booths can scale up or down in size, they have many other applications. Large systems may be used for moving cargo or mass transit, or even as part of production lines. A booth as small as a letterbox could be purchased for $1,000, and run off building power, or be rented like a phone for $20 per month. Mail and goods can be delivered via matter transmission. They can be used for garbage disposal, or to order pizza. Want to go shopping? Call up a store's computer data base, then sit and watch the booth display holographic images of the store's inventory. Make a selection, and it appears as soon as you pay for it.

Telegates (TL11-12^)

This is another means of matter transmission. A telegate or teleportal is a "wormhole" gateway that leads to another telegate somewhere else. While activated it remains constantly open, and people can see through it, walk through it, even fire weapons back and forth from either end (just don't hit the telegate machinery). Energy differences are automatically compensated, so it is possible to step from a

telegate in orbit to one on a planet below, and back. The gate may be fitted with a ward (see p. 173) to keep things from leaking through, but still allow people to walk through it.

Using a telegate requires that the coordinates on both gates match. If telegates are used instead of matter transmission booths for a planetary transportation network, this will be performed automatically by the network's control system. Telegates may be just an alternative to matter transmission booths (above), but other possibilities exist – see below.

Telegate Networks (TL11^)

These are connected networked telegates. Use the same rules as for a teleport booth network, but a gate is "held open" (pay the cost every second instead of per jump). If two gates are open to each other, they're "busy" and no gate elsewhere in the network will be able to reach them until they're closed again.

Gates in a telegate network cost the same as teleport booths. If they're larger than doorway-sized, multiply the cost and weight by the radius in yards.

Paired Telegates (TL11^)

Some versions of teleport technology may require telegates to always be paired with particular other telegates. Rather than a network, these form a closed system, A to B. In order for either telegate to be used, both must be turned on and in range; optionally, turning on one gate activates the other if it is in range. Going somewhere else requires a different pair of telegates.

No skill roll is required to use one; just activate it and step through. When functioning, the gateway is one yard across – anyone standing next to it can take two seconds to step through, or dive through in one turn with a successful DX or Acrobatics roll.

Paired telegates have only half the weight and cost (but normal power) of telegate networks. If given a continuous power supply (such as a reactor), it's common for the telegates to be constantly open. In the case of gates connecting across interstellar distances, it might be impossible to shut the gate off without permanently severing the link.

Star Gates (TL11^)

These are interplanetary or interstellar telegates, which could be paired or networked. There may be an engineering requirement that all interstellar or interplanetary range gates must be placed in space stations distant from a planet, perhaps due to interference from planetary or stellar gravity. If the gates have to be several thousand – or million – miles away from a settled world, then spaceships may still be in use as shuttles between planets and gate stations. Such gates may be big enough for ships to pass through them.

If star gates can be installed on planetary surfaces, people can simply walk through them and reappear on another planet. This would mean starships are mainly used for initial exploration – once a gate has been delivered, a "frontier world" becomes part of mainstream civilization, open for rapid colonization and cheap trade.

Cosmic Freeways (TL11^)

Another possibility for planetary star gates is a series of paired gateways that are constructed as an archway or tunnel on a roadway, canal, or train track – just take the first left at the turnpike, drive through the telegate and you're on a road on another planet. There are no spaceships, just roads (or railways!) leading to the stars. A Precursor cosmic freeway might even be used by low-tech societies who believe it to be a magical or divine path.

A single highway system could link dozens of worlds, or even other dimensions, though the vehicles had better be designed for multiple environments. To avoid making it too easy, assume that no telegate can be within (say) 150 miles of another gate, thus allowing for a bit of travel before reaching the next world.

Minigates (TL12^)

What if telegates could be very small? A minigate is a flat circle or rectangle with a power pack and controls mounted on the back. It has a two-mile range.

A minigate can be carried like a shield, providing Defense Bonus 4. If this makes the difference in stopping an attack, or the user blocks a melee attack with the shield, the blow or projectile goes through the gate. Make sure no one friendly is standing on the other side!

Minigates are wielded with the Shield skill. $100,000, 20 lbs., E/30 minutes. LC3.

Dimension and Time Travel

Any teleportation device could lead to a different time or dimension. In fact, time warps are a logical consequence of any faster-than-light teleportation system (which is one reason why they're superscience).

Time portals leading to the past can create paradoxes if the time travelers' actions change history (although strictly speaking, even their simple presence will change the past in some way). However, the GM can rule that paradoxes spin off alternative time lines. If the PCs travel back in time and prevent World War I from occurring, in the future the portal leads to 1914, but not *our* 1914. Time portals to the future are less of an issue, provided no backward travel is possible.

For more ideas on handling time travel, see ***GURPS Infinite Worlds.***

Teleport Projectors (TL12^)

Teleport projectors are two-way matter transmission devices; they can snatch up someone as well as sending him somewhere, and they do not require a receiving booth. Conservation of energy problems do not affect them – an

orbiting ship can teleport someone up from the planet below, if it has the proper coordinates. They can also teleport a bomb, so unless the GM decides that force screens or some kind of defensive screen (see *Reality Stabilizer*, p. 194) can block them, they become a formidable weapon.

Projectors require precise coordinates. If the target to be beamed up or the destination is not in sight, it must be precisely located by active or passive sensors. A teleport projector is thus limited by the range and accuracy of sensor systems, which can be a critical factor in game balance. The GM may require Electronics Operation (Sensors) skill rolls to get a "lock" onto a particular place or subject.

A standard teleport projector is a platform large enough to transport a single person, or two in a tight embrace, or up to 400 lbs. weight. The projector controls are focused on a specific point. Anything standing on the platform is teleported to that destination point. If the destination point is occupied by a solid object, the GM may assume the teleport fails, or that the result is some form of disaster.

Range is 10,000 miles; using the projector takes 10 seconds and a skill roll against Electronics Operation (Matter Transmitters), with a -1 per 1,000 miles of distance. Add +4 if teleporting between two cooperating projectors. Failure means a near miss, critical failure a disaster (perhaps the victim is teleported above or below ground, or off course, or the projector breaks).

A typical projector is $15,000,000, 3,000 lbs., plus an extra $5 million and 1,000 lbs. per platform. It uses external power. Projectors that can only send, but not retrieve, are possible; these are half weight and cost. LC1.

Teleport Beacons (TL12^)

GMs should think carefully before introducing teleport projectors, since they make it very easy to whisk characters out of danger, steal objects or kidnap foes, and so on. An easy fix to this is to require that projectors do not just require a sensor fix, but that the target also have a special "teleport beacon" device attached to it. This makes them useful for delivering and retrieving personnel, but prevents kidnapping enemies, or snatching objects, or rescuing characters who have been captured and stripped of their gear. A teleport beacon is $10,000, 0.1 lb. LC4.

Interstellar Projectors (TL12^)

What if teleport projectors could teleport people anywhere and had interstellar range, perhaps substituting tens of light years for thousands of miles? This is more interesting if no FTL travel exists – only teleport projectors, and they are hideously expensive. Building a teleport projector costs at least $1 billion, and a similar amount to operate. Only governments and the largest corporations have them, though they may rent time on them to other corporations or agencies.

An interstellar projector weighs and costs at least 1,000 times as much as a teleport projector. Each jump also requires a prodigious amount of energy and computer resources, so the cost of each jump is $100,000 for a projector with a platform one yard across or smaller. This is enough to transport a man or a cubic yard of cargo.

The cost of both the system and each jump increases exponentially each time the radius doubles. A projection platform two yards in radius that can transmit an exploration team of a half-dozen men and their gear costs $10,000,000. A four-yard platform large enough for a small vehicle or about 20 men costs $100,000,000.

Here's how exploration might work using interstellar projectors. Using astronomical information, a likely star is located, and a small probe is sent through with a telescope. It locates any planets, then is brought back. If a habitable-appearing planet is discovered, a second probe is sent, this time into orbit. Landing coordinates are determined, and a team of humans is sent through – but because of the exponential cost increases, sending through vehicles or tons of equipment is simply not practical. Only a half dozen or so explorers could be sent, especially if a smaller corporation was fronting the mission. Since any use of the projector for communication or resupply costs several million credits, they would likely be spending several days (or weeks) at a time out of communication, with no heavy equipment and no assistance from a convenient orbiting starship – an ideal setting for adventure.

If a world proved to be habitable, it could be colonized by sending cloning tanks and automated factories. While they would be too expensive for regular commerce (except in luxury goods and information), teleport projectors would be in demand for diplomatic, intelligence or military missions. Adventurers would have plenty of authority to make their own decisions, but not much backup if something went wrong.

Mind Voyages

It is usually easier to transmit information than matter. If mind emulations (p. 220) or artificial intelligences (p. 25) exist, then it would be possible to effectively "travel" by transmitting copied minds encoded in digital form from place to place.

In a civilization where travel is information-based, visiting another world involves your mind emulation being transmitted across space, only to be received and uploaded into a new body (robotic or living). Of course, if there is no form of FTL radio, a transmission might take years to arrive and conditions could be quite different than expected!

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WEAPONS, VEHICLES, AND GADGETS

GURPS Ultra-Tech is a sourcebook for science-fiction technology, from the near future to the farthest reaches of the imagination. It's a valuable companion to ***GURPS Space***, ***GURPS Bio-Tech***, and ***GURPS Infinite Worlds***, and for any character or campaign that needs advanced technological equipment.

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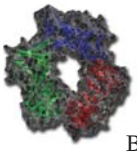

Introduction

Genetic engineering and other biomedical technology are starting to change the world in ways we can only begin to guess at.

Can we resist the temptation to tinker with our genes when the potential rewards include immortality? Will exotic wonder drugs soon be produced in cows and goats? Could natural or artificial plagues wipe us out, or will biotech conquer disease or transform us into posthuman superbeings? And just how do genetic engineering and cloning work, anyhow?

GURPS Bio-Tech explores these and other questions, examining the promise and perils of medical and biotechnologies real and imagined, and their effects on characters and societies. The answers may surprise you . . .

Using This Book

Biotechnology breeds its own jargon. While most technical terms are explained as they are introduced, if you run into an obscure term, check the Glossary (p. 231).

Fictional quotes introduce many sections of this book. Capsule biographies of our "commentators" appear in Chapter 8 (p. 216).

Publication History

This is the second edition of ***GURPS Bio-Tech***; it has been revised to the ***GURPS*** *Fourth Edition* rules and expanded to cover medicine, drugs, magic, and new technologies. Some variant races and wonder drugs were introduced in ***GURPS Space*** (by William Barton and Steve Jackson). The biological android (bioroid) and proteus virus rules originated in ***GURPS Robots*** (David Pulver). The first edition of ***GURPS Bio-Tech*** (by David Pulver) was 144 pages long and focused on modern and future technology. Some of its fictional vignettes established ideas that would later be expanded in the ***Transhuman Space*** series. In turn, a few biotech and variant races in this edition are derived from material introduced in ***Transhuman Space*** (David Pulver) and its supplements ***Deep Beyond*** (David Pulver), ***Fifth Wave*** (Jon F. Zeigler), and ***Under Pressure*** (David Morgan-Mar, Kenneth Peters, and Constantine Thomas). The biotech spells are based on those in David Pulver's ***Bio-Tech*** Designer Notes in *Pyramid*. The medical care flowchart and some advanced medicine rules are adapted from a *Pyramid* article by Eric Funk.

About the Authors

David L. Pulver is a freelance writer and game designer who lives in Victoria, Canada. He has written or co-authored numerous ***GURPS*** books, including ***GURPS Basic Set Fourth Edition***, ***Transhuman Space***, and the original ***Bio-Tech.***

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Rules and statistics in this book are specifically for the ***GURPS Basic Set,*** *Fourth Edition.* Page references that begin with B refer to that book, not this one.

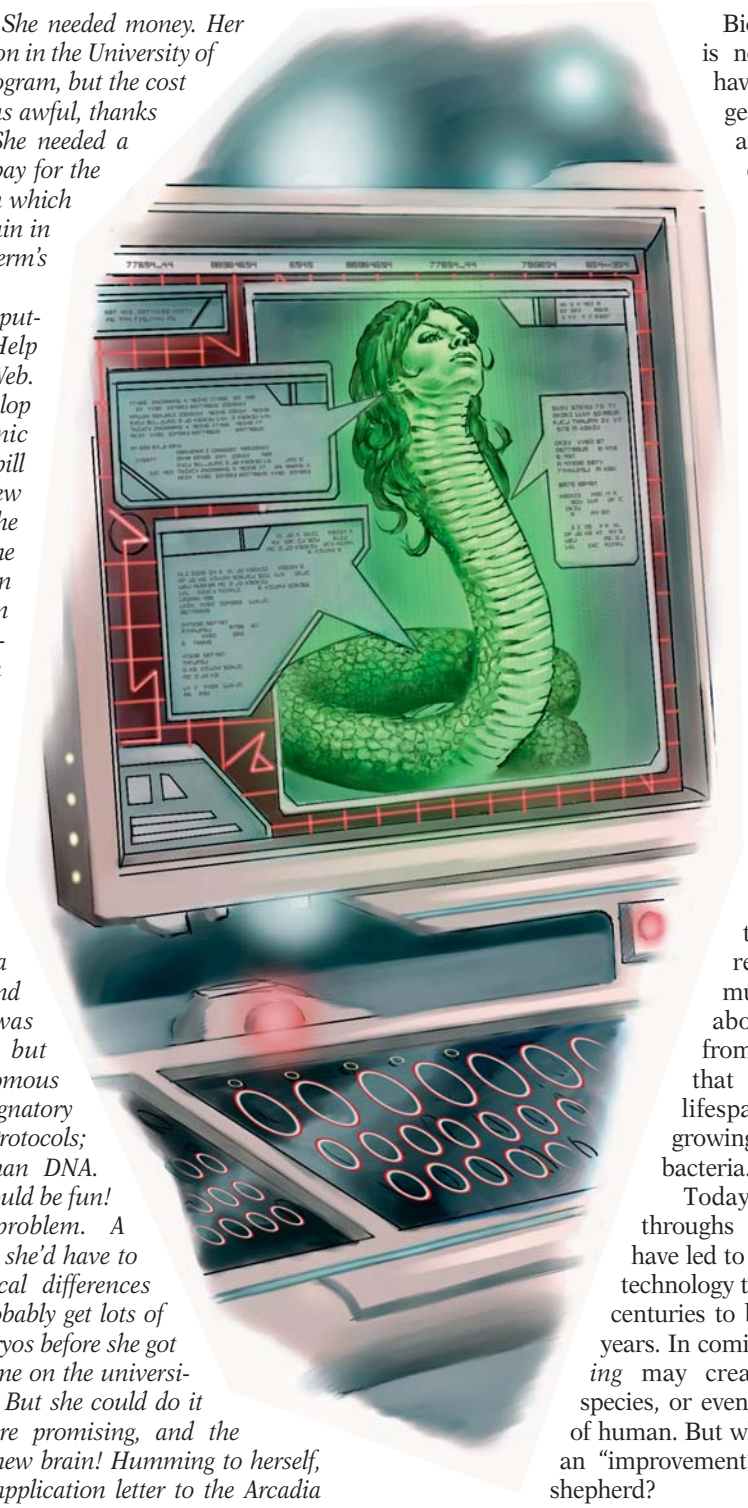
Chapter One
Biotechnology

Tika Dawnstar frowned. She needed money. Her scholarship covered her tuition in the University of Mars' genetic engineering program, but the cost of living at Nix Olympica was awful, thanks to the terraforming taxes. She needed a winter job, one that would pay for the cutting-edge neurovirus with which she hoped to upgrade her brain in time to ace the upcoming term's exam.

Plugging into her biocomputer, she scanned the "Help Wanted" column on GeneWeb. Assistant on a project to develop a pollution-eating, cryogenic bacteria to clean up a vatspill on Titan? Bleah. Design new porkapple plants? Yuck. She was a vegetarian, anyway. She scrolled down the page, then stopped. High Arcadia was an orbital habitat – an adventure theme park based on Greek mythology. They wanted a freelancer with grad-level expertise to design one of the creatures that would populate the park: a lamia, with a snake's body and a human head. Tika's eyes widened . . . The lamia was to be fully sapient!

Wasn't that illegal? Tika called up a law database and cross-checked: Nope. It was bioethically questionable, but High Arcadia was an autonomous extra-national entity, not a signatory to the Genetic Regulatory Protocols; she could work with human DNA. Tika hugged herself – this would be fun!

She considered the problem. A snake/human cell fusion, so she'd have to smooth out the biochemical differences between species . . . and probably get lots of false starts and aborted embryos before she got it right, even if she rented time on the university's vatbrain megacomputer. But she could do it with the facilities they were promising, and the advance would pay for her new brain! Humming to herself, Tika began composing her application letter to the Arcadia Entertainment Group.



Biological manipulation is nothing new. Humans have been influencing the genetics of plants and animals for thousands of years through selective breeding. For example, most sheep once had long legs. That's better for the sheep, since they can run away from predators, but not so good for a farmer, who finds it harder to control and shear a nimble animal. So shepherds bred the sheep with shorter legs. The result? After many generations, the "improved" sheep are all short-legged, and farmers now need specially bred sheep dogs to keep the predators away.

The trouble with selective breeding is that it takes generations to produce results. Consequently, much of what we know about genetics comes from studying organisms that have relatively short lifespans, such as fast-growing plants, fruit flies, or bacteria.

Today, dramatic breakthroughs in molecular biology have led to genetic engineering, a technology that allows the work of centuries to be done in months or years. In coming decades, *gengineering* may create modified animal species, or even an "improved" breed of human. But who determines what is an "improvement" – the sheep or the shepherd?

Basic Principles

All terrestrial life is made up of cells: one cell in the case of simple organisms like bacteria or protozoa, and about 800 billion in a human. A cell consists of a membrane which encapsulates a watery soup of subcellular bodies. Among the most important of these are skinny strands called *chromosomes*. Bacteria, the simplest life forms, have a single chromosome (and several smaller ring-shaped bodies called plasmids). In more complex forms of life, the nucleus in the center of the cell houses multiple chromosomes; e.g., each human cell contains 23 pairs of chromosomes. Every cell in a particular organism, except the reproductive cells, has the same number and type of chromosomes. Collectively, the chromosomes form an instruction manual that contains all the information an organism needs to grow and reproduce.

Chromosomes are made of *deoxyribonucleic acid*, or *DNA*. This is a long, complex molecule with a tightly coiled double helix shape, resembling a twisted ladder. The "rails" are formed from deoxyribose sugar and phosphate molecules, while each "rung" on the ladder is composed of two compounds, called bases, locked together to form a pair – either the molecules adenine and guanine (an AG pair), or cytosine and thymine (a CT pair).

If chromosomes are an instruction manual, then these base pairs (approximately three billion in a human cell!) can be thought of as the "letters" in the genetic code that it is written in. To continue the analogy, particular arrangements of AG or CT base pairs form words, and a single coherent sentence is a *gene*. Each gene contains a specific instruction that tells the cell how to manufacture the chemicals needed for life.

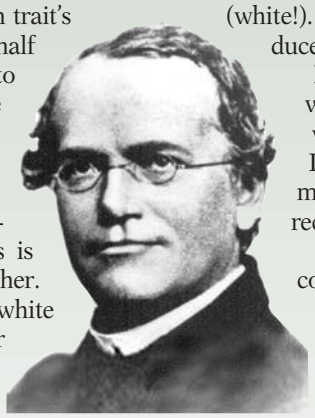
A gene sends out instructions to the cell by making a copy of the genetic code using *messenger RNA* (ribonucleic acid). Messenger RNA carries a gene's instructions to big, lumpy molecules that float around the chromosome, known as *ribosomes*, which are the cell's biological factories. They read the genetic message written in the RNA as an instruction to start manufacturing a particular protein (see below) from available chemicals.

Proteins are complex molecules (made of amino acids) used in cellular chemical reactions. By analogy to the genome – the list of genes in an organism – biologists also speak of the proteome. This is the list of proteins expressed by the organism's DNA, and can be longer than the genome. Some proteins make up the structure of cells. Others, called *enzymes*, act as catalysts to induce molecules to form new combinations, or break complex molecules (such as food) down into smaller components.

What differentiates one species or individual from another are the different proteins that their cells produce, and the order in which they produce them. These metabolic processes – digesting chemicals from food and making

Mendelian Heredity

In the nineteenth century, a monk named Gregor Mendel studied pea plants. He postulated that each inherited trait (like whether a plant is short or tall) is determined by a specific factor, which we now call a gene. An organism has two copies of each trait's gene. In reproduction, each parent passes half of its genes (determined semi-randomly) to its offspring. The other half come from the other parent.



For example, flower color in plants is a genetic trait. If one plant has red flowers and the other has white, will the flowers of their offspring be pink? No! This is because those genes don't blend together. Instead, the offspring of a cross between white and red parents would also be either red or white. Which gene is obeyed depends on whether that gene's trait is a "recessive" or "dominant" one. If red flowers were dominant over white for a particular plant, then the hybrid offspring would be red.

However, that isn't the end of the story. While the hybrid plant looks red (this is called its *phenotype*) its actual genes governing color (or *genotype*) are a mix of one for redness and one for whiteness. Suppose it is cross-pollinated with another red hybrid that has one red and one white gene. The luck of the draw may lead to their offspring having two red genes (thus being red), a red and a white gene (also red), or two white genes (white!). Thus, two plants with red flowers can produce one with white flowers.

Recessive traits can skip generations, which is why you sometimes see children who don't resemble their parents. In humans, many rare traits, including most inherited genetic defects, tend to be recessive.

In practice, heredity is actually a lot more complex than the "ideal" Mendelian model – there are mixed-dominant, cross-dominant and non-Mendelian traits that break the rules described above. Some traits are also "sex-linked" – that is, they are located on sex chromosomes, and are transmitted differently between males and females.

In many science fiction stories that deal with psi abilities, mutant powers, or other exotic hereditary gifts, recessive and sex-linked traits are used to explain why these powers are rare, or why women or men are more likely to manifest them.

more DNA, RNA, and enzymes so that cells can replicate – are what characterizes life on the cellular level.

Cells replicate by splitting in two. When this happens, each of the chromosomes within them also divides down the middle, so that both new cells have a copy of each chromosome. These half-chromosomes then reconstitute themselves from the loose chemicals in the cell. In this way, each cell remains a duplicate of the original. In the case of asexual, single-celled organisms like bacteria, this ensures that each one is identical.

Multicellular creatures that reproduce sexually are an exception to this. Each parent's reproductive cells carry only half the normal number of chromosomes. When they unite (in a human, when an egg is fertilized by sperm), they form a single, complete cell with the full number of chromosomes. Half of the chromosomes (and their genes) come from one parent, half from the other. After this, the joined cell replicates normally.

As a multicellular organism grows, genes are activated to cause individual cells to specialize. Some become nerve cells, others become skin cells, and yet others form different organs – all in accordance with the instructions in their genes. In humans, a fertilized egg (zygote) develops first into a blastocyst, then an embryo, and finally a fetus that will become able to survive outside the womb as a baby.

Introns

Genes that make proteins used by the body only account for about 2% of the genetic material on the chromosomes of most species. Much of the rest are regulators for control sequences which tell the genes when to turn on or off.

The two main categories of terrestrial life are *prokaryotes* (bacteria) and *eukaryotes* (plants, fungi, and animals) – see *The Domains of Life* (p. 103). One of the distinguishing features of eukaryotic cells is the existence of *introns* (first discovered in 1977) – long, seemingly meaningless sequences with no apparent function. Eukaryotic cells possess mechanisms to ignore the intron sequences when making proteins.

How did these "worthless" introns get into the genetic code? Current research suggests introns appeared after eukaryotic cells diverged from bacteria some two billion years ago, but their exact purpose remains controversial.

One theory is that they represent changes introduced by ancient viral hitchhikers, or are simply the genetic debris of evolutionary dead ends. It's also possible that they act as genetic speed bumps to slow down and regulate the rate at which certain proteins are manufactured. Maybe they act as genetic spare parts, usable in future mutations. In a cinematic campaign, introns may have a more sinister purpose – they could contain latent genetic sequences that await the proper control signal to activate. Perhaps they would express themselves as super-powers!

If genetically engineered creatures are manufactured from scratch (TL10+), the designer may decide not to include introns, to make his task simpler and the results easier to predict. This means that gengineered organisms may have highly compact genomes. This would be a good way to tell if a blood sample is from an evolved organism or a manufactured one.

One far-out use for introns would be to code non-genetic information into an organism's cells. For example, trademarks, serial numbers, secret messages, or other data could be written into an organism using coded arrangements of introns! And what if ancient astronauts coded an interstellar treasure map into our introns?

DNA Sequencing

Although you inherit your genes from your parents, you can't tell what genetic characteristics you will develop during life just by looking at their physical and psychological traits. You may inherit a combination of recessive genes that neither of your parents shows any sign of carrying, and end up being a blue-eyed child of two brown-eyed parents, or with some debilitating genetic disease. If you're male, you may acquire a sex-linked gene from your mother and be color-blind, or hemophiliac. Your parents could be healthy, but pass on genes that predispose you to developing severe degenerative diseases. Or one of the mutations that routinely accumulate during reproduction could hit a gene that controls one of your body's vital functions.

In order to make any sense of all this potential genetic information, someone needs to take a sample of DNA and then *sequence* it – analyze it with a machine to read the sequence of base pairs that make up the genetic code. The code can then be compared to a map of the human genome to determine which parts correspond to which genes, and what *alleles*, or variations of them, are present. Only then can a skilled geneticist make any practical determinations about the person who supplied the sample.

PCR Machine (TL8)

One of the basic tools in any genetics lab since the late 1980s is the polymerase chain reaction (PCR) machine. This can rapidly replicate DNA from very small amounts of source material in a matter of hours, creating thousands of copies of DNA fragments from single cells.

Besides its use in genetic engineering, PCR allows genetic testing from as little material as a hair follicle or a tiny drop of blood (see *DNA Testing Procedures*, p. 8), permits the automation of gene sequencing (permitting genome analysis projects), and allows genetic reconstruction (p. 14), enabling researchers to isolate and replicate DNA samples.

One weakness of PCR is that it is so sensitive; technicians must use great care to ensure that whatever DNA they are amplifying actually comes from a particular sample, rather than contaminants – say, a skin flake from the researcher. All TL8+ genetics labs include PCR machines or their ultra-tech equivalents. On their own, PCR machines may cost from $3,000 to $125,000, depending on their speed and capabilities. LC4.

The Human Genome Project

The complete set of instructions for making a particular organism is called its *genome*. It exists in the nucleus of every cell, and acts as the blueprint for all cellular structures and operations.

The Human Genome Project was a 13-year international endeavor to discover the thousands of protein-coding genes in human DNA (the human genome) and determine the complete sequence of the three billion DNA subunits (base pairs) that make them up. The full project was under way by 1990. The project was intended to be finished around 2010, but advances in automated gene sequencing and parallel computing resulted in early completion in 2003.

A major part of the project was the development of technologies for rapid DNA mapping and sequencing. Projects to map the genomes of other species have also begun, and many have been completed, although it may be decades before even a small fraction of all Earth species are mapped.

One of the more surprising discoveries from the human genome project was the relatively small number of human protein-coding genes. Thought to be as many as 100,000 at the start of the project, the actual number turned out to be less than 25,000.

The completion of the Human Genome Project was the first step to understanding the structure, organization, and function of DNA in chromosomes, and a necessary precondition toward advancements in technologies such as gene therapy (p. 181) and very precise genetic testing (see *Privacy and Discrimination,* p. 198).

Genetic Differences

How similar are the genes of humans and other animals? All mammals have (very approximately) the same number of genes. Within the DNA sequence – the arrangements of nucleotides – ape and human genes differ by less than 10%. For non-primate mammals, like cats or mice, the difference is about 20-30% overall.

Physical differences between species are sometimes the result of very subtle changes in the nucleotide sequences that make up the genes. These in turn produce somewhat different proteins which result in cellular distinctions.

However, many distinctions are not even the result of *different* proteins, but rather from the order, locations, or quantities in which they are produced. Changes in the quite small number of genes that regulate this (called Hox genes in animals, or MADS box in plants) determine much of an organism's physiology; together with the small number of completely different genes they add up to make the difference between species, spelling "human," "mouse," or "cat." Mutations in these genes are also the source of most of the single-mutation "monsters" encountered in both reality (flies with legs in place of antennae, or starfish with extra arms, for example) and in the Atomic Horror genre.

DNA Testing Procedures

Everyone's DNA is unique (with the exception of clones and identical twins), and this genetic record is contained within every cell. A person's DNA will be similar to his blood relatives', and so can be used to help determine his ancestry.

Starting at TL8, genetic tests can be performed on blood or tissue samples. Various types and applications of genetic testing are discussed below.

These procedures require a genetic lab (p. 16) and generally take a day or more at TL8 (but commercial labs might take weeks to report). At TL9+, a portable genetic scanner can take samples in a few seconds (prick a finger, for instance), analyze them, and upload the data to a computer for an instant cross-check against a database of known genetic markers. A pocket scanner is $500 and one pound at TL9; roll vs. Electronics Operation (Medical)+2 or Forensics+2 to use it. People like police officers will usually be able to connect their personal computers to large genome databases for rapid analysis.

Genetic Identification (TL8)

This is a simple test to determine if a person (or corpse) is who he is supposed to be, by matching a sample against existing genetic records. Roll against Electronics Operation (Medical)+4. At TL9+, testing procedures may be fast enough to be useful for on-the-spot "biometric" identity checks, comparing a blood sample (requires only a pin-prick) or saliva sample with personal data contained on an ID card or in a database. This may be common in high-security areas; treat this as an automatic procedure (don't bother to roll).

Genealogy Determination (TL8)

Key sequences in a person's DNA can serve as markers that have been inherited from successive generations of ancestors. This is often known as *paternity testing*, because the most common application is to establish the identity of a child's father. It's possible to go back multiple generations; the limiting factor is the availability of an unbroken chain of ancestral DNA samples (or complete genome records). A one-generation gap can usually be bridged with minor uncertainty ("he's either your grandfather or your grand-uncle"), but otherwise testing will show approximate kinship, rather than a specific relationship.

Testing requires the same time and skill rolls as DNA forensics; roll at +4 for a simple test (e.g., "is that person my real father/mother?"), or at TL9+, use a genetic scanner for an instant comparison test as described above. The better the success roll, the more detailed the ancestral information. Tracing a long line of descent may require History or

Research skill rolls to locate ancestral DNA samples (e.g., finding where bodies are buried) or to dredge up old records that may contain genetic data.

DNA Fingerprinting (TL8)

Trace DNA samples – such as remains, or bodily fluids left on a crime scene or victim – can be compared with genetic records in a database.

This technique exploits the variability of human DNA to positively identify an individual from a small cell sample. It can thus link a suspect to tiny traces of physical evidence at a crime scene such as skin cells, hair, and saliva.

Genetic fingerprinting can also identify human remains if a sample of DNA is available from another source. Useful DNA can be extracted from bones, teeth, and hair for decades after death . . . even after a body has been burned to ash in the case of teeth.

Obtaining a DNA sample without contaminating it requires a portable forensics lab and a Forensics roll. At TL8-9, Forensics skill and at least an hour (and sometimes many days) of work are required to properly gather and prepare samples; a failed roll may result in missed or contaminated evidence. At TL10+, forensic microbots – or nanomachines, at higher TLs – can be introduced into a crime scene to locate nearly all traces of blood, tissue, and other evidence in a few hours. These can uncover traces dating back weeks or months. A package of forensic microbots or nanobots is $4,000 and gives +3 to Forensics skill rolls to find such evidence. See ***GURPS Ultra-Tech*** for more details on microbots and nanomachines.

Recovered samples are tested and compared to another specific sample to determine if a match exists. This requires an Electronics Operation (Medical) roll if using a lab. Success will find a match (if it exists); failure means the results are uncertain with that sample. Critical failure can result in a mistaken result (false positive or negative).

If genome information is on file, it may be possible to compare DNA forensic results against a computerized database. At TL9+ this allows use of a TL9+ genetic scanner for an instant check. Some organizations may routinely keep DNA records (e.g., military forces may do so to make it easier to identify bodies, or records may be kept of hospital patients or criminals). In some ultra-tech societies, *everyone's* genome may be on file; others tightly restrict this information due to privacy concerns, and legal access may require permission, court orders, or high-level security clearances. Searching databases may require a Research or Computer Operation roll to search genetic records.

Since its introduction in 1985, genetic fingerprinting has been subject to legal restrictions in many jurisdictions, as civil rights groups and some legislatures see the analysis of genetic material without permission as a violation of privacy. As the technique becomes more common, it may become less regulated (as fingerprinting is today) or be subject to even more stringent oversight. Police departments around the world are now compiling genetic databases of criminals for use in identifying repeat offenders.

At present, and in future societies where only a relatively small percentage of people have their genomes on file, the utility of DNA forensics depends on having an idea who to test. While it is sometimes possible to (for example) get samples from hundreds of suspects in an area, this is often impractical. On the other hand, DNA forensics can be very useful to *clear* an innocent person; many prisoners have been released due to DNA evidence.

Despite its high accuracy, genetic fingerprinting can be defeated by the age-old trick of planting false evidence. In an ultra-tech society this could include implants of foreign tissue or genetic surgery to provide false samples. In addition, cautious criminals will take increasingly meticulous care not to leave so much as a cell behind at a crime scene – arson, acid, or nanocleansers (***GURPS Ultra-Tech***) can help scour a site clean.

> *La vie est une fonction chimique.*
> *(Life is a chemical process.)*
> *– Antoine Laurent Lavoisier*

Genetic Profiling (TL8)

This involves analyzing a DNA sample and comparing it against what is known of the species' genome to determine what hereditary traits the subject possesses. Privacy considerations may lead to laws that limit the widespread use of genetic profiling – see *DNA Profiling and Identification* (p. 198) for a discussion of this.

Genetic profiling requires a genetics lab (p. 16) at TL8 or a genetic scanner (p. 8) at TL9+. Roll against the lower of Biology skill (the Genetics specialty is appropriate) and Electronics Operation (Medical) skill.

At TL8, the information that can be extracted is limited, but may include race, hair, and eye color, as well as the presence of specific hereditary diseases. This requires a lab test and at least a day's work. At TL8, genetic profiling can identify chimeras (p. 38), bioroids (p. 26), or detect species modification (p. 37), but it will not be able to determine if someone is the result of germline genetic engineering (p. 13).

At TL9+, the above information can all be detected with a handheld genetic scanner: all that's needed is a few seconds' scan and comparison with a genetic database. However, actual lab tests can reveal even more details, as future science uncovers exactly how each gene functions, what proteins they code for, and how they influence specific mental and physical traits (or even psi or super-powers, in settings where exotic abilities have genetic causes). If an advantage or disadvantage is inborn rather than otherwise acquired, it may be detected by genetic profiling. This will also detect any genetic tinkering. Chapter 2 suggests TLs for engineering particular traits; the GM may rule that this is also the TL of lab tests that are required to identify genes associated with these traits.

RNA Sample Dating (TL8)

The molecular structures of messenger RNA and ribosomal RNA decay at different rates, so measuring their relative abundances in a biological sample can reveal how long ago it was removed from a living body. This can be applied to blood or tissue samples the size of a pinhead and is accurate for up to a year after the sample was deposited. The method does not work for hair or nail samples, since the cells in these die before they become detached from the body. This requires the same skills as genetic fingerprinting, but more sophisticated equipment – at minimum, a full genetics lab (p. 16).

Genetic Simulation (TL9)

This is a higher order of genetic profiling. Since our genes control how we develop, a DNA sample alone can tell us a lot about a person. A computer program could read the genetic code and be used to create a computer simulation of what the subject might look like, assuming various ages and environmental influences such as diet, in the absence of cosmetic surgery or facial trauma.

For this to work, more is required than just the genetic sequence (which is why the Human Genome Project was only a first step). Genetic simulation requires expertise in the area of human physiology, nutrition, biometrics, and their intersection with human genetics.

While DNA is indeed a blueprint for an organism, it is useless without the context in which it can be read (the architectural or engineering symbols used in the blueprint, to extend the analogy). For DNA, this means the right biochemical and physical environment. As an example, mouse DNA produces a baby mouse – when inside a mouse ovum. When placed inside a rat ovum, the different interactions cause mouse DNA to express a different series of proteins, which ultimately end up killing the cell before it can develop into a mouse.

A human ovum is a relatively known environment and some sort of average can be assumed for the computer simulation. This will give an indication of the DNA donor's gross physical features. But many features are controlled by subtle differences in the mother's womb and during early childhood development. So while simulation can give hair color and approximate facial bone structure, it can't predict exact height, body weight, or fingerprint patterns. Personality traits are even more dependent on upbringing – some general tendencies can be predicted, but a tendency to shyness is not a guarantee the person will turn out that way.

Genetic simulation requires successful genetic profiling as a prerequisite, as well as additional data described above. Gathering it may require Research and Biology (often the Genetics optional specialty) rolls. Once the data is available, the actual genetic simulation takes a day to set up. To determine success, roll against the lower of Forensics or Physiology skill; the better the success, the closer the match, within the limits of the technology. At TL9, genetic simulation is inexact and produces only obvious physical characteristics (as per trait analysis), along with vague probabilities for features such as height and weight. At TL10+, if the birth mother's DNA is also available (*not* the biological mother's if she was different) and/or there is information on her nutrition during gestation, then the simulation can be more accurate, predicting features such as height and refining probabilities of various body weights and personality traits.

Selective Breeding

It's possible to produce desired changes in heredity through a conventional breeding program. This can be done at any TL, although it's most effective when the laws of heredity are understood. It requires locating breeding stock with suitable traits, mating them, and observing the offspring. The process is repeated with each generation, with new mates chosen to strengthen desirable traits or remove undesirable ones.

This has been used for thousands of years to breed plants and animals. As far as we know, no one's ever done it successfully with humans – although to a limited extent, the entire Earth is an exercise in eugenics ("evolution in action"), since most people choose their mates with at least some eye toward suitability for children.

This brings up the main problem with human eugenics. As humans usually prefer to choose their own partners, some form of reward, coercion, or indoctrination is often required. Since the process will take many generations, a very stable organization or culture must be founded which can oversee the program through many generations.

Fictional eugenics programs are often devoted to designing a master race with superior physical and mental traits, a super-being with exotic psi powers, or specialized humans for a biological caste system modeled on an insect hive. Often, these programs are directed by authoritarian governments, secret societies, hereditary aristocracies, or religious orders. The Nazis made half-hearted efforts in the field of eugenic breeding programs. Had the Reich really lasted a thousand years, they might have been successful; fortunately, they had less than a generation.

But can you *really* breed a "better" race with eugenics? A major problem would be the danger of inbreeding, with an increased possibility of recessive metabolic diseases. In ***GURPS*** terms, this would manifest as disadvantages such as Epilepsy or Hemophilia and various forms of insanity. This comes from keeping the genes within a small population without the benefit of genetic engineering to counter such problems.

In theory, a eugenic breeding program could eventually produce racial templates that include any hereditary advantage or disadvantage within the species' original genome (see *Eugenic Germline Gengineering*, p. 36). It could only bring out and emphasize features that are latent in existing genes, not create completely new capabilities ("species modification").

There's no easy way to predict how long this process would really take. GMs who want hard numbers could assume that a large, intensive, and ruthless breeding program just might be able to put 1d-4 (at TL1-5), 1d-3 (at TL6-7) or 1d-2 (at TL8+) character points toward creating a specific genetic template every generation. Keep track of negative points as well – apply them toward *unintended* hereditary disadvantages, representing inbred traits. At TL8+, this averages 1.5 character points per generation; so, for instance, breeding a "warrior caste" who all possessed Combat Reflexes (15 points) would take about 10 human generations. These represent total points of change, including *intentional* disadvantages, so deliberately breeding a combination such as High Pain Threshold [10] and Berserk [-10] is 20 points, not 0 points.

Alternately, it could be argued that the time required depends only on the number of traits to be selected rather than their point costs. Roll 3d-(TL/2) for each advantage or disadvantage; the result (minimum 1) is the number of additional generations required to fix that trait into the template.

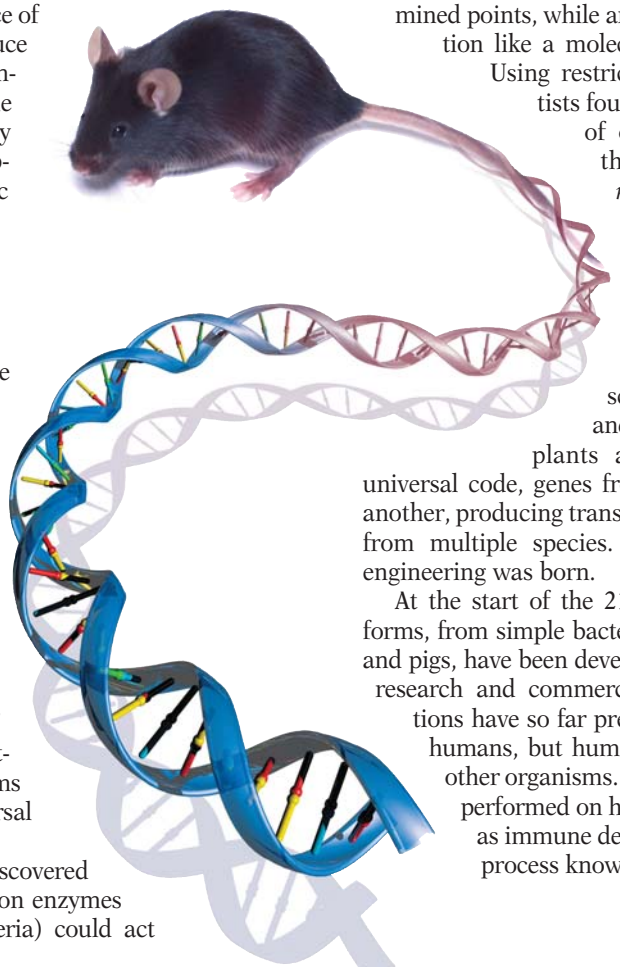
Any eugenics program will probably also produce several failures, who may have interesting but unplanned advantages or disadvantages – the plot of Frank Herbert's classic *Dune* hinges on such a development.

Someone who is the living product of an ongoing eugenics program might represent centuries or millennia of effort by a powerful organization. As such, they might well be the victims of subversion, kidnapping, or assassination. The Social Stigma (Valuable Property) is appropriate for any eugenics subject.

Eugenics programs are especially suitable for settings where secret societies may indeed have long-running and manipulative interest in certain bloodlines, which might translate into eugenics. In alternative histories where the Axis won World War II (see the Infinite Worlds background), long-term eugenics programs may also be underway, if not replaced by more sophisticated eugenic genetic engineering technologies. Finally, while eugenics takes a long time, it may not *seem* long to a long-lived or immortal race or being. Fantasy is full of dark lords who use eugenics to produce nastier breeds of orcs or other monsters. A long-lived alien might be raising a line of humans . . . if the manipulation is subtle, the subjects might not be aware they're part of such a project.

Genetic Engineering

Genetic engineering, or "gengineering," is the practice of manipulating genes to produce desired changes in an organism. The discovery of the structure of DNA and early experiments are TL7 developments; practical genetic engineering requires TL8.



Historical Development

Scientists gradually came to the realization that DNA (rather than proteins) was the agent of genetic change between 1920 and 1940; Oswald Avery and his group published the central paper on this in 1944. Watson and Crick, working from research data provided by Franklin and Chargaff, described the structure of DNA (1953) and demonstrated that all terrestrial life forms seemed to share a universal genetic code.

In the 1970s, it was discovered that proteins called restriction enzymes (derived from certain bacteria) could act like molecular knives, slicing DNA molecules at predetermined points, while another enzyme, ligase, could function like a molecular glue to rejoin these pieces. Using restriction enzymes and ligase, scientists found they could chop fragments out of one organism's DNA and splice them into another, resulting in *recombinant DNA*. Since all life on Earth has the same genetic code, the genes are, in a gross but wonderful sense, a box of interchangeable parts. At first, only simple bacteria could be gengineered, but by the 1980s, scientists had learned how to cut and paste genes into more complex plants and animals. Since DNA is a universal code, genes from one species can be added to another, producing transgenic life forms that possess traits from multiple species. Thus the discipline of genetic engineering was born.

At the start of the 21st century, many transgenic life forms, from simple bacteria to higher mammals like mice and pigs, have been developed and even patented, for both research and commercial purposes. Ethical considerations have so far prevented the creation of transgenic humans, but human genes have been inserted into other organisms. Genetic engineering has also been performed on humans to fix genetic defects (such as immune deficiency or cystic fibrosis), using a process known as gene therapy.

Genetic Engineering Procedures

So how does gengineering work?

Sophisticated chromosome-mapping techniques are used to determine which genes do what. The desired genes can then be cut out of cells (using restriction enzymes) and placed into bacteria, where they are copied as the bacteria reproduce. Since the 1980s, however, the favored method has been a technique known as the polymerase chain reaction, or PCR (see *PCR Machine*, p. 7). A genetic engineer can create a computer model of the genetic sequences he wants, then mix together the basic building blocks to copy the sequences of existing genes. Thus, genetic engineers can produce genes that they suspect will be functional. Alternatively, they can analyze proteins and use that information to devise genes that will produce those proteins.

Strands of DNA don't do any good just sitting in a test tube, though. If the DNA is to be added to a different species, it must be further modified so that it will actually do something ("express itself") when inserted into the host organism's cells. To do this, genetic engineers must construct a partially artificial gene that obeys the regulatory mechanisms of the host species. Altered DNA also needs a way to enter the cells of the organism it is to modify. Some of the methods used by gengineers to accomplish this are microinjection, bacterial plasmids, retroviruses, artificial chromosomes, and nanoviruses, described below.

Applications for genetic engineering include gene cloning (below), germline gengineering (p. 13), and genetic surgery (p. 14).

Microinjection

An early method used for animal cells is to inject genetic material into target cell nuclei, either with a tiny needle or by using a "gene gun" which uses compressed gas to fire very tiny pellets (often gold dust) coated with genetic material. Microinjection may be used when genes need only be delivered to a single cell (such as a bacterium or egg cell) in a lab dish.

Bacterial Plasmids

Plasmids are small rings of DNA found in bacteria outside their chromosomes. Some types of soil bacteria, such as *Agrobacterium tumefaciens*, have the habit of inserting pieces of their plasmids into plants, transferring some of their DNA to the plant's chromosomes, resulting in tumors. Scientists have modified plasmids into vehicles for the transport of recombinant genes, and they are useful tools for gengineering many plant species. However, this method is ineffective on animals and doesn't work on all plants.

Retroviruses

In their natural state, retroviruses ("RNA viruses"), such as HIV, enter a living cell and take over its metabolism. They inject their RNA into the cell, taking over its cellular machinery and forcing it to make copies of the virus. Genetic engineers have turned this ability to their advantage. They modify the retrovirus so that instead of hijacking the cell to make viruses, it deposits the new gene. One pitfall of this method is that viruses are hard to selectively target – this procedure often produces many failures for each success, and there is a very slight but real danger that the virus will deposit genes in the wrong place, or damage existing genes, resulting in unintended defects or even cancer. However, retroviruses have the advantage that they can be used to deliver genes to many cells at once, which makes them useful for gene therapy (see p. 181). In the future, "smarter" tailored viruses with greater discrimination may be developed.

Nanoviruses

At present (TL8), retroviruses and microinjection are the most common ways of inserting genetic material. However, TL9 gengineering may use more exotic techniques. One possibility is the use of artificially engineered biological nanomachines capable of performing sophisticated molecular and cellular engineering. Such "proteus viruses" or "nanoviruses" may be radically gengineered retroviruses or white blood cells, or completely artificial constructs. They pass harmlessly through cell membranes and take over cellular machinery using their own artificial enzymes, then alter or insert genetic material or other chemicals. They communicate with each other using specialized enzymes, and even cooperate, coordinating their operations. Nanoviruses are powerful tools, and are the basis of many ultra-tech gengineering projects, taking over from clumsier tailored viruses in tasks such as germline gengineering.

Artificial Chromosomes

One problem with inserting new recombinant genes into an organism is that the interactions between genes is complex and new ones can interfere with the working of neighboring genes in unpredictable ways. One way to solve this is to create completely synthetic chromosomes, first produced in 1997. An organism so modified will have more chromosomes than a baseline member of its species (which will easily show up on genetic tests), but this makes no real difference beyond the effects caused by the new genes. Since they're separate from the natural chromosomes, they're less likely to cause unintended defects. (They won't interfere with the operation of existing genes at the transcription level, although there is still a chance of interactions at the protein level.) The extra chromosomes will be passed on to offspring if both parents share them. See *Genetic Surgery Biomods* (p. 181) for additional uses for synthetic chromosomes.

Gene Cloning

Genetic engineering techniques can be used to isolate the particular gene that produces a given protein. That gene can then be inserted into a fast-reproducing bacterium, creating a transgenic species. What good is that? We'll demonstrate with an example:

The protein insulin is vital for treating diabetes. It's produced naturally in the human pancreas, but harvesting it from humans is not practical. Before gene cloning, insulin was harvested from other animal species, but this required expensive purification and sometimes had side effects. What was needed was a way to mass-produce pure human

insulin in large quantities. This was accomplished by using recombinant DNA techniques to splice the gene that makes human insulin into a bacterium. If the genetic engineering is properly performed, the bacterium will accept the foreign gene. The human gene will then "express itself" by telling the bacterium to manufacture the desired protein.

Commonly used bacteria can reproduce every half-hour or so (although this can vary a lot depending on the species) if they are supplied with the proper nutrients and their temperature is carefully regulated. Each time they reproduce, they double their population; in a day, there might be trillions of them. When a large enough mass of bacteria exists, it can be processed to extract the protein. A little more finesse in the genetic engineering may even produce a bacteria that excretes the protein itself. If a large enough vat is used, tons of commercially useful proteins can be produced.

This process has been used successfully since the 1980s. While TL8 gene cloning techniques of this sort focus on compounds that are medically useful (such as insulin or growth hormones), TL9+ techniques may widen this to include numerous proteins with exotic industrial applications. As genetic engineering labs become more widespread, it's possible to imagine gene cloning being used to produce substances such as illegal drugs.

In addition to naturally occurring, medically useful proteins, gengineering has spurred the design of new ones with novel characteristics, such as tailored enzymes designed to perform specific chemical reactions more efficiently than conventional catalysts. At present, only a few dozen enzymes are used for industrial purposes, such as detergents or food sweeteners, but enzyme engineering is on the verge of becoming a major industry. Many future products, from superior plastics to new foods and wonder drugs, may use genetically modified ("genemod") enzymes in their manufacture, and such enzymes may be the first step toward building nanomachines.

Germline Gengineering

This is what most people think of as genetic engineering. Using any of the genetic engineering techniques described above, genes are inserted into the reproductive germ cells of a plant or animal, such as its fertilized eggs. Modifications to the single, fertilized germ cell will be passed on to all successive cells in the organism, as the egg cell grows and divides. Moreover, if the process is performed correctly, the altered genes will be put in the right places and be accepted by the cells' regulatory mechanisms. This will cause the cells to produce different proteins, which will lead to the organism developing in a different way than it otherwise would. The result? A permanent change in the species, and one that can be passed on to successive generations.

Germline gengineering can create enhanced or modified organisms. These include transgenic plants and animals with numerous commercial, medical, or even military uses (see Chapter 3) and altered humans or other intelligent species (see Chapter 2).

Horizontal Gene Transfer

Genetic material normally transfers vertically through generations of organisms, from parent to child. *Horizontal* transfer is the incorporation of genes into a cell from a source other than its parent. This is the basis of genetic engineering techniques, as the whole goal is to modify the genome of the target cell. For a long time, genetic researchers believed this could not occur naturally, but in recent years they have discovered that it is common among bacteria and archaea. Horizontal gene transfer is now known to occur in eukaryotic organisms as complex as plants and nematode worms. It can happen in three ways:

Conjugation is when two bacteria meet and exchange genetic material, first demonstrated by Frederick Griffith in 1928. This is a one-way transfer, from a bacterium carrying an enabling plasmid to one without. The plasmid transfer can also carry some or all of the donor's own genome. Conjugation is an important mechanism for the spreading of mutations between bacteria – such as resistance to antibiotics.

Transformation is the uptake and incorporation of bare genetic material from the environment. This was first shown to be possible with bacteria in 1944 – nine years before Crick and Watson published the structure of DNA. This is the method commonly used for genetic research on bacteria, using plasmids as packages of DNA to be incorporated.

Transduction is when a virus or bacteriophage enters a cell and inserts part of its genetic material into the cell's genome. This method is used for gengineering eukaryotic organisms, since few of their cells take part in transformation.

Dangers of Horizontal Transfer

Although artificial horizontal gene transfer is a basic gengineering technique, natural horizontal transfer may be a problem for a biotechnological society. Decaying organisms and bodily wastes release free DNA strands that can remain intact for up to a day in soil or 10 days in the ocean before being destroyed by environmental enzymes. Bacteria take up these fragments and incorporate the material into their genomes. This means that engineered genes in crops, livestock, and even human sewage will find their way into wild populations of bacteria. This could be exploited for biowarfare purposes, spreading genes designed to cause new types of cancers or even perform unwanted gene therapy on anyone who catches an infection. In a horror scenario, this could even happen by accident!

Changes made as a result of germline genetic engineering can reach a threshold at which reproduction with unmodified (or differently modified) individuals becomes impossible. At this point, the new germline is a different species. In ***GURPS***, human variants incapable of interbreeding with baselines are called *parahumans*.

Self-Modifying Genetic Code

It is possible for proteins to "edit" the gene sequences in a strand of DNA, physically cutting out sections of the molecule and inserting new nucleotides. A genetic code that produces such proteins has the capability of modifying itself into a new code. This capability can be used to produce cells or even give rise to offspring that do not share the genome of the parent.

If such editing is dependent on environmental factors, this could be a direct way of producing mutations and adaptations, providing a more rapid means of evolution than sexual reproduction. Such a system may evolve naturally, but could also be produced by deliberate engineering, to provide adaptable species for colonizing hostile environments or terraforming, for example.

Another use is to set up an initial colony of organisms that reproduce rapidly, and then after a set number of generations mutate into a slower-developing form. Self-modifying genetic code can also be used to grow biological products with desirable properties from a parent breeding stock with different properties – see *Non-GM GM Crops* (p. 79) for an example.

Genetic Surgery

Humans begin as single cell – a zygote. As we grow out of the germinal stage, our cells differentiate. Every cell now carries the full complement of genes, but only uses some of them, depending on where it is in the body. This is what distinguishes skin cells, brain cells, blood cells, and so on. The function of the genes in a cell may also change over time; for instance, after we stop growing, many cells switch off.

Genetic engineering can be performed after the germinal stage, but it's trickier. Instead of working on changing a single germ cell and then having those changes spread through the entire organism as the cell grows and multiplies, the body now has billions of individual cells, each with a different function, locked into a specialized role. Post-germ cell genetic engineering is known as genetic surgery.

Genetic surgery experiments on humans began in the 1980s with *gene therapy*. This process uses retroviruses or other methods of gene insertion to replace defective genes with functioning ones in specific cells. While it is very difficult to add genes that alter the way an organism has already grown, gene therapy can be used to correct hereditary defects.

Early attempts at gene therapy sometimes encountered problems getting the added gene to properly interface with the body's regulatory system – that is, making sure it switched on or off when it was supposed to. Often, inserted genes either failed to make the necessary proteins or made too much of them. Today, many of these problems have been overcome. At TL9+, with the availability of more advanced tools like nanoviruses, genetic surgery may become a means of not only healing but also augmenting or transforming living beings. Individual gene therapy and gene surgery modifications are covered in Chapter 7 – see *Genetic Surgery Biomods* (p. 181).

Genetic Reconstruction

A popular conception is that living organisms – particularly extinct creatures – can be "reconstructed" from a sample of their DNA. Even if the sample is incomplete, missing segments might be filled in by sections taken from more or less similar species. Once the DNA sequence is complete, it can be injected into a host egg cell taken from a species that produces its young in a similar way, with its original genetic material removed. Voilà, instant dinosaurs!

The reality is neither this simple nor this achievable. Once again, the biochemical context of a developing embryo containing the DNA is crucial (see *Genetic Simulation*, p. 10). Genetic scientists of today or the future don't have ready sources of cells even remotely as close to dinosaur ova as rats are to mice. If you put dinosaur DNA into an ostrich egg, as in *Jurassic Park*, you'll end up with a scrambled egg, not a *T. rex*.

That's assuming you have the entire DNA sequence. If you only have fragments, the situation is even more hopeless. Even if you could determine how the fragments fit together, how long the missing sections are, and what sort of genes in other species might be used to fill the gaps, those genes in the different environment of the rest of the DNA will interact in new and unpredictable ways. Splicing frog genes into incomplete dinosaur DNA does not give the resulting dinosaur frog-like traits; it produces random mutations, most likely killing the cell before it can begin growing.

The final nail in the coffin is that eukaryote DNA is inherently unstable over geological time periods. It breaks down within 100,000 years. Quite simply, there is no dinosaur DNA to be found; it all fell apart over 60 million years ago.

Archaeobiology

All is not lost, however. Many important and interesting species became extinct within recorded history, and for some of them we have preserved tissue containing plenty of DNA. Such recently extinct species are likely to have close living relatives that may provide compatible ova and form suitable surrogate mothers. So while dinosaurs are out of the question (unless time travel or parachronic travel can come up with the DNA!), we might reasonably expect Tasmanian tigers and great auks to be resurrected.

At high tech levels, it may be possible to provide a suitable biochemical environment for development of an embryo even if no workable surrogate is available. After all, the DNA does provide the blueprint for making the environment – if it has the right environment to begin with.

Bioengineering Equipment

Biotechnology requires high-tech equipment, although much of it can be abstracted out as standard gear in a fully equipped biotech laboratory.

Equipment Quality Modifiers

GURPS Bio-Tech includes examples of basic, good, fine, and best-quality equipment in terms of *Equipment Modifiers* (p. B345). Better quality biotech and medical equipment is *generally* also heavier and more expensive. A gadget's quality grade is always followed by "(quality)" in item descriptions, e.g., "provides a +2 (quality) bonus to Diagnosis skill." Quality is basic if there is no bonus, good if the bonus is +1, fine if at least +2 but less than +TL/2, and best if +TL/2.

Gadgets may also add a bonus to skill because the underlying technology is easy to use or realistically doesn't fail very often; an example is the bonus that higher-TL surgical instruments provide (p. B424). This is comparable to a ranged weapon's Accuracy. Any bonus that *isn't* marked "(quality)" is an intrinsic bonus like this. It has nothing to do with quality, and applies whenever you use that variety of gadget. This bonus "stacks" with the quality modifier, if any.

Biotech Equipment Costs

Biotech and medical equipment can be expensive! Prices can also vary significantly, depending on features of the item and how new it is. The listed prices are averages for new equipment, which may vary by up to 50% in either direction.

Second-hand or reconditioned equipment is often *much* cheaper, as it's obsolete and doesn't have to pass stringent manufacturer safety checks. Such equipment has -1 to -3 to its HT score and the GM may rule that it requires an equipment failure check (p. B485) each time it is used.

Second-hand biomedical suppliers will sell equipment a few years old for just (1d+1) × 5% of the full price – if they have it in stock. If you're on a budget and need an automed for your starship, this is the place to get it. Just remember, they don't offer any guarantees.

Genetics labs and many of the medical gadgets found in Chapter 5 also require reagents, sterile needles, or other consumables to keep running. Assume operating costs of such a piece of equipment are 1% to 5% of the listed price per month. Most equipment that requires power runs on building or vehicle power; portable powered devices typically have batteries that allow 12 hours of continuous operation. Solar or exotic power sources may be an option in some campaigns.

Biochemical or computer simulations could bootstrap the process, getting around the chicken-and-egg problem by iteratively converging on a solution that works. On the other hand, there may be more than one solution that produces a live organism, so there's no guarantee that the resurrected creature will be *exactly* like its extinct DNA cousins.

Not having a complete DNA sequence is a much more serious problem. Genes may be interpolated from a mixture of related species, theory, simulations, and outright guesswork, and a viable organism produced, but the chances are that it will be so incompatible with the original source as to be a different species, with unpredictable variations in physiology and behavior. The result may be essentially a chimera (see p. 38).

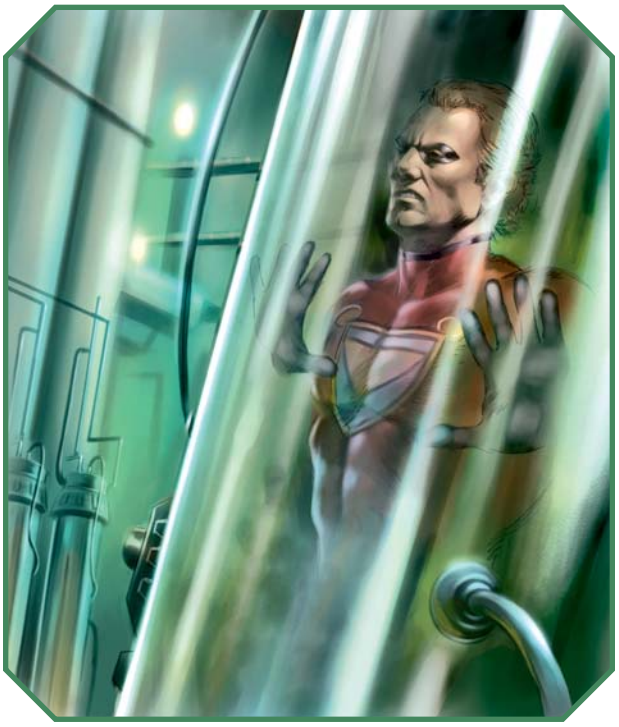
Alternately, a superficially similar existing species can be modified through genetic engineering or created using biogenesis (p. 26) to have the presumed appearance and behavior of the extinct creature, without needing *any* of its DNA at all. This will be a different species from the original organism, and can't teach us as much about the original species, but is perfectly adequate for entertainment and display uses. As long as its behavior is fairly close to that of the real animal – or at least, how people *expect* it to have behaved – it will generally be adequate for filling its ecological niche. This may be the best route for recreating a "dinosaur park," short of time travel!

Biotech Facilities

Gengineering isn't something that can be done on the kitchen table – specialized equipment is necessary.

Lab Facilities

These are necessary to fulfill the basic equipment requirements for genetic engineering tasks. Weight and cost are not reduced at higher TLs – instead, sophistication increases. Modifiers are given for both minor and major tasks. Minor tasks are things like genetic testing, or synthesizing a known protein. Major tasks include cloning, chromosome mapping and sequencing, genetic reconstruction, and genetic engineering.



Full Genetics Lab (TL8)

This lab contains sufficient equipment and work space for one researcher and up to four assistants to perform advanced bioengineering. It contains tables, lab counters, and refrigerators, as well as high-tech (and fragile) gear such as several PCR machines, incubators, culture vats, microscopes, and other imaging systems. It provides a +2 (quality) bonus to Bioengineering skill but no bonus if used for complex genetic engineering research projects that need a state-of-the-art lab. A big lab complex will contain multiple labs, allowing several research teams to do work at the same time. $1 million, 20,000 lbs. LC4.

Standard Genetics Lab (TL8)

Found at small biotech companies or average universities, this is a less costly and more compact version of the full lab (above). It provides a +1 (quality) bonus to Bioengineering skill. $200,000, 4,000 lbs. LC4.

Small Genetics Lab (TL8)

A work table or counter, fridge and basic genetic engineering equipment. This is typical of community colleges, reclusive geniuses, and amateur bioterrorists. It is basic equipment (no modifier to skill). $50,000, 500 lbs. LC 4.

Suitcase Genetics Lab (TL9)

A miniaturized, man-portable genetics lab. For all but the most simple tasks, it is improvised equipment (-5 to skill). It takes 10 minutes to pack or unpack. $12,000, 20 lbs. LC4.

Hellkitchen (TL9)

This is a suitcase genetics lab optimized for producing biological weapons. It contains the necessary precision scientific equipment (including a miniaturized gene-splicing and PCR machine), cell cultures, and genetic engineering computer software to transform an ordinary kitchen into a biowarfare laboratory. A hellkitchen counts as a suitcase lab for most tasks, but as a small genetics lab for developing disease cultures and similar bioweapons. It can also manufacture additional doses of a germ from an existing or modified culture at a rate of one dose per hour; an unmodified skill roll should be required to set this up.

The hellkitchen is so compact because it lacks even rudimentary safety features; any critical failure results in some form of disaster (e.g., the user becoming infected or releasing a plague). This applies whether trying to modify a disease or find a cure for one. Packing or unpacking it takes 10 minutes. $50,000, 20 lbs. LC2.

Containment Tubes (TL9)

These resemble giant, vertical test tubes, large enough for a person to stand upright in, resting atop a base platform containing a life-support system and powerful vacuum pumps. They are used for containing human-sized specimens. Any super-scientist's lab will have a few of these for holding captured supers or experimental subjects!

The tubes are sealed, but are connected to an external air conditioner that recycles the air within them. They can also be pumped empty of air in 30 seconds. Canisters may be attached to the tubes to allow gases or liquids to be pumped into them (e.g., sleep gas, nerve gas, germs, or proteus virus), or to maintain a different atmosphere within the containment tube. A gas canister suitable for flooding the tube (requires five doses of whatever gas or other agent is used) is 5 lbs. and $300. It can hold 100 doses of gas.

Access to the tube is provided by a transparent sliding door, which causes part of the tube to slide open. The door's lock cannot be picked from inside the tube. Opening or closing the door, or controlling life support in the tube, is accomplished using either controls on the base or an external computer terminal. The containment tube itself is made of a plexiglas-like material with DR 30 and HP 55 (it is also Brittle). Increase DR at higher TLs: DR 45 at TL10, DR 60 at TL11, DR 90 at TL12.

Each containment tube is $20,000, 400 lbs., LC4. It runs off building power.

For double cost, the containment tube can have twice the DR; at four times cost, three times the DR. Containment tubes for beings larger than humans are possible; multiply cost, weight, volume and power requirement by relative weight compared to an average human. Growth tanks, forced-growth tanks, and chronowombs may be outfitted as containment tubes; add half the weight, cost and volume of the tube to the weight, cost and volume of the growth tank or womb. This is useful if growing dangerous beings.

Lab Biohazard Precautions

Biotech labs are rated for the level of biohazard safety that is practiced in them:

P1 – Ordinary microbiological lab procedures, such as using absorbent mats to catch spills and ultraviolet lamps to kill contaminants, and wearing protective gloves.

P2 – As above, but restricting access (i.e., a lock and a "Keep Out" sign). This is the highest level possible for a suitcase lab or hellkitchen (above).

P3 – As above, but lab air pressure is lower than its surroundings, so that airborne microorganisms blow in rather than out. Triple the size, weight, and cost of the lab facility. Any critical failure that would result in the escape of biohazardous material should be confirmed by a second failure; if this second roll succeeds, the accident merely contaminates the lab itself.

P4 – Sealed lab. Lab workers change clothes and shower, and there will be an airlock between the lab and the outside world. May have security guards. Multiply size, weight, and cost by 10. A critical failure that would result in the accidental escape of biohazardous material should be confirmed by a second critical failure (e.g., something else went wrong, like the airlock door malfunctioned). Deliberate sabotage can still circumvent these precautions!

Maximum-security labs are relatively rare. In 2005 there were four P4 laboratories in the United States (with six more planned) and 50 laboratories at P3 (with 19 more planned).

Genetic Engineering in Play

If the GM wants to game out the process (e.g., a PC is the gengineer), this version of the New Inventions rules (p. B473-477) can be applied to genetic engineering.

First, the gengineer decides what traits or changes to produce in an organism, within the limits possible at his TL. This involves describing the modification in game terms, often as a racial template. Chapter 2, Chapter 3, and Chapter 4 detail the various traits it may be feasible to engineer into humans, animals, plants, and microorganisms at particular TLs. If the player's description is especially clear or clever, the GM should give +1 or +2 to all related skill rolls.

Required Skills

The invention skill required is Bioengineering (Genetic Engineering). Bioroids and similar constructs may also require Bioengineering (Tissue Engineering); if so, use the lower of the two skills.

Complexity

Determine the "complexity" of the invention using the table and guidelines on p. B473. This requires knowing the retail price of the organism or modification; see *Life's Price Tag* (p. 65) for a specific formula and Chapter 2, Chapter 3, and Chapter 4 for examples of retail prices. Complexity can be increased or reduced for individual cases.

Complexity	*Required Skill Level*	*Retail Price*
Simple	14 or less	Up to $100
Average	15-17	Up to $10,000
Complex	18-20	Up to $1,000,000
Amazing	21 or more	Over $1,000,000

Concept

After determining complexity and required skills, the GM makes a secret "Concept roll" against the inventor's invention skill to see whether he comes up with a testable theory.

Modifiers: -6 if the invention is Simple, -10 if Average, -14 if Complex, or -22 if Amazing. +5 if you have a live or well-preserved specimen of an existing species you're trying to copy, or +2 if the species already exists but you don't have a model; +3 if performing eugenic (rather than species) engineering, i.e., if all traits being added to a template are ones that can occur naturally in the organism's genome; -5 if the basic technology is totally new to the campaign (*regardless* of TL); -5 if the required trait is one TL above the genetic engineer's TL. A "model" is a live or well-preserved specimen.

The lead genetic engineer may roll once per day. On a success, proceed to the next step. On a failure, he may try again the next day at no additional penalty. On a critical failure, it's a flawed concept that *looks* good but that will never work in practice – go on to the next step, but note that it is doomed to failure. (If the genetic engineer already has obtained a complete genome and proteome, he can skip this stage altogether.)

Prototype

A success – or critical failure – on the Concept roll gives the genetic engineer the detailed concept he needs. Now he must perform the actual genetic engineering. This requires a second roll against invention skill, and an appropriate genetics laboratory (p. 16). Genetic material is also required. In humans and other animals, this means the eggs and sperm, collectively called gametes. These may be taken from a donor (half might come from the genetic engineer, if he wants to work on his own genetic material). Banks of frozen germ cells may also exist. In most societies, traffic in genetic material, especially from sapient beings, is regulated, but donors are relatively easy to locate.

The GM makes this "Prototype roll" in secret.

Modifiers: All modifiers listed for Concept rolls; +1 per assistant with Bioengineering (Genetic Engineering, or, if appropriate, Tissue Engineering) or with Electronics Operation (Medical) skill 20+, to a maximum of +4; -1 to -10 (GM's discretion) if the genetic engineer must make do with anything less than the most advanced tools and facilities for his TL – a full genetics lab.

On a success, he creates a prototype – a test tube of microorganisms, a bit of plant tissue suitable for culture, or a viable early embryo ready to be implanted. On a failure, the result is non-viable and is discarded; he may try again, provided he has the time and money (see p. 18). On a critical failure, a lab accident of some sort occurs. This may mean one of two things: either a seemingly viable prototype with a hidden fatal flaw that won't be detected by testing (a "Frankenstein"); for microorganisms, it may optionally result instead in accidental exposure or release – but see *Lab Biohazard Precautions*, p. 16.

If the genetic engineer was working with a flawed concept (due to a critical failure on the concept roll), he will never create a working prototype (this is why the GM rolls in secret!), but a *critical success* on the Prototype roll lets him realize that his idea was bad and start again.

Time Required: Each Prototype roll requires 1d-2 days if the invention is Simple, 2d days if Average, 1d months if Complex, or 3d months if Amazing. Divide time required by the number of skilled people working on the project. Minimum time is always one day.

Cost: The only cost is the personnel costs and the purchase and upkeep of the lab. A suggested cost per attempt is equal to the retail price of the genetic construct being built times the number of embryos, tissue cultures, or doses of the microorganism that will be created on a successful attempt. Usually several are created at once, since that allows some to be destroyed in testing.

Defects and Testing

Most initial prototype life forms have bugs or shortcomings, referred to here as defects. These are genetic errors that crept into the genome, or inadvertent negative consequences of combining particular genes. Critical success on the Prototype roll means there are no defects; success by three or more gives 1d/2 minor defects; and any other success gives 1d/2 major defects and 1d minor defects.

Minor defects are annoying, but not critical. In animals or people, each is a racial disadvantage worth up to -10 points, or an unplanned limitation on an advantage in the template, or an unfortunate feature such as Sterile. See *Unintended Disadvantages* in Chapter 2 (p. 61) for guidelines. In bacteria or plants, they may be changes that make the construct less useful than was hoped for, e.g., a new food plant may turn out to be viable only under certain climatic conditions, or be vulnerable to a particular pest.

Major defects are potentially catastrophic. In animals or people, each is a racial disadvantage worth more than -10 points. Common problems include racial Attribute penalties, low Appearance (even Monstrous), Stress Atavism, Susceptible to Disease, and Unusual Biochemistry. In microorganisms or plants, major defects may include organisms only viable under careful lab conditions, that pose health risks to consumers (if intentioned to be beneficial), mutate rapidly "in the wild" or other crippling defects.

Testing

To find defects requires careful testing. In the case of bacteria or tissue cultures, the organism is allowed to sprout or reproduce while being tested; for embryos, especially those of sapient species, each test sacrifices an early embryo, although non-destructive testing may be carried out at -5 to skill. One roll is allowed each week, using either Bioengineering (Genetics) or Diagnosis skill. Each success finds one defect; a critical success finds *all* defects. A critical failure means the user believes he's found, possibly erroneously, that no defects remain, or thinks he's found major defects even if there aren't any, which might cause him to start over.

If a genetic engineer tests and finds defects, he may discard the prototype bacteria, tissue cultures, or early embryos and attempt another prototype roll, hoping for a better result, or he might decide the problems are minor enough to ignore, and proceed anyway. Discarded "defective" prototypes might be destroyed, but they could also be preserved (e.g. embryos might be frozen or placed in stasis). Science fiction is full of situations where people stumble on old bacteria samples, preserved embryos, or the like and decide to use them, not realizing they had some hidden and potentially deadly flaw!

Growth

Microorganisms can be simply allowed to reproduce in test tubes or vats, injected into hosts, etc. The cost of growth depends on the quantity required and whether it requires any special environment.

Plants are grown in tissue-culture medium until they are ready to root, just as commercial greenhouses do when cloning plants for sale to gardeners.

Embryos can be grown in growth tanks (p. 20) or transplanted into an appropriate host mother – possibly enough the donor of the original genetic material. (See *Reproductive Technology*, p. 19). They can then develop progressively into a fetus and baby. Physical defects may be noticed as the embryo grows into a fetus, especially if they're obvious. This might also prompt a decision to abort the fetus, or an attempt to mitigate the problem using gene therapy (p. 181) before or after birth. More subtle problems may not be noticed until childhood or even maturity.

Viable organisms can also reproduce through their usual means (unless sterile), although in the case of sexual reproduction, species modification may render genetic constructs unable to crossbreed with normal examples of the race. Cloning (p. 22) is another possibility, and may be commonly practiced to prevent dilution of any special traits produced by genetic engineering. Clones of both sexes are possible through minor tinkering; no special rolls are required for this.

Reproductive Technology

Some individuals suffer from genetic conditions, illnesses, or accidents that hinder the processes of natural reproduction. Others wish to have children without the restrictive biological requirement of exactly one mother and one father.

All the methods discussed below can be used on animals as well as humans. Controlling animal reproduction is common in agricultural applications and will be important for extraterrestrial colonies.

Birth Control

One major aspect of controlling reproduction is *preventing* it. Prophylactic barrier methods have been available to prevent human conception since ancient times (TL1), but are unreliable.

Hormone-based oral drugs designed to prevent ovulation were first marketed in 1960 (TL7), providing a reliable temporary method of contraception, but a daily dose can be forgotten. Ovulation-preventing drugs such as progestin can also be encapsulated in slow-release implants; a simple procedure will prevent conception for times ranging from a few months to five years. Similar drugs for men have taken longer to develop and are not yet commercially available, but should be established by TL9. For "birth control pills" of various types, see *Drugs and Nano*: oral contraceptive pills (p. 157) and male contraceptive pills (p. 158). Abortifacient drugs (p. 149) allow people to be careless until after a sexual encounter.

Intra-uterine devices are very reliable, but require a Physician+4 roll to insert properly. The permanent solution is sterilization. The requisite surgery on men is an outpatient procedure taking an hour; for women it is a multi-hour operation requiring a hospital stay. At TL8+, a reversible laser treatment for males becomes available.

Fertility Treatments

On the other side of the coin, some people require assistance in conceiving a baby. People can have reduced or impaired fertility due to genetics, disease, injury, or chemical exposure. As long as the body is still capable of producing gametes, medicine can assist in reproduction, and even that isn't a barrier with high enough technology.

In Vitro Fertilization (TL8)

In vitro ("in glass") fertilization (IVF) allows pregnancy without sex. A woman's ova are collected, then fertilized with sperm in a fluid medium. The resulting embryo is implanted into her uterus, into that of a surrogate mother, or (at TL9+) into an artificial womb such as a growth tank or forced-growth tank.

The first IVF was performed in 1978. It is most often used when it is impossible for a couple to conceive naturally. Today, IVF is relatively common but somewhat tricky and expensive. It is growing in popularity in wealthier countries: at the start of the 21st century, over 100,000 babies had been born in this fashion.

The fertilized ova grow in an incubator for 60 hours to a pre-embryo state, where they are ready to be implanted in a mother. The success of the procedure is known in two weeks. The would-be host mother will often take the hormone progesterone to thicken the uterus lining, increasing the chance of successful pregnancy.

One advantage of IVF is that it makes it possible to perform very early genetic testing. If genetic problems are suspected in the parents, IVF may be preferable for this reason alone. Sperm, ova, and pre-implantation embryos can easily be frozen and thawed for use later – sometimes *much* later – leading to ethical questions when the donors die.

Statistics: There is only a 1-in-6 chance of success per IVF attempt at TL8; each attempt takes at least 4d weeks. At TL9+, this chance increases to 5 in 6. In humans, each attempt costs $10,000 at TL8, $5,000 at TL9, and $2,500 at TL10+.

Artificial Sex Cell Production (TL9)

When infertility is caused because the patient cannot produce viable gametes, cloning technology can come to the rescue. Rather than cloning an embryo using one parent's DNA, this procedure uses adult cells to produce haploid sex cells, containing half of the parent's DNA. This can be combined with a normal sex cell from the partner (or another artificially produced gamete) to produce a fertilized zygote.

This method allows otherwise infertile individuals to reproduce sexually, i.e. by combination of their genes with those of a partner. Many people would view this as more natural than the option of cloning. This procedure doubles the cost of an IVF treatment.

Alternative DNA Mixing (TL9)

I have my first Daddy's hazel eyes and my second Daddy's red hair, but they bought my sense of direction from the gene bank.

– Chance Mackintosh

Same-sex partners can use genetic engineering to blend their genetic material together. Women don't need to involve men at all; men will still need a female egg donor, although the genetic material from the egg nucleus could be removed and replaced with genetic material drawn from the male partners. If it is important for the men involved to provide the mitochondrial DNA as well, the donor egg can come from a matrilineal relative (anyone descended from one's mother, mother's mother, etc., will share the same mitochondrial DNA). Splicing genetic material from same-sex partners together costs an extra $10,000 and takes a week. Halve the cost at TL10 and again at TL11+.

At TL9 it is also possible to blend the DNA of up to 46 partners (the number of chromosomes in a human) into a single zygote. This involves selecting particular chromosomes from each contributor's DNA to form one complete genome. The child would inherit some features from each of the multiple parents. By TL10, individual genes (parts of chromosomes) can be blended from any number of parents; they can either be chosen deliberately for particular genetic characteristics or at random.

TL10 also allows male parents to replace mitochondrial DNA in any donor egg with their own. Finally, at TL 11 males can do away with females altogether, producing a viable embryo without needing a donor egg through techniques similar to neogenesis (p. 27).

Surrogate Motherhood

A fertilized egg or early embryo can be transferred to a human host mother to grow to term within her. This has the advantage of not requiring a bulky, ultra-tech growth tank (see below). Some people believe it might also be better for the mental or physical health of the child. The disadvantage is that surrogate motherhood, especially for pay, is often considered unethical or even illegal, and hence can be expensive.

In areas where the practice is legal, a host mother can be hired for $20,000 to $30,000 plus payment of medical bills. Usually, a potential mother has to undergo a medical examination to certify she is healthy, and sign a contract agreeing to refrain from activities that might put the developing fetus at risk (e.g., drug abuse, dangerous sports). In some areas, professional associations of surrogates may exist.

If surrogate motherhood is illegal, the fee could be much higher. Cheaper host mothers could be hired in impoverished regions, such as slums or Third World nations. However, employers might balk at this, partly due to fears that a desperate and impoverished mother might be more likely to suffer from ill health or substance abuse, and partly due to snobbery.

There is a chance that the mother will become attached to the child and try to keep it, or change her mind and decide to terminate the pregnancy. This risk is increased where surrogate motherhood is considered illegal, since there is little the employer can do in such circumstances without admitting guilt. In any such disputed circumstance, the exact legal status of surrogate motherhood, and the nature of the transaction involved, will usually influence the decisions of the court in determining whether the rights of the host mother, the employer, or the developing fetus take precedence.

Rules for pregnancy and childbirth are beyond the scope of this book. Assume a pregnancy proceeds normally unless the GM decrees otherwise for dramatic necessity. Unusually modified babies may carry a greater risk of abnormal pregnancy.

Nonhuman Surrogates

Females cannot normally carry embryos of other species, but genetic modifications can make this possible. This allows brood animals to carry human babies to term, either to boost population growth or free up human mothers for strenuous jobs. This technology might be used if growth tanks (see below) are infeasible or poorly regarded. The other possibility is modifying humans to gestate other species . . .

Growth Tanks

Sometimes called an "artificial womb" or "exowomb," the growth tank is a basic tool of ultra-tech bioengineering. Programs to develop artificial wombs are underway at TL8; they should be available by TL9. The main impetus driving this technology is not so much the desire to do away with the womb as the need to create incubators for very premature babies. Currently, babies born less than six months after conception have a low chance of survival, because their lungs aren't ready to breathe air. Artificial wombs that use oxygenated fluids such as perfluorocarbons (the same chemical used in *Perflubron Blood*, p. 131) can enable much younger infants to survive, and may lead to practical growth tanks.

An artificial womb contains the necessary facilities for growing a multicellular animal from gametes to healthy birth, eliminating the need for surrogate mothers. Growth tanks may be used to grow clones, genetic constructs, or unmodified human embryos. This is no faster than natural growth – growing a human from germ cells to a baby requires nine months; adulthood takes 18 years.

Growth tanks are enclosed, but may have windows or cameras so that observers can see the developing organism. Most are big enough to allow the organism within to grow to normal birth size, but some are larger to allow growth to adulthood.

An organism developing in a tank has the same degree of awareness as a baby in its womb. Individuals kept in the tank past the fetal stage and into childhood will be conscious, but will not develop mentally in the absence of stimuli. Electrodes attached to muscle groups can keep them stimulated in the tank, the body twitching constantly in an unconscious exercise program that maintains muscle tone.

It is safe to remove a creature from the tank before its intended "birth" date, provided it has developed past the fetal stage. If the organism has been in there for less time, it will not be able to survive outside the tank without medical care (and prompt transfer to another growth tank or surrogate mother).

Destroying a growth tank and severing the artificial umbilical cords will free the organism. This will kill it if it has not developed enough to be born, but is no more traumatic than a normal birth otherwise.

Growth Tank (TL9)

Normal growth tanks can be used to grow any single organism up to the size of a human baby. For larger growth tanks, multiply the weight and cost by the weight of the organism relative to a 10-lb. baby; e.g., a growth tank for a 100-lb. foal is 10 times the cost and weight. Raising a 10-ton dinosaur to adulthood requires a tank 2,000 times as big as normal! A tank for a human baby: $10,000, 10 lbs. LC3.

Forced-Growth Tanks

These are growth tanks equipped to tremendously accelerate the development of the organism within it without doing it any harm. At present, it is unclear whether this is even possible, so forced-growth tanks are superscience – the GM must decide at what TL, if any, this technology becomes available.

Without forced-growth tanks, many of the dramatic possibilities of cloning are rendered moot due to the time it takes a human being to develop to adulthood. With a forced-growth tank, it is possible to take a cell sample from someone, make a clone and force-grow it to maturity, or even the same age as the cell donor, effectively allowing the creation of clone doubles. It's also possible to mass-produce armies of cloned or genetically altered people.

A forced-growth tank is like an adult-sized growth tank, with the difference that the organism within it develops *much* more rapidly. A typical forced-growth tank takes a minimum of three weeks to mature a human from a cell into a baby that can survive outside the womb. If not removed from the tank, the growth can then be accelerated to the even more rapid pace of just over one physiological year per day until the organism reaches age 25.

The force-growth process can be deactivated, allowing the person to grow in a normal fashion, exactly as within a growth tank. Once it is stopped, it cannot be restarted without killing the organism. Alternatively, the organism can be "stabilized" using an artificial hibernation process to keep it unconscious and at the desired physiological age for as long as it remains in the tank.

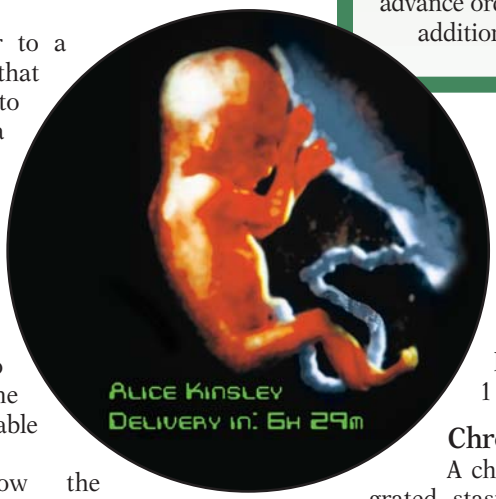
While someone is being force-grown, he is unconscious. A person newly awakened from a forced-growth tank is a blank slate, with no memories or skills.

Forced-Growth Tank (TL^)

A forced-growth tank has 10 times the cost and twice the weight of a growth tank: $100,000 and 20 lbs. for a standard tank. LC2.

Chronowombs

A chronowomb is similar to a forced-growth tank, except that instead of using chemicals to accelerate growth, it creates a pocket of accelerated time within the tank. The GM should set available time dilation ratios based on campaign needs. A suggested ratio is roughly 700:1 – a day of growth every two minutes, a month every hour, or two years every day. Some chronowombs may have variable time dilation controls.



External controls allow the chronowomb to be set to operate for a specific amount of time. When not being used in chrono-acceleration mode, it functions as an ordinary growth tank.

Unlike forced-growth, developed individuals (or even adult humans) can use chronowombs – but they should be careful with the setting or they may end up aging to death! A side effect of the time-acceleration process is disorientation followed by unconsciousness: individuals can't climb into a chronowomb and study skills or the like, but they can use it to heal (regenerating 1 HP per 2 minutes).

Chronowomb (TL^)

A chronowomb is a growth tank with an integrated stasis field generator. The generator costs $5,000,000 and weighs 500 lbs. Add the cost and weight of the tank; $200,000 and 200 lbs. for a human adult-sized tank. LC2.

Universal Growth Tanks and Wombs

Growth tanks, forced growth tanks, and chronowombs are for use on a single species or group of closely-related species (such as humans and variant parahumans) only. *Universal* growth tanks and chronowombs can provide suitable growing conditions for any species able to fit inside, given a DNA sample or database containing biochemical data for the species. These appear one TL later, and cost twice as much.

Growth and Forced-Growth Tank Fees

An institution that provides growth tank services will usually charge the following fees to its customers:

- $1,000/month to grow an embryo in a growth tank (or a forced-growth tank without using forced-growth). Growing a human embryo to a baby would thus cost $9,000 and take the usual nine months, while leaving him in the growth tank and growing him to age 25 would cost a further $300,000 and take 25 years.
- $1,500/week, for six weeks, to force-grow a human to maturity (or to any earlier stage of development).

For species that mature earlier or later, modify the times and costs appropriately. For larger-than-human organisms, multiply the cost by the relative size (use average racial weight as a guide). The GM may decide that different species require specialized tanks. In this case companies may spring up to provide pet and livestock facilities. The only places likely to be set up for growing unusual organisms are major biotech corporations. Persuading them to tie up their facilities requires either a large advance order, inside connections, or a substantial additional fee of perhaps 10 times the cost.

Stem Cells

Stem cells are undifferentiated cells with the potential to grow into any of several different specialized cell types found in a multicellular organism. This makes them useful for many biotech purposes, including tissue engineering, cloning, cancer treatment, tissue repair, and genetic engineering.

Stem cells can be collected from many organs in adults, as well as the blood in umbilical cords and placentas. These can differentiate into a limited selection of specific cell types. For example, bone marrow stem cells can become any of several types of blood cells, liver cells, or muscle cells – but not skin cells. Such cells have uses for therapeutic purposes, but these are limited.

More useful are stem cells collected from embryos, because these still have the ability to differentiate into *any* of the over 200 cell types in the human body. Under the right conditions, they can divide and grow into an entire human. Embryonic stem cells *can* be collected from an adult, by growing a clone and taking the cells from the blastocyst before cell differentiation occurs. The disadvantage to this is an ethical one: the cloned embryo has the potential to grow into an entire human being, so some people consider turning it into a cell culture to be destroying a human life. Current research indicates this ethical dilemma may be solvable by inducing *dedifferentiation* of adult cells into "embryonic" stem cells without growing them as a clone, but whether this will ever work remains to be seen.

Uses of Stem Cells

Stem cells can be used therapeutically simply by injecting them into their usual site in the body. Bone marrow and blood stem cells have been used in this way since the 1970s for treatment of the aftereffects of chemotherapy, as well as spinal cord injuries and Parkinson's disease. The cells replenish the body's normal supply and grow to regenerate the damaged tissue. Research promises to apply similar techniques to regenerating heart tissue after heart attacks and to fighting brain tumors.

By TL9, embryonic stem cells hold the promise of wholesale regeneration of the simpler organs, including the spinal cord of paralysis victims. Stem cells can also be used to grow spare organs outside the body, for later transplantation – see *Tissue Engineering* (p. 26). Which method will prove to be easier is still a matter for debate. Research and treatment using embryonic stem cells may, however, be stifled by ethical concerns and legislation.

Cloning

Unlike bacteria, species that reproduce sexually receive chromosomes from both parents, and each child is different. Cloning is a way around this. It is a bioengineering technique that is used to produce multiple, genetically-identical offspring.

The History of Cloning

Cloning was a long-established process in horticulture before anyone thought of applying the process to animals.

Cloning is easy with plants – it's done by making a cutting and planting it. Farmers and gardeners create clones all the time. It's not so easy with animals, but it is possible.

Cloning from Embryonic Cells (TL7-8)

Animal cloning technology was first explored in the mid-1960s with frogs and fish, whose egg cells are very simple in design. These early clones were made by transplanting the nucleus (containing the chromosomes and genes) of an embryonic animal cell into an egg cell whose genetic material had been removed. With electrical stimulation, the modified egg then developed normally into an embryo, a fetus, and finally a baby, genetically identical to the nucleus donor.

However, while scientists could make clones, there seemed to be a catch – a process known as cell differentiation. As an embryo develops into a fetus, certain genes in each particular cell activate, depending on the cell's role in the developing organism. The cells become much more specialized; for instance, they turn into skin cells, heart cells, brain cells and so on. The unused genes "switch off," and the now-specialized cells lose the ability to replicate in the fashion that cloning requires, because the genes required to make a complete animal are no longer functioning. The only way to avoid this problem seemed to be to take a cell from the early embryo (a stem cell), before it had differentiated.

During 1980s and 1990s, cloning experiments were applied to mammals. Human embryos were first cloned in 1993, but they were not allowed to develop into fetuses. Researchers figured out how to make multiple clones by culturing several cells from the same embryonic cell. One can also split an embryo at the 2-, 4-, 8- or possibly 16-cell stage to produce artificial twins, quadruplets, etc.

This technique is especially useful for cloning animals like livestock, but it has its limitations. The decision to clone an animal – or a human – has to be made before it's born. However, combined with gengineering, embryonic cloning allows genetically-engineered species (human or animal) to be mass produced, even if the gengineering was so extensive that they could no longer interbreed with normal specimens. It is especially popular in animal husbandry: a genetically-engineered cow embryo, for example,

can be cloned many times, ensuring its modifications are not lost through normal interbreeding.

In addition to ensuring the duplication of particular gene lines, humans might use embryonic cloning for other reasons:

Deliberate Twins (or Triplets, etc.): A mother who wanted multiple children might choose to carry two (or more) at once, if she lacked time or inclination for multiple pregnancies, or simply wanted to bear twins, triplets, etc.

Therapeutic Cloning: Cloning techniques may be used to create early embryos as a controlled source of high-quality human stem cells (p. 22) for medical research or treatments.

In Vitro Fertility: Some women can only supply a single egg for in vitro fertilization (p. 19), resulting in a low chance of success; by using embryonic cloning, that same egg can be divided before implantation, increasing the chance of a successful pregnancy (Add +1 to the success roll; double the cost).

Spare Parts: One clone is allowed to develop; others are removed and frozen. If necessary, the embryos can later be allowed to develop as a source of transplant material. In some cases, such as bone marrow transplants, this would be possible without injuring the donor, although the ethics of such a procedure are troubling.

Cloning from Post-Embryonic Cells (TL8)

This is much more difficult: it is the creation of a genetic duplicate of an adult animal (or human). Take a DNA sample from anywhere (skin, breast, blood, etc.), load it into an egg whose DNA has been removed, and grow it into a baby who is a perfect genetic copy of the original cell donor. It seemed like an impossible dream – but in 1997, Scottish scientists led by Ian Wilmut proved that it wasn't: Dolly, a female sheep cloned from adult cells, was born! Since then, many other animal species (cats, horses, dogs, etc.) have been cloned.

How is this accomplished?

First, cells (in the case of Dolly, udder cells) are removed from an adult animal and allowed to replicate in nutrient dishes. Then, the nutrients are scaled back dramatically, and the starving but still-living cells become quiescent. This crucial additional step of making the cells inactive is enough to allow their genes to receive signals to start making an embryo, given the correct environment.

This environment is provided by an egg taken from a female of the same species (who can also be the cell donor). Using techniques similar to embryonic cloning, the nucleus of the unfertilized egg is scooped out, removing the genetic material but leaving the rest intact. An electrical spark is used to fuse the quiescent donor cells with this egg, "awakening" the cell. The egg and nucleus then begin to form embryonic cells; about a week later, they're ready to be implanted into a surrogate mother. The offspring that results is a clone of the original cell donor, with no relation to the egg donor or the surrogate mother.

While cloning of adult organisms is quite possible with mid-TL8 technology, there are still some real and potential problems:

Inefficiency: The methods used to produce adult clones at mid-TL8 are very difficult and labor intensive. In Dolly's case, out of 277 attempts to fuse adult cells with eggs, only 13 pregnancies resulted, and only one was born alive. Nevertheless, the odds are improving as further research and development has been financed.

Side Effects: There are some difficulties with producing viable organisms from cloning (see *Risks of Cloning,* p. 24). Even though all the genes are transferred, some do not appear to "switch on and off" as they should, resulting in an increased number of abnormalities in many cloned animals. At TL8, any clone, human or animal, is likely to have hereditary disadvantages. Problems noted in animal clones have included a level of Short Lifespan (p. B154), a tendency toward obesity (e.g., Overweight, Fat, etc)., and problems with the immune system manifesting as Susceptible to Disease (any HT penalty) (p. B158). It is unlikely that there will be much support for human cloning until safer methods are developed, although that does not rule out the possibility of clones (successful or otherwise) being attempted. TL9+ cloning techniques are assumed to overcome these problems, but success is not guaranteed!

Clones and Uniqueness

Genetically, a clone is much the same as an identical twin. A newborn clone will be a baby, without any of the original person's memories or skills. However, various forms of ultra-technology may change this – e.g., deep learning (p. 143) and forced-growth tanks (p. 21).

All other factors being equal, a clone will have an identical physique and appearance to the original (unless there are any genetic abnormalities as a result of cloning problems). A clone is physically the same as the original at the same stage in its life. Thus, a nine-year-old clone will look like the original did at age nine. While a clone will not have the original's memories, it will share any genetic influences on body and mind. In game terms, this means it will have any advantages and disadvantages that the GM rules are genetically inherited, and should have similar attributes to those of the original at the same age.

However, everything is not always equal. Diet, exercise, and environment can have a dramatic affect on characteristics, from looks and build to behavior and intelligence. These changes can begin even before the clone is born. For example, if the clone is carried by a healthy surrogate mother, but the original was born to a mother who was malnourished during her pregnancy, the clone may well grow up to be taller and healthier!

If forced-growth tanks are available, they may be able to regulate the fetal environment to ensure that a clone is identical in appearance to the original, assuming this is desired. Without this technology, ensuring that a clone is completely identical requires ensuring that the clone's nurture and environment – from womb onward – simulate the original's. In some cases, this may require exhaustive research into the original's childhood.

Risks of Cloning

Despite having cloned several mammal species, researchers are still battling a problem inherent in the structure of the genes. The telomeres of any adult cell used for cloning have already been degraded (see *The Genetics of Aging*, p. 183). This means the cells in a newly cloned body start their lives effectively as old as those in the original donor. Even though the overall body is young, the cells begin to display the effects of old age prematurely.

This occurred with Dolly the sheep, who developed arthritis at the unusually young sheep age of six years. At present, scientists agree that a cloned human would likely suffer a similar fate. Before human cloning can become viable, this problem must be overcome, possibly by treating donor cells with telomerase before generating the clone.

Clones (and identical twins) may look alike, but fingerprints, palm prints, freckle patterns, and retina prints will not match, at least not without surgical modification. They may be quite similar, however, requiring an expert to tell them apart.

Also, the genes for a cell's mitochondria (its energy source; see *Organelles*, p. 103) – are contributed by the egg donor rather than genetic donor; the mitochondria exist outside the cell nucleus. Thus, unless both the egg cell and the genetic material (the mature cell nucleus) are donated by the same person (who'd have to be female), the clone won't be exactly identical – there will be slight differences in the tiny genome of the mitochondria.

Utility of Post-Embryonic Cloning

Why clone people at all? There are several possible reasons:

It is an alternative method of reproduction when natural methods fail. Many people want to have children – it is after all a biologically programmed imperative, for the good reason that if most people don't have children the species will die out. But some people can't, even with the help of conventional reproductive technologies (p. 19). Someone unable to produce ova or sperm has no way of passing on genes to the next generation, except by cloning. Using cloning to have children is in many ways preferable to adoption or using donor sperm or ova. The children will share a genetic heritage with the parent, making social situations easier to manage. And there is no risk that a genetic parent will come looking to reclaim custody of "his" child, or that the child will grow up unsatisfied with not knowing who his genetic parents are.

Cloning is also an alternative when a prospective parent simply doesn't *want* to have a reproductive relationship with a person of the opposite sex. Homosexuals or loners can use the technology to fulfill a desire for children.

Cloning might be the only way for a couple to have *healthy* children. If one parent suffers a terrible genetic condition, cloning the other partner will produce a child who doesn't inherit it.

> *The cloning of humans is on most of the lists of things to worry about from science.*
>
> *– Lewis Thomas*

Then there are reasons for cloning that involve helping others. A cloned sibling may the only chance a patient has of receiving a matching tissue transplant to cure a disease. This can be done benignly, where the clone loses nothing from the donation (such as bone marrow to cure leukemia). On the other hand, unscrupulous individuals may want clones for their vital organs, replacing worn-out hearts, kidneys, or even the entire body in an attempt at eternal youth (see *Head Transplant*, p. 143).

Finally, clones may be created for social reasons. Even though a clone is not mentally identical (and may have physical differences), people may seek to clone a dead pet, deceased child, or former lover, for sentimental reasons. Having a twin of a person can be useful for all sorts of illicit activities, ranging from "celebrity" prostitution to training a replacement for infiltration purposes. Cloning may also be used for eugenic reasons, such as to reproduce valued genetic traits (whether natural or engineered).

Some of these reasons are worthy; others are distasteful or criminal. The ethical repercussions of cloning for these purposes are discussed in Chapter 8 (*Playing God*, p. 195).

Biometrics

Biometrics is the science of measuring and statistically analyzing biological data. It includes technologies for personal identification by analyzing physiological characteristics such as fingerprints, facial patterns, or DNA. Uses include security systems, computerized face and voice recognition, and forensic identification, both for catching criminals and identifying dead bodies.

Bertillonage (TL6)

Alphonse Bertillon developed one of the first practical biometric systems for identifying people in 1882, by recording the precise lengths and widths of various features of the head and body. Bertillonage proved useful to English and French law enforcement, until the more reliable method of fingerprinting took over.

A person's Bertillon measurements change slowly with age or injury. Measurements for twins and clones will match – assuming they have not had discrepant bone-modifying surgery or injuries, and their growth stage is the same (clones or frozen embryo twins may be different ages!). There is, however, a chance that the person taking the measurements will make an error; correctly recording all 11 figures requires a successful Forensics/TL6 or Criminology/TL6-2 roll. The chance of two random sets of Bertillon measurements matching is one in several thousand. Forensics/TL7+ does *not* include a working knowledge of Bertillonage.

Blood Typing (TL6)

Blood is often found at crime or accident scenes. Historically, blood types (p. 130) were recognized in 1909, but they required a fresh sample. Forensic investigators could not determined the type of a dried blood sample until 1932. Blood typing can rule out a person as having left a particular sample, but it cannot make a positive identification because many people share each blood type. With a premixed test solution kit (TL7) or an antibody-impregnated card (TL8+), anyone can identify a blood type on a successful IQ+6 roll.

Fingerprinting (TL6)

Although there is some evidence that fingerprints have been studied throughout history, their use in modern biometrics began when the London Metropolitan Police adopted fingerprinting in 1901 as a method of uniquely identifying criminals. Although fingerprints are unique in their details, there is a small chance of an analyst making an interpretive error when comparing prints (on a critical failure on a Forensics roll). Prints of identical twins or clones are very similar, giving -1 to Forensics rolls to distinguish them. Prints lifted from crime scenes may be more or less smudged or incomplete, giving penalties anywhere from -1 to -8 depending on circumstance.

Facial Reconstruction (TL7)

Given a human skull, it is possible to model the shape of facial muscles and tissues using anatomical knowledge to reconstruct an image of the person's face. This is useful for identification of decayed bodies, but is not 100% reliable and is quickly made obsolete by DNA profiling methods. It also has applications in archaeology. Creating a realistic reconstruction requires a successful roll on Artist (Forensic), or Forensics-4 skill.

Aging Simulation (TL8)

Missing persons, particularly children, change in appearance as they age. To provide a current target for investigation, a computer simulation can artificially age the missing person's physical features. This produces an image that matches closely enough for a rough identification, which in many cases is all that is needed for further investigation to uncover the truth. Writing such software requires Computer Programming and Physiology skills, but running it is simply Computer Operation. The software is Complexity 4, $5,000. LC4.

Genetic Fingerprinting and RNA Sample Dating (TL8)

See *DNA Testing* (p. 8).

Forensic Equipment

Forensic criminologists use an array of specialized chemicals when investigating crime scenes.

Suitcase Forensics Lab (TL5-12).

Basic equipment for using Forensics skill to gather samples. $3,000, 10 lbs. LC4.

Luminol (TL6)

This chemical, invented in 1937, reacts with the iron in hemoglobin, forming a compound that fluoresces under ultraviolet light. Forensic investigators can spray it over a suspected crime scene to locate where any blood has been spilled, even if obvious stains have been removed. Such traces are enough to gather for DNA profiling, but luminol destroys antibodies, so the blood cannot be typed below TL8. Luminol gives a +3 (quality) bonus to Forensics skill when searching for traces of blood. $10 for a vial of powder that makes up a pint of solution with water. LC4.

Ninhydrin (TL7)

Invented in the 1950s, this chemical reacts with the amino acids left behind by latent fingerprints, even years after the prints have been deposited, forming an easily visible purple image. It works especially well on paper and other organic surfaces. Ninhydrin gives a +3 (quality) bonus to Forensics skill when searching for fingerprints. $5 for a vial of crystals that make up a pint of solution with methanol; $10 for a pint of premixed solution. LC4.

Cyanoacrylate (TL7)

Eastman Kodak developed this adhesive in 1958; today it is commonly sold under the trade names SuperGlue or Krazy Glue. It has two distinct biotech uses. Firstly, it is an exceptionally rapid-setting and strong adhesive, polymerizing quickly in the presence of moisture to form a fast bond. It binds body tissues tenaciously and is non-toxic, making it useful for closing wounds without sutures, although it needs to be applied with care to avoid glue in the wrong places! It also works well on non-porous materials, so it is frequently used to glue metal implants (such as artificial joint appliances) to bones. Its second use is in forensics, as cyanoacrylate vapor polymerizes in the presence of the traces of water left behind by a latent fingerprint, forming a white print that is easily visible on dark surfaces, and enhancing the print structure so that secondary powders or dyes work more effectively. $5 for a 1 oz. bottle. LC4.

Artificial Life

The ultimate expression of biotechnology is to *create* life from non-living matter. At a reductionist level, there seems to be no barrier to this; if we can line up all the molecules in the right configurations, it would be impossible to distinguish a natural organism from a created one. This would take superscience technology, as the number of molecules to be arranged will defeat anything less. There are shortcuts, though.

Tissue Engineering

Tissue engineering is the first step in producing artificial organisms. It uses stem cell cultures (p. 22) grown on biodegradable scaffolds in a suitable biochemical environment to produce organs without having to grow an entire clone body.

Transplant Organs (TL8)

Tissue engineering can be used to grow organs suited for transplantation (p. 141). The patient donates a sample of DNA, which is then used to grow the required organ. At TL8, organs must be grown attached to a living animal so they are supplied with the required nutrients, but smaller versions of cloning tanks may ultimately replace them at TL9. Cosmetic tissue such as ears and noses is the simplest to grow (TL8), followed by simple organs such as kidneys and livers (TL9). These would take four weeks to grow. Entire limbs and complex organs like hearts, lungs, and eyes would become available later, and take up to eight months to grow.

Fauxflesh (TL9)

NAPANEE (AP) – Acting on an anonymous tip, Ontario Provincial Police raided a factory building on the outskirts of Napanee. They found what one officer called a "disgusting scene, right out of the 20th century": live pigs and chickens being slaughtered and packed by modified agribots for the black-market meat trade. "I thought I'd seen everything in my 10 years on the force," said OPP officer Bill Mackenzie, "but this really turns your stomach, eh?" Police made six arrests.

Gengineered cells from livestock are cultured in growth tanks and supplied with nutrients. This creates a continuously growing biomass of lean meat tissue, which is harvested whenever food is required or it gets too big for its vat. Fauxflesh meat comes in oddly regular shapes, but is otherwise indistinguishable from natural meat.

Initially there is likely to be consumer resistance to fauxflesh as "unnatural," but this may be overcome by relative cheapness, concerns for animal welfare, or a population outpacing its food supply. Once established, fauxflesh may ultimately make raising animals for meat socially unacceptable or illegal.

Mimicking Biology

For most of our scientific history, we've thought of life as plants and animals and, more recently, microbes. These provide plenty of patterns on which we could base artificial living organisms.

Biogenesis (TL10)

Biogenesis is tissue engineering (above) taken to the point where biological molecules can be assembled into a viable organism. Nanomachines lay down a polymer or carbon composite scaffolding and assemble bone, muscle, nerves, and other tissues on this framework. The cells are controlled by artificial chromosomes, designed to produce the proteins and enzymes needed by the resulting organism. Often the designers will take shortcuts, using clusters of nanofactories to produce required proteins that couldn't be coded into the genes, either because of lack of understanding or development time. The result is that the organism is a mixture of biological parts and artificial components.

Biogenetic organisms come in all sizes, from insect-sized up to building-sized or larger. Since construction throughout the organism is simultaneous, they all take around the same time to build: four to six weeks. Larger organisms require more nano and raw materials, however, and thus are proportionately more expensive. Biogenesis can be used to create a wide variety of organisms, including copies of animals, designer lifeforms such as the skullcat (p. 96), and biogadgets (p. 95).

Any biogenetic organism will have Unusual Biochemistry (p. B160).

Bioroids (TL10)

Bioroids (short for biological androids) are humanoid beings created using biogenesis. Although they can be made to resemble humans, deep differences will be apparent if the cells are examined. Baseline bioroids are designed to accept artificial chromosomes, with "slots" into which genetic engineers can easily plug specific modules of genes. Much redundant material, such as introns, is left out of bioroids.

A basic bioroid design is similar to a genetically upgraded human. Initially they will be sterile, though some female models will be able to act as surrogate mothers. This limitation can be overcome with implanted or *in situ* tissue-engineered reproductive organs grown from human DNA.

Early bioroids will have limited intelligence, restricted to instinctive actions, but as the technology matures designers will be able to produce learning and reasoning capability. Since bioroids are produced in a fully grown form without passing through childhood, they will require intensive learning programs to achieve human levels of intelligence in a reasonable time; they would be ideal candidates for deep learning technology (p. 143).

Due to their resemblance to human beings and their potential for intelligence, bioroids would be the subject of intense ethical debate and legal regulation; see *Bioroids and Parahumans*, p. 199.

Cost: Usually about $25-50,000 for production, plus at least $1,000 per character point of the model template, for design, marketing, and education.

Statistics: Bioroid characters all possess the *Bioroid* meta-trait (p. 214). See also the Bioroid box in Chapter 2.

Biofab (TL10)

This is a specialized wet nanofactory that can assemble organs or even complete life forms (bioroids). A biofabricator can assemble living things rapidly (a year of growth every week). Thus, it takes 18 to 20 weeks to make an adult human. A biofab costs $20,000 and weighs 5 lbs. per pound of capacity. One big enough to hold a human is $400,000, 1,000 lbs. LC2. Necessary raw materials for biogenesis are usually $100-$500 per lb. ($20,000 per ton) for production, plus any design and marketing costs.

Neogenesis (TL11)

The next step beyond biogenesis is to design fully biological organisms without the need for residual nanotechnology systems to keep them functioning. This requires an advanced theoretical understanding of the interactions between DNA, RNA, amino acids, proteins, and enzymes. Designs would require a vast database of biomolecular data and accurate simulations of their interactions.

Getting all the complex interactions right may be so difficult that it is the province of specialized AIs – or it might be accessible by a point-and-click interface built on top of a vast expert system, allowing anyone to design their own life forms. At high enough tech levels, designing life might be a children's educational tool.

Once you have the design for a new life form, bringing it into reality can be done in two ways:

Nanoassemblers could build viable creatures from scratch, perhaps using DNA as the template, in a method similar to biogenesis. Assembled organisms would be essentially equivalent to bioroids, with no mechanisms for reproduction. The molecular mechanisms for sustaining their bodies, allowing growth, metabolism, movement, and possibly intelligence, may be encoded in relatively short sections of genetic material. Leaving out the genes for reproduction and growth from an embryonic form will save considerable amounts of development time and be achievable with lesser technology.

The ultimate expression of biogenesis (at TL12) would be to create an entirely new viable *species*, fully capable of self-reproduction. Individuals could either be assembled from scratch or, more efficiently, grown from assembled embryos provided with a suitable biochemical environment, allowing the genome to control the growth process. This is a simpler procedure at the assembly stage, but requires a far greater theoretical understanding during the design phase.

Non-Biological Life

Going beyond the DNA/RNA/protein complex as the basis for artificial life, designers could use other biochemical bases on which to build organisms (see *Different Biologies*, p. 35). This results in biogenetic organisms with vastly different biochemistry, which may require special food designed so that they can digest it. More fancifully, those seeking to emulate life might choose inorganic chemistry, or even electromagnetic interactions, as the basis for their research. This leads to machine-like beings and the worlds of artificial intelligence, which are discussed in ***GURPS Ultra-Tech***.

Lifebanks and Genome Libraries

A lifebank is an indexed collection of tissue cultures, eggs or embryos. A well-stocked lifebank will have examples of many different genotypes within a particular species, to ensure genetic diversity. About 50 individuals per species would be the minimum breeding population needed to allow that species to be reintroduced successfully, while 1,000 could preserve most of a species' genetic diversity.

The simplest stable ecosystems (e.g., an isolated lake) might have under 1,000 species, but most have 10,000 or so. Earth may have as many as 80 million species – 2-4% of all the species it has ever had. Extensive lifebanks are already being established as a safeguard against extinction. At higher TLs, they can be found aboard colonizing "seedships." Lifebanks require $500 and 5 lbs. per embryo stored. A live bacterial culture, or large quantities of germ cells (hundreds of human gametes, plant seeds or bacterial spores), can be stored for the same amount of money and weight.

A genome library stores the data for a mapped and sequenced genome in digital form. This information can then be used to synthesize DNA, although growing a complex organism like a human with nothing but a digital genetic code requires TL10+ technology and is far more time-consuming than if actual samples existed. (See *Genetic Reconstruction*, p. 14). A complete genome database (plus Complexity 2 indexing programs) for a particular species genome is $5,000 (and 5 gigabytes) for microorganisms or plants and $20,000 (and 20 gigabytes) for other life forms.

A common trope in science fiction is the idea of a colonizing "ark," with DNA samples of the various animals and plants the colonists will need when they reach their (usually interstellar) destination. Such an ark will also need technology capable of reproducing the right growing environments for the embryos of all those species. At TL10, this sort of universal womb machine is feasible, if programmed with data on the right biochemistry for each species – see *Growth Tanks* (p. 20).

Biomaterials

Another application of biotechnology is to materials science. Rather than rely on the metals, ceramics, and polymers of our forebears, the future will be a world in which biologically produced materials play an increasingly important role.

Biomimetics

Biomimetics is the branch of materials engineering that deals with the development of synthetic designs modeled on biological materials. Natural materials often have extremely complex molecular structures. Rather than copying these directly, biomimetics seeks to improve on nature by using them as templates for synthetic molecular designs.

Designing synthetic versions of natural polymers – like snail shells, wood, or insect chitin – could lead to stronger and tougher materials. Since many biomaterials can sense and respond to their surroundings, a major goal of biomimetic technology is to develop "smart" materials capable of altering texture, color or shape, sensing and repairing stress and damage, or even growing. Primary applications include fabrics, (such as flexible body armor derived from spider silk), cybernetics, sensors, textiles, and waterproof, weatherproof, "chameleon," or "stealth" coatings.

Many TL9+ items will employ biomimetic materials. As a single example, some archaebacteria (see *The Domains of Life*, p. 103) live at very high temperatures in ocean thermal vents. Their heat-stable molecules could be adapted for many industrial and pharmaceutical processes, ranging from detergent additives to beam-resistant ablative armor. Another widespread biomimetic technology might be "bioglue" – a range of biodegradable, waterproof adhesives based on the naturally-secreted, protein-based glue used by limpet mollusks. Bioglue may be found in many surgical kits, replacing conventional surgical sutures, since it does not need to be removed; it is also the adhesive base for plastiskin patches. Besides its medical uses, bioglues may also be used to assemble composite materials or in ultra-sticky tangler strands (see *Web Gun*, p. 227).

Biotronics

This technology uses protein-based systems for information storage and processing. Here are just a few of the biotronic technologies on the horizon.

Biosensors (TL8)

A biosensor is an electronic device that consists of a ordinary computer chip coated with a layer of biological molecules that selectively bond with a specific, known compound. When this occurs, the chip sends a signal that these molecules are in the area. Depending on the design, a biosensor can be used as a contact sensor to identify specific chemicals or biological substances, or as a ranged sensor to detect airborne molecules such as toxic gases or explosive vapors. The main limitation of biosensors is that they don't detect "unknown" compounds. However, they can be easily updated by plugging in a new biosensor chip. At TL9+, more sophisticated biosensors may work as "electronic noses" with bloodhound-like odor detection capability.

Smart Sensors (TL9)

These are the next generation of biosensors. While a biosensor is designed for a particular application and requires a chip upgrade to add new capabilities, smart sensors contain synthetic neural material. This is capable of reconfiguring its structure and learning from experience, flagging new sensations and giving them different labels so that they can be recognized in the future and passed on to the interfacing software. With suitable software controllers, a smart sensor can be trained from scratch, rather than having to be redesigned for each application.

Vatbrain Computers (TL9)

A vatbrain biocomputer, or "meat matrix," is a computer whose processing capabilities have been enhanced with living nerve tissue. Vatbrains are good at mimicking human neural systems, and are a possible shortcut to artificial intelligence. The down side is that the life-support facilities for their organic central processing units are heavy, requiring precise environmental controls and nutrient feed systems.

The neural tissue used might be scavenged from living brains or grown in vats, to create self-organizing logic connections. Biocomputers require a life-support system to bathe the neural structures in nutrients; maintaining a biocomputer requires both Electronics Repair (Computers) and Electronics Repair (Medical).

In some settings, vatbrain biocomputer neural tissue might have to come from sapient brains (such as those of humans), or there may be even more ghoulish requirements, such as fetal tissue or tissue from brains that are still developing. This could lead to a market demand for scavenged brain tissue to supply the biocomputers. Cheap tissue engineering technology wold likely remove the need for such a market.

The software Complexity required for any artificial intelligence programs or mind emulations are reduced by one Complexity level when running on a vatbrain biocomputer. Vatbrains might also permit special capabilities, such as computer systems that can develop psi powers.

A vatbrain biocomputer has twice the usual weight, cost, and power requirement of a normal computer, due to the extra requirements of its life support system. LC3.

Gestalt Brain Matrix (TL9^)

Once it is possible to form neural connections between human brains, someone will consider wiring lots of them together to form a computer. Realistically, this will be slow and unwieldy, easily outperformed by conventional computing technologies. Procuring brains to build a gestalt matrix will also be ethically questionable and probably illegal. Still, there's no reason it couldn't be done, and it would make a suitable project for a mad villain.

A more enlightened variant could be built using neural interfaces to unite brains via a distributed network. People might volunteer to be part of such a project, something like SETI@home and similar efforts today, but they would be allowing the project to run programs using their brains. People jacking into a neural network might have parts of their brains utilized without their knowledge.

Physically, the gestalt looks and operates like a normal computer . . . except for the people or bodiless brains in the server room! Each "component" brain must have some way of interfacing with the computer. This may be a temporary connection, such as a jack that plugs them into the computer, or it may be a more permanent connection. The human components may have their entire bodies integrated into the computer and sustained by a life support system, or, more ghoulishly, just their brains and nervous systems; see *Brain Transplant* (p. 143) and *Brain Pod* (p. 147).

When interfaced with the computer's gestalt processor, the components are effectively asleep (although the time spent does not count as sleep for the purpose of recovering fatigue, etc). They cannot themselves use the computer system, and afterward will have no conscious recollection of what the gestalt computer is doing.

At the GM's option, some of the component brains may retain some subconscious residue of the work or data they are handling. This could come out in dreams, under hypnosis, or only through the use of specialized brainscanning equipment; the GM may wish to treat this as a Flashbacks (p. B136) or Nightmares (p. B144) disadvantages, or even as a Racial Memory (Passive) advantage (p. B78). This could create difficulties if the gestalt computer was engaged in classified or illegal activities using components who were working remotely through neural interfaces, and it is suspected that some of these individuals have started to recall what these activities were.

This leakage could also be two-way: if the computer itself is sapient it may, after a time, absorb memories or personality traits shared by a large percentage of its components, or by particularly high-IQ or high-Will individuals.

The number of people in the gestalt array determines the computer's effective Complexity. The gestalt "components" must be sapient (IQ 6+) beings with no significant brain damage. One linked mind gives it a base Complexity 9; for each tenfold increase in the number of minds in the gestalt, add one to its Complexity. An IQ 6-7 component counts as only half a mind; IQ 15-17 as two, IQ 18-20 as three, IQ 21-23 as four, etc. Optionally, the computer may also gain mental advantages, if they are possessed by the majority of its components. Each component mind can also be used as a unit of removable media, storing (TL-8) TB of information even when removed from the gestalt (this information is not consciously available, but may interfere with memories). A basic gestalt computer is $100,000 and 500 lbs. Modular "brain connectors" for extra components can be added for $1,000 and 50 lbs. each. LC2.

Sponge Computers (TL10)

Sponges have a homogeneous macroscopic structure suitable for hosting neural networks, but the natural animals do not take advantage of this to perform complex thinking. With some genetic tinkering, sponges can be made to grow electrically active neurons in configurations responsive to external stimuli. As these develop, they become effectively "artificial brains," that can be connected to biosensors or other electronics. Sponge computers incorporate memories and make logical connections much like a real brain, with the advantages that the structure allows the permeation of nutrients and oxygen and that they can keep growing as long as these are supplied. They are thus much more robust than vatbrains and easier to grow.

At TL11, sponge computer implants can be made with discriminatory growth patterns that let them grow into small crevices and infiltrate biological material. Implanted into a sinus cavity, it could grow into and either supplement or take over the brain of a person. Use the rules for vatbrains (p. 28) but halve the cost and weight. There is no practical upper limit to how large a sponge computer can be – they can be housed in the open ocean if necessary.

TL11 infiltrative sponge computer implants most often suppress higher brain functions, giving the subject both the AI and Automaton meta-traits (p. B263). They are about the size of an apple seed and can be easily implanted in food, etc. They take a day to grow; a HT-4 roll means the subject's immune system fended them off. Removal requires brain surgery, much like removing a tumor; roll at -3 if they're half-grown or -6 if full-grown.

Variant Biotech

We tend to think of biotechnology as a modern science, using the latest discoveries in biochemistry and genetic engineering techniques and their extrapolations into the future. But depending on the genre of a game, there may be other ways of manipulating the forces of life.

Imprinting

Widespread myths from the ancient Greeks to Renaissance Europe have held that a female who sees or imagines someone other than her sexual partner at the moment of conception can imprint that image on the child. Greek stories tell of women falling in love with statues, and producing children who resemble them.

On a practical level, this belief leads to two avenues of distrust against suspected adulteresses. Firstly, if a woman is physically faithful, but fantasizes about another man, a child may end up looking like the object of desire rather than the father. Secondly, a woman might deliberately think of her husband while in the embrace of a lover, making the love-child resemble her spouse. So whether the child resembles the husband or not, it can be construed as grounds for suspicion! In a game world, rather than simply being a projection of male paranoia, this myth may have some truth to it.

A mother who has suffered some psychological shock or trauma at any time prior to conception may also imprint the child. A woman threatened with a knife could give birth to a child with a knife-shaped birthmark, or who resembles her assailant.

What's more, it works with animals too; the story of Jacob in *Genesis* mentions showing ewes black-spotted rods so that they give birth to spotted lambs. In a mythic campaign, this power could be harnessed for eugenic purposes, to produce offspring based on idealized statues, or for twisted experiments producing half-human chimeras.

Magical Biotech

Fertility magic is nearly as old as humanity itself; wizards in fantasy literature are forever brewing up strange creatures in their vats, and fairy godmothers often bestow gifts or curses on unborn children. And in a setting that harbored both magic and high technology, who knows what strange hybrids the combination of biotechnology and sorcery could spawn?

The spells described here can form the arsenal of any mage who specializes in bio-magic. The colleges they belong to are:

Body Control: Accelerate Pregnancy, Ease Labor, Remove Fetus, Transfer Pregnancy, Warp Fetus.
Enchantment: Create Chimera, Spellgraft
Healing: Ease Labor, Remove Fetus, Sense Disease.
Knowledge: Analyze Heredity, Genomancy.
Movement: Remove Fetus, Transfer Pregnancy.
Necromancy: Hellspawn.
Technology: Alter Nanovirus, Manipulate DNA, Sense Nano, Sequence DNA.

The Technology College and some prerequisites are described in ***GURPS Magic,*** but all spells may also be learned using prerequisites found only in the ***Basic Set.*** The spells in the technology college are unlikely to appear before TL7, but you never know!

Accelerate Pregnancy

Regular

This spell speeds the safe development of an unborn baby.

Duration: Permanent (until baby is born).
Cost: 20 to double rate of development, plus 10 more for each additional doubling of speed. Thus, a baby developing at 16 × speed (50 to cast) would come to term in only two weeks.
Time to cast: 20 seconds.
Prerequisites: Ease Labor and Haste.

Alter Nanovirus

Regular

This spell alters the nature of a particular nanovirus (see p. 12) that is either dormant (e.g., stored in a vial) or is within a host but has not yet finished transforming its subject. Each casting allows the mage to add or subtract one advantage or option from the virus.

Cost: (T-8) × 10, where T is the higher of 9 or the minimum TL required to add that option or ability to a nanovirus.
Prerequisites: Sense Nano, Manipulate DNA.

Analyze Heredity

Information

This allows the mage to ask a question regarding the heredity of the subject, within the limits of his TL's knowledge. For example, a TL3 mage who isn't a biologist could ask "is he a son of King Richard?" or "will this mare pass on the blood sickness to her foals?" and get a true answer; at TL7+ a mage could get answers equivalent to those available from a DNA test (see *Genetic Profiling,* p. 9).

Cost: 3.
Prerequisites: Seeker or Sense Life.

Create Chimera (VH)

Regular

This enchantment fuses together two or more very early embryos (no more than week-old if human) of different species into a single organism. The subject may be a live host or a growth tank (p. 20). If the subject was already pregnant with an early embryo, the other embryos must be implanted as part of the process using surgical means or a Transfer Pregnancy spell (p. 32). Otherwise, at least two embryos must be implanted via these means, and if using a live host, at least one of the embryos must also be the host's species. The resulting chimera will blend all species' traits, with appropriate advantages and disadvantages (see *Chimerization*, p. 38); the details are up to the GM.

Modifiers to skill roll: 0 if very close cross (e.g., wolf-dog), -3 if closely related (e.g., ape-human, sheep-goat or tiger-lion), -6 for distant hybrids (e.g., fox-human or alligator-viper), -8 for radical hybrids (e.g., crocodile-bat or human-hummingbird). Add +4 if trying to duplicate a previous success using the same mix, -4 if mixing three species, -8 if mixing four, -12 if mixing five, etc.

Success means a viable chimera forms but (especially if the caster got very ambitious) it will not be perfect: the GM should give it several unplanned disadvantages. Critical success means an excellent mix of advantageous traits and mild disadvantages.

Failure means the spell fails to work, terminating any natural pregnancy in the process. Optionally, failure by 1 means the implanted embryos fail to fuse, but do not die unless the host could not reasonably sustain them; otherwise it's a multiple pregnancy (e.g., an attempt at an elf-dwarf fusion results in elf and dwarf fraternal twins).

On a critical failure, the creator gets something that appears to be viable enough to carry to term, but which proves to be either horribly deformed, life-threatening to the mother (if using a live host), or both.

If the spell works, it also ensures the embryo will be carried safely to term. The size of the fetus will usually be appropriate to the host mother, e.g., a whale-human carried by a human mother (or appropriately-sized growth tank) might be larger than her normal baby, but not by much. It is also possible to remove a developing chimera and implant it somewhere else – see *Surrogate Motherhood* (p. 20) and *Growth Tanks* (p. 20).

Cost: 20 per embryo in the fusion.
Prerequisites: Analyze Heredity, Enchant, and either Alter Body or Lightning.

Divination

Information

Genomancy is divination by examining the pattern of introns in someone's DNA. A blood sample and some means of viewing the introns (e.g., a genetics lab) is required.

Prerequisites: Analyze Heredity, two Healing, and two Body Control spells.

Ease Labor

Regular

Cast on a mother who has gone into labor, this spell eases the pains and ensures a relatively trouble-free birth. If using the rules for birth in the S*urrogate Motherhood* rules (p. 20) it gives a +2 on HT rolls to avoid problems if maintained for the duration of labor, or +1 if maintained only for the last half.

Duration: 1 hour.
Cost: 4 to cast; 2 to maintain.
Time to cast: 6 seconds.
Prerequisites: Lend Vitality.

Hellspawn

Regular; Resisted by mother's Will

Conjures a malign demonic spirit to replace the soul of an unborn child. The result will usually be born as a demonic familiar if conjured into a non-sapient animal, or a cursed half-demon (give the character lots of supernatural disadvantages) if a sapient race.

Critical failure may conjure a real demon outside the mother's body, or accidentally summon some other entity to possess the developing fetus – maybe an angel?

Cost: 20.
Time to cast: 5 minutes.
Prerequisites: Summon Demon.

Manipulate DNA (VH)

Regular

Lets the caster magically splice genes and manipulate DNA to produce specific traits. Successful use gives the caster a +10 to Bioengineering (Genetic Engineering) skill to the Prototype when performing genetic engineering (see p. 17). This bonus adds to other modifiers in the genetic engineering rules; the spell also allows working with improvised facilities (e.g., a kitchen) at a -10 "lab quality" penalty (which exactly cancels the +10 bonus the spell provides for no net modifier). Only one try is allowed per weekly attempt at genetic engineering; the GM should roll secretly for success.

Duration: 1 week.
Cost: 8.
Time to Cast: 5 minutes.
Prerequisites: Sequence DNA and Apportation, or Create Chimera.

Remove Fetus

Regular; Resisted by mother's HT

Cast on a pregnant mother, this spell allows the mage to reach through the mother's belly and into her womb and safely detach the fetus. If the fetus is old enough to survive (or can be rapidly transferred to a growth tank or incubator), this is effectively a painless alternative to Caesarean birth. Otherwise, it serves as a means of abortion.

Cost: 3
Time to cast: 3 seconds.
Prerequisites: Ease Labor, and either Minor Healing or Apportation.

Sense Disease

Information; Area

This spell tells the caster if the area contains substances or organisms likely to cause disease symptoms – such as contagious bacteria or viruses, parasites, carcinogens, allergens, foul air, disease spirits, or hostile nanomachines. The caster may specify he is looking for a particular type of agent, or for something able to cause a particular symptom.

Base Cost: 1/3 (minimum 1).
Prerequisites: Sense Life, or any two Healing spells.

Sense Nano

Information; Area

Tells the caster if there are any nanomachines in the subject area, and gives a general impression (on a good roll) of what kind. The caster can also specify he is looking for a specific type of nanomachine, or even a named brand he is familiar with.

Base Cost: 1.
Prerequisites: Sense Disease and IQ 15+, or Seek Machine and Small Vision.

Sequence DNA (VH)

Information

This spell allows the caster to magically determine the correct DNA sequences needed to produce specific traits. Successful use of this skill gives the caster a +10 to Bioengineering (Genetic Engineering) skill at the concept stage of genetic engineering (see p. 17. Only one try is allowed per week; the GM should roll secretly for success.

Duration: 1 week.
Cost: 6.
Time to Cast: 5 minutes.
Prerequisites: Magery 2+ and either Genomancy or Analyze Heredity.

Spellgraft (VH)

Enchantment

This gives an unborn child inherent magical ability. This spell is thus a favorite of genetic engineers, fairy godmothers, and pagan deities.

A spellgraft can be made using any spell known to the caster at skill-15 or better. When the child is born, he will possess the ability to use that spell as racial magic – use the *Racially Innate Spells* (p. B453) rules. Only one try is allowed to give a child a particular spellgraft. A critical failure adds an extra curse as a side effect – the child will be born with a supernatural disadvantage such as Cursed or Weirdness Magnet.

Cost: Half the energy cost of an equivalent magic-item creation, but can only be cast on a developing fetus.
Prerequisite: Enchant.

Transfer Pregnancy

Regular; Resisted by HT

This spell transfers an embryo or fetus from the mother to the mage's own womb, or from the mage to another female's womb. At double energy cost, the mage can transfer from an artificial container (such as a vat or growth tank); the mage must be touching the container if he wishes to

transfer its contents into a host. At even higher energy cost, the spell can transfer to a male, creating an artificial pocket womb, although any birth must be through Caesarean section, this spell, or the Remove Fetus spell.

The subject of the spell (not the fetus or embryo) resists, whether the baby is being transferred to or from it.

Cost: 4 for an embryo, double for a fetus. Double energy cost to transfer to or from an artificial container. Triple energy cost if person receiving the fetus is male.
Prerequisites: Remove Fetus and Magery 2+.

Warp Fetus

Regular; Resisted by mother's HT

If cast on a developing embryo or fetus, it will be born deformed. The child will be born with 10 points of mundane physical disadvantages (caster's choice) for every energy point put into the spell. Only disadvantages that could conceivably be the result of birth defects or hereditary diseases are possible, e.g., Epilepsy or One Arm.

Warp Fetus may also be used to give the subject supernatural physical disadvantages, such as Draining or Supernatural Features, but these cost double, i.e., 1 energy point per 5 points of disadvantages granted.

Cost: variable
Time to cast: 10 seconds.
Prerequisite: Strike Barren or Wither Limb.

Steampunk Biotech

The science of the Industrial Revolution and the Victorian Age had its own views on the processes of life and what might be achieved with it by experiment and manipulation. In a steampunk world where the visions of Verne and Wells are reality, the scientist who dares to tinker with living creatures is one step from playing God. His creations are often abominations that serve as a lesson that there are still places where mankind's apparently limitless power must not be used.

This has been the traditional role of biotechnology in the steampunk genre, but it is also possible to imagine a bright future for the fledgling sciences of evolution and heredity, as well as the germ theory of disease and vaccination. In such a world, biologists would use scientifically directed selective breeding to produce fantastic new crops and livestock with many of the properties of gengineered organisms, while doctors would be heroes developing vaccines against all diseases, and creating drugs to grant effective immortality.

Breeding

With the discoveries of heredity and evolution, 19th-century science suddenly saw great possibilities for the advancement of living beings. A systematic approach to selective breeding – which had been practiced informally by farmers for centuries – might make sweeping changes to species in a matter of a few generations. The (now discredited) theory of Lamarckism – that parents can pass on features acquired during their lives to their offspring – provides a method by which breeders can direct such changes and hope to see gross changes in anatomy within a reasonable time.

In order to explain the apparent massive differences between species that presumably evolved from common ancestors, Dutch biologist Hugo de Vries proposed that species could undergo sudden and massive changes in a single generation, becoming a new species all at once. Triggering such macromutations either through deliberate breeding or by using drugs gives steampunk biologists an even faster way of transforming life.

Biotech Development Pathways

Like the ultra-tech development pathways described in ***GURPS Ultra-Tech***, biotech can develop in several different speeds in alternate directions. To an even greater extent than other technologies, biotech is as likely to be held back by public opinion, ethical concerns, religious condemnation, and legal restrictions as by technical difficulty . . . if not more so. A biotech campaign setting can be customized in various ways by "twiddling the knobs" on the pace of development in different areas, as well as the reasons for the differences. A world in which human clones don't exist because there are insuperable technical difficulties is very different from one in which they are demonstrably possible, but outlawed.

Slow Nanotech

The development of biological "wet" nanotechnology is more difficult than expected or held back by societal pressures. This retards development of techniques that rely on medical nanobots and prevents the invention of bioroids. Variant human races must be built by germline genetic engineering, while technologies like diagnostic nano, nanoviruses, and biogenesis remain nonexistent, experimental, or illegal.

Slow Gengineering

This posits that genetic engineering techniques will hit a major stumbling block, either theoretical or imposed by society. This restricts the generation of human clones, tissue-engineered implants and biomods, and genetically upgraded or modified variant human races. Germline modifications to the human genome will be nonexistent or rare, and any variant humanoids encountered will be bioroids. Biogenesis and biogadgets may provide items that make up for the lack of parahuman species capable of colonizing hostile environments, making them dependent on this technology to survive.

Xenotransplants and Surgery

This is the modification of living animals through surgery and transplants – the classic examples are *Frankenstein* and *The Island of Doctor Moreau*. The goal is often to make animals more human-like, giving them upright postures, the ability to speak, and so on. It can also be used to make chimeras (p. 38), assembling monsters out of the parts of various animals. This is useful when you don't have the patience to breed for desired traits (most mad scientists don't). For an extra tinge of horror, the operations can be carried out without anesthetic.

On the positive side, it could be the steampunk version of biomodification, allowing many of the enhancements listed under *Biomods* (Chapter 7), with similar times and costs. The main difference is that parts from appropriate animals would be used to achieve many of the enhanced effects. Such operations would be carried out with the patient under ether or chloroform, and may lead to a world in which most people are so enhanced.

Atavism

In the late 19th century, Ernst Haeckel proposed his theory of *recapitulation*: that animals pass through embryonic stages similar to the path their species took through evolution. This was somewhat supported by evidence of gill-like structures on bird and mammal embryos, among other features. Although not accepted as part of modern biology, recapitulation could be true in a steampunk world, leading to the possibility that selective breeding or drugs might halt some part of the "evolution" of an embryo, giving the resulting creature some features of evolutionary ancestors. Through this process of *atavism*, humans could thus be granted the strength of apes, or the gills of fish. In other genres, atavism based on different theories may also be appropriate for alien races!

Revivification

With discoveries such as the electrical and chemical activities of animals in the late 18th century, it seemed that it might be possible to grant life to inert matter. Mary Shelley's classic novel *Frankenstein* showed how it might be done, using parts of cadavers sewn together, and in film adaptations revivified using the power of electricity (though the novel does not specify this). Other approaches include using a vitalizing elixir, known as *élan vital*, which contains the distilled essence of life. The source of *élan vital* might be rare orchids, mystical rituals, or boiled-down babies. This may also represent a steampunk way to create bioroids (p. 26). It may even be possible to raise the dead by similar injections, as in H.P. Lovecraft's *Herbert West, Reanimator* – the rules for Necromorphosis (p. 188) but as a TL(6+6) procedure, would be appropriate.

"Jekyll/Hyde" drugs

In a steampunk world, the rapid advancements in medical technology could lead to miracle drugs capable of transforming people in various ways. Partial atavism is a logical possibility, given 19th-century understandings of

biology, as well as gross changes in body anatomy and/or behavior. These changes may naturally reverse when the drug wears off, or may be permanent. This is another method through which biomods may be gained, although the process is likely to be painful and carry risks of adverse reactions.

> *Millions long for immortality who do not know what to do with themselves on a rainy Sunday afternoon.*
>
> *– Susan Ertz*

Horror Biotech

Horror biotech begins with the nastier parts of steampunk biotech taken to extremes. It is easy to imagine splatter and gore laid on a biotech foundation. The vivisection of conscious beings, trade in body parts, and the creation of unnatural monsters by various means are obvious routes to horror with a biotech basis. There are also more subtle methods.

Supernatural Horror

The distinguishing feature of supernatural biotech is that things that should otherwise be dead can be animated by forces of evil or sheer bloody-mindedness. Such biotech defies logical explanation and gives rise to creeping things that should not be. Whether such supernatural power over life and death can be tamed is an open question. Imagine a scenario in which a supernaturally powerful psycho killer is apparently defeated, and the remains taken to a government lab for analysis. The army may soon be fielding soldiers whose limbs still operate when severed, or the horror may begin stalking the halls of power . . .

Technological Horror

Technological horror is more subtle, and can be created by extrapolating the instinctive reactions of many people to the possibilities of today's real biotech. The threats of targeted genetic viruses, creeping nanotech with the ability to change morphology or psychology, the spread of engineered diseases, and weird transgenic things in our food are among the items of biotech that can be used to generate feelings of paranoia. Slightly weird biotech can produce the classic disembodied brain in a jar, as well as other horrors on the edges of possibility. In a soft-science setting, the veneer of technology can provide a terrifying excuse for any sort of biological monstrosity.

Different Biologies

This chapter discusses terrestrial biology – the only sort we know about. But that's not the only *possible* biology. Any truly alien life forms will not share the same details of DNA, RNA, and amino acids as Earthly life. (The main exception is if terrestrial and extraterrestrial life share a common origin, which is intriguing in itself.)

An alternative biochemistry can be based on any of several differences:

- *Chirality* is the "handedness" of the many biological molecules that come in two different and incompatible shapes. Terrestrial life uses only one chirality. Life that uses the other may seem very similar, but will be mutually incompatible (and indigestible).
- *Alternatives to DNA* can encode genetic information using slight variants (different base pairs) or completely different molecules. One example is polysaccharides – branching chains of linked sugars.
- *Additional amino acids* from the over 500 discovered so far could be added to the mere 20 that terrestrial DNA uses.
- *Silicon and metallic chemistry* could potentially produce enough complexity to foster life at temperatures where these elements are molten, inside tectonically active worlds.
- *Neutronic compounds* such as those found on the surface of a neutron star might form nuclear chemistry capable of nurturing the emergent complexity of life. Since nuclear reactions are rapid, such life would evolve incredibly quickly.
- *Magnetic vortices* in plasmas such as stellar atmospheres or around large planets could conceivably form into self-sustaining and evolving systems. "Genetic" information could be encoded in tight bunches of magnetic fields. This is not as far-fetched as it sounds; we do it ourselves in our computers.

Bioengineers can use these different bases for biology to design ever more exotic bioroids or artificial life forms. (They are also useful for GMs designing aliens; see ***GURPS Space*** for a more thorough treatment of these concepts.)

A being using even the least radical of these different biologies does not qualify for Unusual Biochemistry (p. B160) – it is too different for that and may need Restricted Diet or Dependency instead. It will be unable to interbreed with or supply transplant organs for terrestrial life without TL12 technology or superscience. And don't even think about combining the biochemistry of humans with metal-alloy beings!

Chapter Two
Human Genetic Engineering

Yesterday, the Mokoto twins started laughing and teasing me 'bout my genemods again, calling me Girl Dracula and stuff. I bit one of them, but she beat me up – ain't no room to fly in the ship; it's hard to fight back proper when your bones aren't strong as theirs. I can't wait for planetfall on Darktree. Soon we parahuman kids be gliding from tree to tree, while them crew-brats be stumbling around in the groundfogs in their chillsuits and respirators. Then we see who's laughing.
– Tizbeth Sung-Morton (age 9), Darktree Colonization Fleet

Everyone thinks that they're the end product of evolution. *T. rex* probably thought that way just before he saw the comet flash. But with genetic engineering, we can take control of our own cells, making our children brighter, faster, and immune to hangovers. We can even redesign people to live in space, so the next time some big rock hits, some of us won't be here.

Gengineering at Conception

A genetic engineer can insert recombinant DNA or RNA into a newly-fertilized human egg cell (a zygote) to alter its genes. Those genes will express themselves by producing slightly different proteins. As the zygote develops into an embryo and then a fetus, the new proteins will make up different cells, and a child will be born with traits it would not have possessed had it remained unmodified. These changes will be passed on to its descendants. This process is known as "gengineering at conception," or more technically, germline genetic engineering.

Eugenic Germline Gengineering

"We'd like our Katiana to be petite and beautiful, with big, violet eyes and jet-black hair. Could she have a tendency toward musical aptitude, with long fingers for playing the piano? We also want her to be good at sports – an athletic body type would be nice, so she could be a gymnast. Oh, and we want the standard features, of course: boosted immune system and genefixed heredity.

"Now, how much will all that cost?"

– Mr. and Mrs. Arlington

"Ever since my teens, I've really wished my parents had designed me for something practical. At least I don't get sick."

– Katiana Arlington III

This is what most people think of when they hear the term "human genetic engineering." Eugenic germline gengineering is the process of selecting gene combinations that ensure the appearance of traits the gengineer considers desirable, such as good looks, high intelligence, or perfect vision.

The abilities and disabilities of each of us result from traits inherited from our parents' genes, modified by

environmental factors such as diet, experience, and education. Eugenic gengineering ("eugeneering") involves determining what genetic combinations favor certain traits, then using gengineering at conception to make it likely they appear. It does not add anything new to the human genome, so a eugeneered person will still appear human to genetic tests or scanners.

The major stumbling block in the road to eugenic modification is that desirable traits can result from the interaction of hundreds of different genes. Moreover, one gene may be involved in multiple traits – change it to produce one effect and there may be unintended consequences for the others.

The capability to perform eugeneering rests on possessing a complete map of the human genome (see *The Human Genome Project*, p. 8) and a detailed understanding of how specific gene sequences code for proteins that affect human development. Completing a racial genome map is a TL8 achievement, and the ability to use this knowledge to perform complex eugenic selection is TL9+.

Efforts to determine the effects of specific gene sequences often proceed by tinkering with the DNA of individual genes, using animal subjects. Since mammals such as mice share much of our DNA, and produce successive generations in a short period of time, animal testing can provide insight into the effects on humans, especially if the test animals are gengineered to possess additional human genes. As more data is gathered on each gene's role in human development, computer simulations may supplement or replace experimentation, making eugenic selection more practical, and allowing a designer to work with a standard "tool kit" of genes known to produce certain effects.

Once this capability is achieved, eugeneering can create "designer people" whose potentials are enhanced or skewed toward a specific physical or mental ideal. Changes may range from the obvious (good looks, muscular build, 20/20 vision, or "double-jointedness") to the subtle (higher IQ, or gengineering of the adrenal glands to give someone a positive stress response).

Germline Gengineering for Species Modification

The human/rabbit genesplices were originally developed as bioroids by Novabody in the last century, apparently for the domestic, secretarial, and pleasure market. A century later, after the War, the Bureau of Colonization resurrected the genotype. BuCon's mandate was to establish "facts on the ground" by reclaiming some of the border worlds depopulated during the War, and by colonizing as much territory as possible. The idea was to send over a seedship with a few hundred pubescent "rabbitoid" settlers and a colonial governor's cadre, and within a few years these fast-breeding parahumans would give Earth a thriving agri-world.

That was the plan, anyway. Of course, we all know how it turned out.

– Darin Skay, ***Shattered Genomes: The Colonial Revolution***

Genetic Engineering and Other Species

While this chapter focuses on human genetic engineering, the guidelines given here can also be applied to humanoid aliens, elves, and other fantasy folk, or, adjusted on a case-by-case basis, to even less-human species.

Some species may be easier or harder to genetically engineer. GMs can simulate this by making certain categories of modifications require a lower TL for one species, or a higher TL for another.

Species may even seek out other races to assimilate useful traits from their genomes. What is mundane for one species may be exotic to others, and aliens might seek to acquire human specimens for seemingly mundane traits (immunity to terrestrial diseases, an ability to dream, etc.) they wish to use.

Species modification involves gengineering for complex traits that never existed within the species' original genome, such as gene sequences that produce modifications to anatomy. Some changes may be internal, like a modified liver that's better able to filter toxins. Others might be obvious, like a coat of fur or a pair of functional extra arms. Again, the difficulties lie in predicting how the effects of a specific genetic change will cascade over the entire genome, and in making major changes in hundreds or thousands of genes at once. The tools to do this become available at TL9 – supercomputers for running extremely complex genetic simulations, and early bio-nanotech, such as tailored retroviruses or nanoviruses.

Gengineers might synthesize genes for totally new abilities, but it may be easier to enhance existing human traits, or design nonhuman abilities by basing them on the genes of terrestrial animals. This can be background information ("if you look closely at my chromosomes, I'm part bat") or imply colorful physical traits (someone whose bat DNA sequences give them sonar and wings may have other chiropteran features, such as fangs and pointed ears). These may be the unintended results of cross-linked genes, or necessary for a given trait (e.g., pointed ears for ultrasonic hearing).

This sort of transgenic gengineering is already being experimented with at TL8, with small numbers of human genes being inserted into "pharm animals" (see p. 88) so that their metabolisms produce necessary proteins or can be used to grow human-compatible xenotransplants. Once the human genome and several nonhuman genomes are mapped and sequenced, complex human transgenic engineering could become a reality, limited mainly by ethical considerations.

The guidelines under *Designing Variant Humans* (p. 41) suggest TLs at which various advantages and disadvantages can be produced by gengineering.

Alien Hybrids

A popular theme in fiction is the possibility of humans and aliens interbreeding, either naturally or by genetic hybridization in the laboratory.

In "rubber science" settings, aliens with appropriate anatomy might be able to breed with humans simply by engaging in sex, or via relatively simple procedures such as artificial insemination. Typically, offspring of such encounters superficially resemble humans, but have some distinctive physical or mental features of the alien species. Offspring resembling aliens with a few human features would make an interesting turnaround. Half-aliens can be good archetypes for protagonists who work against the background of a culture clash, struggling to reconcile their two heritages.

Hybridization in a realistic setting may require a combination of chimerization, genetic engineering or biomods (e.g., *Alternate Gamete Production*, p. 184), or be only possible through a form of biogenesis (the offspring is basically a bioroid). However, these considerations may be moot if humans and aliens share a common ancestry. The discovery of this fact – either in the lab or the bedroom – would raise some interesting questions of its own!

Fantastic Hybrids

In a fantasy game, the rules can be looser. Myths contain many stories of humans interbreeding with gods, spirits, and animals, producing outstanding individuals, new races, or monstrous chimeras. This is a useful justification for the existence of such beings, but the GM should consider if they are unusual occurrences or a "law of nature" that individuals may be able to exploit.

Chimerization

Technically, a chimera is an entity created when the cells of two dissimilar blastocysts (very early embryos) are fused together so that they form a single organism. If the blastocysts are from different species, the result – if it survives – will be a new creature with traits of both. Such a chimera will usually tend more toward one species than the other.

Chimeras that are basically nonhuman animals, but contain some human traits, can be treated as genetically-engineered animals, and used for similar purposes; see Chapter 3. Human-like chimeras that incorporate cells from other species are also possible. In addition to animal-human chimeras, human-alien fusions – "alien hybrids" (above) – are a staple of space opera and UFO mythology.

While a "classic" chimera is not too difficult to achieve with bacteria, plants, or very closely related animals (e.g., between dog and wolf blastocysts), the likelihood of a viable chimera declines as the species become more diverse. To produce more exotic chimeras, such as human/wolf or human/alien, the germ cells from each embryo often need to undergo genetic engineering to improve their compatibility. Additional cell grafts or microsurgery are used to ensure the correct mix of cells and to correct any resulting deformities in the developing embryo. Cross-species chimerization is unlikely to be easy. The path to success will be littered with failed fusions, resulting in dead embryos and aborted, defective, or monstrous fetuses. Even a successful chimera may have genetic flaws, or be born with hormonal imbalances that can cause psychological problems.

In game terms, there isn't that much difference between chimerization and germline gengineering, especially since the techniques are likely to blend together. As such, chimerization uses the germline gengineering rules – design the species as a gengineered animal or human, with appropriate cross-species characteristics. Since a chimera's fusion occurs on the cellular level rather than the genetic level, it is less of a "complete" organism. To reflect this, all chimera templates created at TL8-9 should have the Chimera meta-trait (p. 214) as an unintended defect. A lower HT is also reasonable. The Chimera meta-trait is not mandatory at TL10+, but may be common.

Objectives of Human Gengineering

Once we have the technology to radically redesign a human, would we want to do it? Here are some reasons that might drive gengineers:

Pantropy

From Greek, meaning "grow anywhere," this is the practice of adapting humans to live and work in hostile or alien environments. People designed to survive without an artificial environment may be safer (due to reduced risk of accidents) and, in the long run, less expensive – atmosphere plants, artificial gravity, space suits, and domed cities don't come cheap, and terraforming is a massive expense.

Moreover, if long-term colonization is planned, a colony is more likely to be psychologically stable if the colonists and their children can live on "their" world without the constant threat of death by technological failure. If there is a local or widespread breakdown of civilization, such as a war, blockade, or "long night" interregnum, colonies of altered people are far more likely to survive the loss of their infrastructure. Pantropy may also be preferred due to ideological opposition to terraforming: instead of changing a world to fit people, it may be considered more ecologically friendly to change people to fit a world.

Homo superior

Gengineering may be driven by the desire to create "better" or "super" people. This is the major goal of eugeneering, but it can also be taken farther via species modification.

Typical goals include improved health, longer life (even immortality!), mental enhancements like improved intelligence or memory, and superior physical abilities such as enhanced strength or speed. Other objectives may be to gengineer away human dependencies, such as the need for sleep.

Homo superior may have improvements in many areas, or be more specialized, gaining some abilities at the expense of others. Unmodified humans may react with fear or envy to a gengineered super-race, especially if they can't afford to give their children the same kinds of modifications.

On the other hand, extensive or limited gengineering of this sort may be applied to an entire society. For example, a society may embark on an effort to ensure every child is gengineered with an enhanced immune system, or a higher level of intelligence. Of course, conflict can arise over exactly what sets of traits *should* be standardized by such a society. The concept of a "superior" person is likely to be driven by ethical and ideological considerations. A utopian commune might consider *Homo superior* to be a peaceful race, and choose to delete genes linked with aggression. There could also be a yawning "generation gap" between the adults who chose such traits, and the enhanced children who were the first to express them.

Slave Species

Gengineering may be used to create a more tractable proletariat, underclass, or slave caste. Slave species are usually designed for jobs that humans find dangerous, boring, or demeaning, such as work in hostile environments, soldiering, manual labor, domestic servitude, or concubinage.

Gengineered slave species often possess highly specialized physical and mental modifications to make them more effective workers, or condition them to accept their role. For example, pleasure models may be grown with stunning looks and glandular modifications that keep them constantly "in heat," while a janissary warrior could be gengineered with enhanced speed, a high pain threshold, and boosted aggressiveness. These changes can leave members of a slave species more effective than humans within a limited sphere, while circumscribing their free will. This might result in simultaneous feelings of inferiority and superiority with respect to normal humans. Gengineers sometimes try to create a slave species so perfectly adapted to its role that it can't conceive of freedom. They don't always succeed.

Slave species are sometimes deliberately gengineered to look physically distinctive. For example, all slaves may have blue skin, or be gengineered human/animal hybrids. This might be done for cosmetic reasons, but it also makes it more difficult for people to see them as "human," and harder for them to escape. It's even possible that differences will accrue because the law states that having a certain percentage of nonhuman gene sequences makes someone legally an animal or living artifact (which can be owned) rather than a human being (who is a free citizen). Gengineers may have to make a slave species less human in order for it to be considered a slave species.

A slave species may not always remain in slavery. Changes in circumstances or social attitudes, or an unforeseen mutation, might lead to emancipation or revolt. Of course, if the species has been specialized for a limited role, this may limit its ability to enjoy its new-found freedom . . .

Why Make Übermenschen?

Genetic engineering to allow superhuman physical feats is useful for many physically-demanding jobs, but especially for covert operations, where cybernetics or powered armor might be too easy to detect. Modern military forces may also find biological enhancement easier on logistical grounds – a gene-enhanced soldier may not be quite as strong as a robot or a trooper in a battlesuit, but at least he doesn't require any special maintenance.

Since modifications to ST and DX are purely physical, they would be amenable to animal testing. Several models of enhanced "super-animals" will probably be designed before any super-humans are. Even if the animals weren't put into production, a few prototype super-critters might be found in (or escape from) labs.

Many species modifications (and to a lesser extent, almost all genetic modifications) produce effects that can be replicated more cheaply by technology. Why bother to use feline genes to give someone fur or claws when you can get the same or better effect with a weatherproof jacket and a knife?

First, parahumans may be designed as frontier colonists or workers on worlds with harsh environments. A biological edge may be useful if disaster leads to a technological breakdown. Even if it doesn't, being able to survive outdoors (even briefly) without artificial aids brings a welcome sense of security, contributing to the psychological health of the community.

Second, some cultures may prefer "softer" biotech to inorganic devices, or create transgenic people for aesthetic reasons.

Third, biological abilities are more convenient. Someone with super-acute senses doesn't need to stop to look at an instrument to know if someone's sneaking up on him. Likewise, you don't have to worry about changing the batteries. If you have retractable claws, you'll never forget your knife, or puzzle over concealing it in different types of dress or undress. Sure, you can get the same effect with cybernetics, but that's as expensive as riding the genemod train.

Fourth, transgenic modifications can be augmented as well. If you've got natural claws, you can add a diamond layer to them. If you have super-sensitive hearing and smell, you can use them at the same time you're wearing that sensor visor. It's not an either/or proposition – it's a wider range of capability.

Specialization and Genetic Castes

Gengineered people may be optimized for specialized tasks from birth, without ever having been intended as slaves. This may be the decision of parents ("I want my baby to be a scientist") or of a community, or could follow the emancipation of slave races.

Taken farther, this could lead to a caste-based communism similar to the one in Aldous Huxley's novel *Brave New World,* or the end result of a fascist "master race" breeding program. In this type of hive-like society, citizens are designed from birth for specific jobs. There may be a drone-like working class indistinguishable from a slave species, managed by an upper class of unspecialized people (normal humans or a *Homo superior* race) to give orders and handle unforeseen emergencies.

Such a society may dispense with sexual reproduction and reproduce through growth tanks or cloning. Ordinary citizens may be gengineered to be non-aggressive workers; faced with an external enemy, such a state might alter its birth programs to grow (or clone) a crop of super-soldiers.

Hidden Dangers

The obvious problems of genetic engineering are short-term hazards – an error that threatens the life or well-being of modified individuals or their children. But if genetic engineering is aimed at creating a viable *race* that's capable of reproducing without further technological assistance, there are additional issues to consider. These may be of little concern to individuals, but they can have long-term implications, especially if variant races are being used for planetary colonization.

One risk is that the pool of diverse genotypes in an engineered race may be relatively shallow (or nonexistent, if they reproduce via cloning and eschew further modification), at least for several generations. A real-life example of

Nature Versus Nurture

There is an ongoing scientific debate over the degree to which human traits and behavior are influenced by genes ("nature") and by environmental factors ("nurture"), including fetal conditions, child care, nutrition, education, and other life experiences.

Events in the womb have a profound effect on the physical and mental traits of a person. While genetic disorders can cause many physical disadvantages, many other physical abnormalities – including many gross deformities – result from problems that arise during fetal development, such as the lack of oxygen at a crucial time, or the presence of radiation or chemicals.

The childhood environment is also influential. For instance, there is a convincing body of research that suggests the trait of "shyness" is genetic. Certain genes do make people extra-cautious and anxious, leading to high heart rates when responding to new stimuli. This influences behavior through a kind of feedback loop. To escape these feelings of anxiety, children with these genes avoid new situations where these kinds of stimuli occur – they act "shy." However, studies also indicate that parents who encourage their shy kids to play with others at an early age will alter these biochemical systems, modifying the way the body reacts to stimuli. In other words, nurture triumphs over nature through deliberate action.

Likewise, while it is possible to edit out genes believed to influence mental instability, many mental disadvantages result from childhood trauma. Thus, while someone may not have the genetic predisposition toward lecherousness, he may have grown up in an emotionally deprived environment, leading him to adopt promiscuity as his sole means of expressing affection. Similarly, someone who saw his parents massacred in a war may be prone to fits of uncontrollable rage, or manic-depressive episodes.

In short, it's hard to eliminate common mental and physical problems just by fixing genes. If gengineered people are grown in an artificial womb (growth tank or forced-growth tank) and educated under controlled conditions, then they may turn out exactly as planned. If they grow up in the real world, there is a fair chance that they'll have the same sorts of problems as everyone else.

In game terms, this means that most mental advantages, mental disadvantages, and even some taboo traits in a genetic racial template should be considered guidelines rather than hard-and-fast rules. If the subject was raised in controlled conditions, and no mistakes were made, he'll generally "live up to spec." It's also possible that the genes of a human who is gengineered for a specific trait will make it almost certain that he'll develop that trait.

this danger is the cheetah. Some time in the prehistoric past, this cat species suffered a genetic "bottleneck" in which a large amount of the breeding population died. Modern cheetahs are descendants of a few individuals. As a result, as a species cheetahs are highly vulnerable to epidemics (since if one cheetah catches something, the others are unlikely to have any immunity to it), and suffer many birth defects due to inbreeding. This could be equally true of a genetically-homogenous variant race.

Similarly, it's all well and good to transform everyone into a race of "beautiful" people by, say, deleting gene sequences for excess body fat. However, if a disaster (comet strike, nuclear winter or whatever) triggers the next ice age and causes the collapse of technological civilization, the super-slim, fashion-model beautiful *Homo superior* will all starve or freeze to death – and since the gene for obesity is now gone, there will be nothing to select for in future generations.

Designing Variant Humans

A gene-altered person is a "sub-race" (see p. B454) of humanity, even if he represents the first (or only!) member. However, since the parent race is human (which have no racial templates), variants are usually described with templates.

A variant human racial template should be created using the *Racial Templates* rules (p. B450) and the guidelines in this section. Ideally, it should be designed around a specific theme, depending on the intent of the designer and the kinds of genetic material used. It will have its own racial traits (see *Selecting Traits*, pp. B451-452).

The traits chosen should have a scientific – or at least pseudo-scientific – rationale (e.g., extra Fatigue Points and Combat Reflexes could be justified by "enhanced lungs and built-in war drug glands"). Others may be based on "xenogenes" from other species (e.g., Night Vision derived from cat genes).

A variant human racial template can have any traits the GM feels could be logically produced through genetic engineering. This includes basic attributes, secondary characteristics, build, and physical appearance. Most physical advantages and disadvantages are appropriate; so are many mental ones.

> *Genetic engineering is not a neutral technology. It is by its very nature too powerful for our present state of social and scientific development.*
>
> *– Linda Bullard*

Inappropriate traits include anything that can only be explained by post-natal experiences or events: this includes Fashion Sense, all traits under *Social Background* (p. B22), *Wealth and Influence* (p. B25), all social advantages and disadvantages, all self-imposed mental disadvantages, and any traits that represent relationships, possessions, wealth, or training. The GM can rule that some mundane traits, such as Luck, are too abstract, weird, or difficult to gengineer (although even that might be possible if these traits are explained as genetically-linked psionic powers). Genetic engineering of exotic traits not found in nature, such as Invisibility or Shadow Form, may only be possible if "mutant super-powers" exist in the setting. Similarly, supernatural traits such as Magery can only be engineered if these traits both exist, and are hereditary.

The rest of this chapter is devoted to discussing what genetic engineers might plausibly produce at various TLs, and how they might do it. Lists of traits have been assigned TLs based on how difficult they might be to produce through gengineering.

GMs should feel free to modify the TLs, effects, and rationales suggested for various modifications – they are only intended as guidelines, not hard and fast rules. Not every trait has been included, only those that seem likely or interesting.

In space-opera, supers, or horror settings, variant racial templates can include *any* ability that can be rationalized as "genetic," from mouse-sized humans to the ability to throw lightning bolts or fly faster than light. In that sort of campaign, genetic engineering of this sort is simply superscience. Don't feel bound by tech levels – after all, in the comics, a genius grad student working in a TL7 lab might be capable of splicing "spider genes" into human germ cells to grow a human/spider chimera with ST and DX bonuses, Binding, Clinging, or even Extra Arms.

Experimental Procedures

Biotech may be available at one TL earlier than listed, as an "experimental procedure." This includes early human trials of specific biomod processes, experimental gengineering projects, and so on. In general, an experimental process will cost at least 10 times as much as normal This is very common in cinematic genetic engineering. For example, cinematic TL9 genetically-engineered "super agents" often have TL10 modifications.

It's likely that any such newly-invented process will have bugs in it – the GM should apply Tech-Level Modifiers (p. B168) to skill rolls for surgery or gengineering tasks, or assign additional side effects (usually disadvantages) to anyone or anything that has undergone the process, or been created by it.

Gengineered Traits

The following sections discuss different categories of changes that might plausibly be bioengineered into a variant human race. The assignment of TLs and association of advantages with various traits (e.g., Hard to Kill under Cardiovascular Modifications) are suggestions only, and may be altered by the GM as desired.

Not all gengineered traits will be advantages. Some variant races are designed with deliberate physical defects. For example, a wealthy sadist might want his latest concubine to be a beautiful albino with Low Pain Threshold, while the eccentric Sultana of Gideon Prime might desire her bodyguard of gene-enhanced janissaries to have both Gigantism and Mute.

Gengineered Traits Tables

Trait: The name of the attribute, advantage, disadvantage, feature, ability, or meta-trait.

Cost: The point cost of the trait. Some traits are 0-point features, but may still require complex or even radical genetic engineering.

TL: The minimum TL at which the trait may be *deliberately* engineered. It is possible that a trait may be produced by accident at a much earlier TL, and GMs are free to use this to justify templates with abilities in excess of those normally available. Modifiers to attributes, secondary characteristics, or other leveled traits that have two quite distinct justifications can be combined, unless otherwise noted. For example, immune system modifications and lifespan and self-repair modifications can each justify a +1 to HT at TL9, for a total +2 HT.

Page: The page on which the trait is described in the ***GURPS Basic Set*** or this book.

Eugenic vs. Species Modification

Whether added DNA sequences are human or not may be very important if society bans or stigmatizes parahumans. Also, species modifications are more likely to be coupled with nonhuman features. Those genetic traits that would require departing from the human genome have been labeled as requiring "species modifications." Human genetic engineering that involves species modifications also has a higher dollar cost.

A few traits are described as requiring "radical species modification." Such modifications significantly increase the dollar cost and the difficulty of a genetic engineering project; a template with radical modifications is very likely to have a number of unintended genetic defects, especially at the TL that trait first becomes available.

Brain Modifications

Our competitors at Matsai gengineered their 3000-series megabrights for hyped-up creative, intuitive, and mathematical faculties. Turned out the gengineers didn't know as much as they thought they did about brain chemistry, and ended up with three super-bright, high-strung, delusional schizophrenics. Two killed themselves. The third is convinced God is behind the event horizon of the black hole in the galactic core, and devotes all her time to trying to figure out how to get him to answer back. She's managed some useful astrophysics and hyper-mass experiments, but that isn't what Matsai hoped for. Still, Matsai corporate ideology keeps them trying to develop 'super-thinkers.' I admit they did a better job with their more modest Pandora-series, although these sure aren't bug-free either – ever try talking to one?

– Doctor Sayyid Iqbal, Biotech Euphrates

The adult human brain weighs only three pounds, but has been described as the most complex object known to science. It contains some hundred billion nerve cells, including specialized neurons devoted to higher cognitive functions such as reasoning, emotion, and language.

The brain consists of two large, wrinkled, dome-shaped cerebral hemispheres that together form the cerebrum, the site of reasoned mental activity. At the lower rear is the cerebellum, which coordinates the body's movements. The central part of the brain includes the thalamus, which controls sensory awareness, the limbic system, which affects glandular functions and emotions, and the hippocampus, associated with memory, personality, learning, and will. The lower part of the brain, the "primitive" brain stem, controls automatic body processes including the heartbeat, respiration, and digestion.

Engineering mental traits such as intelligence, alertness, memory, or specific aptitudes is difficult, because these traits are more abstract than physical ones. Exactly how much of "intelligence" is genetic and how much is environmental is not only controversial, but any answer also depends on how you measure and define intelligence.

However, traits ranging from self-control to high intelligence appear to be connected to specific gene sequences that govern the exact mix of hormones and other neurotransmitters produced by the body. Scientists have found human genes that appear to correlate with mental stability, shyness, impulsiveness (which, through mitigation, may lead to Common Sense) and memory, among other characteristics.

In this realm, gengineering works hand in glove with neurology and molecular neuropsychology. Today, radioisotope-labeled monoclonal antibodies are used to locate neurotransmitters in the brain, and imaging systems have begun to observe the brain's neurochemical activity as it occurs. As these techniques are refined at TL9+, neurogeneticists can study the molecular changes that occur while people stay awake, endure pain, memorize, solve math problems, and so on. Then they can design nucleotide sequences that will optimize the brain's neurochemistry or structure toward specific activities.

Brain Modifications

Trait	Cost	Page	TL
3D Spatial Sense	10	B34	10
Ambidexterity	5	B39	10
Autotrance	1	B101	10
Common Sense	10	B43	10
Compartmentalized Mind 1-2	50/level	B43	11*
Eidetic Memory	5	B51	9
Intuition	15	B63	10
Intuitive Mathematician	5	B66	10
IQ -1 to -4	-20 per -1 IQ	B15	9
IQ +1	20	B15	9
IQ +2	40	B15	10
IQ +3	60	B15	11*
IQ +4	80	B15	12*
Language Talent	10	B65	10
Lightning Calculator	2	B66	10
Mathematical Ability	10/level	B90	9
Musical Ability	5/level	B91	10
Perception +1	5	B16	9
Perception +2	10	B16	11
Photographic Memory	10	B51	10
Single-Minded	5	B85	9
Versatile	5	B96	10
Will -1 to -3	-5 per -1 Will	B16	9
Will -4 to -5	-5 per -1 Will	B16	10
Will +1	5	B16	10
Will +2	10	B16	12

* Species modification.

Behavioral Modifications

We must ensure that the bioroids we create are happy in their jobs. A happy worker is a productive worker. We can point to the success of the Eros-5's hormonal imbalance: To be crude, the E-5s are always in heat, hence eager to please.

– Internal memo, Biotech Euphrates

It's possible to eugeneer a careful imbalance of neurotransmitters and glandular hormones to result in a predisposition toward certain distinct mental states, such as aggressiveness or lecherousness. These may result in hereditary mental disadvantages . . . but what might be a disadvantage to the individual can suit the purposes of the genetic engineer.

Changes may be intended to suit a person to his job, for example, instilling Lecherousness in a pleasure model or Bloodlust in a soldier. They may also be intended to benefit society, e.g., by making everyone Chummy or even Selfless. Sometimes, the goal is a more tractable variant race: a slave with Combat Paralysis will be less likely to rebel, and one with Hidebound is less likely to develop dangerous new ideas.

By tinkering with the genes that regulate behavior-modifying neurotransmitters, like MAO inhibitors, an unspecified mental instability can be engineered. This is usually intended as a form of genetic booby trap; e.g., someone orders or awakens a clone, but a saboteur has secretly gene-modified it to go crazy after it awakes. In game terms, the template is not given specific mental disadvantages to represent this, but is assigned several points of Secret Disadvantages (p. B120). These differ from individual to individual, and are chosen by the GM and imposed during play, usually from among Berserk, Chronic Depression, Delusions, Manic-Depressive, Megalomania, On the Edge, Paranoia, and Split Personality. This would be recorded in a template as Secret Disadvantages (Mental Instability) and the point value (at least -10 points); the actual disadvantage will be worth five points less. It's quite possible someone could learn they have genes tending toward mental instability . . . but not how it or when it will manifest!

Another form of tinkering is to design someone so that exposure to a physical taste or scent triggers a release of endorphins, or simply tastes/smells good to them. This might be a 0-point feature (e.g., gengineering children so they *always* like the taste of spinach) or more manipulative (e.g., a servant race designed to like the scent of a master race, etc.). This might count as a Minor Addiction.

The most common behavior modifications likely to be *deliberately* engineered are shown below.

Behavioral Modifications

Trait	Cost	Page	TL
Attentive	-1	B163	9
Bad Temper	-10*	B124	9
Berserk	-10*	B124	9
Bloodlust	-10*	B125	9
Broad-Minded	-1	B163	10
Bully	-10*	B125	9
Careful	-1	B163	9
Callous	-5	B125	9
Congenial	-1	B164	10
Cowardice	-10*	B129	9
Curious	-5*	B129	10
Dull	-1	B164	9
Dyslexia	-10	B134	9
Gluttony	-5*	B137	9
Hidebound	-5	B138	9
Humble	-1	B164	10
Impulsiveness	-10*	B139	9
Incurious	-5*	B140	10
Lecherousness	-15*	B142	9
Loner	-5*	B142	9
Low Empathy	-20	B142	9
Minor Addiction	-1	B165	9
Nosy	-1	B164	9
Overconfidence	-5*	B148	9
Personality Change	-1	B164	9
Proud	-1	B164	10
Responsive	-1	B164	10
Secret Disadvantage (Mental Instability)	variable	43	9
Selfless	-5*	B153	11
Shyness	-5, -10, or -20	B154	9
Slave Mentality	-40	B154	11
Split Personality	-15*	B156	10
Staid	-1	B164	9
Stubbornness	-5	B157	9
Uncongenial	-1	B165	9
Workaholic	-5	B162	10

* You must select a self-control number; the cost given is for a self-control number of 12.

Sleep-State Modifications

The biochemical mechanisms behind sleep remain murky. Many researchers believe that animals (including humans) sleep and dream because the body or brain needs time to rest and regenerate itself. However, some scientists lean toward the idea that sleep is not a metabolic necessity, but rather an evolutionary quirk. That is, our brains are programmed to make us sleepy because being dormant for a certain length of time reduces food requirements and, for humans, prevents us from stumbling into predators we can't see. If that's the case, sleep's been obsolete since we invented fire – but the only way to tell our bodies otherwise may be genetic engineering.

Careful tinkering with sleep-regulating structures in the brain, such as the caudal brain stem, basal forebrain, the serotonin-producing raphe nuclei, and the suprachiasmatic nuclei (which appear to govern circadian rhythms) may modify or eliminate the need for sleep. Other modifications may affect the way humans dream by interfering with the flow of images to the cortex from the limbic centers (the older part of the brain).

Sleep-State Modifications

Trait	*Cost*	*Page*	*TL*
Deep Sleeper	1	B101	9
Doesn't Sleep	20	B50	11*
Dreaming +1 to +3†	2/level	B188	10
Less Sleep 1	2	B65	9
Less Sleep 2-4	2/level	B65	10

* Species modification.
† Racial skill bonus (p. B452).

Cardiovascular Modifications

Cardiovascular modifications are made to the heart, blood, and circulatory system.

The human heart is a pump with four chambers in two pairs: the right pair sends blood to the lungs to pick up oxygen, the left delivers the now-oxygenated blood. The heart may be strengthened with enhanced muscle tissue so it can better withstand trauma and stress, providing extra HT and HP and the advantages Fit, Very Fit, or Hard to Kill.

Mammals, including humans, have about a pint of blood for every 15 pounds of body weight (a "unit" of blood, as used in medicine, is also about a pint). Blood itself is a complex liquid composed of plasma and blood cells. Plasma is a watery liquid containing the glucose (blood sugar) that powers the body, various dissolved nutrients, hormones, and waste products. Blood cells are white cells that fight disease, platelets that clot and seal wounds, and red cells that carry oxygen. Bone marrow cells may be modified to produce gengineered blood cells with improved capabilities. The hemoglobin in red blood cells (erythrocytes) can be redesigned for greater oxygen transport capacity (extra Fatigue Points). Extra red blood cells can be stored in the spleen (as in a dog) for additional release when necessary.

The circulatory system includes arteries that carry blood from the heart to the body, veins that return it, and tiny capillaries linking the two, where oxygen and nutrients are exchanged. Arterial tissue may be gengineered so it does not lose its elastic property with age (which could provide Longevity). More specialized cardiovascular genemods are also possible. For instance, as high-g acceleration causes blackouts when the blood pools in the lower body rather than reaching the brain, arteries feeding the lower body may be redesigned to react to g-forces by pinching off blood flow to legs and abdomen while enhancing it to the brain (Resistant to Acceleration). Related modifications may produce faster recovery from unconsciousness (Recovery) or adapt the circulatory system to lengthy periods in higher or lower gravity (Improved G-Tolerance).

To design cardiovascular genemods, use these secondary characteristic bonuses and advantages:

Cardiovascular Modifications

Trait	*Cost*	*Page*	*TL*
Fit	5	B55	9
FP +1 to +3	3 per +1 FP	B16	9
FP +4 to +5	3 per +1 FP	B16	10*
FP +6 to +10	3 per +1 FP	B16	11*
Hard to Kill 1-2	2/level	B58	10
Hard to Kill 3-5	2/level	B58	10*
Hard to Subdue 1-2	2/level	B59	10
Hard to Subdue 3-5	2/level	B59	10*
Improved G-Tolerance (0.3 G)	5	B60	9
Improved G-Tolerance (0.5 G)	10	B60	10
Improved G-Tolerance (1 G)	15	B60	10*
Improved G-Tolerance (5 G)	20	B60	11*
Longevity	2	B66	9
Rapid Healing	5	B79	9
Recovery	10	B80	10
Resistant to Acceleration (+3)	1	B80	9
Resistant to Acceleration (+8)	3	B80	11*
Very Fit	15	B55	10

* Species modification.

Cosmetic and Minor Transgenic Modifications

Eye color can be specified quite easily, as this is a simple multigenic trait. Hair color, as well as skin pigment (melanin) and other traits that make someone racially black, Caucasian, and so on, are somewhat more complex, but all can be selected at TL9+ to give whatever eye, hair, skin color, or other ethnic features are desired, or to deliberately blend several types.

Good or bad looks can be selected by choosing a particular bone structure and metabolic factors that encourage a specific type of build, while working against acquiring blemishes, acne, and so on. Left unspecified, a person's looks are whatever is randomly inherited from the original genetic material used, i.e., it depends on the parents, and it's up to the player or GM. Other traits, such as a tendency toward a particular build, are also possible.

Species engineering can create designer genes for distinctive exotic features like green hair, blue skin, or gold-flecked eyes.

Genetic Tattoos: These are images or symbols formed from skin pigmentation, bumps or ridges. They might be artistic, or show clan or company affiliation – a slave race might even have a tiny company logo and trademark symbol on their body.

Intron Messages: Introns (p. 7) can be modified to "spell out" specific messages when someone sequences the gengineered DNA.

Skin, Hair, and Body Coverings

The skin itself is the body's largest organ, designed to protect softer internal tissues from harm and (through sweat glands) keep it cool. The outer skin, or epidermis, is composed of a surface of hard, dead tissue (keratin) atop a basal layer of live skin cells that are constantly multiplying, growing, filling up with keratin, dying, and flaking off; the cycle takes about four weeks. Below the epidermis is the dermis, a thicker layer formed from the protein collagen, that also contains blood vessels, nerves, sweat glands, and hair roots. Modifications may change the way skin cells grow, alter pigments, or cause the growth of a thicker hide, fur, or even scales.

Chameleon Skin: Natural chameleons such as the cuttlefish have layers of dermal chromatophore cells. These consist of a pigment sac (there are usually three different pigments) encased in muscle and nerve tissue. By contracting these muscles, the colored cell is flattened into a wide disk, increasing its visibility; by relaxing the muscles, it contracts to a dot. By relaxing chromatophores containing one pigment and constricting those containing others, a wide range of colors and patterns can be generated. Chameleon could also be extended to cover Infravision through pigments that absorb infrared radiation, or its masking via thick fur.

Fur, Scales, Spines, etc. These are usually intended for aesthetic effect, but can serve more practical purposes, such as protecting colonists engineered for harsh climates. They may also be effects of blending human and animal genes in search of other advantages like xenosenses. *Thick* fur may also provide DR 1-3 and Temperature Tolerance 1-2. Scales or a thick leathery hide may provide DR 1-4; a tortoise-like shell, DR 4-5.

Other Transgenic Traits

Amphibious: This requires gengineering for webbed fingers and toes, and is often associated with a sleek coat of fur like a seal, or very light scales.

Bioelectric Organ: An exotic modification that uses modified plates formed from muscle tissue, derived from electric eel genes. It can deliver a localized but powerful electrical shock: Burning Attack 1d (Melee Attack, Reach C, -30%; No Incendiary Effect, -10%; Side Effect, Stunning, +50%; Surge, +20%; Takes Recharge, 5 seconds, -10%; Variable, +5%) [7]. The Variable enhancement allows it to be used at a lower power level, e.g., to act as an emergency defibrillator (p. 124).

Clinging: This may be achieved via tree-frog suckers or gecko hairs on hands and feet.

Claws, Talons, etc: Claws, hooves, teeth, etc. are based on animal models. They all may be given the Switchable (+10%) enhancement to represent retractable features. Weak Bite could represent changes in jaw structure, or softening or removal of the teeth – possibly a deliberate modification in a pet or pleasure bioroid; this may limit available food choices, but is not severe enough to count as Restricted Diet.

Payload: This represents natural pouches, like those of marsupials, which may be useful for carrying tools or concealing weapons, as well as holding babies.

Nictitating Membranes: These reptilian "second eyelids" are designed to protect the eyes. This modification may be common in pantropic parahumans designed for worlds with hostile atmospheres or perpetual dust storms, or for vacuum.

Prehensile Tongue: This is a long (sometimes forked) retractable tongue. Acute Taste +1 [2]; Racial Skill Bonus: Erotic Art +1 [2]; Extra Arms (Third Arm; Extra-Flexible +50%; Short, -50%; Switchable, +10%; Weak, 1/4 ST, -50%) [6]. *10 points.*

Temperature Tolerance: This may be combined with fur, but could also represent a sub-dermal layer of adipose or blubber, or special insulating glands.

Cosmetic and Minor Transgenic Modifications

Trait	*Cost*	*Page*	*TL*
Appearance Levels	Variable	B21	9†
Distinctive Features	-1	B165	9
Genetic Tattoos	0	45	9*
Intron Messages	0	45	10*
Pitiable	5	B22	10
Other Transgenic Traits			
Amphibious	10	B40	9*
Chameleon 1-2	5/level	B41	10*
Chameleon 3-4	5/level	B41	11*
Clinging	20	B43	10*
Damage Resistance 1-3	5/level	B46	9*
Damage Resistance 4-6	5/level	B46	10*
Fur	1	B101	9*
Long Spines	3	B88	10*
Nictitating Membrane 1-5	1/level	B71	9*
Payload 1-5	1/level	B74	9*
Prehensile Tongue	10	45	10*
Short Spines	1	B88	10*
Temperature Tolerance 1	1/level	B93	9
Temperature Tolerance 2-5	1/level	B93	9*
Temperature Tolerance 6-10	1/level	B93	10*
Temperature Tolerance 11-20	1/level	B93	11*
Unnatural Features 1-5	-1/level	B22	9*

Transgenic Natural Weapons

Trait	*Cost*	*Page*	*TL*
Bioelectric Organ	7	45	11*
Claws			
– Blunt Claws	3	B42	9*
– Hooves	3	B42	10*
– Long Talons	11	B43	10*
– Sharp Claws	5	B42	9*
– Talons	8	B43	10*
Teeth			
– Fangs	2	B91	9*
– Sharp Beak	1	B91	10*
– Sharp Teeth	1	B91	9*
Weak Bite	-2	B161	9*

* Species modification. In some cases, these may qualify as Distinctive or Unnatural Features, depending on how common parahuman species are.

† Any level except Horrific or Transcendent is possible; these may optionally be possible with TL11+ biotech. Appearance may be engineered with the Androgynous (p. B21) or Impressive options, and the -50% limitation Off-the-Shelf Looks (p. B21) is appropriate for templates that involve mass cloning or identically-manufactured bioroids.

Digestive and Filtration Modifications

Chronos-series long-range recon patrol bioroids have a stomach like a grasshopper mouse's and hyperactive digestive enzymes that can digest anything. Supposedly, that frees them from dependence on the supply system, especially in harsh environments where there isn't much food around. In the Andes conflict, I saw them ambush an enemy patrol, then swallow them up and grind them down, bones and all. Even ate their own dead. Creepy.

– Captain (ret.) Dana Martello, Marine Force Recon

The body's digestive system is designed to transform food into protein, vitamins, minerals, carbohydrates, and fat which can be absorbed into the bloodstream to power the body. After being chewed and moistened by saliva, food goes down the esophagus into the stomach, where it is digested by stomach acids. It then passes into the small intestine (the longest part of the digestive system), where it is transformed into nutrients and absorbed into the bloodstream along its vast surface area.

Nutrient-rich blood enters the liver for processing. It filters out harmful substances or wastes, turning some of the waste into bile (which is used to break down fatty foods). The large intestine handles the remaining waste. It absorbs water and any remaining minerals, concentrating the remaining soup into solid waste and storing it in the rectum. The large intestine teems with symbiotic microbes which assist the process.

Modifications to the liver are usually aimed at selectively improving its metabolic and detoxification abilities, giving better resistance to blood toxins (including alcohol), usually in conjunction with modifications to the spleen and kidneys. This is represented by being Resistant to Poison or perks such as Alcohol Tolerance. It may also be possible to rebuild the liver so its tissues store oxygen, in the manner of some marine mammals (see *Respiratory Alternatives*, p. 55).

General improvements to the digestive and urinary system can give the advantage Reduced Consumption; digestive improvements provide Reduced Consumption (Food).

A common modification, especially for pantropic parahumans who are adapted to an alien world or post-holocaust environment, is Immunity to a specific poison, where the poison is a particular environmental condition in air, water, or food. This is usually TL9, although some conditions might require higher-TL modifications.

Colonists, scouts or soldiers who have to live off the land might have an intestinal tract redesigned to function like that of a ruminant animal (e.g., a cow), with symbiotic bacteria that can digest cellulose, allowing them to eat almost any plant matter. This ability is Reduced Consumption (Cast-Iron Stomach) (p. B80). Going the other way, it might be desirable to remove as many parasitic and symbiotic bacteria as possible from the human body, giving Sanitized Metabolism (p. B101). Spacers may take this route to reduce the risk of bacterial infection or mutation in fragile and radiation-exposed space ecosystems. If so, the newly-sanitized intestines will need to be modified to produce enzymes that handle the functions of intestinal bacteria, such as vitamin synthesis.

The appendix is a vestigial growth on the end of the intestine. In humans, it doesn't do much except become

infected; human gengineers may remove it in the interests of boosting overall health and resistance to disease. In and of itself, No Appendix is only a feature, but it is often taken in conjunction with an overall increase in HT.

Kidney Modifications

"Uh, should all of us be drinking? I'm out of Sober-Ups, and we don't have a designated driver."

"Hey, it's cool. I'm an Ishtar-sequence upgrade. With my genemod liver, I can drink all night and never get wasted."

"Well, I hope you've got a boosted kidney, too. It's 20 miles to the nearest rest stop, and I'm not going into this place's washroom without a gun."

The body's water processing system is the urinary system; its main organs are the kidneys, which contains a million tiny filters (nephrons) that remove waste products including excess salt and water from the blood into the bladder, for release. The kidneys could be remodeled after a desert animal's to conserve water via super-concentration of the urine (which would also reduce the need for bathroom breaks). This results in the need for only 2/3 to 1/3 as much water. This ability provides Reduced Consumption (Water Only).

Digestive and Filtration Modifications

Trait	*Cost*	*Page*	*TL*
Alcohol Tolerance	1	B100	9
Immunity to a Specific Poison	1	B80	9
No Appendix	0	46	9*
No Hangover	1	B101	10
Reduced Consumption 1-2	2/level	B80	10*
Reduced Consumption 3	6	B80	11*
Reduced Consumption 4	8	B80	12*
– Food Only	-50%	B80	-1
– Water Only	-50%	B80	-1
Resistant			
– to Ingested Poison (+3)	3	B80	9
– to Ingested Poison (+8)	5	B80	10*
– to Poison (+3)	5	B80	10
– to Poison (+8)	7	B80	11*
Sanitized Metabolism	1	B101	9*

* Species modification.

Glandular Modifications

Well, sir, we've been grown with the Gen-Five supergland. Whenever our model goes into overdrive, we get these cravings afterward. No, sir, we didn't mean to do that to the prisoners, but we just couldn't help ourselves. Usually the MPs are on hand, but – yes, sir, I'm sorry, sir.

– Corporal NB-SEK-0172, 152nd Paratroop Regiment, Felicia bioroid

A network of internal glands, the endocrine system, secretes hundreds of different hormones into the bloodstream. The tiny pituitary gland (under the brain) is in overall command of the endocrine system. Other glands – the adrenal, thyroid, parathyroid, pineal body, pancreas, thymus, ovaries and testes – release hormones into the bloodstream to regulate the body's growth, development, and routine metabolic processes, as well as emergency, emotional, and sexual responses. For example, the adrenal gland (above the kidneys) regulates how the body consumes water and reacts to stress; in stressful situations, it tells the liver to release more glucose (for extra energy) and the heart to beat faster (increasing blood flow to the muscles).

Selective glandular biomodification can optimize the body's hormonal balance so that a person will develop in a certain way (more muscular, for instance), perform differently under stress, or experience stronger or weaker passions.

Gengineering of the pituitary and thyroid glands, or designing new, voluntary regulatory glands that produce similar hormones, could adjust metabolic processes such as growth and maturation, and possibly allow control over involuntary biological functions like respiration and digestion. This can grant a tendency toward or away from particular builds, e.g., Taboo Trait (Fat). Deliberately engineering Skinny or Overweight may even be desirable, depending on prevailing ideals or other purposes, e.g., reduced weight for gengineered flyers or extra fat for cold weather.

It may also be feasible to engineer for short-term "emergency performance," or to improve pain or stress response. This can provide advantages such as Combat Reflexes and Fearlessness. An ambitious goal is the voluntary control of the sudden bursts of "hysterical" speed or strength that some people are capable of in emergencies. This might require genetic tinkering to modify the adrenal glands or, as with metabolic control, the creation of new voluntary glands that produce similar hormones. This is Combat Reflexes, or for superhuman levels of performance, the meta-traits Burst Speed (p. 48) or Explosive Strength (p. 48). The reverse of this is also possible, creating someone who will usually freeze in a combat situation (Combat Paralysis).

In micro- or zero gravity, the lack of weight seems to affect development, causing brittle bones. Gengineering may be aimed at modifying the parathyroid gland to restore calcium levels, and otherwise adjusting the metabolism to life in zero-G.

By tinkering with hormones, the gengineer can also adjust human behavior, creating a being whose emotions are skewed in a desired direction. Modifications of this sort usually center on the adrenal gland, the gonads (which control influential sex hormones such as estrogens – e.g., estradiol – and androgens – e.g., testosterone) or the pituitary (which produces hormones that influence other glands). The strongest influence will be on the three "primal" human responses: fear, aggression, and sexual behavior.

Early Maturation: This feature reduces the age of maturity at the same rate as Short Lifespan (p. B154) without reducing lifespan. See p. 212.

Hibernation: This ability is Metabolism Control (Hibernation, -60%) [2/level]; see *Metabolism Control* (p. B68).

Glandular Modifications

Trait	Cost	Page	TL
Basic Speed†	20 per +1.00	B17	9
Combat Paralysis	-15	B127	9
Combat Reflexes	15	B43	9
Early Maturation 1	0	212	9
Early Maturation 2	0	212	10
Early Maturation 3	0	212	11
Early Maturation 4	0	212	12
Enhanced Muscle 1-5†	8/level	213	9*
Fearlessness 1-5	2/level	B55	9
Hibernation 1-4	2/level	47	9*
High Pain Threshold	10	B59	9
Improved G-Tolerance (0.3 G)	5	B60	9
Metabolism Control 1-2	5/level	B68	9
Metabolism Control 3-4	5/level	B68	10*
No Degeneration in Zero-G	1	211	9*
Overweight	-1	B19	9
Skinny	-5	B18	9
Taboo Traits (a particular Build)	0	64	9
Unfazeable	15	B95	10

* Species modification.

† This advantage *must* be taken in conjunction with one or more of these limitations: Aftermath (p. 215), Cardiac Stress (p. 215), Costs Fatigue (p. B111), Emergencies Only (p. B112), or Temporary Disadvantage (p. B115); Aftermath or Temporary Disadvantages are usually based on Bad Temper, Berserk, Gluttony, or Lecherousness.

Here are two examples:

Burst Reflexes (TL9): A controlled release of adrenaline lets you react quickly. This is Basic Speed, +1.00 (Costs Fatigue, 2 FP, -10%) [18].

Explosive Strength (TL9): In emergencies, your body can trigger an explosive burst of adrenaline-fueled "hysterical" strength for a very short period. This is Enhanced Muscle 5 (Costs Fatigue, 1 FP/second, -10%; Emergencies Only, -30%) [24].

For another example, see the Felicia (p. 73).

Pheromone Modifications

I believe that we can gain further control over the next generation by restoring the vestigial vomeronasal system, which reacts to airborne pheromones. Unlike lower animals, whose pheromone vulnerability is limited by mating seasons, humans with this genemod may experience irregular, heightened states of arousal. More important for our purposes, they will become far more vulnerable to enhanced pheromones, such as those produced by the pheromone glands and aerosols we have developed.

– Dr. Tse Chang, Report to the Genetic Planning Council

Pheromones are chemical signals given off by the body's natural secretions. Animals use pheromones to attract mates or, to a lesser extent, warn others of danger, identify each other or establish dominance. For game purposes, this term can also be extended to the production of other airborne hormones.

Susceptible to Pheromones: Many animals have a vomeronasal organ that lets them perceive pheromones as a feeling rather than a smell: detecting another's pheromones can induce arousal, attraction, respect, nervousness or whatever. In humans, the vomeronasal organ has atrophied to the point where people probably can't detect pheromones . . . but that might change. In the case of pheromones that provide a reaction bonus (Xeno or Dominance), increase your bonus by your level of susceptibility. This is Susceptible (Pheromones) 1-5 [-1-5].

Sex Pheromones: Modified human glands could produce sex pheromones (or other chemical aphrodisiacs) powerful enough to influence humans. The user exudes an invisible chemical cloud that inspires attraction in those exposed to it. Victims must be within two yards and breathe it in – this ability doesn't work by touch or sight. This ability is Affliction 1 (HT; Lecherousness (12), +15%; Accessibility, Only on those attracted to your gender, -20%; Area Effect 1, +50%; Emanation, -20%; Scent-Based, +150%) [28]. *28 points.*

Trust Hormones: Airborne production of hormones such as oxytocin that inspire levels of trust may justify Affliction 1 (HT; Gullibility (12), +10%, Area Effect 1, +50%; Emanation, -20%; Scent-Based, +150%) [29]. *29 points.*

Xeno-Pheromones: Modified organs for producing pheromones capable of influencing a non-sentient species could justify the advantage Animal Friend 1 (Accessibility, One species only, -40%; Scent-Based, -20%) [2]. *2 points.*

Dominance Pheromones: These sophisticated pheromones cause people to admire or react with awe to the user – though they don't know why! This is Charisma +4 (Accessibility, no effect on nonhumans, -5%; Scent-based, -20%) [15]. *15 points.*

The user is assumed to be possess an immunity to his own chemical emissions, but this need not always be the case. If not, adding an appropriate Temporary Disadvantage limitation (e.g., Lecherousness or Gullibility, or possibly Chummy for Dominance pheromones) might be appropriate.

Certain disadvantages might also be *activated* by pheromones – this is the Trigger limitation.

Pheromone Modifications

Trait	Cost	Page	TL
Dominance Pheromones	15	48	11*
Sex Pheromones	28	48	10*
Susceptible (Pheromones) 1-5	-1 to -5	48	9*
Trust Hormones	29	48	10*
Xeno-Pheromones	2	48	10*

* Species modification.

Xeno-Glands

Today's featured company expose is Onokage Labs. This shadowy Kyoto-based corporation has carved out a niche for itself in custom gengineering for the rich and decadent of Asia-Transpacific. Their living products are well known among connoisseurs of the bizarre – and not always what

they seem. Take their Fugu-series pleasure bioroid: an exotic beauty with lavender skin and white hair, she also possesses genemod venom sacs capable of delivering endorphins. Her 'love bites' can make you high, but too much of a good thing can kill you.

– Noriko Hayakawa, host of ***Cyberia Beat***

The most common exocrine glands derived from non-human species are venom sacs based on those of reptiles or amphibians. A huge array of toxic and drug-like effects are possible, generally bought as a follow-up Affliction or an Innate Attack doing Toxic damage, usually in conjunction with Sharp Teeth or Claws (p. B42).

Symbiotic bacterial or glandular bioreactors capable of producing or excreting various substances or drugs for later harvest are also possible, although these are much more for animals than humans; See *Pharm Animals* (p. 85) for examples.

Gengineering of these, or of modified hormone glands, may permit chemicals produced in the body (including exotic, new ones) to be secreted externally.

At high TLs, glands (such as spinnerets) capable of secreting enzymes and proteins derived from insect or arachnid genes may allow Clinging or web-slinging (Binding). Other exotic possibilities are enhanced sweat glands to provide Slippery or Temperature Tolerance, or squid-like ink glands giving the Obscure (Vision) advantage in water.

Xeno-glands often have Limited Use or Takes Recharge limitations and are sometimes limited to Emergencies Only.

Xeno-Glands

Trait	*Cost*	*Page*	*TL*
Affliction 1+	10/level	B35	9*
Binding 1-20	2/level	B40	12‡
Clinging	20	B43	11
Obscure (Vision) 1-10	2/level	B72	11†
Slippery	2/level	B85	10
Temperature Tolerance 1-2	1/level	B93	10
Toxic Attack 1+	4/level	B62	9*

* This should have either the Blood Agent (p. B110) or, for musk, Sense-based (p. B109) (usually in conjunction with either Melee Attack or Jet) or Follow-Up modifiers (p. B105).

† This should have the limitation Accessibility, only in water, -30% (p. B110).

‡ This should have the modifiers Area Effect (p. B102) and Persistent (p. B107), and possibly Sticky (p. B40) and Wall (p. B109).

All xeno-glands are species modifications.

Toxic and Affliction Abilities

There are numerous possible Toxic and Affliction attacks that could be produced with advanced genetic engineering. Three examples are given below:

Deadly Venom (TL9): Toxic Attack 1d (Cyclic, 1 hour, 4 cycles, Resistible, +30%; Follow-Up, Teeth/Striker/Claws, +0%; Onset, 1 minute, -10%; Resistible, HT-4, -10%; Symptoms, 2/3 HP, -2 ST, DX, IQ, and HT, +60%) [8]. *Notes:* The victim must make a HT-4 roll a minute after injection and hourly for three hours. Each failure inflicts 1d injury. Those who lose 2/3 HP or more become seriously ill: -2 to *all* attributes until healed. *8 points.*

Ecstasy Glands (TL10): Affliction 1 (HT; Blood Agent, -40%; Onset, 1 minute, -10%; Ecstasy, +100%; Emergencies Only, -30%; Melee Attack, C, -30%; Secondary Heart Attack, +60%) [15]. *Notes:* The attacker's bodily secretions contain a powerful drug, released when sexually excited or when frightened; a victim must make a HT roll a minute after being exposed. Failure means he's incapacitated by ecstasy for minutes equal to his margin of failure; failure by 5+ means a heart attack. *15 points.*

Venomous Spit (TL10): Toxic Attack 1d+1 (Blood Agent, -40%; Cyclic, 1 hour, 4 cycles, Resistible, +30%; Jet, +0%; Onset, 1 minute, -10%; Reduced Range, ×1/2, -10%; Resistible, HT-3, -15%; Symptoms, 2/3 HP, -3 DX and IQ, +60%) [7]. *Notes:* This jet of venom must hit the eyes or open mouth, or an open wound, to have *any* effect. Victims must make a HT-3 roll a minute after exposure and hourly for three hours. Each failure means 1d+1 injury. Those who lose 2/3 HP or more grow feverish: -3 DX and IQ until healed. 7 *points.*

Immune System Modifications

The body responds to infection using a combination of blood proteins (the complement system) and white blood cells (leukocytes). The latter include killer T-cells, which destroy infected cells in the body; B-cells, which produce antibodies that tag pathogens; and phagocytic cells, which engulf and destroy tagged pathogens.

Improved disease resistance may result from gengineering the spleen and bone marrow to manufacture more discriminating and aggressive leukocytes. Ultimately, they may be engineered into bio-nanomachine factories, creating cells that can do everything from binding with and destroying toxins to cleaning out clogged arteries . . . but this capability (granting full Immunity to Disease, often in combination with Longevity) will usually require biomods or nanosymbiotes, and hence is covered in later chapters.

The exception are bioroids, whose radical design may more easily provide this capability.

Immune System Modifications

Trait	*Cost*	*Page*	*TL*
HT+1	10	B15	10
Resistant to Disease (+3)	3	B80	9
Resistant to Disease (+8)	5	B80	9
Resistant to Sickness (+3)	5	B80	10
Resistant to Sickness (+8)	7	B80	10*
Immunity to Disease	10	B80	10†

* Species modification.

† Species modification; bioroids only.

Lifespan and Self-Repair Modifications

A person's overall health may be increased by a spectrum of genetic changes, such as eliminating genetic defects and hereditary tendencies toward degenerative illness.

The search for longevity is likely to be a major preoccupation of eugeneering. "Dying of old age" seems to result from numerous factors, each of which must be dealt with separately: arterial clogging, the buildup of free radicals, weakening bones, cancers, diseases, accumulated genetic copying errors, and even the depredations of brain-destroying prions. Any genemod that treats even a few of these factors may increase lifespan.

For example, one major cause of aging might be the damage caused by free radicals, the toxic byproducts of the body's metabolic activity. Genetic engineering aimed at countering this may increase the production of the body's natural antioxidants such as superoxide dismutase (SOD), catalase (CAT) and glutathione peroxidase (GPX). This alone could be enough to increase a human lifespan by 10 to 50%.

Another aging theory suggests that some cells seem to accumulate copying errors after a certain number of replications (the Hayflick limit). If that's the case, a "revised Hayflick limit" genetic sequence, designed to produce more robust cells, might be needed in order to grant Extended Lifespan or, ultimately, Unaging.

Regeneration is trickier. Gene sequences copied from lizards (which can often regenerate tails or other extremities) may give humans a similar ability. True immortality may require radical alterations to cell structure, or a colony of symbiotic bio-nanomachines that patrol the body (see p. 166).

Immune system modifications (p. 49) and liver and kidney modifications (p. 46) are closely related to lifespan and self-repair modifications – someone who is immune to toxins and disease is likely to live longer, for example, so these advantages often combine with self-repair and longevity modifications to provide Resistant to Metabolic Hazards. This is especially likely for anyone who also has Unaging.

Slave races may have Self-Destruct modifications to the endocrine system or built in "suicide clocks" in cells that cause rapid degeneration when they reach their aging threshold, to ensure demand for new product via planned obsolescence. A shortened lifespan might be popular for non-sterile slave races, if it allows rapid maturation.

Lifespan and Self-Repair Modifications

Trait	*Cost*	*Page*	*TL*
Extended Lifespan 1-2	2/level	B53	10*
Extended Lifespan 3	6	B53	11*
Extended Lifespan 4	8	B53	12*
HT+1	10	B15	9
HT+2	20	B15	10
HT+3	30	B15	11*
HT+4	40	B15	12*
Longevity	2	B66	9
Radiation Tolerance 2	5	B79	9*
Radiation Tolerance 5	10	B79	10*
Radiation Tolerance 10	15	B79	10/11**
Radiation Tolerance 20	20	B79	11/12**
Rapid Healing	5	B79	9
Regeneration (Slow)	10	B80	10/11†*
Regeneration (Regular)	25	B80	11/12†*
Regrowth	40	B80	10*
Resistant to Metabolic Hazards (+3)	10	B80	10/12**
Resistant to Metabolic Hazards (+8)	15	B80	11/12**
Self-Destruct	-10	B153	9*
Short Lifespan	-10/level	B154	10*
Unaging	15	B95	11*
Very Rapid Healing	15	B79	10

* Species modification.

† The modifiers Heals Radiation (+40%) and Radiation Only (-60%) are also available; the "Only" version reduces the TL to TL10 for Slow or TL11 for Regular.

Morphological Changes

No terrestrial vertebrate strays from the fundamental skeletal pattern of a cranium, four limbs, and a tail. In some animals, certain of these features are enhanced and others are atrophied – sometimes to invisibility. For example, dolphins replace their legs with flippers and a huge tail, snakes have no limbs, while humans have only a vestigial tail bone, but differentiate their limbs into arms and legs. Nevertheless, the basic pattern remains.

Genetic engineering can alter humans within these limits between TL9 and TL10, changing the function of limbs (or deleting them), adding a tail or altering body posture. However, deviating from vertebrate morphology to give humans more than four functional limbs, or other exotic changes, requires TL11+.

Modified Limbs

First time I saw the new foreman, I was a little skeptical: a work shack's cramped enough without two extra elbows. That lasted until I saw what Lyra could do in zero-G – we got the new solar panels up in record time. A few days later, Lyra invited me to her apartment, in the station hub where it's always weightless. That night, she showed me another reason to appreciate four hands.

– Copernicus Jones, ***Posthumans I've Known***

Digitigrade Posture: A human's legs can be redesigned to resemble a quadruped's hind legs. Someone with this modification walks on his toes and the ball of his foot, or a hoof. This is usually a cosmetic modification, for custom-designed satyrs or other beast-people. While less practical for bipeds than for quadrupeds, careful modification of joints can make this posture just as comfortable. This is a feature. *0 points.*

Prehensile Toes: These are toes that have been lengthened to serve as fingers and equipped with opposable thumbs. While a person with prehensile toes is using his feet as arms, he can't walk or run; he can still sit, float (in space or liquid) or fly, of course. This ability consists of Extra Arms (Two arms; Foot Manipulators, -30%; Short, -50%) [4]. *4 points.*

Legs to Flippers: Altering hands to provide webbed fingers and feet into seal or frog-like flippers grants the No Legs (Semi-Aquatic) trait (p. B145) and can also justify buying a half-level of Enhanced Move (Water) (p. B52). A true "mer-human" human may undergo radical gengineering so that the embryo never forms legs, instead developing a dolphin-like lower body and tail, and probably webbed fingers. This gives the No Legs (Aquatic) trait (p. B145) and can justify either Enhanced Move (Water) 1/2 or 1 (p. B52).

Legs to Arms: Only popular in microgravity, this is a radical change suitable for gene-engineered spacers. It replaces both legs with a second pair of arms. This is Extra Arms (Foot Manipulators, -30%) [14] plus Crippled Legs (Accessibility, Not in zero-G, -10%) [-9]. Basic Move must be reduced by half as described in the Crippled Legs disadvantage; this will give extra points back. *5 points.*

Extra Arms: Adding one, two, or four extra functional arms (attached between the shoulders and the hips) is much harder than simply transforming legs into arms. Not only are extensive skeletal and muscular modifications required, but blood flow will need to be increased to handle these busy additions, which means a larger heart and more efficient lungs. The nervous system must also be reworked and the brain modified in order to control them. These modifications give two or four Extra Arms (p. B53).

Modified Limbs

Trait	*Cost*	*Page*	*TL*
Digitigrade Posture	0	51	9*
Enhanced Move (Water)	20/level	B52	10†
Extra Arms (4 arms)	20	B53	11
Extra Arms (6 arms)	40	B53	12
Legs to Arms	5	51	9*
No Legs (Aquatic)	0/-5/-10	B145	9*
No Legs (Semi-Aquatic)	0	B145	9*
Prehensile Toes	4	51	9*
Striker	5-8	B88	11

* Species modification.

† Enhanced Move (Water) requires either No Legs (Aquatic) (maximum 1 level) or No Legs (Semi-Aquatic) (maximum 1/2 level).

Gengineered Tails

Humans have a vestigial tailbone; species modification gengineering could use genes from other mammals to give humans a tail. This might be done for cosmetic reasons, or the tail may be usable as a weapon or a functional extra arm.

Ordinary Tail (TL9): A normal animal tail, with various styles available (cat, wolf, pony, rabbit, rat, etc). Clothing should be designed with tail flaps! *0 points.*

Prehensile Tail (TL10): A tail capable of grasping, like a monkey's. This requires modifications to the brain and nervous system as well. It may be a popular biomod feature for spacers, where an additional grasping limb is always useful. This is an Extra Arm 1 (Extra-Flexible +50%; No Physical Attack -50%) [10]. *10 points.*

Prehensile Trunk (TL11): An elephant-like trunk on the face. Otherwise identical to Prehensile Tail. *10 points.*

Scorpion Tail (TL12): A segmented tail with a barbed, poisoned tip. Treat as a Large Piercing Striker (Cannot Parry, -40%; Clumsy, -3 to hit, -60%; Long, +100%) [6] plus Toxic Attack 2d (Cyclic, 1 hour; 5 cycles, resistible, +40%; Follow-Up, Striker, +0; Resistible, HT-3, -15%) [10]. *16 points.*

Gengineered Tails

Trait	*Cost*	*Page*	*TL*
Ordinary Tail	0	51	9
Prehensile Tail	10	51	10
Prehensile Trunk	11	51	11
Scorpion Tail	16	51	12

All traits on the *Gengineered Tails* table are species modifications.

Winged Humans

We can synthesize the DNA for feathered or bat-like wings, but you can't just splice wings into a normal genotype and expect it to fly. Thanks to the square-cube law, a set big enough to lift even a child isn't practical. Sure, you can expand the wingspan, but then you end up with wings 50 or 60 feet across. Aside from the inconvenience, you'll run into problems of structural strength and finding the muscles needed to flap them.

As a result, winged bioroids typically have wingspans of about twice their height. While this can be a visually attractive feature, they have no chance on Earth of flying. I use that cliche deliberately: if you can find an extra-terrestrial environment with a lower gravity but normal or higher atmospheric pressure, then you're in luck. Planets like that are rare, but there are artificial habitats. Our Camazotz-series bioroids were grown for the domes on Luna City and Titan, and the big orbitals; in under one-sixth G, they really can fly. I imagine if we ever make a Dyson sphere, they'd be perfect.

– Dr. Sayyid Iqbal, Biotech Euphrates

A flying or gliding human will always have Flight with the Winged and Requires Low Gravity limitation (p. 215). To work out the maximum gravity, in multiples of Earth gravity (G) that the race can fly in, find the average ST of the racial template (e.g., ST 10 for humans, or ST 13 for an upgrade with racial ST+3) and the Basic Lift (p. B17) for that ST. Then determine the average racial body weight as follows: cube the racial ST, multiply by 0.15 lbs., and modify for any build disadvantages (p. B18) included in the template – thus; Skinny is a useful trait for flying humans! Then divide that BL by racial body weight to find maximum gravity in G. This is for flyers; multiply gravity by 1.5 if the race's Flight is limited to Controlled Gliding or by 2 if limited to Gliding.

Example: A variant race of flying humans has racial ST -1 for an average racial ST 9, which also gives a racial average BL 16 lbs. The body weight averages (9 cubed) × 0.15 = 109 lbs.; however, the race is designed to be Skinny, so this is multiplied by 2/3, giving 73 lbs. (16 / 73) = 0.22 G (rounded to 0.2G); they could fly in a domed city on the Moon (0.17 G) but not Earth (1 G) or Mars (0.38 G). Therefore the race must take Flight (Requires Low Gravity, 0.2 G, -40%; Winged -25%) [14].

The limitation assumes a standard-pressure atmosphere (1 atm). In other environments, multiply the gravity the flyer can operate by the atmospheric pressure. Thus, someone who can only fly in up to 0.2 G gravity could fly in 0.3 G gravity if the atmosphere was 1.5 atm., but would be limited to 0.1 G gravity if it was 0.5 atm.

In addition to the difficulties of gravity, there are other problems: the wings themselves. There are two typical approaches to creating wings:

Arms to Wings

Both arms are modified to become a pair of wings. This gives Flight limited as described above, plus some additional limitations or disadvantages.

If the flyer's wings can still be used as arms when not flying, this is a further limitation on the cost of Flight; treat as Temporary Disadvantage (No Fine Manipulators, -30%).

If the wings are usable *only* to fly with, then they give the disadvantage No Fine Manipulators [-30], unless the race has feet or other body parts that can serve as arms.

For a sub-race that has two pairs of arms (see *Modified Limbs*, p. 51), one pair of which can function as arms when not flying, these Extra Arms should have the limitation Temporary Disadvantage (Removes Flight), its value depending on the Flight's cost (after the limitations suggested above).

Angelic Wings

This is the classical fantasy of wings sprouting from the shoulder blades. It's very hard to gengineer, for the same reasons as adding an extra set of arms – in addition to the problems of arm-to-wing conversion, it requires redesigning the skeleton and adding new muscles and a modified nervous system. Take Flight with the Winged and Requires Low Gravity modifiers discussed above, and, optionally, either Controlled Gliding or Gliding if the wings are not capable of full powered flight.

Gengineered Wings

Trait	*Cost*	*Page*	*TL*
Arms to Wings	variable	52	10
Angelic Wings	variable	52	11

All traits on the *Gengineered Wings* table require species modification.

Devolutionary Modifications

Some morphological modifications take a backward step down the evolutionary path, causing humans to revert to more bestial forms. These are most likely intended for the creation of toys or slave races, although a very advanced civilization might enjoy creating blank-minded clone bodies this way, then "uploading" their minds into them as a new experience.

Chimerization or gene splicing could create humans with a sphinx-like morphology: a human head atop a quadruped animal body (e.g., a leopard or pony), with hands and feet replaced with walking paws or hooves – the Quadruped meta-trait (p. B263). This can also justify Enhanced Move 1/2 or 1 (Ground) (p. B52) and Hooves (p. B42).

A trickier morphological upgrade would alter chromosomes to blend a human upper body with a bestial lower body. This might require chimerization techniques (p. 38) in conjunction with genetic engineering, and is usually designed to allow faster ground speeds. A centauroid has Extra Legs (Four Legs) [5] (p. B54].

A human head on a snake-like body (such as the "lamia" that Tika Dawnstar created (p. 5) may be possible through radical manipulation of homobox genes. This gives the vermiform meta-trait. A snake-like lower body combined with a humanoid upper body is extremely difficult to genegineer, but more practical than a naga-like Vermiform; take No Legs (Slithering). Either justifies taking Constriction Attack (p. B43) and Double-Jointed (p. B56) as well.

All of the above modifications are mutually incompatible.

Devolutionary Modifications

Trait	*Cost*	*Page*	*TL*
Constriction Attack	15	B43	11‡
Double-Jointed	15	B56	11‡
Enhanced Move	20/level	B52	10‡
Extra Legs (Four Legs)	5	B54	11†
No Legs (Slithering)	0	B145	10*
Quadruped	-35	B263	10*
Semi-Upright	-5	B153	9*
Vermiform	-35	B263	10†

* Species modification.

† Radical species modification.

‡ Enhanced Move (Ground) must be justified by taking Semi-Upright (maximum 1/2 level) or Extra Legs or Quadruped (maximum 1 level) as well. Double-Jointed and Constriction Attack may be taken if No Legs (Slithering) or Vermiform is also taken.

Musculo-Skeletal Modifications

The BS-2-F Felicia-series combat bioroid is a "special forces" upgrade of our popular AS-2-E, with a wide spectrum of state-of-the-art improvements. In this vidclip, we see a fire team of BS-2-Fs free-jumping from a helicopter 12 meters up and landing on their feet without injury, thanks to their XM-723 feline morphology.

– Biotech Euphrates promo video at WarEx '47 trade show

Meow.

– Felicia-series bioroid, upon landing on enemy soldier

The musculo-skeletal system consists of 206 bones (in adults) and 650 muscles connected to the each other by joints, tendons, and ligaments.

A modest racial bonus to Strength can be achieved with eugenic selection for height and weight, combined with genes that promote the growth of muscle tissue over fat. Species modifiction provides further improvement.

Bulk changes to body size such as Dwarfism (p. B19) and Gigantism (p. B20) are caused by manipulating growth hormone levels. Eugenic changes can lead to longer fingers, giving High Manual Dexterity (p. B59) or even Long Arms (p. B53) or Long Legs (p. B55). Longer limbs might also result from optimizing humans for low gravity.

Most bones are complex constructs containing hard outer bone tissue, an inner spongy layer (perforated to reduce weight) and, in some bones, a fatty marrow that manufactures new red and white cells for the blood. Species modification may improve the bones or strengthen the skeleton itself. If this is limited to the skeleton, the result will usually be a few extra HP and possibly a racial ST bonus by allowing stronger attachment points for muscles. It's also possible to reverse the process, creating a lighter build (and perhaps even engineering hollow, bird-like bones) to reduce weight – something that might be very important if designing flying humans (p. 52).

The body's muscles represent some 40-45% of its weight. Each is a bundle of thousands of hair-thin myofibers (grouped into bundles) Muscles pull or contract in response to voluntary or involuntary nerve impulses; sets of muscles work together to move bones or tissue, or tense to hold body parts steady. The face is exceptionally complex, with more than 50 muscles required to produce facial expressions.

A more subtle way to boost strength is modify the structure of both voluntary and involuntary muscle tissue using more or stronger fibers. This increases Lifting ST (p. B65) and Striking ST (p. B88). The musculature can be optimized for crushing, giving Constriction Attack (p. B43). At high TLs, the additions for genes coding for proteins such as resilin (from grasshoppers) might be used to create extra-elastic muscle tissue permitting superhuman capabilities such as Super Jump (p. B89) or Extra-Flexible arms (p. B53).

Joints between bones are composed of cartilage, a softer material lubricated by a slippery fluid (synovial fluid), and attached by strips of tissue – ligaments and tendons – that link them to bones and muscles. Different types of joints exist in nature, such as the very flexible ball-and-socket joint of the hip or the less versatile hinge joint of the knee or elbow. Species modification could provide better-articulated, better-lubricated, or shock-absorbing joints, or stronger connective tissue, giving Brachiator (p. B41), Catfall (p. B41), Double-Jointed (p. B56), or Flexible (p. B56).

Musculo-Skeletal Modifications

Trait	*Cost*	*Page*	*TL*
Brachiator	5	B41	9*
Catfall	10	B41	9*
Constriction Attack	15	B43	10*
Double-Jointed	15	B56	9
Dwarfism (-1 SM)	-15	B19	9
Extra-Flexible	5/10	B53	11*
Flexibility	5	B56	9
Gigantism (+1 SM)	0	B20	9
High Manual Dexterity 1-3	5/level	B59	9
HP -1 to -3	-2 per -1 HP	B16	9
HP +1 to +3	2 per +1 HP	B16	9*
HP +4 to +6	2 per +1 HP	B16	10*
HP +7 to +10	2 per +1 HP	B16	11*
Lifting ST +1 to +3	3 per +1 ST	B65	9*
Lifting ST +4 to +6	3 per +1 ST	B65	10*
Lifting ST +7 to +10	3 per +1 ST	B65	11*
Long Arms (+1 SM)	10/arm	B53	9*
Long Legs (+1 SM)	10	B55	9*
ST -1 to -5	-10 per -1 ST	B14	9
ST +1 to +2	10 per +1 ST	B14	9
ST +3 to +4	10 per +1 ST	B14	9*
ST +5 to +6	10 per +1 ST	B14	10*
ST +7 to +10	10 per +1 ST	B14	11*
Striking ST +1 to +3	5 per +1 ST	B88	9*
Striking ST +4 to +6	5 per +1 ST	B88	10*
Striking ST +7 to +10	5 per +1 ST	B88	11*
Super Jump 1	10	B89	11*
Super Jump 2	20	B89	12*

* This trait requires species modification.

The *combination* of bonuses to HP, Lifting ST, and Striking ST may not exceed the maximum allowed ST bonus by more than 50%.

Nonhuman Strength: When gengineering a species that starts with an average racial ST other than 10, the maximum alteration is expressed as a percentage increase: +10% per +1 on the table. For example, at TL10, an elephant (ST 45) is not limited to +6 ST; it could be modified for an extra ST +27 (since 60% of ST 45 is 27). This rule also applies to HP and Lifting/Striking ST.

Nervous System Modifications

I knew I was going to join the ranks of the ethically-challenged when the Sultana offered me twenty grand to create a clone of her ex-husband with a gengineered low pain threshold.

– Dr. Lucien Locke, Genehackers Inc.

The central nervous system consists of the brain and spinal cord. It sends out nerve impulses to control the body and analyzes sensory information. The peripheral nervous system branches out from the brain and the spinal cord, carrying nerve impulses from the central nervous system to glands and muscles. Finally, the autonomic nervous system regulates involuntary activity, such as the heartbeat and digestion.

Individual nerves are built from billions of specialized nerve cells (neurons) connected to other cells by tree-like branches (dendrites). The arrival of specialized chemicals called neurotransmitters trigger nerve impulses – tiny electrical pulses. These are transmitted across thin nerve fibers (axons). A fatty sheath, myelin, serves to insulate the fibers from electrical activity and improves their transmission rate. Different types of nerve fibers carry signals at different speeds; the fastest nerve signals travel at over 250 mph, permitting a reaction time of 0.2 seconds. Unlike most body cells, which last anywhere from hours to months, nerve cells can live for decades.

Genetic modifications to the nervous system exclusively aimed at improving brain function are covered under *Brain Modifications* (p. 42). This section focuses on modifications to the rest of the central nervous system and autonomic nervous system.

Dexterity and Basic Speed may be improved by redesigning nerve fibers and the spinal cord for faster nerve impulse transmission. Alterations to the nervous system could increase nerve impulse transmission rates and thus reaction speed, perhaps by finding superior protein combinations to build nerve fibers out of, or even through the addition of extra neural pathways; this might also provide Enhanced Time Sense (p. B52). Even so, the limitations of electrochemical reflexes make radical improvement difficult without using cybernetics. More extensive neural modification usually proceeds through quasi-organic enhancements – see the *Biomods* chapter (p. 176). Use of nanotechnology to lay down parallel or replacement electrical nerve pathways may be a more practical – if extremely high-tech – route to super-reflexes than gengineering.

The nervous system also controls the sensation of pain. Pain sensitivity is vital. People born without it die early – by accident, or from infection resulting from internal joint and bone damage. (They are unable to tell when a particular posture or sleeping position is over-stressing joints or bones, and so do not receive signals to shift weight or otherwise take corrective measures while sleeping or awake). However, while total insensitivity to pain – the Numb disadvantage (p. B146) – is usually not a desirable characteristic, the ability to selectively block pain is quite useful.

Through genetic modification of the genes responsible for neurotransmitter "signal molecules" or via transplants of gengineered nerve tissue to the notochord (the embryonic spine), it may be possible to activate neural gating circuits in the spinal cord to deliberately mitigate incoming pain signals before they are perceived, without destroying the ability to sense pain as a whole. Of course, the opposite could be done to enhance the ability to feel pain . . .

Nervous System Modifications

Trait	*Cost*	*Page*	*TL*
Basic Speed up to +1.00	5 per +0.25	B17	10
Basic Speed up to +2.00	5 per +0.25	B17	11*
Basic Speed up to +3.00	5 per +0.25	B17	12*
Combat Reflexes	15	B43	9
DX+1	20	B15	9
DX+2	40	B15	10*
DX+3	60	B15	11*
DX+4	80	B15	12*
Enhanced Time Sense	45	B52	10†
Extra Attack 1	25	B53	10*
Extra Attack 2	50	B53	11*
Extra Attack 3-4	75/100	B53	12†
High Pain Threshold	10	B59	9
Low Pain Threshold	-10	B142	9
Numb	-20	B146	9*

* These traits always require species modification.
† This trait is a radical species modification.

Respiratory Modifications

No need to wait centuries for atmospheric terraforming to be completed! Colonial Genetics has pioneered this new, high-capacity lung system designed to have your children breathing without a respirator and playing outdoors! Mars Development Corporation will offer a 20% rebate on all lung gengineering as part of the Ares Pioneer program.

– Colonial Genetics press release

Ship malcons and convicts to Mars, then modify the poor bastards' kids so they can't come back to Earth.

– Professor C. Eric Gideon, soc.culture.mars

Unless they buy the nano to turn them back . . .

– Deimos Dog, soc.culture.mars

Oxygen is needed to catalyze the body's chemical processes, which break apart the glucose (blood sugar) obtained from food and release its energy to power the body. The respiratory system – the nose and throat, trachea (wind pipe), bronchi (airways in the chest), and the lungs themselves – take in air and pass oxygen into the blood.

The lining of the lungs may produce detoxifying agents to counter or filter respiratory agents, granting the Filter Lungs advantage. Larger low-pressure lungs (p. 212) could be designed that are specialized for breathing in a thin atmosphere, such as a recently-terraformed Mars, or high-pressure lungs (p. 212) could be constructed that are adapted for denser atmospheres.

Another goal of respiratory modification is improving physical performance. Greater elasticity or stronger muscles can improve breath-holding capacity or gas exchange, increasing endurance by adding Fatigue Points.

The larynx (voice box) contains two ridges called vocal cords; when people speak, the voice box's muscles contract the vocal cords. Air passing through the gap between them makes them vibrate to produce sound. A different kind of performance modification would be to alter and improve the larynx to give someone the Voice advantage, or even a multi-functional larynx capable of Mimicry (perhaps derived from mynah-bird genes). Less complicated modifications could remove the voice box (Mute), or limit it to making animal sounds (Cannot Speak), which might be desirable for some servitor races.

Paranormal Abilities

Exotic advantages such as Growth or Telekinesis or supernatural advantages such as Magery may be gengineered if they have a mapped genetic cause. This is superscience (TL^): the actual TL required is up to the GM, depending on when the genetic basis for the powers in question was discovered. It should require at least TL9 if the paranormal ability is governed by only a few genes, or TL10+ for a large complex of genes.

Respiratory Modifications

Trait	*Cost*	*Page*	*TL*
Breath-Holding 1-2	2/level	B41	9
Breath-Holding 3-5	2/level	B41	10*
Cannot Speak	-15	B125	9
Filter Lungs	5	B55	9*
FP +1 to +3	3 per +1 FP	B16	9
FP +4 to +6	3 per +1 FP	B16	10*
FP +7 to +9	3 per +1 FP	B16	11*
FP +10 to +12	3 per +1 FP	B16	12*
High-Pressure Lungs	0	212	9*
Low-Pressure Lungs	0	212	9*
Mimicry	10	B68	9*
Mute	-25	B125	9*
Penetrating Voice	1	B101	9*
Voice	10	B97	9

* Requires species modification.

Respiratory Alternatives

Ever looked at an embryo? It has gills. Gengineering to retain these vestigial traits should be relatively simple, right?

– Aquagrrl, sci.bio.genemod.human

Wrong. It's true that human embryos have gill-like structures – but these serve a different function than in fish or amphibians, eventually forming the chin, jaw, cheek and outer ear. Babies get their oxygen from the mother, through the placenta. As a result, gengineering a merman is a lot more difficult than Aquagrrl implies, especially if we want to breathe both air and water. So far, most dual-environment humans are designed like marine mammals. Navy SEAL bioroids don't use gills. They store oxygen in the myoglobin of the muscles, just like whales do. When drawing oxygen from these sources, their lungs aren't necessary, so they can undergo complete alveolar collapse as water pressure increases, letting them ignore the bends and survive very deep dives.

– DocIqbal, sci.bio.genemod.human

Attempts to create humans capable of functioning underwater for long periods of time generally involve three different techniques: oxygen storage and (at higher TLs) actual gills. Each may be accompanied by modifications to the lung structures and cardio-respiratory system to allow survival over a greater-than-normal range of pressure.

All of these are variations of the Doesn't Breathe advantage (p. B49). While not needing to breathe *at all* requires radical nanotechnology (see *Solarskin, p.* 189), limited versions are possible with genetic engineering.

Gills: These fine membranes extract oxygen from water. The problem for water-breathing humans is that ordinary sea water has only 1/30 the oxygen content of air. A warm-blooded human being's metabolism requires far more oxygen than a cold-blooded, small-brained fish, so gills capable of supplying enough oxygen for a human to survive would be very large, located on the ribs rather than on the neck. It's possible that the disadvantage Cold-Blooded (p. B127) would be a necessary but unintended side effect. Fish gills also lack stiffness: without the buoyancy of water, they'll collapse, leading to rapid suffocation. Fishlike gills that totally replace lungs and only allow the recipient to breathe underwater provide Doesn't Breathe (Gills) [0] (p. B49). However, gills may be augmented by modified lung structures, such as the suprabranchial arborescent organ possessed by walking catfish. These provide support for gills when out of the water. Someone with these modifications can survive in both land and water. This is the ability Doesn't Breathe (Gills, -50%) [10].

Oxygen Storage: This provides a reserve of oxygen stored in the body. It's useful in airless or low-pressure environments, including arctic waters where there is too little oxygen for gills to function properly. Oxygen storage uses genetic modifications inspired by the physiology of marine mammals such as seals and whales. Someone with this upgrade has greatly elevated levels of the oxygen-storage protein myoglobin in their liver and skeletal muscles, storing roughly six to eight times as much oxygen as a land mammal. This is combined with a "diving reflex" (diving bradycardia) that results in a dramatic decrease in heart rate in low-oxygen conditions in conjunction with a redistribution of blood from viscera and skeletal muscles to the vital organs and brain. When using this capability, air is expelled from the lungs (which collapse under pressure, often aided by a flexible rib cage, negating any risk of the bends), and all oxygen is derived from the hemoglobin in the blood and the myoglobin in the muscles. As a result, the user can effectively "hold his breath" for 100 times as long as normal. Replenishing this reserve requires 10 seconds breathing air for each minute operating on stored oxygen. This ability is Doesn't Breathe (Oxygen Storage × 100, -30%) [14]. Higher levels with oxygen storage × 200 (-20%) and × 300 (-10%) are also possible.

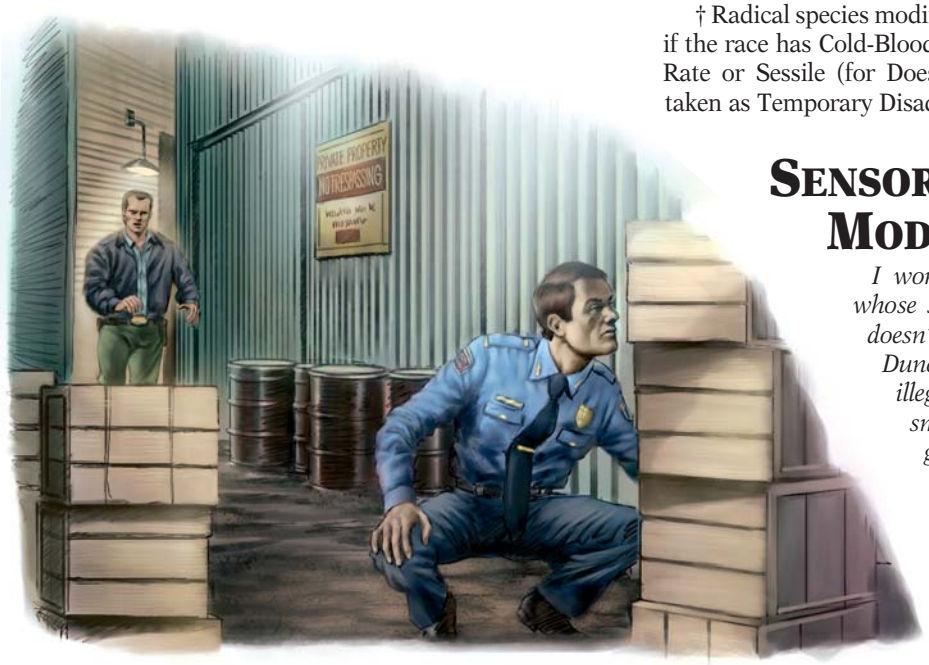
Oxygen Absorption: The ability to absorb oxygen directly from the environment (or to have a plant-like metabolism) requires radical genetic engineering technology or great size (such as extensive plant-like root networks or leafy membranes) to support human levels of metabolic activity. For this reason it's most likely as a radical biomod transformation rather than genetic engineering. It might also be a backup respiratory system intended for periods of reduced activity, in conjunction with Doesn't Eat or Drink (p. B50) and a Temporary Disadvantage like Decreased Time Rate (p. B129) or No Legs (Sessile) (p. B145).

Respiratory Alternatives

Trait	*Cost*	*Page*	*TL*
Doesn't Breathe	variable	B49	variable
– Gills	0	B49	11†
– Gills	10	B49	12†
– Oxygen Absorption	15	B49	12†
– Oxygen Storage, ×100	14	B49	9*
– Oxygen Storage, ×200	16	B49	10*
– Oxygen Storage, ×300	18	B49	11*
Pressure Support 1	5	B77	9*
Pressure Support 2	10	B77	11*

* Species modification.

† Radical species modification. Reduce required TL by 1 if the race has Cold-Blooded (for Gills) or Decreased Time Rate or Sessile (for Doesn't Breathe); the latter may be taken as Temporary Disadvantages.



Sensory Modifications

I work with a Border Patrol bioroid whose sense of smell is cranked up. He doesn't need a chemscanner or dog – Duncan can sniff out drugs, explosives, illegals . . . hey, he can even smell a smuggler's fear. Trouble is, Duncan gets these splitting headaches all the time. Just goes to show, if you want a bloodhound's sense of smell, you need a bloodhound's brain.

– Detective Cody Chase, Nevada DPS

Engineering the genes governing the development of the rod and cone cells in the eyes, hair cells and membranes in the ears, and the chemical receptor cells in the nose and tongue may enhance basic human senses beyond "perfect" human levels. However, while humans can train themselves over years to develop high "Acute Senses," inborn bonuses over +5 always require transgenic techniques; e.g., ear muscles that swivel independently to more precisely localize a sound. More exotic animal-inspired genemods are also possible:

Absolute Direction: This can be artificially duplicated by gengineering human brain cells to contain the same kind of magnetite particles that certain migratory bird species possess, forming a biological compass. More extreme versions of this could also give Detect (Magnetic Fields).

Absolute Timing: This may be the result of adjustments to the glands that govern the body's circadian clock.

Discriminatory Smell: This ability, similar to that of a canine or other sensitive-nosed species, could be achieved through enhancement of the chemical receptors in the nose and via modifications to the olfactory lobe.

Detect (Electric Fields): This may be granted by electrically-sensitive organs modeled on those of electric rays or other fish.

Infravision: This may be modeled on viper heat organs – subdermal, heat-sensitive pits found next to the eyes on rattlesnakes and similar species. Unless further genetic modification is done to enhance it, this has lower resolution than infrared goggles.

Night Vision: This could result from a reflective layer of cells that amplify the light reaching the eyes. These "cat's eyes" could be derived from feline genes.

Perfect Balance: This could follow from an inner-ear balance-organ design patterned on those of cats or squirrels.

Ultrahearing: This could be achieved using ears based on those of canines, bats, or other mammals with high-frequency hearing. Subsonic Hearing is slightly trickier, but might be based on an enlarged middle-ear cavity, like that of the kangaroo mouse.

Parabolic Hearing: This may be achieved using a somewhat asymmetric ear design, similar to that of an owl.

Sonar: This is the only active Scanning Sense that can be bioengineered into humans. Bat voice boxes are the best models for natural air sonar, while underwater sonar may be based on that of marine mammals – probably pinnipeds, such as seals, rather than dolphins. Gengineering will have to both alter the voice box and modify (and probably enlarge) the ears to ultrasonic receivers. The complex gengineering required to allow a human brain to directly process sonar images requires a high TL to manage, especially for long-range sonar.

Vibration Sense: This can be achieved with modifications such as catlike whiskers, which are potent sensory organs for night hunting, capable of detecting air currents flowing around objects. Since this is a completely passive sense that cannot be jammed by most countermeasures, it might be useful for gengineered scouts or warriors. This is best represented as Vibration Sense (Air).

While these upgrades to human senses are exciting and theoretically possible, there are some problems! Evolution has adapted the human brain toward cognition and away from sensory processing, when compared to the brains of other animals. For example, the olfactory lobe takes up much more of the brain in a dog than in a human. Re-engineering a human with a bloodhound's sense of smell or a dolphin's sonar might turn him into a sensory idiot savant unless a very sophisticated redesign of the human brain is performed. Even so, some disadvantageous side effects are likely.

Any sensory species modifications (except those producing Acute Vision, Night Vision, or Perfect Balance) are likely to produce disorientation or sensory overload. This may result in one or more of these disadvantages: Chronic Pain, Confused, Light Sleeper. The brain might be able to develop structures to mitigate such problems, although this may also cause a slight drop in IQ or loss of other senses. For instance, an infrared-adapted human brain may be blind to normal vision (adjust point costs appropriately).

Sensory Modifications

Trait	*Cost*	*Page*	*TL*
Absolute Direction	5	B34	9
Absolute Timing	2	B35	9
Acute Senses (any) 1-3	2/level	B35	9
Acute Senses (any) 4-5	2/level	B35	9*
Detect (Electric Fields)	10†	B48	10*
Detect (Magnetic Fields)	10†	B48	10*
Discriminatory Hearing	15	B49	10*
Discriminatory Smell	15	B49	10*
– Emotion Sense	+50%	B49	10*
Discriminatory Taste	10	B49	10*
Enhanced Tracking 1	5	B53	10*
Infravision	0/10‡	B60	10*
Night Vision 1-2	1/level	B71	9
Night Vision 3-5	3-5	B71	9*
Parabolic Hearing 1-3	4/level	B72	10*
Perfect Balance	15	B74	9*
Peripheral Vision	15	B74	10
Sensitive Touch	10	B83	10
Sonar	20§	B81	10*
Subsonic Hearing	0/5*	B89	10*
Telescopic Vision 1-2	5/level	B92	10*
Ultrahearing	0/5	B94	9*
Ultravision	0/10	B94	11*
Vibration Sense	10	B96	10*

* Species modification.

† Before TL11 this must be taken as Detect (Electric Fields; Vague, -50%) [5] or Detect (Magnetic Fields; Vague, -50%) [5].

‡ Before TL11 this must be either Infravision (Temporary Disadvantage: Nearsighted, -25%) [8] or as the 0-point version (Infravision *instead* of normal vision). At TL11+, Infravision that can switch freely between IR and normal vision is available.

§ Before TL11, Sonar must be limited with Reduced Range, ×1/10, -50% or Reduced Range, ×1/5, -20%. No special enhancements (p. B82) are available at any TL.

Some features, such as larger-than-usual or oddly-shaped ears, cat-like whiskers, or eyes that grant Night Vision but gleam in dim light, may qualify as Unnatural Features 1+ (p. B22).

Sex Ratios

Most animals we are familiar with produce equal numbers of males and females. A common method in fiction of emphasizing that a species is alien is to alter this ratio. Some thought about *why* real creatures have an equal sex ratio can lead to interesting conclusions about fantasy or science fiction species that don't.

It may seem evolutionarily wasteful to produce as many males as females. After all, one male can fertilize dozens of females – as is the case in harem-keeping species such as sea lions – so why use valuable food resources to produce superfluous males? The answer comes from the interplay of biology and mathematics. Let's assume:

1. A species has two sexes.
2. An individual inherits an equal number of genes from each parent.
3. Those genes form the basis of evolution.

The evolutionary success of a group of genes is measured by one thing only: how many offspring those genes produce. If a population consists of more females than males, then – on average – each female produces fewer children than each male (since the number of children divided by the number of females is less than the same number of children divided by the number of males). So for genes to produce more offspring, it is better for them to be in a male body. Over time, evolutionary pressure will produce more males. The opposite applies if there are more males; either way evolution tends to even out the sex ratio.

For natural species in a hard science setting, assumption 3 is a given. Changing assumption 1 can lead to interesting aliens, but a similar argument proves that a species with any number of sexes must produce each sex in equal numbers.

Some familiar species on Earth *don't* have equal sex ratios: ants and bees. They manage this by breaking assumption 2. Male ants and bees do not have fathers – they get all their genes from their mother. The breeding members of ant and bee colonies are produced in a 3-1 female-male ratio. This also raises the question of sterile worker castes – most ants and bees are actually sterile. Since such drones don't reproduce, they don't enter the above arguments, and can be produced in any numbers.

So naturally evolved species usually either have equal sex ratios, an unusual genetic inheritance mechanism, or sterile castes. But if they were gengineered recently (or exist in a fantasy or super-science setting), then all bets are off.

Sexual and Reproductive Modifications

Jace, it's a hot scoop – the Wimmin's Pantropic Collective are having another try at colonizing Sappho IV, and you should see what they're building into their daughters' germ plasm. Sal got an insect bug into their birthlab. Book both Morgana Selene and one of those Neo-Christian cybervangelists on tonight's show. We'll ambush 'em with the vid and watch the fur fly.

– Noriko Hayakawa, host of ***Cyberia Beat***

Adjusting human fertility and sexual potency or pleasure has been an obsession of humanity since prehistoric times. The tools of magic, folk remedies, surgery, and drugs may soon be joined by genetic engineering.

Genetic modification of the testes and ovaries may alter the way children are conceived and the development of sexual characteristics. Some possible modifications are described below. Most are 0-point features, but they will often have a dramatic effect on a person's life or the way that society functions.

Altered Sex Ratio: This modifies the *average* ratio of male to female births. This can be a specific ratio (e.g., five women to every man) or even eliminate births of either sex. These changes may be made to correct a perceived imbalance, or for deliberate attempts at social engineering. However, although an altered sex ratio can be programmed by gengineer fiat, it will naturally drift back to equal ratios over evolutionary time, assuming the species is allowed to evolve (see box). *0 points.*

Cross-Species Surrogacy: This allows a female to carry implanted embryos of certain other species to term. This might only work for closely related species, or it might be more general. *1 point.*

Easy Childbirth: Modifications to the structure of the pelvis to help mothers deal with the delivery of (large-headed) human babies have been an ongoing part of human evolution; further ergonomic improvements may be possible via genetic engineering. The ability to shut down many (but not all) pain receptors during delivery may also be welcomed by many women. This advantage gives a +2 to HT rolls to determine the success of any pregnancy. *0 points.*

External Development: Early development in the fetus focuses on the respiratory and gastrointestinal systems. It can be born radically premature; this reduces gestation time (see *Shorter Gestation*, facing page) to as little as halfnormal. After birth it requires immediate transfer of the fetus to an incubator unit or a marsupial pouch (see Payload under *Other Transgenic Traits*, p. 45) to complete development. *0 points*.

Light Menses: Alterations to female ovulation and hormone function could ensure post-pubescent women experience greatly reduced monthly discomfort due to PMS and menstruation, as well as the later problems of menopause. This may result in either a very mild period or, if taken in conjunction with Reproductive Control (p. 59), no menstruation at all. *0 points.*

Estrus: This is another approach to avoiding menstruation, altering humans to become fertile for perhaps one month of the year (much like cats or dogs). This is normally worth 0 points, since the advantages and disadvantages cancel out. Males can also have a version of this. Variant humans (male or female) with this feature often have Lecherousness (12; Accessibility, Only in mating season, -80%) [-3] but it is not mandatory.

> *I'll never understand what possessed my mother to put her faith in God's hands, rather than her local geneticist.*
>
> *– Vincent,* ***Gattaca***

Reproductive Control: This allows females to control their fertility. This will usually require a day or so to adjust hormonal levels. Combined with the Light Menses modification, this means a woman has a period only if she voluntarily chooses fertility in a particular month. Alternatively, and for the same point cost, a female could be able to absorb an early fetus back into the womb, like a rabbit, with pregnancy being canceled on a successful Will roll. *1 point*.

Sexual Orientation: Some credible theories suggest a tendency toward heterosexuality, bisexuality, or homosexuality may be partially or even largely predetermined by genetic inheritance. If so, gengineers should be able to select sexual preference before birth, a procedure with potentially explosive social consequences. This could also include an orientation toward partners of another species. *0 points.*

Shorter Gestation: Shorter conception-to-birth periods than the human average of 266 days may be possible by modifying human growth factors or altering the chemical environment in the womb. This is convenient for the mother, as well as allowing faster population growth – but careful gengineering will be needed to ensure that the fetus develops normally. A reduction to two-thirds the normal gestation period is possible; for alternatives, see *Oviparous* or *External Development*. *0 points.*

Extended Fertility: As lifespans increase, genetic engineering may be used to extend the period in which both sexes can produce children. With this feature, fertility is retained until latter in life. *0 points.*

Increased Fecundity: This modification means that a woman is more likely to experience multiple births; releasing two eggs every ovulation, for example, could result in twins in as many as one-quarter of all pregnancies. It is a good idea to combine this 0-point feature with the Easy Childbirth feature. *0 points.*

Hermaphroditism: Individuals with both male and female primary and/or secondary sexual characteristics occur naturally in some humans, but usually the mutation is vestigial, and not noticed until puberty. Genetic engineering would allow the reliable creation of functional hermaphrodites. A "utopian" society might try to give everyone this trait to ensure sexual equality (no sexual discrimination if everyone is both sexes). *0 points.*

Hermaphromorphs: At TL10+, genetic enhancement might create functional "hermaphromorphs" able to switch sexes or be both at once, which a tolerant culture might find interesting. These often have the limitation "cannot change if pregnant" (-20%).

Oviparous: The fetus is born contained in a soft-shelled egg. This requires a larger birth weight, as food for the infant needs to be contained in the egg with it, but requires a less developed fetus. The gestation time may be cut down to as little as 1/3 normal (see *Shorter Gestation*, above). The egg must be kept warm until hatching (which takes the remainder of the normal gestation period), through constant care or in an incubator.

Parthenogenesis: In females, this may be possible through very high-tech gengineering of the human ovum and reproductive organs. A woman's egg cells would carry a complete chromosome map, and could be diverted to her womb, then brought to term. Pregnancy would be triggered by voluntary hormonal changes learned through biofeedback, or by taking a pill ($1-10). The fetus would effectively be her clone. Parthenogenesis is a superior strategy for rapidly increasing a race's numbers, and might be deemed viable for an all-female sub-race. It means the race won't change, but if they have the capability to gengineer themselves, then natural evolution is probably no longer something to worry about. Parthenogenesis is a 0-point feature if the race only reproduces through parthenogenesis, or a Perk if it can also use sexual reproduction. *0/1 points.*

Exotic Genitalia: This may include "improved" shape or texture, extra organs in the same or new places, or sensitive erectile tissue added to other areas, such as lips or fingertips. Such modifications may be limited to specialized pleasure models in some societies; in others, they may be standard equipment for everyone. If the modification is designed to simply enhance or modify the user's own experience, this is a 0-point feature. If it enhances his ability as a lover, this will grant a racial bonus to Erotic Art skill.

Modified Genetic Inheritance: This alters the operation of the sex chromosomes so males and females inherit different fractions of their genes from each parent. This could result in schemes such as those used by ants and bees (see *Sex Ratios*, p. 58), or might be used to produce genetically viable individuals with normally rare sex chromosome mutations. This could be done to produce a parahuman species with an altered sex ratio that will survive long-term evolution, but has little effect in the short term. *0 points.*

Variant Sexual Schemes: This could give humanity additional sexes, including sterile "drones." Schemes involving three or more reproductive sexes will require other biological changes (and social adjustments!), but a drone sex would be relatively easy and potentially useful (and would be Neutered or Sexless, p. B165). *0 or -1 point.*

Sexual and Reproductive Modifications

Trait	*Cost*	*Page*	*TL*
Altered Sex Ratio	0	59	9*
Cross-Species Surrogacy	1	58	10*
Easy Childbirth	0	58	10*
Estrus	0	59	9*
Exotic Genitalia	0†	59	9*
Extended Fertility	0	59	9
External Development	0	59	10*
Hermaphromorph	5	B59	10*
Increased Fecundity	0	59	9
Light Menses	0	58	9
Modified Genetic Inheritance	0	59	10*
Neutered or Sexless	-1	B165	10
Oviparous	0	59	10*
Parthenogenesis	0 or 1	59	10*
Reproductive Control	1	59	9*
Sexual Orientation	0	59	9
Sterile	0	B165	9
Shorter Gestation	1	59	10*
Variant Sexual Schemes	0	59	10*

* Species modification.

† May justify a racial skill modifier giving +1 to +3 to Erotic Art (p. B192) at a cost of 2 points per +1 skill.

TRANSFORMATIONS

Today, Kosmozavot Tenno Tanjo's gengineers announced success on their Void Dancer project. They've added a vacuum-adaptive skin, special muscle sphincters that seal guts and lungs, and nictitating membranes for the eyes. The Void Dancer parahumans are supposed to survive in space without protective gear for an hour or more. According to KTT, the productivity and cost savings from being able to avoid suit-up/suit-down time, safety checks and suit training alone will pay for the program.

– Chance Mackintosh, ***Posthuman Consumer Review***

Extreme modifications may be possible at TL12, perhaps using synthetic DNA sequences and techniques such as neogenesis (p. 27). Human bodies might be adapted to live in space, transformed into plant-human hybrids, or turned into living buildings. The possible transformations (and the modifiers applicable to them) at TL12 are nearly infinite; the list below simply gives some typical traits that become feasible.

Transformations

Trait	*Cost*	*Page*	*TL*
Doesn't Eat or Drink	10	B50	12
DR 5-15	5 per +1 DR	B46	12
– Flexible	-20%	B47	12
– Partial	Variable	B47	12
– Tough Skin	-40%	B47	12
Elastic Skin	20	B51	12
Extra Arms (5+ arms)	10/Arm	B53	12
– any modifiers	variable	B53	12
Extra Head	15/head	B54	12
Extra Legs (5+ legs)	Variable	B54	12
Extra Mouth	5/mouth	B55	11
Hyperspectral Vision	25	B60	12
Injury Tolerance			
– No Brain	5	B61	12
– No Head	7	B61	12
– Unliving	20	B61	12
– No Neck	5	B61	11
Morph	Variable	B84	12*
No Fine Manipulators	-30 or -50	B145	10
No Legs (Sessile)	-50	B145	11
Sealed	15	B82	12
Temperature Tolerance 11+	1/level	B93	12
Universal Digestion	5	B95	12
Unkillable 1	50	B95	12
Vacuum Support	5	B96	12†

* Must have Mass Conservation (-50%); often has Retains Shape (-20%).

† Vacuum Support should normally be taken in conjunction with Sealed (15 points, p. B82).

All of these modifications are radical species modifications.

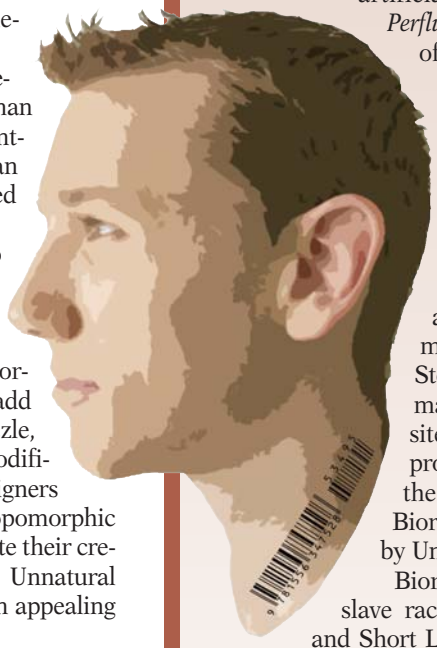
Radical metabolic changes of this sort are perhaps more realistically achievable through exotic nanotech than with "genetic engineering," although it is possible that they might "breed true" (at least in the sense of passing on self-replicating nanomachines that would transform any offspring in the same fashion). For examples of this technology, see *Sample Metamorphosis Transformations* (p. 188) in Chapter 7.

Unintended Disadvantages

Most gengineered sub-races should have some disadvantages. This has the dual benefit of reducing their racial point cost and making them more realistic. These usually result from a specific desirable trait being linked to an unwanted gene sequence (see *Linked Traits*, p. 62), with the disadvantage being overlooked, or tolerated in this particular design, because it was too much trouble to gengineer it away.

Racial attribute or secondary characteristic penalties (especially to HT), below-average Appearance levels, the Sterile feature, and the physical disadvantages Restricted Diet, Susceptible to Disease, and Unusual Biochemistry may be the most common defects produced when designers get too ambitious. A disastrously flawed experiment may require Maintenance (constant care from a specialist) to stay alive!

Unusual Biochemistry is almost certain to occur when attempting complex transgenic gene-splices, chimeras and cell fusions. Other modifications may be side effects of trying for a specific advantage or mixing human and nonhuman genes. For instance, reduced ST or HP (representing light, hollow bones like a bird's) might be an unplanned side effect of designing a winged human.



Genes borrowed from other species may also alter appearance, either as a consequence of borrowing a particular design element (e.g., catlike eyes for Night Vision) or a conscious esthetic choice. For example, in addition to borrowing a dog's sensitive nose, designers may add other canine features, such as a canine muzzle, teeth, and even fur. Realistically, this sort of modification won't be an accidental side-effect – designers would have to be trying for a deliberate "anthropomorphic animal" look, perhaps to deliberately differentiate their creations from humans. Such changes qualify as Unnatural Features, with careful engineering producing an appealing blend of traits rather than a grotesque hybrid.

Sensory upgrades will often result in reductions in other areas, either as a side effect of transgenic engineering or because the brain can often only process so much information at a time. Thus, a variant canine-human transgenic engineered for Discriminatory Smell may suffer Colorblindness or an IQ penalty.

Increasing intelligence or adding neurological modifications will often have unintended and subtle psychological consequences, reflected by various disadvantages. The result may even be an "idiot savant" with a prodigious mental ability in one area, such as considerable intuition or a photographic memory, but reduced overall intelligence or creativity. Transgenics with extensive animal DNA might occasionally revert to more primitive behavior patterns (Stress Atavism), or have other traits from animal heritage, such as Cannot Speak, Bestial, Dull, Extra Sleep, or Hidebound.

The grosser physical disadvantages like Blindness, Hemophilia, or One Arm are unlikely in a variant race, as defects this obvious will usually be detected in the womb and either corrected via genetic surgery or terminated.

Social Disease can simulate a race that has unusually energetic engineered bacteria (or symbiotic nanomachines), often as a result of an enhanced immune system or regeneration; intimate interaction with the race may cause a rash, or other problems! This should be taken with the Accessibility limitation Other Variant Races Only (-80%).

Bioroid Modifications

Bioroids – variant races created using biogenesis (p. 26) – often incorporate modifications that would be difficult to achieve with normal parahumans.

All bioroids have the meta-trait Bioroid [-5] (p. 214). In addition, the following traits are common in some designs:

Perflubron Blood (TL10): The bioroid has an artificial blood substitute – see *Perflubron Blood*, p. 131 – in place of natural blood. This gives +1 FP [3] and Immunity to Bends [5] (p. B81). The bioroid's blood will also have a milky white color.

Self-Replicating (TL11): The bioroid is capable of sexual reproduction (or other reproduction, with appropriate traits). It has the meta-trait Bioroid (Not Sterile) [-5]. As a default, it can mate with a bioroid of opposite sex and the same model, producing offspring who have the same template save that Bioroid (Not Sterile) is replaced by Unusual Biochemistry [-5].

Bioroids created as products or slave races often have Self-Destruct and Short Lifespan, but there is no reason they have to – they could just as easily be built for longevity.

The rules in *Life's Price Tag* (p. 65) apply to bioroids, except that the cost is for a mature bioroid, and the cost is always at least $50,000 (i.e., being a bioroid itself will count as a species modification).

Common Unintended Traits

Trait	*Cost*	*Page*
Absent-Mindedness	-15	B122
Appearance	Variable	B21
Bad Back	-15 or -25	B123
Bad Grip	-5/level	B123
Bad Sight	-25	B123
Bad Smell	-10	B124
Bad Temper	-10*	B124
Berserk	-10*	B124
Bestial	-10 or -15	B124
Bowlegged	-1	B165
Cannot Learn	-30	B125
Cannot Speak	-15	B125
Chronic Pain	Variable	B126
Confused	-10*	B129
Distinctive Features	-1	B165
Distractible	-1	B164
Disturbing Voice	-10	B132
Dreamer	-1	B164
DX -1 to -5	-20 per -1	B15
Epilepsy	-30	B136
Extra Sleep	-2/level	B136
Fat	-3	B19
Hard of Hearing	-10	B138
HP	-2/-1HP	B16
Hunchback	-10	B139
HT -1 to -5	-10 per -1	B15
Indecisive	-10*	B140
IQ -1 to -5	-20 to -100	B15
Imaginative	-1	B164
Jealousy	-10	B140
Light Sleeper	-5	B142
Low Pain Threshold	-10	B142
Maintenance	Variable	B143
Mute	-25	B125
Nervous Stomach	-1	B165
Overweight	-1	B19
Secret Disadvantage (Mental Instability)	variable	43
Selfish	-5*	B153
Short Attention Span	-10*	B153
Short Lifespan	-10/level	B154
Skinny	-5	B18
Sleepy	Variable	B154
Slow Healing	-5/level	B155
Social Disease	-5	B155
Sterile	0	B165
Stress Atavism	Variable*	B156
Stuttering	-10	B157
ST -1 to -5	-10 per -1	B14
Susceptible to Disease	-4/-1 HT	B158
Unusual Biochemistry	-5	B160
Very Fat	-5	B19

* You must select a self-control number; the cost is given for a self-control number of 12.

The above list is not exclusive: just about any other mundane physical or mental disadvantage is plausible, with the exception of self-imposed advantages such as Vow, and many exotic disadvantages may also be applicable at the GM's discretion.

Size Modification

Fourth Officer Ratzelle is just over two feet tall, has short brown fur, and lives in the vacc-suit locker. Her coverall is always covered in grease, her voice is an irritating chitter, and when she's not working, she's stuffing her face with junk food. But who's complaining? Hiring her was the first smart move I pulled since we spaced the S-3 unit. Now our hyperdrive works all the time, the nanotoaster's no longer a menace, and she even squirmed up the Milliken Tube to hose the scorpion wasps out of number-two engine. Every ship should have a Tek-Rat.

– Captain Zeke Morrigan

Modification of genes governing human growth factor can create pint-sized parahumans who, as adults, are the size of young children, smaller than ordinary genetic dwarves. On the other side of the coin, genetic giants are also possible.

Note: Consumption of consumables (water, air, food, etc.) is normally proportionate to Size Modifier (SM), as described below. Starvation effects (p. B426) accrue whenever a creature misses 1/3 of its daily food requirements – a meal, for a human. These naturally exceed those of a human for creatures of SM +1 or more, and are smaller for those with SM -1 or less. Neither is grounds for Increased Consumption (p. B139) or Reduced Consumption (p. B80), which are for beings that require more or less food than their SM would indicate.

Linked Traits

Sometimes, the genes that combine to produce a specific desirable trait are mingled with those of other traits. GMs can rule that this is the way it works for specific advantages, requiring them to be combined with disadvantages, distinctive features or even other advantages. This has considerable basis in reality, and is very common in science fiction – what if a particular gene sequence known to produce an advantage such as Intuition was linked to a disadvantage like a hereditary propensity for Delusions?

Sex-linked traits are also possible – in the case of a variant race, this means that males and females will have slightly different racial templates.

Miniature Humans

Creating miniature people has some obvious advantages: they'd take up less space (especially useful for military or space vehicle crews) and require less life support. However, there are some serious physiological obstacles to producing doll-sized humans.

First, we define "humanity" in terms of intelligence. The human brain's thinking capacity depends on having a

minimum size and mass. You can shrink the body but not the head, as in a human dwarf, but there is a limit to how big a head can be supported on a shrunken neck and spinal column without causing problems. Alternatively, if the size of the head is reduced proportionately to the rest of the body, intellectual capacity will decline. Fortunately, intelligence appears to be a function of brain area rather than mass or volume, so reducing brain mass does not result in a direct, linear drop in IQ.

Second, a scaled-down human loses heat more rapidly, due to his larger body area in relation to his mass. This means he will need to eat rapidly in proportion to a normal-sized human just to keep his body temperature up. (This is why small mammals like mice are almost always either eating or sleeping.) Even so, overall food consumption will be notably lower (as it eats smaller meals). It might be a good idea to add Fur (to preserve heat) or a longer sleep cycle to any miniature human. Miniatures will eat many small meals, and get hungry if they miss them.

Third, while a smaller size is handy in terms of reduced life support requirements, it is also inconvenient for many other activities, from reaching things on a shelf to finding clothes that fit. It also correlates with reduced Strength.

Miniature Attributes Table

Scale	*ST*	*IQ*	*SM*	*Cost*	*Weight*	*TL*
1/2	-5	-1	-2	-70	1/8	9
1/3	-7	-2	-3	-110	1/27	10
1/4	-8	-2	-4	-120	1/64	10
1/5	-8	-3	-4	-140	1/125	11
1/6	-9	-4	-5	-170	1/216	12

Scale: The reduction in overall proportions, including the body's height, breadth and thickness.

ST, IQ: Suggested racial attribute modifiers for that scale. These limits can be exceeded by modifying the muscles, skeleton or brain using gengineering. However, the maximum increase allowed at each TL should be multiplied by scale. For instance, TL10 Musculo-Skeletal Modifications allow up to +6 ST; in a 1/3-scale human, this would be reduced to a mere +2 bonus, which mean a 2' tall superman would be limited to a ST modifier of -5.

SM: The miniature's Size Modifier.

Cost: The combined point cost of the racial ST and IQ penalties.

Weight: Multiply the miniature's weight by the number shown. Also multiply the weight of any given meal by this amount, e.g., a meal for a 1/2 scale creature has 1/8 normal weight. However, the total number of meals per day (three for normal humans) is multiplied by the *inverse* of scale, e.g., six meals a day at 1/2 scale, nine meals a day at 1/3 scale, etc. Thus, a scale 1/2 creature eats six meals of 1/8th normal weight per day. Thus, the total weight of consumption is the square of scale.

TL: The minimum TL required. "Miniaturization" counts as a single feature of that TL for gengineering purposes; any change below 1/2 scale is species modification; any change below 1/4 scale is also a radical modification.

Giant Humans

The difficulty with engineering giant humans comes from more fundamental physics than the concerns that govern miniatures. As a creature grows, its mass increases as the cube of its linear size – a person twice as tall as a similarly proportioned companion will weigh eight times as much. But the strength of bones and muscles depends on their cross-sectional area, which increases as the square of the linear size – our double-height giant will be only four times as strong.

Large animals can overcome this difficulty in two ways: by being heavily built with more thickly proportioned limbs to support the additional weight, or by being thin and spindly so the weight increase is less. The latter approach is likely to lead to taller giants, but thick-set ones will weigh more (compare the height and weight of giraffes and elephants). Thick-set giants will be relatively slow and ungainly movers, while spindly ones will be fragile.

Increased size also means greater food and life support requirements. On the other hand, large beings are able to retain body heat better, so usually have some degree of Temperature Tolerance to cold. Because of this, metabolism does not need to be as fast as in smaller creatures and meals can be eaten less frequently. However, the sheer volume of food that needs to be ingested might be so much that a single meal might take hours to consume!

Finally, giant humans may have to deal with the inconveniences of living in an environment designed for smaller people. They won't fit into normal-sized furniture or vehicles, will stand out in a crowd, and will have trouble finding equipment suited to their size. Even if suitable equipment is available, it will be expensive.

Giant Attributes Table

Scale	ST	SM	Cost	Weight	TL
1.5	+5	+1	45/25	×3.4	9
2	+10	+2	80/40	×8	10
3	+20	+3	140/60	×27	11
5	+40	+4	240/80	×125	11
7	+60	+5	300/120	×343	12
10	+90	+6	360/180	×1,000	12

Scale: The increase in overall proportions, including the body's height, breadth and thickness. Scale 2 or more is a species modification; scale 3 or more is also radical. Realistic giants should also have either a native gravity of (1/Scale) G, *or* Extra Legs (4 or more), Quadruped, No Legs (any version), or Vermiform.

ST: Suggested racial attribute modifiers for that scale. These limits can be exceeded by modifying the muscles, skeleton or brain using gengineering. The maximum increase allowed at each TL should be multiplied by scale, as with miniatures. Thus, TL10 Musculo-Skeletal Modifications could give a scale 3 giant +18 ST rather than +6 ST.

SM: The giant's Size Modifier.

Cost: The combined point cost of the racial ST bonuses, as modified by SM (-10% per +1 SM); the cost after the slash is also modified for No Fine Manipulators (-40%) for use if creating a giant that lacks manipulators, such as a Quadruped or Vermiform.

Weight: Multiply the giant's weight by the number shown. This is also the weight of a given meal. Divide the number of meals that must be eaten daily (three for normal humans) by scale, e.g., two meals a day at 1.5 scale, etc.

TL: The minimum TL required. Becoming a giant counts as a single feature of that TL for gengineering purposes; any change over 1.5 scale is species modification; any change over 2 scale is also a radical modification.

Other Features

Besides specific modifications or defects, a race may also have a variety of secondary, 0-point features. Several such features appear under Gengineered Advantages and Disadvantages.

Sex Selection

"Of course a boy! We must have a male child, so he can marry and inherit the family business."

"You want a boy, she wants a boy . . . If every parent is going to have boys, who are they going to marry?"

At TL8 it is possible to specify a baby's sex during any in vitro fertilization (or genetic engineering) procedure. This may have profound effects on society. For example, if parents favor boys over girls (as in many Earth cultures), the result could be a demographic disaster within a generation, especially if population controls restrict families to one child each. Sex selection costs $500 if it's the only modification ordered; it's free with more extensive gengineering.

Taboo Traits

Some genetic constructs undergo selection to screen out or mitigate undesirable traits; therefore, certain advantages or disadvantages may be forbidden to individual characters built with such racial templates. A forbidden advantage or disadvantage is called a taboo trait (p. B452). It costs no character points to assign a taboo trait to a racial template.

For instance, a character can normally have Berserk as a personal disadvantage, even if it isn't in his genetic template. However, if Berserk is a taboo trait for his template, then it cannot be taken. Taboo traits that cover a general class of disadvantages do not prevent specific disadvantages within that class from being part of the racial template. The prohibition is also lifted for disadvantages that are acquired after birth (e.g., due to a proteus virus or brainwashing).

One way to add a taboo trait to a template is through genefixing.

Genefixing

"Unlike a lot of cults, the Neo-Gnostics don't have a taboo against genefixing. Or maybe they just considered it the lesser of two evils when they hired me to ensure none of their babies would ever be born with a lecherous gene in his or her body."

– Dr. Lucien Locke, Genehackers Inc.

The practice of "genefixing" consists of testing germ plasm for genetic defects, such as hereditary diseases, and then fixing them through gengineering at conception. This is the easiest type of trait selection for society to accept – making sure that genes for good physical or mental health are coded into children, while defects are fixed.

At mid to late TL8, this is limited to major genetic defects, where genetic errors result in an excess or deficiency of certain proteins or hormones, producing problems like Dwarfism or Hemophilia.

At TL9+, the definition of "defect" can be extended, ensuring that minor flaws like lantern jaw, knock knees, snaggle teeth, excessive acne and so on are not in a genotype.

It should be possible to suppress or edit gene sequences connected with a tendency toward certain mental states, such as rage, lecherousness or poor self-control. It's not possible to genefix specific mental disorders, such as an individual obsession or phobia, but manipulation of genes governing behavior-modifying neurotransmitters (such as serotonin) can deliberately create "stable personality" genotypes that are less likely to suffer from some forms of mental illness. This is the reverse of the technique used to create the "genetic booby traps," described under *Behavioral Modifications* (p. 43).

While genetic behavioral modification of this sort may be controversial, eliminating aggressive or unstable mental traits may seem more benign. However, it can have an interesting effect on a culture over the long term. A non-aggressive culture might be in trouble the next time it runs into an external enemy, and who knows how many famous artists, prophets, messiahs, and political leaders might have gained their inspiration from mild mental disorders?

Some possible genefixed taboo traits are:

Taboo Trait: Genetic Defects (TL8): Prohibits taking attributes more than 2 below the average for an adult with that genetic template. Also prohibits the disadvantages Bad Sight, Colorblindness, Dwarfism, Dyslexia, Gigantism, Hemophilia, Innumerate, Night Blindness, No Sense of Smell/Taste, Non-Iconographic, and Short Attention Span, or any other disadvantages normally explained as resulting from hereditary defects, e.g., an inherited Neurological Disorder or Susceptible to Disease disadvantage.

Taboo Trait: Unattractiveness (TL9): Prohibits an Appearance of Unattractive or worse, as well as Bad Smell, Bowlegged, Fat, Overweight, Very Fat, and Very Unfit.

Taboo Trait: *Aggressiveness* (TL9): Manipulation of genes governing certain hormone-producing glands may create a non-aggressive genotype which prohibits Bad Temper, Berserk, Bully and Stubbornness.

Taboo Trait: Mental Instability (TL9): Prohibits Chronic Depression, Delusions, Flashbacks, Guilt Complex, Kleptomania, Low Self-Image, Lunacy, Manic-Depressive, Megalomania, Obsession, On the Edge, Paranoia, Phantom Voices, Pyromania, and any Compulsive Behavior or Phobia worth -10 points or more.

Individual disadvantages which could be taboo traits are Lecherousness (TL9), Shyness (TL9), and Laziness (TL10). It's impossible to gengineer against (or for) more complex disorders, such as specific Obsessions or Phobias.

Racial Point Cost

This is the point cost required to play someone with a particular variant human template. It is the sum of the costs of all attribute and secondary characteristic modifiers, advantages and disadvantages. If necessary, the GM can balance designs by adding unintended disadvantages. The GM should try to keep the point costs of races intended for use by PCs below the average point total of the campaign, and usually no more than half that cost. Thus, in a game with 200-point characters, races costing more than 200 points should be avoided, and most should cost 100 points or less. On the other hand, in some high-powered game settings, "super races" with very high point totals are perfectly in genre.

These are simply play-balance guidelines, not a hard-and-fast rules; GMs can ignore them or modify them as they sees fit. See p. B454 for additional guidelines on racial costs.

Life's Price Tag

If you purchase a set of genetic modifications for your children, what is the *dollar* cost? And how much is that runaway genetic artifact worth?

This depends on how complex the nucleotide sequences used in the genotype were, and whether the buyer is ordering a custom-designed genotype or a tried-and-true one.

Beyond the Probable

Many advantages or disadvantages aren't covered in this chapter. These are the ones that human genetic engineering would find very difficult or impossible to reproduce. This may be because they represent social relationships (like Status and other social traits), education (like Languages or Trained by a Master), are very abstract (like Luck), or just because they would be too hard to duplicate genetically without cybernetic implants, psi abilities, "mutant super powers" or ultra-tech "superscience" . . . the province of ***GURPS Powers.***

GMs may nevertheless allow them to be genetically engineered if discovered in nature. For example, gengineering the ability to teleport or breathe fire is seemingly impossible – but what if a person or alien capable of it were discovered? Gengineers may try to hire or capture that individual or creature and study it. Perhaps the genes that code for this ability can be spliced into humans or other animals!

Capturing exotics for genetic hybridization may be a goal of unscrupulous gengineers (human or alien) in superscience settings.

Established Variant Races

Once one example of a variant race has been created, that same genetic sequence can be used to modify other human reproductive cells. Since the complex research and development has already been done, it may be possible to simply go to a biotech company and purchase a "genetic program" or "genetic upgrade sequence" for one's unborn children or, if it's legal, have one grown or cloned to order. Depending on the law, a bioengineered person may be considered a child (with whatever legal rights children have) or a form of property . . . or the genetic engineering itself may be illegal!

Assuming it's legal, a suggested price tag for an embryo is $25,000 if only eugenic modifications were made, $50,000 if any species modifications were performed including purely cosmetic species modifications (gengineering someone with slit-pupil eyes, cat ears, and a tail is still expensive, even if it's worth zero character points). Increase the cost to $100,000 if any radical species modifications were made. If the racial point cost is positive, increase the dollar cost by $1,000 per point. If the racial point cost is negative, use only the base cost quoted above. For nonhuman races that start out with racial bonuses, ignore those that are "native" to the race before gengineering when calculating the price tag.

Note that this cost reflects the utility of the genetic modification, rather than the difficulty required to design it! The GM may increase the cost for any process that involves radical modifications even if they cost no points: doubling cost is reasonable.

This buys a viable embryo, which can then be implanted in a surrogate mother of the same or similar species (e.g., a human could bring a parahuman to term), raised in a growth tank or other artificial womb, or cloned; see *Reproductive Technology* (p. 19).

Example: Mei and Yukio were both created from cells donated by their parents, using the Pandora-series genetic upgrade (p. 69). This variant template costs 61 points. Since one of their advantages was a radical species modification, their parents paid $100,000 + $66,000 = $166,000 apiece for the privilege of mentally-enhanced but slightly-fragile offspring. In Mei's case, her mother had the embryo implanted and carried it to term herself; Yukio was grown in a forced-growth tank. Aside from that, Mei is of average height with black hair, while Yukio is a tall redhead. They could have any mundane advantage or disadvantage not prohibited by the Pandora's taboo against genetic defects.

Gengineered Human Racial Templates

This section contains sample racial templates for variant humans. Most can be used either for parahuman species with viable germlines, or for bioroids incapable of reproducing. They can also be used for humanoid species in fantasy worlds, with or without any scientific justification. They can be easily modified by adding or subtracting traits from the earlier lists and adjusting their costs accordingly.

Genetic Upgrades

A lot of Orion upgrades find jobs in athletics, emergency services, police work, or the military, but certainly the best-known Orion upgrade is dynamic karate master-turned-megastar Chuck Abrams, whose unchallenged reign as king of the action sensies has had much to do with this genotype's popularity with creche groups and parents.

Upgrades are individuals who have undergone eugenic gengineering at conception, with the goal of removing undesirable genetic traits and adding desirable ones. The answer to the question "desirable to whom?" is not always the individual himself or his parents, so some of these "upgrades" are not necessarily an advantage.

Upgraded humans are still capable of interbreeding with baselines, so do not form distinct parahuman species. Bioroids may also be built using these templates, but they will not be capable of reproduction. Some of these upgrade templates can also be stacked with parahuman templates to produce upgraded members of a parahuman species.

Alpha (TL9)

39 points

Careful eugenic improvements ensure an attractive, athletic, healthy individual. Medscanning may reveal minor "mutations" compared to the human norm, such as being born without an appendix. This is a simple *Homo superior* genotype that TL9+ parents – or societies – might select for their children.

Attribute Modifiers: DX+1 [20]; HT +1 [10].
Advantages: Attractive [4]; Longevity [2]; Resistant to Disease (+3) [3].
Features: Taboo Traits (Genetic Defects, Mental Instability).
Availability: $64,000. LC4.

Sub-Races

Omega (+28 points): An enhanced version of the Alpha, designed to be both beautiful and intelligent; increase appearance to Handsome [12] and add IQ+1 [20]. $92,000. LC3.

Heavy Worlder (TL9)

46 points

A heavy worlder's weight is 25% over the human norm, but height is 1' less than indicated for ST. Someone with this modification is wider, which can give problems in narrow passages or doors designed for normal humans (a DX roll to squeeze through).

This is a variant human designed for life in a 1.5 to 2 G environment. He has more muscle to get around, strong bones to avoid breaking them in falls, and a resilient circulatory system to prevent early death due to heart failure. However, the "heavy-worlder" is usually unattractive by human standards, with a barrel chest and a compact, blocky body.

Attribute Modifiers: ST+3 [30], HT +1 [10].
Advantages: Improved G-Tolerance (0.5 G) [10].
Disadvantages: Unattractive [-4].
Availability: $71,000. LC4.

Ishtar (TL9)

20 points

The Ishtar genetic upgrade is intended to cater to the desires of parents and creche-groups who want a child optimized for professions such as vid star, dancer, pop singer, model and so on. Designers selected a light, "elfin" build and a facial bone structure that computer-simulations indicated would produce distinctive but highly attractive looks. An extra feature was an augmented liver. They also deliberately modified the neurochemistry with

sequences believed to enhance ego and competitiveness. Some believe they went a bit too far . . .

Attribute Modifiers: ST-1 [-10]; DX+1 [20]; HT +1 [10].
Advantages: Appearance (Beautiful/Handsome) [12]; Resistant to Disease (+3) [3].
Perks: Alcohol Tolerance [1].
Disadvantages: Jealousy [-10] *or* Selfish (12) [-10]; Overconfidence (12) [-5].
Quirks: Imaginative [-1].
Features: Taboo Traits (Genetic Defects, Unattractiveness).
Availability: $45,000. LC4.

Sub-Races

Siduri: A second-generation Ishtar. Add Longevity [2] and Proud [-1]; eliminate Jealousy or Selfish $48,000. LC3.

Almost all aspects of life are engineered at the molecular level.
– Francis Crick

Light Worlder (TL9)

10 points

Human metabolisms may be genetically adapted for life on planets with gravity significantly lower than Earth's. Generic "light worlder" gengineering results in a willowy build, often with long limbs and spidery fingers.

Attribute Modifiers: ST-2 [-20].
Advantages: Long Arms [20]; Long Legs [10].
Features: Home gravity is 0.2 to 0.7 G. Increase height by up to 2' over the norm for the lowered ST, but weight is 15% to 25% lower than normal. They can sometimes squeeze into places that normal people can't fit, but this is balanced by their extra height (needing to duck under doors and so on).
Availability: $35,000. LC4.

Orion (TL9)

70 points

These genetic upgrades were eugeneered with slight metabolic and glandular modifications designed to burn away excess fat, enhance physical performance, and optimize their crisis response. They are good "super-soldier" candidates, but might be created by anyone who wants a highly athletic variant race.

Attribute Modifiers: ST+1 [10]; DX+1 [20]; HT+1 [10].
Advantages: Appearance (Attractive) [4]; Combat Reflexes [15]; Fearlessness 1 [2]; Fit [5]; High Pain Threshold [10].
Disadvantages: Overconfidence (12) [-5].
Quirks: Attentive [-1].
Features: Taboo Traits (Genetic Defects, Mental Instability).
Availability: $95,000. LC4.

Helot (TL10)

12 points

This non-aggressive genotype is the result of deliberate gengineering to produce a "tractable" variant race. Helot parahumans have been eugeneered to weed out genetic defects and vulnerability to disease, and are fully as intelligent as ordinary humans. However, subtle neurological and glandular modifications have bred rebellious, impulsive and aggressive genes out of the genome – and they are very good at following orders. An unintended defect was some reduction in natural curiosity.

Sometimes called "Social Man," the Helot genetic template's supporters claim that the upgrade makes human beings more suitable for a crowded urban civilization, reducing aggressive and selfish impulses without curtailing overall intelligence. Detractors point out that these traits are exactly what a would-be ruling elite would desire, making the human population more docile and tractable.

Totalitarian governments have used the Helot genotype in an attempt to prevent popular uprisings. Elsewhere Helots are few, since the genotype is unpopular among parents who have a choice of genetic template for their children.

Attribute Modifiers: HT +1 [10].
Advantages: Resistant to Disease (+8) [5].
Quirks: Broad-Minded [-1]; Humble [-1]; Staid [-1].
Features: Taboo Traits (Aggressiveness, Genetic Defects, Mental Instability, Unattractiveness).
Availability: $37,000. LC3.

Sub-Races

The Helot II is a higher-TL upgrade that incorporates species modification.

Helot II (-4 points): A more elaborate parahuman version of the Helot genotype, this involves a complete restoration of the vestigial human vomeronasal organ, allowing the variant form to be strongly influenced by pheromones. This makes them susceptible to the use of dominance and sexual pheromones as a tool of political control. Add Susceptible to Pheromones 4 [-4]. $58,000. LC2.

Helot Bioroid (-19 points): A TL10 bioroid version, which "neatly" shuts down and dies after reaching old age. Add Bioroid [-5] and Self-Destruct [-10] to either the Helot or Helot II. TL10; $50,000. LC2.

Homo superior Parahumans

One obvious reason to create parahuman species is to give the variant greater general capability, making it "human, only more so." These are like genetic upgrades, but pushed beyond the point where the upgrade is still capable of interbreeding with baselines. Often a redesign of the human genotype is motivated by ideology; the engineers are driven by a desire to change "human nature" itself. Such variant forms can be quite distinctive.

These aren't usually bioroids, but at TL10+ they could be built using this technology, either as servants or just as an alternative to reproductive. If so, add Bioroid [-5].

Brownie (TL9)

15 points

One of the earliest attempts to engineer humans for increased health and longevity was the Brownie variant. Rather than tinker with the inner workings of cell biochemistry, the Brownie's designers chose to improve gross human physiology.

Brownies are short and stocky, with heavy layers of muscle and fat padding torso, upper arms and upper legs. Their spines are curved, giving them a naturally forward-leaning posture. Their knee joints have been re-engineered to bend in both directions, giving them a slow, awkward-looking gait. Their voices sound muffled and nasal, the result of tracheal reconfiguration.

Strange as it may seem, all these modifications tend to make the Brownie tough and durable. Brownies are resistant to disease, falls and other accidents, and the slow progress of time. They *age* just as quickly as unmodified humans do, but their bodies don't wear out as rapidly. Although the first cohorts of the subspecies are not yet old enough to demonstrate their durability, most estimates indicate that the average Brownie can expect to live well over a century with minimal medical intervention (and therefore very low medical costs).

Brownies are surprisingly well adapted for life in space – the template's modifications to skeletal structure have made Brownies nearly immune to bone-mass loss in zero-G. Although the merits of the design are rarely questioned, the Brownie template is unpopular due to its odd and unfashionable appearance.

Attribute Modifiers: ST-1 [-10]; HT+2 [20].
Secondary Characteristic Modifiers: Basic Move-1 [-5].
Advantages: Acute Vision +1 [2]; Acute Hearing +2 [4]; Catfall [10]; Resistant to Disease (+8) [5]; Longevity [2].
Perks: No Degeneration in Zero-G [1].
Disadvantages: Disturbing Voice [-10]; Unattractive [-4].
Features: Taboo Traits (Genetic Defects, Mental Instability). Brownies are about 3 inches shorter than average for their ST, but they also average 15 pounds heavier than an unmodified human of their height.
Availability: $65,000. LC3.

Diana (TL9)

47 points

For the most part the Diana genotype is a typical *Homo superior* type, similar to the Alpha (p. 66). However, Dianic parahumans cannot become pregnant unless they wish to, and they *cannot* bear male children. Male fetuses are spontaneously aborted by an autoimmune reaction by the time they reach the hundred-cell stage. Meanwhile, the brain and hormonal mechanisms responsible for gender identity have been subtly modified, giving them a strong predisposition toward homosexuality. Not all Diana upgrades are lesbians, but most of them are at least bisexual, and fully heterosexual examples are rare.

Attribute Modifiers: IQ+1 [20]; HT+1 [10].
Advantages: Appearance (Attractive) [4]; Fit [5]; Resistant to Disease (+8) [5]; Longevity [2].
Perks: Reproductive Control [1].
Features: Altered Sex Ratio (Female-only births); No Appendix; Sexual Orientation (Lesbian); Taboo Trait (Genetic Defects).
Availability: $92,000. LC3.

Sub-Races

Artemis (+69 points): A combat model of the Diana, optimized for crisis response and sensory awareness. Add ST+1 [10], DX+1 [20]; Perception +1 [5]; Combat Reflexes [15], Explosive Strength [24]; Overconfidence (12) [-5]. $161,000. LC2.

Genetic Mixing

Genetic upgrades are capable of breeding with baseline humans, and each other. What happens when they do so?

Since the changes designed into an upgrade are genetically based, there is a chance they will be passed on to any offspring. There is also a chance that the offspring *won't* inherit some or all of the modified features of its parents. It all depends on the Mendelian inheritance (p. 6) of the genes that express each trait (attribute adjustment, advantage, disadvantage, or feature).

A trait is more likely to be inherited if both parents have it, but this is not guaranteed. On the other hand, it's possible for the designers to deliberately make a trait dominant, so that it *will* appear in first-generation offspring. Second generation offspring of mixed parentage may not be so lucky, as they could inherit non-carrying alleles from both parents.

There are three ways to handle trait inheritance in the game:

Realistic: GMs with an understanding of genetic inheritance may want to assign traits to dominant or recessive genes and work out the probabilities – this is beyond the scope of this book.

GM fiat: The details are complex enough that the GM can simply feel free to rule that any particular trait will or won't appear in any given child.

Random: For each trait that exists in the breeding population, roll 3d. If both parents possess that trait, a child will inherit it on a 15 or less. If one parent possesses it, the child will inherit it on a 10 or less. If neither parent possesses it, the child will inherit it on a 5 or less. These numbers are 2 lower for rare traits. Roll separately for each trait (unless some are linked traits; see p. 62) for each child.

For a "technological fix," see the Alternate Gamete Production (p. 184) biomod.

Athena (+7 points): A TL10 design, capable of parthenogenic reproduction. Other modifications extend life span and enhance creativity. Add Early Maturation 1 [0], Extended Lifespan [2], Parthenogenesis [0], and Versatile [5]. $110,000. LC3.

Avatar (TL10)

42 points

Like the Diana, the Avatar design is motivated by concern over gender roles. Rather than try to redefine what it meant to be masculine or feminine, this design reinforces typical gender stereotypes. As such, it is an exercise in sexual *dimorphism*, in which the physical and psychological differences between males and females of the subspecies are exaggerated. Male Avatars are strong, robust, stoic in the face of pain, and somewhat egoistic. Female Avatars are dextrous, soft-voiced, and demure. Both sexes are engineered for great physical attractiveness, and have extreme secondary sexual characteristics which make their masculinity or femininity almost fiercely obvious.

Male Avatars tend to gravitate toward high-risk occupations such as the military, while female Avatars (especially those who overcome their natural Shyness) are often successful as diplomats, negotiators or entertainers.

Attribute Modifiers: HT+2 [20].
Advantages: Appearance (Handsome) [12]; Resistant to Disease (+8) [5].
Skills: Racial Skill Bonus (Sex Appeal +3) [6].
Quirks: Distinctive Features [-1].
Features: Taboo Traits (Genetic Defects, Mental Instability). Females also have Taboo Trait (Aggressiveness). Both sexes have exaggerated sexual characteristics: Males are blatantly muscular with abundant body and facial hair, while females are very curvaceous and have soft, delicate facial features.
Availability: $116,000, LC3.

Sub-Races

Select *one* of these lenses:

Female Avatar (+24 points): DX+1 [20]; Voice [10]; Responsive [-1]; Shyness (Mild) [-5].
Male Avatar (+24 points): ST+2 [20]; High Pain Threshold [10]; Overconfidence (12) [-5]; Proud [-1].

Gilgamesh (TL10)

65 points

Gilgamesh parahumans are a *Homo superior* design intended for high intelligence and lengthened lifespan. The Gilgamesh looks human, but features extensive eugenic and species modifications, including redesigned heart, arteries, spleen and gastrointestinal tract, plus alterations to the cell structure itself to reduce cumulative copying errors.

Attribute Modifiers: DX+1 [20]; IQ+1 [20]; HT+1 [10].
Advantages: Appearance (Attractive) [4]; Extended Lifespan 1 [2]; Longevity [2]; Resistant to Disease (+8) [5].
Perks: Reproductive Control [1]; Sanitized Metabolism [1].
Features: Early Maturation 1; No Appendix; Taboo Traits (Genetic Defects, Mental Instability).
Availability: $115,000. LC3.

Sub-Races

Ladon: A TL11 variant with exotic modifications made to sleep-regulating structures in the brain. Delete HT+1 and Taboo Trait (Mental Instability); add Doesn't Sleep. $125,000. LC3.

Guardian (TL10)

185 points

The Guardians (the name comes from Plato's *Republic*) are engineered for two major improvements. The first is natural durability. Guardians are slightly faster and more robust than unmodified humans, with cardiovascular modifications to make them fit and tough. The second is *mastery* of other human beings. Their mental balance is designed for personal pride and a willingness to command others. Physically attractive, with pleasant voices, they are engaging from a distance or over a telecom channel. In person, they are *magnetic*, the result of glands releasing dominance and sexual pheromones. These glands do not become functional until after puberty, but they are under the Guardian's conscious control. They work well as a master race for the Helot II (p. 67).

Attribute Modifiers: DX+2 [40]; IQ+2 [40]; HT+2 [20].
Advantages: Appearance (Attractive) [4]; Dominance Pheromones [15]; Combat Reflexes [15]; Resistant to Disease (+8) [5]; Extended Lifespan 1 [2]; Fit [5]; Hard to Kill +2 [4]; Longevity [2]; Sex Pheromones [28]; Voice [10].
Disadvantages: Overconfidence (12) [-5].
Features: Early Maturation 1; Taboo Traits (Genetic Defects, Mental Instability, Unattractiveness).
Availability: $185,000. LC2.

Sub-Races

Guardian Warrior (+42 points): Designed for combat with a boosted crisis response. Add Burst Reflexes [18] and Explosive Strength [24]. $227,000. LC2.

Pandora (TL10)

66 points

Instead of just gengineering a smarter human, the goal of the Pandora's designers was to create a faster-thinking one. The resulting Pandora genetic upgrades look identical to normal humans, but their brains have been neurologically modified to improve information flow between neurons, permitting faster thought.

Unfortunately, the interface with the speech centers of the brain was not as smooth as intended: they don't actually stutter, but they do find it hard to slow their words down when talking to normal people, so the effect is about the same. The Pandoras were also not as robust as hoped.

Despite their flaws, the Pandoras are popular general-purpose *Homo superior* genetic upgrades, likely to find jobs in many different fields, especially where complex snap decisions are required, such as surgery, piloting or even battle management.

Attribute Modifiers: IQ+2 [40]; HT-1 [-10].
Advantages: Enhanced Time Sense [45].
Disadvantages: Stuttering (Accessibility, no penalty if talking to someone else with Enhanced Time Sense, -10%) [-9].
Features: Taboo Traits (Genetic Defects).
Availability: $166,000. LC3.

Sub-Races

Prometheus (+19 points): Upgraded Pandora model; delete -1 HT and Stuttering. $185,000. LC3.

Tiresia (TL10)

47 points

These parahumans are designed to transcend the limits of gender itself. Tiresian parahumans are functional sequential hermaphrodites, able to switch between male and female sex roles. They can both bear and sire children, although they cannot switch sex when pregnant. They have also been modified for enhanced intelligence and physical attractiveness, although they tend to possess a somewhat androgynous beauty.

Attribute Modifiers: IQ+1 [20]; HT+1 [10].
Advantages: Appearance (Handsome, Androgynous) [12]; Hermaphromorph (Accessibility, not while pregnant, -20%) [4].
Perks: Reproductive Control [1].
Features: Light Menses; No Appendix; Taboo Traits (Genetic Defects, Mental Instability).
Availability: $97,000. LC3.

Herakles (TL11)

192 points

Pushing the limits of genetic technology, the Herakles represents one of the most elaborate *Homo superior* designs available. The muscles, skeleton, and nervous system have all been engineered for maximum performance. The immune system, spleen, liver, and overall biochemistry have been broadly modified to allow near-immunity to infectious disease and cancers and strong resistance to poisons. Several changes to cell structure allow dramatic extension of lifespan. Finally, modifications to the brain allow a Herakles to get by with very little sleep.

Attribute Modifiers: ST+3 [30]; DX+4 [80]; IQ+2 [40]; HT+4 [40].
Advantages: Appearance (Attractive) [4]; Extended Lifespan 1 [2]; Longevity [2]; Rapid Healing [5]; Less Sleep 4 [8]; Resistant to Disease (+8) [5]; Resistant to Poison (+3) [5]; Sanitized Metabolism [1].
Perks: Reproductive Control [1].
Disadvantages: Bad Temper (12) [-10]; Increased Consumption 1 [-10]; Overconfidence (12) [-5]; Unusual Biochemistry [-5].
Quirks: Proud [-1].
Features: Early Maturation 1; No Appendix; Taboo Traits (Genetic Defects, Mental Instability).
Availability: $242,000. LC3.

Sub-Races

Atlas (+42 points). Radical glandular manipulation results in a truly impressive giant-size version standing nine feet tall! He is a 1.5× scale human (p. 63) with 3.4 times normal weight. Increase to ST+8 (SM +1, -10%) [72]; add +1 SM. $284,000. LC3.

Pantropic Parahumans

"How'd I get away? Well, Galba's assassin had the drop on me. I set my drinking bulb down on the table behind me and raised my hands. He watched them carefully. He forgot I was a Spacer. He wasn't watching my toes."

– Captain Zeke Morrigan, free trader Antares

One approach to using the vast regions of a planet that provide a less than ideal environments for humans is to adapt people to be able to live comfortably there. Parahumans also represent a way to adapt humanity to the challenges of living *off* a planet. These templates represent variants designed for particular climatic and ecological regions.

Drylander (TL9)

19 points

Drylanders are designed to live comfortably in arid regions, tending wilderness preserves or assisting in desert-reclamation projects, or colonizing desert planets. They appear nearly human from a distance, but have a number of transgenic features that become apparent up close. The type's metabolism has been altered to conserve water and deal with wind-blown dust. The large, catlike eyes have been radically modified, giving them keen night vision and protecting them with a nictitating membrane. As a result, Drylanders can function quite well in the cool desert night, and many of them prefer a nocturnal existence.

Advantages: Filter Lungs [5]; Nictitating Membrane 1 [1]; Night Vision 3 [3]; Reduced Consumption (Water Only, -50%) 1 [1]; Resistant to Poison (+3) [5]; Temperature Tolerance 5 (Comfort zone between 35°F and 140°F) [5].
Disadvantages: Unnatural Feature [-1].
Availability: $69,000. LC3.

Sub-Races

Martian Drylander (-5 points): Built to survive on a partly-terraformed Mars or other world with thinner-than-usual atmosphere. Add Low-Pressure Lungs [0]. Same availability.

Selkie (TL9)

57 points

A sea-adapted parahuman race. Although modified for a semi-aquatic lifestyle, they must still breathe air. They store oxygen in the myoglobin of their muscles, much like cetacean animals. They have smooth gray, mottled, or black skin and webbed fingers and toes.

Secondary Characteristic Modifiers: +3 FP [9].
Advantages: Amphibious [10]; Combat Reflexes [15]; Doesn't Breathe (Oxygen Storage, 100 times, -30%) [14]; Nictitating Membrane 1 [1]; Pressure Support 1 [5]; Resistant to Disease (+3) [3]; Temperature Tolerance (Cold) 1 [1]
Disadvantages: Unnatural Features 1 [-1].
Availability: $107,000. LC3.

Sub-Races

Selkie Bioroid (-35 points): Usually used as amphibious commandos or underwater workers. Add Bioroid [-5], Self-Destruct [-10], Short Lifespan 2 [-20]. $72,000. LC2.
Selkie Chimera (-10 points): A human-seal hybrid in truth, sometimes with a face similar to an anthropomorphic otter or seal. Add Sharp Teeth [1] and Chimera [-10], and upgrade to Unnatural Features 2 [-2]. $82,000. LC3.

Spacer (TL9)

5 points

Individuals living in micro- or zero gravity tend to be tall and thin – some "spacers" may be unattractive, while others have an elfin beauty. However, while their build is usually lighter than people raised in gravity, a "calcium hack" genetic modification to the parathyroid gland prevents bone mass from reaching dangerously low levels, and their cells are better able to repair radiation damage. A more obvious upgrade is prehensile toes that let the legs be used as an extra set of limbs in zero gravity.

Attribute Modifiers: ST-2 [-20]; DX+1 [20].
Advantages: Prehensile Toes [4]; Radiation Tolerance 2 [5].
Perks: No Degeneration in Zero-G [1].
Disadvantages: Skinny [-5].
Features: Home gravity of 0 G; increase height by up to 3 feet over the norm for the lowered ST, but weight is 50% of normal. Many spacers have 3D Spatial Sense and have Free Fall skill from growing up in zero G, but this is not part of the *genetic* template.
Availability: $55,000. LC3.

Sub-Races

Bioroid Spacer (-5 points): A manufactured zero-G worker race. Add Bioroid [-5]. $50,000. LC3.

Camazotz (TL10)

41 points

Camazotz parahumans have a sizable percentage of bat genes spliced into their genome. Their arms double as wings, although they can't be used as arms when they're flying. They possess large, pointed, bat-like ears, fangs, and soft fur, as well as a modified voice box with natural sonar abilities. Aside from serving as a night-vision aid, this has security (peering inside packages) and medical (performing sonograms) uses.

This is the racial template used to create Tizbeth and her siblings (see p. 36). They were designed as explorers and rangers for an exotic world (a rare planet with low gravity but thick, breathable atmosphere), where their flight and sonar (to see through thick fogs) were invaluable. However, a bat parahuman could be grown as an unusual toy or courtesan, or be intended for work in a microgravity habitat like a hollow asteroid or domed lunar city.

Attribute Modifiers: ST-2 [-20]; DX+1 [20].
Advantages: 3D Spatial Sense [10]; Acute Hearing +2 [4]; Acute Taste and Smell +1 [2]; Flight (Requires Low Gravity, 0.3G, -35%; Temporary Disadvantage, No Fine Manipulators, -30%); Winged, -25%) [8]; Sharp Claws [5]; Sharp Teeth [1]; Sonar (Air; Reduced Range ×1/5, -20%) [16]; Ultrahearing [5].
Perks: Fur [1].
Disadvantages: Skinny [-5]; Unnatural Features 1 [-1]; Unusual Biochemistry [-5].
Availability: $91,000. LC3.

Sub-Races

Camazotz Bioroid (-5 points): Add Bioroid [-5]. $86,000. LC3.
Camazotz Chimera (-20 points): Add Chimera [-10] and Short Lifespan 1 [-10]. $71,000. LC3.

Triton (TL11)

36 points

Although Selkies go partway there, true aquatic freedom only comes with the ability to breathe water. Engineering a parahuman with functional gills is the easy part – the difficulties lie in preventing heat loss caused by the blood-rich gill membranes being in contact with the water, and in avoiding dehydration by osmosis from the cells. This requires significant changes to the human biochemistry, slowing down the metabolism to reduce body temperature and adjusting tissue salinity. Tritons can be designed for any particular water salinity, but individuals cannot safely migrate between fresh and salt water. Physically, Tritons are similar to Selkies, but with large gill structures on their chests.

Advantages: Amphibious [10]; Doesn't Breathe (Gills, -50%) [10]; Enhanced Move 1 (Water Speed 10) [20]; Nictitating Membrane 1 [1]; Pressure Support 1 [5]; Resistant to Disease (+3) [5]; Temperature Tolerance 2 [2].
Disadvantages: Cold-Blooded (50 degrees) [-5]; Unusual Biochemistry [-5]; Weakness (Immersion in water of "wrong" salinity, 1d per 30 minutes) [-5]; Unnatural Features 2 [-2].
Availability: $136,000. LC3.

Sub-Races

Triton Bioroid (-20 points): A less expensive worker version, perhaps designed by an aquatic biocorp. Add Bioroid [-5], Self-Destruct [-10], and Short Lifespan 1 [-10]; delete Unusual Biochemistry (which is already included in Bioroid). $116,000. LC3.

Void Dancer (TL11)

31 points

Designed as zero-G construction workers, space crew and belt miners, the slender Void Dancers have been extensively adapted to the space environment. Radical dermal and internal modifications adapt them to survive pressure changes and hard vacuum, and they can function without air by storing an hour's worth of oxygen in a modified liver. Brain and inner ear modifications modify the Void Dancers for life without verticals, while cardiovascular and glandular tinkering optimize the metabolism for low or no gravity (and incidentally extend lifespan). Dexterous prehensile toes give them a useful pair of additional arms in zero-G.

Unfortunately, the gengineers' goals outstripped their capabilities, leading to genetic defects that left this particular model with less resistance to bacteria. In sterile space habitats, among other Void Dancers or sanitized parahumans like the Gilgamesh, this isn't a problem – but it restricts their ability to interact with normal humans.

Attribute Modifiers: ST-3 [-30].
Advantages: 3D Spatial Sense [10]; DR 1 [5]; Doesn't Breathe (Oxygen Storage, ×100, -30%) [14]; Extra Arms 2 (Foot Manipulators, -30%; Short, -50%) [4]; Longevity [2]; Sealed [15]; Radiation Tolerance 5 [10]; Regeneration (Slow; Radiation Only, -60%) [4]; Temperature Tolerance 10 [10]; Vacuum Support [5].
Perks: No Degeneration in Zero-G [1].
Disadvantages: G-Intolerance (0.1 G increment) [-10]; Skinny [-5]; Susceptible to Disease 1 [-4]; Unnatural Features 1 [-1]
Quirks: Sanitized Metabolism [1].
Features: Home gravity is 0G.
Availability: $131,000. LC3.

Sub-Races

Dark Angel Bioroid (+65 points): A robust "combat bioroid" version, built to survive high accelerations or to visit planetary environments. Upgrade to ST-1 [-10] and DX+1 [20], delete G-Intolerance and Susceptible to Disease, and add Combat Reflexes [15], Resistant to Acceleration (+3) [1], and Bioroid [-5]. $196,000. LC3.

Specialists and Slaves

Adapting a parahuman or bioroid for a specific profession is an obvious path to a more "efficient" society. In addition to changing physical features, a genemod's personality can be adjusted to suit the job by making sure he enjoys the work – or is too docile to complain about it.

Chronos (TL10)

59 points

Designed as soldiers for unsupported, long-range patrol and counterinsurgency operations, these parahumans are lean and muscular, with canine muzzles and sharp teeth, but with large mouse-like ears and eyes. Their bodies are covered with short grey fur. They are transgenic hybrids with human, canine, rodent, and shark genes. They possess modified stomachs so they can live off the land, and bone marrow and adrenal gland upgrades to improve emergency response and health. They are optimized for tracking and spotting the enemy. They can rapidly respond to ambushes by shifting into biological overdrive. If they're a rare bioroid or supersoldier upgrade, they might be deployed in small teams to range ahead of human troops and conduct special operations.

A *race* of Chronos parahumans could be intended as slave soldiers or hostile-world colonists; a world where all the natives had these modifications could be frightening!

Attribute Modifiers: ST+2 [20]; DX+1 [20]; IQ-1 [-20]; HT+1 [10].
Secondary Characteristic Modifiers: Basic Speed +1.00 (Costs Fatigue, 2 FP, -10%) [18]; FP+3 [9]; Perception +2 [10].
Advantages: Acute Hearing +2 [4]; Combat Reflexes [15]; Discriminatory Smell [15]; Fangs [2]; High Pain Threshold [10]; Single-Minded [5]; Reduced Consumption 2 (Cast-Iron Stomach, -50%) [2]; Very Rapid Healing [15].
Perks: Fur [1].
Disadvantages: Bloodlust (12) [-10]; Disturbing Voice [-10]; Low Empathy [-20]; Unnatural Features 2 [-2].
Availability: $144,000. LC2.

Sub-Races

Chronos Chimera (-15 points): Add Chimera [-10] and Short Lifespan 1 [-5]. $129,000. LC1.
Chronos Bioroid (-35 points): Add Bioroid [-5], Self-Destruct [-10], and Short Lifespan 2 [-20]. $109,000. LC1.

Eros (TL10)

45 points

A high-end pleasure bioroid with an inhumanly perfect body, plus brain, glandular, joint, physical, and bacteriological modifications to ensure it is always eager, playful, healthy, and disease-free. Grown as a professional courtesan or a rich person's living toy, the Eros can also be the basis for a devastating "Mata Hari" spy.

Attribute Modifiers: ST-1 [-10]; HT+1 [10].
Secondary Characteristic Modifiers: FP +1 [3].
Advantages: Appearance (Very Handsome) [16]; Double-Jointed [15]; Resistant to Disease (+8) [5]; Sex Pheromones [28]; Voice [10].
Perks: Alcohol Tolerance [1]; Deep Sleeper [1]; Sanitized Metabolism [1].

Disadvantages: Bioroid [-5]; Chummy [-5]; Impulsiveness (12) [-10]; Lecherousness (12) [-15].
Quirks: Attentive [-1]; Distinctive Feature (Exaggerated sexual characteristics) [-1].
Racial Skill Modifiers: +1 to Erotic Art [2].
Features: Exotic Genitalia; Sterile; Taboo Traits (Genetic Defects).
Availability: $95,000. LC3.

Sub-Races

Versions of the Eros exist to cater to various tastes, some exotic. Three examples:

Fugu (+17 points): Its saliva and bodily fluids secrete a pleasure drug. Add Ecstasy Glands (p. 49) [17].
Furry (+5 points): This bioroid has big eyes, soft fur, large cat, bunny, or fox ears, and a tail, but lacks such dangerous animalistic features as sharp teeth or claws. Add Acute Hearing 1 [2], Fur [1], Night Vision 1 [1], and Unnatural Features 1 [-1]. $98,000. LC3.
Gothic (+13 points): A "vampire poser" model. Its metabolism is designed to release endorphins after drinking any quantity of blood except its own. It also has retractable fangs, and can enter a deathlike trance. Change its appearance to Appearance (Handsome, Androgynous) [12] with Distinctive Feature (Pale skin and red eyes) [-1]. Add Less Sleep 4 [4], Metabolism Control 2 [10], Night Vision 2 [2], Sharp Teeth (Switchable, +10%) [2]; Minor Addiction (Blood) [-1]. $112,000. LC3.

Februus (TL10)

64 points

The Februus is designed to function in environments heavily contaminated by hazardous materials. They might be designed as hazmat workers, colonists for polluted regions, or to inherit the earth after a global holocaust.

They possess modified lungs that filter out toxins, and are almost immune to poisons, although corrosives and certain bioactive chemicals can still damage them. Their cells are designed to be resistant to mutation, and to rapidly repair themselves. They can enter hazardous areas with minimal protective equipment, sensing directly what toxins are present in the area.

The Februus are not conventionally attractive; they have hairless, bright orange or lemon-yellow leathery skin, with thick muscles around the mouth and nose.

Attribute Modifiers: HT+2 [20].
Secondary Characteristic Modifiers: Lifting ST +2 [6]
Advantages: Discriminatory Smell [15]; Discriminatory Taste [10]; DR 2 (Flexible, -20%) [8]; Filter Lungs [5]; Nictitating Membrane 1 [1]; Regeneration (Slow, Radiation Only, -60%) [4]; Resistant to Ingested Poison (+8) [5].
Disadvantages: Appearance (Unattractive) [-4]; Selfless (12) [-5]; Unnatural Features 1 [-1].
Availability: $94,000. LC3.

Sub-Races

Februus Bioroid (-35 points): A bioroid hazmat worker. Add Bioroid [-5], Self-Destruct [-10], Short Lifespan 2 [-20] $59,000. LC2.

Felicia (TL10)

151 points

This expensive design resembles a lithe, anthropomorphic cat. It is built for superhuman grace, speed and reflexes, and also possesses upgraded sensory abilities. Felicias are usually employed at jobs that might demand a quick burst of activity rather than strength and staying power. They are also physically attractive, making them in vogue as athletics or aerobics instructors, dancers, personal pilots, chauffeurs, bodyguards, or even bodyguard/courtesans. Military and police forces may also employ the Felicia as aerospace pilots or hostage-rescue troopers.

There's an unintended glitch in the Felicia: after triggering an emergency-overdrive response, glandular imbalances sometimes result in mood swings and heightened appetites. This Aftermath (p. 215) effect occurs after the emergency ends, and lasts for as long as the overdrive was in use (but at least 10 minutes).

Attribute Modifiers: ST-1 [-10]; DX+3 [60]; HT+1 [10].
Secondary Characteristic Modifiers: Basic Speed +2.00 (Aftermath, Gluttony and Lecherousness, -10%; Costs Fatigue, 3 FP, -15%) [30].
Advantages: Acute Hearing +2 [4]; Acute Taste and Smell +2 [4]; Appearance (Attractive) [4]; Catfall [10]; Combat Reflexes [15]; Flexibility [5]; Night Vision 3 [3]; Perfect Balance [15]; Resistant to Disease (+3) [3]; Sharp Claws [5]; Sharp Teeth [1].
Perks: Fur [1].
Disadvantages: Extra Sleep 1 [-2]; Overconfidence (12) [-5]; Unnatural Features 2 [-2].
Features: Estrus; Tail.
Availability: $201,000. LC3.

Sub-Races

Felicia Bioroid (-35 points): A bioroid soldier. Add Bioroid [-5], Self-Destruct [-10], Short Lifespan 2 [-20]; delete Estrus. $167,000. LC2.
Felicia Chimera (-15 points): Add Chimera [-10] and Short Lifespan 1 [-5]. $187,000. LC2.

Lepus (TL10)

9 points

The Lepus models are "rabbitoid" human-rabbit gene-splices designed for fast reproduction and survival on colonial worlds. ST-1, Color Blindness, and Unusual Biochemistry were unintended defects. The Lepus matures one-third more rapidly than humans (puberty around 8-9 years, fully mature at age 12) but does not age any more rapidly.

Attribute Modifiers: ST-1 [-10]; HT+1 [10].
Advantages: Acute Hearing +3 [6]; Acute Taste and Smell +2 [4]; Resistant to Disease (+3) [3]; Peripheral Vision [15].
Perks: Fur [1].
Disadvantages: Colorblindness [-10]; Lecherousness (9) (Accessibility, Only in mating season, -80%) [-4]; Unnatural Features 1 [-1]; Unusual Biochemistry [-5].
Features: Early Maturation 1; Estrus; Increased Fecundity
Availability: $59,000. LC3.

Sub-Races

Lepus Chimera (-10 points): A sterile human-rabbit gene splice. Add Chimera [-10]; remove Increased Fecundity. $50,000.
Lepus Bioroid (-5 points): Add Bioroid [-5]; remove Increased Fecundity. $50,000.

Ranger (TL10)

69 points

This parahuman type depends on several extreme modifications of the basic human sensorium. The primary intent was to produce a genotype that emphasized sensory acuity, with a secondary goal of survival in almost any wilderness environment, alone and with a minimum of technical support. A magnetic-field sense was borrowed from migratory birds, and several sequences for acute hearing and smell were also added. The digestive system and metabolism were upgraded to allow the consumption of almost anything organic. The genotype's unusual senses are not perfectly integrated into the brain, leading to irritability and chronic insomnia. Meanwhile, subtle tinkering aiming for a self-reliant attitude may have been too successful. Ranger parahumans often find employment as survey scouts, scientists, light infantry soldiers, or guides. As a race, they might be created to colonize hostile worlds.

Attribute Modifiers: ST+1 [10]; DX+1 [20]; HT +1 [10].
Advantages: Absolute Direction [5]; Acute Hearing +2 [4]; Acute Taste and Smell +3 [6]; Discriminatory Smell [15]; Reduced Consumption 4 (Cast-Iron Stomach, -50%) [4]; Resistant to Disease (+8) [5]; Resistant to Poison (+3) [5].
Disadvantages: Bad Temper (15) [-5]; Light Sleeper [-5]; Overconfidence (12) [-5].
Features: No Appendix; Taboo Traits (Genetic Defects, Mental Instability).
Availability: $119,000. LC3.

Sub-Races

Ranger Bioroid (-25 points): A cheaper mass-produced biogenesis version. Add Bioroid [-5], Self-Destruct [-10] and Short Lifespan 1 [-10] to either version. $94,000. LC2.
Ranger Chimera (-15 points): Add Chimera [-10] and Short-Lifespan 1 [-5]. $104,000. LC2.
Fenris (0 points): This has lupine facial features, large ears, fur, and a short bushy tail. Add Fur [1], Sharp Teeth [1] and Unnatural Features 2 [-2]; same availability, and can be combined with the bioroid or chimera versions.

Spartan (TL10)

46 points

The Spartan parahuman has hormone-boosted muscles, a reinforced skeleton, reduced pain response, and sharpened reflexes for emergency situations. They're usually used as genetic soldiers, specially-bred cops, or colonists on harsh worlds . . . and some Spartans are strong enough to use some crew-served heavy weapons as if they were rifles.

Attribute Modifiers: ST+3 [30].
Secondary Characteristic Modifiers: Lifting ST +2 [6].
Advantages: Combat Reflexes [15]; High Pain Threshold [10].
Availability: $96,000. LC3.

Sub-Races

Spartan Bioroid (-25 points): A cheap "mass produced" bioroid soldier. Add the Bioroid [-5] plus Self-Destruct [-10] and Short Lifespan [-10]. $51,000. LC2.

Tek-Rat (TL10)

-42 points

Using a mix of human, raccoon, hamster, and possum genes, the Tek-Rat is about 2' tall, with a rodent-like face, prehensile tail, and marsupial pouch it uses for young or tools. It has undergone TL10 eugenic modification for a higher IQ and ST to counteract its small size, and its cardiovascular system is also somewhat more efficient (giving an extra hit point).

Attribute Modifiers: ST-6 [-60]; DX+1 [20]; IQ-1 [-20].
Secondary Characteristic Modifiers: HP +1 [2]; SM-2.
Advantages: 3D Spatial Sense [10]; Acute Hearing +1 [2]; Acute Taste and Smell +1 [2]; Extra Arm (Extra-Flexible, +50%; No Physical Attack, -50%) [10]; Payload 2 [2]; Sharp Teeth [1]; Unnatural Features 2 [-2].
Perks: Fur [1].
Disadvantages: Increased Consumption 1 [-10].
Availability: $50,000. LC3.

Sub-Races

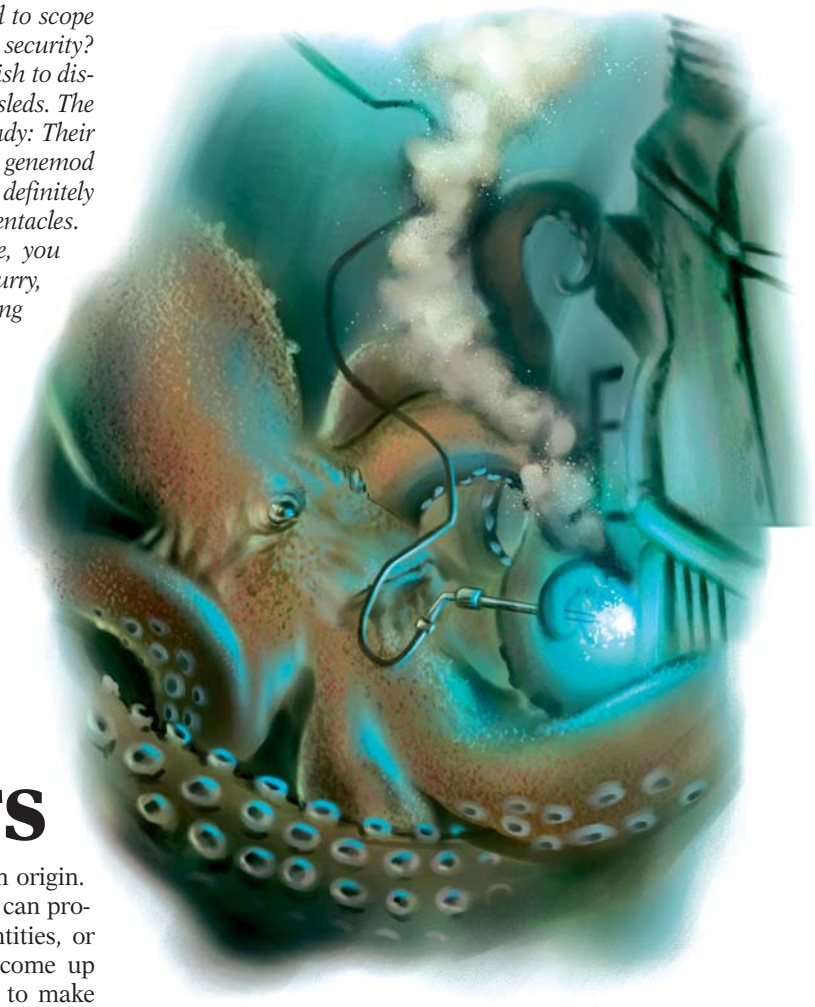
Tek-Rat Bioroid (-15 points): A commercially-manufactured bioroid worker version. Add Bioroid [-5] and Self-Destruct [-10]. $36,000. LC3.
Tek-Rat Chimera (-15 points): Add Chimera [-15]. $36,000. LC3.

Chapter Three
Man's Best Friends

Guys, you won't believe this! You know we tried to scope GenPacifica's Deepstralia III, got chased off by the security? Well, second time's the charm: We got Tegan's sonofish to distract their war-dops, then went to max on the aquasleds. The Pacifica vent mine's as big as rumored, but get ready: Their construction workers ain't seal bioroids – they're genemod octopuses! I'm not raptured, gridfriends; these are definitely gengineered bioroids, they were working with their tentacles. And their heads – brrr. Like, an octo with a face, you know? Check out my site for the movie! Better hurry, though. My sysop says she's getting some threatening email from GenPacifica.

– Aquagrrl,
alt.ocean.development.korporate.otaku

We raise crops and livestock for food, chemicals, drugs, and materials. Researchers will always attempt to make the organisms we use healthier and more efficient in the ways they produce things. We can also engineer plants and animals for completely new uses.



Processed Bioproducts

Many of the materials we use are biological in origin. By modifying the organisms that make them, we can produce materials more efficiently, in greater quantities, or with improved properties. Designers can even come up with new materials and the creatures or plants to make them.

Fibers and Wood

Natural fibers include wood as well as cotton, flax, and hemp from plants, and silks and wools from various animals. These are used for clothing, shelter, ropes, sails, paper, and many other things. Fibers with high tensile strength can be used to weave fabrics capable of stopping bullets or other weapons; linen was used for shields and padded armor in the Middle Ages. Wood has always been versatile, but it will become even more so when engineered to be faster-growing, stronger, and lighter. Building materials may even be grown to shape; see *Residential Trees* (p. 80).

Oils and Waxes

Some plants and animals produce useful oils and waxes, from vegetable oils to lanolin and beeswax. With some genetic tweaking, these organic compounds can be made useful as fuels, biodegradable lubricants and detergents, cosmetics, and water repellents.

Polymers

Not traditionally associated with biological materials, polymers can nevertheless be produced from proteins, forming horny materials like keratin and chitin. Gengineers may design proteins that polymerize into plastics with desirable properties, then put genes to produce them into various plants and animals. An advantage of protein-plastics is that they are biodegradable, allowing easy recycling rather than polluting the environment.

Ceramics

Bone, silica, and calcium carbonate are some of the ceramic materials produced by organisms. Others could be crystallized out of raw chemicals by biological processes. Gengineered organisms could be designed to grow everything from ultra-pure crystals for use in precision electronics up to bulk construction material. They could also be used to synthesize artificial gemstones, both crystalline such as diamond and amorphous such as opal. Other ceramics with properties based on precise microscopic structure, such as light refraction, could also be grown organically.

Biological Control

Humans have been fighting pest species since prehistoric times. We pull up weeds in our gardens, spray insecticides on our crops, lay traps for mice, and scrape floating plants off our waterways. These labor-intensive and sometimes unsafe methods are never effective for long.

Biological control uses organisms to do the work of fighting pests for us. (Another method of controlling pests is to modify the pests themselves; see *Genetically Defective Vermin*, p. 87.)

The cost of species used for biological control is highly variable. They may be released en masse by government programs, or purchased by individual farmers or residents. A box of common insect agents such as ladybugs or lacewings costs $20-$100. Each contains a few thousand eggs or a few hundred adults, suitable for treating up to an acre of land. Engineered species would cost more.

Control Using Extant Species

The ancient Egyptians practiced biological control when they realized that keeping cats could hold mouse populations down. Some early Asian farmers encouraged ants to live amongst their crops, to protect them from other insects. Modern biological control began in 1762 when colonists successfully transported a species to a foreign location specifically to reduce vermin: mynah birds to control locusts on Mauritius. Scientists of 19th-century Europe controlled several crop-eating insects using parasitic wasps and predatory mites, and developed the principle of transferring native predators to control pests introduced into new areas. This technique has since been used many times to control both plant and animal pests, using agents as varied as insects, internal parasites like nematode worms, and fungi.

Using existing species as biological controls is attractive for a number of reasons. It is relatively cheap, as the animals breed themselves in the wild and spread to cover nearby infested areas. It also avoids the use of chemicals, which avoids any problems of toxicity in the environment or final product, and makes the products more attractive to consumers.

Discovering a suitable biological control agent takes more than just finding a naturally occurring predator on the pest organism. If released into a new ecosystem, such a creature could wreak havoc on the local native species as well – or instead of! – the desired target. Several attempts over the years have backfired in exactly this way: mongooses introduced to Hawaii to control rats have exterminated many bird species. Ideally, a control species will not prey on any species other than its intended target, and die off as the pest is brought under control. Nowadays, exhaustive testing is undertaken before releasing a control species to ensure this. The problem is, most candidates don't measure up.

Gengineered Control Species

Gengineering is an obvious way to produce species more satisfactory as biological control agents. Usually the trait needing modification will be the tendency to attack species other than the one to be controlled. This might be achievable with purely behavioral modifications, but a more reliable approach is to engineer a reliance on the target species or an aversion to other potential targets. The first method relies on finding some protein or nutrient supplied only by the target organism, and engineering the control species to die without it. The second method is more difficult as it requires finding substances in all other possible targets and engineering them to be poisonous or distasteful to the control organism.

Control Using Microorganisms

All of the principles discussed above can also be applied to biological control using microbes. There are additional considerations, however. The naturally occurring disease myxomatosis was used to control rabbits in Australia, until the remaining rabbits spread myxomatosis-resistant genes throughout the population. The next stage was to be a controlled release of rabbit calicivirus, but the virus escaped a highly secure experimental quarantine area on an offshore island in 1995 and spread to every state on the mainland within a few months, before anyone knew if the virus could affect native mammals.

This example demonstrates the hazards of using a disease for biological control. Any pests that survive the first wave of infection are likely to pass on resistant genes to later generations, reducing the long-term efficacy of the control. And dealing with an infectious organism requires stringent safety precautions, with any breach having serious consequences.

The potential dangers of using natural pathogens can be reduced by gengineering diseases to target only the desired species. These would be similar to target-seeking pathogens (p. 115), but homing in on the genome of an entire species rather than subsets of it.

Environmental Control

Organisms can also be used to control non-biological aspects of the environment. An example is the planting of trees to stabilize loose soil against landslides, or to prevent soil erosion along riverbanks. Plants can also be used to slow water flow, encouraging sedimentation and the production of solid land in wetland areas and tidal river deltas. Some species can even adjust the local climate: dark algae spread over ice increases solar energy absorption and can melt otherwise permanent snow cover; gengineering the albedo of tree foliage could make large areas of land warmer or cooler. These techniques would be an important part of terraforming a hostile landscape, after microorganisms have produced an atmosphere suitable for them – see *Terraforming* (p. 109).

Although most examples of controlling the environment in this way use plants, certain animals are also suitable. Coral can be encouraged or engineered to grow into breakwaters to protect coastlines from erosion.

Plant Technology

Humans have been growing plants ever since Neolithic people noticed plants grew from seeds and decided to try growing food near their settlement. Apart from a few genuine innovations such as crop rotation and fertilizers, agriculture up to TL7 has used the same basic technologies, albeit writ larger as mechanization has made the tilling of fields easier. The future will be very different.

Propagation

The growth of new plants from old is the most important necessary step of agriculture. Several methods are used.

Seeds

Most plants reproduce sexually, either by dispersing pollen (typical of flowering plants) or self-fertilizing (most grains). This forms seeds, which later develop into embryonic plants. Since seeds are small and more or less durable, they can easily be transported by humans and planted where required. For non-self-fertilized seeds, the gamble of mixing genes means that the next generation of plants may not inherit desired characteristics of the parent plants. This can be overcome if the grower can be sure that male and female gametes come from plants with the same genome – either the same plant or a pair of clones.

Even without gengineering the seeds, treating them in various ways can produce useful products:

Coated Seeds (TL1): Seeds can be coated in material as low-tech as clay (to prevent birds eating them) to tailored herbicides (TL7) designed to kill competing weeds without harming the seed. Temperature-activated polymer coatings (TL8) allow farmers to plant seeds before the growing season begins, ensuring the seeds are protected from cold and then germinate as soon as the weather is suitable, rather than allowing the weather to control sowing date. Farmers may coat their own seeds or buy precoated seed from a supplier. Precoated seeds cost 10-50% more than uncoated.

Polyculture Seed Mix (TL7): For much of agricultural history, crop plants have been grown in monoculture – mass plantings of one species. This depletes soil fertility and makes them susceptible to pests and diseases that attack the species, like that which caused the Irish potato famine. Natural plant communities are polycultural, with many species commingled, resulting in better defense against pests and natural renewal of soil nutrients. Blending a viable mixture of useful crop plants and supporting species requires extensive research, but the resulting mix produces a sustainable long-term crop that needs little to no pesticide or fertilizer. Currently this is only practical for gardens that can be tended by hand because of the difficulties of automatically harvesting multiple species, but research may develop mixes suitable for large-scale commercial agriculture. Such seed mixes reduce agricultural labor and expense, and would be invaluable to colonies if tailored to local conditions.

Cloning

Plants can also reproduce asexually by growing and separating into a new organism – the equivalent of cloning. Horticulturists do this artificially by taking *cuttings*: slicing off a branch or shoot and planting it so that it grows new roots. A related technique is *layering*: wrapping material around a growing branch to encourage it to develop roots, and cutting it off for replanting once the roots have formed. Finally, plants can be cloned by *root separation*: dividing the root mass and letting each section grow into a new plant.

These techniques require no technology beyond a knife, so plants are easy to clone compared to animals. An advantage over using seeds is that cloned plants will have the same genetic growth patterns and resistances to disease as the parent. A risk of making thousands of identical copies, though, is the reduction of overall genetic diversity, which can make a species more vulnerable to pests or diseases that do manage to attack it.

Grafting

This is a technique in which a cutting, or *scion*, is attached to a different plant, known as the *rootstock*. The two bond together and the rootstock provides water and nutrients for the attached scion. The advantages of grafting come from the combination of desirable properties of the rootstock, such as size or hardiness, with those of the scion, such as high quality fruit or flower production. Without gengineering, only closely related species can be grafted together successfully, but this can provide such things as a tree that grows both lemons and oranges.

Hydroponics

This is the growing of plants without soil, by suspending their root systems in a liquid solution of nutrients. Physical support for the plants can be provided either by a loosely packed inert medium – such as sand, spun ceramics, or natural fiber matting – or by a solid plate with holes through which the roots can grow. The nutrient solution is circulated past the roots or sprayed onto them in a mist, with the required chemicals being replaced as the plants take them in. The solution must be aerated too, since roots need air as well as water. All plants can be grown in this way, though some are more successful than others.

Hydroponics provides a controlled environment for growing plants, without worries about soil-borne pathogens or weeds. In a sealed space, airborne pests can be eliminated, but fungal, algal, and waterborne pests can be a problem. If a hydroponics expert (Farming/TL7+ at 12+) is available, the plants can be grown closer together than in soil, meaning greater productivity in a given area. And because the flow of water is controlled without soil runoff, hydroponics requires only 5% of the water of conventional irrigation. All these factors are crucial for enclosed environments such as spacecraft or colonies on hostile worlds, as well as more prosaic uses such as providing cheap "natural" food.

Cost: One gallon of concentrated hydroponic nutrient solution costs $20. Diluted with 500 gallons of water this grows enough crops to produce 50 person-days of food.

Gengineered Plants

The full potential of plants as useful resources becomes available when gengineers apply their techniques to them.

Biotech Foodstuffs

Besides traditional crops, biotech can produce many cheap alternatives:

Algae (TL7) are easily cultured in natural or artificial ponds or lakes, and require only very simple chemicals, as they get most of their energy from sunlight. Genemod algae could produce yields several times greater than wheat at very low costs, and could be easily harvested and flavored.

Mycoprotein (TL7) is a high-protein, high-fiber "synthetic food" manufactured by the ton from mold cultures. Much cheaper than meat, but just as nutritious, mycoprotein can be grown using simple starches, or even nutrients derived from the waste products of pulp and paper, cheese-making, and other industries. Raw mycoprotein is safe to eat but utterly bland. It can be modified to look and taste like a variety of foodstuffs, such as meat or fish.

High production start-up costs and consumer resistance in favor of "real food" have limited algae's and mycoprotein's acceptance as human staples, but both are in use as animal feed and food additives. If future overpopulation makes raising cereals, fish, or animals too expensive, they may take over, forming a staple diet to feed the hungry masses. Mycoprotein may also be a good choice for spacecraft "food vats."

One problem with these foods is that they do not contain the full range of dietary nutrients required to maintain health. If they are eaten without other food such as fruit and vegetables, consumers will develop vitamin or mineral deficiency diseases like scurvy or beriberi. This can be overcome with vitamin supplements (p. 157) or hydroponic vegetables (above).

Crop Modifications

Drought-resistant rice is all well and good, but the real money is in making our customers not just want our product, but need it. Sure, we've been upping the nicotine levels in tobacco as far as we can through selective breeding, but let's see just how far we can push our product's addictiveness. And if the feds start breathing down our necks, we'll tone it down here and pump it up overseas . . .

– Gibson Wallace, CEO, Quarticum Ltd.

Farmers and scientists have long used eugenic procedures to produce crops with higher yields or faster growth rates. Gengineering will speed up these improvements, but it can also offer more exotic biomods. A number of GM (genetically modified) crop enhancements are listed below. These can be combined; e.g., plant-cloning of especially healthy, climate-adaptive, nitrogen-fixing beefapples.

Disease-Resistant Plants (TL8)

Gengineers have already succeeded at introducing genes into several crop plants to make them tolerant of germs, fungi, and chemicals. At TL8 these are usually disease-specific, aimed at resisting common scourges. A common engineered trait is resistance to herbicide, so that chemicals can be used to kill weeds without affecting the crop. Broad-spectrum disease resistance (TL9+) is possible, allowing crops to be protected against unknown threats or even gengineered bioweapons.

Market-Friendly Crops (TL8)

Food plants may be redesigned with the supermarket shelf in mind. Possibilities include longer shelf life (adding genes designed to block ripening enzymes), tougher skin (to reduce bruising and allow mechanical picking), and antioxidants that would keep fruit from going brown when exposed to air. At TL9+, shape may be customized: How about square fruit for easier packing? Designer shapes and flavors would be popular with chefs or showoffs.

Flowers, lawn grass, and household plants may be gengineered with exotic aromas (apricot blossoms), colors (electric-blue roses), or shapes. Some may have bioluminescent genes spliced into them. The market for exotic flowers may be huge!

Symbiotic Plants

If bacteria can live in symbiosis on a human, why not algae, or even vascular plants? Needing sunlight, they would grow on the skin or just beneath it. Algae would be solar powered versions of symbiotic bacteria (p. 120), performing many of the same functions while giving a green, red, or brown cast to the skin. Plants with root systems embedded in living flesh could provide cosmetic effects (grass hair), insulation, or protection (DR 1 to 2), but few other effects.

Nif Plants (TL8)

Cells require nitrogen to build proteins. While animals get nitrogen by eating things, plants extract it from "fixed" nitrogen (ammonia and nitrates) in soil. A major limit on crop yields is infertile soil that lacks nitrogen. Fertilizers add nitrogen to soil, but they are expensive, and many are dependent on oil supplies.

Some microbes that live on the roots of legumes can extract nitrogen from the air and create ammonia, nitrates, or other compounds, thus fertilizing the soil. Farmers have known for centuries that planting legumes helps restore depleted soil. Current research is engineering similar microbes on other species, such as rice or wheat, to fix nitrogen better. By TL9, a universal nitrogen-fixing ("nif") bacterium capable of symbiosis with *all* plants may be developed, or nif genes could be inserted into crop plants themselves!

Nutricrops (TL8)

Plants may be genetically altered so that their stored proteins (in cereal seeds or fruits) have more of the essential amino acids that humans and domesticated animals require. This would mean that fewer "nutritional additives" would be needed in animal feed, or foods that are packaged for human consumption, reducing agribiz costs. A variant is "fad crops," designed to appeal to followers of the latest fad diet.

Pest-Resistant Plants (TL8)

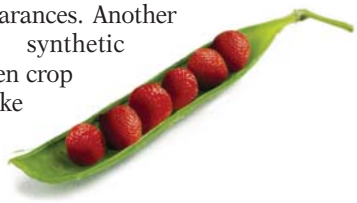
Insects lay waste to billions of dollars worth of crops every year, or force the use of expensive (and sometimes environmentally damaging) chemical pesticides. By splicing in genes from a bacterium or virus that makes a particular insect sick but which has no effect on other species, plants can have built-in insecticides targeted against their natural enemies. This has already been done with some tomato, cotton, and potato plants, making them resistant to particular caterpillar species.

Environment-Tolerant Crops (TL8/9)

Vast tracts of land are presently useless for agriculture due to insufficient water, high salinity, or extreme temperatures. One solution may be to make the deserts and tundras bloom without irrigation or hothouses. Genes regulating osmosis, respiration, and transpiration may be tinkered with, following the examples of harsh-climate species. The result will be crop strains adapted to drought or other harsh conditions. Frost and drought tolerance are already being engineered into crops, and heat tolerance will surely follow. Tolerance of more water (swamp cactus, anyone?) is another possibility. Metabolic modifications could also enable plants to cope with too little or too much sunlight or carbon dioxide. This may be vital if environmental catastrophe looms.

Chimera Plants (TL9)

After crop yields are improved, further transgenic gene splicing and a quest for fad food may lead to exotic, cross-species genemod plants, like bananawheat or even beefapples, with unusual flavors or appearances. Another possibility is totally synthetic species, or terrestrial/alien crop genesplices that taste like nothing on Earth.



Non-GM GM Crops (TL9)

Sometimes it is desirable to have the products of a genetically modified crop not contain the modified genes of the parent plant. Using self-modifying genetic code (p. 14), it is possible to rewrite or excise any artificial changes to the genome when growing cells are destined to become end products: food or seeds. This allows a food crop to be modified for improvements in its growth, while still producing a crop that contains genetic material identical to the unaltered species. Such plants have the advantages of genetically modified crops, while being more acceptable to consumers wary of eating a non-natural product. (Some consumers may still object on principle, though.)

Another use for this technique is to make sure enhanced crops produce seeds that revert to the baseline plant, rather than containing proprietary (and profit-making) genemods. A gengineering company using this tactic can claim that its plants produce viable seeds, while still protecting its revenue stream.

Manna (TL10)

Sophisticated gengineering may produce a single food crop that can fulfill all human nutritional needs! This would be a boon for overpopulated worlds, since cultivating one crop is easier than many. Even if it tastes good, eating the same thing will get boring after a while, so designers may build many different flavors into the plant. At TL11+, food crops become less important, as nanotech "protein factories" can synthesize food from basic chemical compounds.

Plants as Materials Producers

Plants have long been used as sources of raw materials, from fibers like hemp and cotton to wood for construction. Gengineering plants can make them even more useful.

Industrial Plants (TL8)

Researchers have already spliced bacteria that produce normally expensive biodegradable plastic into fast-growing plants; with "plasplants," it should be possible to harvest such environmentally friendly plastics at a small fraction of their usual cost. In a similar vein, oilseed crops (like soy beans and rapeseed) are being gengineered to produce oils that can be used to make environmentally friendly lubricants and detergents. At TL9+, there are numerous possibilities. How about two-year-growth trees with easy-peel bark for the wood and paper industry, or long-fiber, seedless cotton with the dye already engineered in?

Pharm Plants (TL8)

Like bacteria, transgenic plants can be gengineered to yield medically useful proteins (usually, a certain amount of processing is required). Already, trials are underway with plants designed to produce serum for treating burn victims. At TL9+, plants may produce designer proteins that can be used to manufacture various "wonder drugs."

Plant Bioweapons

Plants can be engineered for offensive or defensive purposes. Virulent weeds can be made to choke enemy crops or overgrow installations. These can be combined with damaging capabilities such as poisonous thorns. One of the more frightening types of plant weapons uses pollen or spores designed to be toxic. As these are produced in massive quantities and fill the air, they could render large tracts of land uninhabitable – then spread on the wind to infest new areas.

Bioweapon Detectors (TL8)

Plants can also be used to *fight* bioweapons (and chemical weapons). Gengineers can make plants sensitive to various pathogens and chemicals, so that they die or change color when exposed to minute quantities. Such plants can be used for street decoration or in parks – any public space where an attack might be likely. Since people are used to plants, these would cause less concern than artificial biosensors. Detector plants could also be spread over wide areas relatively inexpensively once developed.

Blood Roses

These TL9 transgenic roses have poison sacs and more – and tougher – thorns than usual. Someone pushing through blood roses will take 1d-2 cutting damage per yard of distance traveled. If any damage penetrates DR, a HT roll is required. Failure means taking 4d toxic damage after a 10 minute delay. The roses retain their poison after being cut (losing one die per day). Someone handling them must make a DX+1 roll to avoid being jabbed. A single, cut blood rose costs $50; seeds are $100 each.

Rapid-Growth Plants

Some plants grow very fast – bamboo can gain three feet per day in ideal conditions. But most are relatively slow, and speeding up their growth is a logical goal of gengineering. When plants can be grown really quickly, they can be used for many purposes.

Residential Trees (TL10)

Trees could be gengineered to grow a huge, thick trunk, with room for hollow spaces inside it and complex, modified roots capable of carrying water for use by the occupants. Gengineered seeds to grow a house-sized tree might cost $5,000, with the tree being ready within two years. Remodeling and decorating the interior (probably installing "cybernetic" plumbing and heating) would cost an extra $15,000, but even without this, the tree would be useful as a survival shelter. Real estate to grow the tree on is extra! In a similar vein, "shelter seeds" which yield giant gourds in mere weeks may be available; they would cost $500 each and grow a DR 1, 50 HP gourd large enough to shelter four people.

World Trees (TL11)

Away from the constraints of gravity, and provided with enough resources, there is no reason a plant could not grow to immense sizes. Sunlight is plentiful in space, but sources of nutrients are few and far between. Freeman Dyson suggested growing gigantic trees on comets, and Larry Niven's *The Integral Trees* postulated a stable ring of gas and debris in orbit around a star, and the miles-long trees that might grow in it. (A gas torus around a star or planet would slowly leak to space, but might be kept in equilibrium by replenishment from a planet or moon, respectively.) In such an environment, huge trees could be engineered to float through the microgravity gas. They would provide anchor points, habitats, and resources converted from the diffuse atmosphere by solar energy.

Suitable raw materials are more commonly found in an asteroid belt or planetary ring system than a gas torus. Planetary rings are ideal, as the particles range from smoke to boulder sized and are relatively close together. A plant within a ring system could spread tendrils to gather this material to use as chemical resources. The distances between asteroids in a belt are greater, but a single asteroid would provide more material and allow a plant to grow larger.

Even on a planet, gravity does not prevent plants from growing horizontally. Voracious plants may spread over vast areas. Unless stopped by competitors or unsuitable geography, a plant may eventually encircle a world. It could transform the planet into almost anything, and colonizers may seek to herbiform worlds rather than terraform them.

Zoogenetic Plants (TL12)

Taking self-modifying genetic codes to an extreme, a plant could conceivably grow a structure containing genetic material that would allow it, once detached, to live an independent existence – as an *animal*. A likely method would be for the plant to grow something like a seed pod, in which it produces cells with animal genomes and provides a suitable environment for them to develop into a viable creature. The seed pod is then an artificial egg or womb for the animal, which can be born when it is ready.

Animals grown in this way could be bioroids or – more difficult but possible given high enough technology – members of a separate species capable of breeding and reproducing by themselves. It would even be possible to grow members of a pre-existing species, either with unique random genomes or clones of a given individual. A human colony on a new world may be able to scatter some seed and use nothing but the power of sunlight, water, and a few trace chemicals to *grow* new colonists!

An interesting option is for the resulting animals to reproduce by generating seeds that grow into plants, resulting in an organism that alternates between generations from a plant phase to an animal phase – see *Botanogenesis* (p. 88).

Gengineered Fungi

Fungi are not plants, but form a separate kingdom of their own. For the most part they are tiny threads that only become apparent when they release reproductive spores from fruiting bodies, which are known as mushrooms in some species. They break down organic materials into simpler molecules, providing the decomposition part of the ecological cycle. While some fungi digest dead matter, others parasitize living organisms. These properties can be put to use by gengineers. The cost of engineered fungi can vary greatly, so no specific costs are given. See *Purchasing Microorganisms* (p. 105) for general guidelines.

Drug Factory Fungi (TL7)

Several species of fungi produce hallucinogenic and other psychoactive compounds, or natural antibiotics like penicillin. Engineering these for improved production and new compounds is an important area of research.

Bioluminescent Fungi (TL8)

Several species of fungi have natural bioluminescence. The genes that produce luminescent chemicals can be spliced into other organisms to make them glow. Alternatively, the fungi can be modified to grow where required, even into symbiotic forms that generate patches of light on the bodies of animals. At TL8 this is unimpressive as the glow is dim, restricting it to commercial applications, but by TL9 it should be bright enough to be popular with customers.

Food Fungi (TL8)

Many consider mushrooms a delicacy, but some species are rare and difficult to cultivate. Cultured black truffles and matsutake will taste the same but be much cheaper. At the other end of the scale, unicellular yeast-like fungi could be engineered into an easy-to-grow complete food source for starship crews or overpopulated billions in future dystopias. It might be made to taste good, or it might just taste like yeast.

Bioweapon Fungi (TL9)

Fungi secrete enzymes to dissolve organic matter. Some are so powerful they can dissolve plastics, ceramics, and even metal. Gengineered fungi can be targeted to attack particular materials, in order to recycle waste products that do not decay naturally, or as an offensive weapon against enemy materiel. Mechanical and electronic devices don't operate too well when a fungus is dissolving the components from the inside. The fungal spores can be spread in the same ways as anti-materiel bacteria (p. 188).

Simple molds can also be bad enough to make property worthless. Boosting a mold's ability to survive drier climates and resist removal attempts will make it a viable long-term weapon against buildings and vehicles.

Parasitic Fungi (TL9)

Another offensive use of fungi is to enhance parasitic traits and use them as biological weapons. Fungi are perfect for attacking and digesting living plants, but can also cause problems for animals, creating annoying, disfiguring, or fatal infections. Spores of a herbicidal fungus released on an enemy's crops is more efficient than chemical spraying, as the parasite will reproduce by itself and spread to infect other areas – although the user must be sure to have crops resistant to his own fungus.

Fungal Infonets (TL10)

Transgenic sequences can grow neural tissue within fungal threads, allowing them to act as conduits for electrochemical signals. This means fungi can build "wires" and "circuits" on and within any medium in which they can grow – which is just about anywhere. By planting such a fungus, one can grow circuitry in places where building it by more intrusive means would be too difficult or too noticeable. Special nodes in the fungus allow connections to be made to conventional electrical circuitry, or other organisms that can send and interpret signals through the fungal net.

Fungal Surveillance Net (TL11)

With their ability to grow on anything and their tendency to be ignored or overlooked by people, fungal infonets make ideal infiltration organisms. Further gengineered enhancements can add organs sensitive to light, sound, and chemical stimuli, turning them into organic surveillance systems that can be installed simply by spreading spores.

Smart Fungi (TL11)

By concentrating neural tissue into distributed processing nodes, a fungal infonet can be modified to allow a more coordinated reaction of the entire organism to local stimuli. Although a far cry from true intelligence, this gives the fungus rudimentary problem-solving capability and allows it to seek particular targets to grow into and digest. When combined with acidic or parasitic properties, this produces an insidious biological weapon.

Intelligent Fungi (TL12)

Further enhancements give fungi neural processing centers and problem solving capabilities similar to sponge computers (p. 29). Although sponge computers are likely to be more generally useful, fungal versions may find use in applications where other fungal properties are desirable. They can grow almost anywhere there is sufficient moisture and organic material, and can be combined with a surveillance role, for example.

Gengineered Insects

An insect can be altered and conditioned to transform it into a useful tool, or even a form of organic robot. All references to "insects" below can be taken to also refer to other small arthropods, like spiders.

Helpful Insects

Although insects can be vectors of disease for humans and livestock, they are also useful and form an important part of an ecosystem. Reducing the numbers of pest insects can have undesirable side effects on populations of other organisms, and shows diminishing returns as the population drops. Instead, the insects could be gengineered to be incapable of transmitting diseases. A dominant gene that kills malaria parasites so that a mosquito cannot transfer them to a new host would spread rapidly throughout the population, particularly if combined with genes that make the modified insects more successful reproducers, or that change the genetic inheritance ratios of their gametes.

Enhanced Silks (TL9)

Natural insects already produce organic materials with mechanical properties exceeding those of many manufactured materials. Silk from spiders, caterpillars, and other insects can be spun into useful and beautiful fabrics. The insects can be gengineered to make silk in greater quantities or with enhanced strength, so that it can be used for industrial purposes.

An example of enhanced silk is *arachnofiber*. This material is used for off-the-shelf TL9 ballistic suits and gloves (p. B284), possessing 1.5× the DR of TL8 ballistic materials. Arachnofiber ropes are stronger than nanofiber ropes of the same thickness (see ***GURPS Ultra-Tech***), but more expensive:

3/16" diameter rope: Supports 1,500 pounds. 10 yards of rope: $10, 0.25 lbs.

3/8" diameter rope: Supports 6,000 pounds. 10 yards of rope: $40, 1 lb.

3/4" diameter rope: Supports 24,000 pounds. 10 yards of rope: $160, 4 lbs.

This is the safe working load. Strength doubles each TL after introduction. Theoretical breaking strain is five times as great; if exceeding safe load, roll vs. the rope's HT 12 at -1 per multiple of working load whenever it is stressed to see if it snaps.

Insect Bioweapons (TL9)

Insect bioweapons are usually stored as vials of eggs and released into still water; in a few hours, days or weeks, they will hatch into tens of thousands of insects.

An area might be seeded with biting insects, such as horseflies or blackflies. Multiple bites cause irritation (-1 on DX and IQ until treated) and prevent anyone from getting any sleep (resulting in fatigue). A sealed suit or the Sealed advantage protects against this.

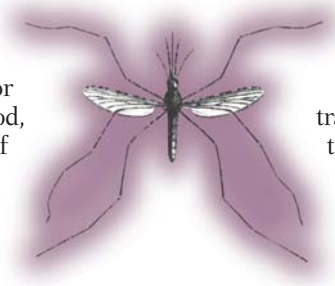
Other insect bioweapons might be given more subtle targets. While sending genemod moths with a programmed desire to eat the enemy's uniforms is probably more an exercise in whimsy than anything else, a plague of unseasonal pests that eat crops or get into stored grain is no laughing matter, especially if they've been altered to resist the usual pesticides.

For greater lethality, insect pests could be infected to carry genemod plagues dangerous to humans or other animals. Often, bloodsucking, winged insects are chosen, such as mosquitoes (which can already carry several diseases). In game terms, anyone traveling through an area infested

with plague-carrying insects is treated as being in a disease-ridden area (see *Contagion, p.* B443); roll at -2 if they lack appropriate repellent, insect-resistant clothing or force fields.

Genetic modification can be used to make an insect bioweapon much more useful. The insects could be designed so that they will not attack if they detect certain chemical cues – which are often odors below the human olfactory threshold. That way, you can protect your own people with a specialized form of repellent.

For even greater precision, insect weapons could be programmed to home in on a specific chemical cue and only attack targets that give it off. This is easy if the enemy are another species, but if (for instance) the enemy uses a particular food, lubricant, or laundry detergent and none of the local civilians or your own people do, then you can gengineer your insects to go after them and leave everyone else alone. For the enemy to discover what was happening, they would have to first trace any plague to the insects, dissect an insect to understand what molecules it is reacting to, then correlate this with the odors of all their equipment and supplies. Even with chemical sensors and computer analysis, this could take weeks. A more trial-and-error approach would be to leave out certain supplies to see if the insects are attracted to them in the absence of humans.



Another modification that could make insect weapons nastier is to redesign them to be resistant to certain common types of insect repellent, or to have pan-specific poison resistance. A pesticide that kills any insect can be engineered, but this may fatally damage the ecosystem (killing beneficial insects or plants) and have toxic short- or long-term effects on human health as well.

The best ways to deal with genemod insects may be swarms of engineered defensive insects, target-seeking viruses, tiny microbots, or nano-machines.

Insect Agents (TL9)

An insect agent is an insect or arachnid altered by cybernetic implants (and sometimes gengineering) to make it an effective covert-operations device. Insect agents are useful for spying, sabotage and assassination.

The insect's genes are tinkered with to make it vastly more intelligent within a limited sphere. While it is IQ 1, it can perform a specific, preprogrammed mission as if it were IQ 6. The engineering includes a biological clock, allowing the insect to perform actions (such as returning to its owner) at specific times. Further modifications permit it to receive and transmit signals, usually via tiny infrared "pits" or modified pheromones; organic radio (range one mile) is possible at TL10. An insect agent does not have cybernetic implants – in fact, that is its main advantage: as a totally organic construct, it doesn't show up on sensors that detect power sources or metal.

Insect agents are controlled by insect directors (see below), which provide a limited ability to communicate with them. They can be given very simple orders, provided these are unambiguous and within the capabilities of a trained, IQ 6 animal. However, the insect can't be programmed with more than one mission at a time. In general, an insect can be programmed to travel to a landmark or search for a target object it is capable of recognizing. If it finds a target, the insect can then follow it, mark it with pheromones, bite it, deposit a payload upon it or, if the target is tiny enough for the insect to carry, retrieve it.

A major limitation of insect agents is their limited ability to recognize things. In general, an insect will recognize its owner and can be programmed to recognize up to two other things during a mission; for instance, a target building it is to fly to and a person or object it is to find within that building. An insect director can transmit images of specific way stations and targets to the insect along with mission instructions.

Insect agents have an extremely limited ability to communicate with their owners. They can basically give yes-or-no answers to very simple, mission-related questions such as, "Did you complete your mission?" If in contact with the insect director, they can also upload limited sensory perceptions related to their mission, such as sensory "snapshots" of the seconds before, during and after the objective is reached, along with a general impression of the route taken to the target. These can be experienced directly by anyone accessing the insect director software via neural interface, and will be extremely disorienting – with strange insect-eye views and olfactory cues – but perhaps useful (make an IQ-4 roll to get blurred sensory impressions from it; robots add +4). Alternatively, the computer software can try to overlay it on a map and thus find out where the insect has been.

Insect Director (TL9)

This is a small peripheral, usually attached to a portable computer or built into a robot or suit. The user can key in or speak simple commands, which are translated into infrared, audio, or chemical signals that can be understood by the gene-altered sensory and nervous systems of an insect agent. The director can also receive chemical, audio, or infrared reports from the agent, and translate for the operator. The communicator has a range of only one yard, and works best if the insect is actually sitting on it.

Programming an insect agent with a mission takes five minutes. The GM can make a secret Computer Operation or Electronics Operation (Surveillance) skill roll to see if this was done properly, with penalties if the instructions seem confusing. Failure means the insect does not do quite what the user intended. Critical failure means the program causes the insect to do something totally different than what the user wanted, or to behave in a self-destructive fashion, resulting in its loss or capture.

To work, an insect director must be plugged into a computer running an "insect translation" program (Complexity 4, $4,000). A separate program is required for each brand of insect agent. The director itself is $2,000, 0.2 lbs. (computer not included).

Sample Insect Agents

These are just some of the possibilities for gengineered insects.

Smart Mosquito (TL10)

Among the most common insects to be modified are female (bloodsucking) mosquitoes. A mosquito's ability to fly, its small size, its excellent sense of smell, and, most of all, its ability to be modified to deliver chemicals into the blood make it a highly useful organic platform for covert operations.

A smart mosquito has the usual mental and physical modifications common to insect agents. It also has a pheromone gland that allows it to mark objects with a distinctive scent so that it can find them later. It will always mark its owner.

The insect can fly at about 2 mph (Move 1). It has an effective Tracking skill 10, which can be used to find objects or people it has been programmed to recognize. It can be programmed to scent-mark an object it has found. Provided that target is not behind a sealed barrier or more than a mile or so distant, this gives the mosquito +3 on any Tracking rolls to find it later on.

The mosquito can be programmed to perform one of several tasks if it finds its target:

Payload: The mosquito cannot carry anything heavier than a few grains of sand, but sometimes that can be enough! Useful payloads include pinhead-sized listening devices and messages that are coded as microdots ($1 each). These can also be deposited somewhere – or on some*one* – and scent-marked for later retrieval.

Sampler: The mosquito can draw blood from a subject and retain it without consuming it for up to six hours. This can provide a blood sample for analysis.

Target Marking: Mark the object with a pheromone marker. This can be combined with any other task.

Vector Attack: The insect can carry and transmit a dose of a germ-warfare agent or proteus virus (designed not to affect the mosquito). It may also carry a drug or poison, but as it can only carry a small dose, HT rolls to resist are at +4. Delivery is by biting. This won't penetrate armor, but many people won't even notice a mosquito bite (make a Perception roll at -2 to do so).

A target being stalked by a smart mosquito should get a Hearing roll to notice it. A mosquito-sized insect has SM-16, but any hit will kill it.

A smart mosquito costs $8,000; it can be carried in a matchbox-sized carrying case. They live only two months. Drugs that extend the mosquito's life span by one month per dose cost $100 per dose. They are effective on a roll of 15 or less; roll each month. Mosquitoes can also be bought as dried eggs, which remain viable for 20 years and hatch after a day in water. Smart mosquitoes are LC3.

Smart Bug (TL10)

A smart ant or small spider uses the same rules as a smart mosquito, except that it is limited to moving on the ground at Move 1, cannot act as a blood sampler, has Tracking-7, and can carry a little more (gives only +2 to resist any drug or poison). While it can't fly, it can walk up walls, and is silent so it's hard to notice; a Per-4 roll is required to spot an ant or spider sneaking up on you. On the other hand, it's easy to kill – just step on it.

Smart ants or spiders are slightly easier to construct than mosquitoes, and cost $5,000. They can be equipped with two additional biological modifications:

Hardened Mandibles (TL10): These bioceramic jaws allow the bug to perform sabotage, chewing tiny holes in ducts, slicing wires, or biting for 1 point of damage per minute. A swarm of at least 100 is needed to do 1 HP of injury per second and will be dispersed after losing 6 HP; see p. B461. Add $1,000.

Vacuum Adaptation (TL11): The insect's body has been surgically adapted to survive for a short time (up to an hour) in space, or other high- or low-pressure environments. Add $10,000.

Gengineered Animals

Larger animals – such as fish, dogs, or cows – can be bioengineered, often by adding genes from other species. Just like humans, animals can be modified with germline gengineering or a biomod operation. The former has the potential to create a race of modified animals (if a breeding pair is modified). The latter only modifies a single individual, but can usually be performed at an earlier TL.

So why would someone want to gengineer animals? Some possible objectives are described below.

Companions and Working Beasts

Pet owners already enjoy exotic breeds. If laws don't get in the way, we may see dogs with pink fur or strange hybrids like a cat-rabbit. Even if they are illegal, there may still be a black market for radically altered pets. While society may frown on giving rabbit ears and a semi-intelligent brain to a cat, genemods designed to enhance the intelligence of working beasts like sheep dogs, police dogs, or horses may be acceptable. At high TLs or in cyberpunk worlds, customized "super pets" could be created by finding a freelance genehacker and having him make a pet to order.

Some societies may even permit the design of "guardbeasts" or "warbeasts" with enhanced combat abilities, derived from deadly animals. These might also be used in ecological warfare. Most such beasts are LC2-3; those that can breed rapidly might be LC1.

Hardy and Pantropic Animals (TL8/9)

Just like plants, animals can be gengineered for improved disease-resistance or to survive changing climates (perhaps brought on by eco-disasters). More exotically, they might be made to smell or taste bad to pests or predators, designed to survive on other planets by splicing in genes so that they can digest alien plants or animals, or modified to survive in unusually harsh climates. For example, "Mars Goats" designed for a partially terraformed red planet may possess hyper-evolved lungs, internal water storage capacity, and thick fur.

High-Yield Farm Animals (TL8/9)

By modifying genes that control growth hormone or fat production, animals can be designed with leaner meat, improved milk, egg, or wool production, and other commercially desirable genemods. Splicing in genes from related species (e.g., putting cow genes in pigs) may also produce larger – or different-tasting! – species. An advantage over post-natal growth hormone treatments is that the animal's descendants will inherit these traits, reducing long-term costs.

One oft-suggested modification would be to give the super-efficient ruminant digestive system found in cows and goats (which uses symbiotic bacteria and a modified intestine to aid digestion) to animals such as pigs. This would allow them to forage, which would reduce the cost of feeding them.

Pharm Animals (TL8/9)

Animals can be turned into living pharmaceutical factories by adding genes that code for commercially useful proteins, or splicing in genes from humans, other animals, bacteria, or plants. The advantage of using animals rather than bacteria is twofold. First, more kinds of proteins can be created, since animals have more than one cell to work with. Second, animals do not require the fermentation vats and downstream processing that bacteria need.

Domestic milk animals like goats or cows can be modified so that their milk contains "natural" additives. For instance, transgenic cows have been grown with genes for lactoferrin, a compound used in human baby formula; this minimizes the need for further processing and reduces production expenses. Pigs have already been grown with human hemoglobin in their blood so they can be bled for human blood substitute. Other animals are being designed to produce vaccines.

More exotic pharm animals are possible, including ones whose organs can be harvested for use by humans, or whose secretions and bodily fluids (such as milk, blood, or urine) or products (eggs or meat) contain chemicals or even wonder drugs. A good example are the transgenic "spider goats" with orb spider genes; they look like normal goats, but their mammary glands can produce valuable spider silk proteins in commercial quantities.

A pharm animal could be a highly complex "bio-reactor" if its own genetics were modified and its gut also played host to a variety of gengineered bacteria. While the gengineering required is high-tech, it would produce drugs and chemicals in a very low-tech fashion, making pharm animals very suitable for developing nations or colony worlds.

Besides their obvious commercial and medical uses, pharm animals could also manufacture recreational drugs, poisons, or even explosives. By modifying a venomous creature into a pharm animal, it might be possible to dispense drugs in combat as well as manufacture them.

Levels of Sapience

GURPS classifies a sapient being as IQ 6+. Animals with enhanced intelligence can be classed as either non-sapient, low-sapient, or fully sapient:

A *non-sapient* animal still has IQ 5 or less, even if its intelligence has been boosted over its species average, or it has other mental improvements (e.g., the removal of the Hidebound trait). Non-sapient animals are generally considered property, although they may be protected by laws against animal cruelty.

A *low-sapient* animal has an average IQ 6-8, but, unlike a human child, will also suffer from some or all of the racial mental traits that commonly limit animals; see the Domestic Animal and Wild Animal meta-traits, p. B263. It is intellectually halfway between smarter animals and adult humans. Low-sapient animals are rarely considered "people" but may have some legal rights. Some societies might not care how such creatures are treated – corporations could breed near-sapient workers or warbeasts, individuals could go to genehackers to buy upgraded pets, and so on. A more compassionate culture might enforce laws regarding their creation, treatment, and ownership, with licensing requirements for individuals permitted to work with them. For example, low-sapient dogs might be used by police, scouts, or rangers, but be restricted to trained officers who know to treat them as partners rather than pets.

A *fully sapient* animal is mentally equivalent or superior to a human. This means IQ 8+ and few or none of the negative mental traits common to animals (those in the Wild Animal and Domestic Animal meta-traits), or, if they possess these, a way to mitigate them (such as an animal that can't speak having the ability to write). A sapient animal may be a full citizen, a slave, or somewhere in between (e.g., ward of the state, second-class citizen). Either way, it's intelligent enough to *resent* being treated as less than human . . .

These classifications are game mechanical. Societies may have specific intelligence tests, legal codes, or other rules that define the status of animals.

Reproductive Modifications (TL8)

Animals may be gengineered for improved fecundity (giving birth to larger litters, for example), an altered sex ratio (usually, more females than males is desirable), etc. Use the TLs given under *Sexual and Reproductive Modifications* (p. 60). Reduce the TL required by 1 when dealing with common lab or farm animals – work on animal reproductive gengineering is well on its way, and will precede similar work on humans.

Near-Sapient and Low Sapient Animals (TL9)

Bioengineers can use a process that has come to be known as *uplift* to turn non-sapient animal stock into sapient intelligent species (see p. 85). This is most effective with near-sapient species (IQ 5) or those which have other promising traits, e.g., manipulatory ability. Another common uplift procedure is the enhancement of low-sapient species that already have IQ 6+ but which nevertheless lack manipulatory ability, cannot speak, or suffer various other mental handicaps (typified by the Wild Animal or Domestic Animal meta-traits, p. B263).

Slow-and-sure uplift procedures aimed at producing stable races might take centuries to evolve a species toward sapience. Quicker but riskier procedures may achieve success (but often with various defects) in only a generation or so. Possible motives for creating a near-sapient or sapient animal include:

Ethical Duty: Some societies or individuals may feel that it is their duty to uplift near-sapient animals.

Scientific Curiosity: The project is an experiment. A single evolved creature may be created, or the experiment may proceed to see what kind of society a race of enhanced animals would produce, either in isolation or in partnership with man. If contact with aliens is expected, we might learn a lot by making our own aliens.

Subject Race: The goal may be to produce smarter domestic animals, either for a specific purpose (e.g., as companions or soldiers) or as a servitor underclass.

Uplift can also be achieved in a non-germline way by performing surgery. Brain tissue grafts (p. 179) can enhance intelligence, and other biomods can alter the physical capabilities of animals. This method is suitable for TL5+4 steampunk inspired by *The Island of Dr. Moreau*.

Creating Biomodified Animals

These rules are guidelines for creating genetically altered animals in conjunction with the rules on *Racial Templates* (p. B450) and *Animals and Monsters* (p. B455).

First, determine the statistics of the baseline animal. Statistics for common animals are found on pp. B455-460. If it's important enough to be a character, create a racial template using the rules on p. B450. Racial templates can be derived from abbreviated animal statistics using the guidelines on p. B456. Statistics and templates for many other real and fictional animals are in ***GURPS Bestiary.***

The GM may wish to research other traits for a particular animal (since only the major ones are given) but it is just as valid to assume that many traits will be *lost* as a side effect of genetically upgrading (in exchange for improved intelligence, etc.)

Modifying Animals

Once the racial template or set of abbreviated statistics has been determined, use the rules for human gengineering and biomods to make any modifications. The key difference is that animals may already have certain attribute modifiers, advantages, or disadvantages without the need for gengineering.

Gengineers may also want to remove some disadvantages native to animals. Some suggested modifications are described below. These may also have side effects (unintended disadvantages). As side effects aren't deliberate modifications, they don't affect the difficulty or dollar cost of the modification process, but they do reduce the race's point cost.

Some special considerations that apply to gengineering animals:

Animal Intelligence

Modifications to the brain's size or structure can improve racial IQ. These include enlargement of the frontal lobes, modifying the language and creative centers, and other changes intended to improve reasoning ability and abstract thought. Use the rules for enhancing human intelligence; that is, germline gengineering can add up to +2 IQ at TL10, etc. For biomods, see *Brain Tissue Graft* (p. 179) and Neurovirus (p. 186).

The Wild Animal or Domestic Animal meta-trait can be removed by engineering out one or more of its traits – usually either Cannot Speak or Taboo Trait (Fixed IQ) are the first to go.

A side effect of increasing IQ is to reduce an animal's sensory bonuses, as more of the brain is devoted to reasoning and language processing. For every +1 increase in IQ, it would be realistic to reduce either Perception or all Acute Senses by one level, or, possibly, to remove a Discriminatory sense such as Discriminatory Smell.

Altering IQ or other racial mental disadvantages or mentality meta-traits often gives the Stress Atavism disadvantage.

Modified Manipulators

Animals such as chimpanzees, elephants, octopuses, and raccoons may already have arms: grasping paws, trunks, tentacles, or crude hands with Bad Grip 1-3. Reducing Bad Grip by one level (eliminating Bad Grip 1 entirely) is possible at TL9, by two levels (eliminating Bad Grip 2) at TL10, or by three levels (eliminating Bad Grip 3) at TL11+.

Modifying flippers, legs, bird talons, or wings to give them crude grasping paws or claws while still retaining original function and posture is possible at TL9 for animals that already have paws or talons, or at TL10 for trickier uplifts (such as hoofed animals). This will generally replace No Fine Manipulators with Bad Grip 3.

If the animal normally moves on all fours, these modifications will lower its mobility.

If the animal has the Horizontal disadvantage, or a meta-trait that includes it such as Quadruped, its effective Move on the ground should be halved. Either remove a level of Enhanced Move (Ground), if any, or apply an equivalent reduction to its Basic Move. If the animal is semi-upright, the reduction should be less: usually -1 or -2 to Basic Move.

These modifications can also be created with transplant surgery. Cost is $20,000 × (TL-8), where "TL" is not the current TL but rather the minimum TL required. The procedure takes six weeks and is LC4. Metamorphosis nanovirus (p. 187) can also improve manipulatory ability.

Creating New Species

Bioengineers can design and create new species of animals using chimerization at TL8+ or biogenesis at TL10+. Chimeras should have the Chimera meta-trait, while biogenetic animals will have the Bioroid meta-trait; see p. 214. Without restricting oneself to an existing animal body plan, the possibilities are limitless. One branch of this technological path leads to biogadgets (p. 95).

Enhanced Voice Box

It's possible to modify the animal's voice box to make it capable of human speech. This can be added to any mouse-sized or larger animal. At TL9, gengineering can upgrade the Cannot Speak disadvantage to Disturbing Voice (modifying the cost of the Wild or Domestic Animal meta-trait if the animal has it). This represents an animal that can speak, but has trouble doing so. At TL10, Cannot Speak can be completely removed. A talking animal that lacks sapience (IQ 5-) can pick up or be taught individual words or phrases by rote, like a parrot, especially if it has (or was engineered with) Mimicry.

An enhanced voice box can also be created using surgery. The cost is $10,000 × (TL-8) where "TL" is not the current TL but rather the minimum TL required. Time is two weeks to change Cannot Talk to Disturbing Voice, or six weeks to for human-level speech. Metamorphosis nanovirus (p. 187) can also enhance a voice box.

Modified Posture

A species with legs can be modified from a Horizontal posture like a horse or dog to Semi-Upright like an ape or bear, or from Semi-Upright to an upright bipedal posture like a human. This requires modifications to the legs and spine, usually as a result of deliberate chimerization or a transgenic splice between two species, and goes hand-in-hand with other blended traits.

A change of Horizontal (or a meta-trait that includes it, such as Quadruped) to Semi-Upright, or of Semi-Upright to upright bipedal stance is TL9. Changing Horizontal to upright is TL10. Removing the Invertebrate trait is TL11. These modifications generally result in the loss of any Enhanced Move (Ground) and Extra Legs traits, but may replace No Fine Manipulators with Bad Grip.

An alternative (and somewhat cinematic) uplift for horizontal posture is to radically alter their body to create a centauroid form, which means they have Extra Legs but lack Horizontal or No Fine Manipulators. This requires TL11 for the addition of two extra limbs (as described for humans, p. 51).

These modifications can also be created using surgery. The cost is $50,000 × (TL-8), where "TL" is not the current TL but rather the minimum TL required. This takes eight weeks. Metamorphosis nanovirus (p. 187) can also make these changes.

Animal Modifications

These are some possible animal modifications that are not necessarily reflected in terms of advantages and disadvantages on a racial template.

Genetically Defective Vermin (TL8)

A form of biological control (p. 76), this is another method of reducing or eliminating pest species. Instead of relying on another species to target the pest as prey, the vermin themselves can be genetically engineered. This is the next step beyond releasing sterilized individuals to reduce the breeding population (which has been done using radiation to sterilize mosquitoes). The problem with that is that the next generation obviously doesn't descend from sterile adults and inherit sterility. By modifying the genes, gengineers can produce a dominant allele that spreads throughout the population over a few generations, and that provides a trigger that will kill all carriers of the gene. The trigger could be exposure to an otherwise harmless chemical – in effect engineering the species to be susceptible to a safe "pesticide" – or a genetic clock that self-triggers after a given number of generations.

A related method is to engineer the pests to stop them from engaging in the behavior that makes them pests. For example, boll weevils might be modified to lay their eggs on plants other than cotton, which could turn them from agricultural pests into relatively harmless insects.

Hormone-Reliant Species (TL8)

Any gengineered animal can have genes added to make them unable to produce some vital protein or hormone for themselves. These will then need to be supplied through diet or injections to keep the animal healthy. There are several reasons for wanting to do this.

If an animal is potentially dangerous or could adversely affect the local environment if it escaped, having a control like this on its ability to survive without human care could save environmental disaster, dollars, and even lives. A rare or otherwise desirable animal with this trait would be rendered pointless to steal, as any thief would have to have a supply of an expensive or unknown chemical to keep his prize alive. And finally, commercially supplied animals such as gengineered livestock could be given this modification simply to force consumers to buy expensive hormone supplies from the manufacturer.

Statistics: This gives the animal Dependency (Commercial hormone, Common; Daily) [-30], Dependency (Commercial hormone, Common; Weekly) [-20], or Dependency (Commercial hormone, Common; Monthly) [-10].

Hypoallergenic Pets (TL8)

The allergic reactions some people have to common pets is caused by specific proteins secreted by the animal's skin glands. The production of these proteins can be switched off, resulting in a pet that doesn't stimulate an allergic reaction. This adds $2,000 to the normal cost of the animal.

Pharm Animals (TL8/9)

At TL8, a pharm animal can be designed to produce blood products or exotic proteins that can be easily synthesized into drugs or vitamins, for only 10-20% of the cost of producing the drug in the normal laboratory fashion. Milk proteins might even be engineered to produce a biological explosive, causing (TL-4)d damage per lb.

At TL9 (or the drug's TL+1, whichever is higher) a pharm animal may be able to produce ready-to-use compounds, drugs, or even foodstuffs – for example, milk with health-enhancing or narcotic effects. If the animal can produce multiple different compounds, add +1 to the highest TL for two drugs or +2 for three or more.

Normally, pharm animal products cannot be delivered actively – the animal must be bled, milked, or whatever, taking several minutes. Animals produce one dose (or 0.1 lbs. of explosive) every four hours, storing a maximum of HP/2 doses until milked.

On the other hand, ready-to-use compounds such as poisons or narcotics might be able to be delivered by biting, spraying, scratching, or secretion. These can be built as Afflictions or Innate Attacks. A ready-to-use explosive can result in the animal being a biological bomb, set off when killed violently or by chemical or implanted electronic triggers.

At the GM's option, it may be impossible to produce some compounds using pharm animals, regardless of the TL.

Statistics: A pharm animal modification is a feature or perk, unless it lets the creature deliver effective drugs quickly and directly to someone else, in which case it's Affliction, Healing, Toxic Attack, etc. as appropriate. It's possible that pharm animal modifications will have severe side effects on an animal's metabolism, giving it various disadvantages (or even exotic advantages). Pharm animals cost more than normal members of their species by 200 times the usual cost of a dose of the drug or product. This is increased to 1,000 times the cost if the compound is ready to use without additional processing, or reduced to 100 times cost if the animal must be killed to retrieve the product.

Glowing Animals (TL9)

An early application of gengineering is to graft bioluminescence genes from bacteria into various animals. This is relatively simple and has already been used to create glowing fish and mice, but the luminance is low. By TL9, the glow can be bright enough to make this genemod attractive to some pet buyers; beyond simple novelty there is some value in having a cat that you can't trip over at night or a dog that is easily visible on a dark street. Road safety activists have also suggested that spreading this modification through wild populations of animals such as deer would reduce animal-related accidents. While true, ethical questions would be raised if the species depends on hiding to avoid predators. A glowing animal costs $2,000 more than normal.

Giant Animals (TL10)

Increasing the size of animals can turn them into useful beasts of burden (or war), and increases the efficiency of turning feed into meat. In many cases it is the *rate* of growth that is crucial, but if a rapid rate can be sustained for a longer time that naturally leads to larger adult livestock. Realistically, giant animals run into the same problems of scale as giant humans. Use the same rules as given on p. 63.

Miniature Animals (TL10)

On the other hand, reducing the size of an animal species could be desirable for several reasons. Smaller animals require less food and water (and less air in a life support situation). They are easier to control and move around, and in the case of large animals, less likely to injure people. Miniature versions of popular animals like elephants could also make interesting pets. To scale an animal down, use the same rules as for creating miniature human templates (p. 62).

Botanogenesis (TL12)

The reverse of zoogenetic plants (p. 81), this is a modification that causes mobile animals to have a sessile plant-like generation. This costs at least $100,000, and creates a normal animal with the feature that it reproduces by releasing plant seeds.

Sample Gengineered Animals

These Earth animals have been biomodified in ways that make them more useful to people. Animals may be purchased from a biotech company as embryos, as young or as adults. If a breeding pair (or herd) is acquired, they can be bred normally, provided they aren't sterile. Sterile versions of otherwise-fertile biomodified animals can usually be purchased at half cost or less.

A list of the major changes (in game terms) that each animal has undergone has been appended to the description, so that GMs can alter the templates to create other versions of the same species.

Cost

Domestic genetically modified animals usually cost up to 10 times as much as a baseline animal, depending on the degree of modification.

For sapient animals created with character templates, the same formula as genetically engineered humans (see *Life's Price Tag,* p. 65) can be used: $25,000 for eugenic modifications or $50,000 for species modifications, plus an additional $1,000 per character point the template costs if it is worth more than 0 points.

For non-sapient animals, modify the cost depending on the average racial IQ.

Racial IQ	*Dollar Cost*
IQ 1	×1/100
IQ 2	×1/10
IQ 3	×1/5
IQ 4-5	×1/2
IQ 6+	×1

The cost of genetically modified animals only applies if purchasing a new animal; if fertile, non-sterile animals are available, anyone might try breeding genemod species for themselves. If genemod animals are common, they might even displace original species and be found running wild. In some settings, *baseline* animals might only exist in zoos or as archived genomes in life banks, and cost $25,000-$50,000 for an "original"!

Doolittle Dolphin (TL10)

56 points

Navy's been using conditioned dolphins since the 20th century – and the program's been continuing, though under pretty deep cover, mostly out of PR concerns. Some corporate security outfits are also using them. Recon, mine detection, counter-diver missions and counter-terrorist security at oil rigs and such. This is the new generation. The D-model was packed full of cyberwear implants, but they were too easy to detect. This model's all gene-wear.

– Captain (ret.) Dana Martello, Marine Force Recon

Last year, Blue Shadow ecowarriors, with some inside help, raided the dolphin training farm at Pearl and liberated a couple of Doolittles before the Navy's conditioning process could be completed. Friend of mine in the Movement says one of the dops has joined up with the Shadow boys, but he isn't too stable.

– Aquagrrl, alt.ocean.development.korporate.otaku

Attribute Modifiers: ST+4 (No Fine Manipulators, -40%; Size -10%) [20]; DX+3 [60]; IQ-2 [-40]; HT+1 [10].

Secondary Characteristic Modifiers: SM +1; Per+2 [10]; Will+2 [10].

Advantages: Acute Hearing +4 [8]; Doesn't Breathe (Oxygen Storage 100×, -30%) [14]; Enhanced Move 1 (Water) [20]; Enhanced Tracking 1 [5]; Injury Tolerance (No Neck) [5]; Nictitating Membrane 1 [1]; Peripheral Vision [15]; Pressure Support 2 [10]; Sonar (Reduced Range 1/5, -20%) [16]; Temperature Tolerance 1 [1]; Ultrasonic Speech [10].

Disadvantages: Cannot Speak (Mitigated by computer interpreter, -60%) [-6]; Distractible [-1]; Hidebound [-5]; Innumerate [-5]; No Legs (Aquatic) [0]; No Manipulators [-50]; No Sense of Smell or Taste (Can taste, -50%) [-2]; Short Lifespan 2 [-20]; Social Stigma (Valuable Property) [-10]; Stress Atavism (12; Severe) [-20].

Features: Most have Broken literacy.

Availability: $106,000. LC4

People have long admired dolphins for their seeming intelligence, so they are a natural candidate for uplifting experiments, but their aquatic nature presents some unique problems. The Doolittle dolphin represents a first generation uplifted germline, in which the result is not yet ideal – the gross structural changes to the dolphin's brain produce near-human intelligence at the expense of instinct. Doolittles lack many basic behaviors of baseline dolphins and require assistance to live natural lives (they are incapable of the "half-sleep" of dolphins, for example, and cannot rest fully submerged or they will drown in their sleep). They do not interact well with baseline dolphins, but their brains are capable of processing human-style conceptual strings and forming meaningful sentences with them. With a translator that can interpret the ultrasonic part of their speech they can communicate easily with humans.

Doolittles are of course suited to working in water, but also adapt well to microgravity environments in space, as there is no danger of their lungs being crushed by their body weight. They require special "moistsuits" to prevent their skin drying out though.

Although not included in the template, substantial minorities of Doolittles experience severe personality disorders shortly after reaching maturity. The most common symptoms are combinations of Bestial, Bully, Manic-Depressive, Low Empathy, Paranoia, and Slave Mentality. These often manifest after an episode of stress.

Delphís: A refinement of the Doolittle dolphin germline, the Delphís (from Greek, plural Delphí) has further enhanced intelligence and fewer psychological limitations. Delphí can suffer the same personality disorders as Doolittles, but this is rare. To the Doolittle template: increase IQ to -1, decrease Perception to +1, remove Hidebound, Innumerate, and change Stress Atavism to (15, Mild) [-5]. *96 points* ($137,000).

Jagrilla Hound (TL10)

82 points

I'd heard the government was using cloned warbeasts against the insurgents, but I'd never seen one until the general brought his bodyguard to the cease-fire talks. It was like a 7-foot-tall gorilla, but with a jaguar's pelt, a canine muzzle and long, pointed ears. The eyes were the worst: glittering with intelligence not quite human. It wore combat webbing and cradled an M-22 assault cannon in its clawed hands. As I approached them, the warbeast sniffed the air and growled something to its master. I was afraid it could smell my fear.

– "War in the Andes," by Captain Dana Martello, ***Stars and Stripes****, Oct. '53*

Attribute Modifiers: ST+4 (SM +1, -10%) [36]; DX+2 [40]; IQ-2 [-40]; HT+2 [20].
Secondary Characteristic Modifiers: SM+1; Per+2 [10]; Will +2 [10]; Basic Move +2 [10].
Advantages: Acute Hearing +2 [4]; Claws (Sharp Claws) [5]; Combat Reflexes [15]; Discriminatory Smell (Emotion Sense, +50%) [23]; Fearlessness +3 [6]; High Pain Threshold [10]; Night Vision 3 [3]; Singled-Minded [5]; Super Jump 1 [10]; Teeth (Sharp Teeth) [1].
Perks: Fur [1].
Disadvantages: Appearance (Monstrous) [-20]; Bad Grip 1 [-5]; Bloodlust (12) [-10]; Disturbing Voice [-10]; Hidebound [-5]; Innumerate [-5]; Semi-Upright [-5]; Sense of Duty (Individual) [-2]; Short Lifespan 2 [-10]; Stress Atavism (12, Mild) [-10]; Unusual Biochemistry [-5].
Features: Sterile; most have Broken literacy.
Availability: $132,000. LC2.

This is a cross-species fusion of gorilla and jaguar, modified for enhanced IQ, a near-human voice box, and canine genes that give it a dog's Discriminatory Smell. Unintended defects are Monstrous, Sterile, Stress Atavism and Unusual Biochemistry.

K-10 (TL10)

-43 points

Attribute Modifiers: ST-1 [-10]; DX+1 [20]; IQ-4 [-80]; HT+2 [20].
Secondary Characteristic Modifiers: Per+6 [30]; Will+4 [20]; Basic Move +5 [25].
Advantages: Claws (Blunt Claws) [3]; Discriminatory Smell (Emotion Sense, +50%) [23]; Extra Legs (Four legs) [5]; Teeth (Sharp Teeth) [1]; Ultrahearing [5].
Perks: Fur [1].
Disadvantages: Chummy [-5]; Colorblindness [-10]; Hidebound [-5]; Innumerate [-5]; Quadruped [-35]; Sense of Duty (Individual) [-2]; Short Lifespan 2 [-20]; Sleepy (1/2 of the time) [-8]; Stress Atavism (15) (Mild) [-5]; Stuttering [-10].
Quirks: Responsive [-1].
Features: Most have Broken literacy.
Availability: $50,000. LC4.

These are semi-sapient, domesticated canines. They resemble large dogs or wolves, but their skulls are somewhat larger, with a higher cranium. Their voice boxes are modified to allow them to speak, although words have a strong, growling "canine accent."

Likely owners include rich people, police, customs agents, hunters, security agencies, farmers, and exploration teams. A K-10 would also make a good seeing-eye dog, but the technology base needed to create them can probably cure most forms of blindness. The armed forces might find neo-dogs useful for military police or rangers, often with added cybernetic or biomod enhancements.

The K-10 is produced by TL10 gengineering of canine stock. Significant modifications are increased IQ, and an enhanced voice box that reduces Cannot Speak (from the Domestic Animal meta-trait) to Stuttering. The only unintended defect was Stress Atavism. All the other advantages and disadvantages are native to canines.

Larger or smaller K-10 breeds are also possible, although further gengineering may lead to more disadvantages as well. A trained "attack dog" might have Bad Temper or even Bloodlust.

Monkey Plus (TL10)

-51 points

Attribute Modifiers: ST-6 [-60]; DX+3 [60]; IQ-3 [-60]; HT+3 [30].
Secondary Characteristic Modifiers: SM -4; Per+3 [15]; Will+3 [15]; Basic Speed +0.50 [10].
Advantages: Acute Hearing 2 [4]; Brachiator [5]; Extra Arm (No physical attack, -50%; Short, -50%) [2].
Perks: Fur [1].
Disadvantages: Chummy [-5]; Innumerate [-5]; Semi-Upright [-5]; Short Arms [-10]; Short Lifespan 2 [-20]; Sleepy (1/2 of the time) [-8]; Social Stigma (Valuable Property) [-10]; Stuttering [-10].
Features: Temperature comfort zone 55°-120°F.
Availability: $50,000. LC4.

Monkeys are engaging animals and would be popular pets if they were more tractable and easier to look after. This template represents various attempts to uplift small species such as capuchins or spider monkeys into suitable household companions. They make high-maintenance pets, requiring almost constant attention and social interaction; if they get bored they can be destructive. A crude but workable voicebox gives the Monkey Plus the ability to speak.

Neo-Coon (TL10)

-92 points

Missing: Two raccoons, aged 3 and 4 E-years. Gray fur, distinctive black mask marking over eyes, rings on tail. $10,000 reward for information leading to recapture. Please contact Macrotech@Fed.Net.Com.

"Let's see if I understand this. Two of our Doolittle Virus-enhanced Neo-Coons faked a stomach ache, lured you into the cage, took your tangler and glommed you to the wall. Now they're loose. Where would they go?"

"I don't know, sir. These ones were being trained by the Bureau for covert ops, but we hadn't completed indoctrination – there were some problems in training. Anyway, after they jumped me, they used the computer to send out e-mail, then wiped the system."

"Used the computer? How? We didn't modify their hands! They're supposed to look like ordinary raccoons!"

"Even normal 'coons have good grasping paws, sir. That was the whole point of using them. Our Neo-Coons can't talk, but they can type and use tools if they're sitting on their haunches. I just wish I knew who they were trying to get in touch with . . ."

Attribute Modifiers: ST-5 [-50]; DX+2 [40]; IQ-3 [-60]; HT+1 [10].
Secondary Characteristic Modifiers: SM -3; Per+4 [20]; Will+3 [15].
Advantages: Claws (Sharp Claws) [5]; DR 1 [5]; Night Vision 1 [1]; Super Climbing 1 [3]; Teeth (Sharp Teeth) [1].

Perks: Fur [1].
Disadvantages: Bad Grip -3 [-15]; Cannot Speak [-15]; Curious (12) [-5]; Horizontal [-10]; Short Lifespan 2 [-20]; Sleepy (1/2 of the time) [-8]; Social Stigma (Valuable Property) [-10].
Availability: $50,000. LC4.

These were modified for increased IQ +2 and to remove Wild Animal meta-trait (except Cannot Speak). All other advantages and disadvantages are native to raccoons.

Neo-Horse (TL10)

9 points

This is an uplifted saddle horse. It isn't sapient by any means, and can't talk, but it's as bright as a chimp and can do anything a "movie" horse can do, and then some. It also has a spleen engineered to produce enhanced, disease-fighting leukocytes.

Attribute Modifiers: ST+11 (No Fine Manipulators, -40%; SM +1, -10%) [55]; IQ-5 [-100]; HT+1 [10].
Secondary Characteristic Modifiers: SM+1 (3 hex); Per+7 [35]; Will+6 [30]; Basic Move+1 [5].
Advantages: Enhanced Move 1 (Ground Speed 12) [20]; Hooves [3]; Less Sleep 5 [10]; Peripheral Vision [15]; Resistant to Disease (+3) [3].
Disadvantages: Domestic Animal [-30]; Quadruped [-35]; Short Lifespan 1 [-10]; Weak Bite [-2].
Availability: $34,000. LC4.

These were modified for +2 IQ, +1 DX, and an augmented spleen. All other advantages and disadvantages are native to horses.

Wonder-Horse: This variant is more robust, can survive on just about any vegetable matter, and doesn't need shoes, making it ideal for colony worlds or anachronistic cavalries. Increase Basic Move to +3 [15], add Damage Resistance 4 (Feet only, -40%) [12], Reduced Consumption 1 [2], and Universal Digestion [5]. *43 points* ($78,000).

Octosap (TL10)

38 points

Octopuses are among the most intelligent non-mammalian aquatic creatures. I'm surprised that no one has attempted uplift before. I suspect these were surgically augmented, rather than truly gengineered, and I doubt they're much more intelligent than a dog. Still, a dog with tentacles? Interesting thought.

– DocIqbal, alt.ocean.development.korporate.otaku

Attribute Modifiers: ST-4 [-40]; DX+3 [60]; IQ-4 [-80]; HT+2 [20].
Secondary Characteristic Modifiers: Per+3 [15]; Will+2 [10].
Advantages: Chameleon 2 [10]; Constriction Attack [15]; Damage Resistance 1 [5]; Doesn't Breathe (Gills) [0]; Extra Arms (6; Extra-Flexible, +50%) [90]; No Neck [5]; Obscure 4 (Smell; Ink; Drifting, +20%; Limited Use, 4 per day, -20%; Link, Obscure Vision, +10%; Only in Water or Zero-G, -30%; Persistent, +40%) [10]; Obscure 10 (Vision; Ink; Drifting, +20%; Limited Use, 4 per day, -20%; Link, Obscure Smell, +10%; Only in Water or Zero-G, -30%; Persistent, +40%) [24]; Peripheral Vision [15]; Sharp Beak [1].
Disadvantages: Bad Grip 1 [-5]; Bad Sight [-25]; Cold-Blooded [-5]; Fearfulness 1 [-2]; Hidebound [-5]; Incurious (12) [-5]; Innumerate [-5]; Invertebrate [-20]; Mute (Mitigated by computer interpreter, -60%) [-10]; No Legs (Aquatic) [0]; Short Lifespan 2 [-20]; Social Stigma (Valuable Property) [-10]; Stress Atavism (Mild; 12) [-10].
Availability: $88,000. LC4.

The only change made to an ordinary octopus was to raise IQ. The only unintended disadvantage was Stress Atavism. All other advantages and disadvantages are native to octopuses.

Astropus: The *Octopus astra* (commonly called the astropus, or "vacsucker") is a TL11 upgraded model of the octosap designed for further increased intelligence and the ability to breathe air as well as water. In microgravity they can propel themselves through atmosphere by sucking in and expelling air. Increase to IQ-2 [-40], add Air Move -10 (Air speed 2) [-20], Amphibious [10], Doesn't Breathe (Gills, -50%) [10], and Flight (Costs Fatigue 1 FP, -5%; Requires Low Gravity 0G, -50%) [18]; delete No Legs (Aquatic) [0]. *96 points* ($146,000).

Space Cat (TL10)

-32 points

Order: One Felis domesticus, female siamese, with following genemods: augmented intestinal fauna, boosted brain, internal gravity web, jacked-up immune system.

"I had them grow Tarot for me after those parasite bunnies got into the fiber optics on our last run. With Tarot on the prowl, no xeno-rodent's going to run wild on my ship."

– Captain Zeke Morrigan, free trader Antares

Attribute Modifiers: ST-6 [-60]; DX+4 [80]; IQ-4 [-80].
Secondary Characteristic Modifiers: SM -3; Per+6 [30]; Will+5 [25]; Basic Move+4 [20].
Advantages: Catfall [10]; Claws (Sharp Claws) [5]; Combat Reflexes [15]; Improved G-Tolerance (1G) [15]; Night Vision 5 [5]; Reduced Consumption 1 (Cast Iron Stomach, -50%) [1]; Resistant to Disease (+8) [5]; Silence 1 [5]; Teeth (Sharp Teeth) [1]; Ultrahearing [5]; Vibration Sense (Air) [10].
Perks: Fur [1].
Disadvantages: Curious (15) [-2]; Domestic Animal [-30]; Quadruped [-35]; Short Lifespan 3 [-30]; Sleepy (2/3 of the time) [-16]; Stress Atavism (12; Mild) [-10].
Quirks: Proud [-1]; Responsive [-1].
Availability: $50,000. LC4.

The changes made to an ordinary cat were to raise its IQ and add Reduced Consumption (Cast-Iron Stomach), Resistant to Disease and Improved G-Tolerance. The only unintended disadvantage was Stress Atavism. All other advantages and disadvantages are native to cats, although the Vibration Sense has been augmented somewhat compared to a cat's normal ability to sense vibrations with its whiskers.

Ganesh (TL10)

51 points

Attribute Modifiers: ST+35 (No Fine Manipulators, -40%; Size, -30%) [105]; DX+2 [40]; IQ-2 [-40]; HT+2 [20].
Secondary Characteristic Modifiers: SM +3; Per+2 [10]; Basic Speed -3.00 [-60].
Advantages: Acute Hearing +1 [2]; Damage Resistance 4 (Tough Skin, -40%) [12]; Enhanced Move 1 [20]; Extra Arm (Extra-Flexible +50%; Long +1 SM, +100%; Weak, 1/4 ST, -50%) [20]; Less Sleep 4 [8]; Peripheral Vision [15]; Subsonic Speech [10].
Perks: Penetrating Voice [1].
Disadvantages: Cannot Speak [-15]; Chummy [-5]; Increased Consumption 1 [-10]; Innumerate [-5]; No Depth Perception [-10]; Quadruped [-35]; Slow Eater [-10]; Social Stigma (Valuable property) [-10]; Stress Atavism (12; Mild) [-10].
Quirks: Dull [-1]; Staid [-1].
Taboo Traits: Cannot Jump.
Availability: $101,000. LC4.

Ganeshes are uplifted Asian elephants. They are very intelligent, hardworking, patient, and affectionate toward their handlers. Effective beasts of burden, they can assist intelligently with forestry, land reclamation, or construction jobs. Note that the cost of the template is for a zygote engineered from scratch – naturally bred ganeshes are *much* less expensive.

Genetic engineering has reduced the size of the male ganesh's tusks until they are no longer effective as strikers (female ganeshes have no tusks at all). Other modifications raise the ganesh's trunk ST slightly, raise its IQ by 2 points, and removed the Wild Animal meta-trait (replacing it with less severe mental and social disadvantages). Side effects include Stress Atavism, some reduction in sensory acuity, reduced robustness, and reduced walking speed. All other advantages and disadvantages are those of wild elephants.

Cinematic Uplifts

The uplifted animal templates presented here tread a middle road between conservative and optimistic, and suit realistic settings. In more cinematic settings – or just at higher TLs – uplifts may equals (or exceed) of humans in terms of intelligence. To create a template for such a cinematic uplift, remove any IQ penalties and mental disadvantages as desired, adjusting the point total appropriately. If the template has a positive Perception modifier, adjust it downward by as many points as the IQ was adjusted upward.

Neo-Gorilla (TL10)

76 points

Discrimination at the construction site? Well – there were a few banana and Tarzan jokes when I started. Yes, ma'am, but we're used to them. Nothing nasty. No one wants to get their arms ripped off, see. Uh, that was a joke, ma'am. Of course I wouldn't do anything like that. I got along with the napes – I mean you humans – just fine. Uh, naked apes, ma'am. You humans. Bad habit I picked up, I admit. Yes, I won't use it again, ma'am.

Attribute Modifiers: ST+5 (SM +1, -10%) [45]; DX+2 [40]; IQ-2 [-40]; HT+2 [20].
Secondary Characteristic Modifiers: SM+1; Per+2 [10]; Will+2 [10].
Advantages: Arm ST +3 (SM +1, -10%) [14]; Brachiator [5]; DR 1 [5].
Perks: Fur [1].
Disadvantages: Chummy [-5]; Innumerate [-5]; Short Lifespan 1 [-10]; Sleepy (1/2 of the time) [-8]; Stress Atavism (15; Mild) [-5].
Quirks: Proud [-1].
Availability: $126,000. LC4.

Modifications make the gorilla's crude hands into human-equivalent ones (buying off Bad Grip 2), improve the voice box to human levels and adjusting the brain (removing Wild Animal and adding +2 to IQ). Side effects were mild Stress Atavism, and, due to the change in posture, a loss of the gorilla's higher-than-human Basic Move.

Neo-Pinniped

3 points

Attribute Modifiers: ST+3 (No Fine Manipulators, -40%; Size -10%) [15]; DX+2 [40]; IQ-2 [-40]; HT+2 [20].
Secondary Characteristic Modifiers: SM +1; Per+2 [10]; Will+2 [10].
Advantages: Acute Taste and Smell +2 [4]; Amphibious [10]; Combat Reflexes [15]; Enhanced Move 1 (Water) [20]; Doesn't Breathe (Oxygen Storage ×100, -30%) [14]; Pressure Support 1 [5]; Teeth (Sharp Teeth) [1]; Vibration Sense (Water) [10].
Perks: Fur [1].
Disadvantages: Chummy [-5]; Colorblindness [-10]; Horizontal [-10]; Increased Life Support [-10]; Innumerate [-5]; No Fine Manipulators [-30]; No Legs (Semi-Aquatic) [0]; Short Arms [-10]; Short Lifespan 2 [-20]; Social Stigma (Valuable Property) [-10]; Stress Atavism (12; Mild) [-10]; Stuttering [-10].
Quirks: Distractible [-1]; Dull [-1].
Features: Early Maturation.
Availability: $53,000. LC4.

A neo-pinniped is an uplifted sea lion. They are playful and independent creatures, but they can quickly learn to perform complex tasks and have meaningful conversation with humans. When not on duty, neo-pinniped groups are showing signs of developing a complex and alien culture of their own.

Genetic engineering has increased the sea lion's natural IQ by 2 and removed the Wild Animal meta-trait (replacing it with less severe mental and social disadvantages). A working voice box has been added, allowing the neo-pinniped to speak human language (indistinctly and with difficulty). Side effects include a loss of sensory acuity and mild Stress Atavism. All other traits are similar to those of wild sea lions.

Ursamorph (TL11)

31 points

"Bob, what did you do with my Ursamorphs?"

"Research program's finished, Judy. You did your part. Your bears can talk, manipulate things and they're mentally stable. Now we're in the next stage. They're at Fort Drum, with Henderson."

"Fort Drum? That's–"

"Combat training, Judy."

"You're teaching Uther and Terri to shoot guns? Bob, it's wrong! I designed the Ursamorphs to hibernate during the long voyage, then help build the Mars Base. They're space construction workers – astro-engineers!"

"Combat engineers, Judy. Get used to it. Mars Base is being trimmed. The program funding might be cut at any time, and we still haven't got a working space suit for them! But you should see the film from Fort Drum – an Ursa can hip-fire an assault cannon or a Snapdragon missile! Their fur even gives them good thermal camo. The Pentagon liked the Ursas. It's a big defense contract, Judy. Bigger than this Mars stuff."

Attribute Modifiers: ST+4 [40]; DX+1 [20]; IQ-4 [-80]; HT+3 [30].

Secondary Characteristic Modifiers: Per+4 [20]; Will+4 [20]; Basic Move +1 [5].

Advantages: Arm ST +3 [15]; Claws (Blunt Claws) [3]; DR 1 [5]; Metabolism Control 4 (Hibernation, -60%) [8]; Teeth (Sharp Teeth) [1]; Temperature Tolerance 2 [2].

Perks: Fur [1].

Disadvantages: Bad Grip 2 [-10]; Bad Temper (15) [-5]; Innumerate [-5]; Semi-Upright [-5]; Short Lifespan 1 [-10]; Sleepy (1/2 of the time) [-8]; Stress Atavism (15; Mild) [-5]; Stuttering [-10].

Quirks: Staid [-1].

Availability: $81,000. LC3.

The changes made to an ordinary black bear were to raise IQ, change No Fine Manipulators to Bad Grip, and modify brain and voice box to remove the Wild Animal template (but gaining Stuttering and Staid as disadvantages). The only unintended defect was Stress Atavism. All other advantages and disadvantages are native to bears.

Non-Sapient Animals

Animals unlikely to be suitable as possible player characters, allies, or dependents can just be described as animals (see p. B455). Here are two examples:

Pharm Goat (TL8)

ST 9; **DX** 11; **IQ** 3; **HT** 11.
Will 10; **Per** 12; **Speed**: 5.5; **Dodge** 8; **Move** 6.
SM 0; 100 lbs.

Traits: Chummy; Domestic Animal; Hooves; Pharm Animal (see below); Quadruped; Reduced Consumption 1 (Cast Iron Stomach); Unusual Biochemistry.

Skills: Jumping-12; Survival (Plains)-12.

A nanny goat, modified to produce components that can be used to make a single TL8 compound, such as infant formula, spider silk, a cancer vaccine, super steroids, an enzyme blocker, or maybe a wonder drug. Modifications were Pharm Animal (Must be milked). Unintended side effects were a reduction in HT and Unusual Biochemistry (compared to an average goat). $10,000, LC4.

Neo-Vampire Bat (TL9)

ST 1; **DX** 12; **IQ** 3; **HT** 10.
Will 10; **Per** 12; **Speed**: 5.5; **Dodge** 8; **Move 5 (ground)**.
SM -6; 0.1 lb.

Traits: Clinging; Discriminatory Smell; Flight (Winged; Air Move 10); No Fine Manipulators; Sharp Teeth; Sonar; Toxic Attack 2d (Cyclic, 1 day, 4 cycles; Follow-Up, Sharp Teeth; Resistible, HT-4); Wild Animal.

Skills: Brawling-12; Stealth-12; Tracking-12.

An example of an exotic bioweapon that might come out of an underground cyberpunk biolab, this transgenic vampire bat has been gengineered with poison sacs and a bloodhound's sense of smell. Capable of identifying and tracking down a specific target by scent and sonar, it is an exotic "black ops" weapon. $10,000, LC2.

Industrial and Research Animals

Some animals are modified for purposes other than usefulness as livestock or for enhanced intelligence. These are the industrial animals, who perform work that humans and their machines cannot do as conveniently. Some can even be used for warfare purposes.

Lab Mice (TL8)

These are mice that have been adapted to be genetically closer to humans, for use in lab experiments. Their statistics are identical to normal mice – i.e., inconsequential – but they can catch (and carry) the same diseases that humans can.

Cleaning Eels (TL9)

Exploring pipes to clear blockages is a messy job, and it becomes impossible if the pipe is too small to crawl through. Modified eels can do the job of slithering into a narrow pipe and locating the blockage. If it's organic matter, a cleaning eel can eat through it; otherwise it can be trained to trip a switch that turns on a radio beacon, or releases chemicals or nano to deal with the problem. Eels find applications everywhere from sewers to starship engines.

Construction Coral (TL9)

Corals of the genus *Acropora* grow rapidly, and can be the basis for gengineered versions that lay down limestone fast enough to be used for underwater construction projects. If irrigated with sea water to provide dissolved calcium and organic nutrients, such corals could conceivably accrete layers of limestone at up to half an inch per day. Although the limestone is strong, it is not solid, and contains small chambers and channels that can be colonized by other creatures to form a living structure, or filled with an organic polymer for extra strength. Once a structure has reached the requisite size, a synthetic hormone released into the water switches the coral into a slow-growth mode, in which it adds less than an inch of material per year. Maintenance can be carried out either conventionally or with a supply of various hormones to influence growth rate. Since the coral polyps need to reproduce in order to grow, the real cost is that of the hormones that promote rapid growth.

Self-Shearing Sheep (TL9)

Sheep can be modified to produce easily broken wool fibers at a particular time of year, so that all a farmer needs to do is pull the fleece off when the sheep are ready for "shearing." The only problem is that the sheep need to be penned at moulting time, so the fleeces aren't scattered in pieces across fields. Of course, the wool itself could be gengineered for quality, strength, and color.

Munition Mares, Guerrilla Goats, Bomb Bovines (TL9)

A milk-producing animal could be gengineered so that curd formed from its milk can, with minimal preparation, be formed into a stable and potent biochemical explosive. This is an exotic pharm animal; assume the milk or other products have an explosive REF 0.5 (about half as good as TNT). At TL9 they require minor additional processing (a day's work with common household chemicals); at TL10 they are "ready to use." LC2.

Bio-Bombs (TL10)

A creature may be gengineered into a "living bomb" that can actually blow itself up! Some creatures can actually have a solid-fuel skeleton and structural tissues. This is best acquired as the Fragile (Explosive) or Fragile (Flammable) disadvantage (p. B137) plus Easy to Kill (p. B134). The explosion is usually designed to take place if the creature dies violently, e.g., ramming into something, getting shot or run over, etc. Bio-bombs can also be fitted with chemical triggers or biochips that will activate hormones that arm the explosive after receiving a coded transmission, coming into contact with a particular target, or similar conditions. Take this as a Trigger limitation on either the Fragile or Easy to Kill disadvantages. LC2.

Symbiotic Parasites

Parasites provoke feelings of revulsion, but some could be turned to good use as companions performing important jobs. Before they can be made useful, however, many parasites need to be engineered to be harmless to the host, avoiding disease symptoms or annoying side effects such as itching. An important part of this will be rendering them sterile, so they cannot multiply in the host's body, or spread to other people who may not desire them. They should also take minimal nutrients from their host, and not produce any harmful or irritating wastes.

The best place for a beneficial symbiotic parasite is where most natural internal parasites live: the lower digestive tract. There, a creature can absorb nutrients from semidigested food rather than directly from the host's tissues, and waste products can be eliminated without being absorbed by the body. Being internal, it is also protected, and can't be accidentally removed or cause awkward social problems. Suitable starting organisms would be various parasitic worms.

What good could such a creature do? A drug factory (see *Pharm Animals*, p. 88) could produce useful or needed compounds; these can either be absorbed by the host's digestive tract or the parasite might inject them into a handy blood vessel. These could be a "wet biotech" approach to the idea of encapsulated cell implants (p. 120). A digestive symbiont could also provide some protection against ingested poisons; by absorbing and metabolizing them into harmless wastes, it could grant its host Resistant to Poison. Finally, a symbiont might attack any unwanted parasites that find their way into the host. All of these functions can even be combined into one highly engineered organism, at TL9.

Internal symbionts could also exist in other parts of the body, but there they would need to tap the host's bloodstream or tissues for nutrition. This may be acceptable if the symbiont is doing an important job. One with an electrical organ could monitor heart function and provide the same benefits as a mechanical pacemaker. Others might substitute for damaged sense organs or augment intact ones with additional abilities. Finally, a symbiont may be designed to interact with the host's brain, providing enhanced capabilities.

External symbionts can also do similar jobs. They can interact with things outside the body, and might keep the skin clean or detect toxic gases. Some symbionts may be partially embedded in the host, with external and internal structures. An externally visible symbiont may provoke a negative reaction from someone who sees it. On the other hand, in some societies having an expensive braincrab on the back of your skull might be a status symbol.

Statistics: In general, a symbiotic parasite could provide many of the same benefits as various biomods or implants, at the same TL or one TL higher. The GM should rule on what modifications are available as engineered symbionts; in some game worlds such modifications might *only* be available as symbionts. The same statistics will apply and the symbiont will cost a similar amount to the normal operation. A symbiont might be installed simply by swallowing a pill containing an egg; it will take a time to grow equal to twice the corresponding modification's surgery recovery time.

Parasite Weapons

Parasites can also be used for sinister purposes. Many don't even have to be modified. Fleas and ticks carry disease and cause misery to millions of people – they can simply be spread amongst enemies. If they carry designer germs (p. 116), so much the better.

Engineered parasites can be even more nasty. Internal worms might burrow through the host's body, seeking particular organs to infest and attack. This can result in anything from inefficient kidneys causing a slow illness to heart failure. More cinematically, parasites can attack specific cognitive regions of the brain, rendering the host pliable and susceptible to suggestion, amnesiac, or insane.

Attacks by parasite weapons make dramatic story opportunities, particularly when at first nobody believes the victims. Convincing a skeptical doctor that you need a brain-eating worm removed is difficult, but then it has to be followed up by the surgery!

> *You see, their young enter through the ears and wrap themselves around the cerebral cortex.*
>
> *– Khan,* ***Star Trek II: The Wrath of Khan***

BIOGADGETS

A biogadget is a living plant or animal that has been gengineered into functioning as a device or tool. Biogadgets may also be designed and created from whole cloth by biogenesis (p. 26). This type of technology is most common in cultures that possess advanced biotech, but lack advanced metallurgical and high-energy technologies (or the opportunity to develop them; e.g., a culture living underwater, inside a gas giant atmosphere, or on a metal-poor planet).

Biotechnology may also represent a deliberate choice for environmental or even aesthetic reasons). To foreign cultures, biogadgets may seem very alien, but they could perhaps be profitably traded. The creation of biogadgets generally requires TL10+ biotechnology.

The primary advantages of most biogadgets are self-maintenance and self-repair. They heal at the same rate as living organisms if damaged but not destroyed. They also require minimal maintenance if healthy. However, the GM could always rule that they can get sick or contract diseases.

EMULATING EXISTING TECHNOLOGY

Many technological items listed in ***GURPS*** books could potentially be biogadgets. Mostly, it's just a matter of changing their description – a strength-enhancing exoskeleton could be formed of living bones and muscle, a respirator might be a living creature that you breathe through, and a bug detector could resemble a snail with big antennae that hisses when it senses electromagnetic emissions. Biogadgets might communicate not via cables or radio, but by pheromonal signals.

At TL10, biogadgets will not be able to duplicate items with more than DR 15; most will be DR 0, like human skin. They also won't use energetic radiation emissions (like a beam weapon, force sword, or laser communicator) or have the structural strength of metals or ceramics. At TL11, bioceramics can constitute rock-hard parts suitable for cutting edges or combustion engines, but they will still be more brittle than metals.

Care and Feeding of Biogadgets

Depending on the specifics of design and function, biogadgets may require minimal care or careful pampering to keep them healthy and functioning. If possible, they will be designed to be robust, free of harmful parasites and diseases, and long-lived. When first introduced, these ideals are unlikely to be met, and gadgets will need to be protected from physical damage, temperature extremes, and other environmental hazards. Eventually this will be no more onerous than keeping sand and water off your MP3 player.

In general, the equipment damage and maintenance rules on pp. B483-485 can be used to cover the care of biogadgets. Most biogadgets do not have any form of Injury Tolerance, but they do have the advantage that they will heal themselves from anything other than permanent crippling injury. Supplied with enough nutrients, biogadgets heal at the same rate as humans (see p. B424). They can also be "repaired" using the rules for surgery and medical care (p. B424) *instead* of the rules for repairing artifacts (p. B484). The required skill is Physiology (Biogadgets), combined with Physician or Surgery.

All biogadgets need some source of energy, whether it be body heat or food. Ambulatory gadgets might find their own food, but some will need to be fed. This could be as simple as table scraps, or a special diet that has to be bought from a supplier. This can be the case if the gadget is a biogenetic organism with a biochemistry incompatible with human food, or if the manufacturer has included a dependency on some exotic hormone to ensure a revenue stream.

Creating New Gadgets

A biogadget doesn't use batteries or power cells for energy; instead, pick an option below. Sensible combinations are also allowed. Apply all cost multipliers to the cost of the regular, unliving version of that gadget. Options include:

Bioconvertor: The default is that the gadget ingests food and water. This will normally be anything a human could eat – table scraps will suffice. Gadgets might conceivably attach to a separate bioconvertor organism designed to consume food and produce chemically stored energy for it. Cost×1.

Body-Powered: This is available for gadgets that are worn next to the skin (or implanted), such as suits or goggles. The gadget is powered by the user's body heat, lives off bodily secretions, etc. It will cease working when not in contact with the user. Cost×2.

Nutrient Bath: The gadget absorbs nutrients through its skin. It will operate for half as long as an energy cell-operated gadget would, but then needs to be placed in a nutrient solution to recharge (takes at least eight hours). A nutrient solution pack can be emptied into any suitable container big enough for the gadget. A nutrient pack costs 10% of the cost of an energy cell and stays fresh for a month. Cost×2. *Fixed:* The gadget requires nutrients constantly and dies if removed from the bath; cost×0.5 instead.

Rooting: The device will operate for just as long as a power cell-operated gadget would, but then needs to be placed in moist, fertile soil for at least eight hours. It will uncoil roots and suck necessary nutrients into its body in order to recharge. Cost×3. *Fixed:* The gadget needs soil constantly and dies if uprooted; cost×1.5 instead.

Solar-Powered: The gadget's skin can convert light to electricity. It works constantly in sunlight or strong artificial light. In darkness, it can work for 1% of the duration listed for a normal gadget of the same type before running out of power. Cost×2.

Sample Biogadgets

Some of these biogadgets are highly modified animals, while others are artificial organisms created using biogenesis (p. 26).

Biofilter Canteen (TL9)

A relatively simple biogadget, this uses a living directional osmotic film (p. 111) to purify water of anything short of toxic waste. It holds a quart of water, and filters it clean in 30 minutes. The canteen needs to be exposed to sunlight a few times a week, but the filter never needs replacing. $380, 1 lb. empty, 3 lbs. full. LC4.

Fleshbed (TL10)

This is a biogenetic mass of flesh, tailored for spinal support and comfort. It's alive, warm, and you'll never want to leave. $7,500, 60 lbs. LC4.

Garbage Disposal (TL10)

This lives under the kitchen sink, digesting all organic scraps and excreting partially treated waste into the sewer. It might be biogenetic, or based on a small omnivore. $1,000, 8 lbs. LC4.

Skullcat (TL10)

This solar-powered living hat keeps the head warm. Its aphrodisiac purrs add +1 to Sex Appeal used on people who like cats, but drives others nuts. $500, 1 lb. LC4.

Smart Rug or Bathmat (TL10)

This slowly tugs itself across the floor, slurping up dirt, puddles, soap, hair, etc. ST 4, DX 2, IQ 1, HT 12; Move 1. $500, 4 lbs. LC4.

Squidpack (TL10)

This resembles a squat squid with four arms. It wraps its tentacles around the user's body and forces water out of its natural hydrojet for propulsion. The wearer's body tension guides the squid, but it takes practice to steer accurately (treat as a familiarity of Swimming; Aquatic and Amphibious users instinctively know how to use it). The pack provides Move 5 in water. It needs to be fed daily, but is happy with table scraps and vitamin supplements. $300, 10 lbs. LC4.

Biovehicles

Larger and more complex than most biogadgets, biological vehicles are different enough to merit discussion by themselves. Engineering an organism large enough to serve as a vehicle presents some unique problems. Biovehicles small enough to carry a handful of people on land are not beyond reason – horses and elephants perform that job well enough. But larger vehicles capable of traveling great distances need interior living spaces for long occupancy; this adds to overall size and means the vehicle needs significantly more structural strength to support its own bulk. For this reason, biovehicles capable of carrying internal passengers typically exist in the same environments as our largest mechanical vehicles: either in media that provide buoyancy such as water or air, or in the weightlessness of space.

Other traits will depend on the type of biovehicle and its intended mission. The most common types in science fiction are spacecraft, submarines, and airships.

Designing Biovehicles

As a living organism, a biovehicle is best designed by generating a racial template.

Attributes

Biovehicles are larger than man-sized, which means high Strength. The ST of a biovehicle depends on its size and mass. ST 3-6 per yard of longest dimension is a good rule of thumb.

DX, IQ and HT are usually in the 7-15 range. The exceptions are non-sentient vessels, like space trees, which often have DX 0 and IQ 0. It's suggested that attributes other than ST not exceed TL+2. Larger vehicles tend to have a lower DX but higher IQ.

Size Modifier and Weight

Size Modifier (SM) can be calculated from the specified dimensions and shape of the vehicle (see p. B19). A biovehicle's weight averages (ST × 0.5) cubed pounds.

Example: A 30-yard long bioship with ST 150 (a racial attribute modifier of ST+140) would have SM+7. It would weigh about 420,000 lbs. (210 tons).

Payload

The most important trait for biovehicles is Payload (p. B74), split between occupants and cargo. For significant usable space, 100 or more levels of Payload may be required. Biovehicles intended for long-term accommodation, such as bioships, will devote some of their payload to cabins.

Some bioships have building or even city-sized spaces inside them. A biovehicle's internal area will be about 1-4 hexes of floor or corridor space for every ton (2,000 lbs.) of internal Payload weight it can carry. Most ships have sphincters in their body that serve as airlocks, opening up to provide access to their interior.

Some interiors may be furnished capsules implanted into the ship, their interior little different from any other spacecraft. Others may be disturbing places, with warm, fleshy walls, pulsing internal organs, writhing cilia, and strong smells – after all, the occupants are inside an enormous creature!

Controls

A biovehicle may respond to commands like a trained animal, or have some form of implanted physical or biotronic system to allow its master to operate it. If it's sapient, commanding it is like giving orders to a subordinate.

If its crew can control its functions, give it the Compartmentalized Mind (Controls) advantage. If the vehicle *requires* a human at the controls to do anything, it should have IQ 0. Otherwise, crew members can give the ship orders and make decisions (e.g., Leadership, Strategy and Tactics skill) perform damage control (e.g., First Aid, Surgery and Veterinary skill), and man and maintain cybernetic implants, such as weapon turrets. Control of the latter can be handled via Compartmentalized Mind (Dedicated Controls).

Limbs

Many biovehicles have no arms or legs: take No Manipulators (p. B145) and No Legs (p. B145), or an appropriate morphology meta-trait (p. B263) like Ground Vehicle or Quadruped. Those that do have arms may have lots of insect-like arms, tentacles, or weapon mounts: take Extra Arms (p. B53) often enhanced with Extra-Flexible or Long, or limited with Weapon Mount.

Mobility

Enhanced Move (p. B52) is important for any high-speed vehicle. Biovehicles will have mobility traits appropriate to the environment they operate in, such as Flight (p. B56) and higher or lower Move (p. B17) traits in different environments.

Weaponry

Many bioships are unarmed, or have cybernetic weapons (see below) or psi powers. Some have natural weapons such as Claws (p. B42), Strikers (p. B88), or Teeth (p. B91). Biovehicles could also be capable of generating some form of biological weapon, often an electrical discharge, web, or corrosive digestive acid (which can also represent hungry symbiotic bacteria, enzymes, or nanomachines). Represent these through Affliction (p. B35), Binding (p. B40), or Innate Attack (p. B61).

Defenses

Biovehicles are usually thin-skinned compared to ultra-tech vehicles, but tough compared to normal organisms, with DR (p. B46) in the DR 5 to 200 range; tougher ships in superscience settings often have some sort of biological force field. Other common defenses include Chameleon skin (p. B41) and life support advantages such as Sealed (p. B82), depending on the environment they are bred to operate in. Many other advantages, such as Hard to Kill (p. B58) or Injury Tolerance (p. B60) may be appropriate depending on the original species and genetic engineering performed.

Internal Advantages

Special advantages can also be bought that apply to the *inside* of the biovehicle so that it can interact with its occupants and cargo!

A biovehicle is assumed to have no senses (except pain) or manipulatory ability inside itself. However, it can buy advantages to manipulate internal cargo or passengers, perform repairs on cybernetic implants and the like:

- Internal Arms or Strikers (1/5 the usual cost of an Extra Arm or Striker)
- Internal Hearing [4]
- Internal Sight [10]
- Internal Speech [5]
- Internal Taste and Smell [1]

Enhancements to internal senses (e.g., Internal Discriminatory Smell), new internal senses (e.g., Internal Radar), and internal weapons (e.g., Internal Toxic Attack) are also available at 1/5 the usual cost. The reduced cost is not a limitation – these are different advantages, and actual limitations and enhancements can be applied on top of internal advantage point costs. For example, to create "horror" bioships with the bad habit of accidentally digesting passengers (or intruders), buy Internal Extra Mouth

(p. B55) or Corrosion Attack (p. B61) at 1/5 cost, then apply the Uncontrollable (-30%) limitation.

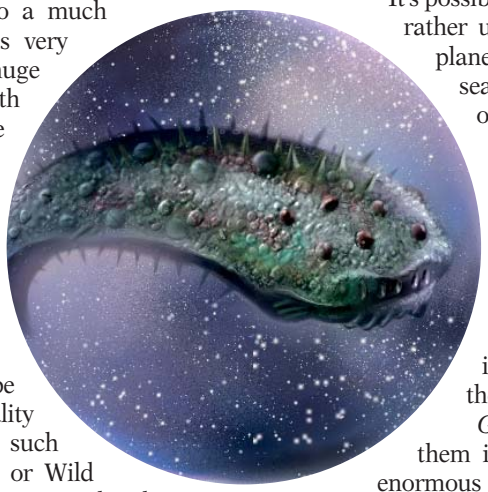
All of these costs assume the internal advantage is usable anywhere within the bioship. If it can only reach certain areas, this is a -50% limitation.

Appearance

A biovehicle might be no more frightening than any large, alien animal, or even be attractive or cute . . . but grotesque constructs with Appearance (Monstrous) (p. B21) are common. A biovehicle's *insides* may be quite different: Biovehicles may take Internal Appearance or even Internal Bad Smell at one-fifth the normal cost.

Transformation

In cinematic campaigns, especially those inspired by Japanese anime and manga, a biovehicle may possess the ability to transform into a much smaller "mundane" form. This is very convenient, since it allows a huge space battleship to hang around with other PCs. Buy this as Alternate Form (p. B83)). The best fictional example of such a vessel is Ryo-Ohki, from the Japanese anime series *Tenchi Muyo* and its sequels.



Status

Biovehicles may or may not be sapient; many have Slave Mentality (p. B154) or mentality meta-traits such as Automaton, Domestic Animal, or Wild Animal (p. B263). They are often considered property or subhuman: Social Stigma (Monster, Subjugated, or Valuable Property) (p. B155) are likely.

Spacecraft (Bioships)

Bridge, this is Falcon Two. I have a visual on the alien ship, and – you're not going to believe this, captain, but it's shaped like a giant eel, only covered in spines! Sort of an organic-looking hull, but with metallic blisters that look like turrets embedded in it. The vessel is now turning toward me – is that a mouth? My God, these things are alive!

– Lt. Majid Asad, U.S. Space Navy

The biological spacecraft may be the most exotic example of biogadget technology in science fiction. A bioship is truly alive, as opposed to ships that use only a few living, organic parts (such as a cyborg brain) or whose organic components are dead, such as wooden or plastic spacecraft.

Living ships are the result of taking a large alien life form (or less often, a big terrestrial creature), then using bioengineering to adapt it to serve as a space vessel. Often, they have been gengineered to make them even larger, by modifying their genes to increase growth hormone production.

The advantage of gengineering organisms as spaceships, rather than as water, ground, or air vehicles, is that it is easier to grow things to huge sizes in zero gravity. They may also be created by a race living on a metal-poor world, or to take advantage of existing qualities of the animal, such as psionic powers.

While a living ship's body is, by definition, primarily biological, it may also be a cyborg, possessing inorganic systems that are grafted onto it. The TL required to create living ships depends on how much modification is needed to transform the original organism into a vessel; usually, the degree of genetic manipulation required is TL11+ and often requires superscience.

A suitable organism should be large (at least several tons in weight) and tough enough to hold pressure or atmosphere. It may or may not be intelligent. Ideally, it should also possess an organic space-propulsion system, but this may be too much to hope for in a "hard-SF" setting.

It's possible to have a humanoid bioship, but that's rather unlikely. More often, bioships resemble planetoids, streamlined whales, eels, spined sea-beasts, spider-crabs, or even trees. Ship organisms in science fiction usually tend to fall into one of these categories:

Atmosphere Dwellers are alien life forms that resemble giant balloons or blimps (sometimes with tentacles). They might be found on any world with a dense atmosphere, including gas giants. Since they can already hold an internal atmosphere, they have some of the traits needed in a spaceship.

Giant Trees are bioengineered to adapt them into spaceships, and may be grown to enormous sizes in zero-G, inside greenhouse habitats or amid the life-giving gases of comets.

Marine Dwellers are huge, deep-sea animals like whales or – on a simpler level – coral reefs. The ability of underwater beasts to grow to great sizes and adapt to extremes of pressure makes them well-suited for use as bioships. While the actual use of Earth cetaceans might be impossible (or unethical), alien worlds might possess suitable whale-sized or larger beasts, perhaps possessing additional useful traits like tough shells, tentacles or even bioelectric organs.

Vacuum Dwellers are natural spacefaring creatures, sometimes even possessing their own form of organic stardrive. Some spacefaring life may be too fragile or diffuse to make a good ship (living solar sails, plasmas, or gas clouds without extensive changes). Other types might require only minimal modification.

Biomechanoids may have started out as any of the above, but have been turned into living machines. Protein-based components are used to create pseudo-alive controls, space drives, computers and other systems. In some types, the ship's body plays host to smaller, specialized organisms – a communicator-creature, a drive-creature and so on – all fused into one entity.

Propulsion systems for bioships may be mundane abilities, such as expelling internal gases for thrust or deploying a living solar sail. High-speed propulsion might

be achieved through biomechanical or cybernetic space-drive implants – or even psi powers, such as a form of psychokinesis or teleportation that can move the ship, perhaps at faster-than-light speeds.

A bioship is normally somewhat cheaper than an equivalent spaceship, reflecting the fact that bioships can be bred or cloned. It can usually heal itself and requires little or no fuel or maintenance. However, it is generally more delicate (with less DR and fewer hit points) than inorganic vessels of similar size. Flesh is easier to damage than machinery.

To survive in space, a bioship should have Doesn't Breathe (p. B49), No Degeneration in Zero-G (p. 211), Radiation Tolerance (p. B79), Sealed (p. B82), Temperature Tolerance 50 (p. B93), and Vacuum Support (p. B96). Reduced Consumption (p. B80) helps during long voyages.

Space travel requires Flight (with space flight enhancements) (p. B56) and often Enhanced Move (Space) (p. B52). Superscience designs often have Warp (p. B97). 3D Spatial Sense (p. B34) is likely for any entity that evolved or was designed for spatial navigation.

Resistant to Acceleration (p. B81) is useful for craft capable of extreme maneuvers.

To detect and communicate in space Enhanced Tracking (p. B53), Infravision (p. B60), Protected Vision (p. B78), Scanning Sense (Radar) (p. B81), Telecommunication (p. B91) and Telescopic Vision (p. B92) are all useful.

Bioships often have No Legs (Aerial) (p. B145) and sometimes No Fine Manipulators or No Manipulators (p. B145). Those that do have manipulators often have Extra Arms.

Some bioships are wispy constructs – such as living light sails or magnetic sails – that cannot survive significant gravity fields. These have much lower ST than their SM indicates, Injury Tolerance (Diffuse) (p. B60), and Weakness (Gravity) (p. B161).

Sample Bioship: Voidshark (TL11^)

1,564 points

Attribute Modifiers: ST +90 (No Fine Manipulators, -40%; SM +10, -80%;) [180]; DX+1 [20]; IQ-3 [-60]; HT+3 [30].

Secondary Characteristic Modifiers: Per+3 [15]; Will+4 [20].

Advantages: 3D Spatial Sense [10]; Chameleon 4 (Extended, Radar and Infrared, +40%) [28]; Combat Reflexes [15]; Compartmentalized Mind 1 (Controls) [25]; Corrosion Attack 30d (Costs Fatigue, 2 FP, -10%; Takes Recharge, 5 seconds, -10%) [240]; DR 100 (Can't Wear Armor, -40%) [300]; Doesn't Breathe [20]; Enhanced Move 17 (Space) [340]; Enhanced Tracking 2 [10]; Extra Arms (Eight arms; Weapon Mount, -80%) [16]; Flight (Space Flight, +50%) [60]; Hyperspectral Vision (Extended Low-Band, +30%) [33]; Internal Corrosion Attack 5d [10]; Internal Hearing [4]; Internal Taste/Smell [1]; Internal Speech [5]; Payload 100 [100]; Peripheral Vision [15]; Pressure Support 1 [5]; Protected Vision [5]; Radiation Tolerance 10 [15]; Reduced Consumption 3 [6]; Resistant to Acceleration (+8) [10]; Sealed [15]; Special Rapport [5]; Spines (Long Spines) [3]; Teeth (Sharp Teeth) [1];Temperature Tolerance 50 [50]; Vacuum Support [5]; Warp (Blind, +50%; Hyperjump, 1 light-year/day, -25%; Naked, -30%; Reliable +3, +15%) [110].

Perks: Accessory (Airlock), No Degeneration in Zero-G [2].

Disadvantages: Bad Temper (12) [-10]; Electrical [-20]; Internal Appearance (Hideous) [-3]; Overconfidence (12) [-5]; Sense of Duty (Individual) [-2]; Vermiform [-35]; Wild Animal [-30].

Features: Sterile.

Availability: $1.4 million. LC3.

The Voidshark was once a water creature similar in mentality to a whale, but resembling a giant electric eel, with a tough, spiky hide, a mouth full of sharp teeth, and corrosive digestive venom similar to battery acid. Centuries of genetic engineering transformed it into a biomechanical construct.

A typical adult Voidshark is 100' long, 10' wide, and 10' high, and masses 125,000 lbs. Its skin has been toughened to resist vacuum, and internal pockets have been added to provide room for occupants and cargo. Its electrical abilities and digestive enzymes have been enhanced to provide power to internal mechanisms as well as serving as weapons. A family of superscience symbiotic bio-mechanoid organisms – a communicator beast, life support beast, reactionless drive beast, etc. – have been implanted into its body to give it extra capabilities.

All these modifications have left the Voidshark sterile – and bad-tempered. It is controlled by internal mechanisms and a pilot who provides strategic direction and can take over control of some functions. For best results, Voidsharks must be raised from birth by a particular pilot (usually a child), who they are fiercely loyal to. The Voidsharks share a pseudo-empathic bond with their pilots.

The interior of the Voidshark is not pleasant; it is filled with pulsing organs, dripping ichor, and odd smells. It has an airlock, several corridors and internal compartments (25 hexes worth). Assuming average ST and Basic Lift, its Payload 100 gives it 20,000 lbs. of internal capacity, split into six cabins (12,000 lbs.) and 8,000 lbs. of cargo space.

Voidsharks can fight at close range by spitting corrosive nano-augmented digestive enzymes. For longer range combat their weapon mounts are equipped with missiles or other weaponry (which must be purchased as equipment; this is not included in their template). This is usually operated by the crew member rather than the Voidshark.

Airships (Bioblimps)

These remain buoyant due to hot air or hydrogen in internal sacs. They may be propelled by gas vents, wings, or cybernetic implant propellers or jets, or they may simply drift in the wind. Some models have manipulatory ability – for instance, alien gas-secreting glands might be combined with cetacean or squid/octopus morphology and neural structures to develop tentacles for picking up cargo or mooring. Trunk-like tentacles could even siphon water for ballast, or to drink.

Due to the size of the gas bag, bioblimps will have a very large volume relative to their weight. This means they usually have only have ST 1-2 per yard of diameter, sometimes less. Calculate their weight from their ST as usual (ST/2 cubed).

They have Flight (Lighter Than Air) (p. B56) and sometimes a level or two of Enhanced Move (Air) (p. B52). Common disadvantages are Fragile (Flammable) (p. B137), Invertebrate (p. B140), and No Legs (Aerial) (p. B145). Some bioblimps have Slow Eater (p. B155).

Water Vehicles (Biosubs)

These are gengineered water creatures, usually propelled by flippers, a fluke or tail, or a squid-like jet. These are the most plausible type of biovehicle.

Biosubs should always have Doesn't Breathe, often with the Gills limitation (p. B49). They will need either Amphibious (p. B40), No Legs (Aquatic or Semi-Aquatic) (p. B145), or the Ichthyoid meta-trait (p. B263), usually with Enhanced Move (Water) (p. B52).

They will have Pressure Support (p. B77) for deep dives. To keep the payload from getting wet, they may have Sealed (p. B82). Other useful advantages include Chameleon (p. B41), Nictitating Membrane (p. B71), Peripheral Vision (p. B74), Reduced Consumption (p. B80), Sonar (p. B81), Speak Underwater (p. B87), and Vibration Sense (Water) (p. B96). Naval biosubs often possess tentacles in the form of Extra Arms or Strikers and electrical Innate Attack (Burning or Fatigue) (p. B61). They can sometimes hide themselves using ink jets; this is Obscure (Accessibility, Only in Water, -30%) (p. B72). Small, fast drones can be used as torpedoes.

> *Natural species are the library from which genetic engineers can work.*
>
> *– Thomas E. Lovejoy*

Other Considerations

The range of possible traits for biovehicles is nearly infinite, especially since they are often gengineered from alien organisms or created by biogenesis. Anything possible for an alien race, animal, or cyborg is possible in a biovehicle.

Drones

Biovehicles occasionally contain organic drones – perhaps natural parasites that have been engineered into symbiotic life forms, or specialized "children" created by the vehicle itself. These often help keep the ship's insides clean and perform repair duties, and may also enable the ship to interact with human crew. Combat-capable drones could serve as a "macroscopic" immune system to repel boarders. A biovehicle may also carry much smaller drone bioships as shuttles, fighters, or even kamikaze missiles.

Drones may be acquired as Allies (p. B36). They are characters with their own racial templates.

Drones may or may not be sapient, but even highly intelligent drones often lack initiative. Common traits include Automaton (p. B263), Domestic Animal (p. B263) traits, Sense of Duty (p. B153) to their vehicle, and Slave Mentality (p. B154).

Some drones are physically rooted to part of the vehicle – depending on their degree of initiative these could just be bought as additional advantages plus Compartmentalized Mind to control them, or as separate Allies with No Legs (Sessile) (p. B145).

Drones are often caste-species optimized for specific jobs, with inborn Talents or racial skills. Mental disadvantages will also reflect this: drone warriors often have Bloodlust (p. B125), workers have Workaholic (p. B162), etc.

Sapient biovehicles can sometimes take over, communicate with, or interrogate their drones using advantages such as Mind Control (p. B68), Mindlink (p. B70), Mind Probe (p. B69), Possession (p. B75), Puppet (p. B78), Special Rapport (p. B88), and Telecommunication (p. B91). This need not represent any paranormal powers – depending on the biovehicle's nature, it might instead require physical contact between the biovehicle and the drone, a cloud of pheromones or other chemicals, or radio control.

Good fictional examples of bioship drones appear in George R. R. Martin's *Wild Cards: Aces High*, Walter Jon Williams' *Angel Station*, and Bruce Sterling's *Crystal Express*.

Cybernetics and Implants

Various weapons and gadgets could be cybernetically implanted into a biovehicle – see Cybernetics (p. B46) and Accessory (p. B100). This is a good way to give a vessel technology capabilities that transcend those plausible for biological systems. It may be a lot easier to implant a cybernetic radio, a radar, or laser into a biovehicle than figure out a way to bioengineer one!

Cyborgization could cause health problems if the implants are not entirely biocompatible (resulting in slow tissue rejection or infections), or leak radiation or toxic chemicals. This may lead to disadvantages like Chronic Pain (p. B126), Dependency (p. B130) on anti-rejection drugs, Slow Healing (p. B155), or Terminally Ill (p. B158).

Tech Level

Biovehicles are usually at least TL11, but might be available at a considerably lower TL if an alien organism that is especially easy to adapt into a vehicle can be utilized. If so, the gengineering required varies widely, especially since exotic advantages (e.g., DR and Flight) may be innate to the species – this is why no TLs are assigned to them.

If GMs want to use the gengineering rules to "game out" the design of a bioship, use the general guidelines for gengineering animals – that is, come up with the original species template, then apply modifications to it. Assume that any bioship advantage/disadvantage not native to the species and not mentioned elsewhere requires TL12.

Purchase Price

Bioships may be priceless, but if they can be easily cloned or bred, a good way to estimate purchase price is to multiply final point cost by $1,000 (and add the price of any cybernetics). If bioships are much harder to produce (perhaps they must be captured wild and surgically modified), multiply the cost by a factor of 10 or more.

BIOBUILDINGS

Buildings can be grown using bio-nanotech. At TL10, the result is an empty, unfurnished building with an exotic organic shape and texture, perhaps suggestive of coral, chitin, a seashell or a beehive. At TL11+, the building can be alive, with self-healing (perhaps even edible!) walls, mutable rooms that can change color, scent, or texture on demand, and floors that extrude living furniture. It could even be chemically persuaded to resume its growth when more stories are needed. (This cuts both ways, though: a growing or live building might be vulnerable to biochemical attack.) A bio-nanotech "seed" costs about one-tenth what the resulting building would cost to build conventionally. Growth takes (seed cost/1,000) hours.

A near-sapient or sapient "living building" should be created like a biovehicle (p. 96), but without movement abilities; use the No Legs (Sessile) disadvantage (p. B145). Being sessile, a biobuilding may have almost any amount of occupiable internal space without needing the Payload advantage. If it has arms, they are usually only internal ones. Many living structures have a more rectangular, squat construction than biovehicles.

Sapient Building (TL12)

83 points

Yes, children, that cross-shaped building is our very own Dr. Raymond Garcia. His parents were Neo-Christian Hyper-Evolutionists, which is why he is a sapient biomass. Dr. Garcia is very clever, with six basic patents in his field just this year. Of course, we shouldn't be surprised, because his brain has a surface area the size of our swimming pool. Now, when we visit, we'll have to change and spray first, because Dr. Garcia doesn't want us tracking our germs inside his body.

– Carmen Ortega, schoolteacher

Attribute Modifiers: ST 0 [-100]; DX 9 [-20]; IQ +3 [60]; HT+1 [10].

Secondary Characteristic Modifiers: HP +100 (SM +6, -60%) [80]; SM+6.

Advantages: 360-degree Vision [25]; Doesn't Breathe (Oxygen Absorption, -25%) [15]; DR 10 (Can't Wear Armor, -40%) [30]; Extra Mouth 4 [20]; Hyperspectral Vision (Extended Low-Band, +30%) [33]; Injury Tolerance (No Head, No Neck) [10]; Internal Extra Mouth 3 [3]; Internal Hearing [4]; Internal Discriminatory Smell [3]; Internal Taste/Smell [1]; Internal Speech [5]; Unaging [15]; Universal Digestion [5].

Perks: Accessory (Airlock) [1].

Disadvantages: Increased Life Support (Massive) [-10]; No Manipulators [-50]; No Legs (Sessile) [-50]; Unusual Biochemistry [-5]; Weak Bite [-2].

Features: Weighs about 62 tons.

Availability: $1 million. LC4.

Here's a sample "living building." In Dr. Garcia's case, the goal was to produce a "new evolutionary stage" for humanity. He is a cross-shaped living building about 10 yards across. His interior is divided into several rooms, some containing major organs.

Gaia: Planet-Sized Organisms

If we can build a living building or vehicle, why stop there? How about a living planet?

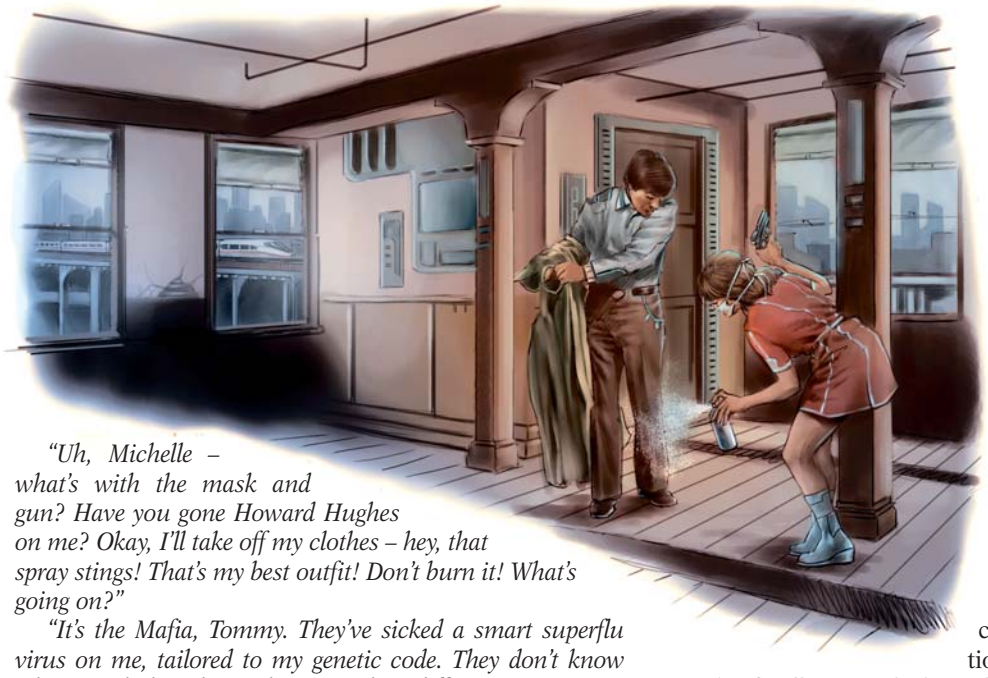
This may seem incredible, but it has some precedents in James Lovelock's *Gaia Hypothesis*: that all the living matter on Earth functions effectively as a single large organism, making changes to the inorganic structure of the planet as well, in order to preserve its own existence. This is more a matter of descriptive interpretation than anything else. While the Earth is a complex system that consumes sunlight, reproduction – one of the hallmarks of life – has not occurred to our knowledge. This may change if we begin colonizing other worlds!

Building a planet-sized organism runs into the problem that its gross structure would be dictated by gravity. It would be very nearly spherical, and its innermost parts would be under intense pressure. A more promising approach would be to use a terrestrial planet as a core and create a living shell around it. This is not even really cheating – take away the non-living material of our skeleton and see how well we survive!

A single planetary organism would get energy in the form of sunlight, take in whatever atmosphere is around it, and digest the rock beneath it. It might be able to reproduce, if it could somehow reach another planet. But perhaps that's not a requirement for whoever designed it. Such a being might even conceivably evolve naturally.

One possible application of a living planet would be terraforming – converting a dead world into something that other species can live on. Building a civilization on a living creature that maintains the atmosphere in a nice condition is preferable to eking out an existence in a domed city on a hostile rockball.

Chapter Four
Microorganisms



"Uh, Michelle – what's with the mask and gun? Have you gone Howard Hughes on me? Okay, I'll take off my clothes – hey, that spray stings! That's my best outfit! Don't burn it! What's going on?"

"It's the Mafia, Tommy. They've sicked a smart superflu virus on me, tailored to my genetic code. They don't know where I'm hiding, but it doesn't make a difference. Anyone in town could be a carrier – you, the dog, the landlady – it's not important, 'cause it won't do a thing to them. It has my name on it."

Microbes range from simple bacteria to more complex algae and fungi (such as yeasts and molds). They are living chemical factories, taking in specific raw materials and converting them into the proteins their metabolisms require.

The advantage of gengineering microbes is that their simplicity and short generation length enable projects to proceed on a scale of months rather than years. Once microbial products have been developed, industrial biotech processes enable them to be cultured in giant fermentation vats that can hold thousands of gallons. With the right nutrients, such a biomass can grow very quickly, increasing its total mass eightfold every hour!

Types of Microorganisms

The terms *microorganism* and *microbe* are interchangeable, and in common use refer to living organisms too small to be seen with the naked eye. A more useful definition is a unicellular organism. Despite a few colonial species being microscopic and some single-celled protozoa being just large enough to be visible, this definition provides a coherent group of organisms, which come in several different types. At the grossest level they can be classified into *eukaryotes*, *bacteria*, and *archaea* – see the box *The Domains of Life*.

Protozoa

Protozoa are single-celled eukaryotes that exhibit some characteristics we consider animal-like, such as movement and ingestion of food. Most cannot produce their own food through processes such as photosynthesis. They come in several varieties, usually classified by means of locomotion: flagellates which move with a whip-like tail, ciliates with a coat of beating hairs, amoeboids with their extending pseudopods, and non-motile parasitic forms. Protozoa are common in fresh and salt water, as well as soil, playing an important role in the recycling of nutrients. Parasitic protozoa cause malaria, cryptosporidiosis, and other important diseases.

As gengineering subjects, protozoa offer relatively little raw material, since they ingest food rather than producing it and do not actively decompose matter. Parasitic types may be the best bet, for germ warfare applications.

Algae

Microscopic algae are the plant-like equivalents of protozoa – single-celled eukaryotes capable of producing carbohydrates from water and carbon dioxide with chlorophyll. Some algae grow into large multicellular organisms, most notably seaweeds, but the unicellular varieties are overwhelmingly more varied and abundant. They form the largest biomass in the seas – the phytoplankton – which produces most of the oxygen we breathe and forms the basis of vast food chains.

The Domains of Life

Life on Earth can be divided into three main categories of organism based on fundamental properties. Whereas previous generations classified living things into plants and animals, we now know that these organisms, as well as fungi such as yeast, are more closely related to each other than either is to a bacterium. Fungi, plants, and animals are all *eukaryotes*, organisms that possess a clearly defined nucleus, as well as organelles and DNA introns. *Bacteria* form the second main division; they are distinguished by a lack of any nucleus, organelles, and introns. The third major division of life only became known in 1977, when Carl Woese showed that certain organisms without nuclei had different DNA transcription and translation processes than bacteria. This group, known as the *archaea*, have cell chemistry and flagella structures unlike those of bacteria and eukaryotes.

Organelles

One of the major differences between the domains of life is that eukaryotes possess miniature, organ-like parts called "organelles."

Organelles are located outside the cell's nucleus, and perform specialized tasks, much like our body's organs. For example, the mitochondria are bundles of rod-like organelles where vital, energy-releasing chemical reactions take place. These energy factories consume oxygen to break down sugars and acids, then capture the resulting energy for the cell's use. Other types of organelles include plastids (organelles where photosynthesis takes place in plants) and undulipodia (whip-like bodies found in the tails of sperm).

Organelles resemble tiny bacteria – in fact, they possess minute amounts of their own DNA and RNA. In effect, they have their own tiny genomes. A growing body of recent evidence suggests that in the distant past, organelles were originally free bacteria, but were engulfed by other bacteria and incorporated into them as symbionts. Our genetic code seems to show that it was this evolutionary leap that transformed simpler organisms into the more complex eukaryotic species, enabling them to evolve into plants and animals.

Organelles – specifically, the mitochondria – have helped scientists study the way species have evolved. When an organism reproduces sexually, the sperm and egg unite to combine the mother's and father's genetic information.

However, the sperm only carries a nucleus – it doesn't transmit any of the father's mitochondria, which are outside the nucleus. This means that mitochondrial DNA is passed on only through the mother. By measuring the rates of genetic mutation over generations – which, in the simple genome of mitochondria, are remarkably regular – it is possible to get estimates as to how old a particular species is, and at what point it diverged from other, related species.

In 1987, a team of scientists used this "mitochondrial clock" to develop the "Eve" theory. Study of different human populations allowed them to calculate an average mutation rate for human mitochondria, and they used that to conclude that the ancestor of all surviving mitochondrial DNA types existed around 200,000 years ago (in Africa, based on fossil evidence). This doesn't imply there was only one human female – only that, of several thousand early humans, only one particular African genetic line has survived.

The "Eve" theory is controversial, and there are questions about the accuracy of the statistics used in the calculations. Nevertheless, as our knowledge of genetics improves, this kind of genetic analysis may prove to be a valuable tool in measuring the way species evolve.

Algae offer the twin benefits of producing food and oxygen, so they can be useful for biotechnologies requiring these resources, from feeding an overcrowded world to preparing a breathable atmosphere on a new one.

Fungi

Fungi are eukaryotic organisms unlike animals or plants. They grow in forms resembling plants, but are incapable of manufacturing food; instead, they secrete enzymes that break down organic materials, which they then absorb. They thus play the role of decomposers in an ecology, or sometimes parasites. Many fungi form visible threads and reproductive bodies (mushrooms), but other important ones such as yeast are unicellular.

Microscopic fungi are good candidates for use as chemical processors, with their ability to break down complex molecules. They can also be used for biological warfare.

Bacteria

A *bacterium* is a single-celled microscopic organism, of which there are countless different species. Bacteria are the simplest forms of life, capable of rapid reproduction by dividing to form more bacteria.

Bacteria are generally smaller than eukaryotic organisms. Many species are capable of becoming dormant if environmental conditions are unfavorable, forming an impervious skin and turning into spores, which are capable of reviving when conditions improve. They can survive this way for hundreds – maybe thousands – of years. It is in this spore form that some disease organisms (e.g. anthrax spores) are be transmitted.

Bacteria are the darlings of microorganism biotech. Their DNA is easily modified, so they can be made to produce a vast range of organic compounds. They reproduce rapidly under the right conditions, and they are small enough to be used anywhere. The fact that they are the most common agents of infection also makes them ideal for applications such as biological control and warfare.

Archaea

Archaea resemble bacteria, and until recently were thought to be an ancient branch of the bacteria genetic tree. Detailed study of their genomes reveals that two-thirds of the genes are unlike any other living creature, suggesting they diverged from the bacteria evolutionary lineage at least three billion years ago.

Many archaea exist in extreme environments, where people had long thought life was impossible. These include the high-temperature water near deep sea thermal vents. Other species survive in freezing temperatures, or in highly saline, acidic, or alkaline water that would kill any other organism. Some species have metabolisms that produce methane, hydrogen sulfide, or other gases; these occur both in extreme environments and within the digestive tracts of mammals.

These strange organisms are likely to become important raw materials for biotechnology, as they have a wide range of properties and abilities to withstand any environmental extreme we can imagine. Archaea will be important for terraforming applications, to convert hostile atmospheres to ones more benign to other forms of life. No archaea are known to cause disease in any animals; biowarfare applications will likely revolve around using them to produce toxic gases, and not just as poisons – hydrogen sulfide in an oil well can ruin its production.

Viruses

A *virus* is much smaller – too small to be seen under the average optical microscope – and consists of a clump of genetic material (DNA or RNA) sheathed in protein. By some definitions, it's not alive at all. Viruses grow only in living cells, whereas certain strains of bacteria can survive almost anywhere. A virus lacks the molecular machinery to reproduce itself, such as the ribosomes that cells possess. Instead, a virus seeks out living cells, slips into them, and hijacks the cells' machinery into working for it.

A *retrovirus* is a virus whose genetic material consists of RNA. This type of virus can be modified into a tool useful in gengineering. For instance, genetic engineers can create modified "transfer" viruses that can carry new genes (or gene regulators) into cells in order to alter them. Retroviruses use an enzyme called reverse transcriptase to transcribe the RNA code into a DNA code, which the virus then inserts into the genome of its host. The human immunodeficiency virus (HIV) is an example of a naturally occurring retrovirus.

A *nanovirus* (p. 12) isn't a real virus – it's a bio-nanotech construct that sometimes behaves like a virus. It might have a virus in its ancestry, but its relationship is about as a close as that of a wooden ship to a tree. Note that the term "nanovirus" is a popular SF neologism. In real biology, the term is used for a genus of plant-infecting virus.

Prions

Prions are infectious proteins that can be copied by cells in the right biochemical environment, much like viruses, but without any DNA at all. First hypothesized in 1982, prions demonstrated that self-replicating biological information could be transmitted using a different mechanism. Nobody classifies prions as alive, though. They are simply proteins, with the same amino acid sequences as normal and useful proteins in organisms, but twisted into a different geometrical shape. If a prion enters a cell, it can induce those normal proteins to convert into the pathological prion shape.

Many prions are harmless, but some aggregate into polymer-like structures that form fibrous plaques within brain tissue. These plaques interfere with neurons and produce a sponge-like pathology of the brain, resulting in disabling and ultimately fatal disorders like Creutzfeld-Jacob disease, kuru, and mad cow disease. Prions are not destroyed by cooking or even medical autoclaving, and they can infect people who eat infected food or whose tissues come into contact with infected material (such as during brain surgery).

While much remains to be learned about prions, it is possible that they could be designed to have specific effects. Prions in some yeasts appear to confer improved resistance to invasion by unrelated strains, so engineered prions may have some use in improving disease resistance, but the most obvious use is to produce an insidious plague weapon.

Industrial and Commercial Microbes

For thousands of years, people have used yeasts, fungi, and bacteria to manufacture products such as beer, bread, and cheese. From the mid-19th century (TL5), researchers applied scientific techniques to the study of microbes to find natural strains that performed new tasks or did old ones better. This produced microbes usable in improved food and beverage products, industrial chemicals, and medicine (e.g. *Antibiotics,* p. 150).

Early 21st-century (TL8) advances in biotechnology largely relied upon gengineering specialized microbes, using the techniques of gene cloning and "protein farming" (see *Gene Cloning,* p. 12). With genetic engineering, organisms can produce or extract a wider range of products, ranging from drugs and fuel to industrial chemicals.

For microbes to thrive, they need nutrients (such as sugars) for growth, as well as a carefully regulated pH (acid) balance. Some also require a narrow temperature range, and temperature in a vat can change as the amount of biomass increases. TL8+ fermentation vats have sophisticated temperature – and acidity-regulating equipment. As the

optimum combination of temperature, acidity, and nutrients varies from species to species, and the details can greatly affect yields, experimenting to find the correct vat environment is an important part of industrial biotech research.

Not all "working bacteria" are involved in fermentation or protein farming. There are bacterial species which are naturally capable of metabolizing metals or chemical waste, are resistant to heat (even living in ocean vents), or are anaerobic (don't require oxygen). These have a multitude of applications, as described below.

Energy and Fuel Production

All living things require energy, so are capable of harnessing it in some way or another. Organisms then use it to drive chemical reactions to produce compounds with stored potential energy. If done in bulk, this produces a resource that technology can exploit.

Methanol and Ethanol (TL6)

Yeasts acting on organic waste matter can convert it into methanol and ethanol. These alcohols are liquid and so a more convenient form for vehicular fuel than methane (below). Alcohol contains half the energy of gasoline per gallon; this reduces the range of the vehicle on a full tank, but doesn't adversely affect the power generated by the engine (many racing cars today use methanol fuel).

Methane and Hydrogen (TL8)

Some bacteria or archaea can produce methane gas. These can provide renewable energy and a source of industrial chemicals. Natural bacteria capable of performing these activities are in limited use today. At TL9+, gengineered bacteria capable of much higher performance will be introduced.

Methanogenic microbes consume organic waste. A bioreactor would be a vat into which vegetable and animal wastes could be fed, to be converted into methane by the bacteria. As a byproduct, the remaining waste after processing will have been converted into a rich fertilizer. This sort of recycling would be valuable for isolated colonies of people. On a larger scale, landfills full of urban waste can be capped with an impervious membrane to capture the methane, which is then piped to a central collection facility for distribution to buildings as a replacement for natural gas. This is already being done in some places, and should become more common in the future.

Hydrogen is another gaseous fuel that can be produced by bacteria. Only a few species naturally do so, and produce only small quantities, but at TL9 these should be available for mass production. Interestingly, hydrogen-producing bacteria can use as raw materials the waste products of fermentation to produce fuel alcohol (see above).

Photosynthetic Applications (TL8)

Plants have the best known biological energy producing mechanism: photosynthesis. The process is carried out by organelles called chloroplasts inside plant cells, which take in water, carbon dioxide, and energy in the form of sunlight, to produce oxygen and carbohydrates. The chemical bonds of the carbohydrates store energy, which the plant can later use to grow. Humans have been using this energy for millennia, in the form of burning wood.

Purchasing Microorganisms

Many of the microbes described in this chapter are not listed with a purchase price. This is because the price can vary widely depending on the circumstances of production and distribution.

Intrinsically, microbes are cheap to make, as they reproduce by themselves with nothing more than a suitable environment and nutrient supply. The physical production costs will be from $10 to $100 per dose or small useful amount. And once a sample is acquired, someone wanting more can simply grow them himself with the right equipment.

The market price of microbes will be set to account for R&D costs, patent lawyers, commercial production monopolies, any legal risks, and whatever the market will bear. The GM should set prices taking these factors – and game balance – into account.

Natural bacterial or viral cultures (for existing germs) might be available on the black or open market. The open-market price for sale to legitimate science labs is in the $100 to $1,000 range. Only a few doses of any disease culture will be sold, since after the sale, it is relatively easy for anyone with a genetics lab to culture the disease extremely cheaply. For this reason, gengineered microorganisms with commercial or military value will often have sticker prices up to a thousand times higher, in order that some profit can be realized.

Lethal bioagents are usually LC0, and black-market prices may be a hundred times higher per dose. If a production line is set up, prices may drop to about $10/dose. A pathogen whose purpose is relatively benign (e.g., one intended to get rid of a certain breed of dangerous animal or to kill off insect pests) may be LC3 and available on the open market.

Any system for delivering drugs (hypos, needler rounds, etc.) can carry biological weapons. A HT-4 roll is required to avoid contagion if injected or shot. Depending on the disease vector, bioweapons may also be delivered by insects (see p. 82) or other animal carriers. Bacterial spores or virus particles can be loaded into a chemical round such as a gas grenade or bomb and detonated to create a plague-ridden area, or put into ventilation systems, sprinkled on artifacts in tombs, and so on. To fill a typical 40-mm grenade warhead, 10 doses are required.

One application of photosynthesis currently being tested is to embed unicellular algae into polymer beads, and spread them out on a pond surface. They are continuously circulated through a machine that harvests the accumulated carbohydrates and releases them back on to the pond.

TL9+ biotech will also allow a more direct use, with harnessed chloroplasts embedded in mechanisms that can oxidize carbohydrates to release the energy (see *Cellular Batteries*, p. 109). This would be a self-renewing power source or provide supplemental energy for biogadgets (p. 95).

> *Why trouble to make compounds yourself when a bug will do it for you?*
>
> *– J.B.S. Haldane*

Photozyme Solar Film (TL9)

The next step beyond photosynthesis is using biological molecules to generate electricity directly. Certain enzymes react to light by becoming electrically polarized, separating positive and negative charges to opposite ends. Embedded into cells in a lipid membrane or biofilm (p. 111), these *photozymes* produce a usable electrical potential across the film. This technology allows growing a biological solar cell on any surface exposed to light, though it is not as efficient as manufactured solar panels.

Statistics: Photozyme solar film costs $100 for a living cell culture adequate to cover one square foot. It grows at a rate of a linear foot per week (see *Biofilm Growth*, p. 110). It can also heal damage at the same rate. Photozyme film requires twice the area to collect the same amount of power as solar panels of the same TL.

Mining and Refining

Bacteria exist whose proteins can bind to and concentrate traces of metals from mine shafts, industrial wastes or sea water. The biomass can then be collected and refined. More complex (TL9+) versions of these bacteria can excrete the minerals themselves, reducing the cost of downstream processing.

Ore Extraction (TL8)

The bacterium *Thiobacillus ferrooxidans* is the best known of several species that thrive in sulfur-rich acidic environments and can leach sulfur out of metallic ores to produce refined metal. The bacteria break down the ore, releasing metal ions into an acidic solution, which can be collected and easily processed into pure metal. This process is suitable for refining gold, copper, nickel, zinc, and some other industrial metals. It is cheaper than conventional smelting, and can be done in situ, resulting in less landscape disruption than mining, but poses the risk of groundwater contamination with the acidic product. At TL8, economic factors favor smelting, but as the process is improved and pollution control becomes easier, bioleaching will become a mature technology.

Refining Sea Water (TL9)

Sea water contains many useful chemicals, albeit in low concentrations. Bacteria are ideal for absorbing and concentrating particular elements. By gengineering them with protein coats that catch particular ions, they can be made into tiny selective sponges and storage cells. After being allowed to float in the sea for some time they would be harvested and processed to extract the chemicals. Encapsulating the bacteria in semi-permeable polymer beads would make them easy to circulate and collect.

Corrosion Control

Corrosion of materials exposed to the elements is one of the major concerns of industrial engineers. Besides using a biofilm (p. 111) as a barrier to corrosive substances, bacteria can be employed to fight corrosion in more active ways. At appropriate tech levels, the following mechanisms may be standard parts of equipment maintenance, particularly for vehicles.

Prevention (TL9)

Metal corrosion is caused by interactions between adjacent materials of different electrochemical activity. Bacteria can circumvent this by adjusting the chemistry of a metal surface with enzymes. Long-term protection requires hardy bacteria that can survive on a metal surface, but the advantage over a biofilm barrier is that they can spread quickly to attend to scratches or other damage site that are normally sites of rapid corrosion.

In many cases, corrosion is enhanced by the presence of sulfate-producing bacteria that generate an acidic environment. Preventive bacteria would seek and destroy these harmful microbes, further reducing the risk of corrosion.

Reversal (TL10)

Specially designed bacteria can also be applied to already corroded metal to undo the chemical processes of that corrosion. This involves reducing the metal oxides and other compounds to release the non-metallic elements and rebuilding the metal's crystal structure. This works well for early stages of corrosion, but cannot restore heavily pitted or disintegrating metal.

Pollution Control

Bacteria can be designed to break down plastics that have been properly treated, while those that metabolize hydrocarbon molecules can mop up oil spills. Often, bacteria of this sort don't even have to be genetically engineered.

Instead, biotechnicians look for sites that have been contaminated for years by (for example) an oil spill, and then isolate the microorganisms that are thriving there. These may also be designed as weapons – see *Anti-Material Bacteria* (p. 118).

Greenhouse Reversal (TL9)

The major contributor to greenhouse warming on Earth is atmospheric carbon dioxide. To reverse a potentially catastrophic increase in carbon dioxide levels, gengineers may boost the carbon-absorbing abilities of microscopic algae. Oceanic phytoplankton already account for the bulk of the world's carbon dioxide converted to organic matter, so improving their productivity and increasing their geographic range would have a significant impact.

Domestic Bacteria

Microorganisms have been used for domestic purposes for millennia, from the yeasts that make our bread rise and beer brew, to the microbes that recycle our wastes.

Composting (TL1)

Bacteria naturally break down organic waste and release the basic chemicals and nutrients that other organisms need to grow. Humans can aid the process simply by throwing their wastes into a pile, which they have been doing for millennia, but deliberate efforts probably began in the Bronze Age.

Septic System (TL6)

Septic systems are sewage and organic waste treatment systems that do not rely on sewers to take waste to a centralized treatment plant. Invented in 1860, a septic system consists of a large tank in which sewage separates into liquid and a solid sludge that sinks to the bottom. Anaerobic bacteria decompose the sludge, while the liquid drains into a leach field via pipes buried over a large area. Natural decay in the soil purifies the water, which returns to the ecosystem. The decomposed sludge must be drained eventually, and can be dried and used as a fertilizer on plants not destined for human consumption (it retains microbes that can cause diseases in humans).

Septic systems were used in early TL6 cities – in an effort to control increasing outbreaks of cholera – before centralized sewage treatment facilities were built, and remain useful for remote settlements. They would be a good choice for sewage disposal in high-tech colonies, including on newly terraformed planets.

Statistics: Price ranges from $2,000 for a system large enough for a household, to $10,000 or more for a communal system servicing a village. Larger settlements will need more systems.

Composting Toilet (TL7)

These differ from septic systems in that they use an external power source to provide ideal conditions for rapid decomposition of sewage by bacteria. They are more compact but more expensive than septic systems. Another advantage is that they heat the waste to a temperature that kills microbes dangerous to humans, so the resulting sludge can be used to fertilize crops. Composting toilets are ideal for enclosed systems such as on board spacecraft or colonies on a hostile world.

Statistics: A single composting toilet costs $2,000 and requires electrical power.

Targeted Microbes

In many cases it is desirable to engineer bacteria for specific targets, either by giving them properties that are useful when delivered to targets selected by other means, or by making them seek out desired targets.

Surveillance Infection (TL9)

The idea behind this is to mark people who come into contact with specific items or places, for the purposes of deterring or tracing trespassers and thieves. The concept is similar to money containers spraying potential thieves with an indelible dye, so that they can easily be identified. For much more subtle and permanent marking, items can be coated in gengineered microbial parasites or their spores. These can either have no noticeable effect on the victim, simply living within his body, or might produce chemical markers that make him detectable from a distance by biosensors (see *Communicators* under *Symbiotic Bacteria*, p. 121). Either way, a blood test will detect the organisms and mark the suspect as having had contact with the protected item. If the thief suspects such an infection, he may be able to use drugs or targeted nano to remove it.

At TL10, an even more subtle and permanent tracer uses retroviruses to insert a genetic marker sequence into the thief's DNA. At its simplest, this does nothing but provide positive identification with a DNA test. More insidiously, it could do anything achievable with genetic surgery (p. 14). Since such genetic surgery is not done under controlled conditions, the victim gets a HT roll to resist the modifications.

Infections that do nothing have standard microbe costs (*Purchasing Microorganisms*, p. 105). Those that perform genetic surgery have *at least* the additional cost of the procedure performed.

Targeted Fluorogenia (TL9)

Given a DNA sample from a crime suspect, a lab can customize these bacteria to recognize and bond to cells containing the same DNA, and no other cells. It takes 48 hours to gengineer the microbes and culture enough for use. Forensic investigators can then take a solution of the bacteria and spray it over a crime scene. If the bacteria find the target DNA, they fluoresce, making them easy to see. The labeled cells can then be collected for further analysis. $1,500. LC3.

Microbial Construction

With their ability to secrete various chemicals, microbes can be used to build various materials and structures with properties difficult to achieve by other manufacturing methods.

Surface Coatings (TL8)

Besides bulk material, microbes and protein matrixes can be used to grow thin coating layers on substrates of other material.

Stain repellent coatings form a barrier against dirt and grime. They can be constructed with ion profiles that make paints and adhesives refuse to stick to them, as well as repelling everyday stains. Applications range from nonstick cookware and graffiti-resistant walls to sensors that resist weather and sabotage.

Scratch and corrosion resistant coatings are usually a thin layer of ceramic in a polymer matrix, laid down on various substrate materials. Hard crystal coatings on softer substrates resist abrasion, and can be used to produce lightweight polymer windows that stay as clear as glass or flexible plastic materials that maintain a glossy, scratch-free appearance. Similar coatings can also protect metals from corrosion and polymers from chemical attack – allowing items such as fuel tanks to be made from light plastics.

Filtering coatings are designed to block specific parts of the electromagnetic spectrum. This is useful for sunglasses, scientific instruments, radiation shielding, and antilaser armor.

Economic Impact of Biological Manufacturing

Microbial manufacturing has the potential to change society as much as anything wrought by the Industrial Revolution. Suddenly making a lot of previously expensive things simple to manufacture will have economic implications, and can lead to the usual sort of social disruptions: unemployment, economic depression, and social unrest. At the same time, society as a whole will become more affluent. This leads naturally to a dislocation between the wealthy and the poor, creating a society ripe for political revolutions. This process is a good justification for GMs wishing to develop a dystopian or socially stratified future.

On the other hand, microbial manufacturing can simply be seen as the natural progression of ever more efficient industrial methods, leading to nothing more than the expected gradual price drop of manufactured goods. Under this assumption, the future is bright, and everyone down to third-world farmers can afford the latest bacterially-grown personal computing and telecommunication devices.

Gems (TL9)

By producing crystals in precise alignment with a protein matrix, microbes can be used to grow gem-quality stones. Easily available "bugstones" are indistinguishable from naturally formed gems and can be grown for a fraction of the price. Besides the obvious uses for inexpensive jewelry, gemlike crystals also have industrial uses ranging from diamond-cutting gear to laser equipment, all of which will benefit from cheap, high-quality gems. They cost $10 per karat, but can be traded to buyers unaware of the technology for the market value of natural gems.

Precision Equipment (TL9)

The higher the technology level of a society, the smaller and more precisely machined components must be to fit into ever more complex devices. Microbial construction is perfectly suited to making precision components, at a cheaper cost than using machinery to create them. Typically, components are grown by bacterial cultures in organic molds which can be removed by solvents. This is more precise than die-casting or injection molding as the parts are grown at room temperature, avoiding thermal expansion problems.

At TL9+, the GM can assume that most small parts are manufactured in this way, as part of the natural progression to relatively cheaper goods.

Supermaterials (TL9)

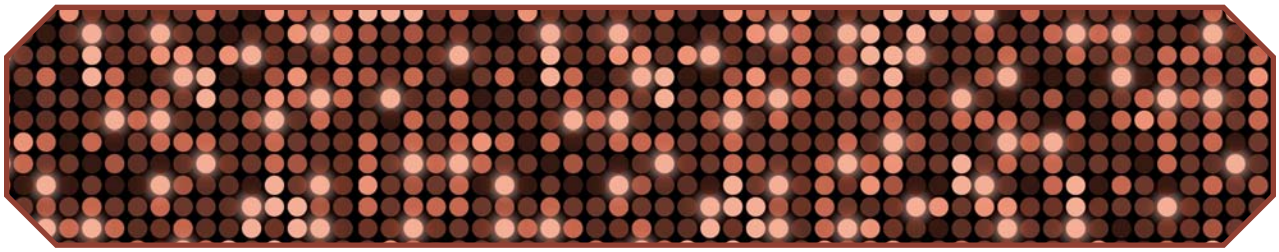
Several high-tech materials require precision construction on a molecular level – construction that can be achieved by microorganisms. The microbes can either produce short fibers in a vat, which are then harvested and processed into bulk material, or they can be engineered to excrete a protein polymer matrix as a supporting structure and then build the material directly in place. This method can be used to grow supermaterial structures in situ.

Bioelectronics

High-tech electronic components have structures of similar scale to microorganisms. Given the vast range of properties of microbes and their ability to convert between electrical and chemical signals, it makes sense to incorporate them into electronics.

All of these developments can be treated in two ways:

- They form part of the natural progression of electronic technology, and will be integrated into equipment that follows the normal ***GURPS*** TL progressions. In this case, no special rules are needed, and ultra-tech equipment can simply be assumed to use these developments where appropriate.
- Alternatively, these technologies can be breakthroughs leading to vastly superior equipment. In this case, they will likely see application first in military gear before filtering through to the public. The new high-spec gear will be more reliable, faster, and cost half as much to manufacture as the standard varieties – but consumer prices may be *more* expensive because of licensing and regulation!



Living Chips (TL8)

These are electronic chips containing living cells as an integral part of their circuitry. One application is the detection of hostile chemical substances. A cell is sensitive to toxins in its environment and will quickly react if exposed to certain chemicals. These are broadly similar in application to biomimetic biosensors (p. 28), except that by using living cells the sensor can self-repair if damaged.

At TL9+, the cells in a living chip could implement DNA computers (p. 28), allowing some processes of the embedding electronic computer to be performed by the rapid parallel processing capabilities of DNA. This greatly speeds up tasks requiring repeated number-crunching, such as scientific data processing and cryptography.

Cellular Batteries (TL9)

Tiny nanomachines might use bacteria or cell cultures to store energy and release it on demand. Cells store energy in a molecule called adenosine triphosphate (ATP), which releases it in a variety of reactions. Cells can use this energy to separate ions, forming an electrical field that can drive a current in an external circuit. The energy production can be sensitive to environmental factors such as temperature or chemical cues, producing reactive behavior in the circuitry. Solar-powered devices may also use photosynthetic cellular batteries instead of electrical solar panels or photozyme solar film (p. 106), providing power generation and storage in one integrated technology.

Bioswitching Electronics (TL9)

Antibodies are extremely sensitive detectors of particular chemicals. Their reactions to exposure can be used to switch electronic circuits. The antibody receptors are contained in cells that connect to a circuit. Receptors for any specific chemical can be designed and engineered into the cells, tailoring the bioelectronics to any specialized application.

Sucrochemicals

Up to TL8, industry makes heavy use of petrochemicals – products derived from fossil fuels, such as gasoline, asphalt, and many plastics and synthetic fibers like nylon. These are all made up of hydrocarbon organic molecules, which are the end product of millions of years of compression and heat acting on decaying organisms. In contrast, sucrochemicals are products based on carbohydrates, which are polymerlike molecules made of sugars, produced directly by living things. With a reliance on fossil fuels likely to be phased out around TL9 because of increasing expenses and environmental concerns, sucrochemicals will be developed to fill the gaps.

Biological material can already be processed into fuels (see *Energy and Fuel Production*, p. 105); the remaining challenge is to adapt carbohydrates to replace the diverse array of petrochemical polymers. People have been using one sucrochemical polymer since TL1: cellulose. It is the major component of cotton fibers, and has been used in the processed forms of celluloid and rayon since the late 19th century (TL6).

The most likely method of producing enough sucrochemicals to replace petroleum-based plastics will be to gengineer microbes to produce them. This will also allow the design and production of new carbohydrate polymers with desired properties. By TL9, there should be enough new materials to make us wonder why we ever needed petroleum.

Terraforming

Colonizing a new planet is one of the greatest challenges for a technological civilization. One approach is the pantropic concept of engineering humanity to suit the local conditions (see Chapter 2). But if the world is too hostile or the goal is to make it comfortable to baseline humans, planetary engineering is required.

Gengineered algae and bacteria will play a major role in any such program. Once water and methane have been added – if necessary – by hitting the planet with ice asteroids or comets, most of the work is done by living organisms. The required organisms can all be gengineered by TL9 – finding a suitable world and getting there are more likely to be the limiting technological factors!

Changing the Atmosphere

The first step in terraforming a hostile world is to change the atmospheric pressure and composition. With no free oxygen and potentially extreme temperatures, anaerobic archaea would be the best bet for an initial planetwide seeding. Their main job depends on what sort of world is being terraformed.

For a Marslike world, cold with little atmosphere, the microbes would need to act on and below the surface to release nitrogen and carbon dioxide locked into the rocks. As the atmospheric pressure increases, greenhouse warming would heat the planet, allowing biological processes to speed up. If the microbes are dark in color, the reduction in albedo would also contribute to planetary warming. If even more warming is required, specialized microbes producing strong greenhouse gas halocarbons (such as CFCs) could be added.

With the opposite problem – a high-pressure runaway greenhouse world like Venus – the microbes will need to remove gas rather than produce it. They can do this by converting it into solid compounds such as carbonates and oxides. It may be easier to design the microbes to float in the atmosphere rather than try to survive at ground level; they can simply drift down with their sequestered load of solids when they die. As the atmospheric pressure drops, greenhouse warming will also drop, cooling the planet somewhat (although in the case of Venus, additional measures would be needed to reduce incoming solar radiation if the goal is to make it comfortable for baseline humans).

For example, in a Mars terraforming project, they would be released a decade or so after ice asteroid or comet strikes had provided water, but before organisms are added to the ecosystem. Hardy anaerobic bacteria would perform the critical task of releasing nitrogen locked beneath the planetary surface. Within decades, they could be followed up by gengineered lichen and fungi. In several generations (50-250 years), the soil might be fertile enough that simple oxygen-producing plants can be introduced.

Producing Oxygen and Soil

After a few decades, the world would have a more hospitable climate, but the wrong mix of atmospheric gases. This is relatively straightforward to address, with photosynthetic algae working to process carbon dioxide into biomass and oxygen, but would take a long time. Gengineered lichen and fungi can be added as soon as they are capable of surviving on the surface, to add additional biomass and provide additional organic material that will build a fertile soil. Eventually, the soil will be able to support macroscopic plants and gengineered animals.

Zoogloeal Organisms

Some microorganisms form large colonies or collective bodies that behave in ways similar to a single macroscopic organism.

Slime molds are protozoa that usually exist as average-looking amoeboid forms, but occasionally aggregate into large masses for the purposes of migration and reproduction. Individuals of some species coalesce together to form a single huge cell with thousands of nuclei; this giant amoeba is called a *plasmodium* (not to be confused with *Plasmodium*, the genus of protozoan that causes malaria). These plasmodia resemble mucusy blobs of slime, and are known to cover areas up to two square yards in size! Other species collect into slug-like forms that maintain individual cell walls, but move together as a single colonial creature. After the plasmodium has moved to a suitable area, it sprouts stalks and releases reproductive spores. Experimenters have shown that slime molds are capable of navigating the shortest distances through mazes, which may lead to future applications for this sort of cellular "intelligence."

Zoogloeal organisms are bacteria that form similar large masses, but by excreting polymeric macromolecules (proteins, nucleic acids, lipids, polysaccharides) to form a gel matrix around their cells. This bonds them to neighboring bacteria, as well as any other microbes or inert material in the vicinity, producing large masses of organic sludge. The polymer film around each bacterium protects it from predators and traps any biocidal chemicals or heavy metals so that the bacterium can safely eat any organic wastes in its environment. This makes zoogloeal organisms difficult to kill by chemical means; even most antibiotics are ineffective.

Sludges (TL7)

Zoogloeal sludges are important in industrial waste water and sewage treatment processes, as they multiply successfully in heavily contaminated water, bonding particles and chemical ions in their gel matrix. The viscous mass of bacteria settles out and leaves relatively pure water behind. This is a standard sewage processing technique at TL7+.

Biofilm Growth

An advantage biofilms have over inorganic coatings is that they can grow. The rate of growth varies according to what nutrients are available and the current size of the film. Under ideal conditions, a film grows outward at a constant linear rate, meaning its area grows faster as it gets larger. Assume a film can grow one linear foot per growth period (defined to be a day, week, or whatever for each particular film). The table summarizes the rate at which the area covered grows:

Growth Periods	*Area*	*Growth Periods*	*Area*
0	1	20	1,300
1	8	30	2,900
2	21	40	5,200
3	40	50	8,000
4	65	60	11,500
5	97	70	15,600
10	350	80	20,400
15	760	90	25,800

Area is in square feet. For films larger than 25,000 sf, assume they grow 500 sf per growth period.

Example: A film has a growth period of a week. It is initially spread over 40 sf. A week later, it covers 65 sf. After a year, it will cover a little over 8,000 sf.

Biofilms

Zoogloeal bacteria can also stick to surfaces in relatively thin layers, producing what is know as a biofilm – an example is the slimy layer on your teeth when you haven't brushed them for a while. Like sludges, these also have application in water purification, but their thin surface-coating nature makes them suitable for other purposes.

Biobarriers (TL8)

Since biofilms absorb many chemicals, they can form protective layers between sensitive areas and potential contaminants. This has many applications:

Environmental Protection: Biobarriers can keep soil or groundwater from being compromised by industrial activity such as mining. They are also an ideal form for using pollution control and removal bacteria (p. 106).

Evaporation Prevention: Water reservoirs lose significant amounts of water to evaporation, particularly in hot and dry climates where water supplies are precious. A biofilm floating on the surface can cut down evaporation dramatically.

Food Processing: Cleanliness is vital to keep harmful bacteria away from food during manufacture and transport. Biobarriers can keep food pure and fresh, but may require removal before consumption. Advanced types may be edible and unnoticeable, except that the smell of the food doesn't penetrate. Additional costs will be negligible unless the patent holder is particularly greedy.

Insect Deterrent: Mosquito larvae live in water and breathe through snorkels. A biofilm can prevent them reaching the air they need, in a more environmentally friendly way than the old method of using a petrochemical slick. A biofilm on structures or worn as a second skin can also present a repellent surface for verminous or biting insects.

Medicine: Biobarriers can protect healing wounds from infection, and may be one effective method of approaching synthetic skin for trauma victims. They may also form protective skins for work in contaminated environments.

Biofilms worn as protective skins can be smeared on like sunscreen or sprayed on for more even coverage. They are imperceptible once applied.

For the first half of geological time our ancestors were bacteria.
– Richard Dawkins

Photosynthetic Film (TL8)

A straightforward application of biofilm technology is to use cells with chloroplasts to generate carbohydrate fuel, or electrically active cells to generate electric current. See *Photosynthetic Applications*, p. 105, and *Photozyme Solar Film*, p. 106.

Giant Blobs!

Not all unicellular creatures in fiction are microscopic – some are decidedly macroscopic! While the oozes and jellies of classic fantasy role-playing may be magically created or otherwise defy the laws of biology, the giant blobs of science fiction might be achievable with suitably advanced biotechnology.

One obvious source for a possible giant blob is a slime mold plasmodium (p. 110). Realistically, plasmodia don't have the structural strength to hold themselves taller than a thin smear of slime on the ground, but if you're going for giant blobs you'll have to bend some rules somewhere. A pseudoscientific justification for a tall blob with Basic Move greater than 0 could be hydraulic organelles anchored to a semisolid protein matrix, either naturally evolved, the result of atomic radiation, or a product of deliberate gengineering.

Superscience technology could simply enlarge an existing microbe, embedding it in a field that allows it to act as though the laws of physics were still working on a microscopic object.

The most realistic giant blobs would actually be multicellular creatures with internal musculature attached to a rearrangeable framework.

Directional Osmotic Films (TL9)

Biofilms can be asymmetric, with different properties on each side. This can be useful if one side can absorb particular molecules and pass them through to be expelled from the other side. Whereas an inert semipermeable membrane will allow osmosis of soluble chemicals in whichever direction is supported by a chemical gradient, an active biofilm can drive against osmotic pressure by using cellular energy. This has several applications:

Water Purification: Unlike reverse osmosis which requires an external energy source to supply the pressure to force water through the membrane, a biofilm purifier powers itself as the bacteria in the film either absorb nutrients from the impure water or generate energy through photosynthesis. A useful application is biofilter canteens (p. 96).

Corrosion Prevention: A directional biofilm can actively repel corrosive ions from any surface, while allowing through any other chemicals that might be necessary for proper operation of whatever is being protected.

Synthetic Skin: Suitably engineered osmotic film makes an ideal synthetic skin material that can be applied to seal wounds and promote healing. At TL9, different types exist for maintaining proper hydration levels in air, fresh water, and salt water. At TL10+ a single smart film can adapt automatically to any environmental conditions, and also excrete suitable antibiotics. This is the basis for TL9+ bandaging material such as bandage spray and plasti-skin (p. 124).

Germ Warfare

Not all microbes are busy little workers. Pathogenic microorganisms, such as bacteria and viruses, have a long history as weapons. Even before people had an inkling of the germ theory of disease, medieval siege engines lobbed disease-ridden carcasses into fortified cities. Some evidence suggests Europeans deliberately used smallpox-ridden blankets to infect Native American tribes in the 18th century. In the 1930s and 40s, Japan experimented with the use of plague in its conflict with China.

Ecological Warfare

Biowarfare need not be restricted to causing primary damage against human targets. As much as we ignore it in modern society, humans are dependent on plants, animals, and microorganisms. Attacking *those* is the basis of ecological warfare: disrupting the web of life in occupied territory and bringing about the enemy's defeat through the collapse of vital resource supplies.

There are countless possible approaches. Livestock can be targeted with bacterial or fungal diseases, or their feed contaminated with prions. Biological control methods (p. 76) can be used against crops, employing anything from fungal infections to ravenous beetles. The seeds of weeds can be scattered far and wide. The attackers can also disrupt wild ecosystems by releasing predators or fungi that rot vast forests. And this is all without gengineering the agents of attack; designing new ways to kill plants and animals will make ecowarfare even more horrible. When strange plagues start to kill your food sources and you have no idea how to counteract them, or if they'll be dangerous to humans, all the nukes in the world won't help you sleep at night.

If anything, a highly biotechnological society may be more at risk from ecological warfare than a low-biotech one, as such a society is more reliant on various organisms. Industrial bacteria, gengineered monoculture plant strains, and biogadgets would all make tempting targets.

Modern science has made it possible to prepare stockpiles of germ cultures, and to arm spray tanks, bombs, and missile warheads with disease-carrying bacterial spores. However, science has also alerted us to the dangers of these weapons. No weapon is more uncontrollable than a plague, capable of crossing borders with impunity to scythe down friend and foe alike. While limited numbers of people can be given preventive treatments in advance (perhaps even secretly, disguised as a routine flu vaccine), germs also have a distressing tendency to mutate.

Society bans weapons when they are simultaneously difficult to control, imprecise in their effects, and capable of exciting moral outrage. Germ warfare falls into all three categories, so international efforts to outlaw microbiological weapons have been relatively successful. While stocks of bioweapons existed at the height of the Cold War, most nations at least claim to have destroyed their germ warfare arsenals today – although some are suspected of having secret bioweapons programs. Some germ cultures – notably smallpox – have been preserved so that they can be studied for disease prevention and treatment.

There is also concern regarding the risk of bioweapons being used as a "poor man's nuke" by desperate "outlaw regimes," although in practice, most such nations seem to have preferred to pursue nuclear or chemical weapons programs. Current fears of biological weapons are centered on their use by terrorists such as the Aum Shinrikyo cult – which released nerve gas in Tokyo's subways in 1995 and which was also developing biological weapons – and the perpetrators of the 2001 anthrax mail attacks in the United States.

Although there have been no large-scale biological attacks so far, progress in genetic engineering threatens to make improved microbiological weapons that are even more deadly (and perhaps even more controllable) than nature's plagues. Recent controversial medical research experiments involving genetically improved flu viruses (to study how these mutate) highlight the potential capabilities of such technology in the wrong hands.

Fortunately, the mechanics of epidemics make it difficult to kill off an entire species with a single disease. A germ that is "too successful" and kills off all exposed targets leaves behind no reservoir of disease organisms to infect isolated victims who escaped the initial outbreak. A disease that is less lethal will leave a population of survivors immune to it, lessening the disease's future impact. Deliberate or accidental germ warfare might kill off most – even 95% – of a particular species, but probably won't wipe it out entirely. Even so, the effects can be devastating. The greatest 20th-century natural pandemic, the super flu of 1918, killed over 20 million people in three months, and that was without widespread air travel to rapidly propagate the disease.

Biological Agents

The most popular biological weapons are pathogenic bacteria and viruses. Some types of bacteria can also be used to manufacture poisons, just as they can make useful proteins. An effective germ-warfare agent should be lethal, or at least incapacitating, and easily spread. If you can only catch the disease from sexual contact, for example, it is less dangerous than one that will contaminate an area and whose spores can be inhaled.

Bacteria are easier to spread than viruses because they can survive as spores and contaminate an area for long periods; however, viruses are harder to treat, being immune to antibiotics. Biotoxins are not contagious, but

can be used to contaminate food or water supplies – terrorists, for instance, might dump botulinum toxin into a city water plant.

Since germs are difficult to control as a weapon, it can be a good idea to choose a pathogen that can be treated, as this gives you time to secretly prepare for the disease, while your target may be caught by surprise.

The following biological agents are presented using the *Disease* rules (pp. B442-B444).

Anthrax

This disease is caused by the bacterium *Bacillus anthracis*. It is most common in agricultural regions, usually caught by humans from infected livestock or eating infected meat; death occurs in 20-60% of cases. However, weaponized anthrax is delivered in the form of dried powder-like spores, which cause pulmonary anthrax when inhaled by victims, with 80-100% lethality

Several nations have cultured anthrax spores since WWII, and terrorists used them as a weapon in 2001. They are persistent, contaminating an area for about 40 years before weather breaks them down. However, an infected human cannot infect someone else – although this reduces its lethality, it also makes anthrax more attractive as a military biological weapon, since it is unlikely to spread far beyond the target area. Vaccines exist, and antibiotics are effective against it.

Statistics: Respiratory; HT-4 to resist; 1d+1 days delay; 1d toxic damage (with coughing after loss of 1/3 HP); 24-hour cycle with six cycles. Symptoms initially resemble influenza, but progress to severe breathing difficulties and shock (p. 125). Not contagious.

Botulinum Toxin

This biotoxin is a poison excreted by the bacterium *Clostridium botulinum*. It can be manufactured in fermentation vats, and may be a favorite of terrorists because of its extreme toxicity at low doses. It breaks down rapidly when exposed to air – contaminated areas are safe to enter after 24 hours. Victims who suffer respiratory symptoms need a ventilator to help them breathe for two to eight weeks until they recover. An antitoxin which halves any damage taken is available ($10). The statistics below are for weaponized botulinum, not normal food poisoning.

Statistics: Digestive or respiratory; HT to resist, success only halves damage; 2d hours delay; 4d toxic damage; one cycle. Symptoms are blurred vision (-4 on Vision rolls), paralysis, and retching (p. B429) after the loss of 2/3 HP and choking (p. B428) after the loss of all HP. Not contagious. $200 per dose.

Bubonic Plague

The "Black Death," caused by the bacterium *Yersinia pestis*, devastated Europe in the Middle Ages. Bubonic plague is spread by rat-borne fleas and affects the lymph nodes; this most common form of the plague is fatal in 55% of cases if untreated. Bubonic plague may progress to septicemic plague, or infect the lungs and become pneumonic plague, which can spread via respiratory droplets. Untreated, septicemic and pneumonic plague are fatal.

Understanding of the disease's vector, improved sanitary conditions, and antibiotics have reduced the threat of the plague, but not eliminated it. Small outbreaks periodically reoccur, even in developed nations; 1,000-2,000 people get it each year, with 10-20 cases in the United States. Plague cultures exist in research labs around the world, making it relatively easy to acquire. Bubonic plague has been used as a biological weapon in the past.

Symptoms are shivering, headache, fatigue, and high fever. Left untreated, pain spreads to the back and limbs and the victim becomes sleepless, apathetic, or delirious. The most characteristic sign is buboes, swollen lymph nodes producing painful purple welts, especially in the armpits and groin. If someone does not know that the plague is in the region, a successful Diagnosis+2 roll will reveal what is happening on first sight of a buboed victim. Vaccines have existed since TL6, and antibiotics are effective against it.

Statistics (bubonic plague): Blood (insect borne); HT-2 to resist (critical failure results in pneumonic plague); 1d+1 day delay; 1d-2 toxic damage; six-hour cycle with 12 cycles. Symptoms produce severe pain (p. B428) and Unnatural Features 1 (buboes) after the loss of 1/3 HP. Mildly contagious (*highly* contagious if the flea-borne vector is not understood and precautions taken).

Statistics (pneumonic plague): Respiratory; HT-6 to resist; 1d/2+1 day delay; 1d toxic damage; 12-hour cycle with 12 cycles. Symptoms produce moderate pain and coughing (p. B428) after the loss of 1/3 HP, and choking (p. B428) after the loss of all HP. Highly contagious.

Ebola

A viral hemorrhagic fever, Ebola is an extremely lethal retrovirus that appears to have originated in Africa, spreading to humans from chimpanzees. The first confirmed outbreak of the most deadly strain, Ebola Zaire, was in 1976.

Ebola spreads from direct contact with blood or other secretions and infected needles, rather than through inhalation of viral particles, There is no chance of contagion if all contact with victims is avoided – in effect, it's a blood agent.

Victims develop fever, chills, headaches, muscle aches, and loss of appetite. As the disease progresses, vomiting, bloody diarrhea, abdominal pain, sore throat, and chest pain results. The blood fails to clot and patients "bleed out" from all orifices, injections, and into the stomach and internal organs. Mortality rate is 60% (Ebola Sudan) to 90% (Ebola Zaire); most patients die within three days of developing symptoms. There is no vaccine, and antibiotics are ineffective.

Statistics: Blood; HT-3 to HT-5 to resist; 3d+1 day delay; 1d toxic damage; 12-hour cycle with seven cycles. Symptoms are frightening: moderate pain (p. B428) after loss of 1/3 HP, nauseated and severe pain (p. B428) after loss of 1/2 HP, and Hemophilia after loss of 2/3 HP; death comes with convulsions, which can splatter blood around the immediate area. Highly contagious; HT rolls are at -5 if in physical contact with a victim's blood or bodily fluids.

Influenza

Influenza is a respiratory viral infection. Symptoms of flu include fever, headache, extreme tiredness, dry cough, sore throat, runny or stuffy nose, and muscle aches. There are numerous influenza strains, which mutate rapidly. Flu is spread easily by contact with infected individuals, and is most dangerous to the elderly and those already weakened by other privations or diseases. Vaccines are available, but antibiotics are ineffective. Statistics for a mild flu are on p. B443.

Some strains of flu can be especially deadly, such as the 1918 influenza A pandemic. Other deadly pandemics occurred in 1957 and 1968. There are fears that Asian avian influenza ("bird flu") may mutate from its current mildly contagious form to highly contagious, resulting in a similar disaster. Deaths from flu are usually due to respiratory complications such as pneumonia. The statistics below are for such a "killer flu," the fatigue loss and its effects simulating progression to pneumonia.

Statistics: Respiratory; HT-4 to resist; two-day delay; 1 point of toxic damage and 1d/2 fatigue; 12-hour cycle with 12 cycles. Symptoms include coughing (p. B428) and drowsiness (p. B428) after loss of 1/3 HP. Highly contagious.

Cleanup

If an area becomes contaminated with a biological agent, hazmat specialists will be called on to clean up the mess. Depending on the incident, decontamination can take months or even years, as initial obvious agents are cleaned up, followed by a lengthy hunt for contaminants lurking in inaccessible locations such as cracks in buildings or pavement.

Hazardous Materials skill (p. B199) includes the knowledge of cleaning up biologically contaminated areas. Labs (p. 16) may be equipped with ultraviolet lamps that can kill germs. Ordinary disinfectants and detergents may work in some cases. Ordinary household bleach (sodium hypochlorite) is one of the best decontamination agents and is used in most laboratories, although its caustic properties are not environmentally friendly.

Although peroxides and other oxidizing agents can destroy disease cells and spores, they can take hours to work. For more rapid decontamination, nontoxic catalysts composed of iron and chemical structures known as tetra-amido macrocyclic ligands are being developed specifically for biohazard clean-up. For example, spores such as anthrax could be killed in half an hour by spraying a solution of sodium carbonate, bicarbonate, and small amounts of these iron-ligand catalysts followed by the oxidizing agent tertiary butyl hydroperoxide.

The top-of-the-line method would be various types of nanomachines programmed to destroy a particular germ and nothing else. And if all else fails, fire (or nuclear weapons) can be used . . .

Rabbit Fever (Tularemia)

Believed to have been used in some germ-warfare programs, rabbit fever is caused by the *Francisella tularensis* bacterium. It resembles a mild form of bubonic plague, but is one of the most infectious organisms known (and is known for causing occasional lab mishaps). Humans can catch it by eating infected rabbits or other animals, by tick or flea bites, by an accident while preparing an animal carcass, or by drinking water contaminated by a dead animal.

The bacterium can easily be cultured so that contact with aerosol spores causes infection. A large warhead could spread it over a city-sized area. The Japanese worked on weaponized tularemia during World War II; during the Cold War the United States, Soviet Union, and possibly other nations developed stocks of the aerosolized bacterium. A terrorist attack using tularemia could kill over half a large city's population.

Tularemia causes swollen purplish lymph nodes (and might be mistaken for bubonic plague without a successful Diagnosis roll). Rabbit fever caught in the wild is rarely fatal to a healthy adult, but the inhaled form of the bacterium is more dangerous, causing additional symptoms including fever, sore throat, abdominal pain, diarrhea, and vomiting.

Statistics: Digestive or respiratory; HT-2 to resist (HT-5 to avoid initial infection); 1d/2 + 2 days delay; 1d-2 toxic damage; 12-hour cycle with four cycles, or 12 cycles if inhaled. Symptoms include moderate pain (p. B428) after loss of 1/3 HP and retching (p. B429) after loss of 1/2 HP. Not contagious from human to human.

Enhanced Germs

This is the biowarfare nightmare scenario – the use of genetic engineering to produce an "improved" pathogen. Some possibilities:

Treatment-Resistant Germs (TL8): The simplest kind of gengineered germ warfare is to modify a virus or bacteria so that it does not respond to known vaccinations. While a new vaccine may be developed against it, it could be too late by the time it is ready.

Increased Infectivity (TL8): Designing a more infectious strain. A -1 or -2 on the HT roll to resist is possible at TL8, a -3 or -4 at TL9+. Other modifications may also be possible.

Species-Jumping (TL8): While some lethal germs harm multiple species, many diseases that are very lethal against certain animals have no effect on humans, and vice versa. In nature, this can change through mutation, allowing a virus or bacteria to "jump the species barrier." This might also be done artificially, so that a disease known to be a very efficient killer of monkeys, sheep, or Alpha Centaurans (for example) could be altered into one that kills humans. Modifying terrestrial diseases to affect aliens (or vice versa) requires at least TL9; having live subjects to experiment on is usually necessary.

Tailored Lethality (TL9): Designing a more (or less) lethal strain, modifying the number of cycles, damage and modifiers to resist it, or secondary symptoms. At TL9

doubling effectiveness (halving the interval but doubling number of cycles) may be possible. At TL10+, more drastic modifications can take place (e.g., increasing the lethality of influenza to that of bubonic plague).

Vector Modifications (TL9): Some of the most lethal diseases (like AIDS or rabies) spread only through contact with bodily fluids. This means that they can be contained by taking the proper precautions. However, gengineering might be used to alter a particular agent so that it can be airborne – e.g., redesigning Ebola so it can be spread by coughing, or carried by mosquitoes, fleas, and the like. Of course, this might not always be desirable, since it makes it much harder to control. This will modify the circumstances under which a contagion roll is required.

Nanoviruses (TL10): Bio-nanotech can produce wholly artificial infectious toxic agents. These biological nanomachines allow entirely new modes of cell destruction as they disrupt vital chemical reactions or physically interfere in other metabolic processes. As such, antibiotics and Resistance to Disease have no effect against them. Protection can only come from guardians (p. 165) or Resistance to Nanomachines or Metabolic Hazards. Design nanoviruses using the same rules as inventing other infectious agents, but double the development and production costs.

Target-Seeking Pathogens

I didn't mean it! It was a mistake! How was I supposed to know the sequence I picked to target that Michelle woman was also found in the capo's wife and daughters?

– Doc Hobo, street splicer

This genetic modification is one of the more exotic potential spin-offs of gengineering and genome mapping. With this know-how, a microorganism (most likely a virus or nanovirus) might be modified so that it will only attack individuals who possess certain genetic markers. What is possible varies by TL:

- At TL9, a virus can be modified so that it affects a fairly clear-cut set of genetic traits; e.g., blond hair, men only, women only. People possessing recessive genes may be vulnerable to target-seeking viruses without exhibiting those traits.
- At TL10, a virus can be modified to attack individuals with more complex combinations of genetic traits – for example, those that make up a particular racial group, or even traits known to be common to a particular family.
- At TL11, even more discretion is possible. A virus might be targeted specifically at an individual – it would affect him, or his clone or twin, but no one else.
- At TL12, target-seeking viruses can be a lot smarter, using biological nanomachines rather than simple engineered viruses; if the genome information is correct, they are reasonably foolproof.

It is absolutely vital to have accurate information on the genetics of the intended target group before the virus is created! The would-be viral warrior should exercise great care in specifying what traits the virus will target. For instance, suppose a white-supremacist terrorist group wants a virus that will target non-whites. Unfortunately for genetic Nazis, in all but the most isolated countries, there have been centuries of racial mixing. As a result, the virus will probably either kill a lot of the group's own members, or spare many of the people they want to affect, depending on how selective its designers made it. This is even true of "simple" targets like hair color, since very few phenotypes are governed by a single gene – a competently designed virus intended to kill blonds will do that, but will also kill some non-blonds and leave some blonds alive.

Sample New Bacterium – Oedipus-5 (TL9)

This terrifying bacteriological weapon attacks the nervous system and strips away neural sheathing. It also has a special affinity for attacking eye tissue. Oedipus-5 does not always kill, but survivors are often left uncoordinated and blind, posing additional problems for treatment.

The disease is spread by contact with infected individuals or the germ in the environment. Symptoms develop in 24 hours, and consist of blurred vision and dizziness; the eyes turn into weeping sores filled with pus, and the body shakes constantly. Antibiotics have their normal effect. Neural and vision damage may be fixed by TL9+ fetal tissue and eye transplants, but the process requires major surgery, costing at least $2,000 per point of disadvantage that is to be repaired.

Statistics: Contact; HT-4 to resist; 24-hour delay; 1 point of toxic damage; one-hour cycle with 12 cycles. Symptoms include -1 DX after loss of 1/3 HP; an additional -1 DX, Bad Sight (Nearsighted), and Total Klutz after loss of 1/2 HP; and a third -1 DX, Blindness, and Confused (6) after loss of 2/3 HP. Highly contagious.

Designer Plagues

Even more frightening than tinkering with existing germs is the prospect of an entirely new "designer plague." This can be produced by modifying an existing (even harmless) bacteria or virus, perhaps combining genetic material from multiple different organisms into one.

New germs should be designed using the guidelines on pp. B442-444 or by modifying the diseases described in this chapter. The best way to "personalize" new diseases is to select afflictions, features, or disadvantages that occur as symptoms in addition to HP loss, usually after 1/3, 1/2, or 2/3 HT has been lost to that disease. Appropriate disadvantages include Blindness, Sterility, or even Bad Smell (from rotting flesh). More exotic diseases might even cause mental disadvantages by attacking brain tissue. GMs should not go overboard with symptoms, however: toxic damage is assumed to include pain, fever, chills, fatigue, etc., so it isn't necessary to spell out every problem. Focus on the most interesting or frightening possibilities.

Germ Delivery

Once you have a biological warfare agent, you need to find a way to deliver it to your target, preferably without infecting yourself and your allies! If the infection is designed to target only your enemies, this is much easier, since it poses no risk to anyone else. There are many possible scenarios for deploying germ warfare or bioterrorism agents, and just as many for detecting it, figuring out what is happening, and stopping it before it's too late. Many of these have been explored in fiction and would make tense and exciting game plots.

Area Contamination

The simplest method of infecting a population is to release the germs over a wide area. This is only suitable for agents that can survive outside the body and infect people by contact or inhalation. Spraying the germs from an aircraft is effective, although likely to result in the craft being shot down or captured. Shooting it down may still spread the contagion just as well as if the craft gets away, posing a dilemma for any potential defenders if they are aware of its mission. A missile warhead is a less risky delivery system, but is harder to come by than a modified crop duster.

A more subtle approach is to use field agents to carry samples of the plague into the target area and release them as a coordinated attack. In its crudest form this is a suicide mission, but a moderate application of technology could program the germ containers for a time-delayed release. Te agents might also be vaccinated, or not subject to a genetically targeted contagion. Air conditioning systems in modern buildings are an ideal target for such activity, as they have centralized plants that distribute air to large numbers of people. An organism that produces a contact biotoxin could be engineered (TL9) to grow as a biofilm (p. 111) when smeared on to doorknobs or other surfaces, contaminating wide areas.

Attackers can also spread bioweapons through distribution channels such as mail or courier services. This approach exploits an existing infrastructure to disperse the infection. It requires little hardware or expense, but can quickly be shut down once the attack is discovered.

Food or Water Contamination

Spraying crops or reservoirs is easier than spraying a populated area, but an infiltration mission to release the contagion in farmland or a city's water supply is even less likely to be detected. Although it is relatively straightforward to spread the germs in this way, it is less effective for actually infecting anyone. Developed cities have drinking water treatment specifically designed to kill or filter out any infectious organisms, and crops are processed and purified before reaching consumers. Bypassing these defenses may be possible with small enough and hardy enough organisms, such as bacterial or fungal spores, or prions.

Another way of contaminating food or water is to do it at the processing plant. This allows the infiltrator to add the germs after any purification treatments, making them more likely to reach consumers. The difficulties here are gaining access to secure facilities and finding the right place within them to release the contagion, where it will be effective, and not noticed until it is too late.

Finally, food sources can be infected in the distribution chain between plant and consumer. Real incidents of people contaminating food on supermarket shelves (with poison rather than germs) have led to tamper-proof or

tamper-evident packaging which makes this difficult in some cases, but a hypodermic syringe can still work wonders with many products. The problem with this method is that it is labor-intensive and results in relatively few affected products, making the contamination easy to contain once it is identified.

"Typhoid Mary"

This method uses a carrier – a person infected with the disease organisms, but who has not (yet) succumbed to its symptoms. The carrier may be immune, or within a long incubation period for the disease before it manifests symptoms. A healthy-looking person can normally travel freely, and thus may carry the infection to other countries, continents, or planets. Once there, the carrier infects other people with whom he comes into contact. These victims develop symptoms, ideally after an infectious incubation period in which they infect a second generation of victims, and so on. As the disease spreads throughout the population, an immune carrier may remain unidentified as he has never developed the disease himself, though he may be tracked down through conventional and forensic detective work. If the carrier has succumbed, he might be identified earlier. By that stage, however, it is too late.

An immune carrier could easily be a plant, while a non-immune one must either be an unwitting stooge unaware of his fate or on a suicide mission. Infecting a willing carrier is trivial; getting the germs safely onto a dupe is another matter. It would be easy to plant gengineered microbes on someone, by brushing past him or surreptitiously squirting him with an atomizer; the tough part is avoiding infecting yourself or anyone else, or contaminating the entire area. Thus some care and subtlety are called for.

Insect Vectors

If your bioweapon needs to get through the skin to be effective, simply contaminating a region won't work – you need to use something to get the organism into the body. Several types of insects and arachnids already have the habit of biting people and injecting them with disease organisms: ticks carry bacteria that cause Lyme disease, spiders harbor bacteria that produce necrosis of the flesh, and mosquitoes host the malaria protozoan and various viral diseases. There are also biting flies, ants, and other insects in various parts of the world.

The best natural bioweapon carriers would be mosquito species, as they are the most widespread and common biting insects encountered by people, and will raise few suspicions until it is too late. All you need is a small breeding facility able to release mosquitoes that carry the weapon in the target area. Each mosquito can infect multiple people, and once a few are infected the local mosquito population will begin transmitting the disease too. For more control or greater reliability, gengineered insects could be used instead – see *Insect Bioweapons* (p. 82).

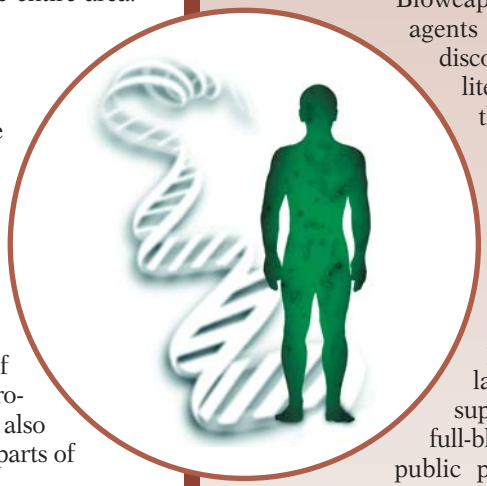
Anti-Germ Warfare

Once the prospect of using infectious agents as weapons becomes likely, people will begin inventing ways to defend against them. Many of the same procedures that work against natural infections will be effective, such as vaccination, antibiotics, and antiviral drugs. For pre-existing diseases, these things may already exist; the main problems will be ones of supply and distribution. Attackers will know this and factor it into their estimates of how effective a contagion will be. They may choose a disease for which no treatment is yet known, or for which effective treatment is too expensive for widespread use.

An engineered plague is another matter, as the contagion is completely new and precious research time will be needed to identify the pathogen before trying to come up with ways of fighting it. The most effective biowarfare agents will reduce the defenders to the basic methods of isolation, containment, and quarantine, which leads to ethical and social dilemmas for leaders, as well as adventuring opportunities for those caught in the chaos.

Combating germs spread by insect vectors can be approached in a different method: by controlling or eliminating the insects before they can infect people. Besides insecticides and repellents, biological control methods could be used – see *Biological Control* (p. 76).

Germ Warfare and Terrorism



Bioweapons make terrifying agents for sowing fear and discord – terrorism at its most literal. In 2001, terrorists in the United States mailed anthrax spores to media agencies and senators, causing the infectionsof 22 people and the deaths of five. The wake of panic following these attacks saw thousands of people seeking prophylactic antibiotics, while supplies quickly ran out. In a full-blown bioterrorism attack, public panic is likely to cause chaos, overwhelming emergency responses and spreading the contagion as desperate people evade or break through containment measures.

This reaction makes biological weapons an attractive choice for those seeking to maximize discord and make political statements. Many bioweapons are expensive to develop and distribute, but a few are simple enough and available enough to cause antiterrorism forces to fear the worst.

Anti-Material Bacteria

Halfway between killer germs and exotic industrial bacteria, these are microorganisms designed to attack nonliving things rather than animals or plants. Some types that are already under development (making them TL8) include:

Explosive-Eating Bacteria: Usually targeted at a specific chemical explosive; e.g., TNT, RDX, Plastex-B, etc. These will knock out explosive warheads and chemical propellants.

Petroleum-Eating Bacteria: Based on bacteria used to clean up oil spills, these are designed to eat hydrocarbon-based lubricants and fuels such as gasoline, diesel and jet fuel.

Rubber-Eating Bacteria: These could destroy tires, fuel lines, valves, boots, etc., disabling vulnerable equipment.

Other Types: At TL9+, more exotic types of bacteria (or nanomachines that work like bacteria) may become available that can rapidly degrade plastics, various biotech materials and even silicon chips. However, bacteria won't have much chance against metal, stone or most advanced composites and ceramics. Other types of microbes may also be used.

If equipment or supplies that are vulnerable to a particular anti-material bacteria are in an area that is contaminated, or come into contact with infected material, check for infection. Use the Contagion rules (p. B443) as guidelines to see if the bacteria infect particular material. Ignore modifiers for eating flesh, but "intimate contact" would be direct physical contact with contaminated material – e.g., topping off an uninfected fuel tank with contaminated gasoline, or spraying the bacteria directly into a mechanism. If the HT of the material (or its container) is unknown, use HT 10 for machines, 12 for solid objects.

Anti-material bacteria work slowly. Generally, infected material will show initial signs of rot or contamination after 24 hours and become useless (eaten away, turned to goo, etc.) within 48 hours. During this time, the bacteria can infect other material it contacts. A roll against Hazardous Materials skill (with appropriate equipment) can detect contamination early enough to treat it (using disinfectant bleaches, etc.). A fully airtight container or seal will protect against anti-material bacteria. In the case of sealed vehicles or bases, GMs can require occasional rolls vs. Hazardous Materials skill, with a failure or indicating that some sort of mistake was made (e.g., a seal left open), which will allow a chance of contamination. Of course, saboteurs can always open up machinery and spray the bacteria into it!

In general, anti-material bacteria are devastating against unprepared targets (especially at TL7 or less) but will be of limited use against targets equipped with countermeasures, such as ultra-tech military forces. See also *Cleanup* (p. 114).

Anti-Nano Bacteria (TL10)

One of the primary applications of nanomachines is to seek and destroy cells of various types. Turning this around, it is possible to gengineer microbes to seek and destroy nanobots. This is a trickier task for the developers, as they need to equip the bacteria with the ability to detect nanomachines – which can come in a wide variety of physical shapes – and the ability to damage them.

At TL11 it becomes possible to engineer bacteria to *reprogram* nanobots. Reprogramming bacteria would cost at least as much as the purchase price of the reprogrammed nanobots, but the advantage is that the original nanobot controller may be unaware of the reprogramming, and might even be fed false information.

Medical Applications

Microorganisms have many applications for improving and sustaining the health of people, and in preventing or curing illnesses.

Fighting Disease

What science produces, it can also cure – sometimes. In addition to chemical treatments, bioengineering has produced several methods of dealing with disease.

Vaccines (TL5/6)

A vaccine is a suspension of material designed to produce antigens when introduced into the body, thus provoking the subject's immune system into producing defenses ready to fight off a real disease, should it appear. Some vaccines contain dead or weakened viral particles or bacteria, while others have DNA fragments or pathogenic toxins.

Crude attempts at exposing healthy individuals to smallpox scabs originated in China and India (TL5) and spread to Europe in the 18th century. In the late 18th century, Edward Jenner inoculated humans against smallpox by using the less virulent cowpox, and by 1800 vaccination was common in Europe. Louis Pasteur perfected the first modern "active" vaccine using weakened forms of the rabies virus by 1885 (TL6). Vaccines for a wide range of diseases followed quickly.

Today vaccines are relatively cheap (prices average $20/shot, but can be as little as pennies per shot). Programs of mass vaccination have virtually wiped out several diseases, including smallpox. They have also spread a few diseases, when inoculations were performed with unsterilized needles. At higher tech levels, other diseases we consider common may be eradicated through mass vaccination programs. If a historically crippling disease such as smallpox is reintroduced to a world in which vaccination against it is no longer considered necessary, the consequences could be disastrous. This could happen if samples kept for scientific study are released – accidentally or deliberately; they would make tempting biological weapons. Or diseases could be reintroduced from other planets or timelines . . .

With few exceptions (notably rabies and smallpox), vaccinations are only effective on someone who has not yet caught the disease. They offer either boosted resistance or complete protection, but many wear off after a few years. As viruses constantly mutate, new vaccines need to be created – use the *New Inventions* rules on p. B473, using Pharmacy or Bioengineering (Vaccines)/TL6+ depending on the approach.

Making a vaccine is tricky: If it's too weak, it won't provide immunity, while if it isn't weakened enough, it may infect the patient! New solutions at TL8 include:

- Recombinant vector vaccines, made by splicing genes for a virus' outer protein coat (which is what the immune system recognizes) into bacteria. Proteins harvested from the cloned bacteria are used to make a vaccine.
- DNA vaccines, which use lab-built DNA fragments directly injected into the body. These are designed to stimulate the production of antibodies to fight specific diseases. With no real virus particles, these methods are both strong and safe.

Statistics: A vaccine gives someone Resistant to Disease (+8) or Immunity to Disease limited to one particular strain of pathogen. This can wear off after six months (influenza, cholera) to 10 years (tetanus). The diseases protected against are unlikely to be encountered, making this resistance so limited that it is not worth any character points. Immunity to a *commonly encountered* disease would make a good perk. Ultra-tech vaccinations that protect against *all* diseases provide full Resistant to Disease.

Phage Therapy (TL7)

This is an alternative to antibiotics in the fight against infectious bacteria. Rather than chemical compounds, phage therapy uses *bacteriophages* (viruses that attack bacteria) to attack and kill the infection. This has the advantages of not killing beneficial bacteria or producing allergic reactions, as the phages only attack the target bacterium species. It also requires only small doses of the phages, as they reproduce naturally by themselves, and phages are hardier than antibiotics, having shelf lives of years. Finally, the target bacteria evolve resistance to phages much more slowly than they can evolve into antibiotic-resistant strains.

Starting in the late 1930s, Soviet scientists researched phage therapy with great success, as they were isolated from western antibiotics production technologies. The techniques remained virtually unknown elsewhere for political reasons until the collapse of the Soviet Union, and are still obscure today because most of the research remains untranslated from Russian. But interest is increasing, as this is one of few avenues open for winning the battle against increasingly antibiotic-resistant infections.

> *Bacteria never die, they just phage away.*
>
> *– Mark Müller*

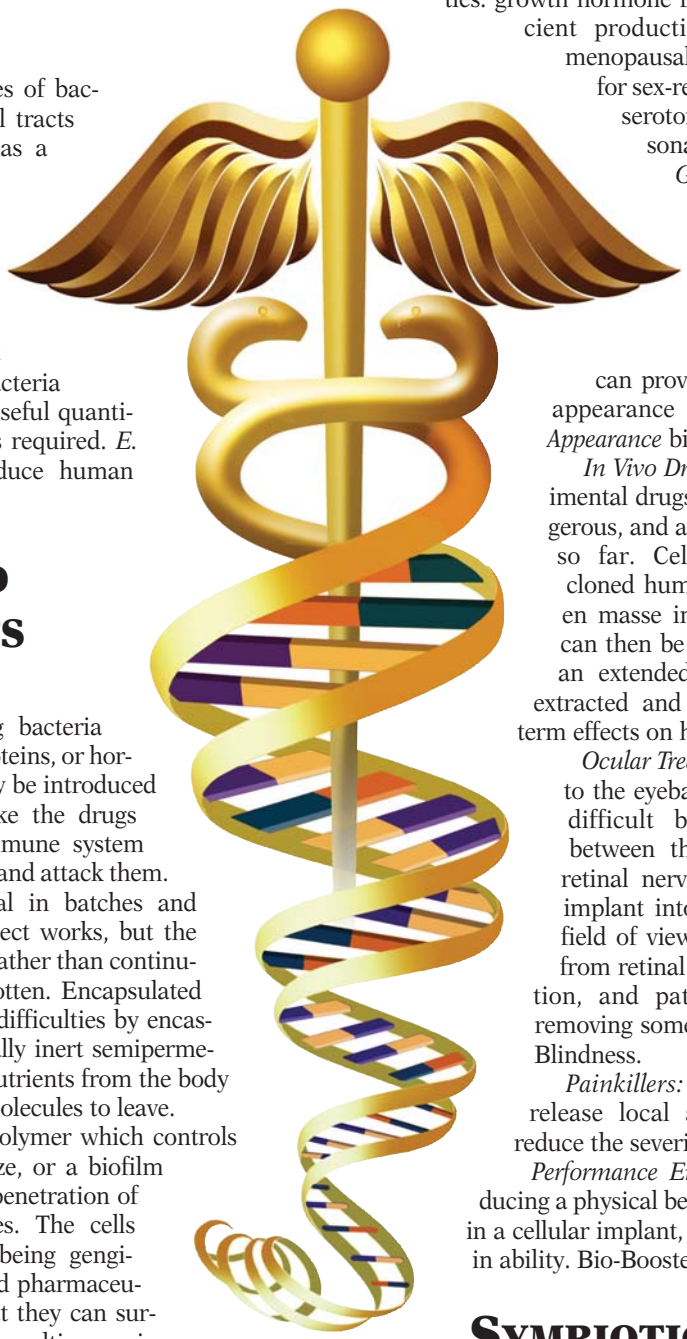
Phage therapy provides the same bonuses to fight bacterial infections as antibiotics. Phages are normally highly species-specific; broad-spectrum varieties targeted at several pathogens only become available at TL9. These can be used to impregnate bandages for infection control.

Protein Factories

Physicians and bioengineers often need large quantities of particular proteins to treat medical conditions or for research and development. An example is the hormone insulin, used to regulate blood sugar levels in diabetics. These can be harvested from pharm animals (p. 85), or produced by bacteria. Bacteria have the advantage that they can be grown easily in a vat and processed in bulk.

E. coli (TL7)

Escherichia coli is a species of bacterium found in the intestinal tracts of mammals and birds. It has a simple genetic structure and is amenable to carrying plasmid (p. 12) DNA inserted into it. The *E. coli* cell will then express the DNA sequence and produce the proteins that it codes for. In this way, the bacteria can be "farmed" to produce useful quantities of any specific protein as required. *E. coli* were first used to produce human insulin in 1978.



Encapsulated Cell Implants (TL8)

One problem with having bacteria produce therapeutic drugs, proteins, or hormones is that they can't simply be introduced into a patient's body to make the drugs there, because the body's immune system will recognize them as foreign and attack them. Producing the pharmaceutical in batches and supplying it to patients to inject works, but the drug is delivered periodically rather than continuously, and doses can be forgotten. Encapsulated cell implants overcome these difficulties by encasing the bacteria in a biologically inert semipermeable membrane. This allows nutrients from the body to enter and the therapeutic molecules to leave.

The membrane can be a polymer which controls the chemical flow by pore size, or a biofilm (p. 111) tailored to allow the penetration of specifically selected molecules. The cells within the implant, besides being gengineered to produce the required pharmaceutical, are also modified so that they can survive for long periods in the resulting environment. The implant also contains an internal structural matrix for strength – it may be designed to facilitate diffusion of various chemicals in and out of the implant. The resulting implants can be very small, about the size of a grain of rice.

Some applications include:

Artificial Glands: Diabetics can obviously benefit from implantable insulin factories, designed to replace the failing pancreas function. The implants must react to hormonal levels in the body, so that they release insulin at the correct rate for auto-regulation. Generalizing from insulin factories, implants can take over the role of any regulatory hormone producing gland. Other possibilities: growth hormone for children lacking sufficient production, estrogen for post-menopausal women, sex hormones for sex-reassignment patients, and serotonin for sufferers of seasonal affective disorder. See *Genetic Surgery* (p. 181) for therapeutic glands and the *Sleepless* biomod (p. 180) for a lifestyle option.

Cosmetic Implants: Color-changing microbes can provide fashionable or useful appearance shifts; see the *Altered Appearance* biomod (p. 169).

In Vivo Drug Testing: Testing experimental drugs on humans can be dangerous, and animal testing can only go so far. Cell encapsulation allows cloned human cells to be implanted en masse into animals; the animals can then be treated with a drug over an extended time and the implant extracted and examined for any long term effects on human tissues.

Ocular Treatments: Delivering drugs to the eyeball and retina is normally difficult because of the barrier between the bloodstream and the retinal nerve complex. Inserting an implant into the eyeball (out of the field of view) can treat eyesight loss from retinal degeneration, inflammation, and pathological angiogenesis, removing some forms of Bad Sight and Blindness.

Painkillers: Implants that slowly release local analgesics can cure or reduce the severity of Chronic Pain.

Performance Enhancers: Any drug producing a physical benefit can be encapsulated in a cellular implant, leading to improvements in ability. Bio-Booster (p. 174) is an example.

Symbiotic Bacteria

Bacteria can also perform useful functions in parts of the body where they will not come under attack by the immune system. Around 1,000 different species have lived in symbiosis with humans ever since we evolved, in

the mouth, intestines, and on the skin. In fact, the bacteria on a human body outnumber the human cells by 10 to one. We don't notice them because they are so much smaller than our own cells.

Modifying these bacteria leads to several useful new species. Nanosymbionts can do the same jobs, but not until at least a TL later in most technology paths, and at a higher cost. Bacteria also repair themselves and reproduce – tricks that add further to the expense of nano.

Communicators: Bacteria are essentially machines for analyzing their chemical environment and producing proteins. Skin bacteria could react to subtle changes in the body chemistry of their host by releasing specific molecules into the air, forming a scent. Perhaps undetectable by humans, this scent could be detected by tuned biosensors (or perhaps even animals). Together, this produces a subtle method of communicating information on the host's activity state and hormone levels. Applications include remote diagnostic monitoring, pheromone production keyed to arousal level, and a scent-based communication system.

Deodorizers: Offensive body odor is caused by naturally existing bacteria that metabolize sweat. Gengineered bacteria with no detectable smell could outcompete or destroy these, resulting in permanent and complete deodorizing, granting Sanitized Metabolism. Variants could produce subtle (or not so subtle) perfume scents.

Enhanced Digestive Bacteria: With microbes that can digest nearly anything, it's only a matter of time before someone creates transgenic species capable of living in the human gut. Adapting existing bacteria from termite guts would allow humans to digest cellulose, gaining additional nutrition from plant matter. A more radical idea is to enable digestion of materials like polymers; the only real limit is what people can manage to swallow without poisoning themselves. More usefully, microbes could be engineered to convert food with a different biochemical basis into nutrients usable by humans. This would be valuable for colonists on an alien planet full of life, but based on a different chirality or genetic macromolecule complex – see *Alternative Biochemistry*, p. 35. Pets and livestock could be similarly equipped to deal with their new food supply.

Infection Sentries: Capable of detecting potential infectious organisms before they enter the body, sentry bacteria would carry loads of viral "ammunition" to attack and destroy any identified hostile microbes or spores. This could ward off anything from athlete's foot to tetanus, providing Resistant to Disease at some level.

Oral Hygiene: Bacteria in the mouth cause bad breath and tooth decay. By replacing them with gengineered varieties, one could be assured of sweet breath and no cavities.

Tracers: Using any of the methods of infecting a germ warfare carrier (p. 112), someone could easily plant gengineered microbes on another person – microbes that will stay on the target forever after, and may transfer to anyone who comes into contact with him. This provides a method of tracing the target, and his contacts and movement through a society. The signal can be picked up with biosensors tuned to detect a molecular scent, as with *Communicators* (above).

If the designer is only interested in the target, the bacteria can be engineered to produce their tracing scent while in the immediate environment of the target's specific biochemistry. This requires a sample of the target's skin cells and sweat.

DNA Eraser (TL10)

This is a specially designed retrovirus that spreads to and infects every cell, but otherwise remains dormant in the user's body. It acts only when a cell undergoes apoptosis and dies. When that occurs, the virus quickly destroys the DNA within the cell. This is useful for people who do not want to be traced by genetic fingerprinting (p. 9), as it means any cell samples they leave behind cannot be used to identify them.

The virus must be injected and takes a week to spread to all the living cells in the body. Pre-existing hair and nails will retain the original DNA, but new growth will not from then on. $20,000. LC2.

Chimeric Retrovirus (TL11)

Yeah, I dropped the cash for a custom DNA edit job on my shed cells. I figured in this business, a guy needs all the protection he can get, right? Better to go for the real deal than a cheap knockoff. It worked fine for a while, until the cops found some skin flakes at a break and enter in some town I never even heard of halfway across the country. They ran a match and got a partial on a hair I left in the CEO's office at Macrogen – yeah, that was my hit. Anyway, turns out the lab monkeys did a comparison, backtracked the common edits, and fingered this petty crim and me. The first guy I took out after I got the virus should have been the slimeball doc who made it for me and then decided to make a quick buck by selling cheap copies . . .

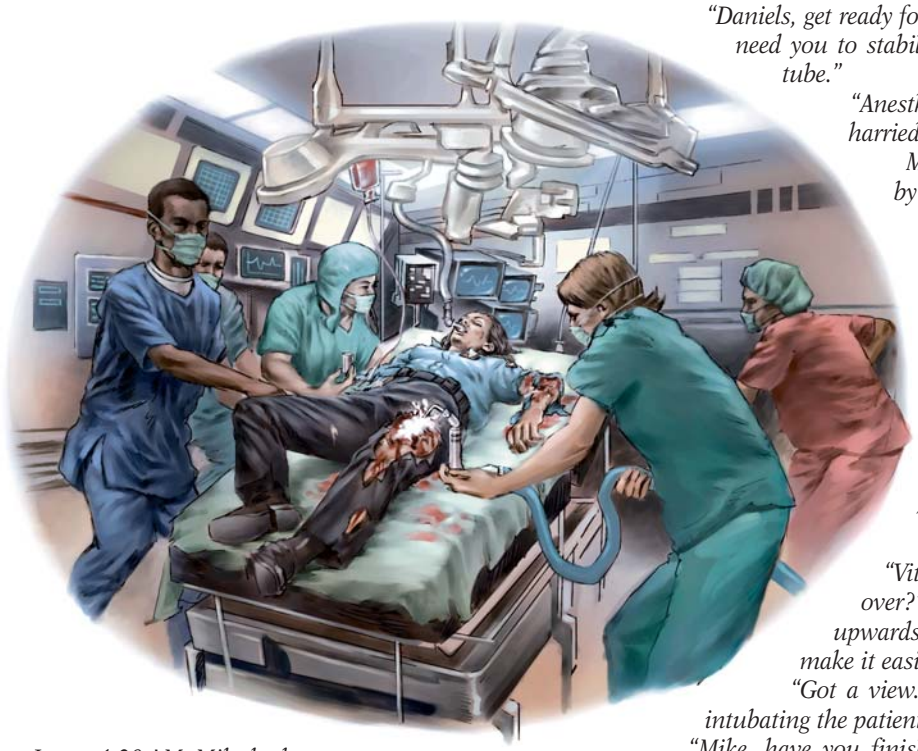
This is a more advanced version of DNA eraser. Instead of simply destroying the DNA in dying cells, it *edits* the DNA, changing it so that it no longer matches the DNA of the user. The virus is customized for each individual, so that the resulting DNA is not an obviously edited fake. The advantage over DNA eraser is that shed cells look normal, and do not raise suspicions against people who have procured eraser.

Black market versions are likely to be simple copies of a virus ordered by someone else, which means they produce the same telltale edits. If a genetic analyst gets hold of DNA from two different people edited by the same virus, he can determine the common edits and reconstruct the unedited DNA of each person on a successful Bioengineering (Genetic Engineering) roll. Each additional sample edited by the same virus from a different person adds +1 to the roll.

At TL12, the retrovirus can be customized so that it edits the user's DNA into an exact copy of the DNA of *another person*. This requires a DNA sample of the target person and two weeks to prepare and culture the virus.

Availability: TL11 version: $100,000. LC1. *TL12 version:* $250,000. LC0.

Chapter Five
Medical Technology



It was 1:20 AM. Mike had been in theater for most of the last 15 hours, and was looking forward to a nap. His pager buzzed insistently.

"Trauma call. Female police officer high speed MVA limb and closed head injuries GCS 10 ETA 5 minutes," read the text message.

Mike took the lift to the Emergency Room.

"It was a roll-over during a high-speed chase." That was Nurse Daniels. She always knew. "Officer Stacey Polanski." She frowned. "Her partner was DOA."

Polanski was barely conscious and looked ashen. Blood oozed from her mangled left arm and leg.

"Pressure and stats are dropping," Nurse Velacroix warned.

"Where's anesthesia?" Mike asked.

"On his way, doctor," Daniels said.

"Damn. We have to intubate, now."

"I've got a RIC in the right arm," Sung, the new resident, reported. He had a cool head, the best of the crop.

"Good. Get some volume in and stop the bleeding," Mike ordered.

"I'm on it."

"Daniels, get ready for a rapid sequence. Velacroix, we'll need you to stabilize the patient's C-spine when we tube."

"Anesthesia's here." It was Reich, looking harried. "Car chase, huh?"

Mike nodded, his expression hidden by the surgical mask.

"Drugs or airway?" Reich asked.

"Airway. Let's go. Velacroix, hold the neck. Daniels, you're on cricoid." Mike had no more time for thought, only trained reflex. Reich induced anesthesia. "Drugs are going in. Cricoid on, now!"

Mike began to ease the laryngoscope into position. "Can't get a view. Suction!"

Reich glanced at the monitors. "Vitals are stable. You want me to take over?" he asked. "Daniels, try a bit of upwards pressure on the larynx. Might make it easier for Mike."

"Got a view. Thanks. Tube!" Mike said, deftly intubating the patient's trachea.

"Mike, have you finished your primary survey?" Reich asked Mike as Daniels tied the airway tube in place. "I'll call theatre and let them know we're coming up in a few minutes."

"Systolic is 80, pulse 107," said Daniels.

"Sung, you happy with that bleeding?" Sung nodded as he grimly pressed on Polanski's mangled arm. "Okay Daniels, 500 cc of warm Ringer's lactate, stat."

"Yes, doctor," Daniels responded.

Mike finished examining Polanski. "Let's go. She's going to lose that arm." Under his breath, Mike murmured, "Hopefully we can save the rest."

The most basic use of biotechnology is to take care of the sick and injured. This chapter presents extra details and expanded rules for many medical situations. All of the rules in this chapter are *optional*, and the GM may choose to use some or all of them as desired.

Along with procedures, various items of equipment used to perform them are described. The equipment quality modifier (p. 15) and biotech equipment cost (p. 15) rules apply to them. Where appropriate, the real-world year of invention is given immediately before the equipment's cost.

First Aid

First aid is care given to an injured person in order to stop immediately life-threatening conditions and stabilize the patient so he doesn't get any worse. Once stabilized, the long-term effects of shock can be treated. First aid deals with surface wounds as well as obvious internal issues such as lack of breathing. Internal injuries are often not detectable by a first aid provider, and the best treatment for them is to keep the victim still and comfortable until expert medical care arrives.

First aid is given at the scene of the injury, either by bystanders or by professionally trained paramedics. At high tech levels, first aid may be robotic.

Basic rules for first aid are on p. B424. This section presents expanded rules for specific first aid situations.

Stabilization

The first order of business is to check if the patient is breathing and has blood circulation. If not, the patient needs to be resuscitated; basic rules for this are on p. B425. Details for specific parts of the resuscitation and stabilization processes are given below.

First Aid/TL?

Many first aid techniques can be learned and used with minimal equipment. Game Masters may choose to treat First Aid as a cultural skill, rather than a technological skill. Depending on the game world, effective first aid could be known and used by Bronze Age cultures, or it may be a relatively unknown skill in ultra-tech futures. In such cases, drop the /TL designation.

Airway

If the patient's airway is blocked, this is choking (p. B428), which causes suffocation (p. B436). Commonly, the airway is blocked by the relaxation of muscles caused by unconsciousness; lifting the chin remedies this. A foreign object lodged in the throat can sometimes be cleared by slapping the victim on the back or, more effectively, by firmly pressing the diaphragm from below (first advocated by Heimlich in 1973). If nothing helps, the patient will need a tracheotomy to bypass the blockage and allow breathing. Even if the airway is clear, paramedics at TL6+ often insert a tube into an unconscious trauma victim's windpipe to ensure it stays open, preventing further airway complications.

A First Aid roll can remove a foreign object blocking the airway, and can be repeated every two seconds. This roll is at -2 before TL7. Performing a tracheotomy requires a Physician/TL5+ roll – or a First Aid/TL5+ roll at -4. A critical failure results in 1d-4 cutting damage to the neck. See Trach Kit (p. 124) and Intubation Kit (p. 124).

Optional rule: Treat any crushing injury *over* HP/2 to the neck hit location as a crippling injury which crushes the windpipe, causing choking.

Breathing

Once the airway is established, the patient must receive oxygen to avoid brain damage and eventual death. If the patient is not breathing on his own, his oxygen supply can be sustained artificially by inflating the lungs with air.

The easiest short-term method is mouth-to-mouth resuscitation, which was developed as a resuscitation technique in the 1950s. Prior to this, the best method in use was to lay the patient down and periodically compress the torso. This was about as effective as the 15th-century practice of rolling drowning victims over a barrel, or 16th-century attempts to use bellows – i.e., not very.

Mouth-to-mouth breathing can sustain a patient indefinitely, but the first aid provider loses 1 FP for every 10 minutes of breathing; each point of loss may be negated by a successful Breath Control roll. A bag mask (p. 124) or mechanical ventilator (p. 136) provide breathing assistance without requiring mouth-to-mouth breathing. The *Resuscitation* rules (p. B425) imply that restoring breathing requires Physician/TL7+ or First Aid/TL7+ (with a roll against First Aid at a -4 penalty). If a lower TL technique is attempted, as described above, treat this as an "Improvised Equipment with a -5 (quality) penalty to skill.

Circulation

Heart failure is far more serious than the cessation of breathing. Until the invention of cardiopulmonary resuscitation (CPR) in the 1950s there was no known method of sustaining or reviving a victim whose heart had stopped or gone into a rhythm that prevents blood flow. CPR alone may restart the heart, but often this requires defibrillation (first demonstrated in 1947) to restore a normal pulse. Recovery rates are not as rosy as depicted on television dramas. If a defibrillator is available, victims of cardiac arrest revive in only 30% of cases; without it, recovery is even less likely. Giving CPR properly requires a First Aid/TL7+ roll and costs the first aider 1 FP per 5 minutes if done manually.

The chance of successful resuscitation depends on the patient's health. He makes a HT-2 roll each minute, at an additional penalty of:

- -1 for every minute elapsed since arrest if CPR *and* defibrillation are being used;
- -2 per minute if defibrillation is used without CPR;
- -4 per minute for CPR without defibrillation.

On a success, circulation returns; on a critical success, the patient regains consciousness. Failure means that circulation is still absent; CPR can continue and defibrillation can be tried again. Critical failure equals death. Unlike restoring breathing, restarting the heart *cannot* be done at all at tech levels below TL7, unless the rescuer is somehow familiar with CPR techniques. Travelers from TL7+ may teach CPR to natives of lower TLs.

Bleeding and Bandages

Once the victim's oxygen supply is established with breathing and circulation, the first aid provider must stop any bleeding. At most TLs this involves some form of bandaging, whether it be with strips of cloth or a spray-on synthetic skin.

High-tech equipment can reduce the time taken to bandage a patient; see the entries for specific items below, under *First Aid Equipment*.

Rules for bandaging are on p. B424. Bandaging is only effective if the wound is bleeding. This will not normally be the case for crushing damage or blunt trauma (p. B379). In those cases the GM may rule that bandaging is useless, although this does not reduce the HP restored by treating shock.

First Aid Equipment

The following equipment is available for emergency treatment. All these items are LC4.

Crash Kit (var.)

A complete kit for treating *serious* injuries. Includes sterile bandages, sutures, and drugs appropriate for the TL. At TL6+, includes IV drip, needle, and plasma. +2 (quality) to First Aid skill, providing the level of treatment (see p. B424) appropriate for its TL. It can be used for Surgery but is improvised gear giving a -5 (quality) modifier. $200, 10 lbs. LC4.

First Aid Kit (var.)

A complete kit for treating wounds, with bandages, ointments, etc. Gives a +1 (quality) bonus to First Aid skill, providing the degree of treatment appropriate to its TL (p. B424). $50, 2 lbs.

Trach Kit (TL5)

A large-bore needle that is inserted in the windpipe to allow breathing. At later tech levels this kit includes a tube for fitting a bag mask or oxygen supply. A tracheotomy can be performed with improvised equipment, at -5 to skill as per p. B345. $150, 0.5 lb.

Bag Mask (TL6)

A rubber or plastic mask with an attached bulb or bag. The rescuer pumps the bag by hand while holding the mask in place, delivering a steady flow of air to the victim. $15, 1 lb.

Intubation Kit (TL6)

This consists of a selection of laryngoscopes, tubing, and other equipment necessary to place a breathing tube into the windpipe of a patient. $200, 2 lbs.

Defibrillator (TL7)

Metal plates connected to a power supply, designed to give brief electric shocks to a patient undergoing cardiac arrest, which may "reset" the heart into a normal rhythm. Can also be used as a weapon, causing 4d of nonlocalized lethal electrical damage (see p. B432). 1947. $8,000, 40 lbs.

Phage-Impregnated Bandages (TL7)

Wound dressings in a sterile package, impregnated with naturally occurring bacteriophages; counts as antibiotics for infection control – see *Phage Therapy* (p. 119). By TL9 these are broad-spectrum versions designed to kill most infectious bacteria; grants an extra +3 to HT rolls over antibiotics. The phages remain active for two years. $10, negligible weight.

Chitosan Hemostatic Bandages (TL8)

These are impregnated with chitosan – a freeze-dried protein derived from insect chitin. It reacts with blood to promote clotting, significantly reducing bleeding. When used for bandaging a bleeding wound (p. B424), it gives a +1 (quality) bonus to First Aid skill and reduces bandaging time to 30 seconds. 2004. $20, negligible weight.

Bandage Spray (TL9)

This is an advanced liquid spray-on, breathable, analgesic, and antiseptic bandage that seals and disinfects most minor wounds. It comes in flesh-tone or transparent versions; the former changes hue to match the user's skin (and will hide tattoos or distinguishing marks for 24 hours), the latter is preferred by medics, so they can keep an eye on the injury. It gives +2 (quality) bonus to First Aid for bandaging purposes and reduces bandaging time to 10 seconds at TL9. At higher TLs, anti-coagulants, wound-cleaning biofilms, or cell-repair nanomachines further reduce this time: 5 seconds at TL10, 3 seconds at TL11, 2 seconds at TL12. A small can (one application) is $15, 0.1 lb. A large can (10 applications) is $150, 1 lb.

Plasti-Skin Bandage (TL9)

This is an antiseptic and analgesic patch containing elastic nanofibers that serve as a pressure bandage or a tourniquet. Plasti-skin comes in visible colors for use by medics, as well as versions that blend into the user's skin, making it hard to notice. It falls off after the flesh beneath it heals sufficiently. If used to cover tattoos, scars, and marks, or for disguise, it lasts 24 hours. It reduces the time required for bandaging to 20 seconds. TL10 plasti-skin is an active biofilm that excretes antibiotics. A field dressing pack (four applications) is $2, 0.1 lbs.

Smart Diagnostic Bandage (TL9)

A plasti-skin bandage that is also a small dedicated printed computer. It has diagnostic sensors which monitor the patient's pulse, temperature, and blood pressure, and provide Diagnosis-10 at the computer's TL (restricted to surface conditions in the area of the bandage). The bandage itself is a display screen and (at TL10+) a speaker. The device is $40, 0.02 lbs. and runs on solar power (storing enough energy to function during hours of darkness). With software, the cost is $90.

Shock

The body's normal reaction to severe injury or psychological trauma is to go into *shock* (this is a medical term, not the same as the ***GURPS*** condition known as "shock," p. B419). This is a state in which oxygen supply cannot meet tissue demand. It can be caused by blood loss, heart irregularities, infection, allergic reactions, or stress. Many of the results of the Fright Check Table can be interpreted as various severities of shock. Symptoms of shock include weakness, anxiety, pallor, weak pulse, and low blood pressure. Anyone trained in first aid will expect shock if he knows the patient has suffered some trauma, and can attempt appropriate action.

If someone is not expecting a person to be in shock, roll vs. Diagnosis+4 or First Aid+4 to recognize the symptoms. To treat shock, use the rules on p. B424. The changes in time taken to attend to shock and the effectiveness of the treatment at different tech levels reflect the increase in medical knowledge and availability of better equipment.

Diagnosis

Once a patient is out of immediate danger, the next step in medical care is determining what the patient is suffering from. In many cases, this is the first stage of medical attention, as when a patient with an illness or minor injury seeks a doctor. The diagnosis process can involve interviewing the patient (if conscious) to learn what symptoms he has noticed, external examination of the body, measuring vital signs, testing samples, technological imaging techniques, or exploratory surgery.

Medical Treatment

This chart describes the sequence of events when a patient seeks modern medical treatment (TL6+). Most of these tasks are routine and do not require a skill roll (see p. B345); make only the skill rolls noted below.

1. The patient sees a general practitioner, who performs a *Basic Examination* (p. 126) and makes a Diagnosis roll. If the problem is not obvious, the doctor orders *Laboratory Tests* (p. 127) and/or *Medical Imaging* (p. 127).

2. If tests are required, a lab technician or radiologist uses Chemistry/TL6 or Electronics Operation (Medical)/TL7+ to process the results.

3. The doctor uses the results to make a new Diagnosis roll at a bonus (p. 127). Depending on the diagnosis, go to step 4a or 4b.

4a. The doctor uses Physician skill to prescribe medication or other appropriate treatments (bed rest, bone setting, physical therapy, etc.).

5a. The pharmacist dispenses any needed medication. If the medicine is not prepackaged, he makes a Pharmacy skill roll.

6a. If the patient is not self-medicating, a nurse administers the medicine, using Physician to make sure the dosage is within safe limits.

4b. If the doctor recognizes the problem is out of his field, he refers the patient to a specialist.

5b. The specialist confirms the GP's diagnosis. An additional Diagnosis roll is only required if the GP was stumped or wrong. The treatment may be simple (see 4a) or require surgery.

6b. If surgery is required, the surgeon operates, rolling on Surgery skill.

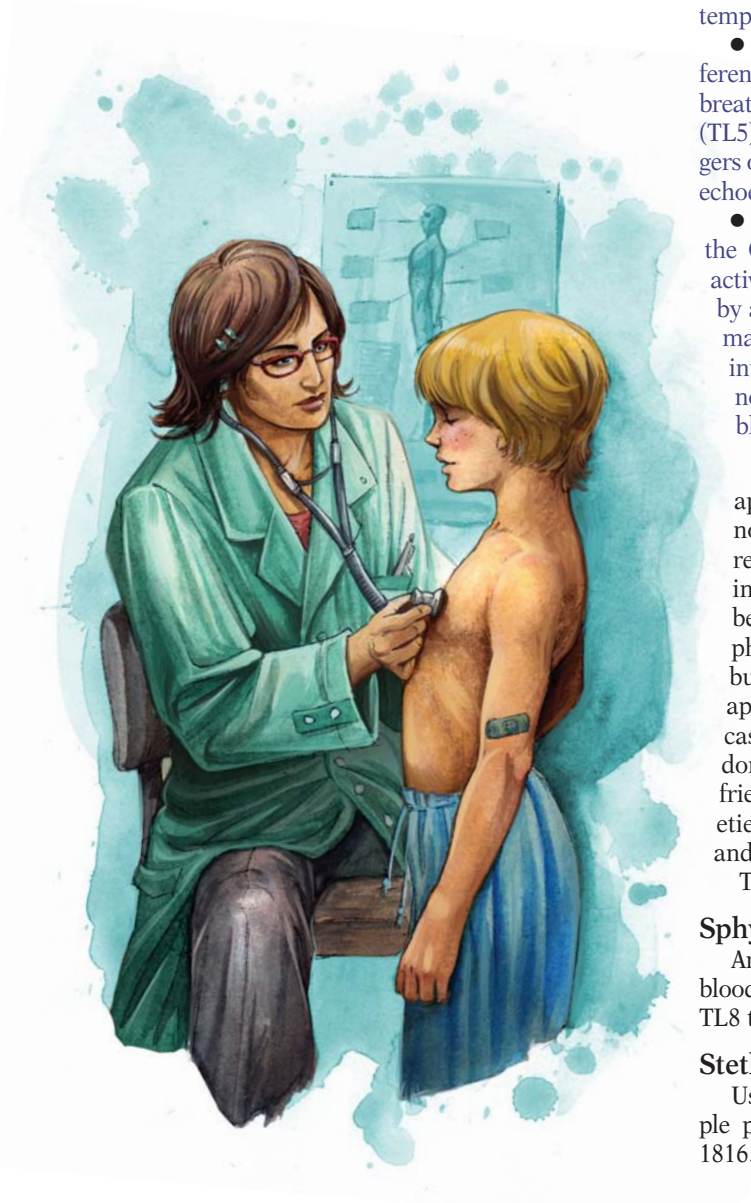
7b. After surgery and throughout *Recovery* (p. 139), the medical staff uses Diagnosis to make sure the patient is stable and healing as expected.

Vital Signs

The most basic inspection of a patient can determine several important conditions. The patient's level of consciousness is readily apparent to anyone, barring unusual states such as drug-induced or magical paralysis.

A roll against First Aid or Diagnosis at +6 will determine if an unconscious patient is breathing and has a pulse. If this roll is made by 6 or more, the examiner notices any unusual conditions of these – shallow breathing, thready pulse, etc. If the patient isn't breathing or has no pulse, immediate resuscitation is called for; see *First Aid* (p. 123).

For a conscious patient, his level of lucidity is important. Delirium or the inability to respond sensibly to stimuli can be caused by a number of conditions such as infection, lack of food or water, heatstroke, poisoning, drug overdose, or addictive drug withdrawal. A patient reduced to 0 FP or less by such conditions should be treated as hallucinating (p. B429), though he may not actually be seeing visions.



Basic Examination

A medical examination of a lucid patient begins with the physician asking the patient what symptoms he feels. This can be pain or discomfort in the affected part of the body, or a general feeling such as feverishness.

Depending on the answers, the physician will then perform various external examinations, targeting areas of concern. This could be as simple as looking down the throat to see an infection, followed by prescribing antibiotics to cure it. Other procedures include:

- Various simple diagnostics, such as taking the patient's pulse, checking reflexes, using a finger-to-nose test to check coordination and equilibrium, etc. *Blood pressure* can be measured at TL6. Unusual results on these tests indicate a variety of possible conditions.
- Taking the patient's *temperature* with either a traditional mercury or alcohol thermometer (late TL5), or an electronic device (TL8). Elevated body temperature is a fever, often indicating infection or internal injuries. Low temperature can be caused by shock or exposure to cold.
- The sounds of the *chest cavity* can indicate many different problems, from unusual heart rates to constricted breathing in the lungs. The physician can use a stethoscope (TL5) to hear these. He may also tap the chest with his fingers or a small rubber hammer to listen to the quality of the echoes (TL5).
- An *electrocardiogram* (ECG, or sometimes EKG from the German spelling, TL6) is a tracing of the electrical activity of the heart, measured across external electrodes by an electrocardiograph. This reveals much more information that just the pulse rate – a skilled doctor can interpret the precise shape of the electrical wave to diagnose many different cardiac abnormalities, as well as blood clots and abnormal electrolyte levels in the body.

All these diagnostic tests are considered standard at appropriate tech levels, allowing a Diagnosis roll with no equipment penalty. The Diagnosis skill can only reveal knowledge appropriate to the TL of the examining physician! A successful Diagnosis roll *will* always be helpful, however. At low TLs, the explanation the physician gives for an illness may involve evil spirits, but successful diagnosis will lead him to the most appropriate treatment he has available. In untreatable cases, proper diagnosis reveals that nothing can be done, and allows the doctor to prepare the patient's friends and relatives for the inevitable. In many societies, particularly at low tech levels, this is an important and expected part of a doctor's job.

The following equipment is used for basic examination:

Sphygmomanometer (TL6)

An inflatable arm cuff and pressure gauge for measuring blood pressure. Early versions require a stethoscope; by TL8 they are automatic. 1896. $60, 2 lbs. LC4.

Stethoscope (TL5)

Used to listen to sounds of the heart and lungs. This simple procedure helps diagnose many different problems. 1816. $15, 0.25 lb. LC4.

Electrocardiograph (TL6)

A device for recording the electrical voltage across the heart, using externally attached electrodes. 1911. $18,000, 60 lbs. LC4.

Endoscopy (TL7)

This is the examination of internal parts of the body by inserting a probe into a natural opening or small incision. Rigid endoscopes have been used on humans since 1853, but were of limited value. Optical fiber led to the invention of the more useful flexible endoscope in 1957, but this did not become common until after 1960, with the adoption of a cold light source that did not heat up the patient's interior.

Through natural body openings, endoscopy can examine and sample tissue from the gastrointestinal, respiratory, and urinary tracts, and the female reproductive organs. With an incision, endoscopy can be used on the chest and abdominal cavities, and the interiors of arm and leg joints.

Endoscopes can also be equipped with biopsy sample collection tools and operating tools. These allow biopsies of internal organs to be taken with minimal discomfort and the performing of some operations with tiny incisions.

Flexible Endoscope (TL7)

This is two yards long and as thick as a finger. It has bundles of fiber optic cables inside it to allow light to be channeled inside a patient, and an image to be transmitted back to the user. 1957. $8,000, 2 lbs. LC4.

Diagnostic Camera (TL8)

A tiny camera and light source inside a swallowable capsule. Allows diagnosis of gastrointestinal disorders without endoscopy or surgery. 2004. $500, negligible weight. LC4.

Laboratory Tests

The next step beyond a basic examination is the taking of samples for laboratory analysis. Urine samples can reveal chemical or hormonal imbalances in the body, impaired liver or kidney function, and the presence of many types of drugs. Blood samples provide evidence for blood-related diseases such as anemia, hormonal diseases such as diabetes, and infection by various pathogens. More invasive is a biopsy – the sampling of cells or tissue – which can diagnose tissue abnormalities like cancer. At the GM's discretion, blood or tissue sampling requires a roll against Physician+4 to collect a usable sample without contamination.

A full battery of lab testing performed at a hospital or specialist pathology lab qualifies the diagnosing physician to make a new Diagnosis roll with the "best equipment possible at your TL" giving a + TL/2 quality bonus. This is normally combined with medical imaging techniques (below) if they are appropriate. At TL8+, basic tests performed by a hand-held analyzer provide a +2 (quality) bonus; the full +TL/2 (quality) bonus is only gained if *both* full lab tests and medical imaging are available. If only one is used and the other might provide additional information (GM's call), the bonus is only +3.

Portable Clinical Analyzer (TL 8)

A self-contained biochemical analysis lab in a hand-held unit. This can do a basic blood test for glucose, iron, and other levels without requiring a lab. It provides a +2 (quality) bonus to Diagnosis skill. $5,000, 3 lbs. LC4.

Medical Imaging

Wilhelm Röntgen's discovery of X-rays and their ability to penetrate soft tissues in 1895 was a breakthrough in diagnostic science. For the first time, physicians could see the interior workings of the body without opening it up.

More advanced imaging methods are described below.

As described for Laboratory Tests (above), appropriate medical imaging performed at a hospital or radiology lab qualifies the diagnosing physician to make a new Diagnosis roll with +TL/2 (quality) bonus. At TL8+, medical imaging without appropriate lab tests provides only a +3 (quality) bonus.

X-rays (TL6)

Simple X-ray photography (TL6) is limited in what it can reveal, being restricted to pathologies of the skeletal system and a few specific soft tissue diseases such as pneumonia and lung cancer. *Angiography* (TL6) uses X-rays to image blood vessels – normally invisible to X-rays – by injecting them with a contrast solution which absorbs the rays. Angiograms can be recorded either on film, showing constrictions and blockages, or by video cameras, showing the speed of blood and any abnormalities of flow in the circulatory system. Angiography is usually used for coronary or cerebral diagnosis. Related procedures involving enemas can be used to image the lower intestinal tract.

Exploratory Surgery

When non-invasive tests are inconclusive or not available, the only option remaining for diagnosis of an internal pathology is surgery. Physicians prefer to exhaust all non-invasive methods before resorting to exploratory surgery, as it is a drastic step. The surgeon will generally have some idea of the condition in mind before the surgery, and be seeking confirmation, rather than going in blind.

In game terms, exploratory surgery is called for if exhaustive tests have been undertaken and the Diagnosis skill has failed to produce a definitive answer. Use the normal rules for surgery (pp. 135, B223, B424), but a successful Surgery roll allows a new Diagnosis roll, removing the -5 penalty for diagnosing internal injuries.

If the expected pathology is confirmed and immediately treatable, it may be treated during the same operation. This requires another Surgery roll.

X-ray machine (TL6): This is an X-ray source and a place to put a photographic film. At TL6, radiation is not well understood; both the patient and the person operating the machine are exposed to 1d rads per photograph. 1896. $15,000, 1 ton. LC4.

Portable X-ray Machine (TL7): As above, but smaller and shielded for safety; the patient takes 0.01 to 3 rads from a series of X-rays. If deliberately set to maximum intensity, an X-ray machine could expose a target to 1,000 rads per hour. $30,000, 500 lbs. LC4.

Computed Tomography (CT) Scanning (TL7)

This uses X-rays to build up a more detailed picture of the interior of a body. The technique, invented in 1972, involves passing a thin "slice" of X-rays through the body and rotating the emitter and detector around it to image the slice from all angles. A computer then uses the data to reconstruct the X-ray absorption at each point in the slice. The resulting image indeed resembles a slice of the body, rather than showing the combined absorption through a solid mass of tissue like a photographic X-ray. Several CT scans of adjacent slices can generate a three-dimensional image of the body's interior, showing the shapes and positions of soft organs as well as bones.

CT Scanner (TL7): A large machine with a hole in the middle large enough for a person to lie in. The X-ray transmitter and detector circle the patient's body and transmit data to a computer, which processes it to produce an image. 1972. $400,000, 2 tons. LC3.

Ultrasound Imaging (TL7)

This uses ultrasonic sound waves to penetrate the body and build up images as the sound is reflected off interior structures. It is most useful for showing muscle, soft tissues, and the interfaces between them. Images are produced in real time, so the physician can rapidly adjust the diagnosis procedure to examine any findings. Ultrasound is also harmless, unlike the radiation exposure of X-ray techniques, making it ideal for fetal examinations. The first medical ultrasound was performed in 1953, using equipment that had been used for industrial materials testing for some years.

Ultrasound (TL7): A hand-held ultrasonic transducer connected to a display screen. 1953. $60,000, 400 lbs. LC4.

Magnetic Resonance Imaging (MRI) (TL7)

Invented in 1971, this uses powerful electromagnets to stimulate the nuclei of hydrogen atoms into emitting pulses of radio energy. This reveals the locations of water molecules inside the body, which can be mapped into an image. MRI images resemble CT scans, but have the advantage of much greater contrast between soft tissues, making MRI a more suitable technique for brain and spinal cord imaging. MRI also uses no harmful radiation, although the magnetic fields can be dangerous if the patient's body contains any metal. Inert metal such as shrapnel may heat up or move through the body tissue, while mechanical or electronic implants could fail. A disadvantage of MRI is that the images it produces are not as high resolution as CT scans.

MRI Scanner (TL7): Similar in appearance to a CT scanner (above), but with powerful electromagnets and radio receivers instead of X-ray equipment. It also contains a dedicated computer control and image processing system. 1971. $600,000, 3 tons. LC3.

Positron Emission Tomography (PET) (TL7)

First performed in 1973, PET uses radioactive isotopes injected into the body to trace the uptake of the element by various organs. The isotope decays by emitting a positron (the antiparticle of an electron), which immediately annihilates with an electron to produce two gamma rays traveling in opposite directions. When detected, these pinpoint the location of the decaying atom. The radiation dose from a PET scan is similar to a chest CT scan, but the image resolution is even lower than an MRI scan. PET is commonly used for tumor and neural activity diagnosis and monitoring.

PET Scanner (TL7): Another machine similar to a CT scanner – the differences are mainly internal – for producing PET scans. 1973. $400,000, 2 tons. LC3.

Antiproton Imaging (TL8)

This uses beams of antiprotons to penetrate the body to various depths, where the antiprotons annihilate with normal nuclear particles and emit pions and radiation, allowing their locations to be pinpointed. This provides imaging capability because the distance the antiprotons travel through the tissue before being annihilated depends on their energy (controllable from the imaging apparatus) and the density of tissue through which they travel. This technique exposes the body to considerable radiation, and is normally only used in combination with antiproton treatment for tumors (see p. 132). It was proposed as an imaging method in 1995, but not widely developed because of cost.

Antiproton Imager (TL8): This machine needs access to antiprotons, generated from a nearby cyclotron. 1995. $1,000,000, plus cost of cyclotron, 2 tons. LC3.

Diagnosis Bed (TL9)

At ultra-tech levels, many of these systems are miniaturized and integrated via sensor fusion. This is an examining table with a full range of biological and medical scanners. These incorporate X-ray (p. 127), CT (above), PET (above), and ultrasound (above) into a single unit; at TL10+ the system also includes MRI (above) but not HyMRI (p. 129). The patient lies on the table and scan results are projected onto an overhead screen. It normally operates off building or vehicle power. It gives +3 to Diagnosis skill, which increases to +TL/2 if combined with diagnostic probes or lab tests. $25,000, 250 lbs. LC4.

Hypersensitive Magnetic Resonance Imaging (HyMRI) (TL9)

This is an extrapolation of MRI technology, utilizing superconducting magnets and hyperpolarized noble gases which are inhaled or injected. HyMRI also exploits intermolecular quantum effects to give resolutions far better than any previous imaging method. HyMRI equipment can be used to justify ultra-biotech concepts such as complete brainscans suitable for compiling psychological brainmaps or ghost personality simulations (see ***GURPS Ultra-Tech***).

Hospital HyMRI (TL9): $250,000, 500 lbs. LC3.

Portable HyMRI (TL10): $25,000, 50 lbs. LC3.

Nano-Imaging (TL9)

This uses injected diagnostic probes to make a full survey of the body, revealing both structural and chemical make-up. It combines the functions of imaging and lab tests in one procedure.

Diagnostic Probes (TL9): These are tiny robots used to determine what is wrong with a patient. They add +3 to Diagnosis skill; they can also identify nanomachines, such as the proteus virus. They take two hours to circulate through body and diagnose problems, and another hour to retrieve. The patient must be attached to a diagnostic bed, automedic, or emergency support unit. $200/dose. Can be retrieved using an emergency support unit or automedic, or will degrade harmlessly in a month. LC4.

Diagnostic Bionet (TL10): As above, but equipped to report back constantly without having to be retrieved; this lets the nano remain within the patient, providing constant updates. Bionet microbots degrade harmlessly within the body in a month. $1,000/dose. LC4.

Monoclonal Antibodies

Antibodies are a vital part of the body's immune system, seeking out and attaching themselves to intruders such as microbes, viruses, or foreign proteins. Each antibody is shaped to match puzzle-fashion with the physical contours of its target molecule (or *antigen*), so that when they accidentally run into one another, they will lock together. This alerts the rest of the immune system (white blood cells, for instance) to attack. There are millions of different kinds of antibodies, each specialized to detect one particular type of unwanted organism. They are manufactured by specialized *B-cells* in the lymph nodes, spleen, and blood.

Monoclonal antibodies (MAbs) are antibodies of exceptional purity and specificity. They were first created experimentally in 1975 (late TL7) by using modified cancers in mice to produce specific antibodies in large quantities. By TL8 their value as diagnostic tools had been recognized. Because MAbs are produced without the millions of other antibodies made by the immune system, they can seek out and target pathogens with pinpoint precision.

MAbs can have fluorescent or radioactive molecules bonded to them after they are created. When mixed in a sample solution they will attach to their target molecules, if present, as normal. The sample can then be filtered to remove any unattached MAbs, and the presence of the tags indicates the sample contains the target molecule. This ability to find needles in biochemical haystacks makes MAbs useful for a wide variety of industrial and medical processes, such as refining exotic proteins, creating "diagnostic bed" sensor systems, and consumer products.

By 1987 (TL8) MAbs were regularly being produced in rodents for use in medical research. Deliberate cultivation of cancers in mice or other animals, however, has become increasingly controversial on ethical grounds; their production has been banned in some nations (LC2). And despite their usefulness in the lab, rodent MAbs are less than ideal for treating humans, because of immune responses.

Human MAb production is still in its infancy in mid-TL8, due to the difficulty of producing them. It's theoretically possible to produce human MAbs using the same technique as used on mice, but deliberately growing hybrid cancers inside human hosts would only be an option for mad scientists or amoral regimes. With that avenue closed off, current methods instead involve modifying rodent cells via genetic engineering and stabilizing them through repeated cloning cycles, or creating hybrid human and mouse antibodies. Another alternative is the *in vitro* mass production of MAbs through tissue engineering (p. 26) or industrial gene-cloning (p. 12) techniques – essentially, growing the antibodies in vats. Affordable vat-grown MAbs are still in the early stages at TL8, but are likely to become widespread by TL9, and promise to be a rapid but accurate form of laboratory test. At TL9+, wide-spectrum tests using vat-grown MAbs are standard in clinics, diagnostic beds, automeds, and hospitals.

MAbs can also be further engineered as the "guidance systems" of other substances. Treatments such as chemotherapy release toxic chemicals, intended to kill cancers, into the body. Unfortunately, they also poison the body, and selecting a dosage that will kill cancer but not the host is difficult. By bonding drugs to MAbs, far more toxic chemicals can be used in much smaller amounts, because the antibodies deliver the chemical directly to the target cells, while avoiding nearby tissue. Aside from smart-bombing cancers, MAbs can be used as the targeting system for other drugs, guiding various chemicals directly toward specific proteins. Many of the TL9+ drugs described in Chapter 6 use MAbs.

Disposable Test Kit (TL8)

A cigarette-sized plastic vial containing monoclonal antibodies tailored to detect specific biomolecules. The user pricks his finger on the included needle, lets a drop of blood fall in, shakes, and squeezes to break the membrane. If the vial glows a particular color, he tests positive.

No skill is required to use it, but each kit tests for one specific thing. Kits can test for anything from diseases like HIV, various types of influenza, or cancer, to pregnancy, malnutrition, or the use of a specific drug. Kits can also be designed to test non-clinical samples for molecules such as poisons, drugs, or other organic matter. A genetics lab is needed to design new test kits – kits will only be available for testing known diseases, drugs, etc. At TL10+, monoclonal antibodies are supplemented by tailored nanomachines that perform similar tasks with even more precision. Civilian test kits may be available from vending machines. Military kits may test for biochemical weapons. $5, 0.1 lb. LC4.

Non-Invasive Procedures

If a patient can be cured or treated without surgery, that is usually the most desirable course of action. Non-invasive procedures are simpler, less intimidating, and often safer than surgery, and don't require a surgeon! They may also be faster or cheaper, but sometimes require additional time and specialized equipment that adds to expense.

These procedures provide more detail than the *Medical Care* rules (p. B424), where the GM is interested in distinguishing different types of injury and their treatments. Use either those rules or the optional rules presented here, not both.

Medical Supplies (TL6)

Drugs, bandages, syringes, and other disposable supplies sufficient for 20 patient-days of Physician treatment (TL6-8), 50 patient-days (TL9-10), 100 patient-days (TL11), or 200 patient-days (TL12). Gives a +1 (quality) bonus to Physician skill. In addition, without this gear, the doctor operates as if at the TL5 level. $500, 5 lbs. LC4.

Blood Types

Human blood can be characterized by the presence or absence of a number of different antigens on the surface of the red cells. Antibodies in the blood serum react against the antigens of incompatible blood types, breaking down the cells. If this occurs as the result of a transfusion, the patient will become anemic, his kidneys will fail, and death will follow. To transfuse blood safely, the *blood types* of the donor and recipient must be identified to ensure compatibility.

The most important typing method is the *ABO system*, in which the blood is typed according to which of two antigens (named A and B) are present: type A blood contains antigen A, B contains antigen B, AB contains both, and O contains neither. A transfusion recipient will suffer an adverse reaction to donor cells that contain antigens *not present in his own blood*. Thus a type A patient can receive blood of types A or O but not B or AB, an AB patient can receive any type, while an O recipient can only receive O blood.

A second typing consideration depends on the presence or absence of the *Rh factor*. An Rh-negative patient cannot safely receive Rh-positive blood; Rh-positive patients can receive either. Both the ABO and Rh conditions need to be satisfied for a safe transfusion.

The proportions of each blood type in a community vary by region and ethnicity. GMs interested in keeping track of characters' blood types are encouraged to do some research. This may be important for games involving unusual forms of vampirism!

ABO blood types were first described in 1909 and the Rh factor in 1940. From TL7 onward, any modern hospital will be able to identify blood types and perform transfusions safely.

Blood Transfusion

An average person has two pints of blood per 25 lbs. of body weight. Trauma victims who lose 30% to 40% of their blood will die within two hours due to lack of oxygen reaching vital systems; more than 40% blood loss is fatal within minutes. (In ***GURPS*** terms, this is covered by the standard HT rolls to survive injury.) The most effective treatment is to rebuild blood volume by transfusion. Transfusion may also be required during surgery to replace blood loss from incisions and hemorrhaging. If blood is in short supply, assume each lost HP treated by surgery requires from half a pint to one pint of blood.

Transfused blood must be compatible with the recipient's blood type, or the transfusion will be fatal. If compatible donor blood is available the risks of transfusion are negligible. This does not necessarily require knowing the types of both donor and recipient – see *Blood Types*. If a transfusion is attempted in ignorance of blood type compatibility, there is a 45% chance that the types will be incompatible (9 or less on 3d); this is an approximation given real-world distributions of blood types.

At high TLs, an artificial blood substitute may be available; see *Perflubron Blood* (p. 131). This avoids any problems of blood type compatibility.

Blood Donation (TL6)

Blood is donated in pint-sized *units*. Donating one unit at a time is safe for people above 100 lbs. in weight, but anyone may feel dizzy from lack of oxygen for a while. The body naturally regenerates blood volume and the donor's supply is back to normal within eight weeks.

A person who donates a unit of blood must make a HT roll. On a failure, the donor feels dizzy and is at -2 to DX and IQ for 20 minutes; critical failure indicates a faint. If a dizzy person tries standing suddenly, make another HT roll, with critical failure indicating fainting. Donating again within eight weeks results in dizziness as above on any roll but a critical success, and is potentially dangerous; treat it as a bleeding wound (p. B420). The lost HP will heal normally, but it will take eight more weeks to replenish the blood. Plasma can be donated every two weeks; use the same rules, reading "two weeks" instead of "eight weeks." Some jurisdictions allow payment for donations; $20 is typical.

Blood Supplies (TL6)

Whole Blood (TL6). Lasts only a week in the refrigerator at TL6; a little over a month at TL8. Per pint: $150, 1 lb.

Plasma (TL6). Dehydrated; requires a half-pint of water. Shelf-life is one year. Per pint: $200, 0.5 lbs.

Perflubron Blood (TL8)

This is an artificial blood substitute made of polymer particles coated with perflubron, suspended in plasma. It transports oxygen and waste gases more efficiently than normal blood. Perflubron blood is a milky white fluid and contains a clotting agent so that it hardens if exposed to air. It can be transfused to restore blood volume of a patient suffering blood loss, with no adverse side effects. Another application is to create bioroids – see *Bioroid Modifications* (p. 61).

Blood Doping (TL8)

This technique is used by athletes to improve their stamina. It involves transfusing additional units of blood into a person who is at normal blood volume. The blood can either come from a donor, or have been donated earlier by the recipient and stored until needed. Doping increases the number of red blood cells in circulation, improving the body's ability to utilize oxygen. Donor blood can be detected as of 2000, but self-donated blood cannot be detected at TL8.

Blood doping gives the user +1 FP and doubles the rate of recovery of lost FP for four weeks after the transfusion. Additional treatments within the same time have no extra benefit, and can cause heart failure (critical failure on a HT roll).

Non-Surgical Treatments

These are treatments that can be performed on a patient in a hospital, or in some cases a physician's practice.

> *Surgery is always second best. If you can do something else, it's better.*
>
> *– Dr. John Kirklin*

Bone Setting (TL5)

A lasting crippling injury (p. B422) to a limb or extremity caused by crushing or cutting damage is likely to involve a broken bone (GM's option). Setting a broken bone requires only 15 to 30 minutes and a Physician roll – remember to adjust for any relevant equipment modifier. A failure will require resetting the bone; a critical failure means the bone heals in a deformed position, making it permanently crippled. Bones can be set before TL5, but any failure results in permanent crippling, and a critical success is required to avoid cosmetic disfigurement. Setting the bone is painful; the patient will suffer agony (p. B428) unless anesthetized for the procedure. This can replace the rule for repairing lasting crippling injuries (p. B424) for suitable injuries; it's easier to fix (no surgery required), but recovery time does not reduce to weeks on a success.

Burn Treatment (TL5)

Burns are among the most serious of common wounds. Injury caused by burning requires a successful Physician roll and an hour of nursing attention per day (changing dressings, applying ointments, etc.) to qualify for natural recovery. Additional medical care (p. 424) adds to this normally. Burns are prone to infection; roll as described on p. B444 at a -5 penalty to HT. A hospital stay is usually required until the injury has healed.

A burn that has caused a major wound or worse is a serious problem. All Physician rolls to treat the injury are at -1 per 2 HP lost. Such a burn also causes a tremendous loss of fluids, requiring a number of IV units (see *Intravenous Fluids*, below) per day equal to remaining points of burn injury until it heals. Without these, the patient takes 1 point of damage per missing unit of fluid each day.

Poison Treatments (TL5+)

General poison treatment rules are on p. B439. Specific treatments include:

Gastric Lavage (TL5): A stomach pump can remove poisons or swallowed acids from the stomach if used within an hour of ingestion. This grants a +1 to HT rolls to fight off the poison. Gastric lavage takes 20 minutes and requires a roll against the Physician skill.

Activated Charcoal (TL6): These tablets partially absorb organic poisons in the stomach, granting +3 to HT rolls. For treating ingested poison. $1 per dose, negligible weight. LC4.

Chelating Drugs (TL6): These bind to metallic poisons such as arsenic or mercury, rendering them less harmful. They improve at higher TLs; +TL/2 to HT rolls. $3 per dose, negligible weight. LC4.

Vaccination (TL5)

See p. 119 for a description of this disease-prevention technique.

Heat Stroke Treatment (TL6)

Someone trained in first aid can treat heat stroke (p. B434) by rapidly cooling the victim (e.g., an ice water bath) and giving lots of electrolytes (usually by IV at TL7+). This takes one hour and requires a roll against First Aid+4. If successful the patient recovers 7 FP and 2 HP (up to the maximum lost by the subject). Further recovery is as normal.

Intravenous Fluids (TL6)

Intravenous (IV) fluids can help stabilize a patient who has lost either blood or water from dehydration. This technique was invented in the 1830s (TL5) to treat cholera patients, but not regularly used until the early 1900s. IV solutions are largely water with a small amount of electrolytes or sugars. An IV drip can also be used to deliver drugs over the course of hours or days. Inserting an IV requires a roll against Physician+2; at the GM's option, critical failure causes a point of injury or results in a chance for infection (p. B444) .

IV fluids are required for first aid gear to get a +2 (quality) bonus for being "fine equipment" for treatment of shock; without them the best possible equipment quality modifier is +1. Additionally, each bag of IV fluid counts as drinking a quart of water for hydration purposes (p. B426), and may also count as a meal for FP and HP recovery purposes if a sugar solution is used. Starting an IV fluid drip takes a minute; most IV solutions are delivered over four to six hours.

Intravenous Solutions (TL6)

Saline, for rehydration: $4/bag, 2 lbs. LC4.
Dextrose, for meal replacement: $3/bag, 2 lbs. LC4.
For blood plasma, see *Crash Kit* (p. 124).

Infection and Antisepsis

Rules for infection and its treatment are on p. B444. Expanded rules for the effects of antibiotics are on p. 150.

Surgery with properly sterilized equipment and antiseptic technology will not result in infection unless the patient is exposed to an antibiotic-resistant microorganism. This occurs in a few percent of cases during post-operative care; if the GM wishes to determine it randomly, the patient *will* be infected on a 4 or less on 3d. Surgery without a sterile environment counts as "infected matter in the wound" and can result in a non-resistant infection; roll as normal for the surgery *and* as above for post-operative care.

Physiotherapy (TL6)

Many forms of injury, chronic pain, and physical disability can be treated by physical therapy. This may include external manipulation of the musculo-skeletal system, massage, heat and cold treatment, and exercise programs designed to target the condition. Physiotherapy began in the late 19th century, when nurses recognized the value of therapeutic massage in the treatment of some injuries. Massage itself is much older (TL1), but based on trial and error and tradition rather than physiology principles.

Physiotherapy can ease the pain caused by a Bad Back (p. B123) or Chronic Pain (p. B126). A successful Physician (Physiotherapy) roll will "reset" a mild case of Bad Back, or halve the penalties from a more serious case or from Chronic Pain.

Cancer Treatment (TL7)

Cancers and other tumors can be treated by surgical removal, chemotherapy, radiotherapy, or a combination of these. Surgery can be difficult and often leaves malignant cells behind, so the other approaches are often used.

Chemotherapy involves doses of more or less toxic drugs. Radiotherapy uses selective irradiation of parts of the body to destroy malignant cells. Both these methods work best on fast-growing tumors, as they target the cell division process. Unfortunately they also cause significant side effects, commonly including hair loss, nausea, anemia, and a weakened immune system.

A course of treatment involves daily doses of chemotherapy drugs and/or irradiation for a week or more. After each week of treatment, the patient gets a HT roll to put the tumor into remission (or destroy it on a critical success), at -2 if only one method is used. Radiotherapy subjects the patient to the indicated doses of radiation (which may be reduced by drugs; see p. B436). Radiation damage will accrue, however, and it may be better to stop treatment after a few weeks.

- *External beam radiotherapy* is the most common form at TL7, involving focused beams of high energy X-rays or gamma rays. More invasive TL7 techniques involve the injection or implantation of radioactive isotopes. 3d rads per week of treatment.
- *Proton beam radiotherapy* (TL8) uses beams of accelerated protons fired into the body. These can be targeted more precisely than electromagnetic radiation, since the protons only interact at a depth below the skin that can be controlled by their energy. 2d rads per week of treatment.
- *Antiproton beam radiotherapy* (TL8) fires antiprotons into a tumor, where they annihilate with protons. This deposits a dose of radiation within the tumorous cells, while also providing feedback on the precise location of the dosage via antiproton imaging (p. 128). Thus the radiation can be placed accurately at a specific point within the body. 1d rads per week of treatment.
- *Brachytherapy* (TL8) injects targeted radioactive isotopes into the body, providing pinpoint doses which cause the body negligible overall radiation exposure.
- *Nanotech Laser Therapy* (TL9) uses monoclonal antibodies to bind molecules to targeted cancer cells; an infrared laser then heats the bonded molecule and kills the cells without harming surrounding tissue. This procedure is in development today.

At TL9+, genetic engineering techniques promise to make these therapies redundant; see *Cancer Elimination* (p. 182).

Dialysis (TL7)

This is the artificial filtering of bodily waste chemicals such as urea from the bloodstream – a job normally performed by the kidneys. A patient with renal failure requires dialysis a few times a week to avoid toxic chemical buildup – treat as Dependency (Common, Weekly) [-20]. Dialysis is commonly done by a dedicated machine that either filters blood outside the body before returning it, or that circulates a cleansing fluid through the abdominal cavity. It can also be performed manually by the patient with a system of catheters and prepared bags of fluid. A kidney transplant obviates the need for dialysis.

Treatment by dialysis machine takes three to four hours, three to five times per week. Self-treatment with peritoneal dialysis fluid takes 30 minutes to drain used fluid and load new fluid, daily, and the patient can engage in non-strenuous activity during this time. Dialysis is an expensive ongoing cost, but because the patient would die without it, it is government-subsidized in all but the least caring regimes.

Dialysis Machine (TL7)

An external pump to circulate blood through a filter which removes waste products normally removed by the kidneys. 1943. $25,000, 300 lbs.

Bags of dialysis fluid for peritoneal self-dialysis: 1962. $100, 4 lbs. LC4.

Lithotripsy (TL8)

This uses high-intensity ultrasonic sound waves, focused to a point inside the body, to shatter hard, brittle objects such as kidney stones. The stones shatter into pieces small enough to be passed from the body in urine. Lithotripsy can also be used on some gallstones, in combination with oral bile acid tablets to dissolve the particles, but they tend to recur without surgery. Lithotripsy machines could shatter brittle implants such as ceramics, but metal is immune. Electronic components are highly susceptible. Treatment takes one hour.

Lithotripsy Machine (TL8)

A high-intensity ultrasonic transducer for shattering kidney stones inside the body. 1984. $1,500,000. 500 lbs. LC4.

Cell Regeneration (TL10)

This is a radical non-invasive technique to heal the body on a cellular level using nanomachines. The patient must be placed in an regeneration tank (see below) or chrysalis machine (below). Nanomachines permeate the body, instructing and assisting every viable cell in what repairs to make. Nonviable cells are programmed to apoptose (self-destruct), or are removed and replaced with clones of healthy cells.

A Physician roll is required to supervise the procedure. Success means it works normally; failure takes twice as long as usual. It can heal everything up to permanent crippling injuries at 1 HP per 12 hours, or radiation at 10 rads per day. Missing limbs and organs regrow in six weeks.

Regeneration Tank (TL10): This requires bio-nanomachines and feedstock: a week's supply is $1,000, 1 lb. $500,000, 500 lbs. LC3.

Chrysalis Machine: At TL11+, this is used for cell regeneration. See below.

Reattachers (TL10)

These are nanomachines that are injected near the site of a traumatic amputation, and into the severed body part. While the pieces are held apart, the nanobots clamp off severed blood vessels, dampen nerve responses to anesthetize the area, clean up any ragged flesh, and destroy infectious bacteria. They also build scaffolds to hold the severed part when it is reattached. As soon as the parts are put together, the nanobots seek analogous tissues and start stitching them together. Broken bones are bonded with a strong biopolymer glue, and then the tiny machines begin work on the soft tissue. They are smart enough to join arteries to arteries, veins to veins, and nerves to nerves, but will make errors if the part is improperly aligned – make a Physician+2 or First Aid roll to properly align the pieces. On a failure the part will reattach at the wrong angle and look weird. On a critical failure it will reattach but be effectively crippled.

Reattachers can successfully attach parts that have been severed for up to 12 hours. It takes six hours to attach a digit, 24 hours to attach a limb. They can reattach a head, but the patient is likely to be dead long before the process finishes. $6,500, negligible weight. LC3.

Chrysalis Machine (TL11)

The ultimate in biomedical technology, a chrysalis machine is a medical device designed for nanotechnological repair and transformation. It is a coffin-sized or larger machine that the user steps into or is placed within. The machine then spins a life-support web around the patient, completely enfolding him. Each cell is surrounded with microscopic biological repair and support machinery, which takes over control from the patient's own DNA. The chrysalis instructs the cells to begin self-repair procedures, and if necessary, takes the patient apart cell by cell and rebuilds him in accordance with its own programming.

A chrysalis can heal almost any wound. Normal HP loss is regenerated at 1 HP per hour. Crippled limbs or organs are restored when lost HP recover. A chrysalis machine can also function as a nanostasis tank (p. 147).

A person who is dead, but who has not suffered serious brain injury, can be restored to life. Roll against Physician, at -2 for every hour the subject has been dead. Success restores the patient to life; failure by 1 or 2 indicates recovery, with personality intact but substantial memory loss (equivalent to Partial Amnesia). Failure by 3+ also restores him to life, but as a blank-minded clone, with no memory or personality. A person who has suffered severe brain damage can still be restored, but only as a blank-minded clone.

Beyond that threshold, if there are some cells left, the chrysalis can clone the original (the body may be totally crushed or burned, but not disintegrated). The chrysalis machine functions exactly like a forced-growth tank (p. 21). The result will be a blank-minded clone (unless uploading technology is also used).

A chrysalis machine can also be used to transform someone, performing safe, fast clinical metamorphosis (see p. 190) in conjunction with a metamorphosis nanovirus.

A chrysalis machine can direct itself using its own dedicated computer's Physician-13 skill (15 at TL12), or be controlled by an operator. $500,000, 600 lbs. LC3.

Magical, Psionic, and Super Healing

GURPS Bio-Tech focuses on technological means of healing . . . but in some worlds there may be other options.

A range of magical healing spells are found on p. B248, with many others described in the Healing college in ***GURPS Magic.***

The Healing (p. B59) advantage can represent many different forms of psionic, super-powered or divinely-inspired faith healing; see also Psychic healing (p. B256). ***GURPS Powers*** describes numerous other ways to use advantages for curing injuries.

"Do You Have Insurance?"

Medical treatment can be *expensive*. Below TL5, prices are not fixed – patients will have to negotiate a price and pay it somehow, perhaps in goods or livestock.

For TL5+, rather than give a cost for every treatment, the following guidelines provide an estimate which the GM may then adjust to suit campaign assumptions; or randomly by 10-60% in either direction. First, rate the treatment's complexity as either Simple, Average, Complex, or Amazing, following the examples below. A rough total cost including ambulance, hospital stay, operating theater fees, etc., is then given by:

- *Simple* (GP consultation plus prescription, physiotherapy session, simple X-ray): 10% ofthe typical monthly pay for the TL (p. B517);
- *Average* (diagnostic scan, radiotherapy, simple surgery e.g. appendectomy, vasectomy): the typical monthly pay;
- *Complex* (routine surgery, simple organ transplant): 10 times the typical monthly pay;
- *Amazing* (open heart or brain surgery, major organ transplant): 100 times the typical monthly pay.

This is the expense of providing the service and equipment, not the final bill presented to the patient! How this cost is covered depends a lot on the country or campaign setting.

Today, medical costs are covered differently around the world. Governments with socialized health care – particularly in Europe – partly or completely pay for necessary treatments (funded by taxes). Travelers from countries with similar programs can also have their costs covered simply by presenting a passport. If the subsidy is only partial, the patient can be left with an expense of 10-60% of the actual cost. In either case, *elective* (or *illegal*!) surgery is not covered. A drawback of subsidized medicine is that waiting lists for non-urgent treatment can be *long*: six to 12 months or more in some cases. Economies of plenty (TL10+) may be rich enough to provide universal free health care. Totalitarian regimes might also provide health care, but the doctors work for the government, not the patient.

In countries where a free market economy applies to medicine, such as the United States, only limited subsidies exist (e.g. for the poor or elderly) or none at all, and patients have to pay the full cost. This sort of economy tends to drive the base prices up too! Hospitals won't deny emergency care, but can deliver a bill big enough to bankrupt an average patient.

Covering any outstanding cost is the job of medical insurance. In places such as the United States, where this is almost a necessity, insurance is expensive and often negotiated as part of employment packages. At the GM's option, this can be abstracted out and assumed to be deducted from the gross salary before an employed character receives income. Where subsidized health care exists, additional insurance is optional and cheaper – it can be treated as part of the cost of living. In other words, the GM can assume most people have adequate health insurance without worrying about the cost.

The other option is to force characters to actually pay for their insurance or treatments. This requires more bookkeeping, but can lead to the (all too real) scenarios of people needing extra cash just to pay for medical care – which for an adventurer is another potentially interesting challenge.

Surgery and Life Support

Sometimes, drugs and non-invasive treatments are not enough to deal with an illness, or a patient suffers an accident causing physical trauma that needs to be repaired. In these cases, the only option is surgery.

Anesthesia

Ideally, a patient undergoing surgery should first be rendered immobile and insensitive to pain. Opium, hemp, and alcohol have been used as pain suppressants since prehistoric times (TL0), but these are only marginally effective. Hypnotism and acupuncture have also been used for anesthesia purposes, though people disagree on the efficacy of these methods. In some game worlds they may be as effective as chemical anesthesia (GM's option).

TL4- surgery modifiers assume the above improvised techniques are used, or the surgery is performed with great haste. TL5+ Surgery skill modifiers *assume* effective anesthesia is used: if not, apply a -2 modifier to skill instead of the usual -1 penalty for a missing item. (See *Surgery, p.* B424 and *Surgical Procedures* on p. 136).

General Anesthesia

General anesthesia is intended to leave a patient unconscious, free of pain, and with no memory of the procedure for the duration of the surgery. It is also designed to inhibit bodily reflexes and relax muscles to make the surgery easier to perform.

Effective general anesthetics arrived at late TL5, with the inhaled gases *nitrous oxide* ("laughing gas"), *ether*, and *chloroform* all first used in surgery in the 1840s. All were usable, but have limitations. Nitrous oxide is weak, and is mostly used for dental treatment. Ether is slow but effective (although it's also explosive, limiting its use with devices that might cause a spark). Chloroform can render someone unconscious in minutes (the instant unconsciousness of the chloroform-soaked rag is a cinematic myth!), but overuse can damage the organs. Various delivery systems were used through TL6: a face mask and tubing connected to a gas tank for nitrous oxide, or, for ether or chloroform, a wire basket mask covered with gauze that was placed over the patient's mouth and nose connected to a metal tank. As the anesthetic slowly dripped onto the gauze it evaporated, allowing the patient to inhale the vapor. Often the patient was not entirely unconscious: he remembered the surgery, but experienced no pain as a result.

The next major breakthroughs (TL6) was *sodium thiopental* (also known by the trademark name *sodium pentathol*), discovered in 1936, which induces rapid general anesthesia when injected intravenously. It was widely used to induce anesthesia until the introduction of *propofol* in 1989, and is still used in many countries. Other agents used include ketamine and various opioids.

Total intravenous anesthesia – using only intravenous agents only – was dangerous since the dosage could not be adjusted. This resulted in the development of *balanced anesthesia* in which an intravenous anesthetic (as described above) is used to quickly start the process. Once anesthesia has been induced, it is *maintained* by an anesthetic machine – a combined ventilator with supplies of anesthetic gas.

Modern anesthetic machines (TL7) include diagnostic monitors for breathing, pulse, blood pressure, and blood oxygen level. This allows the level of anesthesia to be carefully adjusted. Many anesthetic gases are used; at TL7-8, the important ones include *halothane* (1956) and *sevoflurane* (1971). Halothane can cause liver damage in humans with prolonged exposure, but is still used in veterinary surgery because it is inexpensive.

Recently, total intravenous anesthesia has made something of a comeback, with the invention of target-controlled infusion (TCI) pumps – computerized delivery-systems. These methods require less machinery than anesthesia machines, making them more affordable and lighter, although they do not, as yet, offer the same degree of control.

General Anesthesia Equipment

Anesthesia equipment is *included* in all TL5+ operating theatres (p. 138) and portable surgeries (p. 138). If acquired separately, its capabilities are shown below.

Gas Anesthesia (TL5). Face mask with ether or chloroform. Roll vs. Physician to use; a failed roll gives -2 to Surgery skill due to under (or over-) anesthetizing the subject. $50, 2 lbs.

Portable Anesthesia Machine (TL6): Roll vs. Physician+2 to use it; a failed roll gives a -2 to Surgery skill. $2,000, 40 lbs., plus tank. One tank lasts four hours ($150, 25 lbs.). LC4.

*Hospital Anesthesia Machine (*TL7): This is a combined ventilator and vital signs monitor for delivering anesthetic gas in controlled doses during surgery. It provides balanced general anesthesia. Very reliable if used by someone with Physician or Electronics Operation (Medical) skill; no roll required. 1951. $24,000, 300 lbs. LC4.

Local Anesthesia

Specific parts of the body can be rendered completely numb to pain with topical or injected drugs. Most are artificial drugs related to cocaine; the first was *procaine*, developed in 1905 and used successfully for dentistry. *Lidocaine* largely replaced it after 1948 and is in common use today. Some simple surgical procedures such as vasectomy are performed with local anesthetic. They render the affected parts of the body completely insensitive to pain, and make them Numb (p. B146); this wears off in (20-HT) × 15 minutes (minimum one hour).

Lidocaine or similar local anesthetic: $20 for a 20-dose tube or vial, 0.1 lbs. LC 4.

Neural Inhibitor (TL10)

A flat disk (two inches in diameter) with adhesive bonding material on one side. It uses technology related to ultratech neural disruptors to cut off nerve impulses when applied to the bare skin of a being with an approximately terrestrial vertebrate nervous system.

Effects depend on where it is placed. If a neural inhibitor were attached to a person's forearm, his hand would be paralyzed, but he would feel no pain from a hand or forearm injury, and surgery could be performed without anesthesia. If one were placed near the neck over the spinal cord, he would be paralyzed from the neck down. Use on the skull induces unconsciousness until removed. They are usually available only to licensed medics, but may be acquired for other than medical purposes, e.g., restraint or torture.

Used as an electronic anesthetic, it adds +1 to First Aid for treating shock, and can also replace anesthesia machines. If the subject is not cooperating, treat this as a HT-6 affliction attack; the victim may roll to resist each second in contact. $200, 0.1 lb. LC3.

Life Support

Without blood circulation or breathing, a person will die within minutes. The immediate game effects of having no circulation are the same as suffocating (p. B436), as the damage is caused by lack of oxygen to the brain. When the body cannot control these actions itself, life support technology can keep the patient alive.

Mechanical breathing assistance first became possible in 1928 with the invention of the *iron lung*, followed in 1951 by the first flow-controlled *ventilator*. Ventilators can deliver either air or pure oxygen. The latter is useful because lower volumes of gas are needed to deliver the same amount of oxygen to the lungs, and it can partially compensate for reduced blood circulation.

For planned procedures that will interrupt blood circulation, such as open heart surgery, a patient can be connected to a *heart-lung machine*. Invented in 1951, this circulates blood outside the body, oxygenates it, and pumps it back in. It is suitable for surgery, but prolonged use damages brain tissue because of the pressure required to pump the blood around the body. It also causes immune activation in the blood, damaging *all* tissues.

If breathing or circulation fail during surgery, the surgeon will immediately stop operating and attempt to resuscitate those systems – see *First Aid* (p. 123).

Game effects: See *Mortal Wounds* (p. B423) for the effect of life support machinery: the patient rolls to survive each day rather than each half-hour, and may use the higher of his Physician skill or his HT. This assumes the machinery is providing ventilation and, if necessary, blood flow. Such equipment can also maintain the biological functions of someone who is brain dead (unless they're at -5 × HT or worse), preserving the body intact for later use (harvesting organs, autopsy, brain transplant, etc.). Attaching life support quickly to a mortally injured character requires an Electronics Operation (Medical) roll; each attempt takes at least 10 seconds. Life support can function as a Mitigator (-60%, see p. B112) for any Terminal Illness disadvantage caused by organ failure or similar problems. It can also perform blood transfusions.

Several types of life support equipment are described below. Weight of electrically powered equipment halves a TL after introduction.

Iron Lung (TL6)

A metal case in which the whole body, except for the head, is encased. Pumps cyclically create negative pressure in the machine, which inflates the patient's lungs artificially. 1928. $1,000, 1 ton. LC4.

Heart-Lung Machine (TL7)

An external pump and aerator to provide artificial blood oxygenation and circulation in patients with stopped hearts. Provides the benefits of life support (above). 1951. $15,000, 100 lbs. LC4.

Ventilator (TL7)

A system of compressed air and oxygen, connected to the patient's mouth and nose via pipes. Cyclic pressure inflates the lungs and then allows them to exhale as they relax, several times a minute. Used when a patient has difficulty breathing and during general anesthesia. Provides the benefits of life support (above) in cases where the heart is still working. 1951. $3,000, 30 lbs. LC4.

Emergency Support Unit (TL9)

This device is a trauma maintenance life support system designed to keep alive a patient who can no longer sustain his own bodily functions. The system also includes diagnostic biosensors (p. 28). An ESU provides a +2 (quality) bonus to Physician skill or HT rolls for life support (above). $15,000, 120 lbs. LC4.

> *Surgery is the red flower that blooms among the leaves and thorns that are the rest of medicine.*
>
> *– Dr. Richard Selzer*

Surgical Procedures

Surgery can be used to cure some illnesses, repair damaged organs and tissues, relieve pain, and rectify impairments.

Surgery has been practiced since ancient times, but was hit and miss until anatomy developed an accurate understanding of how the body was put together. Early surgeons valued speed above all things. A leg amputation might be done in a few minutes, for example.

This changed with the discovery of the anesthetics ether and chloroform and the ability to perform blood transfusions (TL5), which permitted slower but much more careful operations, with proper surgical repair of internal damage; historically, this saw surgery recognized

as a skilled profession, equal with that of the physician. Of equal or greater importance was the realization of the importance of hygiene and the introduction of antiseptics, which vastly increased the survivability of operations.

Modern surgery (TL6-8) builds on these advances to vastly increase the chance of success. Life support (p. 136) can keep patients alive during heart surgery and similar major procedures. Medical imaging (p. 127) vastly reduces the need for risky exploratory surgery. Surgery and its tools become increasingly specialized, and training and operating room techniques are refined; by TL7 surgery can perform previously impossible procedures, such as heart transplants and neurosurgery. A vast range of elective operations are available for everything from weight reduction to sex change.

A major new technology (TL8) is robotic surgery. Present-day surgical robots consist of robotic arms slaved to an imaging and teleoperation system controlled by a human surgeon. In the operating room, the surgeon controls the robot from a console while watching a 3-D image of the surgical field. He manipulates traditional surgical instrument handles and a computer relays his movements to robotic arms on the operating table. Typically a pair of robotic arms will follow the surgeon's movements from a patient side cart, guided by an endoscope arm that provides a view of the patient's insides. The arms operate through small incisions in the patient; as a result, major procedures on the torso and head are less invasive than traditional surgery. While robotic surgery is somewhat slower (at TL8), it decreases the fatigue that doctors experience in long surgeries. See *Surgical Robots* (p. 138) for statistics and game effects.

Advancements in artificial intelligence and robotic arm design may eventually permit the development of surgical robots that can operate completely autonomously. Ultratech surgeons may routinely guide swarms of microbots optimized for internal surgical procedures. They could also be used to prevent secondary hemorrhaging and look after any critical systems that might be adversely affected by the operation. Surgical microbots would also allow delicate internal operations that are otherwise impossible or unacceptably risky, such as repairing nerve tissue or removing brain tumors.

Exploring Inner Space

One radical method of surgery in a superscience setting is to physically shrink the surgeons to the size of cells and inject them into the body of a patient, usually inside a vehicle like a submarine. This idea was explored in the classic film *Fantastic Voyage*, which showed that the interior of a body is a wondrous place filled with plenty of opportunities for adventure. In a campaign with physical shrinking technology and without the medical advances necessary to treat certain conditions, inner surgery may be the best technique available. This is more likely at relatively low tech levels with rubber science, such as an Atomic Horror 1950s setting with a sprinkling of superscience, as medical advances will quickly make it redundant beyond TL8.

The setting needs to brush aside realistic problems such as how cell-sized humans would breathe, retain body heat, and deal with the overwhelming surface tension of liquids, and instead focus on dramatic possibilities. These include navigating the circulatory system, battling white blood cells which recognize shrunken humans as foreign bodies, and dealing with the infection or disease when they find it.

With another order of shrinkage, people could even have adventures inside a *cell*!

A still fantastic – but slightly more realistic – way to adventure in inner space is to have the intrepid surgeons remotely piloting teleoperated surgical microbots. Virtual reality or a direct neural interface could give the illusion of presence in the body. There is no direct risk to the medical team (unless the neural interface is itself dangerous) but there may still be a dramatic race against time to preserve their 'bots and save the patient's life.

Operations

Stabilizing a Mortal Wound: Someone who failed a HT roll to avoid death by only 1-2 is mortally wounded and dying (see p. B423). A surgeon can try to save him. Each attempt takes one hour. The roll is at -2 if the patient is at -3×HP or worse, or -4 if he's at -4×HP or worse. On a success, the mortal wound is stabilized. On a failure, repeated attempts are allowed, at a cumulative -2 per attempt, but patients must check every half-hour to avoid death (see p. B423), or less frequently if on trauma maintenance (see *Life Support*, p. 136).

Repairing Lasting Crippling Injuries: It is possible to fix a lasting crippling injury (see *Duration of Crippling Injuries*, p. B422) through surgery rather than leaving it to heal on its own. This takes 2+ hours. On a success, measure the injury's remaining recovery time in *weeks* rather than *months*. But on a critical failure, the injury becomes permanent!

Repairing Permanent Crippling Injuries: High-tech surgery may replace lost or destroyed limbs, eyes, etc. One way to do this is through attaching replacement parts – see *Transplants* (p. 141). This is tricky: a minimum -3 to skill (unless noted otherwise). On a failure, the patient needs 1d months to recover before another attempt is possible.

Repairing Medical Conditions: The disadvantages Bad Back, Chronic Pain, Terminally Ill, and Wounded may, at the GM's discretion, be the result of conditions that can be cured through ordinary surgery (without transplants). For example, a person who is Terminally Ill may be curable by a heart-bypass operation. The operation usually takes 4+ hours; success may remove or reduce the severity of the disadvantage; failure has the usual consequences of failed surgery and the patient needs at least 1d weeks to recover before another attempt is possible.

Biomods: Elective surgery to enhance or modify the user is covered in Chapter 7, but uses the rules described below. See Chapter 7 for time required and recovery periods.

If surgery cures a disadvantage, see *Buying Off Disadvantages* (p. B291-292) for guidelines.

Cinematic Surgery

In cinematic games, the nitty-gritty of surgery might be much faster and more effective. Cinematically high levels of the Surgery and Physician skills (or Medicine!, p. 214) allow amazing feats of healing, but a few optional enhancements for color can also be added.

Firstly, depending on genre-appropriateness, the patient might be anesthetized effectively with a slug of whiskey, a blow to the head, a tea brewed from nearby flowers, a scientifically placed nerve pinch, or by being given a bullet to bite. Another slug of whiskey might also calm a surgeon's nerves, granting a bonus to Surgery!

The GM may elect to ignore life support needs except in serious cases, and even then, open-heart surgery might be performed safely without brain damage by cooling the patient's head in ice.

Finally, surgery will still cause injury if it fails, necessitating recovery, but otherwise the patient might be able to walk, fight, and jump out of moving vehicles again as soon as he wakes up.

General Surgery Modifiers

These apply to all operations:

Scrubbing: It often takes at least five minutes to thoroughly scrub down for surgery. -3 if the area or equipment cannot be properly cleaned and sterilized; -1 for a cursory clean-up.

Diagnosis: -5 for undiagnosed problems.

Physician Skill: If a surgeon lacks Physician skill, he is at -5 to do anything but "field-expedient" surgery (e.g., stitch wounds or extract arrowheads, bullets, and shrapnel).

Assistants: +1 per assistant with Physician, Surgery, or (if appropriate to the equipment used) Electronics Operation (Medical) at 12+; +2 for skill 15+. Maximum bonus is +6.

Repeated Attempts: On a failure, repeated attempts are at a cumulative -2 per attempt.

Equipment: Basic equipment gives -6 at TL1, -5 at TL2-3, -4 at TL4, -2 at TL5, and +(TL-6) at TL6+. TL5+ surgery assume that anesthesia (p. 135) is available. If not, apply a -2 penalty to skill. Use of less sophisticated anesthesia may have other penalties (see *Anesthesia Equipment*, p. 135). Additional quality modifiers apply for better equipment; see the surgical equipment, below.

Other Species: Apply physiology modifiers (p. B181) for working on other species.

Success and Failure

On a success, the operation proceeded without complications. On a failure, the patient took damage – 1d for a minor procedure such as most cosmetic surgery; 2d for most serious procedures performed on limbs or extremities, such as amputations, sex change operations, etc; 3d for most torso or head surgery, including organ transplants. Halve damage if using robotic surgery (p. 137).

The fee is the usual surgical fee charged at a clinic or hospital – ignore it for characters who do their own work.

Type of Operation: -2 if stabilizing a mortal wound if the patient at -3×HP or worse, or -4 if he's at -4×HP or worse; -3 to repair lasting crippling injuries; -1 per -10 points or fraction of disadvantages if repairing a medical condition.

On a critical success, halve the recovery time (p. 139). A critical failure usually inflicts double damage. The GM may also impose other effects: new disadvantages, loss of attributes, etc.

Surgical Equipment

Surgical equipment and technology changes dramatically through the ages. Many forms of nanosymbionts (p. 164) are also useful in surgery at high tech levels.

Surgical Instruments (var.)

Includes scalpels, forceps, etc. Basic equipment for Surgery skill. $300, 15 lbs. LC4.

Portable Surgery (Var.)

A complete set of equipment that fits in the back of a utility vehicle or trailer or a hospital cart. These are often used as mobile field surgeries for military units. A portable surgery takes at least five minutes to pack or unpack; half an hour is more typical. It includes portable anesthesia equipment appropriate to the TL. It gives a +1 (quality) bonus to Surgery skill and +2 (quality) bonus to First Aid. $50,000, 500 lbs. LC4.

Operating Theater (Var.)

An entire room full of specialized equipment. It includes the best anesthesia equipment for the TL. It provides a +2 (quality) bonus to Surgery skill. $200,000, 1,000 lbs. LC4.

Specialized Operating Theater (Var.)

As above, but dedicated to a particular Surgery specialization, e.g., neurosurgery or heart surgery. It gives a +TL/2 (quality) Surgery bonus in that specialization but is only basic equipment otherwise. $1,000,000, 1,000 lbs. LC4.

Surgical Robot (TL8)

This is a set of cart-mounted teleoperated arms and imaging systems, plus the surgeon's control console, used for *Robotic Surgery* (p. 137). The surgeon uses remote controls to manipulate long, slim articulated surgical instruments and scopes that are inserted through small incisions in the patient. At TL8, teleoperated robot torso or head surgeries are slightly slower than hands-on surgery (multiply surgery time by 1.5) but the recovery time afterward is halved; in addition, any damage from a failed surgery roll

is reduced by -1 per die. At TL9+, no extra time is required, and this sort of remote-controlled manipulator capability is so ubiquitous they are built into all portable surgeries or operating theatres at no extra cost. 2000. $1.3 million. 500 lbs. LC4.

Automed (TL9)

A coffin-sized trauma pod with robotic surgical tools, diagnostic sensors, and doses of dozens of drugs. Its programs have Diagnosis-12, Electronics Operation (Medical)-12, First Aid-13, Physician-11, and Surgery-13, each improving by 2 per TL. It can also sustain a patient on life support (p. 136) and act as a teleoperated surgery for a remote surgeon with higher skill (use surgical robot rules). $100,000, 250 lbs. LC4.

Recovery

Before TL5 (and, at the GM's option, even during much of TL5), antiseptic practice is poor; check for infection (see *Infection,* p. 132) after any surgery.

If the patient has not lost any HP prior to or during surgery, recovery can be quick. General anesthesia will leave the patient Drowsy (p. B428) for (30-HT) minutes after waking up. For minor procedures, the patient will soon be able to walk and check out of the hospital, but often at least a day of rest is required to fully recover strength. Surgery on a limb will reduce its DX by 3 and ST by 30%, which is recovered by resting at a rate of 1 DX and 10% of ST per 10 days. Abdominal, chest, or back surgery results in the same losses for the whole body. Critically injured patients who leave surgery will be placed in intensive care until doctors consider them stable enough to be left without constant supervision.

Besides regaining strength, a surgery patient must take care not to tear sutures or promote bleeding. Any strenuous activity (e.g., running, climbing, combat) is likely to cause up to 1d of injury until the wounds heal; roll vs. HT-4 to avoid this. With serious injuries, getting out of bed may be too strenuous!

If the patient has lost HPs, these must also be recovered before he is fit to leave medical care. Rules for this are under *Natural Recovery* and *Medical Care* (p. B424).

Psychological Effects

Once a patient has undergone surgery, the wait to recover can be stressful. The hospital environment has strange beds, food, equipment, and people. Combine this with the stress of missed work, inability to help family, and the financial burdens medical treatment can add, and some people break.

A patient who doesn't rest sufficiently suffers a -3 penalty on his HT roll to regain lost HP for that day. Appropriate disadvantages such as Sense of Duty, Workaholic, or Miserliness (if faced with mounting bills) will make him literally restless to leave, unless overcome with a self-control roll (if the disadvantage has one) or someone else using Influence skills (e.g. doctor's orders or family pleading). Sedatives (p. 152) may help with sleep; access to a portable computer or aides to run errands will give bonuses to self-control or Influence rolls while risking the wrath of the treating physician.

Autopsy

Autopsy is the medical examination of a corpse to determine the cause of death. In many cases this takes nothing more than an external examination – knife and gunshot wounds tend to be obvious. If the examiner needs to cut open the body to examine internal organs, this requires a roll vs. Surgery+6 to avoid damaging any vital evidence. (Forensic pathologists will have studied surgery to gain their qualifications.) Determining the cause of death is a Diagnosis roll, with bonuses for obvious wounds, or penalties for especially subtle causes.

In some cases, an accurate diagnosis cannot be made without labwork on tissue samples. The job then changes hands to people with skills in Biology (Biochemistry or Microbiology). In some cases zoologists are required to examine evidence such as insect larvae or marine growth to determine time of death.

In a criminal investigation, an autopsy also includes collection of medical and forensic evidence that may lead to clues about the circumstances of the death. This involves looking for bruising, abrasions, lacerations, foreign biological matter, and chemical residues such as gunpowder, acid, and so on. Finding these clues and recognizing their importance requires a roll vs. Forensics.

For identifying bodies, see *Biometrics* (p. 24) and *DNA Testing Procedures* (p. 8). See also ***GURPS Mysteries.***

What medicines do not heal, the lance will; what the lance does not heal, fire will.

– Hippocrates

How Fast Does a Body Decay?

An exposed corpse goes through several stages of decomposition, beginning from the moment the body dies. These changes are important signs for forensic investigators.

0-24 hours: The body begins to cool toward the environmental temperature, at roughly 1.5°F per hour. Bodily sphincters relax; the bowel may release feces, while stomach contents can be regurgitated if the body is moved or the head is lower than the stomach. The skin becomes pale within an hour or two through lack of blood. The blood pools under gravity, causing a dark red to purple discoloration in the lower parts of the body after two hours. Three hours after death, the body begins stiffening with rigor mortis. Skin cells live (and can be collected and cultured, perhaps for cloning!) for up to 24 hours after death.

1-3 days: Normally harmless bacteria in the digestive tract begin digesting the organs around them. The body's own enzymes start breaking down cells and connective tissues. A corpse attracts flies immediately; they lay eggs around wounds and body openings. Maggots hatch within 24 hours and burrow into the flesh. Rigor mortis wanes after 36 hours.

4-10 days: The anaerobic breakdown of tissues and cells by bacteria releases fluids and gases into body cavities. The gases – including foul-smelling methane, hydrogen sulfide, and organic compounds – cause the body to bloat. This provides enough buoyancy for a human corpse to float even if initially held underwater with up to half its own mass in weights. Maggots move through the body, spreading bacteria and further tearing tissues. The smell attracts beetles and wasps, who prey on the maggots.

11-20 days: The body releases the bloating gases and collapses. A large amount of putrid fluid drains from the corpse into the surrounding area. The first generations of maggots pupate and emerge as flies. Wasps lay eggs inside maggots and pupae.

21-50 days: Most of the soft tissue is gone. What remains dries out and begins to ferment. This produces a carpet of mold as fungal spores germinate. There is no longer any food for maggots, but beetles continue to feed on skin and ligaments.

51+ days: All that is left is bones and hair. Moths and bacteria eat the hair over the next few months and the bones dry out. A year later, only a dry skeleton remains.

A body not exposed to insects will decay more slowly by bacterial action, taking twice as long underwater and four times as long underground. Burial in a coffin can lengthen the process by up to 10 times.

In unusually cold and dry conditions, such as mountaintops or in space, a corpse can desiccate quickly enough to prevent the latter stages of decay. This produces "freeze-dried" mummies such as Ötzi, the Alpine "Iceman." Mummification can also occur in anaerobic conditions that kill bacteria, such as in peat bogs. Mummification is complete within six to 12 months.

Medical Transplants

Therapeutic? Sure. But you can also use an eye transplant to change your retina print. Even saw one guy who grafted on a new hand so he could get past a palm-print scanner.
– Streethawk, alt.bio.upgrade.samurai

The transplantation of organs from one body to another can treat many different conditions. The surgical techniques necessary for transplants had been developed by 1900. Surgeons experimented on animals and humans, but discovered that rejection of the foreign tissue by the body's immune system prevented success.

The first successful human transplant was performed in 1954, a kidney transplanted between identical twins to avoid tissue rejection. Lung, liver, and heart transplants followed in the 1960s, but available immunosuppressant drugs were not strong enough to prevent patients from succumbing within months to rejection and other complications. The discovery of the powerful immunosuppressant *cyclosporine* in 1970 (found in a species of fungus) paved the way for transplant recipients to recover and live full lives with their new organs. Unfortunately, cyclosporine has a number of unpleasant side effects, including increased susceptibility to infections.

Acquiring Organs

Before a transplant can proceed, the surgeon must have the limb or organ that is to be transplanted. Transplant organs at TL7-8 must be taken from living (or very recently deceased) individuals. At higher TLs, they might be grown with tissue-engineering or cloning technology (see below).

There may be faster ways to get a body part. See *Trade in Body Parts* (p. 194) for more organ sources.

The prices given for transplant procedures include the cost of purchasing or growing the body part as well as the operation itself; one-third is the cost of acquiring the part and the remaining two-thirds the cost of the operation. Thus, if someone donated a kidney to save his dying twin brother, or a group of cyberpunks murdered a victim to get an organ for a friend, they'd pay two-thirds as much. If they bought the organs, but one of them was a surgeon and they performed the operation themselves, they'd pay only one-third cost. If they did both, the process would be free.

Tissue Engineered Transplants

One way to avoid tissue rejection without resorting to immunosuppressant drugs is to use donor organs with the same genetic profile. Tissue engineering holds the promise of providing custom-grown organs specifically for transplantation – see *Transplant Organs*, p. 26. Organs with a listed "time to grow" assume the organ is custom-grown in a growth tank (p. 20) using samples from the subject's cells. If forced-growth technology exists, divide the required time by four. Custom-grown organ providers may require advance payment before they will begin growing a transplant. The organ can be transplanted as soon as it's grown, or stored until convenient.

Clone Transplants

An alternative method of producing tissue-compatible organs for transplantation is to grow an entire new set in a complete clone body. This is less desirable than tissue engineered organs for several reasons: clones take longer to grow, are more expensive, and raise more serious ethical problems that may make growing clones for spare parts controversial or illegal. See *Cloning* (p. 22) for details about creating clones, and *Spare Part Clones* (p. 196) for a discussion of the ethical considerations.

Xenotransplants

These involve grafting nonhuman tissue into a human body. This tissue may come from an animal or be vat-grown. One difficulty is that the immune response to nonhuman tissue is different than that to foreign human tissue. Different drugs are needed to suppress immune responses, and the risk is slightly increased. The goal is to replace a dying human organ with that of an animal anatomically and genetically close to humanity, such as a baboon.

Organ xenotransplants were begun experimentally in 1964 but first became reliable with heart valves transplanted from pigs and cows in 1975. Whole organ xenotransplants have not yet been successful, but the technology should mature by TL9. By TL10, genetic engineering can produce animals with tissues designed to produce minimal immune response in humans, reducing risks of rejection.

Medical xenotransplants are used for two reasons: First, they serve as a substitute for human organs that may be in short supply. Second, if the patient's organs are failing due to an infectious disease, the disease is less likely to cross species and reinfect the new organ than if human tissue were used. In such cases, a xenotransplant may repair damage and also cure the disease (allows a HT roll, at a penalty depending on the disease). The downside is the animal tissue may be susceptible to diseases of its own ("What do you mean I can catch distemper from my cat now?").

Xenotransplants can be used to replace damaged or failing organs at 75% of the price of an ordinary therapeutic organ transplant and with no waiting period.

Rejection and Immunosuppression

Rejection is a risk when using transplants that are from a donor who's neither the clone nor an identical twin of the recipient. The danger can be reduced by using genetic tests to find donor tissue that more closely matches the recipient (TL8). If genetically matched tissue is unavailable, then the recipient should only accept tissue from a donor of the same blood type. Use of donated tissue is usually combined with a cocktail of drugs to suppress the patient's immune system long enough for the transplant to become part of the body. Check for tissue rejection midway through the recovery period.

Rejection is automatic if the donor and recipient have different blood types. Otherwise, the patient must *fail* a HT roll to avoid rejection. Modify the patient's HT for this roll as follows:

- +2 if a xenotransplant, *or* -4 if a xenotransplant from an animal engineered for maximal compatibility (TL10+);
- +6 if no tissue matching was performed (cumulative with the xenotransplant modifier);
- any Resistant to Disease bonus (+10 for Immunity to Disease);
- -1-(TL/2) (round toward 0) if on a regimen of immunosuppressant drugs; this also halves (round down) any bonus from Resistant to Disease;

Success on this HT roll means that rejection starts halfway into the recovery period. The patient must make a HT roll (at -2 if the transplant is a vital organ) every day, or lose 1 HP; 1d HP on a critical failure. This continues until the transplant is removed or the patient dies. Removal requires an operation identical to the original at +2 to Surgery skill, but may leave the patient on life support until a new organ can be found.

Following a potentially rejectable transplant, the patient requires immunosuppression for life. This gives him Dependency (Immunosuppressants, Common, Daily) [-30] and Susceptible to Disease 3 [-12], though this is a good deal considering the buying off of Terminally Ill!

Telemedicine

Remotely-controlled diagnostic systems or surgical robots combined with a two-way communication link permit off-site "telemedicine."

Apply a -4 penalty for any such endeavors (-2 if using a neural interface, which may be available at TL9+). Each 186,000 miles (one light second) between the operator and robot imposes a one-second action-response delay (each way); this may not be a problem if everything goes right, but can make it difficult to correct minor errors; apply a -1 penalty for one light second, -2 for 10 light seconds, -3 for 100 light seconds, etc., unless an FTL communication system is available to allow zero-lag response.

Types of Transplants

Transplants of different complexity are possible at different TLs. Use the rules under *Surgery* (p. 135) for a transplant operation. The patient must rest and recuperate afterward; each procedure has a listed recovery time.

Organ Transplants (TL7)

Kidneys, lungs, livers, and hearts can be transplanted at TL7. At TL8, it is possible to successfully transplant most chest and abdominal organs (the stomach being the major exception), corneas, and skin. As technology improves, transplants of the remaining organs should be possible.

Suitable transplant organs may be in short supply; see *Xenotransplants* (p. 141) and *Trade in Body Parts* (p. 194) for alternatives. At TL9, vat-grown organs take six weeks to grow and the entire procedure is significantly cheaper: divide cost by two at TL9, four at TL10+. If vat-grown organ technology does not exist (or the patient doesn't want to wait for them to grow), donated organs may be available at the same prices for TL7-8 organs.

Operation: Cornea: $15,000, two weeks recovery. Kidney, digit, or genitals: $150,000, four weeks recovery. Bone marrow: $240,000, five weeks recovery. Any other organ: $300,000, six weeks recovery. LC3.

Statistics: At the GM's discretion, replacing major organs can cure or arrest some diseases or the Terminally Ill disadvantage, or restore some or all ST or HT lost to aging, disease, or radiation.

Limb Transplants (TL7)

Surgical reattachment of severed arms, legs, hands, and feet is a common procedure, often successful if the body part has had little time to deteriorate. However, transplant of limbs from one person to another is much rarer: only a few such transplants have been performed since the first one (in 1964).

Limb transplant recipients must undergo intense physical therapy to recover anything approaching normal functioning, which requires TL9+ technology to achieve.

Operation: $120,000 and 12 weeks recovery at TL7-8; $60,000 and six weeks recovery at TL9+. LC3.

Statistics: Replaces a lost limb that was destroyed or otherwise unrecoverable. At TL7-8, the user should, at a minimum, take a Minor Handicap (p. B165). If the patient does not devote an additional period equal to the recovery time to intense physiotherapy, assigning up to -20 points of physical disadvantages, such as a -1 to DX or ST (for a transplant hand or arms) or -1 to Move (for a transplanted foot or leg) would be appropriate. At TL9+, there are no side effects.

Face Transplants (TL8)

This is the transplantation of the facial tissues down to the muscular level. The medical justification is to provide a natural face for patients suffering disfigurement; the inclusion of nerves and muscles allows sensitivity and movement, as opposed to skin grafts which produce a blank mask-like effect. The problem is the patient ends up looking like someone else. Depending on circumstances, this may qualify as Mistaken Identity. It is also possible that unscrupulous individuals will undergo this procedure to deceive others, or to lose their old identities. By 2006, this operation is possible, but has been performed only once.

Operation: $20,000 and two weeks recovery; half cost at TL9+. LC3.

Statistics: Variable; usually a change in Appearance level [Variable] and/or Mistaken Identity [-5]. At TL9+, mass-produced tissue-engineered faces become available; this is Appearance with the Off-the-Shelf Looks (-50%) modifier.

Head and Brain Transplants (TL9/10)

Ultimately the head, or even just the brain, could be transplanted onto a new body. The heads of monkeys have been transplanted, but the ethical issues involved with attempting this on a human have so far prevented such an experiment. At TL8, a severed spinal cord cannot be reconnected, so any head transplant would leave the patient quadriplegic. At TL9, spinal cords can be regenerated using stem cells (p. 22), but this does not allow a full reconnection, leaving the patient Numb (p. B146). At TL10, this problem can be overcome with nanosurgery. This procedure transfers the patient's consciousness to a new body and can be used to extend lifespan and vigor, especially if a younger body is used. The brain cells are still the same age, though, so this is not a ticket to immortality.

For temporary storage before attachment to a new body, a neuropreservation unit or brain pod can be used. Removing a brain safely takes six hours; reattaching one takes 24 hours. Attachment to a full cyborg body (see ***GURPS Ultra-Tech***) is slightly easier since part of the work is already complete; this gives +2 to Surgery skill.

Operation: $50,000 and eight weeks recovery for transplantation into a living or cyborg body. $10,000 for removal and storage alone. Roll versus Surgery-5, with failure indicating damage to the brain (permanent loss of 1d points of IQ), and critical failure resulting in brain death. There is no need to grow an organ, since an existing brain is used.

Statistics: Use the rules for *Mind Transfer* (p. B296). The rule for modifying IQ given there under *Mind vs. Brain* does not apply, since the brain tissue is being transferred. However, the GM may decide that DX is either fully or partly controlled by neural response; if so, keep the DX of the brain or the average of the brain and body, respectively, and optionally require refamiliarization with physical skills with the new body. If brain transplants are likely, the GM may want to track the brain's age (which will control the frequency of rolls for IQ loss due to aging) and the body's age (which controls aging losses of ST and HT) separately; which controls DX depends on GM choice.

Neurological Procedures

The brain is the most complex organ in the body, and the seat of consciousness. Procedures that alter brain structure or chemistry can produce profound changes in the subject's memory and personality, for good or for ill.

> *Do not forget: in medicine, there are more important things than life and death: dollars and cents.*
>
> *– Gerhard Kocher*

Neuropsychology (TL8)

This is the study of brain function and how it relates to cognition and behavior. Neuropsychological therapies can help patients deal with conditions caused by abnormal or injured brain structure. This can include many disadvantages, especially Amnesia, Dyslexia, Epilepsy, Neurological Disorder, and Stuttering. Others may be added if the GM considers them caused by brain abnormalities.

Unlike psychotherapy, clinical neuropsychology aims to treat these conditions by using mental and behavioral exercises to develop improved brain function. Such exercises can "remap" the brain, using uninjured areas to take over the tasks of the impaired regions. An effective TL8 example is speech therapy, but other conditions may only become easily treatable at higher TLs.

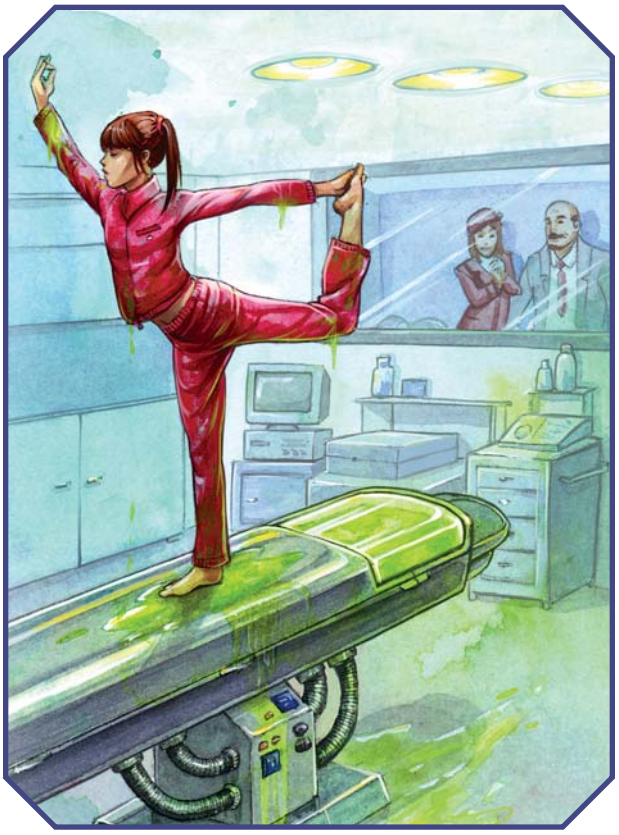
Statistics: At the GM's option, neuropsychological therapy can be used to justify buying off disadvantages caused by impaired brain function, as for psychotherapy, but substituting a HT-2 roll for the Will roll, and with no penalty for critical failures – it is slower, but not prone to undoing itself. Required treatment sessions and costs are similar.

Deep Learning (TL9)

Deep learning is an intensive process that works on a blank brain (one with no prior experiences outside an artificial womb), making extensive use of technologies such as sleep-teaching tapes, learning-enhancing drugs, and virtual-reality sessions to "program" someone with a synthetic set of skills and knowledge. This would be an ideal technology to combine with the accelerated growth of people (clones, bioroids, etc.) using forced-growth tanks or biofabs (p. 27).

Six weeks of deep-learning socialization can give someone basic life skills. This can take place while a person is growing in a growth or fast-growth tank. It gives the subject control over his own body and the ability to understand and speak one language at Native level.

Up to an extra year and a half can be spent in deep learning; more time imposes too severe a psychological stress. It counts as intensive training (p. B293), except that there is no HT requirement and it can last 20 hours a day, the remainder being simulated sleep, rest, or play. Thus, someone undergoing it is actually spending 600 hours a month training (equivalent to 1,200 hours of learning). Deep learning can also program a mental disadvantage into someone, with up to -3 points worth every month possible instead of skill training. This sort of programming is not entirely reliable, and may fail at the GM's option.



A deep-learning system requires a Complexity 6+ computer and specialized teaching programs that control the various virtual-reality simulations, drug doses, etc. Programs cost $100,000 for basic life skills, $12,000 per additional skill. Peripheral hardware must also be added to the growth tank, biofab, or forced-growth tank. This costs $400,000 at TL9 or $100,000 at TL10 (due to advances in neural-interface technology), with the cost being halved at TL11 and again at TL12. The fee charged for the deep-learning process itself costs $4,000 per character point or point of disadvantage gained at TL9, halved at TL10, and again at TL11+.

Brain Scanning (TL10)

This uses diagnostic machines in conjunction with HyMRI (p. 129) to create a mental model of the way a person thinks (a "persona map"). The subject must be conscious, but cooperation is not required. Roll against Electronics Operation (Medical) at -2 or Brainwashing each day to make a full brain scan; subsequent scans to update the map with new data are performed at +1 and take a few hours. Careful study of a recent persona map requires a successful Psychology roll and at least two hours. It reveals the subject's main mental advantages, disadvantages, and quirks, and gives a +2 (quality) bonus to Psychology and +1 (quality) to social or Influence skills when dealing with that person.

Preservation

Preservation is the process of slowing down or stopping biological activity in humans, while doing as little damage to the body as possible. There are a few different ways in which this can be done.

These technologies may allow an injured, dying, or recently dead person's body – or at least the information in his brain – to be preserved, perhaps long enough to reach a medical facility that can cure him. If no cure is available, he might possibly be suspended until future science can devise one.

The obvious non-medical use is for space travel. If a space voyage takes years, some sort of preservation technology may be necessary for manned flight. Even if it takes weeks or months, it would still reduce tedium and save on life-support costs. This technology may even be required for faster-than-light voyages if the FTL drive has side effects that would damage the life or sanity of a conscious passenger.

Healthy people may also use these technologies to "time travel" into the future, especially at TL9+. The motive could be unwillingness to wait for an event ("wake me up when you're ready to marry me"), boredom ("wake me up in a hundred years"), or a desire to monitor a long-term process, such as a team of sociologists monitoring a culture's development ("wake me up when the Tang Dynasty falls").

If reliable preservation technology (suspended animation, nanostasis, or temporal stasis) exists, individuals – or entire organizations – who live only for a specific mission may be kept preserved most of the time, being revived only when needed. For instance, a super-assassin or an entire army of bio-soldiers could be too dangerous or expensive to maintain in peacetime. Instead, such individuals could be kept in suspended animation, to be revived and briefed whenever a crisis threatens, then put back to sleep afterwards. (This might make an interesting campaign, as each adventure could be set progressively farther into the future.)

Cryonic Preservation

Cryonics is the practice of preserving recently dead bodies at extremely low temperatures, with the hope that future medical science – especially nanotechnology – will be able to revive them. At present, there are a handful of corporations or societies devoted to cryonic preservation, mostly in the United States. Only dead people are frozen, as TL7-8 cryonic techniques would kill a living subject.

If cryonic preservation is to be meaningful, it must take place as soon as possible after death. This is because a dead body's tissues suffer progressive deterioration after breathing and blood circulation cease (see *How Fast Does a Body Decay?*, p. 140). A candidate should be placed on a heart/lung machine immediately after clinical death, to restore some circulation. The corpse can then be taken to a cryonics facility, where the actual cryonic process can take place.

Preservation at cryogenic temperatures prevents further tissue deterioration, but has its own problems. The most significant of these is caused by ice crystals forming in the cells. Even a dead human body is mostly water. When it is frozen, the water expands, rupturing the cells. This can cause cracks throughout the body, including the brain.

To minimize tissue damage, a special protective solution (at TL7-8, a glycerol-based solution) is slowly introduced into the subject's tissues, using a specialized heart/lung machine to pump it through the body. This takes four hours, during which the patient's brain is carefully monitored. Next, the patient's temperature is slowly lowered over five days using dry ice. When cold enough, he is then deposited in a liquid-nitrogen bath for permanent cryopreservation at -320°F. At this temperature, all biochemical and metabolic deterioration effectively halts. Subjects maintained at this temperature can be preserved almost indefinitely. Even so, there is a high risk of information loss (revived cryonauts may often suffer Total or Partial Amnesia); as such, vitrification (below) may be preferred.

A person in cryonic preservation is sometimes called a "corpsicle" (a word used by SF author Larry Niven, who credits Frederick Pohl for it). Advocates of cryonics may consider this impolite. A typical price for whole-body cryonic preservation, including both the operation itself and the promise of indefinite cryonic storage, is $150,000. Companies may also charge an annual fee of a few hundred dollars while you are alive to cover the expenses of administration and recovering your body when you die. But there's a cheaper alternative . . .

Cryopreservation Units (TL7)

These storage units are basically giant thermos bottles designed for very low temperatures. Their extremely cold state is maintained by a reservoir of liquefied gas, usually nitrogen.. Since they are intended for the long haul, cryopreservation units are normally made of two layers of steel separated by multiple layers of insulating material. This minimizes evaporation, but they require topping up with liquid nitrogen every 10 days or so. In an emergency, they can be left untended for a few months before the bodies begin to thaw. Bodies are stored head-down so that the brain is the last thing to thaw.

Gas refills and maintenance cost $4,000 a year for a full body. A stable trust account returning enough to cover ongoing costs requires a capital investment of $120,000, assuming the economy doesn't crash. Divide these figures by four for neuropreservation. At TL9+, cryopreservation units are more efficient, requiring refills only twice a year and dividing ongoing costs by 20.

Whole-Body Unit: A unit designed to preserve three to five whole bodies. $10,000, 2,000 lbs. LC4.

Cryocase (TL8)

This is a portable cryogenic storage case, normally used for transporting organs, frozen embryos or similar fragile biological cargoes. Its interior can be configured to contain a human head or arm, up to three large organs (heart, kidney, etc.), or twice that many smaller organs (eyes, for instance). It will preserve them for as long as it has power, after which they will spoil within 1d hours. The cryocase is also suitable for transporting other products that need to be frozen – evidence samples or certain drugs, for instance. The case is about the size of a large suitcase. $2,000; when empty, it weighs 10 lbs. Batteries power it for 24 hours, but it can be hooked up to building power (negligible requirements) to run indefinitely. LC4.

Nonhuman Cryonic Suspension

As with all medical technologies, some people will want to apply cryonics to beloved pets or valuable livestock. For mammals, the procedures are the same; the only real difference is in the size of the storage container required. Scale the size and cost of an animal cryogenic unit according to body mass, assuming a standard human capsule can hold 200 lbs.

Simpler life forms can be frozen and revived more cheaply, as their bodies are more resistant to freezing temperatures and suspension of metabolic activity. Plants and invertebrates cost half as much to freeze and revive, while unicellular organisms can be suspended successfully for no expense beyond the storage cost.

Cryonic Vitrification (TL8)

The major problem with early cryopreservation techniques is that the ice crystals forming within the body destroy cells. Vitrification replaces water-based fluids within the body with a cryoprotectant concentration so high that ice does not even form; the tissue is vitrified in a glassy state. Vitrification offers better odds of preserving memories intact (usually no worse than Partial Amnesia), but physical revival has to wait for TL11+ technology.

Neuropreservation (TL8)

The usual form of vitrification is neuropreservation. This process involves preserving only the severed head (since the brain is the seat of memory), the idea being that a technology advanced enough to revive a body should be able to handle a brain transplant to a clone. On the other hand, this is controversial, for a couple of reasons. First, many consider the practice a little ghoulish. Second, it's possible that a future society might have ethical qualms about transplanting a brain into another body (even a clone), or might not consider a severed head to be worth reviving. Neuropreservation (including operation, vitrification and storage) costs about $80,000.

Neuropreservation Unit: A storage unit for up to 10 heads. $6,000, 1,200 lbs. LC4.

Cryonic Revival (TL9)

A corpsicle frozen using TL7-8 cryonic preservation techniques may be brought back to life with the help of advanced nanotechnology. Unfortunately, the primitive freeze techniques used mean that, in many cases, portions of memory and personality are irretrievably lost. At the GM's option, personalities reconstructed from frozen brains will inevitably suffer from Amnesia or other mental disadvantages; this may be less of a problem for vitrified brains. Even if the GM rules that perfect retrieval is possible, brain injury, radiation, or illness prior to freezing can still result in the loss of memories or personality.

Here's a possible schedule for revival:

TL9: A corpsicle's body can't yet be brought back to life. However, if the body was not vitrified, cell samples are well-enough preserved to allow a clone to be made. That clone won't have the original's memories.

TL10: The preserved brain's structure can be analyzed with advanced medical systems; usually this involves taking the brain apart and scanning individual bits of it with MRIs, anti-proton imagers, or other high-resolution imaging systems. If uploading technology exists (see ***GURPS Ultra-Tech***) it may be possible to create a digital copy of the mind and run it on a complex computer (usually Complexity 10+). The resulting mind will have the mental traits of the original plus the Digital Mind advantage and a robot or computer body; see Mind Transfer (p. B296). However, there's a good chance the uploaded mind will suffer from Partial or Total Amnesia due to incomplete recovery of memories.

TL11+: The original body can be fully restored using a chrysalis machine (p. 133), where advanced nanomachines will thaw it out, place it in a form of biostasis, and then repair any damage or disease suffered. This process takes one day for every hit point the corpse was below 0 HT at the time it was frozen. Since the body is being virtually rebuilt anyway, it's relatively trivial to also restore any losses that occurred due to aging. The rebuilt brain structure will hold whatever memories are still there to be retrieved.

Suspended Animation

Being able to revive a frozen corpse is one thing, but preserving people without killing them requires a far more advanced technology.

This process is *suspended animation*, sometimes called "biostasis." A suspended animation chamber uses a combination of chemicals, low temperature, and drugs to drastically reduce the occupant's metabolic rate. Progress toward suspended animation has been achieved with experimental animals (2006) using a mixture of air and hydrogen sulfide, but long-term suspension is still in the future, and may involve different technologies.

Whatever the means, a live person who has undergone suspended animation is not dead. Rather, his metabolic processes have been reduced to a nearly negligible level while within the chamber. Unlike cryogenics, revival simply involves opening the chamber (and possibly injecting various drugs). Long stays may require additional treatments, if the chamber is not equipped to keep the "sleeper" in shape. Systems often have automatic gas or drug dispensers built into the tube itself so that a person need only lie down and close the tube to be put into suspension within minutes.

Hibernation Chamber (TL9)

This houses a single person. It is equipped with a life support systems to keep the patient alive at his low metabolic rate, stimulate muscles, etc. Reduces metabolism by roughly a factor of 10. These must be connected to an external life support source, but the occupant has only one-tenth the normal life support requirement (they also age at one-tenth normal rate). $20,000, 200 lbs., external power. LC3.

Suspended Animation Capsule (TL10)

This device is used to store people in suspended animation. It may also called a "freeze tube." Reduces metabolic activity to nearly zero. Has a built-in six-month battery for backup. No other maintenance is needed. Capsule storage costs $250/day for short periods, or $50,000 annually; discounts of 10% to 60% off the annual fee are available for long-term storage of 50 years or more. This price includes a safe, well-guarded storage space. $50,000, 500 lbs. (with external power) or 750 lbs. (with battery). LC4.

Portable Brain Pod (TL9)

A portable unit designed to keep a disembodied brain (and portion of the spinal cord) alive. It is used to store or transport living brains, generally prior to a brain transplant or total cyborgizing operation. A brain pod does not include any systems to keep the brain conscious, or any neural connections that would allow the brain to operate equipment such as communicators or sensors. In fact, it has systems designed to keep the brain *unconscious*, as a conscious brain would suffer total sensory deprivation, which could damage its sanity. This also allows the brain to be installed or removed from the pod without the expensive, time-consuming surgery required to make neural connections. $40,000, 80 lbs. for a portable brain pod including a power supply (good for up to a month; a spare socket allows one cell to be removed while another is still operating) and a casing. Weight and cost are halved at TL10 and again at TL11. It uses negligible amounts of vehicle or building power. LC4.

Nanostasis

This is a means of safely and completely shutting down a person's metabolism, putting him into a state of *permanent* suspended animation, in which no special preservation tank is needed. It uses bio-nanomachines to install protective scaffolding and fixatives around and within every cell in the patient's body. Once placed in stasis, an organism will not require any oxygen or food, and cannot age or deteriorate, although it remains vulnerable to physical damage. Reversal of nanostasis requires using similar bio-nanotech to remove the preservatives and restart bodily functions. It can be thought of as a highly advanced form of vitrification (p. 145).

A living being placed in nanostasis is not exactly dead, since genetics, memory, and personality are preserved. However, he is inanimate and unconscious, with IQ 0 and the Immunity to Metabolic Hazards, Unliving, and Unaging advantages.

Nanostasis can also replace the need for anesthesia during TL10+ surgery.

Nanostasis is safe, but the subject will usually be disoriented and confused for hours (sometimes days) afterward. Upon revival, the process supervisor makes a Physician roll. Critical failure means the patient has the Confused disadvantage for 20-HT hours, and Amnesia (Partial) for at least a week; roll vs. HT weekly to recover. Failure produces the same effects, but roll vs. HT daily to regain memory. On a success, Confused lasts only (20-HT)/2 hours and there is no memory loss. Critical success means full recovery.

Nanostasis Tank (TL10)

This is a device designed to place someone into nanostasis, or to revive him. It takes five hours for the process to radically slow and then completely stop his metabolism. Afterward, he can be safely removed. The tank can also revive someone; this takes eight hours. $300,000, 250 lbs. It uses up a package of nano per patient ($5,000, 0.1 lbs.). A chrysalis machine (p. 133) can also induce nanostasis; use the same rules. LC3.

Good medicine is bitter, but it cures illness.

– Chinese proverb

Temporal Stasis

The ultimate in preservation is to stop the passage of time for the patient. This can be achieved with an individual-sized stasis web. The disadvantage for medical uses is that the stasis time must be set before the web is activated – physicians cannot elect to bring the patient out of stasis early or prolong the preset time. The advantage is that the patient experiences no time at all while in the web, and emerges in the same condition as he went in, with no recovery time.

Personal Stasis Web (TL^)

A coffin-sized (6' × 3' × 2') box containing a stasis web generator, convenient for suspending time for a single person. Like other stasis webs, a timer must be set and the stasis web cannot deactivate until that time has passed, unless a reality stabilizer (see ***GURPS Ultra-Tech***) is used. Box cost and weight can vary. $144,000, 15 lbs. LC3.

Chapter Six
Drugs and Nano

In my darker moments, I feel my bloodstream has turned into an arms race. Inject a few trillion genginneered macrophage cells into your body, and these "active shields" will hunt down and dismantle anything that looks threateningly pathogenic or toxic before it can do much in the way of damage. It seems to have worked – I haven't aged or gotten sick since the procedure. Considering some of the places I've been, this is surely a miracle.

– Tisephone Logos, >warangel>heavenweb>solnet

This chapter describes various chemical or bio-nanotech agents that can be introduced into the body to affect its chemistry and physiology. Unlike biomods, the effects are usually either temporary, preventative, or the cumulative result of long-term usage.

Chemical Drugs

Ever try Adders? Cute, performance-enhancing drugs, but they're pretty limited. Sure, they'll make you smarter or stronger for a few hours, but then it's a big letdown. I mean, great for combat or acing a test, but that's not much use if you've got a long-term project like a marathon or finishing your thesis, is it? But there's some drugs out there that can give you that kind of life-long boost you want. 'Course, your life may not be that long, but at least you'll leave a good looking corpse.

– Genosibyl, alt.bio.upgrade.samurai

Humans have been using drugs since prehistory. The first drugs were chemical compounds found in plants or fungi. Herbalism – represented by the skill Pharmacy (Herbal) – is the practice of extracting these compounds into forms suitable to give to patients.

As technology advanced, people gained better understandings of the purification of active compounds and what they did. By TL5, pharmacists could extract and mix active substances in the laboratory to produce pills with concentrated or combined effects. Many treatments consisted of administering toxic inorganic compounds, relying on them being more dangerous to the disease organisms than to the patient.

Using TL6 chemical analysis and synthesis techniques on a herbal compound extracted from meadowsweet flowers, Felix Hoffman of the Bayer company produced the first artificial drug in 1897: aspirin. This opened the doors for the development of new synthetic drugs, which are often based on compounds extracted from nature, modified to enhance desired effects and reduce undesired ones.

Therapeutic Drugs

Most drugs are developed and used for medicinal purposes. They combat illness, relieve symptoms, or provide prophylactic protection against becoming sick.

Abortifacients

These are drugs that terminate pregnancy, causing the embryo or fetus to miscarry. Primitive societies have used herbal abortifacients for centuries, but these are risky as they are also toxic to the mother. Treat this as a digestive agent inflicting 2d toxic damage with a HT-2 roll to resist.

At TL8+, synthetic abortifacients become available, which allow safe termination within the first three months of pregnancy. If used after this period, the mother will require medical care as the fetus miscarries. Roll vs. the attending physician's Surgery+6; on a failure the mother takes 1d damage. $10/dose. LC3.

Analgesics

These drugs relieve pain and come in several unrelated varieties. Rules for powerful generic analgesics such as morphine are given under *Painkillers* on p. B441.

Any of these drugs may also act as a mitigator (p. B112) for Chronic Pain (p. B126).

Anesthetic Drugs

Chloroform (TL5). If held against the face for one minute or breathed through a mask, will cause the patient (or victim!) to roll against HT-3 or fall unconscious. Cinematic chloroform works much faster! $5/dose.

Ether (TL5). Normally breathed through a face mask; after several minutes causes the patient to roll against HT-3 or go unconscious. $5/dose.

Aspirin (TL6)

Acetylsalicylic acid (ASA), introduced in 1897, became commercially available in 1899, and has since become the most popular over-the-counter analgesic, although how it worked was not understood until the 1970s (TL7). It inhibits prostaglandin production (chemicals that release pain signals). This also has some other advantages, e.g., reducing production of blood clots and thus risk of heart attacks. Unfortunately, it also affects the stomach lining; overdoses may result in nausea. Aspirin takes about a minute to take effect, and lasts for four to six hours. Low doses (a couple of pills) reduces the penalty from pain (p. B428) by 1 after any other modifiers for High or Low Pain Threshold have been applied. High doses (multiple pills, depending on the degree of pain) reduce the penalty by 2 but require a HT roll to avoid Nausea (p. B428), or on a critical failure, 1 point of toxic damage. Very high doses can affect the kidneys and liver, causing 1d to 3d toxic damage. $3 per 100 tablets. LC4.

Narcotic Painkillers (TL5/6)

Natural opiate pain killers such as morphine (TL5) and similar synthetic narcotics (TL6) such as meperidine hydrochloride (Demerol) attach to opioid receptors found in the brain and spinal column to interfere with the transmission of pain. They also trigger the brain's pleasure centers. They're used to treat chronic or surgical pain (and often abused as recreational drugs). Taken orally, there is a delay of 20 minutes; injected, there is *no* delay. Roll vs. HT-4 to resist. On a failure, the user acquires the High Pain Threshold (p. B59) and Unfazeable (p. B95) advantages, the Laziness disadvantage (p. B142), and experiences euphoria (p. B428). All effects last for hours equal to the margin of failure. $3 per dose. LC3.

Acetaminophen (TL7)

Also called peracetamol and popularly known under the tradename Tylenol, this is a popular analgesic as well as a major ingredient in many cold and flu medications.

Its mechanisms are similar, but somewhat different, to aspirin: it does not damage the stomach lining, but has no effect on blood clots. It is safer in moderation, but an overdose (10-20 tablets depending on strength) can cause serious or fatal liver damage.

Treat as aspirin with no HT roll to avoid nausea. Deliberate overdoses may cause 1d to 4d of toxic damage. $3 per 100 tablets. LC4.

General Rules for Drugs

General rules for alcohol and addictive drugs, including addiction, withdrawal, and overdoses, are on pp. B439-441. Drugs to treat illness and infection are described on pp. B443-444. Drugs that treat radiation exposure are described on p. B436. The drug Eraser, as used by the Infinity Patrol in the Infinite Worlds setting, is described on p. B540.

A simple design system for ultra-tech drugs is on p. B425; this system is general enough to use for many types of possible drugs for which no specific rules are given. Note that the prices given for designer drugs on p. B425 are for custom-designed drugs created in small lots (e.g., by inventors or gadgeteers). Mass-market drugs, especially generics, are 1% of the listed price!

If a drug that relieves a character disadvantage (e.g. Epilepsy, Manic-Depressive) is readily available, the disadvantage should be bought with an appropriate Mitigator limitation (p. B112).

Analgine (TL9)

This is a strong painkiller with fewer side effects than drugs such as morphine. The user gains the High Pain Threshold (p. B59) for (25 - HT)/4 hours, but is also Drowsy (p. B428). It comes in pill (30 minutes to take effect) or injection form. $2/dose. LC3.

Painaway (TL9)

An over-the-counter analgesic similar to acetaminophen or aspirin but safer and more reliable. Treat as aspirin except the HT roll to resist on a high dose is HT+3, and the effects last for twice as long for a given dose. $10 per 100 tablets. LC4.

Antiallergens

Allergy sufferers take these to reduce symptoms of their allergies. (An allergy is usually no worse than a physical quirk, see p. B165). Antiallergens can be tablets or nasal aerosol sprays. Most are antihistamines, which control the symptoms associated with the release of the inflammatory protein histamine. They will remove the allergy reactions for a day. $2/dose. LC4.

Drug Allergies

Most people in a technological society will know from past experience if they are allergic to a particular drug. Allergic characters should take Susceptible (pp. 213, B158) or Allergy (p. 212), depending on the severity of the reaction.

At the GM's option, if a patient takes a drug he has *never had a chance to be exposed to* before, make a HT roll. On a critical failure, he develops an allergy to that particular drug. The first exposure will often simply sensitize the subject without producing allergy symptoms. Later exposures have their usual effects. Record the allergy as a new quirk or disadvantage on the character sheet. Antibiotics are particularly prone to causing allergic reactions; make the HT roll at -1. This sudden discovery of an allergy should typically only occur for low-tech characters introduced to higher TL medicines.

Antibiotics

These are drugs that kill bacteria, thus helping to prevent and fight infection. The first antibiotics were natural products derived from microorganisms, originally mold. Since then, biochemists have learned to modify the natural chemicals to produce a wide range of synthetic antibiotics. Antibiotics are effective only against bacterial infections; they do not work against viruses, fungal infections, or non-bacterial parasites (e.g., the malaria protozoan).

Antibiotics are non-toxic to humans and other mammals, except to a few people who are allergic to them (see *Drug Allergies*). Any antibiotic may also kill beneficial bacteria, including natural intestinal flora and any engineered symbiotic bacteria (p. 120).

At the GM's option, if a patient taking antibiotics rolls a critical failure on the daily infection HT roll, he will suffer diarrhea until the treatment ends; treat this as constant moderate pain (p. B428). Also, when an antibiotic treatment begins, make one roll for each form of symbiotic bacteria the patient is using, against its HT score (usually 14, see *Storage and Handling of Drugs and Nano*, p. 153). On a failure, the symbiotic bacteria die.

Antibiotics were the wonder drugs of the mid-20th century, allowing doctors to treat diseases rather than just relieving symptoms. However, we now know that they are not a panacea. Under evolutionary pressure from antibiotics, many strains of bacteria that were vulnerable to them were killed off, while new strains have arisen (or mutated) that are far more resistant. In turn, pharmaceutical laboratories have subjected antibiotics to processes designed to alter and change them, in a constant struggle to produce superior disease-fighting weapons.

At the GM's option, some particular infections can be resistant to antibiotics; this negates the HT roll bonus for using one or more specific antibiotic drugs. This is more likely at *higher* tech levels, as infectious organisms mutate to evolve resistance to existing antibiotics.

Sulfanilamide (TL6)

Developed in 1936, this was the first successful antibiotic. It is used as a powder that can be sprinkled on an open wound to prevent infection. It also comes in pill form, but can be toxic when ingested. It gives a +1 to recover from bacterial diseases and a +3 vs. infection. On a critical failure, the patient also suffers 1 HP of injury. $0.50/dose. LC4.

Penicillin (TL6)

This is a natural product of the fungal mold *Penicillium notatum*, with powerful antibiotic properties first noted by Ernest Duchesne in 1896 (but whose discovery went unnoticed). Alexander Fleming rediscovered the effect in 1928, but abandoned research three years later after becoming convinced that it would not effectively destroy infection in a human body. In 1939, Howard Florey proved it could be made to work and began commercial production. Techniques were still primitive during World War II, but the trickle of penicillin produced made a significant difference to Allied casualties. Dorothy Hodgkin determined the chemical structure of penicillin in 1944, leading to mass production synthesis. Penicillin derivatives are still commonly used today, but bacteria are becoming increasingly resistant to older variants.

Penicillin and related antibiotics must be taken daily for two weeks to be effective. It gives a +3 to HT to recover from both bacterial diseases and infection. If the patient makes a HT roll and then neglects to take a subsequent daily antibiotic dose, he must make another HT roll at no modifier to see if the infection returns. If the patient completes the course of doses, the infection will not return. $10 for a 2 week course. LC3.

Broad-Spectrum Antibiotic (TL8)

When simple and cheap antibiotics like penicillin don't work, new types developed with expensive R&D have to be used. By TL8 a wide variety of different antibiotics are available; this represents any of a number of drugs. If someone is unlucky enough to catch an infection resistant to inexpensive antibiotics, his physician will have to prescribe something like this. It provides the same benefits as penicillin – its only advantage is that it actually *works* on a wider range of infections. $100 for a two week course at TL8, or $10 for two weeks at TL9+. LC3.

Genericillin (TL10)

This is a very powerful, general-purpose antibiotic. It doesn't treat all diseases, but it's a good thing to try. A dose of genericillin gives a +5 to HT to recover from bacterial diseases and infection for a week. $25 per dose. LC4.

Enzyme-Blocking Drugs (TL8)

Gengineered enzyme production and gene cloning allow the design of specialized drugs which block enzymes that a particular virus or bacteria needs to replicate. The key to successful enzyme-blocker design is to find an enzyme that is vital to the target virus or bacteria but which is not used by human metabolism. In a few cases, this may prove difficult. If so, the enzyme blockers may have some side effects – typically, each daily dose will also require a HT roll to avoid taking one point of damage, whether the enzyme-blocker succeeds or fails. Some enzyme blockers used to combat HIV have this problem.

Enzyme blockers may either be targeted against a single species of virus or bacteria (e.g., influenza) or be broad-spectrum versions, designed to affect numerous common bacteria. Unlike a vaccine, a specific enzyme blocker is generally effective against mutant strains; a mutation is rarely drastic enough to alter the fundamental enzymes that a particular virus or bacteria uses.

A specific enzyme blocker, affecting only one microbe, gives a +8 to HT rolls to resist that particular illness; broad-spectrum agents give a +3. The effect is similar to that of an antibiotic, but is effective against viruses or parasites; HT bonuses are cumulative with antibiotics.

A typical course of enzyme-blocking drugs costs about $100 at TL8, $20 at TL9, $10 at TL10, or $5 at TL11+. Some (such as those used to treat HIV) are far more expensive, costing this much per day.

Interferon (TL8)

Interferons are a family of related proteins that are naturally produced in the body to boost the immune system to fight viruses. A variety of synthetic genetically engineered variants exist. They are used to treat lingering diseases, notably viral hepatitis, and also other hard-hitting viral infections, multiple sclerosis, and some cancers. A typical course of treatment involves regular injections over 4-12 months. The first injection often produces flu-like symptoms (fever, chills, aches) lasting four to eight hours. These may disappear as the body gets used to the extra interferon, but often persist for the course of the treatment.

Natural interferon is available in tiny quantities in TL7 on an experimental basis. Interferon treatment using genetically-engineered synethetic interferon is available at TL8 for about $2,000/month. LC4.

If someone is diagnosed with a disease treatable by interferon, the GM should require two HT rolls, one at the start to avoid side effects, the other midway through the program to see if they responded. If the HT roll to avoid side effects fails, the patient will be -1 HT for the length of the treatment plus 1d months afterward (-1 DX, -1 IQ, and -2 HT on a critical failure); otherwise, these effects persist for only four to eight hours after injection, or not at all on a critical success. The second HT roll should be made at the mid-point of the treatment to determine if the patient is responding (after a minimum of two months). A successful roll can justify "buying off" disadvantages associated with the condition being treated; examples include Chronic Pain, Social Disease, Susceptible, Terminally Ill, Unhealing, and Unfit or Very Unfit. Patients should also be examined periodically to see if their disease is in remission; a successful Diagnosis skill roll at the midpoint can reveal whether treatment should be continued (i.e., the HT roll succeeded) or terminated (if it fails).

Healing Drugs

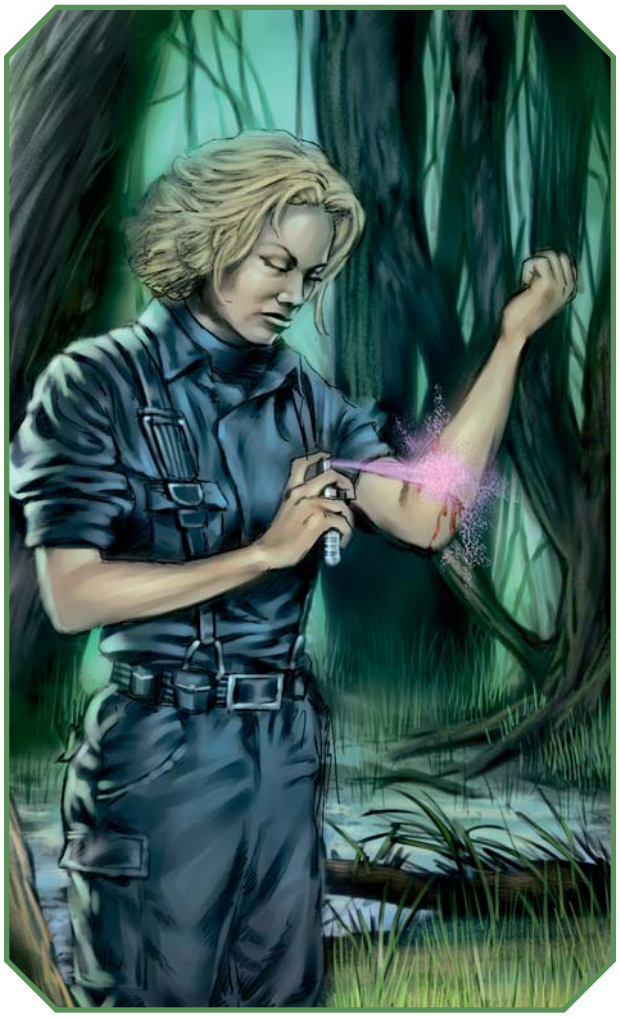
These are various sorts of drugs that prevent injuries from becoming worse or aid healing and recovery.

Hypercoagulin (TL9)

When injected or applied to a patient with a bleeding wound, this causes instant coagulation and a cessation of bleeding within 1d+4 seconds. This is equivalent to bandaging (p. B424). Injection overdoses can be deadly; for each additional dose within 24 hours, make a HT roll at -1 per doubling of dosage. Failure indicates internal blood clots that cause stroke or heart attack (p. B429). Since the drug is unknown before TL9, it makes a good assassination tool in lower-TL societies. Injectable or contact agent only. $25/dose. LC3.

Ursaline (TL9)

This drug prevents atrophy of bone tissue and muscles in low or zero gravity. It is safe but somewhat expensive. A dose provides a week of protection, equivalent to No Degeneration in Zero G (p. 211). $25/dose. LC4.



Antirad (TL9/10)

This medication contains a number of different drugs, with the combined effect of partial protection against radiation. At TL9, this grants the user the Radiation Tolerance 2 (p. B79) advantage. At TL10, it gives Radiation Tolerance 5. Either effect lasts a day. It comes in injectable and pill form for $50/dose. LC3.

Ascepaline (TL10)

This drug accelerates cellular regeneration. Anyone using it regenerates 1 HP every four hours. Each dose lasts a day. A week should elapse before using it again. If not, roll vs. HT+2 the second time it was taken, HT+1 the third, etc. Failure means the user's natural ability to heal *without* the drug is permanently damaged: the user gains Unhealing (Partial) (p. B160). He may still use Ascepaline, however. $20/dose. LC3.

Sedatives

These relax the body and induce drowsiness. Rules for generic examples are given under *Sedatives* on p. B441. Some sedatives of particular interest to adventurers include:

Chloral Hydrate (TL5)

This drug was discovered in 1832 and has been used ever since in sleeping pills to overcome insomnia. It is also the most commonly known "knockout" drug delivered surreptitiously in a victim's alcoholic drink. When taken in this way, the victim becomes drowsy (p. B428) after HT minutes. A minute later he must make a HT roll. On a failure he falls into a deep sleep and cannot be wakened for (12 - HT/2) hours. Success also results in sleep, but for two hours less; critical success will allow the victim to stay awake but he will still be drowsy for this time. Chloral hydrate has a faint but distinct odor that can be detected with a Perception-based Poisons or Streetwise roll (modified by Taste/Smell modifiers) if the drinker consciously sniffs for it. Alone it is bitter, but this is masked by alcohol. $1/dose. LC3.

Flunitrazepam (TL7)

Marketed since 1975 under the trade name Rohypnol, this is the strongest sedative available legally, although it is banned in many countries, including the United States. A clinical dose produces the same sleep-inducing effects as chloral hydrate, except that a critical success on the HT roll result in sleep for (8 - HT/2) hours (minimum two hours). Flunitrazepam also induces partial amnesia. On a failed HT-5 roll, the user forgets the details of events once drowsiness sets in. Recreational drug users take lesser doses – often combined with other drugs – to induce heavy intoxication; this results in severe lack of coordination (-4 to DX and IQ) and the amnesia effect. Some criminals use the drug on unsuspecting victims to facilitate sexual assaults. Game villains (or heroes) will find more subtle uses for the drug's amnesia effect. $5/dose. LC2.

Stimulants

Stimulants increase the activity of the nervous system, producing a feeling of wakefulness and heightened awareness.

Smelling Salts (TL5)

These are ammonium salts with a powerful odor. They are usually stored in a small vial which can be uncapped under an unconscious person's nose. The penetrating smell stimulates breathing and revives the patient to consciousness on a successful HT roll. At TL5 and TL6 smelling salts are often perfumed with floral scents. $0.20 per vial (good for 20 uses). LC4.

Modafinil (TL8)

This drug (sold as Alertec, Provigil, or other trade names) is a central nervous system stimulant. It is intended to treat sleep disorders such as narcolepsy, but is also useful for anyone who wishes to stay awake for long periods, e.g., shift-workers, truckers, and soldiers. It can keep the user awake and alert for up to two and half days; unlike most other stimulants, it seems to have minimal side effects. (The health effects of sustained usage of modafinil to put off sleep are uncertain, however.)

It takes an hour or two for effects to occur, and gives the user the Doesn't Sleep advantage for the next 24 hours; up to three doses can be taken in succession before it ceases to provide benefits. After taking two or more doses, the GM may wish to roll vs. the user's HT; a critical failure may result in nausea or mild pain (headaches or backaches) until the user gets at least eight hours sleep. Pill; $2/dose. LC3.

Revive Capsules (TL9)

These small, easily breakable capsules are the descendants of smelling salts. When held under the nose of a stunned or unconscious person and snapped open, the vapor inside will usually revive him completely – roll against HT+5 to regain consciousness or recover from stun (p. B420). This is also effective against mental stunning; roll vs. HT+5 as above, not IQ, as the stunned person is forced out of his state by the physical stimulus. The patient does not regain any hit points, but is awake. He may fall asleep again within minutes if tired and given the chance. $5/dose. LC4.

Superstim (TL9)

This drug instantly restores 1d Fatigue Points. Roll vs. HT; the fatigue is banished for a number of hours equal to the margin of success (at least one, even for a failure). The only side effect is that when the time is up, the user gets all that fatigue back, plus 2 more FP. If the user takes another dose within 24 hours of the previous one, the HT roll is made at a -1 penalty. Multiple doses can cause the user to "crash" when he finally stops taking it; if FP would drop below 0, the extra points are taken off HP instead. Any form, $10/dose. LC4.

Wideawake (TL10)

An extremely effective stimulant, this drug time-releases controlled doses of stimulants that prevent the user falling asleep, without causing any side effects. It provides the Doesn't Sleep advantage for a week. Any form, $20/dose. LC4.

Toxic Compounds

These are in common use as therapeutic drugs at TL5. The doses are small enough not to cause serious problems

Storage and Handling of Drugs and Nano

Drugs and medical bio-nanomachines do not last indefinitely. Simple, cheap drugs might last years before losing potency, while complex ones may be useless in a few weeks or less if not stored under ideal environmental conditions. Bio-nanomachines have indefinite shelf life unless exposed to radiation (which mutates the macromolecular machinery) or extreme situations. In some cases (e.g. being immersed in lava), the drug is obviously destroyed instantly. In intermediate cases, use the following rules.

Chemical drugs, nanodrugs, and nanosymbionts have HT 14 for purposes of withstanding adverse conditions – see *Damage to Objects*, p. B483. At the GM's option some can be more delicate or robust. If a chemical drug is exposed to heat or humidity, or if nano is exposed to *extreme* heat (500° F+) or more than 10 rads of radiation, make a HT check. For drugs, apply a -4 penalty if the heat is extreme. For nano, use a -1 penalty for every full multiple of 100 rads up to a maximum of 1,000 rads (beyond which it is simply destroyed) but add +1 to its HT per TL after introduction. On a *failure* the dose breaks down and loses potency; it will fail to work at all when used. On a *critical failure* a drug produces some toxic substance as it breaks down while bio-nanomachines malfunction; in either case, when used it will have a nasty side effect, defined at the GM's option.

For chemical and nanodrugs, side effects could range from a poison doing toxic or fatigue damage (see p. B438) to acquiring mental disadvantages like Paranoia or Short Attention Span until the dose wears off. The side effect of malfunctioning nanosymbionts is typically 1d-2 (minimum 1) points of injury per day until they wear off or are destroyed.

The shelf life of chemical drugs is up to the GM. In the real world, this is a controversial subject. Drug companies have been accused of excessive caution in the use-by dates marked on their products. If there is any question over whether an old drug is still useful, make a HT check as above.

Cheap Drugs

The listed prices for drugs and nano listed are for commercially produced mass-market examples. One TL after a drug or type of nano is introduced, "black" labs can copy it and sell it for half the listed price. These labs lack quality control and may deliberately cut a drug with a cheaper substance, reducing its potency or introducing toxic compounds. Make a HT check as above for each batch when it is used, *no matter how it has been stored*. Cheap nanosymbionts have a -2 penalty for every additional nanosymbiont type that the patient is using at the same time.

for the patient, and hopefully to poison the microbes causing a disease. To administer toxic compounds as a drug, use the following rules *instead* of the poison rules on pp. B437-439.

The treating doctor makes a Physician/TL5 roll per day of treatment:

Success indicates the patient takes 1 HP of toxic injury but receives a +1 on his next HT roll to recover from the disease.

Critical success means the patient does not suffer the toxicity effect, and receives a +2 bonus on his next HT roll to recover the disease.

Failure means the patient suffers 1 HP of toxic damage but no healing effect.

Critical failure is an overdose causing *full* toxic effects for the compound: the user takes 1 HP of toxic injury plus is treated as having ingested 1d-3 doses of the poison (minimum 1 dose).

In all cases, the patient gets a HT roll to resist the toxic effects. The healing effects only occur if the patient is suffering a microbial or parasitic disease susceptible to the toxin. Multiple doses may be given; roll once and multiply the healing and damage by the number of doses.

Arsenic (TL5)

This causes vomiting and diarrhea, believed to be good for purging the body of disease, as part of its toxic effect. The body retains arsenic; reduce HT permanently by 1 for each 3 points of toxic damage. Critical failures causing overdoses use the rule for arsenic on p. B439. $1/dose. LC4.

Calomel (TL5)

The chemical mercurous chloride, or calomel, also causes vomiting and diarrhea. Toxic damage totaling half or more of HP in one course of treatment loosens the teeth; roll vs. HT. One tooth falls out for each point in the margin of failure. Treat overdoses as arsenic. $1/dose. LC4.

Quinine (TL5)

This extract of cinchona bark suppresses malarial symptoms, but does not cure it; malaria is likely to recur. It also reduces fevers. Quinine is not as toxic as some compounds; it causes damage only on a failure of the prescribing doctor's Physician roll and provides healing on any roll but a critical failure. Toxic effects from any damage also include blurred vision (Bad Sight) or ringing in the ears (Hard of Hearing) until the damage heals. On an overdose, make a HT roll. Failure means respiratory paralysis, causing suffocation unless artificial breathing assistance is provided. $2/dose. LC4.

Tartar Emetic (TL5)

Antimony potassium tartrate has symptoms similar to arsenic and is also effective against parasitic worms. Treat overdoses as arsenic. $1/dose. LC4.

Capability Enhancing Drugs

Some people take drugs not to relieve medical conditions, but to boost their natural capabilities. Some of these effects are temporary, while others are treatments that grant permanent improvements. These often come with significant side effects.

> *Everything is a drug; it depends on the dose.*
>
> *– Paracelsus*

Growth Hormone (TL7)

Human growth is controlled by a hormone secreted by the pituitary gland. Children who do not produce enough of the hormone, either because of genetic defects or disease, do not develop to full adult height and strength – this is represented by the disadvantage Dwarfism. If children with this condition are diagnosed early enough and injected with the hormone, they will develop normally.

Such treatment was first available in the 1950s, using growth hormone painstakingly harvested from cadavers, making it affordable only for the very rich. From 1960, government agencies in several countries coordinated the mass collection of growth hormone from autopsies, producing enough to make the treatment available to the merely wealthy. In 1985, four patients treated with growth hormone developed the prion-transmitted Creutzfeld-Jacob disease (p. 104). The U.S. government quickly banned growth hormone collected from cadavers and approved a synthetic version developed by Genentech.

A child who would otherwise develop Dwarfism must be injected daily until he stops growing to gain the full benefit. If treatment is discontinued, the child will stop growing at that point.

The hormone is an expensive treatment that will last a decade or more, costing $50,000 per year at TL7, falling to $20,000 per year at TL8. LC3.

Anabolic Steroids (TL7)

These are the best-known strength-boosting drugs, synthesized from the natural sex hormone testosterone. They have a marked anabolic (growth-promoting) effect on muscle tissue, especially when taken in large doses. That's why they're so popular with athletes and body builders who wish to "bulk up" rapidly.

Anabolic steroids (there are several different varieties) are taken orally or injected, typically in cycles of weeks or months ("cycling"), rather than continuously. The user will take multiple doses of steroids for a period of time, stop for a period, and then start again. Successful use requires a combination of hard physical training, diet, *and* steroid use – taken on their own, few or no positive benefits are gained.

The GM can allow a character who is taking steroids to double the hours of learning (see pp. B293-294) while studying any HT-based skill (e.g., Lifting or Swimming); other skills (especially some Sports skills) may be added to that list if the GM feels they are appropriate. In addition, both Strength and Fatigue Points may be improved through study while taking steroids, as if these attributes were learnable advantages (p. B294); steroids double the usual rates as for skills. The beneficial effects of steroids are hotly debated, with controlled studies not matching the claims of some athletes who combine heavy steroid use with intense physical training. However, since ***GURPS*** ST is quadratic, even a +1 bonus to ST will indeed have a greater effect (in terms of absolute performance) on an already-strong athlete.

Initially, the only effects may seem positive, but continued high doses of steroids have a "negative feedback" effect on the body – it stops making some of its own hormones, since it's getting them from outside. The problems associated with prolonged steroid use include sterility, aggression, muscle spasms, and in some cases, cancerous tumors. In men, additional side effects can include acne, balding, shrinkage of the testicles, and breast growth, although the effect on appearance is mitigated by a muscular physique. In women, extra side effects are more severe: cessation of menstruation, body hair growth, and development of a more masculine body shape and coarser voice. In both sexes, liver damage has sometimes resulted.

To avoid side effects, roll vs. HT every six months (or fraction) steroids were used. Failure means gaining *one* of these negative traits: -1 HT, Bad Temper (p. B124), Bully (p. B125), Sterile, loss of Voice advantage (if possessed), loss of a level of Appearance (if female). On a critical failure, suffer all of them! The Bad Temper or Bully disadvantages starts at self-control roll 15; if the character already has it, reduce it a step, e.g., to self-control 12.

The typical cost of black market steroids is $5-$30 per day; if legally available, they'd be about $3/day. Anabolic steroids (for human use) are grey-market items with LC3.

Anabolic Steroid Regime

Someone who used steroids for several months while body-building might have these traits: ST +1 [10]; FP+1 [3]; HT-1 [-10]; Bad Temper (15) [-5]; Sterile [0]. *-2 points.* If female, add Appearance (Unattractive) [-4]; *-6 points.*

Erythropoietin (TL8)

Erythropoietin (EPO) is a hormone produced in the kidneys and liver. It stimulates the production of red blood cells, producing an effect identical to blood doping (p. 131). Since it is naturally produced by all humans, it is impossible to detect if someone has used it. EPO is also used in the treatment of anemia and kidney failure. Synthetic EPO has been available since 1985, but is expensive. $500/dose. LC3.

Nootropic Drugs (TL8)

These are "smart drugs" (mostly experimental at TL8, but widely available by TL9) – chemicals that enhance brain performance. Most nootropics were originally designed to treat mental problems, repairing damage to the brain caused by things like alcohol poisoning, stroke and senility. They may also fight senility by clearing out cellular

waste products, improving oxygen flow to the brain, or neutralizing free radicals that interfere with brain function. In healthy people, they can enhance the ability to grow connections between neurons, improving the ability to memorize (which is partially the process of setting up these connections). Some nootropic drugs also increase the levels of neurotransmitters that carry electrical signals from neuron to neuron.

TL8 nootropics include piracetam, l-dopa and vasopressin, among others. Most are delivered by pill or nasal spray. Their long-term effectiveness in healthy people remains controversial, but here's a conservative interpretation of their benefits:

For as long as the drug is taken daily, and for one day afterward, it allows one to buy the Mitigator limitation ($20/week, -65%) for any of the following disadvantages: Absent-Mindedness, Confused, Distractible, Dull, Hidebound, Indecisive, Short Attention Span, or Staid, and justifies buying off the disadvantage whenever the character has the points to do so. *Optionally*, the GM may allow a character who has taken nootropics while studying either mental skills or Eidetic Memory (p. B294) to add 50% to his hours of learning. The GM may also require a HT roll to gain the benefit.

Nootropic smart drugs cost about $20 per week. To benefit from smart drugs, the user must take the nootropic continuously for the period in question. Side effects are negligible, although hypertension and twitching are occasionally known to occur. LC4.

Adders (TL9)

This is a generic name for a group of drugs that temporarily add to ST, DX, IQ, HT, or Basic Move. One dose adds 1 point, but multiple doses can be taken together. After it wears off, the affected attribute suffers a penalty equal to the original bonus and lasting twice as long.

To obtain the desired effect, a user must make a HT roll at -1 for every dose taken. If the roll is successful the attribute is raised by the number of doses taken for (25 - HT)/4 hours. If the roll fails, the attribute is raised by 1 for one hour, regardless of the number of doses taken. On a critical failure, the drug *decreases* the attribute by the number of doses taken, for one hour.

As long as any attribute bonus or penalty is in effect, using any other type of adder results in adverse side effects. If the user takes the same type of adder within 24 hours of a dose, he must make a new HT roll at a penalty equal to the total of all doses taken in that period. The bonus is only that of the new dose, but the letdown period is that of all the doses combined.

Adder users often feel very good under the effects of the drug – similar to the Overconfidence advantage – and are at least mildly depressed when it wears off.

Poor quality or black market adders can be addictive. Pill or injection, $25/dose. LC3.

Bone Stimulation (TL9)

Make your bones stronger! This biochemical process stimulates bone cell growth – I heard it's a development of some of the technologies the orbitals developed to replace bone decalcification in zero-G, before they all got their genes twanked to avoid such mundane problems.

– Streethawk, alt.bio.upgrade.samurai

This treatment gives +1 HP (it can't be repeated). It does not increase ST, but does allow muscle grafting or reinforcement to increase Lifting or Striking ST by two points more than the normal limit. It can also cure one point of ST or HP loss due to bone degeneration in zero-G (see *No Degeneration in Zero-G*, p. 211).

The treatment is $10,000 (and two weeks). Repeated treatments will not have any further benefits, except to cure further ST or HP losses due to decalcification.

Mnemosin (TL9)

This drugs boosts the production of cyclic-AMP response element binding proteins (CREB) in the brain, enhancing the user's memory. It gives him Photographic Memory for things experienced while under its effects, and temporary Eidetic Memory to recall anything experienced in the past. Effects last (25 - HT) minutes. Pills: $20/dose. LC4.

Treating Gigantism

Unlike Dwarfism, Gigantism has no direct genetic basis. It is caused by pituitary tumors that secrete excess quantities of growth hormone. These are rare in children, and can be treated by neurosurgery to extract the tumor, with followup drug or radiation treatment if necessary. Such tumors in adults cause enlargement of the hands and feet, but no increase in height.

Peter Pan Process (TL9)

The Clinique Rouge does not advertise this service, but for a regular client such as yourself, we will make an exception. Such a sweet child. How old is he? 11? 12? No, that is not too late – as long as he has not left puberty, the Peter Pan process can be initiated. Simply put, our course of synthetic hormone therapy will ensure certain growth-controlling genes do not switch on. As long as treatments continue, he will never enter adolescence. Eternal youth? Do not mistake me, monsieur. This is not an immortality process. Organs eventually fail, and after several decades, his skin will wrinkle under gravity's tug, unless cosmetics or bodysculpt are used. But for the next two or three decades, he will be a young boy.

– Mme. Madeleine Rouge, the Clinique Rouge

We had the motel under surveillance for dust dealers when I spotted Mr. Suit heading for a room with a girl who definitely looked a few years pre-jail bait. Hooking's legal in this town, but not with kids. Looked like a righteous bust, so I blew the door just in time to catch the Vice President of AresKorp with his pants down. Bad move. Turns out little Wendi is 26 years old. Now the D.A. says I'm facing her lawsuit for false arrest and interfering with licensed commerce, and the captain says AresKorp wants my badge. I hate stunties.

– Detective Cody Chase, Nevada DPS

These drugs can be taken by anyone who is not yet an adult. They retard physical growth (and the onset of puberty, if it has yet to occur). They do not halt aging. See *Children* (p. B20) for realistic attributes for pre-adolescents and young teens.

The course of hormone treatment requires $500 per month to "stunt" apparent age. Child actors, teenage gymnasts, male singers and others may be stunted to lengthen their careers, but many legal systems consider the practice to be child abuse. LC3.

Super-Steroids (TL9)

Advanced protein engineering may produce performance-enhancing drugs with similar but more extreme effects to those of anabolic steroids (p. 154). These statistics can also represent the less credible claims of efficiency attributed to contemporary steroids.

Super-steroids are twice as effective as anabolic steroids – each hour of learning an appropriate physical skill or trait while using steroids counts as four hours. Side effects are the same, but the steroids themselves are more expensive; at least $50-100/day. LC3.

Super-Steroid Regime

Someone who used super-steroids for several months while body-building might have these traits:

Statistics: ST +2 [20]; FP+2 [6]; HT-1 [-10]; Bad Temper (15) [-5]; Sterile [0]. *11 points.* If female, add Appearance (Unattractive) [-4]; 7 *points.*

Xenodrugs

Alien biochemistries react differently to drugs and present different problems for medical nanomachines. Chemical drugs, nanodrugs, and nanosymbionts designed for one type of biochemistry will usually have no effect on aliens, and will sometimes have harmful effects. The GM may decide if an alien drug or nano product is dangerous, or may roll 3d: 6 or less indicates a deleterious effect.

Once an alien biochemistry is understood, labs can design and synthesize drugs and nano suitable for the species. Depending on how common the species is in the manufacturer's region of space, alien drugs and nano may command a premium over the price for the standard varieties.

The economic factors that set relative costs are too complex for a simple rule. The basic guideline is the more common an alien, the cheaper its drugs will be, but realistically the GM is free to set almost any price, which can be justified by differing R&D requirements, profit margins, production monopolies, investor choices, social discrimination, and so on. The final price could be anywhere from slightly cheaper to thousands of times more expensive!

Basic (TL10)

A mild and relatively safe psychoactive combat drug, Basic has two effects: it provides Combat Reflexes (no effect if someone already has it) and suppresses the Pacifism disadvantage (exception: Total Nonviolence degrades to Reluctant Killer). Anyone who has Total Nonviolence who seriously injures or kills someone, or someone with Cannot Kill who kills must, *after the drug wears off*, roll to avoid a nervous breakdown as described under the Cannot Kill disadvantage. It requires a HT-2 roll to resist and has short-term effects lasting (25 - HT)/4 minutes. $12/dose. LC1.

NERV (TL10)

This drug chemically alters the neuro-endocrine system to improve reflexes and coordination. After taking NERV for 20 weeks, the user gains +1 DX. Then he must roll vs. HT. If successful, there are no side effects.

If the roll fails, the user suffers one level of Ham-Fisted [-5] (p. B138) as the drug increases overall reaction speed and agility, but fails to make the neural connections needed to improve fine motor coordination. (If the user already has Ham-Fisted [-5] it increases to [-10] level. If he already has Ham-Fisted [-10], or if the roll was a critical failure in any event, neural damage was inflicted. If neural damage is suffered, the user gains a Neurological Disorder (p. B144): a mild disorder unless he already has one; if so, increase the level of the disorder one stage, up to a maximum of crippling.

The treatment is $2,000 per week. "Street NERV," at half cost, is similar – but there is a -4 on the HT roll to avoid side-effects. LC3, or LC2 for Street NERV.

Hypoxyline (TL10)

Humans suffer lung damage when breathing gases with high partial pressures of oxygen, which can occur in a very dense atmosphere (p. B430) or while diving. This drug allows a human to operate with comfort in dense atmospheres without requiring a respirator to reduce oxygen pressure, or to breathe compressed air rather than special diving gas mixtures without ill effect. Only available in injectable form, lasting a day per dose. $50/dose. LC4.

Tempo (TL10)

Tempo works by altering the user's perception of time, so that everything around him (including both his own actions and those of others) seems to be happening extremely slowly. This gives him time to react to other people's movements – he can see a blow coming, for example, and think about the best way to block it. It grants the user Enhanced Time Sense (p. B52) for (25 - HT) minutes. The only side effect is that this rapidly exhausts the user, leaving him a nervous wreck. After the drug wear off, the user loses 1d FP and 1 IQ and DX; DX and IQ losses are recovered after four hours. Injectable only, taking effect immediately. $45/dose. LC2.

Gravanol (TL10)

This drug lets the user function more normally under increased gravity. A dose of gravanol lasts a week and eliminates any medical hazards of two G-increments of extra gravity (see p. B350). This means the -1 penalties to IQ and HT at two to three G-increments of high gravity (1.40 to 1.59 Gs for normal humans) are eliminated. Gravanol does not help the user cope with increased weight or DX penalties! $70/dose. LC4.

Espionage Drugs

Some people use drugs for nefarious purposes, either to influence other people or to protect themselves from the dangers they face when engaging in undercover activities.

"Truth Serum" (TL6)

A variety of fast-acting barbiturates such as thiopental sodium (sodium pentathol) and scopolamine, used for both for general anesthesia and to lower a subject's inhibitions for drug-assisted interrogation or psychiatric analysis. The drug is a yellow crystal that can be dissolved in water or alcohol; it has a garlic-like odor. It depresses the central nervous system (like any sedative) and in mild doses produces a state of relaxation, leaving recipients susceptible to suggestion. Its utility as a functional "truth serum" is limited because subjects under its influence can just as easily start to fantasize or be led into telling falsehoods as a result of an interviewer's leading questions . . . or become groggy and fall unconscious, from repeated doses. After 30 seconds, the subject suffers 1d FP and must succeed with a HT-1 roll or be at -2 to Will and also to all self-control rolls for mental disadvantages lasting for a period of (20 - HT)/2 minutes. $10/dose. LC3.

Dimethyl Sulfoxide (TL7)

This chemical (also known as DMSO) is a byproduct of the wood-pulping industry, used from the 1950s as an industrial cleaner. In 1963, medical researchers discovered that it penetrates the skin and sinks deep into underlying tissue. It can carry other drugs not normally absorbed through the skin. This makes it useful in many ways, converting many other drugs into effective topical agents. This includes offensive or surreptitious uses such as delivering contact poisons. $1/dose. LC4.

Aware (TL9)

This is a stimulant that acts on the sensory nervous system to sharpen the senses and heighten awareness. It grants +2 to Perception for 24 hours. $50/dose. LC4.

Anti-Sed (TL9)

This is a prophylactic drug taken before encounters in which the user suspects he might be drugged. It lasts for 24 hours and grants a +6 bonus to HT rolls to resist sedatives and psychoactive drugs such as amnesiants and truth drugs. $50/dose. LC2.

Crediline (TL9)

This psychoactive drug makes the user feel that everything around him makes sense, and everyone is a trusted friend. He must succeed with a HT-3 roll or suffer Euphoria (p. B428) and Gullibility (9) for (25 - HT) minutes. $24/dose. LC2.

Torpine (TL9)

This puts the subject into a death-like trance during which metabolic functions are slowed. Roll vs. HT to resist going under (if taken involuntarily). The subject can go without food and water for 32 times as long as usual, and uses up only 50% as much oxygen. Anyone trying to tell he is still alive must succeed with a Quick Contest of Diagnosis vs. his HT+5. Each dose lasts a day; multiple doses can be taken. $20/dose. LC3.

Lethe (TL10)

This drug disturbs the storage of information in the brain, inducing temporary amnesia. He must roll HT-2 or suffer the Partial Amnesia disadvantage for (25 - HT) minutes. $24/dose. LC2.

Neurovine (TL10)

An antidote for nerve poison, available as a pill or injection. If taken within 15 minutes of poisoning, a Neurovine injection adds +3 to HT on rolls to avoid taking further damage. $30/dose. LC4.

Lifestyle Drugs

Some drugs are benign and have effects that provide minor conveniences. As technology advances, the variety and capabilities of such drugs may make them commonplace.

Oral Contraceptive Pills (TL7)

Hormone pills to prevent ovulation in females. Contraceptives designed for other species may also be available. $20 per month's supply. LC4.

Vitamins (TL7)

Vitamins are organic molecules required in regular food intake for the proper functioning of the body. Casimir Funk postulated their existence in 1912, to explain various diseases caused by diets deficient in particular types of materials. By 1934, several chemists had isolated vitamin C and paved the way for its mass production as a dietary supplement. At TL7+ most vitamins are available in pill form. They can be used to compensate for poor diets and allow people to subsist on nutritionally inadequate food like algae or mycoprotein (p. 78). B group vitamins also provide a mild and short-lived burst of energy for people who have not eaten recently. $0.10/dose. LC4.

Aphrozine (TL9)

This drug reliably increases the recipient's sexual pleasure – it has the same effect as the Eros Plus biomod (p. 171) for one hour. $20/dose. LC3.

Male Contraceptive Pills (TL9)

A man who has been taking these pills for at least a week cannot sire children. $20 per month's supply. LC4.

Melatan (TL9)

This drug promotes melanin levels in the skin, creating an artificial suntan without requiring exposure to ultraviolet radiation. Unlike TL8 "fake tan" products that merely dye the skin's surface layers and do not provide additional protection against radiation, melatan stimulates the body's own tanning mechanism to produce a real tan. It comes in a liquid form that is smeared or sprayed onto the skin, producing the tan in 48 hours. Multiple doses can make the skin as dark as desired, but the effect fades like a natural tan, gradually over a month. $50/dose. LC4.

Musk (TL9)

This is the generic name for a group of drugs that cause the sweat glands to produce chemical compounds that alter the user's scent. Basic versions produce subtle and pleasant aromas that go partway to countering body odor. More complex versions produce compounds that effectively mask the user's own natural odor, giving them a -3 to any roll to be tracked by scent. Another popular type produces a compound that insects find repellent. They all come as pills that last 12 hours. Basic versions cost $5/dose; scent masking or insect repellent versions cost $10/dose. LC4.

Sex Pheromones (TL9)

This is a group of hormone-based drugs that are detected subliminally by the human sense of smell. They give all victims within one yard Lecherousness (12) while in the presence of the pheromones if they fail a HT roll. Pheromones are usually worn on the skin like a perfume, and wear off after two hours or a shower. Prospective victims with No Sense of Smell/Taste are immune! $60/dose; aerosol delivery. LC3.

Sobriety Pill (TL9)

This nullifies the intoxicating effects of alcohol. It comes in pill form only, and costs $2/dose. LC4.

Genetically Targeted Pheromones (TL10)

The problem with normal pheromones is that they are just as likely to attract unwanted attention from passersby as the intended target. This can be solved with pharmacogenomic technology (p. 160) if a DNA sample from the target is available. Using this, a lab can synthesize pheromones designed to maximize response from the target and reduce it in anyone else. The resulting drug gives Lecherousness (6) to the target, resistible with a HT-4 roll, and has a 1 in 6 chance of affecting any other person in the same way as normal sex pheromones (above). The initial analysis takes a week and costs $2,000, after which doses can be synthesized for $1,000/dose. LC1.

Deep-Sleep (TL10)

Most sleep-inducing sedatives produce an anomalous sleep state in which regular dream processes cannot occur, which makes them less restful than natural sleep. This drug works differently, providing hormones that enhance the dream state and allow the body to refresh itself more quickly. Two hours of sleep after taking a dose is equivalent to a full night. $5/dose. LC4.

Longevity Drugs

Aging is a complex process not yet fully understood. Several mechanisms are known to be involved, including the ravages of disease and injury, cellular damage by chemicals (including oxygen!), and the buildup of unremovable waste chemicals in the body by cell activity. There are also some genetic factors – see *The Genetics of Aging*, p. 183.

A treatment designed to halt or reverse the effects of aging must counter as many of these causes as possible, ideally all of them. Since many of them are unrelated, anagathic technology has been slow to develop and will be complicated if and when it arrives.

The longevity drugs described below are wonder drugs that allow the user to live an extended lifespan, or even stop

aging altogether. Some societies might reserve them for leaders, key scientists, or a wealthy elite. In others, they are available to anyone who can pay the price.

In science fiction, these drugs are often portrayed as coming from a rare natural source that is difficult and dangerous to harvest, and very hard or even impossible to synthesize. They may even be the central pillar of some future economies.

Some longevity drugs may be addictive or have other dangerous or even fatal side effects if the user ceases to take them.

Life Extension Drugs (TL9)

These drugs slow down but do not entirely halt the aging process. Someone who is on a life extension drug regime will age half as fast as usual (for his medical TL), effectively doubling the usual lifespan. Make aging rolls every other year if aged 50-69; yearly if aged 70-89, and every six months if aged 90+. The user must have been taking the drugs for at least the same period of time beforehand; e.g., if aged 70-89, the user must have been on life extension drugs for a year before he can benefit. A year's supply (usually a compound of several drugs and hormones) is $30,000. Injectable or pill only. LC3.

Longevity Drugs (TL10)

Longevity drugs slow down the aging process through various means. A year-long regime of regular monthly doses of longevity drugs (usually a compound of several drugs and hormones) mean that the user effectively has the Longevity advantage (p. B66). The advantage is maintained for as long as the user continues to take the drugs; if he misses any monthly doses, it takes (missed months, up to a maximum of 12) months before Longevity will be regained. For better results, combine this drug regime with *Mutation Repair* genetic surgery (p. 182). Injectable or pill only. $3,000/dose. LC3.

Insenium (TL^)

A cinematic anti-aging drig. Each dose effectively stops aging for one year. (Actual aging is at a rate of about one week per year.) Unfortunately, it also causes physiological dependency: once an individual stops taking it, his body deteriorates; he must make up all the aging rolls he skipped, at a rate of one roll per week. Thus, he rapidly ages to his actual chronological age, which often results in death. $25,000/dose, any format. LC2.

Stasine (TL^)

Realistic anti-aging drugs can only slow down the aging process. Stasine is a superscience drug that halts it *completely* for as long as the monthly injections are maintained. If the treatment is stopped, the user continues aging normally, with no adverse side effects. $10,000/dose. LC3.

Name That Drug!

Ultra-tech games often feature drugs that don't exist in the real world. Drugs used for recreational or illicit purposes will acquire a street name – something short and pithy, that captures the essence of what the drug does or where it comes from. To come up with a drug name like this, a thesaurus is a good start. For example, if a drug knocks people out, looking up "knockout" will suggest names like Slam and Punch. If a drug is derived from a plant, it may inherit an innocuous-sounding name like Daisy or Chlorophyll.

But drugs will also have technical names, granted by scientists and used by doctors. Medical drugs not used on the street will only have such names. Generating a convincing technical name is not as easy, so the following table can help. Roll two dice and read them as digits to make a two-digit number, once for each column, and combine the three word fragments in that order to form a new drug name. If desired, the name can be made longer by adding more choices from the table, or adding a number at the end. For example: Amylbenzocytophan-7.

11	Aceto	arseno	bactin
12	Adreno	bacilla	bonate
13	Amino	barbi	cillin
14	Amorpho	benzo	cin
15	Amoxy	bio	deine
16	Amyl	buta	done
21	Batracho	ceta	drate
22	Beta	chole	drine
23	Cardio	cyclo	lene
24	Dextro	cyto	lic acid
25	Ferro	dexe	loxene
26	Gastro	droxy	loxin
31	Generi	endo	mine
32	Glaxo	ephe	mol
33	Hydroxy	fera	myacin
34	Hypo	fluro	myophin
35	Iso	geri	nate
36	Levo	gluco	nil
41	Lithium	hydro	noxonol
42	Meta	kao	pectate
43	Methyl	loxo	phan
44	Myco	mmonio	phine
45	Neo	mor	profin
46	Nitro	myo	rax
51	Novo	penta	spirin
52	Para	phago	sporine
53	Pheno	pro	sterol
54	Poly	sorbo	stol
55	Propyl	sporo	tan
56	Pseudo	steri	thol
61	Sodium	strepto	tol
62	Strepto	sucro	xanthate
63	Styro	tetra	xcedrin
64	Tetrodo	tolu	xic acid
65	Xeno	trypto	zax
66	Zeo	viro	zine

Pharmacogenomic Drugs

These are chemical drugs that have been tailored to suit specific patients. The efficacy of drugs and the presence of unwanted side effects both depend on the patient's genetic profile. By taking a DNA sample and detecting key gene sequences, a pharmacist can modify a drug on an individual basis so that it is effective and produces minimal or no side effects.

Even if time or expense prevents a drug from being tailored to a patient, a genetic test can determine which existing drugs and what dosages will best suit his needs. This sort of pharmacogenomics comes into use at TL8, while individually tailored drugs become common at TL9.

Designing Drugs

How does one design a designer drug? Or test a drug that may have side effects too dangerous to allow human trials? At the dawn of the biotech era, trial and error based on a few basic principles and guided by animal testing is state of the art. These methods slowly become more refined, but remain essentially the same until some breakthrough technology supersedes them.

The first major change is likely to be when cell cultures can be built into or sustained in systems similar to those in living subjects. A lump of cortical tissue – removed from a subject or artificially constructed – may provide crucial insights into the effects of a drug on brain chemistry.

More gruesome is sustaining an entire brain in a vat, or using whole-body blank mind clones for testing. This is treading close to simply using live human subjects against their will, which would probably be cheaper and easier, and only marginally more morally objectionable. These systems are thus unlikely to appear except in cinematically dystopian societies.

At high enough TLs, the chemistry of the brain and other body systems may be understood to a level that allows the reactions within them and their physiological effects to be simulated by a computer. Such a program would be a valuable research and development tool, costing millions of dollars initially (though as technology advances it may become cheap). In a full circle, such a program might be so complex that it can only be run on an organic computer (p. 28).

Pharmacogenomic Toxins

Another application of this technology is the creation of toxins or allergens designed to affect specific individuals. This is not as precise as a target-seeking pathogen (p. 115), since the chemical basis of a toxin works on proteins and enzymes in the body rather than the genome itself. A poison can be designed to work on a broad genetic type of susceptible victims, such as all those carrying particular alleles of a gene, or racial groups.

> *A drug is neither moral nor immoral – it's a chemical compound.*
>
> *– Frank Zappa*

Psi Drugs

In campaigns where psionic powers have some basis in biochemistry, there may be drugs that can affect the relevant processes in the body, granting abilities otherwise unavailable. Drugs that grant a specific psionic ability can be built using the ultra-tech drug design system on p. B425 and the psionics rules on pp. B254-257. More likely are drugs that increase psionic talents or interfere with psi powers, such as those listed below. These drugs all grant temporary changes in psionic abilities. A treatment that causes permanent changes is also possible, but the GM should be aware of how drastically character abilities (and point costs) may change if they are readily available. If they exist, such treatments are likely to be hideously expensive!

Blocker (TL^)

This drug gives Resistant to Telepathy (+3) for six hours. It requires a HT roll to avoid a headache causing mild pain (p. B428) for the same period. $100/dose. LC4.

Boosters (TL^)

These come in varieties specific to each psionic talent, e.g., Teleportation. A single dose adds a level in one specific psionic talent for a day. $250/dose. LC2.

Muffler (TL^)

This drug shuts down all psionic neural pathways in the body, rendering the user incapable of exercising any psi powers if he fails a HT-4 roll. It comes in injectable form only, and wears off after (25 - HT)/4 hours. $800/dose. LC2.

Window (TL^)

Given to anyone who has a Telepathic power, this drug enhances his ability, adding +2 to his Telepathy talent, but it also dissolves their normal psychic barriers, resulting in the Supersensitive (p. B158) disadvantage and completely suppressing any levels of psionic Mind Shield (p. B70) the user may possess. Roll vs. HT-3 to resist if taken unwillingly. It lasts for (25-HT)/4 hours. Injectable, pill, or inhaled only. $250/dose. LC2.

Magical and Mystical Drugs

In a fantasy campaign, drugs might have magical properties. Drugs that give the user magical abilities can be created using the same drug design system as other drugs, but prices are likely to vary widely, depending on how common the knowledge required to make them is and what ingredients are required. In a technomagic setting, magical drugs could be commonly available from multinational manufacturers; in a pseudo-medieval fantasy world they may be closely guarded secrets available to a select circle of elder mages.

Drugs that produce magical effects on the user are a different thing. They are often not considered to be *drugs* – they are called potions or alchemical elixirs. See ***GURPS Magic*** for a full treatment of potions and elixirs.

Nanodrugs

Nanodrugs are encapsulated nanomachine factories that can operate for a short time within a user's body, manufacturing proteins or nanoviruses (p. 184) to adjust the user's biochemistry. After a few hours or days, the nanomachines wear out and are broken down by the body's normal defense and excretion systems.

Using bio-nanomachines has several advantages over normal drug manufacture and delivery methods. Many high-tech drugs are based on proteins or other complex macromolecules that are fragile and have short shelf lives, especially in adverse storage conditions (see *Storage and Handling of Drugs and Nano*, p. 153). As they decompose they lose effectiveness, or worse, turn into substances with toxic effects. Bio-nanomachines, on the other hand, are much tougher and can survive in field medical kits for years without losing potency.

Secondly, delivering conventional drugs to a precise location or organ with the body is often difficult, as the bloodstream spreads it to most regions indiscriminately, while various cellular barriers – such as the blood-brain barrier – keep it out of particular tissues. Bio-nanomachines can be designed to seek out the appropriate place to produce their drug and manufacture it only there, where it will be most effective and produce the fewest side effects. For this reason, nanodrugs can produce therapeutic or enhancing effects that cannot be achieved with conventional drugs.

Another advantage is that nanodrugs can self-regulate the dosage they produce, using biofeedback mechanisms to monitor the effects on the body's chemistry and adjust their production to suit. This means greater control over the results and no chance of overdose. Multiple doses of the same nanodrug generally behave the same way as a single dose.

Finally, some nanodrugs act by *using up* some specific hormone or other chemical within the body, taking it in as a raw material and converting into a harmless byproduct. In this way, chemical imbalances in the body can be attacked from the other side, by reducing the amount of some substance that is present in too great a quantity rather than introducing an additional substance. When combined with nanofactories that produce other compounds, this can drastically alter the body's biochemistry in multiple ways with a single dose of a nanodrug.

Designing Nanodrugs

Nanodrugs can be designed using the same system as conventional drugs (p. B425). The main difference in terms of play is that a nanodrug can have a more complicated effect, combining several advantages and disadvantages into one package, including specific mental states and neurological effects that are difficult or impossible to achieve with chemical drugs. Nanodrugs are also more robust in long-term storage than chemical drugs.

Examples of Nanodrugs

These drugs all require bio-nanotechnology. In games where nanotech is retarded or nonexistent, drugs that have these effects will likely not exist.

Antitox (TL10)

This nanodrug consists of nanomachines programmed to break down toxic molecules. Because the bio-nanomachines can seek out, recognize, and actively destroy the toxin, this is more effective than chemical antidotes. It immediately gives another HT roll after injection to resist the effects of most poisons, with a +8 bonus. If given prophylactically, it grants Resistant to Poison (+8) for 24 hours. $400/dose. LC4.

Atman (TL10)

This drug is used by animal lovers or those wishing to feel at peace and in harmony with the natural world. It grants Animal Empathy and the Delusion that the user can communicate with animals. Long term (one day), pill (HT-6 to resist). $500/dose. LC4.

BodyHeat (TL10)

This stimulates the metabolism to boost heat production, while also causing mild peripheral vasoconstriction to reduce heat loss. This confers Temperature Tolerance 2 [2] for cold temperatures, but also gives a -1 DX penalty and Increased Consumption 1 (double food requirement). Long term (one day), injection (HT-6 to resist). $1,100/dose. LC4.

Destruct Nano (TL10)

These "khaki goo" bio-nanomachines disperse throughout the body when injected, then wait in a dormant state until triggered. The trigger depends on the exact brand of destruct nano, but various possibilities include: eating a specific food; sexual arousal; the touch of a particular person (whose genome was programmed into the poison); a particular chemical scent, or even the use of another type of drug or nano (either a specific type or any type). Once the destruct sequence is triggered, they immediately begin the job of sabotaging and dismantling cells. The victim gets a HT roll to resist every minute; failure results in 1d damage. This continues indefinitely until the victim is dead, or the poison is stopped by a nanotech counter-agent such as Guardians (p. 165).

Most insidiously, the nano can be switched off by another pre-set biochemical trigger. $100 for a customized dose with a particular trigger. LC1.

Focus (TL10)

Focus is a common nanodrug used by workers in hazardous conditions such as wearing vacc suits in space or diving underwater. It makes the job safer by increasing the user's awareness and reducing panic reactions. It can also make users *too* cautious to perform a job. Grants Perception+2, Fearlessness 2, and Careful. Medium term ([25 - HT]/4 hours), pill (HT-6 to resist). $160/dose. LC4.

Hepaclean (TL10)

This quickly removes the aftereffects of too much alcohol, curing hangovers by converting the acetaldehyde produced by the liver's metabolism of alcohol into B-group vitamins and easily removed byproducts. It also restores normal brain chemistry to reduce hypersensitivity to noise and light. The pill cures all effects of a hangover 30 minutes after being taken with several glasses of water. $30/dose. LC4.

Morlock (TL10)

This is a "regression" nanodrug designed specifically for uplifted animals, which makes them behave more like their unmodified brethren. Depending on the campaign world, it may have been developed by anti-uplift campaigners as a way to reverse the uplift process, or by animal rights activists to allow uplifts the choice of a more "natural" existence. Unfortunately the drug didn't work as hoped, and is psychologically addictive. It adds Bestial while in effect, but also has a permanent damaging effect on brain chemistry. After each use the user must roll vs. HT+4. On a failure either add Stress Atavism (15; Mild), decrease the control number of existing Stress Atavism by one step, or (if the control number is already 6) increase the severity one step. Once Stress Atavism is severe and has control number 6, the next failure gives the user a permanent Bestial [-10] disadvantage.

Morlock also works on unuplifted animals and humans! If the user is already Bestial, it adds Berserk (12) [-10] and triggers an immediate berserk episode. Medium term ([25-HT]/4 hours), pill (HT-6 to resist). $450/dose. LC2.

Verazene (TL10)

This powerful drug gives the recipient the Truthfulness (6) disadvantage for (25-HT) minutes. It can be resisted on a HT-4 roll. Injection only. $16/dose. LC2.

Tailored Immune Machines (TL10)

Ultra-tech medicine may use bio-nanomachines (TL10) or nanobots (TL11) to seek out and destroy disease-causing microorganisms or tumors. It's possible to get expensive nano-symbionts that stay in the body for weeks or permanently, warding off these problems – see *Panimmunity* (p. 164), nano-bacteriophage (p. 165), and virus hunters (p. 166) for examples. Alternatively, medics may use much cheaper tailored nano machines designed for a specific purpose.

This requires successfully diagnosing the problem (see p. 125). After it is diagnosed, prescribing the correct nano-treatment requires a successful Physician roll. A dose of tailored nano specific to a particular disease is $50/dose and LC4; pharmacies, automeds, and hospitals usually stock a large range. However, tailored immune machines for exotic ailments such a rare disease or biological weapon may be difficult to get, and cost $500/dose. Immune machines for *unknown* diseases require a new invention (but see *Programmable Immune Machines*, below). If the correct nano is taken (by injection or pill) it cures the patient in 3d hours at TL10 or 1d hours at TL11+; if it was incorrectly prescribed, it will have no effect. Another try (requiring a different selection) may be possible. If one dose works, the GM may allow the same nano to work on any patient with an identical problem.

Programmable Immune Machines (TL11)

These are general-purpose nanomachines that can be programmed to eradicate disease-causing microorganisms or tumors. They work just like tailored immune machines, except that a successful diagnosis followed by a Physician roll lets the user program the nano dose to treat a specific disease, whether known or unknown – there's no need to buy or make new nanomachines for each illness. Programming usually takes an hour per attempt (apply a -2 penalty to skill for rare diseases); unknown diseases (once successfully diagnosed) take at least a day per attempt (and -4 to skill), and possibly longer (GM's option). $500/dose. LC3.

Transformational Nano

Taking a person apart, even at the molecular level, is relatively easy these days. The trick is to store enough information that you can put him back together again. Assuming you want to.

– Dr. Lucien Locke, ***Nanovirus for Dummies***

Advanced TL12 nanomachines are capable of near-miraculous feats. They can do just about everything that a chrysalis machine (p. 133) can do, without requiring a controlled environment.

Disassembly Nanovirus (TL12)

Disassembly nano dismantles a person in a more precise and thorough manner than crude "gray goo" nano weapons. It also reports back to a central computer with coded and compressed data representing the arrangements of the molecules in the body.

Storing this information requires *at least* a million terabytes for a human, perhaps much more depending on the GM's assumptions about how detailed the data needs to be – it should be as much (or slightly more) than state-of-the-art computers are capable of storing. The brain and genome maps require the most data, followed by distinctive physical features such as scars, fingerprints, and retina patterns. Bulk body tissue such as muscles and bones can get by with sparser data sampling. The nano will also record the presence and configuration of any implants.

Unfortunately, this process is destructive, and at TL11 there is nothing that can be done with all this data, other than running a ghost mind emulation (see ***GURPS Ultra-Tech***). Still, it can be a method of preserving all information about a deceased individual for future use.

Applied to a corpse, disassembly is disconcerting enough, as the body slowly melts into a pool of writhing goo over 24 hours. A living person infected with disassembly nano suffers a high fever and agony (p. B428). Once unconscious due to loss of FP, the victim loses 1 HP every 10 minutes until dead.

Availability: A dose of disassembly nanomachines (enough for a body up to 200 lbs.) costs $100,000. If the nano is used in a controlled environment, e.g., a biofab or chrysalis machine, 90% of it can be recovered for reuse. LC3.

Reassembly (TL12)

With a complete molecular map of a body, supplied either by disassembly nano or a full body HyMRI scan (p. 129), assembler nano can reassemble a copy of the body from raw materials. This requires a supply of organic matter and trace minerals twice the weight of the final body – dead bodies or compost work fine. The assemblers must have continuous access to the stored body data for the week the process takes. At the end of this time, the nano will have created a body indistinguishable from the original by any means short of a comparison at greater resolution than the data map. The body is not alive, and will not respond to standard resuscitation techniques, but even that can be overcome . . .

If the original person who supplied the molecular map is still alive, the existence of a duplicate body could create interesting identification scenarios.

Availability: Reassembly nanovirus costs $500,000 for enough to assemble a body up to 200 lbs. If the nano is used in a controlled environment, e.g., a biofab or chrysalis machine, 90% of it can be recovered for reuse. LC3.

Reanimation (TL12)

These nanomachines can resurrect dead bodies. Reanimation nano is smart enough to make subtle changes to body structure and chemistry to reverse any immediately fatal conditions. As well as returning the body to a viable state, it restarts neural impulses beginning with the autonomous nervous system that controls heartbeat, breathing, and other reflex actions. Once life support is established, the nano begins switching on brain activity and finally the voluntary nervous system.

This nano can be used in two ways:

Bringing a dead person back to life: If the nano is applied within 10 minutes of cessation of breathing, it can stabilize the brain and restore vitality without brain damage. After 10 minutes, the revived patient must make a successful HT roll to avoid brain damage, at a -1 penalty per hour of delay. Brain damage results in reduced IQ, and possibly mental disadvantages, at the GM's option. Once the body has begun to decay significantly, the nano cannot restore life.

Reviving an inert body constructed by reassembly nano. Reassembly nano can keep the brain in a state identical to when it was stored after the assembly process has finished. Injecting reanimation nano at this point restores the body to life, in the same state as when it was recorded. Assembly and reanimation functions can also be combined in one set of nano for the combined cost.

Availability: Reanimation nano costs $1,000,000 a dose (suitable for any weight body). . If the nano is used in a controlled environment, e.g., a biofab or chrysalis machine, 90% of it can be recovered for reuse. LC3.

Nanosymbionts

Nanosymbionts are colonies of nanomachines installed in a host's body to perform useful services. Appropriately designed nanosymbionts can be used by any being with a biological body. The bio-nanomachines may be permanent residents or temporary lodgers.

Unlike nanodrugs, nanosymbionts don't simply produce chemicals – they interact directly with cells and other structures in the body. Some roam the body, seeking infections or tumors and then producing drugs to combat them, while others physically manipulate objects, manhandling them into desired configurations.

Properly designed nanosymbionts do not normally interfere with one another (except for those *meant* to do so) and can safely be used in combination. Cheap versions produced by black labs might not work so well – see *Storage and Handling of Drugs and Nano* (p. 153).

Temporary Nanosymbionts

At TL10+, these are a common way to treat illnesses. A doctor will analyze the patient's condition and prescribe appropriate nanosymbionts. They typically come in a sterile package housing a bee-sized capsule. This contains an applicator-programmer and billions of tiny nanomachines.

The user may set a treatment duration for anywhere from one day to two weeks; once set it cannot be changed. The patient then swallows the capsule and the bio-nanomachines take effect within an hour. The applicator-programmer capsule is digested and excreted normally, while the nanosymbionts take up residence in the body. At the end of the treatment they shut down, and within another few weeks are cleansed by the body's normal waste elimination functions.

Permanent Nanosymbionts

These perform ongoing maintenance or improvement functions in the body until removed. Permanent nanosymbionts are more expensive than temporary ones, as the bio-nanomachines must be designed with long-term durability and self-repair capabilities.

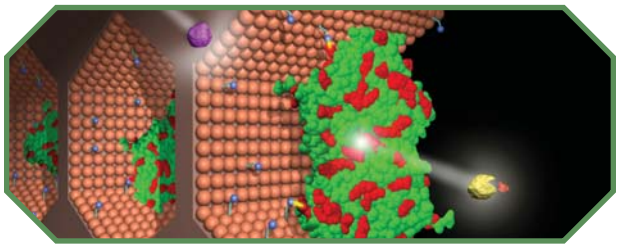
Designers periodically release upgrades for some types of nanosymbionts, to add new capabilities. This is particularly common for those that deal with known bacteria or viruses, as new varieties are discovered or infectious strains mutate. Registered users can get an upgrade installed for 1% of the original purchase price.

Even inside a user's body, bio-nanomachines remain vulnerable to radiation. If the user is exposed to a single dose of radiation above 100 rads, roll a HT check as per *Storage and Handling of Drugs and Nano* (p. 153) to see if they stop working, or worse, malfunction disastrously. Roll for each type of nano in the body, but ignore the penalty for multiple types.

Waste Heat

Realistically, symbiotic bio-nanomachines are restricted in how much work they can perform inside the body by the laws of thermodynamics. Shifting around molecules takes energy, which must be extracted from the environment somehow. Bio-nanomachines can be assumed to use the same energy reserves as the body – molecules such as adenosine triphosphate. The inevitable result of using this fuel is the production of waste heat. A little bit of heat can be tolerated, as the body dissipates it naturally, but produce too much and the user will feel feverish. Raise the body's temperature by just a few more degrees and vital enzymes will begin breaking down, leading to massive failure of body systems.

Exactly how much work bio-nanomachines can do before these effects start to be felt depends on how active they are, and assumptions made by the GM. The new quirk *Nano-Fever* (p. 212) can be used to represent this condition if desired. The deactivation or removal of bio-nanomachines will eliminate this condition.



Designing Nanosymbionts

The cost of nanosymbionts varies extensively. As a guideline, a treatment with temporary nanosymbionts costs from $50 to $100 per absolute point value of advantages and disadvantages granted. Permanent ones cost 50 times as much as temporary ones. The GM should judge the costs of nanosymbionts that perform tasks not expressible as character traits on a case by case basis, following the examples given below.

Examples of Nanosymbionts

These nanosymbionts are available in both temporary and permanent forms unless indicated otherwise. Where two costs are given, the first is for a temporary treatment, the second for a permanent dose.

Panimmunity (TL9)

Panimmunity injections contain smart artificial organisms or bio-nanomachines, tailor-made for each individual. They recognize friendly cells, and attack others.

Availability and Statistics: Depending on the bio-engineering techniques of the society:

Level 1 Panimmunity (TL9): Gives Resistant to Disease (+3) [3]. $150/$7,500. LC4.

Level 2 Panimmunity (TL10): Gives Resistant to Disease (+8) [5]. $250/$12,500. LC4.

Level 3 (Total) Panimmunity (TL12): These are highly potent defenders that unfailingly seek out and destroy *any* harmful microorganism. They provide the proverbial "cure for the common cold" – users simply don't get sick. This gives the recipient the equivalent of Immunity to Disease [10]. $500/$25,000. LC4.

Artery Cleaners (TL10)

These use tiny biomechanical brushes, cilia, and rotors to clear plaque and fatty deposits from arterial surfaces, reducing the risk of heart disease.

Availability: $50/$2,500. LC4.

Statistics: If someone who has been using artery cleaners for at least six months would lose a point of HT due to a failed aging roll (p. B444), roll 1d: on a 1-3 he doesn't lose the HT. 0-point feature.

Nano-Bacteriophages (TL10)

These bio-nanomachines patrol for and destroy any known bacterial and parasitic pathogens, but have no effect on viruses.

Availability: $250/$12,500. LC4.

Statistics: Immunity to Known Bacteria [5].

Blood Cops (TL10)

These are gengineered macrophage cells designed to patrol the bloodstream, seeking out and destroying pathogens, toxins, and harmful free radicals before they can damage the body.

Availability: $850/$42,500. LC4.

Statistics: Blood Cops provide Longevity [2] and Resistant to Metabolic Hazards (+8) [15]. *17 points.*

Carcinophages (TL10)

These are programmed to search the body for cells that have mutated into a cancerous state and destroy them before they can develop into tumors. They can also safely remove existing tumors, no matter how delicately placed, such as deep within the brain.

Availability: $250/$17,500. LC4.

Statistics: Immunity to Cancers [5]. Permanent carcinophages also grant Extended Lifespan 1 [2].

Guardians (TL10)

In a world where hostile nano can be used as insidious weapons, people will want to protect themselves. Guardians are adaptive bio-nanomachines that will recognize any other bio-nanomachines already present in the body when they are first introduced.

If they come upon any new examples, they'll attempt to destroy them. This specifically includes proteus virus (p. 184), nanodrugs (p. 161), and enhanced viruses (p. 115) built as nanoviruses. If a nano agent allows a HT roll to resist, guardians give a +8 bonus to the resistance roll.

Availability: $100/$5,000. LC3.

Statistics: Resistant to Bio-Nanomachines (+8) [2]. *2 points.*

Lung Cleaners (TL10)

These roam the lungs, removing inhaled debris by encapsulating it and carrying it through to the body's normal excretory systems.

Availability: $250/$12,500. LC4.

Statistics: Filter Lungs [5].

Nanosymbionts Versus Symbiotic Bacteria

Many permanent nanosymbionts do jobs similar to those that can be achieved by symbiotic bacteria (p. 120). Just one or the other may be available, depending on biotech development pathways in a given campaign, or users might have the choice from both. Each option has advantages and disadvantages.

Nano can often be upgraded to deal with new threats and some can be controlled or reprogrammed directly. Additionally, bio-nanomachines are immune to chemical hazards like antibiotics that kill bacteria. On the down side, nano reacts badly to radiation, and can cause interaction problems when new nano is injected.

Bacteria are generally cheaper because they self-reproduce. They can also mutate, perhaps causing hostile infections that need to be treated.

Microgravity Biochemistry (TL10)

By maintaining muscle tone and bone density at a microscopic level, these nanosymbionts prevent any degeneration of these tissues under microgravity or zero-gee conditions.

Availability: $100/$5,000. LC4.

Statistics: No Degeneration in Zero-G [1] (p. 211).

Pore Cleaners (TL10)

A favorite example of cosmetic nano, these inhabit skin pores and keep them clean. They also eliminate body odor by killing the bacteria that cause it.

Availability: $50/$2,500. LC4.

Statistics: Sanitized Metabolism [1].

Tooth Cleaners (TL10)

These simple engineered bio-nanomachines keep the user's teeth clean and healthy without any need for brushing or toothpaste.

Availability: $20/$1,000. LC4.

Statistics: This is a 0-point feature.

Virus Hunters (TL10)

Similar to bacteriophages, these are programmed to hunt and destroy known viral pathogens, but have no effect on bacteria.

Availability: $250/$12,500. LC4.

Statistics: Immunity to Known Viruses [5].

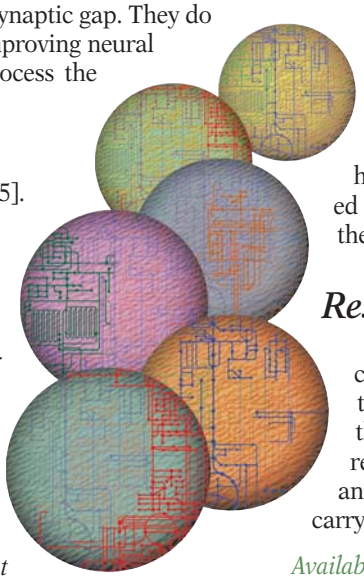
Brain Boosters (TL11)

These take up residence in the synapses where nerves pass chemical signals to one another and increase the speed at which the signal crosses the synaptic gap. They do a similar job within the brain itself, improving neural connectivity so that the brain can process the faster influx of sensory data.

Availability: $4,500/$225,000. LC2.

Statistics: Enhanced Time Sense [45].

Cell Surgeons (TL11)



Hey, more nanoguys! These are programmed with details of your anatomy, and form a distributed, multi-cellular neural-net throughout the body. Most of the time, they just drift around, powered by your bloodstream. But when you get hurt, they'll shift into high gear and start fixing things, herding cells into place with tiny manipulators or sending signals that stimulate regrowth, while clearing away damaged tissue before it can get infected. These symbiotic cell-sized nanocritters let you heal real fast, but you sweat like the dickens.

– Dr. Lucien Locke, ***Symbiotes for Success!***

Availability: $1,200/$60,000. LC4.

Statistics: Regeneration (Regular; Nuisance Effect, sweat heavily while regenerating, -1 reaction, -5%) [24].

Electroreceptors (TL11)

These nanosymbionts reside in nerve tissue just beneath the user's skin. They are sensitive to electrical and magnetic fields and initiate artificial nerve pulses under certain conditions. This allows the user to detect magnetic fields as well as electrical emanations, like those from electric fish or equipment, and determine the direction and approximate power level.

Availability: $500/$25,000. LC4.

Statistics: Detect (Electric and Magnetic Fields; Vague, -50%) [5].

DNA Repair (TL11)

Radiation causes damage on the cellular level by mutating the DNA, which then propagates the mutations when it divides and copies. DNA repair nano compares the DNA between cells throughout the body and repairs any that have accumulated significant mutations. This also repairs mutations caused by old age.

Availability: $300/$15,000. LC4.

Statistics: Regeneration (Slow; Radiation Only, -60%) [4] and Extended Lifespan 1 [2].

Metabolic Regulators (TL11)

These are responsive nanosymbionts that provide the user with voluntary control of many of his own metabolic processes.

Availability: $700/$35,000. LC4.

Statistics: Metabolic Control 2 (Mastery, +40%) [14]. The Mastery enhancement means the user can make precise adjustments to his metabolism and body chemistry instantly, helping him cope with even extreme or unexpected stresses. As long as he is conscious, he may add the level of Metabolism Control to *any* HT roll.

Respirocytes (TL11)

These function like oxygen-carrying red blood cells, but with many times the transport capability. They store extra oxygen, transport it around the body, and release it in intelligent fashion in response to need. They also extract carbon dioxide and absorbed nitrogen from muscle tissue and carry it rapidly to the lungs for excretion.

Availability: $300/$15,000. LC4.

Statistics: +2 FP [6]; Doesn't Breathe (Oxygen Storage ×25, -50%) [10]. Respirocytes are an exception to the rule that nanosymbionts take an hour to take effect – they begin working one minute after injection.

Cell Communion (TL12)

I know why the NSA never caught them. Why the wiretaps and the laser mikes found nothing. I know the truth, because I borrowed Doctor Avery's scanning, tunneling microscope and used it on the sample. That's how I figured it all out – how the UFO people, the Men in Black, and the True Illuminati communicate. It's their cells that are talking. Not talking exactly. Hormones? This is much more sophisticated, doctor. Not just emotions. More like images, concepts, memories, all at once. It's exchanged by sweat, saliva, blood, when they shake hands, touch, kiss. Don't you get it? Can't you see? They can conspire in crowds, in broad daylight!

– Statement by Walter Jorgenson, BSc in molecular biology, now a patient at Kingston Psychiatric Hospital

Availability: $900/$45,000, LC4. Infectious version is $1,150/57,500. LC1.

Statistics: This is Telesend (Blood Agent, -40%; Melee Attack, Reach C, -30%; Racial, -20%; Universal, +50%) [18]. In this instance, the Racial limitation means that cell communion only allows communication with someone else who has the symbionts. Some types of cell communion are actually contagious – the communion can spread out from the infected individual's body. Add Infectious Attack [-5] (p. B140).

Drug and Nano Delivery Methods

Producing drugs and nano is only part of the job. They need to be introduced to the body so that they can work.

Oral (Pill)

The simplest method of taking drugs is to swallow them. This is suitable for some analgesics, antibiotics, hormone-based drugs such as contraceptives, recreational drugs, and many poisons. Other drugs are neutralized by the stomach or not absorbed into the bloodstream. Depending on robustness, nano may be able to overcome these problems and navigate to the tissues where they can operate.

Oral drugs have the advantage that unskilled patients can self-administer them. They are also easy to give to others, either with consent or surreptitiously. Knockout drugs in particular are a common item to slip into an enemy's food or drink.

Injection

Many drugs are most effective if injected. Injections can be *intravenous* (into a vein), *intramuscular* (into muscle tissue), or *subcutaneous* (into subskin fat deposits). Intravenous injections rapidly spread the drug throughout the body, giving a short onset time before it becomes effective; most drugs are suitable for this method. Intramuscular and subcutaneous injections result in slower assimilation of the drug over a longer time, and are used for vaccines and regulatory drugs such as insulin that must be taken periodically.

The hypodermic needle was invented in the mid-19th century (TL5), and remains the most common injection device throughout TL8. Needles are difficult to sterilize; reusing them brings risks of infection and transmitting blood-borne diseases – a fact recognized in the late 19th century. At TL8, painless microinjection devices are invented, which use compressed gas to inject drugs subcutaneously.

Contact

Some drugs can be absorbed into the skin. This works for corticosteroids and other anti-inflammatory drugs. The compound dimethyl sulfoxide is often used as a carrier for topical drugs, as it penetrates deeply and rapidly into biological tissue, taking other compounds with it. Topical drugs are easy to apply, resulting in localized effect or slow diffusion much like subcutaneous injections.

Contact drugs can also be used for nefarious purposes, by applying a cream or ointment to a surface that a victim is likely to touch. In many cases the target of this action may be aware of an oily feel to the surface (on a successful Per roll). Whether the victim interprets this observation correctly depends on his experience with contact drugs and his paranoia level.

Aerosol

Drugs may be delivered via inhaler or (in some cases) even as a gas. They're generally double cost if they have be inhaled, or 10 times cost if they are aerosol contact agents that can penetrate the skin. Inhaled agents may be smoked as a cigarette or pipe (often taking at least 10 seconds to take effect), or, at TL8+, delivered via an inhaler (with immediate effect). A one-dose inhaler is $5, neg. weight.

Implants

Some patients need a drug to be delivered at regular intervals, while others require it on demand, controlled by automatic body chemistry monitoring. And some people would like a convenient drug delivery system that could be triggered at will, for performance enhancing or recreational drugs. These requirements can be met by an implant.

A standard drug implant system is a reservoir of the drug and a release mechanism. Most rely on the natural rate of osmosis across a barrier to deliver a steady dose. More sophisticated designs may be triggered either by an internal timer, a biochemical monitor, or external stimulation by physical pressure or electromagnetic signal. Depending on the drug, the implant can deliver it intravenously or intramuscularly. The disadvantage of such an implant is that the supply of drug can run out. When this occurs, another operation will be required to replace it. A more sophisticated implant may be refillable with a targeted hypodermic injection into the drug reservoir.

A better solution is to manufacture the drug within the implant. This can be done using tailored microorganisms; see *Encapsulated Cell Implants*, p. 120.

If a character has a disadvantage bought with a Mitigator limitation to reflect drug treatment that prevents it from manifesting, and acquires an implant that permanently "cures" the condition, the GM should require that the disadvantage be bought off completely. Similarly, characters created with a disadvantage mitigated by a drug implant do not qualify for any points from that disadvantage.

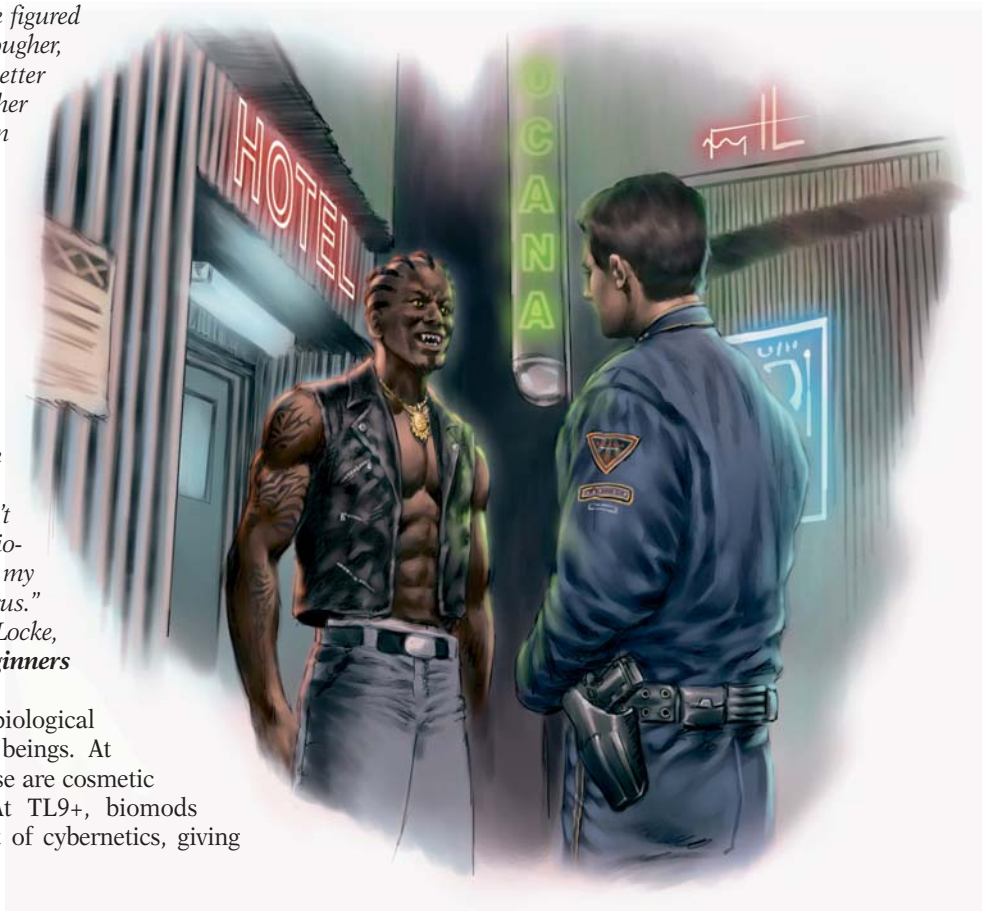
Chapter Seven
Biomods

"Okay, so the gengineers have figured out the right way to build a tougher, smarter liver that provides better resistance to toxins, or some other little upgrade to the human genome. Fine, that's great, insert the genes for it in the next generation and raise some enhanced superbrats. But that doesn't do squat for the current generation of people."

"No way! I got loads of cash, but my parents didn't have the cred to have my genes twanked. Heck, they couldn't do that then. You telling me I'm obsolete because I'm already born?"

"Stay frosty, kids. We haven't even mentioned gene implants, biomod transplants, surgery, and my favorite, metamorphosis nanovirus."

– Dr. Lucien Locke,
Biomods for Beginners



Biomods are permanent biological modifications made to living beings. At TL7-8, the major biomods in use are cosmetic surgery and gene therapy. At TL9+, biomods become the organic equivalent of cybernetics, giving people many new abilities.

Elective Surgery

The Rabid stepped out of the shadows. His slit-pupiled eyes were feline transplants, and as he grinned, he showed me a mouth full of canine tooth bud implants. I was impressed: The gangs must be doing well here, to afford all that surgery.

– Detective Cody Chase, Nevada DPS

Elective surgery involves reshaping, modifying or transplanting tissue, bone, organs and limbs.

In some cases, elective surgery may also involve neurosurgery to ensure that certain transplants, such as limbs, function properly. Each surgical procedure ("biomod") is described with these characteristics:

Operation: The cost to hire a surgeon (or medical team), along with the time required to recuperate following the operation. This period is measured in weeks. For every TL over the minimum required, reduce this by one day per week. Thus, if six weeks were required at TL8, this would be reduced by six days at TL9, by 12 days at TL10, and so on. Some operations require less than a full week to recover from. If so, reduce the period by three hours per TL over the minimum.

The recovery period required is also a rough guide to how long the operation itself takes: assume about two hours for every week of recovery required (before modification by TL). Any operation requiring less than a week of recovery takes an hour to perform.

Both recovery and operation time from multiple operations is consecutive rather than concurrent; e.g., two procedures with two-week recovery times require eight hours of surgery and four weeks of recovery.

Statistics: The game effects and character point cost of each surgical procedure – for instance, what advantages it grants or removes.

Bodysculpting

Bodysculpting (also called "biosculpting") includes cosmetic surgery, muscle grafting, and sex-change operations. While some changes may shock the traditional, bodysculpting is usually available and legal in all but the most conservative societies.

At TL7-8, cosmetic modifications rely on surgery, tissue grafts taken from other parts of the patient's body, and injections or implants of inorganic material. TL9+ bodysculpt is more precise, with CT scans (p. 128) to produce 3-D "before and after" models, laser scalpels, and vat-grown collagen implants.

Disguised Appearance (TL7)

It's possible to simply change someone's facial features without altering their Appearance or making them an exact copy of someone else. This change may be combined with surgery for an *Altered Appearance* (below).

Operation: $1,000 (one week recovery). There is no extra time or cost if this procedure is combined with Altered Appearance. LC4.

Statistics: An acquaintance needs an IQ roll to recognize you.

Eyesight Correction (TL7)

Vision problems caused by focusing defects in the shape of the cornea can be relieved by a number of procedures that reshape the lens. The principles were understood as early as TL5, but technology did not allow successful correction until TL7, when radial keratotomy using a diamond scalpel was developed. At TL8, this was largely replaced by safer and more accurate laser procedures that can eliminate myopia and astigmatism completely.

Operation: $2,000 (one day) per eye. You can be up and around after surgery, but treat as One Eye (or Blindness if both eyes were done) while recovering, and vision may be blurred at times for a few weeks – treat as Bad Sight (Nearsighted).

Statistics: Bad Sight (p. B123) is eliminated.

Hair Transplant (TL7)

Used by balding men (and, more rarely, women) to give the impression of normal hair growth. The technique of transferring plugs of skin containing hair follicles to the scalp was pioneered in the 1950s. At TL7 the results are obvious and artificial, but this improves rapidly by TL8, where natural-looking results are possible.

Operation: $1,000-$10,000 depending on extent of baldness. No recovery time.

Statistics: Depending on social mores, may remove Distinctive Features or be a prerequisite for an increase in Appearance (see *Altered Appearance*, below).

Acquiring Biomods

Biomods chosen during character creation are bought with points rather than cash. For biomods acquired during play, use the rules for *Body Modification* (p. B294). These rules replace the *Surgical Modifications* (p. B295) rules.

Each biomod's availability (TL, LC, and means of acquisition) is summarized in its description. In theory, one simply has to locate someone who can make or install it, pay them, then undergo the operation. This might be as easy as visiting a neighborhood clinic and plunking down a credit card, or as complex as finding an outlawed scientist who's the only one who can perform the operation. Usually, it depends on the TL and LC of the biomod.

Altered Appearance (TL7/8/9)

My parents were both neo-goths, and they had me genginneered to fit the ideal – you know, pale and thin, with these huge, dead-poet eyes and ink-black hair. It was just so tacky. The day I turned sixteen, I went down to the Novabody and got it changed.

– Gabrielle Ravenwood

A person's facial looks, hair color, eye color and ethnic features can all be altered – often with the goal of improving on nature or repairing ravages of time or injury. To specifically *duplicate* another person's appearance, see *Copied Appearance* (p. 170).

Operation: Minor changes cost $4,000 (one week recovery); major changes are $8,000 (two weeks recovery). Halve the dollar cost if any increase in Appearance results in acquiring Off-the-Shelf Looks, or for an modification that results in lowering Appearance or removal of a trait. Double the dollar cost for any modification that increases Appearance to Very Handsome, or results in Honest Face or Pitiable. LC4.

Statistics: Each minor change can involve one of the following: a shift in Appearance by one level, or somewhat altered features (so that it requires an IQ roll to recognize the character). Each major change may increase Appearance by two levels up, or down as far as desired (minimum Monstrous), or grant or remove one of the following: the Androgynous or Impressive options; the traits Honest Face (p. B101) or Pitiable (p. B22). Appearance cannot be reduced below Monstrous or above Very Handsome.

Altered Bulk (TL7/8)

When I told the doc I wanted to gain weight, he was shocked. I told him it was for a movie – well, I wasn't going to admit I needed some extra room to hide my flesh holster, was I?

– Detective Cody Chase, Nevada DPS

Fatty tissue can be removed surgically through techniques such as liposuction, or it can be grafted onto the body.

Operation: $5,000 (one week recovery). LC4.

Statistics: Bulk can be safely altered up or down by one step. The steps range from a maximum of Very Fat [-5], to Fat [-3], Overweight [-1] and normal weight, down to a minimum of Skinny [-5], in that order. After the operation, adjust weight accordingly.

Copied Appearance (TL8)

When I was back in LA, we'd run into poser gangs where everyone looks like Nixon or Cthulhu or whatever – or almost look, this being street medicine. I helped shut down this black clinic that was kidnapping street people and turning them into doubles of famous grid stars, then renting or selling them as toys.

– Detective Cody Chase, Nevada DPS

This procedure transforms someone's face into a recognizable copy of another person (real or fictional). The subject must already have the same Appearance (including options like Androgynous or Impressive) as his model, as well as the same facial traits such as Honest Face (p. B101), Pitiable (p. B22), and any facial Distinctive or Unnatural Features. If these traits do not match those of the original, they must first be changed through the Altered Appearance (p. 169) procedure before additional surgery can proceed.

Operation: To turn someone into a fairly close duplicate ("you look like Elvis"), enough to qualify for Mistaken Identity, is $5,000 (one week recovery). An *exact* duplicate (as much as height and build permit) is $50,000 (three weeks recovery). Halve the cost and recovery time if the patient's facial features are fairly similar to the features being copied (GM's option). Copies of a real person or trademarked character may be a legal violation (LC2) or require additional licensing fees that further increase the cost. Otherwise, LC3.

Statistics: A copy will have the Mistaken Identity trait (p. B21). A mass-produced copy of someone who is Handsome or better also gains the Off-the-Shelf Looks (-50%) modifier on their Appearance.

Extreme Sexual Dimorphism (TL7/8)

Would you like to make onlookers pant with lust or moan with envy? Come to Novabody, where we can turn you or your partner into the stuff of fantasy. Striking results achieved in hours!

– Novabody: Nirvana is Now

Yes, you too can be stacked like a pleasure bioroid. No thanks. I've heard rumors that the majority of Novabody's clients work for, quote, escort services, unquote, and that some of the surgery is a little less than elective, if you take my meaning. Custom cuties, anyone?

– Detective Cody Chase, Nevada DPS

These procedures exaggerate primary male and secondary female sexual attributes. They are often preceded or followed by surgery to increase Appearance.

Operation: $5,000 (one week recovery). It requires Average or better Appearance (or the modifications just appear grotesque). LC3.

Statistics: Sex Appeal +1 [2] plus Distinctive Feature (Exaggerated sexual features) [-1]. *1 point.*

Sex Change (TL7/8)

It's fashionable for hetero parents to swap sexes after each child, so they can both have a try at being pregnant. This is perfectly healthy, but do be cautioned that some people seem to be predominantly male or female, and won't be comfortable in the other gender for the months that a natural childbirth requires. See your psychogenetic counselor first!

– Dr. Lucien Locke, ***Sexmorphing and You***

The procedures and effects depend on the level of sex change:

Superficial Sex Change (TL7/8): Masculinization or feminization of facial and body features, but without genital reconstruction. The subject retains his/her own sex, but when fully dressed appears to be a member of the opposite sex.

Gender Reassignment (TL7/8): The subject completely resembles his/her new gender. Only a medical examination would reveal that a sex change had taken place. To all exterior appearances and for all social interactions, the change is total, except that reproduction is impossible.

Genital Reassignment (TL7/8): As above, but without any masculinization or feminization of features (though this may be added later via a superficial change).

Complete Sex Change (TL9): This is a total sex change, with full capacity for reproduction being possible. This requires tissue-engineering organs and transplanting them into the recipient's body, although at TL11+, proteus nanoviruses can design working reproductive organs and cells within the patient's own body.

Sex Neutralization (TL9): Complete removal of sexual characteristics.

Operation: A superficial sex change is $2,000 (one week recovery). A gender reassignment or neutralization is $10,000 (and two weeks). A genital reassignment is $8,000 (and two weeks). A complete sex change is $30,000 (and three weeks) for a male-to-female change, or $100,000 (and four weeks) for a female-to-male, the latter requiring the creation of an artificial Y chromosome, which is trickier. There is often a requirement for psychological counseling prior to any sex change operation. LC3.

Statistics: Gender or genital reassignment results in the Sterile [0] feature; gender neutralization in Sexless [-1]. For

superficial sex change, gender reassignment or neutralization, and complete sex change, if Appearance is at the Handsome/Beautiful or Very Handsome/Very Beautiful level, switch the descriptor (e.g., Handsome becomes Beautiful) or, optionally (especially in the case of gender neutralization) add the Androgynous (p. B21) special option. Any sex change, especially beyond the superficial level, can sometimes alter personality, as a result of the hormones used and the change in self-image. At the GM's option, a sex change can justify buying off or exchanging a few mental disadvantages. In some societies it may also qualify as a Secret or Social Stigma.

Altered Height (TL8)

Height can be altered surgically by up to 3" in either direction through adjustments to the long bones of the arms and legs. Slight modifications to the spine can add an extra 3".

Operation: $8,000/inch (one week recovery, or three weeks if spinal). LC3.

Statistics: No point cost unless the modification results in Dwarfism or Gigantism (or adjusts height surgically so that the character no longer qualifies for such a disadvantage).

Fingerprint Removal (TL8)

Early methods of surgical fingerprint removal result in scar tissue that leaves prints just as distinctive. By late TL8, the skin of the fingertips can be replaced by patternless skin grafts, providing blank and unidentifiable prints. Of course, if only one suspect for a crime has had this procedure, blank finger smudges will provide circumstantial evidence.

Operation: $1,000 (two weeks recovery). You can be active while recovering, but no tasks requiring fine manual dexterity can be performed. LC2.

Statistics: Removes fingerprints. This is a 0-point feature. At TL8 this reduces DX by 1 for tasks requiring fine sensitivity, such as Lockpicking, but the fingertips are also insensitive to pain. At TL9 fingertip sensitivity is not compromised.

Archwork (TL9)

This bold fashionmod from the spring collection of Milan bodysculptor Fox Delamere coaxes you into a ballerina's delicate, toe-first walk with modifications to the tendons and arches in the feet! Thanks to supplementary bone reinforcement, you'll be fully comfortable – and if you wear high heels, this makes a day spent walking in them as ache-free as if you'd worn flats.

– Noriko Hayakawa, host of ***Cyberia Beat***

Sure it's striking on a supermodel like Alicia Lordes, but didn't this silliness die out in pre-space China? Still, at least Delamere set it up so it isn't physical torture any more.

– Chance Mackintosh, ***Posthuman Consumer Review***

Operation: $5,000 (two weeks recovery). You can be active after surgery, but treat as Lame while recovering. LC4.

Statistics: Adds 2" to height when barefoot, and you can wear high heels or dance shoes indefinitely without pain; regular footwear is uncomfortable (*0 points*).

Jointwork (TL9)

Net-gossip says Macrotech caught a cat burglar picking the lock on their VP's Manhattan suite. She'd squirmed her way through the air ducts on the way in, and when Security found her, she jumped two stories and landed running. Nearly made it, too. Seemed the thief had gotten bodywork at a back-alley clinic in Kyoto: extra joints, genemod connective tissue, even some work to modify the ankles and knees for improved shock absorption. Nice job, and no patent. So they dissected her, studied the design, and reverse-engineered it into their newest product. Ironic, huh?

– Streethawk, alt.bio.upgrade.samurai

Operation: $20,000 (two weeks recovery) for a single advantage, or $40,000 (four weeks recovery) for a combination of two or more. LC4.

Statistics: Any of Catfall [10], Flexibility [5], or High Manual Dexterity +1 [5], or raise an existing Flexibility advantage to Double-Jointed [15].

Eros Plus (TL9)

With the new Eros Plus, you and your partner can climb undreamt-of peaks of sensual pleasure! Let our trained biotechs improve on nature's gifts. Available for all sexes.

– Novabody: Nirvana is Now

The subject's erogenous zones are significantly more sensitive to erotic stimulation then an ordinary person's. This can be enjoyable.

Operation: $5,000 (two weeks recovery). Only two days bed rest is required, but you will suffer the Sexless quirk until the entire recovery period is over. LC3.

Statistics: If your partner is using Erotic Art skill with you, they get a +4 bonus; however, you are also -4 to resist Interrogation or Fast-Talk during such activity. The net cost is 0 points. This biomod can be addictive. For the first 1d months after it is added, the GM can require a Will roll to avoid acquiring the disadvantage Lecherousness (15) [-7], or having the self-control roll for an existing disadvantage reduced one step, e.g., Lecherousness (12) becomes Lecherousness (9).

Hair Graft (TL9)

An exotic hair graft permits living hair or fur strips to be grafted to certain parts of the body, such as the spine, ankles or wrists.

Operation: $1,000 (one day recovery). LC4.

Statistics: Usually a 0-point feature, if that, but may qualify as Distinctive Features or Unnatural Features depending on social mores.

Muscle Graft (TL9)

Tired of getting sand kicked in your face? Want the body your lover has always dreamed off? Try SpaTek's muscle grafting! Bulk up in record time while avoiding the metabolic hazards of conventional muscle-enhancing drugs and the risks of transplant rejection. Strong, safe and swift: It's SpaTek.

– SpaTek advertisement

Way I see it, muscle grafting is kind of the surgical version of steroid pushing – a quick and dirty way to bulk up real fast, if you don't have the self-discipline or the time for body building or the cash for something more subtle. Graft's the sort of thing you'd see on Mafia muscleboys or some simstar's bodyguards. Kind of low class. Por favor, chum: Don't tell "Mountain" Mahoney I said that, or he'll break my spine.

– Streethawk, alt.bio.upgrade.samurai.livechat

Operation: $20,000 (four weeks recovery). If using a muscle-boosting nanovirus, half the ST gain (round down) occurs after two weeks, with the remainder at the end of the growth period. LC4.

Statistics: Select from +1 to +3 Lifting ST and the same level of Striking ST. This reflects the fact that this ST only applies to limb muscles, not to internal muscles like heart or lungs or to the skeleton. Boosting ST by muscle grafts adds 10 pounds to weight per point of ST increase. Characters who gained +3 ST from muscle grafts can take the Unsupported Strength limitation (p. 215).

Testicle Tuck (TL9)

SpaTek markets this biomod for male boxers, hockey players, and other such jock types, but it's a favorite streetmod as well. I've been thinking of getting one myself.

– Streethawk, alt.bio.upgrade.samurai

Hey, hawk-baby – don't go to a street doc, okay? You make sure those blood-vessels get re-routed dolphin-style so your cajones stay cool. Don't want to bake your spunk, you know.

– Genosibyl, alt.bio.upgrade.samurai

This modification eliminates the special vulnerability of the male groin to injury. A cheaper version exists which leaves the recipient sterile.

Operation: $4,000 (two weeks recovery). Treat as Sexless while recovering from surgery, but no bed rest is required. LC4. The cheap version is $1,000 (and one week); LC3.

Statistics: Injury Tolerance (No Vitals; Partial, Vitals, Groin only, -60%) [2]. The cheap version adds Sterility [0]. *2 points.*

Xenosculpting (TL9)

You look surprised? I guess it must be a shock finding out your little sister has perky fox ears, fur that matches her hair and a bushy tail. And working in a hostess bar, too. I came to Tokyo with all those dreams, be a pop singer, an idol – sure, big sister, laugh. You try sleeping in Ueno Park for a few weeks. After that, well, the Kitsune Club was advertising for exotic hostesses. True, the surgery and cell grafts weren't much fun, but I needed money. If I signed a four-year contract, the 'sculpt was free. Now I earn 50K a year in tips from jaded sararimen like your friend. In a year or two, I should have enough to change back. If I want to. Excuse me, sis . . . Welcome to Club Kitsune, sir! I'm Marie, your foxy hostess for this evening.

– Marie Detroit, Club Kitsune

This gives someone nonhuman features, ranging from pointed "elf" ears to an animal-like face or head. Minor cosmetic xeno-features include such modifications as elf- or cat-like ears, tiny horns (too small to do damage), a forked tongue, or a birdlike crest – that is, any features that don't require bone or nervous system alterations. Adding a small patch of fur or feathers (e.g., to the scalp or ears) is also a minor cosmetic change. Major xenosculpting may include altered facial bone structure, like an animal-like jaw or muzzle, or

modifications to skull shape. For claws, sharp teeth and so on, see *Xenostriker Grafts* (p. 178). For full-body fur, scales and so on, see *Skin Transformation Virus* (p. 186). A bunny tail or a non-functional tail that simply hangs there is a minor cosmetic modification; a tail with bone and muscle that can be wagged is a transplant; see *Tail Grafts* (p. 178). Most changes to features like the eyes or nose do not improve senses – they are cosmetic only. (Due to the need to modify the brain as well as the sense organs themselves, improvements to senses require either genetic engineering, cybernetics, or bio-nanotech). An exception is large ears, due to the funneling of sound; these *can* improve hearing.

Operation: This depends on the extent of the change. Minor cosmetic xeno-features are $1,000 (one day recovery) each. A set of related minor modifications (e.g., giving someone rabbit ears, buck teeth and a button nose) is $10,000 (one week recovery). Altered facial bone structure is $30,000 (and 2+ weeks). LC3.

Statistics: This is a 0-point feature, but may count as Distinctive Features [-1] or even Unnatural Features [-1 to -3] if such biomods are rare or no "real" existing race resembles you. Some changes – e.g., bug eyes and a sucker-like mouth surrounded by writhing tendrils – could also give a negative Appearance or Social Stigma. If you are disguised as a known alien or variant race, this may also qualify as a Secret if you are passing yourself off as one of them. Large ears can provide Acute Hearing +1 [2].

Xeno-Voice Box (TL9)

Baby, you may be a hot nightclub singer, but no one, no one, betrays the Family. Well, your pretty mouth won't get you in trouble again. This automed you're strapped into? Benni's gonna replace your voice box. Hey baby, don't cry! Sure, you won't be able to talk no more, but you'll still be able to sing. See, we're gonna give you a songbird's syrinx instead of a larynx. Bit of brainwork, a few biochips in your skull, and you'll make us a lot of valuta at Big Al's other joint, maybe even sell recordings, you know? Object lesson, we call it.

– Nanobug recording of Don C. Magaddino, from federal grand jury transcript

This technology doesn't have to be used for sinister purposes. For instance, a human diplomat might have his voice box modified so that he can speak an alien language that's impossible for a human larynx to pronounce. Then he'd be modified back after completing his tour of duty.

Operation: $10,000 (two weeks recovery); only a day of bed rest is required, but the subject will be Mute for the entire recovery period. Reversing the effects of a xeno-voice box operation takes the same time and cost as the original procedure. A person can also be surgically rendered Mute with no ability to make sounds; this can be done quite safely at TL6, and is $500. LC4.

Statistics: A human voice box altered to make vocal animal sounds – trills, barking, purring, etc. – gives Disturbing Voice [-10] if speech is still possible, or Cannot Speak [-15] if it permits only animal sounds. Cannot Speak *can* be combined with Voice [10], if the animal sounds are pleasant. Modifying a human to speak an alien language is also treated as Disturbing Voice, as human speech will be garbled.

Hermaphromorphic Surgery (TL10)

Gender is obsolete with Matsai's latest bioengineered marvel. Creation of a fleet of sphincters, voluntary muscles, and hormone pumps allows fully functional sex-switching in a matter of hours, as well as full fertility control.

– Matsai Corporation advertisement

Word of warning: If you become pregnant in female mode, you'll automatically switch back and be locked into female morphology about a week into the pregnancy unless you voluntarily choose to reabsorb the fetus, like I did.

– Chance Mackintosh, ***Posthuman Consumer Review***

Operation: $150,000 (and four weeks). LC3.

Statistics: Hermaphromorph [5] plus Reproductive Control [1]. *6 points.*

Biomod Transplants

Need a new or better body part? Why not just graft one on?

Biomodification transplants use the same rules for surgery and recovery as medical transplants (p. 141).

These are transplants of completely new or modified internal organs. They've been grown from gengineered clones or in special organ vats, then harvested to be ready for transplant.

Eye Upgrade (TL8)

If your eye offends thee, pluck it out and get a better one. Biomod ears or noses aren't something you can really graft on and hope for anything other than a cosmetic change, due to a lot of the processing being wetware – i.e., in the brain – but since we're better wired to handle enhanced visual input, and most of an eye's modifications are in the rod and cone cells, they're fairly easy to improve though transplants. Mind you, you can't get something exotic like infravision unless you want to mess with nanoviruses and stuff – cyber's much easier there.

– Streethawk, alt.bio.upgrade.samurai

Operation: $2,000 per character point it costs, with a minimum of $5,000 (six weeks to grow, two weeks recovery). LC4 (LC2 if duplicating a retina pattern).

Statistics: Cures (rather than mitigating) Bad Sight, Blindness, Colorblindness, Night Blindness, or No Depth Perception (adjust point cost). Can add Acute Vision up to +(TL-7), to a maximum of +5 [2/level]. It will also alter the retina print. If a specific retina pattern is known, it can deliberately match another person's.

Bio-Booster (TL9)

Spring into battle with the Cheetah bio-booster! New from VeldtKorp's ace Johannesburg design bureau, the "Cheetah" adrenal pump is designed to store up and voluntarily release abnormal levels of adrenaline and noradrenaline in emergencies, supercharging you in situations where seconds mean lives. Currently under evaluation by South African, Nigerian and Israeli special forces, the VeldtKorp Cheetah epitomizes cutting-edge combat biomods at a price that can't be beaten by first-world mega-korps!

Warning: Use of the Cheetah for extended periods is suggested only for those in good health and with normal blood pressure. We also recommend a VeldtKorp Pacesetter or other boosted heart.

– VeldtKorp advertisement

"I had a friend who got a Cheetah. Worked fine until he got into a drawn-out fire fight in Kabul. Then his heart exploded. Guess he should have gone easy on that cholesterol."

– Captain (ret.) Dana Martello, Marine Force Recon

Operation: $31,000 (four weeks to grow, two weeks recovery). LC4.

Statistics: Basic Speed +1.00 (Cardiac Stress, every minute, -30%, Costs Fatigue, 1 FP, -5% [13], Lifting ST +3 (Cardiac Stress, every minute, -30%) [7], and Striking ST +3 (Cardiac Stress, every minute, -30%) [11]. *31 points.*

Boosted Heart (TL9)

Why stick with what nature gave you? VeldtKorp's Pacesetter transplant features genemod muscle tissue and modified ventricle construction for greater strength and longer endurance. Say goodbye to cardiac unrest with VeldtKorp's Pacesetter!

– VeldtKorp advertisement

Fine if you want to undergo heart surgery just to get a few minor improvements, but I must say I'm personally a teeny bit skeptical. I'd suggest waiting until Biotech Euphrates develops the nanosurgeons to do the modifications without cutting you open. A little bird tells me they're working on it in their Cairo facility right about now.

– Chance Mackintosh, ***Posthuman Consumer Review***

Operation: $15,000 (six weeks to grow, four weeks recovery). LC4.

Statistics: HT +1 [10], FP +1 [3], and Hard to Kill +1 [2]. *15 points.*

Cold-Adaptive Fur (TL9)

This gives the user a thick coat of fur. Besides being available in fashion patterns, it provides protection against the cold. (For an alternative, see *High-Biotech Fur*, p. 185.)

Operation: $10,000 (four weeks to grow, no recovery). LC4.

Statistics: Fur [1]; Temperature Tolerance (Cold) 2 [2]. *3 points.*

High-Efficiency Kidney (TL9)

Planning to live as a drylander? You can't always depend on canteens – even the best vapor models can malfunction, forcing you to rely on stored water. So be safe rather than sorry, and conserve water the natural way, using a High-Efficiency Water-Cycle Kidney, from Colonial Genetics.

– Colonial Genetics advertisement

Never used one in the desert, but it made long road trips a lot more comfortable.

– Copernicus Jones, ***Roughing It on Mars***

Kidneys filter everything out of the blood and then selectively reabsorb those substances that your body needs, while excreting waste material into the urine. There's some waste in the cycle, though, so this modification super-concentrates urine to reclaim as much water as possible. This will cut water requirement to one-third (and similarly reduce bathroom trips).

Operation: $20,000 (six weeks to grow, two weeks recovery). LC4.

Statistics: Reduced Consumption 2 (Water Only, -50%) [2]. *2 points.*

Hyper-Lungs (TL9)

Gain the stamina of an Olympic athlete with Colonial Genetics' new Marathon-series augmented lung transplants! Specially strengthened with extra gas-exchange efficiency, human trials have demonstrated a substantial increase in breath-holding capacity and a boost to overall stamina. Perfect for outdoor sports and activities, the Marathon is the lung of choice among augmented professional lifeguards. Various models available, with wide range of custom features.

– Colonial Genetics press release

The last volume of Jane's Combat Biomods says the Marathon is standard-issue for the U.K.'s Royal Marines, with a few extra upgrades, like a filtration membrane. Now I know why Brigadier Lisa Rutherford-Hodge was so blase about smoking six packs a day. 'Course, that's nothing – I hear Navy SEALS have gills these days.

– Captain (ret.) Dana Martello, Marine Force Recon

Hyper-Lungs comes in both civilian and military ("milspec") models.

Operation: $16,000, or $26,000 if milspec (six weeks to grow, eight weeks recovery). LC4.

Statistics: Breath-Holding 1 [2], FP +2 [6]. *8 points.* Milspec hyper-lungs add Filter Lungs [5]. *13 points.*

Liver Upgrade (TL9)

The liver is a chemical factory and purification system where enzymes restructure molecules into substances useful to the body, and in which detoxification of harmful substances occurs. "Team Babylon," led by Dr. Sayyid Iqbal, is proud to announce that we have once again improved upon nature. Enjoy faster and safer metabolization with Biotech Euphrates' new liver upgrade!

– Biotech Euphrates press release

One of my best hoverjocks had a drinking problem. His own business, until he smashed up the rig and lost me six pharm goats worth sixty grand. So I said if he wanted to keep working for me and wouldn't get a rehab chip, maybe he should make an appointment with Dr. Iqbal.

– Eden Harrier, Harrier Import/Exports

Operation: $12,000 (six weeks to grow, two weeks recovery). LC4.

Statistics: Alcohol Tolerance [1] and Resistant to Ingested Poison (+8) [5]. *6 points*.

Perfume Glands (TL9)

New from body designer Lee Pong, with chemical coding by Medea Cosmetics. Perfume your bodily excretions with a neutral deodorant, or produce one of a half-dozen musks and fragrances (custom-selected when the glands are ordered).

– Noriko Hayakawa, host of ***Cyberia Beat***

The user can change between perfume or deodorant, or if desired, go back to his own, natural body odor (but an earlier choice will linger for several minutes). By changing his scent, the user can also mask his natural odor or confuse beings that rely heavily on their sense of smell for personal identification and tracking prey.

Operation: $6,000 (four weeks to grow, two days recovery). LC4.

Statistics: Racial Bonus to Sex Appeal +2 (Scent-based, -20%) [4] and Obscure 1 (Smell) [2]. *6 points.*

Skeleton Tongue (TL9)

Alters the patient's vocal cords, allowing him to precisely mimic any familiar sound. Once the user has memorized a person's voice and has had a chance to practice it, he will be able to fool voiceprint scanners.

Operation: $30,000. (four weeks to grow, four weeks recovery). The patient only requires a week of bed rest, but is Mute for the entire recovery period. LC2.

Statistics: Mimicry [10].

Spleen Augmentation (TL9)

Fresh out of Exon-Horizon's Barcelona genetics lab comes the augmented macrospleen: An integral part of the body's defense mechanisms has been further modified to produce enhanced versions of disease-fighting white blood cells! Enjoy a longer and healthier life with Exon-Horizon biotechnology.

– Exon-Horizon press release

Operation: $5,000 (three weeks to grow, four weeks recovery). LC4.

Statistics: Resistant to Disease (+8) [5]. *5 points.*

Limb Replacement Transplants (TL9)

Avatar Klusterkorp knows true belters and voidflyers agree: In zero-G, feet are dead mass. If you're a spacer who's vowed to never get sucked down a gravity well again, you owe it to yourself to replace both feet with another pair of hands! Modified joints and digitigrade morphology allow knees to double as elbows for these fully-prehensile feet, while cutting-edge neurotransmitter injections ensure trouble-free nerve connection. Reject dirt-mode vestigals for posthuman morphs now!

– Avatar Klusterkorp promotion

Gengineered arms, legs, hands or feet can be grown to replace the body's own limbs. The original limbs are surgically amputated, then modified limbs are grafted onto the stumps. If the subject intends to return the limbs to normal later on, the amputated limbs can be preserved for potential reattachment, saving the time required to grow new ones. Nanomachines and neural surgery are used to create new nerve connections that enable the modified limbs to be used.

Operation: This costs $50,000 × (TL-8), where "TL" is the minimum TL required for the gengineering. Thus, prehensile toes (TL9) would cost $50,000. Recovery time is eight weeks.

Statistics: These are based on the genemods described under Morphological Changes (p. 51). Both legs or feet can be replaced with altered limbs, and arms can be replaced with gengineered wings (see *Arms to Wings*, p. 52). The statistics and point costs are as described in Chapter 2; the genetically-engineered body parts take six weeks to grow.

Androwomb (TL10)

Michael, you know I don't believe in exowombs, and a surrogate is out of the question. Who did you think would be carrying our Dana to term? The doctor is ready.

This modifies a male or a bioroid to safely carry a transplanted embryo to term and give birth without caesarean section. It is included in a male-to-female full sex change.

Operation: $16,000 (four weeks to grow, two weeks recovery). LC4.

Statistics: 0-point feature.

Auxiliary Heart (TL10)

She's not dead, damn it! Feel that slow heartbeat on the right side of her chest? Her auxiliary heart just kicked in. It's smaller than her main heart, but it should keep her alive until we can medevac her.

– Lt. Dana Martello, Marine Force Recon, mission data log upload

Operation: $30,000 (four weeks to grow, six weeks recovery). LC4.

Statistics: No Vitals (Only to prevent first heart attack, -40%) [3]. The user will still need to seek medical treatment to repair his primary heart; until this is done, any new heart attack will have full effect. *3 points.*

Muscle Reinforcement (TL10)

You wish to enhance your strength in a manner that leaves no visible traces? You have come to the right place, mon vieux: the Clinique Rouge. Here, the finest nanobots will pleat high-strength elastic fibers into the muscles of your body, using a protein macromolecule that DuPont Orbital will release next month. Of course, we have it now. The Clinique Rouge prides itself on being the cutting edge of black medicine.

– Mme. Madeleine Rouge, the Clinique Rouge

Aussie smuggler, name of Sally Strang – maybe you've seen her? Tiny little redhead with cute braids, ex-navy hover-jock. Well, we were walking along the Tokyo waterfront, eating squid and talking biz, when 200 kilos of Kobe beef starts hassling us. Meatboy puts his paws on Sal. Bad move. She grins, lifts him up and sumoboy goes head-over-heels over the rail. Splash! Guess he hadn't heard Sally'd gone to Marseille, gotten her muscles done as well as her hair. The meatboy? Hey, you know what Tokyo Bay's like these days. The bacteria ate him.

– Eden Harrier, Harrier Import/ Exports

Operation: $8,000 per level of Enhanced Muscle (three weeks recovery). LC4.

Statistics: Select from 1 to 4 levels of Enhanced Muscle (p. 213) (or double that if you have skeletal strengthening (p. 189) [8/level]. Unlike a muscle graft (p. 172), weight and looks will not change when this process is used. Optionally, characters who gained +3 to +4 ST from muscle reinforcement (or +6 to +8 ST, with skeletal strengthening) can take the Unsupported Strength limitation (p. 215).

Neural Augmentation (TL10)

Do you want to move faster than a jackrabbit on amphetamines? We at Kerensky Labs recommend our Max-9 neural augmentation process, which fuses adjacent nerve cells together to improve the diffusion of neurotransmitters across synaptic junctions and enhance nerve impulse transmission speed. To ensure optimum performance, we recommend periodic use of the neurotransmitter hormone PK-28N (Pink Noise).

– Kerensky Labs advertisement

They aren't kidding. Crank yourself up with the old Max-9 and you move so fast your brain can't handle it without some kind of help. I was partnered with this 'Maxed-out Russkie panzerbabe, name of Leona. Greased lightning – or so I thought, until one day when she tripped in a fire fight and shot her foot off. Turned out she'd run out of Pink Noise the day before.

– Streethawk, alt.bio.upgrade.samurai

Operation: $110,000 (two weeks recovery). LC3.

Statistics: Basic Speed +3.00 [60] and Total Klutz (Mitigator, weekly dose of PK-28N, -65%) [-5]. *55 points*. Each dose costs $200. The Basic Speed increase is cumulative with other sources of this advantage, with the exception of cybernetics that replaces the organic nervous system with electronic systems. A user can eventually get used to the Basic Speed increase and buy off the Klutz disadvantage using earned points.

Pheromone Glands (TL10-11)

When Colonel Chang enters the room, all heads turn to look at her, and we hang on her every word. It isn't just her fine aristocratic features, or the black and silver uniform of Special Projects. It's something else, a natural air of command, even of awe, that she projects to all those around her.

– Ensign Chun Yuan, war diary

The Overlord-series super-pheromone gland has performed admirably in all test subjects, releasing controlled amounts of synthetic pheromones via the sweat glands. These are tailored to induce states in human or near-human metabolisms that correlate not merely with attraction, as in early pheromone gland designs, but also dominance and awe. Obvious applications are in intelligence-gathering operations and command and control.

– Dr. Tse Chang, Special Projects Division

These glands can produce a chemical cloud powerful enough to induce a mind-altering emotional effect upon anyone nearby.

Operation: $25,000 (four weeks to grow, one week recovery). A combination of pheromone types are possible; $10,000 per extra type. LC2.

Statistics: Trust Hormones (p. 48) [29], or Sex Pheromones (p. 48) [28], or Xeno-Pheromones [2]. Most pheromones are available at TL10. At TL11, Dominance Pheromones (p. 48) [15] are available. *Variable cost.*

What a piece of work is a man!

– William Shakespeare, ***Hamlet***

Thin Atmosphere Lungs (TL10)

This genemod lung and support organ transplant gives the user the ability to breathe *Thin* atmospheres without suffering any of the adverse effects listed on p. B429, provided the atmosphere contains at least 20% oxygen. Unfortunately, it makes the user uncomfortable in normal atmospheres. At TL11, further modifications provide the ability without sacrificing comfort at normal pressures.

Operation: $14,000 (five weeks to grow, seven weeks recovery). LC4.

Statistics: Treat very thin atmospheres as thin, thin as standard, standard as dense, and dense as very dense. *0 points.*

Sensa-Skin Grafts (TL11)

Sensa-skin is artificial, vat-grown living tissue with an affinity for living flesh. Sensa-skin placed in extended contact with flesh will actually grow into it over time. Sensa-skin makes biomod transplants simpler and safer, due to its unique ability to bond with living flesh.

The effects of Altered Appearance (p. 169), Altered Bulk (only to gain in bulk; p. 170), Extreme Sexual Dimorphism (p. 170), Sex Change (Gender Reassignment or Superficial; p. 170), Skin Transformation Virus (p. 172), and Xenosculpting (p. 172) can all be produced through sensa-skin at TL11+. Treat these as normal surgical or transplant procedures, except that there is no "surgery" as such – the sensa-skin is simply carefully attached. There is no need to wait to grow transplants, no chance of rejection and no recovery time. The application time for a pre-designed sensa-skin graft is one hour for every week that a normal transplant or surgery would require to recover from. All sensa-skin grafts can be removed without surgery up to HT × 3 hours after the operation takes place, using the same procedure; after that they are permanently attached and would require surgery to remove.

Polykeratin Grafts

Polykeratin is a form of synthetic, vat-grown, biomimetic bone, cartilage or muscle tissue, based on sensa-skin and advanced memory bioplastic technology. Sometimes described as "memory tissue," polykeratin cells can "remember" a second shape, and switch between shapes upon receiving certain muscular signals (which depend on the graft). Polykeratin implants permit a limited form of flesh-morphing – an individual with one will have the ability to alter a particular body part between two specific, different forms.

Polykeratin grafts are treated as surgery. They have no chance of rejection, but (unlike sensa-skin) are not removable without surgery.

Arm Blade (TL10)

Macrotech Biocybernetics' weapons division is proud to announce the arrival of our latest polykeratin combat implant! Clench your fist while extending your index finger, and your forearm morphs into a lethal, serrated fighting blade! Perfect for situations where guns are illegal, but a blade is too inconvenient or obvious to carry.

– Macrotech advertisement

Operation: This is a single arm replacement transplant. $45,000 (four weeks to grow, eight weeks recovery). LC3.

Statistics: Striker (Cutting; Long, +1 SM, +100%; Switchable, +10%; Temporary Disadvantage, One Hand, -15%) [14]. *14 points.*

Battle Jaw (TL10)

You can't take any weapons into Darkside Arcology – their security is too good. But we can transform you into a weapon, agent Yukio. We'll replace your jaw with a polykeratin graft. Bite your tongue and grin – that signals the implant. Your jaw and face will morph into a battle jaw that you can extend out like an egg-eating snake. This should impress those downsiders and give you an inroad with the Cthulhugangs.

– Dr. Mara Omokage, Omokage Labs

Operation: $22,000 (two weeks to grow, three weeks recovery). LC3.

Statistics: Striker (Impaling; Cannot Parry, -40%; Long, +1 SM, +100%; Switchable, +10%; Temporary Disadvantage, Appearance (Monstrous), -20%; Temporary Disadvantage, Cannot Speak, -15%) [11]. *11 points.*

Polykeratin Disguise (TL10)

Connective tissue throughout your body, and particularly your face, stomach and chest, has been partially replaced by multiple polykeratin grafts and sub-dermal inflatable pouches. With the proper exercises and biofeedback regime, these will enable you to vary your apparent shape and bulk, and hold this appearance for a short period of time. Additional modifications to your spinal discs allow voluntary compression for a 5% decrease or 2% increase in height. The polykeratin implants have been supplemented by chameleon-like responsive chromatophores in all surface tissues, which can slowly alter pigmentation, while your altered hair cells can stiffen or lie flat, varying apparent length.

– Dr. Mara Omokage, Omokage Labs

So, basically, I can look like someone else. But not for very long.

– Agent Yukio

Operation: This is treated as surgery. $200,000 (eight weeks recovery) for TL10 type, twice the cost for TL11. LC3.

Statistics: Elastic Skin (Costs Fatigue, 1 FP, -5%,) [19]. At TL11+, Elastic Skin [20] that can hold a shape indefinitely is possible. *19 or 20 points.*

Quadragraft (TL10)

Macrotech Biocybernetics is happy to present the next in its series of polykeratin implants. Designed for the colonial and street markets, our transplant techs will replace your arms and legs with patented polykeratin limb grafts. When triggered, your legs become digitigrade, and your hands transform into walking paws. Why walk the dog when you can run with him? Perfect for high-speed scouting and wilderness fun. Enjoy posthuman thrills with Macrotech Polykeratin!

– Macrotech advertisement

My last Earthside hunt was for the killer of two of our missionaries, who had been torn apart. I suspected a psycho killer, but I must say I was caught by surprise when my apparently human quarry transformed into a four-legged werebeast. It was an interesting fight. After I analyzed the remains, it turned out he had also had a polykeratin battle jaw and some of that high biotech fur. It's amazing the kind of contraband that gets through our blockade.

– Tisephone Logos, >warangel>heavenweb>solnet

Operation: $65,000 (four weeks to grow, eight weeks recovery). This includes four replacement limb transplants. LC4.

Statistics: Enhanced Move 1 (Ground; Switchable, +10%; Temporary Disadvantage, Quadruped, -35%) [15]. *15 points.*

Xenotransplants

Like medical xenotransplants (p. 141), these use tissue from animals, either from a live animal or engineered from cell animal cultures. If xenotransplants are common, some facilities may have these transplants "in stock," so no growth time would be required.

Cat's Eye Transplant (TL9)

It's cheaper and snazzier than a cybernetic eye, although it does look a bit obvious, especially in dim light when it glitters. 'Course, it can't be upgraded.

– Streethawk, alt.bio.upgrade.samurai

Operation: $5,000 per eye (six weeks to grow, eight weeks recovery). Only a week of bed rest is needed, but the user will be blind in the transplanted eye until the full time has elapsed. LC4.

Statistics: Night Vision 1-3 [1-3]. A set of feline eye transplants may count as a Distinctive or Unnatural Feature [-1]. There is a -2 to Vision rolls unless both eyes are modified.

Xenostriker Grafts (TL9)

My kid sister runs with the Unicorns, a gang of biopunks and genehackers down at the Cloisters. Vicious in a rumble, but real twisted – who else would be crazy enough to clone up narwhal fetuses and transplant the tusk buds into their foreheads?

– Streethawk, alt.bio.upgrade.samurai

Operation: Costs $5,000 × (TL-8), where "TL" is the minimum TL required for gengineering the same advantage (six weeks to grow, three weeks recovery). LC3.

Statistics: Select any natural weapon except a bioelectric organ from the *Transgenic Natural Weapons* section of the *Cosmetic and Minor Transgenic Modifications* table (p. 46). To make any obvious trait (e.g., talons) retractable, add the Switchable enhancement (+10%, p. 214). Otherwise, they may count as -1 or -2 point Distinctive or Unnatural Features if exotic biomods are uncommon. Before the operation, the claws, talons, horn buds, or tooth buds must be acquired.

Tail Grafts (TL10)

I'm always excited by Lee Pong's creations, but this time he's outdone himself: The Novabody fall collection is stunning in its simplicity, and getting transrock diva Lyla Feng to model was a stroke of genius! Isn't her new tail just darling?

– Noriko Hayakawa, host of ***Cyberia Beat***

Operation: This costs $25,000 × (TL-8), where "TL" is the minimum TL required for gengineering that type of tail. Thus, a prehensile tail (TL10) would cost $50,000. All tails take three weeks to grow before the transplant. Recovery time is four weeks for prehensile or scorpion tails, two weeks for ordinary tails. Tails are LC4, except for scorpion tails, which are LC3.

Statistics: Any of the tail types described under Gengineered Tails (p. 51) can be vat-grown and then transplanted. If biomods of this sort are unusual, a tail may also qualify as Distinctive Features or Unnatural Features.

Winged Retromorphosis (TL10)

Replaces arms with a functional pair of biogenetically grown feathered or batlike wings, and grafts additional muscles into the shoulders to power them. The wing bones arch well above the head to allow normal walking. The wings are not powerful enough to fly with under normal Earth gravity, but can be used in low-G environments.

Operation: $30,000 (eight weeks to grow, four weeks recovery). LC2.

Statistics: Flight (Requires Low Gravity, 0.5 G, -25%; Winged, -25%) [20]. See *Accessibility* (p. 215) for the low gravity limitation. *20 points.* The wings are assumed to have handlike manipulators by default; if they are more clumsy add No Fine Manipulators [-30].

Tentacle Transplant (TL11)

Okay, it's a gene-altered transplant. What I want to know is, what kind of thing did they transplant it from? I mean, does that black clinic have a basement with some sort of stunted octopoid/human hybrid floating in a growth tank?

– Streethawk, alt.bio.upgrade.samurai

Hai. Some of our customers have unique tastes.

– Mara Omokage, alt.bio.upgrade.samurai

Operation: $50,000 per arm replaced by a tentacle (six weeks to grow, eight weeks recovery). LC3.

Statistics: Tentacles can replace one or both arms. This is Extra-Flexible [5] per arm (see p. B53).

Neuromods

Surgical modifications to the brain and central nervous system may be performed for non-therapeutic reasons, either to enhance the way the brain functions or, more commonly, as a form of behavior modification. If neurosurgery is performed on someone with the Compartmentalized Mind advantage, the GM should decide whether it will only affect one "compartment" or the entire mind. In general, a neurosurgeon who is unaware of the subject's ability will only be able to affect one of the compartments.

Cybernetic neuromods (brain implants) are described in ***GURPS Ultra-Tech***.

Prefrontal Lobotomy (TL6)

Doctor, what are you doing with that ice pick?

This radical and controversial procedure involves damaging the prefrontal lobe of the brain, an area that generates certain aggressive tendencies. Some types of mental illness may be cured, but at the result of brain damage and personality destruction.

Operation: $500 (one week recovery). LC2.

Statistics: Will usually eliminate aggressive mental disadvantages, including Bad Temper, Berserk, Bloodlust, Bully, Compulsive Behavior, Curious, Greed, Fanaticism, Impulsiveness, Megalomania, Obsession, On the Edge, Paranoia, and Stubbornness. (Note that Callous is not removed, and may occasionally even result from the lobotomy). The cost is severe: at least -2 IQ [-40], -1 Will [-5], Hidebound [-5], along with the removal of the Daredevil and High Purpose advantages (if possessed). Talents will often also disappear, and many other personality-related mental traits, e.g., Trademark or mental quirks, will vanish.

Killjoy (TL9)

Don't worry, you won't feel anything . . .

This procedure burns out or removes the brain's pleasure center, usually via microsurgery.

Operation: $8,000 (four days recovery). LC2.

Statistics: Someone who undergoes a Killjoy should replace any disadvantages that drive him to seek physical pleasure (e.g., Compulsive Carousing, Lecherousness) with the Killjoy disadvantage [-15], and pay off any point difference.

Brain Tissue Graft (TL9)

Dr. Sergei Volk, he of the bulging brain? Yeah, he ***is*** *a bit weird. Not his fault. They locked him up in an institution in Dushanbe. We busted him out, but he couldn't tie his own shoelaces without a map - they'd lobotomized him. So we got him a brain tissue graft. Now he's a genius again . . .*

– Streethawk, alt.bio.upgrade.samurai.livechat

Extra brain tissue is grafted onto the frontal lobes to increase the brain's surface area. The skull is surgically enlarged to accommodate the additional gray matter. Exhaustive brain monitoring and therapy are used to ensure the smooth integration of the brain tissue into the cerebrum and prevent the impairment of existing cognitive functions.

Operation: $20,000 (two weeks recovery). Even generic brain tissue grafts won't be attacked by the immune system (due to the blood-brain barrier). However, the difficulty of assimilating new brain matter means *de facto* rejection is possible – make a HT-1 roll to avoid it (HT+2 if using fetal brain tissue), with failure resulting in -1 IQ times the margin of failure. Critical failure causes death within 1d days. LC3.

Statistics: Adds +1-2 to IQ [20-40]. The bulging forehead is an Unnatural Feature [-1]. If the brain tissue was a transplant from a person (as opposed to vat-grown tissue), there's a 1-in-6 chance that a few "memories" of the original donor may survive. This is reflected by giving the recipient 1d points worth of the donor's skills, plus the Flashbacks disadvantage.

Hotshotting (TL9)

Your daughter is having trouble with her mathematics program? She spends all her time in parties, with her boyfriend or living sensies? Perfectly understandable. These activities are more pleasurable to her, you see. But we at the Clinique Rouge can repair that for you. We will simply rewire her pleasure center to that part of her brain that governs mathematical and analytical activity. As long as your daughter is working on such problems, she will be excited, even aroused, as if she were with a lover, or eating chocolate. Sign this consent form, and our operatives will pick her up after school.

– Mme. Madeleine Rouge, the Clinique Rouge

> *I not only think that we will tamper with Mother Nature, I think Mother wants us to.*
>
> *– Willard Gaylin*

This is a specialized form of psychosurgery. You can get hotshots for almost anything: cooking, washing dishes, sports, fighting, even netrunning. They monitor you and find the deep structures laid down in the brain as you do things. The result's the ultimate in positive reinforcement. Existing reinforcers like sex or eating can be hotshotted to make them even more pleasurable, too. Heck, half the hookers on the strip are sex hotshots, so their pimps don't even have to buy 'em drugs. I've heard some korps will pay an employee a bonus if he agrees to the procedure. Yep, hotshotting makes you happy, eager, and more productive. It also makes you less human.

– Professor C. Eric Gideon, sci.bio.posthuman.rant

Operation: $10,000 (one day recovery). LC3.

Statistics: The user is addicted to the endorphins produced in the brain when the hotshot activity is performed. To get his daily fix, hemust spend at least two hours on the activity. He also becomes Single-Minded while doing so (+3 to skill if concentration is required). Missing the hotshotted activity causes withdrawal. This is usually Compulsive Behavior, but other disadvantages may be appropriate: Bad Temper (if hotshotted toward combat activity), Lecherousness (if a sex hotshot) or Workaholic (if the hotshot is related to his job). A hotshot may also have tertiary effects, at the GM's discretion. Within months of hotshotting, some personalities may eat less (losing any Fat or Overweight disadvantages and eventually becoming Skinny), neglect grooming (lowering Appearance) or talk of nothing but their hotshotted activity (Odious Personal Habit).

Myelin Replacement (TL9)

This procedure replaces the fatty myelin sheath around neurons in the brain with an inert organic substitute. It provides immunity to the adverse neurological effects of breathing high-pressure gases, such as nitrogen narcosis and high-pressure nervous syndrome. This is a common biomod for divers and explorers of dense atmosphere worlds.

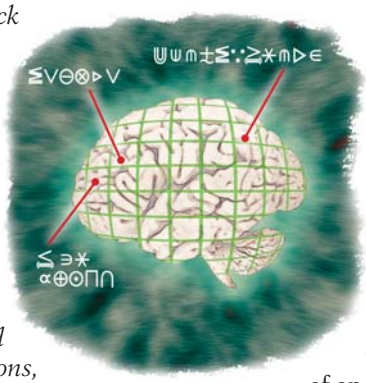
Operation: $5,000 (one week recovery). LC4.

Statistics: Immunity to High-Pressure Gases [5]. *5 points.*

Psychosurgery ("Nanotherapy") (TL10)

Prison? Don't be a fool. In our country, we don't have political prisoners, just sick people who need to be cured. Now lie down here and we'll hook you up to the holographic brainscan. I'll ask you a series of questions. Won't talk? Don't worry. We can measure your neurological responses, and we'll know exactly which area of the brain to . . . Hold him, nurse! No, I'm not going to "cut" your brain. We once used laser or meson beam cauterization, but we've progressed far beyond that. I'll inject cellular microsurgeons, which will operate on certain areas of your brain. Your fanatical obsessions will be cured for good. You'll become a normal, productive citizen. It's quite painless, and you won't feel a thing. Never, ever again.

– Dr. Tse Chang, transcript of psychosurgery session



This uses precisely focused HyMRI fields in conjunction with cellular microsurgeons to selectively obliterate or connect tiny parts of the brain. Before psychosurgery can take place, successful persona mapping is required.

Operation: $1,000 times point change (one day recovery), minimum $10,000.

Statistics: Psychosurgery can destroy most mental advantages (e.g., Charisma or Intuition) and any mental disadvantage that is not self-imposed. It can give someone disadvantages that represent loss of a mental faculty (e.g., Amnesia or No Sense of Humor). It can cure a mental disadvantage that does not represent such a lack; thus, it could "cure" a Delusion but not Amnesia. A cure must be balanced by adding a new disadvantage representing a lack of faculties (or removing an existing advantage) whose point total is worth at least half as much as the disadvantage cured. Thus, you could burn Bad Temper (12) [-10] out of someone's brain, but leave him Confused (15) [-5].

Sleepless (TL10)

With a combination of neural modifications and encapsulated cell implants (p. 120), this procedure provides biochemical stimulants that reduce the desire for sleep as well as neurological changes allowing the brain to function effectively with less "down time."

Operation: $40,000 (six weeks recovery). LC2.

Statistics: TL10 version: Less Sleep 4 [8]. TL11 version: Doesn't Sleep [20].

Wetware Sub-Personality (TL11)

People say I'm too careful, too honest, too soft. I admit I hate the sight of blood, and I'd rather err on the side of caution. So? It makes me human. But this was too important. The ELF had the Lucifer Plague, and there were only two days left before their deadline. So before I led my team in, I had the GRA labs give me a new wetware sub-persona: the Executioner.

– Tatiana Belenko, Genetic Regulatory Agency

A development of procedures to treat multiple personality disorder, this uses neurosurgical and RNA viral techniques to construct a subpersonality – or "inner daemon" – in the user's mind. Unlike a Split Personality, this is under his conscious control. Each daemon is, in effect, a *mental* Alternate Form, with its own set of attitudes and mannerisms, but each also shares the original's skills, memories and overall goals. Also, shifting to a new personality will fool psychological profilers, polygraphs, and brainscans that were designed to catch or predict the actions of an earlier personality.

Operation: $4,000 times the point cost of the Alternate Form. Minimum cost is $20,000 (one day recovery). LC4, or possibly lower if the daemon is dangerous or antisocial.

Statistics: Create each sub-persona as an Alternate Form (p. B83) in which the new racial template is the same as your existing racial template – *plus* a set of new mental advantages and mental disadvantages. You may also specify that the Alternate Form *negates* a number of mental disadvantages you already have; these cost the same as buying off the disadvantage, e.g., Negates Pacifism (Cannot Kill) costs 15 points.

Example: Tatiana Belenko is a human (so her racial template is worth no points). She has a number of mental disadvantages and quirks, including Careful, Honesty, and Squeamish. To remove those "flaws" she can activate her "Executioner" Inner Daemon Alternate Form, whose template consists of Combat Reflexes [15], Fearlessness +3 [6], Negated Careful [1], Negated Honesty (15) [5], Negated Squeamish (12) [10] and the disadvantages Bloodlust (-15) [-5], Callous [-5], No Sense of Humor [-10], for a total of 17 points. Her Alternate Form costs her 31 points (15 points + 90% of 17 points).

Genetic Surgery Biomods

Genetic surgery (p. 14) may be performed on a fetus, child, or adult to repair defective genes or insert new ones. Genetic surgery cannot produce gross anatomical changes, but it may have subtle effects. For instance, it may alter the way a certain hormone is produced, with a marked effect on the recipient's behavior. At TL8, genetic surgery is usually used to replace defective or missing DNA sequences, repairing genes so that they can produce whatever missing enzymes or proteins caused a genetic disease. At TL9+, non-therapeutic genetic surgery techniques may be developed.

One technique used is the cell transplant. Cells are removed from the appropriate organ of the patient (e.g., bone marrow cells, if trying to modify how blood is produced). Gengineering techniques – usually tailored RNA viruses – are then used to introduce new genes into them, as described above. These altered cells are reintroduced into the patient, where they will hopefully thrive and replicate.

At TL8, the subject is given drugs to help his body accept the new cells (see *Rejection and Immunosuppression,* p. 141, for the effects). At TL9+, cell implants are encapsulated in a specialized membrane that masks them from the immune system until they have become safely integrated into the body, while still allowing proteins to pass through – the advantage being that no immunosuppression treatments are needed. In some cases, the controlled release of cells is orchestrated by biochips (p. 109).

In some cases, removing cells may not be necessary, and a modified RNA virus can simply be injected into the patient. This depends on how specific a change needs to be made, and how confident the genetic surgeons are in their ability to target the specific cells they want to alter.

Enhancements or therapies may be made hereditary if the modifications take the form of implanted artificial chromosomes (see p. 12). This is not difficult (it was achieved with mice in 1999). Such chromosomes can be passed on to offspring, but may cause birth defects unless both parents possess the extra chromosome. The problem is that as soon as any descendants breed with baseline individuals, the new chromosomes risk causing genetic defects. If the carrier of a genetic disease is treated by adding a new chromosome to mitigate or eliminate its effects, rather than by modifying the genes that cause the disease itself, that carrier may be unable to have children naturally without this risk.

Genetic surgery processes have a listed cost and time. The required time is spent in a hospital facility. During this period, genetic surgeons are taking cell samples, running tests, performing the actual RNA injections or cell transplants (often a series of them), waiting for modified cells to replicate, observing the results, and taking any necessary corrective measures. The patient will be confined to bed (often with diagnostic sensors attached), but conscious most of the time.

So what can you do with genetic surgery? Some of the many possible applications are described below.

Gene Therapy (TL8)

If someone is born with faulty or missing genes, his body may lack the capability to make enzymes or other proteins that it needs. Depending on which genes are missing, this deficiency may cause a hereditary metabolic disease, such as cystic fibrosis or hemophilia. There are almost 3,000 such genetic disorders.

In fact, most humans and other animals carry a few defective genes. However, humans and similar higher animals have two duplicate sets of almost every chromosome and the genes they carry, one from each parent. (The exception in humans is the male "Y" chromosome; as a result, men are more vulnerable to "sex-linked" disorders.) Even so, genetic disorders affect as much as 10% of the human population, although the effects of some do not manifest until quite late in life.

Until the late 20th century (TL8), the symptoms of genetic disorders could be treated, but the disorders themselves could not be cured. Thanks to genetic surgery, it becomes possible to remove the root cause of a genetic disease using cell transplants (above). Even so, a basic limitation on gene therapy is the need to know exactly which genes code for which enzymes or proteins, and how they relate to the body's functioning. While considerable progress has been made in cases involving a single gene, multiple genetic interactions are often involved. As human genome mapping progresses (through TL8), more complex genetic therapy procedures will become possible.

Operation: $1,000 per point of disadvantage cured (two weeks recovery), e.g., a hereditary disadvantage worth -10 points would cost $10,000 and take two weeks to cure. LC3.

Statistics: Gene therapy can remove certain disadvantages, if they result from hereditary conditions. By mid-TL8, this includes some forms of Hemophilia, Neurological Disorder, Susceptible to Disease, and Terminally Ill. In addition, if applied to a fetus or baby, early gene therapy may be able to prevent any hereditary problems that cause disadvantages like Gigantism, Bad Sight, Colorblindness, Dwarfism, Dyslexia, and No Sense of Smell/Taste. At some point during TL9, gene therapy may be able to cure inherited learning or behavioral disorders that are linked to particular genes. Where these disadvantages have a genetic cause, they can be removed: disadvantages such as Cannot Learn, Chronic Depression, Gluttony, Manic-Depressive, Non-Iconographic, Paranoia, and Short Attention Span might be especially susceptible.

Emotional Regulator (TL9)

Get into too many bar fights? Suffer from poor impulse control? Then you're the kind of personality that can use a Jen-Goku Rage Damper! Unlike cruder systems, this bio-implant doesn't prevent you from feeling emotions. Instead, this cluster of biochip-regulated cells is capable of sensing hormones and follows them up with tailored enzymes that cut them off at the pass.

– Jen-Goku Corporation advertisement

Joji 'Madboy' Saiko got one of these cell transplants after his last assault conviction. Was it a court order? Not this time. The Oyabun's decision. The Russki-Yakuza don't admire a man with no self-control. Besides, Jo had run out of little fingers.

– Eden Harrier, Harrier Import/Exports

Operation: $4,000 (four days recovery, although it takes effect within one day). LC3.

Statistics: Hormonal dampers can justify increasing the self-control number or buying off Bad Temper, Berserk, or Lecherousness. The point cost is equal to the cost of increasing the self-control number or buying off the disadvantage.

Bone Marrow Upgrades (TL9)

When I completed boot camp, the fun began. After they finished growing the new muscles, the doctors implanted modified cells into my bone marrow, altering it to manufacture erythrocytes with boosted oxygen-transport capacity. Of course, then they had to do a bit of tinkering with my gastrointestinal tract to make sure I got enough iron from our diet to keep my bone marrow happy . . .

– Captain (ret). Dana Martello, Marine Force Recon

Bone marrow cells may be modified to produce genginneered blood cells with improved capabilities. Two main procedures are available:

Enhanced Erythrocytes: The bone marrow is modified so that the red blood cells it produces possess hemoglobin with greater oxygen transport capacity.

Enhanced Thrombocytes: Blood platelets are redesigned for superior wound-clotting ability.

Enhanced White Blood Cells: Modified to produce enhanced versions of disease-fighting cells.

Macromarrow: Modified to produce all three upgrades.

In each procedure, care is taken to ensure that the modified marrow is "smart" enough to adjust cell production so that complications like excessive clotting and other disorders do not occur.

Operation: Enhanced erythrocytes are $12,000; enhanced thrombocytes are $30,000; enhanced white blood cells are $10,000. Macromarrow is $52,000; all require one week recovery. LC3.

Statistics: Enhanced erythrocytes give +2 FP [6]. Enhanced thrombocytes give Very Rapid Healing [15]. Enhanced white blood cells give Resistant to Disease (+8) [5]. Macromarrow combines all these traits; *26 points.*

Metabolic Reset (TL9)

Back in prehistoric times, people used liposuction and surgery to remove fat, or took pills to suppress their appetites. No, really! And afterwards, they often went right back and regained what they lost. Today, we know what genes make your body want to be a certain weight, and how to make RNA injections to change them.

– Noriko Hayakawa, "Fun Ways to Change Weight," ***Cyberia Beat***

Operation: $4,000. The reset operation itself requires four days recovery, but losing (or gaining) weight takes the time discussed below. LC4.

Statistics: Build-related disadvantages can be altered up or down one or more steps: Very Fat [-5] to Fat [-3], to Overweight [-1], to normal, to Skinny [-5] or vice versa. Adjust weight in pounds accordingly. Lose or gain one step every three weeks until the chosen stage is reached. Reduce it to two weeks if the subject works with the virus via diet and exercise (or lack thereof); double the time if he tries to fight it!

Cancer Elimination (TL9)

Resetting the genes in cancer cells can make them behave like normal cells, with controlled division and eventually cell death. This means a tumor will naturally be destroyed and safely absorbed by the body.

Operation: $50,000 (one week recovery). LC4.

Statistics: Cures cancer (which may be represented by Terminally Ill). See Terminally Ill (p. B158) for the consequences of receiving a "miracle cure."

Radiation Damage Repair (TL9)

Radiation damage to cells can result in tumors or widespread failure of bodily systems. Resetting the cells effectively heals the damage to the DNA caused by radiation. This procedure also incidentally destroys cancerous tumors. The process is longer and more complicated than cancer elimination, as many more cells are affected and reconstructing the original DNA requires comparative lab work rather than simply taking a single cell sample.

Operation: $80,000 (two weeks reccovery). LC4.

Statistics: Resets accumulated radiation dose to 0 rads. At the GM's option, 1d rads may remain that cannot be healed.

Mutation Repair (TL9)

When cells divide, the DNA replication process reduces the length of the chromosome telomeres and can introduce random mutations into the daughter cells. Over time, these changes build up and lead to cellular senescence (see *The Genetics of Aging*, p. 183). Comparing the divergent genetic sequences of several cells will allow the patient's original genome to be calculated, and gene therapy to be targeted to reverse any mutations, as well as attaching new telomere sequences. This is part of the necessary treatment to fully

reverse the effects of aging, but not in itself a complete "potion of youth" – it does not restore neural functions.

Operation: $100,000 (two weeks recovery). LC4.

Statistics: Resets an adult patient's cellular age to the age of maturity (e.g., 18 for a human). This immediately restores any IQ or HT points lost to aging rolls (p. B444). ST and DX lost to aging may also be restored; this requires four weeks of exercise and physiotherapy (p. 132) per point regained. Secondary characteristics, skills, and techniques based on the attribute recover as well, with the exception of IQ-based skills and techniques. This represents irreversible loss of experience and memory, which simple structural repairs can not erase. Adjust point cost accordingly.

Corrective Gamete Production (TL9)

Prospective parents with genetic defects may be unwilling to have children, knowing that they will inherit those genes and potentially debilitating conditions. Genetic surgery on the gonads can make sure the gametes carry a normal copy of the defective gene instead. This is straightforward on males, since sperm are continually produced by the testicles and can inherit the corrected gene. For females, existing ova in the ovaries must be treated or destroyed, increasing cost.

Operation: For a male: $25,000; for females, $35,000; (four days recovery). LC4.

Statistics: Any future children will not inherit the corrected genetic defects.

Genetic Vaccination (TL9)

Some people have genes that make them naturally immune or resistant to some diseases. When introduced to other people, these genes provide them with the same protection. At TL10, it will also be possible to design new genes to provide immunity to specific diseases. A complete program of genetic vaccination is an alternative to nanosymbiont panimmunity (p. 164), and may be available earlier depending on relative technological development.

Operation: $7,500 (four days recovery). LC4.

Statistics: Immune to (Specific Disease) [1]. This is a 1-point perk for a group of closely-related diseases, e.g., "known flu viruses" or "hemorrhagic fevers." A *single* disease may be a 0-point feature instead of a perk.

Angiogenesis (TL9)

This is the growth of new blood vessels, used to strengthen blood supply to muscles – particularly the heart – either to prevent or recover from a heart attack. Reactivating the genes that cause blood vessels to grow results in better oxygenation of the muscles.

Operation: $25,000 (four days recovery). LC4.

Statistics: Can cure a patient Terminally Ill with heart disease. See Terminally Ill (p. B158) for the consequences of receiving a "miracle cure." Can also give a healthy patient Fit [5], or improve Fit to Very Fit [15]. This improvement can only occur once.

The Genetics of Aging

Genetic surgery may be used to deal with aging. Among other factors that cause an organism to age, there are at least two distinct genetic causes.

DNA Damage

DNA can be damaged by radiation, chemicals, or errors introduced during replication. Cells contain mechanisms to detect and repair this damage, but over time the errors occur faster than they can be fixed. Eventually, the DNA can become so damaged that it no longer functions properly. Cells that inherit such DNA become senescent (unable to divide), and eventually die without producing new cells. If the senescence mechanism breaks, the cells grow into a cancer. Degradation of DNA in the mitochondria is also suspected to be a significant cause of aging effects.

Gene therapy could be used to improve the correction of these errors, postponing cell death and some of the effects of old age.

Telomere Length

Telomeres are repetitive DNA sequences up to 20,000 base pairs long on the ends of chromosomes. They serve as caps to prevent the loss of genetic data during DNA replication, and are necessary because every time a DNA strand is copied, the DNA polymerase reaction stops a few hundred bases before reaching the ends. Without telomeres to pad the protein-encoding bases, meaningful data would be lost.

Over time, the telomere chain shortens, and may eventually vanish. At this point, the cell detects DNA damage and becomes senescent. Since it cannot repair this damage, it will eventually undergo apoptosis. As an organism grows older, more and more cells throughout its body suffer this fate, organs begin to fail at an increasing rate, and the organism eventually succumbs to age.

Preventing or reversing the loss of telomeres is likely to be an important part of staving off the effects of old age. This could be achieved with genetic surgery or proteus viruses, to regulate the enzyme telomerase in adult cells. Telomerase exists naturally in gametes, and acts there to extend the telomere chain, ensuring offspring inherit DNA with sufficient telomeres to live a full life. In adult cells, it needs to be produced and then controlled carefully to avoid producing immortal cancerous cells!

Alternate Gamete Production (TL10)

Not content with correcting possible genetic defects (see *Corrective Gamete Production,* p. 183), some parents want to give birth to designer genetic upgrades. This treatment modifies the gametes to produce genetically upgraded sperm or ova, allowing them to produce upgraded children. At TL11 gametes can produce sperm or ova of different *species*: parahumans, nonhuman animals, or even more bizarre options.

Operation: For males, $25,000; for females $35,000; in either case, add the cost of genetic engineering the species model. At double cost, males can be modified to produce *two* different species. one week recovery. LC4.

Statistics: Any future children will inherit the new designer genome.

Body Part Regrowth (TL10)

By reactivating the growth genes for a missing body part, gene therapists encourage the regrowth of the part directly on the body, without transplant surgery. As with tissue engineering, this is easiest for cosmetic tissue such as ears and noses (TL10), followed by small parts like digits and genitals (late TL10), and ultimately entire limbs (TL11). Small parts take four weeks to grow, limbs up to eight months. After the first week this time does not need to be spent in a medical facility; regular checkups 2-3 times a week suffice.

Operation: For a small part: $50,000. For a limb: $100,000. Recovery time as described above. LC4.

Statistics: Regenerates the missing body part. This will often remove a physical disadvantage.

Proteus Nanovirus

Don't want to spend a couple of weeks making a pilgrimage to some super-clinic to undergo genetic surgery? At TL10, proteus viruses become available. These "paraviruses" allow a form of genetic surgery through a single injection, with no fuss, lab tests or surgical cell transplants. On the other hand, because the virus hasn't been specially tailored, it may not always work!

Proteus nanoviruses, which are also used in germline gengineering at TL10+, are specialized bio-nanomachines, capable of being programmed to perform complex tasks. This includes rapidly replicating throughout the body, replacing entire cell nuclei, completely resequencing DNA and stimulating the rapid growth of newly-modified cells.

An almost infinite variety of proteus viruses exists. At TL10-11, a proteus virus can perform relatively "soft" changes, whose effects will be seen in altered skin cells or blood cells, modified neurochemistry and so on. At TL12, an extremely sophisticated kind of proteus virus, called a metamorphosis virus, can produce actual changes in the body's anatomy.

A proteus nanovirus takes 1d×5 minutes to multiply. There is a chance that the recipient's immune system may fight it off. This occurs on a HT-6 roll. If the roll is successful, nothing happens. Contact with the bodily fluids of someone who is being altered by a proteus virus may also cause infection (HT-3 to avoid). In both cases, bonuses for Resistant to Disease or Resistant to Metabolic Hazards apply. If the HT roll fails, the virus begins resequencing the subject's DNA and altering his body.

Each proteus virus has a cost and a time required. This time is the number of days it takes the virus to replicate throughout the body and finish its work; there is no "operation" – one merely takes a pill or receives an injection. Unless using a metamorphosis virus, no rest is required – the nanovirus performs the work quietly and without fuss.

Various customized forms of proteus virus are also possible, such as a nanovirus that spreads like a plague or which is specifically designed to affect a particular person (which means that his immune system has less chance to resist it). See *Proteus Virus Options,* p. 190.

Growing Nanovirus

A proteus virus designed to produce a particular biomod (or a set of nano-symbionts – see p. 164) can be "home grown" rather than purchased. This requires a genetics lab (p. 16) of a TL equal to or greater than that of the biomod or symbiont the nano are being designed to produce.

The proteus virus will cost about 50% of the listed cost if the characters are paying for commercial blueprints, or 25% of the cost if they are reverse-engineering someone else's virus. It takes about one hour per $1,000 the nano normally costs.

This requires a successful skill roll against the lowest of Biology (Biochemistry), Computer Programming and Bioengineering (Genetic Engineering) skills, although members of a team can contribute one skill each. Apply any modifiers for lab quality, plus -1 if the nanovirus would cost $1,000, -2 if $2,000, -3 if $4,000, -4 if $8,000 and so on. Failing the roll to build a proteus virus just wastes time; a critical failure produces a bad batch that seems good, but which will have dangerous or unusual side effects (GM's option).

Types of Proteus Virus

Birth-Control Virus (TL10)

If the Third World can't be bothered to control their own fertility, then I suppose we'll have to do it for them. Let's see: birth control implants, vasectomies, pills . . . but they're all so crude and time-consuming, and then there's that problem of enforcement. How about isoimmunization, in which the mother's immune system attacks any fetuses, triggered after the onset of her first pregnancy? Spontaneous and usually undetectable early abortions; she'd probably never notice. One woman, one child. As for mass post-natal dissemination, a contagious proteus virus should do the job.

– Dr. Tse Chang, address to the Genetic Planning Council

Availability: $500 (and two days). LC3.

Statistics: Sterile (after one child) [0].

Cosmetic Virus (TL10)

Bored with your current hair, skin or eye color? Need to alter your appearance in a hurry, or fix pattern baldness? Try McCoy AestheTech's viral cosmetics, and let RNA resequence your genes. Permanent, safe and undetectable, but reversible with a second dose! Each treatment produces a single, specific change. Also available: eyelash and fingernail modifications – your choice of length and color! Now available in handy tablet or ointment form – see your pharmacist today!

– McCoy AestheTech promotion

Availability: $200 (and one day) for a batch of virus that can produce a single cosmetic change; e.g., turn eyes green or hair metallic pink. $1,000 to alter fingerprints or retina patterns. Multiply the cost and time by the number of features it produces. The occasional bad batch of viral dye may cause a piebald look, hair to fall out, and other minor nuisances. LC4.

Statistics: The effects of a cosmetic virus are usually 0-point features or Distinctive Features worth -1 point. Cosmetic virus can also alter fingerprints or retina patterns (making these forms of identification less useful at TL10+). At TL11, exotic colors are also possible; e.g., blue skin, metallic nails, or green hair. If unusual, these may count as Unnatural Features (-1 or more points). A cosmetic virus can also produce the same effects as a hair graft (p. 171).

Genetic Surgery Nanovirus (TL10)

Any of the effects that can be produced by regular TL8-9 genetic surgery (pp. 181-183), such as gene therapy or metabolic reset, can be produced much more rapidly via a proteus nanovirus.

Availability: Cost is 50% of TL9 genetic surgery procedures or 25% of TL8 genetic surgery procedures. The virus engineers the changes in a number of days equal to twice the number of weeks of recovery required for actual genetic surgery. For example, a bone marrow upgrade that took three weeks would take only six days if using a nanovirus.

Statistics: Produces the same effects as regular genetic surgery.

High-Biotech Fur (TL10)

Colonial Genetics' ShonTec/Mars division announces the arrival of viral-grown high-biotech fur, the ultimate in stylish thermoregulation! Features fully-retractable, subdermal, self-regenerating pseudohairs. Choose no or short fur for indoors or summer, but lengthen it as night begins to fall, then retract it as temperatures return to normal. Why bother with bulky thermosuits or outmoded clothing? Perfect for outdoor conditions, and presently available in numerous attractive patterns, including tabby, mink, panda, leopard, and tiger!

– Colonial Genetics press release

My sources at ShonTec say they originally designed this feature as a post-natal upgrade for the 10th Mountain Division's bioroids, so it's probably pretty reliable, and provides some thermal camouflage as well. Oddly enough, it's also available on their second-generation pleasure 'morphs. Have you seen those ads? 'Stay warm at night: Take a Kitsune to bed.'

– Captain (ret.) Dana Martello, Marine Force Recon

Availability: $30,000 (and two weeks), LC4. Side-effects of the high-biotech fur transformation are the same as for other skin transformations.

Statistics: Fur (Switchable, +10%) [2] plus Chameleon (Infravision) 1 [5] and Temperature Tolerance 1 [1]. *8 points.*

Methuselah Program (TL10)

Methuselah Inc. is pleased to offer its new life-extension process. A specialized proteus nanovirus injection can adjust or even reset the biological clock on your cells, modifying their ability to survive repeated replications. In partnership with Biotech Euphrates, our Forever Project staff is now working on nucleotide sequences that will hard-wire these modifications into unborn generations.

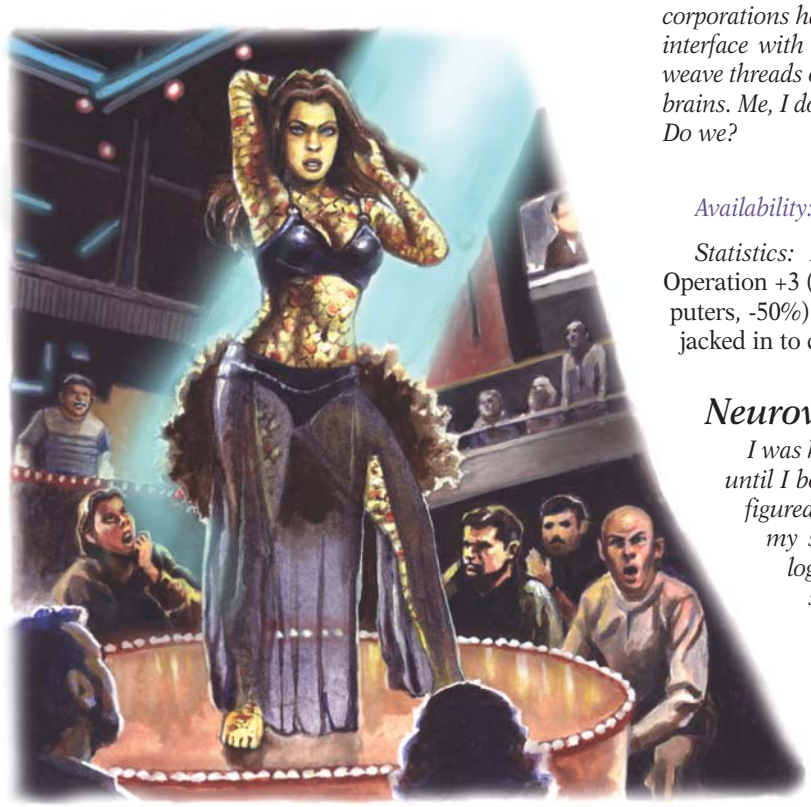
– Methuselah Inc. press release

Their nanovirus is more expensive than those mythical so-called immortality drugs you see in the sensies, and there's none of that nonsense about super-accelerated aging if you stop taking it. Of course, some of the companies that build bioroids use a similar process to build in a biological suicide clock to ensure good turnaround of new product. As soon as they start to get old, zap! Cells start to die, resulting in massive, multiple-organ cell failure, and they're dead in a few weeks. Bioroids get a little morbid about this, so few companies actually tell them their exact termination date.

– Dr. Sayyid Iqbal, interviewed on ***Cyberia Beat***

Availability: $100,000 (and four weeks). LC4.

Statistics: This halts aging (no aging rolls, and no growth if still growing) for a year after undergoing the process. It can be repeated. A perversion of this process can also be used to artificially shorten a lifespan, giving someone the disadvantage Self-Destruct, set to trigger after a predetermined point in their future. At TL12, the program can not only halt aging but reverse it to any given age. Have a growth tank or surrogate mother handy if de-aging to a fetal or embryonic stage.



Nerve Boosters (TL10)

This replaces neural myelin sheaths with a synthetic biopolymer designed to speed up nerve impulses.

Availability: $125,000 (and two weeks). LC2.

Statistics: Basic Speed+1.00 [20]. *20 points.*

Skin Transformation Virus (TL10)

So you're dating Lilith, huh? Isn't she that exotic dancer transform at Club Naga – the brunette with the red and gold scales?

– Streethawk, alt.bio.upgrade.samurai

This proteus virus alters skin cells. It can change skin color or texture, or even give someone fur or scales. Undergoing a skin transformation process is extremely uncomfortable. For the duration of the process, the subject will be at -2 DX and IQ (which affects skills) due to the constant itching and irritation as the fur or scales grow.

Availability: Cost is (TL-8) × $20,000, and it takes (TL-8) weeks for the skin transformation to take effect, where "TL" is the minimum TL for gengineering that advantage. Thus, Fur (TL9) would take one week to grow and cost $20,000.

Statistics: Select Distinctive or Unnatural Features, or any one of the traits listed under *Other Transgenic Traits* on the *Cosmetic and Minor Transgenic Modifications* table (p. 45).

Biotronic Virus (TL11)

Protein-based biotronic circuitry – biochips – are being used in more and more computers. Rumor has it that a few corporations have been creating living superhackers who can interface with these things directly, using nanoviruses that weave threads of DNA-based biotronic circuitry through their brains. Me, I don't believe it. We don't have the technology yet. Do we?

– Streethawk, alt.bio.upgrade.samurai

Availability: $27,000 (and four days). LC2.

Statistics: Accessory (Interface Jack) [1]; Computer Operation +3 (Accessibility, Only when "jacked in" to computers, -50%) [3]; Enhanced Time Sense (Aspected, when jacked in to computers, -50%) [23]. *27 points.*

Neurovirus (TL11)

I was having trouble getting on with my comp study, until I bought a Chinju-Gentek neurovirus and reconfigured my brain. Now I'm earning 20K a month in my summer job training AIs! Jump on the biologic bus with Chinju-Gentek, and take a ride to success.

– Chinju-Gentek commercial

Last year, Evolutionary Liberation Front terrorists hacked into the mainframe controlling the labeling on 2,000 vials of Chinju-Gentek RNA virus. 127 people who hoped to become musicians,

many of them children, were instead transformed into mathematical geniuses, and 1,873 would-be Einsteins were left to sing the blues. The relationship between mathematical and musical talent was close enough that the quality-assurance software missed it. Bio-terrorism aside, this is obviously another example of the need for tighter controls in the civilian RNA-nanovirus sector.

– Tatiana Belenko, Genetic Regulatory Agency

A "neurovirus" is a specialized form of proteus virus, optimized for performing subtle changes in personality and mental structure by altering the connections between neurons and adjusting the neurochemical balance of the brain and body.

Availability: $10,000 × (TL-8) per advantage or disadvantage, where "TL" is the minimum TL required for that genetic modification. Requires 12 hours to take effect. LC3.

Statistics: A neurovirus can grant any of the traits described under *Brain Modifications* (p. 42), *Behaviorial Modifications* (p. 43), and *Sleep-State Modifications* (p. 44). It can also duplicate effects of Psychosurgery (p. 180) or Hotshotting (p. 179). Where they conflict, more recent neuroviruses overwrite previous ones.

Metamorphosis Virus

Captain's Log, 18-11-2447. It's been six days since our landing party was exposed to the nanovirus while exploring the ruined alien city. All remain in comas, within the cocoons their bodies have somehow secreted. Sonograms taken by Doctor Pretorious show significant anatomical changes, of which the most advanced are in Officer Melinda O'Reilly. Her legs have fused together into a tail, and wing buds are forming on her shoulder blades. I can no longer deny it; she is beginning to resemble the creatures depicted in the wall paintings we found. In an earlier log entry, I expressed my sadness at finding the aliens long dead, and being denied a chance at first contact. It appears I spoke too soon.

– Captain Zeke Morrigan, free trader Antares

Instead of simply reconstructing a body in the same shape as before, what about completely changing it, as a caterpillar turns into a butterfly?

A metamorphosis nanovirus is a highly advanced proteus virus. Like a proteus virus, it can resequence DNA, switch genes on or off, and take over cell nuclei, replacing entire genomes.

Unlike more primitive proteus viruses, it can also actively alter the gross structure of existing cells, using physical or chemical means to simultaneously herd cells around the body, kill off existing ones, and force new ones to grow. This allows it to break down or build up connective tissue and bone. Using a metamorphosis virus, new organs can be grown within the body, existing organs and limbs can be transformed, and new limbs and appendages can be grown. A metamorphosis can even reduce body mass (leaving a gooey puddle of extra material after the change).

In game terms, a metamorphosis virus effectively allows the type of human genetic engineering described in Chapter 2 to be performed on a living person rather than an egg cell. The virus is described as adding or removing a specific set of attribute modifiers, advantages, disadvantages and features – a "metamorphosis template." Select from those modifications that are possible via germline gengineering (Chapter 2) or biomods in this chapter. The time and cost of a metamorphosis virus depend on its complexity:

Time: the duration of the metamorphosis process is typically (TL-8) weeks. That TL is not the current TL, but rather the minimum TL required to perform the changes via ordinary genetic engineering (see Chapter 2) or other biomods. If the changes are described as radical species modifications (p. 42) double the time required.

Example: A "cat-girl nanovirus" might produce a metamorphosis template with DX+2; Acute Hearing, Appearance (Beautiful), Fur, Perfect Balance, a male-to-female full sex change, Sharp Claws, Sharp Teeth, and transgenic cat features. The highest TL trait is DX+2 (requiring TL10) and no modifications are radical, so the process will take 10-8 = two weeks.

Cost: Calculate time as above, then multiply the number of weeks by $50,000 to get the cost. Thus, a virus that requires two weeks would cost $100,000.

TL: The basic TL of a metamorphosis virus is TL12, but some options may allow lower-TL viruses – see *Proteus Virus Options* (p. 190).

A "dose" of the virus can be delivered by injection (including drugged darts or needles) or oral tablet. The rules for administration, HT rolls to resist, and accidental infection used for other proteus viruses (p. 184) also apply to a metamorphosis virus. Any of the proteus virus options (p. 190) can also be applied to it, altering the final cost, time and TL.

The Transformation

The nanovirus takes the indicated number of weeks to transform its subject. While the metamorphosis is occurring, the patient may experience "nanofever" – itching, sudden sweats, hunger pangs or other odd sensations. Often, he sees odd shapes and patterns forming on his skin, or suddenly feels hungry, thirsty, hot or cold. This is distracting; see the Nano-Fever quirk (p. 212).

If the change is a radical modification (see Chapter 2), or is, in the GM's view, any process that induces significant alterations in body shape (including extra limbs) or mass, the subject will fall into a coma after 1d days. This lasts for the remainder of the transformation. If this happens, the nanovirus will often secrete a protective chrysalis from the patient's skin pores or other orifices, cocooning his body. When the transformation is complete, he will wake up and break out of it.

A metamorphosis nanovirus is not always safe. Roll vs. the user's HT each week after the first. Failure means some sort of accidental defect occurs. Keep track of the number of failures. Each one inflicts -1d points worth of unintended disadvantages on the subject (GM's option; see *Unintended Disadvantages,* p. 61, for suitable possibilities); these can also be taken as reductions in the value of attributes or advantages, if desired. For example, failing three HT rolls would inflict -3d points of disadvantages. Any critical failure means the subject dies, often very messily: the patient may transform into a mass of cancer cells or be cooked in his own blood by excess heat from over-worked nanomachines. There are, however, safer ways to transform – see *Clinical Metamorphosis* (p. 190).

Cybernetics or biomod implants that would be incompatible with the new form are excreted from the body or result in death or injury to the subject – details are up to the GM.

Types of Transformation

Practically any transformation is possible with the aid of a metamorphosis nanovirus – for instance, it could turn a human into any of the variant races described in Chapter 2, make him into an alien, transform an alien into a human (either involves replacing one racial template for another), or give someone any of the biomod surgeries or transplants in this chapter. With complex enough nanotechnology, living beings can be completely disassembled – and put back together in working order!

Several examples of complex anatomical modifications and transformations are described that might be produced through metamorphosis virus.

Aquaskin (TL12)

Who needs a breather, wetsuit, or clumsy artificial gill? Glide like a dolphin through the blue infinity while clad in GenTec Pacifica's Aquaskin, a smooth, high-biotech epidermal graft derived from marine mammal DNA. The skin is modified to selectively absorb and filter oxygen into the blood, bypassing the lungs and acting as a full-body gill. Available in several elegant shades of gray, brown and black.

– GenTec Pacifica promotion

Availability: $600,000 (and six weeks). LC4.

Statistics: Amphibious [10], Doesn't Breathe (Gills, -50%) [10], and Unnatural Features 1 [-1]. *19 points.*

Chloramorphosis (TL12)

The green-skinned woman lay naked in the forest clearing, as if basking in the warm, noonday sun. I walked over and knelt beside her. If she was breathing, I couldn't tell. An ant walked across her face. She didn't react. I looked closer. Fine tendrils connected her body to the soil. She was rooting.

– Derin Skay, ***Life Among the Dryads***

Availability: $800,000 (and eight weeks). LC4.

Statistics: Deep Sleeper [1]; Doesn't Breathe (Temporary Disadvantage, No Legs (Sessile), -50%) [10]; Doesn't Eat or Drink [10]; Dependency (Lie in fertile soil and sunbathe for at least eight hours; very common, daily) [-15]; Unnatural Features 1 (Green skin) 1 [-1]. *5 points.*

Merging Virus (TL12)

"Do you, Rashid, and you, Zoë, consent to become one forever, to share one body, one mind, and possibly (though with no guarantees) one soul?"

"We do."

"Then I pronounce you One Being."

– Medical biocomputer Raphael-3000

This nanovirus must be applied to two or more separate individuals, human or otherwise, who are in physical contact and remain so for the duration of the process. For this reason, the accelerated nanovirus option (p. 190) is usually required. It merges them into a single body. The general intention must be specified when the metamorphosis virus is designed, but the exact result is usually somewhat unpredictable – it is up to the GM to decide how the merged entity's traits turn out. Any extra biomass or nonliving material (implants, clothes, etc.) are left behind as a gooey puddle.

Availability: $800,000 (and eight weeks). For double cost, the process can be reversed.

Statistics: The new body may be identical to one of the donors, or include traits from more than one. Similarly, the resulting mind may possess the mind of only one of its original donors – treat as a brain transplant (p. 143) – all minds separately (gain levels of Compartmentalized Mind), a Split Personality, or a new single consciousness (it's up to the GM what traits are shared).

Necromorphosis (TL12)

They can still think. Eat. Drink. Breathe. Speak. Fight. Make love. But they call it a resurrection? It's a cruel joke. Have you looked at the diagnostic scans? Most of their organs are redundant. They barely remember their own names. They can't reproduce, and their bodies would fall apart if they weren't being constantly regenerated. Face it, Kathy, they're all dead! The only reason the flesh is warm is the heat generated by the swarms of nano inside them. And the smell . . .

A corpse with a reasonably intact brain that has been dead less than a day (or any length of time, if preserved via appropriate technology) can be resurrected using this transformation process. Sufficient memory is recovered to permit a partial restoration of consciousness. It brings them to life as a form of bioroid.

Unlike most metamorphosis viruses, this process is performed on a dead body. All normal rolls (including HT rolls) should still be made, however, if not using a clinical metamorphosis process – use HT 12 instead of the body's HT.

Availability: $800,000 (and eight weeks). LC2.

Statistics: Bad Smell [-10]; Bioroid [-5]; Injury Tolerance (Unliving) [20]; IQ-1 [-20]; Longevity [2]; Partial Amnesia [-10]; Resistant to Metabolic Hazards +8 [15]; Sterile [0]. *-8 points.* For an alternative resurrection, see Reanimation Nano (p. 163).

Skeletal Strengthening (TL12)

Tisephone Logos, if you look closely at the image produced by my T-ray scanner, you will clearly see the changes the nanosurgeons have produced in your body. Note the semi-fullerine skeletal structure and extra muscle attachment flanges, while the dark shading is the denser bone tissue. None of this will be visible unless your skeleton is physically examined or scanned, although you will notice a minor gain in mass due to the heavier structural tissues you now possess.

– Medical biocomputer Raphael-3000

Availability: $300,000 (and three weeks). LC4.

Statistics: HP+5 [10]; Lifting ST+5 [15]. *25 points*. Skeletal strengthening also increases actual body weight by 10% without increasing height or apparent bulk. The redesigned bone structure will also be noticeable on medical scanners, and by any doctor trying to set a broken bone. If someone has skeletal strengthening, then muscle reinforcement or muscle grafting can add double the usual amount of ST for their TL, since the biomod skeleton can support it. The effects are cumulative with bone stimulation (p. 155).

Smart Cardiovascular Net (TL12)

Next, the viral nanites construct smart, switchable arterial bypass networks to allow blood flow to be rapidly shut off to traumatized areas. As high-gravity accelerations cause blackouts when the blood pools in the lower body rather than reaching the brain, the arteries feeding the lower body have been redesigned to react to g-forces by pinching off blood flow to legs and abdomen while enhancing it to the brain. The same modification also produces faster recovery from unconsciousness.

– from FM-592, Military Biomedical Enhancement

This is one thing those Marine jar-heads don't get. When I joined the Navy, I knew I'd get a neural jack – but I never figured becoming top gun would mean being dumped in a vat of nanosurgeons, dismantled and rebuilt. There's rumors that the spacekorps are working on bioroids born with these things.

– Lt. Majid Asad, VF-17, USSN

Availability: $300,000 (and three weeks). LC4.

Statistics: Resistant to Acceleration (+8) [2]; Recovery [10]. *12 points.*

Solarskin (TL12)

Freedom is the gift our Icarus-type symbiotic solarskin gives when you merge with Avatar Klusterkorp's gengineered ecosuit to become a true spacedapted form. Features closed-ecosystem waste-product recycling, solar wings and vacuum-sealed skin designed for protection against ultraviolet radiation.

– Avatar Klusterkorp advertisement

Naked, space-black dolls with enormous pseudo-wings, drifting through the vacuum on light pressure like dark angels: Avatar's latest vision of humanity, I guess. At least they designed it so you can fold up your solar sail when you don't need it – makes a hump on your back.

– Copernicus Jones, ***Beyond Pluto***

This modification adapts the subject to live and maneuver in space. With his solar sail unfolded, he can accelerate at up to 0.01 G indefinitely, although he can never exceed the speed of the solar wind (about 900,000 mph at 1 AU from the sun).

Availability: $800,000 (and eight weeks). LC4.

Statistics: Space Move -9 [-18]; 3D Spatial Sense [10]; Enhanced Move 19 (Space; Accessibility, Only if exposed to solar wind, -5%; Handling Penalty -5, -25%; Temporary Disadvantage, +6 SM, +0%) [266]; Flight (Accessibility, Only if exposed to solar wind, -5%; Space Flight, +50%; Space Flight Only, -75%; Temporary Disadvantage, +6 SM, +0%) [28]; No Degeneration in Zero-G [1]; Regeneration (Slow, Radiation Only, -60%) [4]; Sealed [15]; Temperature Tolerance 19 [19]; Unnatural Features 2 [-2]; Vacuum Support [5]. Home gravity is 0 G. *328 points*.

Proteus Virus Options

There are lots of ways that the basic proteus nanovirus technology can be modified. Unless otherwise noted, thes eoptions are available for all proteus virus, neurovirus, or metamorphosis virus technologies.

Accelerated Nanovirus (TL12)

"You mean I'm going have to wait days or months for the nanovirus to grow my new face and improved heart? I got tickets to go skiing on Nix Olympica two weeks from now – but I can't go like this – I'm not in shape! What the fooz am I going to do?!"

"Well, if you're that desperate, there's a black clinic that might help you . . ."

– Dr. Lucien Locke, ***Nanovirus for Dummies***

A nanovirus normally takes it slow and easy, because herding all those cells around and forcing growth is a major strain on a living being's metabolism. It doesn't have to be this slow.

At double cost, an accelerated proteus nanovirus is available. An accelerated nanovirus takes days instead of weeks (or 1/7 the time, if it takes less than a week). For example, if it normally took two weeks, the accelerated virus would do it in two days.

If using any proteus virus, the accelerated growth process is stressful. The user will experience "nanofever" symptoms (p. 212). In addition, the user will suffer 1 FP each hour, until he passes out (he'll be unable to rest to regain this until after the virus has run its course).

Using a metamorphosis virus is more dangerous. Use the same rules for side effects as for a normal metamorphosis virus, but occurring if the virus takes 2+ days (rather than 2+ weeks). In addition, HT rolls to avoid suffering side effects are made at HT-3 rather than HT. Get too ambitious, and there's a good chance of a messy death.

Clinical Metamorphosis

"Uh – a messy death? 'Scuse me, Dr. Luce, I'm outta here. Isn't there a way the virus can grow a new part safely?"

"It isn't the virus that doing the growing, livewire; it's just directing things. It's your cells that are doing the work. Remember, it's got to keep you alive. Imagine trying to do repairs on a car while the engine is running – heck, while you're still driving the thing around."

"Okay, okay – so why not stop the engine first? Or do the work from outside the car – I mean, the body?"

"Ooh, good one. Let's try it."

– Dr. Lucien Locke, ***Nanovirus for Dummies***

> *Life is just bytes and bytes and bytes of digital information.*
>
> *– Richard Dawkins*

A metamorphosis nanovirus can work a lot more swiftly and safely if it has help from outside. This is clinical metamorphosis. First, the patient is placed in a life-support environment, usually a growth tank (p. 20) or chrysalis machine (p. 133).

Next, the patient is put into a state of complete biostasis, similar to suspended animation. A solution of specialized bio-nanomachines is pumped into the tank with him. Some of these may be similar to a nanovirus, while others might be actual robots, either autonomous models or guided externally by a controlling computer. These nanomachines are in charge of keeping the subject alive and speeding up the transformation by working both internally and externally.

Once the patient is in biostasis, more radical nanosurgical procedures can be used. If body mass is to be altered, intravenous tubes may be attached to the body and the necessary materials carted in or out by transport nano. Some tubes, made of nano-active material, may penetrate directly into the patient's body without breaking the skin. In radical transformations, the patient may actually be dismantled on the cellular level, turning him into a loose "puddle" of cells, then reassembled.

The process takes the same amount of time as a normal nanovirus, but it's completely safe (assuming no sabotage and no glitches in building and programming the nano). There are no HT rolls required.

If using an accelerated virus, it takes the usual 1/7 time, but is no more dangerous than a normal metamorphosis virus. The user rolls vs. HT, rather than HT-3, and there is no FP loss. After the operation is over, the nanomachines will break up; their debris leaves the body via sweat or excretion.

While the process may be safe, it isn't cheap. Add the cost of disassembly nano (p. 163) and reassembly nano (p. 163) to the usual price quoted for metamorphosis nanovirus.

Other Proteus Virus Options

"Hey, Doctor Luce – this proteus nanovirus stuff – isn't it supposed to, you know, go out of control infecting and transforming everyone, and like that?"

"Of course not. Not unless you design it to. Here's how."

– Dr. Lucien Locke, ***Nanovirus for Dummies***

Various options are available to change the way in which a particular nanovirus works. Unless noted, these may be applied to all procedures that use proteus virus, including metamorphosis virus. These will modify the price and TL of the nanovirus, as shown in parentheses.

Aerosol (10 times price): The nanovirus doesn't require injection. It can be used in a chemical warhead or aerosol spray. It uses the normal rules for biochemical weapons, and affects anyone who breathes it and fails a HT-6 roll. At TL+1, it may be a contact agent, penetrating the skin of anyone exposed on a HT-3 roll, or HT-6 if also breathed. An aerosol can will spray one dose at a time and holds five doses; 10 doses fill a chemical grenade. Halve LC (round down).

Delayed: The nanovirus is designed with a time delay. Instead of taking effect within a few minutes of infection, it remains dormant for a pre-set time period after infecting someone – anything from hours to years. This option has no effect on cost or TL, but the dormancy period must be chosen when that particular batch is designed.

Heredity-Changing (TL-1, 1/2 cost): The nanovirus has no effect on the person it transforms – no twinges, sweats, coma, or biomodification! However, it does alter genetic heredity, and the effects will be passed on to the subject's children. Since children have genes from both parents, inheriting virus-induced traits is much more likely if both parents have been infected by the nanovirus.

Nanobot (Double cost): The "virus" is composed of unliving nanobots rather than biological machines. HT rolls to resist infection are made at a -2 penalty, and time required is halved. Resistant or Immunity to Disease and similar measures intended to defeat biological pathogens have no effect against it! Resistant or Immunity to Metabolic Hazards or Nanomachines would be effective, however.

Plague (10 times price): The virus can spread through skin contact and via breathing infected air. Anyone in direct skin-to-skin contact with a person who has been infected but not yet transformed can catch it on a HT-3 roll, or HT-6 if they exchange bodily fluids. LC0.

Random Metamorphosis (TL12^, special price): This superscience metamorphosis virus has a semi-random series of effects on different subjects. It may give one person an exotic biomod, transform another into a different form, change a third person's sex, and so on. The GM should decide what percentage of victims suffer what type of effects, whether there are any other side effects, and the maximum possible character points of change. Cost is up to the GM, but should be based on the maximum number of points that can potentially be changed.

Species-Crossing (10 times price unless nanobots, then double price): Nanoviruses are generally effective only on a single species (and any variant races thereof) or a few closely-related ones – this is more a matter of programming in the case of nanobots. A virus that works on humans won't affect cats or dragons, for instance. This modification makes it pan-specific, capable of affecting multiple species provided they share the same basic biochemistry. Thus, a nanovirus designed to affect terrestrial life probably won't work on aliens, unless there's a good reason (e.g., if by sheer coincidence or design, we are amazingly genetically similar to them).

Target-Specific: A nanovirus can be designed to target specific characteristics; see *Target-Seeking Pathogens* (p. 115) for possible designs. A plague may still be target-specific – people other than the target(s) will become carriers if they fail HT rolls, but suffer no other effects. This option has no effect on cost or TL.

Nanowarfare

The ability to create proteus virus plagues raises the specter of exotic nanoplagues that transform rather than kill. For example, imagine spreading one that turned humans into compliant sex toys (like the Eros, p. 72) or "green" entities like the product of a Chloramorphosis virus.

The threat of proteus plagues is lessened by the availability of sophisticated treatments and defensive nanotech such as guardians (p. 165), although these are ineffective against nanobot nanoviruses. However, humans don't have to be the target – imagine the havoc that even a "benign" intelligence-boosting neurovirus could cause if a species of pets, farm animals, or wild animals became more intelligent! In fact, targeting nanoplagues at animals may be a viable surprise attack strategy, if humans have gengineered defenses.

Temporary: A neurovirus (p. 186) can be designed to produce only temporary effects by interfering with neurochemistry and hormonal balances rather than altering the structure of the brain. The effect will last for a number of hours equal to twice the amount the initial HT roll to resist was failed by (maximum one day). This sort of nanovirus is often used as a form of brainwashing or biochemical weapon. This option has no effect on cost or TL. Not available as a metamorphosis virus.

Xeno-Species Crossing (20 times price): Capable of crossing between extremely different forms of life, such as terrestrial and alien life forms. Xeno-Species Crossing nanoviruses may still not work if the aliens are very alien; e.g., a virus designed to work on carbon-based life wouldn't affect silicon-based "living rocks." Given the (probable) drastic differences expected between human and alien life, a Xeno-Species Crossing nanovirus is more cinematic than realistic, and may be considered superscience, but is nevertheless very common in science fiction.

Chapter Eight
Characters and Society

Both cops wore smart blue arachnofiber vests and carried shock sticks and holstered Glocks. One was overweight and pushing 40; her face was red from climbing the stairs. The other was an uncertain-looking rookie, his youthful good looks only slightly spoiled by acne. Still, kind of cute, Mara decided.

"Dr. Mara Omokage?" the fat cop puffed, staring down at her.

"Is this about the parking ticket?" Mara said cooly. She adjusted her kimono, wishing she'd had time to put on makeup. They were only police, but she was as fastidious as a cat. "If so, bother my attorney."

The cop fingered her stick. "Don't give me any lip, lady. We're shutting down your little clinic. Under the Uniform Code of Criminal and Civil Justice, I place you under arrest for unlicensed genetic surgery and tax law violations."

"I don't think so," Mara said.

The cop activated her stick. Sparks crackled from the tip.

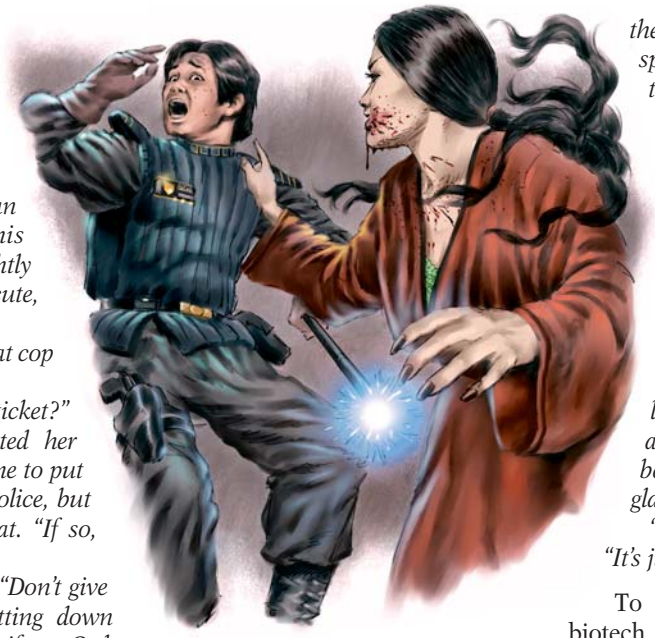
"Make my day, bitch. You gene hackers think just because you're rich as all damn, you're different –"

Mara grinned, wide. Then wider. Her jaw snapped out like an egg-eating snake, then retracted. The female cop's body hit the floor with a wet thump. Mara spat out a chunk of esophagus, then turned her smile on the trembling, blood-spattered rookie.

"She was right – we are different." As the shocked rookie stared, Mara's waist-length hair drifted out, coiling around the rookie's Glock. "You won't need this, little boy . . ."

But the cop was no longer looking at her. He was looking at the thing that had slithered in behind her. Mara turned, glanced over her shoulder.

"Don't worry, copper," she said. "It's just one of my babies."



To the average person, future biotech may be essentially invisible. Panimmunity shots he had as a baby keep him healthy. He pours milk from transgenic cows onto his cereal made from nitrogen-fixed grain, and complains about how much of his salary goes toward health care plans that will keep him alive for an ever-increasing span. Perhaps his parents even had him genefixed, to remove any genetic defects. But biotechnology won't be invisible to everyone – there will be some people for whom biotech may be a business, a way of life, or even a crusade.

Biotech Corporations

These include companies (or divisions of larger corporations) that specialize in gengineering, protein engineering, biomimetics, cosmetics, genome mapping, genemod drugs, tissue engineering, and other processes. Large scale biotech industry is an early TL8 phenomena (historically, dating to circa 1975-1980); in some future Earth settings, expanding biotech corporations may come to dominate the economy, driven by social trends such as healthcare for the aging populations of wealthy nations.

Some biocorps are large enough to cover the entire field, but most specialize in a particular area, such as health care, gengineered crops, industrial bacteria, improved animals, and or at high TLs, in bioroids, terraforming or adapting alien plants and animals. Biotech corporations may also specialize in developing biomodification procedures for use by hospitals and clinics – if a process isn't yet available on the street, someone with contacts in a corporate lab may be able to arrange for it anyway.

Small corporations are often undercapitalized "whiz-kid" operations. These develop a single brilliant idea . . . and are then bought out by a bigger company, usually to market their new invention – but sometimes to suppress it! A certain amount of research may also be contracted out to university labs, in exchange for grants and funding.

Today, the majority of the biotech industry is involved in human health care, animal husbandry, and agriculture. In some settings, big research dollars could be in military biotech, either for defensive or offensive purposes. "Bioweapon" projects may range from killer viruses to cloned combat bioroids. In a spacefaring culture, captured alien life forms may also be studied and modified for military purposes.

Because of the high value and leading edge technology involved in biotech products, industrial espionage is common, so security at many firms is tight. The controversial nature of biotechnology means firms engaged in seemingly innocuous activities such as agricultural research may have to deal with militant ecological activists or animal rights groups. Defense contractors will have truly paranoid security, since they are worried not just about industrial espionage and activists, but also foreign spies and saboteurs. It's possible that ultra-tech corporations which develop military bioweapons may have examples of them deployed to defend their own facilities – or might use them (often without the actual military's knowledge) in corporate espionage or warfare.

Medical Facilities

When you're lying on a table with a doctor's hands on your heart, you want her to have a steady power supply and all the equipment she needs. Most complex medical procedures are best performed at a dedicated medical facility.

Hospitals

A hospital is an institution providing professional health care, with facilities to look after patients while they recover. *Outpatients* visit a hospital for diagnosis and/or treatment and then leave. *Inpatients* stay overnight or for lengthy periods. The ability to provide inpatient care distinguishes hospitals from other medical facilities.

The medical equipment available in all but the most basic hospitals qualifies as "best equipment at your TL" for medical skills requiring equipment (see p. B345).

Hospitals can make good adventure locations. Injured heroes are likely to end up in hospital, as can Enemies and Contacts. A recuperative stay need not be a boring waste of time, as the number of people encountered provides opportunities to learn rumors and gossip, or to pick up vital information.

A hospital is also a good choice for making a last stand in the defense of a town, as it is a sturdy building with lots of medical supplies, as well as food stores and emergency power generators. If the desperate survivors of an invasion or apocalypse haven't made their stand in a hospital, it is a logical target for a supply gathering expedition or raid.

Ambulances

An ambulance gets patients to a hospital for treatment, as safely and quickly as possible. Modern ambulances (TL7+) are motor vehicles with specialized equipment to allow first aid, resuscitation, and basic life support for patients. The medical gear in an ambulance qualifies as "fine" equipment with a +2 (quality) bonus for first aid procedures.

The Medical Rescue Campaign

Many television dramas and real-life shows are based on rescue, recovery, and trauma treatment. Their enduring popularity raises the question of why the theme of present-day rescue drama has not been explored in detail as a roleplaying opportunity.

Although it seems to have all the right elements for a gripping game – action, tension, and opportunities for emotional involvement – the rescue genre suffers from being inherently reactive. One of the major decisions available to players in other settings, namely what to do next, is always provided for them in a rescue campaign. The plot never has an opportunity to develop along lines dictated by the players, as they constantly race to the next disaster, always with the same goal in mind: save the victims. Added to this is the fact that rescue situations are unpleasant and may raise negative reactions based on past player experiences or simple horror.

Some players might not mind being railroaded from one awful situation to another, but for many the fun will wear thin quickly. There are methods of making a rescue campaign more accessible and plot-oriented, however.

Firstly, the field operations themselves can be run in a cinematic style, where derring-do and a chance to look good for the press are stressed more than the actual rescues and subsequent medical treatment – in stark contrast to the gritty reality of TV dramas. It should be clear that people never get seriously hurt, even if the rescue attempt goes awry, and the action should be based more on overcoming novel physical obstacles to reach a trapped person, rather than cutting open yet another twisted car wreck to find half-dead victims.

The GM can introduce variety by adding exotic elements or complications to rescues. These include physical hazards (e.g. fire, imminent building collapse, risk of detonating a weapon), human drama (hostage situations, family members, riots), and political complications (cover-ups, corruption, funding worries). Downtime between rescue calls can be used to add subplots and provide the players with a chance to use their own initiative. Who's responsible for the stocks of morphine being missing, and what if the next call comes in before it's replaced?

Since the 1970s, ambulance drivers have been trained paramedics, qualified to give advanced first aid and administer some drugs on the advice of physicians via radio. Earlier ambulance drivers typically had no medical training.

Ambulances can be tempting vehicles for adventurers to commandeer. They are high-powered vehicles kept in good condition, with sirens and markings allowing them to ignore many traffic laws, and come with useful and expensive equipment. In appropriate situations and tech levels, ambulances can also be air, water, or space vehicles.

Bodysculpt Clinics

These are clinics that specialize in legal bodysculpting jobs (p. 169), although at TL10+ they also carry cheaper proteus viruses, such as metabolic reset (p. 182) and cosmetic virus (p. 185). Some are large, upscale establishments catering to the middle and upper classes, often with psychological counselors as well as surgeons to ensure smooth integration.

Others are walk-in places that specialize in generic face jobs based on knock-offs of the latest vid star or virtual soap opera character. Those that offer the most radical mods may be descendants of tattoo and body-piercing parlors, catering to subcultures that want to physically distinguish themselves (counterculture, sailors, yakuza, etc.). Of course, in some cultures, an "original human" body may be radical, in which case places might specialize in modifying people back to "normal."

Most clinics will only perform LC3 or LC4 procedures.

Black Clinics

In the future, designer drugs aren't the only things being made in secret labs – so are designer bodies, animal or human, as well as customized life forms. A *black clinic* is a laboratory, clinic, or hospital that performs illegal or ethically dubious biomod and gengineering procedures. If cyberwear exists, some may specialize in cybernetics, others in biological procedures, and many in both. Some black clinics are also "body banks," involved in illegal organ theft (see *Organlegger,* p. 207).

Black clinics may range from basement or mobile labs to full-fledged hospitals. The latter are usually disguised as legal body parlors, clinics, or biotech companies, but offer extra services to special clients. A black clinic may be able to dispense with secrecy entirely if it can find a location beyond the reach of the law. For example, a black clinic may be based in an orbital habitat, or in a jurisdiction not signatory to international regulations on bioengineering ethics. Security and intelligence agencies may maintain secret black clinics to provide assistance to their agents – often, these also do freelance work on the side.

The biggest danger of going to a black clinic is the risk of shoddy work, followed by being asked to consent to some experimental process that hasn't been debugged. Finding a disguised black clinic requires appropriate Contacts or Streetwise skill; a critical failure might lead to a police sting operation or, worse, a clinic that looks good but is incompetent, enjoys experimenting on its clients, or uses them for spare parts.

Bioethics

Legal and ethical dilemmas offer many motivations and plot ideas for games. The intersection of biotechnology and society provides these in abundance. Characters in biotech-heavy settings will have opinions on all these issues, as will everyone around them, including the makers and enforcers of the law.

Trade in Body Parts

Human bodies have been precious resources ever since Vesalius resorted to stealing corpses from the gallows to study anatomy in 1530s Italy.

Cadavers

Cadavers are of most use in low-tech settings for medical dissection and steampunk settings for creating life. Acquiring a body or its parts in such settings can, however, be illegal, heretical, and dangerous. Citizens of good standing will have family and friends who want to see their bodies treated respectfully after death and disposed of in a manner consistent with religious beliefs. This precludes anatomical dissection and use in experiments.

A desperate scientist may resort to other means to procure cadavers. Depending on the law, dead criminals and execution victims may be fair game for purchase. If not, bodies will have to be collected by underhanded means. Execution sites, prisons, hospitals, morgues, and cemeteries are the prime locations for stealing a body. If someone would rather pay for cadavers than steal them, this gives rise to professional body-snatchers and grave robbers. Such an occupation would be risky, but potentially lucrative. In the 19th century, anatomy schools paid from £2 to £8 sterling ($200 to $800 in ***GURPS*** $) for a cadaver – more than a week's wage for many professions. An underground network of body traders may spring up, providing either enemies or contacts for researchers on both sides of the law.

Live Organs

As long as patients need transplants that cannot be grown by tissue engineering, there will be a demand for live organs.

In most places, organs and other tissues can be legally taken from a deceased person only if he agreed to be a donor beforehand (often indicated by a donor card), or if his relatives make the decision. Some jurisdictions use an opt-out system, which improves donor rates! For personal or religious reasons, many people are unwilling to donate. Others die in circumstances (old age, disease, major trauma) where

their organs are damaged or unhealthy. A supply of suitable transplant organs requires finding people who died in good health. As this is almost a contradiction in terms, locating organ donors can be difficult.

At present, the number of altruistic people who die healthy is insufficient to meet the demand for new organs. This will probably get worse as transplants become more common around the world. (It may get a lot worse if cryonics becomes popular, since if you hope to be frozen after you die, you may need those organs later!) While this demand may be mitigated if bionic organs become cheaper and smaller, it may not go away entirely.

Because of this demand, hospitals often have to put needy patients on month- or year-long waiting lists for high-demand tissues, such as the body's vital organs or eyes. The GM can decide how long a wait is necessary, or roll randomly. Before cloning is widespread (reducing the demand), a 1-in-6 chance of matching major organs being available might be typical, with a further chance rolled each month. After cloning, artificial organs, or bionic replacements become common, a 1-in-6 chance per week is more likely. Things like fingers or limbs will be in less demand, and may be available without a wait in most cases.

Societies may develop other methods for increasing organ supplies: dismembering criminals, prisoners, and various malcontents; free market incentives ("$5,000 prepayment for signing your body to Organs'R'Us!"); or religious or civic duty. Closed systems like space colonies may routinely recycle organs. Scarce transplants can also mean a black or gray market trade in body parts (see box).

Playing God

A frequently cited objection to human biotechnology and genetic engineering is that scientists are "playing God," with the unspoken assumption that this is something to be avoided for moral reasons. Patients who rely on new treatments for their health and the researchers who are applying their skills in an effort to give it to them may feel somewhat aggrieved by this attitude. The conflict between these viewpoints will likely be fought over many different issues.

Black Market Organs

In some settings, dealers may resell "used" (salvaged or repossessed) body parts, often on the black market. These can be purchased with no waiting period. Tissue matching is a problem, except in cinematic games where rejection is not an issue – the source will either have a matching organ in stock or not. Unscrupulous operators may foist mismatched organs on clients, but won't stay in business long that way.

Typical costs are $30,000 for a healthy vital organ (heart, lung, kidney). Arms and legs are half that price, since there isn't as much demand for them. Eyes, genitalia, and other secondary organs are $3,000 to $6,000 each, with mostly cosmetic pieces like fingers or ears going for $1,000 to $3,000. A recently dead corpse, in good shape (no diseases, not riddled with bullets), may sell for $10,000 to $60,000 depending on supply and demand, while a live body sells for up to $150,000.

These are retail prices – organleggers, hospitals, and so on purchase bodies or parts for 10-60% of this. If cloned or bionic parts are widely available, reduced demand halves prices.

If an organ trade exists, dealers may find it advantageous to arrange for living organ banks – people gengineered or biomodded to carry extra organs as part of their bodies. This is also a convenient way to transport live organs, especially through customs!

Human Cloning

Many people feel a revulsion at the idea of cloning humans. This often stems from a misunderstanding over the science involved. In popular culture, clones are represented as being identical copies of the person cloned, right down to personality and intellect, and that they will somehow share one identity. Since a clone will be raised in different biochemical and social environments than the original, they will likely be less identical than a pair of twins (and certainly no more so) – something many of us are comfortable with. Yet unless cloning becomes routine and people gain experience with clones, this uneasiness may remain and color social attitudes to cloning.

There are more compelling reasons not to clone people. Early cloning technology is imperfect, and it would be hard to justify producing a clone who is doomed to live a short and sickly life. Even given safe and reliable cloning, the practice can lead to overall long-term damage to the species (see *Risks of Cloning*, p. 24).

Finally, there are social arguments for regulating cloning. Certain people will want to produce clones out of vanity or for exploitation. Most would agree that preventing such abuses is desirable – but on the other hand society allows people to have children naturally, no matter what their motivation (indeed, sometimes even if they don't *want* a child). Cloning advocates will argue that a clone produced by a person wanting a child to raise in a loving environment is better off than the progeny of many unwanted pregnancies. How society ultimately handles these conflicting opinions can set the tone for many different campaign settings.

Spare-Parts Clones

One of the most controversial uses for clones would be to raise them for the purpose of serving as spare parts for the original. As organs wear out, they could be replaced by compatible, healthy organs from the clones. This reduces the clones to a form of livestock, a practice likely to be outlawed by many societies. But if cloning is possible in a campaign setting, it's a good bet that someone rich and powerful is at least contemplating the idea . . .

Batch Cloning

A fiction staple is the society that uses cloning to raise *batches* of identical children. Rather than a new way to have a child, this creates dozens or hundreds of people with the same age and genetic makeup. This would have several unique aspects: finding a tissue-matched organ donor is not a problem, while identifying a criminal becomes much harder; adolescent clones may rebel and want to become as *different* as possible. There is little reason to produce such a society, except in places with limited genetic resources – such as may occur on colony worlds.

Designer Babies

A *designer baby* is a baby produced with at least part of its genetic makeup actively chosen by its parents (or perhaps by an external authority). Should parents be allowed to choose the genes present in their offspring? Or should they be made to accept what fate offers them?

To the disgust of some, the world already has designer babies of a fashion. In 2001, a couple used embryonic tissue typing to select specific embryos from a series of *in vitro* fertilized zygotes for implantation in the mother. The goal was to produce a baby with tissues suitable for transplant into its sick sibling. In 2002 a British court ruled that another couple there could not use the same procedure, so they had it performed in the United States, where it was legal. At the cost of a few other embryos, these couples produced babies who held the keys to curing their first children.

The loss of a few embryos is a common occurrence in *in vitro* fertilization procedures, yet few these days make a fuss over it. The concept at the heart of many people's revulsion over designing babies is the exercise of *choice* over what offspring will be produced. This can be interpreted as making a value judgment on one person's possible existence over that of another. Nobody likes to be told that they are worth less than someone else, and the objectors to designer babies

Cloning and Religion

Do clones have souls? To genetic science the question is meaningless, but to some people and religious traditions it is an important issue and the answer is disturbing either way.

A human being without a soul is a source of horror, utterly amoral, and a threat to society. It would also be an empty vessel, a tempting target for possession by malign spirits, and a perfect human disguise for such entities. Clearly, bringing such a being into the world is an outrageous thought.

Perhaps worse is the idea that clones do have souls. Where does a clone's soul come from? If science is in the business of creating souls, that is stepping on the toes of greater powers. By creating clones we risk the wrath of the gods, or we may begin to contemplate challenging them – either way the comfortable status quo is under dire threat. Perhaps humanity is only capable of making corrupted souls. More tragically, a created soul may be stigmatized by its origin and doomed to a life without the opportunities it deserves.

For believers, these are strong arguments that human cloning is immoral and should be stopped at all costs. Even in a world with no supernatural forces, clones and the people who make them will be subject to outrage and perhaps violence by those who subscribe to these beliefs. This can be a source of conflict in any game world that features cloning technology.

If souls, spirits, or gods are real, then the believers have a point! Cloning could open the gates to supernatural horrors never seen before. Having a scientific breakthrough be the catalyst that propels a campaign into a new phase of supernatural activity can produce an unusual and creative game.

project this onto the embryos that have not been allowed to develop.

Another (arguably contradictory) argument is that babies created by choosing from a set of possible embryos are being treated more as a commodity than as a new life to be accepted unconditionally, thus devaluing the worth of the child that *is* selected. This argument also applies to the more common use of the term "designer baby" – a baby whose genome is chosen by selecting traits from a menu of options.

Parents may want a designer baby for many reasons: to prevent inheritance of known genetic defects; to adjust the child's appearance; or to give the child genetic advantages. In isolation, these can be admirable goals and many people may desire them. This sort of designing is not a reality yet, but will soon be possible. How society reacts to these different possibilities and motivations will follow from our experiences so far. Some people will always want the latest that technology has to offer, and some will always want to prevent it. In a biotech campaign world, there are endless possibilities for how these differences of opinion can play out.

Eugenics

Widespread practice of human eugenic engineering can easily have a profound effect on society.

If it is available to anyone who can afford it, eugeneering may be used by wealthy parents who want to have "better" children. The descendants of the elite would not only think they were superior, but would actually be so, genetically speaking. This could turn the gulf between rich and poor into a gaping chasm, or lead to a backlash if demagogues attempt to parlay resentment against the gene-enhanced into political power.

In a socialist or authoritarian regime, gengineering might be subsidized or even mandated by the government, perhaps as part of a massive eugenics project. A benign program may subsidize genefixing to eliminate "defective genes" such as hemophilia. A society could expand that into a full-scale eugenics program aimed at producing a homogenous population or developing specialized "genetic castes" for different roles (see *Specialization and Genetic Castes*, p. 40). Perhaps a limited number of "approved" genotypes would exist, from which parents must choose (or have chosen for them). Or maybe everyone (except the leaders) must use the same genotype; it would end racism, but it might make the population easier to predict and control.

Even if only one generation is altered, this affects the overall gene pool, as their children will inherit their genetics. Societies concerned with genome preservation might allow gengineering but mandate sterilization, so that if a gene-altered person is to have children, they'd have to be artificially inseminated or cloned.

A concern raised by people who advocate eugenics is that modern medicine allows people with disabling genetic conditions to survive and reproduce. Instead of these "weaker" specimens dying young and not being able to have children, they are now able to propagate their genes into a new generation. As medical technology improves, this effect will increase, with the result that the human gene pool will contain an ever larger proportion of disabling genes. In some cases, such as a small colony or post-disaster survivor population, this is a genuine concern that needs to be addressed. But often eugenics advocates are people with prejudiced agendas, seeking to justify their intolerance by appealing to "survival of the fittest" as a societal principle.

Fetus Farming

Embryonic stem cells are so useful for tissue engineering and therapeutic purposes that medical researchers will want a steady supply of them from a variety of sources with differing genomes. The cells can be taken from legal abortions, miscarriages, and umbilical cords. Once a cell line is available, it can be cloned easily at TL8+.

Procuring the stem cells may, however, be regulated or banned, resulting in a demand that cannot legally be met. With a twist of technology, it might also be possible that cloning stem cell lines is not feasible for some reason. In these cases, conditions are ripe for the development of less ethical methods of obtaining embryos for stem cells. A horrific possibility is *fetus farming*: enslaving healthy women, impregnating them, then aborting the fetus – over and over again. This is likely only in deliberately dystopian settings that ignore the simpler possibility of cell cultures.

The opposite argument is that humanity shares a large and diverse set of genes, and as a whole is robust to the many mutations that occur every generation. The artificial spread of debilitating genes will take thousands of generations (maybe *millions* of years) to have any appreciable effect on the population at large. And we are very near to having the technology to repair those genes anyway, so denying a few people the same care and reproductive rights we grant everyone else is shortsighted and unethical. Again, however, there are exceptions, such as the abovementioned small populations of a colony or survivor group, in which a propagating genetic defect could cause havoc. The interplay and relative power of the sides who make these arguments will determine how a campaign world will react to the early stages of genetic technology. In some more advanced backgrounds, there is a conflict between societies that utilize gengineering and more "natural" ones, placing the ethical struggle into a larger context.

Selective Breeding

Even without high technology, humanity can be modified (slowly) by the same principles of selective breeding as livestock. This would be an effective way to "improve" the species – if the people will stand for it. Attempting to control who is allowed to breed with whom is a recipe for disaster in all but the most totalitarian regimes or pliable societies.

From 1896 to 1967, various laws in the United States prevented the marriage of mentally retarded people, epileptics, or couples of mixed race. Interracial marriages were banned in South Africa until 1985. Although these laws were aimed at preventing the spread of genes considered undesirable, rather than positively modifying the species, they were largely ineffective and have since been denounced as unethical.

It's possible to imagine a fictional society in which everyone agrees that breeding should be controlled, but any real historical or contemporary society would flout the regulations enough that the breeding goals would be neutralized. Even if a society does agree to the experiment, there may be conflict over who gets to make the decisions.

Sterilization

From 1907 to as recently as the 1960s, the U.S. government allowed states to forcibly sterilize individuals who were mentally retarded, mentally ill, or physically deformed. Several other western nations had similar programs. Nazi Germany sterilized over 400,000 people. The goal in all these cases was to prevent "undesirable" genes from spreading throughout the population.

Nowadays we consider such programs barbaric. This is because regard for the freedom of individuals has come to be seen as more important than the costs of allowing genetic diseases to be passed on to a new generation. But there is no guarantee that this attitude will prevail in the future, or in a fictional campaign setting.

Removal of "Undesirable" Traits

Another method of eugenically engineering humanity is to forcibly remove undesirable genetic traits from individuals, so that they will not be propagated. This is just beginning to become possible through gene therapy and screening of embryos. This will lead to a physically healthier population, but again at the cost of personal freedoms.

One major difference between this and other forms of eugenics is that the population at large *need not know it is occurring*. With high enough technology, embryos can be screened during routine early pregnancy checkups without the knowledge of the parents, and genetically tweaked to remove any disadvantageous mutations. Adults with genetic diseases can be treated on the sly by their doctors. Since everyone will be healthy and able to have children, a government using this method could eugenically modify its population without them being aware of it. And even if someone finds out, is it actually *bad* that everyone is healthy and long-lived?

DNA Profiling and Identification

Whose genetic records end up in a genetic database, and to whom are they accessible? This is a major legal question for the 21st century.

Some genetic profiling is performed under legal auspices, generally for forensic purposes – especially in rape cases, and to determine parentage in custody or paternity suits. At present, genetic identification usually requires a search warrant, or may be administered on a voluntary basis to prove one's own innocence, and only people who have undergone these tests end up in law-enforcement genetic databases. In the mid-1990s, the FBI had DNA profiles on over 100,000 people, mostly prisoners. By 2005, this had grown to 250,000 people. The U.S. Army also stores DNA records of its personnel to make it easier to identify the remains of dead soldiers.

But medical facilities or corporations may also begin storing genetic identification, and using it for their own purposes. Just how widespread DNA profiling becomes may vary from country to country (or planet to planet). In many countries today, there is political support for laws to limit profiling in order to protect genetic privacy. In a "dark future" these laws may be repealed to serve the interests of megacorporations and repressive governments, but it is also possible for an open society to agree to widespread profiling for peace of mind and security.

Privacy and Discrimination

The question of whether employers can test workers or job candidates is controversial. For example, current genetic tests can determine susceptibility to some hereditary diseases. If testing showed that someone had a greater-than-usual risk of developing medical problems (even late in life), then they might be perceived as a potential burden on company productivity and corporate health care plans. As a result, they might not be hired, and could even lose existing jobs or health insurance. As testing gathers more data on genes that influence human behavior, discrimination could be extended toward people with hereditary tendencies toward "undesirable" mental traits.

Insurance companies may wish to test applicants too. This can be to the clients' benefit if the company wants to reduce risk by making sure they use appropriate medications, but there will be a temptation to use genetic data to make riskier clients pay higher premiums.

Genetic Copyright

Who owns the rights to a particular genetic sequence? It seems logical that a person owns his own genome, but several legal precedents say otherwise. In 1990 the California Supreme Court ruled that a patient had no right to cell samples cloned from his body without his knowledge, or to any of the money made by the company that had developed the cell line into a profitable bioproduct. The company in fact patented the cell line, granting it exclusive rights to profit from the patient's genetic sequence.

This decision rested on two long-standing principles that the judges saw as overriding any questions of genetic ownership. Firstly, a ruling in favor of the plaintiff would have stifled important medical research beyond the bounds of the case in question, rendering much of it legally intractable or impossible. Secondly, since the abolition of slavery, it had never been possible in the United States to own even a part of a human body. A feature of common law in most countries, the prohibition against ownership

means human body parts cannot be *stolen*. Many courts have upheld this principle, ruling that a person maintains no property rights on any part of his body once it has been detached. In other cases as disturbing as the illicit use of a couple's embryos by an IVF clinic, rulings for the plaintiffs have so far been based on emotional damages, *not* on theft of property.

As biotechnology becomes ubiquitous, there will be increasing pressure to address the issue of genetic ownership. Once public awareness reaches a threshold capable of political action, the status quo may change, causing an economic and legal upheaval in the biotech industry. Biotech companies which stand to lose their livelihood will fight such changes tooth and nail. A probable outcome will be that people will maintain property rights in their own genomes, and be able to licence them to biotech companies for a fee. This will raise biotech operating costs, particularly for access to rare gene sequences, and make research on rare genetic conditions or diseases more expensive and difficult. For people *with* rare genes, it will be a windfall, as they suddenly find themselves owning a valuable resource. Market forces will settle the value of genetic information. People with particular genes may try to form genetic "trade unions," withholding their genes from research until presented with suitable incentives – although it will take only one altruistic or greedy dissenter to spoil their efforts. Withholding genetic material from biotech companies is ultimately counterproductive, as it will slow development of life preserving technologies, so some people may freely donate it anyway, possibly with conditions on use ("You can use my genes for cancer research, but not for making cloned organs.").

On the other hand, the biotech lobby may entrench current law indefinitely, so that the first commercial user of a genetic sequence owns it. Doctors may get kickbacks for supplying cell samples from patients, and people could become wary of using advanced medicine for fear of being exploited, or rush to patent their own genomes as a form of protection. The other end of the spectrum is an "open source" approach, in which genetic material and technology based on it is deemed to be public domain information. This would reduce biotech profitability and potentially lead to either stagnation or government subsidy of research.

Genetic Testing

Currently, most genetic testing is done by hospitals, at the request of patients who want to see whether they have any hereditary defects, usually because there is a history of such problems in the family and they are considering having children.

Other issues related to genetic testing include the screening of the unborn. If an embryo or fetus tests positive for a birth defect – or just isn't up to par – should it be aborted? Or should genetic surgery be attempted? Then there's the question of whether a person would want to know that he has a higher risk of coming down with a disease – or that his genes say he has less potential for intelligence or mental stability than is the norm. Finally, there are worries about the security of genetic information. If a cautious couple gets tested to ensure they won't pass on hereditary conditions to their children, can they be sure that their genetic data won't also find its way to insurance companies or employers?

> *Human beings have always been afraid of their own creative power, and the idea of man-made life was scary long before science was in any position to think of procedures that might make it reality.*
>
> *– Martha C. Nussbaum and Cass R. Sunstein*

Genetic Counseling

Once a person knows that he carries a genetic disease, he must deal with that knowledge somehow. Some disorders develop into debilitating or fatal conditions later in life. Knowing one's own fate has always been regarded as a curse, and the mental burden when that fate is horrible is too much for some people. This is where genetic counselors are needed, to explain the facts behind what a patient may experience, and prepare him for the future.

Someone who knows he carries a genetic defect has an even heavier burden, as it's possible that any children he has will share the same fate. Many people yearn to reproduce, but nobody wants his children to suffer. The choice is a difficult one that weighs heavily on those forced to make it. Counselors can again help, offering advice on probabilities and what technology can do to help. Even if the expertise exists to ensure a child will not inherit the defect, does embryo screening or gengineering fit in with the prospective parent's ethical views?

Bioroids, Parahumans, and Uplifts

Biotech holds the promise that we may be able to produce sapient beings with intellects similar to ours, but designed and built from scratch (bioroids), different enough to be considered separate species (parahumans), or created *from* different species (uplifted animals). But should we? And if we do, how will we treat our creations?

Some segments of society will argue against the creation of these new beings. Religious orthodoxy is an obvious source of objection, but there will also be well-argued cases on purely ethical and social grounds. In the infancy of the technology, many researchers will advocate a slow approach, as there will be a significant danger of producing creatures cursed with unhealthy and miserable lives. This is unlikely to stop maverick researchers from going ahead and creating them anyway.

A likely scenario would involve the first bioroids, parahumans, or uplifts produced in secret or in a loosely regulated nation. When international authorities learn about this, they may mount a raid and rescue effort (an ideal task for a group of adventurers!). Once retrieved and safe in the hands of more sympathetic guardians, the subjects of the rescue present a serious dilemma. They will be innocent victims and symbolic of a call for sapient rights, so keeping them in custody will be distasteful, but they are also completely new life forms, with unknown capabilities and motives, so governments will be reluctant to release them.

Integration and Persecution

If bioroids, parahumans, or uplifted animals become common, they will likely begin to integrate into human society. Anyone with a sense of history can foresee the result of introducing humanlike beings who are also distinctly not human. While some people will accept them, others will harbor hatred, and soon there will be discrimination, persecution, and violence against the newcomers.

Exploring this in a campaign brings a fresh look to an age-old theme. The obvious cause for the heroes to champion is the fight for sapient rights and equal recognition. For a more thought-provoking setting, this moral high ground can be sullied with technological complications. There is no biological justification for racial or religious discrimination, but there *are* significant differences in physical and mental capabilities of the different species. *Should* bioroids be given the right to vote, or are they too childlike and tractable?

Immortality

They used to say the only sure things in life are death and taxes. Well, now we can take care of the easy one. Taxes will have to wait.

– Dr. Mara Omakage

Cryonics

Since cryonic preservation (p. 144) costs $50,000-$150,000, an up-front payment is out of reach for many people. One solution practiced by current cryonics corporations is to encourage their customers to take out life insurance policies, payable to the corporation. For a few dollars a week, immortality may be yours.

Most cryonics companies take great pains to ensure their financial stability, investing a portion of all fees in trust funds. (This gives a new meaning to the term "brain trust"!) These precautions are to ensure they can maintain their patients and, hopefully, will have the funds to pay for whatever medical procedures prove necessary for future revival.

However, there's always a chance that something may go wrong. Besides the obvious problems of fly-by-night

Defining Who Is Human

What is "human"? This is a philosophical question, but it will also be an important legal and social issue in many campaign settings. In legal terms, a human is entitled to certain rights and privileges that are currently denied to nonhumans (i.e. animals). When people become more like animals, and animals become more like people, the lines will blur, and some more practical definition will be needed.

Definitions could be based on the amount of human vs. nonhuman DNA (i.e., "eugenic vs. species modification"). Other common criteria include:

Anatomy: Certain standards may be set, such as being physically indistinguishable from a normal human or, perhaps more loosely, having a generally humanoid appearance. This doesn't work for uplifts, and may be championed by those who don't want uplifted animals to be granted "human rights."

Birth: This might exclude "non-borns" who came out of incubators or clone tanks, as opposed to "test-tube babies," conceived artificially but gestated inside a surrogate mother.

Intelligence: A racial IQ modifier of -5 or worse (i.e., enough to make the average person non-sapient) could disqualify someone as legally human. One problem here is that individual humans can have IQs this low, while members of "nonhuman" species might be exceptionally bright. Another difficulty is that IQ needs to measured somehow if it is to be used as a discriminator, and intelligence testing has a long history of controversy over what it is actually measuring. IQ tests are always taken in some cultural context and are notorious for biasing results in the direction favored by those who set them.

Social Factors: People have a long history of dehumanizing others based on nothing more than class, caste, nationality, race, or religion. In a world where people of other social backgrounds may literally carry modified genes, this only becomes easier to justify in the minds of those who subscribe to it. On the inclusive side, uplifts might be considered human if they display certain social graces or abilities.

Theology: Belief systems may have their own criteria, related to things like the presence or absence of a soul, or whether the person fits a definition of man in a religious text.

All of these methods suffer from the problem that not everyone will agree on the definitions used (except in the most uniform societies). Any sort of discrimination – or an attempt to remove discrimination – will make someone unhappy. If enough people disagree, the seeds of social revolution are sown.

operations and the possibility that future science may not be up to the task of resurrecting people, here are a few other scenarios:

Financial Disaster: Someone goofs (or the entire national economy collapses!) and the organization runs low on money. It's possible that whole-body preservations may be converted to cheaper-to-maintain head-only neuropreservation (p. 145), or that some or all bodies may have to be allowed to thaw.

Problems with the Law: Preserving corpses "without decent burial" rubs some people the wrong way. Currently, most cryonics firms have good lawyers and emergency plans. But if laws or morals change, they could find themselves having to look for new homes in a hurry, and perhaps hiring some professional help. Smuggling a dozen steel containers out of state may be an interesting challenge for a group of street ops, especially if each holds a ton or so of liquid nitrogen and a dozen human heads.

Future Nightmares: Future societies may have lucrative and unpleasant uses for "corpsicles" – e.g., reviving the brain, only to incorporate it into a cyborg starship or computer matrix. In several of his stories, author Larry Niven has suggested that if freezing techniques become good enough to preserve bodies without much tissue damage, then a future society might look upon cryonauts as a potential source of organ transplants. This could be the case if tissue-engineered transplant organs are expensive or impossible.

Living Forever

How does a society deal with people who never die of old age? A world in transition as anagathic technology becomes common faces several crises never dealt with before. Power and wealth naturally accumulate in elders, being relinquished to younger generations as the holders retire and die. But when one can remain healthy for hundreds of years – or forever – there is no obvious motivation to hand over that hard-earned influence. People also become more conservative as they age and the world changes around them. The result is a society ruled by conservative cadres of the first generations to benefit from anagathics. The next generations face decades or centuries of life before they can hope to reach a senior role in business or politics, if ever.

Such a situation is ripe for intergenerational conflict, as well as social dysfunction and mental stress. Later generations may react with rebellion, with childish and irresponsible attitudes maintained for decades, or by attempting to withdraw and cut themselves off from their elders, either socially or geographically.

The other problem occurs at the opposite end of life: birth. If age claims no victims (and accidents severe enough to defeat advanced medicine will be rare too), the population will grow to an unsustainable level unless the birth rate is reduced. Although contraception may be reliable, people will still *want* to have children. There are many opportunities for conflict, with scenarios ranging from massive overpopulation and the breakdown of resource supplies to anti-birth legislation and social upheaval.

Anagathic technology will lead to activists advocating that it not be used, for fear of these stagnative and destructive effects. This *mortalism* movement could be peaceful, but may also breed murder and terrorism as tactics. This will be accentuated by the likelihood that early anagathics will be expensive, restricting their use to the wealthy and creating resentment and hostility amongst poorer people. These social conflicts may spur bloody revolution, become entrenched in a split-class society, or lead to massive government-funded anagathic programs for all.

Bio Law

With so many ethical issues raised by biotechnology, it is inevitable that governments will attempt to regulate, control, or ban various expressions of it.

A legal ban on cloning or designer babies is fundamentally different from other prohibitions, in that they address methods of making a human being. When such a ban is flouted, as it inevitably would be, the result is to create a class of potential outcasts – people whose very existence has been condemned by society. Even if the "victim" of this illegal reproduction is treated with the sympathy of an innocent by some, the treatment of illegitimate offspring in historical times shows that children born by socially unacceptable means are stigmatized and persecuted. At least bastards are natural, though – a clone or designer baby may suffer the worse fate of being branded a freak or *intrinsically* morally flawed. The law will have reinvented an original sin, but one which no baptism can redeem.

And even these problems may fade into relative insignificance if a gengineer illegally creates an entire new parahuman *species*. See *Bioroids, Parahumans, and Uplifts*, p. 199.

One possibility for a sustainable society is enforced euthanasia at a specified age. This has been presented as a dystopia in *Logan's Run*, and could certainly turn out that way, complete with "runners" who buck the system. Despite our horror, with the right attitude it may be workable; after all, a guaranteed 100 years of robust health followed by a painless death is a much better deal than most of us get at the moment. Now we just have to convince the citizens . . .

Messing with the Environment

A consequence of gengineering plants and animals is that the new germlines may escape into the wild. Once there, interbreeding with wild specimens can spread the artificial germline throughout the population. Most people agree that extinction of species is undesirable, and many would extend this to an extinction of the natural genome by gengineered variants.

More worrying is the thought that gengineered variant species may outcompete natural ones, driving them to extinction. It may be all too easy to release some hyperefficient plant or superpredator that dominates an environment – like kudzu or coral-eating starfish – driving hundreds of species into decline.

Is Anything Natural Any More?

With a biodiversity crisis caused by the invasion of gengineered organisms, or simply if mankind continues to degrade the environment, it may be *necessary* to modify wild organisms in order to maintain a viable and diverse ecosystem. Creatures that could no longer survive could be gengineered into what would effectively be new species, capable of competing on an even footing and of handling pollution or climate change.

But if we do this, there may come a time when humans have modified the germlines of *most* macroscopic species on Earth, either deliberately in order to maintain their viability, or accidentally. Is this something humanity should do, or is it unconscionable meddling with nature? There will be arguments on both sides of this coin, and no obvious answer that will satisfy everyone.

We may not even have a choice. Once transgenic organisms are out there, horizontal gene transfer mechanisms (p. 13) may contaminate every living thing on Earth within a few human generations.

Terraforming Other Worlds

Messing with our own environment might be bad enough, but what about other worlds? Do we have the right to alter a planet's biosphere to suit us? If a world is inhabited by intelligent aliens, the answer seems a clear-cut no. But if the only things alive are microbes and it's a really nice planet and we've come so far from home . . .

Some will maintain that any life forms are precious and have a right to exist without interference (although few have lived up to that principle on Earth). Others will argue that keeping a sample alive while creating a whole new world to live on is perfectly justified. Once again, bioengineers will find themselves at the center of conflict.

Character Templates

These archetypes are typical of people intimately involved in biotech and gengineering. They are presented as templates, using the rules on pp. B258-259.

Most of these templates define actual occupations and have attached job descriptions. Monthly pay ranges vary according to TL as per p. B517.

Activist

70 points

Listen up, pigs! Unless you free ***all*** *the political prisoners in three hours, the Neo-Anarchist Kommando will release a bio-engineered strain of hantavirus in New York City.*

Activists in a world with biotechnology come in two distinct types: those motivated by biotech and those who use it to further their own goals. Some people oppose some or all types of biotech on social, ethical, or religious grounds. These range from peaceful lobbyists or picketers to violent extremists. They may be associated with groups as diverse as animal rights activists and eco-guerillas to conservative religious movements. In some worlds, biotech may be legally or socially repressed, and activists seeking to *promote* research and development of life extension or trans-humanism would emerge.

Some activists and extortionists instead *use* biotech, either to "fight fire with fire," to attempt to discredit their foes, or to promote other agendas altogether. Such bioterrorists range from lone madmen with a grudge to highly organized movements with dozens of members and thousands of supporters. A terrorist bioweapon could be a lethal plague, nonlethal disease, nanomachines, proteus viruses, insect swarms, or mutant monsters. Often, these are cooked up in bargain-basement labs, stolen, or bought on the black market. As a result, they might be more or less virulent than the terrorists hoped for, or have other unexpected side effects.

Attributes: ST 10 [0]; DX 10 [0]; IQ 12 [40]; HT 11 [10].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 13 [5]; Per 12 [0]; FP 11 [0]; Basic Speed 5.25 [0]; Basic Move 5 [0].

Advantages: A total of 20 points in Allies [Varies], Charisma [5/level], Clerical Investment [5], Contacts (Radical groups) [Varies], Fearlessness [2/level], Fit [5], Indomitable [15], Reputation [Varies], Outdoorsman [10/level], Smooth Operator [15/level], Tenure [5], and Zeroed [10].

Disadvantages: -20 points chosen from among Bad Temper [-10*], Fanaticism [15], Gullibility [-10*], Impulsiveness [-10*], Intolerance (Varies) [-1 or -5], No Sense of Humor [-10], Obsession [Varies], Overconfidence [-5*], Pacifism (any) [Varies], Selfless [-5*], Sense of Duty (Every living being) [-20], Stubbornness [-5], and Trickster [-15*].

Primary Skills: Pick *two* of: Forced Entry (E) DX+1 [2]-11, Law (Bioethics or Environmental) (H) IQ-1 [2]-11, Propaganda (A) IQ [2]-12, Stealth (A) DX [2]-10.

Secondary Skills: 6 points chosen from among: Acting (A) IQ-1 [1]-11, Biology (Ecology) (H) IQ-2 [1]-10, Computer Operation (E) IQ [1]-12, Current Affairs (Headline News *or* Science & Technology) (E) IQ [1]-12, Fast-Talk (A) IQ-1 [1]-11, Leadership (A) IQ-1 [1]-11, Lockpicking (A) IQ-1 [1]-11, Naturalist (H) IQ-1 [2]-11, Photography (A) IQ-1 [1]-11, Observation (A) Per-1 [1]-11, Teaching (A) IQ-1 [1]-11, and Writing (A) IQ [2]-12.

Background Skills: A total of 5 points from Bicycling (E) DX, Boating (any) (A) DX, Driving (any) (A) DX, Climbing (A) DX, First Aid (E) IQ, Hiking (A) HT, Meditation (H) Will, Philosophy (any) (H) IQ, Politics (A) IQ, Psychology (H) IQ, Public Speaking (A) IQ, Scrounging (E) Per, Survival (any) (A) Per, and Theology (any) (H) IQ, or additional points in primary and secondary skills.

* Multiplied for self-control number; see p. B120.

Lens

Bioterrorist (+20 points): Add +1 DX [20]. Add Danger Sense [15], Languages [Varies], Patron [Varies], and Signature Gear (Terrorist bioweapon) [Varies] to the choice of advantages. Add Fanaticism [-15] as a compulsory disadvantage, and Bloodlust [-10*], Callous [-5], Enemy (Security forces) [Varies], Paranoia [-10], Reputation [Varies], and Social Stigma (any) [Varies] to the list of optional disadvantages. Add one more primary skill chosen from Bioengineering (Genetic Engineering) H) IQ [4]-12, Poisons (H) IQ [4]-12, and Smuggling (A) IQ+1 [4]-13. Add an additional 6 points in secondary skills and the following choices: Beam Weapons (Pistol or Rifle) (E) DX+1 [2]-12, Explosives (Demolition) (A) IQ-1 [1]-11, Forgery (H) IQ-2 [1]-10, Guns (Pistol, SMG, or Rifle) (E) DX+1 [2]-12, Holdout (A) IQ-1 [1]-11, Knife (A) DX [2]-11, Interrogation (A) IQ-1 [1]-11, and NBC Suit (A) DX [2]-11. Add an additional 5 points in background skills and the following choices: Electronics Operation (Communications, Medical, or Scientific) (A) IQ, Hazardous Materials (any) (A) IQ, Soldier (A) IQ, and Tactics (H) IQ.

Bioengineer or Gengineer

90 points

Don't you see? My discovery will change the world!

A scientist or engineer working in gengineering or industrial biotech. Most bioengineers are employed by corporations, while others work in university labs or even as freelance "genehackers." A bioengineer may be anything from a lab technician to a Nobel-prize winning researcher.

A common genre convention is the idealistic scientist who develops a process to benefit mankind, only to see it stolen and perverted by a rival or treacherous co-worker who is in the pay of a big megacorporation's bioweapons division. Another is the obsessed genius whose cutting-edge project was so controversial that he was fired from his job or driven out of the field. Now he lives alone somewhere and continues his ground-breaking work in private, often without adequate biohazard safeguards.

Attributes: ST 10 [0]; DX 10 [0]; IQ 13 [60]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 13 [0]; Per 13 [0]; FP 10 [0]; Basic Speed 5.00 [0]; Basic Move 5 [0].

Advantages: A total of 30 points from Additional IQ [20 per +1 IQ], Contacts (Professional) [Varies], Eidetic Memory [5], Intuition [15], Less Sleep [2/level], Reputation [Varies], Security Clearance [Varies], Single-Minded [5], Status [5/level], Wealth [Varies], Unfazeable [15], and Versatile [5].

Disadvantages: -25 points chosen from among Absent-Mindedness [-15], Bad Sight (Mitigator: Glasses, -60%) [-10], Callous [-5], Curious [-5*], Enemy (Anti-biotech Activists) [Varies], Jealousy [-10], Oblivious [-5], Obsession [-1, -5, or -10*], Pacifism (Reluctant Killer) [-5], and Workaholic [-5].

Primary Skills: Bioengineering (Cloning, Genetic Engineering, or Tissue Engineering) (H) IQ+1 [8]-14; and either Biology (Biochemistry *or* Microbiology) (H) IQ [4]-13 *or* Pharmacy (Synthetic) (H) IQ [4]-13.

Secondary Skills: Computer Operation (E) IQ [1]-13; Diagnosis (H) IQ-1 [2]-12; Electronics Operation (Medical or Scientific) (A) IQ [2]-13; Research (A) IQ-1 [1]-12; Writing (A) IQ-1 [1]-12.

Background Skills: 6 points chosen from among Animal Handling (any) (A) IQ, Current Affairs (Science & Technology) (E) IQ, First Aid (E) IQ, Hazardous Materials (any) (A) IQ, NBC Suit (A) DX, Physician (H) IQ, Physiology (H) IQ, Psychology (H) IQ, Public Speaking (A) IQ, Surgery (VH) IQ, and Weird Science (VH) IQ.

* Multiplied for self-control number; see p. B120

Lenses

Academic Bioengineer (+3 points): Add Tenure [5] to the list of advantages. Increase Research to IQ+1 [4]-14. Add Teaching (A) IQ to the background skills.

Colony Bioengineer (+15 points): You help keep an outpost alive by designing suitable crops, livestock, terraforming organisms, or human genemods. Increase HT to 11 [10]. Add Survival (any) (A) Per [2]-13 as a secondary skill. Add 3 points in background skills and add Free Fall (A) DX, Leadership (A) IQ, and Vacc Suit (A) DX to the list.

Genehacker (-5 points): Add Alternate Identity [15] and Zeroed [10] to the list of advantages. Remove Security Clearance and Status. Reduce Bioengineering to IQ-1 [2]-12. Replace Writing with Streetwise (A) IQ [2]-13.

Job Description: Bioengineer

Bioengineers employed by research or medical companies are often financially better off than those in academia or government service.

Prerequisites: Bioengineering 14+.

Job Roll: Bioengineering. On critical failure: demoted, reduce income by 10%.

Wealth Level: Corporate: Very Wealthy. Supports Status 3. Academic or colony: Wealthy. Supports Status 2.

Job Description: Genehacker

No reputable company or university will employ you, so you use your skills on the street, supplying biotech to the disenfranchised, criminals, and extremists.

Prerequisites: Bioengineering 12+.

Job Roll: Bioengineering. On critical failure: displease a client or suffer an accident; suffer 3d of injury.

Wealth Level: Comfortable. Supports Status 0.

Biotech Executive

125 points

I'm afraid we cannot permit you to continue that research, doctor. The way public opinion has swung, such work on human germ cells would be detrimental to Metazyne's corporate image.

A senior manager in a bioengineering company. Small, dynamic companies are often helmed by former or current scientists, until they make it big and get bought out by or turn into huge conglomerates. Often the new managers are businessmen, pure and simple, which can lead to conflict between the scientists (who enjoy pure research projects) and the executives (who'd rather see a profit in the next fiscal year or two).

It can be fun to play the head of a small, struggling company, especially if the competition is doing everything – up to and including biological warfare – to wipe you out. The biotech exec also makes a good villain: He's the guy who orders the ruthless cover-ups when something controversial or dangerous escapes from the lab, or who arranges expeditions to alien worlds to find deadly new species for the Bioweapons Division.

Attributes: ST 10 [0]; DX 10 [0]; IQ 12 [40]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 13 [5]; Per 12 [0]; FP 10 [0]; Basic Speed 5.00 [0]; Basic Move 5 [0].

Advantages: Wealth (Filthy Rich) [50]; 30 points chosen from among Business Acumen [10/level], Charisma [5/level], Fit [5], Less Sleep [2/level], Fashion Sense [5], Reputation [Varies], Security Clearance [Varies], Smooth Operator [15/level], Status [5/level], and additional Wealth (Multimillionaire) [25/level].

Disadvantages: -30 points chosen from among Callous [-5], Debt [-1/level], Enemy (Anti-biotech Activists) [Varies], Greed [-15*], Obsession [-1, -5, or -10*], Overweight [-1], Pacifism (Reluctant Killer) [-5], and Workaholic [-5].

Primary Skills: Pick *two* of the following: Administration (A) IQ+2 [8]-14, Bioengineering (Cloning, Genetic Engineering, *or* Tissue Engineering) (H) IQ+1 [8]-13, Finance (H) IQ+1 [8]-13, or Propaganda (A) IQ+2 [8]-14.

Secondary Skills: Current Affairs (Business *or* Science & Technology) (E) IQ [2]-13; Diplomacy (H) IQ [4]-12 *or* Intimidation (A) Will+1 [4]-14; pick *two* of the following: Accounting (H) IQ-1 [2]-11, Biology (Biochemistry *or* Microbiology) (H) IQ-1 [2]-11, Economics (H) IQ-1 [2]-11, Market Analysis (H) IQ-1 [2]-11, Pharmacy (Synthetic) (H) IQ-1 [2]-11, or Public Speaking (A) IQ [2]-12.

Background Skills: 4 points chosen from among Carousing (E) HT, Computer Operation (E) IQ, Connoisseur (Any) (A) IQ, Detect Lies (H) Per, Electronics Operation (Medical or Scientific) (A) IQ, First Aid (E) IQ, Hazardous Materials (any) (A) IQ, NBC Suit (A) DX, Physician (H) IQ, Physiology (H) IQ, Psychology (H) IQ, Public Speaking (A) IQ, and Sports (Any) (A) DX.

* Multiplied for self-control number; see p. B120.

Lens

Struggling Executive (-30 points): An executive of a company that is in trouble or just starting out. Downgrade Wealth (Filthy Rich) to Wealth (Wealthy) [20].

Job Description: Successful Executive

A biotech executive either owns his own company, or operates one on behalf of other owners and investors.

Prerequisites: Administration 14+.
Job Roll: Administration. On critical failure: lose 3× base income.
Wealth Level: Filthy Rich. Supports Status 4.

Job Description: Struggling Executive

Some executives run biotech concerns that are struggling to get by in a competitive market.

Prerequisites: Administration 12+.
Job Roll: Administration. On critical failure: company folds, lose job.
Wealth Level: Wealthy. Supports Status 2.

Ecological Engineer or Ecoteur

90 points

A planetary ecosystem is a complex entity, a synergistic whole. Even seemingly insignificant changes have the potential to send shock waves that ripple across the entire biosphere.

Ecological engineers are specialists at redesigning regional or planetary ecosystems for the purposes of terraforming. They also work to correct the depredations of environmental disasters such as pollution, overpopulation, failed terraforming experiments and deliberate sabotage by ecoteurs. They combine a knowledge of genetic engineering or nanotechnology, with an understanding of how even minor changes can effect entire planetary ecosystems.

Ecoteurs are the dark side of the ecological engineer – sometimes even former eco-engineers "gone bad." These are mercenary, corporate or government agents who specialize in ecological sabotage ("ecotage") aimed at disrupting or destroying the relationships between species. Ecotage is typically aimed at destroying a competitor's economically valuable crops or livestock, but it might also be intended to force the current occupants of a sabotaged region to leave or surrender.

Some ecotage activities may be very straightforward. A "rabbits in Australia" ploy may introducea new species into an ecosystem in order to displace or kill livestock, crops or people. Ecotage can also be subtle. For instance, an ecoteur who has been hired to disrupt a region's economy might release a bacteria that kills birds that prey upon a species of insect, resulting in the insects multiplying rapidly and devouring an economically important crop. This sort of ecological sabotage can be hard to trace back to the source, and in some cases, an enemy may never learn that sabotage has taken place!

Attributes: ST 10 [0]; DX 10 [0]; IQ 13 [60]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 13 [0]; Per 13 [0]; FP 10 [0]; Basic Speed 5.00 [0]; Basic Move 5 [0].

Advantages: 30 points chosen from among Eidetic Memory [5], G-Experience [1-10]; Intuition [15], Less Sleep [2/level], Tenure [5], Reputation [Varies], Single-Minded [5], Status [5/level], Wealth [Varies], Versatile [5].

Disadvantages: -20 points chosen from among Absent-Mindedness [-15], Bad Sight (Mitigator: Glasses, -60%) [-10], Curious [-5*], Enemy (Environmental activists or security forces) [Varies], Oblivious [-5], Obsession (A particular project or cause) [-1, -5, or -10*], Pacifism (Reluctant Killer) [-5], and Workaholic [-5].

Primary Skills: Biology (Ecology) (H) IQ [4]-13; *two* of Bioengineering (Genetic Engineering) (H) IQ [4]-13, Engineer (Nanotechnology) (H) IQ [4]-13, or Geography (Physical) (H) IQ [4]-13 .

Secondary Skills: Pick *three* of the following: Animal Handling (any) (A) IQ-1 [1]-12, Computer Operation (E) IQ [1]-13, Farming (A) IQ-1 [1]-12, Gardening (E) IQ [1]-13, Mathematics (Applied or Statistics) (H) IQ-2 [1]-11, Research (A) IQ-1 [1]-12, or Writing (A) IQ-1 [1]-12.

Background Skills: 5 points chosen from among: Electronics Operation (any) (A) IQ, Environmental Suit (any) (A) DX, First Aid (E) IQ, Hazardous Materials (any) (A) IQ, Hiking (A) HT, Observation (A) Per, Public Speaking (A) IQ, and Teaching (A) IQ.

* Multiplied for self-control number; see p. B120.

Job Description

Ecological engineers can be employed by private companies specializing in local ecosolutions, or by governments engaging in large-scale engineering or terraforming operations.

Prerequisites: Biology (Ecology) 13+ and one of Bioengineering (Genetic Engineering) 13+, Geography (Physical) 13+, or Engineer (Nanotechnology) 13+.

Job Roll: Biology (Ecology). On critical failure: lose 3× base income.

Wealth Level: Wealthy. Supports Status 2.

Epidemiologist

90 points

The victims don't live near each other, don't work together, and have never met, but every one of them was in Rachaelow Park less than a week before their symptoms hit. I suggest we move the search to there.

You study the distribution and determinants of morbidity, mortality, disability, and injury, and apply this knowledge to controlling health-related issues in populations. You might work for a government health department, federal disease control agency, hospital infection control, academia, private industry (particularly pharmaceutical companies), or the military.

Depending on your employer, you may be called upon to determine the cause of a mysterious outbreak, to figure out if the latest version of a certain bioroid is less prone to pyromania, or to test the effectiveness of a new drug.

Attributes: ST 10 [0]; DX 10 [0]; IQ 13 [60]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 13 [0]; Per 13 [0]; FP 10 [0]; Basic Speed 5.00 [0]; Basic Move 5 [0].

Advantages: 20 points chosen from among +1 to IQ [20], additional Perception [5/level], Charisma [5/level], Common Sense [10], Cultural Familiarity [1 per culture], Fearlessness [2/level], Intuition [15], Languages (any) [Varies], Less Sleep [2/level], Resistant to Disease (+3 or +8) [3 or 5], and Status [5/level].

Disadvantages: -20 points chosen from among Curious [-5*], Honesty [-10], Insomniac [-10 or -15], Obsession [-1, -5, or -10*], Overconfidence [-5*], Sense of Duty (Humanity) [-15], Stubbornness [-5], Truthfulness [-5*], and Workaholic [-5]. Other stress-related disadvantages may apply as well.

Primary Skills: Expert Skill (Epidemiology) (H) IQ+1 [8]-14; Mathematics (Statistics) (H) IQ+0 [4]-13; Research (A) IQ+1 [4]-14.

Secondary Skills: Select *three* from: Biology (any optional specialty) (H) IQ-1 [2]-12, Chemistry (H) IQ-1 [2]-12, Computer Operation (E) IQ+1 [2]-14, or Electronics Operation (Scientific) (A) IQ [2]-13.

Background Skills: 8 points chosen from among: Area Knowledge (E) IQ, Current Affairs (Science & Technology) (E) IQ, Diplomacy (H) IQ, NBC Suit (A) DX, Physiology (H) IQ, Public Speaking (A) IQ, Sociology (H) IQ, Teaching (A) IQ, and Writing (A) IQ.

* Multiplied for self-control number; see p. B120.

Lenses

Research Epidemiologist (+5 points): Add Reputation [Varies], Tenure [5], and Wealth [Varies] to the choice of advantages. Select one more Secondary Skill. Add 3 more points in background skills and include Bioengineering (any specialty) (H) IQ and Pharmacy (H) IQ as options.

Disease Hunter (+10 points): Add Danger Sense [15] and Reputation [Varies] to the choice of advantages. Add Biology (Microbiology) (H) IQ-1 [2]-12 and NBC Suit (A) DX+2 [8]-12 to primary skills. Add Cartography (A) IQ, Linguistics (H) IQ, Physician (H) IQ, and Veterinary (H) IQ to the list of background skills.

Containment Specialist (-5 points): Drop IQ to 12 [40] and raise HT to 12 [20]. Add Danger Sense [15] and Security Clearance [Varies] to the choice of advantages. Add Duty (often Extremely Hazardous) [Varies] and Nightmares [-5*] to the list of disadvantages. Replace all primary skills with NBC Suit (A) DX+2 [8]-12; Hazardous Materials (any) (A) IQ+1 [4]-13. Add Expert Skill (Epidemiology) (H) IQ-1 [2]-11 and First Aid (E) IQ [2]-13 to the list of secondary skills. Drop 1 point from background skills and add Animal Handling (any) (A) IQ, Diagnosis (H) IQ, Driving (any) (A) DX, Forced Entry (E) DX, and Guns (Shotgun) (E) DX to the list.

Job Description: Epidemiologist

Many epidemiologists work at health departments or with health care facilities, focusing on disease surveillance and public health measures, such as vaccinations and patient quarantines. They also respond to local epidemics and educate the public regarding health-related subjects.

Prerequisites: Expert Skill (Epidemiology) 12+, Mathematics (Statistics) 11+, and Research 11+.

Job Roll: Worst prerequisite. On critical failure: make an error that potentially costs lives; lose job.

Wealth Level: Average. Supports Status 0.

Job Description: Research Epidemiologist

Whether you are a grant-funded academic employed by a university or a high-priced scientist with private industry, you work with your team to design studies, collect data, and analyze results.

Prerequisites: Expert Skill (Epidemiology) 14+, Mathematics (Statistics) 13+, and Research 14+.

Job Roll: Worst prerequisite. On critical failure: publish incorrect data or accused of research fraud; gain -1 Reputation in research community.

Wealth Level: Academic: Comfortable. Supports Status 1. Private: Very Wealthy. Supports Status 3.

Job Description: Disease Hunter

Yes, it's morbid, but you live for a good outbreak. Be it a natural infection or a bioengineered plague, when the call comes in, you're sent out. You travel around the world and work with people from almost every field, uncovering the causes of epidemics and stopping the spread of disease. You will typically be employed by a federal disease-control center, but military positions are also possible.

Prerequisites: Expert Skill (Epidemiology) 14+, NBC Suit 12+, and Research 12+.

Job Roll: Worst prerequisite. On critical failure: infected with a disease.

Wealth Level: Comfortable. Supports Status 1.

Job Description: Containment Specialist

Once a biohazard is identified, it's your job to contain and eliminate it. It might be a disease, or gengineered pest species gone rogue. You may work for a disease-control center, police force, military unit, or corporation, or be a freelancer hired to clean up others' messes.

Prerequisites: Hazardous Materials 12+, NBC Suit 12+.

Job Roll: Hazardous Materials. On critical failure: suffer 2d of injury or contract a disease.

Wealth Level: Comfortable. Supports Status 1.

> *It has become appallingly obvious that our technology has exceeded our humanity.*
>
> *– Albert Einstein*

Forensic Pathologist

95 points

This was no suicide.

You use your knowledge of causes of death and disease to help police catch criminals, or to build legal cases against them. You might specialize in performing autopsies, doing the followup labwork and analysis, or studying the decay of a body in detail to determine time of death. Sometimes you'll be called into the field to examine a crime scene, or be present at an exhumation. It's a job that takes dedication, thoroughness, and a lack of squeamishness.

After putting the evidence together you're likely to be called into court to present it to a jury. Explaining complex scientific findings to average people so they can come to the right conclusions is an important part of your job.

Attributes: ST 10 [0]; DX 10 [0]; IQ 13 [60]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 13 [0]; Per 14 [5]; FP 10 [0]; Basic Speed 5.00 [0]; Basic Move 5 [0].

Advantages: A total of 15 points in: additional Will or Perception [5/level], Contacts (Police) [Varies], Fearlessness [2/level], or Less Sleep [2/level].

Disadvantages: -20 points chosen from among Curious [-5*], Enemy (Convicted Criminal) [Varies], Honesty [-10*], Sense of Duty (Crime Victims) [-5], Stubbornness [-5], Truthfulness [-5*], and Workaholic [-5].

Primary Skills: Biology (Biochemistry, Entomology, *or* Microbiology) (H) IQ [4]-13; Diagnosis (H) IQ [4]-13; Forensics (H) IQ+1 [8]-14; Physiology (H) IQ [4]-13.

Secondary Skills: Criminology (A) IQ-1 [1]-12; Pharmacy (Synthetic) (H) IQ-2 [1]-11; Physician (H) IQ-1 [2]-12; Savoir-Faire (Police) (E) IQ [1]-13; Surgery (VH) IQ-2 [2]-11; Writing (A) IQ-1 [1]-12. *One* of Chemistry (Analytical) (A) IQ-1 [1]-12 or Electronics Operation (Medical) (A) IQ-1 [1]-12.

Background Skills: A total of 6 points from Anthropology (H) IQ, First Aid (E) IQ, Guns (Pistol) (E) DX, Law (Local Criminal) (H) IQ, Poisons (H) IQ, Public Speaking (A) IQ, and Research (A) IQ.

* Multiplied for self-control number; see p. B120.

Job Description

Forensic pathologists usually work for law enforcement agencies. This could be a local police department, or a broader federal or international group charged with investigating crimes that cross jurisdictions.

Prerequisites: Diagnosis and Forensics 13+.
Job Roll: Worst prerequisite skill. On critical failure: demoted, income reduced 10%.
Wealth Level: Comfortable. Supports Status 1.

Nurse

65 points

This will only hurt for a second.

Nurses are the primary point of contact between the patient and the world of health care, working directly with patients and their families. They perform evaluations, administer medication and IVs, and develop care plans for inpatients as well as at-home care (after release). Because the nurse is in frequent contact with patients, he is usually the first to notice any problem. Nurses are rarely supervised directly by a doctor; the head nurse coordinates the nursing team, while the doctor makes adjustments to the patients' medical charts.

Attributes: ST 10 [0]; DX 10 [0]; IQ 12 [40]; HT 10 [0].
Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 11 [0]; Per 11 [0]; FP 10 [0]; Basic Speed 5.00 [0]; Basic Move 5 [0].
Advantages: A total of 20 points chosen from Common Sense [10], Empathy [5 or 15], Healer [10/level], Languages [Varies], Less Sleep [2/level], Lifting ST [3/level], Resistant to Disease (+3 or +8) [3 or 5], Resistant to Sickness (+3 or +8) [5 or 10], and Wealth (Comfortable) [10].
Disadvantages: A total of -20 points chosen from Charitable [-15*], Debt (Student loan) [-1/level], Guilt Complex [-5], Honesty [-10*], Insomniac [-10 or -15], Pacifism [Varies], Sense of Duty (Patients) [-10], and Workaholic [-5].
Primary Skills: Physician/TL (H) IQ+1 [8]-13.
Secondary Skills: Diagnosis/TL (H) IQ [4]-12; Diplomacy (H) IQ [4]-12; Electronics Operation/TL (Medical) (A) IQ-2 [2]-12.
Background Skills: A total of 7 points in Administration (A) IQ, Biology (Biochemistry)/TL (H) IQ, Body Language (A) Per, Chemistry/TL (H) IQ, Computer Operation/TL (E) IQ, Physiology/TL (H) IQ, Psychology (H) IQ, Teaching (A) IQ, and Writing (A) IQ.

* Multiplied for self-control number; see p. B120.

Lens

Paramedic/EMT (+25 points): Add DX+1 [20]. Add Combat Reflexes [15] to optional advantages. Add First Aid (E) IQ+3 [6†]-15, Area Knowledge (Operational area) (E) IQ+1 [2]-13, and either Driving/TL (Automobile) (A) DX [2]-11 *or* Piloting/TL (Helicopter) (A) DX [2]-11 to primary skills. Reduce Physician to IQ-1 [2]-11. Add another point in background skills.

† Bought up from default from Physician.

Job Description: Nurse

You care for patients in a hospital, nursing home, the military, or perhaps privately.

Prerequisites: Physician 12+, Diagnosis 10+.
Job Roll: Physician. On critical failure: Medicate a patient incorrectly, lose job.
Wealth Level: Comfortable. Supports Status 1.

Job Description: Paramedic/EMT

You are usually the first responder in an emergency situation, dispatched from the hospital that you work for.

Prerequisites: First-Aid 12+, Driving *or* Piloting 11+.
Job Roll: Lowest prerequisite. On critical failure: Injured in a hazardous situation or vehicle accident, 1d-2 damage.
Wealth Level: Average. Supports Status 0.

Posthuman Clothing

Visit Jeremy Fogg's Vacshop on Ceres for all your custom needs. We'll convert the gloves, sleeves, pant legs, and boots of all your clothing, armor and spacesuits to fit your prehensile feet, tails, tentacles, or whatever! See our new line of toe-gloves, tail socks, and flexisleeves! Jeremy Fogg: Meeting the needs of posthuman morphs everywhere.

Full-body suits, armor and clothing for people who require extra sleeves, legs or "tail socks" are +10% to weight and cost per extra limb. There is no extra cost or weight if the extra arm, leg, or tail is outside it (e.g., a tail sticking through a flap) – this only applies if the suit must cover it.

Organlegger

105 points

19 years old, good heart and lungs, healthy kidneys, no diseases . . . a jogger, huh? Good choice, Charlie. Problem with snatching street people, they've got so many retroviruses and defects, it's not worth the trouble these days. Now this is prime stuff: at least two hundred Gs. Break her up, and burn the brain.

Organleggers kidnap people and break them down for spare parts, or – more subtly – loot the organs of sick or dying patients during hospital visits.

As the populace ages and immunosuppressant drugs improve, organs sell for huge profits on the black market to people desperate for transplants. The demand may slacken after bionic or cloned organs become available at TL9+, but organleggers can still compete by offering their wares at lower prices. At TL10+, organleggers could exploit a new market for adult human brains enslaved inside cyborg spaceships, biocomputers, or factories.

Attributes: ST 10 [0]; DX 11 [20]; IQ 12 [40]; HT 11 [10].
Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 13 [5]; Per 12 [0]; FP 11 [0]; Basic Speed 5.50 [0]; Basic Move 5 [0].
Advantages: Choose 30 points from among +1 to IQ [20], Allies [Varies], Alternate Identity (Illegal) [15], Contacts [Varies], High Manual Dexterity [5/level], Languages (any) [Varies], Patron (Crime boss) [Varies], Wealth [Varies], and Zeroed [10].
Disadvantages: Callous [-5] and -20 points chosen from among Addictions (Tobacco, alcohol, or stimulants) [Varies], Enemies (Law enforcement or rival gangs) [Varies], Greed [-15*], No Sense of Humor [-10], Sadism [-15*], or Secret (Imprisonment) [-20].
Primary Skills: Electronics Operation (Medical) (A) IQ-1 [1]-11; Streetwise (A) IQ [2]-12; Surgery (VH) IQ [8]-12.
Secondary Skills: Diagnosis (H) IQ-1 [2]-11; First Aid (E) IQ [1]-12; Merchant (A) IQ [2]-12; Pharmacy (Synthetic) (H) IQ-1 [2]-11; Physician (H) IQ-1 [2]-11.
Background Skills: 5 points from Beam Weapons (Pistol) (E) DX, Biology (VH) IQ, Detect Lies (H) Per, Fast-Talk (A) IQ, Forgery (H) IQ, Guns (Pistol) (E) DX, Knife (E) DX, Physiology (H) IQ, and Shadowing (A) IQ.

* Multiplied for self-control number; see p. B120.

Job Description

Organlegging is a dangerous freelance occupation, that pays off in big scores interspersed with quiet periods.

Prerequisites: Streetwise and Surgery 12+.
Job Roll: Worst prerequisite. On critical failure: arrested and suffers 1d of injury.
Wealth Level: Comfortable. Supports Status 1.

Physician

95 points

Say 'Aaaah . . .'

You've dedicated your life to healing the sick. You examine patients, diagnose their conditions, and prescribe various treatments. If necessary, you'll order lab tests or refer them to a specialist. You'll also need to advise patients on various options and new treatments, which requires keeping up to date in a changing world.

Attributes: ST 10 [0]; DX 10 [0]; IQ 13 [60]; HT 10 [0].
Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 13 [0]; Per 13 [0]; FP 10 [0]; Basic Speed 5.00 [0]; Basic Move 5 [0].
Advantages: Choose 20 points from among +1 to IQ [20], additional Perception [5/level], Charisma [5/level], Common Sense [10], Empathy [5 or 15], Fearlessness [2/level], Healer [10/level], High Manual Dexterity [5/level], Languages (any) [Varies], Less Sleep [2/level], Resistant to Disease (+3 or +8) [3 or 5], Status [5/level], Wealth [Varies].
Disadvantages: -20 points chosen from among Addiction (Tobacco, alcohol, or stimulants) [Varies], Code of Honor (Hippocratic) [-5], Curious [-5*], Debt (Student loan) [-1/level], Greed [-15*]; Honesty [-10*], Sense of Duty (The Sick) [-5], Stubbornness [-5], Truthfulness [-5*], and Workaholic [-5]. Other stress-related disadvantages may apply as well.
Primary Skills: Diagnosis (H) IQ+1 [8]-14; Physician (H) IQ+2 [12]-15; Physiology (H) IQ-1 [2]-12.
Secondary Skills: Electronics Operation (Medical) (A) IQ-1 [1]-12; Pharmacy (Synthetic) (H) IQ [4]-13; Surgery (VH) IQ-1 [4]-12.
Background Skills: 4 points from Bioengineering (Tissue Engineering) (H) IQ, Biology (VH) IQ, Current Affairs (Science & Technology) (E) IQ, Forensics (H) IQ, Law (Medical) (H) IQ, Poisons (H) IQ, Psychology (H) IQ, Research (A) IQ.

* Multiplied for self-control number; see p. B120.

Lenses

Ship's Doctor (+5 points): Add Cultural Adaptability (Normal or Xeno-Adaptability) [10 or 20] to the list of advantage choices. Add Seamanship (E) IQ [1]-13 to secondary skills and 4 points chosen from among Broadsword (A) DX; Guns (Pistol) (E) DX, Knot Tying (E) DX, Navigation (Sea) (A) IQ, and Swimming (E) HT.
Spaceship's Doctor (+5 points): Add Cultural Adaptability (Normal or Xeno-Adaptability) [10 or 20] to the list of advantage choices. Add Spacer (E) IQ [1]-13 to Secondary Skills, and 4 points chosen from among Astronomy (H) IQ, Beam Weapons (any) (E) DX, Free Fall (A) DX, and Vacc Suit (A) DX.
Specialist (+5 points): A specialist medical practitioner can be created in one of two ways. The simplest is to take Physician, Diagnosis, and Surgery, and give him optional specialties in the relevant fields. For specialists in less related fields, remove 4 points from Physician and add 8 points in the relevant field's skill, including various specialties of Bioengineering, Biology, Expert Skills, Pharmacy, Physiology, and so on; change Diagnosis and perhaps Electronics Operation (Medical) and Pharmacy to give them optional specializations; and add a further 1 point in background skills.
Surgeon (+55 points): Add DX +2 [40]. Add Reputation [Varies] to the list of advantages. Increase Surgery to IQ+2 [16]-15, change it to a primary skill, and add 3 points between primary, secondary, and background skills.
Military Doctor (+5 points): This lens may be taken in combination with any other lens except for *Illegal*. Add Military Rank 3 [15] and Duty (Military; 12 or less) [-10], plus the option of extra Rank [5/level] in the advantage choices.
Illegal (+10 points): Take either the standard Physician or a lens, not including *Military Doctor*. Add another 10 points in advantages. Add Alternate Identity (Illegal) [15], Contacts [Varies], and Zeroed [10] to optional advantages. Add Callous [-5], Enemy (law enforcement) [Varies], and Secret [Varies] to optional disadvantages. Add Forgery (H) IQ, Merchant (A) IQ, Streetwise (A) IQ, Fast-Talk (A) IQ, and Detect Lies (H) IQ to background skills.

Job Description: General Practitioner

Physicians can work for salary in a public health system or set up a private practice and earn freelance income.

Prerequisites: Diagnosis and Physician 12+.
Job Roll: Worst prerequisite. On critical failure: sued for malpractice, lose 5× base income and gain -1 Reputation.
Wealth Level: Wealthy. Supports Status 2.

Job Description: Ship's or Spaceship's Doctor

You see all sorts of things in this job. Crewmen come to me with broken bones, plasma burns, strange alien viruses picked up from god knows where. And that's just after they get back from shore leave.

You are dedicated to healing the sick, but also have an adventurous spirit tled you to a life of travel. Depending on tech level, this could be on an ocean-going vessel or a spacecraft. You could be part of a medical staff, or the only person on board with any medical knowledge at all. Working with limited facilities, you have to deal with every sort of medical problem under the sun. In the good times you can get away with prescribing antibiotics for "social" infections, but when things get rough you'll be facing diseases nobody has ever seen before or treating fellow crewmen injured in combat. In a pinch you may even have to help man the vessel.

A ship's doctor can be enlisted in the military and assigned to a naval vessel, or can hire on with a civilian crew. The former has greater job stability, but can be riskier!

Prerequisites: Diagnosis and Physician 12+.
Job Roll: Worst prerequisite. On critical failure: fired and gain -1 Reputation.
Wealth Level: Wealthy. Supports Status 2.

Job Description: Specialist

The bad news is your condition doesn't respond to any established treatment, and experience shows you probably have about six months to live. The good news is we have an experimental procedure that we'd like you to consider agreeing to try.

You know everything there is to know about a particular field of medicine, and general practitioners send their patients to you when they are not sure about something. You're the last line of medical care when patients have an unusual or life-threatening condition – if you can't help them, no one can. As such, you need to keep on top of all the latest developments in your field. You are also likely to be involved with advancing your chosen specialty through research and conducting clinical trials on patients with nothing to lose.

Your chosen field could encompass a specific condition (cancer, degenerative diseases, sleep disorders) or a particular type of patient (pediatrics, gynecology, geriatrics). As a leader in the area, your research may provoke public interest – or outrage – and you may be called upon to defend your work.

A specialist may be tenured at a university or medical research center, and see only a select few patients, or could operate a medical practice and contribute less to research.

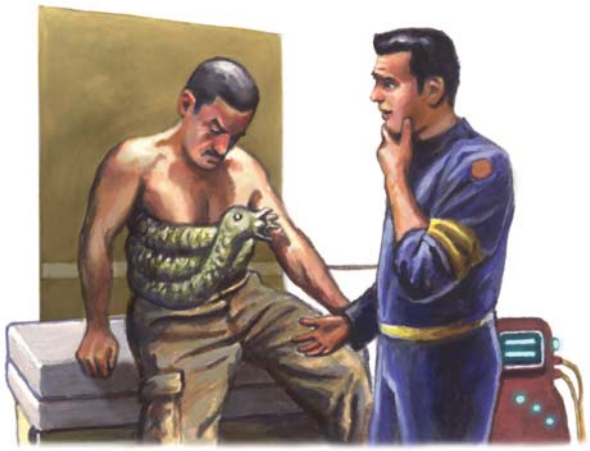
Prerequisites: Diagnosis and Physiology 14+.
Job Roll: Worst prerequisite. On critical failure: sued for malpractice or research fraud, lose 5× base income and gain -1 Reputation.
Wealth Level: Very Wealthy. Supports Status 3.

Job Description: Surgeon

You use your skill and dexterity to perform operations on patients. Your specialty might involve trauma surgery, therapeutic operations, or elective biomodifications. Either way, it's a stressful job with long hours. You might do it for the satisfaction of applying your talents to improving the lives of others. On the other hand, surgeons are the elite of the medical profession, and you earn high social standing and considerable wealth, which may be motivation enough.

Surgeons are often eagerly sought by both public and private hospitals. The military also requires surgeons.

Prerequisites: Diagnosis and Surgery 14+.
Job Roll: Worst prerequisite. On critical failure: sued for malpractice, lose 5× base income and gain -1 Reputation.
Wealth Level: Very Wealthy. Supports Status 3.



Job Description: Splicer

Welcome to the Clinique Rouge, monsieur. Our discretion is assured.

If you don't quite have the talent, or the connections, or you made one mistake too many and were ejected from the medical fraternity, you could still practice your trade on the streets. Congratulations, you're an outlaw medic. A street doc. A "splicer." There are any number of reasons to walk this road. You could just be an out-of-work or struggling student moonlighting for extra cash, and as ethical as any licensed physician. Or maybe you enjoy working in the shadows, for an ultra-tech black clinic, for the opportunity to test cutting-edge procedures on live subjects, or to perform experiments that would never be approved by government regulators.

Splicers take whatever work they can get, usually on a single contract basis, making their pay freelance. They may be employed on a recurring basis by wealthy individuals wanting multiple operations on themselves or their subordinates.

Prerequisites: Streetwise 12+ and Surgery 13+.
Job Roll: Worst prerequisite. On critical failure: arrested and suffers 2d of injury.
Wealth Level: Wealthy. Supports Status 2.

Senior Citizen

-15 points

Well, son, I'm 97, and most of the last 15 years have been spent in hospitals like this one. Now you're telling me that if I let you pump that million dollars worth of nano-gook through my body, there's an even chance it'll either make me fifteen again or kill me. Gotcha, son. Where's that consent form?

The desire of elderly people to escape death may be the driving force behind radical advances in human biotechnology. The aged will actively follow the latest life-extension treatments (and vote more money for health care subsidies, if these exist). The extremely rich can afford to sponsor competing lines of cutting-edge research, ranging from anagathic drugs and brain or organ transplants to cryonics, nanotechnology, and uploading. When it is a question of trying out these treatments or dying, they may well be the guinea pigs for experimental therapy.

Sometimes even illegal therapy . . .

Attributes: ST 9 [-10]; DX 9 [-20]; IQ 12 [40]; HT 8 [-20].

Secondary Characteristics: Damage 1d-2/1d-1; BL 16 lbs.; HP 9 [0]; Will 12 [0]; Per 11 [-5]; FP 8 [0]; Basic Speed 4.25 [0]; Basic Move 4 [0].

Advantages: Choose 40 points from among +1 to IQ [20], additional Will or Perception [5/level], Ally (Loyal relatives, caregivers, or employees) [Varies], Common Sense [10], Less Sleep [2/level], Reputation [Varies], Social Regard 1 (Venerated) [5], Status [5/level], and Wealth [Varies].

Disadvantages: -40 points chosen from among Absent-Mindedness [-15], Appearance [Varies], Bad Sight [-25], Chronic Pain [Varies], Enemies [Varies], Hard of Hearing [-10], Hidebound [-5], Obsession (Immortality) [-10*], Restricted Diet [Varies], Short Attention Span [-10*], Stubbornness [-5], Susceptible to Disease [4/level], Terminally Ill [-50, -75, or -100], and Unfit or Very Unfit [-5 or -15].

* Multiplied for self-control number; see p. B120.

You will usually have high skill levels in former job skills. Diagnosis (of your own symptoms) and Current Affairs (Science & Technology) (for keeping up with cutting-edge health care and life extension plans) are also appropriate.

Jobs

Here are a few more biotech-related jobs for which full character templates are inappropriate, or which might be taken by non-adventuring citizens.

Lab Assistant

You do the menial gruntwork in a biotech lab, under the direction of a senior researcher. This is likely to be in a private biotech company, but could also be in a government agency such as a disease-control center.

Prerequisites: Electronics Operation (Scientific) 11+, and either Biology (any) or Bioengineering (any) 12+.
Job Roll: Worst prerequisite. On critical failure: lose 2× base income.
Wealth Level: Average. Supports Status 0.

Surrogate Mother

You offer the service of your womb as the growth environment for someone else's baby. Although it's sometimes considered a degrading job, the employers are usually grateful and it pays reasonably well.

Prerequisites: Female (or male with androwomb implant, p. 175), HT 11+.
Job Roll: HT. On critical failure: miscarriage; lose job and suffer 1d damage.
Wealth Level: Average. Supports Status 0. (If illegal: Comfortable. Supports Status 1.)

Test Subject

You volunteer for experimental biotech procedures. This can be risky, but it provides income for people with no skills or other opportunities. You might get access to new biomods or vaccines before they are released to the public – or declared safe.

Prerequisites: HT 11+.
Job Roll: HT. On critical failure: lose job and suffer 2d damage or contract a disease.
Wealth Level: Struggling. Supports Status 0.

Advantages, Disadvantages, and Skills

Some advantages, disadvantages, and skills can be interpreted to represent different things in a biotech setting. New perks, enhancements, and limitations provide additional customization for biologically modified characters.

Advantages

Cultural Familiarity

see p. B23

The details of Cultural Familiarity in a campaign with multiple parahuman species and uplifted animals depends on just how alien the species seem to each other. In many cases, genetic upgrades and parahumans will be fully integrated into global society; if so, buy Cultural Familiarity for social cultures, not races.

Example: Cultural Familiarity (Western) [1] gives familiarity with baselines, upgrades, and parahumans raised in the western culture.

It may be possible that some parahuman species are stigmatized to the extent that they withdraw from or cannot participate in mainstream cultures and establish a culture of their own. Such a culture qualifies for its own familiarity, with a cost of 1 point because the species is close to human.

Example: Cultural Familiarity (Ariadne) [1] gives familiarity with an insular culture of Ariadne parahumans.

Uplifted animals are different enough from humans that they may qualify as having alien cultures, costing 2 points for a cross-species familiarity. This depends on how the GM interprets uplifts in the campaign. Uplifts who are essentially "talking animals" and integrate easily into human cultures are not alien, and may be included in a human culture like parahumans. Uplifts who have a distinct nonhuman psychology and find humans baffling do count as alien; such an uplift would need 2 points in Cultural Familiarity to understand a human culture – even if he was raised in one!

Dominance

see p. B50

This can be used to represent an attack that infects victims with nanobots that allow the attacker to control them.

Perks

These new perks represent unusual biochemistry or biotechnological improvements.

Immunity to a Specific Disease [P]

You are totally immune to a *single* specific disease that exists in the campaign setting. This can occur in low TL settings; Immunity to Plague would be useful at TL4! At high TLs this could be granted by a vaccine, but see Resistant (below) for broader protection.

Low Rejection Threshold [P]

Your body can easily accept foreign tissue transplants, with no roll for rejection required. This is only applicable in TL7+ settings, and only if cloned or synthetic organs are unavailable or are significantly more expensive than other types. Since this is due to an abnormally lax immune system, you may not have HT higher than 12 or Resistant to Disease (but may acquire it through treatments such as Panimmunity).

No Degeneration in Zero-G [P]

Humans and other animals which evolved in a gravity field suffer from a slow loss of bone density when they live in microgravity or zero gravity. The bones become fragile as they lose calcium. This can be prevented by vigorous daily exercise or drug treatments. If someone lives in microgravity without taking these precautions for six months, make a HT roll. A failed roll indicates a loss of one point of ST; a critical failure gives Vulnerability (Crushing Attacks 2) [-30]. Genetic engineering may be used to prevent this problem, granting this perk.

Pressure-Tolerant Lungs [P]

Your lungs and other organs can handle a wider range of atmospheric pressures than a baseline human's. Add either thin or dense atmospheres to the range of pressures you can breathe without penalty, and shift the penalties for thinner or denser atmospheres respectively by one class.

Example: If you can breathe thin and standard atmospheres without penalty, you treat very thin atmospheres as merely thin.

> *We now have discrimination down to a science.*
>
> *– Vincent,* ***Gattaca***

Reputation

see p. B26

"Mass produced" bioroids or clone families may have to live down reputations based on what other examples of their type have done, due to a public perception that they are a puppets to their genes. This is especially likely if they are treated as products or slaves. For example, if it made the news that a Tiger Lily-series pleasure bioroid killed her owner and ran away, all Tiger Lily models may get a reputation as "dangerously unstable," regardless of the events (e.g., that particular bioroid was being abused by her owner, and acted to save her life).

In a society where genetic testing is common, those known or believed to have a genetic defect may also face prejudice, even if they look perfectly normal. This differs from Social Stigma, where the stigma must be obvious to anyone (see p. B155) for it to be worth points.

Some bioroids or parahuman species may enjoy a positive reputation if members of their type have performed notable good works in the public eye.

Resistant

see p. B80

A particular subset of infectious diseases counts as *Rare* for purposes of calculating the cost of Resistant, as per the rules on p. B81. Since drugs or nanosymbiont treatments that provide resistance to disease often provide no protection against diseases new to science or caused by particular agents, this is a common rarity level for such treatments. Immunity to a *single* disease is a perk.

Examples: Resistant to Known Diseases (+3) [1]; Resistant to Bacterial Infection (+8) [2]; Immunity to Viruses [5].

Social Regard

see p. B86

In a world where gengineered people are regarded with awe, visibly altered people might enjoy Social Regard.

New Features

Early Maturation: You mature at the same rate as if you had Short Lifespan (p. B154) without affecting the frequency of aging rolls. This is a 0-point feature, but up to 5 levels are possible:

Level	*Maturity*
1	9 years
2	4 years
3	2 years
4	1 year
5	6 months

Low-Pressure Lungs: You treat very thin atmospheres as thin, thin as standard, standard as dense, and dense or superdense as unbreathable; you may have a noticeably large chest. This feature includes eye adaptations so that Vision penalties are similarly shifted.

High-Pressure Lungs: This feature has an opposite effect to Low-Pressure Lungs: you treat atmospheric pressures as one stage lower.

Disadvantages

In a society that practices genetic selection and gene therapy, certain disadvantages are probably very rare at TL9 and nonexistent by TL10+.

These include Bad Sight, Bad Smell, Colorblindness, Dyslexia, Hemophilia, some forms of Chronic Pain, No Sense of Smell/Taste, and Neurological Disorder. In addition, Dwarfism, Fat, and Gigantism are likely to be almost unknown, unless one's parents or creator deliberately wanted such a disadvantage.

A character born into a society like this should justify any such disadvantages in his character story. For example, his family might have been poor, or their religion forbade gengineering, or he could have been subjected to some mutagenic or nano-tech bioweapon, and so on.

Chronic Pain

see p. B126

This can represent many types of disease or injury. Suitably advanced biotech can cure this: surgery for shrapnel, gene therapy for cancer, neurological biomods for migraines. If cured during play, the GM should require the disadvantage to be bought off with character points.

Intolerance

see p. B140

Intolerance toward gene-altered people may become a common form of racism. This is worth -5 points if genetic engineering is common, -1 if rare. The reverse is also possible, with gene-altered people being prejudiced against unmodified humans; this is worth -5 points except in settings where baselines are a tiny minority.

Mistaken Identity

see p. B21

This is especially appropriate for identical clones that are the same age (via forced growth, or just being born at the same time). It's also suitable for bioroids or other genetic constructs if a run of identical copies were mass-produced, even if the variant race itself has some diversity. Surgical doubles could also be mistaken for one another.

Neurological Disorder

see p. B144

This can represent various conditions such as Parkinson's disease, multiple sclerosis, and Tourette's syndrome. The disorder may be controlled with neurological implants (p. 179) or cured by gene therapy (p. 181). Such treatments will require either buying a Mitigator limitation or buying off the disadvantage altogether.

Quirks

These are new biologically based quirks.

Allergy [P]

You have some sort of allergic reaction to a substance. This is annoying, but rarely dangerous. If exposed to the cause of your allergy, make a HT roll. On a failure you become miserable and suffer coughing, sneezing (p. B428), or itching (same game effect) for a number of minutes equal to the margin of failure. *Severe* allergies that can lead to damage or death should be bought as Susceptible instead (pp. 213, B158).

Examples: Hay fever that causes red eyes and sneezing; food allergies causing hives; insect bites causing severe itching.

Nano-Fever [P, X]

This is hot flushes and fatigue caused by two or more types of nanomachines working, and possibly interacting, in your body. You become feverish whenever the GM rules that multiple types of nano must work in concert, and will lose 1 FP per active nano type in excess of a GM-defined "safe level" (the GM should customize this depending on his take on the waste heat problem; see p. 164). Fatigue points lost in this way cannot be regained until the situation ends. Deactivating or removing the nanobots will end the bout of nano-fever.

Restricted Diet

see p. B151

Biogenetic or neogenetic organisms may be unable to digest normal food because of a radically different biochemistry, requiring a special diet. This is additional to the Unusual Biochemistry disadvantage.

Secret

see p. B152

If a society has laws or prejudices against gengineered people, someone with hidden modifications will have a

Secret. It may also be possible that *non-gengineered* people are the exception, and a baseline human will harbor a dangerous Secret.

Social Stigma

see p. B155

People who are visibly gene-altered – especially those who are very exotic – may suffer a Social Stigma in some societies. Mass-produced clones, bioroids, chimeras, and uplifted animals are likely to have this disadvantage. If such beings are uncommon and the majority population is prejudiced against them, they will be classed as Second-Class Citizens or a Minority Group. An exotic who is the result of an experiment is probably Valuable Property; even if he's legally a person rather than an animal or slave, people will want to study him, protect him, etc. Some beings may even be Subjugated or classed as Monsters.

Of course, in a world where gengineering is the rule rather than the exception, visibly unaltered people may suffer from a Social Stigma!

Stress Atavism

see p. B156

This is a classic disadvantage for uplifted animals. In some cases it may be appropriate for parahumans with mental modifications.

Susceptible

see p. B158

This can represent *severe* allergic reactions to particular substances, of the sort that land you in hospital or are life-threatening. A typical severe allergy is triggered by a substance that is often harmless to others, even in large doses. If exposed to it, roll against HT+1 minus your level of susceptibility. Failure causes an allergic reaction (see below) for a number of minutes equal to the margin of failure; after this time roll again to recover, with failure repeating the whole process until recovery or death. Any critical failure is a heart attack (p. B429). This *replaces* the effect normally associated with Susceptible. An injection of epinephrine (usually carried by people with allergies this severe) allows another HT roll to recover immediately, at a +2 bonus.

An allergic reaction is represented by any of the Incapacitation or Irritant effects listed under Affliction (p. B36); choose which effect you suffer at character creation. Treat this as a modifier equal to (the percentage cost of the effect minus 100%); e.g., if your allergy only causes coughing (+20%), treat that as a -80% limitation on this disadvantage. The most common reaction – anaphylaxis – is either choking (+0%) or unconsciousness (+100%).

Any allergy worth less than -2 points should be bought as the physical quirk *Allergy* instead (p. 212).

Terminally Ill

see p. B158

In a high-biotech world where nearly any condition may be cured, this disadvantage must be used with discretion. If a cure for a terminal condition is a commonly available procedure, characters should not be allowed points for it. On the other hand, if the cure is experimental or illegal, the disadvantage can be allowed, perhaps with a Mitigator limitation reflecting the likelihood of undergoing the cure.

Terminally ill characters in a campaign with suspension technology may want to suspend themselves during adventuring "down time" to prolong their active lives. This can be allowed at the GM's discretion, but reduce the point value for the disadvantage with a Mitigator limitation. The GM should also be sure to take advantage of the fact that situations requiring immediate response can occur when the adventurer is inconveniently frozen! If the GM does not wish to deal with this, he may simply rule that Terminally Ill is not allowed.

Unnatural Features

see p. B22

A modified person who can still pass for a human being will possess Unnatural Features for any obvious differences from the species baseline. Someone so changed that he no longer resembles a human does not have this disadvantage. This applies to other species too: if an almost-dog is treated differently by baseline dogs because he looks or smells funny, that's an Unnatural Feature, but if they don't even recognize him as a dog, then it isn't.

Unusual Biochemistry

see p. B160

You experience different effects from drugs than normal humans (or whatever the common campaign biochemistry is) but can still subsist on human food by default. If you cannot digest human food and require a special diet tailored to your biochemistry, use Restricted Diet to represent this.

New Meta-Traits

Enhancement Meta-Traits [P, X]

These are common combinations of advantages that are associated in biologically enhanced individuals.

Enhanced Muscles: Each level provides Lifting ST +1 [3] + Striking ST +1 [5]. *8 points per +1 ST.*

Enhanced Reflexes: Combat Reflexes [15] + Basic Speed +1.00 [20]. *35 points*.

Biotech Meta-Traits [P, X]

These meta-traits are the (sometimes inadvertent) results of particular biotechnologies used to create lifeforms:

Bioroid: You are an artificially constructed living organism who was assembled via biogenesis (p. 26) nanotechnology rather than grown from an embryo. Early Maturation 3-5 [0]; Sterile [0]; and Unusual Biochemistry [-5]. *-5 points*.

Chimera: You are the result of a fusion of two different-species blastocysts. Due to metabolic problems that result from this fusion, you have Restricted Diet (Very Common; Substitution, -50%) [-5]; Sterile [0]; and Unusual Biochemistry [-5]. *-10 points*.

Medicine! (IQ)

This optional wildcard skill (p. B175) replaces all specialties of Biology, Diagnosis, Electronics Operation (Medical), Expert Skill (Epidemiology), First Aid, Hypnotism, Pharmacy, Physician, Physiology, Poisons, Psychology, Surgery, and Veterinary. It may also include Bioengineering and/or Esoteric Medicine at the GM's option.

This skill is possessed by cinematic doctors such as Leonard "Bones" McCoy or Doc Savage.

Skills

Bioengineering

see p. B180

In a biotechnological society, there may be additional specializations of this skill. Possibilities include:

Biogadgets: The creation of living equipment or vehicles.

Microbioengineering: The development of new strains of microbes for commercial, medicinal or hostile purposes.

Uplift: The modification of species to increase sentience.

Vaccines: The research and development of vaccines.

Diagnosis

see p. B187

The -5 penalty for diagnosing internal injuries should also be applied for internal diseases with subtle or ambiguous external symptoms. This penalty can be removed by exploratory surgery (p. 127).

Physician

see p. B213

Optional specializations include Physiotherapy – see p. 132.

Surgery

see p. B223

Standard modifiers to Surgery skill are listed on pp. B223, B424.

The GM can assume that commercial hospitals are well enough trained and equipped that no skill rolls are required to perform surgery. If characters do their own work, or a back-alley surgeon is hired, use the Surgery rules on p. B223, but instead of the modifier listed there, assume the roll is at -1 for every week of recovery required (if less than a week, no penalty).

A success means the surgery was performed properly. A critical success halves the recovery time. A failure means the biomodification failed; a later attempt is possible after the patient recovers (full recovery time still applies). Failure also inflicts 1d damage for every two weeks of recovery (or fraction thereof) that would be required. Use the hit location rules; e.g., surgical damage in excess of HP/2 to an arm or leg is ignored, but may cripple the limb. A critical failure may double this damage or, at the GM's option, result in other side effects instead of direct damage (e.g., surgery to improve eyesight might cause Blindness, cosmetic surgery could reduce Appearance).

Modifiers

New Enhancements

Switchable

+10%

This enhancement only exists for physiological features (e.g., Claws), defenses, and other traits that are normally "always on." It lets you switch your advantage off and on by taking a Ready maneuver. Be sure to specify whether it switches on or off when you're knocked out, or simply remains in its current state.

You cannot add Switchable to an advantage that lists special modifiers that let you turn it off and on, regardless of whether *your* ability has those modifiers. If an advantage already notes Switchable as a special enhancement with a different value, use that value instead. Switchable isn't permitted on meta-traits, either. To get a switchable meta-trait, buy an Alternate Form.

Switchable is unnecessary if an advantage was limited with Costs Fatigue (p. B111), Emergencies Only (p. B112), Limited Use (p. B112), or Trigger (p. B115); such abilities are effectively switchable by default.

Limitations

Accessibility

see p. B110

Requires Low Gravity: Your ability doesn't function in gravity fields over a certain strength. This can be appropriate for gengineered morphological modifications that work better in lower gravity, such as Clinging or Flight. This is worth -5% for each 0.1G under 1G at which the ability does not work (-5% at 0.9G, to -50% if the ability only works in zero gravity).

Switchable Body Parts

Many physical advantages represent body parts, including Claws, Extra Arms, Extra Legs, Extra Mouth, Nictitating Membrane, Spines, Striker, and Teeth. These are "always on" by default, whether they're due to racial makeup, genetic engineering, implants, or super-mutation. The GM may permit shapeshifters and those with retractable implants to add Switchable (+10%), however.

Not every option is immediately obvious. Some changes are subtle, such as being able to darken the eyes to gain Protected Vision. Others involve body parts implied by a special modifier; e.g., Doesn't Breathe (Gills, -50%) and Flight (Winged, -25%). A few even represent the *absence* of a body part, like switchable Payload as the ability to create a new body cavity. Be creative!

Melee Attack

see p. B112

This can be applied to traits such as Telecommunication if the user must touch the recipient.

Mitigator

see p. B112

If drugs are readily available in a campaign for the treatment of any given disadvantage, then that disadvantage must be bought with this limitation.

Temporary Disadvantage

see p. B115

An advantage that is not normally switchable, but was given Costs Fatigue (p. B111), Emergencies Only (p. B112), Limited Use (p. B112), or Trigger (p. B115) can be given this limitation.

Aftermath: This is a Temporary Disadvantage that takes effect once your advantage switches off. You can only add this to an advantage that you can and *must* eventually switch off – whether because you'll run out of FP to maintain it, its duration is fixed by Limited Use or Trigger, or leaving it on indefinitely would negatively affect your health. Find the limitation value as usual, and halve it. A disadvantage with no self-control roll will be in full effect for as long as you used the modified trait, with a minimum of 10 minutes per use. A disadvantage with a self-control roll leaves you with an urge that endures until you get into a situation where you have to make that roll. Success means you fight the urge. Failure means you give in for at least 10 minutes. Either way, the are no further effects.

Trigger

see p. B115

This is useful for advantages granted through the use of biomods or implants, to represent the need for enabling drugs or hormones.

New Limitations

Cardiac Stress

Variable

You can only take this limitation on an advantage that is used for a short period of time and then turned off. While in use, the advantage places undue stress on your heart, and you must make periodic HT rolls (a roll of 14+ always fails). Failure means loss of 1d fatigue; critical failure means a heart attack – see p. B429.

Cost depends on how often you need to make the HT roll:

Every second: -50%
Every 10 seconds: -40%
Every minute: -30%
Every 10 minutes: -20%
Every hour: -10%

Unsupported Strength

-25%

You have increased strength through gengineering or biomods, but the gengineers did a shoddy job of muscle attachment or you haven't bothered to build up your bone mass to support the additional strength. You may take this limitation on some or all of any ST, Lifting ST, or Striking ST increase of +3 or more that's due to biomods or gengineering. Keep track of your fully supported ST and the higher "unsupported" ST. Use the unsupported ST score to determine Basic Lift for purposes of sustained carrying. However, for any transitory feat of strength – including lifting, jumping, grappling, throwing, or attacking – you can choose to use either the safe, supported ST score, or your unsupported ST. No roll is required to use the unsupported strength, but in the next second, roll vs. HT. Success means no problem occurs, but a failure causes 1 point of injury; critical failure, or two failures in consecutive seconds, does 1d injury and causes any one limb you are using to be crippled.

About Our Commentators

"Aquagrrl" is the alias of amateur marine biologist/ecologist Cherry Lake. Aquagrrl denies rumors that she was once a member of the outlawed eco-warrior group Blue Shadow.

Lt. Majid Asad is a biomodified FS-26 Black Widow 2 driver, serving with Navy squadron VF-17 aboard the space cruiser *USS George W. Bush*.

Tatiana Belenko is a Special Agent with the Genetic Regulatory Agency, based in Geneva, Switzerland.

Dr. Tse Chang was Senior Academician of the Genetic Planning Council.

Cody Chase is a detective with the Nevada Department of Public Safety's Investigations Division, where he has dealt with a wide variety of genetic code violations and surgical assault cases.

Marie Detroit is an aspiring pop-singer working as a hostess at the Club Kitsune in Tokyo, Japan.

Genosibyl is the alias of a well-known poster to alt.bio.upgrade.samurai.

Professor C. Eric Gideon of the Antarctic School of Economics is a genome-preservationist and professional gadfly.

Eden Harrier is an expatriate New Zealander, the owner/operator of Harrier Exports. His firm has been investigated for biohazard and customs violations in Asia-Transpacific.

Noriko Hayakawa is an Ishtar-sequence genetic upgrade who hosts the popular talk show, *Cyberia Beat*.

Doc Hobo was stripped of his medical license after removing "spare" organs from patients. Having served 12 years, he now makes a risky living as a street splicer in the ganglands of New Chicago.

Ictinos of Alexandria has been a priest of Asclepius for 19 years. He has a pet snake, Cassandra, whose intelligence he favorably compares to that of novice acolytes with the temerity to question his hard-earned wisdom.

Dr. Sayyid Iqbal is a scientist at Biotech Euphrates' Human Genetic Engineering division. He is a frequent talk-show guest.

Copernicus Jones was born in a growth tank on the moon, but is now bumming around the solar system as a travel writer for the best-selling *Lonely System* guidebook series.

Walter Jorgenson was a brilliant young student in molecular biology, until he developed a series of delusions relating to alleged paranormal activity. Arrested in connection with a burglary and arson at Dogstar Genetics, he claimed that the Ottawa gengineering company was a front for "ETs" and "Men in Black." Found not guilty by reason of insanity, he is now confined in an Ontario mental hospital.

Dr. Lucien Locke is the president and sole employee of Genehackers Inc., an R&D firm specializing in customized biomodification for private clients, and author/star of a number of interactive sensies, including *Playing God for Fun and Profit: Home Study Gengineering* and *Nanovirus for Dummies*.

Tisephone Logos serves the Church of Seventh Heaven (an L-5 colony) as one of its elite "warrior angel" biosoldiers. Although born human, Tisephone has been continuously updated with the latest combat biomods, and is equally at home stalking criminals and genetic heretics in the decadent bubble cities of Luna or the wildzones of post-Nanoclysm Earth. Despite her youthful appearance, she is at least a century old.

Chance Mackintosh speaks her mind in *Posthuman Consumer Review*, a virtuality infodump covering the latest trends in elective surgery from a transgendered perspective. Now in her fourth consecutive clone, she plans to live forever.

Charlie "Big C" Magaddino is an alleged Mafia crime boss, presently under indictment for numerous state and federal felonies, including tax evasion, conspiracy, surgical assault, and kidnapping.

Captain Dana Martello is a former Marine Force Recon medic, now pursuing a career as a defense analyst. Twice decorated for bravery under fire during the Andes conflict, she is assistant editor of *Jane's Fighting Bioroids*.

Captain Zeke Morrigan is a gengineered spacer parahuman, and master of the free trader *Antares*.

Corporal NB-SEK-0172 is a Felicia-series combat bioroid. She is assigned to the Indian Army's elite 152nd Paratroop Regiment.

Dr. Mara Omokage is the mysterious and seemingly ageless founder of Omokage Labs, and a specialist in exotic bioweapon design.

Raphael-3000 is a vatbrain computer installed in the Sisters of Mercy hospital on Seventh Heaven.

Madeleine Rouge is one of the owners of the Clinique Rouge, "the finest underground clinic in Marseille."

Derin Skay, a writer, was one of the few humans to be unchanged by the Antarctica Nanoclysm.

Streethawk, an outspoken ex-gang member turned self-proclaimed mercenary, is known for his frequent postings on alt.bio.upgrade.samurai.

Tizbeth Sung-Morton is a Camazotz parahuman. She grew up on a seedship in the Darktree Colonization Fleet.

Gibson Wallace is the CEO of Quarticum Ltd., an agribusiness making billions with aggressive marketing of GM crops in Third World nations.

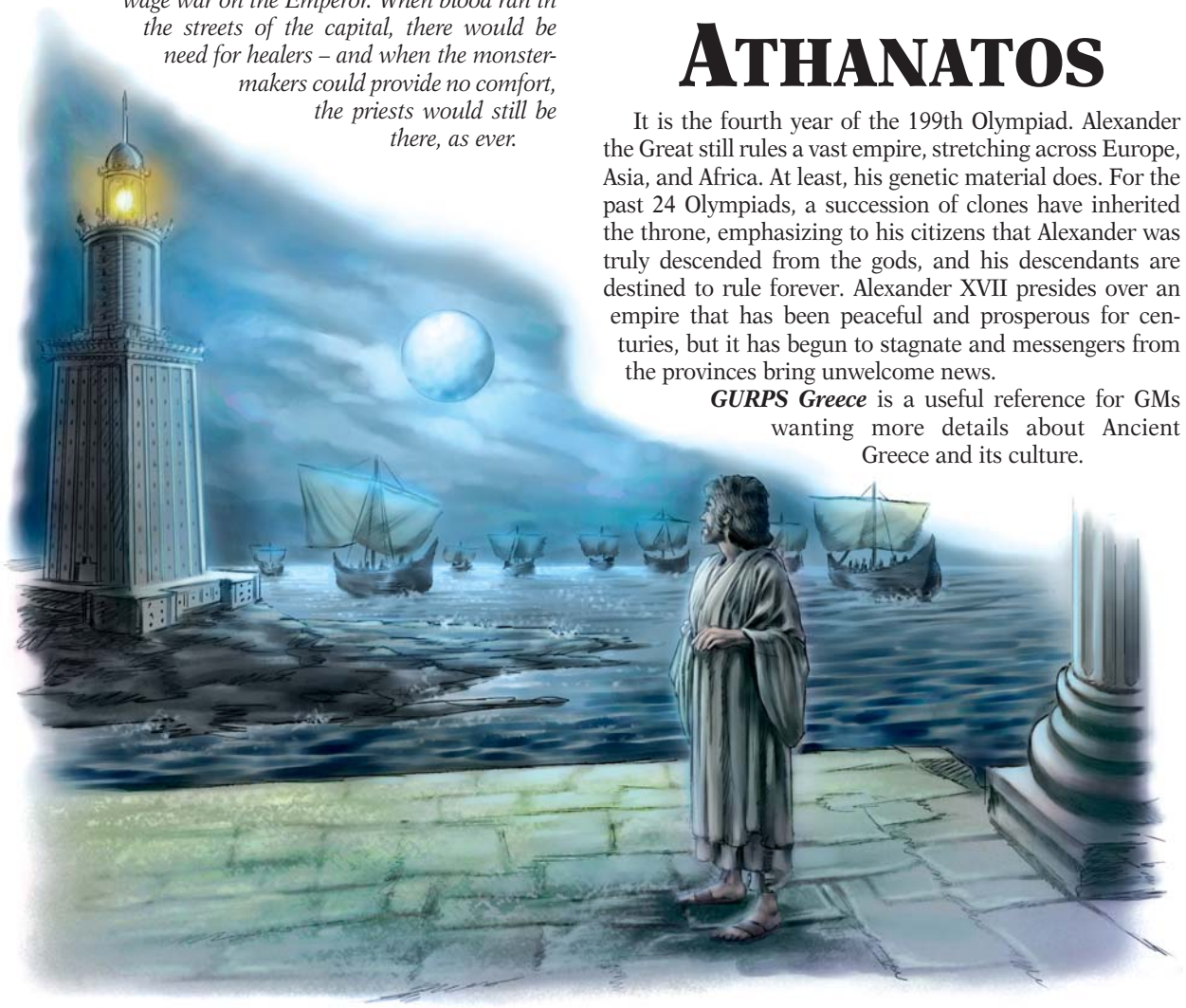
Ensign Chun Yuan was a soldier in the People's Self-Defense Forces Bio-weapons Directorate. Their labs were a priority target during the conflict, and Yuan's war diary is one of the few primary sources to survive the orbital strikes.

Yukio is an Alpha-series genetic upgrade working as an agent for Gomi Crash, a company specializing in macro- and micro-biohazard exterminations, and the tracking, recapture, or termination of escaped or outlawed genetic constructs.

Chapter Nine
Biotech Settings

Ictinos looked sadly out over the harbor toward the lighthouse on the island of Pharos. He had warned the doctors of the Great Medical School that the gods were displeased with their mad arts. Dissecting human corpses was anathema to Asclepius. The secrets of true medicine were to be learned through devout prayer and ritual, not by squinting through strange lenses at flesh torn from the living and dead.

Now, a fleet of sails broke the eastern horizon, bearing down on Alexandria. There was to be a reckoning. Ictinos had heard the rumors: the clones of Alexander had joined forces and were ready to wage war on the Emperor. When blood ran in the streets of the capital, there would be need for healers – and when the monster-makers could provide no comfort, the priests would still be there, as ever.



Biotechnology cannot occur without a world and the people who inhabit it. It is easiest to think of biotech in a near or far future science fiction setting, but this does not have to limit the tech levels or types of worlds in which it can play a role. The world of Paradise described in Chapter 3 of ***GURPS Fantasy*** is an example of a biotech world with an unusual premise and technology level.

Alexander Athanatos

It is the fourth year of the 199th Olympiad. Alexander the Great still rules a vast empire, stretching across Europe, Asia, and Africa. At least, his genetic material does. For the past 24 Olympiads, a succession of clones have inherited the throne, emphasizing to his citizens that Alexander was truly descended from the gods, and his descendants are destined to rule forever. Alexander XVII presides over an empire that has been peaceful and prosperous for centuries, but it has begun to stagnate and messengers from the provinces bring unwelcome news.

GURPS Greece is a useful reference for GMs wanting more details about Ancient Greece and its culture.

History

It began with the father of medicine. Hippocrates was intellectually far ahead of his time, but rather than instituting the idea of patient confidentiality and embodying the Hippocratic Oath, he performed experiments on his patients.

He was still the first to apply scientific methods to medicine, but took a more pragmatic and less ethical approach. To test myths about the gods, he surreptitiously tried to impregnate women with various materials of inorganic and biological origin. It quickly became clear that chimeras could not be created so easily, but he learned that humans could be produced even from virgins. Soon after Ol. 95, Hippocrates was offering artificial insemination services to farmers wanting to breed desirable livestock as well as to barren men – using his own sperm.

Following his death in Ol. 100,1, Hippocrates' students continued his process of medical experimentation, encouraged by King Philip II of Macedon, who had a strong interest in medical technology. They took the traditional poultices used to stem infection and produced more potent extracts through fermentation. These were the first antibiotics – dubbed *nosopharmaka* by the physicians – and successfully treated a range of diseases.

Philip's son Alexander grew up and inherited the throne at the age of 19. In little more than a decade, he conquered Greece, Egypt, and Persia, and earned the name Alexander the Great. When he fell ill in Ol. 114,2, the physicians of his court treated him with *nosopharmaka*. Alexander made a full recovery and ruled for another 34 years in robust health.

The Greek Calendar

The Ancient Greeks number years by *Olympiads*, periods of four years between successive Olympic Games. The first Games were held in 776 B.C. in our calendar. This is the first year of the first Olympiad (abbreviated Ol. 1,1), which is followed by the second (Ol. 1,2), third (Ol. 1,3), and fourth (Ol. 1,4) years. The next year (772 B.C.) is the first year of the second Olympiad (Ol. 2,1). This makes 1 A.D. the first year of the 195th Olympiad, and the current year in Alexander Athanatos equivalent to 21 A.D. The Games that mark the beginning of the Olympiad occur at the eighth full moon after the winter solstice, so the 200th Olympiad will begin in August, 21 A.D.

The Great Medical School

The ruler of the empire eventually returned to his Egyptian capital at Alexandria. In Ol. 118,3, he dedicated the Great Medical School in that city, founded by Herophilos and Erasistratus. The two physicians began the first formal studies of anatomy, vivisecting hundreds of Alexander's prisoners in their quest to understand how the body worked. Using live subjects, the students of the school learned the functions of the organs and the basics of surgery. Experience showed that opium could dull pain and instruments treated with fire produced fewer infections, but surgery remained risky and brutal.

Under Alexander's rule the empire flourished into an age of unprecedented glories. With the aid of the medical knowledge coming out of the Great School, Alexander conquered the Roman Republic, the Samnites, and the Etruscans while sustaining fewer casualties than in his previous conquests.

Meanwhile, students of the Great School added to anatomical knowledge of complex organs such as the brain and nervous system by dissecting both live animals and prisoners. The desire to examine ever smaller parts of the body and discover Democritus' *atoms* led researchers at the School to adapt the well-known magnifying properties of water in glass bowls and invent simple one-lens microscopes. With these, Erasistratus became the first person to observe microorganisms and cells. Unsatisfied with the green-tinted glass available to him, he used School funds to commission experiments in glassmaking, resulting in the discovery that some ores could be added to make the glass clear. He also used glass scalpels, finding their edges suitable for the finest work.

After the deaths of Alexander (in Ol. 122,4) and the School's founders, the work continued, supported by a stable empire inherited by Alexander's son, Alexander IV, and a series of strong heirs. Over the following centuries, students of the School developed compound microscopes, discovered the roles of ova and sperm, and produced lever-operated glass microscalpels and needles suitable for manipulating cells. A surrogate mother gave birth to the first *in vitro* fertilized baby in Ol. 141,1.

Researchers also developed the germ theory of disease and successfully administered vaccines against smallpox, cholera, rabies, and tetanus by Ol. 157. When bubonic plague appeared in Athens in Ol. 159,4, it was halted in its tracks within four months by an effective vaccine, and the disease never darkened Europe's door again.

Genetikosophia

By this time, the School had several well-developed theories of heredity and genetics. Most postulated that *something* within the cells contained a vital essence that passed characteristics from parent to offspring, but nobody could yet see what it was. A new generation of microscopes finally provided the ability to resolve structures inside cells on the scale of the chromosomes. Knowledge followed quickly, as experiments showed how chromosomes duplicated themselves during cell division, and that extracting them with a microneedle crippled the cell's ability to divide. The discoverers called them *genetikones*.

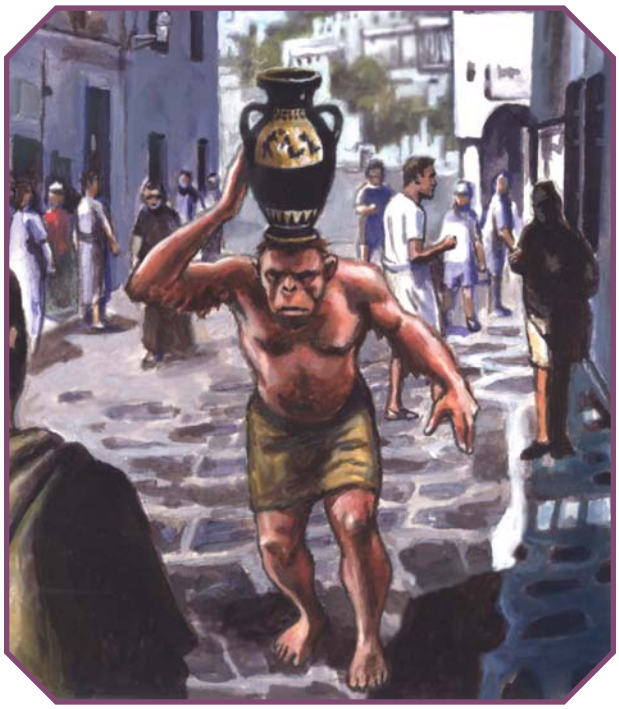
School researchers created the first cloned frog in Ol. 162,4, the first mammal (a goat) in Ol. 165,4, and the first human in Ol. 167,1. Within a decade, they had discovered that *genetikones* could be extracted from corpses and used to make children of the dead person. When King Philip VI visited the School in Ol. 171,3. expressing concern that he could not sire an heir, the head of the School made an audacious suggestion.

Philip, worried that he might pass his sterility on to a cloned son, authorized the disinterment of Alexander the Great, and the production of a clone to carry on the royal bloodline. Fortunately, when Alexander had died, the embalmers preserved his body by interring it in a casket full of honey. This meant much of his flesh remained undecayed, providing ample material for the extraction of his *genetikones*.

The School produced several clones of Alexander, and Philip raised them as his sons, teaching them to run the empire that was their heritage. (Each clone takes the name Alexander, along with a second name reflecting his own accomplishments or personality.) When he died, the eldest assumed the title of Alexander VIII and the imperial throne at the age of 22. Unfortunately, this incarnation developed chronic arthritis three years later and died of what was essentially old age when only 32. One of his younger clone siblings took over as Alexander IX. Ever since, clones of Alexander have ruled the empire in succession. They share his mental strength and leadership, but not his physical condition. Improving the health of the clones is the major research project currently being undertaken at the School.

Chimerae

The Great Medical School had been experimenting in chimerization since it was established, by mixing ova and sperm from different species, with no success. Soon after the discovery of the *genetikones*, a student named Lysandros observed that different species had different numbers of them. He looked for species with similar numbers, and found that chimpanzees from the School's breeding colony imported from equatorial Africa had only two more than humans. He postulated that the number of *genetikones* determined the form of the animal and tried removing various combinations of them from chimpanzee embryos. When this failed to produce viable embryos, he tried removing *genetikones* from chimpanzee ova and fertilizing them with human sperm.



Before long, Lysandros produced a hybrid embryo that divided a few times before dying. This was encouragement enough to continue experimenting. In Ol. 173,3 he produced a live birth of a human-chimpanzee hybrid, the first *anthropithekos*. Further work produced chimerae of other related species, such as non-sterile mules and cow-goat hybrids. Some of these new species have since become useful livestock animals, while the *anthropithekois* proved to be trainable as slaves.

Anthropithekos

11 points

Attribute Modifiers: ST+1 [10]; DX+1 [20]; IQ-1 [-20]; HT+1 [10].
Secondary Characteristic Modifiers: Per+2 [10].
Advantages: Arm ST +1 [5]; Brachiator [5].
Disadvantages: Social Stigma (Minority Group) [-10]; Stuttering [-10]; Ugly [-8].
Quirks: Dull [-1].

The *anthropithekos* (plural: *anthropithekois*) is an artificial hybrid species with a mixture of human and chimpanzee *genetikones* (chromosomes). Although originally created by manipulation of the *genetikones*, *anthropithekois* can breed normally amongst themselves. They can also interbreed with humans, but the offspring are sterile. They are not interfertile at all with chimpanzees.

Since being created 26 Olympiads ago, *anthropithekois* have become a common sight in the streets of Alexandria. The Great Medical School presented a young pair to Philip VI, and they grew to become favored slaves in the imperial palace. The School took advantage of the demand this created for *anthropithekos* slaves, selling them to raise funds. From that beginning, natural population growth supplemented by additional creations from the School has produced a population now numbering 11,000 individuals. A few travelers have taken *anthropithekois* to the far reaches of the empire, but the vast majority live in Alexandria.

The species makes loyal, if dull, slaves. Once given a task, they can be trusted to carry it out dutifully. Over the years, several *anthropithekois* have managed to earn their freedom, but most remain in slavery. Freed slaves and their offspring generally take up laboring or agricultural jobs, as their mentality is ill-suited to crafts or more lofty work.

To a casual eye, an *anthropithekos* resembles a rather hairy human with coarse features. They are stronger than humans, but not as intelligent or creative. They can learn language as easily as human children, but suffer from an inadequate voicebox that makes their speech strained and difficult to follow.

The Empire

The Macedonian Empire extends from Galatia (Gaul) in the west to Persis (Persia) in the East. Although Alexander the Great conquered India, his successors were unable to hold it and the border retreated to a stable position in Persis.

Egypt

Alexander moved his imperial capital to Alexandria, where it remains. The city is vast, sprawling across the Nile delta with a population of half a million people. The great lighthouse standing on the island of Pharos is the most distinctive feature of the city. Its 440' tower guides ships safely to harbor with mirrors casting a beam of light reflected from the sun by day and a fire at night.

Near the lighthouse, on the promontory of Lochias, stands the imperial palace. It is a grand building with hundreds of rooms and extensive gardens, sitting atop a rocky outcrop and commanding a splendid view of the great harbor. Its position near the coast makes it vulnerable to attack from the water, but Alexander the Great declared that if he could not be safe in his own capital then he did not deserve to live. His clones command the empire from his palace with the same bravado.

Further inland stand the temples dedicated to various gods, next to a huge amphitheater at which plays are performed. Next to these is the *agora*, a large open space where citizens gather to buy and sell wares, trade gossip, and argue politics. Half a mile south of the *agora* are the city's major *gymnasion* and *palaistra*, where citizens engage in athletic pursuits and competitions. The large public baths sit next door. Nearby is the city's museum and the famous Library of Alexandria, in which over half a million scrolls record the knowledge of the empire on all topics.

West of the city center is the Egyptian quarter, populated by natives of the region, while east is the Jewish quarter.

Slaves

Greeks across the empire own slaves to perform household duties and run errands. Although slaves suffer from being low in status, they are not despised and mix freely with people of any status in appropriate social situations. It is not uncommon for slaves to earn enough to buy their freedom, or to become free when their owner dies. Being a freed slave carries no social stigma; ex-slaves can become respected citizens on their own merits.

Greece

The Greek homeland remains a patchwork of semi-independent cities under the umbrella of the empire. Alexander the Great kept them in line with shows of military might, crushing any cities that dared defy him. In the centuries since, individual cities have made occasional attempts to escape imperial control, but their fractious nature means neighboring cities are always happy to see the dissidents brought back into line. Still, it takes a strong leader to maintain control, and the cities probe each successive heir of Alexander for the weakness that will allow them to revolt.

The Provinces

Maintaining central control across the far-flung empire has always been the ruler's greatest problem. Alexander the Great solved it by appointing provincial governors, drawn from the local populations so that they had the requisite knowledge and respect of the people. This worked, more or less, but every so often a governor would begin to get ideas about ruling in his own right. Legions of the Macedonian army were therefore required to be spread across the empire in a state of vigilance to quell any potential uprising.

Alexander IX – the first of Alexander the Great's new sons – realized that he had at his disposal the means to send many of his father's sons out to the provinces to rule directly, with the help of local advisers. He had the Great School start producing siblings at a rate of three or four a year. By the time Alexander X took over the reins of the empire, the first sons of this program had been raised and groomed to be provincial governors. In the years since, the provinces from Persis to Galatia have remained relatively peaceful.

How long they stay that way, ruled by a collection of leaders with a genetic predisposition to megalomania, remains to be seen.

Technology

The empire of Alexander Athanatos is TL2 in most respects, following the technological development of our own world at the time. Weapons are generally iron, and large pieces of armor are still bronze. Horse riding is without stirrups.

Glass manufacture and working are up to TL6 standard, as is the science of geometric optics. This allows the creation of compound microscopes and refracting telescopes of high quality. In turn, this has spurred the development of astronomy to TL4 levels; people have seen the moons of Jupiter and lunar craters, but this has made little impact so far on traditional beliefs about the heavens.

The most significant divergence from TL2 is the level of biotech. Knowledge of bacterial diseases and their treatment is at TL7 level, but viruses remain mysterious and untreatable except by vaccination. Surgery is at TL5, as far advanced as it can be without workable anesthetics. Relatively simple procedures such as amputations and removal of cysts can be performed reliably, if the patient can be held still, and superficial wounds can be stitched readily. Repairing damaged internal organs or performing transplants are beyond even the best surgeons of the Great Medical School, however.

> *I am dying from the treatment of too many physicians.*
>
> *– Alexander the Great*

Great School researchers understand genetic heredity at a TL6 level. They know that the *genetikones* (chromosomes) pass on characteristics from parents to children, but have not fully formulated the concept of discrete genes. The chimerization process that has produced the *anthropithekois* is completely hit-or-miss, with no real theoretical understanding behind it. The idea of breaking apart the *genetikones* and combining pieces of them to make new ones has not occurred to anyone yet. They understand how selective breeding works but do not consider it useful beyond explaining how farmers slowly improve their crops and livestock.

Cloning

Cloning technology is at late TL8. Human clones can be created as desired, given enough attempts, but the resulting children's cells age prematurely because of telomere shortening (see *Risks of Cloning*, p. 24). Since nobody yet knows what *genetikones* are made of or how they work, let alone of the existence of telomeres, this problem is likely to remain unsolved for a long time.

Clones are uncommon, but becoming more commonplace, especially in Alexandria. The Great School will make a clone from any tissue sample for a price. Many men in homosexual relationships – which are not stigmatized – have taken advantage of this to produce children. Nobody considers clones to be *copies* of the person cloned; the universal belief is that they are *children* of a single person. Given practical experience with mature clones and seeing how they differ from their parents has convinced even the philosophers that they are no more than children, albeit with an unusual genesis. As such, they suffer no social stigma and fit into society normally. A few people have had clones made of recently dead loved ones, as a means of allowing the deceased to have children.

Alexander Athanatos in Infinite Worlds

Alexander Athanatos is a Quantum 5 parallel, one of several in which Alexander the Great did not die in 323 B.C. It is easily the most divergent of these but, as a relatively stable world, it is open for monitored tourism. Since the empire has yet to discover industrial technology, let alone electronics, there is no fear of natives understanding parachronics.

Several Infinity agents are posted in Alexandria, studying how the Great Medical School operates, as well as keeping tabs on the next generations of Alexanders and the central administration of the empire. It is a relatively peaceful timeline in which scholars can browse scrolls in the famous Library. The Library still exists in its prime, beyond one of the most popular alleged dates of its destruction in Homeline – by Julius Caesar's attack on the city in Ol. 183,2 (47 B.C.). It is clear that Caesar never rose to lead an independent Rome in this timeline, if he existed at all.

Given the local year, several researchers have an intense interest in looking for any evidence of Jesus Christ, but nothing has turned up so far.

Researchers also clone animals for research purposes, and for the few breeders who can afford to produce champion stallions and bulls without diluting their bloodlines by normal breeding methods.

Organizations

The Macedonian Empire has developed into a massive bureaucracy in the years since Alexander the Great, as a natural result of having to administer such a large and relatively stable territory. There are small political groups and larger trade guilds scattered across the empire; travelers affiliated with these may receive hospitality benefits in towns hosting a local branch.

The Great Medical School

Founded by the great physicians Herophilos and Erasistratus, the Great School at Alexandria is still the preeminent medical institution in the empire. It has expanded beyond medicine into a school providing an general education for youths. Many of the best families of Alexandria send their sons here for schooling, as well as some from Greece and the provinces. Locals attend the School during the day, while others board on the grounds.

Researchers at the School experiment with medical procedures and chemicals extracted from various herbs. Several chimera projects are underway, seeking to build on the success of the *anthropithekois*. And of course there is always cloning work for various wealthy and well-connected clients.

The School would make a suitable location for youthful adventurers, learning the secrets of medicine, interacting with learned physicians and political figures, and uncovering plots that require the unusual skills of gifted students to resolve.

The Boule of Alexandria

This is the council that governs the day-to-day operations of the imperial capital. Although Alexander XVII is absolute ruler of the empire, much of the day-to-day administration of his city is handled by the *Boule*. It is an assembly of 50 randomly chosen adult male citizens, who serve for a year. Alexander's genetic father instituted the custom of random selection to avoid political factions gaining enough power on the *Boule* to challenge his own. The king himself selects a panel of 10 *astynomoi* – magistrates to enforce laws, collect taxes, inspect goods, and oversee city construction projects – but the *Boule* decides what laws and projects they look after.

The random nature of selection means the *Boule* is inherently factionalized and the strengths of the various factions change on an annual basis. The king can overrule any fractious or damaging policies, but seldom needs to as they are unlikely to receive the required 2/3 vote. The selection is controlled by priestesses of various gods, who are supposed to be above corruption, but anything may be possible in an empire trending toward decadence.

The Temple of Asclepius

Asclepius is the god of medicine and healing. His priests enjoyed great power and influence as they developed the initial stages of the empire's medical knowledge. Initially, all the physicians at the Great Medical School were part of the religious hierarchy, but the School has since become

Alexander Phantasia

Alexander Athanatos is grounded in reality. Although the developments in biotech are unlikely, they are all *possible* with the level of technology described.

There are two options for adding more fantastic elements to the setting:

Rubber science can be used to justify weird genetics that allowed Hippocrates to be successful with his chimera-creation experiments. Mixing sperm and ova of different species results in viable hybrids combining the features of both parents. This allows the setting to contain many of the classical creatures of Greek legend: minotaurs, gorgons, harpies, centaurs, etc. The application of specific herbal extracts during *in vitro* fertilization or cloning might produce giants or other creatures. These changes alone add lots of variety and a fantastic feel.

Magic fits well into the basic campaign framework, either as a subtle agency controlled by elusive mystics, or as a potent and open force. Ritual magic suits the classical feel better than the default ***GURPS*** magic system, and may include biotech spells (p. 30).

progressively more secular, marginalizing the temple and its priesthood.

In recent times, the priests of Asclepius have begun to criticize the School and its methods, claiming them to be the work of dark gods. They denounce the research as doing harm to living beings, in conflict with the teachings of their god, and prophesy dark consequences for the empire. The School continues to hold the patronage of the king, however, so what few worshippers of Asclepius remain are becoming more desperate for a means to bring down the School and reassert religious authority. Most harbor intolerance for clones and *anthropithekois*.

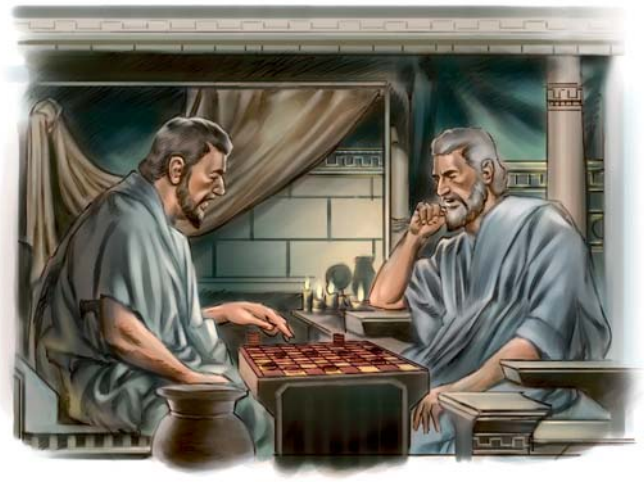
Characters

Physicians are held in high regard throughout the empire. Armed with knowledge of many diseases and effective treatments and vaccines, they are always in demand for the work they do. Traveling doctors perform vaccinations as they pass through rural areas, keeping outbreaks of infectious diseases rare. The most prestigious physicians are those trained at the Great Medical School in Alexandria, and the best go on to research and teach there. A substantial number of these conduct experiments in primitive cloning and genetic engineering technology, but they still consider themselves to be simply physicians, just working on different aspects of medicine.

Genetically engineered individuals come in two types: clones and *anthropithekois*. Clones will live essentially normal lives, and can appear at any stratum of society from the lowliest slave up to the King himself. The only real difference compared to non-clones is that some of them will have shorter lifespans.

Anthropithekois are mostly slaves, and the few who are not are mostly laborers. Slaves actually make better PCs, as they have access to various households and can move in politically important circles without raising suspicions. Exceptional individuals with points spent on buying up IQ make suitable PCs or Contacts. The rare free *anthropithekos* with high intelligence and a non-laboring job is also useful as a significant character.

Surrogate mothers are required to carry the many sons of Alexander, as well as the children of the Great School's other cloning clients. This is a respected job in Alexandria, especially for those women chosen to give birth to the next rulers of the empire. Although surrogate mothers do not have much chance for physical adventure, they take an active part in raising the children and have plenty of opportunity for palace intrigues and political gossip. Older surrogates with grown children often travel to the provinces to act as advisers for their governing sons.



Character Traits

Because of the telomere problem (p. 183), clones of aged individuals in Alexander Athanatos have the disadvantage Short Lifespan (p. B154). The number of levels depends on the age of the person from whom the clone's genetic material was taken, as follows:

Age of Parent	*Disadvantage*
under 45 years	None
45 to 67 years	Short Lifespan 1 [-10]
68 to 78 years	Short Lifespan 2 [-20]
79 to 84 years	Short Lifespan 3 [-30]
over 85 years	Short Lifespan 4 [-40]

This means all the clones of Alexander the Great (who died at age 66) have Short Lifespan 1 [-10]. If a clone is made of a clone, use the *total* age of the original parent plus all intermediate clones as the *Age of Parent*. In this setting, clones with Short Lifespan mature normally at age 18; this variation from the normal disadvantage is treated as a special effect.

Slaves in Alexander Athanatos are Status -2 [-10].

Adventure Seeds

Prodigal Son

Up to now, the sons of Alexander have all taken well to their upbringing in the royal palace and turned out to be more or less adequate rulers. But Alexander XVII has come to the Great Medical School with a problem. His brother – destined to become Alexander XVIII – is a precocious youth of 14 and only interested in holding riotous parties, drinking wine, and chasing the female slaves of the imperial household. The king wants to know if this behavior is caused by a problem with the cloning procedure, and if there is any treatment that can improve his attitude. School physicians suddenly find themselves looking after an unruly teenager – who is the next king.

Racial Politics

Random selection for the new *Boule* has turned up the name of one of the free *anthropithekois* in Alexandria. He is eager to serve, but several factions are forming variously to argue that he should not be eligible, or to stand in his favor. As this is the first time that one of them has become a notable personality in the city, his fellow *anthropithekois* are keen to see him take his place in the *Boule*. Placed as they are in the households of many powerful citizens, they could influence their masters in a number of ways. The priests of Asclepius naturally want to see the candidate invalidated.

Sins of the Father

In recent weeks messengers have arrived from Persis with disturbing news. The sons of Alexander sent to govern Persis, Syria, and Phoenicia are gathering armies, apparently in cooperation. Agents will need to be sent to the provinces to investigate and confirm the reports. If true, can even the might of Macedonia and Egypt stand against the combined forces of three men as great as Alexander? The surrogate mothers who gave birth to them may be invaluable in negotiations – or betrayals.

Draconis

Humanity has reached to the stars, sending sublight generation ships to a handful of systems within 20 light years. Observations from solar orbiting interferometers revealed the best targets: stars nursing one or more rocky worlds with atmospheres. The journey took hundreds of years, but now the fleet led by the *Dragonfly* has arrived at the Sigma Draconis system and the job of building a new world can begin.

At least that was the plan.

The Fleet

The 13 major ships in the Draconis fleet began their lives as nickel-iron asteroids a mile or two across in Sol's asteroid belt. Through a process of drilling, filling with water, and "cooking" with solar mirrors, engineers converted 12 of the asteroids into Cole habitats – hollow cylinders 10-20 miles long and half as wide. After spinning to simulate gravity, the interiors were then filled with air and terraformed with soil and organisms. A typical ship comfortably houses 100,000 people plus enough farms and livestock to support them indefinitely.

The 13th ship – a mixed nickel-iron and silicate asteroid four miles across – was not hollowed out, but merely fitted with an engine. The plan was to use it as a source of metals and other heavy elements while in interstellar space. Rapid population growth and technological progress made demands on this resource greater than anticipated. The result was that within 50 years the fleet had converted this ship into a habitat as well and, perhaps more importantly, strictly rationed the use of metals and heavy elements.

A 14th ship is a comet, captured in the outer solar system and fitted with an engine and remote guidance system. It was used as a supply of volatiles in interstellar space, for fusion, to replace any lost water, and to provide reaction mass for slowing down on approach to the Sigma Draconis system. While in transit, it was populated only by a small engineering crew, who spent rotating month-long assignments on the comet.

Over the centuries since they left Earth, biological components have grown and spread into every area of the habitat ships, forming a familiar and comfortable organic look to the interiors and the service tunnels that thread their way through the asteroid skins.

Fusion reactors in each ship generated all power in transit, but now that the fleet has arrived at Sigma Draconis the ships are growing photozyme outer layers and spreading vast wings to catch sunshine and supplement energy supplies.

> *Many of their ideas will prove impractical, and their colonies will fail. But some of those who really have a better idea will succeed.*
>
> *– Robert Zubrin*

Throughout the journey, the ships of the fleet maintained constant radio contact, and exchanged personnel and goods regularly with a flotilla of shuttles. These range

from one-person vacuum suits equipped with thrusters for traversing the distances between the ships, up to cutters capable of carrying 100 passengers. These transfers have continued after arrival.

Fleet Politics

When it left the Sol system, the fleet was a multinational cooperative venture, with citizens of over 100 countries represented on board. The nations of Earth recognized that maintaining sovereignty over the fleet as it receded into space would be a futile task, so granted it self-determination rights under a democratic system enacted by those on board.

Most issues concerning the fleet as a whole are decided by a participatory democracy in which all eligible citizens vote via the computer network. Any rapid decisions that need to be made are handled by an Executive Council of 13 elected members, one from each ship, chosen by that ship's residents at irregular intervals. The council members meet in person on the *Dragonfly* once a week and handle any other required business by telepresence.

Interfleet politics is generally harmonious, but definable factions have evolved amongst the ships over the long journey from Sol as the fleet's technology and available resources changed. The *Dragonfly* leads the largest, moderate faction, which includes the ships *Cadmus*, *Fafnir*, *Marc Ange*, *Scatha*, *Smaug*, *St. George*, and the small 13th ship *Wyvern*. These favor a slow approach, with terraforming beginning on the lifeless planet Quetzalcoatl, and feasibility studies on the eventual terraforming of Naga and Jabberwock. The ships *Ancalagon* and *Hydra* prefer a faster approach to the terraforming, with simultaneous efforts on all three inner planets to make them inhabitable as soon as possible. The group made up of *Apalala*, *Glaurung*, and *Jormungand* argue that terraforming is a long and expensive process, and the fleet would be better served by building more space habitats using the raw material in the Draconis system and leaving the planets alone.

In a full participatory vote a few years before arrival, the colonists agreed on a plan for political growth as the colony matures. Settlements will initially be under the control of a supervising ship and vote for its Executive Council representative. Once a region attains a population of 50,000 permanent residents, it will be granted independence and its own Council representative.

The Sigma Draconis System

Sigma Draconis is a yellow-orange star, somewhat smaller, cooler, and dimmer (spectral type K0 V) than our own sun, 18.8 light years away. It masses 0.82 times the mass of our sun and emits only 0.39 times the light energy. It has three rocky planets in the inner system, three gas giants in wider orbits, and a fourth small body in an elliptical orbit between the innermost gas giants.

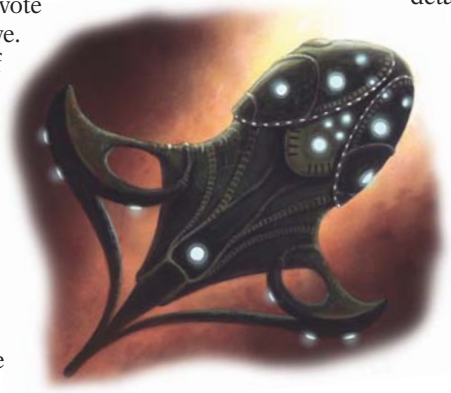
The first planet, Jabberwock, is a borderline greenhouse world, with a thick carbon dioxide atmosphere. At first glance similar to Venus, it is not as forbidding a target for terraforming, with an atmospheric pressure of 9.3 atmospheres and an average temperature of "only" 350°F.

The second planet, Naga, is the main target for settlement. It has a temperate climate suited to humans and a nitrogen, carbon-dioxide, and oxygen atmosphere with a pressure of 0.82 atmospheres. The oxygen, produced by an indigenous microbial biota, is not abundant enough to support baseline humans.

The third planet, Quetzalcoatl, is a rocky ball covered in a thin and patchy layer of water ice, representing frozen oceans of an earlier, warmer phase of its existence. The atmosphere is nitrogen, carbon dioxide, and methane. There are no signs of extant life.

Technology

The Draconis fleet left Earth with TL10 technology. The default campaign setting assumes a hard science technology path, with no superscience (see ***GURPS Ultra-Tech***).



The rationing of heavy elements meant that as the fleet traversed empty space it became increasingly reliant on technology that utilized lighter elements – in other words, biotechnology – rather than metals and ceramics. Nearly all non-computerized equipment on board is now some form of biogadget, and the only items that *are* computerized are those that need to be.

A continuous stream of multiple news and information channels comes by radio from Earth, together with replies to messages sent increasingly long ago (37 years by the time the fleet arrives at Sigma Draconis). This stream brings scientific discoveries and engineering details, allowing the fleet to stay up to date on the latest tech from Earth.

While the fleet was in transit, researchers on Earth developed technology from TL10 to TL11. The pace of biotech development on the fleet was even faster, prompted by the need to use a biological approach to problems that could be tackled differently on Earth. Recently fleet bioengineers began producing experimental TL12 biotech items and sending the details of their research back to Earth.

With the extensive bio labs on board, the colonists have access to wet nanotech up to and including proteus nanovirus. Several people have used this to transmute themselves into Void Dancer parahumans (p. 72), with the ability to fly unaided between ships of the fleet.

Bioshuttle

560 points

This is a standard bioship shuttle used for carrying passengers or cargo between fleet ships. It is grown in vacuum on an umbilical tether from a modified blue whale germline, then fitted out with mechanical propulsion, airlocks, and life support when fully grown. It feeds when docked by attaching its mouth to a matching "teat" on the outside of what is almost literally a mothership.

The basic racial template is modified by the individual personality quirks of each ship, and many are custom fitted with various mechanical components to adapt them to specific roles. The creature itself masses 200 tons and is 100' long. It can operate for eight hours on oxygen stored in its tissues before requiring oxygen from either a docking facility or tanks carried as cargo. Basic Lift is 2.25 tons, and the internal payload space can carry 11.25 tons of cargo, 100 passengers in seats, or 10 passengers in cabins. The standard engine has a delta-v of 18 yards per second on a tank of fuel, giving the shuttle a range of 140 miles in deep space before requiring oxygen and refueling. Range in system is determined by orbital mechanics and can be significantly longer if oxygen is carried.

Attribute Modifiers: ST+140 (Size, -80%) [280], DX-2 [-40], IQ-3 [-60].

Secondary Characteristic Modifiers: SM +8, Per+5 [25].

Advantages: 3D Spatial Sense (Requires Signal, -20%) [8]; Compartmentalized Mind (Controls) 1 [25]; Damage Resistance 50 (Can't Wear Armor, -40%) [150]; Doesn't Breathe (Oxygen Storage 300×, -10%) [18]; Flight (Newtonian Space Flight, +25%; Space Flight Only, -75%) [20]; High Pain Threshold [10]; Injury Tolerance (No Neck) [5]; Longevity [2]; Nictitating Membrane 10 [10]; Night Vision 9 [9]; Payload 50 [50]; Radar (Extended Arc 360°, +125%; Increased Range 50×, +50%; Multi-Mode, +50%) [65]; Radiation Tolerance 50 [25]; Radio (Increased Range 10×, +30%; Video +40%) [17]; Reduced Consumption 2 [4]; Sealed [15]; Temperature Tolerance 50 (-460°F to 95°F) [50]; Unfazeable [15]; Vacuum Support [5].

Perks: No Degeneration in Zero-G, Sanitized Metabolism [2].

Disadvantages: Deafness [-20]; Mute [-25]; No Manipulators [-50]; Slave Mentality [-40]; Social Stigma (Valuable Property) [-10]; Unusual Biochemistry [-5].

Features: Aerial; Sterile.

Cost: $500,000.

Many other inhabitants have either undergone biomodification or gengineered their offspring into parahuman species. The most common changes include the addition of wings suitable for gliding across the low-gravity interiors of the Cole habitats, and – increasingly common – adaptations for the low oxygen levels that will be encountered on Naga.

Bioships

Although the main ships of the fleet are built on a metallic hull structure, they have integral biological components that give them some of the features of a bioship (p. 98). In particular, they have distributed organic sensors

Webgun

Webguns are personal sidearms available to any adult citizen on most of the fleet ships. They are biogenetic gadgets using a blend of genes from several species, as well as custom-designed sequences. Glands produce copious quantities of sticky proteins based on spider silk, which can be fired with an explosive puff of air from an internal lung. When fully charged, a webgun has enough of this protein for four shots. It cannot be reloaded – instead it produces new shots at the rate of one per hour.

A hit from a webgun works just like Binding 18 (p. B40).

GUNS (PISTOL) (DX-4, or most other Guns at -2)

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*
10	Webgun	Spec.	1	5/10	3	1	4	9	-2	1	$400	3

that monitor the exterior for damage and intership traffic control, as well as the interior for life support conditions. This system automatically dispatches biological microbots for small repairs and uplifted animal technician squads for more complex jobs. The ships have no brain, instead feeding sensor data into and taking commands from a computer control system.

Fleet ships need not be treated as characters, as they have no personality or manipulative abilities. The artificial intelligences who run them (see below) may express personalities, but they can be treated separately from the ships, which are more like self-repairing equipment.

Many of the interfleet shuttles are fully fledged bioships, grown using custom-designed germlines to control development and features. They are based on heavily modified whales, adapted for vacuum support and equipped with mechanical propulsion and internal life support systems. Bioengineers developed these ships en route to Draconis as an alternative to building increasing numbers of inorganic shuttles, in order to save their precious metal supplies.

The bioshuttles all have individual names and personality quirks. Many citizens can recognize them by natural markings and greet them as old friends when boarding for a trip.

Artificial Intelligence and Mind Emulation

Low sapient and high sapient AIs are common throughout the fleet, looking after environmental systems, food production, power generation, and so on. They also serve as nannies and teachers for children.

When the fleet left Earth, AIs were universally considered to be nothing more than fancy computer programs – property to be used and discarded as required. Over the journey, news from Earth tracked a rise in the belief that high sapient AIs were fully self-aware and deserving of civil rights over their own existence. Several nations voted to grant high sapient AIs citizenship rights, and fleet members have had to become used to news reports treating AIs as people.

Although a few groups within the fleet agree with these developments, the majority of citizens still consider AIs to be non-self-aware property. Fleet voters have not even come close to adopting laws granting AIs any self-determination rights. For their part, the AIs are programmed to accept their lot.

Destructive mind uploading and personality emulation (see ***GURPS Ultra-Tech***) are new technologies, invented back on Earth and only received by the fleet a decade before the arrival at Sigma Draconis. Although they have the capability to upload a person, fleet AI experts and philosophers are not convinced that destructive uploading maintains a continuity of existence that justifies the process. Despite a handful of people wanting to try it, fleet authorities have so far denied permission for anyone to undergo uploading. This attitude also partially stems from a concern about how the fleet would deal with an intelligent digital entity that some (most importantly *itself*) would consider the continued existence of a citizen.

In a startling development, Earth has signaled that it will be beaming the code for a mind emulation of a prominent terraforming expert soon after the fleet arrives at Draconis. There is no doubt that the fleet has the computing capability to house the emulation, triggering a fleetwide debate on whether it should be allowed to run when received, recorded and archived, or erased. With Earth over 18 light years away, there is no way to signal them not to send the emulation, and some people fear this is a first step toward Earth attempting to re-establish sovereignty over the fleet.

Uplifts

The fleet makes heavy use of uplifted animals, as both workers and companions. Neo-coons, space cats, and uplifted monkeys are common, while modified chimps can be seen working farms inside the ships and performing maintenance outside in vacc suits. Species capable of using the computer network intelligently are considered full citizens and are eligible to vote and represent ships on the Executive Council. Others are treated more like children or pets, depending on their abilities.

The fleet has genetic samples of thousands of animal and plant species from Earth. Although there is not enough space to maintain living populations on board, the raw genetic material forms a valuable resource for further research into new uplift candidates, as well as biogenetic and medical applications. There are also vague plans to populate the terraformed worlds of Draconis with terrestrial ecosystems, including a variety of wild organisms, but that is decades away.

Weaponry

Light, non-lethal personal weaponry is permitted on most ships (the *Apalala* and *St. George* being the exceptions). Any weapons capable of doing serious damage to a ship or shuttlecraft – slugthrowers, explosives, and particle beams – are restricted to Fleet Police (LC2). Heavy weapons are banned (LC0).

The most common sidearm is the *webgun* (p. 227): a low-velocity gas-powered biogadget that uses silk glands to generate the equivalent of tangler rounds. Fleet Police also possess electrolasers.

Flexible body armor is freely available, but not used much, as there is little need for it. Rigid armor is restricted to Fleet Police, and even then is rare to nonexistent.

> *Green technology means we do not live in cans but adapt our plants and our animals and ourselves to live wild in the universe as we find it . . .*
>
> *– Freeman Dyson*

Settling In

Now that the fleet has arrived at Draconis, it is time for some dramatic changes to the way life has been lived for the last few centuries.

Some of the inhabitants of the fleet remember leaving Earth, 346 years ago, having either been cryogenically preserved for part of the voyage or having lived the full period with the benefit of anagathic treatments. Generally, these "old-timers" are keen to get terraforming underway so they can step out on to a fresh new world, with a sky instead of a roof overhead.

The generations born on board are more mixed in their outlook. Some crave open air just as much as the old-timers, while others are comfortable in the ships and see no point in moving to a relatively hostile world. Still another faction has decided that terraforming the new worlds would not only be a waste of time, but would be actively unconscionable, as it would destroy the pristine conditions on them, including the alien biota on Naga. This group has been agitating for calling off all terraforming plans, but has been outvoted.

Parking Orbits

The first order of business on arrival at Draconis was to get the ships into parking orbits. Using the comet as reaction mass, they first went into elliptical orbits with periastrons between the orbits of Jabberwock and Quetzalcoatl. Over the next few years, they bled off energy at each approach, circularizing their orbits. Eventually, some of the ships went into final parking orbits around the inner planets.

The *Dragonfly* has taken up orbit about Naga, which is seen as the long-term inhabitable jewel of the system. It is accompanied by *Acalagon*, *Glaurung*, *Hydra*, *St. George*, and *Wyvern*. The ships *Cadmus*, *Marc Ange*, *Scatha*, and *Smaug* are in orbit about Quetzalcoatl. *Fafnir* holds a lone post near Jabberwock, while *Apalala* and *Jormungand* remain in solar orbit. *Jormungand* is in an elliptical transfer orbit that approaches Naga and Quetzalcoatl at its extremes, forming a slow shuttle service between the planets.

Terraforming

Terraforming in humanity's home system has stalled, with various proposals to alter Mars and Venus blocked in international courts. Many on Earth are looking to the Draconis experiment to provide useful data to overcome opposition. While the ships were settling into final orbits, fleet explorers carried out reconnaissance missions to Naga and Quetzalcoatl. Jabberwock's hostile atmosphere prevented manned landings, but robotic probes explored the surface.

With no evidence for any life, either extant or extinct, on Quetzalcoatl, terraforming work began there immediately. Since the atmosphere was dense enough to support humans already, it was a simpler prospect than terraforming Mars back in Sol system. Bioengineers grew large orbital mirrors of reflective biofilm to focus more of Sigma Draconis' heat on the planet and introduced anaerobic microbes to begin removing the atmospheric methane and replacing it with oxygen. The oxygen content is climbing, but there is not yet enough to form a combustion hazard with the slowly decreasing proportion of methane. Planetary engineers expect atmospheric turnover to occur in another 50 years or so. Meanwhile, oxygen-breathing humans and parahumans are colonizing in domed settlements, while newly developed methane-breathing parahumans brave the elements to work unprotected on the surface.

The situation on Naga is complicated by the presence of a native biota. Biologists have taken extensive samples and discovered that the microbes are superficially similar to terrestrial bacteria, but operate on a linear genetic molecule using different base pairs than DNA. They produce analogs of enzymes and proteins with an even greater variety than those expressed by terrestrial organisms. Although thought to be incapable of infecting a terrestrial being, some of the predatory Nagan microbes produce an acid capable of damaging flesh.

But that is a minor concern compared to the ethical debate aboard the fleet about modifying the Naga environment. Introducing terraforming microbes would certainly disrupt and perhaps destroy the native life. Pro-terraformers argue that Naga represents the best environment for baseline and moderately modified parahumans to live, and that the native life is adequately sampled and will always be available in cultures for study and regrowth at any time in the future. The opposition believe it would be inherently irresponsible to reduce an entire planet's biota to captive samples, and put forward the view that more extreme parahumans can live on Naga without modifying the environment. The Executive Council has called for a

decade-long moratorium on any terraforming effort, to allow a full and vigorous debate before submitting the question to what will be an historic vote.

Organizations

As the fleet is a relatively homogeneous culture concerned primarily with survival in a hostile environment and establishing a new place to live, its organizations are typically either administrative divisions or personal special interest groups.

The Executive Council

The elected council of 13 generally has little to do, as most decisions regarding the running of the fleet can be made at a leisurely pace through direct democracy. The main role of the members is diplomacy and negotiation, to maintain workable relations between the ships despite the ideological differences that have developed since they left Earth.

In a crisis, however, the Executive Council is empowered to make rapid decisions when the full electoral process would be too slow. There have been few crises in its history, but the period of change associated with the arrival and beginning of colonization in Draconis is potentially its most challenging time.

Fleet Police

Crime is uncommon, but among 1.5 million inhabitants there is always the potential for violent disagreements. The Fleet Police look after the welfare of individuals by neutralizing any hostile situations, capturing offenders, and – most important in space habitats – enforcing safety regulations. The force of 1,100 officers also investigates cases of petty theft and the rare murder. However, much of their work is chasing after youths who think taking a vacc suit for an illicit joyride is a good idea.

Engineering Section

Engineering Section is the loose collection of professionals who perform mechanical and biological maintenance on the fleet ships, as well as researchers who develop new technology usable by the fleet and for the colonization effort. This includes bioengineers who design genetic modifications for parahuman germlines, plants, animals, and microbes.

Some engineers perform the hazardous duties of ship repairs and modification, involving work outside the hulls. Others work on methods to get the ships to repair *themselves*, using biological techniques and materials. A subsection is dedicated to designing microorganisms that will be useful for terraforming work on the planets of the Draconis system, and testing them in a large self-contained chamber in the ship *Smaug*.

Medical Section

The members of this section look after the health and well-being of the fleet citizens. It includes physicians, surgeons, and bioengineers. The engineers work on new human and parahuman genemods designed to provide benefits for living either in the ships or on partially terraformed worlds. Medical section also includes nanotech scientists who perform research on nanoviruses.

Adventure Seeds

Moles

Unknown to anyone else, a small group of fleet citizens are agents of an expansionist nation back on Earth. They have survived the entire journey through the use of anagathic technology and their long-term plans are about to come to fruition. Their goal is to take part in initial investigation of the Draconis system, then unleash genetically targeted viruses, which will wipe out enough of the population for them to take control of the mission and the planets in the name of their government back home. Although the plan is insane, it is definitely dangerous, and Fleet Police will be pushed to the limit to uncover and thwart it before thousands of people and the dream of an independent colony are destroyed.

Conflict

The disagreement between the citizens of the fleet over the pace of terraforming and how best to colonize Draconis flares beyond political debate and into violence. It begins when political migrations enhance the slight polarization of the different ships, and the Executive Council breaks down as some of them withdraw their representatives. With a de facto majority, the *Dragonfly* leads the efforts to begin seeding Quetzalcoatl with microbes, only to be attacked by ships from the anti-terraforming faction. Meanwhile, bioships are spotted on course for Naga from ships in the rapid terraforming group.

Life, But Not as We Know It

An expeditionary team on Naga comes across some macroscopic life forms. When samples are collected, their genetic structure is puzzling. Although the basis is the same as the native microbes, there are also some suspiciously DNA-like sections that code for familiar enzymes. It seems somebody has been engineering hybrids and seeding them on the planet, but who, and why?

Characters

Many character types can find adventure in the Draconis system.

Bioengineers are in high demand for jobs ranging from parahuman design and developing terraforming microorganisms, to the necessary routine of taking care of bioships. Front-line engineers will go out into the field, checking environments on Naga and Quetzalcoatl and performing experiments in hostile conditions. Some will be collecting and characterizing the native life on Naga, with a view to learning its secrets and adopting them into new technologies. These field trips will involve exploring new territory and dealing with a variety of problems.

Parahumans and uplifts have new worlds of opportunity opening to them. Some will be more comfortable on Naga or Quetzalcoatl than in space, and will form the vanguard of colonizing efforts. Others will be more adapted to space, making them valuable contributors to various space construction projects.

Physicians are needed everywhere in the system, as people always need medical care. They will be valuable in the new colonies and anywhere that risky work is undertaken. Doctors will also be required to perform biomod operations, thaw cryonically frozen citizens, and supervise proteus nanovirus transformations.

Variants

As presented, the Naga campaign is based shortly after the arrival of the fleet in the Draconis system, and deals with the themes of settling in and conflict between various groups who want to go about that in different ways. There are plenty of opportunities for setting a campaign in alternate parts of the colonization timeline, or with a different set of conditions.

In Deep Space

Hundreds of years out from Earth, and a century from their destination, this setting plays up the isolation of the fleet from both Earth and any ready source of energy and resources. In a crisis, the fleet is on its own. Although colonists and livestock have been screened for infectious diseases, there is always the chance that some contagion has been lying dormant somewhere or will mutate from existing microbes. An epidemic in one ship would be bad enough, as the Executive Council must make hard decisions regarding quarantine, but if it spreads to several of the ships it could lead to chaos.

Arrival

The arrival at Sigma Draconis is a once-in-a-lifetime event which could form the core of a campaign. Preparations would begin years in advance, with detailed observations of the planetary system and discussions of which planets should be targeted for terraforming by which methods and how to establish the ships in system orbits. There are plenty of opportunities for political jostling as factions attempt to stake claims for various parts of the system. This segues naturally into the default campaign after the ships arrive. Or perhaps there is a surprise waiting in the system . . .

Tragedy on Earth

At some point in the journey or shortly after arrival, the newsfeed from Earth just stopped. This could have been presaged by news of increasing political turmoils, or it may have happened completely without warning. Astronomical observations might show nothing obvious, or signatures of heavy radiation. Naturally, speculation about the reason runs rife amongst the fleet, and everyone has an opinion on what should be done. Radio queries will be sent as an almost automatic reaction, but with little hope of any response. Some paranoid people will blame aliens and demand the fleet stop sending signals. Others will be desperate to know what has happened and begin plans for a mission to send a ship to investigate.

Overtaken

The pace of technology on Earth continues to accelerate with its huge population and resource base, at a speed the fleet can't hope to keep up with. With a dash of superscience, Earth physicists could invent faster-than-light travel, engineers could build the ships, and nations could be setting up colonies on Naga by the time the fleet arrives! If FTL only works between stars, the fleet could be stuck in transit for decades, receiving a surprising radio message from their destination before learning from Earth that starships are on their way. This will generate a feeling of dislodgment and betrayal in many of the fleet citizens, who will not be happy when they arrive to find their promised land settled by the same nations they fled centuries ago. Another option allows FTL travel to the fleet in transit, instantly converting it from an isolated outpost of humanity into a waystation that people might want to leave en masse.

Later in the Terraforming

A few decades into the terraforming effort, a million genemods and parahumans are living unaided on Naga, there are small colonies on Quetzalcoatl, and it won't be long before radical parahuman species can survive on Jabberwock. With three different worlds and over a dozen giant habitats in space, the Draconis system has enough varied territory and activity to sustain a campaign of vast scope.

Glossary

This section defines both scientific and fanciful terms found in this book and in biotechnology literature.

Technical Terms

allele: One of the alternative forms of a gene in a particular position on a chromosome. For example, a gene influencing eye color will have "blue," "brown," and other alleles, with each organism possessing one of the options.

amino acid: An organic compound that is an essential component of protein molecules, and thus of life as we know it.

antibody: A protein made by the body's immune system to attack and neutralize foreign bodies such as microbes or viruses.

antigen: A substance that triggers the immune system to produce antibodies.

apoptosis: The normal death of a cell that has reached the end of its useful life. This is a normal and healthy process, as opposed to necrosis.

archaea or **archaebacteria:** An ancient form of microbial life, related to but distinct from bacteria.

bacteria (singular: "bacterium"): A class of single-celled organisms. There are countless species of bacteria.

bacteriophage ("bacterium eater") or **phage:** A small virus which only infects a particular species of bacterium. Can be used to insert new DNA into a bacterium.

base: One of the molecular "letters" in the genetic code, which combine into pairs and then connect in long chains to form DNA.

B-cell: A type of white blood cell that binds to foreign microbes, tagging them for destruction by the immune system.

biomimetics: Engineering designs that are patterned on or inspired by living things.

bioprocessing: Using bacteria, gengineered plants and animals, or other biotech processes in manufacturing.

biotech or **biotechnology:** A set of biological engineering techniques, such as biomimetics, bio-nanotech, bioprocessing, cloning, gengineering, and transplants, applied to research and product development.

blastocyst: A very early stage of a developing embryo, with only 32-64 cells.

cell: The smallest part of an organism that is capable of independent function. Cells are microscopic entities that consist of a nucleus and various organic and inorganic components, surrounded by a membrane.

chimera: An organism created by fusing together the cells of blastocysts of different species; a cruder form of blending traits than germline gengineering.

chirality: The property of molecules having mirror-image variant forms. Normally only one chiral variant is utilized by biology.

chromosomes: The self-replicating structures within cells on which the genes are located.

cloning: The technique of asexually producing a group of cells or complete organisms, called clones, which are all genetically identical to a single ancestor.

cryonics: The practice of freezing the dead in hope that future science will be able to revive them.

deoxyribonucleic acid (DNA): The double-helix-shaped molecule that encodes genetic information.

diploid: Having two copies of each chromosome. Most plant and animal cells are diploid, but produce gametes by cell division without chromosome division, resulting haploid cells that combine to form a diploid zygote.

DNA: See *deoxyribonucleic acid*.

electrolyte: A liquid solution of ions such as sodium or potassium. Most liquids in the body are electrolytes.

enzyme: A protein that serves as a chemical catalyst, accelerating the rate at which a biochemical reaction occurs.

eugenics: The study or practice of human improvement through genetic control or genetic engineering.

eukaryotes ("true nucleus"): Organisms whose DNA is surrounded by a membrane and which possesses organelles. Eukaryotes are a "superkingdom" of life forms that include most terrestrial plants and animals other than bacteria.

gamete: A male or female reproductive cell (sperm or ovum). These combine during fertilization to form a zygote.

gene: A sequence of DNA nucleotides, located in a particular spot on a particular chromosome, that encodes a specific instruction to a cell.

gene-cloning: The process of duplicating genes inside modified bacteria.

gene therapy: Genetic engineering performed on a fetus, child, or adult to repair defective genes.

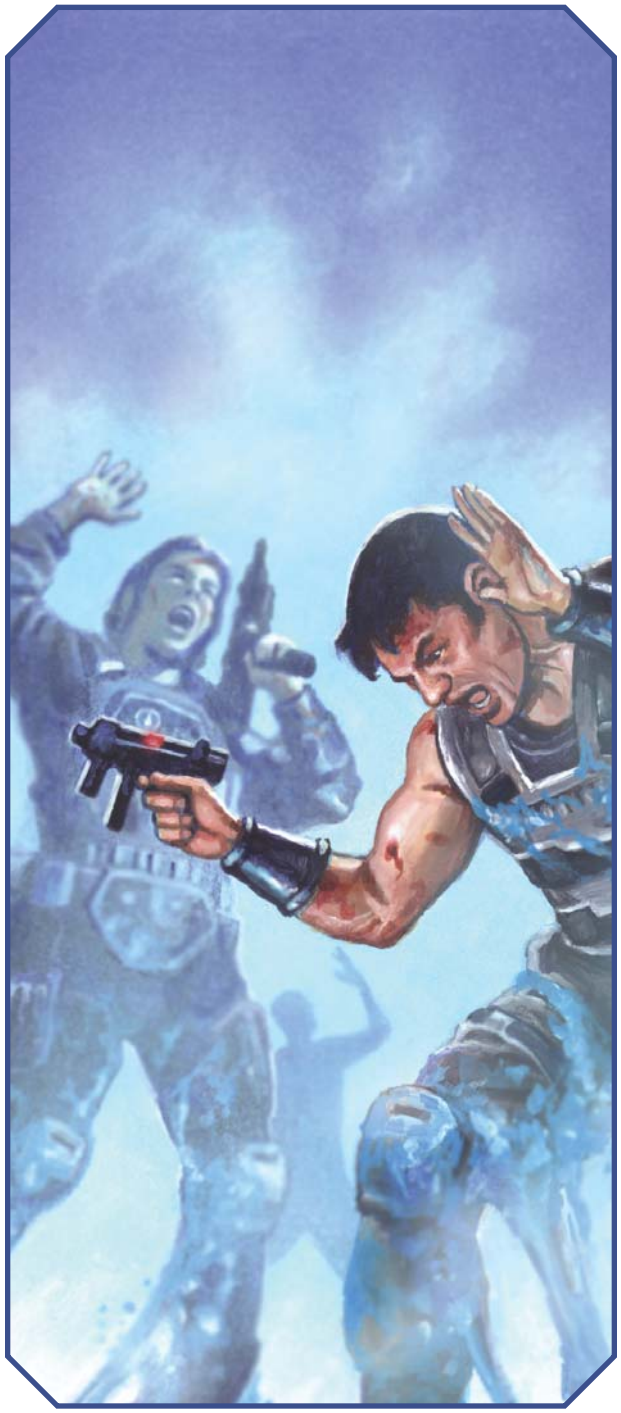
genetic engineering or **gengineering:** Deliberate manipulation of DNA and genes in order to alter an organism's genome.

genetics: The study of the patterns of heredity, the traits that an organism inherits from its ancestors.

genome: All the genetic material carried by individuals of a given species, containing the molecular instructions for inheritable features.

genotype: The specific genome of an individual; the combination of alleles the individual carries.

germ cells: The basic reproductive cells of a multicellular organism; see *gamete*.



germline gengineering: Genetic engineering of the germ cells so that an organism will develop in a different way than its unmodified genome would have indicated.

haploid: Having only one copy of each chromosome. Fungi and some algae are haploid organisms. Plant and animal gametes are also haploid.

hormone: A protein that acts as a chemical messenger within the body. There are many different hormones, each with its own function.

in vitro ("in glass"): Taking place outside a living organism, usually used when referring to "test tube" fertilization or to the process of growing an organism in an artificial womb, clone tank, etc.

intron: A segment of DNA within a gene that does not code for protein sequences and that is edited out when the gene is expressed. Introns may have regulatory or structural uses.

ligase: An enzyme that can rejoin DNA fragments together, used as a tool in genetic engineering.

microbe: A single-celled organism, like a bacterium or alga. Usually microscopic, but colonies of single-celled organisms can be large enough to see.

mitochondrion (plural: mitochondria): An organelle that converts organic chemicals into a usable energy supply. It also contains DNA, separate from the chromosomes, inherited through the female line.

monoclonal antibody: An antibody grown in a cloned culture, producing usable amounts of identical antibodies.

nanomachine: A microscopic organic or inorganic robot, usually cell-sized or smaller.

nanotech or **nanotechnology:** An emerging technology based around the manipulation of atoms and molecules using microscopic machines. In biotechnology, nanotech promises the ability to precisely manipulate cells and genes.

necrosis: The abnormal death of cells, caused by injury or infection.

nucleotides: The basic molecular subunits of DNA or RNA. Thousands of nucleotides make up DNA molecules; their sequence determines the genetic code and the function of each gene.

organelle: A structure bound by the cell membrane in eukaryotic organisms, such as the mitochondria.

pathogen: An organism (usually a microbe) or chemical that causes a disease.

PCR: See *polymerase chain reaction*.

peptide: A short chain of amino acids, which may combine with other peptides to form a protein.

phenotype: The expression of a genotype in physical features of an organism.

plasmid: A ring-shaped structure of DNA, found in bacteria.

polymerase chain reaction (PCR): A means of rapidly copying DNA using specialized enzymes and equipment.

prion: A pathogenic protein capable of "hijacking" cells to produce copies of itself. Prions can produce various brain diseases such as BSE ("mad cow disease") and kuru ("laughing sickness") as well as pathologies of aging and senility.

protein: A large molecule made up of long chains of amino acids. Proteins are formed by cells as directed by their genes, and are the basis for the structure and function of living things. There are countless different kinds of proteins, each with its own specialized function.

protozoan: A single-celled microscopic animal somewhat more complex than a bacterium.

recombinant DNA: The basis of genetic engineering, this is the technology of cutting DNA molecules into discrete pieces and recombining them with other DNA molecules to form new genes.

ribonucleic acid (RNA): A chemical similar in structure to DNA. One type, messenger RNA (mRNA), relays the

orders from genes to the molecular machinery of cells, while other types perform other roles. Because of its ability to tell a cell what to do, RNA is a primary tool of gengineers.

ribosome: Parts of the cell's molecular machinery, these are "factories" that create proteins under orders from the genes.

RNA: See *ribonucleic acid*.

telomerase: An enzyme that increases the number of telomeres on the ends of a chromosome.

telomere: A member of a repetitive DNA sequence at the end of a chromosome that serves as a buffer against incomplete copying.

tissue engineering: The design of artificial organic tissue.

transgenic: A transgenic organism is one that has genes added to it from outside its original species.

virus: A non-cellular biological organism that can reproduce only within a host cell. Viruses consist of RNA or DNA covered by protein. RNA viruses are especially useful tools for gengineering.

zygote: A cell formed when two gametes combine in sexual reproduction. Zygotes grow into blastocysts, embryos, and ultimately adult organisms.

Science-Fiction Terms

anagathic: An adjective used to describe technologies that slow or halt aging.

baseline: An unmodified genome or an example of a genetically unmodified species.

biogenesis: The process of creating functional biological beings or devices from scratch, using nanobots to assemble molecular components and then ensure they work together harmoniously.

biomod: A biological modification made to a living person for non-medical purposes. At TL7-8, the only biomods are cosmetic surgery. At TL9+, biomods become the organic equivalent of cybernetics, giving people many new abilities.

bio-nanotech: Nanotechnology that relates to biotechnology – for example, a proteus nanovirus.

bioplastic: A pseudo-organic TL10 material. Not to be confused with certain kinds of plastic made from organic materials like starch, which are also called bioplastics.

bioroid ("biological android"): A variant human (or humanoid) who was force-grown to maturity in a clone tank or assembled via nanotechnological biogenesis.

braintaping: A means of recording memory and personality, for immediate or later transfer to another body.

clone tank: An ultra-tech artificial womb equipped to force-grow organisms (not necessarily clones) to adulthood.

corpsicle: A corpse preserved using cryonics. Coined by SF author Frederick Pohl.

eugeneering: Genetic engineering for eugenic purposes.

forced-growth: A way of hyper-accelerating development within an artificial womb so that maturation from a germ cell to a developed adult takes months, not decades. It may use massive doses of growth hormones or other methods.

genefixed: Used to describe someone whose genes were manipulated at conception to fix or screen out genetic defects.

genemod: Short for "genetically modified." Someone or something that has undergone genetic engineering. Also refers to a genetic modification.

genesplice: To perform genetic manipulation.

ghostcomp: A computer capable of housing a self-aware braintape.

growth tank: An artificial womb.

metamorphosis (nano)virus: A proteus virus capable of performing radical changes in a living being's anatomy.

nanite, nano, and **nanobot:** Slang terms for nanomachines.

nanovirus: A swarm of nanomachines designed to perform harmful or benign tasks within a living organism. Not to be confused with the botanical term "nanovirus" which refers to a family of plant viruses.

neogenesis: The next step beyond biogenesis; the creation of a new organism or species capable of living independently, without ongoing biochemical support from symbiotic nanomachines. A neogenetic being can be assembled like a biogenetic one, or grown from an assembled zygote.

organlegger: Someone who steals live organs from hospitals or kidnaps victims to sell to transplant patients. Coined by SF author Larry Niven.

pantropy: The philosophy or practice of colonizing hostile environments by adapting humanity to be able to survive in them. Coined by SF author James Blish.

parahuman: A variant human who has undergone species modification.

polykeratin: A form of artificial tissue that is capable of changing its shape.

proteus virus: A nanovirus that hijacks cellular machinery for the purpose of transforming cells.

sensa-skin: An ultra-tech form of artificial tissue.

species modification: Genetic modification that inserts new genes not native to a species' original genome.

transhumanism: A movement promoting the modification and diversification of the human species to overcome the limitations of human biology.

upgrade: A genetically modified variant of a species, designed to be superior to an unmodified individual. Upgrades are usually capable of breeding with normal members of their species.

uplift: The process of modifying animals to improve their intelligence, communications, or tool-using capabilities, often with the goal of creating a sapient or near-sapient race. Coined by SF author David Brin.

uploading: The act of being copied or transformed into a digital intelligence. Similar to braintaping, but return to a biological body may not be desired, or even possible.

variant human: A member of a human variant race.

variant race: A subspecies that has been adapted from the original species through genetic engineering. Depending on the extent of the gengineering, it may be similar to or very different from the original.

Bibliography

There are far too many works of fact and fiction to cover in this brief space, so this bibliography concentrates on works especially useful in inspiring adventures and game settings. Dates are for the most recent edition, where possible.

Fiction

The categories given below are to make research easier – most overlap into several topics. In the case of prolific authors, representative works have been listed.

Altered People and Biotech-Influenced Societies

Banks, Iain M. *Consider Phlebas* (Macmillan, 1987). Space opera featuring agents of the Culture, an activist utopia composed of biotech-enhanced humans and intelligent starships. Numerous sequels; *Excession* is recommended for its exotic biotech.

Bear, Greg. *Queen of Angels* (Warner Books, 1990). Police procedural set in a well-conceived future Los Angeles, featuring advanced bio- and nanotech. Sequel *Slant*.

Blish, James. *The Seedling Stars* (Roc, 1972). Classic collection of stories about pantropy, the adaptation of humans to alien worlds.

Brin, David. *Otherness* (Bantam, 1994). Many short stories featuring biotechnology.

Bujold, Lois McMaster. *Falling Free* (Baen, 1988). Details the creation and tribulations of a variant race of zero-g adapted parahumans. Bujold's *Ethan of Athos* (1986) and her entire Miles Vorskogian series, set in the same universe, also feature genetic engineering, cloning, and other reproductive technologies.

Di Filippi, Paul. *Ribofunk* (Four Walls Eight Windows, 1996). Transgenic animal-human hybrids are exploited in a society utterly transformed by biotech.

Dixon, Dougal. *Man after Man* (St. Martins, 1990). A speculative taxonomy of future human subspecies.

Egan, Greg. *Axiomatic* (Millenium, 1998). Short story collection, many of them with hard-sf biotech or nanotech themes, notably "The Caress" and "The Cutie."

Egan, Greg. *Diaspora* (Harper-Prism, 1998). A catastrophe strikes a far-future posthuman Earth.

Hansen, Karl. *War Games* (Berkley, 1983). A very decadent interplanetary society uses modified soldiers and spies to fight a parahuman rebellion. Sequel *Dream Games*.

Heinlein, Robert. *Friday* (Del Rey, 1997). Adventures of a genetically-engineered super-agent.

Herbert, Frank. *Dune* (Ace, 1965). Classic novel about the making of a messiah, also featuring ecology, eugenics, and an anagathic, mind-expanding drug. Sequels contain many other biotech elements, such as exotic variant human races.

Herbert, Frank. *Hellstrom's Hive* (Bantam, 1986). An underground "human hive" transformed by centuries of eugenic modification is discovered by the government.

Huxley, Aldous. *Brave New World* (1932). Classic novel of an engineered "scientific utopia" enforced by behavior-modifying drugs and a eugenic caste-system.

Kress, Nancy. *Beggars in Spain* (Avon, 1993). Upgraded humans are engineered for enhanced intelligence and sleeplessness, and come into conflict with the rest of society (and vice versa). Sequels include *Beggars and Choosers* and *Beggars Ride*.

Kingsbury, Donald. *Courtship Rite* (1982). A complex political story set on Geta, a harsh world whose people practice plural marriage, cannibalism, and eugenics.

Lee, Tanith. *Don't Bite the Sun* (Starmont, 1987). Teens grow up in a utopian far future where suicide just means returning in a different body. Sequel *Drinking Sapphire Wine*.

McDonald, Ian. *Terminal Café* (Bantam, 1985). Nanotech is used to resurrect the dead as slaves, who go to war with the living. A wild post-cyberpunk future Earth.

Miéville, China. *Perdido Street Station* (Del Rey, 2000). This science-fantasy novel in the New Weird genre features a society where magical biotech is widely practiced.

Niven, Larry. *A Gift From Earth* (Orbit, 1991). On an interstellar colony, a ruling hospital caste doles out organ transplants that ensure longevity and health, while sentencing ever-increasing numbers of dissidents to the organ banks.

Niven, Larry. *The Long ARM of Gil Hamilton* (Ballantine, 1991). A telekinetic future cop battles organleggers in a world where scarce transplants guarantee longevity.

Ore, Rebecca. *Gaia's Toys* (Tor, 1995). A dystopian post-plague near-future in which eco-terrorists use genetically-modified insects to combat the establishment.

Reed, Robert. *Marrow* (Tom Doherty Associates, 2000). High-biotech near-immortal humans (and others) inhabit and explore a mysterious world-sized starship.

Shirow, Masamune. *Appleseed* (Dark Horse, 1995). Graphic novel series that coined the term bioroid; adventures of two cops in a bio-cyberpunk utopia threatened by terrorists. *Book 3: The Scales of Prometheus* has especially strong biotech themes.

Smith, Cordwainer. *Norstrilia* (Ibooks, 2005). Features a decadent interstellar society, including long-lived aristocrats and bio-engineered uplifted-animal servants, the "underpeople." His short stories (frequently anthologized, and collected in *The Best of Cordwainer Smith*) often feature biotech themes in the same Instrumentality universe.

Sterling, Bruce. *Holy Fire* (Bantam-Doubleday-Dell, 1996). The transhuman future of health care; shows the lengths senior citizens may go to secure longevity, and the cost.

Sterling, Bruce. *Schismatrix Plus* (Ace, 1996). Novel and stories about a transhuman solar system torn by conflict between the high-biotech Shapers and cyborg Mechanists.

Stirling, S.M. *Drakon* (Baen, 1996). A radically genetically-engineered agent from a fascist alternate world arrives on Earth and prepares it for conquests; one of the last in Stirling's Draka series. A good combination of biotech and an infinite-worlds setting.

Swann, S. Andrew. *Forests of the Night* (DAW, 1993). Detective story in a world where human-animal transgenic hybrids are second-class citizens.

VanDermeer, Jeff. *Veniss Underground* (Prime Books, 2003). Another example of the New Weird science-fantasy genre, set in a decadent far-future city where artists are bioengineers and uplifted meerkats and multi-limbed mini-elephants are servants.

Varley, John. *The John Varley Reader* (Berkley, 2004). Collection of the author's short stories, including several set in the Eight Worlds, a prototype transhuman future with biomods and sex changes as common as body piercing; see also the related novels *The Ophiuchi Hotline, Steel Beach*, and *The Golden Globe*.

Varley, John. *Titan* (Ace, 1987). In the near future, astronauts discover a godlike alien artifact which has created its own ecosystems and variant human races (including "realistic" winged humans and centaurs) inside its "body." Sequels *Wizard* and *Demon* feature more exotic bioconstructs, such as living guided missiles.

Warren, Adam. *Dirty Pair: Biohazards* (Dark Horse, 1989). Anime-influenced biopunk space opera. Notable sequels include *Dangerous Acquaintances*, *Fatal but Not Serious,* and *Run for the Future,* featuring ever-more exotic bio- and nanotechnology.

Williams, Walter Jon. *Voice of the Whirlwind* (Tom Doherty Assoc., 1992). Braintaping, bioengineered posthumans, corporate wars, aliens, and future shock are spotlighted in this interplanetary bio-cyberpunk thriller.

Williamson, Jack. *Lifeburst*. (Del Rey, 1984) Refugee creatures designed to live in vacuum implore their hosts to let them warn Earth about a planet-devouring race, while oblivious humanity undergoes genetic-economic schism. The author also coined the terms "genetic engineering" in *Dragon's Island* and "terraforming" in *Seetee Ship* (both 1951).

Bioengineered Constructs, Plants, and Animals

Crichton, Michael. *Jurassic Park* (Ballantine, 1990). Cloned dinosaurs cause havoc.

Easton, Thomas A. *Sparrowhawk* (Wildside Press, 2000). A future world filled with bio-constructs and biovehicles.

Martin, George R.R. *Tuf Voyaging* (Meisha Merlin, 2003). The adventures of a freelance interstellar ecological engineer.

Shelley, Mary. *Frankenstein, or the Modern Prometheus* (Pocket, 2004). Originally published in 1818, this is the classic story of a scientist's creation of artificial life and its tragic consequences, and is often considered the first science fiction novel.

Cryonics

Bear, Greg. *Heads* (Tor, 1990). On future Luna, the arrival of a consignment of cryogenically-preserved heads leads to intrigue.

Niven, Larry. *A World Out of Time.* (Del Rey, 1986). Cryogenics patient wakes up in a radically-changed dystopian future.

Human Cloning

Cherryh, C.J. *Cyteen* (Aspect, 1995). Set in the Union-Alliance SF universe, the story focuses on a deliberate attempt to recreate a murdered genius through a combination of cloning and duplication of the original environment and life experiences.

Cherryh, C.J. *Serpent's Reach* (Mandarin, 1989). Long-lived aristocratic families breed cloned servants and trade with insectoid aliens while feuding amongst one another.

Levin, Ira. *The Boys from Brazil* (Bloomsbury, 1998). An attempt to clone Hitler and duplicate his upbringing; makes the nature-versus-nurture point.

Weaver, Michael D. *Mercedes Nights.* (St. Martins, 1987). A celebrity is cloned multiple times for sale as a sex toy.

Wolfe, Gene. *The Fifth Head of Cerberus* (Orb, 1994). A clone family struggles with itself and native dopplegangers for control of a backwater double-planet colony.

Nonhuman Biotechnologies

Butler, Octavia. *Xenogenesis* (Doubleday, 1989). Seemingly benevolent aliens biologically modify humans to adapt them to their own society.

Harry Harrison. *West of Eden* (Ibooks, 2000). Struggle between early humans and evolved dinosaurs who have mastered primitive biotechnology.

Williams, Walter Jon. *Angel Station* (Tor, 1989). Free traders encounter high-biotech aliens in a world where genetic engineering is common.

Bioterrorism, Outbreaks, and Medical Thrillers

Bear, Greg. *Blood Music* (Ibooks, 2002). Intelligent bioengineered diseases transform the world through nanotechnology; a classic bio-nanotech disaster novel.

Bear, Greg. *Darwin's Radio* (Del Rey, 2000). Diseases sleeping in the human genome return as the trigger for evolutionary change. Sequel *Darwin's Children*.

Crichton, Michael. *The Andromeda Strain* (Avon, 2003). The classic novel of a super-plague from space.

Clancy, Tom. *Executive Orders* (Berkley, 1996). Islamic terrorists engineer a variant of the Ebola virus.

Cook, Robin. *Coma* (Signet, 2002). Unscrupulous hospital harvests organs from patients; one of many medical and biotech thrillers by Cook.

Herbert, Frank. *The White Plague* (Ace, 1991). A terrorism survivor engineers a plague that kills only women.

Kress, Nancy. *Oaths and Miracles* (Avon, 1997). The Mafia develops a targeted viral weapon.

Nourse, Alan E. *The Bladerunner* (Random House, 1974). In a world of black market doctors, the hero is a smuggler specializing in medical supplies. Nourse's *Star Surgeon* (1959) focuses on an interstellar doctor.

Palmer, Michael. *Side Effects* (Bantam, 1991). Pathologist investigates a medical conspiracy with its roots in Nazi Germany. One of several medical thrillers by Palmer.

Preston, Richard. *The Cobra Event* (Ballantine, 1998). Bioterrorism thriller by the author of the non-fiction *The Hot Zone*.

Shirley, John. *Eclipse: Corona* (Babbage Press, 2000). In a cyberpunk future, neo-Nazis develop a racially-targeted plague and a subhuman slave race.

Tezuka, Osamu. *Black Jack* (Viz, 1999-Present). Long-running manga series about a two-fisted medical mercenary with almost supernatural surgical gifts. Reprinted from the series begun in the 1970s by Osamu Tezuka, the "god of Japanese comics."

Wilson, Robert Charles. *Bios* (Millenium, 1999). A research team including a genetically-engineered woman deal with an alien world's ultra-toxic ecosystem. Contains some vivid descriptions of alien diseases.

White, James. *Beginning Operations* (Orb, 2001). The lengthy Sector General series is a classic of medical science fiction, set in a vast deep-space hospital station which treats both human and nonhuman patients. This omnibus edition has the first three novels; other volumes are *Alien Emergencies* and *General Practice*.

Uplifted Animals

Brin, David. *Startide Rising* (Sagebrush, 1999). Upstart humans, dolphins, and chimps versus aliens in a future where a societiy's status is measured by its ability to uplift animals into sapience. Many sequels, including *The Uplift War* and *Brightness Reef*. See also ***GURPS Uplift***.

Crowley, John. *Otherwise* (Harper Perennial, 2001). Omnibus collection that contains the novel *Beasts*, about uplifted human-animal hybrids living in the wilds.

Gallacci, Steve. *Albedo* (various publishers, 1979-2005). Graphic novel series about interstellar war and intrigue in a society of genetically-engineered uplifted animals.

Smith, L. Neil. *The Probability Broach* (Orb Books, 2001). A libertarian utopia in which uplifted dolphins and simians are full citizens.

Wells, H.G. *The Island of Dr. Moreau* (Penguin Classics, 2005). Classic novel (first published in 1896) of surgical uplift and the horrendous consequences that ensue.

Zelazny, Roger. *The Dream Master* (Orion, 2006). A surgically-uplifted dog is a major character in this book about dream-interface technology.

Popular Science

Andrews, Lori, and Nelkin, Dorothy. *Body Bazaar: The Market for Human Tissue in the Biotechnology Age* (Crown, 2001). A discussion of the legal and ethical issues in treating human tissue as a commodity.

Benyas, Janine M. *Biomimicry: Innovation Inspired by Nature* (William Morrow, 1997). Good introduction to biomimetic technology.

DeSalle, Rob and Lindley, David. *The Science of Jurassic Park* (Basic Books, 1997). One of the better "science of . . ." books, with a very readable summary of genetic engineering technology (and why the scenario of the novel cannot work as written).

Downer, John. *Supersenses: Perception in the Animal World* (Random House, 1991). A look at the extraordinary sensory abilities of many animal species.

Drexler, Eric, Peterson, Chris, and Pergamit, Gayle. *Unbounding the Future: the Nanotechnology Revolution* (Quill, 1993). The promises and pitfalls of advanced nanotechnology.

Drlica, Karl. *Understanding DNA and Gene Cloning* (Wiley, 2003). Good overview of the subject.

Garrett, Laurie. *The Coming Plague* (Penguin, 1995). The spread of infectious diseases and their reservoirs, especially in the Third World.

Gawande, Atul. *Complications: A Surgeon's Notes on an Imperfect Science* (H.B. Fenn & Co., 2003): Fascinating case-studies and essays that illuminate the limits and dilemmas faced by doctors, along with interesting detail on several medical conditions.

Gonick, Larry, and Wheelis, Mark. *The Cartoon Guide To Genetics* (Harper, 1991). Illustrated cartoon-format introduction to the fundamentals of gene theory.

Grace, Eric. *Biotechnology Unzipped* (Trifolium, 1997). Good overview of the entire biotech industry; slightly out of date, but with lucid explanations.

Nussbaum, Martha A., and Sunnstein, Cass R. *Clones and Clones: Facts and Fantasies About Human Cloning* (Norton, 1998). Dispels myths and reveals some surprising ethical issues of cloning.

Peters, C.J., and Olshaker, Mark, *Virus Hunter* (1998). First-person memoir by a leading Centers for Disease Control virologist.

Prentis, Steve. *Biotechnology: A New Industrial Revolution* (Orbis, 1984). Industrial and economic implications of biotech.

Preston, Richard. *The Hot Zone* (Anchor, 1995). Graphic story of the Ebola outbreaks, and of the people who study and contain exotic lethal diseases.

Regis, Ed. *Great Mambo Chicken and the Transhuman Condition* (1990). Irreverent look at some of the personalities in the transhumanist and cryonics movement.

Rifkin, Jeremy. *The Biotech Century* (Jeremy P. Tarcher, 1999). One of the most influential opponents of biotechnology warns against future developments.

Steen, R. Grant. *DNA and Destiny* (Plenum, 1996). Good summary of nature-versus-nurture debate.

Suzuki, David, and Knudtson, Peter. *Genethics: The Ethics of Engineering Life* (Stoddart, 1988). Ethical issues covering all species, not just humans.

Watson, James. *The Double Helix* (Touchstone, 2001). Classic (first published in 1969) memoir of the discovery of the genetic code.

Many magazines and web pages have articles on biotech and related technologies.

Games

Chadwick, Frank, Miller, Marc, Brown, Timothy, and Smith, Lester. ***2300*** (GDW, 1992). The pentapod alien race is one of the best descriptions of a high-biotech using alien species.

Jones, Stefan. ***GURPS Uplift*** (Steve Jackson Games, 1990). Adaptation of David Brin's *Uplift* novels.

Leker, Andrew, Leker, Amy Kalish, and Teves, Miles. ***Skyrealms of Jorune*** (Chessex, 1985). Science fantasy biotech on an alien world.

Pulver, David. "The Medusa Sanction," in ***GURPS Cyberpunk Adventures*** (Steve Jackson Games, 1992). Cyberpunk adventure featuring bioroids and bioterrorism.

Pulver, David. ***Transhuman Space*** (Steve Jackson Games, 2001). A hard sf future set in 2100 whose advanced biotechnology was inspired by concepts introduced in ***GURPS Bio-Tech***. Several supplements in the line feature additional biotech, notably *Fifth Wave* (eco-niche parahumans), *Deep Beyond* (space adaptations), *In the Well* (Martian biotech), and *Under Pressure* (underwater biotech).

Sheeley, Craig. "Exotics," ***Chromebook 2***. (R. Talsorian Games, 1992). Surgical biomodification in a cyberpunk world.

Van Hiel, Peter, and Holmgren, Jason. ***Albedo: Platinum Catalyst*** (Sanguine Publications, 2004). Adaptation of the Steve Gallacci comic. An earlier version by Paul Kidd was released by Chessex in 1988.

Winters, Edward, and McLaughlin, Judith. ***Technocracy: Progenitors*** (White Wolf, 1993). Magical genetic engineering in the ***Mage: The Ascension*** setting.

Wu, Karl. ***Shadowtech*** (FASA, 1992). Erudite look at cyberpunk biotechnology in the *Shadowrun* setting.

Film and Television

Only a few iconic examples of the hundreds of medical and forensic movies and television dramas have been listed.

The Andromeda Strain (Robert Wise, 1971). Scientists struggle to control a deadly alien disease.

Appleseed (Shinji Aramaki, 2004). The most recent animated version of the Shirow manga.

Blade Runner (Ridley Scott, 1982). Bioroid "replicants" created as servants and warriors attempt to elude police in future Los Angeles.

Crest of the Stars (Yasuchika Nagaoka, 1991): Space opera anime focusing on the Abh, a variant race of humanity, and their conflict with the United Mankind, with fascinating details of Abh aristocratic, high-biotech culture. Based on a series of novels by Morioka Hiroyuki, it provides many details of Abh culture. Sequel *Banner of the Stars*.

CSI: *Crime Scene Investigation* (Anthony E. Zuiker, 2000). Iconic police forensic investigation TV drama set in Los Vegas; spinoff series *CSI: Miami* and *CSI: NY.*

Dark Angel (James Cameron and Charles H. Eglee, 2002-2004). TV series about a genetically-engineered supersoldier living as a fugitive in cyberpunk Seattle.

E.R. (Michael Crichton, 1994-Present). Massively popular emergency room medical drama.

Fantastic Voyage (Richard Fleischer, 1966). A submarine and its crew are miniaturized and used to perform lifesaving surgery; a short-lived TV series was also made.

Gattaca (Andrew Nicol, 1997). A genetically-imperfect man struggles to get ahead in a future in which your genome determines your status.

Gene Shaft (Kazuki Akane, 2003). Animated TV series in which inhabitants of a genetically-stratified future society (including an uplifted dog) confront an alien artifact.

Gundam Seed (Mitsuo Fukuda, 2002-2003). Anime mecha TV series featuring a conflict between genetically-enhanced space-colony-dwelling humans and normals (some enhanced by drugs). Sequel *Gundam Seed Destiny* (2004-2005).

House, M.D. (David Shore, 2004-Present). TV series which treats clinical diagnostics as detective work. The brilliant but unrelentingly acerbic title character is a model of scientific detachment.

Neon Genesis Evangelion (Hideaki Anno, 1995). Psychologically intense anime TV series in which giant robots and biotechnology bring on the apocalypse.

Outbreak. (Wolfgang Peterson, 1995). An airborne virus threatens to spread from a small town.

Star Trek (Gene Roddenberry, 1966-1969). Doctor McCoy is the archetypal "ship's doctor" in SF and Spock is the classic alien hybrid; the original series and its many spinoffs often deal with medical plots. *Star Trek II: The Wrath of Khan* (Nicholas Meyer, 1982) features eugenic supermen as its villains.

Tenchi Muyo! (Hiroki Hayashi and Masaki Kajishima, 1992). Fun anime space opera that features an alien culture that makes use of tree and animal bioships (one of which can transform into a cute furry critter).

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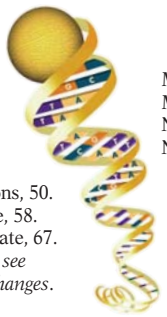

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About *GURPS*

Steve Jackson Games is committed to full support of ***GURPS*** players. Our address is SJ Games, Box 18957, Austin, TX 78760. Please include a self-addressed, stamped envelope (SASE) any time you write us! We can also be reached by e-mail: **info@sjgames.com**. Resources include:

Pyramid (**www.sjgames.com/pyramid/**). Our online magazine includes new ***GURPS*** rules and articles. It also covers the ***d20*** system, ***Ars Magica, BESM, Call of Cthulhu,*** and many more top games – and other Steve Jackson Games releases like ***Illuminati, Car Wars, Transhuman Space,*** and more. *Pyramid* subscribers also get opportunities to playtest new ***GURPS*** books!

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Errata. Everyone makes mistakes, including us – but we do our best to fix our errors. Up-to-date errata sheets for all ***GURPS*** releases, including this book, are available on our website – see below.

Internet. Visit us on the World Wide Web at **www.sjgames.com** for errata, updates, Q&A, free webforums, and much more. To discuss ***GURPS*** with SJ Games staff and fellow gamers, come to our forums at **forums.sjgames.com**. The ***GURPS Space*** web page is **www.sjgames.com/gurps/books/space/**.

Bibliographies. Many of our books have extensive bibliographies, and we're putting them online – with links to let you buy the books that interest you! Go to the book's web page and look for the "Bibliography" link.

GURPSnet. This e-mail list hosts much of the online discussion of ***GURPS.*** To join, point your web browser to **www.sjgames.com/mailman/listinfo/gurpsnet-l/**.

Rules and statistics in this book are specifically for the ***GURPS Basic Set,*** *Fourth Edition.* Page references that begin with B refer to that book, not this one.

Introduction

Why do we dream of voyages to space? Why do we make up tales of distant worlds and other stars? Isn't Earth enough?

Well, no. Earth is a big planet with plenty of weird stuff on it, but it's getting too well-known. Human civilization is increasingly close-knit, so even in the most exotic lands one sees familiar brand names and hears familiar pop music.

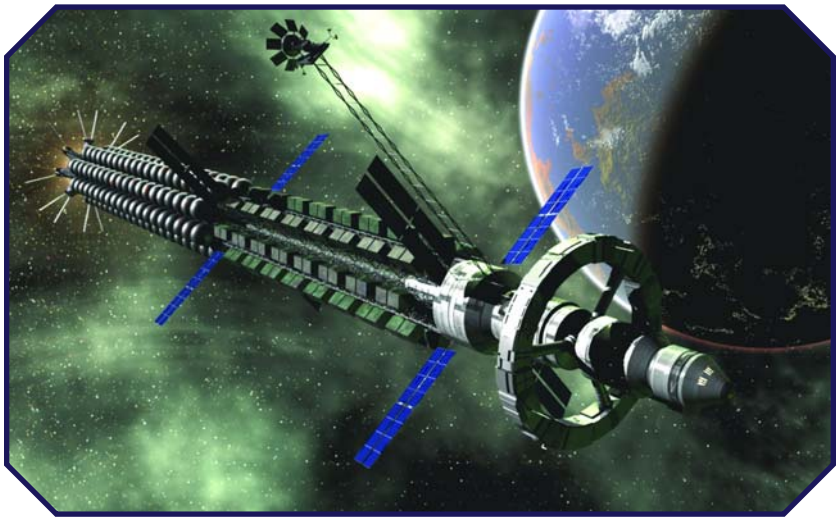
We want *wonders*. We want to climb 26 miles to the top of Mons Olympus on Mars, see the rings of Saturn filling half the sky, watch the double sunset on Alpha Centauri IV, see stars being born in the Orion Nebula, and watch them spiral in to die in the central black hole of the galaxy. Space exploration brings a whole *universe* of wonders within reach.

We want to play with ideas. What would life be like on a planet of a flare star? What are some other ways to run a society, or distribute wealth? How does hyperspace travel affect interstellar military strategy? Space travel and colonization lets us create new societies and examine different ways of doing things.

We also want someone to talk to. An alien perspective would tell us many things about the universe, and about ourselves. Alien music and alien art might revitalize our jaded tastes and inbred styles. Civilizations older than our own might know the answers to some of our questions – and ask some questions we haven't even thought of.

Finally, as gamers we want adventures. We want to chase our foes across the icy plains of Pluto, or hide from them in the clouds of Neptune. We want to make a killing doing business with intelligent fungi from Altair, or lead troops into battle against robot hordes. Space is fun.

What makes space different is that it's real. The wonders are really out there, along with others we haven't seen. There are real alien civilizations out there somewhere, probably more strange than we've imagined. Space



adventures are achievable. Anyone can join in, no royal birth or ancient prophecy required. Those odd societies? They're real, too – or can be. If this book has a message, it's: *we can do this.* Humans are capable of great things. Sure, Earth is a great place, but if we limit ourselves to a single planet, it's an admission of defeat.

Publication History

This is the fourth edition of ***GURPS Space***. Steve Jackson and William Barton collaborated on the first and second editions, and David Pulver revised their text for the third edition. The current edition includes a great deal of text from these earlier versions.

This book also incorporates material from several other ***GURPS*** books. The concepts of *tone*, *scale*, and *scope* used in Chapter 1 were pioneered by Ken Hite in the third edition of ***GURPS Horror***. The world design sequences in Chapters 4 and 5 are descended from the one designed by Jon F. Zeigler for ***GURPS Traveller: First In***; a simpler version of the current system also appears in ***GURPS Traveller: Interstellar Wars***. The alien design sequence in Chapter 6 was inspired by the one Stefan Jones created for ***GURPS Uplift***.

About the Authors

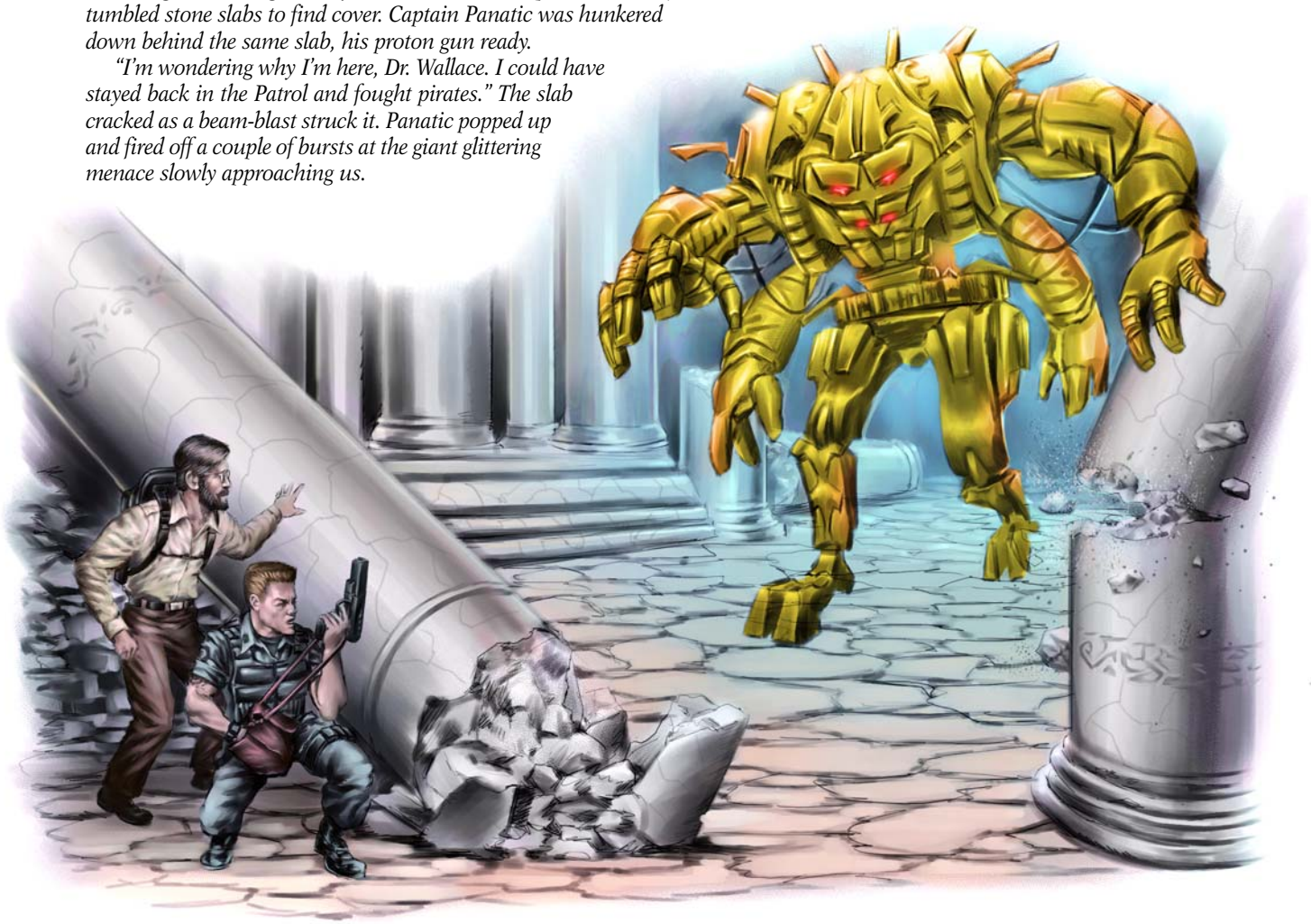
James L. Cambias is a game designer and science fiction writer, currently resident in western Massachusetts. He is putting the finishing touches on his plan to gain a complete monopoly on science fiction role-playing sourcebooks. Earlier stages in the project include ***GURPS Planet Krishna***, ***GURPS Mars***, ***GURPS Planet of Adventure***; ***Star Hero*** and ***Terran Empire*** from Hero Games; and several science fiction short stories. With the appearance of this book, total science fiction domination is within his grasp!

Jon F. Zeigler has been a science fiction fan since the cradle (literally). He and his wife and two children live in Maryland, where he works for the federal government as a network security analyst. He has written several books for ***GURPS***, especially for the ***GURPS Traveller*** and ***Transhuman Space*** product lines.

Chapter One
Space

I dodged the thing's deadly beam-blasts and leaped over one of the tumbled stone slabs to find cover. Captain Panatic was hunkered down behind the same slab, his proton gun ready.

"I'm wondering why I'm here, Dr. Wallace. I could have stayed back in the Patrol and fought pirates." The slab cracked as a beam-blast struck it. Panatic popped up and fired off a couple of bursts at the giant glittering menace slowly approaching us.



"Or I could have taken my brother's offer and gone into business as a merchant. I think I'd make a pretty good merchant, don't you?"

I ducked as a blast shattered the wall above me, showering us both with fragments of blackened stone.

Captain Panatic took my rucksack and began rummaging through it. "I might even have bought some land on a colony world, maybe raise dairy cattle and make cheese. Do you like cheese, Dr. Wallace?"

I risked a look. The huge golden machine that I'd mistaken for an alien idol was now only five meters away, shoving aside slabs bigger than the one we were hiding behind.

"But I didn't do those things. I heard you were looking for a pilot, so I took the job. Do you know why, Dr. Wallace?" Panatic took out a couple of spare power cells and began prying at the casings. He got them open, used a strip of foil to connect them somehow, counted under his breath, and tossed them over the slab at the machine. A second later, there was a tremendous explosion.

When the dust had cleared and we could stop coughing, Panatic and I peeked over the slab. The ancient alien machine was toppled over and still.

"I signed on with you because I figured an archaeology voyage would be nice and safe. What could possibly happen?"

I decided not to tell him about the psi-worms yet.

Space and Space Fiction

A Little Literary History

Space travel has always been the most important trope in science fiction. To many people, it's "all that outer space stuff." And certainly SF writers have been interested in the subject for a very long time. Johannes Kepler wrote about a voyage to the Moon in 1634, and although his hero gets there by means of magic, Kepler's description of conditions on the Moon was pure "hard" science fiction.

Early accounts of space voyages were often fantasies, either explicitly like Kepler's, or with a wink at the reader, as when Francis Godwin used migratory geese to carry his hero to the Moon in *The Man in the Moone* or Edgar Allan Poe used a balloon to carry Hans Pfaal there in "The Unparalleled Adventure of one Hans Pfaal." But by the middle of the 19th century, authors began speculating about ways by which people might really be able to leave the Earth. Edward Everett Hale proposed a giant catapult powered by spinning flywheels to launch an artificial satellite in "The Brick Moon," and Jules Verne envisioned a titanic cannon in *From the Earth to the Moon*. Later authors like H.G. Wells and George Griffiths realized the problems with those methods and concocted imaginary "superscience" methods of negating gravity to allow their heroes to visit other worlds.

At the start of the 20th century, pioneering scientists like Konstantin Tsiolkovsky and Robert Goddard began to investigate the possibilities of rockets as a practical means of space exploration, and space travel moved solidly into the realm of hard SF, where it has remained ever since. Science-fiction writers (and fans) were soon bandying about technical concepts like specific impulse, delta-V, ullage, and gyrostabilization. Some of them, like Arthur C. Clarke, mixed SF writing with research and theoretical work on space exploration.

Unfortunately for science-fiction writers, astronomers during the same era were discovering some uncomfortable facts about the solar system. As early as the 1890s, it was known that Mars was too cold and dry to support any advanced life, and in the 1960s scientists learned that Venus was equally inhospitable. A few writers tried handwaving about asteroids with Earthlike conditions or speculation about the moons of the outer giant planets, but the majority of SF writers began looking to the stars.

Tales of space exploration remained limited to the Solar system until about World War II, when writers began working on a larger scale. Because of Albert Einstein's theory of relativity, the readers were also aware that journeys to other stars were likely to take a very long time. To speed things up, SF writers began a long tradition of coming up with ways to cheat Einstein. E.E. "Doc" Smith's "Lensman" series used the "inertialess" drive to let spaceships crack the lightspeed barrier; others postulated short cuts through hyperspace, instantaneous "jump" drives, space-bending warp drives, and a long list of methods ranging from barely possible to ridiculous.

In modern science fiction, space voyages and interstellar faster-than-light travel are part of the "furniture" of the genre. Authors no longer have to explain how the spaceships work or waste much time describing the thunder of the mighty rocket engines, because those are all so familiar to the readers from movies and televised space missions.

Why Space Travel?

Given that science fiction covers all possible futures, alternate pasts, other realities, and transformations of the human body and mind, it may seem odd that so much energy in the field is devoted to stories about voyages in outer space. Some see this as a continuation of the American idea of the frontier, with space fiction as nothing more than Westerns with ray guns. Others speculate archly about the sexual imagery of rockets. Certainly there *is* a lot of powerful symbolism involved in the idea of rising up away from Earth and mundane concerns to soar among the stars. In just about all mythologies the sky is where the gods live.

But there is more to space travel than just the symbols. The simple fact is that space travel (and interstellar travel) are the most plausible ways to have stories about humans in settings that are not Earthly locales and interacting with beings who are not other people like themselves. This is not very different from descriptions of fantasy settings – Narnia and Middle-Earth are not Earthly locales and have nonhuman inhabitants – but there is an important difference. Alien worlds in outer space are fairylands

What's *Not* in This Book

Though ***GURPS Space*** is intended as the chief sourcebook for science fiction roleplaying using the ***GURPS*** system, the main focus of this book is adventures in space and on other worlds. There are whole subgenres of SF that aren't covered here, because they're important enough to get their own sourcebooks. Descriptions of specific game universes are covered in ***GURPS*** worldbooks. ***GURPS Infinite Worlds*** covers time travel, interdimensional travel, and alternate histories – and presents a campaign framework that links *all* the ***GURPS*** worldbooks. ***GURPS Powers*** describes psionics and other super-powers. Forthcoming "tech books" will provide shopping lists of futuristic gadgets.

that could be *real*, and that don't require special magic to visit. Even the other worlds of the Solar system turn out to be strange and interesting in ways unlike anything on Earth. Just as Jules Verne's stories of extraordinary voyages to Africa or the ocean deeps let his readers visit those exotic places, space fiction lets Earthbound readers "play tourist" among the wonders of the Universe.

Hard and Soft Science Fiction

In discussions of science fiction, "hard SF" refers to stories in which the science is as accurate as possible, and usually the focus of the story as well. "Soft SF" has shifted slightly in meaning over the years. Originally it referred to stories focusing on the "soft sciences" – psychology, sociology, history, etc. Those are the sciences concerned with human behavior, and in time soft SF began to refer to stories that de-emphasized the science in favor of closer attention to the characters and their emotions.

What started simply as a matter of classification turned into a minefield when some fans and authors tried to insist that *only* hard SF was "real" science fiction, and that any stories that subordinated the science to the characters were somehow inferior or pretentiously imitating mainstream fiction. In an interesting boomerang effect, many critics outside the field have taken much the same line, insisting that all SF is "just about gadgets," and any stories that portray human emotions and relationships aren't science fiction because they're too *good* for the field.

In this book we're going to avoid any judgments about what sort of fiction is best. Hard SF refers to stories with a strong emphasis on scientific accuracy, while soft SF here means stories or campaigns that do not. Which is best depends on what the players and GM do.

Science Fantasy

One might expect the least realistic form of SF to be what's often called "science fantasy," in which scientific and magical elements are blended. Examples include Heinlein's story "Waldo" and Christopher Stasheff's *Warlock* series.

But in point of fact science fantasy can have its own varying degrees of realism. If the magic is tightly defined and the interactions between magic and science are carefully thought out, then it can be just as realistic as any moderately hard SF with one or two bits of imaginary science. The magic just fills the niche of "rubber science." A great example of highly realistic science fantasy is the ***GURPS Technomancer*** setting, which blends "technothriller" technology with rigorously explored magic, and addresses all the social and political implications of industrial-scale magic in a scientific and rational society.

By contrast, most superhero settings include both magic and superscience, and treat neither one with much realism at all. Wizards, sentient machines, aliens, avatars of powerful gods, and mutants with strange powers all coexist, yet the society in which they operate shows no effect at all. Nothing is realistic, but it's all a lot of fun and allows cool adventures in capes and spandex.

Game Masters can certainly combine fantasy and SF in a ***GURPS Space*** campaign; treat the magic as just another area of "rubber science" and set the realism level as needed for the desired style of campaign. Obviously, a full discussion of fantasy is beyond the scope of this book, but ***GURPS Fantasy*** and other sourcebooks can supply the missing ingredients.

Designing the Space Campaign

Much of the excitement of a star-spanning campaign comes from having a detailed, believable background, and this section provides an overview of how to create one. These rules are not tied to any single vision of the future. This book is not intended to impose a background on the game; rather, it gives creative GMs the tools to develop *any* type of outer-space campaign.

Designing a complete space campaign involves several decisions.

Type

This is the big one: what kind of campaign will it be? What will the PCs *do*? Are they military officers, explorers, or traders? Would they rather engage in combat or diplomacy? Game Masters may wish to poll their potential players to see what type of campaign most of them like best.

Scope and Interstellar Travel

How much space does the campaign universe cover? Will it be set within a single star system, around a few dozen nearby stars, or in a whole spiral arm of the galaxy? This decision is tied to the choice of faster-than-light drives available: the faster the drive, the more territory that can be covered. Are habitable worlds rare, common, or innumerable? And how close are they in terms of travel time? The more quickly the PCs can travel between worlds, the likelier they are to interact on a large scale – sharing governments, trading, extraditing criminals, or fighting wars.

Interstellar Societies and Organizations

Do the characters live in a massive empire or a loose-knit alliance? Is the government restrictive? Are the police and military effective? Are there many societies, or just one large super-civilization? Note that the number and size of societies in the campaign are tied to the scope. What interstellar organizations are important? And what is the *history* of interstellar civilization?

General Technology

What are the campaign's average and maximum tech levels? What sort of FTL communication, weaponry, medicine, and personal gear will be available? The technology in a campaign affects what type of adventures are possible, so Game Masters must be sure that the available tech fits the desired campaign type.

Drawing the Map

Where are things in the campaign relative to each other? What are important places and why? Traditionally science-fiction universes feature a "core" of advanced, heavily populated worlds and a frontier zone or "rim" where colonies are young and the government's power is weak. If rival empires are cheek-by-jowl the political situation will be very different than if they are separated by wide expanses of unclaimed space.

Aliens and Other Nonhumans

In the campaign are the "good guys" all human? What exactly constitutes "human" anyway if cyborgs, mutants, and uplifted animals are part of the setting? Are there allied species? Are there "bad guy" civilizations? What about vanished races? What is the role of artificial intelligences?

Local Societies

What are the specific worlds and places the characters will spend time in like? How do they interact with interstellar society? What are the local laws and customs, what starship repair facilities are available, and what's the best place to get a plate of Rigelian chili?

Scale and Scope

The scope of the campaign is the size of the environment in which the characters operate, and the scale is the level at which they can affect that environment. Characters who are the commanders of a space station in a game confined to that station have limited scope but relatively high scale. The crew of a small merchant starship that voyages among distant galaxies has a colossal scope but a limited scale.

The two are linked. A gradually increasing physical scope gives the players a chance to get used to each level of complexity and size before introducing the next. As the characters improve in personal abilities and gain wealth and power from their actions in the game, their scale naturally tends to increase as well. An increase in scope can provide

Ships and Outposts

A common and very useful situation in science fiction is to chronicle the adventures of a daring spaceship crew as they voyage through the galaxy. Undoubtedly *Star Trek*'s *U.S.S. Enterprise* is the most famous example, but there are scores of others. All of them can trace their ancestry back to sea stories, from the Horatio Hornblower novels clear back to the *Odyssey* or the story of Jason and the Argonauts.

A tremendous strength of the ship-based dramatic framework is its flexibility. The characters are in a familiar setting, but that setting is mobile, letting them interact with new antagonists and encounter new situations. This applies to roleplaying campaigns as well as fiction. The ship itself becomes a natural "home base" for the characters. Players may get quite attached to their in-game starship, drawing up deck plans, poring through the ship-design rules for upgrades to drool over, or designing insignia. But since the ship moves around, the GM can easily introduce the characters to new adventures. The relative cost of a spacecraft is very important: if only governments can afford them, the setting will have a very different feel than if a group of startup entrepreneurs can get a used ship and start trading.

Probably the most important bit of preparation for any ship-based campaign is to create the starship itself. If one or more of the players have a "gearhead" bent and are interested in delving into technical minutiae, it may be a good idea to let *them* do the design work, within the limits of budgetary and technological restrictions imposed by the Game Master (and possibly the campaign setting). The ship they create can be a great guide for the GM in creating adventures. Players who stuff their ships with weapons obviously want to be able to point those weapons at something. Let them chase space pirates or fight off an alien invasion. If they pack the sensor suite with planetary-survey instruments and give the ship enough onboard fuel purifiers and repair shops to keep it running for years away from civilization, they're probably going to want to explore the great beyond.

The Outpost

A variant campaign idea is that of the outpost or space station. Like a ship, an outpost framework provides a cozy "home base" for the characters. Unlike ships, outposts are stationary; adventure has to come to them. Important outposts in SF include the titular space stations of the *Babylon 5* and *Deep Space 9* television series, and the giant space hospital of James White's "Sector General" stories.

Outpost campaigns have many of the same concerns as those built around a starship. Typically a station is larger and more self-sufficient than a ship, but this just means its enemies get to be more powerful. Visitors to the outpost are the obvious adventure hooks, but occasionally the crew does get to go off on missions within the station's area of responsibility. Because of the more static nature of an outpost campaign, adventures are likely to be less action-oriented and involve more roleplaying and politicking.

increasingly powerful characters with appropriate challenges by bringing them into contact with new and mightier opponents. So what if they are masters of a whole star system when there is a whole vast galaxy out there?

Ship-based campaigns necessarily have a large physical scope. Colony campaigns and post-apocalyptic settings may be relatively limited, but since a theme in both subgenres is "pushing back the frontier," the scope will likely expand.

Physical scope is linked closely to technology, especially transportation. A large scope means little if rapid transport makes everyplace effectively "next door." For a campaign to feel *big*, there must be some effect of distance. Some places must be "far away" and take a long time to reach. In a hard-SF game set in the real Solar system, for instance, even a trip to Mars takes a year, and voyages to the outer planets can take decades. In that case, the scope feels large because of the long travel times. A game spanning the whole galaxy would feel compact if a personal spaceship can get from the rim to the core in an afternoon.

Tone

The tone is the "feel" of a campaign – the mood the GM wants to invoke in the setting. There is a vast range of possible tones. To some extent, every author and every story or film has a slightly different one. In classic science fiction, however, several tones predominate.

Action-Adventure

Common in all types of SF, especially film and military SF, action-adventure science fiction emphasizes danger, motion, and physical conflict. Problems are solved with fisticuffs or blaster fire, usually while hanging off the edge of an orbital elevator capsule or speeding hovercraft. There is usually a sense that the heroes will triumph despite all the danger and opposition. Campaigns especially suitable for action-adventure are military, law-enforcement, criminal, and planetary romance. However, just about any roleplaying campaign is likely to have at least some action-adventure moments.

Horror

Horror and SF are Siamese twin genres, born at about the same time from Gothic fiction and maturing together in the pulp magazines. Horror is all about fear: what the characters fear, what the *players* fear, and what everyone fears. Fear works best when the opposition seems unbeatable and implacably hostile. Science fiction can provide a scientific rationale for "conventional" horror about monsters or psycho killers, but it also lends itself well to "cosmic" horror, in which the true fear comes from realizing just how tiny and unimportant humans are in the face of a vast universe. Horror can creep into most SF campaigns, but is especially suitable in exploration (focusing on alien or cosmic menaces), law enforcement (concentrating on sadistic killers and social horrors), or military (exploring psychological horror).

Romance

For a long time science fiction avoided "mushy stuff" like relationships between characters. That began to change in the 1960s, and recent decades have seen the rise of a whole romantic subgenre of science fiction, written by authors like Catherine Asaro and Lois McMaster Bujold. In romantic SF the focus is on interactions and relationships among the characters, though there is still plenty of room for exploding spaceships and alien menaces.

Space Opera

Sometimes considered a subgenre of its own, space opera is SF with the dials all cranked to 11. The scale is titanic; seldom are characters concerned with the fate of anything less than a whole planet. The range is usually vast. Psychological realism takes a back seat to battles of Ultimate Good against blackest Evil. Scientific realism is back there, too, cowering helplessly as physical laws are broken with contemptuous ease. Spaceships are huge and baroque, doing battle with brightly colored beam weapons. Aliens are many and exotic. Settings emphasize wonder (see below) and plots emphasize action (see above).

Continued on next page . . .

Tone (Continued)

Surreal

Surreal SF questions our very notions of reality. If computer-generated "virtual reality" can simulate the real world, how do we know the world is real? If telepaths or brainwashing can alter our memories, how do we know who we are? If alien shapechangers or sophisticated androids can take the place of other people, how do we know who is who? Philip K. Dick was probably SF's greatest surrealist, and he explored all these questions. A surreal SF game can be as light as any silly universe, or as terrifying as any cosmic horror campaign. Any campaign can get weird, but it works best with the paranoia of espionage or the strange new worlds of exploration.

Thriller

Thrillers emphasize suspense. They sit somewhere between horror and action-adventure. In a thriller the heroes are outclassed by the opposition, and the possibility of failure is very real and worrisome. Instead of fear or pumping adrenaline the dominant emotion is suspense. Much of cyberpunk SF adopts a thriller tone, and it goes with espionage or criminal games like chrome on a blaster. A subset of thrillers is the quasi-SF "technothrillers," which are typically near-future SF emphasizing loving descriptions of cool gadgets and detailed plans.

Travelogue

One of the oldest styles of SF story, the travelogue subordinates characters and action to descriptions of exotic settings. In Utopian societies it can degenerate into particularly boring "tours of the balloon factory," accompanied by lectures on the merits of the Social Credits movement, but skilled writers from Jules Verne to Jack Vance have made the fantastic voyage a mainstay of the genre. In a roleplaying campaign, explorers and merchants are good frameworks for a travelogue, and a planetary romance is nothing but a travelogue with swordplay. Hitting this tone requires a GM who is very good at creating new places and describing them in an entertaining fashion.

Wonder

The "sense of wonder" is one of the characteristic emotions evoked by science fiction. When a reader cracks a book and is confronted with time travel, alien beings, or future worlds, that feeling of wonder and excitement is what hooks them on SF. In a roleplaying campaign, evoking a sense of wonder calls for new and different things. Because it is such a standard part of SF, wonder *should* turn up in just about every campaign. It is especially appropriate for games of exploration and discovery, large-scale military games, and any setting with room for amazing things. This is where a game's "infinite budget" comes in handy, as the GM can make up things as huge or impressive as needed.

Escalating Scale

It's usually a good idea to start the campaign at a relatively small scale and work up. This way the campaign scale reflects the growing understanding and involvement of the *players*. Get them used to the way things work in one sector of the galaxy, then let them operate on a successively larger scale. The "Lensman" series by E.E. "Doc" Smith is a good example of this process in fiction: the scale is initially confined to the Solar System, but by the end the heroes are fighting a war whose outcome will determine the fate of two galaxies.

Exactly what constitutes "small" and "large" scale depend on the campaign itself and what the Game Master sees as the ultimate end of things. If the campaign takes the leaders of the United Earth government to their ultimate conquest over all intelligent life, then "small" scale means they start out as merely the rulers of six billion people, with a paltry few trillion dollars at their disposal. On the other hand, if the GM imagines the players as rising from starport scum to the ranks of successful merchant captains, then small means owning nothing but some rags and a dead rat, and large means the dizzying heights of middle-class small business ownership.

Campaign Types

What will your campaign be about? Will the characters be planet-bound or spacefaring? Good citizens or nefarious pirates? Are they after money, adventure, knowledge . . . or something else? There are several types that recur in science-fiction stories and games.

Strange New Worlds

The theme of the campaign is the search for new worlds – with the thrill of discovery and the adventure that it brings.

Character Roles: Characters can be private explorers or members of a government Scout Service making contact with strange worlds. Scout crews include scientists and rangers (p. 16), and diplomats or merchant representatives might be present if the world is inhabited. Even pirates sometimes go exploring.

Things to Do: Scouts are not only expected to discover and survey worlds from orbit, but to land on the planet to discover any potential dangers to the colonists who may follow. There are dozens of things to find on an unfamiliar planet – strange, threatening animals or aliens, mysterious ruins, lost colonies, unsuspected pirate or rebel hideouts, and bizarre natural phenomena.

Campaign Advantages: PCs who work for a government or private survey organization will have a powerful Patron who supplies equipment and a ship. But they will often be in remote space – away from daily control by their superiors. The variety of new worlds provides campaign diversity. This campaign can be ideal for small groups – a scout crew can be as small as one person.

Campaign Disadvantages: If the PCs work for an interstellar survey service, space navy's exploration branch, or a private (probably mercantile) organization, they will likely explore worlds by assignment. On the other hand, they might be exploring on their own – in which case their ability to keep a starship fueled and supplied depends on finding

Realism

"Realism" has two meanings in a ***GURPS Space*** game. The first is the level of physical realism – how "hard" the science is and how plausible the technology. The second is the social or psychological realism – how realistically people behave.

Scientific realism, surprisingly, is *not* the ultimate goal of every science-fiction campaign. Certainly SF literature has plenty of "rubber science," and in SF films it's a noteworthy event if they get the science *right*. Internal consistency is more important than strict accuracy. Game Masters are free to set the level of scientific realism at whatever level supports the games they wish to run. Different realism levels have different advantages and disadvantages.

Strict adherence to "hard science" gives the campaign the advantage of plausibility. It makes the suspension of disbelief very easy. The obvious disadvantage is that there are lots of things that are impossible in the real world but are nevertheless a big part of SF, such as faster-than-light travel. A step up from pure hard science is "mostly hard" SF, which allows one or two bits of imaginary science (like faster-than-light drives) but rigorously works out all the implications and effects on the world.

More removed from realism is "handwaving" SF, best exemplified by television and film. We're assured that this is all science (rather than magic), but the exact mechanisms are never explained, and capabilities are devised on the basis of plot demands rather than strict science. There is usually a reasonable amount of internal consistency, but it's very much *fictional* consistency. At the far end of the realism scale is purely "cinematic" reality. Spaceships look cool and make impressive whooshing noises in deep space. People carry hand weapons like "energy swords" or plasma-firing crossbows, and never mind how they work.

By contrast with scientific realism, *social* realism determines how realistically the characters in the setting behave. It can also be called the "rigor" of the game world. In a realistic setting, all actions have consequences, villains are not motivated simply by villainy, and people think their actions through.

Somewhat less realistic is the tone adopted by most films. For the sake of narrative convenience, the heroes don't suffer consequences as long as they win and their actions were done for a good cause. Shooting up the mall is okay as long as no innocents got hurt and the bad guys needed shooting. Least realistic is what might be called "mythic" science fiction, which adopts an almost fairy-tale attitude of absolute good and evil. Consequences are not based on reason, but on karma or "cosmic justice."

Think of social and scientific realism as the different axes on a graph. Stories can be very realistic in one sense and completely unrealistic in the other. Much early SF strove for solid hard science realism but then used characters and plots of fairy-tale simplicity. Much of the "New Wave" of the 1960s and 1970s took the opposite approach, using psychological realism and completely imaginary science. Set both realism levels to support the kind of adventures the players and GM want: high science realism and moderate social realism for Indiana Jones-style exploits on a near-future Mars mission, low science and high social realism for gritty political drama in the Galactic Empire. Outer-space swashbuckling adventure gets a low setting for both, and so on.

profitable worlds. For the GM, a scout campaign means constantly generating new systems (and new surprises).

References: *Rendezvous with Rama* by Arthur C. Clarke; *Ringworld* by Larry Niven; the *Tschai* books by Jack Vance; the various *Star Trek* television series.

Space Tourists

A slightly different kind of exploration is that done by individuals using commercial transport to visit exotic places. Just as tourism has become a major industry in many places here on Earth, SF writers have imagined feckless earthlings or obnoxious aliens taking package tours of other planets. Douglas Adams' *The Hitchhiker's Guide to the Galaxy* is a classic of comic SF, and many of L. Sprague De Camp's "Viagens Interplanetarias" stories involve tourists. Since few people spend their lives being tourists, this is best used for a mini-campaign or an arc within a larger ongoing game.

A tourist campaign provides a plausible way to throw together people from radically different background; it means the heroes don't have access to much in the way of firepower or super-technology; and they probably don't have their own starship to use as an instant getaway. Tourists are probably best used for a light or semi-comic scenario, although there are interesting possibilities in throwing unprepared ordinary people into a deadly drama of spies and doomsday weapons.

The High Frontier

The idea of the frontier is a very powerful one in science fiction. A frontier zone is where civilization meets the unexplored wilderness. They are typically places of freedom, opportunity, and danger – all key ingredients for a roleplaying campaign.

Colony Alpha

The characters are colonists settling a newly discovered world. They may be humans, a mix of races, or beings genetically engineered to exist in the new environment – making them almost aliens to the rest of humanity.

Character Roles: The PCs should all be rugged survivors. Those with good outdoorsman and low-tech craft skills will do best. However, colonists may also include political or religious refugees, criminals, and minorities – and not all of these will be survival types. Some specialists may be needed to operate equipment, exploration vehicles, or weapons. There might be a government representative.

Things to Do: The basic idea is to tame and settle a hostile environment. Many twists can be added – do the colonists have access to FTL drive, or are they "stranded," arriving by generation ship? Are they the first colonists or the follow-up team? (If they are the follow-up team, are the original colonists still there when they arrive?) Are there hidden surprises, such as a bizarre ecosystem, unknown aliens, Precursor relics, or a smuggler base? Are the colonists unified or is there strife between factions? Is this a peaceful colony or an outpost in disputed territory? Are there menacing pirates, aliens, or hostile governments back home?

Campaign Advantages: Colonists won't need a starship. The GM needs to design just one star system, although great detail will be required.

Alien Archaeology

Whole civilizations could be born, spread across the galaxy, and finally go extinct before humans ever venture off Earth. Alien archaeology offers the scientific puzzle of figuring out an alien civilization from potsherds and inscriptions, the Indiana Jones thrills of evading traps and defenses in tombs and temples, and the classic RPG experience of exploring vast underground complexes full of danger and treasure.

If the ancient aliens were more advanced than humans, then their ruins are potential treasure-troves of ultra-tech items – which is likely to attract rival archaeologists, looters, and sinister government agents. Finding out just what made the aliens go extinct can add some urgency to the pure science, especially if it turns out to still be lurking around somewhere. And there's always the chance that some of the ancient aliens aren't extinct . . . we just don't see them right now. This can be good or very bad indeed, depending on how powerful the aliens are and what they want.

H. Beam Piper's classic story "Omnilingual" involves space archaeology, as do more recent works like Alastair Reynolds' *Revelation Space.*

Big Dumb Objects

One type of alien environment often seen in recent science fiction is the gigantic artificial habitat. Inspired by the theoretical speculations of scientists like Freeman Dyson and Gerard K. O'Neill, writers began imagining bigger and bigger artificial worlds. From Arthur C. Clarke's giant starship *Rama* to Larry Niven's Ringworld, they became progressively vaster. Book reviewers and critics coined the term "Big Dumb Object" to describe stories about exploring them. Usually the huge habitat is abandoned, or its inhabitants have regressed to barbarism; otherwise there is no mystery and the heroes are likely to be outclassed by their technology. Sometimes (as with *Rama*), there are automatic systems still working. One interesting variant is the living, sentient space habitat described by John Varley in his "Titan" series – it's a Big *Smart* Object, and turns out to be a Big Crazy Object as well.

Big Dumb Objects are a great source of the "sense of wonder" so important to science fiction, and their tremendous size allows for a wide variety of environments, cultures, and adventures. A whole campaign could be set on a single Object as the heroes wander about seeking clues to the origin and purpose of it, or look for a way home.

Many players enjoy the challenge of organizing settlements and exploring the frontier. This campaign can work at TL8 or even lower, especially if the PCs arrived on a sublight "sleeper" ship.

Campaign Disadvantages: If the colony is isolated, there will be a limit on available equipment – and its use may be controlled by the colony's administrators. The GM also has the burden of keeping the campaign more interesting than "build another hut, explore another valley."

References: The Seedling Stars by James Blish; *Hestia* and *Forty Thousand in Gehenna* by C.J. Cherryh; Harry Harrison's "Deathworld" series; *Farmer in the Sky* and *The Rolling Stones* by Robert A. Heinlein; *The World At The End Of Time* by Frederik Pohl; the ***Alpha Centauri*** computer game from Electronic Arts.

Space Colonies

The colonists may not have a world at all – they may be on a giant space habitat in orbit. The physicist Gerard K. O'Neill realized that for an advanced spacefaring society, planets are an awful bother. The solution he proposed is to build large artificial habitats in space. O'Neill even chose a likely location for space colonies, at the "Lagrange points" where the gravitational attraction of the Earth and the Moon create stable positions. A major space advocacy organization, the L-5 Society, took its name from one of those colony sites.

A slower-than-light starship can be a space habitat in its own right, and the inhabitants of a lost ship might forget their origins and regress to barbarism. There is a whole subgenre of SF stories about weird cultures aboard generation ships.

Character Roles: Player characters can be asteroid miners, zero-g workers, colony administrators, military personnel, or just citizens looking for a new start. On a generation ship they may be warriors, priests, thieves, or techno-wizards.

Things to Do: Help build the colony itself, cope with disasters like meteor strikes, create a new society, defend the station against enemies or criminals, enforce the law, or simply make money. Colonists may have to fight for independence, either from Earth or from a home-grown tyrant. Generation ship barbarians can discover the true nature of their world, and perhaps steer it to its destination.

Campaign Advantages: The Game Master really needs to design just the space habitat or ship, and can even get players to help with the task if their characters are part of the colony construction team. The scale can be anything from a small space station to a Big Dumb Object (see p. 12).

Campaign Disadvantages: The essentially stationary nature of a space colony may put off players who want to go roving, and even a big habitat may get to be "too small" for the heroes.

References: The *Babylon 5* and *Star Trek: Deep Space 9* television series; the *Mobile Suit Gundam* anime series; *Colonies in Space* by T.A. Heppenheimer.

Survivors and Refugees

Sometimes instead of people going to the frontier, the frontier comes to them. In a space campaign this usually means that the Galactic Empire or other interstellar society has fallen apart, leaving individual colonies to fend for themselves in a time of anarchy. Sometimes the best course is to flee, and shiploads of refugees may wander through space looking for a safe haven from war or invasion. Survivor campaigns are the dark flip side of the dream of the frontier: anarchy, chaos, and domination of the weak by the strong.

Character Roles: Nearly anybody on a colony world can get caught up in the collapse of civilization, but the burden will be heaviest on military personnel (who might be part-time militia), lawmen, and administrators. Technicians become vitally important in keeping civilization running. Among refugees, anyone who can fly a ship or keep it running suddenly becomes a key individual.

Things to Do: Fending off raiders and warlords seeking to take advantage of the chaos, trading for vital supplies with other worlds, salvaging important installations or ships, and rebuilding civilization. Space refugees may wind up explorers, looking for a new home – or fighting to get a foothold on an inhabited world. Some characters may embrace the chaos, deciding to turn raider themselves.

Campaign Advantages: Characters can be people of importance and have a lasting impact on the game universe. Regression limits the effect of powerful technology. Even nearby worlds suddenly are "unexplored territory."

Campaign Disadvantages: Players may not like the reduced level of technology or the more limited scope. If the PCs can't cope with a situation, there's nobody to turn to for help.

References: Both *Battlestar Galactica* television series; Isaac Asimov's *Foundation* books; *The Long Night* by Poul Anderson.

Mercenaries

A great many science-fiction military stories involve the exploits of mercenaries – professional soldiers selling their services to various governments and corporations to fight wars on distant worlds.

Mercenaries don't earn any money when they aren't fighting, so there will be plenty of action. Often their employers can't quite afford overwhelming force to throw against the foe, so the heroes face difficult challenges. They get to operate in a wide variety of settings and environments.

Mercenary campaigns tend to be very episodic: the heroes get hired, do the job, and go on to the next contract. It's hard to build up any kind of ongoing "metaplot" under those circumstances. If the enemy are "more numerous than we thought" or "surprisingly well-equipped" too often, the players will start to suspect the GM is stacking the deck. Mercs may get suckered into illegal or covert operations where betrayal is part of the mission.

Military Campaigns

It's probably no surprise that the most popular SF movie franchise ever was called *Star Wars*. Military-oriented science fiction makes up a large chunk of the genre today and shows no sign of slowing.

Starship Troopers

Characters in a military campaign might be infantry, battlesuit troopers, mechanized troops (tanks, aircraft, mecha, etc.), or the crew of a warship or space station. They may be employed by a government, or they may work for a mercenary organization.

Character Roles: Characters should be part of the same organization – and usually the same unit. They should have the skills within their group to perform their unit's duties. They might be on the fighting end (in which case they will probably be enlisted men and junior officers), or they might be in command (senior officers and staff officers, with commands of their own).

Things to Do: In wartime, marines will be "bug hunting" in their battlesuits, while spacers are repelling boarding parties on their starships. Fighter pilots will scramble when they are given the signal, and officers will make life-or-death decisions. If the campaign is on the frontier, or if the interstellar government is weak, fighting can continue in peacetime – especially for mercenaries.

Campaign Advantages: Government troops don't have to buy their own equipment. Since the PCs must answer to a higher command, the GM can more easily direct the campaign.

Campaign Disadvantages: Military PCs have a Duty to their organization and its officers. Military regulations might be enforced. Unless the PCs include the captain of a crucial ship or starbase, or the elite squad that always performs the crucial assault, their

Planetary Romance

Planetary romance is a very durable subtype of science fiction that focuses on a single world, typically a large Earthlike planet (or a Big Dumb Object, as on p. 12) with lots of exotic alien cultures on it. Notable examples include Edgar Rice Burroughs' "Martian" novels, L. Sprague De Camp's "Krishna" stories, Jack Vance's "Tschai" novels, and Leigh Brackett's "Skaith" series. Planetary romance typically involves a low-technology setting, to allow for swordplay, pirate ships, gladiatorial battles, and similar swashbuckling.

The emphasis is not on the biology or sociology of the alien planet, but rather on perils and adventures. The planet usually has human or nearly human inhabitants, to allow for beautiful maidens in need of rescue.

Running a planetary romance campaign is relatively simple – just drop the heroes onto an exotic world and then throw bandits and pirates and beautiful maidens and lost treasures at them while they search for a way to get home again. It does require substantial preparation, as the world has to be worked out in some detail before the heroes arrive.

individual actions will seldom influence entire battles and wars. If the GM isn't careful, all the battles may start to seem the same.

References: Lois McMaster Bujold's "Miles Vorkosigan" books; the *Faded Sun* series by C.J. Cherryh; *Hammer's Slammers* by David Drake; *The Forever War* by Joe Haldeman; *Starship Troopers* by Robert A. Heinlein; *Space Viking* by H. Beam Piper; the *Cobra* and *Blackcollar* books by Timothy Zahn.

Ace Pilots

The fighter jock is the closest modern equivalent to the knight of fiction and legend: an elite warrior who battles others like him in almost ritualized combats. George Lucas brought the space ace to the big screen in *Star Wars*, drawing parallels between hot pilots of the future and samurai warriors of the past.

Character Roles: Pilot campaigns usually center on a single squadron, either stationed at a base or flying off a carrier. If fighter craft can cover interstellar distances on their own, the pilots could even be mercenaries or freelancers offering their services at hot spots all over the galaxy.

Things to Do: Adventures for space pilots naturally center on space combat (though if they're flying transformable mecha, the battles can just as easily be on the ground). They can also have "shore leave" adventures in port, survive crash landings on dangerous planets, uncover enemy spies, break out of prison camps, do hostage rescues, infiltrate pirate crews, and other interesting things that don't require a fast fighter ship.

Campaign Advantages: PCs can have super-hot fighting machines without being multi-billionaires. Pilots can see action in many different environments. Individual pilots can actually affect the outcome of a battle.

Campaign Disadvantages: Getting the pilots out of their fighter craft may be like pulling teeth. Characters may be overshadowed by their high-tech vehicles. Space battles may all start sounding alike after a while.

References: The *Star Wars* films; *Battlestar Galactica;* just about every World War II air-battle movie ever made.

The Marines

Space navies can only control space. It still takes soldiers to conquer a planet: the space Marines.

Marines are assault troops, the ground arm of the navy. Their most dangerous jobs come in wartime – boarding enemy vessels (if technology permits) and securing beachheads on hostile worlds. Marine contingents are assigned to all warships as security forces.

During peacetime Marines conduct war games, guard naval bases, train planetary militias, and perform "police actions" – commando raids against pirate and criminal bases – in cooperation with the space patrol. In repressive societies, they also crush unrest and rebellion.

The toughest of the tough, Marines live up to their reputation in combat and off duty. They get the dirty jobs, and that's the way they like it. It isn't smart to mess with Marines.

Adventuring Possibilities: The most likely place to encounter Marines outside of battle is in a starport town on leave. Former Marines make well-prepared adventurers, and may know secrets from their military days.

The Big Chair

The exploits of heroic starship captains have a respectable history in science fiction, dating back well before *Star Trek*'s Captain Kirk became an icon for the whole genre.

Character Roles: Military vessels have a strict chain of command, with the captain exercising ultimate authority and responsibility. There are several ways to give the other players more to do, rather than focusing entirely on the captain. First, just because naval vessels in Earth's history had a single commanding officer doesn't mean starships a thousand years in the future must do the same. Conversely, the captain could be a non-player character, with each of the heroes a subordinate officer. This gives the Game Master the ability to "give orders" from the Captain, but leaves the players with the task of finding ways to carry out those instructions.

Things to Do: A campaign centering on a starship captain and officers need not be limited to just military operations. In peacetime the ship can go exploring, assist colony projects, and carry diplomats on first-contact voyages. During war they join in fleet actions, conduct raids against commercial or military outposts, and intercept enemy ships doing the same thing.

Campaign Advantages: A military starship can be ordered into adventure scenarios by the high command (i.e. the GM). The characters have a fair degree of independence within the limits of their duty.

Campaign Disadvantages: It may be hard to come up with enemies who can threaten a powerful starship. As already noted, the captain character may wind up hogging the spotlight.

References: The *Star Trek* films, series, and novels; David Weber's "Honor Harrington" novels; David Drake's "Lieutenant Leary, RCN" series.

Stop in the Name of the Law

A law enforcement campaign has many similarities to a military one, but offers more opportunities for small groups and players who prefer investigation to broadsides.

Space Patrol

A space patrol campaign puts the PCs in a small starship, patrolling the spacelanes, enforcing interstellar law, and protecting civilians from human and alien menaces alike.

Character Roles: Patrolmen (p. 25) or rangers, probably assigned to a ship or frontier space station. They should have the skills to perform their duties; one may be the leader. Alternatively, the PCs could work for a peacekeeping force or an interstellar diplomatic agency.

Things to Do: Aside from patrolling interstellar borders and spacelanes, patrolmen are interstellar policemen, investigators, rescuers, and the all-around do-gooders of the galaxy. If there are pirates to be fought, smugglers to be tracked down, an alien invasion to be blunted, a mystery to unlock, or a distress call to answer, the patrol gets the call. In times of war, the patrol and the rangers are called to duty – whether on covert missions behind enemy lines, escorting convoys, or serving as light combat forces.

Campaign Advantages: The patrol is a powerful Patron, providing equipment and a ship. Patrolmen also have a great range of adventures. This makes a wonderful "space opera" background.

Campaign Disadvantages: Patrol PCs have a Duty to their organization and its officers – and, depending on the campaign, they might operate under tight supervision. The patrol represents interstellar law; it can't go around shooting indiscriminately. Patrolmen often have the privilege of dying in the line of duty.

References: Archetypal patrols can be found in the "Lensman" series by E.E. Smith and in Andre Norton's SF novels. A more recent example is the

The Rangers

The Rangers (or Star Rangers) are a paramilitary force trained in survival, rescue, and combat on hazardous or untamed planets. They are practiced outdoorsmen and survival experts. Rangers may also act as "marshals" on new colonies, keeping law and order until the society becomes self-governing.

They are often called upon to guard (or rescue) scout expeditions, and sometimes to join space patrol missions. There is grudging mutual respect between the tough, free-swinging rangers and the spit-and-polish patrolmen. In some settings the ranger service may be an arm of the patrol.

Adventuring Possibilities: On the frontier, rangers are the only law enforcers. PCs might find themselves deputized by the local ranger in an emergency. Ranger PCs can be a lot of fun if the campaign sticks to the ranger's assigned territory, and an all-ranger campaign is possible.

The Rebellion

For a different sort of military campaign, the players can run characters who are fighting a war of rebellion against a (presumably) tyrannical regime. The most famous rebels in SF are the Rebel Alliance of *Star Wars*, but there are many others, often based on the patriots of American Revolution or the Resistance during World War II.

Rebellion campaigns offer considerably more flexibility and independence of action than a conventional military campaign. Rebels seldom have a very tight chain of command, and can't be sticklers for discipline and regulations.

A rebellion campaign also has a nice progression in scale. As the heroes score more victories, the rebel side grows in power and the battles can be for higher stakes. Heroes can start out fighting to survive, then take down some small or isolated government outposts, graduate to major offensives, and finally carry the war to the tyrant's stronghold itself!

The biggest problem faced by rebel characters is supplies. Unless there is a friendly government beyond the border furnishing ships and ammunition, the rebels must steal what they need, and carefully hoard what they have.

References: The Moon Is a Harsh Mistress, by Robert A. Heinlein; later seasons of *Babylon 5*; David Brin's *The Uplift War.*

Bounty Hunters

No disintegrations!

– Darth Vader, ***The Empire Strikes Back***

If the players don't enjoy the regimentation and rigidity of running space patrol characters but still want to chase galactic bad guys, they can be bounty hunters, freelance law enforcement agents tracking bad guys for money. Mike Resnick chronicled the exploits of space bounty hunters in his novel *Santiago*, as well as the "Widowmaker" series.

For the GM, a bounty hunter campaign has much to recommend it. The heroes don't have a vast organization to help them, but they are ultimately on the side of law and order. Bounty offers are perfect adventure hooks, and fugitive crooks can lead their hunters into all sorts of exotic worlds and bizarre situations. There's a satisfying action level, but bounty hunters who bring in smoldering piles of ash too often will suffer consequences.

rangers of *Babylon 5*. A "peacetime" space navy may find itself performing patrol-type functions, even if not specifically a law-enforcement body.

Criminals

Instead of enforcing the law, the player characters may be in the business of breaking it. They may be freelancers, or part of a criminal organization. They may even be "deniable assets" of a spy agency or megacorporation.

Character Roles: Space opera crooks were typically smugglers or space pirates, cyberpunk criminals are typically data thieves or assassins-for-hire, and there have always been high-tech thieves, clever con men, and sinister gangsters in science fiction.

Things to Do: Plan and execute elaborate heist capers, evade the forces of the law, battle rival crooks, or maybe even try to do something decent once in a while.

Campaign Advantages: Players with a lot of initiative can come up with their own criminal schemes, reducing the Game Master's workload. There can be plenty of action and opportunities for roleplaying in a criminal caper.

Campaign Disadvantages: The characters face very formidable opposition, not only from the police but from rival crooks as well, and they have nobody to rely on but themselves. A life of crime involves a lot of frankly ugly behavior, which players and GMs alike may find distasteful. After a really big score, the characters may wish to retire and enjoy their spoils.

References: Science-fiction supercrooks include Harry Harrison's Slippery Jim DiGriz and the narrator of Samuel R. DeLany's "Time Considered as a Helix of Semi-Precious Stones." Pretty much all the characters in *Neuromancer* and other works by William Gibson are crooks of one kind or another.

Media and Politics

Humans are social animals. We naturally form groups. Who gets to run those groups, how those groups interact with each other, and how the groups make decisions are always interesting subjects, as are the people who report on them.

Political SF

Science fiction has always had a political component. Many writers have used alien or future civilizations to comment on contemporary Earth. Others have explored different ideas about political power and government. Some authors have focused on those involved in the political process, while others simply show their effect on the lives of ordinary people. Politics between large states is the process of diplomacy, which can shade into exploration and first-contact stories.

Space Pirates

In science fiction, space pirates are a venerable tradition dating back to the pulp era. Unless the players like to run characters who are greedy psychopaths, a space pirate campaign should probably make use of the romantic "rogue with a heart of gold" image familiar from swashbuckling fiction. The pirates only rob ships belonging to bad guys – the Galactic Tyrant, the Evil Corporation, or the nasty aliens.

Space piracy is usually restricted to highly cinematic space opera campaigns. But if everyone can agree to suspend their disbelief, space pirate adventures can use all the brightly colored trappings of pirate fiction: buried treasures, revenge, duels, rescues, walking the plank out the airlock, and lots of swinging around on ropes. To give it the real Errol Flynn feel, make "energy swords" or "vibroblades" the weapon of choice and limit the plasma cannons to point-blank range.

Where piracy, military campaigns, and trading meet is the privateer campaign, in which the adventurers are not part of a military force, but have been given a license (traditionally known as a "letter of marque") to attack enemy shipping. Essentially, they are allowed to act like pirates as long as they confine their piracy to a specific enemy. They can use friendly ports quite openly, and sometimes even get some help from regular military forces. However, they have to be very careful about choosing legal targets, and their license only lasts as long as the war. Privateers are basically self-employed mercenaries, and so privateer adventures can be worked into an ongoing mercenary campaign.

Character Roles: Characters involved in politics can be professional bureaucrats, aristocrats, elected legislators, or regular folks who are "mad as hell" about some issue. They can also be members of an opposition group or even a secret conspiracy.

Things to Do: Bureaucrats can engage in office empire building, or get sent out to act as troubleshooters when crises loom. Elected officials can run political campaigns, outmaneuver opponents in debate, and cut deals. Diplomats may try to prevent wars or establish relations with alien civilizations. Activists struggle to expose corruption and fight oppression. Aristocrats may wind up doing all those things in between lavish court balls and assassination attempts.

Campaign Advantages: Players who enjoy lots of roleplaying will take to political games, but there's still plenty of action opportunities in the form of assassinations, "black bag jobs" and election-day brawls. Characters can really affect the game world with their decisions. The campaign doesn't move around much, so the GM can develop one setting in depth.

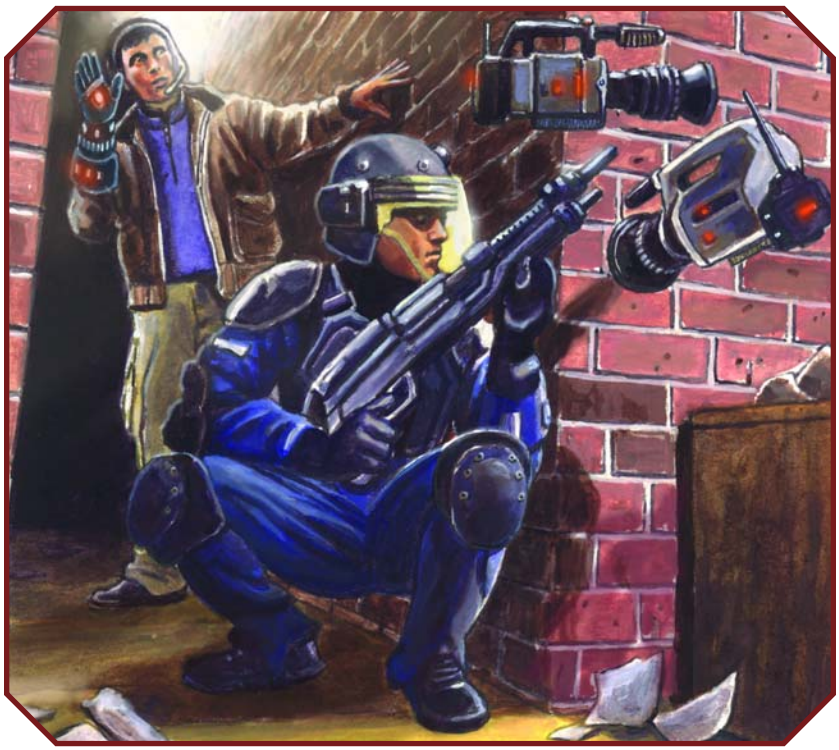
Campaign Disadvantages: The Game Master has to keep track of a lot of NPCs and factions. Political differences among the players may surface in the game and cause endless arguments. Some players may be frustrated by the need for restraint. The very importance of the characters means that their mistakes can be catastrophic.

References: Robert Heinlein wrote several novels involving political maneuverings, including *The Moon Is a Harsh Mistress*, *Double Star*, and *Revolt in 2100*. Norman Spinrad, Kim Stanley Robinson, and Bruce Sterling are also interested in political themes. Alastair Reynolds' *Revelation Space* and its sequels combine space opera and political maneuvering. George Orwell's depiction of a communist dictatorship in Britain in *1984* is probably the most famous SF dystopia. Utopias include L. Neil Smith's libertarian alternate universe of *The Probability Broach*, and Iain M. Banks' "Culture" setting.

The Pen Is Mightier Than the Blaster

With the computer revolution of the 1980s and the birth of the "information age," the power of the media and the importance of how information is presented became a major theme in science fiction. Cyberpunk fiction is all about information and virtual reality, and even the most rivet-studded hard SF now must at least acknowledge the importance of information networks. The ***Traveller*** roleplaying game uses the "Traveller News Service" as a way to disseminate adventure hooks, red herrings, and information about the setting.

Character Roles: Freelance journalists have the flexibility to chase obscure leads, but reporters for a major news service have better resources. The people behind the camera – cameramen, producers, technicians, fixers, and bodyguards – are almost as important as the reporters themselves.



Things to Do: Journalism naturally lends itself to a game of investigation, so the Game Master can come up with some sinister conspiracy or government cover-up and then let the PCs uncover it. In oppressive societies, reporters may risk their lives to present the truth. Travel writers combine journalism and exploration.

Campaign Advantages: The characters are investigating and exploring – getting into adventures, in other words. They don't have official status or heavy firepower, so getting *out* of those adventures requires cleverness and courage. Breaking an important story can give the PCs real influence.

Campaign Disadvantages: The GM has to dangle lots of adventure hooks for his PCs to follow, and they may go chasing after red herrings. Characters may not be well prepared for danger.

References: John Barnes' novel *Mother of Storms;* Norman Spinrad's *Bug Jack Barron;* William Gibson's *Pattern Recognition.*

Agents of Terra

The espionage campaign focuses on intrigue, covert operations, and double-dealing among the stars.

Character Roles: The PCs must be deadly and capable. They may be suave and sophisticated, or they may look and act like interstellar scum – it doesn't matter as long as they can work undercover and kill efficiently when necessary. They might also be "specialists," brought in when needed for specific assignments.

Heroic Bureaucrats?

Not every hero packs a blaster or flies a starship. Campaigns can be built around characters in some fairly unlikely jobs. Low-level corporate managers or government bureaucrats may get sent to a remote frontier world to deal with a problem, only to find it's a much bigger and deadlier problem than they were led to expect. Officials within seemingly mundane agencies like the Interstellar Trade Commission (p. 24) or the Postal Authority (p. 25) can get involved in scams, conspiracies, or plots by hostile powers. If the essence of drama is characters under stress, then a very dramatic campaign can result when the characters aren't heroic warriors or skilled agents, but unprepared desk jockeys forced to rise to the occasion. Isn't that what being a hero really means?

PCs don't have to be traditional "secret agents" – they might work for naval intelligence, the Patrol's covert office, a corporation's industrial intelligence bureau, or an obscure regulatory or law-enforcement agency. They might even work for the Other Side. Or they may be private operatives.

Things to Do: Spies work to preserve their organization and to cripple or destroy hostile spy networks. They infiltrate criminal or enemy organizations while eliminating moles and double agents in their own outfit. Important people and vital secrets must often be rescued, kidnapped or stolen. Most importantly, spies must discover and stop the latest insidious plot to take over the universe – and the galactic Illuminati are everywhere.

Campaign Advantages: Spy agencies are often Patrons, providing specialized and expensive equipment. Friendly law-enforcement organizations may be cooperative (or jealous, or traitorous). Except when on assignment, PCs will usually be free to do what they wish. Many agents are paid well. This campaign works well for a small group.

Campaign Disadvantages: Spies have a Duty to their Patron, and will often be sent on dangerous missions. Both the individual PC and his Patron will have Enemies. There is also a lot of double-dealing – PCs might be sent on suicide missions, fingered by informers, or targeted by opposing assassins.

References: The "Flandry of Terra" novels by Poul Anderson; Iain Banks' "Culture" novels; the "Stainless Steel Rat" series by Harry Harrison; Keith Laumer's "Retief" stories; and Eric Frank Russell's *Wasp*. Cyberpunk SF turned spies into corporate agents in stories like William Gibson's *Count Zero*.

Working Stiffs

The future won't be devoted entirely to covert operations, gunplay, and larceny. Just earning an honest living can be exciting enough if the job takes you to new worlds. Campaigns designed around ordinary careers can provide ample opportunity for adventure.

Selling the Moon – Wholesale

The characters are merchants – free traders or employees of a merchant company. Profit is the name of the game.

Character Roles: PCs are merchant ship crew members. Some should have mercantile and shipboard skills; a few ex-military types might be handy.

Things to Do: This campaign is about getting cargo from origin to destination – despite the hazards of travel, competitors, and alien menaces. An added dimension comes if the merchants must develop their own markets: evaluating new worlds for profit potential, making deals with alien civilizations, finding new cargo and ways to sell it. They can ride the coattails of survey vessels – or even explore on their own. Variety can come from special charter runs or unusual passengers.

Campaign Advantages: If a merchant makes money, he may feel that the ends justify the means – players who can't do things "by the book" may enjoy this campaign. Free traders have many options on where to go and what to do, while company men may be allowed to break regulations if they turn a profit. Company men have a Patron in their employer.

Campaign Disadvantages: Free traders are on their own when it comes to equipment and a starship. They will constantly have to keep an eye on their finances and will be in big trouble if they run out of money. (Impoverished traders may try to skip out on their payments and go criminal . . . becoming pirates.) Company men may be restricted by regulations, specified trade runs, and other forms of corporate control.

References: Poul Anderson's "Van Rijn/Falkayn" stories; A. Bertram Chandler's "Commodore Grimes" series; C.J. Cherryh's "Chanur" and "Merchanter" series; Robert A. Heinlein's *Citizen of the Galaxy*; Andre Norton's "Solar Queen" novels; *Cascade Point* by Timothy Zahn.

Prospecting

Independent-minded asteroid miners began showing up in SF in the 1940s, and soon became a staple. The Belt is another potential "new frontier" where people can make a fresh start. SF prospectors tend to seek exotic things: radioactives, magnetic monopoles, alien artifacts, quantum black holes, helium III, or chunks of antimatter.

Character Roles: Other than prospectors, likely characters for an asteroid-mining campaign include explorers (to locate resource-rich rocks), pilots, technicians, scientists (especially when the prospectors are digging up artifacts or black holes), merchants (to sell the stuff), and possibly some well-armed guards to ward off claim-jumpers.

Things to Do: Actually finding stuff and digging it up isn't especially interesting, even if the job is difficult and dangerous. Adventures come when the prospectors find something unusual, or face claim-jumpers, or stumble across a hidden rebel base.

Campaign Advantages: Prospectors have a lot of autonomy, and the campaign can have lots of gritty hard-SF details. Dangerous work and rough company can provide action, but it's likely to be small-scale conflict suitable for a group of PCs.

Campaign Disadvantages: The Game Master needs to work up a star system in some detail if the characters are going to spend time searching for wealth. Characters without their own ship will be at the mercy of whatever mining company controls the best rocks. Game Masters have to make sure the characters can make a living, by adjusting the chance of finding something of value and setting the market price accordingly.

References: Larry Niven's "Known Space" stories; Poul Anderson's *Tales of the Flying Mountains*.

The Absurdist Campaign

If life on Earth is incomprehensible and sometimes blackly comic, how much worse might a galactic empire be? Absurdist SF is often satirical, but an absurdist space campaign is usually an excuse for straightforward humor, from simple silliness to more subtly bizarre.

Character Roles: Innocents abroad – possibly highly capable on their own world, but in galactic society they are but motes caught up in chaos, not even able to go to the male mammalian biped's room without a guidebook. The being with an angle – someone who (thinks it) sees a profit to be made from the situation. Characters from other campaign types, twisted to suit.

Things to Do: Get home; rebuild home; buy a nice quiet planet; find out who's behind it all; make a documentary; become emperor; find a decent cup of coffee; try to avoid trouble.

Campaign Advantages: Can go anywhere and take inspiration from anything (following classic clichés to absurd conclusions). The GM can rewrite galactic history and assign TLs to suit himself. Characters rarely die, except absurdly.

Campaign Disadvantages: Can go anywhere. Needs players and GM willing to improvise and not take any of it too seriously. Boring if drawn out, so best used as light relief between episodes of a serious campaign.

References: Douglas Adams' *The Hitchhiker's Guide to the Galaxy*; Harry Harrison's *Bill, The Galactic Hero*; Terry Pratchett's Discworld books, *The Dark Side of the Sun*, and *Strata*; almost anything by Robert Sheckley or Jack Vance; *Lost in Space*; *Red Dwarf*; the campiest episodes of *Star Trek* and *Dr Who*.

Heroic Engineering

Science fiction is defined as stories about or involving science and technology, and so it's natural that a very old subgenre concentrates on stories about people engaged in large technology projects. This was once a central part of SF, but was gradually shoved aside by more adventure-oriented fiction. But it never died out completely. Stories of heroic engineering include Arthur C. Clarke's *The Fountains of Paradise,* about the construction of a space elevator, and parts of Kim Stanley Robinson's "Green Mars" series about terraforming Mars. In heroic engineering stories, the actual process of doing the job and overcoming the technical challenges are major themes rather than just background for drama.

In a ***GURPS Space*** adventure, heroic engineering can be an interesting alternative to blaster fights and space marketing. Tasks like designing a new starship or completing a space colony can be quite fascinating, even if they don't involve as much adrenaline. Engineering adventures do require players who are interested in coming up with their own equipment designs, using the rules for New Inventions (p. B473) or Gadgeteering (p. B475).

The Game Master can complicate matters with hidden flaws, industrial spies among the labor crew, sinister forces intent on stopping the project, and unforeseen expenses. Those problems can generate blaster fights and hovercraft chases to keep the non-engineer characters busy. However, it may be necessary for the Game Master and some players to do the actual design evaluation and skill rolls via e-mail rather than during game sessions, if other players are easily bored.

Construction

You don't get much more blue-collar than construction work, even if it's a thousand miles up in orbit. All those orbital stations, starships, space colonies, and whatnot don't build themselves (unless it's a game setting with advanced biotech and living spaceships, of course). The crews who do the work of building them can get into all kinds of interesting trouble.

As with prospecting, the work itself may be only a backdrop. The real fun comes when the workers face labor racketeers or corporate thugs, or when the colony they're working on suddenly declares itself independent and gets into a shooting war, or when it turns out someone on the shift is part of a smuggling ring. If the project includes asteroid mining for raw materials, then the work crews may spend part of their time as prospectors, which adds all those adventure possibilities.

Who Needs Starships?

While flying from world to world aboard a sleek starship is the most common image in science fiction, some settings use other means of traveling from planet to planet. Robert Heinlein's *Tunnel in the Sky* shows explorers venturing to other worlds through teleport gates. Dan Simmons' *Hyperion* series makes it even easier – people can have houses with rooms on different planets! The *Stargate* film and television series used a similar idea.

Getting rid of spaceships makes the setting much more convenient for heroes who aren't rich enough to afford their own ship, or to buy passage frequently. This doesn't completely eliminate the need for brave pilots, since many settings require somebody to go out and find places to put gates. (The Heinlein novel avoids this by letting the gate projectors probe out for new locations, and *Stargate* assumes a pre-existing network.)

Interstellar gates are quick and easy to use. How expensive they are depends on how much energy they consume and how hard they are to build. If the cost is low, then every place in the galaxy is "next door" and civilization will function as a single giant city. A high cost limits private trade and travel, but military forces can still deploy instantly to meet threats.

Aliens

Nothing affects the flavor of a science-fiction campaign as much as the presence (or absence) of alien races. There can be one alien species in a campaign, a handful, or a great many, and their roles can range from subjugated to overlords. Chapter 6 contains detailed rules for creating alien beings.

Alone in the Cosmos

There is only one sentient species, and all characters must belong to it. Widely variant forms are still possible, however. A human-only cosmos can still be diverse and exciting – especially if bioengineering is common! Many stories of galactic sweep, such as Herbert's *Dune* books and Asimov's *Foundation* series, have included no aliens. In Iain M. Banks' "Culture" series, humanoids from different worlds have merged into a single "race" through bioengineering and cultural assimilation.

The Galactic Club

There are only a handful of star-traveling life forms. Almost anyone will recognize each type of alien and know the important facts about it. This arrangement has the advantage that the GM can develop each alien species in some depth, and the players won't have any trouble remembering which is which. Larry Niven's "Known Space" series has only about ten alien species.

Aliens Everywhere!

There are many intelligent species in the universe. Unless one is dominant or exotic, only those with Area Knowledge of its region of space will recognize it on sight. The various aliens mingle, and there may be true interspecies civilizations. David Brin's "Uplift" series has many aliens, and the *Star Wars* universe suggests a great variety of intelligent beings. Alien species in a multispecies setting can be categorized as:

Dominant

One or more species may dominate others; their power may be military (conquerors or peace keepers) or economic (manufacturers, traders, or explorers). Dominant alien civilizations are well known near their regions of space. The opposite is *subordinate* species that are dominated by others. Humans are often a dominant species in fiction, as in the *Star Wars* films.

Common

A race that is older, fast-breeding, or aggressive in exploration may be encountered often. Such races are also well-known in their localities, regardless of dominance. The opposite is rare; such races may be new to interstellar civilization, secretive, or slow-breeding. In James Blish's *Cities in Flight* series, humans are common but don't dominate other species.

Exotic

Races may be well-known because they have odd customs, bizarre reputations, unusual biology, or control of a particular technology. In *Dr.Who* the Gallifreyan Time Lords are known throughout the galaxy for their mastery of time, even though they seldom leave their citadel.

Advanced

Some races might have a higher TL than the rest of the campaign – possibly even so advanced as to seem like gods compared to everyone else. They may use their power to help "lesser" civilizations, or to conquer and oppress them! The opposite is *primitive*, a race that is technologically backward. In the *Babylon 5* television series, the Vorlons are known to be vastly more advanced than other civilizations.

Precursor

Many SF novels have been written around the mysterious "Precursor" or "Forerunner" races: once-great civilizations that have disappeared, leaving only puzzling ruins and artifacts behind. In the ***Traveller*** universe, the mysterious "Ancients" even transplanted Earth life across a vast region of space, so that hundreds of planets have native humans.

Subrace

A race may include several subspecies or offshoots. These may exist within a single society, perhaps with a caste system. Separate societies of subspecies might also exist; perhaps they separated millennia ago. In Jack Vance's "Tschai" series there are Blue Chasch, Green Chasch, and Old Chasch, all different branches of the same original species and all mutually hostile.

Descendant

A popular theme in SF literature is the "fallen race" descended from a once-mighty civilization. Or space might contain several subraces, all descended from the original Precursors (or the splintered First Human Empire). The decadent Martians of Edgar Rice Burroughs' books are an example.

Unknown

The GM may create one or more alien species – potentially friendly or hostile – that are unknown to interstellar society at the start of the campaign. Usually unknown aliens live beyond the edge of explored space, but in Niven and Pournelle's *The Mote in God's Eye* the Motie home system is within the human empire, isolated by a quirk of interstellar geography.

SOCIETIES

Having decided what kind of campaign it is, the Game Master needs to pick a society that supports that kind of adventure. SF literature describes dozens of different kinds of interstellar societies. The most important things about an interstellar civilization are size and political type.

Size is largely determined by the speed of FTL travel and communications, which will be discussed in detail in Chapter 2. In general, the faster the ships can travel, the larger a coherent interstellar nation can be. Central control is difficult when the borders are more than a month's travel from the capital.

The most common political types are the alliance, federation, corporate state, and empire, as outlined below and explored in more detail in Chapter 7. These can vary greatly. Look at the differences between the empire in Isaac Asimov's *Foundation* series and that in *Star Wars*, or the federations in *Star Trek* and Andre Norton's "Solar Queen" books.

Designing your interstellar government(s) is a great creative exercise, and shapes your whole campaign.

ANARCHY

Anarchy is a state that isn't a state at all. There is no government, at least not in the sense we know it today. Interstellar anarchies come in three main types. "Patchwork states" are simply a large number of independent worlds with no interstellar organization at all. This mimics the situation in the modern world, just on a vastly larger scale. "Failed states" are the result of a catastrophic collapse of the interstellar government, leaving a power vacuum that attracts warlords, bandits, and extremists. The third type is "anarchist utopias" – stable anarchies deliberately set up as states without a government. These can be quite large, even galactic in scale, but recognize no sovereignty above the level of individual beings. Iain M. Banks' "Culture" is an anarchist utopia.

Effects on the Campaign

Anarchies allow the maximum of freedom for PCs – and for villains as well. In a patchwork situation, the characters may be merchants or travelers who have to cope with very different social conditions on each planet. In a failed state, they may be working to restore order (or carve out their own empires). Anarchist utopias are often "good guy" societies that must be protected.

THE ALLIANCE

An alliance is a group of autonomous worlds. Its key feature is that its members are genuinely self-governing. The alliance controls only interstellar policy – primarily defense policy and foreign relations – and not any member's domestic affairs. Citizens have no direct influence on an alliance, but they can influence their world government, which is represented on the Alliance Council. There may be a small allied navy or space patrol.

H. Beam Piper's Sword-Worlds formed an alliance (the individual worlds had feudal governments). The human worlds of Larry Niven's "Known Space" series might be considered a very loose alliance, at least in wartime.

Effects on the Campaign

Citizens of an alliance are free to do almost anything – even exploration is unregulated. Unless they violate one of the few alliance laws, they have little to fear from the patrol. Another benefit of adventuring in an alliance is its potential variety. Any sort of government or society can exist on a member world, as long as the world is reasonably stable in its dealings with other planets. However, this allows more chances for PCs to run into unexpected laws and taboos. And if they get in trouble on a member world, they can expect little help – the patrol has no jurisdiction (if it even exists).

Resourceful types who are wary around repressive societies and who aren't averse to world hopping when it's time to run may do quite well in an alliance.

The Federation

Federations and alliances share many features, but they differ in basic philosophy. In an alliance, the individual member worlds dominate the central government. In a federation, the opposite is true – the central government takes precedence over its component worlds. Federations usually take the form of republican democracies – that is, citizens elect the Federation President and local representatives to a Federation Congress. The typical federation is free but bureaucratic.

Federations are the ruling bodies in the *Star Trek* universe and Alan Dean Foster's Humanx Commonwealth.

Effects on the Campaign

Campaigns set in a federation offer less freedom for those who play fast and loose with the law. Law-abiding types may find it the safest place of all – if they are federation citizens. PCs who run afoul of extremist planetary societies might find aid at the nearest Patrol office, unless the laws they broke meet Federation standards, in which case they may be turned over to local authorities.

The Corporate State

This is a society run by *big* business – a huge corporation that controls entire worlds, with a monopoly on commerce among them. Leadership is vested in a Board of Directors and a Chief Executive Officer (CEO).

Dictatorial corporate states are depicted in F.M. Busby's "Star Rebel" stories and (on one world) in *Sten*, by Allan Cole and Chris Bunch. Poul Anderson's Polesotechnic League is an alliance of (usually) fair and well-managed corporate states.

Effects on the Campaign

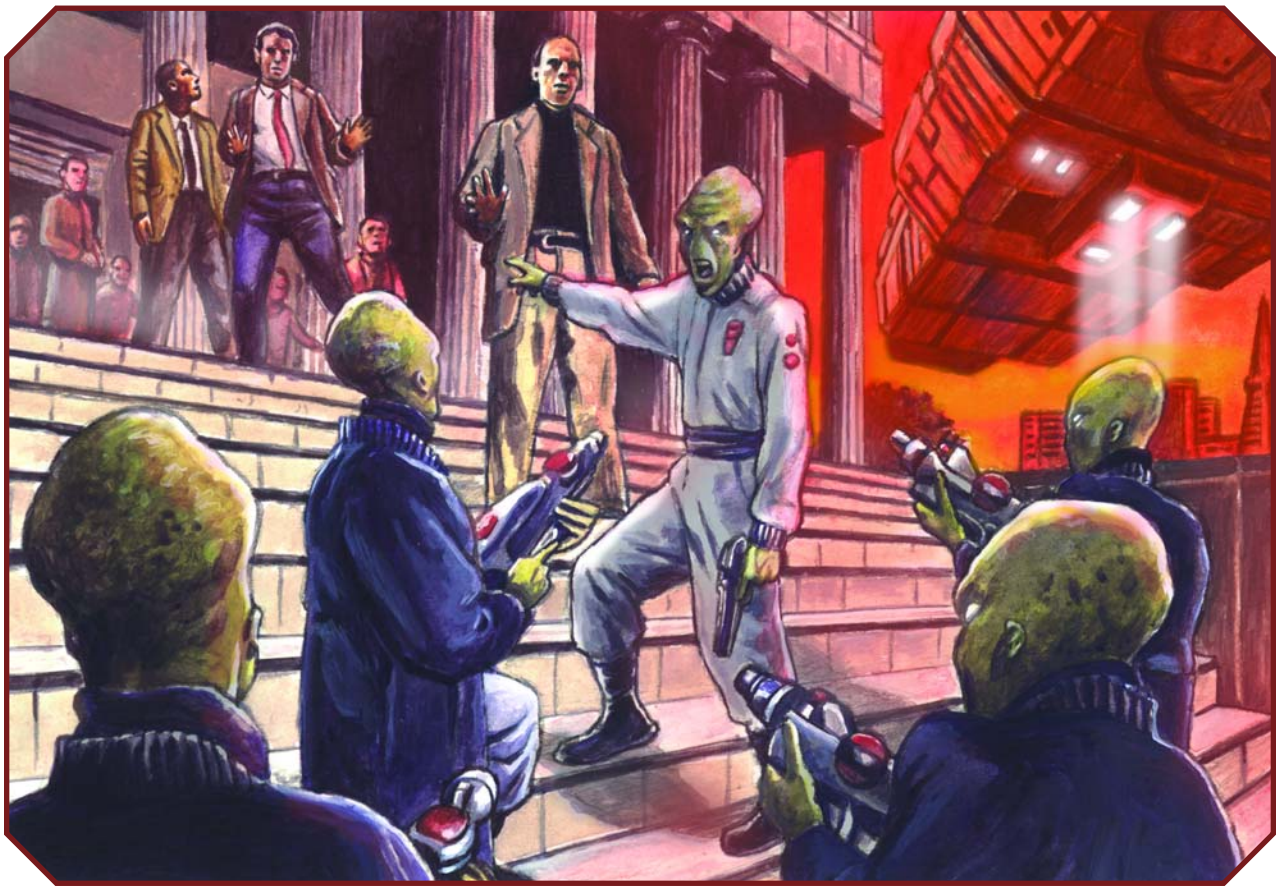
Corporate societies can be dangerous; corporate security is watching all the time. The PCs might be security staff . . . or "evil" unionists! Good employees will keep their eyes on business, their shoulders to the wheel, and their noses to the grindstone – while watching their backs.

The Empire

An autocracy is a state in which one person is the final authority. Such states usually clothe themselves in the trappings of religion, feudalism, militarism . . . or all three. Fifty years of science fiction have popularized the term "empire" for this sort of structure, and we'll follow suit (but see *Empire*, p. 197).

Theoretically, all power comes from the autocrat, or emperor – only by his grace does any lesser authority exist within the domain. Empires are not necessarily evil, or even totalitarian. An empire may be ruled by wise, fair people.

Empires are so common in science fiction that they're trite. Most (that of *Star Wars*, for instance) are dictatorial. Jerry Pournelle's CoDominium is heartless and bureaucratic. But the Empire of Man in *The Mote in God's Eye* and the Imperium of ***Traveller*** are basically benevolent.



Effects on the Campaign

If the empire is perceived as corrupt, players will enjoy getting away with whatever they can. If the empire is firm but fair (it can certainly happen!) there will be honor to be won in its service.

Alien Governments

Alien civilizations may have governments unlike any ever tried by humans. They could have a vast hive-mind, or be ruled by supercomputers. Government and power relations might be based on instinct, or on ruthlessly logical principles. Chapter 7 includes several ideas for completely alien systems of government.

Adventures Beyond Society

Not all adventures require much of a social context. Characters who are completely isolated or who are far beyond the reach of civilization are effectively their own society. The astronauts in *Alien* or the crash survivors in *Pitch Black* have no contact with their home societies anyway. In settings like those, the GM can just sketch in the social background very roughly ("you're a thousand light years beyond the Imperial border"). It is useful to know a little about the civilization the PCs are currently isolated from, if only to avoid players spending points on noble titles when the culture is egalitarian.

Effects on the Campaign

An alien government type often presents a mystery to explorers or diplomats attempting to establish peaceful contact. A whole mini-campaign could be built on simply figuring out who's in charge in order to start negotiations. Humans living under the rule of aliens may find their laws nonsensical or just plain weird; aliens visiting human space may be equally perplexed.

Interstellar Organizations

Any society will contain a number of important interstellar organizations, which make good building blocks for a campaign. Some organizations will be restricted to a single nation; others may extend through all of space. Organizations will include lots of NPCs – bosses, hirelings, foes, and spear-carriers. Most organizations make appropriate Patrons (or at least employers) for PCs, but membership may also carry responsibilities – Duty, Sense of Duty, or both.

Government Organizations

Interstellar governments have many branches. Their official names should suit the society; for instance, the patrol might be known as the Alliance Patrol, the Imperial Patrol, the Interstellar Police, or something completely different like "the Federation Bureau of Investigation."

Diplomatic Corps

Diplomats negotiate with other planets or interstellar governments. They may also act as first-contact specialists, either in partnership with the scouts (see p. 26) or as rivals to them. Diplomats in fiction are often more dedicated to the "process" of diplomacy than actual results, because goals change with every shift in government but protocol is eternal. All governments use diplomats as information-gatherers, and as agents of social and political influence.

Adventuring possibilities: Diplomatic missions provide cover for spies. Diplomats may resolve an interstellar crisis peacefully – or be duped into ignoring enemy aggression until it's almost too late. PCs can be diplomats stationed in an alien capital, or roving "firefighters" moving from one crisis point to the next.

Interstellar Trade Commission

The ITC sets tariffs, duties, taxes, rules, and regulations for all merchant ships, both corporate and independent. All traders must be licensed by the ITC in order to conduct commerce within the nation. The commission may be charged with preventing monopolies in trade, especially by larger corporations, sometimes allying with the Special Justice Group (p. 204) for this purpose. ITC agents operate the customs stations at all starports, and cooperate with the Patrol (p. 25) against interstellar smuggling.

Adventuring possibilities: Independent traders hate the ITC for its red-tape regulations and love it for the way it keeps big merchant outfits from putting them out of business. Corporations simply hate it. Everyone will suffer the indignities of going through customs. A shipful of ITC inspectors can poke their noses almost anywhere, making for a free-swinging campaign.

Mercenary Regulatory Agency

If mercenaries are a big part of interstellar society, an organization like this may exist to set policies and directives for mercenary companies. Those that comply will receive licenses. Those that refuse must disband or leave – or face the Marines.

Regulatory agencies determine which weapons mercenary armies can use – typically banning biological and nuclear arms, at least on inhabited worlds. Unfair technological advantages are sometimes outlawed as well – merc companies may have to use weapons of the same TL as the world on which battle occurs. Some latitude

may be allowed; outnumbered forces may be allowed a technological edge, for instance. See Andre Norton's "Star Guard" and Jerry Pournelle's "CoDominium" stories.

Adventuring possibilities: The MRA is a natural opponent for merc outfits, whether on the trail of lawbreaking companies or acting as a nuisance for law-abiding ones. In a non-merc campaign, adventurers may contact the MRA to demand action after being harassed by mercs – or the MRA may contact them if they tried to hire mercs for a questionable job.

Navy

The space navy is the primary interstellar military force, defending against (or attacking) rival nations. During wartime, the navy's job is to defend the borders and vital inner systems while depriving the enemy of his ability to wage war. Between wars, the navy maintains readiness. The fleet may also pay "goodwill" visits to neighboring stellar states to stave off war by impressing potential foes.

Adventuring possibilities: In most non-military campaigns the navy is the background threat – the intervention so awful no one risks it. Pirates and criminals avoid fighting the navy. On the other hand, in a turbulent frontier region, the navy is often the only authority for light years around. Playing the captain and command officers of a major warship or starbase assigned to an interesting sector of space can give great scope for players who want to make a difference.

Office of Colonial Affairs

The Office of Colonial Affairs oversees colony ventures and regulates the construction of colony ships. It may control new colonies until they are self-sustaining, appointing all administrators and governors. It may also work with the Ministry of Prisons to get involuntary colonists for harsh, mineral-rich worlds.

Adventuring possibilities: For colonist PCs, a friendly OCA may be their greatest ally . . . and a corrupt one will be their worst enemy. An OCA inspection team will encounter interesting situations.

Patrol

The primary responsibility of the patrol is to police space. Peacetime duties include rescue work, escort for colony ships, routine space patrols, anti-piracy and anti-smuggling operations, starbase regulation and inspection, blockading restricted worlds, and perhaps mundane police duties on small colonies or space stations that lack their own local police force.

Patrol forces operate under naval command during wartime. In a young or loosely knit society, or one with no known foreign enemies, there may be no navy – in this case, the patrol performs both military defense and law enforcement.

Adventuring possibilities: Everyone encounters the patrol, whether they run to it or from it when they're in trouble. Patrol PCs will never lack for adventure.

Postal Authority

The Postal Authority is responsible for interstellar communications, which means its role varies depending on available technology. If faster-than-light radio is possible, the Postal Authority operates interstellar transmitters. If only ships can travel between the stars, then the Authority runs couriers or farms out mail contracts to merchants. However they do it, the Postal Authority's people know that communication *is* civilization.

Adventuring possibilities: Characters could be courier-ship pilots or private traders with a mail contract. Con games and conspiracies might center around interfering with interstellar communications. A misrouted message or parcel could be the trigger for just about any adventure scenario.

Security and Intelligence Agency

This shadowy, covert group is the national espionage and counterespionage arm. Agents are trained in intelligence gathering, overt and covert, as well as the "tricks of the trade," including infiltration, misinformation, code breaking, social manipulation, and assassination. Counterespionage agents are responsible for identifying and neutralizing agents of foreign governments. There will usually be several different agencies, often with misleading names, who spend a great deal of their time spying on each other!

Under a repressive society, intelligence agencies will spy on citizens while sending agents provocateurs to foment unrest in rival nations. Loosely knit societies may have no intelligence arm, but their member states might. In some societies, this may merge with the survey service and be responsible for covertly infiltrating alien or foreign societies, either to learn more about them or to alter their societies to make them ripe for assimilation or conquest.

Adventuring possibilities: Characters might find themselves on an intelligence mission – as unsuspecting dupes or working with agents. If they are part of an important organization, they may be infiltrated by agents of an enemy nation. An entire espionage campaign is also possible (see p. 18).

Special Justice Group

Formed as a watchdog agency over multistellar corporations, the SJG oversees corporate expansion and diversification, regulates free trade and stock sales, collects taxes and other government fees, inspects existing corporate facilities, and approves all new facilities. Its mission is to preserve society from domination by powerful business groups, while maintaining their financial health – realizing that the economy of the state is tied to corporate success.

Adventuring possibilities: Characters hired as corporate employees or security forces might meet SJG agents – for good or bad. Obnoxious SJG officials make perfect opponents for ambitious corporate executives. Another possibility is a corporation-busting Special Justice campaign.

Survey Service

The survey service has two primary duties: To explore and chart the frontier, and to maintain accurate records of all worlds.

The exploration division of the survey service, frequently known as the Scout Service, works to fulfill the first goal. There are often two branches: first-in scouts and survey scouts. After the first-in scouts discover a new world, the survey scouts are sent in. A survey team may be a single ship or a full expedition. Survey scouts certify worlds as suitable for colonization, and make recommendations about relations with new alien societies.

Adventuring possibilities: Anyone on the frontier is likely to encounter scouts, especially traders or corporate types interested in exploiting a newly discovered society or Precursor site. A dedicated scout campaign is also possible (see p. 11). During wartime, scouts may get put under Navy command as intelligence gatherers, or as patrol units in quiet sectors.

Private Organizations

Alien Rights League

In any human-dominated society, nonhumans are likely to need a lobbying organization to make their voices heard. The League may even be mostly human in membership. The Alien Rights League can be an altruistic group dedicated to the rights of all beings, or it can be the cover for violent extremists. Similar groups may exist to promote the rights of robots, uplifted animals, or genetically modified humans; in an alien-dominated setting, it may be *humans* who need the ARL's protection!

Adventuring possibilities: Nonhuman characters may need the ARL's help when faced with prejudice. Characters of any species might be hired or persuaded to help with an investigation aimed at exposing abuses. Colonists may find pesky ARL activists trying to stop them from settling on an inhabited world.

Corporations

A multistellar corporation is a vast conglomerate of companies in hundreds of fields on dozens of worlds. Some multistellars control entire worlds and support vast armies of employees – corporate security forces can outnumber the local planetary defense forces (and may be better trained).

In many businesses, profits outweigh ethics. Some corporations use dummy companies and trusts to dodge government supervision, considering such high-profit, high-risk activities part of the corporate "game." When not cooperating against the Special Justice Group, the companies are spying on their competitors. Sometimes industrial espionage is a gentlemanly game; often, it's deadly.

Adventuring possibilities: Working for a corporation lets PCs be nasty without feeling responsible – they're only following "company orders." Corporations also make good Patrons. They make excellent bad guys, too – exploiters of defenseless aliens, ravagers of priceless Precursor sites, slave lords on remote company planets, and remorseless steamrollers in commerce and industry. Independent traders hate them.

Free Trade League

Independent traders may band together to form a lobbying group and mutual-assistance society. The league may be a close-knit "brotherhood of spacers" or a bland professional organization.

Adventuring possibilities: The league is the home organization for most trader PCs. Other nonmilitary PCs are likely to encounter independent traders, especially on the frontier – passenger rates are low, voyages are slow, and there's always a chance of adventure before journey's end.

Mercenary Companies

A mercenary company is a military outfit – usually ground troops, often with supporting ground vehicles and aircraft – that works for hire. Regulations and discipline remain under the control of the unit commander, not the employer. Companies can be contracted for specific missions or hired by the month. "Honorable" merc outfits will fulfill their contracts so long as their employer deals honorably with them; other outfits may desert their employer for sufficient reward, sometimes even changing sides!

Adventuring possibilities: PCs who sign on with a merc outfit may see a variety of adventures in far places. Mercs also make good antagonists.

News Services

Space is big enough to hold a lot of news, and dozens of interstellar news services compete to get that news, explain it in an interesting fashion, and shoot it to the waiting tri-V watchers. Of course, they can also be sending out government propaganda, sinister mind-control, or military secrets vital to defense.

Adventuring possibilities: PCs can be a reporting team. Characters battling an evil conspiracy may need a way to get the truth out. A news service can also provide a meddlesome "third force" interfering in any adventure.

The Organization

The shadowy syndicate known as "the Organization" is the largest criminal empire ever to exist. Its influence stretches through nearly all interstellar nations. The Patrol is only beginning to realize that a single organization is behind centuries of

crime. The "Big O" dominates interstellar drug trafficking, gunrunning, prostitution, the black market, and murder for hire.

Adventuring possibilities: The PCs may be surprised to discover that the crime they just foiled was part of a Big O operation . . . and now the Organization is on their trail. Or the PCs themselves could be interstellar criminals.

Psionic Studies Institute

On the surface, PSI is a research foundation dedicated to psionics. In reality, it is a secret psionic society that offers aid and training to psis. It could be training them to use their powers for good – or to subjugate the normals and establish a rule by superminds.

Adventuring possibilities: An evil Institute might take advantage of a PC with developing talents; a good Institute can help a psionic PC against persecution. Or PSI might be a red herring, staffed by crackpots – especially if psionics don't work in this campaign. And the GM doesn't have to tell the players whether psi powers are real or not!

Universities and Scientific Foundations

Scholarly organizations can be huge and influential; they can dominate whole planets. Such groups can contain brilliant (and very peculiar) people. The political interplay within a university (over promotion, favorite theories, grant money, or just personalities) can be fierce, and rivalry between institutions can be bitter. Outsiders, expecting peaceful cloisters and ivory towers, are often numbed by the size of scholastic budgets and the fierceness of scholastic politics!

Adventuring possibilities: The PCs can be hired as part of a scholarly expedition; depending on skills, they may be guards, crew, or researchers. Unusual planetary conditions, strange and dangerous life forms, and Precursor artifacts are all obvious targets of scientific curiosity. And no pirate can match the disregard for danger shown by a dedicated researcher!

Planets and Places

In Chapters 4-5, this book gives detailed rules for creating planets and mapping the galaxy. But when starting out, the Game Master should have some general ideas about places and where they are in relation to one another. What general type of place will the game take place in?

The Core

Campaigns that take place in the heart of civilization usually center around political maneuverings, espionage, and intrigue. Laws are enforced efficiently, advanced medical care is close at hand, and characters can quickly summon up vast amounts of information over the local datanet. Game Masters can use core settings to show off the wealth and super-technology of the setting. Earth is often the core of a human empire, though in Isaac Asimov's *Foundation* series, Earth is a backwater and glittering Trantor is the center of power and civilization.

The Frontier

Out on the frontier, things are much rougher. Characters must rely on their own resources, but they also have greater freedom. Combat is more likely, and there may still be secrets and mysteries to discover. Drawbacks include a lack of things like repair facilities, long travel times between worlds, and shortages of key items. Game Masters can use all those factors to drive adventure plots. Mike Resnick's *Santiago* and his "Widowmaker" series take place on the frontier, as does the television series *Firefly*.

The Unknown

Past the frontier lies unexplored space. By definition it is unknown territory, which means it is the perfect venue for exploration. In the unknown, dangers are often hostile local life forms or mysterious phenomena that haven't been charted. But the unknown can also be a refuge for rebels or fugitives, since the patrol can't follow them there. *Star Trek: Voyager* takes place entirely in the unknown.

Hostile Space

Areas controlled by some enemy power – aggressive aliens, a rival human state, or the empire the heroes are trying to overthrow – all count as hostile space. This is likely the scene for military or espionage missions. Characters seldom want to stay in hostile space; the goal is to get in, do the job, and get home again. If empires are close together, vital core regions may be right next to hostile ones, which means a strong military presence along the border. Other empires may maintain a "neutral zone" between their territorial claims. The sinister planet Zha'ha'dum on *Babylon 5* was hostile space.

Home Base

This is where the heroes can find sanctuary, help, and a chance to relax between adventures. It may be a patrol base, an uncharted pirate hideout, a space station, or the capital of the galaxy. In relatively stationary campaigns, the home base is one town or city on the planet. Even completely mobile characters like explorers or footloose merchants may want to have some place they can think of as "home."

Chapter Two
Space Travel

"Interesting ship you found for us, Doctor." Captain Panatic was running his hands over the control panel, almost stroking it.

"Interesting? It was the cheapest one in the yard and it still cost too much. We should never have abandoned the ***Golden Venture****."*

"The whole time you were aboard the ***Venture****, you kept complaining about that noise in the gravitics, and why could we only use two liters a day for washing, and how come the drive was taking so long to recharge. I thought you'd be glad to leave her."*

Actually I had been, but this new ship was definitely not an improvement. "This one doesn't even have a shower."

"No, but she's a lot faster than she looks. There's a whole hidden set of thrust coils in the wings. She'll pull four gees easy."

"That dealer must not have known what he had." We'd traded him salvage rights to the wreck of the ***Venture****, plus all that remained of my savings.*

"Or he was trying to unload something he didn't want to have to explain to anyone. Did you notice the forward cargo bay?"

"It was a cargo bay, in the front of the ship. Beyond that, no."

"Big conduits for coolant and power lines. A big port opening forward. Direct data links to the bridge and the sensor suite. If you wanted to, hypothetically, mount a laser there, everything's already set up."

"Do you mean this is a warship?"

"Not exactly. Too small for that, and her lines are strictly civilian. No, Doctor, what we've got here is a lovely little pirate ship, just right for ambushing merchants, claim-jumping belt miners, and outrunning the Patrol. All she needs is some guns." He looked so wolfish it was hard to believe he had ever been a Patrol officer himself.

"This is not a privateering voyage, Captain. We're looking for a particular artifact, and the ship is nothing but the means to get us there."

"Oh, sure. Still, at our next stop, I'd like to see about weapon prices."

"Are you expecting trouble?"

"No, but if this artifact business doesn't pan out . . . who knows? Hoist the Jolly Roger and prepare to board!"

When designing any science-fiction universe, one of the most important choices the GM must make has to do with the *technology* that will be available. This chapter discusses technologies related to space travel, and the next describes advances in other fields.

There will *not* be much discussion of ***GURPS*** game mechanics here. The in-game rules for specific technologies will be discussed in other ***GURPS*** sourcebooks. Instead, this book will focus on the consequences of advanced technology for setting and adventure design – with particular attention to science-fiction settings that involve space travel!

A Taxonomy of Miracles

One way to classify SF worlds is to consider what technological *miracles* are inherent to the setting or story. In this context, we can think of a "miracle" as some area of technology that has a significant effect on the environment in which adventures take place. A technological miracle defines a significant *difference* between the fictional setting and the real world familiar to the reader or player.

It's useful to think about what miracles will be present in a new setting, because the GM doesn't have to work nearly as hard on features of the setting that *aren't* miraculous! Where there are no miracles, the GM and players can assume that things work in familiar ways. When the GM decides to incorporate a miracle, he has to think about what effect it will have on the setting and on his adventures, and he may have to find or develop new game rules to cover it.

No Miracles

It's possible to have a space-oriented campaign with no miracles at all. Human beings have been visiting space for about 40 years. With present-day technology, human space exploration and colonization are very difficult and expensive, but not impossible.

First Steps to Space

One possible no-miracles campaign can focus on the early development of space flight. The campaign may be historical, focusing on the real astronaut programs of the 1960s and 1970s. Or it may be set in the near future, projecting a "second space age" in which frequent human exploration resumes.

A variant on the "first steps" campaign is a setting in which state-run space programs have *failed* to establish a viable human presence in space. The slack is taken up by major corporations or individual entrepreneurs. The plot involves heroes who must struggle against both the dangers of space travel and the interference of government. This theme is fairly common in American SF, notably in novels such as Ben Bova's *Privateers*, or Michael Flynn's *Firestar* and its sequels.

The Technothriller

Another no-miracles approach is the *technothriller*. In fiction, the technothriller genre is normally set in the present day or in the very near future. The technology in the story may be slightly in advance of real-world capabilities, but by definition it's not a *miracle*. Technology's world-changing potential is ignored or evaded – it exists purely to provide the heroes (and villains) with cool gear!

Technothriller stories are usually political thrillers, in which the plot is driven by international competition or world-threatening crisis. The scenario doesn't have to be carefully detailed; in fact, the more shallow and one-sided the villains are, the better. Technothriller fiction often embodies the social paranoias of the time. In the 1970s, the Soviet Union provided most technothriller antagonists. Today, the menu of villainous options is a bit wider: Chinese, militant Islamists, Western nationalists, organized criminals . . .

One Miracle: Space Flight

At its most conservative, science fiction invokes as few miracles as possible. Stories that involve only *one* technological miracle have the advantage that most of the setting will be familiar. Naturally, in a space-oriented setting the first miracle is likely to be in the area of space travel!

In space travel, we can define a "miracle" as a technology that makes space flight *easy*. There are two great obstacles to humanity's future in space. The first is Earth's powerful gravity well; the second is the speed-of-light limit. Any miracle that makes it easy and cheap to launch into Earth orbit will make the whole Solar System easily accessible. A second miracle that somehow sidesteps Einstein could throw open the entire galaxy.

Alternate History

If the GM is assuming a single miracle in space-flight technology, there's no reason that he has to place his story in the *future*! Writers have been imagining space travel since the Renaissance – Cyrano de Bergerac and Voltaire each wrote about travel between worlds. More recently, early genre-SF writers such as Jules Verne and H. G. Wells set stories in space. To recapture the flavor of these early stories, assume that space travel might have become possible at some point in the past, but leave most other aspects of the historical technology and society unchanged.

Such an *alternate history* campaign shares many of the features of a purely historical setting. Players who are already well-versed in the chosen historical period will find most aspects of the world familiar. Sourcebooks covering the politics, social customs, and equipment of the period will be useful. The politics of the time can be extended into deep space, as existing Earth-based nations explore and colonize other worlds.

Strangely, most early SF ignored the possibilities of interstellar flight; much of it was written before astronomers discovered the nature of the stars or the structure of the galaxy. Instead, most authors concentrated on the worlds of our own solar system, assuming that they would be inhabited by aliens – or by humanlike races, complete with savage native warriors and beautiful princesses!

Many classic SF stories can today be treated as the basis for an alternate history setting with space flight. These include Jules Verne's *From the Earth to the Moon*, H. G. Wells' *The First Men in the Moon*, and Edgar Rice Burroughs' "John Carter" and "Carson Napier" novels. Among roleplaying games, ***GURPS Steampunk*** and GDW's ***Space: 1889*** are both good examples of the genre.

Emergent Superscience

Other one-miracle settings are placed in the future. A miraculous breakthrough in physics or engineering might make space flight much easier, without affecting most other aspects of society. This lets the GM construct a society that resembles our own, then explore the new breakthrough's implications.

A common variation on this theme involves a starfaring society in which advanced space drives exist, but other technology has not advanced much beyond the early TL8 level. Some of the best military SF has used this approach: ordinary infantrymen, armed with simple body armor and automatic rifles, traveling to the battlefield aboard a starship.

In space SF, the best recent emergent-superscience novel is probably John Varley's *Red Thunder*. Jerry Pournelle's "Mercenary" stories are a classic example of military SF using emergent-superscience assumptions.

More Miracles?

There's no reason why a space-oriented setting must apply miraculous technology only to the business of space flight. As more technologies advance beyond what is currently possible, society (and the backdrop for adventure) will become increasingly unfamiliar. At its extreme, the addition of miracles gives rise to settings in which *nothing* is familiar to the GM or players! Such settings can be interesting, but very difficult to sustain for a lengthy campaign.

The next chapter discusses settings in which miracles appear in areas other than space travel.

Space Flight and Story Requirements

The Earth is the cradle of mankind, but mankind cannot stay in the cradle forever.

– Konstantin Tsiolkovsky

Like other facets of a setting, the prevalent space flight technologies should be chosen to support the story (or the kind of story) that the GM wants to present. Another item the GM should consider is how important the details of space flight will be to his campaign. Despite being set in a space-faring future, many stories may have no need to consider the details of space travel.

Ships as Settings

Some settings are dominated by spaceships – indeed, the ship *becomes* the setting or a major portion of it. In this case, the adventurers will almost always be starship crewmen, passengers, or other people who spend most of their time between worlds rather than on them. Most character development is in the context of crew or passenger interactions. Many plots center on the technical details of running or commanding a starship.

In contrast, the worlds visited by the ship are sketchily drawn. Most worlds will apparently stop at the edge of the spaceport or the capital city, since adventurers will rarely venture far from their ships.

Military science fiction is especially likely to focus on starship life, with space battles and tactics forming a major part of the story. David Weber's "Honor Harrington" novels are an example of this kind of story.

Ships as Major Plot Elements

In many (perhaps most) space settings, space travel is an important activity and a common plot point, but many adventures will take place off the ship. Ship crewmen and passengers are still the most common character types, since such people are the most likely to spend time *around* ships, but some characters may be oriented entirely toward other activities.

In some settings, the characters have a ship of their own, which serves as a mobile home base. The ship is a familiar place where adventurers can (usually) relax, and where most character interaction takes place. Some adventures take place on board ship, while others take place on the worlds that the ship visits. Examples of this kind of story include the *Firefly* television series, as well as *Star Trek* and most of its spin-offs.

In other settings, the adventurers don't have their own ship, or they frequently use different ships as needed. Their home base is a world or an immovable space station. Most adventures come to the adventurers. When the cast of characters needs to travel, a ship may be available, but most of the time they don't need to concern themselves with shipboard life or the details of space travel. Examples of this kind of story include the *Babylon 5* and *Star Trek: Deep Space Nine* television series.

Ships as Trivial Plot Elements

In some science fiction, spaceships are little more than part of the backdrop. Adventurers simply arrive at the location of the adventure, with no time spent establishing how they get there. When it's time for them to move on to another world, they do so without needing to spend significant "on-camera" time on board a spaceship.

Frank Herbert's "Dune" novels use this kind of structure (although the *assumptions* of space travel in that universe are crucially important to the story). Dan Simmons' *Hyperion* and its sequels almost entirely ignore spaceships, and in fact vehicle-less instantaneous teleportation from world to world is an important plot element.

Maneuver Drives

***Nesterov** hovered a few moments longer, then began a slow descent. Mariesa held her breath. Every second was a lifetime; but the ship slid smoothly down a pole of invisible fire. When the fire touched the ground, it became a flaring pedestal that bloomed underneath the ship like a cushioning pillow of light . . .*

*Mariesa stared at the craft until the ball of light beneath it winked out and the darkness of night returned. A **man** had sneaked aboard that thing, that untested, untried experimental craft; and bet his **life** against it. It might have exploded; it might have smashed into rubble on the pavement. And Krasnarov had **lied** his way aboard.*

*– Michael Flynn, **Firestar***

A *maneuver drive* is used to propel a ship through "normal" space, changing its velocity in space as needed, more or less subject to the known laws of force and motion. Such drives range from realistic propulsion systems like rockets, to superscience drives that appear to break some physical laws but are still limited by the speed of light.

Reaction Drives

A *reaction drive* is a drive that obeys (and takes advantage of) Newton's third law of motion. This law implies that the momentum of a system is always conserved, *unless* an external force is applied to it.

Some reaction drives work by taking advantage of external forces that act on the spaceship, changing its momentum (see *Sails*, p. 33, or *Catapults and Tethers*, p. 34). However, most reaction drives use the *rocket* principle.

Principles of Rocketry

In its simplest form, a spaceship using a rocket drive is composed of two portions.

The first portion is the *payload*. This consists of all the parts that are to be conveyed to the ship's destination: crew, passengers, life support equipment, computers and other instruments, drive machinery, cargo, the hull structure of the ship itself, and so on.

The second portion is the *reaction mass*, material that's carried along only to be thrown away! The rocket engine works by accelerating reaction mass and ejecting it into space, usually as a fast-moving gas or plasma. The total momentum of the system remains constant, but since the reaction mass is being accelerated, the law of conservation of momentum means that the payload is also accelerated in the opposite direction. The velocity that the reaction mass has when it is ejected is called the *exhaust velocity*. The force that the rocket engine applies to the payload is called *thrust*.

Since every rocket works by discarding reaction mass, rocket drives are limited by the amount of reaction mass that can be carried, and by the efficiency of the rocket engine. Reaction mass that hasn't been ejected yet has to be accelerated along with the payload! As a result, it's important to minimize the amount of reaction mass that's needed to complete a given mission.

For a fixed amount of reaction mass, the best way to get a more efficient rocket is to increase its exhaust velocity. Of course, a rocket is also limited by the *energy* it needs to accelerate reaction mass into space. The thrust that the engine generates is proportional to the exhaust velocity – but the

The Rocket Equation

The science of astronautics was pioneered by the Russian mathematician (and science fiction writer!) Konstantin Tsiolkovsky. Around the beginning of the 20th century, Tsiolkovsky developed a great deal of basic astronautical theory; he was one of the first visionaries to predict artificial satellites, space colonies, and asteroid mining.

One of Tsiolkovsky's basic contributions was the *rocket equation* that has since been named for him. The Tsiolkovsky equation is:

ΔV = **E** × *natural logarithm of* (**T**/**P**)

Here, **E** is the effective exhaust velocity of the rocket engine (a quantity also called the *specific impulse*), **T** is the total mass of the rocket-driven spaceship (including both payload and its initial reaction mass) and **P** is the mass of the payload alone.

The quantity **ΔV** is called the *delta-V*. Delta-V is the amount of velocity change the ship can carry out with its available reaction mass. Every deep-space maneuver requires that the ship "spend" some of its delta-V budget: escaping from orbit around a home world, changing course in deep space, entering the orbit of a destination world, changing the parameters of an existing orbit, and so on. Maneuvers that are carried out against gravity (such as planetary launch or landing) can also be measured in terms of delta-V.

Low-TL rocket drives are usually *very* limited in the amount of delta-V that's available to them. Mission planners spend a lot of time searching for trajectories that can get a ship to its destination with the use of minimal delta-V. It's sometimes possible for a ship to change course without spending delta-V. For example, a ship can "fly by" a world, using its gravity to accelerate and change heading.

By manipulating the Tsiolkovsky equation, it's possible to derive a formula describing how much of a ship's initial mass needs to be taken up by reaction mass. To summarize, if the required delta-V is much smaller than the exhaust velocity, very little reaction mass will be needed. Once the required delta-V rises above the exhaust velocity, reaction mass soon dominates the ship's size!

energy required to operate the engine is proportional to the *square* of the exhaust velocity! In order to generate the same amount of thrust, a rocket with lower exhaust velocity needs more reaction mass. A rocket with higher exhaust velocity needs less reaction mass, but it may need *much* more energy in order to operate.

Known Rocket Types

The following rocket types are currently feasible, using known engineering principles.

Chemical rocket: A chemical rocket is the first reaction drive likely to be used by any space-faring civilization. Chemical rockets get their energy by burning flammable reaction mass or "fuel," expelling the resulting hot gases out the back of the rocket chamber.

Most chemical rockets will use liquid fuels, such as liquid hydrogen or a slurry of powdered metals like aluminum. Solid-fuel rockets are possible, but are hard to shut down or control once ignited. A chemical rocket that will operate in space must also be provided with an *oxidizer* to support combustion. The most likely oxidizer is liquid oxygen, which can be carried in onboard tanks and used as part of the reaction mass.

Chemical rockets can deliver a lot of thrust very quickly, and are useful for launching from a planetary surface or maneuvering in orbit. On the other hand, they have relatively low exhaust velocity, and so they use *tremendous* quantities of fuel and oxidizer. An interplanetary journey using chemical rockets normally involves a short "burn" at the beginning of the trip, followed by months or years of coasting, with the delivery of only a small payload at the end.

Ion Drive: An ion drive converts reaction mass into ions (charged atoms or molecules) and then uses electric power to accelerate the ions into a fast exhaust stream. The most likely substances for reaction mass include the noble gases argon or xenon, or the poisonous metal cadmium.

An ion drive provides very low thrust, and is useless for taking off from a planet. On the other hand, its exhaust velocity is high. Ion drives are therefore fuel-efficient, and can be used for long periods of constant acceleration. This makes them good candidates for interplanetary travel, taking months rather than years to cross interplanetary distances. An ion drive will need a continuous power supply, usually a bank of solar cells or an on-board nuclear reactor.

Fission rocket: A fission rocket uses a built-in fission or radiothermal reactor to heat reaction mass, and then expels the hot gases as a high-energy exhaust. Fission rockets are a compromise between chemical rockets and ion drives; they can provide more thrust than an ion drive, but have lower exhaust velocity and so are less fuel-efficient. They are also useful because they provide both onboard power and motive thrust. They may be suitable for interplanetary warships or courier craft.

Speculative Rocket Types

Nuclear pulse drive: This drive works by setting off nuclear explosions behind the ship; the energy of each nuclear explosion produces a very fast exhaust of hot plasma. A large-scale version (such as the "Orion drive") uses full-size nuclear bombs, requiring a huge shock-absorbing "pusher plate" behind the vessel. More sophisticated versions create micro-explosions, triggering small fusion fuel pellets with a ring of powerful lasers or ion beams. Another approach triggers fissionable pellets using antiproton beams; this version uses so little antimatter that it could be produced using present-day technology.

A nuclear pulse drive can provide a *lot* of thrust, and also has high exhaust velocity and fuel efficiency. It may be the best candidate for a fast interplanetary drive. Although building such a drive is currently out of reach, the

Sample Delta-V Requirements

Every low-TL space mission is planned around its delta-V budget. A high delta-V requirement means that the spacecraft will need more reaction mass, possibly crowding out needed payload. Lower delta-V requirements make a mission cheaper and more feasible, or permit more payload mass to be delivered.

Here are some typical delta-V requirements for early space missions. All of these figures assume high-thrust chemical rockets – low-thrust engines such as ion drives will need more delta-V due to the drag of gravity (usually 2-3 times as much).

Earth Launch: To reach low Earth orbit requires about 5.9 miles per second of delta-V. A low-thrust engine will not be able to perform this mission at all!

Earth Orbital Maneuvers: To move from a low Earth orbit to a geosynchronous orbit requires two maneuvers, with a total delta-V requirement of about 2.5 miles per second. To move from a low Earth orbit to an escape trajectory actually requires *less* delta-V, about 2.0 miles per second in all (assuming the escape burn is performed at *perigee*, the point on the orbit closest to Earth where the spacecraft is already moving fastest).

Interplanetary Travel: To move from a low Earth orbit to low orbit around various other bodies takes varying amounts of delta-V. A journey to low lunar orbit would take about 2.4 miles per second. Reaching some near-Earth asteroids (see p. 131) would require about the same amount of delta-V as a lunar expedition. A journey to low Martian orbit would take about 3.5 miles per second. Reaching solar escape velocity from low Earth orbit requires about 5.4 miles per second; this is an upper bound on the delta-V needed for most interplanetary journeys.

main obstacle in its way is political rather than technological. Many people object to a drive that involves setting off nuclear explosions!

Fusion rocket: As with a fission rocket, the fusion rocket involves heating reaction mass with a controlled nuclear reaction, then expelling it as hot exhaust. A fusion rocket might offer performance nearly as good as a nuclear pulse drive, without the expense of specialized fuel pellets or the danger of carrying around hundreds of A-bombs.

Antimatter thermal rocket: This drive uses a small quantity of antimatter to heat up a much larger amount of conventional reaction mass, creating plasma to be ejected for thrust. It can provide high thrust, and is more efficient than most fusion drives. It requires the technology to produce, distribute, and contain useful quantities of antimatter.

Antimatter pion drive: This drive is a "pure" antimatter rocket. It mixes matter and antimatter in equal (very small) quantities, producing an exhaust composed of very fast subatomic particles. The rocket doesn't provide much thrust, but its high exhaust velocity makes it *extremely* fuel-efficient. It is among the most realistic candidates for STL interstellar travel.

Total conversion drive: This theoretical drive converts reaction mass directly into energy, perhaps in the form of photons or gravity waves. There is no known way to produce this conversion, but the concept is (barely) "hard" SF. It doesn't violate the laws of conservation of energy or momentum, and it also requires the ship to refuel once in a while.

Sails

Given the limitations imposed by carrying reaction mass, any method of interplanetary or interstellar travel that *doesn't* involve rockets might have an advantage. There are several reaction-drive concepts that don't require large quantities of reaction mass.

Light Sails

One drive that has been proposed is the *light sail*. A light sail is a huge sheet of very thin, light, reflective material, possibly hundreds of square miles in area. The sail is attached to a payload capsule by a network of lightweight cables. Close to a star, the sail can provide slow but steady acceleration due to the pressure of starlight.

On its own, a light sail is only effective close to a star, such as between the orbits of Mercury and Mars in our own solar system. More than a few AU from Sol, the light pressure drops below useful levels. This would seem to make the light sail useless for interstellar travel.

However, a powerful laser (or a battery of lasers) could be used to impart steady thrust to a light sail. Laser light doesn't lose its force as quickly with distance as non-directional starlight, so it can provide thrust for months or years, accelerating the sail to a significant fraction of lightspeed. This provides limited maneuverability, but if the sail is given an electric charge, interactions with the galactic magnetic field can be used for deceleration or a slow turn.

A laser-driven light sail seems almost perfect for interstellar travel. There is no fuel to worry about, and the "engine" can be left at home. On the other hand, the laser batteries would need to be *enormously* powerful. Even a tiny probe massing a few kilograms would need gigawatt-output lasers. A sizable manned ship would need lasers with lenses many miles across, powered by solar collectors thousands of miles wide, using thousands of times as much power as is currently generated all over Earth! Ignoring the question of whether it would be feasible to build lasers that big, it's likely that a society capable of it would find other uses for the power-generating capacity.

Meanwhile, the political questions are significant. An interstellar journey would still take decades, and the crew would need to be able to trust its home base to keep the lasers on for that whole time. For that matter, the lasers themselves could serve as a terribly powerful weapon, which could itself be the cause of conflict.

For a superb treatment of interstellar light-sail travel, see the classic novel *The Mote in God's Eye*, by Larry Niven and Jerry Pournelle. Robert Forward's novel *Flight of the Dragonfly* also relies on light sails as a plot device, and some printings include an extensive technical appendix.

Magnetic and Plasma Sails

Another concept that might be useful for interplanetary travel is the *magnetic sail*. Stars like Sol don't just emit light; they also give off a powerful solar "wind" of charged particles. These fast protons and electrons fly through the inner solar system at hundreds of miles per second. If they enter a magnetic field, they change direction and speed, exerting a force on whatever is generating the field. A spaceship might use a large loop of superconductive wire as a sail, passing current through the wire to generate a powerful magnetic field, interact with the solar wind, and produce thrust.

Magnetic sails have several advantages over light sails. Calculations have shown that the magnetic sail can yield a higher thrust-to-mass ratio than a light sail. A magnetic sail can "tack" against the solar wind, and so is more maneuverable than a light sail. A magnetic sail can also interact with the magnetic fields of planets, providing even more maneuverability in certain situations. Finally, a magnetic sail would be very good at *decelerating* a ship moving at a large fraction of lightspeed; it might be the most likely method for stopping a hard-science interstellar spacecraft.

Of course, one disadvantage of the magnetic sail is the material of the sail itself – it may be difficult to produce long loops of superconductive wire that can stand up to the rigors of space flight. Magnetic sails, like light sails, lose effectiveness with distance from the star.

A related concept is the *plasma sail*, in which the magnetic field is conducted within a thin, superheated cloud of plasma rather than a loop of wire. A plasma sail would require "fuel," since the thin cloud of plasma would tend to disperse and would need to be replenished. Even so, early research indicates that the plasma sail system would be very fuel-efficient, and would require relatively little power.

One advantage of the plasma sail is that the sail expands automatically as the density of the solar wind decreases. The plasma sail should provide nearly constant acceleration all the way out to the "heliopause," the boundary where the solar wind fades into the interstellar medium. This makes it a good candidate for travel in the outer solar system, where light sails and fixed-size magnetic sails lose their effectiveness.

Bussard Ramjets

The Bussard ramjet was first proposed in the 1960s, and for a time was regarded as the definitive answer to the problems of STL interstellar travel. A Bussard ramjet starship carries almost no reaction mass. Instead, it uses a big magnetic field, a "ramscoop," to gather interstellar hydrogen. The hydrogen is funneled in, used as fuel for the ship's fusion reactor, and expelled as reaction mass. Once a ramjet ship reaches speeds high enough to gather plenty of hydrogen, it can theoretically accelerate indefinitely, approaching lightspeed as closely as desired.

In the 1970s, a great deal of science fiction was written in which Bussard ramjet drives, combined with relativistic time dilation, allowed humanity to explore and colonize the galaxy. Unfortunately, the concept appears to have insurmountable technical problems. The interstellar medium turns out not to be as dense as was originally believed – especially in the vicinity of our solar system, which is in the middle of a parsecs-wide "bubble" of thinner gas. This means that the necessary ramscoop sizes would be prohibitively large. Meanwhile, once a ramjet ship reaches very high speeds, much of the energy of the fusion reaction goes to accelerate the incoming reaction mass rather than the ship. Finally, the proton-proton fusion reaction that would be needed to drive the ship turns out to be difficult to achieve.

A science fiction setting could still use the Bussard ramjet as its primary stardrive, especially if it was set in a region of the galaxy where interstellar matter was denser. A ramscoop could also be used to supplement a conventional fusion drive, gathering extra reaction mass while the ship coasts through interstellar space.

Catapults and Tethers

Space engineers have invented several other potential techniques for reaching space, or for maneuvering in space. These are not necessarily useful for very long-range travel, but they can assist in maneuvering without needing reaction mass or expensive onboard systems.

Catapults

Low-TL space travel often involves a burst of acceleration at the beginning of a journey, followed by a long period of "coasting" along a ballistic trajectory, with another burst of acceleration at the destination. A rocket-driven ship normally needs to supply reaction mass for *both* periods of sharp acceleration. If another way can be found to provide the first burst of acceleration, this can cut reaction-mass requirements by 50% or more.

One approach to this problem is the *launch catapult*. A launch catapult is an electromagnetic system or "mass driver," similar to some particle-accelerator devices but built on a much larger scale. Many powerful electromagnets are arranged in a long line, wrapped around a hollow channel in which a payload can move freely. The payload is either made with ferrous metal components or wrapped in a conductive sheath. Once the payload is placed at the start of the channel, the electromagnets are activated in series, each magnet pulling the payload forward and accelerating it. A launch catapult may be many miles long, accelerating a payload to very high velocities.

A launch catapult built on the surface of a world can be used to accelerate a payload to orbital velocity. In space, a launch catapult can give a payload the initial acceleration needed for an interplanetary journey. In either case, the payload needs no rocket

engines – the power needed for the acceleration comes from a power plant built into the catapult.

It's even possible for a launch catapult to operate in reverse. A payload or ship that enters the "launch" end of the catapult can be *decelerated* by the electromagnets firing in series, bringing the payload to rest relative to the catapult. If launch catapults are present at both ends of an interplanetary journey, a ship may make the trip with a very small onboard supply of reaction mass!

The major drawback of a launch catapult is that it may be unsafe for human passengers. In space a launch catapult can be very long, providing useful velocities while applying only moderate acceleration. On a planet or large moon, building a launch catapult more than a few miles long might be a serious engineering challenge. Such a short launch catapult can still provide the needed velocities, but it must apply very high acceleration over a short time. Human "cargo" may need to use other means of reaching orbit . . .

Cycler Stations

One alternative to conventional spaceship transportation is the *cycler station*. The station is a space habitat that follows a trajectory passing near two or more interesting places. Over a long period the cycler follows a loop, with passengers embarking and disembarking at each destination. At each port of call the cycler uses a planet or star's gravity (and some minor assistance from a propulsion system) to change course for the next without stopping.

On an interplanetary scale, cycler stations follow low-energy transfer orbits between worlds. On an interstellar scale a station could travel a substantial fraction of the speed of light, changing course at each star to follow a wide loop through interstellar space.

Cycler stations are designed primarily to provide a livable *habitat* for passengers during a long passage. An Earth-Mars cycler would need about three years to make one round trip. An interstellar cycler would need decades. Since the delta-V requirements for a cycle are the same (indeed because of the course change, slightly larger) than for the same trip without the cycler, there is no advantage in carrying space-worthy cargo this way.

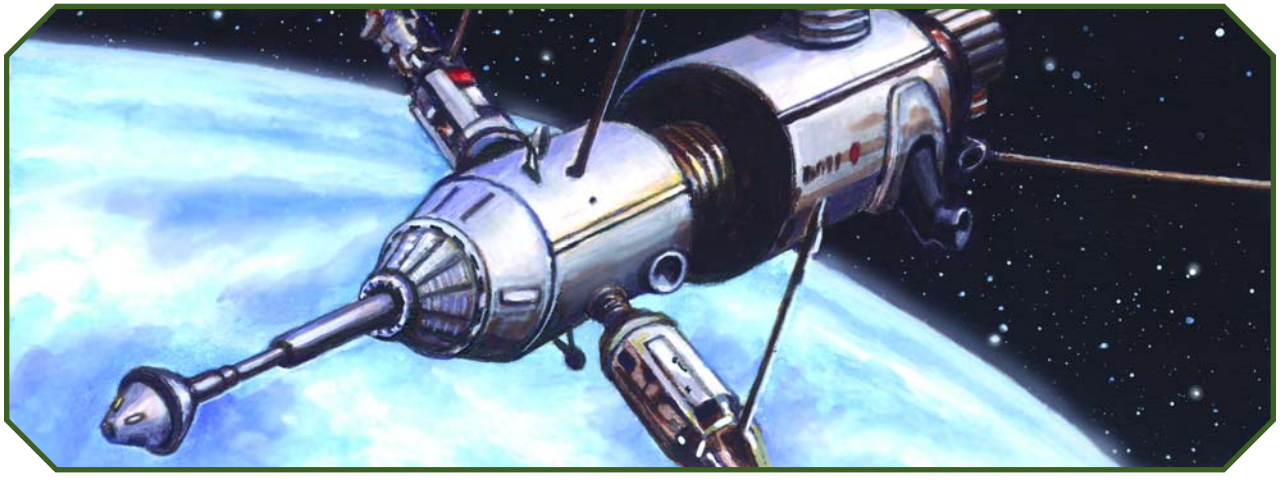
The benefit of a cycler station is that equipment needed only on the voyage between worlds (life support, heavy radiation shielding, and so on) does not need to be repeatedly accelerated. Passengers boarding or leaving the cycler will still need to bring along the same delta-V that that they would need to make the trip without it. On the other hand, they won't need to bring along their own (possibly very heavy and expensive) life support systems with capacity for the whole trip.

Tethers

Another sophisticated maneuver system involves *tethers*. A tether system can be used to assist payloads into high planetary orbit, reducing the amount of reaction mass needed for a rocket drive.

A tether station is placed in orbit around a planet with a strong magnetic field. It lowers a tether cable, and begins to rotate so that the tether is moving much more slowly than the station's orbital velocity at the bottom of its swing. At this speed, it can intercept payloads that have been launched into a *suborbital* trajectory, one that requires much less reaction mass than a true orbital path. The payload is attached to the tether with a grapple. When the tether swings upward, it can *throw* the payload into a higher orbit.

Every time a payload is transferred into high orbit with this system, the tether station is robbed of some momentum, and will tend to fall into a lower orbit. However, the tether itself can be used to restore the station's orbital velocity. An onboard power plant can drive electrical current along the tether cable. Since the tether is moving through a planet's magnetic field, the current provides thrust, exactly like the operation of an electric motor. The station rises to its standard orbit once again, and is ready to deal with the next payload to come along.



Tether systems are useful only for orbital transfer, but since such situations are extremely common they are likely to be find frequent application. Although they require a planetary magnetic field to operate efficiently, this isn't a major limitation. Most Earthlike worlds will have sufficient magnetic fields. Gas giant worlds also have powerful magnetic fields, so operations in the close vicinity of a gas giant may also find tether systems useful.

Reactionless Drives

A *reactionless* drive is one that produces acceleration without discarding reaction mass. A reactionless drive requires power, and fuel for the power plant, but is not limited by needing to carry around vast amounts of reaction mass. A reactionless drive starship can be extremely efficient, carrying a large payload. Unless the physical principles behind the drive stop working at high velocity, a reactionless drive ship can easily approach lightspeed.

All reactionless drives are superscience, since they violate the known laws of physics. If reactionless drives are available in a setting, the GM should define their performance. The most important factor to consider is the *thrust-to-mass ratio*. If one ton of reactionless drives can deliver only one-tenth of a ton of thrust, then starships will only be able to manage acceleration up to about 0.1 G (with almost no payload). If one ton of drives can deliver two to five tons of thrust, then accelerations of two to five Gs can be obtained.

Dean Drives

A *Dean drive* is a class of reactionless drive that (somehow) converts rotary movement into linear movement. The ship's onboard engine includes a big flywheel that is driven by a power plant; the angular momentum of the flywheel can be tapped to accelerate the ship forward.

The Dean drive was "invented" in the 1950s, and was taken seriously by a few people in the SF community. Unfortunately, it was never demonstrated for or duplicated by reputable scientists, and was almost certainly a hoax. In fact, the Dean drive violates several known laws of physics. "Dean drive" can be used as a generic term for any reactionless drive that works by breaking the laws of motion as we currently understand them.

Diametric Drives

Another form of reactionless drive is the *diametric drive*. Such a drive creates an asymmetrical field of force around itself. The side of the force field that exerts more force on the ship will "push" the ship forward without any need for reaction mass.

Most diametric drive concepts involve manipulating gravity, since that force operates equally on all matter and can provide smooth acceleration. A *bias drive* or *gravity drive* is a diametric drive that alters the force of gravity ahead of and behind the ship. In effect, the ship exists inside a bubble of spacetime with its own arbitrary gravity. The ship is in free fall and doesn't feel acceleration, so it can safely pull *hundreds* of Gs (the speed of light is still an absolute limit).

Diametric drives are completely speculative; at present, we have no idea how to create the kind of force fields they require. They are similar in function to warp drives (p. 40) and may be a spinoff of that technology if it exists in the setting. Meanwhile, bias drives depend on fine control of gravity; they may be associated with artificial gravity (p. 44) or contragravity (p. 44) technologies.

Relativity Effects

Einstein's laws of motion have several surprising effects, especially as an object (such as a starship) accelerates close to the speed of light. As seen by an unaccelerated outside observer, the starship becomes *shorter* and *more massive*. From the starship's viewpoint, images of the outside universe become compressed toward the axis of motion. Light from ahead becomes "blue-shifted" toward more energetic frequencies, while light from behind becomes "red-shifted" down the spectrum.

One of the most important effects of relativistic velocity, especially from the point of view of the interstellar traveler, is *time dilation*. Someone on board a ship will experience the passage of time differently than someone in an unaccelerated frame of reference (say, on a planet). In effect, his clocks will run more slowly than those in the outside universe, so that the trip seems to take less time. STL starships can use time dilation to make manned interstellar travel more practical; crewmen and passengers won't need to spend so much of their lifespan to make a journey.

To compute the degree of time dilation, use the following formula:

$$\mathbf{R} = \textit{Square root of } [1 - (\mathbf{V}/\mathbf{C})^2]$$

Here, **R** is the time rate experienced on board ship, **V** is the ship's velocity, and **C** is lightspeed. Some representative values:

Time Dilation Table

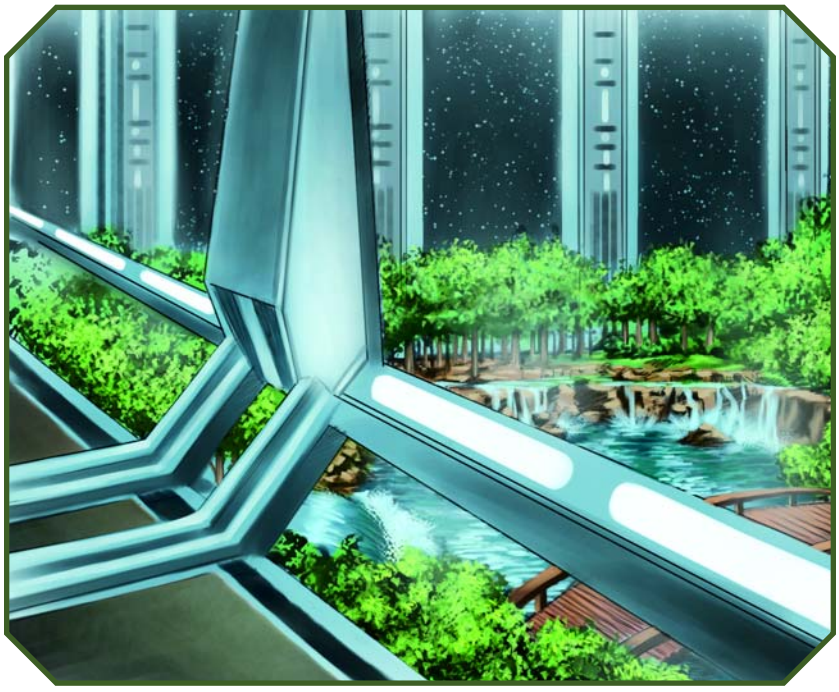
Velocity (× c)	*Time Rate*
0.25	0.968
0.50	0.866
0.75	0.661
0.90	0.436
0.95	0.312
0.99	0.141
0.999	0.045
0.9999	0.014

Generation Ships

One "realistic" approach to interstellar travel is to accept that it will take a long time, and plan for it. A *generation ship* is a starship that uses nothing but a maneuver drive to cross interstellar distances, requiring decades or centuries to make the trip and providing a livable habitat for crew and passengers along the way.

A generation ship isn't so much a ship as it is a mobile *world*, with its own internal society. Adventures aboard such a ship will be almost entirely dominated by character interaction, as crew and passengers while away the years before reaching their destination. In fact, children are likely to be born, grow up, and have children of their own during the journey, yielding several generations of passengers (hence the name for this kind of ship).

A variant on the generation-ship idea is the "sleeper ship," the slow starship that carries its crew and passengers in some form of suspended animation. Science fiction from the 1960s and 1970s often assumed that interstellar journeys would be taken with most of the crew and passengers in "cold sleep," a form of artificial hibernation.



Some current science fiction suggests that human crew and passengers might travel in *digital* storage. Nanotechnology and advanced computers might make it possible to transport a human's body and mind as pure data. If the data describing a ship's crew and passengers can be stored very compactly, the ship carrying it can be much smaller and cheaper than one carrying the living people. The ship might even provide a rich virtual environment in which the passengers can "live" while in storage. Of course, if this kind of ghost-life is possible in the first place, why would the ship's passengers have bothered to travel anywhere?

Star Drives

In my time there were four ways known to cheat Einstein, and two ways to flat-out fool him. On our journey ***Pelenor*** *used all of them. Our route was circuitous, from wormhole to quantumpoint to collapsar. By the time we arrived, I wondered how the deep-probe had ever gotten so far, let alone back, with its news.*

– David Brin, ***"The Crystal Spheres"***

Interplanetary travel is not only *possible*, but *practical*, given technology that we already know how to build. Interstellar travel is a very different matter.

The fundamental problem faced by anyone planning interstellar travel is Einstein's theory of relativity. Einstein's model of the physical universe – one of the most successful scientific theories of all time – assumes that the speed of light is an absolute limit (see *Relativity Effects*, p. 36). All objects with mass must travel at lower speeds, unable to accelerate to light-speed no matter how much energy they apply. This means that starships will always take years to travel even between neighboring stars.

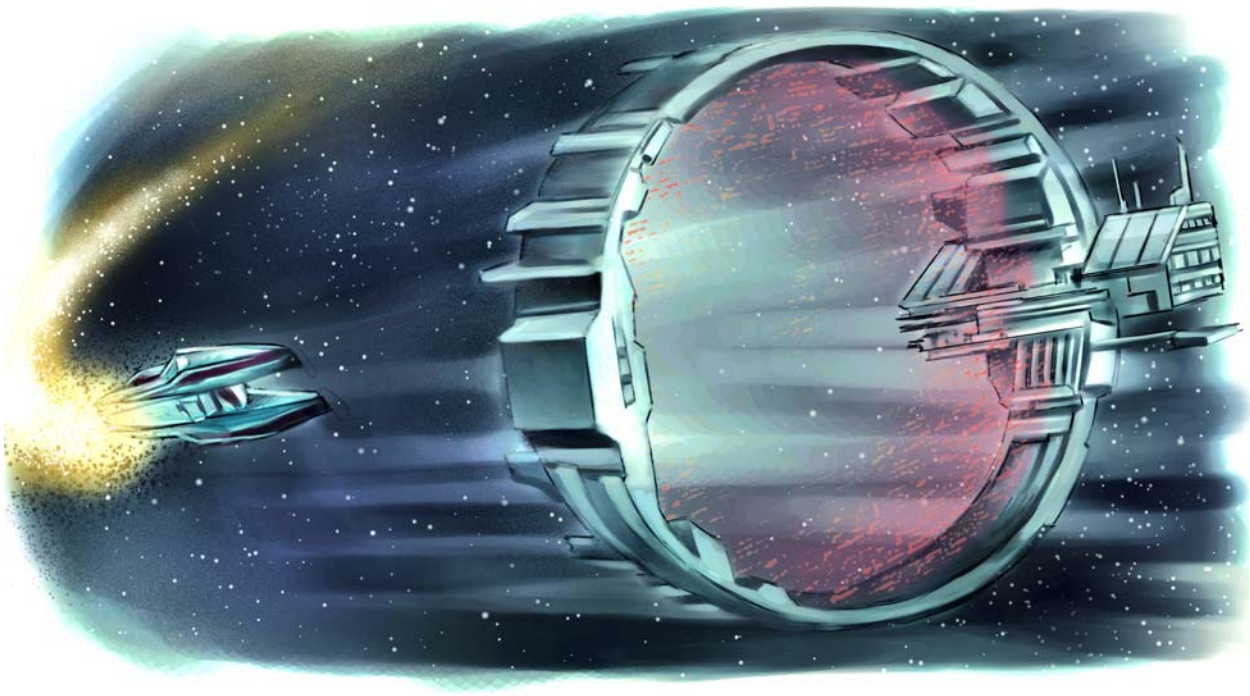
Ever since it became obvious that there are no other habitable worlds (or alien civilizations) within our own solar system, science fiction writers have turned to other stars as settings for adventure. This almost demands that the heroes of the story to have some method for traveling faster than light! Thus, many writers who are otherwise quite rigorous with their scientific content have invented some form of "FTL" travel.

Scientific speculation and science fiction have considered a bewildering variety of FTL drives. All of them should be considered superscience, although a few *might* have some justification in cutting-edge physics. Most science-fiction universes only permit one form of FTL, although a few use multiple forms, each with its own advantages and problems. Some of the most common forms are as follows.

Hyperdrive

Einstein's model applies to the physical universe that we live in. But what if there's another universe where different laws apply, a universe that can be reached from ours? A starship could drop into that "hyperspace," travel there according to its own laws, and then shift back into our own universe at a new location – reaching its destination much faster than Einstein would normally allow.

When thinking about a hyperdrive for a space setting, some of the things to consider are:



How fast is the drive? Does a starship take weeks or months to travel through hyperspace between two stars? Or does the trip take a fraction of a second? The GM will want to consider how quickly a ship can cross known space.

How quickly can the drive be used? This is important for dramatic reasons – if a hyperdrive can be used quickly and easily, a starship can always escape from trouble. Perhaps the drive requires a great deal of energy to make the shift into hyperspace, requiring long periods of charging the ship's engines from its power plant. Perhaps planning a trip through hyperspace requires a lot of computer power and time. Or perhaps hyperspace needs to "relax" after the stress of being crossed, ensuring that a new hyperspace transition can't be made too quickly after emerging into normal space.

How finely can the drive be controlled? Unless a hyperdrive ship can choose any point of emergence it wants, it will still need a maneuver drive to reach nearby planets or engage in space battles. Maybe hyperdrives can't be used within a certain distance of a large mass, requiring a starship to travel out to "flat space" before entering hyperspace.

What is hyperspace like? Perhaps ships in hyperspace are cut off from everything, including each other and the normal universe. A trip through hyperspace would be a good time to do shipboard maintenance, and have locked-room adventures in which none of the characters can get away from each other. Perhaps ships in hyperspace can communicate with each other or with planetary facilities. Or perhaps hyperspace is a real place, with its own geography and even its own natives – ships can explore it using special sensors, hover or change directions in hyperspace, or even fight battles there!

Can a ship in hyperspace be detected? If a ship can't interact with the normal universe, then nothing in normal space can detect them until they emerge. That means that battle "lines" won't exist in a universe with hyperspace – invasion fleets won't be detected until they emerge, already close to their targets. On the other hand, if special sensors can reach into hyperspace, invaders will be detected in advance, and can possibly be met in hyperspace itself.

What happens if the hyperdrive fails? If a ship in hyperspace is damaged, does it return to its starting point? Does it drop back into normal space at an unpredictable point? Or is it stranded in hyperspace until the drives can be repaired? This can be particularly critical if ships can fight battles in hyperspace . . .

Hypersails

What if hyperspace is like an ocean, with energy currents (and reefs, and storms) on which a starship can ride? Such a starship might need *hypersails* – more likely to be energy fields rather than physical sails – to take advantage of the ether's flow. David Weber's "Honor Harrington" novels use this model for hyperspace, deliberately mimicking the flavor of sea-adventure fiction set in the Napoleonic era.

Tachyon Drive

Physics predicts the existence of *tachyons*, fundamental particles that can't travel at *less* than the speed of light. A tachyon drive turns the starship into a beam of tachyons that then hurtles across space. A ship that is converted into tachyons might require a receiving station to restore it to its original condition.

Jump Drive

It's not possible for a physical object to accelerate to speeds faster than that of light. But what if it's possible for a ship to move from point A

to point B in space, *without* accelerating and without crossing the space in between? A jump drive permits a starship to teleport from one location to another, usually in no more than a tiny fraction of a second. The ship never leaves the normal universe or enters any form of hyperspace.

Some of the things to consider when choosing a jump drive include:

Where can the drive be used? Many jump drives can only be used at "jump points," specific locations in space. Jump points may occur naturally, they may be relics of a prior civilization, or it may be necessary to build them in order to use FTL travel. If jump points are necessary, they may be located far away from planets or other interesting places, requiring long trips through normal space to reach them. A jump drive that can be used anywhere can be a plot-breaking convenience, making travel or escape too easy for drama.

If there are jump points, how are they arranged? Perhaps a starship can jump to any number of different places, so long as it starts at a jump point. If a starship jumps to a region of space with no jump points, it may be stranded! Or possibly jump points are always connected in pairs, so that when a ship triggers its drive at one end, it always moves to the other end. Paired jump points can create a network of "jumplines" in known space, in which the real distances between stars are less important than the convenience of their jump-point links. Stars without jump points are inaccessible, while jumplines without stars at each end are not useful. Stars with several jump points become important crossroads, even if they don't have habitable or useful planets.

How are jump points created? If jump points are a natural phenomenon, or were built by a prior civilization, then starships will need to search for them – and the first trip through one will be a major voyage of discovery! If a jump point must be created with special equipment, then that equipment might be located on a stationary facility, a *stargate* that can send starships to their destination without itself moving.

How is the jump drive triggered? Does it simply take the application of energy? Or does it require the use of special computer programs, psionic powers, or other rare items? Those who control the ability to trigger a jump will control interstellar travel!

What happens if a jump fails? A jump ship may be stranded if it appears in a place without jump points, or if some jumplines are only one-way. Perhaps planning a jump requires a great deal of computation, and bad aim can send a ship anywhere.

Do jump points only cross space, or do they permit time travel? Some jump-drive schemes permit travel through time as well as space. Starships can visit the distant past or the distant future of the universe. A ship that curves back through time can end up changing its own past, or dropping into an alternate universe where events turned out differently. Jump navigation errors can be even more dangerous in such a setting . . .

Wormhole or Keyhole Drive

Wormhole-based drives are effectively jump drives, in which the "jump points" are artificial. Wormholes are predicted by modern physics; they are "tunnels" through space that connect distant points. Some quantum-mechanical models of space claim that tiny wormholes are constantly appearing and disappearing at the smallest scales. With a great deal of power, it might be possible to catch a wormhole that would connect to a desired destination, and then force it to open widely enough to accommodate a starship.

Current theory suggests that wormholes are likely to collapse catastrophically when an object tries to enter them. It might take a great deal of power to hold one open. Perhaps a stargate installation is needed at one or both ends, both to create and to hold open a wormhole. In this case, a starship doesn't need any special drives at all – it can use a maneuver drive to reach and then pass through the wormhole.

Alternatively, a starship may have the equipment and power needed to find, expand, and hold open a wormhole as needed. Such a "keyhole drive" is likely to be very expensive and dangerous. If the wormhole collapses while the ship is in transit, the result is likely to be catastrophic destruction!

Some serious suggestions have been made for manufacturing and using wormholes, falling into the realm of fairly rigorous SF. One proposal requires each end to be held open by a ring of superdense matter, massing about as much as the solar system, and spinning at nearly the speed of light. These requirements would seem to be beyond any but the most powerful and advanced civilizations – but perhaps as-yet-unknown science will find shortcuts that make the idea feasible.

Probability Drive

This variant on the jump drive relies on the inherent uncertainty of quantum mechanics. Even an object as massive as a starship can be treated as a quantum-level entity, its location and velocity uncertain. When the probability drive is engaged, the ship is no longer *likely* to be at its origin point, and instead becomes *very likely* to be located at the destination . . .

The drive may be controlled by psionic talents, using the "observer effect" of quantum physics to trigger the drive. Probability drives in fiction tend to be very dangerous, especially since they can't always be controlled. A ship suffering a drive mishap may end up anywhere, nowhere, or *everywhere at once* . . .

Interstellar Teleport Gates

If teleportation is available (see *Teleporters*, p. 46) and has interplanetary or interstellar range, then it can be used to move people and cargo through space.

The details of the teleportation system have a profound effect on the flavor of the setting. If teleportation requires massive facilities, and can't be used near a star or world, then it becomes a stargate system and spaceships are still necessary. Cheaper and more flexible teleportation makes spaceships less likely. At its extreme, teleportation "portals" can be part of everyday life – a single house can have rooms on different planets!

Warp Drive

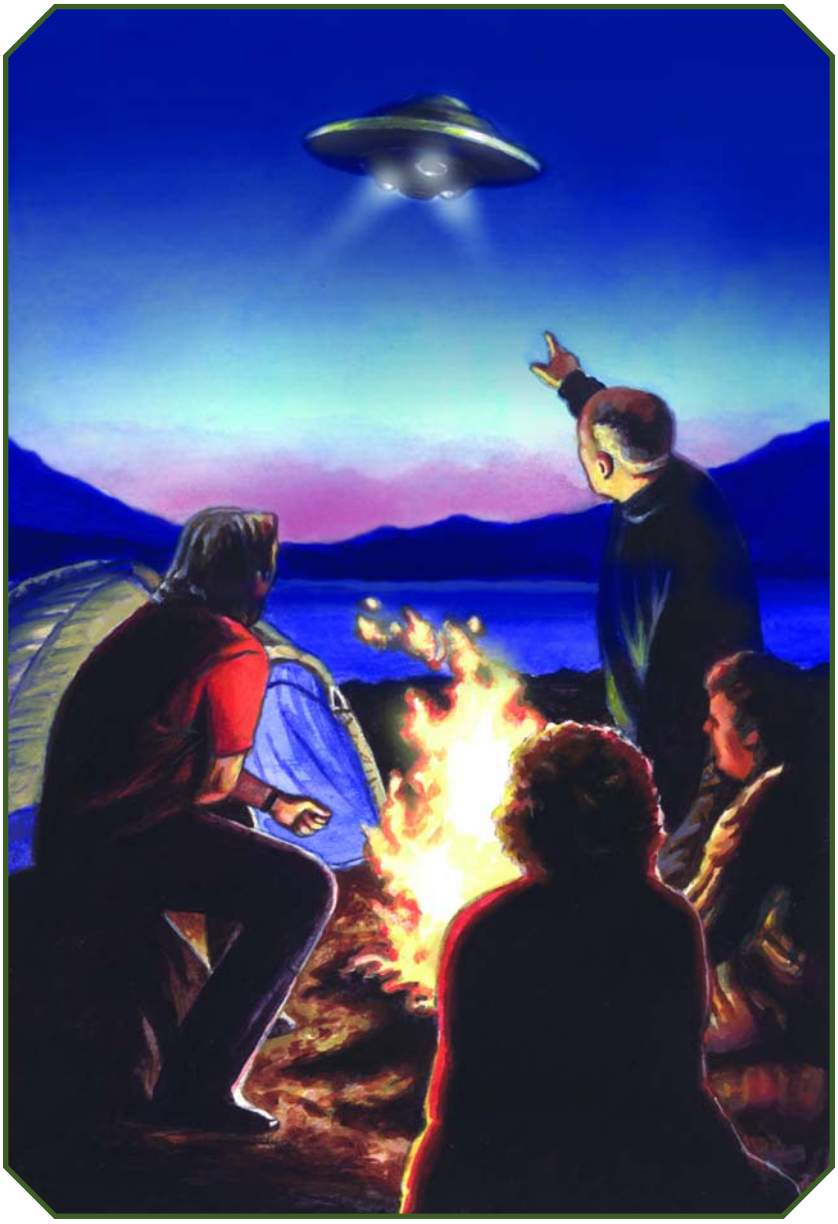
Another way to get around Einstein is to warp the geometry of normal space, so that two points that are usually vast distances apart are (at least temporarily) much closer together. A ship can then move from origin to destination through normal space, and still reach the destination without ever approaching the speed of light. In practice, this means that the starship surrounds itself with some kind of energy field that lets it move at FTL speeds with respect to unwarped space. If the drive malfunctions, the ship loses its FTL speed, but it keeps the normal-space velocity it had before the warp drive was activated.

When choosing a warp drive for a space setting, some of the things to consider are:

How fast is the drive? As with a hyperdrive, the GM should consider how long it will take a warp drive ship to make a typical journey between stars.

Where can the drive be used? Perhaps a warp drive can only reach FTL speeds in deep space; close to a world or other large mass, the warp drive drops to STL speeds or stops working altogether. Perhaps the ship must accelerate to close to lightspeed using normal-space drives before engaging the warp engines. Or possibly the warp drive is dangerous to use except in uncrowded space. A warp drive ship that can't use its drive close to a planet or star will need a maneuver drive as well.

How well can a warp drive ship interact with normal space? Some variations on the warp drive permit full interaction: sensors can scan nearby space, ships can maneuver at will, and battles can be fought in warp. Other variations (including at least one proposed in real-world physics) call for the ship in warp to be almost completely cut off from the rest of the universe. Such a warp drive means that the ship can't see out of its warp bubble, can't steer, and may not even be able to turn off the drive without aid! A warp drive like this may be much like a hyperdrive that permits sensors in normal space to detect the moving ship, but in which the ship is otherwise out of contact until it leaves the warp state.



Inertialess Drive

This variation on the warp drive was first invented by E. E. "Doc" Smith. A device negates the inertia of the ship's matter, thereby abolishing Newton's laws of motion. The ship's speed is now limited only by the strength of its maneuver drive and the friction of the medium it's flying through. Ships are highly streamlined in order to reduce friction. In a planet's atmosphere, the ship is extremely fast. In the high vacuum of interstellar space, speeds many times that of light are possible (assuming, of course, that an inertialess ship isn't subject to *Einstein's* laws either).

The ship can instantly stop or change direction, "turning on a dime" in the manner some UFOs reportedly can. Inertialess ships are also immune to collision or explosion damage; a collision stops the ship dead at the point of impact, and an explosion simply bats the ship aside like a piece of thistledown.

In reality, there's no reason to believe that an inertialess object could break Einstein's laws. An inertialess object may be equivalent to a massless object, required to move at exactly the speed of light like other objects with no rest mass.

Blink-Warp Drive

This variation on the hyperdrive or jump drive permits a starship to make instantaneous leaps, but only over relatively short distances. To cross interstellar space, the ship makes a lot of jumps very quickly. The effect is like a warp drive, in that the ship remains in normal space, may be detectable at a distance, and may be able to interact with other normal-space objects.

If blink-warping is possible, a ship's ability to interact with other ships may depend on its ability to synchronize its "blinking." A ship wanting to attack another may have to struggle to coordinate jumps – if the two ships aren't in phase, a normal-space weapon fired by one will always miss the other by microseconds in either direction! This may be a situation in which human intuition and guesswork are as powerful as computer prediction, giving human pilots a chance to be effective.

Space Highways

Some real-world science suggests that warp drives may actually be possible, although the power requirements would be extremely high. One proposal suggests that specific paths through space could be *treated* to permit FTL travel. While staying on this "space highway," a ship can move at FTL speeds in the normal universe; the drawback is that it can't reverse course or leave the highway until it reaches its destination. A space-highway system is rather like a jumpline system, in which the ships take measurable time to complete each jump.

Ships on a highway may or may not be able to detect one another or to interact. If a highway is very narrow, then the probability of *collision* may be high enough to worry about . . .

Designing a Stardrive

Once the GM has chosen a general type for his FTL drive, he can customize it with a variety of options. These decisions are important; they provide much of the campaign's flavor.

Drive Reliability

Decide how much attention the drives need. They may be so reliable that a yacht owner only needs to order a checkup every few years. Or they may be so finicky that a specialist has to roll against Engineer (Starships) at -4 after every use just to get them working again! Decide what skills are needed to maintain the FTL drive in good condition, how often the skill rolls are needed, and how difficult the task of maintenance normally is.

FTL Astrogation

Decide how difficult it is to control the FTL drive. It may be as simple as "point the ship and turn on the engines." Or astrogators may need high levels of Navigation (Hyperspace) skill and lots of computer power. Astrogators might also need unusual advantages – psionic powers, special mental abilities, or access to a rare and addictive drug. Decide what skills are needed, what modifiers might apply to skill in different circumstances, and any special abilities astrogators will need.

Drive Speed

Decide how fast the drive will go. This will depend on how large a region the campaign covers, and how fast you want the ships to get where they're going.

Hyperdrives and warp drives can be given a speed in parsecs per day (or hour, or second, or some other convenient unit). For hyperdrives, there may also be a limit to the time or distance a ship can travel in hyperspace without emerging into normal space. Each separate trip is called a "skip," and the ship must wait a GM-set time between skips. For instance, if the maximum skip is one parsec, and the skip is almost instantaneous, but the ship must wait a day before making another skip, then the effective speed is one parsec per day.

For jump drives, "speed" depends entirely on how far a ship usually needs to travel to reach a chosen jump point. The important factors are the endurance of the drive (how often a ship can jump, with respect to refueling or maintenance) and normal-space time from one jump exit to the destination world or the next jump entrance.

The scale of the campaign setting is determined by the assumptions the GM wishes to make about his campaign map. See *Mapping the Galaxy* (p. 67) for some suggestions.

Comparative Speed

Starships may have different speeds, especially when using hyperdrives or warp drives. Alternatively, a ship always moves at the same speed, and the drive simply either is or is not powerful enough to boost the ship's mass into an FTL state. With jump drives, the instantaneous jump is likely to be the same for every ship, although some ships may have better maneuver drives than others.

Maximum Range

How far can a ship go at a time? Ships that have to refuel often, or that need lengthy calculations before entering FTL travel, may have limits on the distance they can go before needing more fuel or new computations. Decide what limits may exist on a ship's range. If ships can travel long distances in FTL, then interstellar borders become harder to defend – especially if ships are undetectable while in hyperspace or in some other FTL state! If ships can travel only short distances without a stop, or if jump points are required and are easy to defend, then interstellar borders become possible.

Fuel Consumption

If an FTL drive makes use of some consumable material, then ships will need to stop and restock from time to time. Even a ship whose FTL drives run on internal power may need fuel to run the power plant. Or the drive may need some unusual material to work: a rare crystal, expensive transuranic elements, or antimatter. In general, if fuel is expensive or rare, then exploration and travel will focus on fuel sources. Ships that refuel often will need to stop frequently, and may be dependent on civilized ports to travel far. Ships that are fuel-efficient, or can scavenge fuel as they travel, will be able to travel longer distances without stopping. The availability of fuel will help control how cheap and commonplace interstellar travel will be.

Side Effects

Any FTL drive may have undesirable side effects. These can be an interesting balancing factor in a setting with multiple FTL drives; the faster drive may be more unpleasant or more risky. These effects may vary from one civilization to the next – some races may make excellent space navigators, or use certain drives that no one else can use.

Mechanical effects: The use of an FTL drive may affect mechanical devices, plaguing engineers. Perhaps the activation of the star drive is equivalent to violent maneuvers in normal space, forcing equipment and people to be secured to avoid damage. More subtly, FTL travel may cause certain devices (electronics, computers, even astrogational equipment) to fail or to function unreliably.

Physical effects: FTL may do harm to living creatures on board a starship! Perhaps everyone must roll vs. HT when the ship enters FTL (or at intervals while it is in FTL) to avoid nausea and spacesickness. Crew and passengers may suffer pain or disorientation, taking a penalty to DX or IQ. Or they may suffer illness or *death* in FTL, requiring that they take drugs or go into suspended animation!

Mental effects: Crew and passengers may suffer psychic distress, delusions or manic impulses that require medication or suspended animation to avoid. If psionics exist, FTL travel may interfere with their use (or may boost psionic talents). Or possibly FTL travel is psychically *pleasurable*, inviting an Addiction among frequent passengers or navigators! If drugs are required to navigate FTL space or to avoid physical harm, this may represent addiction to those drugs instead.

Navigation Errors

What happens when a starship goes off-course? STL starships, and those using a warp drive, are unlikely to get lost since they can always see where they are going. Jump drive and hyperdrive ships can go wildly off course, especially if a power plant or stardrive malfunctions in mid-journey.

In general, an astrogator should roll against the appropriate Navigation specialty, modified as the GM sees fit to reflect the difficulty of interstellar astrogation. A hurriedly set course, relative to the time usually required, gives a penalty to the roll (according to *Time Spent*, p. B346). A successful roll means that there was no error. The consequences of a failure depend on its magnitude.

The GM should custom-build his own failure table, appropriate for the drive he has designed. Players should *not* be allowed to see this table, although they may know what the general results of a *minor* error will be. If the penalties for miscalculating are low, then starships escaping from danger will always use quick-and-dirty computations. As consequences become more severe, "snap astrogation" becomes more of an emergency measure.

Some possibilities include:

Nothing happens: Literally. If your calculations are wrong, you use up a lot of energy – and go nowhere. This is especially appropriate for jump drives.

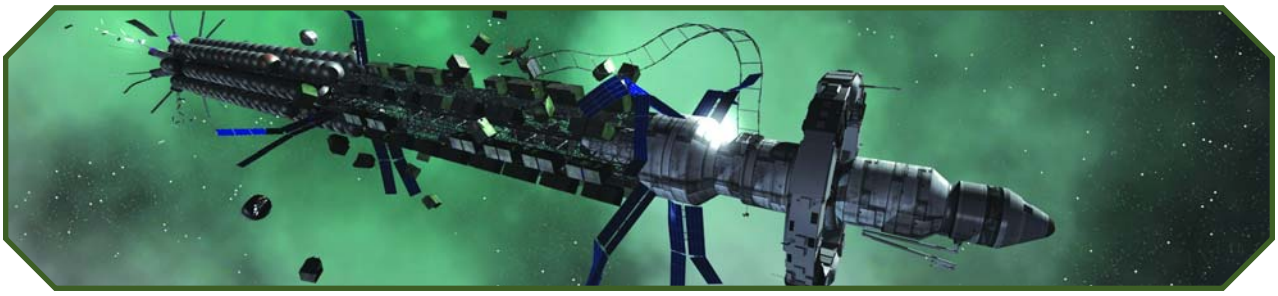
Off-position: This is more appropriate for hyperdrives than for jump drives. Deviation from the intended destination depends on the amount by which the skill roll was missed, and may be minor (AUs) or major (parsecs). A ship might go in the correct direction but the wrong distance, or it could go the correct distance in the wrong direction.

Lost: The ship is sent to a wholly unexpected location – the worse the roll, the more lost it is. The actual destination may be a reasonable number of parsecs from the departure or destination point, or it might be random on a galactic or intergalactic scale. Astronomy or Navigation rolls will be required just to figure out where the ship is.

Time-Lost: Along with one of the previous results, the ship also moves a random distance forward or backward in time. Small time-movements are an interesting nuisance. Big ones can be catastrophic, and may be appropriate only if the GM is ready to start a new campaign. If ships can become "time-lost" predictably, the GM may find himself running a time-travel campaign.

Damage: The ship (or the drive) takes a certain amount of damage. For example, the drive may burn out, or the ship may lose a percentage of total hit points.

Total Disaster: The ship is destroyed, or thrown into another universe with no possibility of return. Not a good result for play balance, although as a final consequence for *very stupid* escape plans it may have some merit.



Shipboard Systems

Cargill took a deep breath, then started over. "The ship can fight," he said in what amounted to baby talk, "until somebody makes a hole in her. Then she has to be fixed. Now suppose I had to repair this," he said, laying a hand on something Rod was almost sure was an air absorber-converter. "The . . . thing looks half-melted now. How would I know what was damaged? Or if it were damaged at all?"

– Larry Niven and Jerry Pournelle, ***The Mote in God's Eye***

Aside from the drives, every spaceship has other systems intended to keep its crewmen alive and support their work. These secondary technologies can have a profound effect on the flavor of a space setting.

Control Systems

A spaceship will have a variety of component systems. Most of the time, crewmen will interact with their ship by way of its *control systems*.

Cockpits and Bridges

Almost every fictional spaceship has a centralized control room. A very small ship, like a TL7 space probe or a fighter craft, may have a *cockpit*, a cramped space just large enough for the crew to sit and work. A larger spaceship will probably have a *bridge*, with extra space permitting the crew to get up and move around.

In either case, the control center is the place where the ship's commanding officers meet, work, manage the ship's systems, and plan for upcoming adventures. The "look and feel" of the control center can be important. Is it cramped or roomy? Are the controls composed of toggle switches and dials, brightly colored buttons, or sophisticated virtual-reality interfaces? Which crewmen are likely to be found in the control center, and which ones visit only rarely? Does the bridge crew observe careful military protocol, or are they relaxed and informal?

One variation on the central bridge might be a *virtual* control center, used on spaceships where computers and communications gear are ubiquitous. If crewmen can confer with each other at will, and control ship's systems from anywhere on board, then there's little need for centralized controls. Perhaps they work from their quarters much of the time, conferring with each other over ship's communications (or even meeting in a VR space).

Computers

Every spaceship is likely to have at least one onboard computer; in settings where computing is commonplace there may be hundreds networked together.

The GM should consider how adventurers will interact with a ship's computer systems. In order to solve a new problem, does the crew have to reprogram the computers in an arcane machine language? Or can an officer describe the problem in vague terms and expect the computers to come up with independent answers? Does the computer show *initiative*, volunteering information and solutions on its own? Does it have a personality? In particular, can the computer run the ship *by itself* – and if it can, who needs human crewmen?

The GM may be tempted to use a ship's computer systems as an "oracle," presenting information as needed to drive the plot. However, if a computer is that widely useful, it may start to replace human adventurers . . .

Life Support

Spaceships can be robotic, carrying nonliving cargo or scientific instruments. A ship that carries crew or passengers will need to provide *life support*, keeping everyone alive even in a hostile environment.

Any ship capable of space travel can be assumed to be sealed against temperature extremes, vacuum, meteoroid impacts, and so on. In particular, every long-range spacecraft will need shielding against radiation, which is ubiquitous in space (see *Radiation Hazards*, p. B435). Supporting the biological needs of any passengers – breathable air, potable water, and edible food – requires more elaborate technology. The GM should consider the level of life support technology that is available.

Limited Life Support

Limited life support provides air, food, and water so long as onboard supplies last. It has no recycling capability, so once the supplies run out, crew and passengers are in trouble. Limited life support is of little value for space travel since it's difficult to carry enough supplies to support crewmen for more than a few days. Space shuttles or other ground-to-orbit craft may use limited life support.

Full Life Support

Full life support can recycle air and water, vastly extending the endurance of the life support system. The system still can't provide food, or recycle most biological wastes. A ship with full life support will need to carry provisions, stopping at port occasionally to resupply.

Total Life Support

Total life support can provide all of the passengers' needs, recycling biological wastes and producing edible food indefinitely. A ship with total life support can travel for very long periods without stopping at a port.

Gravity

Gravity is one of the fundamental forces of the universe – and it has also turned out to be the hardest force to manipulate. Today, the only known way to produce gravity is to pile up lots of mass. There is no known way to screen against it, reducing an object's weight or making it weightless. Still less is there any known way to *reverse* gravity. Gravity control ("gravitics" or "gravitonics") is still a dream, and should be considered a superscience technology.

Spin Gravity

A space habitat can be rotated to provide artificial gravity through centrifugal force. A spaceship can do the same, either by rotating as a unit, or by spinning a specific section.

Spin gravity is available even at very low TLs, but it has a number of disadvantages. The rotation gives rise to a Coriolis effect, which seems to push objects to the side as they fall; this can be difficult for travelers to adjust to. Coriolis effects can cause severe disorientation if the radius of the spin is too small, so the ship (or the rotating section) needs to be fairly large.

Meanwhile, there may be reasons why the whole ship *can't* rotate – say, in order to hold the aim of a shipboard weapon. Unfortunately, conservation of angular momentum means that if one section of the ship begins to rotate, the rest of the ship will normally rotate in the opposite direction. This can be avoided, but it adds to the complexity of the system.

Artificial Gravity

An *artificial gravity* generator is a device that (somehow) produces a gravitational field without lots of mass. This violates physical laws as they are currently understood, and must be considered superscience.

If a setting has artificial gravity, this has a number of effects on the campaign. Spaceships and space stations will no longer need to be built with rotating sections to generate spin gravity. They can be given any shape desired, and in particular will no longer need to be shaped like rings or cylinders. Settlement on asteroids, comets, or other bits of space debris will become easy. The presence of variant human races, adapted to microgravity or to unusual gravity fields, will be much less likely.

A variation on artificial gravity is the gravitic or inertial *compensator*, a device that renders the force of high gravity (or high acceleration) harmless. Compensators can make space travel much more comfortable, even on spaceships with very powerful maneuver drives. Manned ships, especially fighter craft, will be able to make sharp turns at high velocity, letting them "dogfight" as seen in many SF films.

Contragravity

Contragravity is a means of "screening out" gravity – in effect, the reverse of artificial gravity. The main effect of contragravity is to allow things to fly without regard for aerodynamics, and without noisy engines. Instead of being light and fragile like helicopters or jet planes, vehicles can be quite heavy, like "grav tanks," or even flying houses or cities. If contragravity generators can be made small enough, they can allow personal flying belts – or flying carpets!

Contragravity can be dramatic and futuristic. On the other hand, if it becomes too easy to fly, there's not much point to driving, sailing, or walking. The simpler and more portable flight technology is, the more adventurers will use it. This can short-circuit a lot of adventures – it's hard to get excited about a "man against nature" adventure in which the heroes must cross a thousand miles of barren, monster-infested wilderness, if they can just strap on their flight-belts and *fly*. Of course, the contragravity may be unreliable, and may fail at just the wrong moment . . . but it can become tiresome if the GM develops a habit of depriving the adventurers of crucial technology.

Weapons

If space travel ever becomes common, spaceships will sooner or later begin shooting at each other. The choice of what shipboard weapons are most common will do a lot to determine the flavor of a space setting.

Projectile Weapons

One of the oldest ways to damage any vehicle is to throw physical projectiles at it. A missile that simply collides with an enemy ship uses the *kinetic kill* technique. A missile can carry a warhead: high explosives, a nuclear device, bomb-pumped lasers, nanotechnological "goo" . . . anything that can damage an enemy ship at a short distance.

One of the fundamental problems with projectile weapons is how to *aim* them. This problem is particularly bad for an unguided projectile, which can't alter its course to follow the enemy. Unguided projectiles (such as those fired by a cannon or railgun) will need to be very fast or very short-range. Guided missiles will need to be faster than the ships they target, and will need to be *smart* to outguess the enemy pilot.

Beam Weapons

High-energy lasers, particle beams, gravity beams, or bolts of energetic plasma are all good candidates for *beam weapons*.

Beam weapons can help with the aiming problem in space combat. Lasers, gravity pulses, and particle beams all move at lightspeed or just under it. These speeds mean that the enemy ship won't have time to evade while the beam crosses space, even if it can predict when the attack is coming. On the other hand, if a beam has to be *held* on its target to do significant damage, this helps the defense. A ship being targeted can simply rotate in place, or make small evasive maneuvers, spreading the beam's attack point across the hull.

Remember that a ship's *drives* can sometimes be used as a weapon. Most reaction drives generate hot plasma or other dangerous exhaust, which could be directed at an enemy vessel. The faster and more efficient the drive, the more energetic the exhaust – all the way up to the output from antimatter pion drives, which can be deadly at distances of millions of miles.

Exotic Weapons

Superscience technologies that drive a ship can also lead to superscience methods for attacking (or defending) it. Any bad effect that might occur as a side effect of a drive might also be deliberately inflicted on an enemy vessel. Perhaps a gravity drive can also be used to project gravitic fields at an enemy ship, burning out enemy drives or damaging the enemy ship's hull. A different application of hyperdrive technology might make it *impossible* for enemy ships to escape into hyperspace. If a ship uses psionics to trigger an interstellar jump, then it may be vulnerable to telepathic or telekinetic attack.

Designing Weapons

Some of the things to consider when designing weapons systems are:

Range: At what distance can the weapon be relied on to do significant damage? Some projectile weapons have effectively unlimited range. Beam weapons tend to do less damage with distance – even laser beams spread.

Aiming: At what distance can the weapon be reliably *aimed* to hit the target? Can ships evade effectively even at short distances, or do they have to be thousands or millions of miles away? Are there ways to evade damage even if the attack can't be seen coming?

Gunnery: Who operates the weapons? Can human gunners aim and fire with some chance of hitting the target? Or does fire control have to be left in the hands of computers, with humans making general tactical decisions?

Damage: What kind of damage does the weapon do? Does it simply tear up the hull and any systems it hits? Does it heat the target to the point of breakdown, or inflict radiation damage? Does it deliver some exotic form of injury, harming drives or other ship's systems?

Defenses

If spaceships go into battle, they will be built with defensive systems to avoid or minimize damage.

Armor

One of the simplest defenses any ship can mount is *armor* – plating on the hull, made of tough metal or more exotic materials, designed to deflect or absorb damage.

Almost all spaceships will carry some armor, if only to deflect meteoroid impacts and lend some protection against radiation. This kind of armor can be quite simple; a layer of rock, slag, or even ice can serve the purpose. Many primitive interplanetary craft and space stations will use found materials for armor. Interstellar ships that approach the speed of light may use a *very thick* coat of cheap armor to cover their forward sections.

The main drawback of armor is that it can be very heavy. Civilizations that routinely use armored spacecraft will look for ways to make it as tough as possible, or as *reflective* as possible if beam weapons are a likely threat, so that its mass can be reduced.

Force Fields

Many science-fiction universes include some kind of force field, an energy barrier that can protect a ship (or some other target) from incoming projectiles or beams. Force fields can be a useful technology when establishing a setting's flavor.

First, force fields can allow individuals or vehicles to *look* unprotected but in fact be well shielded against enemy fire or hostile environments. A tiny shield belt is so much more *elegant* than a bulky armored suit . . .

Second, force fields allow the GM to control what weaponry is likely to be in use. For a "swords and starships" campaign, the GM can rule that force fields block explosions and fast-moving projectiles, but are ineffective against slow hand weapons. For a campaign in which nuclear weapons are rare, rule that force screens provide thousands of times their normal resistance against nuclear explosions. To limit teleportation technology, rule that a teleporter can't reach through a force field.

Stealth and Cloaking

Camouflage is a long-standing part of the art of warfare. In many hard-SF settings, the ability to deceive enemy sensors and smart weapons may be a much better defense than armor.

Of course, there is considerable debate as to just how easy it will be to conceal a spaceship from sensors. Space is *big*, so spotting something as small as a ship may be tricky. On the other hand, space is also *dark and cold*. The laws of thermodynamics mean that the energy used to operate a ship has to go somewhere. This means that every ship will radiate heat, standing out nicely in infrared against the dark background.

Meanwhile, the flare of a rocket drive will act as a beacon to everyone within line of sight – and there's rarely anything to hide behind in space . . . Still, advances in electronic countermeasures (ECM) and stealth technology may mean that battles must be fought at or near visual range.

Cloaking technology goes beyond obscuring a ship's image or deceiving enemy sensors, rendering a ship entirely invisible. "Invisibility fields" are superscience, but they can give space combat a unique flavor. Spaceships can be like submarines: maneuvering for position, hunting for a fleeting contact, almost impossible to detect until they give their position away by firing their weapons.

Note that almost any superscience technology may have an effect on how easy ships are to detect. Perhaps reactionless drives produce a lot of waste heat. Perhaps an installed hyperdrive will let a ship dump its heat and other radiations into hyperspace, reducing its "signature." Or perhaps a ship that uses a psionic drive can be detected by psionic powers at very long range . . .

Sensors

Every spaceship needs equipment to gather and interpret data about its surroundings.

Passive sensors receive the natural radiations given off by objects at a distance, and use those to build an image of the ship's surroundings. The most basic passive sensors used in space will be *telescopes*. Telescopes don't have to use visible light; radio, infrared, ultraviolet, X-rays, and even gamma rays can all be detected by various telescopes. Particle radiation (alpha particles, beta particles, neutrinos, and so on) can also be detected by specialized instruments; this can be useful when trying to detect nuclear power plants or other high-energy phenomena. More exotic passive sensors may sense mass, gravity, "probability waves" given off by unusual reality-altering technology, the operation of FTL drives, or even psionic effects.

Active sensors don't wait to receive the emanations of other objects. Instead, they broadcast electromagnetic radiation and interpret the reflections. The simplest active sensor is a *searchlight*, illuminating otherwise dark objects. In space, high-powered lasers or bright rocket drives can be used as searchlights at very long range. Other active sensors include long-wave or microwave radar, or exotic sensors using other forms of radiation.

In a setting with FTL travel, the GM may want to consider permitting superscience sensors that themselves work at FTL speeds. Ships that can communicate or even fight in FTL will need sensors capable of guiding these interactions. A starship might be able to detect other ships even at light-year distances, moving to intercept them or simply preventing them from sneaking by unnoticed.

Teleporters

If teleportation is possible, then a spaceship might have teleportation equipment on board for crew and passengers. This might simply provide a quick way to get around the ship itself – or it can provide an easy way to move onto a nearby world and back!

Teleportation can sometimes be a plot convenience, permitting the GM to easily put characters in the middle of an adventure. On the other hand, if teleportation is too easy, it can help the adventurers get back out of a difficult situation at any time. This can short-circuit many plots, forcing the GM to make the system break down too often for credibility.

Limited teleportation systems may be a useful compromise. Perhaps the system requires heavy equipment to be in place at both ends. In this case, a ship's crew could use it to easily visit a civilized world, but would have to do without when exploring the frontier. Or perhaps inanimate cargo can be moved but the system is far too unsafe for passengers, forcing adventurers to use more conventional methods to get around.

Communications

Spaceships always have communications equipment. Radios, lasers, and similar devices send information by modulating electromagnetic information. Advanced societies may manipulate gravity waves or neutrino bursts to communicate.

However, all of those methods are limited to lightspeed. Adequate for communication across interplanetary distances, they become very slow and cumbersome at the interstellar level. If FTL travel exists, then FTL communication may exist – but the GM will want to carefully consider how such communications work.

No FTL Radio

If no FTL communication is possible, then the speed of communication becomes that of the fastest starship. Fast courier ships will maintain contact between worlds, carrying mail, news, and government dispatches. Slower ships, possibly independently owned, will contract for mail service to less important worlds. Without FTL communications, invading fleets, escaping criminals, and similar menaces may be able to outrun the warning that they're coming.

Without FTL communication, interstellar trade is risky; a merchant won't be able to determine in advance what the target market needs. A trader who guesses right can get rich, while one who guesses wrong will go broke. If the interstellar state is large enough that it takes months or years to cross by starship, then the capital will seem remote and people will tend to be more loyal to their world or province than to the state as a whole. Military forces will need to be large and scattered, so that there is always enough force at any point of danger. Military commanders will have great leeway when they are far from superior authority; bravado and strategic skill will be very important.

Slow FTL Radio

Slow FTL communication – say, three or four times as fast as the fastest starship – helps tie an interstellar state together. However, FTL "radio" may be expensive; perhaps it

takes up too much space or requires too much energy to be installed on a starship. In this case, FTL communication may take place only between the most important worlds, while ships and minor worlds still have to rely on couriers. Access to FTL communications will be a great advantage for merchants, or for military commanders.

Fast FTL Radio

Fast, cheap FTL communication makes it easy to hold an interstellar state together. Trade becomes relatively safe, as merchants can easily check the market at their destinations before they even load cargo. Military fleets can be smaller but still used efficiently, since they can quickly be called together in an emergency. On the other hand, merchants and military officers alike will find their freedom of action limited, with superior authority always an FTL call away. Captains will rarely take action without referring to HQ for orders!

If FTL communication is this easy, the GM may want to impose limits on it to make sure that it can't ruin a dramatic situation. FTL "radio" may have a limited range, forcing the state to set up "repeater" beacons and ensuring that a ship out on the frontiers can't call home. Communications may be unreliable, with "static" or some other blockage appearing at appropriate moments. Or perhaps messages are still delayed enough in transmission that a call for help can't be answered immediately!

Power

Most practical maneuver drives either require a great deal of power, or are direct modifications of power plants. Star drives are also very likely to require a great deal of power. Power plant technology is therefore critical to space travel.

Any spaceship power plant needs to be able to operate without air; this rules out fossil fuels. Power plant designers will look for fuel efficiency, safety, a high power-to-mass ratio, and very long endurance. The GM should consider what power plants will be available to support the existing ship's systems.

Bandwidth

Another factor to consider when designing FTL communication methods is *bandwidth*. Bandwidth is a technical term, describing *how much* information can be sent through a channel in a given time. A communication method can be extremely fast and almost impossible to jam – but if it takes many hours to transmit a message even a few words long, it won't be as useful!

A fast but low-bandwidth communications method can have interesting effects on the campaign setting. It may be easy for a spaceship to maintain contact with its home base, but not to send detailed messages or ask for extensive information. If the *transmitter* is too bulky for a spaceship to carry, then it can receive orders or bulletins from home base without being able to respond. Interstellar communications will be expensive, and may be metered by the word (or the byte) like old-style telegrams.

Meanwhile, if *spaceships* routinely have massive power plants with a great deal of output, it's likely that space habitats and planet-based communities will also have access to plentiful energy. A society that flies powerful starships is probably very wealthy at home!

Laboratories

It's very common in SF for spaceships to carry scientific equipment, and even whole laboratory facilities. This is often true even of ships that aren't designed to serve as exploration or scientific vessels.

In fact, the need for scientific equipment and crewmen trained in the sciences depends on how much time a spaceship will spend in unknown space. A ship that never leaves well-known regions won't need scientific gear – present-day cargo ships and military vessels don't carry extensive laboratory facilities! If a warship or merchant vessel *sometimes* visits unexplored worlds, then it may take on equipment and trained crew temporarily when it's needed. Only a ship that is likely to take on an exploratory role *at any time* will be designed to carry scientific facilities all the time.

For example, the warships in David Weber's "Honor Harrington" novels carry only minimal scientific facilities, since they never take on an exploratory role and rarely leave well-known space. On the other hand, Federation starships in *Star Trek* are likely to receive exploration or survey duty at any time; even heavily armed cruisers carry extensive laboratory facilities and crews trained to use them.

One exception to this general rule is the presence of *medical* facilities. Every spaceship will need to carry medical equipment and the necessary crew. A small ship may carry basic drugs and surgical tools, with one or two crewmen cross-trained in medicine. A larger ship, no matter what its overall purpose, will carry a *sickbay* and trained physicians to protect the health of the crew. Such facilities may be useful in biological investigations.

"Well, Bones, do the new medical facilities meet with your approval?"

"They do not. It's like working in a damn computer center."

– Kirk and McCoy,
Star Trek: The Motion Picture

An interesting game can be designed around an exploratory or survey vessel, although if the GM and players aren't themselves familiar with the sciences it may be difficult to maintain interest in such a campaign. An alternative might be to throw a spaceship that *isn't* designed for exploration into a situation where scientific discovery is crucial!

Infrastructure

A number of miscellaneous "systems" don't depend on advanced technology, but might be useful for the GM to consider as he develops the flavor of a ship-based campaign.

Tools and Workshops

Spaceships are complex machines, and are likely to need a great deal of maintenance. Low-TL spacecraft sometimes get around this limitation by being "one-shot" machines. They are used for a single short mission, and designed so that none of their components can be expected to fail before the mission is over. The first "reusable" spacecraft often need extensive maintenance and even rebuilding between launches.

Once a spacecraft is likely to spend months or years in flight, its crew will need to be able to perform maintenance and repairs. The spaceship will need to carry tool and replacement parts. For very large ships (or very long missions) it might even be reasonable to carry whole workshops, complete with fabrication facilities so that new parts can be made out of raw materials.

Consumables and Storage

Every spaceship will need storage space to carry things that the crew and passengers will need. Fuel must be stored for the power plant and space drives. Food, water, air, and other consumables must be carried to stock the life-support system. The crew may need various pieces of equipment that will be used when the ship reaches its destination.

Even a low-TL space "capsule" will be full of these items, stuffed into every available nook and cranny. A large, high-TL spaceship may have extensive on-board supplies: tools, replacement parts, clothing, linens . . . even entertainment or luxury items for the passengers!

If a campaign focuses on shipboard activities, the GM may want to make sure that the ship's stores are well defined. A spaceship in flight is extremely isolated; if anything goes wrong the crew will have nothing but what's in storage to use to fix the problem. Requiring adventurers to improvise with inadequate equipment is often a good way to ratchet up the tension . . .

Cargo

Many spaceships will have some capacity to carry *cargo*. If permanent space habitats or colonies exist, they will be supported by spaceships carrying supplies and new equipment. Eventually trade will spring up between worlds, and some spaceships will specialize in cargo transport.

Ships that carry a lot of cargo will also have crewmen who specialize in handling it – loading it, unloading it, and taking care of it in transit. If spaceship crews can engage in trade on their own behalf, some crewmen will be expert in finding worthwhile cargoes, buying them at a bargain price, and selling them for a profit.

The minutiae of buying and selling cargo don't usually make for compelling adventures. If a cargo-carrying ship is the focus of a campaign, the GM should consider other ways to use the cargo to drive interesting stories. Perhaps the ship carries legitimate cargo, but also engages in *smuggling* to avoid government interference. Perhaps a piece of cargo turns out not to be what's expected, posing a danger to the ship or its crew. Or perhaps carrying the cargo is easy enough, but *delivering* it (and getting paid for it) poses challenges at the destination.

Small Craft

Many spaceships in science fiction carry *small craft*, smaller vehicles that are used for specialized purposes. Depending on a setting's technological assumptions, a small ship may have advantages over a large one in certain circumstances. A small ship may be faster or stealthier – or it may simply be able to go places (like planetary surfaces) that the typical starship can't.

If small ships are the only ones that can conveniently land on worlds, then large ships will carry one or more "shuttlecraft" to ferry people and cargo. Even ships that can easily land on a world may carry a small cutter or gig for jobs that require a few crewmen to travel away from their home ship. Similar small craft may serve as lifeboats to carry people and valuable equipment away from a wrecked ship (see *Man the Life Pods!* below).

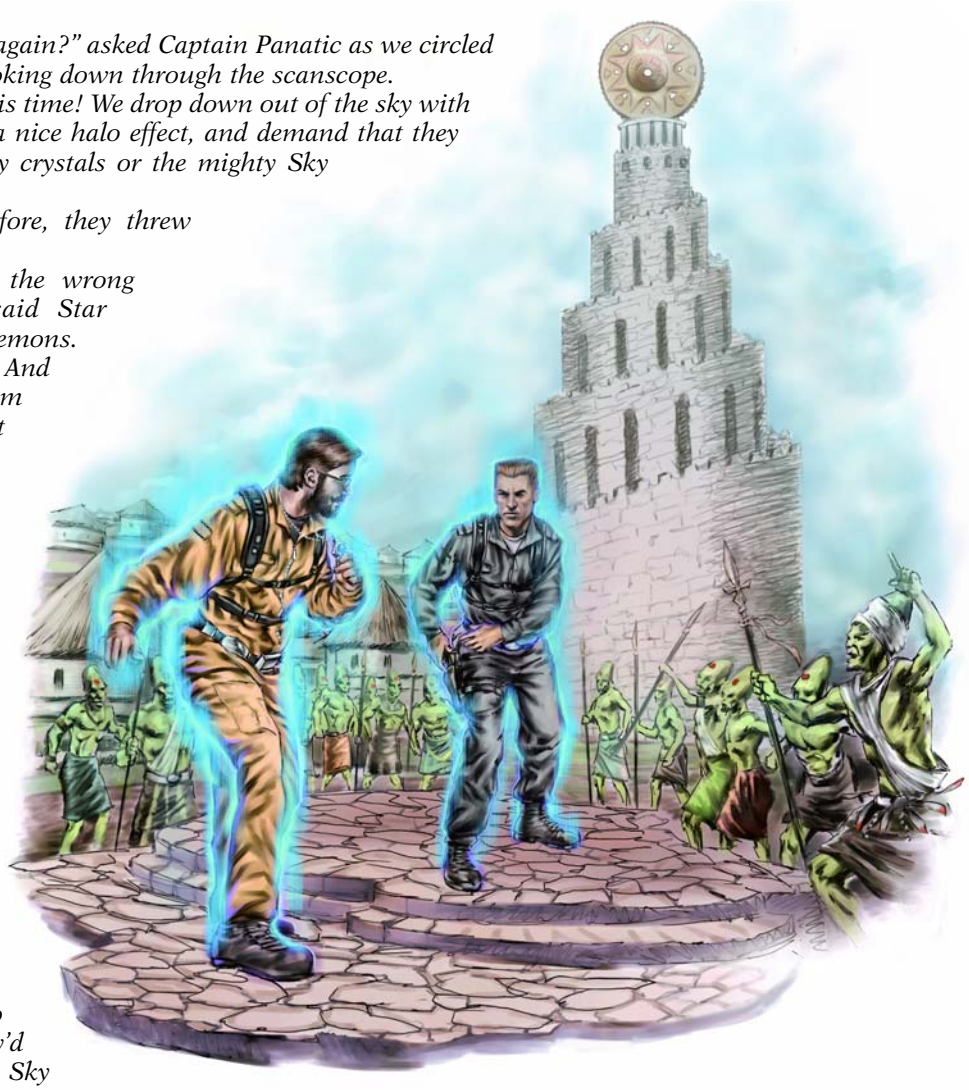
Small craft that are much faster or stealthier may have military uses. Space-opera universes sometimes have large "carriers" or "motherships," carrying squadrons of small fighter craft that take on some or all of the space-combat tasks. Small craft can also be stealthy speedsters that carry small teams of adventurers into and out of dangerous situations.

Man the Life Pods!

When a starship runs into trouble, the crew may or may not have a chance of surviving. Antimatter explosions and similar disasters are not likely to leave survivors! If anyone from the crew *can* survive, they may be stranded for hours, days, or even years before help can arrive. Many ships will be built with systems designed to help the crew escape, reach sanctuary, and survive until help arrives.

The typical survival system is a "lifeboat" or "life pod," a small craft capable at least of brief maneuvering to get away from a dangerous situation. It will provide some life support, although it may rely on suspended-animation techniques to support stranded crewmen for long periods. A lifeboat may or may not be able to land. If it can, it will probably be stocked with survival gear and other resources useful for crewmen who must live in the wilderness for long periods of time.

Chapter Three
Technology



"You really want to try it again?" asked Captain Panatic as we circled high above the alien city, looking down through the scanscope.

"Of course! It can't fail this time! We drop down out of the sky with the holobelts on to give us a nice halo effect, and demand that they hand over all the nice shiny crystals or the mighty Sky Demons will be angered."

"When we tried that before, they threw spears at us."

"That's because I used the wrong mythological referent. I said Star Demons instead of Sky Demons. This time I know better. And we're a thousand klicks from the last place. It'll work just fine!"

We left the airboat parked at 1,200 meters, put on the holobelts over our flight harnesses, and dropped down toward the city. It was the standard local setup: low cone-shaped houses lining radial streets around a tall spiral ziggurat tower topped with the usual big shiny copper sun disk.

A crowd of locals gathered around us in the main plaza. They were typical lowtechs: no metals harder than copper, no wheeled vehicles, and no wind or water power. They'd be pushovers for the mighty Sky Demons.

I stepped forward and touched my translator necklace. "We are the mighty . . ."

"Impostors!" shouted an old native, pushing through the crowd. "They are impostors! Beings from a distant place come to steal our crystals!"

Panatic looked at me, his hand straying to the butt of his blaster.

I tried to salvage the situation. "Why do you say this?" I asked the old green guy. "Why do you say we are impostors?"

He stabbed his staff angrily at the ziggurat. "The talking mirror brought word of your scheme!"

I shook my head at Panatic and slapped the BOOST button on my harness. As the city dropped away beneath us, I let out a growl of frustration. Not even Bronze Age and they've already got lightspeed communications! Sometimes the world just isn't fair.

Sometimes in science fiction it's all about the gadgets. Science fiction would hardly be the same without the products of futuristic science. The available tools and their dramatic implications will be one of the most important things for any GM to consider when designing a new science-fiction setting.

Adding Miracles

After a setting's space-flight technology is set, the GM will want to consider whether any *miracles* (as defined on p. 29) will be present in other areas of technology. Miracles in astronautics are useful if the GM wants to set his stories in space; miracles in other industries can have a profound effect on what those stories will be *about*.

Several Miracles

Science fiction authors rarely assign technological miracles arbitrarily. Each story usually has a coherent set of technological assumptions, chosen to support the plot (or to fit a consistent setting for which the author has written other stories). Some of the more common assumption sets are listed here.

High Industrial

A *high industrial* setting is one in which advanced technology produces a world much like our own, but *more:* more available resources, more useful gadgets, more powerful weapons, and so on. Technological miracles have given human beings better tools, but they haven't significantly changed human nature.

One form of high industrial setting uses *retrotech* assumptions. Retrotech is characteristic of Golden Age SF, which was written before the society-altering possibilities of certain technologies became obvious. Many of the best stories of the period featured highly advanced physics, but very inferior electronics, and no hint of advanced biotechnology or nanotechnology. This isn't necessarily a bad set of assumptions; it can give rise to a very exciting space-opera campaign. Without the realistic crutch of smart computers and advanced cybernetics, adventurers have to rely on their own skills rather than those of their machines!

Since retrotech campaigns are set in the future, they usually involve *political* change: present-day nations will have vanished; new cultures and empires will have appeared. However, these changes result from ordinary historical trends, not spectacular social transformation. Some retrotech universes involve elaborate "future histories," tracing out how the societies of the future evolved from those of the present. Retrotech universes often support adventures driven by romance and drama rather than scientific rigor.

Classic examples of retrotech fiction include Poul Anderson's "Polesotechnic League" and "Terran Empire" stories, E. E. "Doc" Smith's "Lensman" novels, and even the *Star Trek* television series.

Some more recent SF mimics the retrotech feel by using *safetech* assumptions. In a safetech setting, it's *possible* to develop technologies that drastically alter human nature or replace humans with machines. However, all such technologies are avoided or suppressed, usually through social controls. This is most often for ethical reasons, or because of past wars or disasters that involved the technology.

Under safetech assumptions, human society will extend into space and will probably be more prosperous, but it won't otherwise be very different from the societies of today. Safetech universes support a space-operatic approach, and are fairly common in SF. For example, Larry Niven's famous "Known Space" universe is a safetech setting for most of its future-history timeline. Meanwhile, several authors are currently trying to recapture the classic space-opera flavor by using safetech assumptions – Walter Jon Williams' "Dread Empire's Fall" series is a recent example.

High Biotech

In some SF universes, the most miraculous technologies are those involving medical science and bioengineering. Genetic modifications, tissue engineering, biochemical weapons, living computers, and similar items all become commonplace.

Miraculous biotechnology can produce a variety of interesting effects in a science fiction setting. With it, a sapient race can vary its own form, adapt itself to unusual conditions, acquire wonderful powers, and even gain immortality. On the other hand, biotechnology involves the *manipulation* of living things, possibly without their consent or to their detriment. Techniques that benefit some people may have terrible consequences for others. A setting with extensive biotechnology may need to address important moral themes.

A variation on the high-biotech setting is the *high psionics* setting. Here, improvements in human performance come from the development of exotic

mental powers. These can, in turn, come from the manipulation of human biology – but they can be derived from other sources entirely. In any case, many of the same ethical and social issues apply!

The ***Transhuman Space*** setting can be considered a high biotech universe, since miraculous biotechnology is one of its main areas of advance. Other space-oriented stories with a high biotech flavor include Bruce Sterling's "Shaper/Mechanist" stories and John Varley's "Titan" novels.

High Cybertech

A *high cybertech* world is one in which computer technology and cybernetics have transformed society. Computers are extremely intelligent, and may be self-aware and self-motivated as well. Robots of all shapes and sizes are common. Even human beings can become part machine, with cybernetic implants and neural interfaces.

A high cybertech world can be one of great convenience, as smart machines take over many ordinary tasks and leave humans free for more difficult work (or for pure leisure). On the other hand, such a world is often one in which machines have surpassed their creators. Perhaps the machines are benevolent, or perhaps they have an agenda of their own . . .

The ***Transhuman Space*** setting is high cybertech as well as high biotech in nature, with artificial intelligence that is both commonplace and powerful. Meanwhile, some classic "cyberpunk" stories were set in space as well as on Earth – notably William Gibson's *Neuromancer*.

High Nanotech

Nanotechnology is a broad range of technologies and products, all of which require the manipulation of matter at small scales. Nanotech techniques handle individual atoms and molecules, producing machines on the same scale as viruses or complex proteins. The biological comparison is apt; a living cell is a nanotechnological factory! A *high nanotech* setting is one in which miraculous nanotechnology exists and has transformed society.

A great deal of recent science fiction treats nanotechnology almost as magic. It's portrayed as cheap and efficient, able to produce any desired product with no undesirable side effects. A society with advanced nanotechnology may be both wealthy and ecologically friendly; even waste products can be "rebuilt" into useful items rather than being discarded into the environment. On the other hand, if nanotech tools escape from control they can pose a terrible threat to society. Nanotech *weapons* may be especially horrific, penetrating even the tightest defenses and taking soldiers apart one molecule at a time . . .

Nanotechnology is a common theme in some of the best recent science fiction. Examples include: Greg Bear's novels *Blood Music*, *Queen of Angels*, and *Slant*; Kathleen Ann Goonan's "Nanotech Quartet" novels; and Karl Schroeder's *Ventus*.

Everything a Miracle

The GM may want to incorporate *many* miraculous technologies into his setting. Indeed, a realistic assessment suggests that (assuming no disasters) the world may come to resemble *all* of the above setting types within the next century!

The more technological miracles are assumed, the more effort the GM will have to put forth to work out their implications, and the less familiar the world will be to the players. The "many miracles" approach may be best suited for an epic campaign, one that will last a long time and involves a lot of world-building work on the part of the GM.

The many-miracles approach can permit extreme realism, as in Poul Anderson's *Harvest of Stars* and its sequels. On the other hand, it can also work well with a strongly space-operatic tone. If human characters are to stand out against a background of technological wonders, they may need to be larger-than-life individuals in the midst of an epic drama. Examples of this approach include Walter Jon Williams' *Aristoi*, or John C. Wright's "The Golden Age" trilogy.

Technology Areas

The following are some of the most likely areas in which technological miracles will occur in modern SF. The GM should consider which of these to emphasize in his setting; books such as ***GURPS Bio-Tech*** or ***GURPS Ultra-Tech*** will cover rules mechanics for specific items of equipment.

Biotechnology

Mark pulled out the little box from his jacket pocket, and carefully lifted the lid. Enrique sat up expectantly. "This," said Mark, and held the box out toward his brother, "is a butter bug."

*Miles glanced down in to the box, and recoiled. "**Yuk**! That is the most disgusting thing I've seen in my life!"*

Inside the box, the thumb-sized worker butter bug scrabbled about on its six stubby legs, waved its antennae frantically, and tried to escape. Mark gently pushed its tiny claws back from the edges. It chattered its dull brown vestigial wing carapaces, and crouched to drag its white, soft, squishy-looking abdomen to the safety of one corner.

Miles leaned forward again, to peer in revolted fascination. "It looks like a cross between a cockroach, a termite, and a . . . and a . . . and a pustule."

"We have to admit, its physical appearance is not its main selling point."

– Lois McMaster Bujold,
A Civil Campaign

In recent years, science fiction has assimilated the possibilities of *biological* technology: the creation or manipulation of living organisms. ***GURPS Bio-Tech*** will cover this subject in detail.

Genetic Engineering

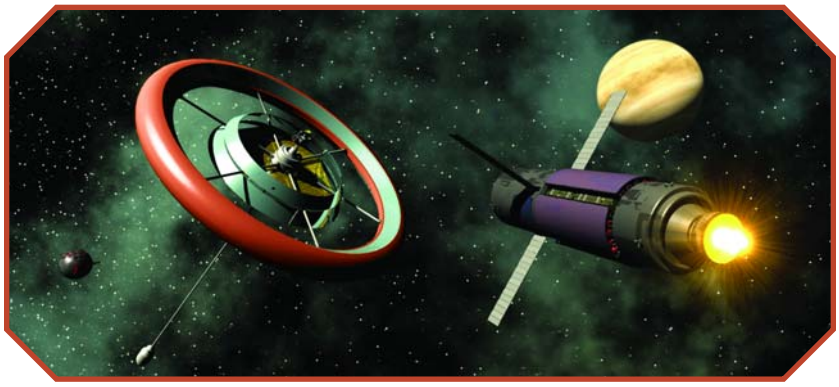
Every organism on Earth is built to a specific genetic blueprint, encoded in the DNA molecules in its component cells. That blueprint controls the production of proteins at the cellular level, and indirectly controls the shape, structure, and innate behavior of the organism. Alter the blueprint, and the shape and behavior of the organism change. Change it enough, and a wholly new life form might be created.

This kind of genetic manipulation is never straightforward; the DNA is only the first step in determining which genes are expressed, and in turn how the living organism takes shape. Genetic engineering was actually one of the *first* technologies to appear, in the form of domestication and selective breeding of species. True genetic miracles require very sophisticated understanding of cellular biology.

One application for these techniques is to edit the genes of an existing species. For example, once the human genome is well-mapped, gene combinations can be selected that ensure the appearance of desirable traits: good looks, high intelligence, acute vision, or even the simple lack of inherited genetic disorders. The resulting person is still human, his genetic inheritance isn't beyond the bounds of what he could have inherited naturally, but his genes are better than he could have expected from random chance.

Eventually, genetic engineers will learn to impose radical changes on their subject organisms. This permits the construction of *new species*, related to existing organisms but no longer able to reproduce naturally with the original stock. Such new forms can have capabilities beyond anything the original genome could have produced. An engineered human might have superhuman strength or endurance, or internal physical structures that normal humans don't have. He might even have superhuman *mental* capabilities: communication skills, memory, intelligence, or other powers beyond the norm of human psychology.

Another application of genetic engineering is *pantropy*, a term coined by the SF author James Blish.



Pantropic genetic engineering seeks to adapt humans or other organisms to live in unusual environments – under the sea, or on worlds that unmodified humans would find uninhabitable. An interstellar society might use pantropic techniques rather than terraforming worlds.

Miracles in genetic engineering can help the GM design a setting in which superhuman characters are easy to justify. On the other hand, control over the building blocks of life raises a number of moral and social issues. What if not everyone can afford to engineer their children; will genetic engineering give rise to an aristocracy, in which wealth and engineered talent reinforce each other? Gene engineering might cause the human race to diverge into many related subspecies, some of whom may be like aliens to one another . . .

Cloning

Species that reproduce sexually receive genes from their parents, and the exact mix of genes is usually different each time. An alternative to this process is *cloning*. This is a bioengineering technique used to create offspring that are genetically identical to the single "parent."

Cloning of plants can be done through low-technology methods such as the cultivation of cuttings. Cloning of animals is much more difficult, and can require many failures for every successful birth. There may also be side effects, particularly when the genetic material for the clone is taken from an adult organism. At this writing, a number of successful animal clones have been produced, including sheep, cattle, and cats – but no credible scientist has yet claimed to have produced a human clone.

A successful clone is much like an identical twin of the donor organism. A newborn human clone would be a baby, without any of the original person's memories or skills. He would have to grow to adulthood in the normal time, and his environment and experience might lead him to form a very different personality. Superscience technologies such as forced-growth tanks might permit the rapid production of fully adult clones, while downloading (p. 57) might permit a clone to be programmed with its donor's personality.

Human cloning might permit an egotistical genius to produce his own younger twin, bereaved parents to produce the identical twin of a dead child, or a society ravaged by genetic disease to produce healthy offspring. A particularly ghoulish society might raise clones for a supply of replacement parts . . .

Miracle Medicine

Even today, medical science has produced improvements in the length and quality of human life. Using miracles in future medicine, physicians will confidently be able to heal and even improve the human body. Many of these improvements will involve *implants*, artificial devices placed in the body to give it new capabilities or compensate for damage.

Simple prosthetic implants exist today, and are useful in repairing some injuries or supporting the body as it ages. At miraculous levels of technology, implant devices begin to improve on the natural human body. Perfectly healthy people will begin to accept implants to expand their physical or mental capabilities. Cybernetic limbs and organs boost physical performance. Neural interfaces permit

the mental control of computers or other devices. Implanted computers assist the human brain to store and process information. Natural senses are enhanced and new senses are acquired.

Cybernetic implants have some of the benefits of miraculous biotechnology, without some of the drawbacks. It's possible to improve human performance without needing to plan an individual's genetic inheritance before birth. Implants can always be removed or altered as needed. Of course, the use of implants can be a very alienating practice – in a sense, the character is rejecting his body in favor of a machine!

Aside from the production of superhumans, cybernetic implants can alter the way the human mind deals with the outside world. Linked directly to a computer implant, a person could perceive both "virtual reality" and the physical universe at the same time. Real objects (or even other people) could be associated with virtual "tags" that provide extra information about them at a glance. Messages could be sent across a data network with a thought, permitting a mechanical form of telepathy.

Of course, not all implants need to be purely mechanical in nature. As biologists learn how living cells naturally arrange themselves to form tissues and biological structures, they will learn to control the process. Such *tissue engineering* will permit the construction of living, but artificial, structures that can then be implanted in the body.

Although such living implants may be limited in strength and capabilities, they may be able to repair themselves, just as the natural human body can. Some artificial tissues may be able to improve the body's performance, bolstering the strength or resilience of the natural structure, or secreting useful substances that the body would normally not produce.

Finally, the possibility exists of *nanosymbiosis*. Many of the cells in a human body are not themselves human in nature – they are bacteria, viruses, or other microorganisms that live in a symbiotic relationship with their human host. Eventually it may become possible to introduce *artificial* symbionts into the human body: nanotechnological devices, engineered microorganisms, or a mix of both.

These "micro-implants" could improve human health and capability at the cellular level: fighting off disease, preventing cancer, arresting the progress of age, and even building macro-scale implants into the body without the need for complex surgery.

In general, miraculous medical techniques mean that very few injuries will prove fatal. If an injured character survives long enough to reach a hospital, he'll recover – possibly with the aid of mechanical, cloned, or tissue-engineered replacement parts. This kind of technology may be useful for the GM who wants to concentrate on mysteries or social interaction rather than the threat of character injury or death.

Meanwhile, implant technologies give characters the freedom to reshape themselves at will. Any campaign in which miraculous implants are available (not to mention uploading or other technologies that can radically change a person's nature) will tend to be very fluid in character design. In such a campaign, GMs are advised to treat ***GURPS*** character points as a guideline measuring the relative power of each character, not as a rigid schedule for character development. Characters will tend to change drastically in power level, and will reallocate their points with every "overhaul."

Naturally, if miraculous medicine is not available to everyone, there will be social consequences. Even today, wealthy people tend to live somewhat longer than poor people due to their ability to afford medical care. If the difference becomes drastic, the result might be a badly stratified society (or a revolution of the "natural" poor).

Suspended Animation

Suspended animation is a common science fiction trope. If space travel is very slow, then passengers and crew may sleep the years away, awakening only at their destination. Suspended animation can also be a crude form of time travel, letting characters sleep through the centuries in order to wake in a far-future world.

In classic science fiction, suspended animation meant "cold sleep," putting the human body in a hibernation state, or freezing it solid. Both techniques assume that there's a way to revive the subject at the destination (quite a challenge if the freezing method is used). In any case, for journeys lasting years or longer, the technique doesn't actually work all that well. It's impossible to prevent *all* random chemical change even in a frozen body, and the background radiation of deep space will still harm a frozen passenger.

More recent science fiction assumes that advanced nanotechnology can be used to keep a hibernating passenger in good repair. Nanotech symbionts repair damage due to radiation, flush away cells that die due to random chemical change, and so on. With "nanostasis," the body need not even be kept all that cold, saving on heavy cryonic equipment.

Some recent science fiction suggests a third approach. If "uploading" is possible (p. 57) then a passenger won't need to take his body on the trip at all. He can travel as data in storage, either unaware of the passage of time or enjoying a virtual environment. He can be downloaded into a new robot body at the far end, or (if nanotechnology is sufficently advanced) his own body can be reassembled from stored information!

No matter what the method, suspended animation can solve a number of plot problems for the space-oriented GM. If interstellar travel takes a long time, don't bother playing out the years between stars – just pop the adventurers into cold sleep and skip to the destination. Meanwhile, suspended animation may provide adventurers with an escape hatch if things go badly wrong . . .

Artificial Life

Advanced tissue engineering techniques might permit the construction of wholly artificial organisms: creatures that were not conceived and born, but *built* out of cultured cells and biomechanical frameworks. Such *bioroids* might have capabilities (and disadvantages) that naturally conceived organisms would not.

For example, a bioroid could have two traits that would be mutually exclusive in a naturally conceived organism. Bioroids could be built around frameworks of nonliving material, boosting their strength, endurance, or other capabilities in a way that would be difficult to produce through human genetic engineering. Meanwhile, bioroids could be built with inherent controls that limit their capabilities, such as a short lifespan or a limited personality.

Of course, artificial organisms don't have to resemble people in their shape or capabilities. Limited *biogadgets* could be produced, living entities that can be used as specialized tools. The advantage of a biogadget is that it is self-maintaining and self-repairing, so long as it's kept supplied with nutrients. It would also provide its own "power," needing no power input or batteries.

Just about any technological item could be defined as a biogadget, as long as it doesn't require high power densities (like a beam weapon or a long-range communicator) or very dense or strong materials (like advanced combat armor or an internal combustion engine). Biogadgets could, of course, be combined with nonliving gadgets or materials to cover a wider variety of applications.

Biogadgets can also be *big* – big enough to live in! A bio-building is an artificial living creature (or a symbiotic community of them) with plenty of internal space that humans can live or work in. Like a smaller biogadget, a bio-building can be self-maintaining and self-repairing, and might provide at least some of the power for various appliances and conveniences. Bio-buildings might be very ecologically friendly, needing relatively little energy to build and converting trash or other wastes before they're released into the environment.

Artificial-life technologies might be interesting if applied by certain alien cultures. This would be particularly appropriate for aliens who live underwater, in a gas giant atmosphere, on a metal-poor planet, or anywhere else where metals and ceramics would be difficult to produce.

Artificial life presents a variety of ethical questions. A bioroid is unquestionably alive and may be fully sapient. What are the rights of a being who was built from scratch for a specific purpose? Of course, there may be strong prejudice against bioroids – like the mythical undead, they stand outside the normal human pattern of birth, life, and death.

Uplift

Creideiki could imagine how the vice-captain felt. There were times when even ***he*** *felt oppressed by the towering invasiveness of uplift, when he almost wanted to squawk in Primal, "****Who gave you the right?****" And the sweet hypnosis of the Whale Dream would call to him to return to the embrace of the Old Gods.*

The moment always passed, and he recalled that there was nothing in the universe he wanted more than to command a starship, to collect tapes of the songs of space, and to explore the currents between the stars.

– David Brin, ***Startide Rising***

"Uplift" refers to the process of applying biotechnology to modify non-sapient organisms, improving their intelligence, communications skills, or tool-using abilities. The goal of uplift is usually to create a new sapient (or near-sapient) race.

The notion of granting intelligence to animal species is very old in SF literature, dating back at least to H. G. Wells. The term *uplift* was coined by modern author David Brin; many of his novels are based on the premise of a galactic civilization populated by species who all were once uplifted, and who in turn uplift new species as a matter of wealth and prestige.

A setting including uplift can include "aliens" who evolved alongside human beings from the beginning. For example, Brin's novels include uplifted chimpanzees, dogs, dolphins, and gorillas. These uplifted species will have minds different from ours, but will also be familiar enough for comfort. Aliens who are the end

Bioships

There's nothing preventing a "bio-building" from flying through space . . . at which time it becomes a *bioship*, a living spaceship.

Bioships can be built from scratch using tissue-engineering techniques. Alternatively, a large alien life form or a big terrestrial creature can be subjected to extensive genetic and biomechanical engineering. A bioship is primarily living matter, of course, but it can have inorganic systems grafted into it.

The original creature should be large to begin with, and tough enough to withstand large shifts in atmospheric pressure. It can be adapted to life in the vacuum and cold of space, and it can be made *much* larger in a zero-gravity environment. Several possibilities include:

Atmosphere Dwellers: Floating creatures native to the atmosphere of a large planet or a gas giant.

Giant Trees: Trees or tree-like organisms, engineered to withstand deep-space conditions and grow to enormous size, possibly feeding from the water and nutrients in comets.

Marine Dwellers: Large creatures native to the deep ocean, such as whales (or, for a different approach, coral reefs). Such creatures can already grow to great size and are well-adapted to pressure extremes.

Space Dwellers: It's possible that large living creatures already exist in deep space, and would require little or no adaptation to serve as bioships.

product of billions of years of separate evolution are likely to be *much* stranger . . .

Other interstellar civilizations may also include uplifted species, as servants or partners of their naturally evolved races. In a universe where uplift is common, the question of *human* origins may be open. Perhaps the UFO enthusiasts are right, and humans themselves were helped along the road to intelligence eons ago . . . but by whom?

Computers and Communications

The role of computers in science fiction has changed almost as drastically as their role in real life. In Golden Age SF of the 1940s and 1950s, computers are almost invisible; when they appear at all, they are big, expensive, and used exclusively by governments and large corporations. By the 1990s, imagined computers were *everywhere* in science fiction and their capabilities were little short of magic.

The Networked World

With the revolution in computer technology comes an associated revolution in *communications* technology. As computers become smaller, cheaper, and more powerful, it becomes easy to put them *everywhere* . . . and to get them to talk to each other. Along the way, people find themselves able to share voice, text, images, and data almost at will.

Even today, the global Internet makes it easy for many people to access and work with information. Messages can be passed, would-be writers can post their work for anyone to see, and research data can be made accessible for everyone. The decentralized nature of a data web sometimes undermines existing power structures, giving citizens new ways to share information despite government or corporate control.

Decentralized data webs have also proven to be very hard to police. Unscrupulous users can spread false information, run scams, and steal other people's personal data. Meanwhile, oppressive governments will find their own uses for network technology, collecting data on their citizens to use in new methods of control.

Computer networking is likely to become even denser and more complete as it approaches miraculous levels. Eventually, it will become possible to put small computers in almost every common item: in clothing, in personal items, in pieces of industrial equipment, in packages of raw materials, and even in people. All of these small computers can be interconnected via a dense network of short-range radio or infrared transmissions.

The net effect of this *ubiquitous computing* will be to make a vast array of information available for reference and analysis. Any item with an implanted computer can be designed to keep track of its own status, to report when queried, and to respond to orders. For example, in a "wired" household the kitchen appliances can track supplies of food, prepare meals on a schedule, and report when they need repair or replacement. A computer implanted into a person can track his physical condition and signal when he needs medical attention.

Items can even be *physically* tracked with such a system, each implanted computer responding to nearby control units over the short-range radio link. This can help a great deal with commercial inventory, making it difficult to lose or misplace goods or equipment. Industrial planning becomes easier, as raw materials can be tracked on their way through a manufacturing process.

Another application of ubiquitous computing is to reduce the need for skill in certain trades. If every item in an industrial process carries a computer with the information about exactly *how* the item is to be used (its own "user's manual") then the people doing the assembly work won't need as much training to begin. For example, every piece of raw material on a construction site could keep track of where it is now, where it needs to be in the finished building, at what point in the process it needs to be put in place, and how it should be handled. Then the construction workers (or their robots!) can always remind themselves exactly what needs to be done next . . .

In general, a society with miraculous levels of computing and networking will be one where information is cheap and easy to get, and where it will be very rare for anyone to be out of touch. This can be very convenient for GMs who want to just hand their players a "data dump" and get the adventure started. Meanwhile, whenever adventurers need more information or assistance, it's usually just a cell-phone call (or the equivalent) away.

Of course, there are also disadvantages to this kind of setting. The GM may need to *invent* all the information the players might possibly want! Players may give in to the temptation to over-research, wading through the information stream when they should be going into action. Adventurers may be overloaded with information, or unable to pick out the critical facts from a flood of irrelevant data. Meanwhile, in a world where no one is ever out of contact it's difficult to keep characters from calling for help at the first sign of trouble!

It's in the computer, everything: your DMV records, your Social Security, your credit cards, your medical records. Everything is stored in there. It's like this little electronic shadow on each and every one of us, just begging for someone to screw with, and you know what? They've done it to me, and you know what? They're gonna do it to you.

– Angela, ***The Net***

Robots

Robots are a very common feature of science fiction. People are fascinated by the notion of a machine that looks or behaves like a human being . . . and which may in some ways be *superior* to a human being.

Although science fiction tends to focus on the social relationships between robots and humans, the first real robots don't appear in social situations. Robots find their first use in industrial manufacturing, where they can perform the kind of repetitive operations that appear in assembly lines.

Of course, even at this level robots immediately have an impact on society. They threaten to compete with human workers, beginning in the unskilled or semi-skilled trades. They also simply *bother* some people, who are disturbed by a machine that can behave like a human being even in limited ways.

Robots that more or less resemble human beings are a common feature in SF. A "humaniform" robot has several advantages, especially in social situations. On the other hand, humaniform robots are *hard* to produce. Many physical functions that humans take for granted (visual recognition, eye-hand coordination, walking, and so on) are actually difficult to build into a reliable robot.

The *bush robot* is a recent concept, first proposed by Hans Moravec as the ultimate in cybernetic flexibility. A bush robot has arms that branch into multiple "fingers," each of which branches into a set of smaller fingers, and so on – possibly down to the molecular scale. Each set of fingers is capable of independent tactile senses and operation, giving the robot tremendous range and flexibility.

A "bushbot" could easily manipulate objects on a variety of scales. With the proper programming, it could perform complex repairs or even microsurgery, all without special tools. Such tasks would require tremendous amounts of computer processing, so advanced computer hardware will be necessary.

A setting with miraculous robots, whether sapient or not, will be one in which human adventurers are constantly dealing with capable machines. If robots can perform many human tasks, what do human beings do? Are they freed from the need to work for a living, or are all but the most talented people living in dull, purposeless poverty? Of course, if robots are that talented, some of the adventurers may *be* robots!

Artificial Minds

He said, "Had we somehow been created in a universe without humans, it is true that we would not have created them. We would have preferred more perfect forms."

She said, "But morality is time-directional. Parents who would not deliberately create a crippled child cannot, once the child is born, reverse that decision."

"And humanity is not our child, but our parent."

"Whom we were born to serve."

"We are the ultimate expression of human rationality."

She said: "We need humans to form a pool of individuality and innovation from which we can draw."

He said, "And you're funny."

She said, "And we love you."

– John C. Wright,
The Phoenix Exultant

Advanced computers may become intelligent, able to handle information at least as flexibly and as well as a human being. Eventually they may even become *sapient*, self-aware entities with their own consciousness and goals. Combine the sheer speed of a computer with the power of a self-aware mind, and the result could be a being far superior to the humans who built it.

One of the most critical steps in producing an intelligent computer is the development of a *natural language interface* – that is, teaching computers to use idiomatic language as it is spoken and written by human beings. Once a natural language interface is available, anyone can describe a problem to a computer and expect it to produce information or programs that approach a solution. The computer can then respond using colloquial language of its own, presenting the information in ways that non-specialists can understand.

The Transparent Society

One drawback of ubiquitous computing is that it makes *privacy* almost impossible to attain. We may find it very convenient to access to all kinds of information about the world around us – but the other side of the coin is that other people will find it easy to gather information about *us*.

This failure of privacy may offer some social benefits. The SF writer David Brin has speculated about the *transparent society*. This is a society in which even powerful people, such as corporate or government leaders, can't keep any secrets for very long. Every citizen can be fully informed about the activities of his government or the corporations with which he does business. It's therefore easy, at least in theory, to demand accountability for any abuse of power.

On the other hand, ubiquitous computing may lead to *ubiquitous law enforcement*. A government that controls the data network can monitor the activities of every item – and every person – in it. It may become impossible to break even a minor law without immediately being detected and targeted for correction. Private entities may also be a concern. A company could monitor even the smallest activities of its employees, and malicious users could use the system to track and harass their enemies.

In short, a society that uses ubiquitous computing may be highly oppressive, or it may have developed social mechanisms for dealing with the loss of privacy. GMs who are interested in miraculous communications and computer technology may wish to explore the implications of a world where information really is free!

At present, natural language interfaces can be considered *nearly* miraculous; much progress has been made in this area, but most people still interact with their computers in a stilted and artificial manner.

Being able to use natural language doesn't mean that the computer is self-aware, or even that it's all that personable. Eventually, computers will add personal and social skills to their natural-language ability, interacting with human beings on their own level.

Personality simulation can work at a variety of levels. A computer that simply uses natural inflection in its speech and learns to respond to its owner's needs can be said to have a personality, even if its responses are very simple and predictable. Indeed, many humans will tend to ascribe more personality to their computers than they actually have. More complex "personality programs" will behave like real people, altering their responses and possibly surprising the human beings who interact with them. Eventually a personality simulation will become indistinguishable from a human being, modeling its responses after a real person, a well-documented fictional character, or even a wholly artificial psychology.

Even an advanced computer that is capable of natural language processing and is familiar with everyday human knowledge still isn't necessarily a self-aware, independent being. Actual consciousness seems to be independent of the ability to process information.

How one might design a computer to be self-aware (or how it might become so on its own) is anyone's guess. We don't understand what consciousness is, or what it does, in human beings, much less how a machine might exhibit it. In some SF, a sufficiently advanced computer may simply "wake up" one day. Other stories assume that self-awareness is something that can be predictably designed into a machine. Still others ignore the question entirely; they assume that no can be sure of anything except that a machine *behaves* as if it is self-aware.

In any case, the presence of self-aware machines (or machines that seem to be self-aware) raises a number of social issues. Intelligent machines can be interesting and useful companions, but they might develop their own motives and superhuman capabilities. Should such machines be treated as property, as servants, as partners – or as masters? If they can exceed human abilities in most or all areas, then what purpose do humans still serve?

Uploading

If a computer is complex enough to imitate a living human personality, then it can imitate a *dead* one too.

It's theoretically possible for a computer to store a complete description of a human being, and then "emulate" that human being as software. This may involve a personality model, or it may involve the minute analysis and emulation of the human subject's brain and nervous system (possibly requiring the destruction of the tissue in the process). From that point on, the computer believes itself to be the human being, his personality "uploaded" into a software matrix.

If a human mind can be uploaded, it may also be possible to "download" it into another body – a robot or bioroid body with a computer brain, or even a fully biological body (with the stored personality somehow "written" onto the structure of the brain).

Uploading and downloading have profound effects on any science fiction setting or story. Uploading permits a character to undergo radical transformations, leaving his human body and becoming a machine entity – which can then be transferred from one machine body to another. If both uploading and downloading are possible, then one can travel as data rather than in his physical body; this is often much cheaper and more efficient. Uploading can also make people effectively immortal, letting them keep "backup" copies of themselves in case of accident. Of course, uploading can also permit someone to *copy* himself, especially if the initial upload doesn't require the destruction of his original brain.

Uploading raises many of the same questions as the presence of any intelligent machine. Should the uploaded personality be treated as a person? Even further, should the upload be treated as the *same* person as the original citizen? This can be even more complicated if the original citizen is still walking around in his own body . . .

Nanotechnology

"Mites," he said, "or so they say down at the Flea Circus anyway." He picked up one of the black things taken from the mask and flicked it with a fingertip. A cineritious cloud swirled out of it, like a drop of ink in a glass of water, and hung swirling in the air, neither rising nor falling. Sparkles of light flashed in the midst of it like fairy dust.

"See, there's mites around, all the time. They use the sparkles to talk to each other," Harv explained. "They're in the air, in food and water, everywhere. And there's rules that the mites are supposed to follow, and those rules are called protocols. And there's a protocol from way back that says they're supposed to be good for your lungs. They're supposed to break down into safe pieces if you breathe one inside of you." Harv paused at this point, theatrically, to summon forth one more ebon loogie, which Nell guessed must be swimming with safe mite bits. "But there are people who break those rules sometimes . . ."

– Neal Stephenson, ***The Diamond Age***

The standard ***GURPS*** TL progression assumes that nanotechnology will work, and that it will advance along a fairly conservative trajectory. Nanotechnology begins as engineers discover ways to manipulate matter on very small scales. TL9 is the *microtech* age, in which micromachines are produced by traditional industrial methods and nanotechnology continues to develop. The real potential of nanotech doesn't appear until TL10 or later; the most outrageous speculations of nanotech advocates should probably be considered superscience, or placed at TL11+.

Special Materials

Nanomachines themselves are only some of the advances that nanotechnology will make possible. Some of their first *products*, things that are otherwise almost impossible to make or find, will also transform industry. These include new materials that stretch the limits of what's possible in nature, providing combinations of physical properties that would be extremely unlikely without technological intervention.

Many of these new materials will involve *carbon*. One of the most common elements, and also one of the most chemically active, carbon is very cheap and easy to work with. Carbon in its "raw" natural state is flaky or crumbly, very flammable, and a natural insulator of electricity. However, carbon atoms can form very strong molecular bonds, and when they are carefully arranged the resulting materials can have a wide array of properties.

Diamonds, for example, are pure carbon with the atoms arranged in a three-dimensional lattice. One of the first applications of true nanotechnology will be the production of artificial diamonds in large sheets, blocks, or other shaped forms. "Diamondoid" materials would make superb armor or structural material in applications where hardness and resiliency are important. Spaceship hulls, perhaps . . .

Another form of carbon is *nanotubes*. The carbon atoms are arranged in tubes, each one thinner than a human hair, so that the molecular bonds provide tensile strength for the tube. If carbon nanotubes can be made long enough, they can be woven into threads or cables that are far stronger than any previous material. Nanotube threads could be woven into clothing or personal armor, making it tough and resistant to attack. Thick nanotube cables would be relatively light but extremely strong, useful in futuristic engineering projects.

Aside from the applications of carbon, nanotechnology could produce pure-iron crystals, high-temperature superconductors, and many other useful items. Some of these materials are already being produced in small quantities today; mass production might be the foundation for a great deal of future industry.

Smart Materials

Smart materials change their physical properties when subjected to a stimulus. They can be used in applications where a material may need to change its state in different circumstances. Smart materials can be made to respond "naturally" to different situations, or they can be controlled by an attached computer. Some smart material will be composed of micro-electro-mechanical systems (MEMS), tiny machines built into sheets or

blocks of manufactured material. Other smart materials are natural substances that can change their properties in a controlled fashion.

For example, smart fibers can adjust their length, flexibility, and color as needed, producing clothing that can reconfigure to assure a perfect fit and the wearer's desired color pattern. Surfaces can vary their textures, or even incorporate microscopic brushes that ensure that dirt or paint will only stick where it is supposed to. Layers of smart material can create structures that are self-sealing, or even partially self-healing.

Eventually, nanotechnology may begin to blur the distinctions between nonliving and living matter. Even as bioengineering produces living organisms that resemble machines, nanotechnology will begin to give inorganic machines some of the capabilities of living creatures.

Living materials will begin by adding self-repair capabilities. A "living metal" tool would incorporate a supply of embedded nanomachines. Under normal circumstances the nanomachines would support the tool's primary function, possibly interfacing with other nanomachines in smart materials or assembler swarms. When the tool needs supplies or is damaged, the nanomachines can pull in the necessary materials and use them to perform repairs.

With further progress, living materials will be able to change shape and function as needed. At the extreme, a tool can be composed of nothing *but* nanomachines that have taken a specific shape. On command, the nanomachines drop their connections to one another, flow amorphously to new positions, and lock together once again. The new shape may have a completely different function.

Microbots and Assemblers

The line of development that leads to living materials begins with the production of vast numbers of tiny machines. Any one machine may not be very intelligent – but a swarm, cloud, or puddle of such machines could cooperate for an intelligent purpose.

"Microbots" may be as large as a big insect, or as small as a dust mite. They may be limited to crawling over surfaces, or they may be capable of buoyant or winged flight. Any one microbot will have very little computer power, and might run a set of simple behavioral programs. A "cyberswarm" of hundreds or thousands of microbots can cooperate in intelligent behavior, just as an ant colony or beehive produces intelligent responses from the actions of its nearly mindless members.

A cyberswarm could be an integral part of a building or other structure, performing routine cleaning, maintenance, or repair tasks. They could also have military or security applications. Cyberswarms could monitor infrared emissions or movement in an area, alerting a more powerful computer to the presence of intruders. Microbots could also carry tiny doses of toxins or disease organisms . . .

As nanotechnology advances, the microbots are likely to become smaller and smaller, and *en masse* they are likely to become more capable. One application of advanced microrobotics would be the production of *assemblers*, swarms of nanorobots capable of building any desired product from raw materials.

Swarms and Goo

Of course, assemblers that can build other things can also be designed to build *copies of themselves*. This isn't an unusual notion; a living cell is itself a self-replicating assembler.

Such assemblers can cut through many of the limitations of nanotechnology. In particular, they make the supply of assemblers cheap and easy to replenish. They can be even more effective than non-replicating assemblers in bringing about a post-scarcity society. On the other hand, self-replicating assemblers may be harder to *control*. If they escape into the environment, they may begin to replicate using whatever materials they can find . . .

A mass of self-replicating assemblers is sometimes called *goo*. Futurists and SF writers sometimes refer to goo as being of different "colors" depending on its nature and purpose. Not everyone agrees on the color terminology, but some examples are as follows.

White Goo: Well-behaved assemblers in a controlled environment, producing useful items as designed.

Golden Goo: A mass of assemblers designed to simply gather atoms or molecules of a valuable substance (such as gold). Used in mining and similar applications.

Red Goo: A controlled mass of assemblers used as a weapon, probably by a military organization or by terrorists.

Blue Goo: Assemblers designed to hunt down and destroy hostile assemblers (such as red goo) without otherwise affecting people or property.

Green Goo: Assemblers used to monitor and support a community of living things. Green goo can be used in agriculture, in the preservation of wild ecosystems, or even for the maintenance of human health.

Gray (or Black) Goo: An uncontrolled mass of "wild" assemblers, devouring everything in its path and turning the material into more assemblers. Gray or black goo is the ultimate terrorist weapon, or the ultimate industrial disaster. A mass of gray or black goo could destroy the entire surface of a planet.

Some wits also refer to *pink goo* – by which they mean human beings! After all, humans reproduce relatively slowly, but given time they tend to fill up all available space and devour everything they can find . . .

In theory, *anything* could be built by sufficiently sophisticated assemblers. Simply pour the assemblers into a vat, provide raw materials in easily digestible form, and the tiny machines will assemble the desired item one molecule at a time. Since assemblers work on a nanometer scale, they can produce any of the unusual materials described under *Smart Materials* above, and in large quantities. Very robust assemblers might be able to work with found materials, turning air, water, and minerals into useful products.

If assemblers are strongly limited in their utility, they won't change society very much. Assemblers may be expensive or narrow of purpose, used only for very specialized applications. They may break down quickly, requiring manufacturers to constantly acquire new supplies. Or they could be too delicate to use anywhere except in a carefully controlled environment. Any or all of these features may lead to a society where assemblers are rarely encountered in everyday life. Adventurers may use tools and gadgets produced by assemblers, but they will rarely use assemblers themselves.

Assemblers that are cheap, robust and versatile can have a *profound* effect on society. If literally *anything* can be made cheaply and easily, especially using found materials, then large corporate manufacturers will no longer be needed. Combine cheap assemblers with the cheap energy of fusion power, and you may get a "post-scarcity society," one in which poverty and economic inequity are unknown.

Of course, assemblers can also be *disassemblers*. Assemblers have to get their raw materials from somewhere, and they may get them from an item (or a human body!) that's already in use. Assemblers that get out of control can be a serious nuisance. Assemblers designed to take the human body apart, one molecule at a time, would be a devastating weapon.

Transportation

The GM building a space-oriented setting will certainly need to think about space flight technology, but how adventurers get around *on each world* will also be important! Naturally, the two setting elements will be related. If space flight is supported by cheap and powerful drives, the same technologies may be applicable to local transportation.

Making the World Tiny

If miraculous transportation is available, the GM (or players!) may want to design cool vehicles for use during adventures. Such vehicles can be faster, tougher, sneakier, or *smarter* than anything from the familiar world.

If vehicles and transportation aren't going to be used as a major plot element, they will probably have no specific effects on the campaign background. As with advanced power generation and materials science, advanced transportation supports a generally wealthy society. Manufacturing and commerce become more efficient when raw materials and finished goods can be easily shipped to where they're needed.

Meanwhile, when people are able to travel wherever they please quickly and conveniently, they *feel* wealthier because they have more options in life. If ease of transport brings people into contact with foreigners, they may tend to be more cosmopolitan. They will probably be more *free*, since they can easily escape an oppressive situation.

Teleportation

Teleportation is instant travel from place to place, without passing through the space in between. If teleportation is possible, it may render many other forms of transportation obsolete. Teleportation that's cheap, works over long ranges, and has few disadvantages will quickly become the primary method of transport. In the extreme, teleportation may unify interplanetary (or even interstellar) travel with local transport. On the other hand, if teleportation is expensive or has many limitations, it will be used only in special circumstances.

For a superb examination of the implications of teleportation technology, refer to Larry Niven's essay, "Exercise in Speculation: The Theory and Practice of Teleportation."

Power Generation

One of the most important factors controlling any society is its ability to generate and apply energy. A society with access to cheap or unlimited energy is by definition wealthy, while one experiencing energy shortages is impoverished no matter what other resources are at hand. The technical details of power generation are rarely important to the story; the GM can assume solar, geothermal, fossil-fuel, nuclear, antimatter, or "total conversion" power as needed.

Of course, how power is *generated* is almost less important than how it is stored and distributed. The small gadgets beloved of adventurers need power, as do vehicles, buildings, and spaceships. Unless a power generator is cheap and compact enough to carry around, energy will have to be stored – or devices will need to be connected to a remote power source.

Some forms of power plant technology will be dangerous if mishandled! Nuclear fission generates radioactive waste. Some types of fusion power generate radiation in the form of fast neutrons. Antimatter power storage can be extremely destructive if the containment fails. In general, the higher the *energy density* of the power technology, the more likely there are to be dangerous or destructive side effects.

The details of power technology are usually "deep background," not important to the story. The GM should decide how much energy is necessary to support the society (and the gadgets) he wants to include. Any disadvantages attached to the technology can be developed as potential plot complications. After all, miraculous technology is a wonderful thing . . . until the power goes out!

The Swashbuckler Option

Many a "swords and spaceships" epic has assumed that skill with a melee weapon – usually a sword or something similar – is important to an adventurer's life. This can be a fun assumption, but the GM who wants to apply it will need to determine how melee weapons can hold their own in a universe full of ultra-tech firearms.

One approach to this problem is to assume that social factors encourage the use of melee weapons. Perhaps government forbids private ownership of advanced weaponry, but doesn't restrict knives and swords. Or perhaps one social class cultivates swordsmanship as a (usually) non-lethal way to resolve disputes. An alien race that values ancient traditions may maintain its traditional weaponry for use away from the battlefield.

Another approach is to assume that advanced melee weapons can somehow hold their own against firearms. This can be accomplished by making the melee weapons more powerful, or by weakening the ranged weapons.

For example, in the *Star Wars* universe, ordinary adventurers routinely use high-tech blaster weapons. However, the Jedi Knights and their foes use light-sabers (and psionic powers) to deflect blaster fire. They have little to fear from firearms, and use their melee weapons when fighting one another.

In Frank Herbert's *Dune*, personal "shield" technology is common, producing an archaic feel in weapons and tactics. The shield automatically deflects fast-moving projectiles. If a "lasgun" or similar beam weapon contacts the shield, the result is an explosion equivalent to that of a nuclear warhead. As a result, projectile firearms are rarely used, and most people actively *avoid* using beam weapons! Meanwhile, a slow-moving blade weapon *can* penetrate the shield, so most soldiers are expert with knives and short blades.

Weapons and Defenses

One thing is certain: people in the future will still be fighting one another on a regular basis. Weapons technology has often led other fields, as governments invest in the development of new defensive systems.

Melee Weapons

Melee weapons will still be useful in the far future, at least under some circumstances. Knives, swords, and similar weapons can be made using ultra-tech materials, making them difficult to blunt or break. Nanotechnology can produce "monowire," a strand of wire one molecule thick. Tough and almost infinitely sharp, monowire could be used as a weapon in its own right, or it could be used to provide an edge for a more typical blade weapon.

Of course, some space-opera universes have "force swords" and similar superscience melee weapons. For a "swords and spaceships" feel, permit personal force fields that stop fast missiles or energy blasts, but which permit the slow intrusion of a melee weapon.

Slugthrowers and Rayguns

In the future, as today, one of the best ways to poke holes in someone will be to throw bullets at him. Some military SF assumes that slugthrowers will remain the main arm of battle indefinitely; this isn't a bad assumption, given the limitations of energy weapons (see below).

Chemical slugthrowers are likely to continue to advance, bringing more efficient propellants. Targeting will also continue to improve, possibly linking computer controls into the gun (or even into the bullets – "smart bullets" are a possibility, able to recognize a target and change trajectory in mid-flight). With high-density power sources, projectile weapons can use magnetic acceleration instead of chemical propellants. Such a "Gauss" weapon can use very small, *very* fast projectiles.

Energy-beam weapons ("ray guns") are a staple of SF stories. They include lasers, particle-beam weapons or "blasters," plasma bolts, and "disruptors" that work on an unspecified physical principle. Non-lethal weapons, which inflict pain or stunning damage but no lasting harm, are another possibility.

Of course, personal beam weapons should probably be considered a "miracle," and are unlikely under rigorous assumptions. An energy weapon capable of doing extreme damage or operating at long range will need a *lot* of power . . . and the waste energy at the source might turn the weapon red-hot! GMs may wish to limit the more powerful energy weapons to heavy support or shipboard applications, with personal sidearms still using a projectile principle.

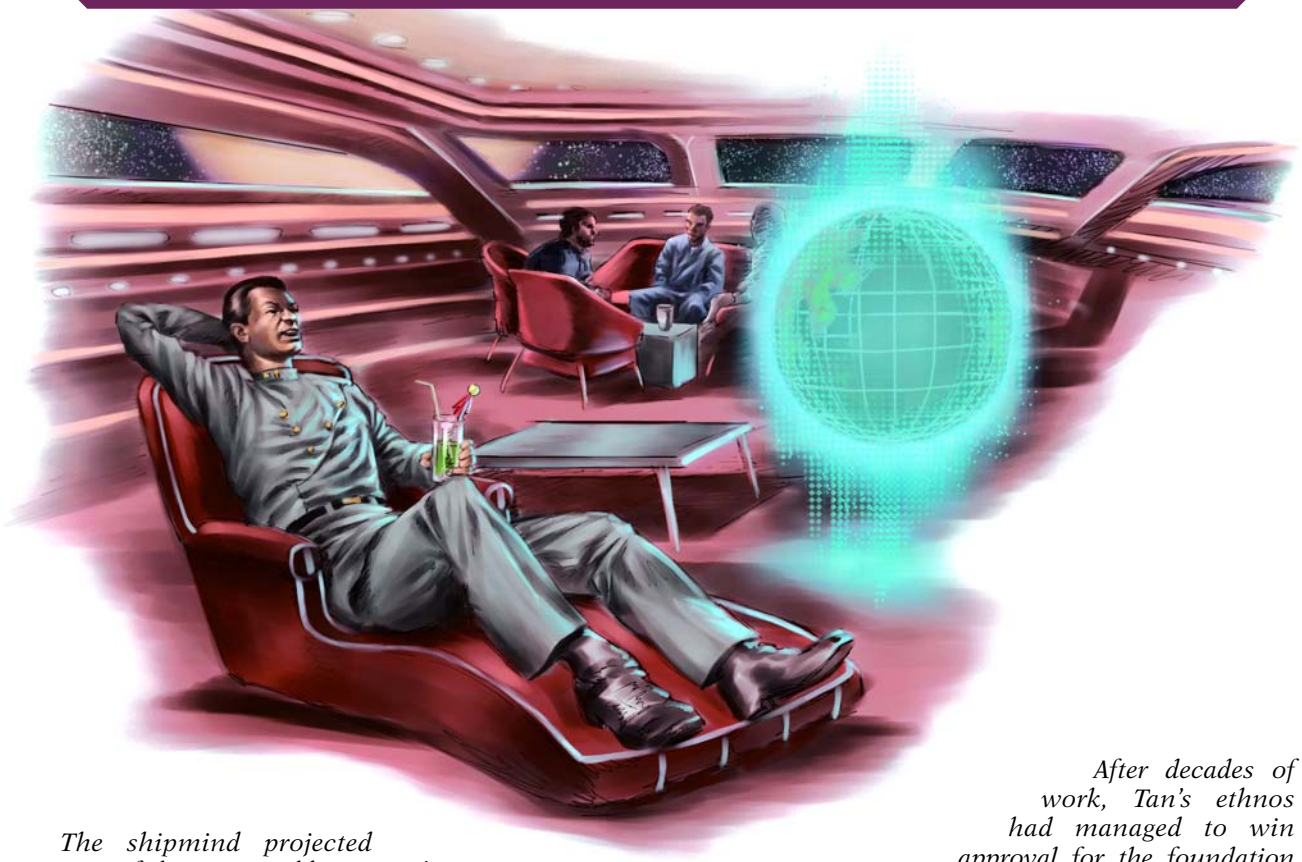
With advances in science (and especially in superscience), weapons may be based on principles not used today. Nanotechnology may provide "red goo" disassemblers (p. 59) that will dissolve an enemy into his component molecules. Working psionics may lead to weapons that attack someone's mind directly.

In fact, almost every technology can be turned to some destructive use. The GM running a campaign with *any* kind of superscience should consider inventing related weapons technology to fit.

Armor and Force Fields

Throughout history, there has been an "arms race" between the designers of weapons and the designers of *defenses*. Indeed, even present-day personal and military weapons are capable of ending human life with great efficiency. There will be little point in developing miraculous future weapons, unless they need to punch through equally improved defense systems.

Chapter Four
Basic Worldbuilding



The shipmind projected images of the new world into Tan's vision, causing them to appear as if floating in midair in the command lounge. Tan relaxed back into his chaise-longue, sipping his drink while he watched. A Varenne motet played quietly in the background, just loud enough to be heard, not so loud as to distract.

"It looks like a very good candidate," observed Tan.

"Yes," agreed the shipmind. "Ocean world. Atmosphere dominated by molecular nitrogen and oxygen, secondary components including argon, carbon dioxide, neon. Liquid water oceans cover four-fifths of the surface. Large regions appear to be within the optimum climate range for humaniform life."

"Biochemistry?" inquired Tan.

"Indeterminate from this distance. The most likely result is a type III variant of the chlorophyll-adenosine triphosphate complex."

Tan smiled. "Excellent."

After decades of work, Tan's ethnos had managed to win approval for the foundation of a new colony in the long-fallow Jiadra Drift region. Finally, humanity would have a world of its own, a fresh start to recover from the Fall.

A place where humanity might be able to survive the coming doom.

"Ser Tan?" A new voice, Marja Kashani, calling from her own workspace.

"Go ahead, Ser Kashani."

"We may have a problem," Kashani worried. "Routing some low-orbit recon imagery, your channel 32."

Tan opened the indicated channel. The recon drone had scanned part of the surface with visible-light sensors. A river delta, not far from one of the planet's smaller seas. Plenty of vegetation, so green it made Tan's heart leap.

"What am I looking at here, Marja?"

"Here." Lines and arcs appeared on the image, enhancing some of the visible contours. They blinked slowly, marking out the features Kashani wanted Tan to see.

Straight lines. Right angles. Sections of regular circles.

"Shipmind, are you getting this?"

"Yes, Ser Tan."

"Habitation? A native low-technology civilization?"

"Possibly," said the shipmind. "Ser Kashani has selected a number of other images, showing similar features. It seems unlikely that they could be the result of non-sapient activity."

"I don't suppose they could be renegades from civilization," Tan mused. "They might be criminals breaking the migration laws. We could have them evicted and take the planet for ourselves . . ."

Kashani sent an indeterminacy glyph. "There's only one way to find out," she said.

Once the GM knows what kind of campaign he wants to run, what his interplanetary or interstellar civilization is going to be like, and what technologies are going to be available, it's time to draw a star map and begin creating worlds.

Using Worlds

Every space campaign needs worlds – possibly dozens or hundreds of them!

The GM might design these worlds purely through his own inspiration, with no random elements. Another approach is to generate worlds at random, and then develop setting elements and story plots around whatever the dice provide. The best approach may be a combination of the two. The GM can design some worlds without using random elements, in order to support the plots he knows he will want. Then he can use random design to fill in gaps (and to generate *surprising* worlds that may suggest new plot arcs). The world-design sequences in this book will support any desired mix of the two styles.

Dramatic Roles

The most important decision the GM must make for each world is its *role* within the campaign. What kind of story is going to be told with the world as its backdrop? How will the world's physical and social environment affect adventures that take place there? What challenges will the world pose to adventurers who visit?

Worlds in space-based SF have filled a wide variety of roles. Some of the most common archetypes are described below.

Paradise World

A *paradise world* is a very pleasant place, where environment and society combine to make life easy and agreeable. The climate is stable and congenial, there is plenty of water and food, and there are no environmental poisons or dangerous animals to worry about. The local society is usually utopian – possibly very free, or tightly controlled in a way that doesn't interfere with most people's enjoyment of life.

Paradise worlds may seem an unlikely place for adventure. If life is easy for everyone, there's not much room for serious conflict. The GM might use a paradise world to make a point about the *idea* of paradise. Perhaps the world has a hidden flaw, a terrible price that the inhabitants pay for their easy life. Paradise worlds also make good targets for a star-spanning threat, of the kind that requires heroic PCs for its solution.

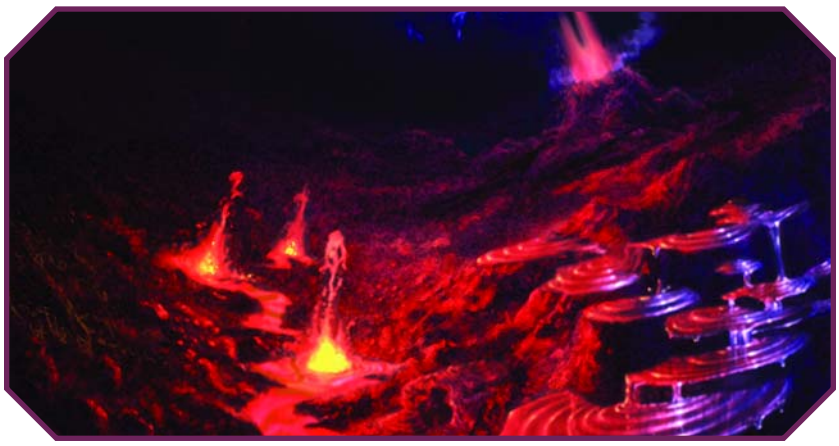
Hostile World

The *hostile world* is much less pleasant. It can be lived on, but only with difficulty, so inhabitants and visitors must struggle to survive. The environment on a hostile world usually has *one* parameter that makes human existence difficult – if it has many such parameters, it becomes a hell world. Technology may make a hostile world quite livable, but inhabitants will always risk the dangers of their environment.

Hostile worlds are useful as difficult, but not insurmountable, challenges for PCs. Visitors will want to pay constant attention to their protective gear, or they will need to be strong and smart to survive. Hostile worlds also make good breeding ground worlds for certain kinds of tough NPCs, and they make interesting unique resource worlds as well.

Hell World

The *hell world* is even harsher than the hostile world. Humans simply can't survive there without elaborate technological measures, and even then there's constant danger. A spacesuit may be the *least* that's required for survival. Since living on a hell world requires constant control of the environment, a hell-world society may itself be tightly controlled or dictatorial. Alternatively, inhabitants may enjoy plenty of social freedom, but everyone is carefully trained in the skills needed to maintain the environment.



A hell world may be inhabited by aliens who are comfortable there. If humans live on a hell world, they must have a very good reason for putting up with local conditions. Maybe it has a valuable resource or a special location. Or perhaps more pleasant worlds are so rare that some human colonists *have* to choose hell worlds if they want a place of their own to live. Hell worlds might be home to splinter groups, dissidents, or exiles as well.

Changing World

Some SF is set on worlds whose environment changes drastically over time. Perhaps a planet is at the beginning (or end) of an ice age, is being invaded by alien life, or simply hosts a society that is being transformed by new technology. Or perhaps the world is subject to regular, cyclic changes in its environment.

A *changing world* is good for stories emphasizing *adaptability* in individuals or societies. If the changes are exceptional, local society will be caught off-guard, with no historical precedents to draw on. A cyclic change won't be so surprising, unless the cycle is so long that local society doesn't retain any memory of past cycles. In either case, understanding the coming changes is critical to the business of prospering despite them.

Doomed World

One subset of the changing world is the *doomed world*, the planet that is soon to be destroyed, or at least rendered incapable of supporting life. Any person or society on the planet faces certain death.

The doomed world is a good setting for high-pressure stories, aimed at averting or escaping from the coming cataclysm. The disaster imposes a fixed time limit. When facing almost-certain death, ordinary individuals can display extraordinary heroism or villainy. Some stories in the tragic mode have used catastrophes that *can't* be stopped or evaded, no matter how hard the characters strive.

Breeding Ground Worlds

Some science-fictional worlds are conceived as *breeding grounds* for a specific kind of character. The author may want to portray a civilization built around a single facet of human nature, or he may simply be making the point that environment affects society. In either case, the physical environment causes many of the people living on the world to fit a stereotype. A breeding ground world usually has a harsh or limited environment, forcing its inhabitants to specialize in order to survive. On the other hand, pleasant worlds may be breeding grounds for soft hedonists . . .

The GM can use a breeding ground world as a backdrop for stories of social adaptation: the PCs adapt to the local society while they experience the environment that gave rise to that society. Breeding grounds can also be used to provide home worlds for specific character types.

Crossroads World

A *crossroads world* is special because *everyone* comes to visit. It may be at a major junction of jump lines, it may be an economically dominant world that trades across half the quadrant, it may be an imperial capital, or it may simply be such an attractive world that everyone plans vacations there. No matter what the reason, every sapient species and every known interplanetary civilization is represented among the crossroads world's residents.

A crossroads world can be useful as the backdrop for a campaign involving a mixture of themes, such as a generalized "troubleshooters" game. Adventures beginning there can be driven by a variety of patrons, and can take the party to any region of the setting. Alternatively, adventurers visiting the crossroads world in search of information or work will never know quite what to expect.

Exotic World

The *exotic world* is the one that is actually unique in known space – some feature, or the whole environment, is the result of strange events that haven't happened anywhere else. Perhaps it's a world whose physical environment breaks all the normal "laws" of planetary development. Or maybe the local society is unusual, distinctive, and mysterious to outsiders.

Even if the exotic world isn't the main focus for an adventure plot, its presence in the campaign can serve as

a reminder that the universe is a strange and mysterious place. Exploration or first-contact campaigns will find an exotic world a good place to visit.

Exploited World

An *exploited world* is well connected to interstellar society – perhaps a bit *too* well connected. Outside forces are using the world for their own benefit, strip-mining local physical resources or abusing the inhabitants.

An exploited world is a natural setting for the conflict that drives adventures. If multiple factions are doing the exploiting, they may hire adventurers to take part in their competition. Sympathetic outsiders may want to help the native inhabitants improve their lot, possibly by encouraging rebellion. A world that has been overexploited may be subject to disaster, as the economy or even the ecology collapse. Exploited worlds are a good backdrop for black-and-white ethical issues . . . although they can also be drawn in shades of gray if *everyone* is complicit in the exploitation.

Forbidden World

A common trope in SF is the *forbidden world*, the planet that is cut off from foreign visitors. The forbidden world is almost unknown to the galaxy at large – until a party of adventurers breaks the barrier and discovers what's behind it . . .

There are a variety of reasons why a world might be forbidden. An interstellar society might prohibit travel to certain worlds to reserve them for future colonization, to protect backward cultures from outside interference, to prevent a dangerous local society from gaining access to space travel, or to protect visitors from dangerous local conditions. A world's inhabitants might set their own home off limits out of hostility toward outsiders. In any case, a visit to a forbidden world is likely to be dangerous, although unique opportunities may be found there. Sending the party to a forbidden world may be a good way to throw them on their own resources – they won't be able to call for help or logistical support the moment they get into trouble!

Common Origins, Common Cause

When designing his campaign framework, the GM may consider requiring that all of the PC adventurers come from the same world. This works best when the world in question has been developed in considerable detail, supporting a broad variety of character concepts.

This requirement certainly constrains character development, but it has several advantages. It makes it easy to build characters with shared plot hooks; characters that grew up together, or have already worked together in the past, will be easy to bring into the same adventure. It also tends to give the adventurers common motivations – if their shared home is in danger of internal conflict or an external threat, it becomes easy to involve all of them in the epic adventures to follow!

Historical World

The *historical world* is, simply put, a world with a great deal of history. Perhaps it has been inhabited for a very long time – or the ruins of lost civilizations are scattered across its surface. Scholars come to study the ancient remains, tourists come to gawk at the ruins, and pilgrims come to see the birthplace of their traditions. Local societies may be very wise, or very decadent, or both.

The historical world is a congenial place for plots involving mysteries or elaborate social intrigues. They can also be a playground for GMs who like to develop elaborate "back story" for their settings.

Home-Base World

The *home-base world* isn't usually a site for adventures. Instead, it serves as a place where adventurers can go between exploits. It's usually a civilized, high-population world, where visitors can obtain anything from a relaxing night on the town to a billion-credit spaceship. It can also be the home of various patrons and contacts, ready to give adventurers jobs, favors, or useful information.

Almost any campaign setting can use at least one home-base world, unless the PCs will spend all their time wandering the galaxy. A home-base world doesn't have to have any other role in the setting, although a sudden threat to it may be a good way to motivate adventures.

Invisible World

The *invisible world* isn't actually invisible – it's just that although everyone knows that the world *exists*, no one knows *where it is*. Perhaps it's the long lost home of an alien (or human!) race. It's possible that some of the information "everyone knows" about the world is incorrect, so that explorers searching for it always look in the wrong place. The world itself is probably either uninhabited or inhabited by people who take great care not to reveal their home to interstellar society.

An invisible world is a grand-scale mystery, suitable as the end point of a star-spanning quest. Just figuring out why the invisible world can't be found can be a difficult puzzle in and of itself. Of course, once the invisible world is located, adventurers may need to deal with angry inhabitants . . . and there may be a very good reason why the world has kept to itself all this time!

Primitive World

Even in a space-faring society, some inhabited worlds will be primitive. Perhaps they have just been colonized, and the colonists don't have access to the full range of advanced technology. Perhaps the colonists don't *want* to use advanced technology. Or perhaps the world is the home of a race that hasn't reached parity with interstellar society.

If you see a whole thing – it seems that it's always beautiful. Planets, lives . . . But up close, a world's all dirt and rocks.

– Ursula K. Le Guin

A primitive world is a good backdrop for stories of culture clash. Space-faring visitors might use their resources to carve out a kingdom among the primitive natives . . . although they would do well to remember that *primitive* doesn't mean *stupid*! Sophisticated natives may be able to understand advanced technology, and overcome it, even if they can't duplicate it themselves. On the other hand, visitors may be unwilling or unable to bring their own tools, and will need to deal with the natives on their own ground. Primitive worlds are usually isolated from interstellar society, else they don't stay primitive for long.

Puzzle World

A *puzzle world* is one where local conditions present a mystery to visitors. Naturally, almost every alien world is a "puzzle world" in that sense, but in some cases the mystery is *critically* important – visitors will find themselves unable to survive or succeed unless they understand how the world works! Perhaps the physical environment or the ecology has hidden pitfalls. Or perhaps local society has strange features that must be understood if visitors are to accomplish their goals.

A puzzle world presents a specific kind of challenge to its visitors. Adventures on a puzzle world are not usually motivated by the puzzle itself, unless the adventurers are explorers or anthropologists whose job is to solve puzzles! Instead, the GM should see to it that adventurers have something they *really* want to do (survive, get off the planet, make a fortune) and then make their goal contingent on solving the puzzle. One way to surprise players is to make the puzzle a subtle one. The world appears ordinary and hospitable until the characters are committed, and *then* a mystery makes itself evident . . .

Synthetic World

Some worlds are *artificial*. At the smallest scales, space habitats (p. 132) are synthetic worldlets. Science fiction has also portrayed whole planets that were either built from scratch or drastically remodeled. Some synthetic worlds are far larger than planets (see *Megastructures*, p. 133).

A synthetic world doesn't have to present any special plot elements; after all, the designers of such a world may be trying to mimic a natural environment as far as possible. Of course, even a very naturalistic habitat may need special attention to continue working properly. An abandoned synthetic world may be a doomed world (p. 64) as well, unless someone regains control over its environment. Naturally, a synthetic world can present a variety of mysteries. Who built it, and why? What technologies were used in its construction? Are any useful artifacts still there to be found?

Unique Resource World

A world can be critically important if some resource is available there but nowhere else. Even a simple luxury item will bring commercial and government attention if it can be found nowhere else in the galaxy. A unique resource that is critical to the functioning of interstellar civilization will be fought over by everyone!

Unique resources are most likely to appear in space-operatic universes. In a realistic setting, a resource that occurs in only one place in the galaxy, and that can't be analyzed or synthesized, is nearly impossible (but see *Unobtanium*, p. 181). If a unique resource world exists, it will be the natural site for high-stakes adventure, as various factions struggle to control or profit from the resource.

Depth of Detail

Aside from considering the role a given world is to play, the designer should think about how much detail he really needs. A world that is going to dominate the campaign should likely be designed in greater detail than one the PCs will visit once on their way to a more important place.

Grand Stage

Any planet is a *world* – the product of billions of years of history, operating on landscapes hundreds or thousands of miles in extent. Even an uninhabited world can provide almost unlimited puzzles to solve and locations to explore. An inhabited world, its population in the millions or billions, will have at least as much variety and depth as present-day Earth. A world could be considered a "grand stage" for dozens of adventures, developed in great detail and used over and over again.

The most detailed levels of development are useful for a world that is going to dominate the campaign. The adventurers will spend most of their time on such a world, and some of them may claim it as their home. Conflicts centering on the world will be the most important factor driving each adventure, even those that take place elsewhere in the galaxy. Other worlds may well exist in the setting, but the dominant world will be the most fully developed.

The GM should use the world-design rules in this book as a *starting point* for developing such a world. Following this, he might design maps for the world and for individual regions, work out the details of distinctive regional societies, design native animal species and build local ecologies, draw up local NPCs, and so on. The *history* of the world might be worth developing in detail; see ***GURPS Infinite Worlds*** for tools for developing historical timelines.

Repeated Visits

Sometimes a campaign won't be dominated by any single world, but contains worlds to which travelers will frequently return. Such worlds might be military outposts that provide bases for adventure, high-population centers of trade, or homeworlds where PCs usually begin their adventures.

A world that's subject to repeated visits should be developed to a moderate level of detail. Even if the world is a home base (p. 65) where action rarely takes place, space travelers will want to find employers, equip themselves, seek information, or just relax there. The GM will want to be able to describe the backdrop for such activities. The world-design rules in this book can be used to generate the overall environment for such a world. After that, the GM can produce whatever local details or NPCs are necessary to support the world's purpose in the campaign.

Sound Stage

A world that is only going to be visited once (even as the focus of an adventure) can often be developed to a very low level of detail. This could be called the "sound stage" level of development. Television series have often conveyed the "alien world" idea with actors on a sound stage, supported by nothing more than a few fake boulders and an oddly colored backdrop to suggest an unearthly sky.

A sound-stage world can easily be developed using the world-design rules in this book. Indeed, many steps in the design sequence can be skipped if those details aren't likely to have any effect on the planned adventure. The GM may need nothing more than a general idea of the planet's environment, along with one or two specific locations. Naturally, a sound-stage world can be developed further if the GM or players take an interest in it!

Depth of Realism

Another consideration in world design is how much *realism* the GM wants to inject into his setting. Realism in setting design isn't an absolute virtue; what's necessary is *plausibility*. The audience of the story, film, or roleplaying session wants to be able to suspend disbelief and enjoy immersion in the flow of events. Each audience will have its own standards, and every subgenre of science fiction has its own requirements. A world design that fits perfectly into a space-operatic universe might be nonsensical in a high-realism "hard SF" setting, and vice versa.

Very few SF authors *ignore* realism in their world design, but some pay more attention to it than others. A good author or GM will be concerned with characters and story. Some authors (notably Poul Anderson and Hal Clement) have made a fine art of using rigorously plausible and distinctive settings to *drive* their stories – but other approaches are just as effective.

In general, as with other discussions of real-world science and technology in this book, the world-design rules are intended as tools for you to use when producing the space setting *you* want. Use, rewrite, or ignore them to taste!

Mapping the Galaxy

A broad and ample road, whose dust is gold,
And pavement stars, as stars to thee appear
Seen in the galaxy, that milky way
Which nightly as a circling zone thou seest
Powder'd with stars.
– John Milton, ***Paradise Lost****, Book VII*

Worlds need a context, a map of the overall campaign setting to which GM and players can refer.

How Many Worlds?

The GM should consider *how many* distinct worlds he will need for his campaign. Many space-oriented games will use only one star system – perhaps our own solar system, perhaps some other that has been colonized by humans. A campaign on the interstellar or galactic scale can easily include hundreds or even thousands of worlds. Choosing a useful scale is one of the fundamental decisions to make in any interstellar setting; see *Choosing a Preferred Scale* (p. 72) for some suggestions.

The choice will depend on the available space-travel technology; if FTL is not available, no one will have *time* to visit many worlds. Another consideration is the campaign framework. If the GM plans to spend a lot of time with each world, he won't need very many. On the other hand, a picaresque campaign will need many worlds for adventurers to visit.

Naturally, a campaign set in a single star system won't need much attention to astronomical detail. If many star systems are to be included, the GM may wish to arrange them in accordance with what's known about the large-scale structure of the galaxy.

Drawing the Map

The type of map to draw depends on the scope of your campaign, and especially on the type of interstellar travel that is available in your universe.

If starships will move by "jumplines" or a similar system, space can be mapped by drawing the jumplines. The actual distance between two stars in space may be irrelevant, and anything that isn't on a jumpline can be ignored. If jumpline travel is instantaneous, only the connections need to be drawn and the map can be quite abstract. Otherwise,

the amount of time it takes to traverse each connection must be indicated somehow. A jumpline map may also include information about how long it takes for a ship to travel from each jump point to a nearby world or other place of interest.

If FTL travel times depend on the normal-space distance between stars, then a scale map of the campaign area will be needed. If starships move through normal space, then possible hazards like nebulae should be mapped. If starships move through hyperspace, then normal-space phenomena between stars can probably be ignored. Of course, if there are "terrain features" in hyperspace that might slow travel or make it more dangerous, those will need to be mapped!

Mapping space is sometimes inconvenient because paper maps are flat but space isn't. The GM may choose to ignore this, placing all of his star systems on the same plane. It's more realistic to use a three-dimensional grid system. The map surface then represents a convenient plane – usually either the plane of the galactic disk, or a plane defined by Earth's equator. A star "above" the reference plane would be mapped with a "+" sign, followed by its distance above the plane in parsecs. A star "below" the plane would be mapped with a "-" sign and its distance from the plane. Thus, if Lestrade's Star lies four parsecs below the reference plane, it would be noted on the map with (-4).

To find the distance between two stars when using three-dimensional coordinates, apply the Pythagorean formula:

$$\mathbf{D} = \textit{Square root of } (\mathbf{X}^2 + \mathbf{Y}^2 + \mathbf{Z}^2)$$

Here, **D** is the total distance between the two stars in parsecs, while **X**, **Y**, and **Z** are the distance between them along each of the three axes.

Astronomical Features

Campaign maps may include astronomical features at a variety of different scales.

Galaxies

Galaxies are the building blocks of the (visible) universe. The vast majority of the universe's stars are located within galaxies, forming island universes that are visible for millions of parsecs in every direction.

Galaxies are *much* more closely packed, relative to their size, than are stars within a single galaxy. Galaxies often interact. The largest ones seem to have formed by absorbing their smaller neighbors, a process that continues to the present day. Meanwhile, even full-sized galaxies sometimes pass close to (or directly through!) each other, distorting their shapes and affecting one another's evolution.

Galaxies normally come in three different categories: *elliptical*, *spiral*, and *irregular*. Each of these has significantly different properties.

Elliptical galaxies have the shape of a more or less elongated sphere. A few elliptical galaxies (the *lenticular* galaxies) show the beginnings of a central disk, and may represent a transitional type between elliptical and spiral galaxies.

Elliptical galaxies vary tremendously in size. Small *dwarf ellipticals* are only a few hundred parsecs across and may contain only a few million stars. The largest elliptical galaxies are hundreds of thousands of parsecs across and contain many *trillions* of stars. These huge elliptical galaxies, hundreds of times as large as our own galaxy, are among the largest objects in the universe.

Elliptical galaxies have an undifferentiated shape because they don't have a strongly preferred direction of rotation. Component stars may orbit the galaxy's center of mass in a wide variety of directions and speeds. Many elliptical galaxies are relatively barren places, with little or no new star formation under way.

Spiral galaxies have a strongly flattened shape, with much of their visible matter restricted to a galactic disk. Spiral galaxies usually have a very obvious structure, with most of the visible stars arranged in a set of spiral arms. Spiral galaxies are much less variable in size than elliptical galaxies. Most spiral galaxies are between 5,000 and 50,000 parsecs across, and have between a billion and a trillion stars.

A spiral galaxy's structure forms because it rotates strongly in a specific direction. Most of the stars of the disk revolve in the same direction, in more-or-less circular orbits around the galaxy's center of mass. Waves of

Distances and Scales

Astronomical distances aren't conveniently measured in miles. Although this book will refer to miles in some cases, it normally uses several different units to measure distances on different scales.

The *Earth diameter* will sometimes be used in this book to measure the size of worlds and the distance from worlds to their satellites. Astronomers normally don't use this unit, but it will make some of the world-building calculations more convenient. Earth's diameter at the equator is about 7,930 miles.

The *astronomical unit* (AU) is the standard unit used in this book to measure interplanetary distances. One AU is equal to the average distance between Earth and the sun, about 11,730 Earth diameters or 93 million miles.

The *light-year* (ly) is equal to the distance light travels in the vacuum of space in the course of one Earth year. It is equal to about 63,000 AU or 5.9 trillion miles. This book doesn't use the light-year often, but it is a common measure of distance in astronomy and in science fiction.

The *parsec* (pc) is the standard unit used in this book to measure interstellar distances. Astronomers measure the distance to a nearby star by observing its *parallax*, its apparent angle of motion across a baseline of 1 AU. If the *par*allax is equal to exactly one *sec*ond of arc, then the star is one *parsec* away. One parsec is equal to 3.26 light-years, or to about 206,000 AU.

denser structure occur within the disk, forming the spiral arms. The arms tend to concentrate interstellar gas and dust, providing a good environment for the formation of new stars.

As the name suggests, *irregular* galaxies are unbalanced in shape, although they often exhibit a few hints of spiral structure – a vague spiral arm, or a dense "bar" that is often displaced from the galaxy's center of mass. Irregular galaxies vary in size, although they tend not to be very large. They are usually between 1,000 and 10,000 parsecs in diameter, and have between 100 million and 10 billion stars.

Bigger Than Galaxies

Galaxies are not distributed randomly through the universe. Almost all galaxies are found in *groups* or *clusters*. A *group* of galaxies is smaller, usually with no more than 30 member galaxies, about 0.2-1.5 million parsecs across. A *cluster* is usually larger, containing up to several hundred galaxies in a space about 1.5-3 million parsecs across.

Groups and clusters of galaxies are themselves organized into *superclusters*. On the largest scale, the universe is full of galactic associations, arranged in clumps and sheets as if on the surface of great "bubbles" of empty space. These *voids* are almost empty of matter, and are usually about 100-400 million parsecs across. The voids appear to be distributed fairly evenly through the universe. Current cosmological theory has yet to explain why the universe is arranged this way!

Galactic Structure

Our own galaxy is a very typical *spiral galaxy*, in shape, size, and structure. Its visible disk is about 30,000 parsecs across.

The galaxy's busiest region is the *galactic disk*, a flat structure in which most of the nebulae and bright young stars are found. Since it's the brightest stars that define the visible shape of the galaxy, the disk is its most prominent feature. The disk is about 600 parsecs thick, becoming thicker toward the galactic core.

The galactic disk establishes a three-dimensional system of directions

that will be used in this book for interstellar mapping. One direction perpendicular to the plane of the disk is called *galactic north* and points "above" the plane. The opposite direction is *galactic south* and points "below" the plane. A line on the plane of the disk passing through the galactic core defines the directions of *coreward* (toward the core) and *rimward* (away from the core). Finally, within the disk plane but perpendicular to the coreward-rimward line, another line defines the directions of *spinward* (in the direction of galactic rotation) and *trailing* (opposite the direction of rotation).

Much of the disk's matter falls in the *spiral arms*, long structures that (if looking "down" on the disk from galactic north) curve counterclockwise as they move from the core out to the fringes. The spiral arms are not smooth curves, forming a regular pattern. The densest parts of the arms fall into a series of short, discontinuous arcs that piece together to form an overall spiral shape. There are two major spiral arms, and a number of shorter arcs that could be considered partial arms.

The galactic disk is embedded in the *galactic halo*, a spherical structure that takes up most of the galaxy's volume. The halo contains very little gas or dust, and only a few percent of the galaxy's stars. The stars of the halo are old and dim, many of them orbiting the core at wide angles to the plane of the disk; such stars punch through the disk twice in the course of each long orbit. Strangely, the halo appears to contain the majority of the galaxy's mass, which must be in the form of undetectable "dark matter."

The halo is densest toward the center of the galaxy, where it shades into the *galactic core*. This is a flattened bulge, about 1,800 parsecs thick. The core is somewhat elongated, making our galaxy a moderate example of a "barred" spiral. The best current model of the galactic bar makes it about 1,800 parsecs wide and 4,500 parsecs long, with its long axis pointed in the general direction of Earth. The galactic core is composed of older stars, with a few clusters of bright young ones. It is extremely dense in its inner regions, with many stars per cubic parsec.

Current observations indicate that Earth is about 30 parsecs above the plane of the galactic disk, about 7,700 parsecs from the center of the galaxy. Sol is located in what astronomers call the Local Arm, one of the galaxy's two major spiral arms. This arm is about 1,800 parsecs across, and winds halfway around the galaxy from core to fringes. The centerline of the Local Arm passes about 100 parsecs rimward of Sol, so Earth is fairly close to the heart of the arm. This is no more than coincidence; Sol and Earth are simply "passing through" the region on their own orbit around the galactic core.

Galactic Features

A closer look at the galaxy reveals a variety of small-scale features.

Globular clusters are dense spherical clusters of stars. They are usually 50-100 parsecs in diameter, and can contain up to hundreds of thousands of stars. Globular clusters are very old, 10 billion years or more. They formed even before the galactic disk was well-established; most of them remain in the galactic halo, where they follow very wide orbits around the galactic core. Some of the younger ones may have been captured from others by our galaxy. The stars in the core of a globular cluster may be only light-weeks apart, and close encounters among them are common. Stars in a globular cluster are very unlikely to have stable, life-bearing planets. Globular clusters are rare – the nearest one to Earth is about 2,000 parsecs away.

Open clusters are very common star groups, smaller than globular clusters and located solely in the galactic disk. An open cluster is usually two to 15 parsecs in diameter, and can contain up to several thousand stars. These stars all formed together and have since moved through the galaxy as one, mutually bound by gravity. Open clusters can be any age, although very old ones are quite rare. Most are less than 200 million years old, and almost none are older than two billion years. Stars in an open cluster may have planets, if they are old enough and have managed to avoid close encounters with other cluster members. There are several open clusters in Earth's galactic neighborhood, most notably the Ursa Major Moving Cluster (centered about 23 parsecs away) and the Hyades (centered about 45 parsecs away).

Associations are groups of stars that have dispersed from their original open clusters, but are still located close together on the galactic scale, and have similar orbits around the galactic core. Like open clusters, they are found only in the galactic disk. Associations tend to be young – after a few orbits around the core, they disperse so far as to be impossible to identify. Many associations are tied to well-defined open clusters, indicating a common origin; both the Ursa Major cluster and the Hyades have their own associations, which include many of the bright stars visible in Earth's sky. Some of the very youngest associations are still dominated by super-bright blue-white stars; these *OB associations* are among the galaxy's most prominent small-scale features. The closest OB association to Earth is centered about 160 parsecs away.

Molecular clouds or *dark nebulae* are clouds of interstellar hydrogen interspersed with heavier elements and dust grains. They are much denser than the normal interstellar medium. When they are parsecs thick, they can obscure most or all of the light from stars behind them, giving the appearance of dark "holes" in the sky. On the other hand, when they are illuminated by bright nearby stars, they can shine in vast billows and traceries by the reflected light.

Molecular clouds are star nurseries, places where new stars are formed. They can be of almost any size; the smallest ones are less than a parsec across, while great molecular-cloud complexes like the Orion Nebula can be 50 parsecs or more in diameter. Molecular clouds can be important in a campaign if they obscure stars or hinder interstellar travel.

Distribution of Stars

The number of stars in a unit volume of the galaxy's space varies widely. In the galactic core or the heart of a globular cluster, stars will be packed so tightly that only a few thousand AU separate them. In the deep fringes of the galactic halo, a star might be dozens of parsecs from its nearest neighbor.

Most settings involving interstellar travel will focus on the region of the galaxy around Sol, or on a similar region elsewhere in the galaxy. In this region, there is about one star system for every 10-15 cubic parsecs. About half of all star systems actually contain two (or more) stars, each of which has some chance of associated planets.

The Frequency of Worlds

There are about 400 billion stars in our galaxy, and it seems likely that at least one-third of them (about 130 billion stars) have planets. How many of these are home to intelligent life? How many might be suitable for colonization? *It's anyone's guess*. All of our estimates are based on unproven assumptions. That situation *may* change in the coming years, as better space telescopes continue to give us more information about other solar systems. For now, even a GM interested in realism is free to make useful worlds as common as he likes.

It's possible that interstellar civilizations will be in the habit of colonizing and using *every* star system, no matter how inhospitable or barren. Unless this is the case, many stars simply won't be worth bothering with. Even under a generous estimate, pleasant Earthlike worlds are outnumbered *dozens to one* by barren balls of rock or ice.

Unless a campaign map covers a region with only a few dozen stars in it, the GM should probably not try to map every star, or even every marginally habitable system. There are simply too many. The GM can concentrate on locating the major star systems that will play a significant role in his campaign, just as the publisher of a road atlas only selects the most important cities to place on a national map.

Alien Homeworlds

Many science-fiction universes are busy, chatty places. They're full of multiple alien species, all at about the same level of development, permitting

Who are we? We find that we live on an insignificant planet of a humdrum star lost in a galaxy tucked away in some forgotten corner of a universe in which there are far more galaxies than people.

– Carl Sagan

them to talk to (and shoot at) each other in dramatically interesting ways. Unfortunately, the real universe doesn't appear to be so densely populated.

Most scientists agree that intelligent, technologically advanced life must be a rare phenomenon in the universe. There is no clear-cut evidence for past visits of alien intelligence to Earth. Astronomers have never detected an unambiguous signal from another world. We see no sign of interstellar-scale engineering projects, such as might be mounted by advanced civilizations. The universe appears to be a quiet place.

The dearth of evidence for aliens places a limit on the frequency with which they are likely to exist in the universe. If a communicative, technologically advanced alien species existed within 100 light-years of Earth, we would have detected it by now. This suggests that such species don't appear more often than about once in 10,000 star systems.

Still, the evidence is extremely incomplete, and there's little to prevent a GM from setting the frequency of alien intelligence at any level he wants. In some settings, intelligence is vanishingly rare and human explorers never find aliens. In others intelligence is common, appearing around many (or even most) stars.

When designing a densely-populated universe, the GM may want to develop reasons why the sky seems so quiet to us today. Perhaps Earth is in the midst of a reserved space in the galaxy, a region where colonization is forbidden. Perhaps intelligence is common but advanced technology is rare, so that most species never progress beyond a primitive state. Perhaps advanced civilizations are common, but the vast majority of them simply don't bother exploring with telescopes or starships. Or perhaps there is a *very good reason* for everyone to be keeping quiet . . . the galaxy might be a dangerous place for young civilizations who foolishly broadcast their existence!

Worlds Bearing Complex Life

If *intelligence* seems rare, *life* is probably very common. Although alien life has yet to be unambiguously discovered, astronomers have found its chemical building blocks in many surprising places – in the heart of meteorites, in the atmospheres of other planets, even in the vast molecular clouds found in deep interstellar space. On Earth, primitive life seems to have begun almost as soon as it *could*. Today, life can be found in some of Earth's most hostile environments.

Of course, for most of Earth's history, life has been very simple: bacterial mats, viruses, and algae. Scientists searching for life elsewhere in our own solar system expect to find similar simple forms, not complex plants and animals. Explorers may find comparable situations on the worlds of other stars – many worlds with primitive life, few with complex species.

Astronomers have defined a set of conditions for stars that are likely to have Earthlike worlds, home to complex living organisms. A star must be stable and long-lived. It must not be too bright, as the brightest stars rarely have planets. It must not be so dim that its planets are too cold for complex life. It must not be too old, as the oldest stars are metal-poor and may not have planets. It must not be too young, as it appears to take billions of years for complex life to evolve. It must not be tied to a partner star whose gravitational influence would make an Earthlike world's orbit unstable. Given all these conditions, it seems unlikely that more than 10% of all star systems will shelter complex life. A more realistic estimate might place the number at 3% to 5%.

Of course, the evidence is again extremely sketchy, and the GM should feel free to place this frequency wherever he wishes. After all, complex (but stupid) living creatures are almost impossible to detect at interstellar distances. Meanwhile, planets with complex life – but without native intelligence – are likely to be superb places for colonization.

Interesting Barren Worlds

Given the above, 90% or more of all star systems will be barren, containing no complex life and probably little else to set them apart from one another. Still, even if a star system has no complex life of its own, it may be worth visiting, exploring, and colonizing.

If interstellar travel is expensive, difficult, or slow, then a civilization may colonize *every* star system as it expands. An interstellar society that has to make a huge investment in order to reach even a single new world can't afford to be choosy. Of course, even a barren star system is colonizable with advanced technology. Energy can be derived from fusion power or the primary star. Useful materials can be mined, minerals and metals from the barren worlds, water and other volatiles from the icy outer system. If a convenient planet isn't available, habitats can be carved out of asteroids or other pieces of space debris (see *Macro-life*, p. 191). Thus even the least promising star system can become a thriving colony, if the colonists have no choice.

If interstellar travel is easy, the most useless star systems will probably be visited once and then ignored. Even in this case, some barren star systems may be colonized by people who simply want to get away from civilization. Dissident or refugee groups may set up camp in a barren star system in order to escape their enemies and live as they please.

Meanwhile, some barren systems will be colonized because they yield useful resources: unusual organic compounds, industrial metals, radioactives, the mysterious crystals used in starship power plants, and so on. Even after the resource runs out, an already-established community

may remain in place. Another possibility is the *scientific* colony, established as a base for the study of some unusual phenomenon in nearby space.

Finally, a star system may be colonized for its location. Civilizations will establish outposts as advance bases, or to control places where unusual amounts of starship traffic pass. This is less likely in a universe where interstellar travel is fast and easy – why colonize *this* particular star, rather than one of the 100 other barren systems within easy travel distance? At the other extreme, if FTL travel takes place along fixed wormholes or jumplines, the map will contain many choke points, systems that may have no intrinsic value but which are natural waypoints for travel.

The GM should decide how many barren-but-interesting worlds will be in his universe for each world bearing complex life. If the ratio is high, interstellar travelers will often be visiting small outposts and hardscrabble colonies on barren worlds. If the ratio is low, most adventures will take place on the garden worlds, with their higher populations and complex ecosystems.

Choosing a Preferred Scale

The choice of scale for an interstellar setting is one of the most fundamental decisions the GM must make. Is the setting going to be vast, covering a significant part of the whole galaxy? Or is it going to be a tiny chip of explored space, including no more than a few star systems? This choice affects not only the number of worlds that might fall onto the campaign map, but also the selection of FTL and other technology assumptions (see Chapters 2 and 3).

The GM can get an idea of his preferred scale by deciding how many star systems play host to intelligent life, and how many have given rise to complex but unintelligent life. Then he can decide how many of each kind of world he wants to have in his setting. Along with an assumption about the density of stars in space, this can give the volume of the campaign map. In the neighborhood of Sol, there is about one star system for every 12.5 cubic parsecs; different densities can be assumed in other regions of the galaxy.

Once the scale is selected, the GM can consider the typical speed of interstellar travel. How long can an adventurer expect to take to travel from one world to the next or from the center of the campaign map to its edges? Unless many adventures are likely to take place on board ship, travel times between worlds should probably not be more than a few weeks. If there is regular contact between the core and the fringes of the campaign setting, the longest trip shouldn't take more than a year or so (unless years-long voyages are typical for the setting, as in many STL-based universes).

Playing With Shapes

When deciding on the scale of an interstellar campaign, the GM can make use of a couple of simple mathematical formulae.

Given a sphere of volume **V**, then the radius of the sphere (the distance from its center to its surface) is about 0.62 × *cube root of* **V**. Given a cube of volume **V**, then the length of each face of the cube is exactly *cube root of* **V**.

Given a region of space of volume **V**, and some number of points **N** distributed at random inside that region, then the average distance between two neighboring points is about 1.12 × *cube root of* (**V**/**N**). (This assumes that the region of space has a simple shape, but it doesn't have to be a sphere – a cubic volume that can conveniently be drawn on standard graph paper will do.)

The first formula is useful when deciding how big the space a campaign map covers will need to be, assuming that stars are evenly distributed within the mapped region. The second is useful for determining the average travel time between two neighboring worlds on the map.

For example, suppose the GM assumes that intelligent alien life is found once in about 10,000 star systems, and that he wants to have six starfaring species in his campaign. This suggests about 60,000 star systems within the space covered by the campaign map. At about one star system per 12.5 cubic parsecs, the map will need to cover about 60,000 × 12.5 = 750,000 cubic parsecs.

The GM decides that he will use a spherical shape for his campaign setting. Applying the formula for the sphere's radius, he finds that the campaign map will need to cover a sphere with a radius of about 0.62 × *cube root of* (750,000) = 56.3 parsecs. A map covering a sphere with a radius of about 60 parsecs should be enough.

The GM then decides that this sphere will include about 200 interesting worlds, most of which won't be placed until he needs them. How far will each world be from its neighbors?

Applying the formula for average distance, the GM computes a distance of 1.12 × *cube root of* (750,000/200) = 17.4 parsecs. This distance should be typical for voyages from one world to the next in the course of the campaign. If such a voyage is expected to take about a week, then the typical FTL speed for a starship will be about 17.4/7 = 2.5 parsecs/day. At that speed, a voyage from the center of the campaign map to its edge will take about 60/2.5 = 24 days.

Meanwhile, the 60,000 stars on the map will include several thousand with life-bearing worlds, and tens of thousands of barren systems. Clearly, the GM won't need every one of these star systems – which is a good thing, as he can't even *begin* to draw every one on his map!

World Design Sequence

Gummidgy was blue on blue under a broken layer of white, with a diminutive moon showing behind an arc of horizon. Very Earthlike but with none of the signs that mark Earth: no yellow glow of sprawling cities on the dark side, no tracery of broken freeways across the day. A nice-looking world, from up here. Unspoiled.

– Larry Niven, "Grendel"

The following material presents a system for designing worlds, star systems, and whole regions of the galaxy for a space-based setting. Such a system depends on both the current state of scientific knowledge, and on the dramatic requirements of the setting. Unfortunately for the game designer, both of those factors are subject to change!

The present day is a time of great progress is astronomy and astrophysics. Our understanding of how planets form and evolve is very different today from what it was even a decade ago. A decade from now it will doubtless be different again.

Meanwhile, the role of scientific realism varies from setting to setting. A GM who wants a hard-SF feel may map the stars with great attention to astronomical realism. On the other hand, a GM who wants a Golden Age feel for his spaceship-and-blaster epic will want to run off a dozen worlds to suit his dramatic needs, and won't care about meticulous realism.

No fixed world-design system will fit every need, or remain in accord with the best scientific understanding for very long. The system in this book is designed to be flexible. As presented, the system assumes a fairly high degree of realism according to current scientific research. However, each step of the process will include explanatory material designed to help the GM alter the system to fit his needs.

Overview

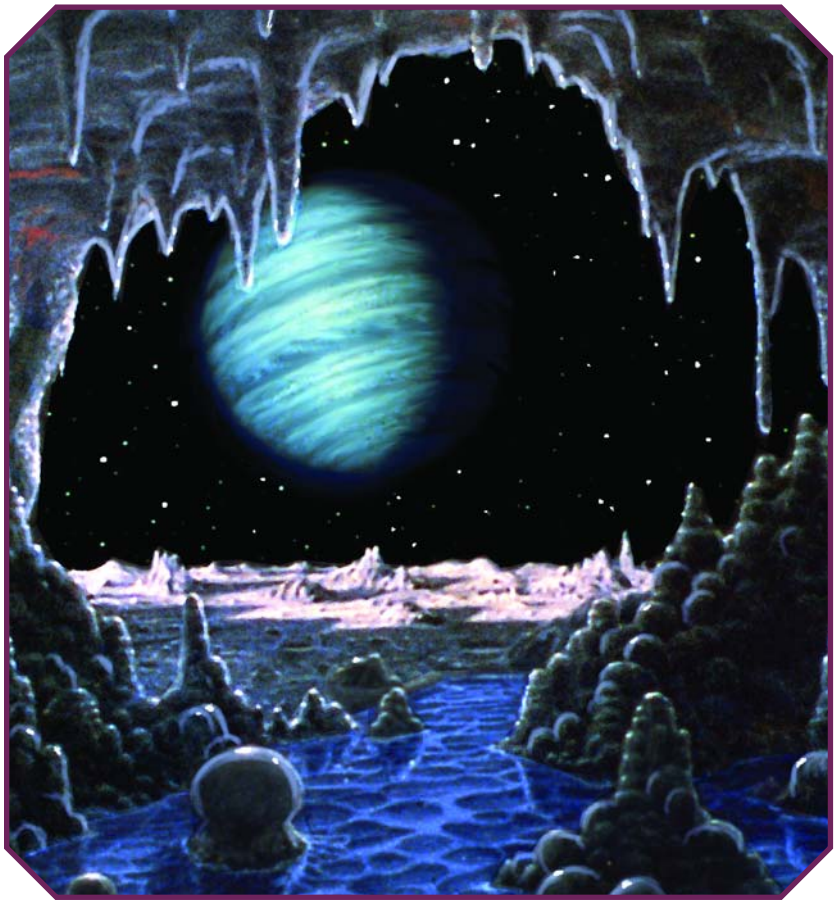
The world design system is presented in a series of concrete steps, organizing the process of designing a world in a logical progression. To record the specifics of your design (and have a place to show a color map of your world, if you wish), download the Planetary Record Sheet for free at **www.sjgames.com/gurps/books/space/.**

The first 14 steps, presented in this chapter, constitute a "basic" worldbuilding system that will help the GM design one world. The astronomical context for each world (its primary star, any moons it might have, the presence of other planets) is ignored. The GM can design a complete campaign setting using this chapter, although it will be a setting in which only one world in each star system is interesting, and the focus of any adventure is expected to be down on that world's surface. This isn't as restrictive as it sounds. Many well-known science-fiction universes have paid almost no attention to astronomical context.

The remaining steps (some of which recapitulate the first 14) are presented as an advanced worldbuilding system in the next chapter. Those steps will permit the GM to generate the astronomical context for each world generated using the basic design system. The advanced system can also be used to randomly generate whole star systems from scratch. Used in full, the advanced system will provide dozens of worlds per star system in realistic detail. The results will be suitable for hard-SF settings, especially those in which many adventures take place in space or in which interplanetary travel is common.

The system uses die-roll tables to present various options at each step. The GM should use these tables as he pleases He may simply choose an option without rolling dice, in which case the table and any die-roll modifiers can be used simply to help decide what options are more likely than others. Or he can roll the dice as indicated and accept the result.

Many of the tables help to generate various physical measurements for a world and its surface environment:



mass, surface gravity, atmospheric pressure, surface temperature, and so on. Real-world physical measurements don't fall onto discrete values that can conveniently be put in a table! To add local color, the GM may want to impose minor variations on these measurements from one world to the next. To do this, it is usually acceptable to choose and record a value close to the one given by a table (i.e. closer to that value than to the one on either side).

Both basic and advanced systems require some computations that can easily be performed using a hand calculator. They involve nothing more complex than raising a number to a small exponent, or taking the square, cube, or fourth root of a number.

Step 1: Concept

To begin the process of world design, the GM should decide on a *concept* for the world. The concept should be a sentence or short paragraph describing the most important features of the world. The GM should make a note of any dramatic role (p. 63) that he wants the world to fill. He should also jot down notes about any adventure plots that are likely to be attached to the world. Only if the GM intends to design the world entirely at random should he skip this step.

Example: To demonstrate the world-building rules, we will use them to generate a world and star system for a ***GURPS Space*** campaign.

After reviewing the options in Chapter 1, the GM has decided to build a high-powered space-opera universe. He decides that humans have had FTL travel for thousands of years, and have spread throughout a large region of the galaxy. There are lots of alien races, some of them derived from humanity by way of genetic engineering. The most important interstellar society in the setting is an Empire (p. 197) dominated by a hereditary aristocracy.

In the example, the GM wishes to design a frontier planet, distant from any major worlds and largely cut off from the main trade routes. After thinking about a concept, he decides that the world (named *Haven*) will be an invisible world (p. 65), settled by various dissidents and renegades who are hiding from imperial authority. He further decides that Haven isn't on imperial maps because its star system is in the midst of a dense star cluster that's difficult for FTL navigators to negotiate. He has no preferences about Haven's surface environment, and will use the random tables and his own inspiration to develop that.

Step 2: World Type

The planetographers were still puzzling about Diomedes. It didn't fall into either of the standard types, the small hard ball like Earth or Mars, or the gas giant with a collapsed core like Jupiter or 61 Cygni C. It was intermediate, with a mass of 4.75 Earths; but its overall density was only half as much. This was due to the nearly total absence of all elements beyond calcium.

There was one sister freak, uninhabitable; the remaining planets were more or less normal giants, the sun a G8 dwarf not very different from other stars of that size and temperature . . .

– Poul Anderson,
The Man Who Counts

In this step, the world's *type* is determined. A world type is an overall class of worlds, all of which have a similar surface environment. The concept of world type plays a very large role in the world design system.

In particular, a world's type depends on what *volatiles* are available on the world's surface. Volatiles are chemical compounds with low melting and boiling points that make up the bulk of a planet's atmosphere and hydrosphere (if any). Hydrogen, nitrogen, oxygen, water vapor, carbon dioxide, and a number of other familiar compounds are all volatiles.

A world's type is normally described with two terms. One gives the general *size* of the world: Tiny, Small, Standard, or Large. Each of these expands into two to six subtypes, usually tied to local temperature, which further define conditions on the world's surface.

Tiny Worlds

A *Tiny* world is so small that it cannot retain a significant atmosphere, no matter how far from its primary star it is located. The following Tiny world types are available.

Tiny (Ice): The world is too small to retain significant atmosphere, but it is cold enough that it can have rich deposits of water ice and similar frozen volatiles. Internal heat due to radioactive deposits or tidal flexing can melt some of the subsurface ice, possibly forming a vast "ocean" of liquid water. Most Tiny (Ice) worlds are actually large moons orbiting gas giant planets. Examples in our own solar system include Jupiter's moons Callisto or Europa.

Tiny (Rock): The world is too small to retain significant atmosphere, and it is also too warm to have much ice. The surface is composed almost entirely of naked rock pocked with craters. Tiny (Rock) worlds may exhibit some volcanic activity early in their histories, but they quickly cool off and become geologically dead. Some Tiny (Rock) worlds are large moons, while others are planets in their own right. Examples in our own solar system include Mercury and Earth's Moon.

Tiny (Sulfur): This world type represents certain gas-giant moons that experience a tremendous amount of volcanic activity. Tiny (Sulfur) worlds undergo a great deal of tidal "flexing" in the course of their orbit, due to the gravitational influences of the gas giant and its other large moons. This flexing effect heats the interior of the moon, encouraging volcanism. Most of the lighter volatiles that are released this way escape to space, while sulfur and sulfur compounds are concentrated on the surface. Such a world is likely to be a very dangerous place to visit. The sole example in our own solar system is Jupiter's moon Io.

Small Worlds

A *Small* world is large enough to retain molecular nitrogen, one of the most common volatile compounds and a major component of many planetary atmospheres. As a result, a Small world often has a substantial atmosphere. However, it isn't large enough to retain water vapor in its atmosphere, so unless all the water is frozen out on the world's surface it will eventually be lost to space. The following Small world types are available.

Small (Hadean): This world type includes those worlds that are large enough to retain gaseous nitrogen, but which are so cold that their nitrogen atmosphere is frozen on the surface! Such worlds are likely to be gas giant moons located on the outer fringes of a star system. There are no examples of this kind of world in our solar system.

Small (Ice): The world is large enough to hold onto an atmosphere, usually composed primarily of nitrogen with a few more complex compounds in the mix. It is cold enough to have a great deal of water ice and other frozen volatiles. It may even have liquid "oceans," although these are very unlikely to be composed of water – they may be full of hydrocarbons or other odd substances. Most Small (Ice) worlds are very large moons orbiting gas giant planets. The sole example of a Small (Ice) world in our own solar system is Saturn's moon Titan.

Small (Rock): The world is large enough to hold onto an atmosphere, although that atmosphere is likely to be very thin. It is not large enough to retain water vapor, and it is too warm for the bulk of its surface water to remain frozen. As a result, any water that the world originally had has escaped to space, perhaps leaving behind a few buried deposits of water ice. The sole example of a Small (Rock) world in our own solar system is Mars.

Standard Worlds

A *Standard* world is large enough to retain water vapor in its atmosphere, which is normally extensive. Some have liquid-water oceans, while others have vast deposits of water ice. Although some Standard world types are extremely hostile, others are among the most likely homes for complex life forms and intelligence. The following Standard world types are available.

Standard (Hadean): Like the Small (Hadean) worlds, these worlds would normally have an extensive atmosphere, but they are so cold that almost all of the likely volatile compounds have frozen out. They are likely to be the largest moons of gas giants on the fringes of a star system. The sole example of a Standard (Hadean) world in our solar system is Neptune's moon Triton.

Standard (Ammonia): This world type world is large enough to retain a thick atmosphere, along with plenty of water and other light volatile

World Types and Skills

The world types given in this book map to the "planet types" described under *Planet Types* (p. B180) as follows. This affects which skill specialties scientist characters will need on each world.

- *Earthlike:* Standard (Garden), Standard (Ocean), Large (Garden), and Large (Ocean) worlds.
- *Gas Giants:* Gas Giant worlds.
- *Hostile Terrestrial:* Standard (Ammonia), Standard (Greenhouse), Large (Ammonia), and Large (Greenhouse) worlds.
- *Ice Dwarfs:* Tiny (Ice) worlds.
- *Ice Worlds:* Small (Hadean), Small (Ice), Standard (Hadean), Standard (Ice), and Large (Ice) worlds.
- *Rock Worlds:* Asteroid Belt, Tiny (Rock), Tiny (Sulfur), Small (Rock), Standard (Chthonian), and Large (Chthonian) worlds.

compounds. However, it is so cold that pure water would be eternally frozen and Earthlike life could not possibly survive. Instead, the atmosphere is primarily composed of ammonia and methane, and the oceans are composed of liquid ammonia mixed with a substantial amount of water. Ammonia-based life (p. 138) is possible on such a world. Ammonia worlds are very unlikely except near cool red dwarf stars; the compound breaks down quickly when exposed to the ultraviolet light given off by brighter stars like our own sun. There are no examples of such a world in our own solar system, although the small gas giants Uranus and Neptune are similar in some respects.

Standard (Ice): The world is large enough to retain a thick atmosphere and plenty of water. However, the world is so cold that almost all of this water is frozen, covering the rocky surface with a thick coat of ice. Photosynthetic life is rare or completely absent, so the atmosphere has little or no free oxygen. There is no example of a Standard (Ice) world in our own solar system.

Standard (Ocean): The world has a thick atmosphere and plenty of water, and has surface temperatures that make liquid-water oceans possible. However, it lacks photosynthetic organisms (plants), either because such life has not yet evolved or because it has become extinct. As a result, the atmosphere contains little or no free oxygen. There are no examples of this kind of world in our solar system, although Earth fell into this category a billion years ago, and probably will again a billion years from now.

Standard (Garden): The world is large enough to retain a thick atmosphere, retains plenty of water to form oceans, and has a surface climate that humans would find relatively pleasant. It also has extensive life, including photosynthetic life that can maintain free oxygen in the atmosphere. Standard (Garden) worlds are the most hospitable for human life. The sole example of a Standard (Garden) world in our solar system is, of course, Earth.

Standard (Greenhouse): The world is large enough to retain a thick atmosphere and plenty of water. However, at some point it became too warm to support a habitable environment. As the oceans began to boil, the atmosphere experienced a runaway greenhouse effect that pushed surface temperatures far above the level of human comfort. Some Greenhouse worlds ("wet greenhouses") still have oceans of surface water, trapped in a liquid state by the intense atmospheric pressure. Others ("dry greenhouses") have lost all of their original water to the breakdown of water molecules by sunlight in the upper atmosphere. In either case, the surface environment is extremely hostile, the air unbreathable and furnace-hot. The only example of such a world in our own solar system is Venus, a dry greenhouse planet.

Standard (Chthonian): The world would normally be large enough to retain a thick atmosphere, but it is so close to its primary star that almost all of its volatiles have been stripped away by the stellar wind of charged particles. There may be a tenuous atmosphere, but it is likely to be composed of vaporized metal rather than anything convenient for human life. There is no example of this kind of world in our solar system.

Large Worlds

A *Large* world is large enough to retain helium gas (and possibly even some hydrogen) in its atmosphere. Hydrogen and helium are by far the most common elements in the universe, so a world that can hold onto them is likely to be very massive. In fact, the Jupiter-like gas giant planets are believed to have formed in this fashion.

For whatever reason, a Large world has not accumulated the massive atmosphere typical of a gas giant. Perhaps it was starved of material at a critical point during formation, or some cataclysm stripped away most of its atmosphere. Although a Large world may have a very thick atmosphere, its mass is dominated by rocky or icy materials and it has a definite surface on which visitors could land. Large worlds of this kind may be quite rare.

The following Large world types are available. None of them exist in our own solar system, although one (the Chthonian subtype) has been detected in orbit around other stars.

Large (Ammonia): This class is nearly identical to the Standard (Ammonia) class, but is larger and is likely to have a substantial amount of helium or hydrogen gas in its atmosphere.

Large (Ice): This class is nearly identical to the Standard (Ice) class, but again it is larger and is likely to have large amounts of helium or hydrogen gas in the atmosphere.

Large (Ocean): As with a Standard (Ocean) world, this type has a thick atmosphere, plenty of water, and is in the temperature range permitting liquid-water oceans. Unlike the Standard (Ocean) type, its atmosphere is very thick and is dominated by helium.

Large (Garden): This world is similar to the Standard (Garden) type. Its atmosphere is very thick, rich in noble gases such as helium or neon. Large (Garden) worlds might be able to support human life.

Large (Greenhouse): Like the Standard (Greenhouse) world, this type has undergone a runaway greenhouse effect that has rendered the atmosphere extremely dense and furnace-hot. There may or may not be oceans of liquid water, trapped by the intense atmospheric pressure.

Large (Chthonian): The world would normally be large enough to retain a thick atmosphere. However, either that atmosphere has already been stripped away, or it is being lost at a tremendous rate, forming a long streamer of gases that peels off into space.

Special World Types

Aside from the size-and-subtype system described above, two more world types will be used in the world design sequence. These will be placed and handled using special rules.

Asteroid Belt: The "world" is actually a zone or belt of small stony bodies. These asteroids (or, more precisely, planetoids) may contain useful metals, organic compounds, or even frozen volatiles. Although the planetoids are widely separated in space, there may be many thousands of them in the belt. If the asteroid belt is settled, its inhabitants live in artificial habitats, floating freely in space or built inside the belt's largest planetoids. Inhabited asteroid belts are often mining or industrial centers. Our own solar system has one significant asteroid belt.

Gas Giant: The world is a Jupiter-like planet, possibly far bigger than even a Large-class world, with a massive atmosphere dominated by hydrogen and helium. There is no solid surface, and life is unlikely to exist even in the highest reaches of the atmosphere. In most settings, gas giant worlds are rarely visited and never landed upon (although their atmospheres can be a useful source of hydrogen fuel or other resources). They are mostly of interest because of their extensive systems of moons, many of which are viable worlds in their own right. Most star systems are likely to include gas giant worlds. Our own solar system includes four: Jupiter, Saturn, Uranus, and Neptune.

Determining World Type

To begin the design process for a given world, select a world type to fit the needs of the setting. If a random result is desired, roll 3d on the *Overall Type Table* and make note of the result. Then roll on the *World Type Table*, refer to the column appropriate for the result from the *Overall Type Table*, and make a note of the result. The world will be of that type.

Why World Types?

Planets are complex and diverse things. Consider the case of Earth and Venus in our own solar system. The two planets have close to the same mass, have very similar composition, exist as very close neighbors within the solar system, and presumably began their histories with a similar budget of volatiles. Yet today they have vastly different surface environments. Earth is cool, wet, and pleasant – Venus is a furnace-hot, utterly dry hell.

Designing all the factors that determine how a world will evolve is a matter for an advanced university research team, and in fact there are many facets of planetary development that are still unclear to human science. If we want to design a setting for a novel or a roleplaying game, we must simplify. Fortunately we have good reason to expect that most worlds in the galaxy will fall into a few well-defined categories, each with its own characteristic properties. We use world type to describe those categories and help organize the process of world design.

Another advantage of using world types is that they give the GM control over his setting. We could take a different approach, randomly selecting a world's primary star first, then placing worlds, then generating the properties of each world, only at the end getting an idea of what each world will be like. Many science-fiction roleplaying games take this approach, and a ***GURPS*** GM has the same option when using the advanced system in Chapter 5 of this book. However, if the GM has a desired result, this approach makes it difficult to guide the process toward that result – there's no guarantee, for example, that a randomly-generated star system will contain a pleasant Earthlike world if the GM wants one.

It's much easier to specify the desired properties for the "main world" of a star system first, and then go through the rest of the process in such a way that every result is consistent with that starting point. World types are the easiest way to define this kind of design system.

Overall Type Table

Roll (3d)	Overall Type
7 or less	Hostile
8-13	Barren
14-18	Garden

World Type Table

Roll (3d)	Hostile Worlds	Barren Worlds	Garden Worlds
3	Standard (Chthonian)	Small (Hadean)	Standard (Garden)
4	Standard (Chthonian)	Small (Ice)	Standard (Garden)
5	Standard (Greenhouse)	Small (Rock)	Standard (Garden)
6	Standard (Greenhouse)	Small (Rock)	Standard (Garden)
7	Tiny (Sulfur)	Tiny (Rock)	Standard (Garden)
8	Tiny (Sulfur)	Tiny (Rock)	Standard (Garden)
9	Tiny (Sulfur)	Tiny (Ice)	Standard (Garden)
10	Standard (Ammonia)	Tiny (Ice)	Standard (Garden)
11	Standard (Ammonia)	Asteroid Belt	Standard (Garden)
12	Standard (Ammonia)	Asteroid Belt	Standard (Garden)
13	Large (Ammonia)	Standard (Ocean)	Standard (Garden)
14	Large (Ammonia)	Standard (Ocean)	Standard (Garden)
15	Large (Greenhouse)	Standard (Ice)	Standard (Garden)
16	Large (Greenhouse)	Standard (Hadean)	Standard (Garden)
17	Large (Chthonian)	Large (Ocean)	Large (Garden)
18	Large (Chthonian)	Large (Ice)	Large (Garden)

Example: Since the GM wants Haven to be a habitable world, he declines to roll on the tables and simply chooses the Standard (Garden) world type.

Tweaking the World Type Table

The default *World Type Table* given is appropriate for a moderately "realistic" space setting, one in which pleasant Garden worlds are uncommon but not vanishingly rare. In most star systems, the focus of human activity will be some uninhabitable but not actively hostile world: an asteroid belt, a Mars-like desert planet, or the moon of some larger planet. Only in a few star systems will visitors tend to come to the more hostile environments, such as Standard (Greenhouse) or Large (Ammonia) worlds.

The GM can alter the distribution of world types to suit his own needs, by writing his own *Overall Type Table* and *World Type Table*. To increase the probability of any world type, give it a wider range of values or move its range toward the center of the table. To make a world type rarer, give it fewer table entries, push it toward the top or bottom of the table, or even remove it from the table entirely.

Step 3: Atmosphere

One of the most important questions any visitor to a world will have is, "Can I breathe the air?" This step determines the composition and thickness of the world's atmosphere.

Atmosphere Types

Atmospheres are defined by their *pressure*. Atmospheric pressure is measured in *atmospheres* (atm), with 1 atm being equal to the average sea-level air pressure on Earth. ***GURPS*** also classifies atmospheres into categories based on pressure, as described in the following table.

Atmospheric Pressure Categories Table

Pressure Range	***Pressure Category***
Less than 0.01 atm	Trace
0.01-0.5 atm	Very Thin
0.51-0.8 atm	Thin
0.81-1.2 atm	Standard
1.21-1.5 atm	Dense
1.51-10 atm	Very Dense
Over 10 atm	Superdense

If an atmosphere is otherwise breathable, a *Standard* atmosphere has no special effect on human beings; the other pressure categories have effects as described on p. B429.

An atmosphere is also classified according to its composition, which in ***GURPS*** is important for whether the atmosphere is breathable or not.

A world's atmosphere may be considered *Marginal*. A Marginal atmosphere is generally breathable, but there is something subtly wrong with its composition that makes it dangerous to breathe without a filter mask, a compressor, or some other simple protective device. There are many ways in which an atmosphere can be Marginal (see *Marginal Atmospheres*, p. 80).

Unbreathable atmospheres present varying degrees of danger to unprotected human visitors. They can be *Suffocating*, not actively poisonous but lacking in free oxygen. They can be *Toxic*, actively doing damage when breathed directly. They can even be *Corrosive*, attacking exposed tissues and requiring full-body protective gear. All three of these categories are as described in *Hazardous Atmospheres* on p. B429 (but see also the *Toxicity Rules* sidebar).

Use the following rules to determine what kind of atmosphere exists on the world being generated.

Determining Atmospheric Mass

The surface pressure of a world's atmosphere depends on the amount of gaseous volatiles present, and on the world's surface gravity. Surface gravity won't be determined until Step 6 (p. 84), but the *atmospheric mass* for the world can be determined now. Atmospheric mass is a rough measure of the world's supply of gaseous volatiles, relative to other worlds of the same type.

Toxicity Rules

Many different atmosphere types are Toxic in the sense used on p. B429. However, some poisonous atmospheres are much more dangerous than others!

Any character exposed to a Toxic atmosphere will need to make HT rolls on a periodic basis to avoid taking toxic damage. The differences between various Toxic atmospheres affect how often these HT rolls must be made, what penalties are applied to the HT roll, and how much damage is taken when a HT roll is failed. The exact details will vary from atmosphere to atmosphere, but this book will use the terms *Mildly Toxic*, *Highly Toxic*, and *Lethally Toxic* as general categories.

Mildly Toxic: Exposure requires a HT roll no more often than once per hour. There is no penalty to the HT roll, and a failed roll inflicts only 1 point of toxic damage. Characters may risk brief exposure to a Mildly Toxic atmosphere without much danger of serious injury or death.

Highly Toxic: Exposure requires a HT roll up to once per minute. The HT roll will usually be at a -2 to -6 penalty, and a failed roll inflicts 1 point of toxic damage. Characters may risk very brief exposures to a Highly Toxic atmosphere, but only in dire emergencies.

Lethally Toxic: Exposure inflicts 1d or more of toxic damage every 15 seconds, with no possibility of resistance. Characters exposed to such an atmosphere will die in a very short time.

Worlds of the Asteroid Belt, Tiny (Ice), Tiny (Rock), Tiny (Sulfur), Small (Hadean), Small (Rock), Standard (Hadean), Standard (Chthonian), and Large (Chthonian) types will not have any significant atmosphere. Don't bother to generate atmospheric mass for any of them.

Atmospheric mass may differ *very* widely from world to world, but the most likely range is from 0.5 to 1.5. Select an atmospheric mass for the world, or roll 3d and divide the result by 10 (keeping fractions). When using the dice, feel free to vary the result by up to 0.05 in either direction. Make a note of the atmospheric mass.

Determining Atmospheric Composition

Refer to the following notes to determine the composition of the world's atmosphere, and to determine whether it has any specific undesirable features. Make a note of whether the atmosphere is Marginal, and whether it is Suffocating, Toxic (with the level of toxicity), or Corrosive.

Asteroid Belt, Tiny (Ice), Tiny (Rock), Tiny (Sulfur), Small (Hadean), Small (Rock), Standard (Hadean), Standard (Chthonian), and Large (Chthonian) Worlds: None of these worlds have more than a Trace atmosphere. Since any visitor will effectively be in a vacuum, the composition of what little atmosphere is present rarely matters.

Small (Ice) Worlds: The atmosphere of a Small (Ice) world is composed of nitrogen and methane. The atmosphere is poisonous, but is unlikely to contain any corrosives. Roll 3d. On a 15 or less the atmosphere is Suffocating and Mildly Toxic. Otherwise it is Suffocating and Highly Toxic.

Standard (Ammonia) Worlds: The atmosphere of a Standard (Ammonia) world is composed of nitrogen, with large quantities of ammonia and methane. Such an atmosphere is always Suffocating, Lethally Toxic, and Corrosive.

Standard (Ice) Worlds: The atmosphere of a Standard (Ice) world is composed of a mixture of carbon dioxide and nitrogen. There may be other toxic substances in the atmosphere due to volcanic activity or other natural processes. Roll 3d. On a 12 or less the atmosphere is only Suffocating, otherwise it is Suffocating and Mildly Toxic.

Standard (Ocean) Worlds: The atmosphere of a Standard (Ocean) world will be composed of a mixture of carbon dioxide and nitrogen. As with the Standard (Ice) world, there may be other toxic substances in the atmosphere due to volcanic activity or other natural processes. Roll 3d. On a 12 or less the atmosphere is only Suffocating, otherwise it is Suffocating and Mildly Toxic.

Standard (Garden) Worlds: A Standard (Garden) world has an atmosphere dominated by nitrogen, with a significant amount of free oxygen that can support human life. Roll 3d. On an 11 or less the atmosphere will have no special properties. On a 12 or higher it will be Marginal; to generate more specific detail, see *Marginal Atmospheres* (p. 80).

Standard (Greenhouse) Worlds: The atmosphere of a Standard (Greenhouse) world is always extremely dense and furnace-hot. A "dry greenhouse" world will have an atmosphere dominated by carbon dioxide, while a "wet greenhouse" world will have nitrogen, water vapor, and possibly even a small amount of free oxygen in the mix. The atmosphere is always Suffocating, Lethally Toxic, and Corrosive.

Large (Ammonia) Worlds: The atmosphere of a Large (Ammonia) world is dominated by helium gas, with very large quantities of ammonia and methane. It is always Suffocating, Lethally Toxic, and Corrosive.

Large (Ice) Worlds: The atmosphere of a Large (Ice) world is dominated by helium and nitrogen gases, and is likely to contain toxins due to volcanic activity or other natural processes. The atmosphere is always Suffocating and Highly Toxic.

Large (Ocean) Worlds: A Large (Ocean) world's atmosphere is composed of a mixture of helium and nitrogen gases. As with the Large (Ice) worlds, there will usually be other toxic substances in the atmosphere. The atmosphere is always Suffocating and Highly Toxic.

Large (Garden) Worlds: These unusual worlds have thick atmospheres dominated by nitrogen and noble gases, with a significant amount of free oxygen. The atmosphere will usually be breathable (although it may be uncomfortably dense). The atmosphere will be Marginal on a roll of 12 or higher on 3d.

Large (Greenhouse) Worlds: These worlds have atmospheres similar to those of Standard (Greenhouse) worlds. The atmosphere is always Suffocating, Lethally Toxic, and Corrosive.

Marginal Atmospheres

An otherwise breathable atmosphere can be Marginal in a variety of ways. Some of the most likely are described here.

Chlorine or Fluorine

In a breathable atmosphere, chlorine would normally combine with other elements to form nontoxic compounds. However, it's possible for living things with an odd biochemistry to release a significant amount of chlorine into the atmosphere. This might give rise to a biosphere full of plants and animals that use an Earthlike carbon-oxygen cycle but which are adapted to the presence of trace amounts of chlorine in the air. Visitors who do not have similar biochemistry would find the unfiltered air to be corrosive and very poisonous.

A world with significant amounts of chlorine in the air would be a very strange place. The air would carry a faint color, and the presence of chlorine would slightly distort images. Since chlorine gas is heavier than air, it would tend to pool in caves and depressions in the land, reaching concentrations that might kill even native animal life. On such a world, rainfall and standing water would actually be a weak hydrochloric acid solution. Living things would use odd polymers in their structure – natural plastics that would not dissolve in the chlorine-tainted air.

The atmosphere on such a world is Highly Toxic, with the penalty to the HT roll depending on the local concentration of chlorine. At its highest concentrations, the chlorine would actually be Lethally Toxic and Corrosive.

Fluorine gas is chemically similar to chlorine and might play a similar role in a planetary atmosphere. However, fluorine is much less common and is unlikely to appear anywhere in large quantities. An atmosphere contaminated with free fluorine gas would be *extremely* unusual.

High Carbon Dioxide

The human metabolism is set to deal with a certain amount of carbon dioxide in the air. When there is too much, the human breathing reflex malfunctions, leading to hyperventilation and a sense of panic. The result is similar to that of a Very Dense atmosphere (p. 78). It is possible to acclimate to moderate levels of carbon dioxide. Very high levels of carbon dioxide are Mildly Toxic, and it's not possible to acclimate to them.

High Oxygen

In moderate cases, an excess of oxygen can be a mild irritant to skin and mucous membranes, and can make it much easier for people to hyperventilate when working hard. Assess ill effects as if the atmosphere is one pressure class higher (Dense for a Standard atmosphere with high oxygen, Very Dense for a Dense atmosphere, and so on).

Very high concentrations of oxygen are Mildly Toxic. At such concentrations, the oxygen increases fire hazards as well – all materials are considered to be one flammability class higher (p. B433).

Inert Gases

Nitrogen and other chemically inert compounds can cause "inert gas narcosis" when their partial pressure is high enough. Symptoms include light-headedness, reduced dexterity, euphoria, and impaired judgment. This is normally a problem only in Very Dense atmospheres, although a few compounds (such as nitrous oxide, or "laughing gas") can cause these symptoms at relatively low pressures.

An atmosphere with high levels of inert gases is not likely to be Toxic. However, an unprotected human subject to inert gas narcosis will behave as if intoxicated; he may be *tipsy*, *drunk*, or suffer from *euphoria* (p. B428) depending on the level of exposure.

Low Oxygen

An otherwise breathable atmosphere can simply have a lower concentration of free oxygen than one might expect for its pressure. Such an atmosphere is unlikely to be Toxic, but it may be difficult to breathe normally. Treat such an atmosphere as being one pressure class *lower* (Thin for Standard, Standard for Dense, and so on). This can actually make a Very Dense or Dense atmosphere more comfortable for human visitors!

If the Almighty were to rebuild the world and asked me for advice, I would have English Channels round every country. And the atmosphere would be such that anything which attempted to fly would be set on fire.

– Winston Churchill

What Makes the Air?

When a planet first forms, it is likely to have an extensive atmosphere dominated by the most common substances in the universe – hydrogen and helium. Large worlds can hold onto this primordial atmosphere. Smaller ones lose it when their primary star ignites, entering the so-called "T Tauri" stage during which a massive stellar wind blasts the inner star system clean of gas and debris.

Later, the last stages of planetary formation include a period of "late heavy bombardment." This is an era in which young planets frequently collide with comets, asteroids, and even bodies as massive as moons or small planets. The smaller collisions, especially with comets or other objects containing plenty of ice, can leave volatiles behind to form an atmosphere and seas. The larger collisions may blast this early atmosphere away into space, possibly more than once.

Eventually, the largest collisions come to a stop and the young world can expect to keep any atmosphere it receives from comets and icy asteroids. At this stage, the primary source of atmosphere becomes the planet's own volcanism. Volatile substances locked into a world's icy or rocky body are released along with its internal heat. The result is a thin envelope of air, the world's final atmosphere.

Of course, once the atmosphere is stable, chemical processes can alter its composition considerably. The most startling example of this is found on Garden worlds, where photosynthetic life creates a substantial amount of oxygen in the air. Since oxygen normally combines with other chemicals very quickly, any world with lots of "free" oxygen in the atmosphere is far out of chemical equilibrium; the situation can only be maintained by the activity of plant life or some other continuous process.

All of these processes are unpredictable. The atmosphere found on a given world depends strongly on its initial chemical composition – but the accidents of planetary evolution also play a strong role.

Nitrogen Compounds

Nitrogen oxides are very unlikely to appear in a breathable atmosphere, unless they are produced by a strange local biochemistry or by massive industrial pollution. The unfiltered air would be somewhat toxic and any open water would be tainted by acid. Such an atmosphere is Mildly Toxic, and may be Highly Toxic close to a source of the nitrogen compounds.

Sulfur Compounds

Hydrogen sulfide, sulfur dioxide, and sulfur trioxide might be found in the air due to massive industrial pollution or volcanic activity. Visitors would find the air to be toxic and full of unpleasant odors. Rainfall and standing water would be weak solutions of sulfuric acid. Such an atmosphere is Mildly Toxic, and may be Highly Toxic close to a source of the sulfur compounds.

Organic Toxins

Living things may release dangerous substances into the air – pollen, spores, disease-causing microorganisms, toxins, and so on. Most such atmospheres will be Mildly Toxic, although higher levels of toxicity are possible. Unprotected exposure to the air may also count as exposure to a weak respiratory-agent poison (p. B437) or a disease (p. B442); the GM is encouraged to develop his own exotic maladies to give his alien worlds flavor.

Pollutants

Non-organic poisons may be in the air as well – heavy-metal or radioactive dust, toxic smoke from volcanism or industrial pollution, and so on. It would be rare for such an atmosphere to be more than Mildly Toxic. Heavy-metal poisoning can have lasting effects, as can radioactivity.

Determining a Marginal Atmosphere

Select at least one property from the list above, or roll 3d on the *Marginal Atmospheres Table*. A few atmospheres may exhibit *more than one* of the Marginal traits . . .

Marginal Atmospheres Table

Roll (3d)	*Major Toxic Component*
3-4	Chlorine or Fluorine
5-6	Sulfur Compounds
7	Nitrogen Compounds
8-9	Organic Toxins
10-11	Low Oxygen
12-13	Pollutants
14	High Carbon Dioxide
15-16	High Oxygen
17-18	Inert Gases

Example: The GM decides to choose Haven's atmospheric mass at random. He rolls 3d for 12, and divides by 10 to get an atmospheric mass of 1.2.

Since Haven is a Standard (Garden) world, its atmosphere is automatically breathable, but it may be Marginal. The GM rolls 3d for 10, and notes that the atmosphere has no special properties.

Step 4: Hydrographic Coverage

Worlds are often described in terms of their *hydrographic coverage*, the portion of the world's surface that is covered by oceans of some liquid material. This step determines the percentage of the surface that is taken up by oceans, seas, and lakes.

On an Earthlike world the oceans will be composed of liquid water, containing metal salts and other impurities. On more hostile planets the oceans may be composed of exotic substances. Many worlds that have no liquid oceans on the surface may be rich in water or other ices; they may also have extensive underground supplies. These features do not count toward the hydrographic coverage, but may be of interest to visitors.

Determining Hydrographic Coverage

Each world type has its own associated hydrographic properties. When dice are used, the hydrographic coverage will be expressed as a multiple of 10% of the world's surface area. It would be reasonable to vary the result by up to 5% in either direction, with a minimum of 0% and a maximum of 100% of the surface.

Asteroid Belt, Tiny (Rock), and Small (Rock) Worlds: None of these world types will have "oceans" of liquid water or other common substances. Their hydrographic coverage is always 0%. Those that are far enough from the primary star *may* have some water ice buried under the surface or hidden in always-shadowed craters.

Tiny (Ice), Small (Hadean), and Standard (Hadean) Worlds: These worlds often have extensive water ice deposits on the surface, but they will not have permanent bodies of liquid surface water. Their hydrographic coverage is always 0%. Beneath the surface of the ice, these worlds may have *considerable* liquid water if they experience internal heating. For example, many Tiny (Ice) worlds that orbit gas giant planets are heated by tidal effects, keeping the subsurface oceans warm enough to stay in a liquid state.

Tiny (Sulfur) Worlds: These worlds usually begin with extensive deposits of water and other ices, but tidal heating and volcanism mean that these volatiles are quickly lost to space. Their hydrographic coverage is always 0%. A Tiny (Sulfur) world may have intermittent, short-lived lakes of liquid sulfur and sulfur compounds.

Small (Ice) Worlds: These worlds may have oceans of liquid volatiles, but they are likely to be composed of liquid hydrocarbons rather than water. A typical Small (Ice) world will have hydrographic coverage between 30% and 80%. Select a percentage, or roll 1d+2 and multiply by 10%; the result is the portion of the world's surface covered by substances in a liquid state. The rest of the surface is likely to be rich with ices, possibly including water ice.

Standard (Ammonia) and Large (Ammonia) Worlds: These worlds are too cold to have oceans of liquid water. However, they may have vast oceans of liquid ammonia mixed with water and other substances, mingled in a *eutectic* solution whose freezing point is much lower than that of pure ammonia or water. A typical world of these types will have hydrographic coverage between 50% and 100%, depending on the surface temperature and the amount of ammonia and water in the world's volatiles budget. Select a percentage, or roll 2d and multiply by 10% (maximum 100%); the result is the portion of the world's surface covered by liquid substances.

Standard (Ice) and Large (Ice) Worlds: These worlds generally have no permanent bodies of liquid water on their surface, but they may have lakes or small seas that are temporarily liquid at certain seasons. Such open water may provide hydrographic coverage of up to about 20%. Select a percentage, or roll 2d-10 and multiply by 10% (minimum 0%); the result is the portion of the world's surface that is usually covered by liquid water.

Standard (Ocean), Standard (Garden), Large (Ocean), and Large (Garden) Worlds: These worlds will almost always have liquid-water oceans. A typical world of these types will have hydrographic coverage between 50% and 100%, depending on the amount of water in the world's volatiles budget. Large worlds are likely to have a *lot* of water, and may be covered by oceans that are tens or hundreds of miles deep! Select a percentage, or roll 1d+4 (1d+6 for a Large world) and multiply by 10% (maximum 100%); the result is the portion of the world's surface covered by liquid water.

Standard (Greenhouse) and Large (Greenhouse) Worlds: Even if one of these worlds has surface water, it is usually in the process of losing it. Most will have hydrographic coverage of 0%, and it will be quite rare for such a world to have coverage greater than 50%. Select a percentage, or roll 2d-7 and multiply by 10% (minimum 0%); the result is the portion of the world's surface that is still covered by oceans. A world that still has oceans is a wet greenhouse (p. 79), while a world with 0% hydrographics is a dry greenhouse. If oceans exist on one of these worlds, they are likely to be extremely impure, and may be rich in dissolved carbon or sulfur compounds, forming a more or less acidic solution. Some extreme greenhouse oceans may be composed of sulfuric acid!

Standard (Chthonian) and Large (Chthonian) Worlds: These worlds never have water or other volatiles in the liquid state on the surface. Their hydrographic coverage is always 0%. They may be so hot as to melt surface rock, producing seas of lava!

Example: Since Haven is a Standard (Garden) world, it will have liquid-water oceans. The GM rolls 1d+4 and gets a result of 10, suggesting hydrographic coverage of 100%. He doesn't want a world that's *completely* covered by water, but a world dominated by vast oceans seems appealing. He lowers the hydrographic coverage to 98%, and makes a note that Haven's land mass consists of a single Australia-sized continent and a scattering of island chains.

Step 5: Climate

Now the cryosphere was dissolving. Glaciers became torrents, which presently boiled away and became storm-winds. Lakes and seas, melting, redistributed incredible masses. Pressures within the globe were shifted; isostatic balance was upset; the readjustments of strata, the changes of allotropic structure, released catastrophic, rock-melting energy. Quakes rent the land and shocked the waters. Volcanoes awoke by the thousands. Geysers spouted above the ice sheath that remained. Blizzard, hail, and rain scourged the world, driven by tempests whose fury mounted daily until words like "hurricane" could no more name them. Hanging in space, Falkayn and Chee Lan took measurements of Ragnarök.

– Poul Anderson, ***Satan's World***

Planetary climate can be very complex, but the most important question for any visitor is whether or not he will be comfortable in the surface environment. This step determines the *average surface temperature* of the world. This average doesn't take into account daily or annual variations, or the details of local climate.

Determining Climate Type

Each world type is associated with a range of possible average surface temperatures. To determine a world's average surface temperature, refer to the following table. Select a temperature within the given range for the correct world type, or roll 3d-3, multiply the result by the Step value, and then add the minimum value from the Range. The result is the average surface temperature in *kelvins*, a unit of absolute temperature. When using the dice, it would be reasonable to vary the final temperature by up to half the Step value in either direction.

Average Surface Temperature Table

World Type	***Range***	***Step***
Asteroid Belt	140-500 K	24 K
Tiny (Ice or Sulfur)	80-140 K	4 K
Tiny (Rock)	140-500 K	24 K
Small (Hadean)	50-80 K	2 K
Small (Ice)	80-140 K	4 K
Small (Rock)	140-500 K	24 K
Standard (Hadean)	50-80 K	2 K
Standard (Ammonia)	140-215 K	5 K
Standard (Ice)	80-230 K	10 K
Standard (Ocean or Garden)	250-340 K	6 K
Standard (Greenhouse or Chthonian)	500-950 K	30 K
Large (Ammonia)	140-215 K	5 K
Large (Ice)	80-230 K	10 K
Large (Ocean or Garden)	250-340 K	6 K
Large (Greenhouse or Chthonian)	500-950 K	30 K

The average surface temperature determines the *climate type* of the world. Refer to the *World Climate Table*.

World Climate Table

Temperature Range (K)	***Climate Type***	***Temperature Range (°F)***
Below 244 K	Frozen	Below -20° F
244 K to 255 K	Very Cold	-20° to 0° F
255 K to 266 K	Cold	0° to 20° F
266 K to 278 K	Chilly	20° to 40° F
278 K to 289 K	Cool	40° to 60° F
289 K to 300 K	Normal	60° to 80° F
300 K to 311 K	Warm	80° to 100° F
311 K to 322 K	Tropical	100° to 120° F
322 K to 333 K	Hot	120° to 140° F
333 K to 344 K	Very Hot	140° to 160° F
Above 344 K	Infernal	Above 160° F

Temperature Range (K) gives a range of possible average surface temperatures in kelvins. *Climate Type* is a descriptive name for the world's overall surface climate. *Temperature Range (F)* gives the associated range in degrees Fahrenheit. To convert a temperature from kelvins to degrees Fahrenheit, use the following formula:

$$\mathbf{F} = (1.8 \times \mathbf{K}) - 460$$

Here, **F** is the temperature in degrees Fahrenheit and **K** is the temperature in kelvins.

Make note of both the average surface temperature in kelvins (and optionally in degrees Fahrenheit) and the corresponding climate type from the table.

Determining Blackbody Temperature

Another parameter related to a world's climate is its *blackbody temperature*. This is the average surface temperature the world would have if it were an ideal *blackbody*, a perfect absorber and radiator of heat. Of course, real worlds are not ideal blackbodies, so the blackbody temperature is usually different from the world's average surface temperature.

To determine a world's blackbody temperature, compute its *blackbody correction*. The blackbody correction is based on two different factors, each dependent on the world type and a few other parameters: the *absorption factor* and the *greenhouse factor*.

The absorption factor is a measure of how much incoming energy is absorbed by the world's surface rather than being reflected away. The higher the absorption factor, the more energy is absorbed, and the warmer the world will be with respect to its blackbody temperature. (For those familiar with astrophysics, the absorption factor can be determined by subtracting the world's *albedo* from one, and taking the fourth root of the result.)

The greenhouse factor is a measure of how much heat energy is trapped by the world's atmosphere rather than being radiated back into space. The higher the greenhouse factor, the more energy is recycled within the atmosphere, and the warmer the world will be with respect to its blackbody temperature.

Refer to the following table.

Temperature Factors Table

World Type	*Absorption Factor*	*Greenhouse Factor*
Asteroid Belt	0.97	0
Tiny (Ice)	0.86	0
Tiny (Rock)	0.97	0
Tiny (Sulfur)	0.77	0
Small (Hadean)	0.67	0
Small (Ice)	0.93	0.10
Small (Rock)	0.96	0
Standard (Hadean)	0.67	0
Standard or Large (Ammonia)	0.84	0.20
Standard or Large (Ice)	0.86	0.20
Standard or Large (Ocean or Garden) (Hydrographics 20% or less)	0.95	0.16
Standard or Large (Ocean or Garden) (Hydrographics 21% to 50%)	0.92	0.16
Standard or Large (Ocean or Garden) (Hydrographics 51% to 90%)	0.88	0.16
Standard or Large (Ocean or Garden) (Hydrographics 91% or more)	0.84	0.16
Standard or Large (Greenhouse)	0.77	2.0
Standard or Large (Chthonian)	0.97	0

To determine the blackbody correction for a world, use the following formula:

$$\mathbf{C} = \mathbf{A} \times [1 + (\mathbf{M} \times \mathbf{G})]$$

Here, **C** is the blackbody correction, **A** is the world's absorption factor from the table, **M** is the world's atmospheric mass as generated in Step 3 (p. 78), and **G** is the world's greenhouse factor from the table. Note that for a world with a greenhouse factor of 0 (i.e. a world without significant atmosphere) the blackbody correction is equal to the absorption factor (**C** = **A**).

To determine the blackbody temperature, *divide* the average surface temperature by the blackbody correction. Make a note of the blackbody temperature.

Example: So far Haven is a reasonably pleasant world, if lacking in dry land. The GM decides that its surface climate should also be pleasant, and sets its average surface temperature to 295 kelvins (about 70° Fahrenheit). Haven has a Normal climate type.

Referring to the *Temperature Factors Table*, the GM finds that Haven's blackbody correction is 0.84 × [1 + (1.2 × 0.16)] = 1.00. Haven's blackbody temperature is almost exactly equal to its average surface temperature: 295 kelvins.

Step 6: World Size

This step determines the world's diameter, density, mass, and surface gravity. For a world of Asteroid Belt type, this step can be skipped. An asteroid belt is composed of hundreds or thousands of small objects, most of them far too small to be considered "worlds" in their own right.

An asteroid belt is composed of hundreds or thousands of small objects, most of them far too small to be considered "worlds" in their own right.

Density

A world's *density* is the average mass per unit volume in the world's body. Density depends almost entirely on the world's composition. An Earthlike world will usually have an iron core of very high density, overlaid by a thick layer of less-dense rock and

Turning Up the Heat

The Absorption Factor and Greenhouse Factor for each world type are *typical* values rather than universal constants. It would be reasonable to vary either slightly, to reflect changes from the normal properties of the world's type.

The Absorption Factor might vary by as much as 0.05, with a maximum of 1 and a minimum of 0, to indicate a surface that is more or less reflective. A dark surface, such as dark stone, ice darkened by chemical processes, or dust in the upper atmosphere, would have a higher Absorption Factor. A bright surface, such as snow or polished ice, would have a lower Absorption Factor. For example, Earth's current Absorption Factor is about 0.88, and this is taken as the typical value for a Standard (Garden) world with moderate hydrographic coverage. During the last Ice Age the vast areas of land covered by ice and snow may have reduced the Absorption Factor to 0.86 or so, enough to lower the average surface temperature by several kelvins.

Meanwhile, *if* the Greenhouse Factor for a world's type is not 0, it might also vary by up to 0.05 in either direction to reflect local differences in atmospheric composition. A change in the concentration of greenhouse gases, too small even to render a breathable atmosphere Marginal, could have dramatic effects on local climate. For example, Earth's current Greenhouse Factor is about 0.16, but during the Cretaceous Era (145-65 million years ago) it may have been as high as 0.20 due to high levels of carbon dioxide in the atmosphere.

In any case, variations in Absorption Factor and Greenhouse Factor are not significant to the world-design system, but the GM should feel free to use them to reflect features of the local environment.

stone (the very thin layer of water and air is almost negligible on this scale). A planet with a smaller iron core would be less dense; a planet with more iron and less rock would be denser. Some large moons have bodies that contain a great deal of *ice*, which is even less dense than rock.

In these rules, world density is expressed as a proportion of Earth's density – a world with a density of 1.0 is exactly as dense as Earth and probably has a very similar composition. Density normally ranges from 0.3 (a world with a great deal of ice in its body) to 1.4 (a world that is almost a ball of solid iron). To determine a world's density, refer to the following notes.

Tiny (Ice), Tiny (Sulfur), Small (Hadean), Small (Ice), Standard (Hadean), Standard (Ammonia), and Large (Ammonia) Worlds: All of these worlds will have icy cores and a density between 0.3 and 0.7. Select a density in the appropriate range, or roll 3d on the *World Density Table* using the Icy Core column.

Tiny (Rock) and Small (Rock) Worlds: These worlds are rocky with small metal cores, and will normally have density between 0.6 and 1.0. Select a density, or roll on the *World Density Table* using the Small Iron Core column.

All other Standard and Large Worlds: These worlds are primarily rocky and have large iron cores, with density normally between 0.8 and 1.2 (but might have density as high as 1.4 in extreme cases). Select a density, or roll on the *World Density Table* using the Large Iron Core column.

When using the dice, it would be reasonable to vary the density by up to 0.05 in either direction. Most textbooks and game sourcebooks prefer to give planetary density in units of grams per cubic centimeter (g/cc); to get world density in these units, multiply the density value generated here by 5.52.

World Density Table

Roll (3d)	Icy Core	Small Iron Core	Large Iron Core
3-6	0.3	0.6	0.8
7-10	0.4	0.7	0.9
11-14	0.5	0.8	1.0
15-17	0.6	0.9	1.1
18	0.7	1.0	1.2

Size Constraints Table

World Type	Minimum	Maximum
Large	0.065	0.091
Standard	0.030	0.065
Small	0.024	0.030
Tiny	0.004	0.024

Diameter and Surface Gravity

Once the world's density has been fixed, it is possible to determine its diameter and surface gravity. These two parameters are closely related – if you select the world's diameter, that determines its surface gravity, and vice versa. The following rules will permit the GM to select these two parameters in either order.

Selecting World Diameter First: Refer to the *Size Constraints Table* for the world's size class. Multiply *square root of* (**B**/**K**) (where **B** is the world's blackbody temperature in kelvins, and **K** is the world's density in units of Earth's density) by the appropriate *Minimum* value from the table. The result is the minimum possible diameter for the world, expressed in multiples of Earth's diameter. Similarly, multiply *square root of* (**B**/**K**) by the appropriate *Maximum* value from the table to get the maximum possible diameter for the world.

Select any value within this range for the diameter. To select a diameter at random, roll 2d-2, multiply by one-tenth of the difference between the maximum and minimum diameter values, and add the result to the minimum value. Feel free to vary the final result by up to 5% of the difference, so long as the final value is within the range. To express any diameter in miles, multiply the value in Earth diameters by 7,930.

Once the diameter is known, use the following formula to get the world's surface gravity:

$$\mathbf{S} = \mathbf{K} \times \mathbf{D}$$

Here, **S** is the world's surface gravity in Gs, **K** is the world's density in units of Earth's density, and **D** is the world's diameter in Earth diameters.

Selecting World Surface Gravity First: Refer to the *Size Constraints Table* for the world's size class. Multiply *square root of* (**B** × **K**) (where **B** is the world's blackbody temperature in kelvins, and **K** is the world's density in units of Earth's density) by the appropriate *Minimum* and *Maximum* values from the table. The result is the minimum and maximum possible surface gravity for the world, in Gs.

Select any value within this range for the surface gravity. To select a Surface Gravity at random, roll 2d-2, multiply by one-tenth of the difference between the maximum and minimum values, and add the result to the minimum value. Feel free to vary the final result by up to 5% of the difference.

Once the surface gravity is known, use the following formula to get the world's diameter:

$$D = S/K$$

Here, **D** is the world's diameter in Earth diameters, **S** is the world's surface gravity in Gs, and **K** is the world's density in units of Earth's density.

Mass

To determine a world's mass, apply the following formula:

$$\mathbf{M} = \mathbf{K} \times \mathbf{D}^3$$

Here, **M** is the world's mass in multiples of Earth's mass, **K** is its density in units of Earth's density, and **D** is its diameter in multiples of Earth's diameter. Regardless of the order in which these parameters are determined, make a note of the world's density, diameter, surface gravity, and mass.

Determining Atmospheric Pressure

Now that the world's surface gravity is known, its surface atmospheric pressure can finally be determined. The various world types are likely to have widely diverging atmospheric pressure values. Refer to the following notes to determine the world's atmospheric pressure.

Asteroid Belt, Tiny (Ice), Tiny (Rock), Tiny (Sulfur), Small (Hadean), and Standard (Hadean) Worlds: None of these worlds have a significant atmosphere. A visitor on the surface will be in a vacuum.

Small (Rock), Standard (Chthonian), and Large (Chthonian) Worlds: All of these worlds automatically have a Trace atmosphere.

Worlds Big and Little

When designing a world, it's important to know what volatiles will be available at the world's surface, defining the environment visitors will experience. Every world begins with a wide variety of volatiles, but some of these will be lost very early in the world's history. The most common reason for such loss is the fact that molecules of a given volatile that are close to the top of the world's atmosphere might reach escape velocity and head for deep space!

Molecules in a gas move at random speeds, and the distribution of those speeds is determined by the molecular weight of the gas and by the ambient temperature. Higher temperatures mean that the molecules tend to move faster – but the more massive molecules of a gas with high *molecular weight* will move more slowly at the same temperature.

In effect, every world has a *minimum molecular weight retained* (MMWR) that indicates what volatile substances can be held onto across billion-year time scales. Volatiles with molecular weight higher than the MMWR will stay in the world's atmosphere and on its surface. Volatiles with lower molecular weight will be lost to space in a relatively short time after the world is formed.

Factors that increase a world's escape velocity all tend to lower the minimum molecular weight that can be retained. A more massive world will have a higher escape velocity. So will a *denser* world, even of the same mass.

On the other hand, the temperature at the top of the atmosphere is also critical; higher temperatures mean that more molecules will reach escape velocity. Thus two worlds can have the same MMWR despite being of different sizes, so long as the smaller one is *colder*.

Steps 2-6 of the world design sequence are set up so that the ***GURPS*** GM doesn't need to concern himself with the details of computing a world's MMWR. Advanced world-builders may choose to work in a more free-form manner, selecting a world's physical parameters as needed and then checking to make sure the result makes sense. In that case, the following formula may be of use:

$$\mathbf{W} = \mathbf{B}/(60 \times \mathbf{D}^2 \times \mathbf{K})$$

Here, **W** is the MMWR measured in units of molecular weight, **B** is the world's blackbody temperature in kelvins, **D** is its diameter in Earth diameters, and **K** is its density in units of Earth's density.

A world's physical parameters will fit its selected World Type if its MMWR is legal for its size class. A Large world must have MMWR greater than 2, but less than or equal to 4. A Standard world must have MMWR greater than 4, but less than or equal to 18. A Small world must have MMWR greater than 18, but less than or equal to 28. A Tiny world must have MMWR greater than 28.

For comparison, some of the more important molecular weights are: hydrogen 2, helium 4, methane 16, ammonia 17, water vapor 18, neon 20, carbon monoxide 28, nitrogen 28, nitric oxide 30, oxygen 32, hydrogen sulfide 34, argon 40, and carbon dioxide 44.

All other worlds will have a substantial atmosphere. To determine the surface atmospheric pressure, begin by referring to the following table.

Pressure Factors Table

World Type	*Pressure Factor*
Small (Ice)	10
Standard (Ammonia, Ice, Ocean, or Garden)	1
Standard (Greenhouse)	100
Large (Ammonia, Ice, Ocean, or Garden)	5
Large (Greenhouse)	500

The atmospheric pressure is given by the following formula:

P = M × F × S

Here, **P** is the atmospheric pressure (in atm), **M** is the atmospheric mass as generated in Step 3 (p. 78), **F** is the pressure factor for the appropriate world type from the table, and **S** is the world's surface gravity in Gs. Make a note of the result, and of the pressure category associated with that pressure from the *Atmospheric Pressure Categories Table* (p. 78).

Example: The GM has no preference for Haven's density, and so rolls 3d on the *World Density Table*, referring to the Large Iron Core column. He rolls a 16 and records a density of 1.1, or about 6.1 g/cc.

The GM then decides to set the planet's surface gravity first. This parameter must be between 0.03 and 0.065 times *square root of* (295 × 1.1), or between 0.54 and 1.17. He decides to set the surface gravity to 1.15 Gs, making Haven a relatively high-gravity world. The planet's diameter is then given by 1.15/1.1 = 1.05 Earth-diameters (8,330 miles). Finally, its mass is given by $1.1 \times 1.05^3 = 1.27$ Earth-masses.

Now that Haven's surface gravity is available, the GM can go back and determine the planet's surface atmospheric pressure. This is given by 1.15 × 1.2 = 1.38 atm, which yields a Dense atmosphere. The GM makes a note of this under the world's atmospheric properties.

The GM also realizes that with vast oceans, a warm climate, and a dense atmosphere, Haven is probably a breeding ground for hurricanes and other violent storms. Visitors to the planet will need to watch out for the weather! He makes a note of this item for possible use in future adventures.

Step 7: Resources and Habitability

"Funny about Valeria, isn't it . . ."

There was a moment of silence, then Kinnison went on:

"But wherever diamonds are, there go Dutchmen. And Dutch women go wherever their men do. And, in spite of the medical advice, Dutch babies arrive. Although a lot of the adults died – three Gs is no joke – practically all of the babies keep on living. Developing muscles and bones to fit – walking at a year and a half old – living normally – they say that the third generation will be perfectly at home there."

– E. E. "Doc" Smith, ***First Lensman***

This step fixes the factors that make a world attractive for human or alien settlement. Colonists are likely to come to a world that is comfortable for them, where they can live without investing in expensive artificial life support. However, even if a world is very inhospitable, settlers may arrive in a quest for valuable resources.

Determining Resources

Every world will have some value to human or other settlers: mineral resources, native plant or animal species that generate useful products, or even something as simple as arable land on which crops can be sown.

We will use the Resource Value Modifier (RVM), a number between -5 and +5, to describe the overall resource value of a world. An RVM of 0 indicates a world of average resource wealth, likely to attract settlement only if it is reasonably habitable. An RVM above 0 indicates an unusual abundance of resources, which may attract settlers even if the local environment is hostile. An RVM below 0 indicates a world unlikely to offer any resources worth exploiting.

Most worlds will have an RVM between -2 and +2. Worlds of the Asteroid Belt type will vary more widely, between -5 and +5. One asteroid belt may be dense, with vast deposits of useful metals, organic compounds, and volatile ices; another may be a thin scattering of pebbles. Select an RVM, or roll 3d on the *Resource Value Table*. For a world of the Asteroid Belt type, refer to the first column of die-roll results; for all other world types, refer to the second column. The result will be a description of the world's resource availability, along with a Resource Value Modifier (RVM) that will be used in later steps of the sequence. Make a note of the RVM for each world.

Resource Value Table

Roll (3d)			
Asteroid Belts	*Other Worlds*	*Overall Value*	*Resource Value Modifier*
3	–	Worthless	-5
4	–	Very Scant	-4
5	2 or less	Scant	-3
6-7	3-4	Very Poor	-2
8-9	5-7	Poor	-1
10-11	8-13	Average	+0
12-13	14-16	Abundant	+1
14-15	17-18	Very Abundant	+2
16	19 or more	Rich	+3
17	–	Very Rich	+4
18	–	Motherlode	+5

Determining Habitability and Affinity

The *habitability* score for a given world is a summary of all the factors that make the world pleasant for humans to live on. Habitability runs from -2 to 8, with higher scores indicating a more pleasant environment. To determine the habitability score for the target world, refer to the following table and add up *every* modifier that applies. Make a note of the final habitability score for the world.

Habitability Modifiers Table

Condition	***Modifier***
No atmosphere or Trace atmosphere	0
Non-breathable atmosphere, Very Thin or above, Suffocating, Toxic, and Corrosive	-2
Non-breathable atmosphere, Very Thin or above, Suffocating and Toxic only	-1
Non-breathable atmosphere, Very Thin or above, Suffocating only	0
Breathable atmosphere (Very Thin)	+1
Breathable atmosphere (Thin)	+2
Breathable atmosphere (Standard or Dense)	+3
Breathable atmosphere (Very Dense or Superdense)	+1
Breathable atmosphere is not Marginal	+1
No liquid-water oceans, or Hydrographic Coverage 0%	0
Liquid-water oceans, Hydrographic Coverage 1% to 59%	+1
Liquid-water oceans, Hydrographic Coverage 60% to 90%	+2
Liquid-water oceans, Hydrographic Coverage 91% to 99%	+1
Liquid-water oceans, Hydrographic Coverage 100%	0
Breathable atmosphere, climate type is Frozen or Very Cold	0
Breathable atmosphere, climate type is Cold	+1
Breathable atmosphere, climate type is Chilly, Cool, Normal, Warm, or Tropical	+2
Breathable atmosphere, climate type is Hot	+1
Breathable atmosphere, climate type is Very Hot or Infernal	0

The *affinity* score for a given world is a summary of all the factors that might make the world attractive to human settlement. Affinity is a number between -5 and 10, and is closely related to the Resource Value Modifier. To determine the affinity score for the target world, add the Resource Value Modifier to the habitability score. Make a note of the result.

Example: The GM decides that Haven doesn't have any special resource abundance (or poverty); its colonists have chosen to settle there because of its location, not because of its natural resources. He sets the planet's RVM at 0. Haven's habitability score is 7, so its affinity score is also 7.

Habitability for Aliens

The habitability rules assume that *human* comfort is the primary yardstick for whether or not a planet is going to be attractive. An alien race that evolved under different conditions may judge worlds differently!

If the GM is designing worlds within the space claimed by an alien race, he should design his own *Habitability Modifiers Table* for that race. The following guidelines should be of assistance.

Overall: The range of possible habitability scores should be the same as for human-colonized worlds: -2 to 8.

Atmosphere: The planet's atmosphere should usually be the factor with the greatest weight. For human-colonized worlds, half of the maximum habitability of 8 depends on the quality of the atmosphere. Having *enough* air to support intelligent life is important, but an atmosphere whose *composition* is actively hostile to the world's inhabitants is likely to impose a penalty to habitability.

Hydrographic Coverage: Most forms of life will be dependent on a liquid volatile – water for human-like life, liquid ammonia for ammonia-based life, and so on. For human-colonized worlds, 25% of the maximum habitability depends on the hydrographic coverage.

Land-living species will want plenty of coastlines and well-watered inland regions, which will occur when the hydrographic coverage is high (but not *too* high, since a world with nothing but a few small islands will not offer enough land area to support a large population). Amphibious or shore-swimming species will be happy with lots of coastlines, but won't care about inland space, so they can tolerate more land area. Deep-ocean species will want lots of hydrographic coverage, the more the better. Of course, if a world's oceans aren't even based on the same chemistry that the colonists evolved with, they will be useless . . .

Climate: For human-colonized worlds, 25% of the maximum habitability score depends on the average surface temperature. Humans find a band of average surface temperatures about 53 kelvins wide (or 95° Fahrenheit) to be optimal for colonization (+2 to habitability). A wider band, about 75 kelvins wide (135° Fahrenheit), is tolerable (+1 to habitability). Note that these bands are wider than the "comfort zone" defined under the Temperature Tolerance advantage (p. B93). After all, colonists can selectively settle close to the poles on a hot world, or close to the equator on a cold one, and compensate for a less-than-ideal average climate.

Aliens should have their own bands of optimal and tolerable climates. If an alien race has Temperature Tolerance as a racial advantage, their bands should be about 6 kelvins (10° Fahrenheit) wider for every level of the advantage.

Social Parameters

So far, the design process has defined the *physical* parameters for the world under construction. The next few steps determine the *social* parameters for each world – how many humans (or other sapient beings) live there, what kind of government they live under, how much trade they engage in, and so on.

Step 8: Settlement Type

This step sets the *settlement type* for the target world. These rules classify inhabited worlds into three settlement types: *homeworlds*, *colonies*, and *outposts*. Use the following rules to decide which category the target world falls into.

You may wish to generate the physical parameters for a number of worlds before applying this step to any of them. This is because the placement of outposts will tend to depend on the placement of homeworlds and colonies, which in turn depends on the physical parameters determined in Steps 2-7.

Homeworlds

A *homeworld* is the place where a race evolved, and where its oldest population centers are still in existence. A homeworld will usually support as many people as can be sustained by local resources, although the social preferences of the population will also play a part. Some societies will prefer to maintain roomy living space and unspoiled vistas. Others like crowds, and are likely to populate a world to the limits of local resources (or beyond).

In general, homeworld populations depend strongly on the GM's preferences. Science fiction settings vary widely in their assumptions regarding "ideal" population size. Many settings of the 1960s and 1970s included truly crowded worlds, inspired by the "population explosion" that many believed was inevitable. Today, with world population leveling off and some nations facing a population *decline*, it seems more likely that future civilizations will be able to control their numbers.

Homeworlds should *never* be placed at random; the GM should deliberately place them to suit the needs of his campaign. See *The Frequency of Worlds* (p. 70) for some of the pertinent considerations. Naturally, a homeworld should have high habitability for the race that lives on it – although not necessarily *maximum* habitability, since natural or man-made disasters can render even a race's homeworld less than ideal!

Colonies

A *colony* is a permanent settlement on some world, a place where a community is likely to remain for generation after generation. Most of a colony world's population is composed of long-term immigrants or permanent residents; the colony is their home.

Colony worlds must either have a certain minimum population, or have continuing support from offworld. A human colony can be established with only a few dozen people, but such a tiny settlement may need *lots* of offworld support and immigration to remain viable. To maintain a stable high-technology society over a long term, a colony will probably need to begin with at least 10,000 people and the necessary equipment. A truly massive colonization effort will begin by planting up to 500,000 people on the target world. From this initial population, colonies will grow due to further immigration and natural growth.

Space-traveling civilizations will tend to colonize every world that *can* support a substantial population. A world will be a colony if it is in a region of space claimed by some space-traveling civilization, it has an affinity score greater than 0, and it is not already defined as a homeworld.

Outposts

An *outpost* is a settlement on an unattractive world, planted only because of the world's strategic location or other unusual properties. An outpost may be in place for decades or even centuries, but it never loses its temporary character. Unlike a colony, an outpost has relatively few *permanent* settlers – most of the inhabitants expect to go elsewhere once their work at the outpost is finished.

In general, the GM may place outposts on worlds that are in a region claimed by a space-traveling civilization, that have affinity scores of 0 or less, and that are not already defined as homeworlds or colonies. Several different kinds of outpost exist.

Military Outposts: These are designed to serve as military bases, or to watch the frontier between hostile interstellar states. The GM should decide how far military starships can travel without needing to stop for fuel, supplies, navigational fixes, or some other need. Place an outpost on any eligible world that is within this distance of a military frontier. If spaceships can travel *indefinitely* without stopping at a port, then military outposts may be useless – or a civilization may place "listening posts" with FTL sensors all through their territory.

Way Station Outposts: These are placed to serve transient starship traffic. If starships must follow "jump lines," or they may not go too far without stopping in a star system, certain worlds will see a great deal of traffic even if there's no reason for a starship to begin or end its journey there. Place an outpost on any eligible world that falls into such a situation.

Miscellaneous Outposts: Other worlds may have scientific research stations, corporate mining towns, small settlements of independent-minded dissidents, and so on. How often such outposts appear depends on social conditions. A tightly controlled interstellar empire will have fewer "unplanned" outposts than a loose federation. The GM should place these extra outposts on eligible worlds as needed, or he can fix a die-roll threshold and determine their locations at random. For example, a sprawling democratic society may place an outpost in an eligible star system on a 12 or less on 3d, while a stay-at-home empire may only place one on a 6 or less.

Uninhabited Worlds

A world that isn't a homeworld, colony, or outpost will be uninhabited. Most uninhabited worlds will appear in unclaimed space. Of course, every space-faring empire will find its share of worlds that are entirely useless – or at least *appear* useless to the first explorers who visit . . .

Example: Haven isn't a homeworld, but it is a world with an affinity greater than 0 within human-explored space. The GM notes that it is a *colony*.

Step 9: Technology Level

Every world has an associated tech level (see p. B511). The TL of a world does *not* normally indicate that only goods at that TL are available there. In a universe in which most worlds have access to off-planet commerce, citizens will be able to buy goods at other tech levels. For example, in a TL10 setting, visitors to a backwater world with TL7 will still be able to buy TL10 goods (probably at a premium cost, since they must be imported).

Unless a character grew up on a world that is actually cut off from the rest of the galaxy, he will probably be familiar with equipment at the maximum TL available. On the other hand, people from a world with low TL are likely to be *poor*. The tech level of a world *does* indicate the technology most commonly available to local industry, which determines the productivity of the local economy, which in turn determines the typical wage and standard of living for the local population.

Local TL depends on the standard TL for the setting as a whole. An industrialized world that engages in plenty of interstellar trade will almost invariably have the standard TL. Worlds that are poorly industrialized or that are cut off from interstellar trade may have lower TL. Select a TL for the world according to the needs of the setting.

To select a TL randomly, roll 3d on the *Tech Level Table* and make a note of the implied TL.

Modifiers: -10 if the local settlement is a homeworld and the world is *not* within space claimed by any space-faring civilization; +1 if the local settlement is a homeworld or colony and the world's habitability score is 4-6, +2 if the local settlement is a homeworld or colony and the world's habitability score is 3 or less; +3 if the local settlement is an outpost.

Tech Level Table

Roll (3d)	World TL
3	Primitive
4	Standard-3
5	Standard-2
6-7	Standard-1
8-11	Standard (Delayed)
12-15	Standard
16 or more	Standard (Advanced)

A *Primitive* world is, for whatever reason, cut off from interstellar trade and unable to produce advanced goods on its own. Roll 3d-12 (minimum 0) for the world's TL. Citizens of this world are very likely to have the Low TL disadvantage (p. B22).

Worlds that are at the setting's standard TL can still be known for slight differences in technological accomplishment. A world that is *Delayed* is at the standard TL, but its manufactured goods tend to be larger, heavier, more costly (by about 10%), less reliable, or less user-friendly. A world that is *Advanced* is at the standard TL, but its manufactured goods will be known for beautiful styling, compactness, reliability, ease of use, or reduced cost (about 10%). An Advanced world may also have made breakthroughs in specific fields, offering certain manufactured goods at higher than the standard TL for the setting.

Regardless of the result on the *Tech Level Table*, if a world is not naturally hospitable, then its population will need advanced technology to survive. If the world's habitability score is 3 or less, then the world must be at least TL8.

Example: The GM has no preference regarding the TL of the Haven colony, so he rolls 3d on the *Tech Level Table* and gets an 11. This yields a result of Standard (Delayed). The GM sets the colony to TL10, since that's the standard TL for his campaign, and notes that local industries aren't quite up to galactic standards for cost and reliability.

Step 10: Population

This step sets the population for the target world. In this book, a world's population will be given as a head-count of residents. Each world also has a Population Rating (PR). This is the "order of magnitude" of the world's population; increasing the PR by 1 multiplies the actual population by a factor of 10. For example, a world with a population between 1.0 million and 9.9 million has a PR of 6; a world with a population between 1.0 billion and 9.9 billion has a PR of 9.

Determining Carrying Capacity

First, determine the *carrying capacity* of the world for its inhabitants. This is the maximum population that the world can support in reasonable comfort for long periods of time. A world's population can exceed its carrying capacity, but only at the cost of widespread poverty or the risk of a disastrous "die-back."

Carrying capacity depends on several factors. The world's diameter controls its surface area. The world's affinity score stands for a variety of factors, all of which affect how much of the world's surface area is going to be usable. Finally, the tech level of the settlement controls the *density* of population that can be supported – the number of people that can live comfortably in the same area.

If a world has habitability of 3 or less and tech level of 7 or less, then the carrying capacity for the world is automatically 0 (such a case should not occur under the rules in Step 9). Otherwise, refer to the following tables.

Affinity Modifiers Table

Affinity Score	Multiplier
10	1,000
9	500
8	250
7	130
6	60
5	30
4	15
3	8
2	4
1	2
0	1
-1	0.5
-2	0.25
-3	0.13
-4	0.06
-5	0.03

Get the base carrying capacity for the world, based on its TL. Multiply this value by the appropriate multiplier from the *Affinity Multipliers Table*, based on the world's affinity score. Finally, for any world type other than Asteroid Belt, multiply the result by the *square* of the world's diameter (measured in Earth diameters). If the world is of Asteroid Belt type, multiply by 50 (an asteroid belt offers material broken up into many small chunks, providing a *lot* of potential living surface).

Carrying Capacity Table

Tech Level	Base Carrying Capacity
0	10,000
1	100,000
2	500,000
3	600,000
4	700,000
5	2.5 million
6	5 million
7	7.5 million
8	10 million
9	15 million
10	20 million
11 or higher (or Superscience)	GM option

Note that base carrying capacity at TL8 and above is speculative – economists and ecologists aren't in agreement on how many people Earth can stably support at high TL. The GM should feel free to set these figures to suit his own assumptions, especially at TL11+ or in settings that include a lot of superscience.

The above procedure will yield the carrying capacity of the world for humans or human-like aliens. Alien races with certain racial advantages or disadvantages will need different amounts of space and resources to survive comfortably.

Carnivores: Races that are unable to eat anything but meat will use land much less efficiently than their herbivorous or omnivorous counterparts. Such a race would have some level of the Restricted Diet disadvantage (p. B151) tied to their predatory requirements. At TL8 and below, *divide* carrying capacity by 10 for such races.

Increased Consumption: Races that need lots of food or water will need more resources to survive comfortably. For every level of the Increased Consumption disadvantage (p. B139) that the inhabitants have, *divide* carrying capacity by 2.

Increased Life Support: This disadvantage (p. B139) applies to members of a race while operating in a human-safe environment. When in their own environment, they will have no unusual needs. This disadvantage *does not affect* carrying capacity.

Reduced Consumption: Races that need *less* food or water than normal will be able to get by with fewer resources. This is reflected by the Reduced Consumption advantage (p. 80) and, at extreme levels, by the Doesn't Eat or Drink advantage (p. B50). If the inhabitants have Reduced Consumption 1, *multiply* carrying capacity by 1.5. If they have Reduced Consumption 2, multiply carrying capacity by 3. If they have more levels of Reduced Consumption, or the Doesn't Eat or Drink advantage, multiply carrying capacity by 10.

Once all the relevant factors have been taken into account, make a note of the final carrying capacity of the world. Then proceed to the appropriate section of the following rules and determine the current population of the world. Round carrying capacity and population to two significant figures, and make a note of the world's PR as well.

Homeworld Populations

In general, a homeworld will support as many people as it *can* – its population will be about equal to its carrying capacity. This is especially true at TL4 or below, when societies have no reliable way to control their own birth and death rates.

At TL5 and above, societies are more likely to diverge from their world's carrying capacity. By restricting birth rates, a high-tech society may fall significantly below the carrying capacity. On the other hand, a high-tech society can also exceed the carrying capacity, but only by using world resources in a way that can't be sustained indefinitely. Such a society will be in trouble within a few generations, unless it can improve the carrying capacity of its world.

At TL4 or below, a homeworld's population is likely to be within 50% of its carrying capacity. Select a population as needed, or roll 2d+3, divide by 10 (retaining fractions), and multiply by the carrying capacity to get the world's population.

At TL5 and above, a homeworld's population can vary widely from its carrying capacity. Select a population as needed, or roll 2d. Multiply the carrying capacity by 10, and *divide* the result by the die roll to get the world's population.

Colony Populations

A colony world will begin with a relatively small population that will grow over time until it approaches the carrying capacity of the world. Select a population for the world to fit the needs of the campaign.

To generate a colony's population at random, roll 3d on the *Colony Population Table*.

Modifiers: Add +3 times the world's affinity, and add +1 for every 10 full years since the colony was established.

The colony's population should normally not exceed the world's carrying capacity. The GM may fix the population below the carrying capacity to represent a society that dislikes crowding, or above the carrying capacity for an unstable colony that is outpacing local resources.

Colony Population Table

Roll (3d)	Population	Roll (3d)	Population	Roll (3d)	Population
25 or less	10,000	45	1.0 million	65	100 million
26	13,000	46	1.3 million	66	130 million
27	15,000	47	1.5 million	67	150 million
28	20,000	48	2.0 million	68	200 million
29	25,000	49	2.5 million	69	250 million
30	30,000	50	3.0 million	70	300 million
31	40,000	51	4.0 million	71	400 million
32	50,000	52	5.0 million	72	500 million
33	60,000	53	6.0 million	73	600 million
34	80,000	54	8.0 million	74	800 million
35	100,000	55	10 million	75	1.0 billion
36	130,000	56	13 million	76	1.3 billion
37	150,000	57	15 million	77	1.5 billion
38	200,000	58	20 million	78	2.0 billion
39	250,000	59	25 million	79	2.5 billion
40	300,000	60	30 million	80	3.0 billion
41	400,000	61	40 million	81	4.0 billion
42	500,000	62	50 million	82	5.0 billion
43	600,000	63	60 million	83	6.0 billion
44	800,000	64	80 million	Every +10	×10

Outpost Populations

An outpost will usually have a population between 100 (for a small station) and 100,000 (for the largest military or commercial outposts). Select a population, or roll 3d on the *Outpost Population Table* below to determine the outpost's approximate population. Feel free to vary the result by up to 25% for any given world. An outpost will almost certainly be smaller than the world's carrying capacity. In any case, the carrying capacity rule doesn't apply to outposts, which are dependent on imported supplies.

Outpost Population Table

Roll (3d)	*Population*
3	100
4	150
5	250
6	400
7	600
8	1,000
9	1,500
10	2,500
11	4,000
12	6,000
13	10,000
14	15,000
15	25,000
16	40,000
17	60,000
18	100,000

Example: The GM computes the carrying capacity for Haven. The base carrying capacity for TL10 is 20 million, the multiplier for Haven's affinity of 7 is 130, and the square of the planet's diameter (in Earth diameters) is 1.1. Multiplying all of these together, the GM gets a total carrying capacity of about 2.9 billion. The colonists have almost certainly not come anywhere near this population . . .

The GM decides that the Haven colony was established about 200 years ago, by dissidents fleeing a civil war in the Galactic Empire. He decides to determine the colony's population at random, and rolls 3d on the *Colony Population Table*. He gets a total roll of 53 (12 on the dice, +21 for the planet's affinity score, and +20 for time since settlement). This suggests a population of 6.0 million. The GM decides to vary the final result slightly, and records a total population of 6.5 million (PR 6).

Step 11: Society Type

"What I see happening around me is bad enough," Sarah said. "To know that the trend is being encouraged by a secret elite is worse. But to know that They are doing it for no more reason than to simplify their . . . arithmetic really frosts me."

– Michael Flynn,
In the Country of the Blind

This step determines the type of society (or societies) that exists on the target world. This book uses the society types listed on pp. B509-510, the overall political situations described under *The Big Picture* on p. B509, and the "special conditions" listed under *Variations* on p. B510.

This step almost *demands* that the GM make a selection to fit the needs of his setting. Any world's social situation needs to fit the GM's assumptions about interstellar society. An Evil Galactic Empire won't tolerate democratic world governments, but a Benevolent Federation may *insist* on democracy on its member worlds. A near-future setting may have relatively little variety in social types, while a space-operatic galaxy of the distant future may see every one of the types represented on hundreds of worlds.

The GM may want to set up his own procedure for determining what society type can be found on each world in his setting. The following procedures are reasonably generic and can be used in a variety of settings.

World Unity

The degree to which a world is socially unified depends strongly on the available technology. An ultra-tech world with instant communication and fast transport is *much* more likely to be politically unified than a pre-industrial civilization that still depends on animal-drawn and water transport.

Select a level of unification from the ones described in *The Big Picture* on p. B509. To get a random result, roll 1d at TL7 or less or 2d at TL8+, on the following table.

Altering the Colony Population Table

The *Colony Population Table* makes several assumptions about the normal growth of colony worlds. Each of these assumptions can be changed to fit the needs of a given setting.

- *A stable colony must have at least 10,000 inhabitants*. This fixes the lowest possible entry on the table. The current table assumes that an average die-roll of 10, combined with a medium affinity score (5) and no time-since-foundation modifier, will match the minimum population. When rewriting the table, the GM may wish to make sure a similar result occurs – otherwise some new colonies will have very high populations, or some very old colonies will have the minimum population.
- *A colony world's population will grow at a rate of about 2.3% per year, averaged over its entire history.* This assumption fixes the ratio between adjacent entries on the table, and the +1 die-roll modifier for each decade since the colony's foundation. If populations grow faster, increase the ratio between entries or apply the +1 modifier more often than every 10 years. If colony populations grow more slowly, decrease the ratio between entries or apply the +1 modifier less often.
- *Each point of the affinity score will, on the average, double a colony world's Population*. This assumption fixes the size of the modifier for affinity. If habitable conditions and available resources are more important, increase this modifier. If colonies grow at a rate independent of the environment, decrease or remove this modifier.

Modifiers: +4 if the world's PR is 4 or less, +3 if the PR is 5, +2 if the PR is 6, +1 if the PR is 7.

World Unity Table

Roll (2d)	Conditions
5 or less	Diffuse
6	Factionalized
7	Coalition
8	World Government (Special Condition)
9 or more	World Government

Society Type

Select a society type, or roll 3d on the *Society Types Table*, referring to the column for the type of *interstellar* society in which the world is a member (for a summary of interstellar society types, see Chapter 1). If the world is not part of any larger society, use the "Anarchy or Alliance" column.

Modifiers: Add the world's TL (treating TL11+ as TL10). The result is the society type of the world (or the *dominant* type, if the world is not unified).

If a "special condition" was indicated by the roll on the *World Unity Table*, choose one or two of the special conditions listed under *Variations* (p. B510). To select special conditions randomly, roll 3d on the *Special Conditions Table*, with no modifiers. If the result has an asterisk, record the special condition, then roll 1d. On a 1-3, roll for a *second* special condition and apply both.

Society Types Table

Roll (3d)	Anarchy or Alliance	Federation	Corporate State	Empire
3-6	Anarchy	Anarchy	Anarchy	Anarchy
7-8	Clan/Tribal	Clan/Tribal	Clan/Tribal	Clan/Tribal
9	Caste	Caste	Caste	Caste
10	Feudal	Feudal	Theo	Feudal
11	Feudal	Theo	Feudal	Feudal
12	Theo	Dictator	Feudal	Feudal
13	Dictator	Dictator	Dictator	Theo
14	Dictator	Dictator	Dictator	Dictator
15	Dictator	RepDem	Dictator	Dictator
16	RepDem	RepDem	RepDem	Dictator
17	RepDem	RepDem	RepDem	Dictator
18	RepDem	RepDem	AthDem	RepDem
19	AthDem	RepDem	Corporate	RepDem
20	AthDem	AthDem	Corporate	Corporate
21	Corporate	AthDem	Corporate	Corporate
22	Corporate	AthDem	Techno	Corporate
23	Techno	Corporate	Techno	Techno
24-25	Techno	Techno	Techno	Techno
26-27	Caste	Caste	Caste	Caste
28 or higher	Anarchy	Anarchy	Anarchy	Anarchy

Here, *AthDem* stands for Athenian Democracy, *RepDem* stands for Representative Democracy, *Dictator* stands for Dictatorship, *Techno* stands for Technocracy, *Theo* stands for Theocracy, and *Corporate* stands for Corporate State.

Special Conditions Table

Roll (3d)	Special Condition
3-5	Subjugated*
6	Sanctuary
7-8	Military Government
9	Socialist*
10	Bureaucracy
11-12	Colony
13-14	Oligarchy*
15	Meritocracy*
16	Matriarchy or Patriarchy (choose which)
17	Utopia
18	Cybercracy (roll again if TL7 or less)

Example: Rather than roll the dice, the GM works directly from his concept for Haven. He decides that the Haven colonists oppose the feudal government that rules most of the Galactic Empire, and are experimenting with democracy instead. He gives Haven a World Government, sets the society type to Representative Democracy, and places the Sanctuary special condition to fit the world concept.

Step 12: Control Rating

The Control Rating (p. B506) of a world is a measure of the most *common* CR to be found there. Worlds that are not politically unified will have different CR in different regions, and a world may have a split Control Rating as well (see p. B507).

Control Rating depends strongly on the society type and any special social conditions to be found on the world. Refer to pp. B509-510 for the likely relationships between society type and CR. The GM should select a CR to fit the needs of his setting, or choose one from the most likely range using any random method he prefers.

A world with the special condition of *Colony* (not to be confused with a world with the colony settlement type) is a special case. Such a world's CR should depend on its local social type, but it is almost always lower than that

of the world from which the colony is governed. For any such world, determine the *governing world's* CR first.

Example: The GM decides, based on his original concept, that the inhabitants of Haven are likely to prefer freedom and an open society to a lot of regulation. He sets the Control Rating for Haven to be the minimum that would normally occur under a Representative Democracy: CR 2.

Step 13: Economics

This step determines the economic parameters of the target world. It can be skipped if the details of local economics aren't going to be useful to the campaign.

The economic output of a world depends on the *productivity* of the world's workers. Productivity is largely determined by the local technological base. Workers with access to higher-TL equipment and techniques will be able to produce more economic value in the same amount of time. Also, the goods and services they produce will command a higher price when sold.

Productivity also depends on the *efficiency* of the local economy. This can depend on local environmental conditions, and on the details of local society. A world where most people are scrambling simply to survive is not one whose local industry will be efficient and productive.

Finally, productivity depends on the *resources* available to the workforce. Resource-rich worlds will naturally be more productive than resource-poor ones. Low-population worlds may be quite rich, but they don't support extensive industry so the workforce can't take advantage of the available resources. High-population worlds are economically saturated, and many workers won't have access to all the resources they could otherwise have used.

Per-Capita Income

To begin, refer to the following table to determine the *base per-capita income* for inhabitants of the world. This is dependent solely on the world's prevalent TL. Then refer to the *Income Modifiers Table* and add together all the modifiers that apply.

Base Per-Capita Income Table

Tech Level	Base Per-Capita Income
TL12+	$130,000
TL11	$97,000
TL10	$67,000
TL9	$43,000
TL8	$31,000
TL7	$25,000
TL6	$19,000
TL5	$13,000
TL4	$9,600
TL3	$8,400
TL2	$8,100
TL1	$7,800
TL0	$7,500

Income Modifiers Table

Condition	Modifier
Affinity score 10	+40%
Affinity score 9	+20%
Affinity score 7-8	+0%
Affinity score 4-6	-10%
Affinity score 1-3	-20%
Affinity score 0 or less	-30%
PR 6 or higher	+0%
PR 5	-10%
PR 4 or less	-20%

Apply the total modifier to the base per-capita income. If the world's carrying capacity is *less* than its population, multiply the result by the world's carrying capacity and then divide it by the population. The final result is the actual per-capita income. Round off to two significant figures.

The per-capita income for a world can indicate the most typical Wealth level (p. B25) for citizens of that world, relative to the average Wealth level of the campaign. Divide the world's final per-capita income by the *base* per-capita income associated with the campaign's standard TL, and refer to the following table.

Typical Wealth Table

Per-Capita Income	Wealth Level
1.4 × base or more	Comfortable
0.73 × base to 1.39 × base	Average
0.32 × base to 0.72 × base	Struggling
0.1 × base to 0.31 × base	Poor
0.09 × base or less	Dead Broke

Economic Volume

To determine the *economic volume* of the world, simply multiply the per-capita income by the population of the world and round off to two significant figures. Make a note of the final per-capita income, the typical Wealth level for local citizens, and the economic volume.

Estimating Trade Volume

The best model known for estimating the flow of trade between two points is the *gravity trade model*, so called because the fundamental equation describing trade flows resembles Newton's equation for the force of gravity between two masses.

In order to estimate the trade volume between two specific worlds, the GM will need to determine two parameters, which should be consistent throughout his setting.

The simplest formula for estimating trade volume is:

$$\mathbf{T} = (\mathbf{K} \times \mathbf{V1} \times \mathbf{V2})/\mathbf{D}$$

Here, **T** is the trade volume between two worlds (in *trillions* of $), **K** is a constant on which the GM must

decide, **V1** and **V2** are the economic volumes of the two worlds (in trillions of $), and **D** is the distance between the two worlds (in any convenient unit, usually parsecs).

The gravity trade model can yield some very odd results when used on certain pairs of worlds; if one world's economic volume is much higher than the other's, the estimated trade volume between them can be many times the size of the smaller world's economy. At the GM's option, a low-population world may carry on all of its direct trade with the nearest high-population world; the trade volume of the link should be no higher than the smaller world's economic volume.

The value of the constant **K** is *very* dependent on the setting. The GM should determine it early in his setting design process, at least if he intends to work out trade routes or otherwise estimate the amount of interstellar traffic. The best way to determine **K** is through trial and error, until the GM is happy with the results as applied to the most important worlds of his setting. The value of **K** will also have an effect on *what kind* of trade is likely to occur.

For example, the GM may assume that two worlds with high population and high TL, located close to each other in space, will have a trade volume between 5% and 10% of each world's economic volume. If **K** is set high enough to permit these levels of trade, interstellar commerce may involve ordinary manufactured goods or even certain raw materials. Passenger service between worlds will be fairly common as well.

A smaller value for **K** will give rise to smaller trade volumes, suggesting a setting where interstellar trade is more difficult or less important. In such settings, trade will tend to be dominated by high-value, low-volume goods such as luxury items and precision machinery. Even *information* may become a worthwhile trade good, especially if there is no equivalent of FTL radio.

Another factor that affects trade volumes is the presence of *political* borders. Worlds that are members of different space-faring civilizations are likely to trade less than those that share the same culture and government. The GM should decide how much to reduce the trade volume between two worlds that are not part of the same society. A reasonable reduction would be to divide the trade volume by three.

If trade will be important to the campaign, compute the trade volume between the target world and as many of its neighbors as is convenient.

Designing Trade Routes

If the trade volumes between various worlds in the setting have been computed, the GM can lay out *trade routes* on his map.

The structure of trade routes depends strongly on the mechanisms of space travel. Suppose that merchant ships can travel freely through deep space, moving from any origin to any destination, never stopping at a port in between no matter how long the journey. In this case discrete "trade routes" become unlikely, since every merchant ship moves along its own independent path. There will be no *transient* merchant traffic at any world.

On the other hand, if ships must touch at port every few parsecs, distinct trade routes will appear along the paths used by ships carrying the highest trade volumes. Ports between the high-volume worlds may serve a great deal of transient traffic, as starships stop to refuel or perform maintenance before carrying their passengers and cargo onward. The GM can draw a tree-shaped structure of trade routes, measuring the total trade volume for each link by summing up the trade volumes for each pair of worlds whose commerce traverses that link.

In a setting where worlds are connected by jump lines, trade routes are *forced* to follow the jump lines. A link-and-branch structure becomes easy to define in this case.

Note that in either of the last two cases, trade between high-population worlds may end up following a roundabout route because no inhabited worlds exist to provide a more direct path. If this happens, the GM may wish to place outposts, or even new worlds, in locations that would permit a more direct route for the trade. This is particularly likely in settings where only a few of the existing star systems are normally placed on the map. Any interstellar society is likely to place way station outposts (p. 90) in order to make trade more efficient (or to support naval protection of the merchant ships).

Estimating Space Traffic

To estimate the total amount of space traffic at any given world, total up the world's trade volumes with its neighbors. Add the trade volume for any other world-pairs connected by a trade route that passes *through* the target world. The result is the total amount of merchant traffic that will pass by the target world each year, expressed in trillions of $.

The GM can use this figure to estimate the number of merchant *ships* that will call at the world's port each year. Of course, this depends on a number of factors that are all up to the GM: the typical *size* of a merchant ship, the expected value (in $) of cargo and passengers, and so on.

Example: The base per-capita income at TL10 is $67,000. The GM refers to the *Income Modifiers Table* and finds that the total modifier for Haven is +0%. Meanwhile, the population is much less than the carrying capacity, so the per-capita income won't be reduced due to a too-large population. The actual per-capita income of Haven's population is $67,000. The total economic volume of the planet is 67,000 × 6.5 million = $440 billion. The most typical Wealth level on the planet is Average.

The GM has developed trade routes for other worlds in his setting, but he decides that Haven doesn't engage in open trade. Instead, the inhabitants maintain self-sufficient industries, and keep in contact with imperial worlds solely through sporadic smuggling.

Step 14: Bases and Installations

Many worlds have interesting special features, bases and installations built by the inhabitants. These may be placed by the GM, or may be placed randomly using the following procedures.

Spaceports

A spaceport may exist on any world that has space travel or that trades with space travelers.

Select the spaceport for the target world from the following classes. To choose a spaceport at random, roll 3d against the target number specified for each spaceport class. Check for the *highest* applicable class first. If there is no spaceport of that class, check for the next-highest class, and so on. A world will usually have several ports of lower class than the main spaceport, but this rarely affects play except to give visitors a choice of debarkation points.

Class V – Full Facilities: This class of spaceport includes full construction and repair facilities for the most advanced spacecraft in the setting. The port has berths for hundreds or even thousands of vessels, multiple landing facilities, launch facilities, surface-to-orbit shuttle services, and every amenity imaginable – from crew union halls to high-tech training facilities. A Class V spaceport will always be present on a world that sees at least $20 trillion annually in total trade volume or transient merchant traffic. Otherwise it is present only on worlds of PR 6 or better, on a 3d roll of (PR+2) or less.

Class IV – Standard Facilities: This class includes light ship-construction facilities, and repair yards for ordinary spacecraft. A Class IV spaceport will always be present on a world that sees at least $1 trillion annually in total trade volume or transient merchant traffic. Otherwise it is present only on worlds of PR 6 or better, on a 3d roll of (PR+5) or less.

Class III – Local Facilities: This class includes repair facilities for common needs; special parts or complex repairs, even on ordinary spaceships, will require off-planet parts, technicians, or facilities. A Class III spaceport will always be present on a world that sees at least $50 billion annually in total trade volume or transient merchant traffic. Otherwise it is present on a 3d roll of (PR+8) or less.

Class II – Frontier Facilities: These are intended only for interplanetary or shuttle craft rather than starships. Only emergency repairs are available for starships, although common fuel types are available. A Class II spaceport is present on a 3d roll of (PR+7) or less.

Class I – Emergency Facilities: This isn't a real spaceport, just a landing area. Marked by automatic buoys, it might be a cleared-off, flattened space or a small orbital station. It may be completely unmanned, or it may have local customs and security offices. Emergency parts and fuel are stored nearby. If qualified technicians are available, there will be a way to summon them as needed. Class I facilities are present on a 3d roll of 14 or less.

Class 0 – No Facilities: There isn't even a designated landing site. Ships planning to land must look for suitable terrain. If the world has a high enough TL, there will be an airport, parking lot, or wide roadway.

Depending on the campaign's space-flight technologies, spaceports may be located in orbit, on the ground, or both. Ground ports service shuttles and landing-capable spaceships, while an orbital facility allows non-landing ships to dock and provides shuttle service to the surface.

Other spaceports, not specifically included in a world's spaceport rating, include corporate, military, Patrol, and government ports. These can normally be used by any ship in an emergency, if the facility isn't secret.

Installations

Each of the following facilities may be present on a given world. They may be selected by the GM as needed.

To place installations at random, roll 3d for each in any convenient order. If a particular type of installation doesn't exist in your setting, don't roll for it. Each installation type lists a target number; the installation is present if the 3d roll yields this number or less. The chance of some installations is affected by the world's TL, PR, and Control Rating.

Some installations will have a PR of their own, indicating the number of personnel assigned to them. When rolling for this PR, assume a minimum PR of 1 unless the world itself has PR 0. No installation can have a PR higher than that of the world itself, and there can be only one installation with PR equal to that of the world. If such an installation exists, it and the supporting industries probably dominate local society.

Alien enclave: One or more races alien to the world's major population live in segregated ghettos or reservations. This may be by own choice – to preserve their own culture, or from dislike of the other race. Or the major population may dislike *them*. An entire world may be designated an enclave. Present on a roll of 6 or less.

Black market: Illegal goods are easily found on this world, either in a fixed physical location or simply through a network of contacts. If the black market is commonly known, the Patrol is likely to raid occasionally or restrict trade (unless people in high places have been paid off). Interstellar criminal organizations have agents here. Present on a roll of (9-CR) or less.

Colonial office: An office of the colonial authority. On a high-population world, this may be a recruiting center. On a colony, it will be an enforcement office, which works to ensure compliance with government policies. In the latter case, the general attitude of the chief administrator can be set by a general reaction roll. Present only at PR 3 or higher, on a roll of (PR+4) or less.

Corporate headquarters: The nerve center of a major interstellar corporation is located here. Industrial operations may or may not be present. In extreme cases, the planet is governed by the company. Present only at PR 6 or higher, and local TL7 or higher, on a roll of (PR+3) or less. Roll 1d-3 for the PR of the headquarters itself.

Criminal base: This is the "corporate HQ" for a criminal group. The Patrol will be interested in this world, if it knows about it. Present on a roll of (PR+3) or less. Roll 1d-3 for the PR of the base.

Espionage facility: This may range from a secret spaceport to a minor office or spy cell. Civilian spy organizations may be involved in industrial espionage. Military espionage bases will be specifically involved in spying on enemy capabilities and forces, or (in rear areas) in correlating data. Espionage facilities will be present on a roll of (PR+6) or less. If a facility is present, roll 1d to determine its type: on a 1-4 it is civilian, on a 5 it is friendly military, and on a 6 it is enemy military. Roll 1d-2 for the PR of the facility if military, or 1d-4 if civilian. If one espionage facility is present, there may be others (presumably to spy on the first one). Roll again for another facility; if it is present, roll for a third, and continue until a roll fails.

Government research station: The station may be studying any cutting-edge technology or scientific field. It may be known to the public, garrisoned by security troops and ships. Or it may be secret, located in a remote area. It may even be disguised as some other form of installation. Present on a roll of 12 or less; if one is present, a second is also present on a roll of PR or less. Roll 1d-4 for the PR of each installation. Roll 1d for each research station; on a 1-2 the station is secret.

Mercenary base: This is the current home planet for a mercenary company, perhaps with a contract from a local government. There are training facilities, depots, and support personnel as well as fighting forces. Present on a roll of (PR+3) or less. Roll 1d-3 for the PR of the base.

Nature preserve: Most or all of this planet is set aside in its unexploited, natural state. These preserves may be used for scientific research (off-limits to tourists), or for light or heavy tourism (safaris, excursions, and so on). Present on a roll of (12-PR) or less.

Naval base: A support installation for the Navy. The size and complexity can vary, from a main fleet base to a small refueling station or listening post. Present if there is a Class V spaceport, or on a roll of (PR+3) or less. Roll 1d-1 for the PR of the base.

Patrol base: As above, but for the Patrol. Present if there is a Class IV or Class V spaceport, or on a roll of (PR+4) or less. Roll 1d-2 for its PR.

Pirate base: This planet may house a full-fledged pirate outpost with its own spaceport and security forces, possibly allied with the world's population. Or, on a smaller scale, corsair ships may set down secretly from time to time for supplies and R&R. If the pirate base is public knowledge, the Patrol can be expected to take an interest. Present on a roll of (8-CR) or less. Roll 1d-3 for the PR of the base.

Prison: Prisons are often built on barren, unsettled worlds (to make escape difficult), or in remote areas on habitable planets. They are rigorously patrolled. If the prison dominates local society, this is a "prison planet," and travel there is heavily restricted. A prison will be present only if no other installations exist on the world, aside from naval or Patrol bases. Present on a roll of (10-PR) or less (roll *last*). Roll 1d-3 for the PR of the prison.

Private research center: Like the government research station, this installation is dedicated to scientific or engineering research. It may be funded by industry, by government grants, or (secretly) by criminal organizations. Private centers investigate a wider range of topics than government centers, possibly including far-out theories. Present on a roll of (PR+4) or less; if one is present, roll again for additional centers, to a maximum of three. Roll 1d-4 for the PR of each installation.

Rebel or terrorist base: These range from hidden fortresses with full spaceport facilities to minor hideouts for ships "on the run." Rebels will have contacts among the local population, though the world government is rarely allied. Terrorists usually base themselves on friendly worlds, striking into foreign territory. The navy and Patrol will take an interest in these installations. Present on a roll of 9 or less. Roll 1d-3 for its PR.

Refugee camp: A holding center for those who have fled their native world due to war or another catastrophe. These are usually run-down, filled with squalor and crime. Refugees are usually disliked by the natives; the impoverished refugees are often desperate and militant, scheming to regain their lost lands. Present on a roll of (PR-3) or less; if one is present, roll for additional centers until a roll fails. Roll 1d-3 for the PR of each camp.

Religious center: Sacred areas – shrines or temples, often with church administrative and meeting facilities. Some sites of historical significance will be guarded by the Patrol. Pilgrims are likely. The center may be off-limits to nonbelievers. Present on a roll of (PR-3) or less. Roll 1d-3 for the PR of the religious center.

Special Justice Group office: A local headquarters for the Special Justice Group (p. 204). Present on a roll of PR or less. Roll 1d-4 for the office's PR. Roll 1d for the office; on a 1-2 it is "covert," known only to SJG operatives and with an innocuous "cover" function.

Survey base: As for a naval base, but for the Survey organization. Present if there is a Class IV or Class V spaceport, or on a roll of (PR+3) or less. Roll 1d-3 for its PR.

University: A prestigious interstellar center of learning, with libraries and research facilities. Present on a roll of (PR-6) or less. Roll 1d; on a 1-2, the university will have PR 3; on a 3-4, it will have PR 4; on a 5-6 it will have PR 5.

Example: The GM rolls 3d for each starport class in turn. The first roll is a 14, which is greater than Haven's PR+2=8, so there is no Class V spaceport. The second roll is a 15, which is greater than PR+5=11, so there is no Class IV spaceport. The third roll is an 11, which is less than PR+8=14, so the GM places a Class III spaceport on the planet.

The GM has no special preference regarding bases and installations for Haven, except that there should be no installation operated by the government (the Empire) or a major corporation. He rolls dice for every other item. The only roll that succeeds indicates a rebel or terrorist base; a second die roll yields a PR of 2 for the base. The GM decides that some citizens of Haven operate a support base for rebels against the Empire; the base may be associated with the smugglers who sometimes bring in imperial goods.

The design of Haven is complete, at least under the basic world-building system. In Chapter 5 the design will be expanded with advanced options.

Chapter Five
Advanced Worldbuilding

Mark struggled up the hillside, hoping to reach the shelter of the rocks he had seen from the valley's floor. Sweat poured down his face, straining his suit's ability to defog his faceplate. He could smell himself, rank with fear and old perspiration.

Any moment, he expected to feel the searing agony of a laser burn in his back. He couldn't imagine how the renegade had managed to miss him so far.

"Arcadia Base, this is Mark Keenan. Emergency call. Emergency call." Mark panted, climbing over a saw-toothed ridge of stone. Dust scattered in the trace atmosphere as his boots hit the surface on the other side. "Arcadia Base. Any overflight unit. ***Eagle's Wing*** *control. Anybody."*

No use. His radio was dead.

The light was rising as Mark reached the crest of the ridge. He reflexively looked over his shoulder, and looked full in the face of the planet's red dwarf sun as it loomed huge on the horizon. Second sunrise, as the planet receded from its periastron. Prominences and starspots were scattered across the star's face, an unusual number of them. Mark flinched away from the sight, and then remembered the infrared filters in his faceplate. It was safe enough to look.

Down in the valley, a long shadow pointed back to another human figure. It wore a suit like Mark's. It lifted a laser rifle.

Mark ducked, just as a stone a few feet away ***popped*** *and flew into shards. Then he was hunkered down behind the ridgeline, scattering eons-old dust and looking frantically for some kind of shelter.*

There, an overhang, the space beneath still in shadow.

Mark peeked back over the ridgeline; he saw the renegade tramping across the valley floor. It wouldn't take more than an hour for him to reach Mark's ridge.

The light grew brighter still.

Mark glanced up, just in time to see the star flare. A brilliant white light appeared on the star's upper limb, spreading madly, throwing every element of the landscape into sharp relief.

Mark thought quickly, then turned to lumber down the slope, toward the overhang he had picked out a moment ago. It ought to be enough to shadow him. The flare would be pouring radiation across the planet's surface in a few minutes. Enough to seriously harm anyone caught in the open.

The renegade was in the open, long minutes away from any shelter. Mark permitted himself a wolfish smile.

Generating Star Systems

The rest of the world-building system picks up where Chapter 4 left off. At this point, the GM may have worlds placed on his campaign map, ready for adventure. He may now wish to generate the rest of any star system containing a world, including other worlds that may exist orbiting the same star. Or he may simply wish to generate a whole solar system from scratch, to see what worlds appear at random.

In either case, the following steps will help the GM create a single complete solar system. This portion of the world-building sequence uses more mathematical computation, and more detail will be generated.

Stellar Classification

Stars fall into a few very well defined groups according to their physical properties. Astronomers classify stars using their *spectral class*, essentially a way to sort stars by color and size.

The first component of the spectral class is the star's *spectral type* or "color," denoted by a single letter. The most important spectral types are O, B, A, F, G, K, and M – remembered by astronomers using the jingle "Oh, Be A Fine Girl, Kiss Me!"

The sequence of spectral types also defines the relative surface temperature and luminosity of stars. O and B stars are hot and bright, while K and M stars are cool and dim. Spectral types are sometimes referred to as "early" (toward the bright, hot end of the range) or "late" (toward the dim, cool end). This nomenclature comes from the early days of stellar astronomy, when it was widely believed that all stars began their lives as O or B type and slowly moved down to K or M type before dying. This theory of stellar evolution has long since been discarded, but the "early-late" jargon persists.

The spectral type can be further specified by a decimal classification, using the digits 0 through 9. A subtype of 0 indicates a "standard" star of that spectral type, while subtypes 1 through 9 indicate progressively cooler, dimmer stars. Sol, for example, is of spectral type G2, and can be considered two-tenths of the way between a standard G-type and a standard K-type star.

The second component of a spectral class is the star's *luminosity class* or "size," which is denoted by a Roman numeral. Luminosity and size are related; two stars with the same spectral type (i.e. the same surface temperature) will be of different brightness if one is larger and has more surface area to radiate energy with. The luminosity classes are I (for "supergiant" stars), II and III (for giant stars), IV (for a class of "subgiant" stars), V (for average-sized "main sequence" stars), and VI (for a rare class of "subdwarf" stars). Sol, for example, is a G2 V star.

One set of stars doesn't fall into this classification scheme: the *white dwarf* stars. In a sense, these are not stars at all. A white dwarf is the remnant of a star that has finished its stable lifespan, has passed through a period as a giant star, and is now unable to continue fusion burning. Stars that die in this fashion lose much of their mass, in processes that can be quite violent. The most common remnant of such a star-death is a white dwarf, a small but extremely dense body that shines dimly due to the retained heat of its final collapse. Astronomers use an elaborate classification scheme for white dwarf stars, but this book simplifies by assigning them all the luminosity class D without spectral type.

In the region of space around Sol, most stars are of luminosity class V. These are stars in the main part of their stable lifetime, burning hydrogen fuel and evolving very slowly, most of them across billions of years. About 90% of nearby stars are main-sequence stars (p. 104), and most of the rest are white dwarfs.

Step 15: Number of Stars

This step determines how many stars exist in the target star system. Many stars travel in pairs or larger groups, bound together gravitationally so that each orbits the center of mass of the entire system. In such star systems, the component stars are named using letters of the alphabet, with the most massive tagged A, the next most massive B, and so on. The A-component is also called the *primary star* of the system, and the other components are *companions*.

About half of all star systems are composed of single stars, with most of the rest being *binary* pairs. *Trinary* (three-star) systems are uncommon but possible. Multiple star systems with more than three members are fairly rare, and shouldn't be placed at random. Select a number of stars, or roll 3d on the *Multiple Stars Table* and note the result.

Modifiers: +3 if the system is located within an open cluster (p. 70).

Multiple Stars Table

Roll (3d)	Number of Stars
3-10	1
11-15	2
16 or more	3

Example: Returning to his predesigned world of Haven (see Chapter 4), the GM decides to generate the rest of the star system. Based on his earlier concept for the world, he decides that Haven is located within an open star cluster. He rolls 3d+3 for a result of 14, and notes that the Haven star system is composed of two stars.

Step 16: Star Masses

This step determines the *mass* of each star in the system. A star's evolution depends very strongly on its mass and age, and somewhat less strongly on its initial composition.

A star's mass is measured in *solar masses*, so that a star with mass 1.0 is exactly as massive as our own sun. Objects smaller than about 0.08 solar masses can't maintain nuclear fusion in their cores, and so can't be considered stars (but see *Brown Dwarfs*, p. 128). Some gargantuan stars seem to have about 100 solar masses, although such "hyperstars" are *extremely* rare. For every massive star that burns briefly and brightly, there are many small stars that burn dimly and hoard their nuclear fuel. The vast majority of stars, including almost every star likely to appear in a space campaign, have mass of 3.0 solar masses or less. Stars larger than about 2.0 solar masses don't appear likely to have planets at all, so this world-design system won't examine such stars in great detail. Stars with life-bearing planets are most likely to mass between 0.6 and 1.5 solar masses.

Primary Star Mass

Select a mass for the primary star of the target star system. To generate the primary star's mass at random, roll 3d *twice* on the *Stellar Mass Table*, making a note of the mass given for the first and second rolls.

Exception: If a Garden world has already been generated for the star system, then replace the first roll with the following procedure. Roll 1d: on a 1, assume a first roll of 5; on a 2, assume a first roll of 6; on a 3-4, assume a first roll of 7; on a 5-6, assume a first roll of 8.

It's always reasonable to vary the final result slightly, so long as the star's mass is closer to the rolled result than to the results on either side of it. If a star has mass between two entries on the *Stellar Mass Table*, the results on several of the tables that follow will have to be interpolated.

Stellar Mass Table

First Roll (3d)	Second Roll (3d)	Mass (solar masses)
3	3-10	2.00
	11-18	1.90
4	3-8	1.80
	9-11	1.70
	12-18	1.60
5	3-7	1.50
	8-10	1.45
	11-12	1.40
	13-18	1.35
6	3-7	1.30
	8-9	1.25
	10	1.20
	11-12	1.15
	13-18	1.10
7	3-7	1.05
	8-9	1.00
	10	0.95
	11-12	0.90
	13-18	0.85
8	3-7	0.80
	8-9	0.75
	10	0.70
	11-12	0.65
	13-18	0.60
9	3-8	0.55
	9-11	0.50
	12-18	0.45
10	3-8	0.40
	9-11	0.35
	12-18	0.30
11	Any	0.25
12	Any	0.20
13	Any	0.15
14-18	Any	0.10

Companion Stars

If there are any companion stars in the target star system, each must have a mass *equal to or lower than* that of the primary star. Select a mass for each companion.

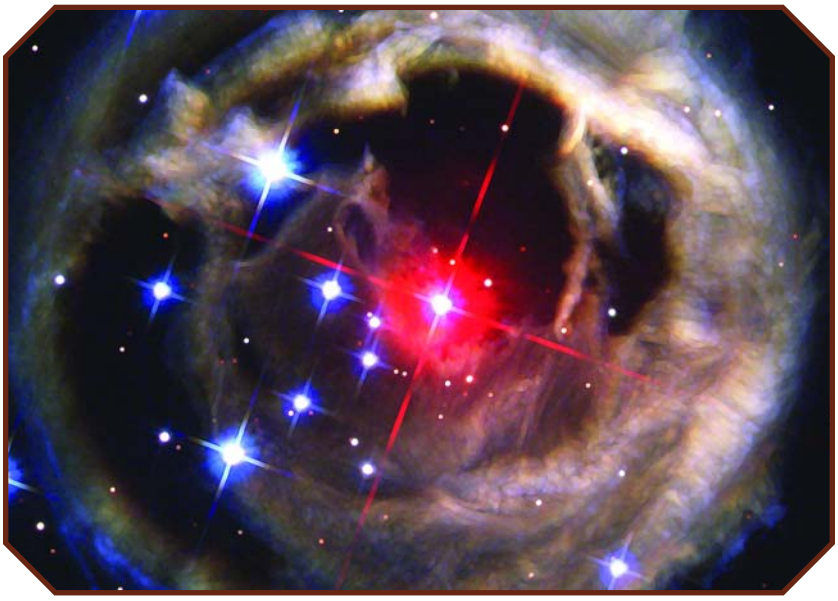
To generate each companion star's mass at random, roll 1d-1. If the result is 0, then the companion star has almost exactly the same mass as the primary (i.e. its mass is given by the same entry in the *Stellar Mass Table*). If the result is 1 or greater, then roll *that many* d6, and count *down* as many entries as the dice indicate from the primary star's entry on the table. If the bottom of the table is reached, then stop. (No star may have a mass lower than about 0.08 solar masses.) The resulting entry indicates the mass for that companion star.

Example: The GM begins by generating the mass for the Haven system's primary star. Since Haven is a Garden world, he rolls 1d instead of 3d for the first roll; he gets a result of 3, which translates into a first 3d roll of 7. His second 3d roll is an 11. Haven's primary star has a mass of 0.90 solar masses.

To generate the companion star's mass, the GM begins with a roll of 1d-1, with a result of 3. He rolls 3d for a result of 14, and counts down on the *Stellar Mass Table* that many entries from the mass of the primary star. The companion's mass is 0.20 solar masses.

Step 17: Star System Age

This step determines the age of the star system. All of the stars in the system (and their planets, if any) will normally be the same age, as measured from the moment that the primary star ignited nuclear fusion in its core.



At this writing, the universe itself is estimated to be about 14 billion years old, and our own galaxy is not much younger than that. Stars older than 12 billion years of age are rare in the galactic disk, and are usually ancient stars of the galactic halo that are simply passing through the disk at the moment. A typical range of ages would be about 4-8 billion years.

Select an age for the star system. To determine an age at random, begin by rolling 3d on the *Stellar Age Table* to determine what *population* the stars of the target system belong to. If a Garden world has already been generated for the star system, roll 2d+2 instead. Population II stars are the oldest, leftovers from the formation of the galaxy. Population I stars were formed in the galactic disk, and can be much younger.

Once the star system's population is determined, roll 1d-1, multiply the result by the Step-A value, then roll another 1d-1, and multiply that result by the Step-B value. Add both results to the Base Age to get the age of the star system in billions of years.

Example: The GM determines the age of the Haven system by rolling on the *Stellar Age Table*. Since Haven is a Garden world, he rolls 2d+2 for a total of 8. Haven is an intermediate Population I star. The following two 1d-1 rolls yield results of 2 and 0. The star system's age is 2 + (0.6 × 2) + (0.1 × 0) = 3.2 billion years.

Referring to the discussion of open clusters on p. 70, the GM notices that the Haven star system is probably *too old* to be a member of the open cluster in which it is currently located. The GM decides that the cluster is recently formed, still rich with bright young stars. Haven's presence inside the cluster is coincidence – the binary star is simply passing through on its independent orbit around the galactic core. Haven's night sky is probably very impressive, full of brilliant nearby stars! Meanwhile, the coincidence probably helps hide Haven from the imperial authorities, who don't expect to find a habitable planet in this region of space.

Stellar Age Table

Roll (3d)	*Population*	*Base Age*	*Step-A*	*Step-B*
3	Extreme Population I	0	0	0
4-6	Young Population I	0.1	0.3	0.05
7-10	Intermediate Population I	2	0.6	0.1
11-14	Old Population I	5.6	0.6	0.1
15-17	Intermediate Population II	8	0.6	0.1
18	Extreme Population II	10	0.6	0.1

Step 18: Stellar Characteristics

Now that the mass of each star and the age of the star system as a whole are known, the current properties of each star in the system can be determined.

A star begins its life in the *main sequence*, a class of stars with very predictable properties, characteristic of stable hydrogen fusion in their cores. A massive star will burn very brightly, spending relatively little time in the main sequence. Stars about as massive as our own sun will spend a few billion years in the main sequence, while the least massive stars will remain there for *many* billions (even trillions) of years.

As a star of moderate or high mass approaches the end of its stable lifespan, the hydrogen in its core becomes depleted. Stars can continue to survive by fusing heavier elements – helium, then carbon, and so on – but each new fusion process requires higher mass, and will be much *hotter* than ordinary hydrogen fusion. The pressure of the greater heat causes the star to swell and redden, causing a transition to the "red giant" stage of evolution.

Eventually, these later forms of nuclear fusion run out of fuel in their turn. The star then dies, losing part of its mass and leaving behind a *stellar remnant*. In the case of a star about the mass of our sun, this process is relatively peaceful – the outer layers of the star blow away to form a short-lived "planetary" nebula, leaving behind a white dwarf remnant. A more massive star will die in a supernova explosion, leaving behind a more exotic remnant such as a neutron star or black hole.

Aside from a star's mass and age, its most important characteristics are its *effective temperature*, its *luminosity*, and its *radius*.

The effective temperature of a star is the temperature of its visible surface, measured in kelvins. It is the primary factor determining the "color" of the star's light (more precisely, the distribution of the star's radiant energy across the electromagnetic spectrum). Spectral type mainly depends on

effective temperature, although the star's material composition is also a factor.

The luminosity of a star is a measure of its total energy output. Luminosity is usually measured in *solar luminosities*, so that a star with luminosity 1.0 radiates exactly as much energy as the Sun. Note that not all of a star's radiant energy will be in the form of visible light. In fact, at the extremes of the range of spectral types, most of a star's output may be outside the visible range.

The radius of a star is simply the distance from its center to its visible surface. Most stars are quite compact, but some very massive or luminous stars are so large that they are likely to have absorbed their innermost planets.

To determine the characteristics of each star in the target star system, use the *Stellar Evolution Table*.

Stellar Evolution Table

Mass	*Type*	*Temp*	*L-Min*	*L-Max*	*M-Span*	*S-Span*	*G-Span*
0.10	M7	3,100	0.0012	–	–	–	–
0.15	M6	3,200	0.0036	–	–	–	–
0.20	M5	3,200	0.0079	–	–	–	–
0.25	M4	3,300	0.015	–	–	–	–
0.30	M4	3,300	0.024	–	–	–	–
0.35	M3	3,400	0.037	–	–	–	–
0.40	M2	3,500	0.054	–	–	–	–
0.45	M1	3,600	0.07	0.08	70	–	–
0.50	M0	3,800	0.09	0.11	59	–	–
0.55	K8	4,000	0.11	0.15	50	–	–
0.60	K6	4,200	0.13	0.20	42	–	–
0.65	K5	4,400	0.15	0.25	37	–	–
0.70	K4	4,600	0.19	0.35	30	–	–
0.75	K2	4,900	0.23	0.48	24	–	–
0.80	K0	5,200	0.28	0.65	20	–	–
0.85	G8	5,400	0.36	0.84	17	–	–
0.90	G6	5,500	0.45	1.0	14	–	–
0.95	G4	5,700	0.56	1.3	12	1.8	1.1
1.00	G2	5,800	0.68	1.6	10	1.6	1.0
1.05	G1	5,900	0.87	1.9	8.8	1.4	0.8
1.10	G0	6,000	1.1	2.2	7.7	1.2	0.7
1.15	F9	6,100	1.4	2.6	6.7	1.0	0.6
1.20	F8	6,300	1.7	3.0	5.9	0.9	0.6
1.25	F7	6,400	2.1	3.5	5.2	0.8	0.5
1.30	F6	6,500	2.5	3.9	4.6	0.7	0.4
1.35	F5	6,600	3.1	4.5	4.1	0.6	0.4
1.40	F4	6,700	3.7	5.1	3.7	0.6	0.4
1.45	F3	6,900	4.3	5.7	3.3	0.5	0.3
1.50	F2	7,000	5.1	6.5	3.0	0.5	0.3
1.60	F0	7,300	6.7	8.2	2.5	0.4	0.2
1.70	A9	7,500	8.6	10	2.1	0.3	0.2
1.80	A7	7,800	11	13	1.8	0.3	0.2
1.90	A6	8,000	13	16	1.5	0.2	0.1
2.00	A5	8,200	16	20	1.3	0.2	0.1

Here, *Mass* is the star's mass in solar masses, *Type* is its most likely spectral type while it is on the main sequence, *Temp* is its most likely effective temperature (in kelvins) while it is on the main sequence, *L-Min* is its initial luminosity on the main sequence, *L-Max* is its maximum luminosity on the main sequence, *M-Span* is its *main sequence span* in billions of years, *S-Span* is its *subgiant span* in billions of years, and *G-Span* is its *giant span* in billions of years.

If a star's age is no greater than the main sequence span given for its mass, then it is a main sequence (luminosity class V) star. If its age is greater than the main sequence span, but no greater than the main sequence span plus the subgiant span for its mass, then it is a subgiant (luminosity class IV) star. If its age is greater than the main sequence span plus the subgiant span, but no greater than the main sequence span plus the subgiant span plus the giant span for its mass, then it is a giant (luminosity class III) star. Once a star has exhausted its stable span, subgiant span, and giant span, then it has ended its lifespan as a star. The dying star leaves behind a stellar remnant – which, for the stellar masses given on this table, is always a white dwarf (luminosity class D).

Using the table, classify each star in the star system as a main sequence star, subgiant star, giant star, or white dwarf. Refer to the appropriate section of the following text to determine each star's spectral type, effective temperature, and luminosity.

Main Sequence Stars

While a star is a member of the main sequence, its effective temperature will change very little, but it will tend to grow larger and more luminous as its core temperature slowly increases.

The *Stellar Evolution Table* gives the spectral type (under *Type*) and effective temperature (under *Temp*) for a main sequence star of a given mass. It would be reasonable to vary the spectral type by one subtype in either direction, or to vary the effective temperature by up to 100 K in either direction.

To determine the current luminosity of a main sequence star, use the following formula:

L = **MIN** + [(**A**/**S**) × (**MAX** - **MIN**)]

Here, **L** is the current luminosity in solar luminosities, **MIN** is the *L-Min* value from the *Stellar Evolution Table* for the star's mass, **MAX** is the *L-Max* value from the table, **A** is the star's age in billions of years, and **S** is the main sequence span (*M-Span*) from the table. It would be reasonable to vary the final result by up to 10% in either direction.

Note that for stars of 0.4 solar masses or less, no L-Max or M-Span values are given. Such low-mass stars change in luminosity very slowly; in the lifespan of the universe, they have not had time to grow significantly brighter. For such stars, the L-Min value can be taken as the actual luminosity, and may be varied by up to 10% in either direction.

Meanwhile, for stars with mass greater than 0.4 solar masses, but no greater than 0.9 solar masses, L-Max and M-Span values (but no other span values) are given. Such stars are automatically on the main sequence, but they may have had time to grow significantly brighter since their formation. The procedure above can be used to estimate their current luminosity.

Subgiant Stars

Once a star leaves the main sequence, it enters the *subgiant branch* of stellar evolution. During this period, its luminosity changes relatively little, but its effective temperature falls as it swells toward red giant status.

The luminosity of the star is equal to the *L-Max* value from the *Stellar Evolution Table*. This value can be varied by up to 10% in either direction if desired.

To determine the star's current effective temperature, use the following formula:

T = **M** – [(**A**/**S**) × (**M** - 4800)]

Here, **T** is the current effective temperature in kelvins, **M** is the star's effective temperature during its main sequence period (the *Temp* value from the table), **A** is the star's age *as a subgiant* (i.e. its total age minus its main sequence span), and **S** is the star's subgiant span (the *S-Span* value from the table). It would be reasonable to vary the final result by up to 100 K in either direction.

The star's current spectral type will be that of a main sequence star with about the same effective temperature. Refer to the table to find the most likely spectral type.

Giant Stars

After its period as a subgiant, a star will rapidly swell to red giant status, going through several transitions as its core settles to relatively stable helium fusion. Its effective temperature falls further, but its radius and luminosity grow tremendously. A star of 2.0 solar masses or less won't be able to make the transition to carbon-burning or more exotic forms of fusion, so this phase of its evolution will be the last. Once the red giant phase is over, the star will die.

If a star is in the giant phase, its effective temperature will be between 3,000 and 5,000 kelvins. Select a temperature, or roll 2d-2, multiply by 200 K, and add the result to 3,000 K. The star's spectral type will be the same as that of a main sequence star with about the same effective temperature. Its luminosity will be about 25 times its luminosity as a subgiant star, and can be varied by up to 10% in either direction if desired.

White Dwarf Stars

After it completes the giant stage of its evolution, a star with 2.0 solar masses or less will die and leave behind a white dwarf remnant.

A white dwarf's mass will normally be between 0.9 and 1.4 solar masses, and can actually be significantly *smaller* than the mass of the original star. If a star has become a white dwarf, *ignore* the mass originally rolled on the Stellar Mass Table. Select a mass between 0.9 and 1.4 solar masses. To generate a mass at random, roll 2d-2, multiply by 0.05 solar masses, and add the result to 0.9 solar masses.

A white dwarf will have negligible luminosity, rarely higher than 0.001 solar luminosities. Its radius will be quite small – a white dwarf star is only a few thousand miles across, about the same size as the Earth! The effective temperature of a white dwarf can be quite high, but in this case it is rarely of any significance in world-building.

Determining Star Radius

For every luminosity class except D (white dwarfs), a star's radius is exactly determined by its effective temperature and its luminosity. Use the following formula:

R = (155,000 × *square root of* **L**)/$\mathbf{T}^2$

Here, **R** is the star's radius in AUs, **L** is its luminosity in solar luminosities, and **T** is its effective temperature in kelvins. Main sequence stars will almost always be a tiny fraction of an AU in radius, but giant stars may well be *much* larger.

Example: Referring to the *Stellar Evolution Table*, the GM notes that Haven's primary star is still well within its main-sequence lifespan. He notes that the star is most likely to be of spectral type G6 V (*G6* from the entry on the table, *V* because of the star's status on the main sequence). He also notes that the star's effective temperature is 5,500 kelvins.

The GM then applies the luminosity formula, using entries from the table and the known age of the star system: 0.45 + [(3.2/14) × (1.0 - 0.45)] = 0.58 solar luminosities. He records this as the star's current luminosity. Finally, the GM applies the formula for star radius: (155,000 × *square root of* 0.58)/$(5{,}500)^2$ = 0.0039 AU, or about 360,000 miles.

Going through the same procedures for the companion star, the GM determines that this star has spectral type M5 V, effective temperature of 3,200 kelvins, luminosity of 0.008 (rounded up), and radius of 0.0014 AU or about 130,000 miles.

Step 19: Companion Star Orbits

Stars in a multiple star system will follow orbital paths that circle the center of mass of the system. The simplest way to approach their orbital mechanics is to assume that companions will follow circular or elliptical orbits centered on their primary stars. The important element to determine here is how distant the stars in the system are from each other at any given time. This step determines that information.

The relevant parameters of any orbital path are its average radius (measured in AU) and its *eccentricity*. This last is a measure of the amount by which the orbit deviates from a perfect circle, and takes values between 0 and 1. An eccentricity of 0 indicates a perfectly circular orbit, while values approaching 1 indicate elliptical orbits that are more and more elongated. Stars normally have orbital paths of moderate eccentricity, with values between 0.4 and 0.7 being most likely.

Members of a multiple star system can fall at a variety of distances from each other. At one extreme are "contact binaries," stars whose outer atmospheres actually mingle as they whirl about each other in hours or days. At the opposite extreme are very wide pairs, which may take many thousands of years to complete a single orbit.

Select orbital distances and eccentricities to suit, or use the following procedure.

Begin by rolling 3d on the *Orbital Separation Table* for each companion.

Modifiers: +4 for each companion if a Garden world has already been generated for the star system; +6 for the second companion in a trinary system. These modifiers are cumulative.

Orbital Separation Table

Roll (3d)	Separation	Radius Multiplier
6 or less	Very Close	0.05 AU
7-9	Close	0.5 AU
10-11	Moderate	2 AU
12-14	Wide	10 AU
15 or more	Distant	50 AU

The initial result from this table gives a general idea of how widely separated the primary is from its companion. Roll 2d and multiply by the given radius multiplier to get a value for the average radius of the orbit for that companion. It would be reasonable to vary the final result by up to half of the radius multiplier in either direction.

A distant companion may have a companion of its own, on a roll of 11 or higher on 3d. This is the only way to get more than three stars in a multiple system when using the random-generation method. If so, the companion is treated in all respects as the primary star for its own companion. Generate stellar characteristics for the "subcompanion" as in Step 15. Generate an average radius for the subcompanion's orbit around its primary star, applying a -6 modifier to the roll on the *Orbital Separation Table*.

Note that the orbital radius of the second companion in a trinary system *must* be larger than that of the first companion, and will normally be much larger. Similarly, the orbital radius of a subcompanion must be smaller than that of its primary around the central star of the system. Adjust the orbits if necessary to ensure these relationships.

Once the average orbital radius for each primary-companion pair is known, select an eccentricity for each companion's orbit. To select eccentricity at random, roll 3d on the *Stellar Orbital Eccentricity Table*.

Modifiers: -6 if the two stars are Very Close, -4 if they are Close, and -2 if they have Moderate separation.

Stellar Orbital Eccentricity Table

Roll (3d)	Eccentricity
3 or less	0
4	0.1
5	0.2
6	0.3
7-8	0.4
9-11	0.5
12-13	0.6
14-15	0.7
16	0.8
17	0.9
18 or more	0.95

For each primary-companion pair, compute and record the *minimum separation* and the *maximum separation* between the two stars:

MIN = (1 - **E**) × **R**
MAX = (1 + **E**) × **R**

Here, **MIN** is the minimum separation in AU, **MAX** is the maximum separation in AU, **E** is the eccentricity of the companion's orbit, and **R** is the average orbital radius in AU.

Example: The GM rolls 3d+4 (the +4 since Haven is a Garden world) on the *Orbital Separation Table*, and gets a result of 15. The red dwarf companion in the Haven system is at distant separation. The GM rolls 2d for a 7, multiplies by 50 AU, and notes that the two stars have an average separation of 350 AU.

Since the companion star is at distant separation, it may have its own companion. The GM rolls 3d for a 10, and makes a note that there is no second companion star in the system.

The GM rolls 3d on the *Stellar Orbital Eccentricity Table*, and gets a result of 12. The eccentricity of the companion star's orbit is 0.6. The minimum separation of the two stars is 140 AU, and the maximum separation is 560 AU.

Step 20: Locate Orbital Zones

This step prepares for the placement of worlds in the star system. The GM must determine where planets *can* be placed, and must also determine where gas giant planets (which dominate the planetary-formation process) will appear. Compute and make a note of the *inner limit radius*, the *outer limit radius*, the *snow line radius*, and any *forbidden zones* around each star in the system.

Inner Limit Radius

Planets will not form too close to a star. Even while a star is on the main sequence, a planet is very unlikely to form in a stable orbit within a certain distance. Once a star moves into the subgiant or giant phases of its evolution, existing planets that find themselves too close may be vaporized by the swollen star's intense heat.

For each star in the target star system, compute the inner limit radius using *both* of the following formulae. The inner limit radius that applies will be the *larger* of the two values. For almost all stars on the main sequence, the first of the two formulae will be the one to apply – the second formula becomes dominant for extremely luminous stars.

$$\mathbf{I} = 0.1 \times \mathbf{M}$$
$$\mathbf{I} = 0.01 \times \textit{square root of } \mathbf{L}$$

Here, **I** is the inner limit radius in AUs, **M** is the star's mass in solar units, and **L** is the star's luminosity in solar units.

Outer Limit Radius

Planets will also not form too far away from a star. At a large distance, orbital movements are leisurely. Protoplanets will have much less opportunity to sweep up matter before the star ignites and the process of planetary formation is halted.

For each star in the target star system, compute the outer limit radius using the following formula.

$$\mathbf{O} = 40 \times \mathbf{M}$$

Here, **O** is the outer limit radius in AUs and **M** is the star's mass in solar units. Planets will be able to form anywhere between the inner and outer limit radii, so long as no other stars interfere with their gravitational influence.

Snow Line

Next, compute the snow line radius for each star. This is the distance from the star at which water ice could exist during planetary formation, marking the most likely region for the formation of the star's largest gas giant planet. The snow line radius can be found using the following formula:

$$\mathbf{R} = 4.85 \times \textit{square root of } \mathbf{L}$$

Here, **R** is the snow line radius in AUs and **L** is the star's *initial luminosity* on the main sequence (the *L-Min* value from the *Stellar Evolution Table*).

Forbidden Zones

If a star system includes more than one star, then each component of the system may have a *forbidden zone* in which planets can't form even if they are otherwise at a proper distance from the star. A forbidden zone is a region in which no stable planetary orbit is possible.

The inner edge of the band of forbidden orbits is at *one-third* of the minimum separation between a star and its closest companion (as computed in Step 18). For the third component in a trinary star system, the closest companion is the primary star of the system. If a distant companion has its own subcompanion, then those two stars will automatically be closest companions for each other.

The inner edge of the forbidden zone may be closer than the inner limit radius for that star, in which case there will be no planets between the star and its companion. Alternatively, the inner edge of the forbidden zone may be beyond the outer limit distance for the star, in which case the companion will have no significant effect on the planetary system.

The outer edge of a star's forbidden zone is at *three times* the maximum separation between the star and its closest companion (again, as computed in Step 18). If this outer edge is closer than the outer limit distance, planets may form circling the pair as a whole. In this case, assign these planets to the primary and don't generate such planets for both stars. This can happen even when the stars are separated fairly widely, although in such cases the outer edge of the forbidden zone is likely to be beyond the outer limit distance.

Example: The GM determines the orbital zones for Haven's primary star. The star's inner limit radius is at 0.09 AU, its outer limit radius is at 36 AU, and its snow line is at 3.3 AU. There is a forbidden zone due to the presence of the companion star, but its inner edge is at 47 AU, outside the outer limit radius. The companion has no significant effect on the arrangement of planets in the primary's system.

At this point, the GM decides not to bother generating any more information for the red dwarf companion. If the companion seems likely to become important to some future adventure, information about its planets can be generated then.

Step 21: Placing First Planets

Once all the orbital zones have been located, the first planets can be placed in orbit around each star in the system.

Arrangement of Gas Giants

Traditional models of planetary formation call for the tidy arrangement of worlds we see in our own solar system: small rocky planets inside the snow line, large gas-giant planets outside. Unfortunately, in recent years astronomers have detected over 100 planets in other star systems – almost *none* of which follow this model!

This finding doesn't doom the traditional model entirely, since these strange "hot Jupiters" are the only ones we are likely to detect given current methods. Astronomers using those methods and looking at our own solar system from a distance wouldn't be able to detect the presence of Jupiter or Saturn (at least not yet). Hence many star systems may follow the traditional model without our being able to verify the fact.

Still, it seems clear that large gas-giant worlds can be found almost anywhere in a star system, including the infernal regions within a few million miles of the primary star. The current leading theory is that gas giants still form in the cold outer regions of a star system, but that mechanical processes cause some growing gas giants to migrate inward.

To reflect this possibility, determine the general arrangement of gas giants in orbit around each star in the target star system. Several possible arrangements exist.

No Gas Giant: If the protoplanetary nebula had little mass, gas giants may not have formed at all. The star may have a few rocky planets instead, including some of pleasant temperatures in the "life zone."

Conventional Gas Giant: The star has one or more gas giant planets, all beyond the snow line, following nearly circular orbits. Rocky planets are very likely, including some in the life zone. This is the situation that holds in our own solar system.

Eccentric Gas Giant: In this situation, one or more gas giants formed beyond the snow line and have migrated some distance inward. Their orbits have become "scrambled" due to random close encounters among themselves. These orbits are now eccentric (non-circular) or fail to fall in the same plane. Any rocky planets in the inner system have probably been ejected from the system after a close encounter with one of the gas giants.

Epistellar Gas Giant: At least one gas giant planet has migrated down to a very tight circular orbit around the primary star. This gas giant may have absorbed some of the material available for building rocky planets, but such planets may have been able to form anyway after the gas giant finished its migration. Other gas giants may exist in the outer star system, as in the conventional arrangement.

Choose an arrangement of gas giants for each star in the star system. If a star's snow line radius falls within a forbidden zone due to the presence of a companion star, then it will have No Gas Giant. Otherwise, choose an arrangement or roll 3d on the following table.

Gas Giant Arrangement Table

Roll (3d)	Arrangement
10 or less	No Gas Giant
11-12	Conventional Gas Giant
13-14	Eccentric Gas Giant
15-18	Epistellar Gas Giant

Place First Gas Giant

Once the arrangement of gas giant planets around each star in the star system has been determined, the first gas giant can be placed for each star.

No Gas Giant: No gas giant will be placed around this star.

Conventional Gas Giant: In this case, the star's first gas giant planet will normally form outside, but not too far from, the snow line radius. Select an orbital radius for it, or roll 2d-2, multiply by 0.05, add 1, and *multiply* the snow-line radius by the result.

Eccentric Gas Giant: In this case, the star's first gas giant planet will be found somewhere between the star's inner limit radius and the snow line radius. Select an orbital radius for it, or roll 1d, multiply by 0.125, and multiply the snow-line radius by the result.

Epistellar Gas Giant: In this case, the star's first gas giant planet will be found very close to the star, possibly even *inside the inner limit radius*. This is an exception to the usual rule prohibiting planets from being placed inside the inner limit; the planet did not form so close to its primary star, but migrated into that position. Select an orbital radius for it or roll 3d, multiply by 0.1, and multiply the inner limit radius by the result.

Regardless of the arrangement of gas giants, record the orbital radius of the first gas giant (if any) for each star in the target system. Its other properties (mass, density, diameter, number of moons, and so on) will be generated later.

Note that it's possible for a gas giant to fall within a forbidden zone using the above procedures. The GM should move the gas giant out of the forbidden zone if possible, although he may accept the situation as an unstable or transient feature of the star system's evolution.

Placing a Pre-Designed World

If a world has already been designed for the star system using the basic world-building sequence in Chapter 4, then that world should also be placed at a specific distance from one of the stars in the system.

The exact orbital radius for the pre-designed world depends on the luminosity of its primary star (as generated in Step 18) and the world's blackbody temperature (as generated in Step 5). Use the following formula:

R = (77,300/**B**^{2}) × *square root of* **L**

Here, **R** is the orbital radius in AU, **B** is the world's blackbody temperature, and **L** is the star's luminosity in solar units. Compute this orbital radius for each of the stars, and choose one of them to be the pre-designed world's primary.

Note that the proper distance may fall inside the inner limit radius, outside the outer limit radius, or within a forbidden zone for a given star. In this case, the world *cannot* be placed in orbit around that star.

It's also possible for the pre-designed world to end up being too close to the star's first gas giant, if any. Determine the *ratio* between the two worlds' orbital radii, by dividing the larger radius by the smaller. If the ratio is less than 1.4, then the two worlds are too close together – the gas giant's gravitational influence will tend to make the pre-designed world's orbit unstable. The pre-designed world cannot be placed in orbit around that star.

Given these two restrictions, it's possible for a pre-designed world to have no place to go. If this happens, consider returning to Step 15 to generate a new star or set of stars to fit, or choosing a different arrangement of gas giants for one or more of the stars.

One more thing to consider: the pre-designed world may be a *moon* rather than an independent planet. In particular, a Tiny or Small world of any type, or a Standard (Hadean) world, is very likely to be the moon of a gas giant. If the pre-designed world is difficult to place because it appears to fall too close to a star's first gas giant, then consider *moving* the gas giant – altering its orbital radius slightly so that the pre-designed world can be one of its moons!

Example: The GM rolls 3d for a 12 on the Gas Giant Arrangement Table. Haven's primary star has a Conventional Gas Giant arrangement. Without bothering to roll the dice, the GM places the system's first gas giant planet just outside the snow line at 3.5 AU.

At this point, the GM is ready to place Haven itself within the star system. Applying the formula for its orbital radius, he gets (77,300/295^2) × *square root of* (0.58) = 0.68 AU. Since the ratio between the gas giant's orbit and Haven's orbit is quite large (3.5/0.68 = 5.15), there's no conflict and both planets can be left where they are.

Step 22: Place Planetary Orbits

Once any pre-designed world and the first gas giant for each star (if any) have been placed, *all* of the planetary orbits for each star can be determined.

Early astronomers spent considerable time trying to discover why the planets' orbits are arranged as they are. One early effort was "Bode's law," an observed mathematical relationship among the orbital radii of the known planets. Although Bode's law is simple, and doesn't clash *too* badly with the existing orbital radii, it doesn't actually account for the forces that control the distribution of planets.

Planetary orbits tend to be spaced logarithmically – that is, the *ratio* of one orbital radius to the next is fairly consistent. This is because certain ratios lead to unstable situations, as neighboring planets exert gravitational attraction on each other.

Orbits are usually arranged so that the ratio of adjacent orbital radii is between 1.4 and 2.0. Some ratios in this range encourage orbital instability because of a "resonance" between the two planets' orbital periods, but these ratios appear to be less likely rather than entirely forbidden. In this step, planetary orbits will be placed so that this relationship between adjacent radii holds.

For each star in the target star system, always begin with the first gas giant's orbital radius. If no gas giant has been placed for a star, locate the greatest orbital distance at which that star *can* have planets – usually the outer limit distance, or the inner edge of a forbidden zone. The first planetary orbit to be placed will be inside, but not too far from, this outermost legal distance. Select an orbital radius for it, or roll 1d, multiply by 0.05, add 1, and *divide* the outermost legal distance by the result.

From the first planetary orbit to be placed, work your way both inward (toward the inner limit radius or the

edge of a forbidden zone) and outward (toward the outer limit radius or the edge of a forbidden zone). Always place the next planetary orbit so that the ratio between adjacent orbits is between 1.4 and 2.0. Select an appropriate ratio each time, or roll 3d on the following table.

Orbital Spacing Table

Roll (3d)	*Ratio*
3-4	1.4
5-6	1.5
7-8	1.6
9-12	1.7
13-14	1.8
15-16	1.9
17-18	2.0

When working outward, *multiply* each orbital radius by the ratio in order to get the next radius. When working inward, *divide* each radius by the ratio in order to get the next radius. When using the dice, it would be reasonable to adjust the ratio by up to 0.05 in either direction at each step.

In the innermost region of a star's orbital space, the orbits will be very close together in absolute terms. Always space orbits out so that they are at least 0.15 AU apart, even if this means that the ratio between two orbital radii is unusually large. If this can't be done without placing an orbit inside the inner limit radius, then stop.

Remember that no planetary orbital radius can be larger than the outer limit distance. Aside from the case of an epistellar gas giant, no planetary orbital radius can be smaller than the inner limit distance. If an orbit falls inside a forbidden zone, stop placing planetary orbits in that direction.

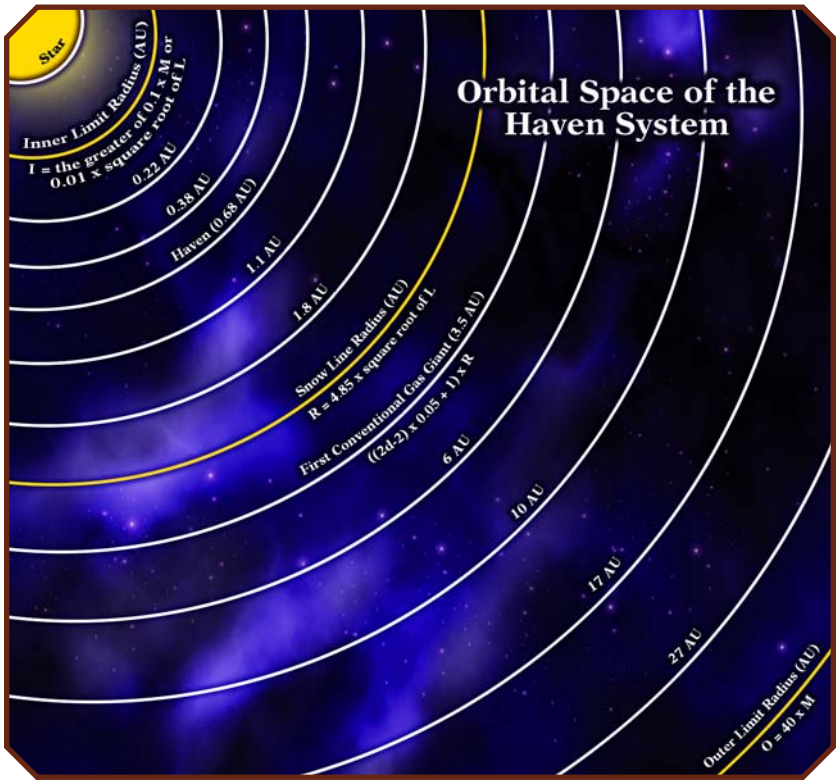
If there is a pre-designed world in orbit around one star, the above procedure won't necessarily place an orbit in exactly the right place for that world. Feel free to adjust one or more orbits so that one of them falls exactly as required for the pre-designed world, and then continue with the procedure as before.

Record the sequence of planetary orbital radii for each star in the target star system.

Example: Beginning with the first gas giant's orbit, the GM begins to work inward toward Haven's primary star and place planetary orbits. His first roll on the *Orbital Spacing Table* is a 16, yielding a ratio of 1.9; the next orbit inward from the gas giant is at 3.5/1.9 = 1.8 AU. The next roll is an 11, yielding a ratio of 1.7; the next orbit inward is at 1.8/1.7 = 1.1 AU. The GM observes that the ratio between 1.1 and 0.68 (the radius of Haven's orbit) is about 1.6 to 1, so he simply assumes that Haven's orbit is the next one inward. The next die rolls are 13 (ratio of 1.8, orbital radius of 0.68/1.8 = 0.38) and 11 (ratio of 1.7, orbital radius of 0.38/1.7 = 0.22). The next orbit inward would have to be at 0.07 AU or less in order to avoid placing two orbits within 0.15 AU of each other, but 0.07 AU is inside the inner limit radius, so the GM stops.

Now the GM works *outward* from the first gas giant's orbit. His rolls on the *Orbital Spacing Table* are 10 (ratio of 1.7, orbital radius of 3.5 × 1.7 = 6.0 AU), 9 (ratio of 1.7, orbital radius of 6.0 × 1.7 = 10 AU), 11 (ratio of 1.7, orbital radius of 10 × 1.7 = 17 AU), and 8 (ratio of 1.6, orbital radius of 17 × 1.6 = 27 AU). The next orbital radius would be at least 27 × 1.4 = 38 AU, and this is outside the star's outer limit radius, so the GM stops.

To summarize: the GM has generated a complete set of orbits for Haven's primary star. From the innermost to the outermost, the radii are 0.22 AU, 0.38 AU, 0.68 AU (Haven), 1.1 AU, 1.8 AU, 3.5 AU (first gas giant), 6.0 AU, 10 AU, 17 AU, and 27 AU. Haven's primary star appears to have a full system of worlds, with up to 10 planets in it.



Step 23: Place Worlds

In this step, objects will be allocated to orbits.

An *empty orbit* may occur if there wasn't enough material in that region of the star system to form an object of significant size, or if a large object (a companion star or a migrating gas giant planet) swept the orbit clean of material.

An *asteroid belt* is an orbital region occupied by many small, stony objects. Asteroid belts normally form when a gas giant or companion star disturbs the early mass of asteroids, pulling them out of the stable orbits that would have permitted them to form a planet. The few asteroids that survive this winnowing process make up a stable system. A world of the Asteroid Belt type is, of course, an asteroid belt.

A *terrestrial planet* is a small, stony body with relatively little atmosphere. Terrestrial planets are most likely to be found in the inner system, inside the snow line radius. They are unlikely to have many moons, or large ones. Terrestrial planets are classified as Tiny, Small, Standard, or Large in size. All of the world types described in Chapter 4 (except for Asteroid Belt) can be terrestrial planets.

A *gas giant* is a massive planet, composed mostly of hydrogen and helium. Because of a gas giant's powerful gravity, it is likely to have many moons and will affect the formation of other planets in nearby orbits. Gas giants are most likely to form outside a star's snow line radius, but they may migrate inward and can be found at any distance from the star. Gas giant planets are classified as Small, Medium, and Large.

As a result of previous steps, one or more orbits may already be filled. A few gas giants may already be in place since Step 21. A pre-designed world may also already be in place, filling one orbit with an asteroid belt, a terrestrial world, or even a second gas giant (with the pre-designed world as one of its moons). This step fills the *rest* of each star's orbits.

Every star system has a great deal of debris in it: scattered asteroids outside the main belts, comets and tiny rogue planets in the dark outer fringes. These objects will not be placed in detail (but see *Asteroids and Comets*, p. 130).

Place Gas Giants

For each star, begin by placing gas giants in their orbits.

Some stars may have the No Gas Giant arrangement (p. 107), either because of the presence of a companion star or because that arrangement was selected earlier. In this case, skip to the placement of asteroid belts. Otherwise, at least one gas giant has already been placed – but there may be more in orbits that are not yet filled.

If a star has the Conventional Gas Giant arrangement, orbits inside the snow line radius will *never* have gas giants. A star with the Eccentric or Epistellar Gas Giant arrangement will usually have one gas giant for every 4-6 orbits inside the snow line, and will always have at least one. In all of these arrangements, orbits *outside* the snow line are almost always occupied by gas giants.

Place gas giants in orbits as needed. To generate a random placement, roll 3d for each orbit not already containing a gas giant or other object. In each case, compare the roll to the appropriate target number from the *Gas Giant Placement Table*. If the roll succeeds, a gas giant will occupy the orbit.

Once all gas giants have been placed, determine the size of each (Small, Medium, or Large). To determine sizes randomly, roll 3d on the *Gas Giant Size Table*.

Modifiers: +4 if the gas giant is inside the snow line radius, or if it is in the first orbit beyond the snow line radius.

Gas Giant Size Table

Roll (3d)	Size
3-10	Small
11-16	Medium
17 and higher	Large

Fill Remaining Orbits

Once gas giants have been placed, fill the rest of the orbits.

Empty orbits and asteroid belts are most likely to occur very close to the primary star, in an orbit adjacent to that of a gas giant, or in the outermost orbit before a forbidden zone caused by the presence of a companion star. All of these locations are places where the gravitational influence of a large object may interfere with the formation of a terrestrial planet. If a terrestrial planet *does* form in such a location, it is likely to be small. Massive terrestrial planets will usually form only in regions that are not subject to the gravitational interference of gas giants or companion stars.

Place empty orbits, asteroid belts, and terrestrial planets in orbits as needed; if a terrestrial planet is placed, choose its size class (Tiny, Small, Standard, or Large) at this point.

To generate a random placement, roll 3d for each orbit not already containing a gas giant or other object, and refer to the *Orbit Contents Table*.

Modifiers: -6 if the orbit is adjacent to a forbidden zone caused by the presence of a companion star; -6 if the next orbit *outward* from the primary star is occupied by a gas giant; -3 if the next orbit *inward* from the primary star is occupied by a gas giant; -3 if the orbit is adjacent to either the inner limit radius or the outer limit radius. All of these modifiers are cumulative.

Orbit Contents Table

Roll (3d)	Object
3 or less	Empty Orbit
4-6	Asteroid Belt
7-8	Terrestrial Planet (Tiny)
9-11	Terrestrial Planet (Small)
12-15	Terrestrial Planet (Standard)
16 or more	Terrestrial Planet (Large)

Example: Haven's primary star has the Conventional Gas Giant arrangement, so there will be no gas giants inside the snow line. The GM rolls for the four orbits outside the first gas giant's orbit, rolling 15 or less for all four. The outermost five orbits in the system are *all* occupied by gas giant planets. Referring to the *Gas Giant Size Table*, the GM rolls 3d+4 for the first gas giant and 3d for the other four, getting results of 15 (Medium), 10 (Small), 13 (Medium), 14 (Medium), and 6 (Small).

Now the GM prepares to place objects in the orbits inside the snow line, rolling on the *Orbit Contents Table* for each. The innermost orbit is adjacent to the inner limit radius; it gets a 3d-3 roll of 2, indicating an

Gas Giant Placement Table

Arrangement	Inside Snow Line	Outside Snow Line
No Gas Giant	Do not roll	Do not roll
Conventional Gas Giant	Do not roll	15 or less
Eccentric Gas Giant	8 or less	14 or less
Epistellar Gas Giant	6 or less	14 or less

That's no moon. It's a space station.
– Obi-Wan Kenobi, ***Star Wars***

empty orbit. The next orbit gets a 3d roll of 12, indicating a terrestrial planet of Standard size. The next orbit is already occupied by Haven. The next gets a 3d roll of 11 (terrestrial planet of Small size). The last orbit inside the snow line has a gas giant in the next orbit outward; it gets a 3d-6 roll of 4, indicating an asteroid belt.

To summarize, Haven's primary star has the following objects in its system, from the innermost to the outermost: 0.38 AU (Standard world), 0.68 AU (Haven), 1.1 AU (Small world), 1.8 AU (asteroid belt), 3.5 AU (Medium gas giant), 6.0 AU (Small gas giant), 10 AU (Medium gas giant), 17 AU (Medium gas giant), and 27 AU (Small gas giant). The innermost orbit allocated earlier turned out to be empty, and one orbit is occupied by an asteroid belt, so the solar system has eight planets in it, only three of them terrestrial.

At this point, the GM decides to concentrate on Haven and the world at 1.1 AU, leaving further development of the rest of the star system for later.

Step 24: Place Moons

Gas giant planets almost always have moons, and some terrestrial planets will have them as well. This step determines how many moons each planet in the target star system will have, and their rough sizes.

This book classifies satellites as *moonlets* or *major moons*. Moonlets are asteroid-sized satellites, no more than about 500 miles in diameter, and can be described using the rules in *Asteroids and Comets* (p. 130). Major moons are worlds in their own right, and will be given a size class (Tiny, Small, Standard, or Large) just like a terrestrial planet.

Terrestrial planets and gas giants can each have satellites, but they are very different in the *kind* of satellites they are likely to have.

Terrestrial worlds, especially those orbiting inside the snow line, are unlikely to have extensive satellite systems. A terrestrial world may capture a few asteroid moonlets, but it is unlikely to have any major moons.

A terrestrial world that suffers a specific kind of massive impact late in its formation era may develop a major moon; planetary material is scattered into orbit and then coalesces into an independent body. Such a major moon will then undergo tidal interactions with its parent world, driving it into an unusually wide orbit. As a result, terrestrial worlds are *very* unlikely to have more than one major moon. With their orbits changing so rapidly, it would be very difficult for multiple major moons to fall into a stable configuration. Instead, they would tend to collide with each other or with their parent world.

Gas giant worlds often have extensive systems of satellites. A gas giant's powerful gravity allows it to compete effectively with its primary star. Early in the planet's history, it attracts plenty of material for the formation of major moons. Later, it captures a number of small asteroids to serve as moonlets. The only gas giants that are unlikely to have large satellite systems are those that have migrated deep into their primary star's gravitational influence.

One feature that is probably unique to gas giants is the *ring system*. Almost all gas giants in the outer reaches of a star system will have rings, and some of those that have migrated inside the snow line radius will as well. Gas giant rings are composed of billions of small particles, orbiting in a flat disc close to the planet. The rings are largely composed of particles thrown off the gas giant's inner moonlets during meteoroid collisions. A large number of inner moons means that more particles will feed the ring. It also increases the chance that some of the moons will be in a position to act as *shepherds*, maintaining the ring particles in their orbits through a complex gravitational interaction. Normally a gas giant's rings are fairly thin and wispy, but there are exceptions – such as the spectacular ring system of Saturn in our own solar system.

Science fiction has sometimes used the notion of an Earthlike world with a ring system. This situation may be unlikely, but it's not impossible. A moonlet might spiral too close to its parent world and shatter, or a major impact on a moon might scatter enough debris to form a ring. Most such systems will be unstable, with the particles falling to the planet or escaping into space within a few million years at most. The rules that follow won't permit the random generation of a terrestrial world with rings, but the GM may wish to place such a world as a rare case.

Gas Giants

The satellite systems of gas giants are always very complex. A gas giant will normally have up to three distinct *families* of satellites.

The first family is a cluster of moonlets orbiting close to the planet. These moons orbit very close together, sometimes even sharing orbits in a "resonant" pattern that prevents their collision. To determine the number of moonlets in this family, roll 2d.

Modifiers: -10 if the planet is within 0.1 AU of the primary star, -8 if the planet is between 0.1 AU and 0.5 AU of the primary star, -6 if the planet is between 0.5 AU and 0.75 AU of the primary star, -3 if the planet is between 0.75 AU and 1.5 AU of the primary star.

The size of this first family of satellites will determine the level of ring system the planet has. If a gas giant planet has at least 6 satellites in this family, its ring system will be visible from anywhere in the star system, at least in moderately powerful telescopes. If there are 10 or more satellites in this family, the ring system will be comparable to Saturn's, easily visible even in small telescopes from a distance and *spectacular* from close up.

The second family of satellites is a group of major moons. Roll 1d to determine the number of moons in this family.

Modifiers: Do not roll if the planet is within 0.1 AU of the primary star, -5 if the planet is between 0.1 AU and 0.5 AU of the primary star, -4 if the planet is between 0.5 AU and 0.75 AU of the primary star, -1 if the planet is between 0.75 AU and 1.5 AU of the primary star.

The last family is another group of moonlets, captured asteroids that are often in eccentric, highly inclined, or even retrograde orbits. Roll 1d to determine the number of these moonlets.

Modifiers: Do not roll if the planet is within 0.5 AU of the primary star, -5 if the planet is between 0.5 AU and 0.75 AU of the primary star, -4 if the planet is between 0.75 AU and 1.5 AU of the primary star, -1 if the planet is between 1.5 AU and 3 AU of the primary star.

Make note of the number of satellites in each of the three families.

Terrestrial Planets

Roll 1d-4 (minimum 0) to determine the number of major moons orbiting a terrestrial planet. If the planet has no major moons, it will have 1d-2 (minimum 0) moonlets.

Modifiers (for both rolls): Do not roll if the planet is within 0.5 AU of the primary star, -3 if the planet is between 0.5 AU and 0.75 AU of the primary star, -1 if the planet is between 0.75 AU and 1.5 AU of the primary star, -2 if the planet is Tiny, -1 if it is Small, +1 if it is Large.

Make note of the number of moonlets and major moons for each terrestrial planet.

Moon Size Classes

Major moons are worlds in their own right, and will have a size class. Most major moons are Tiny or Small worlds, although there will be rare exceptions. Assign a size class to each major moon, or roll 3d on the *Moon Size Table* to determine each moon's size class.

A major moon's size class depends on the size class of its parent planet. For example, if a Standard world has a major moon whose size class is "two size classes smaller," then the moon's size class will be Tiny. The minimum size class for a major moon is Tiny. For the purposes of this table, a gas giant planet is considered a Large world.

Moon Size Table

Roll (3d)	Size Class
11 or less	Three size classes smaller
12-14	Two size classes smaller
15 or more	One size class smaller

Make a note of the size class of each major moon in the star system.

Example: The GM checks to see if the two worlds he intends to develop in detail have moons. For Haven the roll for major moons is 1d-7 (1d-4, and -3 because Haven is close to its primary star), so it can't have any major moons. The roll for minor moons is 1d-5; the GM rolls and gets a result of 0. Haven has no moons.

For the Small world at 1.1 AU, the two rolls are 1d-6 and 1d-4. This world can't have any major moons either, but when the GM rolls 1d-4 he gets a result of 1. This world apparently has a single moonlet, probably an object captured from the nearby asteroid belt.

Generating World Details

If the sky hadn't been such a perfect shade of Terran blue, if the warm sunshine hadn't been so exactly as it is on a May morning in Virginia, maybe we wouldn't have been so all-fired homesick. But they were, and we were.

The sun wasn't Sol. We were seventy light-years from the Lincoln Memorial and the Statue of Liberty. Still, I caught myself wondering if the Orioles would finally make it in the American League this year.

– Stephen Tall,
"A Star Called Cyrene"

The broad outlines of the target star system are now known. The following steps can be used to generate detail for individual worlds. Although these rules *could* be used to generate details for every planet and moon in a star system, that isn't their intended use. Instead, the GM should apply them only to those worlds that are likely to be of interest in his campaign.

Step 25: World Types

At this point, every orbit around each star in the target system has been filled with some object, or has been specifically designated as empty. Terrestrial worlds and major moons are all in place, and the first portion of each one's world type (the size class) is known. In this step, the rest of the world type for each terrestrial planet and major moon will be designated.

Blackbody Temperature

First, the blackbody temperature (p. 84) must be computed for each world. Use the following formula:

B = 278 × (*fourth root of* **L**)/(*square root of* **R**)

Here, **B** is the blackbody temperature in kelvins, **L** is the primary star's luminosity in solar units, and **R** is the average orbital radius of the world (or of the planet of which the world is a moon). Note that the blackbody temperature will be the same for a planet and for all of its moons. Record the blackbody temperature for each world, rounded to the nearest kelvin.

Designate World Types

It's now possible to assign a world type to each terrestrial planet and major moon in the star system. Refer to the following table.

In several cases, more than one world type is possible for a given size class and blackbody temperature. Use the following guidelines to decide which type to assign.

Tiny (Ice) or Tiny (Sulfur) Worlds: Tiny (Sulfur) worlds appear as major moons of gas giant planets. Any given gas giant world is likely to have no more than one Tiny (Sulfur) moon, with the rest being of other types. To make the assignment at random, roll 1d for each gas giant with at least one moon that could be of Tiny (Sulfur) type. On a 1-3 there is one moon of that type, almost always the innermost of the major moons.

Standard (Ammonia) or Standard (Ice): Worlds in this temperature range may or may not have abundant ammonia in the atmosphere. Ammonia is sensitive to ultraviolet light, and will break down chemically if subjected to it over long periods. A Standard (Ammonia) world will therefore appear only in orbit around a cool star that emits relatively little ultraviolet. If this choice is available and the primary star's mass is no greater than 0.65 solar masses, then the world will be of Standard (Ammonia) type. Otherwise it will be of Standard (Ice) type.

World Type Assignment Table

Size Class	Blackbody Temperature	Complete World Type
Tiny	140 K or lower	Tiny (Ice) *or* Tiny (Sulfur)
Tiny	141 K or higher	Tiny (Rock)
Small	80 K or lower	Small (Hadean)
Small	81-140 K	Small (Ice)
Small	141 K or higher	Small (Rock)
Standard	80 K or lower	Standard (Hadean)
Standard	81-150 K	Standard (Ice)
Standard	151-230 K	Standard (Ammonia) *or* Standard (Ice)
Standard	231-240 K	Standard (Ice)
Standard	241-320 K	Standard (Garden) *or* Standard (Ocean)
Standard	321-500 K	Standard (Greenhouse)
Standard	501 K or higher	Standard (Chthonian)
Large	150 K or lower	Large (Ice)
Large	151-230 K	Large (Ammonia) *or* Large (Ice)
Large	231-240 K	Large (Ice)
Large	241-320 K	Large (Garden) *or* Large (Ocean)
Large	321-500 K	Large (Greenhouse)
Large	501 K or higher	Large (Chthonian)

Standard (Garden) or Standard (Ocean): Worlds in this temperature range may or may not have abundant free oxygen in the atmosphere. Free oxygen must be maintained in the atmosphere by photosynthetic life, which takes time to evolve even on a world that is hospitable for it. A Standard (Garden) world is very unlikely to be less than a billion years old, and will normally be at least 3.5 billion years old. To make the assignment at random, roll 3d and add 1 for every full 500 million years of the star system's age (to a maximum of +10). On an 18 or more the world is a Standard (Garden) world. Otherwise it is a Standard (Ocean) world.

Large (Ammonia) or Large (Ice): As with a Standard world for which this choice is possible, the presence of ammonia in the atmosphere depends on the amount of ultraviolet light emitted by the primary star. If the primary star's mass is no greater than 0.65 solar masses, then the world will be of Large (Ammonia) type. Otherwise it will be of Large (Ice) type.

Large (Garden) or Large (Ocean): As with a Standard world for which this choice is possible, the presence of free oxygen in the atmosphere depends on the evolution of photosynthetic life. Such evolution is significantly less likely on a Large world. To make the assignment at random, roll 3d and add 1 for every full 500 million years of the star system's age (to a maximum of +5). On an 18 or more the world is a Large (Garden) world. Otherwise it is a Large (Ocean) world.

Example: Haven itself is already known to be a Standard (Garden) world. The world in the next orbit outward is already known to be of the Small size class. It has a blackbody temperature of 278 × (*fourth root of* 0.58)/(*square root of* 1.1) = 231 kelvins. This means that the world must be of the Small (Rock) type.

The GM thinks about this second world. Clearly it's a Mars-like planet: small, dry, nearly airless, and probably very cold. The GM decides to make it more interesting by assuming that some long-lost civilization once settled there, leaving behind ruins, odd works of art, and mysterious technological artifacts. The rebels of Haven are slowly investigating these ruins, looking for items that might give them an edge in any battle against the Galactic Empire. The GM names this planet *Carson's World*, after the rebel scientist who first explored it.

Step 26: Atmosphere

The atmosphere of each terrestrial planet and major moon can be determined from its world type, as in Step 3. Refer to the procedures beginning on p. 78 and apply them for each world of interest in the target star system.

Example: Haven's atmosphere is already known. Carson's World is of the Small (Rock) type. It will have a negligible atmosphere, so the GM doesn't bother to generate its atmospheric mass or set its composition.

Step 27: Hydrographics

The hydrographic coverage for each world can be determined from its world type, as in Step 4. Refer to the procedures beginning on p. 81 and apply them for each world of interest in the target star system.

Example: Haven's hydrographic coverage is already known. Since Carson's World is of the Small (Rock) type, it automatically has 0% hydrographic coverage. The GM assumes that it has significant deposits of subsurface ice, which once supported the alien colony and are now used by the rebels.

Step 28: Climate

At this point, the procedure in Step 5 should be *reversed* for every world of interest. Instead of computing each world's blackbody temperature based on a known average surface temperature, the GM computes an average surface temperature based on the blackbody temperature computed in Step 25.

For each world, compute the blackbody correction using the procedure under Step 5 (p. 83). To determine the average surface temperature of a world, *multiply* its blackbody temperature by the blackbody correction. Make a note of the average surface temperature for each world of interest, along with the climate type from the *World Climate Table* (p. 83).

Example: Haven's climate data are already known. Carson's World has a blackbody temperature of 231 kelvins, determined in Step 25. As a Small (Rock) world, it has an absorption factor of 0.96, and this is equal to its blackbody correction. The average surface temperature on the planet is 231 × 0.96 = 222 kelvins (about -60° Fahrenheit). Its climate type is Frozen.

Step 29: World Sizes

As in Step 6, the density, diameter, mass, and surface gravity of each world can now be determined. These quantities can also be determined for each gas giant planet.

Terrestrial Planets and Major Moons

Determining the size parameters for terrestrial planets and major moons follows the same procedure as in Chapter 4. First determine the density of each world, then its diameter and surface gravity (in either order, as convenient), and then its mass and exact atmospheric pressure.

Gas Giants

Gas giant worlds vary in composition much less than smaller worlds do, and so a gas giant's mass and density are closely related. Small gas giants are composed primarily of ices. Larger gas giants are dominated by hydrogen and helium, which compresses under gravity. In the cores of very large gas giants, the hydrogen is compressed into an exotic "degenerate" state, far more dense and compact than any normal matter. A very large gas giant can actually be denser than a terrestrial world, its average density higher than that of solid iron.

A Small gas giant is between 10 and 80 Earth-masses, a Medium gas giant between 100 and 500 Earth-masses, and a Large gas giant between 600 and 4,000 Earth-masses. A larger world actually ignites nuclear fusion in its core for at least a brief period, and becomes a brown dwarf (p. 128).

Select a mass for each gas giant in the target star system, or roll 3d on the following table. When using the dice, it would be reasonable to vary the mass of the gas giant in either direction, up to halfway to the next entry. To determine the density of the gas giant, read the entry from the table – if the gas giant's mass is between two entries, interpolate the density as well. It would be reasonable to vary the density slightly (say, by up to 10%) from that given in the table.

Make a note of the mass and density of each gas giant. To determine the *diameter* of the gas giant, use the following formula:

D = *cube root of* (**M**/**K**)

Here, **D** is the diameter of the world in Earth diameters (multiply by 7,930 to get the diameter in miles). **M** is the mass of the planet in Earth masses, and **K** is the planet's density in units of Earth's density.

A gas giant has no solid surface. To determine its gravity at the planet's cloud tops, use the formula for surface gravity on p. 86.

Example: Haven's size data are already known. For Carson's World, the GM rolls 3d on the *World Density Table*, using the Small Iron Core column, and gets an 11 (density of 0.8). The minimum and maximum diameters for Carson's World are 0.41 and 0.51 Earth diameters. The GM arbitrarily chooses a diameter of 0.50 Earth diameters (about 3,970 miles). Local surface gravity is 0.8 × 0.5 = 0.4 Gs, and the planet's mass is 0.8 × $(0.5)^3$ = 0.1 Earth masses. Carson's World automatically has a Trace atmosphere, since it's a Small (Rock) world.

Step 30: Dynamic Parameters

In this step, several parameters of the target star system can be generated: the orbital period of any companion stars, the orbital period of each planet, the orbital period of each moon, the rotation period of each planet, and several other features of each world's movement through space.

Stellar Orbital Period

If the star system includes more than one star, the orbital period of any given pair of stars can be computed as follows:

P = *square root of* ($\mathbf{R}^3$/**M**)

Here, **P** is the orbital period in years, **R** is the average orbital radius of the companion around its primary, and **M** is the *sum* of the masses of the two stars (in solar masses). Multiply **P** by 365.26 to get the period in days.

In trinary or larger star systems, orbital periods can sometimes be computed by treating several stars as one. For example, suppose a trinary star system involves an A-component and B-component orbiting one another at moderate separation, with a smaller C-component orbiting at a much greater distance. Then the orbital period of A and B can be computed using the above formula and *ignoring* C, after which the orbital period of C around the A-B system can be computed by treating the masses of A and B as that of a single star.

Planetary Orbital Period

The orbit of any planet around its primary star can be computed using the same formula as for stellar orbits:

P = *square root of* ($\mathbf{R}^3$/**M**)

Here, **P** is the orbital period in years, **R** is the orbital radius of the planet, and **M** is the mass of the planet's primary star in solar units. Multiply **P** by 365.26 to get the period in days.

Gas Giant Size Table

	Small Gas Giant		*Medium Gas Giant*		*Large Gas Giant*	
Roll (3d)	***Mass***	***Density***	***Mass***	***Density***	***Mass***	***Density***
8 or less	10	0.42	100	0.18	600	0.31
9-10	15	0.26	150	0.19	800	0.35
11	20	0.22	200	0.20	1,000	0.4
12	30	0.19	250	0.22	1,500	0.6
13	40	0.17	300	0.24	2,000	0.8
14	50	0.17	350	0.25	2,500	1.0
15	60	0.17	400	0.26	3,000	1.2
16	70	0.17	450	0.27	3,500	1.4
17 or more	80	0.17	500	0.29	4,000	1.6

Note that this formula assumes that the mass of the planet itself is negligible – usually a good assumption, unless the star is very light (an M5 V or lower) and the planet is very massive (a Large gas giant of 2,000 Earth-masses or more). If greater accuracy is desired, add the mass of the planet into **M**; a planet's mass in solar units is equal to 0.000003 times its mass in Earth-masses.

Planetary Orbital Eccentricity

A planet's orbit around its primary star can be eccentric, just as a companion star's orbit can be. For each planet, choose an eccentricity for its orbit, or roll 3d on the *Planetary Orbital Eccentricity Table*.

Modifiers: +4 if the star has the Eccentric Gas Giant arrangement and the world is a gas giant inside the snow line radius; -6 if the star has the Epistellar Gas Giant arrangement and the planet is a gas giant in the epistellar position; -6 if the star has the Conventional Gas Giant arrangement. When using the dice, feel free to modify the result by up to half of the distance to an adjacent entry on the table.

Planetary Orbital Eccentricity Table

Roll (3d)	*Eccentricity*
3 or less	0
4-6	0.05
7-9	0.1
10-11	0.15
12	0.2
13	0.3
14	0.4
15	0.5
16	0.6
17	0.7
18 or higher	0.8

For each planet, compute and record the *minimum separation* and the *maximum separation* between the planet and its primary:

MIN = (1 - **E**) × **R**
MAX = (1 + **E**) × **R**

Here, **MIN** is the minimum separation in AU, **MAX** is the maximum separation in AU, **E** is the eccentricity of the planet's orbit, and **R** is the planet's orbital radius in AU.

Satellite Orbital Radius

Before the orbital period of a satellite can be computed, the radius of its orbit around its planet must be determined. This radius depends on the satellite's origins and its planet's type.

Gas Giants: Recall that a gas giant has three *families* of satellites. The first family is a set of moonlets orbiting close in, the second is a set of major moons orbiting at medium separation, and the third is a set of moonlets orbiting at large distances.

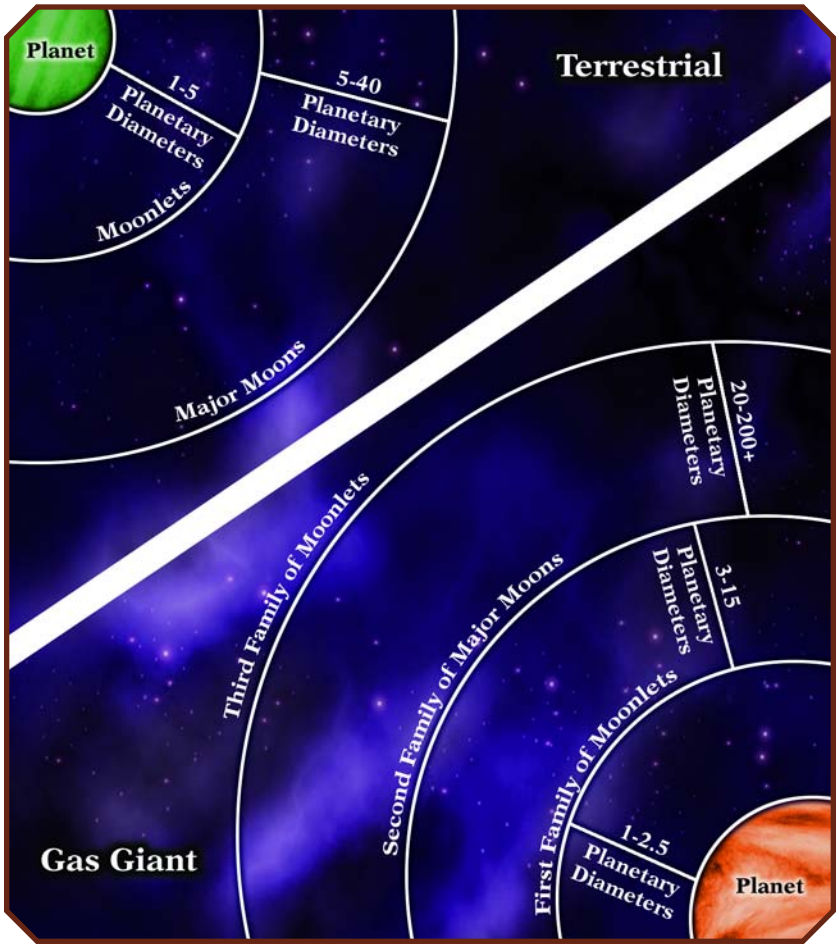
The first family of moonlets orbits at distances between 1 and 2.5 times the planet's own diameter. In most cases, specific orbital information for these moonlets won't be required. If the orbital radius for one of these moonlets is needed in play, select a radius, or roll 1d+4, divide by 4 (retaining any fraction), and multiply the result by the planet's diameter.

The second family of major moons orbits at distances between 3 and 15 times the planet's own diameter. Select a radius for each moon as needed. To generate a radius at random: roll 3d+3, and if the result is 15 or more add another roll of 2d. Divide the final total by 2 (retaining any fraction) and multiply the result by the planet's diameter. If any two of the major moons orbit within one planetary diameter of each other, re-roll or assign new orbits to both.

The third family of moonlets begins at 20 planetary diameters and can extend out to several hundred diameters. If the orbital radius for one of these moonlets is needed in play, simply select a radius as needed.

Terrestrial Planets: A terrestrial planet will occasionally have a major moon (and, in very rare cases, more than one). If there are no major moons, it may have one or more moonlets.

Major moons will usually be found between 5 and 40 planetary diameters. The larger the moon is in relation to its planet, the wider its orbit will be due to tidal effects. Select an orbital radius as needed. To generate an orbit at random, roll 2d.



Modifiers: +2 if the moon is *two* size classes smaller than its planet, +4 if the moon is *one* size class smaller than its planet. Multiply the result by 2.5, and then multiply by the planet's diameter. If two major moons orbit within 5 planetary diameters of each other, re-roll or assign new orbits to both.

Moonlets will orbit close in, at distances between 1 and 5 times the planet's own diameter. If the orbital radius for one of these moonlets is needed in play, select a radius as needed. To generate a radius at random: roll 1d+4, divide by 4 (retaining any fraction), and multiply the result by the planet's diameter.

Satellite Orbital Period

The orbit of any satellite around its planet can be computed using almost the same formula as for stellar orbits:

$$\mathbf{P} = 0.0588 \times \textit{square root of } (\mathbf{R}^3/\mathbf{M})$$

Here, **P** is the orbital period in days, **R** is the orbital radius of the satellite around its planet in Earth diameters, and **M** is the *sum* of the masses of planet and satellite in Earth masses. If the satellite is very small compared to its planet, its mass can be ignored.

Tidal Braking

A planet orbiting its primary star will not experience that star's gravity uniformly. The star will exert more gravitational force on the near side of the planet than on the far side. Since a planet is not a perfectly rigid body, it will respond by deforming slightly, forming a pair of "tidal bulges" pointing toward and away from the star. However, if the planet rotates with respect to its primary star, the starward bulge will be offset slightly from a line pointing directly toward it. The star's gravity tends to pull on this bulge, exerting torque on the planet's body and slowing its rotation.

This *tidal braking* also works when a planet has a major moon; the moon's gravity creates tidal bulges and slows the planet's rotation by pulling back on the nearest bulge. Likewise, a planet exerts tidal forces on its moons, slowing their own rotation. As a result, most major moons are tide-locked to their planets – they rotate exactly once per orbital period, so that they always present the same face to the planet. Some planets orbiting close to their primary stars are tide-locked to the star, causing them to have a day face in permanent light and a night face in permanent darkness.

To estimate the level of tidal force being exerted on a planet by each of its moons, use the following:

$$\mathbf{T} = (17.8 \text{ million} \times \mathbf{M} \times \mathbf{D})/\mathbf{R}^3$$

Here, **T** is a measure of the tidal force on the planet, in terms of the tidal force exerted by Earth's Moon upon the Earth. **T** = 1 indicates an ocean tide averaging about 2 feet at high tide in deep ocean, although the exact amplitude of tides will very widely depending on the local geography. **M** is the mass of the satellite in Earth masses. **D** is the diameter of the planet in Earth diameters, and **R** is the radius of the satellite's orbit in Earth diameters.

The same formula can be used to estimate the level of tidal force exerted on a moon by its planet. In this case, use **M** for the mass of the *planet* in Earth masses, and **D** for the diameter of the *moon* in Earth diameters.

To estimate the tidal force exerted by the primary star on a planet, use a very similar formula:

$$\mathbf{T} = (0.46 \times \mathbf{M} \times \mathbf{D})/\mathbf{R}^3$$

Here, **T** is the same measure of the tidal force on the planet. **M** is the mass of the star in solar units. **D** is the diameter of the planet in Earth diameters, and **R** is the radius of the planet's orbit in AUs.

An important factor is the *total tidal effect* on a world:

$$\mathbf{E} = (\mathbf{T} \times \mathbf{A})/\mathbf{M}$$

Here, **E** is the total tidal effect. If the world is a *planet*, then **T** is the *sum* of all the tidal forces exerted by its major moons and its primary star. If the world is a *satellite*, then **T** is the tidal force exerted only by its primary planet. **A** is the age of the star system in billions of years, and **M** is the mass of the world in Earth masses. Round the total tidal effect to the nearest whole number, and make a note of it for later computations.

Rotation Period

In general, more massive worlds rotate more quickly, but this is modified by many factors and can depend on sheer accident during the formation of the star system. Tidal braking also has a powerful effect on the rotation of planets and moons.

If the total tidal effect (computed above) on a world is 50 or higher, then the world is tide-locked; its rotation period is equal to its orbital period. If it is a planet, it is tide-locked to its innermost major moon if it has one, or to its primary star otherwise (in the latter case, see *Tide-Locked Worlds*, p. 125). If it is a satellite, then it is tide-locked to its primary planet.

If the world is not tide-locked, then its rotation period can vary widely. Select a rotation period, or roll 3d, add the total tidal effect on the world, and add the appropriate modifier from the *Rotation Period Table*.

Rotation Period Table

World Size Class	Modifier
Large Gas Giant	+0
Medium Gas Giant	+0
Small Gas Giant	+6
Large Terrestrial World	+6
Standard Terrestrial World	+10
Small Terrestrial World	+14
Tiny Terrestrial World	+18

The result is an initial value for the world's rotation period in standard hours (divide by 24 to get the period in standard days).

If the result is greater than 36 hours *or* the initial 3d roll was a natural 16 or greater, the planet or satellite will have unusually slow rotation. In this case, roll 2d on the *Special Rotation Table*, and use that result instead.

Special Rotation Table

Roll (2d)	Rotation Period
6 or less	Use initial value for period
7	1d × 2 standard days
8	1d × 5 standard days
9	1d × 10 standard days
10	1d × 20 standard days
11	1d × 50 standard days
12	1d × 100 standard days

If the rotation period yielded above is longer than the period a world would have if tide-locked, then it will be tide-locked. Any rotation period derived from the tables can be treated as approximate, and varied by part of an hour, several hours, or several days as appropriate. Rotation periods can also be recorded with precision down to the minute or second, although this is useful mostly for local color.

The rotation period generated here is the *sidereal* period, the time it takes the world to complete one rotation with respect to a distant fixed point. The apparent length of the local day may be different.

In most cases, a planet or satellite will rotate in the same direction as its orbital motion. Some worlds have the opposite tendency, rotating in the direction opposing their orbital motion. Such *retrograde* rotation is more common than one might expect – in our own solar system, two out of the eight major planets exhibit retrograde rotation. Assign retrograde rotation as needed, or roll 3d for each world. A planet will have retrograde rotation on a 13 or more, and a satellite will have it on a 17 or more.

Local Calendar

At this point, the GM can determine the length of various celestial cycles from the point of view of an observer on a world's surface. One formula can be used for all of these computations:

$$\mathbf{A} = (\mathbf{S} \times \mathbf{R})/(\mathbf{S} - \mathbf{R})$$

A is the apparent length of the cycle in question, **S** is the sidereal period of the cycle, and **R** is the rotation period of the world. All of these must be in the same units, usually hours or standard days. If the world rotates retrograde, **R** is *negative*. If **S** and **R** are equal, then the formula gives an undefined result – in this case, assume that the apparent length of the cycle is *infinite*, or that there is no apparent motion.

On a planet, the day length (the time between sunrises) is computed by setting **S** equal to the planet's orbital period and **R** to the planet's rotation period. If the orbital period is much longer than the rotation period, then the day length will be very close to the rotation period. If day length is *negative*, as often happens if the planet is in retrograde rotation, the primary star will appear to rise in the west and set in the east.

On a satellite, the day length is computed by setting **S** equal to the *parent planet's* orbital period. Otherwise the computation is the same.

The apparent length of a moon's orbital cycle, as seen from the surface of the parent world, is found by setting **S** to the moon's orbital period and **R** to the planet's rotation period. If the length of the cycle is negative, as often happens for very close-in moons, the moon will rise in the west and set in the east. A close-in moon may orbit close to the planet's geosynchronous distance, in which case the moon will spend long periods in the sky as seen from any given location, keeping pace with the planet's surface.

Axial Tilt

The angle between a planet's rotation axis and a vector perpendicular to a star's ecliptic plane is called the *axial tilt* of the planet. The major planets of our own solar system have a wide variety of axial tilt values, and there seems to be no correlation to their other properties. An arbitrary selection would be appropriate.

To generate a random axial tilt, roll 3d on the *Axial Tilt Table*. If necessary, roll 1d on the extended table. In any case, roll 2d as indicated and record the end result.

Axial Tilt Table

Roll (3d)	Axial Tilt
3-6	0 + (2d-2) degrees
7-9	10 + (2d-2) degrees
10-12	20 + (2d-2) degrees
13-14	30 + (2d-2) degrees
15-16	40 + (2d-2) degrees
17-18	Roll on extended table

Roll (1d)	Axial Tilt
1-2	50 + (2d-2) degrees
3-4	60 + (2d-2) degrees
5	70 + (2d-2) degrees
6	80 + (2d-2) degrees

Example: At this step, the GM determines the dynamic parameters for several parts of the Haven star system.

The two stars orbit one another in *square root of* $[350^3/(0.9 + 0.2)]$ = 6,200 years. The GM decides that the two stars are currently close to their minimum separation, making it convenient in case his players decide to explore the red dwarf's planets.

Haven orbits its primary star in *square root of* $(0.68^3/0.90)$ = 0.591 years, or about 215.9 days. Carson's World orbits the primary in *square root of* $(1.1^3/0.90)$ = 1.22 years, or about 444.2 days. The GM rolls 3d-6 on the *Planetary Orbital Eccentricity Table* for both Haven and Carson's World, and gets negligible eccentricity for both worlds' orbits.

Haven has no moon. To see where Carson's World single moonlet orbits, the GM rolls 1d+4 for a 5. Dividing by 4 and multiplying by the planet's diameter, he finds that the moonlet orbits at a radius of 0.63 Earth diameters (about 4,960 miles) from the center of the planet. The moonlet's orbital period is 0.0588 × *square root of* $(0.63^3/0.1)$ = 0.093 days. The moonlet orbits *very* quickly, completing a circuit in a little over 2 hours!

The GM then begins to estimate the tidal effects on the two worlds. Neither world has a major moon, so all of the tidal effect on each will come from the primary star. On Haven, the star exerts a tidal force of $(0.46 \times 0.90 \times 1.05)/(0.68)^3$ = 1.38. The total tidal effect on Haven is (1.38 × 3.2)/1.27 = 3.48, rounded to 3. On Carson's World, the star exerts a tidal force of $(0.46 \times 0.90 \times 0.50)/(1.1)^3$ = 0.16. The total tidal effect on Carson's World is (0.16 × 3.2)/0.1 = 5.12, rounded to 5.

Since neither world has a very high tidal effect, the GM rolls on the Rotation Period Table for each. For Haven, the roll is 3d+13 (+3 for total tidal effect, +10 for being a Standard-size world), and the GM gets a result of 23. Haven rotates in about 23 hours. For Carson's World, the roll is 3d+19, and the result is 29 hours. The GM may vary these periods slightly later, but for now he simply records both results for use during adventures.

Since the orbital period is much longer than the rotation period for both worlds, the GM doesn't bother to compute the exact day length for either. The rotation periods are close enough. The apparent length of the orbital cycle for the moonlet of

Carson's World is about (2.2 × 29)/(2.2 - 29) = -2.4 hours. The moonlet appears rise in the west and set in the east, passing through the sky against the movement of the sun and stars, and makes a complete cycle in about 2.4 hours.

The last item is the axial tilt for each of the two worlds. The GM rolls on the *Axial Tilt Table* for each, getting a roll of 9 for Haven and a roll of 13 for Carson's World. For Haven, the roll of 2d-2 yields a 1, so Haven's axial tilt is only 11°. Haven probably has a very gentle seasonal cycle (especially since its vast oceans will work to smooth out regional temperature variations). For Carson's World, the roll of 2d-2 yields an 8, so the axial tilt of Carson's World is 38°. Carson's World probably has a strong seasonal cycle, causing vast annual sandstorms and large fluctuations in the size of its polar ice caps.

Step 31: Geologic Activity

A world's level of geologic activity can affect its resource richness, as well as its habitability. This step determines how volcanically active the world is, as well as whether it has an active system of plate tectonics.

Volcanic Activity

Volcanism has a profound effect on a world's surface environment. A world with too much volcanism can be a very dangerous place. On the other hand, a world with too *little* volcanism can be inhospitable as well. Volcanoes concentrate certain trace elements in the upper crust: substances like potassium that are critical for biological processes, along with useful minerals like thorium or uranium. Without active volcanism, these substances will never arrive on the world's surface – or they will tend to be lost to erosion over time, winding up on the ocean bottoms. A world without volcanoes is a world with critical resource deficiencies!

Select a level of volcanic activity from the options below. To generate a level of volcanic activity at random, roll 3d on the *Volcanic Activity Table*.

Modifiers: Divide the world's *surface gravity* (in Gs) by its *age* (in billions of years). Multiply the result by 40, round to the nearest whole number, and *add* the final result to the dice roll. +5 if the world is a terrestrial planet with one major moon, +10 if it is a terrestrial planet with more than one major moon; +60 if the world is of Tiny (Sulfur) type; +5 if the world is a gas giant's major moon of some other type.

Volcanic Activity Table

Roll (3d)	Activity Level
16 or less	None
17-20	Light
21-26	Moderate
27-70	Heavy
71 or higher	Extreme

None: The world is geologically dead. The core may be a solid mass, with no semi-liquid or liquid layer. Trace elements that would normally be brought to the surface by volcanic activity will be virtually absent. New volcanoes never appear, but there may be extinct volcanoes remaining from the world's early history. Examples in our own solar system include Mercury, Mars, and the Moon.

Light: The world is quiet, but the core is still hot and there are a few areas of active volcanism. New volcanoes appear on a time-scale of many thousands or even millions of years. Trace elements that would normally be brought to the surface by volcanic activity will be present, but uncommon.

Moderate: There are many regions of active volcanism, but volcanoes tend to be separate, and most volcanoes are only occasionally active. New volcanoes appear on a time-scale of decades or centuries. There is plenty of volcanic "recycling" of trace elements in the environment. Examples in our own solar system include Earth.

Heavy: Volcanism is very common across the world's surface. There may be regions where individual volcanoes cluster and merge, permitting magma to well up through great wounds in the crust. New volcanoes appear every few years. There is plenty of volcanic "recycling" of trace elements in the environment.

Extreme: The world's surface is dominated by volcanism. The planet's surface is generally unstable, and new volcanic eruptions can take place almost anywhere and at any time. The atmosphere is very unlikely to be breathable, even if it would otherwise have the proper composition. There is plenty of volcanic "recycling" of trace elements in the environment. Examples in our own solar system include Jupiter's moon Io.

If a Standard (Garden) or Large (Garden) world has Heavy or Extreme volcanism, this may render its atmosphere Marginal (p. 80). In this case, the most likely contaminants for the atmosphere are *sulfur compounds* or *pollutants*. Set the atmosphere to Marginal as needed. To test this possibility at random, roll 3d; if the roll is an 8 or less (for Heavy volcanism) or a 14 or less (for Extreme volcanism), the atmosphere is Marginal regardless of any results obtained earlier.

Tectonic Activity

Any world with a solid surface is likely to experience some level of *tectonic* activity, the movement and deformation of crustal plates over millions of years. High tectonic activity causes earthquakes, but it also makes a planet more likely to be habitable. Tectonic activity causes mountain-building, which helps ensure that erosion doesn't wear all of a planet's landforms down to nothing. As crustal plates move, some plates slide under others into the mantle, recycling crustal materials. The movement of crustal plates also helps prevent the formation of massive "shield" volcanoes, which can have a serious effect on planetary climate.

A Tiny or Small world never has significant tectonic activity. For other worlds, select a level of tectonic activity from the options below. To generate a level of tectonic activity at random, roll 3d on the *Tectonic Activity Table*.

Modifiers: Do not roll for a Tiny or Small world; the world has no tectonic activity. -8 if the world has no volcanic activity, -4 if it has Light volcanic activity, +4 if it has Heavy volcanic activity, +8 if it has Extreme volcanic activity; -4 if the world has no liquid-water oceans, -2 if its hydrographic coverage is less than 50%; +2 if the world is a terrestrial planet with one major moon, +4 if it is a terrestrial planet with more than one major moon.

Tectonic Activity Table

Roll (3d)	Activity Level
6 or less	None
7-10	Light
11-14	Moderate
15-18	Heavy
19 or higher	Extreme

None: The world is tectonically dead. The world's crust is very thick and immobile, not divided into any distinct plates. Crustal quakes are weak and extremely rare. If there is (or has been) any volcanic activity on the world, it has formed massive shield volcanoes, like Earth's Mauna Loa or

Mars' Olympus Mons. There is no mountain-building on the world. Any mountains are accidental geologic features, and will quickly be worn down by erosion if there is a significant atmosphere.

Light: The world's crust may be divided by fault lines into a few plates, which move past each other with some limitations. Crustal quakes are powerful but not common, and are generally restricted to plate boundaries. If there is any volcanic activity, shield volcanoes are common, but there are a few "chains" of smaller volcanoes along plate boundaries. Mountain-building is infrequent, but there is likely to be at least a few old mountain chains, which are well-weathered if there is significant atmosphere.

Moderate: The world's crust is divided into a number of plates, which move freely around and past each other. Crustal quakes can be very powerful, are quite common near plate boundaries, and can even occur in mid-plate regions. Shield volcanoes are uncommon, and most volcanoes are small ones of the "chain" or "arc" type. Mountain-building occurs in cycles, and there are likely to be a number of young, high mountain ranges.

Heavy: The world's crust is divided into many plates. Crustal quakes can be very powerful and can be experienced almost anywhere on the world. Almost all volcanoes are small ones of the "chain" or "arc" type. Mountain-building is almost constant, and most of the world's mountain ranges are likely to be young and high.

Extreme: The world's crust is fragmented and unstable. Crustal quakes are powerful, and can be experienced anywhere on the world at any time. Landforms are likely to be highly chaotic, including a large number of very young, high mountains.

Example: At this point, the GM determines the levels of geological activity for both Haven and Carson's World.

Haven has surface gravity of 1.15 and an age of 3.2 billion years. The modifier for the roll on the *Volcanic Activity Table* is (1.15/3.2) × 40 = 14.4, rounded to 14. The roll of 3d+14 yields a total of 24, indicating Moderate volcanic activity comparable to that of Earth. The roll on the *Tectonic Activity Table* is 3d with no modifiers, for a result of 11, indicating Moderate tectonic activity as well.

Carson's World has surface gravity of 0.40 and an age of 3.2 billion years. The modifier for the roll on the *Volcanic Activity Table* is (0.40/3.2) × 40 = 5 exactly. The roll of 3d+5 yields a total of 14, indicating no volcanic activity. Meanwhile, since Carson's World is Small, it automatically has no tectonic activity.

Step 32: Resources and Habitability

The Resource Value Modifier, habitability score, and affinity score for each world can be determined from its world type, as in Step 7 (p. 87). Refer to the procedures in Chapter 4 and apply them for each world of interest in the target star system.

A world's level of geologic activity affects both its Resource Value Modifier and its habitability score. When rolling for the RVM of a terrestrial planet, modify the 3d roll for RVM by -2 for no volcanism, -1 for Light volcanism, +1 for Heavy volcanism, and +2 for Extreme volcanism. Tectonic activity does not affect a world's RVM. A world's habitability should be modified by -1 for Heavy volcanism or Heavy tectonic activity, and by -2 for Extreme volcanism or Extreme tectonic activity, to a minimum of -2. Apply *both* modifiers if both forms of activity are present.

Example: Haven's RVM, habitability, and affinity scores are all known. For Carson's World, the GM rolls 3d-2 (-2 for its lack of volcanic activity) on the Resource Value Table, getting a 13. Carson's World has Average resources and an RVM of 0. Its habitability is 0, and its total affinity score is 0.

Step 33: Settlement Type

This book assumes that *one* world – the *main world* – in each star system will be settled first, and that any later settlements in the star system will be secondary colonies established from the first one. The procedure for determining the population of these secondary settlements depends on whether a pre-designed world is in the star system or not.

Selecting the Main World

If there is no pre-designed world, begin by selecting the main world of the star system. In almost all cases, the world with the *highest* affinity score will be the main world of the system. If there is a tie for the highest affinity score, choose one of the tied worlds as needed, or select one at random. If no world in the star system has an affinity score greater than 0, then *any* world can be selected as the main world.

If the star system includes a pre-designed world, that world can usually be assumed to be the main world of the system. The most common exception is when the pre-designed world turns out not to have the highest affinity in the star system. In this case, the GM has a choice. He can alter the star system's design so that the highest-affinity world is the main world and has the highest population; this may mean removing or reducing any population on the pre-designed world if it turns out to break the rules for secondary settlements. Alternatively, the GM can come up with a reason why the world that *appears* most attractive was not the one most heavily settled.

If the main world was not pre-designed, its settlement type can be set using the guidelines in Step 8. Refer to the procedures beginning on p. 89 and apply them to the main world. The main world's other social parameters will also need to be generated before the population of any secondary worlds can be determined – proceed with Steps 34 through 39 for the main world before returning to this step for the secondary worlds.

Settlement Types for Secondary Worlds

A secondary world will only be settled if the main world has the space infrastructure to support colonization *and* the secondary world is somehow attractive to settlement.

Space infrastructure is a function of a world's available technology, its population, and its economic investment in space industries. If the main world is settled only by an *outpost* (p. 90), or the main world's population is less than 1 million, then no other world in the star system will be settled. If the main world is a home world or colony with at least 1 million people, other worlds may be settled if the local technology can support the effort. Refer to the following table.

Here, the distances refer to the distance between the two worlds at the point of closest approach in their orbits. For example, two planets will come within 1 AU of each other at some point, if their respective orbital radii are no more different than that. At the same time, any satellites of either world will also come within 1 AU of each other. If the star system includes more than one star, and the minimum separation between the two stars is 10 AU or less, then worlds orbiting one star will come within 10 AU of worlds orbiting the other at some point. If a secondary world is within the proper distance of the main world, then a settlement *may* have been established there.

If the affinity score of a secondary world is greater than 0, a secondary *colony* will automatically be established.

If the affinity score of a secondary world is 0 or less, then a secondary *outpost* may be established. Refer to the following table, and roll 3d for each such world that is within the proper distance of the main world.

Modifiers: Add the Habitability score for the world. If the 3d roll is greater than or equal to the target number for the main world's TL, then an outpost will be placed there.

You may wish to override the random placement of secondary outposts in some cases. For example, it would be unusual for a spacefaring civilization to place outposts on distant planets, but none on the moons of its home world.

Example: Haven's settlement type is already known; its affinity score of 7 is almost certainly the highest in the star system, so it can safely be treated as the main world. Rather than roll dice, the GM decides that there is an *outpost* on Carson's World, populated by scientists and prospectors studying the planet's prior inhabitants.

Colonial Requirements Table

Main World TL	*Distance of Secondary Colonies*
TL6 or less	None
TL7	Any world within 0.1 AU
TL8	Any world within 1 AU
TL9	Any world within 10 AU
TL10 or higher	Any world within same star system

Step 34: Technology Level

The TL of the main world can be determined as in Step 9. Refer to the procedures beginning on p. 90 and apply them to the main world of the star system.

Secondary settlements are unlikely to have a TL higher than that of the main world, and may be one or two TL behind the main world if they are not yet self-sufficient. Assign TL to secondary settlements as needed. To generate these TLs randomly, roll on the Tech Level Table (p. 91) for each secondary settlement, applying all the appropriate modifiers. For a secondary settlement, define the "Standard" TL as that of the *main world*, not of the setting as a whole.

Example: Haven's TL is already known. For Carson's World, the GM rolls 3d+3 on the *Tech Level Table* (+3 since the settlement is an outpost) and gets a 9. The result is Standard (Delayed). Since Haven is at TL10, the GM places Carson's World at TL10 also, but notes that local industries are (like those of the main world) not quite up to galactic standards.

Step 35: Population

The population of the main world can be determined as in Step 10. Refer to the procedures beginning on p. 91 and apply them to the main world of the star system.

For each inhabited secondary world, begin by computing the world's carrying capacity and then use the following procedures to set the world's population. As for the main world, a secondary colony or outpost's population will not generally exceed its carrying capacity.

Secondary Colonies

To set the population of a secondary colony at random, refer to the *Colony Population Table* on p. 92. Find the total dice roll that corresponds most closely to the population of the main world. *Subtract* the modifier for the main world's affinity score, and then *add* the modifier for the secondary world's affinity score. Then *subtract* another 3d roll. The final result gives a new entry on the *Colony Population Table*, which will give the population for the secondary colony.

Secondary Outposts

The population of a secondary outpost can be determined using the same procedures as in Chapter 4, probably by a roll on the *Outpost Population Table* (p. 93).

Secondary Outpost Placement Table

Main World TL	*Target Number*
TL6 or lower	Do not roll
TL7	5 or lower
TL8	6 or lower
TL9	7 or lower
TL10 or higher	9 or lower

Example: Haven's population is already known. Carson's World has a total carrying capacity of 20 million $\times 1 \times 0.5^2 = 5$ million. To generate the population for Carson's World, the GM rolls 3d on the *Outpost Population Table* and gets a 12, indicating a population of about 6,000 (PR 3).

Step 36: Society Type

The society type of the main world can be determined as in Step 11. Refer to the procedures beginning on p. 93 and apply them to the main world of the star system.

Secondary settlements are very likely to be colonies of the main world. In most cases, a secondary colony or outpost will have a World Government with the Colony special condition, and will have the same society type as the main world.

Assign a society type to each secondary world as needed. To generate a secondary world's society type at random, roll 3d and add the PR of the secondary colony. On a 20 or higher, the secondary world is socially and politically independent. In this case, roll on the *World Unity Table*, the *Society Types Table*, and the *Special Conditions Table* (p. 94), all as if the secondary world was the main world of its own star system. If the secondary world is not independent, tie its society type to that of the main world as described above.

Example: Without bothering to roll dice, the GM decides that the Carson's World outpost is still socially dependent on Haven. He places a World Government with the Colony special condition and the Representative Democracy society type, matching Haven.

Step 37: Control Rating

The Control Rating for each world can be determined as in Step 12. Refer to the procedures beginning on p. 94 and apply them to each world in the star system. Note that most secondary settlements will have the Colony special condition – their Control Ratings will be tied to that of the main world.

Example: The CR of Haven is already known. Since Carson's World has the Colony special condition with Haven as its governing society, its CR is one less than that of Haven: CR 1. The GM notes that Carson's World is a rather rough-and-tumble frontier settlement, with very little in the way of strict law enforcement.

Step 38: Economics

The economic parameters for each world can be determined as in Step 13. Refer to the procedures beginning on p. 95 and apply them to each world in the star system.

When computing the trade volume between worlds in the same star system, be certain not to use a distance of 0 in the trade volume formula! If interplanetary distances are already being taken into account in the formula, this will not be a problem. If trade volumes are usually computed over interstellar distances, use a distance equal to half the average distance between neighboring worlds on the interstellar map (as determined under *Playing With Shapes*, p. 72).

Example: The annual per-capita income on Carson's World is only about $34,000 (50% of the standard income for TL10). The most typical Wealth level on Carson's World is Struggling. The total economic volume of the settlement is 34,000 × 6,000 = $200 million per year. The GM doesn't bother to estimate trade volume for Carson's World, simply assuming that most of the planet's economy is driven by imports from Haven.

Step 39: Bases and Installations

Military and space facilities can be assigned to each world using the procedures in Step 14. Refer to the procedures beginning on p. 96 and apply them to each world in the star system.

Example: The GM decides that Carson's World is too small a settlement to have a variety of local bases and installations. Without rolling the dice, he places a Class II spaceport on the planet, and also places a government research station (PR 2) dedicated to archaeology. The design of Carson's World is complete.

The Solar System

As an example of star system design, here is a summary of the major objects in our own solar system as they are described by the world-building rules in this book.

Primary Star (Sol): Spectral type G2 V, mass 1.0 solar masses, age 4.7 billion years, effective temperature 5,800 kelvins, luminosity 1.0 solar luminosities, radius 0.0046 AU.

Orbit 1 (Mercury): Orbital radius 0.39 AU, diameter 3,900 miles, density 0.98, mass 0.055, blackbody temperature 445 kelvins, world type Tiny (Rock). No major moons.

Orbit 2 (Venus): Orbital radius 0.72 AU, diameter 7,500 miles, density 0.95, mass 0.82, blackbody temperature 328 kelvins, world type Standard (Greenhouse). No major moons.

Orbit 3 (Earth): Orbital radius 1.0 AU, diameter 7,900 miles, density 1.00, mass 1.00, blackbody temperature 278 kelvins, world type Standard (Garden). One major moon: Luna – Tiny (Rock).

Orbit 4 (Mars): Orbital radius 1.5 AU, diameter 4,200 miles, density 0.71, mass 0.11, blackbody temperature 225 kelvins, world type Small (Rock). No major moons (but two moonlets).

Orbit 5 (Asteroid Belt): Orbital radius 2.7 AU, world type Asteroid Belt.

Orbit 6 (Jupiter): Orbital radius 5.2 AU, diameter 89,000 miles, density 0.24, mass 320, blackbody temperature 122 kelvins, world type Medium Gas Giant. Four major moons: Io – Tiny (Sulfur), Europa – Tiny (Ice), Ganymede – Tiny (Ice), and Callisto – Tiny (Ice).

Orbit 7 (Saturn): Orbital radius 9.5 AU, diameter 75,000 miles, density 0.13, mass 95, blackbody temperature 90 kelvins, world type Small Gas Giant. One major moon: Titan – Small (Ice).

Orbit 8 (Uranus): Orbital radius 19 AU, diameter 32,000 miles, density 0.24, mass 14, blackbody temperature 64 kelvins, world type Small Gas Giant. No major moons.

Orbit 9 (Neptune): Orbital radius 30 AU, diameter 31,000 miles, density 0.32, mass 17, blackbody temperature 51 kelvins, world type Small Gas Giant. One major moon: Triton – Tiny (Ice).

Notice that Pluto isn't listed as a *planet* here. Indeed, present-day scientists aren't in agreement on whether Pluto has any claim (other than tradition) to planetary status. Instead, it can be considered an unusually large, but otherwise typical, object of Sol's *Kuiper Belt* (p. 131).

Special Cases

Several special cases can arise during world design. These require special treatment – but they can also provide interesting local situations for play.

Gas Giant Moons

A gas giant's major moons are likely to be interesting worlds in their own right, but they are subject to forces that most worlds are not.

Radiation

A gas giant will normally have a very powerful magnetic field, which tends to collect charged particles given off by the primary star. A gas giant's major moons will often be placed so that they orbit in this charged-particle zone, subjecting their surfaces to intense radiation. For example, the surfaces of Jupiter's large Galilean satellites are among the most radiation-hostile places in our solar system.

If a gas giant's moon has a significant atmosphere, this will help protect visitors from the radiation belts. Even a moon with a substantial atmosphere will still have significant background radiation on the surface, but the blanket of air may make the difference between "inhospitable" and "instantly fatal!"

Tidal Effects

A gas giant's major moons will be subject to powerful tidal forces from the gas giant itself. If there are multiple major moons, they will also exert tidal forces on each other, and those forces will actually change in direction and strength as the moons orbit their parent planet. All of these forces will tend to flex and strain the body of each moon, heating them internally and encouraging volcanic activity.

In the case of icy moons of the Tiny (Ice) or Tiny (Sulfur) types, this tidal flexing has a profound effect on the moon's surface composition. A Tiny (Ice) moon that suffers a great deal of tidal flexing will actually lose most of its light volatiles through volcanism, leaving sulfur and sulfur compounds behind on the surface. The result is a Tiny (Sulfur) world, like Jupiter's moon Io.

A lesser degree of tidal flexing causes *differentiation* of the moon's materials, causing stony and metallic material to sink toward the center while ices rise to the surface. Greater differentiation leads to subsurface oceans, as water ice gathers close to the surface and melts due to tidal heating. Differentiation also means that the surface is "cleaner," more likely to be composed of fresh ice without a dusting of stony material (this will lower the absorption factor used in computing world surface temperatures).

When designing a gas giant's system of moons, assign each Tiny (Ice) moon its own degree of differentiation. In general, the innermost moon

may become a Tiny (Sulfur) world, while other moons will experience decreasing differentiation as they are farther from the gas giant. A moon with greater differentiation is more likely to have extensive subsurface oceans.

Tide-Locked Worlds

A world that is tide-locked to its primary star experiences uneven heating – its "day face" is constantly being heated by stellar radiation, while the "night face" is in constant shadow. Heat can be transferred to the night face by conduction through the planet's body, or by circulation of the atmosphere or oceans (if any). If these transfers aren't sufficient, then the world's supply of volatiles will tend to freeze out on the night face, leaving the day face dry and nearly airless.

Whenever a tide-locked world is generated, refer to the following table to adjust its physical parameters. The required adjustments depend on the original pressure category of the world's atmosphere.

Multiply the computed average surface temperature (in kelvins) by the *day face* entry to get the average surface temperature on the day face. Likewise, multiply the computed average surface temperature by the *night face* entry to get the average surface temperature on the night face. Adjust the pressure category for the planet's atmosphere to be equal to the *final atmosphere* entry (and alter the exact surface pressure to fit). Finally, add in the *hydrographics penalty* to the original hydrographic coverage of the world (to a minimum hydrographic coverage of 0%).

Resonant Worlds

If a planet has orbital eccentricity of at least 0.1, it's possible for it to fall into a stable *resonant* pattern rather than becoming completely tide-locked. In this pattern, the planet rotates exactly three times in every two orbits, alternately presenting opposite faces to the primary star at every close approach.

Assign a resonant-world situation whenever it seems appropriate, or roll 3d for any planet with high enough orbital eccentricity that would otherwise be tide-locked to its primary star. On a 12 or higher, the world will be resonant.

A resonant world will not be tide-locked for the purpose of determining its atmosphere, hydrographic coverage, or average surface temperature. The planet gets heated evenly over long periods, although the days and nights are very long and so temperature variations may be *very* wide.

One unusual feature of a resonant world is the apparent motion of its primary star. The length of the day is actually *twice* that of the planet's year. Since the planet's orbital velocity changes depending on its position in its orbit, the rate at which the sun appears to move through the sky changes at different times of day. In particular, when the planet approaches its *periastron*, the point of closest approach to the star, the sun appears to slow down in the sky, actually reverse its direction for a while, and then return to its usual pattern of motion!

Tide-Locked Worlds Average Temperature Table

Original Atmosphere	*Day Face*	*Night Face*	*Final Atmosphere*	*Hydrographics Penalty*
None or Trace	1.2	0.1	None	-100%
Very Thin	1.2	0.1	Trace	-100%
Thin	1.16	0.67	Very Thin	-50%
Standard	1.12	0.80	Standard	-25%
Dense	1.09	0.88	Dense	-10%
Very Dense	1.05	0.95	Very Dense	-0%
Superdense	1.0	1.0	Superdense	-0%

Massive Stars

The world-building system in this book only covers stars of up to 2.0 solar masses in significant detail. More massive stars are somewhat rare, and are unlikely to have planets of their own. However, if used sparingly they may be interesting locations for adventure in their own right.

When placing a massive star in the campaign, simply select its mass. Masses between 2.0 and 5.0 solar masses are uncommon but not impossible in any part of the galaxy. Masses above 5.0 solar masses are *extremely* rare, and no campaign is likely to need more than one or two.

Luminous Stars

Massive stars burn very brightly, but not for very long. They appear very unlikely to have planets – in fact, the most massive stars don't *exist* for long enough to permit planets to form. A system with one of these massive, bright stars in it most likely has nothing but a scattering of asteroidal debris (plus the usual cloud of comets at a considerable distance).

A massive star's neighborhood can be a very dangerous place to visit. Even the smallest stars in this class give off a great deal of ultraviolet radiation, and a strong charged-particle stellar wind. Some of the most massive stars are the so-called *Wolf-Rayet variables*, which give off an extremely strong stellar wind, occasionally ejecting their topmost layers into space to form nested shells of hot, ionized gas.

The following table gives approximate statistics for main-sequence stars of 3.0 solar masses and above.

As a massive star evolves off the main sequence, its *luminosity* actually increases relatively little – perhaps by a factor of 3-4. However, its effective temperature will fall well into the red giant range and even below (2,500-4,000 K). Given the formula for a star's radius (p. 104), it's easy to see that a "red supergiant" star will be *huge*, possibly several AU across!

Such a swollen star might be a very exotic place to visit. A durable and heat-resistant spaceship could even dive *inside* the star, since its outer atmosphere would be very tenuous (a "red-hot fog").

Neutron Stars

Stars of two to eight solar masses end their lives much like less massive stars – at the end of the red giant phase, much of the star's mass is lost, and the core collapses to form a white dwarf. More massive stars die much more violently, in a *supernova* explosion that blows off many solar masses of material in a single violent cataclysm. A single supernova will briefly shine more brightly than an entire galaxy!

For stars of about eight to 25 solar masses, the supernova explosion gives rise to an exotic stellar remnant. The stellar core's gravity compresses it beyond the degenerate level found in a white dwarf's core. Free electrons are driven down into the atomic nuclei, forming an incredibly dense material called *neutronium*. The stellar remnant becomes a *neutron star*, a body only a few miles across, more massive than our own sun.

A neutron star's surface gravity is extremely high, billions of times greater than that of our Earth. It also has an extremely powerful magnetic field. As infalling matter moves through this field, it gives off high-energy radiation, which is emitted as intense beams of electromagnetic radiation from the star's magnetic poles. Most neutron stars rotate very quickly (on the order of one rotation every second), so these beams of radiation are sometimes swept through space. Anyone happening to lie on the path of one of the beams will see the star "blink" or pulse – hence the term *pulsars*.

Pulsars can serve as very accurate clocks, since the "blinking" is very regular. They can also serve as natural navigational beacons, since every pulsar has a slightly different rotation rate. If a ship that has managed to get lost in the galaxy can locate at least three known pulsars, it will be able to triangulate its position very clearly.

A neutron star always has a mass between 1.5 and three solar masses. Select a mass, or roll 3d+12 and multiply by 0.1 solar masses. The neutron star's optical luminosity will usually be negligible, although a few pulsars flash visible light as well as radio waves.

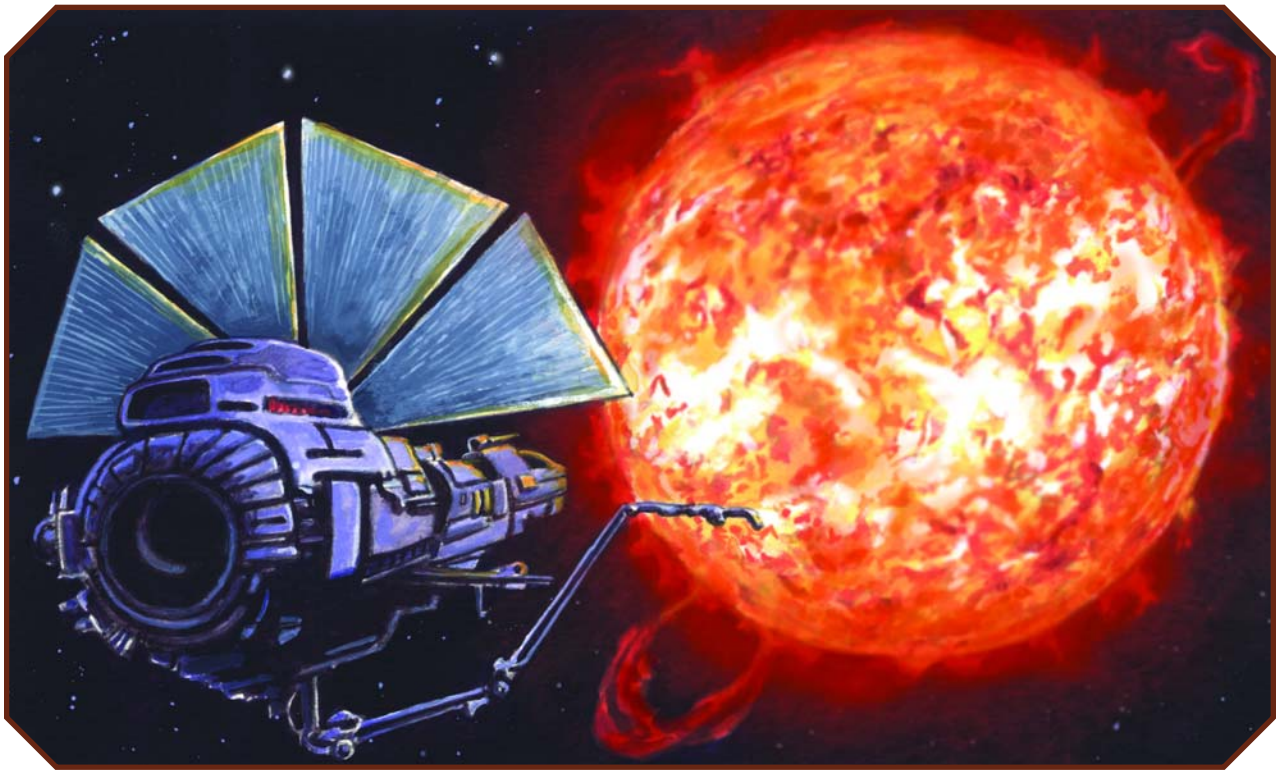
Black Holes

A star whose initial mass is greater than 25 solar units faces the ultimate end. Not even the pressures generated by neutronium can hold up the stellar core as it is compressed by gravity. The whole mass of the star's core collapses into a gravitational singularity, the kernel of a *black hole*.

A black hole, like a neutron star, is an object only a few miles across. Its gravitational influence is so strong that not even light can escape. The gravitational singularity is surrounded by an *event horizon*, marking the

Massive Stars Table

Mass	Luminosity	Temperature (K)	Stable Span (years)
3.0	90	9,800	330 million
5.0	700	14,000	70 million
7.5	3,600	18,000	20 million
10	11,000	20,000	9.0 million
15	58,000	26,000	2.6 million
20	180,000	32,000	1.1 million
25	440,000	36,000	570,000
30	920,000	40,000	330,000
60	15 million	42,000	40,000
100	110 million	50,000	9,000



distance at which everything, including light, is trapped forever. Anything that falls through the event horizon is effectively cut off from the universe for the rest of time.

The powerful gravity of a black hole has a number of odd effects. It's possible for light to *go into orbit* around a black hole, and light that is directed away from its vicinity will lose a great deal of its energy. Spaceships that venture too close will be torn apart by tidal effects even if they don't fall past the point of no return.

On the other hand, at a large distance a black hole doesn't have gravity any more powerful than that of a normal star of the same mass. Contrary to a great deal of TV science fiction, it won't reach out and "suck in" matter that is safely in orbit or is passing by quickly. It's just that a black hole is much more *compact* than a normal star, so the gravity in its immediate neighborhood is extremely intense.

A black hole always has mass of at least three solar units; a good estimate for its final mass is about one-eighth that of the original star. Its luminosity, of course, is zero (although matter falling into the hole will give off X-rays and other powerful radiation).

Red Dwarf Stars

Red dwarfs (M-type main sequence stars) are one of the galaxy's most common stellar types. The range of habitable orbits around a red dwarf star is quite narrow, and any planet falling in that range is very likely to be tide-locked to the star (see p. 125 for guidelines on the generation of tide-locked planets). As a result, a red dwarf is unlikely to have any habitable Garden worlds. Still, red dwarfs are *so* common that they may account for a significant portion of the galaxy's habitable planets.

Many red dwarf stars are *flare stars*. A flare star throws off stellar flares, sometimes similar in size to the flares that occur frequently on the surface of our own sun. However, since a red dwarf flare star is normally much dimmer than Sol, a Sol-sized flare on such a star can vastly increase its brightness – doubling it or even more while the flare takes place! Meanwhile, red dwarf flares are different from those of a brighter star in one respect: they emit many times as much ultraviolet and X-ray radiation. This radiation can be quite dangerous for any life on a world orbiting close to the star.

Flare stars produce flares on an irregular schedule, usually with an hour to a few days between flares. More than one flare can be occurring at the same time. A flare takes only a few minutes to reach peak brightness, then declines slowly over the course of up to an hour.

On a nearby planet, a flare will create a "heat pulse," raising surface temperatures by up to 20% (measured in kelvins) immediately after peak brightness. The heat pulse will be weaker, but will last longer, on a world with a significant atmosphere. The flare will emit ultraviolet and X-ray radiation as well. Those exposed directly to the flare in vacuum will receive about 1 rad per hour of radiation exposure. Those on a planet's surface will be somewhat protected by any atmosphere.

Worlds near a flare star will be unusual places. A lifeless world will still have strange chemical compounds on the surface, as flare radiation interacts with common ices and minerals over long periods of time. If a world has life, that life will have exotic adaptations to a high-radiation environment . . . and it may use the high-energy pulse of a flare in order to fuel bursts of unusual activity.

Assign flare stars as needed wherever red dwarf stars appear. To place them randomly, roll 3d for any red dwarf star; on a 12 or higher, the star is a flare star. A flare star can be designated in its spectral type by an "e" added to the luminosity class. For example, an M5-type flare star has the complete spectral type *M5 Ve*.

Brown Dwarf Stars

Occasionally she called up an inscape view of the outside. Erythrion itself was visible now, a gigantic red eye in the night. The halo world was a brown dwarf, sixty Jupiters in mass, too small to be a sun and too big to be a planet. Like countless billions of others it moved through the galaxy alone in the spaces between the lit stars. So small and invisible were the halo worlds that they hadn't even been known to exist until the end of the twentieth century. But to Rue, Erythrion was huge and magnificent and all the civilization she hoped to ever see.

– Karl Schroeder, ***Permanence***

Between the most massive planets and the lightest M-type stars comes a class of barely luminous objects, the *brown dwarf stars*.

Unlike a gas giant planet, a brown dwarf is massive enough to ignite nuclear fusion in its core, burning the deuterium isotope of hydrogen. Once the deuterium runs out, nuclear fusion shuts down and the brown dwarf begins to cool slowly. The fusion stage lasts only a few hundred million years at most, but the cooling process can last billions of years, as heat leaks from the star's core and is renewed by the process of gravitational contraction.

Brown dwarfs are difficult to detect from any distance, but modern astronomy is beginning to locate them in large numbers – both as companions to visible stars, and as independent stars in deep space. It's possible that brown dwarfs actually outnumber the "lit stars" that are easily visible across distances of many parsecs. Some recent science fiction has begun to use them as a background for stories. If the GM wishes to use brown dwarf stars in his setting, the following optional rules can be applied.

Placing Brown Dwarfs

Brown dwarfs should be assigned as needed. If *every* star in a region of space is to be placed on a map, then brown dwarfs should make up at least 50% of the total.

For a more moderate placement, in which the occasional brown dwarf is of interest but most of them will be ignored, use the following procedure. Whenever an M-type red dwarf star (p. 127) is to be placed, roll 3d. On a 7 or less, the star is a brown dwarf instead. This applies both to solo red dwarf stars and to red dwarfs placed as part of multiple star systems.

Brown Dwarf Properties

The most important properties for a brown dwarf are its mass, luminosity, and diameter. A brown dwarf's mass is by definition between about 0.015 and 0.07 solar masses. Select a mass as needed, or roll 3d on the *Brown Dwarf Mass Table*.

Brown Dwarf Mass Table

Roll (3d)	Mass
8 or less	0.015
9-10	0.02
11-12	0.03
13-14	0.04
15	0.05
16	0.06
17 or more	0.07

Brown dwarf stars evolve very quickly for their first billion years or so of existence. After that, their further evolution follows a predictable pattern. Once the *age* of a brown dwarf is established (using the procedures in Step 17), the luminosity and diameter of the star can be determined. Refer to the *Brown Dwarf Evolution Table* (opposite); the luminosity and diameter given are those of a brown dwarf of the given mass at one billion years of age.

Now refer to the following table. Multiply the star's base luminosity by the Luminosity Multiplier for its age, and multiply the star's diameter by the Diameter Multiplier for its age. If the brown dwarf is less than one billion years old, treat it as if it were one billion years old. The results are the current luminosity and diameter of the brown dwarf.

Brown Dwarf Satellites

Treat the brown dwarf in all respects as another star in the star system. In Step 20, compute the inner limit and outer limit radii normally. When computing the snow line radius, use the star's *base* luminosity (that is, the luminosity it had at one billion years of age). In Step 21, apply a modifier of -4 to the roll on the *Gas Giant Arrangement Table* (p. 107).

From that point on, the normal sequence of steps can be applied. The Standard (Ammonia) and Large (Ammonia) world types may appear as brown dwarf satellites. The Standard (Garden) and Large (Garden) will *never* appear naturally, as a brown dwarf emits far too little visible light to support photosynthetic life.

Rogue Worlds

The world had condensed, sunless, from a minor knot in some primordial nebula. Dust, gravel, stones, meteoroids rained together during multiple megayears; and in the end, a solitary planet moved off among the stars. Infall had released energy; now radioactivity did, and the gravitational compression

Brown Dwarf Base Parameters Table

Mass	Luminosity	Diameter (Earth diameters)
0.015	0.00073	17.5
0.020	0.0016	16.8
0.030	0.0045	15.9
0.040	0.0097	15.3
0.050	0.017	14.8
0.060	0.028	14.5
0.070	0.042	14.2

of matter into denser allotropes. Earthquakes shook the newborn sphere; volcanoes spouted forth gas, water vapor, carbon dioxide, methane, ammonia, cyanide, hydrogen sulfide . . . the same which had finally evolved into Earth's air and oceans.

But here was no sun to warm, irradiate, start the chemical cookery that might at last yield life. Here were darkness and the deep, and a cold near absolute zero.

– Poul Anderson, ***Satan's World***

As a new star system is born, many objects of about Earth's mass or larger may form, only to be ejected from the system by a close encounter with one of the coalescing gas giant planets. These *rogue planets* are likely to wander through interstellar space forever, except in the unlikely event that they are captured by another star.

Rogue planets are dark, cold places. A sufficiently massive rogue will generate some heat in its core, due to radioactive decay and the release of gravitational potential energy. Some of this heat may be trapped for very long periods, melting ice under (or even on) the surface. It's not impossible for primitive life to appear on such interstellar wanderers.

Rogue planets would be very hard for any civilization to detect. They might provide valuable stepping-stones between stars, especially for a civilization that has no access to an FTL stardrive. Interstellar nomads might even *settle* a small rogue, mining it for useful minerals and volatiles.

Place rogue planets on the campaign map as needed. To generate their details, treat them as normal planets with a blackbody temperature of about 30 K. Rogue planets are unlikely to have satellites, and naturally they have no "day" or "year" based on their movement around a luminous star.

Terraformed Worlds

The world design sequence in this book generates worlds that are *naturally* stable over very long periods of time. Humans and aliens will find these worlds as they are – but sapient life tends to alter its environment to suit itself. Many worlds are suitable for *terraforming*, the process of engineering a planet to be more hospitable to settlement.

The GM may wish to assume that terraforming has been common in his universe. Perhaps most settled worlds have been "improved" in some manner to make them more hospitable. Or perhaps a previous civilization left behind terraformed worlds that are still habitable. In these cases, the most likely point to consider terraforming is after Step 32, when the world's physical parameters have been established but before settlement patterns are established.

Brown Dwarf Evolution Table

Age (billions of years)	Luminosity Multiplier	Diameter Multiplier
1	1.0	1.0
2	0.41	0.96
3	0.24	0.94
4	0.16	0.93
5	0.12	0.91
6	0.097	0.90
7	0.080	0.90
8	0.067	0.89
9	0.057	0.88
10	0.050	0.88
11	0.044	0.87
12	0.040	0.87
13	0.036	0.87
14	0.032	0.86

Atmosphere

If a world has a substantial atmosphere, but the atmosphere isn't breathable, then its composition can be changed. Most Marginal atmospheres can be made completely breathable by tampering with the local ecology, introducing large-scale chemical plants or engineered life forms that will change the composition of the atmosphere. A Standard (Ocean) or Large (Ocean) world can be changed to Garden type with the introduction of photosynthetic life. Other transformations are more of a challenge.

A world that has little or no atmosphere can be given one. If a world is icy, the "makings" of an atmosphere are already present on the ground and need only to be heated up. Otherwise, comets can be moved to impact on the world's surface, bringing needed volatiles. A Standard or Large world can retain a breathable atmosphere indefinitely, once it has one. Smaller worlds will lose a breathable atmosphere over time, but the process may take millions of years for a Small world, or thousands for a Tiny one – time enough for a civilization to take root.

A world that has *too much* atmosphere is a considerable terraforming challenge. Atmosphere can be stripped away by forcing planetoids to graze the world. A larger body can be forced into a collision, splashing large portions of the atmosphere away. Neither of these techniques is very useful if the terraformers want to leave the surface of the world more or less intact . . .

Hydrographics

A world that has no liquid-water oceans can be provided with them, or existing oceans can be expanded. Ice deposits can be melted with the application of heat. If ice is not available on the surface, cometary material can be introduced to provide it.

Reducing a world's hydrographics can be more difficult. If the world can be cooled, ice caps will grow and lock up some of the world's water. Removing water entirely presents many of the same problems as removing atmosphere.

Climate

A world's climate is among the easiest items to adjust. Terraformers have a number of options to heat or cool a world, and many of them can be implemented on a timescale of years rather than centuries.

A world that is too *cold* can be heated with stellar mirrors or lenses placed in orbit to focus more light on the surface. Small mirror or lens assemblies (called *solettas*) can heat regions to adjust local climate patterns. Large ones can be placed in a wider orbit to increase the total insolation of the world. Meanwhile, a world that is too *hot* can be cooled by placing a large shade in orbit between the world and the primary star. Stellar radiation can be cut down to any desired level if the shade is large and opaque enough.

If such brute-force methods don't appeal, a world's reflectivity and greenhouse effect can be adjusted slightly, changing average surface temperature by several degrees. Dust, pollen, or ice crystals can be seeded in clouds or on surface ice, to make them more or less reflective. The release of greenhouse gases can warm the world, while the ecological "take-up" of such gases can cool it.

To reflect these forms of terraforming, the GM can change the parameters that control average surface temperature. Subtle terraforming will adjust the absorption factor or greenhouse factor of a world. Brute-force terraforming with orbital mirrors or lenses actually adjusts the *blackbody temperature* of a world, and can even alter its effective world type. The blackbody temperature can be raised by up to 20% (measured in kelvins), or reduced by as much as 50%.

Other Objects

"Start with the cometary halo," Carlos told me. "It's very thin: about one comet per spherical volume of the Earth's orbit. Mass is denser going inward: a few planets, some inner comets, some chunks of ice and rock, all in skewed orbits and still spread pretty thin. Inside Neptune there are lots of planets and asteroids and more flattening of orbits to conform with Sol's rotation. Outside Neptune space is vast and empty. There ***could*** *be uncharted planets. Singularities to swallow ships."*

Ausfaller was indignant. "But for three to move into main trade lanes simultaneously?"

"It's not impossible, Sigmund."

"The probability – "

"Infinitesimal, right. Bey, it's . . . near impossible. Any sane man would assume pirates."

– Larry Niven,
"The Borderland of Sol"

Aside from stars and planets, star systems contain any number of other objects, many of which can be interesting elements in a campaign or plot.

Asteroids and Comets

Asteroids (also called *planetoids*) are small stony bodies, usually found in the inner regions of a star system. *Comets* and other icy objects are found in the outer star system. The world-building system doesn't design these objects in detail, but they can be assumed to exist in almost every star system.

Asteroid Belts

The world-building system sometimes places *asteroid belts* in specific orbits around a star.

Asteroid belts vary widely in content. In a typical belt, the largest asteroids will usually be about 300-600 miles in diameter. Perhaps a few hundred asteroids will be at least 30-60 miles in diameter, and there may be *millions* of asteroids at least a mile in diameter. Despite their sheer numbers, the asteroids in even a thick asteroid belt will not sum up to the mass of a small planet. They're useful primarily because all of that mass is immediately accessible, not tied up in a planet's core . . .

Asteroids are not all found at the same orbital radius. For example, the so-called Main Belt in our solar system has a mean orbital radius of 2.7 AU, but most of the asteroids have individual orbits with radii between about 2.1 and 3.3 AU. Asteroidal orbits are often mildly eccentric, or inclined to the ecliptic plane. All of this means that an asteroid belt will take up a *lot* of space. A large asteroid's nearest neighbors are usually millions of miles away, making collisions very rare. A spaceship's journey through a belt is likely to be quite safe, asteroid-dodging scenes in science-fiction movies to the contrary.

Asteroids are classified according to their composition.

C-type (*carbonaceous*) asteroids are very dark, and are composed of light compounds and minerals, including a significant amount of carbon and possibly some bound water. They also contain *chondrules*, small beads composed of iron, nickel, and other useful metals. C-type asteroids are very old objects, remnants of the formation era of a star system. They are quite common, representing about 75% of all asteroids.

S-type (*stony-iron*) asteroids are primarily composed of stony minerals, with a significant amount of metal also present. They make up 15-20% of all asteroids.

M-type (*metallic*) asteroids are almost entirely composed of nickel and iron. They make up 5-10% of all asteroids. Given their rarity and high metal content, they are popular among asteroid miners.

Almost any asteroid may contain water or other ices, although these are most common among C-type asteroids. In fact, these asteroids somewhat resemble comets, and some of them may *be* comets that have wandered into the inner star system . . .

Stray Asteroids

Asteroids can be found outside the main asteroid belts of a star system. In general, any gravitationally stable orbit or region of a star system is likely to contain asteroids or asteroidal debris.

One common place to find asteroids is near the Lagrange or "Trojan" points of a gas giant planet's orbit. These are points of gravitational equilibrium, always 60 degrees ahead and 60 degrees behind the planet's position on its orbit. An object in one of these points will tend to stay there, and an

object can take up an "orbit" that wanders around one of the points but never strays too far from it. A massive gas giant will tend to collect asteroids near its Trojan points. For example, several hundred are known to exist in Jupiter's Trojan points in our own solar system; there are likely to be thousands not yet known.

Other asteroids are "planet-crossers," objects whose orbits cross the orbit of one of a star's major planets. If the orbits cross too closely, the asteroid is likely to collide with the planet, or to be ejected into a different orbit after a close encounter. Any given planet in a star system is likely to have dozens of associated planet-crossing asteroids, all of them subject to orbital change over time.

Some planet-crossing asteroids are "quasi-satellites" of the major planets. A quasi-satellite is an object that orbits the planet's primary star, its orbital period equal to that of the planet, but with higher eccentricity. From the planet's viewpoint, the quasi-satellite appears to follow a loop around the planet, never approaching too close or wandering too far away. Quasi-satellite orbits are not very stable, and usually change over time until the quasi-satellite status is lost.

Planet-crossing asteroids are interesting because they are often easy to reach from the associated planet. An early spacefaring civilization may send expeditions to such asteroids during its first ventures in off-planet industrial development. A quasi-satellite may also be a convenient place to put an observation post watching the associated planet, especially if the planet has no true satellites or if a closer approach would be dangerous.

The Kuiper Belt

Comets and other icy bodies orbit in the cold outer reaches of a star system, most of them never approaching the habitable worlds of the inner system.

A comet is usually between one and 30 miles in diameter. Comets are often described as "dirty snowballs" – they are dominated by water and other ices, but they also contain grains of silicate dust, metals, and organic compounds. Any given star system may have *trillions* of comets wandering in its outer reaches, their total mass adding up to that of a small planet. Comets are remnants of the primordial star system, existing almost unchanged across billions of years, unless they happen to fall into the inner star system.

Many comets exist in a flattened disk called the *Kuiper Belt*. The inner edge of this belt is at about the same orbital radius as the most distant planets, but the belt normally extends outward for hundreds of AU. The comets and other objects of the Kuiper Belt are essentially "failed" protoplanets, objects that never coalesced to form another planet.

Comets are sometimes shunted into the inner star system, usually through gravitational interaction with some other object. When this happens, the comet takes up a more or less eccentric orbit, often approaching the primary star so closely that its icy materials boil off to form a long gaseous "tail." After a number of passes through the inner system, a comet can meet a number of fates. After losing too much of its icy body, it can fragment and add to the system's pool of asteroidal debris. A close encounter with a planet can change its orbit, causing it to take up an asteroid-like path that stays in the inner system. Or a comet can *collide* with a planet . . .

The Kuiper Belt also contains larger objects, with compositions similar to the comets but of size comparable to large asteroids. The largest of these objects will usually be 300-600 miles in diameter, and there are likely to be hundreds or thousands in the 30-60 mile range. In our own solar system, the most famous of these are the "planet" Pluto and its satellite Charon. Dozens more have been discovered, most notably the planetoid Sedna.

Comets and larger objects in the Kuiper Belt may be useful objects for space travelers. They are rich in ices, and can be used to supply water or other useful volatiles. They are dark and thinly scattered, and might provide good places for a hideout or a quiet rendezvous. They could even be *settled* by a sufficiently advanced civilization.

The Oort Cloud

On the very edge of a star system is the Oort cloud, a "reservoir" of comets stretching from about 1,000 AU out to a distance of one to two light-years. Unlike the Kuiper Belt, the Oort cloud forms an even sphere around the inner system, and its comets can approach the primary star from any direction. The Oort cloud likely contains large protoplanetary objects, just as the Kuiper Belt does, but so far none such have been detected.

Comets are often described as "dirty snowballs" – they are dominated by water and other ices, but they also contain grains of silicate dust, metals, and organic compounds. Any given star system may have trillions of comets wandering in its outer reaches, their total mass adding up to that of a small planet.

The Oort cloud provides some of the same plot hooks as the Kuiper Belt, although in this case the question of *finding* any Oort cloud object becomes very difficult. In the dark fringes of a star system, any object is hard to see by reflected light – and in the Oort cloud, comets are likely to spend most of their time billions of miles apart. There may be Pluto-sized objects in the Oort cloud as well; Earth-bound astronomers have found none in our own solar system, but this may only be because such objects are almost impossible to detect.

Artificial Structures

Any star system can contain *artificial* structures – objects that were built or placed in the system by sapient beings.

Asteroid Habitats

People living in deep space can build a home for themselves, turning an asteroid or comet into a habitat. Most of the techniques for building asteroid habitats appear at TL9, when extensive deep-space travel and industry are possible. There are several varieties of asteroid habitat.

Beehive habitats are three-dimensional mazes of tunnels and chambers, burrowed into the body of an asteroid or comet. Beehive habitats usually have some surface installations, such as landing pads, airlocks, vents, tool sheds, and antenna farms. They are almost indefinitely extensible, as the inhabitants continue to carve out new tunnels and chambers. Their major disadvantage is that they are hard to provide with gravity. Asteroids are rarely symmetrical, so tunnels are driven in any convenient direction and "spin gravity" will rarely be perpendicular to the floor. If superscience gravity generation is available, this may not be a problem. Of course, inhabitants that are genetically adapted to microgravity will be able to live comfortably.

Cole habitats are built out of metallic (M-type) asteroids, melted with stellar heat and reshaped to create a hollow metal-hulled shell. A Cole habitat is usually cylindrical, and is rotated on its long axis to provide spin gravity. Nuclear power or stellar mirrors can be used to light the interior. The interior surface can be terraformed with soil, water, and plants, permitting "natural" agriculture and a pleasant lifestyle.

Artificial Habitats

With or without a convenient asteroid to use for building material, artificial habitats can be built in space. Aluminum, steel, and titanium can be mined and launched into space with mass drivers. Power is provided by solar panels or nuclear plants, artificial gravity is provided by spin. A thick shell of slag, left over from the manufacturing process, provides radiation shielding.

O'Neill Cylinders: These are the largest and most expensive space habitats. A giant cylinder, as much as several miles in length and a mile or more in diameter, rotates on its axis to provide spin gravity. Inside is a complete terraformed environment, complete with park and urban zones. If more living space is desired, cylinders can be paired, rotating in opposite directions – this also makes docking easier. An O'Neill cylinder can house up to several million people.

Stanford Torus: Smaller than the O'Neill cylinder, the Stanford torus is shaped like a bicycle wheel, with spin gravity and landscaping on the outer rim. The spokes serve as elevators, leading to a microgravity environment at the hub where special manufacturing processes can be run. A Stanford torus can house about 50,000 people.

Bernal Sphere: A sphere, up to a mile in diameter, with several smaller cylinders attached. The sphere rotates, providing spin gravity in a strip around its equator, but the cylinders are left unrotating to house microgravity manufacturing. The sphere is easy to build, but the lack of spin gravity across most of its inner surface can be inconvenient. A Bernal sphere can house several thousand people.

Smaller Stations: These range from the classic wheel-shaped space station that spins for gravity and has plenty of radiation shielding, down to the much more basic "work shack" that lacks

Who Needs Planets, Anyway?

Human beings evolved on the surface of a planet, and are dependent on several aspects of the planetary environment for their survival. They need air to breathe, water to drink, and a pleasant temperature to live in. Even the planet's gravity is important.

Still, none of these requirements *have* to be met by living on the surface of a ball of rock and metal massing sextillions of tons. Living on a planet has its disadvantages – most of its mass is buried and inaccessible, and in the meantime it's very difficult and expensive to get off!

Many science fiction writers have speculated about civilizations that make almost no use of planets at all. Instead, they can use found materials – the results of asteroid or cometary mining – to build artificial habitats. They can even settle the asteroids and comets themselves, tunneling into the stone or ice and carving out habitable spaces.

Asteroids and comets can provide all of the raw materials for breathable air, drinkable water, and edible food. If there is no space for arable land, agriculture can use hydroponics or outright food synthesis instead. Fusion power can be fueled by hydrogen liberated from volatile ices. Metals can be used to drive industrial production, including the industries needed to build spaceships or more habitats.

The major difficulty with deep-space settlement is *gravity*, or rather the lack of it. Humans who live in microgravity for a long time suffer progressive loss of health. The immune system declines, muscles and bones atrophy, and the cardiovascular and renal systems suffer problems.

To overcome this obstacle, a habitat can be spun, providing an artificial substitute for gravity through centrifugal "force." Alternatively, it's possible for genetic engineering to produce a human body that doesn't suffer degradation in microgravity. Of course, superscience "artificial gravity" can provide a healthy environment for human life too. Any of these advances can give rise to a society that regards planets as *inconveniences* rather than homes.

much of either. Work shacks are usually cylinders or spheres, 30 to 300 feet in diameter and (if cylinders) up to five times as long. Some of these crude stations are made from old fuel tanks or cast-off cargo containers. The only radiation shielding may be a cramped "storm cellar" that the crew uses to ride out solar storms.

Megastructures

The light source was small and brilliant white, very like a view of Sol as seen from the general neighborhood of Jupiter. The ring was huge in diameter, wide enough to stretch half-across the darkened surface of the dome; but it was narrow, not much thicker than the light source at its axis. The near side was black and, where it cut across the light, sharp-edged. Its further side was a pale blue ribbon across space.

If Louis was growing used to miracles, he was not yet so blasé as to make idiotic-sounding guesses. Instead he said, "It looks like a star with a ring around it. What is it?"

Chiron's reply came as no surprise.

"It is a star with a ring around it," said the puppeteer. "A ring of solid matter. An artifact."

– Larry Niven, ***Ringworld***

A truly advanced civilization will be able to perform engineering on a grand scale, literally rebuilding star systems to suit their own purposes. Some of the possibilities are as follows.

Rosettes

Objects in space are never motionless, so a civilization that can move large masses around has the problem of making sure they stay where they're put. One solution is the *rosette*. A rosette is composed of equal masses (large habitats, asteroids, moons, planets) that are placed at the points of an equilateral figure and given equal velocities around the system's center of mass. The resulting system is dynamically stable. The components will continue to orbit their common center of mass, maintaining their separation as long as they're not disturbed by any outside gravitational influence.

A rosette is useful primarily as a convenience – the components are guaranteed to remain close to each other at a fixed distance. A civilization that builds many space habitats may use rosettes to keep them in order. A much more advanced society might place whole *planets* in a rosette configuration, possibly with a star at the center of mass.

Macropower Stations

Many objects in space can be tapped for power. Luminous stars, brown dwarfs, and even massive gas giants all have powerful magnetic fields, which can be used to generate electric power. Electrically conductive material is stretched through the magnetic field, carrying massive currents whenever the star or planet's field fluctuates.

Macropower stations can be used for a variety of purposes. Lasers can transmit power across great distances, powering ships or industrial installations. Particle accelerators can produce antimatter in bulk, to be used in power plants across a star system.

Ringworlds

A *ringworld* takes the notion of a "torus habitat" to the largest possible scale. A ringworld is a large, ribbon-shaped ring, the flat surface turned inward, rotated at high speed to provide spin gravity. The inside surface is sculptured and terraformed to provide an Earthlike environment. The edges of the inside surface have high rim walls, holding in the atmosphere. Light can be provided by a nuclear power plant at the axis of the ring, or by a nearby star. If the ring is *very* big, it can be placed *around* a star.

Ringworlds are mathematically simple, but actually *building* one safely can be a terrible challenge. A ringworld the size of Earth's orbit would need to rotate at hundreds of miles per second to provide Earthlike gravity; the ring's foundation structure would need to have more tensile strength than is theoretically possible for normal matter. Ringworlds are also vulnerable to meteor impacts. Any penetration of the ringworld floor will spill all the air into space unless the hole is patched quickly. Finally, a ringworld is dynamically unstable; if it has a star at its axis, there are no forces tending to keep the star centered, and eventually it may collide with the ringworld.

Even with these disadvantages, a ringworld may be one way for an advanced civilization to get *lots* of living room. If the engineering challenges of an Earth-orbit-sized ringworld can be met, it will provide *millions* of times as much habitable space as a typical Earthlike world. Even a much smaller ringworld can house billions of people without crowding, and can be designed to avoid some of the concept's drawbacks.

Ringworlds were invented by SF author Larry Niven, who used the concept in a series of novels attached to his "Known Space" universe. The author Iain Banks uses smaller ringworlds, called "Orbitals," in his "Culture" novels. The videogame ***Halo*** is also set on a small, ringworld-like structure.

Dyson Spheres

Solar power is abundant and effectively inexhaustible. Its main disadvantage is that only a miniscule amount of it is available on an Earthlike planet. If *all* of the energy output of a sunlike star could be intercepted and used, it would be enough to support a civilization millions of times as powerful as our own.

Of course, to intercept all of a star's output, a hollow shell has to be built around it. This can be done with millions of individual artificial habitats, orbiting the star in belts and shells of varying size, blanketing it in all directions. Alternatively, a solid sphere can be built at a fixed radius, with habitable surface on the inside. Either of these structures is called a *Dyson sphere*, after the astronomer who first proposed them.

Dyson spheres are among the most *detectable* megastructures. As one is built, it cuts off the visible light from a star, replacing it with the infrared radiation of the sphere's waste heat. A Dyson sphere could probably be detected by alert astronomers from many parsecs away.

Chapter Six

Alien Life and Alien Minds

I emptied the magazine of my gauss rifle into the charging myrmidon. Most of the shots glanced off its thick exoskeleton, but a few found vital spots between plates and it went down twitching. I reloaded, then scanned the area with my hand analyzer, checking for the unique electrical signature of the myrmidons' nervous system. Nothing.

Then I heard a noise from the edge of the jungle and swung my gun up. Had they somehow learned to mask themselves from detection? The myrmidons were incredibly adaptable, but how could they know what we were using to find them? My finger tensed on the trigger.

"Don't shoot! It's us!" I recognized Captain Panatic's voice. A moment later, he and Toshiro stepped into the cleared space around the perimeter fence, waving cheerfully. They had some ugly-looking cuts and one of Panatic's arms was in a crude sling, but they were both alive and in good spirits.

"You're alive! How? I saw those myrmidons drag the three of you into their tunnels."

"It's all right," said Captain Panatic. "Toshiro here shot the queen with a grenade launcher. Blew her all to bits. The hive's destroyed."

The feeling of relief at seeing them alive was cut by a cold pang of fear. "Captain, do you know what happens in a swarm-mink when the queen dies? It doesn't kill the hive – it just stops the pheromones she produces to keep the soldiers from being fertile. If these creatures work the same way, you've just replaced one queen with thousands!"

"Oh." He looked crestfallen. "I guess we'll have to evacuate the colonists and go nuclear."

"As I recommended from the start." Military men. They just don't understand that sometimes overkill is the efficient option.

Aliens in the Campaign

Alien life in a space campaign can fill a vast number of roles. The social and political categories for alien species noted in Chapter 1 are pretty much independent of biology – it doesn't usually matter if the dominant species are carbon-based or silicon-based, aquatic or aerial.

From a *dramatic* standpoint, however, alien beings can fit into four categories, and their biology and appearance do affect which one they belong to. In science-fiction stories and films, alien beings seem to naturally clump into types: people, beasts, things, and monsters.

People

Aliens as people are probably the most common in modern science fiction. They don't have to *look* like humans – Poul Anderson created many fascinating alien "people" with very unusual shapes – but a humanoid appearance does make it easier to view them as "folks like us." People-aliens have understandable motives and rational goals. If they are in conflict with humans, the fight is likely to be about something like resources or living space.

They don't have to act exactly like Earth humans, though. Often people-aliens have one or more human traits cranked up to an inhuman degree. Some of these caricature traits are so common in fiction as to be standard types: the warrior Race, the mystics, the ultra-rationalists. Their societies can also parody an aspect of modern human life.

Some readers have criticized people-aliens as being just "humans in funny suits" but others like the idea that a mind is a mind no matter what body it wears. The issue will no doubt remain in dispute until humans actually meet aliens and find out.

Beasts

Beast aliens make use of archetypes drawn from human perceptions of Earthly animals. They can fit many of the same roles as people-type aliens, but their behavior and culture reflect their animal models. If people aliens tap into ancient travelers' tales about exotic lands, beasts come from fairy tales and fables about talking animals. Larry Niven's Kzinti are beast aliens based on Terran cats. Genetically modified animals provide a rigorously "hard SF" way to use beast archetypes even in a game universe without any aliens at all.

Beasts are very effective because they come with a ready-made and fairly consistent set of assumptions. Eagles are fierce and solitary, so eagle-like aliens make good "proud warrior" cultures. Some of those assumptions about the relationship between ecological role and personality inform the alien-design rules in this chapter.

Game Masters can also make use of the mythical and legendary associations of Earth animals when creating beast aliens. Snakes aren't evil, but because they have long been used as icons of evil in many Terran mythologies, a civilization of serpent-men aliens make natural campaign villains. Lions aren't particularly noble, but their association with royalty make lion-aliens good candidates for honorable aristocrats.

Things

"Happy b-b-birthday, you thing from another world, you."

– Porky Pig, ***Duck Dodgers in the 24 1/2th Century***

The most alien aliens are perceived as "things" – icky and creepy, possibly not even really alive. They draw on our nearly reflexive reactions to things that sting and bite or spread decay. For a long time SF used alien things simply as monsters, as when H.G. Wells used octopuses as the model for his bloodsucking Martian invaders of Earth. But things don't have to be automatically hostile; they may simply be mysterious and incomprehensible to humans. Things are intrinsically *alien*. If humans ever learn how they think, things can turn into funny-looking people.

While things often use "creepy-crawly" animals like spiders and squids for a model, they can also take on attributes of inanimate or non-living things. Plasma-beings that look like living flames are things, as are cyborg races that have turned themselves into machines.

Monsters

Aliens as monsters are probably the oldest role of all – consider Grendel in *Beowulf* or the gorgons of Greek myth. They are menaces, pure and simple. Recent films like the *Aliens* series show the trope is alive and well.

Monsters may or may not be intelligent. If they are, their cleverness only adds to the threat they present. The whole point of a monster is that it's dangerous. If the monster can be negotiated with or placated, it ceases to be a monster and turns into some other kind of alien. The process of "reclassifying" monsters is an old and highly useful science-fiction plot.

Purely animal monsters may be "only" dangerous predators, or may have some other reason for hunting or attacking the heroes. Again, discovering the reason behind an animal monster makes a good adventure. Sometimes, though, a monster is just a monster.

In appearance monsters may be terrifying "things," or beasts drawing on monstrous archetypes like Terran wolves, or deceptively human-seeming "people" with a deadly secret nature. In cinematic settings, monsters may even look like demons or undead.

Working Backward

The bulk of this chapter is concerned with how to create realistic alien species from scratch. There are even tables for randomly generating things like ecological niches and mating styles. Given that humans won't be able to choose or predict what kind of creatures we meet out there, random creation or just doing what sounds cool is a reasonable and even realistic way to create aliens.

But GMs may have a particular role in mind when creating an alien species, and sometimes the random results won't match. It's a pain when the planned "aggressive conquering menace" turns out to be a species of peaceful, sessile filter-feeders.

When you know what kind of alien you want, the solution is to work backward. Consult the alien personality trait tables (see the box *Alien Creation X*) to select a proper mindset. Consult the modifiers for those tables and assign ecological niches, mating habits, and other details that encourage those mental traits. From there, go through the process and either select or randomly generate other features of the species.

Example: Sean wants his alien Andromedans to be a civilization of "evil masterminds" for his campaign. He consults *Alien Creation X* and decides he wants them to be Chauvinistic, Single-Minded (to let them devise grandiose master plans), Curious (to encourage ethically-challenged weird science research), Selfish, Callous, Imaginative, and Paranoid. Consulting the modifiers, he sees that they should have a small-group social structure in which males keep harems, be pouncing carnivores, have strong K-strategy, and be fairly small in size. At this point, Sean could choose to make them beast-aliens modeled on Terran cats, but he wants something more exotic and distinctive. He decides to give them lots of body segments and an exoskeleton like Terran insects, with long legs for fast sprinting and a poison-tipped tail. Since they're K-strategists, he chooses live birth over egg-laying. To make them more formidable he assigns them superior senses, including Night Vision and Acute Taste/Smell. There are still some details to be filled out, but the Andromedans are definitely taking shape.

Some Common Aliens

Aliens in SF often fit into a standard type, and when used wisely those types can add a lot of resonance to a space campaign. Some common alien stereotypes include:

Comic Aliens

Foreigners are funny. *Alien* foreigners must therefore be even more funny. Certainly SF writers have gotten a lot of comic mileage out of aliens with bizarre and silly customs or their laughable incomprehension of our *entirely normal* and *reasonable* habits. Often comic aliens are physically cute or funny-looking, typically unthreatening beast archetypes like teddy bears, ducks, penguins, or otters. Comic Things are also common.

Primitives

Aliens that are much less technologically advanced than humans (at least at the time of contact) are often "noble savages," living lives untainted by the corruptions of civilization. Or they can be just plain savages who want to eat visiting space travelers. Either way they fit into many of our stereotypes about "primitive" humans. They are often people-aliens or beast-aliens. In appearance they tend to either fragile beauty or menacing ugliness.

Superminds

Superhuman intellects can be mystical philosophers or ultra-advanced technologists, and sometimes are both. They are usually benevolent (if a bit patronizing), but may be dangerous opponents if they think they're being threatened. In appearance superminds are often physically frail with huge brains; disembodied brains supported by machinery may be things. Superminds may also be completely immaterial beings of "pure thought."

Warriors

Warrior aliens are very aggressive, either from natural combativeness or a militarized society. Sympathetic warriors may be bound by honor and duty, while enemy warriors are often faceless hordes to be mowed down. Beast-aliens based on carnivores are often warrior races.

Life

Life as We Know It

Being living things, we naturally think we know what life is. We're alive, rocks aren't. But what about alien life? How will astronauts landing on another world be able to tell what's alive and what isn't?

The simplest way to define life is to say that it's "like life on Earth." This has been the operating theory behind most real-world searches for life on other planets. If it's made of the same chemicals as Terrestrial life and does the same things, it's alive.

Life on Earth is based on nucleic acids – enormously long molecules like RNA and DNA. They in turn are

Clashing Definitions

Defining life has been a troublesome part of the search for living things beyond Earth. Some scientists take a narrow definition: life must be based on DNA in a water matrix, using proteins and getting energy from photosynthesis or the breakdown of organic molecules. Earth life, in other words. This may sound restrictive, but it has its advantages. We know a lot about Earth life, and we can design experiments to detect it, even across interstellar distances. When you're building a multi-billion-dollar space probe, that's an important consideration.

Other scientists, especially those who have studied "extremophile" organisms on Earth, are willing to allow for some weirdness in alien life. They postulate life that gets its energy from sulfur or iron compounds, like some bacteria found in ocean volcanic vents. But they still assume those organisms will be based on DNA and liquid water.

Researchers fond of wild speculation have adopted much looser standards. They postulate that life is any system that can locally increase the level of organization, or that life is any system capable of undergoing evolution. These definitions allow for just about any kind of life – including plenty of types nobody has imagined yet.

For the purposes of this book, we're going to split the difference. We're defining life broadly, including everything from energy-based organisms living in interstellar nebulae to nearly human creatures on nearly Earthlike planets. But we're also assuming that Earthlike life is the most common form, or at least the type most characters are going to spend their time interacting with.

made up of smaller units called nucleotides. Three interesting features make nucleic acids the fundamental molecules of life. The first is that they can replicate themselves. A DNA helix can pull apart into two strands, which can then each assemble new matching strands out of free-floating nucleotide molecules. When the first nucleic acids started doing that in the primordial seas of Earth, one can say that life began. In a very real sense, everything done by living things on Earth since then simply reflects more and more complex and sophisticated ways for nucleic acids to replicate themselves.

The second useful ability of nucleic acids is their ability to encode information, in the form of nucleotide chains. This is important because different chains of nucleotides can encode the formulas (known in the trade as "sequences") for building protein molecules. That ability to "remember" information and build "tools" let the nucleic acids alter their environment – membranes to surround themselves for protection, organelles to process organic molecules for energy, and so on.

Which brings up the third useful ability of nucleic acids. Because DNA is a long chain of units, parts of the strand can change without destroying the rest of the molecule. So DNA can *mutate*. Environmental factors and replication errors can create different daughter chains, which encode different proteins. This lets DNA molecules evolve. Ultimately the nucleic acids evolved to the point where they encased themselves inside billions of cells organized into huge mobile complexes controlled by powerful brains capable of writing and playing RPGs.

Carbon and Water

Earth life is based on complex carbon compounds for several reasons, and those reasons make it likely that living things elsewhere in the universe may do the same. First, carbon is one of the four most common elements in the universe, so just about any world is likely to have a substantial supply. Second, the electron structure of the carbon atom makes it capable of forming large and complex molecules. No other element known can do that as well as carbon.

Liquid water is also considered crucial for life. On Earth, life formed in water, and just about all Earth life uses water as a solvent and circulatory fluid. Water has some properties that make it especially suited for use by living things. It is liquid over a fairly broad temperature range (180 degrees Fahrenheit), so a planet can have large amounts of liquid water without an unreasonably uniform climate. Second, water has a large heat capacity. This is important on several levels. It means a planet with large water oceans will have a fairly stable climate, and it means that active organisms won't easily boil themselves with metabolic heat.

Alternate DNA

The DNA and RNA molecules used by Earth life aren't the only ones possible. Scientists have discovered several nucleotide molecules (the building-blocks of a DNA helix) that don't occur normally, but which can plug right into DNA and function just fine. So even life very similar to Earth life, based on DNA, might use a different "alphabet" at the molecular level. Extending that metaphor, it's also possible to use the same nucleotides but encode proteins using entirely different sequences – the same "letters" but a different "language."

The double-helix form is also not the only way to organize a DNA molecule. Scientists have created complicated branching nucleotide chain structures, and alien life might use something like that instead.

Proteins are extremely complex and versatile molecules themselves. It's entirely possible that some type of carbon-based life uses giant self-replicating protein molecules instead of nucleic acids as the carrier of genetic information.

Finally, water has an unusual property: when it freezes it expands, so ice floats. Most liquids get denser when they freeze. This means a water ocean develops an insulating cover of ice when it gets cold, whereas a freezing sea of ammonia would chill from the bottom up. Living things can survive in a water ocean even when the air temperature is below freezing. This advantage of water also has its drawbacks – when an Earth organism freezes, the expanding water crystals rupture its cells, killing it. (Some fish and frogs have evolved natural "antifreeze" chemicals to avoid this.) Organisms using a different solvent might survive freezing with no ill effects.

Metabolism

Originally, Earth life did not breathe oxygen, because billions of years ago there was no oxygen to breathe. Early life on Earth was anaerobic, getting energy by fermentation and related processes. Even today there are whole kingdoms of anaerobic bacteria to which free oxygen is pure poison.

Humans breathe oxygen because plants and cyanobacteria produce it as a waste product of photosynthesis. In effect, we're breathing pollution. If green plants and algae did not constantly renew the supply, Earth's atmosphere would lose its oxygen, becoming a mix of nitrogen and carbon dioxide. (Any other world that has highly reactive atmospheric gases is a good candidate for life, since something has to be making them.) Oxygen is very reactive, and oxygen-breathers can support a very active lifestyle. Aliens from a world with a different atmosphere might not be able to sustain the level of activity found on Earth.

Chlorine is quite reactive, and would serve as a good oxygen replacement, on a world where the local plants use photosynthesis to break up salts and store energy in sodium compounds. The result would be a chlorine-laced atmosphere and oceans of bleach. Because chlorine is a much less abundant chemical than oxygen, such worlds are probably vanishingly rare, but chlorine-breathers have a long history in science fiction.

Organisms that breathe a gas other than oxygen use the same rule as water-breathers as described under Gills (p. B49): it's a 0-point feature that balances their need for life support with the ability to breathe something toxic to humans. If humans normally *can* breathe the organism's native atmosphere but it contains some trace element missing from Earth-standard air, that would qualify as a Dependency, typically at the -25 or -50 point level.

Other Chemistries

While carbon molecules in water are the most plausible basis for life, they are by no means the only possibility. And in a sufficiently big universe, even unlikely forms of life may find congenial conditions. Just about all aliens with variant chemistries should take the Unusual Biochemistry disadvantage in human-centered campaigns.

There are several ways in which life could have a different chemical basis from Earth life. It could use different solvents, like ammonia or hydrocarbons in place of water. It could use different molecules to store genetic information, like silicate chains or complex nitrogen compounds. It could use an entirely different family of compounds for metabolism, genetics, and tissues.

Hydrogen Chemistry

Hydrogen is the most abundant element, and giant planets like Jupiter are essentially big balls of hydrogen. If hydrogen-based life is possible, the Universe holds a *lot* of potential places for it to arise. In extremely dense hydrogen (near the core of a gas giant, for instance) crystals of solid hydrogen could store "genetic" information in a lattice structure.

At more normal pressures and very low temperatures (-250° F or below) lipid molecules (akin to fats found in Terran life) could be the basis of life in a medium of liquid hydrogen. Hydrogen-chemistry organisms would use "reduction" reactions to release energy by combining organic molecules with hydrogen. (The organics would have to be manufactured by photosynthesis.)

Hydrogen life from a low-energy environment (like a supercold Pluto-type world) would probably be sluggish compared to humans, with Decreased Time Rate and a reduced Basic Speed. However, astronomers have identified gas giants orbiting quite close to some stars where energy is plentiful, so the possibility of very active hydrogen-based organisms from a high-pressure environment exists.

Ammonia Chemistry

Ammonia could replace water as a medium for life. Ammonia has a narrower liquid temperature range than water, so it would require a planet with a very stable climate between -108° Fahrenheit (-78° C) and -27° F (-33° C). In that cold environment, it's possible for something like Terrestrial nucleic-acid chains to function, or for complex chains of nitrogen or carbon and nitrogen to serve the same purpose. Since complex nitrogen molecules become highly unstable at liquid-water temperatures, ammonia-based organisms could be made of living high explosive! (This does not require the Explosive disadvantage, however, because the temperatures involved would kill the being long before its molecules became unstable.)

Ammonia-based life could conduct photosynthesis if it evolved on a cold Earth-type planet, or might tap the heat differential between layers of a gas giant world's atmosphere. Such creatures probably would not be oxygen-breathers, since the chief source of oxygen molecules for Earth-type life (carbon dioxide) is a solid at ammonia-life temperatures. Instead, ammonia-based organisms might breathe free hydrogen, either in a gas giant atmosphere or liberated from methane molecules on a cold Terrestrial world.

Living creatures based on ammonia should define their Temperature Tolerance range as centered somewhere between -100° F and -25° F; they are *not* automatically Cold-Blooded in the sense defined by the disadvantage of that name, however. Hydrogen-breathers may take the

disadvantage Fragile (Combustible) if they spend lots of time in oxygen environments, as their "air" can catch fire. Since chemical reactions are slower at ammonia temperatures, either a low Basic Speed or Decreased Time Rate might be appropriate.

Hydrocarbon Life

The Huygens probe found signs of ancient methane lakes on Titan, and one might imagine larger worlds with seas of heavier molecules like octane – gasoline oceans, in other words. Life on a "petrochemical planet" could make use of the fantastic versatility of carbon in ways Terran life has only begun to explore. Organisms made of complex polymers ("plastic") or lipids ("fats") could swim in those oily seas. Instead of oxygen respiration, organisms on a hydrocarbon world would probably make use of the "reduction" reaction, breathing hydrogen.

Hydrocarbon-based organisms are likely to be Fragile (Combustible), if not Fragile (Flammable) or even Fragile (Explosive), but only when adventuring off-planet in oxygen environments. As with ammonia-based life, hydrocarbon organisms from a cold environment might have low Basic Speed or Decreased Time Rate.

Silicon and Silicones

On hot planets, silicon-based life becomes a possibility. Silicon is chemically similar to carbon, though it has no gaseous forms. Large silicon objects on Earth are known as rocks, but interesting chemistries become possible when the silicon atoms alternate with oxygen to form silicate chains, or combine with carbon to make the class of molecules known as silicones.

Oxygen respiration is barely possible for silicate or silicone life, but in the hot environment of a world like Venus or Mercury, silicon-based organisms could also get energy from sulfur metabolism or reactions involving fluorine. Silicon life using iron chemistry for metabolism and liquid rock as a solvent might thrive in places like the Earth's mantle, hundreds of miles below the crust. (For all we know the Earth's mantle is home to a busy ecosystem that is equally ignorant of the flimsy water-based life hugging the cold outer surface of the planet.)

Silicon-based life would naturally set its comfortable temperature much higher than humans: somewhere around 300° F for sulfuric acid/silicon creatures, 500° F for silicon/liquid sulfur organisms, and 2500° F or higher for silicon/liquid rock beings. Silicon-based fluorine-breathers adventuring in an oxygen environment should take the Combustible disadvantage, and possibly Increased Life Support to reflect the extraordinary difficulty of handling fluorine gas.

Since high temperatures speed up chemical reactions, silicon beings might live faster than us cold and sluggish humans. This can mean either an increased Basic Speed, or the advantages Altered Time Rate or Enhanced Time Sense.

Sulfur-Based Life

Sulfur-based life could use liquid sulfur as a solvent much as we use water. On Jupiter's moon Io, volcanos pour out large amounts of sulfur, indicating the possibility of an underground "ocean" of liquid sulfur. In the absence of free oxygen, sulfur-based life could use carbon-sulfur compounds, fluorocarbons, or silicates as the basis of life. They could breathe hydrogen sulfide (the gas that makes the "rotten egg" smell) or free hydrogen.

Another possible solvent for sulfur-based life is sulfuric acid. On Venus, the clouds contain fairly large amounts of sulfuric acid, and it's not impossible to imagine a slightly cooler Venusian world with lakes or small seas of acid on the surface. Since a strong acid like sulfuric acid can dissolve rocks, sulfuric acid would also be a good medium for silicon-based life using sulfur chemistry for metabolism. Civilization on such a world might never develop metal-based technology, as only "noble metals" like gold would be able to resist the fantastic corrosion of an acid-laced atmosphere for very long. Instead one can imagine silicon-based organisms developing a combination of "biological" ceramics and silicones as their primary materials for tools and machinery.

Sulfur-based life probably should take the Increased Life Support disadvantage among oxygen-breathers, to reflect the difficulty of handling large amounts of sulfuric acid or molten sulfur. It's possible that a sulfurous organism would have a Bad Smell among oxygen-breathers, since protective suits might not be able to eliminate the rotten-egg odor. Sulfur-based life from a high-temperature environment might have Altered Time Rate.

"I haven't seen anything like that except, uh, molecular acid."

"It must be using it for blood."

– Dallas and Brett, ***Alien***

Non-Chemical Life

All of the "weird life" we've discussed involves various chemicals used to store energy and information. But there are other ways to do those things.

Plasma Life

Organisms made of hot ionized plasma (within the photosphere of a star, or in a dense and highly energetic nebula) can store energy and information in the form of electric charges and magnetic fields. A self-replicating pattern of electromagnetism could function as the "DNA" for plasma-based life. The plasma organisms could get energy by tapping the hotter layers lower down in the star's interior.

A "cell" of plasma-based life would be larger than its chemical analogue, because all the processes of life would be happening at nearly the speed of light. The fundamental units of plasma-based life would probably be on the order of a centimeter in size, which means that highly complex organisms big enough for intelligence would be tens of kilometers long. Of course, living on a star would certainly provide enough room.

Plasma life would be "immaterial" compared to solid creatures like humans. This would best be modeled by the Body of Fire meta-trait. It would require Increased Life Support outside its native environment (as it would need something like a fusion reactor containment torus to live in comfortably).

Magnetic Life

On a neutron star, matter is incredibly compressed by the gravity and the intense magnetic fields. Atoms take on new shapes, their electron orbitals squeezed into rod shapes by magnetic field lines. In those conditions, normal chemical laws break down, and it becomes possible for chains of single atoms to behave like DNA. The intense magnetic fields also provide an energy source, leading to the possibility of an entire ecosystem.

Life made of "degenerate matter" like this would be extremely different from Earth life. It would be much smaller – a creature containing as many atoms as a human would be compressed down to microscopic size. The smaller size and tremendous supply of energy allows a much faster pace. The physicist Robert Forward wrote a fascinating novel, *Dragon's Egg*, about life on a neutron star; in the course of the story a civilization arises on the star, develops science and technology, and finally goes exploring the stars, all during the course of a few days while bemused human scientists look on!

Magnetic-based life on a neutron star would be certain to have Enhanced Time Sense and several levels of Altered Time Rate; they would also require four levels of Increased Life Support to duplicate neutron-star conditions.

Alien Creation I

Throughout this chapter there are boxes detailing how to create alien life in ***GURPS*** terms. They are set up so the user can either make decisions based on the game setting and the needs of the campaign, or roll randomly. This system can also be used to create non-sentient creatures.

Chemical Basis

Select the alien's biochemistry based on the climate of its homeworld, or roll randomly on 3d. GMs should feel free to disallow certain types of life or adjust the probabilities to suit a given game universe.

Roll (3d)	***Type of Life***
3-5:	Hydrogen-Based Life (Frozen worlds below -250° F or Gas Giants)
6-7:	Ammonia-Based Life (Frozen worlds between -100° F and -30° F)
8:	Hydrocarbon-Based Life (Cold to Cool worlds)
9-11:	Water-Based Life (Cold to Hot worlds)
12:	Chlorine-Based Life (Cold to Tropical worlds)
13:	Silicon/Sulfuric Acid Life (Warm to Infernal worlds between 50° F and 600° F)
14:	Silicon/Liquid Sulfur Life (Infernal worlds between 250° F and 750° F)
15:	Silicon/Liquid Rock Life (Infernal worlds above 2500° F, or mantle)
16:	Plasma Life (Infernal worlds or stars above 4000° F)
17-18:	Exotica (Nebula-dwelling life, Machine life, Magnetic life)

Artificial Life

An extremely plausible kind of non-biological life is machine life. Humans are close to being able to build machines capable of creating copies of themselves, and some scientists have proposed launching self-replicating space probes toward other stars. Each probe would create copies of itself and send them further off into space. In time the whole galaxy would be infested with probes, all for the cost of a single launch. Others have proposed similar techniques to create asteroid mining robots or terraform other planets. Author Fred Saberhagen imagined "Berserkers" – self-replicating robot spaceships dedicated to annihilating all life they encounter.

Machine life need not have any physical existence at all: there could be entire civilizations of artificial-intelligence organisms living entirely within the memory of complex datanets. Such "virtual life" could be descended from organic life if it becomes possible to "upload" an organic intelligence into data form.

Mechanical intelligence could develop from sub-intelligent machinery. One can easily imagine cosmic rays inducing "mutations" in the programming of a self-replicating machine, erasing its original purpose and leaving it no goal other than that of creating as many offspring as possible. Mutations (or conscious design changes) in the offspring machines could eventually create an entire mechanical "ecosystem" of predators, parasites, and prey. If the machines aren't intelligent to begin with, evolution might eventually produce sentience.

Alternately, artificial intelligence machines might deliberately set out to create their own civilization apart from organic life. In an advanced civilization with "uploading" technology (like that presented in ***Transhuman Space***), the distinction between bio-life and machine life might seem as unimportant as the difference between acoustic and electric guitar music.

Whatever its origin, machine life can thrive in a much broader range of environments than biological life. Machine life may or may not have the Machine meta-trait, as highly evolved machines based on nanotechnology could appear to be living things even at the microscopic level.

Ecologies and Niches

An ecology is the sum of all living things in a given area. By definition, all living things are part of an ecology. A creature's place in its native ecology determines a great deal about it.

Energy Flow

Life can't exist without energy. Every ecosystem is based on a flow of energy from some non-living source. Certain organisms (called autotrophs or primary producers) tap that energy and change it into forms that life can use.

Energy Sources

On Earth, the chief source of energy is sunlight, and plants are the primary producers. On other worlds there might be different energy sources.

Chemosynthesis is the process of extracting energy from available non-living chemicals. On Earth chemosynthetic organisms are mostly found near active volcanic sources, as those provide a steady flow of energetic chemicals. Iron and sulfur are the most common bases for chemosynthesis on Earth.

In environments with a strong heat gradient, organisms might live by thermal energy. Humans are very familiar with this; it is the basis of just about all our technology. Living things might tap heat differential in a kind of "engine" like a boiler, or could use the electric current flow in heated metal dipoles. Whatever the method, heat-based life must have one end in the heat source and one end at a heat sink – there must be a flow to make things work properly. Plasma-based beings living on the surface of a star could do the same.

Radioactive minerals give off energy. To most Earth life radiation is hazardous, but some organisms might evolve to make use of low-level radiation. Gamma rays may be too energetic, but beta particles could be a useful source of energy. The trick would be finding enough radioactive material to keep alive. On Earth it is thought that a combination of volcanic activity and water-concentrated radioactive minerals at sites in Africa, creating natural nuclear reactors that endured for centuries. On an alien world this might be more common, especially with radiation-eating organisms helping the process along.

In a science-fiction setting with superscience power sources like "cold fusion" or "zero point energy," some organisms may have evolved to make use of them. This could allow for creatures that can make use of incredible amounts of energy, without needing to eat anything at all.

Nutrient Sources

In addition to energy, living things need a reliable supply of chemical building blocks. For plants and other autotrophs, the important nutrients are the basic chemical elements in forms they can use. Plants on Earth, for instance, use nitrogen but they don't get it from the air; they require nitrogen compounds in the soil or dissolved in groundwater, and those compounds have to be produced by bacteria. Less abundant elements like phosphorus, potassium, and others can limit biological activity even when energy is abundant. In the oceans, the water at great depth is often nutrient-rich, but the environment is low in energy, while surface water is nutrient-poor. Upwellings where currents bring up nutrients are apt to be places of spectacular abundance.

Consumers

One good way to get energy is to steal it. As soon as a population of organisms exists that extract energy from the environment, other organisms are going to start extracting energy from them. And then in turn other creatures will start to eat the eaters, and so on. Eating other living things has the advantage that the food is very concentrated, so consumers – carnivores and herbivores – can be large and active.

Environment Types

The ***GURPS*** rules distinguish among 16 different types of environments: eight each for land and sea (p. B224). These environments are obviously based on an Earthlike setting, but they have analogies on every kind of world.

Arctic environments are any place where the temperature hovers around the low end possible for that type of life. For Earth life, it's places where it's often below freezing. For silicon-based life it's a chilly 200° F!

Desert environments are any place where the necessary solvents or nutrients for life are scarce. There's often plenty of energy, just no stuff to use. Deserts also tend to extremes of temperature. Life tends to be scarce, clustered around oases.

Island/Beach environments are an interface between land and sea, and as such are especially suited for amphibious beings. The "sea" can be any kind of fluid, obviously. Islands in particular can support isolated micro-ecologies where species evolve in unusual ways.

Jungle settings are lush, dominated by huge autotrophs (trees, on Earth). They support lots of life, but often that life has evolved an array of defenses. Jungles offer many specialized niches for life to exploit.

Mountain environments are often poor in resources for life, simply because fluids drain away downhill and erosion scours away the soil. At very high altitudes, even *air* is scarce! Mountains often support lots of "micro-ecologies" specialized for a particular altitude.

Plains are wide-open regions with fairly abundant life, dominated by small area producers (grass, on Earth) and the grazers that feed on them. Because plains are so open, the things that live there are often highly mobile.

Swampland environments are another interface, where land and water (or whatever the local fluid is) meet, but there is protection from the mechanical force of waves on the shore. They support abundant life, especially amphibious life.

Woodlands, like jungles, are mature "climax" environments of large, slow-growing primary producers. Unlike jungles, woodlands are subject to greater climate variation, usually tied to the seasons. Food is abundant at certain times of the year, but scarce at other times, and everything in the environment must be able to cope with the cycle. On planets with extreme climate variation, there may be no jungles, only woodlands. By contrast, on a planet with little climate change, woodlands would be rare (replaced by something akin to a temperate or cool jungle-like, high-altitude tropical forests).

In the ocean, *Banks* are coastal waters where nutrients are abundant. They can support a great deal of life; on Earth they are the great fisheries. One can call banks the marine equivalent of plains, since they have lots of food but most of the animal life is quite mobile.

Deep Ocean Vents are isolated places where nutrients and chemical energy are abundant, but the organisms that live there must be highly specialized. Because they are isolated, each vent site is an entirely separate ecosystem with unique species. On ice-covered worlds like Europa, vents may be the most thriving ecosystems.

Fresh-Water Lakes are full of energy and nutrients, but they are isolated from each other and from the ocean. They are also short-lived, geologically speaking, which means life doesn't have a whole lot of time to evolve to exploit a particular lake. Instead, most lake organisms enter via rivers and adapt to local conditions. On alien worlds, lakes are any isolated but thriving aquatic environment that exists for only a few thousand years. There are some similarities between island environments and lakes, as both are typically colonized by life from other regions.

Open Ocean is kind of like a desert full of water: there's plenty of energy but no nutrients, so life is sparse. Isolated reefs serve as "oases" where living things cluster.

Reefs are similar to jungles in the ocean. They are places of abundant life, often dominated by large plants or colony creatures (coral). Living things are abundant and the local food web is complex.

River/Stream environments are another interface, like beach or swamp, but have some unique features of their own. A river flows through different environments, creating lots of micro-ecologies along its course. The water level in a river depends on rainfall, so it usually goes through an annual cycle of high water and drought. The creatures that live in a river environment must be able to cope.

Salt-Water Seas are isolated bodies of water where the salt level is concentrated by evaporation. Ordinary aquatic life has trouble handling the high-salt conditions, so they are the aquatic equivalent of desert regions.

Tropical Lagoon environments are the counterpart of beach or swampland: a coastal zone *under* the water. Lagoons in particular are sheltered and shallow, and can host a great variety of organisms. As in the other coastal zones, many lagoon species are amphibious.

Alien Environments

Many possible alien environments are not found on Earth. Most of them can be modeled by analogy with one of the types described above. In a gas giant's atmosphere, upwellings of material from deep layers might correspond to reefs or banks in an ocean. A seafloor away from vents or reefs would be like open ocean. Subterranean environments might map well to oceans, with banks or lagoons where magma currents provide lots of nutrients. A system of caves with native life would resemble freshwater lakes or deep ocean vents in terms of ecology.

More exotic settings can work by analogy, based on how abundant energy and nutrients are, and how easy the environment is to move around in. Plasma-beings on the

Alien Creation II

Habitat

First decide where in space the organism lives. Space-dwelling life requires no planet. Planet-bound life comes in two types: those native to gas giant atmospheres, and those living on more or less terrestrial planets. Since we're assuming the GM has already created the home planet of the aliens, those details should be obvious.

For terrestrial planet life, determine if it lives primarily on land or in water. Decide, or roll 1d: on a 1-3 it is land-dwelling, 4-6 it is water-dwelling.

Modifiers: -1 if the planet's surface is 50% ocean or less; -2 if it is 10% or less; +1 if it is 80% ocean or more; +2 if it is 90% ocean or more. On planets that are entirely water, the only land environment available is Island/Beach. Worlds with 0% ocean coverage can only have Salt-Water Sea, Fresh-Water Lake, or River-Stream aquatic environments. Gas giant life uses the water table.

Then determine the specific habitat type. Roll 3d:

Roll (3d)	Land Habitat	Water Habitat
3-7	Plains	Banks
8	Desert	Open Ocean
9	Island/Beach	Fresh-Water Lakes
10	Woodlands	River/Stream
11	Swampland	Tropical Lagoon
12	Mountain	Deep-Ocean Vents
13	Arctic	Salt-Water Sea
14-18	Jungle	Reef

Trophic Level and Strategy

Now determine or decide how the organism gets its energy. There are two tables, one for a random animal in the environment, the other for potentially intelligent life. Note that Deep-Ocean Vent autotrophs cannot be photosynthetic. Some beings may use two methods.

Ordinary Animals: Roll 3d.

Roll (3d)	Trophic Level
3	Combined Method: roll twice.
4	Autotroph (1-3: Photosynthetic, 4-5: Chemosynthetic, 6: Other)
5	Decomposer
6	Scavenger
7	Omnivore
8-9	Gathering Herbivore
10-11	Grazing/Browsing Herbivore
12	Pouncing Carnivore
13	Chasing Carnivore
14	Trapping Carnivore
15	Hijacking Carnivore
16	Filter-Feeder (becomes Trapping Carnivore in Arctic or Desert)
17-18	Parasite/Symbiont

Sapient Organisms: Roll 3d, no modifiers.

Roll (3d)	Trophic Level
3	Combined Methods (roll twice)
4	Parasite/Symbiont
5	Filter-Feeder (becomes Trapping Carnivore in Arctic or Desert)
6	Pouncing Carnivore
7	Scavenger
8-9	Gathering Herbivore
10	Omnivore
11-12	Chasing Carnivore
13	Grazing Herbivore
14	Hijacking Carnivore
15-16	Trapping Carnivore
17	Decomposer
18	Autotroph (1-3: Photosynthesis, 4-5: Chemosynthesis, 6: Other)

surface of a star might be like sea creatures, with "banks" in nutrient-rich regions. The fact that the nutrients are upwellings of helium from the stellar interior or concentrated magnetic field loops doesn't change the logic of the ecosystem.

Autotrophs and Decomposers

Autotrophs are organisms that tap directly into primary energy sources like sunlight or reactive chemicals. By far the most common autotrophs on Earth are plants, which use sunlight to conduct photosynthesis. One can imagine other autotrophs that use solar power via the photoelectric effect, or which heat up a kind of "solar boiler" for power.

Photosynthesis has an efficiency of roughly 1%, so on Earth could produce about one calorie per hour per square foot of collecting area. Since humans need some 2,000 calories per day, a plant-person would need to have huge "solar panels" with an area of at least 200 square feet. On a planet with more intense sunlight, the required area naturally goes down, so mobile autotrophs get more likely. A more efficient form of photosynthesis would also help, allowing either less collecting time or smaller collecting area, although a practical maximum would be around 50%. Photosynthesizers might have to remain nearly immobile during the day, giving them the Nocturnal disadvantage.

Some microorganisms live by chemosynthesis, and if suitable sources of energetic chemicals were available they might evolve into larger multicellular forms. The *source* of those energetic chemicals would be hard to explain, however. Volcanic vents are one good possibility.

Decomposers

Decomposers get their energy from breaking down organic materials. On Earth, fungi and many microorganisms are decomposers. They aren't primary producers like autotrophs – they don't bring energy into the system – but they do tend to resemble them in "lifestyle."

Both autotrophs and decomposers are usually static beings, since it's hard for a plant or a fungus to accumulate enough energy to be active. Some slime molds can move about, and some plants (like Venus flytraps or orchids) have structures that can react to stimuli, but you don't see them striding across the landscape. All autotrophs and decomposers would probably qualify for either the Sleepy or Slow Eater disadvantages, and might have No Legs (Sessile) as well.

For autotrophs or decomposers to be as active as animals, they would need a very concentrated source of energy, and a *need* to be mobile. On a world with vastly more intense sunlight than Earth, plants could move – but why? Plants would need to be mobile only if they depended on some resource that moved about (like intermittent water sources in a desert, perhaps). Chemosynthetic autotrophs might have to move around to find new sources of energetic chemicals. Decomposers obviously need to be able to seek out new sources of rotting material, but the energy released by breaking it down is limited.

One possibility is autotrophs or decomposers that are active only during a certain life phase. Imagine a plant whose "fruit" are like small animals, using stored energy to roam in search of the ideal place to put down roots and take up life as a new plant. Another possibility is an autotroph or decomposer that can "moonlight" as a consumer, especially if the environment has large seasonal changes in availability of energy. Maybe when the winter days get short, the trees can get *hungry.*

Herbivores

In this discussion, "herbivores" refers to any creatures that eat essentially unresisting food. On Earth, herbivores are plant-eaters, but one might define the baleen whales as being the equivalent of herbivores, since the prey they hunt (krill) are about a thousand times smaller than they are. From a whale's point of view, krill might as well be plants. Aliens that consume nonliving food (like active chemosynthetic organisms or machine life that mine what they eat) are functionally herbivores. One can further subdivide herbivores by how abundant their food is and how much work they must do in order to get it.

Filter Feeding

Filter-feeders live in a fluid environment that is so rich in food they can just drink it in. They don't even have to move – many Terran filter-feeders live rooted to a single spot for most of their lives. They simply sit and suck in material, sifting out the good parts. In an abundant environment, like shallow tropical seas, filter-feeders can get quite big; some sponges and giant clams weigh hundreds of pounds. In environments like deep ocean vents, the distinction between a chemosynthetic autotroph and a filter-feeder may be too subtle to notice. Because filter-feeders typically have to process a lot of mass, they take the Slow Eater disadvantage.

Grazing

Grazing organisms eat low-energy food that is very abundant. The chief problem is just eating it fast enough. Often their food has defensive chemicals, which the herbivore's digestive system must be able to handle. Grazers can get quite large, especially if there is never any food shortage. Standing around and eating all day doesn't require much in the way of brains, but many grazing animals live in large groups, and can develop complex social and communication abilities. (These concepts also apply to any organism or machine that lives by processing large amounts of material.) Grazers typically take the Slow Eater or Increased Consumption disadvantages.

A related type of herbivore are *Browsers*. Like grazers they eat lots of low-energy food, but where Terran grazers eat grass and similar plants, browsers eat leaves from trees and shrubs. They may be tall (to reach what they eat), and can get quite large. Browsers and grazers can have a tremendous effect on the environment, preserving or even expanding the area covered by grassland. In this chapter, browsers and grazers are lumped together.

Gathering

Gatherers consume high-energy food. Often this means they must go to a lot of trouble to find it. Some gatherers specialize in a single food, and develop highly specialized organs to locate and harvest it. Others prefer to generalize. Gatherers tend to be smaller than grazers and have excellent senses. Their digestive systems can generally cope with a variety of toxic chemicals. They are often fairly intelligent, especially if they live in social groups. Some gatherers supplement their plant diet with smaller animals, scavenged remains, or eggs. (Gathering is analogous to machine or physical life that must seek particular resources that are sometimes hard to find, but which are fairly rich or rewarding.) Specialized gatherers may have the Restricted Diet disadvantage, while gatherers that consume lots of toxic plants can have the advantage of Resistant to poison, Reduced Consumption (Cast Iron Stomach), or both.

Carnivores

Carnivores are meat eaters. That is, they consume other animals, or at least something that can try to run away or fight back. Herbivores in an environment with mobile plants would effectively be carnivores, because of the need to subdue dinner. Animal food is high in energy, so carnivores don't have to eat as often, but this is offset by their frequent failures to get a meal. They come in several types, based on how much effort they put into getting their food.

Scavengers

Scavengers prey on the creatures that are easiest to catch – dead ones. They devour the remains of other predators' kills or animals dead of disease and accident. Usually they have impressive resistance to disease and decay toxins because much of their

food is half-rotted. Their senses must be good to find carcasses. Many scavengers also hunt small game if they can get it, and some double as gathering herbivores. They generally operate alone or in small groups, although often quite a crowd can gather when one finds a carcass. Scavengers usually have the advantage Resistant to Intestinal Disease and Spoiled Food, or Reduced Consumption (Cast-Iron Stomach). Among non-carrion-eaters, their diet can also qualify as an Odious Personal Habit.

Omnivores

Omnivores eat both plant and animal food. As plant-eaters they tend to function like gatherers, concentrating on high-energy food, while as meat-eaters they are usually pouncing predators, seldom investing a lot of energy in hunting. They are often fairly clever, as they have to be able to recognize a wide variety of potential food items. While some Terran omnivores work in groups, they are more likely to be solitary.

Trappers

Trapping carnivores are almost like filter-feeders: they sit in one place and let their prey come to them. Many help the process along by building traps – spiders spin webs, and ant lions dig pits. They must be patient, since they have no control over how often something will stumble close enough to catch, and the investment involved in building a trap is often considerable. Though the traps can be quite sophisticated, they are usually built by instinct, and waiting for prey doesn't require much intelligence or keen senses. Trappers are usually solitary, since too many traps close together can't support their makers. They often have an advantage connected to their trap mechanism, like Binding or Tunneling, and frequently have a fast-acting Innate Attack or Affliction to subdue victims (on Earth this is usually poison, but aliens might use electric shocks, acid, or psionics). They may have racial skill in Camouflage, or some form of Chameleon ability.

Pouncers

Pouncing hunters catch prey with swift attacks, often from ambush. They may have to make several attempts for each success, but the investment in a given attack is fairly small. Pouncers nearly always go after smaller prey, so that the kill is easy. Sometimes pouncers combine their efforts, with one or more driving prey toward a waiting ambush; this can involve a high degree of social communication and planning. Others are solitary.

Pouncing hunters are usually very fast, with excellent senses and formidable natural weaponry. Pouncers that specialize in a particular kind of prey can have elaborately specialized hunting mechanisms: woodpeckers hunt beetles under tree bark, and their whole skull and beak form a highly developed chisel mechanism. Other pouncers may use venom to subdue their prey quickly (a Toxic Attack). Typical pouncer advantages include increased Move (possibly with the Costs Fatigue limitation) or Super Jump, improved Perception or specific senses, weapons like Teeth or Claws, and possibly an Innate Attack. They may have racial skill levels in Brawling, Jumping, or Stealth.

Chasers

Chasing hunters go after larger prey and invest a lot of energy in making sure they get a successful kill. Often they work in groups and coordinate the hunt by well-developed communication methods. Chasers must have good stamina and senses, to keep up with a big prey animal until it falls from exhaustion. Solitary chasers are especially impressive in this regard: a Komodo dragon can hunt a deer for days. Appropriate advantages include Fit or Very Fit, high racial HT, increased Move or Enhanced Move, and at least one improved sense. Racial skill at Tracking is likely.

Hijackers

If you're really big and fierce, you may not have to do your own hunting. Just find someone else who's made a kill and chase them away. That's what hijackers do. They are frequently powerful pouncing hunters picking on smaller pouncers or chasers, although a big omnivore could do just as well. Hijackers have to be large enough to be scary, and may have racial skill levels in Intimidation and Brawling. They probably have natural attacks to back up their threats. Since most hijackers also hunt their own food, they can have all of the abilities of a pouncer or chaser.

Parasites and Symbionts

A great many organisms have found that the best place to live is inside another living thing. They let the host organism do all the work of getting food or energy and keeping away predators. Parasites have several ways to live off their hosts. Some drink blood, others simply live in the host's digestive system and eat its food, and some eat the host's own tissues.

Parasites need to be able to resist the host's natural defenses, and often must go to great lengths to reproduce, since it's hard to mate with a partner that is inside another large animal. Many parasites have an active and mobile form when young, becoming nearly immobile once they've got a cushy spot in a host. Other creatures are parasitic only as larvae, becoming free adults once they emerge. (In science fiction the most spectacular parasitic larva is of course the monster in the film *Alien*.)

Symbionts differ from parasites in that they provide a benefit for the host; in effect they "pay rent" in exchange for food or protection. Potential benefits include fighting off parasites or other hostile organisms, disposing of waste products, or even helping the host digest certain foods. (All large organisms on Earth use symbiotic bacteria or fungi to help digest food.)

Parasites may have the advantage of Possession (Parasitic) if they can control the host's actions (this isn't entirely cinematic; on Earth there are many parasites that at least influence the behavior of the host creature). They may also have an Innate Attack or Affliction making it possible for them to get into or attach to the host. Parasites are likely to have a whole suite of physical disadvantages, including Blindness, No Manipulators, No Legs, Invertebrate, and Restricted Diet.

Symbionts may be Resistant to whatever defenses the host creature puts up, and possibly have a Restricted Diet if they depend on a specific substance produced by the host. Based on relative point values, symbionts and their hosts may count as Dependents, Allies, or Patrons for one another. In extreme cases, the symbiont and host pair may be simpler to model as a single organism.

Alien Anatomy

It's highly unlikely that creatures from an alien environment will look much like Earth life. There are a few basic features that result from simple physical laws: anything that moves is likely to have something like a head at the front end, with sensory organs grouped near the brain. Anything above a certain size on land must have some kind of structural support. All organisms must have a way to get food or nutrients, and all must have a way to reproduce.

Mobility

Most animals have some way to move around. Even sessile creatures like oysters generally have a mobile stage before settling down.

Walking

For land animals, walking is the method of choice for getting around. On Earth there are walking animals with any number of legs, from two to dozens. Though many SF writers have assumed that animals on high-gravity worlds would need extra legs to hold up their weight, it's noteworthy that some large dinosaurs like *Tyrannosaurus rex* managed to carry many tons of weight on only two legs. A creature's walking speed depends on the length of its legs and the local gravity. Specifically, speed is proportional to the square root of leg length times gravity. This means that one can generally run *faster* in high gravity, because the higher gravity makes you take faster steps. To convert this to ***GURPS*** terms, Move for aliens equals 5 times the square root of (L × G), where L is the aliens' height or length divided by human height of 6 feet, and G is the local gravity in gees. So for a creature from a planet with a gravity of 0.5 G, standing 10 feet tall, basic Move should be about 4.5 yards per round, rounded down to 4; the same creature on a planet with 1.2 G would have a basic Move of 7! (This is only as a guideline for creatures that evolved in a particular gravity; visiting a high-G world doesn't automatically make one move faster.)

Note that really big animals like elephants or the larger dinosaurs never move faster than a walk or a trot, because would put too much stress on their bones. That doesn't matter because they can walk pretty fast anyway because of their long legs. Creatures optimized for running can add the Enhanced Move (Ground) advantage.

Many creatures have specialized feet with Hooves or Blunt Claws for traction or protection against wear. Others get by with just tough soles. On present-day Earth, hooves are found among herbivores, but this is purely a historical accident. Alien worlds might well have hoofed meat-eaters.

Slithering and Sliding

If you don't have legs, you can't walk. But you can still get around by slithering – undulating your body or the surface of a special foot to move yourself along. Slithering is slower than running, and for large creatures it gets quite inefficient because it does not store the energy of motion as walking does. Slithering creatures get the No Legs (Slithering) disadvantage. When figuring movement rates, be sure to take extra encumbrance into

account, which can slow down large, heavy creatures considerably.

On low-friction surfaces like water, ice, or loose sand, creatures can slide along. This is especially useful if one can get help from gravity and thereby achieve high speeds without expending any energy. This would be Terrain Adaptation (by terrain), or a 1-point perk (built-in skates), which would then require a racial skill level in Skating or Skiing. Sliding can be combined with sailing (below), and probably requires walking or some other form of locomotion as a backup.

Climbing

In forests or other environments that offer a lot of handholds, creatures can specialize in climbing and leaping from branch to branch. This saves a lot of time getting down to the ground and climbing up again, and it keeps the animal out of reach of non-climbing predators. Some Earth creatures, like gibbons, are specialized for efficient, long-distance locomotion by swinging from branches; this is called brachiation and it takes advantage of the same pendulum effect used in walking. The drawbacks to brachiating are that eventually one runs out of trees, and that a failure means a painful landing. Climbers should get Super Climbing advantage, and possibly others like Brachiator, Catfall, Clinging, and Perfect Balance. Racial skill levels in Acrobatics and Climbing are also appropriate.

Digging

In any environment with sand, snow, or loose dirt, digging provides a way to get at prey hiding underground, or to lurk in hiding and attack things on the surface. It's also a good way to hide, and provides insulation against dangerous temperatures in the desert or winter. Magma-dwelling silicon creatures might dig or swim in liquid rock. Because diggers have to move through a dense medium, size becomes a problem. On Earth nothing larger than an aardvark lives underground full-time. For most digging animals, Digging Claws would be a 1-point perk, equivalent to having a built-in shovel. When tackling harder materials they simply "attack" it, breaching the material by doing damage. Diggers use the standard *Digging* rules based on their Basic Lift (p. B350). Space opera aliens that can move through the ground as easily as a fish through water can take the Tunneling advantage. Burrowing creatures are likely to have poor vision and smell, but can have extremely good hearing and the Sensitive Touch advantage. Vibration Sense is also very useful.

Swimming

Swimming works in any fluid medium of about the same density as the organism. Naturally, just about all aquatic organisms swim. Even bottom-dwelling walkers like lobsters can swim when they want to move fast. Because of the properties of a fluid environment, swimming gets more efficient as the swimmer gets bigger. Tiny organisms struggle through water while whales can comfortably cruise at speeds of up to 20 knots and sprint up to 30. Since water also helps support large creatures, this means that swimmers can get massive indeed.

A very different type of aquatic movement is *sailing*, using the power of wind for motion. This has the tremendous advantage that the energy for locomotion *doesn't* have to come from the organism itself, but requires fairly specialized wind-catching structures, and the winds may not always be blowing where the creature needs to go. On Earth, the Portugese man-o'war is a sailing organism. Sailing qualifies an organism for the No Legs (Aquatic) disadvantage at the -10-point level. Creatures with IQ 1 simply go with the breeze, but more intelligent beings could have racial skill levels at Boating (Sailboat) to allow them to tack. Navigation would be another useful innate skill. While oceans or large lakes are the best places for sailing, one could also imagine land-dwellers in deserts, grasslands, or ice-caps that use sailing in conjunction with natural skis or wheels.

Finally, some aquatic creatures just literally go with the flow. *Floating* is about the easiest way to get around there is, if you don't care where you're going or how long it takes to get there. Aquatic filter-feeders or trapping carnivores can do quite well just bobbing along, waiting for food to arrive, and of course autotrophs can just soak up sunlight. Many floaters have some swimming ability to avoid predators, but may just rely on size (large to deter attackers, small to avoid notice) or poison for protection.

Flying

Flying requires an atmosphere. There are several methods of staying aloft.

Buoyant flight uses hot air or a lifting gas less dense than the surrounding atmosphere to create a living balloon. Balloons have to be very big to produce enough lift to get off the ground, and all their tissues must be as light as possible. Buoyant flight also becomes feasible for extremely tiny organisms, which can "swim" in the air. A swarm-type being might use this kind of particulate buoyancy.

Hot air requires a heat source, which in turn requires a very abundant source of energy. Lifting gas requires some metabolic process to make the gas. Many such gases are also flammable, depending on the type of gas and the atmosphere. Buoyant flyers get the Flight advantage with the Lighter Than Air limitation and a greatly reduced Move.

Small creatures like spiders or plant seeds can get carried by the wind. Movement rates will be at whatever the local wind speed is, and there is no control over direction. Windborne organisms have Flight (Gliding; -50%; Lighter Than Air, -10%) [16]. Some windborne organisms take flight only once during their lives (typically as young); in that case it's a 0-point feature.

Jet propulsion uses Newton's Third Law: by expelling gas in one direction, the flyer propels itself in the other. Pushing the gas requires a lot of energy, making it fairly inefficient unless the creature can tap something like combustion for power. Some organisms use jet propulsion as an "emergency getaway" method, when efficiency becomes less important than speed. Jet flying is Flight with the limitations Cannot Hover and either Costs Fatigue or Limited Use.

Winged flight uses large flat surfaces to push air down, driving the flyer upward. This can be used in conjunction with gliding, which uses the flyer's forward motion to generate lift. Especially skilled gliders can use winds and thermals to gain altitude without a lot of flapping, and some (like albatrosses) can stay aloft for days at a time. Winged flyers can cover very large distances, making it possible to migrate with the seasons, or find food in desert or arctic environments. Winged flight is Flight with the limitation Winged, or possibly Controlled Gliding.

Wingspan for flying creatures depends on their weight and the atmospheric density. For a rough rule of thumb, divide weight (in local gravity) by 30 lbs. and take the square root, then multiply by 10 feet. This can vary by as much as 25% depending on what kind of flyer the creature is – long-range ocean flyers have long, narrow wings, while fast and maneuverable flyers have shorter ones. Wingspan goes down in denser air and up in thinner. Very long wingspans are difficult to make with biological materials; among birds the record is 17 feet for the Pacific albatross, and for fossil pterosaurs the widest known span is 35 feet for *Quetzalcoatlus*. That's probably about the maximum possible for Earthly bone and flesh. Note that flyers that *never* land could have better-designed wings and a span of perhaps 50 feet.

Immobile Creatures

Some organisms just don't move. It saves a lot of energy, and if they don't have to roam around in search of food it's a fine strategy. On Earth, autotrophs like plants and aquatic filter-feeders are all immobile. However, reproduction poses a problem. For sexual creatures, getting together is difficult when you're rooted in place, and even asexual organisms don't want all their offspring crowding around competing for resources. Sessile organisms often have elaborate mechanisms for dispersing gametes or larval young. Since they can't run away from predators, immobile creatures need good protection, often in the form of thick shells, spines, or poison.

Immobile organisms have an appropriate form of the No Legs disadvantage, depending on whether they are truly rooted in place or can drag or roll themselves along.

Space Travel

Space-dwelling creatures must be able to move around. The obvious method is some kind of rocket propulsion, but that brings up the problem of fuel. Unless the space life has a very reliable source of new reaction mass, rockets are too costly. Solar sailing is more likely, as space life is likely to be large in any case, and could use itself as a solar sail to change orbit. Plasma-based life could spin a "plasma sail" or use magnetic fields to catch the solar wind. Game Masters who have superscience reactionless drives or psionic powers may wish to give space life one of those as a method of moving about. Most space dwellers get Flight with the Newtonian Space Flight limitation, though superscience beings may be able to have Space Flight alone.

SIZE

Compared to most living things, humans are extremely large – the vast majority of life on Earth is single-celled organisms. On the other hand, the existence of whales and huge fossil dinosaurs show that creatures can get very large indeed. Gravity and the strength of materials place some absolute limits on size, and ecology restricts size by limiting the food a large organism can get.

The Square-Cube Law

A very important rule in biology governing animal size is the square-cube law. It is a simple consequence of geometry. If you increase something in one dimension, it increases in all dimensions unless you change its shape. Mass is a function of volume, which increases as the cube of the organism's linear size. Since the strength of bones and muscles (or their alien equivalents) depends on cross-sectional area, those elements increase as the square of the size. Consequently, doubling a creature's height means its muscular and structural strength increases by a factor of four (two squared). So far, so good. But its mass increases by a factor of eight (two cubed), so it is proportionally only half as strong. This is why ants can heft leaves many times their size, but humans have to strain to lift objects even half their weight. In ***GURPS*** terms, this is why a creature's Basic Lift is based on the *square* of ST, which in turn scales with length.

The square-cube law has other interesting effects. Warm-blooded creatures must cool themselves to regulate temperature; cooling occurs

Alien Creation III

Primary Locomotion

Determine primary locomotion. Roll 2d on the list below and apply the appropriate modifiers based on lifestyle. Methods with an asterisk (*) indicate a secondary mode of locomotion. "Special" includes buoyant or jet-powered flight, sliding, wheeled locomotion, or whatever bizarre means of transport the GM prefers. Add +1 for pouncing and chasing carnivores, omnivores, gathering herbivores, and scavengers.

Arctic: **2,** immobile; **3-4,** slithering; **5-6,** swimming*; **7,** digging*; **8-9,** walking; **10-11,** winged flight*; **12-13,** special.

Banks/Open Ocean: **2-3,** immobile; **4,** floating; **5,** sailing; **6-8**, swimming; **9-11,** winged flight*; **12-13,** special.

Deep-Ocean Vents/Reef: **2-5,** immobile; **6,** floating; **7,** digging*; **8-9,** walking*; **10-13,** swimming.

Desert: **2,** immobile; **3-4,** slithering; **5,** digging*; **6-8,** walking; **9-11,** winged flight*; **12-13,** special.

Gas Giant Planet: **2-5,** swimming; **6-8,** winged flight; **9-13,** buoyant flight.

Island/Beach: **2,** immobile; **3-4,** slithering; **5,** digging*; **6-7,** walking; **8,** climbing*; **9,** swimming*; **10-11,** winged flight*; **12-13,** special.

Lagoon: **2-4,** immobile; **5,** floating; **6,** slithering*; **7,** walking*; **8,** digging*; **9,** swimming; **10-11,** winged flight; **12-13,** special.

Lake/Salt-Water Sea: **2-3,** immobile; **4,** floating; **5,** walking*; **6,** slithering*; **7-9,** swimming; **10-11,** winged flight*; **12-13,** special.

Mountain: **2,** immobile; **3-4,** slithering; **5,** digging*; **6-7,** walking*; **8,** climbing*; **9-11,** winged flight*; **12-13,** special.

Plains: **2,** immobile; **3-4,** slithering; **5,** digging*; **6-8,** walking; **9-11,** winged flight*; **12-13,** special.

Planetary Interior: **2-6,** immobile; **7-13,** digging.

River/Stream: **2-3,** immobile; **4,** floating; **5,** slithering*; **6,** digging*; **7,** walking*; **8-9,** swimming; **10-11,** winged flight*; **12-13,** special.

Space-Dwelling: **2-6,** immobile; **7-11,** solar sail; **12-13,** rocket.

Swampland: **2,** immobile; **3-5,** swimming*; **6,** slithering; **7,** digging*; **8,** walking; **9,** climbing*; **10-11,** winged flight*; **12-13,** special.

Woodlands or Jungle: **2,** immobile; **3-4,** slithering; **5,** digging*; **6-7,** walking; **8-9,** climbing*; **10-11,** winged flight*; **12-13,** special.

Secondary Locomotion

For any method marked with an asterisk (*) on the Primary Locomotion table there is a chance of a secondary method of locomotion. Roll 2d and check the primary mode to determine the secondary method. Some secondary methods are also marked with an asterisk, indicating the chance of a third method of locomotion.

Climbing: **2-6,** slithering; **7-11,** walking; **12,** no secondary.

Digging (land): **2-6,** slithering; **7-11,** walking; **12,** no secondary.

Digging (water): **2-5,** slithering*; **6-7,** walking*; **8-11,** swimming; **12,** no secondary.

Slithering (in water): **2-10,** swimming; **11-12,** no secondary.

Swimming: **2-6,** slithering; **7-9,** walking; **10-12,** no secondary.

Walking (in water): **2-8,** swimming; **9-12,** no secondary.

Winged Flight: **3-5,** climbing*; **6-7,** swimming*; **8-10,** walking; **11,** slithering or sliding*, **12,** no secondary.

Aliens on Wheels

One method missing from the list of locomotion methods is the wheel. This may seem strange because wheels and rollers are a major element of human technology. Why aren't they found in nature?

There are two main reasons. First, any kind of axle or roller is hard to connect to the rest of the organism, since it is turning. Possibly a species might evolve nonliving wheels made of some substance like shell, turned by muscles within the creature. Other creatures could roll into a ball or wheel shape and roll downhill for fast getaways.

Second, environments suitable for wheels aren't that common. On Earth there are few places with large extents of smooth, hard, level ground, and most of those are the work of humans for the convenience of their machines. Other worlds might have some environment that is good for driving where a wheeled species might evolve.

Wheeled organisms get the No Legs (Wheeled) disadvantage, worth -20 points.

across the body surface. As a creature gets bigger, the ratio of heat-generating mass to cooling surface goes up. This often requires big organisms to develop radiators (like an elephant's ears). On the other hand, it means that big warm-blooded creatures can easily survive in cold climates as long as there is enough food – whales swim comfortably in Arctic waters where an unprotected human would die in minutes of hypothermia. Large warm-blooded creatures also don't have to eat as much as small ones in proportion to their size. Birds and small mammals eat more than their own weight each day, whereas whales consume only a few percent of their mass.

Gravity and Buoyancy

Local gravity is likely to have a tremendous effect on the size of organisms. Lower gravity reduces the stress on bones and muscles and allows creatures to support a bigger mass. The equation works out as follows: $L=1/G^{2/3}$, where L is the linear dimension (height or length) and G is the local gravity.

This assumes that the creature must support itself against gravity. Weightless organisms can be arbitrarily large, limited only by food supply. This applies to aquatic creatures, buoyant floaters in a gas giant atmosphere, or spaceborne life.

Any creature that cannot support itself should probably get an Increased Life Support disadvantage to reflect that if it's going to be spending time among humans. Being aquatic is a 0-point disadvantage because it is compensated by the advantage of being able to swim (see *No Legs,* p. B145). A spaceborne organism should probably take a Weakness to gravity forces.

Size and Ecology

Gravity isn't the only limit on a creature's size – otherwise everything on Earth would be as big as dinosaurs. Another important limit is the ecology. Some environments simply can't support large creatures. Evolution forces a tradeoff: do you get as big as you can and hog all the resources you can get, or do you stay small and breed quickly? When conditions are unstable, evolution favors the smaller creatures, since they can adapt more quickly and survive in more marginal environments.

The ideal habitat for large creatures is a grassland or water, where there is plenty of food to eat (either plants or plant-eaters) and room for such a creature to move around. Woodlands, jungles, mountains, and swamps are simply too difficult for big animals to get through, unless they have a long, narrow body plan optimized for the environment. Deserts, islands, and mountains may not have enough food. Arctic environments are a special case: food is very scarce, but the square-cube law means that large creatures have an advantage over small ones in surviving. The result is that arctic environments tend to support very few creatures, but those few are often quite large.

Body Plan

Once you know how big the creature is and how it gets around, you can start determining how it is arranged. You can either design the aliens or use the random-generation tables in the box text.

Symmetry

An organism's symmetry refers to how its body is laid out. There are several possibilities.

The simplest body plan is *asymmetric.* Either the creature changes its form as it moves, or the growth of limbs and body systems is fairly free-form. Terrestrial plants are often asymmetric.

A common form of organization is *bilateral symmetry.* Humans are bilateral, as are most animals on Earth. Bilateral organisms have matching organs and systems on each side, at least externally.

Unknown on Earth but popular in science fiction is *trilateral symmetry*, in which the organism has all its parts in sets of three, arranged around the body. This is really just a special case of radial symmetry, but gets its own listing because it shows up so often in fiction.

Organisms with *radial symmetry* have more than three matching "sides." Starfish are an example of five-sided radial symmetry.

Spherical symmetry takes organization a step further. Instead of being radial about an axis, the organism is symmetrical about a point, like a multi-sided die. Some tiny single-celled organisms on Earth are spherically symmetrical, but it is unknown among larger creatures.

Number of Limbs

While humans think two arms and two legs are plenty, we are actually rather deprived in the limb department. Insects get six legs plus wings and antennae, while millipedes have dozens of body segments. Our small number of limbs is a historical accident, due to the number of fins our fish ancestors had when they began moving onto the land.

Multicellular organisms tend to develop in segments, based on their body symmetry. For bilateral, trilateral, or radial organisms, the number of body segments can range from one to dozens. Each segment has a number of limbs equal to the body's sides. (Limbless segments are certainly possible, but we ignore those here.) Some of these limbs can get modified to serve as sense organs, jaws, fins, wings, reproductive organs, or whatever. Radial-symmetry beings can have multiple segments piled up like a stack of starfish. Spherical organisms are likely to have a single limb per face or per vertex.

Obviously, creatures with more than two arms and legs get the Extra Arms or Extra Legs advantage. Limb-derived structures like wings, antennae, fins, or eating mandibles don't count as Extra Arms or Legs.

Asymmetrical or bilateral organisms with four or more legs get the Horizontal disadvantage. Trilateral and radial organisms are Horizontal if they have only one body segment; otherwise they are likely to be upright.

Tails

Nearly every vertebrate on Earth has a tail, and many invertebrates have them as well. Humans, sadly, don't have them. Tails have a variety of uses, although they tend to be specialized for a single purpose. On trilateral or radial-symmetry beings, the tail would be any limb emerging along the being's central axis. Spherical beings cannot have tails.

Tails often figure in a creature's mobility. Creatures with only two legs sometimes use their tails for balance. Balancing tails can be fairly massive, to offset the weight of the head and torso, and are usually not very flexible. Swimmers or amphibious organisms frequently use tails for propulsion in water. Swimming tails can either be moved from side to side (like a fish tail) or up and down (like a whale's flukes). Either way, a swimmer's tail tends to be large and flat for maximum surface area to react against the water. Winged flyers on Earth use their tails as extra control surfaces. They need a fairly large area to interact with the air. Climbers like monkeys or pythons use tails as extra limbs to grip branches.

Alien Creation IV

Size Category

Determine general size category using on the following table.

Modifiers: -4 if Magnetic life; +3 if space-dwelling; +2 if 0.4 G or less, +1 if 0.5 G to 0.75 G, -1 if 1.5 to 2 G, -2 if greater than 2 G; +1 if any water habitat, +1 if Open Ocean or Banks habitat, -1 if Tropical Lagoon or River/Stream habitat, +1 if Plains habitat, -1 if Island/Beach, Desert, or Mountain habitat. +1 if Grazing herbivore, -4 if Parasite; -1 if Slithering, -3 if Winged Flyer; Plasma life multiplies Size in yards by 1,000.

Roll (1d)	*Size Class*
2 or less	Small (up to 12")
3-4	Human-Scale (18" to 3 yards)
5 or more	Large (5-30 yards)

Size and Mass

Once the basic size category is determined, roll below to get the actual size. For a given size, weight can be anywhere from half to twice the listed value, based on build. For silicon-based life, double the weight for a given size; for magnetic life, determine size and mass normally, then divide size (but *not* mass) by 1,000. For hydrogen or plasma-based, divide mass (but *not* size) by 10; for space-dwelling, divide by 5. For a more precise determination of weight (or for huge organisms), divide height (in yards) by two, cube the result, and multiply by 200 to get weight in pounds. Note that weight is in a standard 1 G environment; adjust by local gravity to determine weight in the creature's native habitat.

Roll (1d)	*Size (size modifier)*	*Weight*
Small		
1	0.05 yards (-10)	0.003 lbs (0.05 oz.)
2	0.07 yards (-9)	0.01 lbs. (0.16 oz.)
3	0.1 yards (-8)	0.025 lbs. (0.4 oz.)
4	0.15 yards (-7)	0.08 lbs. (1.25 oz.)
5	0.2 yards (-6)	0.2 lbs. (3 oz.)
6	0.3 yards (-5)	1 lb.
Human-Scale		
1	0.5 yards (-4)	4 lbs.
2	0.7 yards (-3)	9 lbs.
3	1 yards (-2)	25 lbs.
4	1.5 yards (-1)	80 lbs.
5	2 yards (0)	200 lbs.
6	3 yards (+1)	600 lbs.
Large		
1	5 yards (+2)	3,000 lbs.
2	7 yards (+3)	4 tons
3	10 yards (+4)	12 tons
4	15 yards (+5)	40 tons
5	20 yards (+6)	100 tons
6	Extremely Large: 2d × 10 yards or bigger	

Gravity Effects

Modify for gravity. Multiply the size by the modifier on the following table based on local gravity. This applies to all land-dwelling life, amphibians, or winged flyers, but not aquatic creatures or buoyant flyers. Once the final size is figured, recalculate weight based on final size (applying all the modifiers for body chemistry, etc.), then multiply that weight by local gravity to get the creature's weight in its native environment.

Gravity	*Size Multiplier*
5	0.3
3.5	0.4
2.5	0.5
2	0.6
1.5	0.75
1.25	0.9
1	1
0.9	1.1
0.8	1.2
0.7	1.3
0.6	1.4
0.5	1.6
0.4	1.8
0.3	2.2
0.2	2.9
0.1	4.6

Strength

Strength varies depending on body plan and musculature, but a rough guideline follows the square-cube law: ST equals 2 × the cube root of mass in pounds. (This uses the cube root of mass as a way to get a common "length factor" that doesn't depend on body plan. Since in ***GURPS*** a character's Basic Lift is proportional to the square of ST, it all works out.)

A tail can also be a weapon. The most fearsome were the giant spiky maces and clubs of some dinosaurs, although anyone who has been stung by a scorpion's tail might have a different opinion. Weapon tails are Strikers (p. B88), typically with the limitations Clumsy and Limited Arc. A long heavy tail may get the Long enhancement, but that isn't mandatory. Most tails do simply crushing damage, but with spikes or blades could certainly be cutting or piercing. Prehensile tails count as Extra Arms (see *Manipulating Limbs*, below).

Many creatures use their tails for communication. This is usually a basic "semaphore" to convey a single message like "run away" or "I'm ready to mate." Other creatures (like dogs and cats) have more elaborate tail-based communication. Tailed creatures that use gestures for communication will almost certainly employ their tails.

Manipulating Limbs

For intelligent life forms, having limbs to manipulate and carry objects is of great importance. There may be dozens of worlds out there with inhabitants just as smart as humans, but helpless to make or use tools.

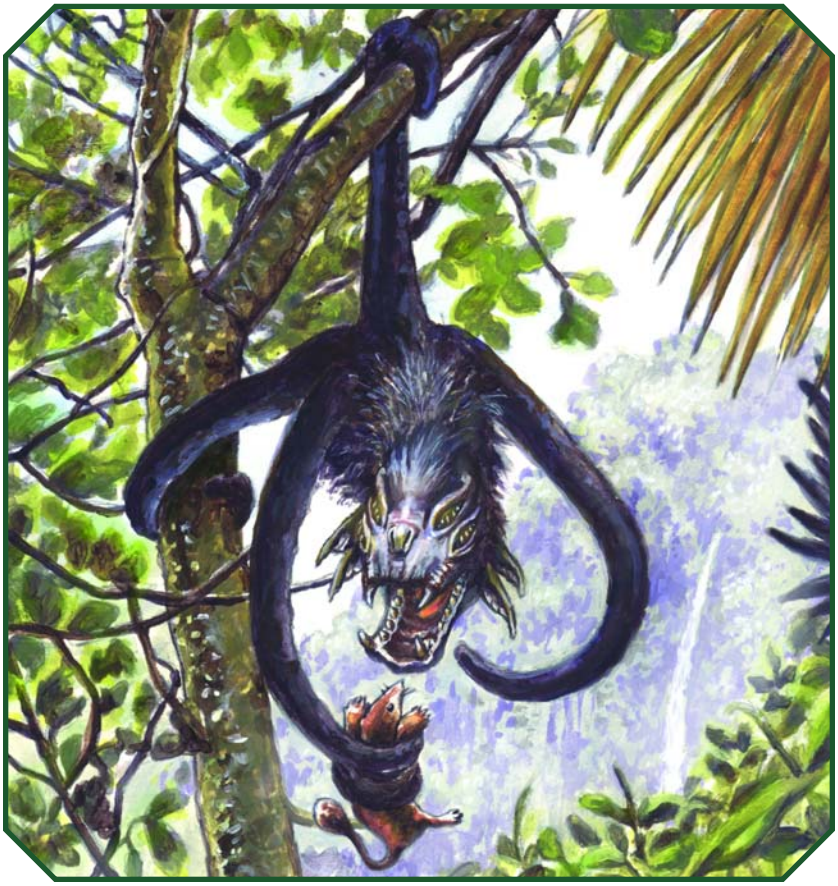
Not all species have manipulators. Four-legged walking creatures can carry things in their mouths, but that's all. Birds can use their claws and beaks, but again with difficulty. The "default" for most organisms is the disadvantage No Fine Manipulators. Animals with good paws may have Bad Grip instead. Creatures that use their mouths combine Bad Grip and One Arm.

While just about anything might develop a manipulating appendage, there are some guidelines to follow. Brachiators tend to have them as a side effect of being able to climb and swing from branches; they have at least two and may supplement them with a prehensile tail. Flyers sometimes have them for perching (Earth bats and birds are handicapped by having only one pair of legs, which means they have to be used as feet instead of hands.) Omnivores or gathering herbivores often need them to get at hard-to-reach food; these are usually paws or part of the feeding mechanism. Some large grazers (elephants come to mind) have manipulators to let them reach food; in the case of an elephant's trunk, there is only one limb. Very few land carnivores have good manipulators. They tend to be specialized for chasing and killing.

In the sea, there are a lot of creatures with manipulating limbs. This is partly an accident of history: many sea creatures have more than four limbs, so they can spare some for other purposes. Bottom-dwellers, in particular, seem to go in for quite good manipulating limbs; these are often short arms, but there can be multiple pairs.

Tentacles are manipulating limbs beloved of science fiction writers. Like elephant trunks, they are muscular hydrostats. Buy them as Extra Arms with the Extra-Flexible enhancement. For just two tentacle arms, the Extra-Flexible advantage costs 10 points.

Prehensile tails count as Extra Arms (possibly Long or Extra-Flexible). If a tail is the creature's *only* manipulator, then it obviously gets the One Arm disadvantage and may also have Bad Grip. See *Modifying Beings With One or Two Arms* on p. B53 for an example.



Placement of Senses

Any organism that moves about will want its senses in its front end. Determining where the front is becomes tricky if the creature is radial or spherical, so those types may instead space redundant senses all around the body, or at the ends of limbs.

Senses usually show up where they do the most good. Taste and smell are either near a creature's feeding apparatus or in its manipulator arms so it can tell what is and isn't edible. Sight should be in front, often placed high up for a better field of view. Climbers and hunters put multiple eyes together to get the advantages of binocular vision, while prey animals space them far apart to watch for danger. Wide-spaced eyes give the Peripheral Vision or even 360° Vision advantages, but they often combine those with Bad Sight and No Depth Perception (see p. B145).

Where there is a lot of information coming in, something is needed to process it. A brain, or at least a major nerve nexus, is usually located near the main sense organs.

Structural Support

All organisms have some kind of structure. Some designs may seem floppy or flimsy to us, but they allow the creatures to move or affect their environment.

No Skeleton means the organism has no structural members of its own. It either flows about constrained only by its skin, or makes use of the environment when it needs to exert force. Very few organisms above microscopic size have no skeleton, and those tend to be immobile.

An *External Skeleton* uses a shell made of some rigid material that can be jointed to allow movement. This is a very successful design, as the hard shell protects the soft interior of the organism. However, growth is difficult because the organism must shed its old skeleton to grow a bigger one, leaving it vulnerable during the change. Aliens with exoskeletons may have evolved a way to grow without molting. Without a buoyant medium for support, large external skeletons can become very heavy and cumbersome.

An *Internal Skeleton* uses rigid or semi-rigid units (bones), often connected with joints. Internal skeletons place no limits on the growth of the creature, except the upper limit of what the bones can support. However, they offer little protection to the organism's soft parts.

A *Hydrostatic Skeleton* uses no rigid parts at all, relying instead on internal pressure and the strength of the outer membrane to maintain shape. They are used by many "boneless" creatures like cephalopods and jellyfish, and by many plants as well. Hydrostatic skeletons are limited in size by the tension on the skin, but clever design can offset that to some extent. Hydrostatic organisms can take the Invertebrate disadvantage.

Combinations of skeleton types are common. An elephant has an internal skeleton and uses a flexible muscular hydrostat for its trunk. Plants often combine rigid and hydrostatic support structures.

Metamorphosis

Many creatures on Earth go through dramatic changes in form during their lives – caterpillars becoming moths, tadpoles becoming frogs, and so forth. Alien creatures might well do the same. This can be particularly interesting if they go from sapient to non-sapient (or vice-versa), or if they shift from a harmless or cuddly creature to something powerful and deadly. "Life Changes" of this type are a 0-point feature. Game Masters can get plenty of dramatic mileage out of a metamorphosing PC or NPC if the change is predictable and will have major effects on the character's personality.

Some creatures change more often. This can be as minor as a rabbit's pelt turning from brown to white as winter approaches, or as major as a rainy season browser turning into a dry season carnivore. Minor changes are also 0-point features anyway. Major periodic changes are Alternate Forms, with the limitations Limited Use, Trigger, and Uncontrollable, capping out at -80%.

Finally, there may be some creatures that can *consciously* change form. That's Shapeshifting or Morph as described in the ***Basic Set,*** and probably should have a very long preparation time or concentration period as a nod to realism. (See the notes on "Blob Monster" powers, p. 165.)

Multiple Bodies

There are several ways an organism can have multiple bodies.

Colony organisms are made up of several different life forms living in symbiosis. The component organisms reproduce on their own, but don't normally live apart. In effect, they form a single super-creature. For ***GURPS*** creatures, being a colony creature is simply a 0-point feature.

Connected creatures have multiple bodies that are physically connected. Some plants live this way – sometimes a whole grove is actually a single tree, joined underground by roots and runners. Obviously, this option works best for immobile life forms, although floaters or buoyant flyers might also have multiple connected bodies. In general, connected bodies can survive if the link is severed. In ***GURPS*** terms, connected bodies can be modeled in two different ways. If the several bodies can work together as a single being, this is simply a 0-point feature of being large and having lots of extra limbs. If the organisms can operate independently, then this is a group of Allies, Constantly present.

Swarm bodies have an enhancement of the advantage Injury Tolerance (Diffuse). A swarm is a collection of tiny creatures. By taking a Concentrate maneuver, the swarm can scatter into its component parts. The outer perimeter of a swarm travels at the being's best Move, up to a maximum radius of 1/2 mile. (Area Effect can change the size of a swarm.) While scattered, only area-effect, cone, and explosion attacks can injure the swarm being, and only do damage in proportion to the total area they blanket. (So an attack that covers 5% of the swarm's area does 5% of normal damage.) A swarm being can focus its senses on any point within its area; changing viewpoints requires the Ready maneuver. Swarm bodies when dispersed have a form of the Insubstantiality advantage (p. B62): they cannot pick up normal objects, nor can they make physical attacks. A swarm can penetrate solid objects like a fluid, creeping through holes and cracks. To resume normal form, a swarm body must contract to the body's original size (at normal Move rate), then Concentrate to reunite. Cost of having a swarm body is a +160% enhancement of Injury Tolerance (Diffuse) for a being that can switch between a compact solid body and a swarm, or +80% points for a being permanently in swarm form. A Swarm under sufficiently intelligent control might be able to purchase Shapeshifting or similar advantages.

Alien Creation V

Symmetry

Roll 2d to determine body symmetry.

Modifiers: +1 for immobile organisms, spaceborne life, or buoyant flyers.

Roll (2d)	Symmetry
2-7	Bilateral
8	Trilateral
9	Radial (roll 1d+3 to determine how many sides)
10	Spherical (roll 1d: 1: 4 sides, 2-3: 6 sides, 4: 8 sides, 5: 12 sides, 6: 20 sides)
11-14	Asymmetric

Number of Limbs

Spherical organisms have one limb per side. Asymmetric organisms have 2d-2 limbs. For Bilateral, Trilateral, and Radial organisms, roll on the following table.

Modifiers: -1 for Trilateral, -2 for Radial.

Roll (1d)	Number of Segments/Limbs
1 or less	Limbless
2	One segment (one limb per side)
3	Two segments (two limbs per side)
4	1d segments (each segment has one limb per side)
5	2d segments (each segment has one limb per side)
6	3d segments (each segment has one limb per side)

Tails

Spherical organisms don't have tails; for others roll 1d: on a 5-6 the creature has a tail. Swimmers add 1 to the roll.

For tail features, roll 2d and consult the following table:

Roll (2d)	Features
2-5	No features (tail is a 0-point advantage)
6	Striker tail (Striker doing crushing damage)
7	Long tail (Long enhancement)
8	Constricting tail (Constriction Attack)
9	Barbed striker tail (Striker doing cutting or piercing damage)
10	Gripping tail (counts as an Extra Arm with Bad Grip)
11	Branching tail (tail splits according to body symmetry)
12	Combination (roll 1d+5 twice and combine results)

Manipulators

Roll 2d on the table below. The number of manipulators can never be greater than the number of limbs, unless the extras are trunks or tails. A "set" of manipulators equals the body's overall symmetry: two for bilateral, three for trilateral, etc. For Asymmetrical organisms, replace a "pair" of limbs with a single one. If the GM is creating a sentient, tool-using species, roll 1d+6 instead of 2d.

Modifiers: -1 if only two limbs, +1 if more than four limbs, +2 if more than six limbs; -1 if winged or gliding, -2 if open ocean swimmer or gas giant inhabitant, +2 if brachiator; +1 if gathering herbivore.

Roll (2d)	Number of Manipulators
6 or less	No manipulators; limbs are locomotive or Strikers only
7	1 set of manipulators with Bad Grip
8	Prehensile tail or trunk (roll 1d: on a 6 check again for other manipulators)
9	1 set of manipulators with normal DX
10	2 sets of manipulators (roll 1d for each pair: 1-4 Bad Grip, 5-6 normal DX)
11	1d sets of manipulators (roll 1d for each pair: 1-4 Bad Grip, 5-6 normal DX)
12-17	1d sets of manipulators (roll 1d for each pair: 1-4 normal DX, 5-6 High Manual Dexterity 1)

Skeleton

Roll 2d to determine what kind of support the organism has.

Modifiers: +1 for Human-scale creatures, +2 for Large creatures; +1 for any land-dwelling creature; -1 for immobile or slithering creatures; -1 for asymmetric organisms; -1 for gravity less than 0.5 G, +1 for gravity greater than 1.25 G.

Roll (2d)	Structure
3 or less	No skeleton
4-5	Hydrostatic skeleton
6-7	External skeleton
8-10	Internal skeleton
11-16	Combination

Skin, Hide, and Alternatives

Every organism needs some kind of barrier between itself and the outside world. It can protect against things trying to eat it, help maintain the proper internal temperature or chemical balance, and generally act as the creature's first line of defense.

Skin can have a lot of functions. Among animals with external skeletons, it acts as armor and structural support. Softer-skinned creatures use it as a sense organ. Warm-blooded organisms put a lot of insulation at the skin layer to regulate internal temperature.

Skin Types

Creatures with *soft skin,* like slugs or jellyfish, have very poor protection against the external environment. In ***GURPS*** terms, they are Susceptible to chemical irritants (Very Common). Soft-skinned organisms on Earth often secrete a layer of mucus or slime for added protection. This negates the vulnerability to irritants, and may give the creature the Clinging or Slippery advantages.

Humans, toads, and other "naked" creatures have *normal skin,* which is neither an advantage nor a disadvantage (***GURPS*** being fairly human-centered). Many mammals have *hide*, a tough skin that gives DR1, bought with the limitation Tough Skin. Elephants and rhinoceroses have *thick hide,* a very tough skin that gives them DR 4, also bought with the Tough Skin limitation.

Aquatic mammals like dolphins or whales have *blubber,* a very thick skin backed up with an even thicker layer of insulating fat. It provides DR 2 (for dolphins) to DR 4 (for whales), with the Flexible limitation. Blubber also provides Temperature Tolerance 2-4. Dolphin blubber also functions as an elastic energy-storage system to make swimming more efficient.

Skin cells can do other things besides just acting as a barrier. In cephalopods and some reptiles, skin cells can change color, giving the creature a few levels of the Chameleon advantage. Among the former, this may also function as a means of communication. Some mammals (including humans) have skin that can sweat, providing cooling to allow sustained effort in hot conditions or possibly some levels of Temperature Tolerance to resist heat. And some creatures like desert toads have skin that secretes a noxious venom to poison enemies on contact. This is an Affliction with the limitations Touch Only, Always On, and Takes Recharge.

Most land mammals cover their skin with a layer of hair or fur. Hair cells are specialized skin cells that produce strands of stiff dead protein. It is a good insulator, allowing warm-blooded mammals to survive even in arctic conditions. Short fur protects against sunburn but does little else; long hair provides DR 1 and up to Temperature Tolerance 4. Extremely large cold-climate creatures, like the extinct mammoth, might combine long hair and blubber. See the perk Fur, p. B101.

Porcupines have hair that is extremely thick and stiff, giving them the Spines advantage. Other spiny creatures use specialized scales (see below), or extensions of their vertebrae.

Reptiles and fish have specialized skin cells that produce plates of protein instead of strands; these are called scales. As noted in the ***Basic Set***, scales provide DR 2 (for snake or lizard scales) up to DR 4 (for heavy alligator scales).

Turtles, along with some dinosaurs and mammals, have plates of bone in the skin forming a hard shell. This can be very tough but also quite heavy. Giant tortoises or armored dinosaurs could have DR 5, but might also suffer the Numb disadvantage.

Birds have an even more elaborate kind of specialized skin cell that produces branching protein structures called *feathers.* Feathers help birds fly by giving them a larger wing surface than the living tissue of their limbs can provide. They are also first-rate insulation, and can even keep diving birds like penguins warm in arctic waters. Feathers can provide DR 1 and up to Temperature Tolerance 5.

Insects and other arthropods cover their bodies with a rigid *exoskeleton* made of chitin (a complex sugar). It has joints and hinges to allow movement. On small insects this is not much different from skin, but (as anyone who has eaten boiled lobster can attest) in large invertebrates it functions as armor, typically DR 1 or 2. Armored creatures also get the disadvantage Numb.

Sea-dwelling immobile invertebrates like oysters have *shells* made of calcium carbonate. Aliens might use silica compounds or even metals. This is essentially like having an outer covering of rock. It provides very good protection – up to DR 5 for a thick-shelled giant clam – but at the cost of being almost completely inflexible. When open, the oyster has soft skin (see above). When closed, it has the Numb disadvantage.

Plants also use complex sugars, especially cellulose, to form *bark*. Large plants can have very tough bark, providing DR of up to 10. Any creature with bark suffers from the Numb disadvantage.

Alien organisms could have versions of all these skin types, mixing and matching in ways unknown on Earth. Mammals never evolved feathers or bark, but those are accidents of history. Aliens could use cellulose instead of protein, feathers instead of hair, or combinations unknown on Earth.

Alternate Materials

There are also some potential outer coverings that Earth life doesn't use. Metal is the most obvious absence from the arsenal of biological materials. Alien life, especially silicon-based life on a dense, metal-rich world like Mercury, could incorporate metal into its tissues, creating armored skin with very high DR and the Hardened enhancement.

Carbon-based life like ourselves can create very strong materials. Spider silk is one, with a tensile strength greater than steel. It's not hard to imagine alien organisms with the equivalent of Kevlar instead of collagen in their skin (although it's a little harder to imagine why they would *need* to be naturally bulletproof).

Hydrocarbon life could take advantage of the great versatility of carbon polymers, leading to living things with plastic skin. This could have most of the same properties as protein skin, but might take the Fragile (Combustible) disadvantage.

Silicon-based organisms living in liquid rock or molten sulfur could have an outer skin made effectively of rock or ceramic. This would have to be jointed, just like an insect's exoskeleton, but could provide tremendous Damage Resistance. Similarly, on cold worlds, organisms might make use of ice as a structural material, covering themselves with jointed shells of solid water. Rock or ice skin would have a high DR (10 for ice, 20 for rock) with the Semi-Ablative limitation for rock and Ablative for ice.

Metabolism

This section delves into how organisms keep alive. How do they breathe? How do they eat and how do they use the food they eat?

Breathing

Any organisms that use atmospheric gases to support chemical reactions breathe. Fish breathe, although the oxygen they take in is dissolved in water rather than free in the air. But in stagnant water, a fish can drown as easily as a human.

Breathing must cope with several problems. The first is surface area. Small organisms can simply exchange gases across their skin. But large active creatures can't do that. A human, for instance, needs a much larger area for gas exchange than our total skin surface. How do we do it, then? Our lungs are filled with branching passageways, so that each lung has a huge internal surface area. Fish use stacked layers of gills to produce the same effect. Smaller invertebrates like lobsters just have lots of external gills.

The second problem is protection. All that surface area is fragile and makes a good point of entry for diseases and parasites, so the safest place to put it is inside the body. But the gases are outside. This means creatures have to pump air or fluid in and out. Fish let water stream through their gills, a very efficient process, but mammals are stuck with a single opening so they have to constantly puff in and out. It also makes us vulnerable to choking, but reduces the chance of harmful matter getting into those delicate lungs. Lungs work well with a light fluid like air, but not with dense substances like water. Even if we could properly absorb dissolved oxygen, the effort involved in breathing lungfuls of water in and out would consume more energy than is released by combining that oxygen with food!

Creatures that live in water full-time have either the Doesn't Breathe (Gills) advantage as a 0-point feature or the advantage Doesn't Breathe (Oxygen Absorption). Oxygen Absorption only works for Small organisms because of the surface-area problems already described. A huge but very thin creature like a buoyant flyer might be able to use it as well. Note that this applies equally well to fluids other than water. A swimmer in seas of liquid methane on Titan would have gills to extract dissolved hydrogen, and a magma being cruising through Earth's upper mantle would have something analogous to gills to extract useful chemicals from liquid rock.

Many creatures find it useful to be able to visit another element from time to time. Water-breathers who can come up on land for brief periods (like crabs or cephalopods) have a version of Breath-Holding, or possibly racial skill levels in Breath Control. Air-breathers who visit the water have Breath-Holding. Air-breathing creatures that live in water can have Breath-Holding or Doesn't Breathe (Oxygen Storage) – some marine mammals can stay down for hours! This is often combined with Metabolism Control to reduce consumption.

Alien organisms may be able to breathe air or water equally well; either they have both lungs and gills, or their organs can switch from one to the other. This is the Doesn't Breathe (Gills) advantage at the 10-point level.

Finally, some organisms may not breathe at all. Any non-chemical life probably doesn't need to, and obviously any space-dwelling life must have Doesn't Breathe, either unmodified or with some incredible levels of Oxygen Storage.

Temperature Regulation

Humans and other mammals are "warm-blooded" animals. We maintain a constant body temperature, often one higher than the environment. This helps birds and mammals to thrive in cold climates. The drawback is that being warm-blooded takes a considerable investment of energy. Mammals and birds have to eat a lot more than cold-blooded creatures of comparable size. However, in hot environments we also have to worry more about *cooling* – elaborate mechanisms like sweating, panting, radiator organs, and insulation.

Cold-blooded creatures don't have to worry so much about temperature regulation, but the drawback is that they can get very sluggish in chilly weather. There are ways around this problem. Size is one: a sufficiently large cold-blooded organism can stay warm simply by sheer thermal mass. Another is using radiating or heat-absorbing organs to make use of external heat. There are also chemical tricks – incorporating "antifreeze" in the blood or bodily fluids to withstand low temperatures.

Many cold-blooded organisms get the Cold-Blooded disadvantage, but it isn't mandatory. In particular, any cold-blooded creature with a mass above 100 lbs. can probably store enough heat to avoid it. And any cold-blooded creature that routinely lives in a cold climate presumably has chemical methods to counteract that disadvantage.

Taking in Food

Eating is essential for staying alive, unless you're an autotroph. What creatures eat determines a lot about how they eat.

Grazers usually have mouth parts suitable for cutting and grinding (though some grazers do the grinding in their stomachs). In game terms these are usually 0-point Blunt Teeth. Filter-feeders, or aquatic grazers like baleen whales, have no teeth at all, but instead have a sieve or filter arrangement to separate food from water. Gathering herbivores may have quite specialized mouthparts, as they often eat well-protected seeds or tough-skinned fruit. They may have Sharp Teeth or a Sharp Beak. Carnivores have Sharp Teeth, Sharp Beaks, or Fangs virtually without exception, since their food is usually

Alien Creation VI

Skin

Roll 1d to determine outer covering type.

Roll (1d)	Covering
1-2	Skin
3	Scales
4	Fur
5	Feathers
6	Exoskeleton (external-skeleton organisms always have Exoskeleton)

Then roll below for the appropriate type.

Skin: Roll 2d to see what sort of skin the creature has.

Modifiers: +1 for arctic, +1 for aquatic, -1 for desert; +1 for herbivore; -5 for flyer.

Roll (2d)	Covering
4 or less	Soft skin
5	Normal skin
6-7	Hide (DR 1)
8	Thick Hide (DR 4)
9	Armor shell (DR 5)
10-15	Blubber (DR 4 and 1d levels of Temperature Tolerance)

Scales: Roll 2d for the type of scales.

Modifiers: +1 for desert; +1 for herbivore; -2 for flyer, -1 for tunneling.

Roll (2d)	Covering
0-3	Normal skin
4-8	Scales (DR 1)
9-10	Heavy scales (DR 3)
11-14	Armor shell (DR 5)

Fur: Roll 2d for fur type.

Modifiers: -1 for desert, +1 for arctic; -1 for flyer; +1 for herbivore.

Roll (2d)	Covering
0-5	Normal skin
6-7	Fur
8-9	Thick fur (+1 level of Temperature Tolerance)
10-11	Thick fur over Hide (DR 1 and +1 level of Temperature Tolerance)
12-14	Spines

Feathers: Roll 2d to determine feather type.

Modifiers: -1 for desert, +1 for arctic; +1 for flyer.

Roll (2d)	Covering
1-5	Normal skin
6-8	Feathers (+1 level of Temperature Tolerance)
9-10	Thick feathers (+2 levels of Temperature Tolerance)
11	Feathers over Hide (DR 1 and +1 Temperature Tolerance)
12-14	Spines

Exoskeleton: Roll 1d for exoskeleton type.

Modifiers: +1 for aquatic, +1 for immobile, -2 for flyer.

Roll (1d)	Covering
2 or less	Light exoskeleton (DR 0)
3-4	Tough exoskeleton (DR 1)
5	Heavy exoskeleton (DR 3)
6-8	Armor shell (DR 5)

Breathing

Aerial or land-dwelling organisms breathe air. Deep Ocean Vent inhabitants always have Gills. For other water-dwellers, roll 2d.

Modifiers: +1 if native to Arctic, Swampland, River/Stream, Island/Beach, or Tropical Lagoon; +1 if walking is primary or secondary locomotion, +2 if flying or climbing is secondary locomotion.

Roll (2d)	Breathing
2-6	Doesn't Breathe (Gills)
7-8	Lungs (air-breathing) with Doesn't Breathe (Oxygen Storage)
9-10	Doesn't Breathe (Gills) and Lungs (or convertible organ)
11-16	Lungs

Temperature

Roll 2d to determine body temperature regulation.

Modifiers: +1 for air-breathers, -1 for water-breathers; +1 for Human-scale or larger; +1 for land-dwelling, +1 for Woodland or Mountain environment, +2 for Arctic environment.

Roll (2d)	Temperature Regulation
1-4	Cold-blooded (with Cold-Blooded disadvantage)
5-6	Cold-blooded (no disadvantage)
7	Partial regulation (temperature varies within limits)
8-9	Warm-blooded
10-17	Warm-blooded (with Metabolism Control 2)

Continued on next page . . .

Alien Creation VI (Cont'd)

Growth

Roll 2d to determine growth pattern.

Modifiers: -1 for external skeleton +1 for Large size category; +1 if immobile.

Roll (2d)	***Growth Pattern***
1-4	Metamorphosis
5-6	Molting
7-11	Continuous Growth
12-14	Unusual Growth Pattern (adding segments, branching, etc.)

well protected and often needs killing. Some specialized carnivores, like hunting spiders, may use a kind of siphon to drain the prey of fluids; this could be modeled as a Vampiric Bite without the healing effect.

On Earth, nature has demonstrated many ways of biting and grinding. Arthropods, including insects and spiders, have extremely complicated mouthparts made up of several pairs of limbs. These can be modeled as teeth or beaks, depending on how formidable they are. Ordinary mouthparts are like ordinary blunt teeth. Big sharp mandibles could be either a beak or sharp teeth, depending on how large they are.

Vertebrates have jaws, hinged bone arches that use leverage to exert impressive force through the teeth. On Earth, vertebrate jaws work "up and down," but on an alien world they could be mounted sideways, or in radial arrangements of three or more. Vertebrate beaks are jaws tipped by sharp keratin instead of teeth. Cephalopods also have beaks, though they are not mounted on jaws. Instead a circle of muscle surrounding the beak pinches it shut.

Growth

How organisms grow determines a lot about their body design. Humans and other vertebrates grow in one piece, remodeling our skeleton and enlarging our organs in a continuous process until we reach full size. Invertebrates do the same with soft parts, but some of their hard parts (like shells or exoskeletons) can't be rebuilt on the fly. Some of them molt, shedding old shells and growing a new one around their larger body. Others have simple shells (like mussels or snails) that can grow by adding new layers. The study of clam and mussel shells is fascinating for mathematicians because they maintain the same shape even as they add larger and larger layers. Plants, on the other hand, add outer layers around a central core, or grow from the tips of branches and roots.

Some creatures take it a step further, redesigning the body at different points in life. See the section on Metamorphosis (p. 153) for details.

There are other possibilities. Some plants add length and branches but not bulk (this is a gray area between growth and reproduction). While it's beyond the scope of this book to discuss all the possibilities, an unusual growth mechanism is a good way to make a really alien creature. What if they add body segments, becoming gradually longer over time?

Reproduction

All living things reproduce, although they do it in different ways. Some create new individual offspring, some create copies of themselves, and some simply break off pieces that take on independent existence. Beyond Earth, aliens might not reproduce, preferring to live forever and grow indefinitely.

Sex and Genetics

Humans have two sexes for reproduction: males and females. Why we have two is an interesting question. There are other options.

Asexual organisms don't have "sexes." Each individual reproduces on its own, either by budding or by parthenogenesis. Budding simply breaks off a part of the organism that grows on its own; this is extremely common among plants. Parthenogenesis, or "virgin birth," requires the whole apparatus of eggs or live birth, but the organism doesn't need outside fertilization. Self-fertilization is similar, except that the organism is a hermaphrodite and supplies both eggs and sperm.

Sexual organisms with two sexes have several advantages. They exchange and combine genetic material, increasing the diversity of their offspring. Sexual organisms evolve faster, which in the very long term gives them an edge. In humans gender remains constant, but in many other species individuals shift from male to female. This may be due to environmental stimuli (female when food is plentiful, male when it's scarce), or internal (male when you're young and small, female when you've grown), or social (male if you're big enough to chase off other males).

Hermaphrodites have the equipment for both male and female roles, either at the same time or at different times during the life cycle. This is a fairly common arrangement on Earth. Most plants are hermaphrodites, and a great many animals are, too. Plants tend to have both male and female organs simultaneously, while animals change back and forth.

No organisms on Earth have more than two parents. This may be just a historical accident, but given the incredible diversity of life on Earth it does seem to suggest that there is at least no *advantage* to having genes from three parents rather than two – or that any advantage is not worth the added difficulty of locating two mates rather than just one.

An alien world might have conditions that encourage multi-parent reproduction. Since the whole point of sexual reproduction is to speed up evolution, a planet with particularly chaotic conditions might have multi-sex inhabitants. The investment in creating a large gamete (an egg) or bearing a live offspring is

considerable, so it's highly unlikely that more than one parent would do this in a multi-parent arrangement. Three or more sexes would most likely have a "female" and two or more types of "males." Each male might only father males of his type, but either could father females (or perhaps females are produced by parthenogenesis).

Another possibility for multi-sex reproduction would have several different kinds of "males" and different "females," only some of which are compatible. So A-males and B-males can mate with A-females and D-females, but not with B- or C-females. C-males can mate with B- and C-females only, but D-males can mate with all but A-females. In a more extreme case with less difference between eggs and sperm, a species could have a whole array of different sexes capable of combining with certain others.

It's entirely possible for organisms to combine various methods of reproduction. Plants often do both asexual and sexual reproduction, sending out runners to sprout new individuals nearby and releasing seeds to colonize new locations. It would be easy for a hermaphrodite species to dabble in parthenogenesis. Among some hive insects, unfertilized eggs develop into males (parthenogenesis) while fertilized ones are female (sexual). Others might reverse that approach, with females reproducing other females by parthenogenesis and males only when fertilized by a male. Many Earth species alternate generations of sexual and asexual reproduction. Reproduction by budding or fission is uncommon on Earth in complex animals, but alien species might manage it.

Lifespan

How long a creature lives seems to depend chiefly on size and metabolic rate. Among Earth mammals, most species wind up having about a billion heartbeats over the course of a life – but a mouse's heart beating at 500 per minute goes through them in three years, while an elephant's heart pumping slowly at 30 beats per minute can go on for 60 or 70 years. Metabolic rate appears to be roughly proportional to linear size, though the animal's specific build and lifestyle can cause quite a bit of variation.

The big joker in the lifespan deck is humanity. For our size we live considerably longer than we should. A human-sized organism should typically last about 30 years, but humans routinely last two or three times that long. It's obvious that our bodies aren't really up to the job, either: humans start losing their adult teeth by age 30, and without modern dentistry one could expect to be toothless by 50. Our joints start to wear out around the same time.

Plausibly, most creatures less than three yards in length/height should have Short Lifespan 1 (half normal human span), those smaller than about 1.5 yards should have Short Lifespan 2, less than 20" get Short Lifespan 3, and less than one foot get Short Lifespan 4. Moreover, only really huge organisms – dinosaur-sized beasts 20 feet or more in length – should be able to have the Extended Lifespan advantage. Of course, as humans themselves demonstrate, intelligence and technology can provide free levels of longevity. Shift any tool-using intelligent species up one increment, so that those with Short Lifespan 2 go to 1, those with Short Lifespan 1 get normal lives, and an intelligent elephant-sized organism would get Extended Lifespan 1.

Metabolic rate also depends on the rate of chemical reactions. Cold-environment organisms (ammonia or hydrogen-based life) should probably be one or two increments more long-lived than their size would suggest, since they would generally live more slowly. Hot-environment organisms might be similarly short-lived. For silicon-based life, move everything down one increment, and for really fast things like magnetic-based neutron star inhabitants, give them Short Lifespan to balance their Altered Time Rate advantage.

Strategies

There are two main strategies for reproduction, known to biologists as "K-strategy" and "r-strategy." K-strategist organisms have few offspring, but invest a great deal of resources and energy in rearing them and making sure they survive to adulthood. K-strategists also tend to live a long time, so that they have the chance to have more than one offspring.

R-strategists take the opposite approach: they have large litters and put minimal investment into raising the young. If they survive, good; if not, there are always more. They also tend to mature quickly and die young. Such organisms should definitely take the Short Lifespan disadvantage, possibly living no longer than a year or two.

Obviously, K and r strategies are the endpoints of a whole continuum of behaviors. Some creatures split the difference, having small litters and putting some effort into raising them; some creatures change strategy depending on the situation. Indeed, within a particular species some individuals may choose different strategies – humans in preindustrial societies tended to have a lot of children because many of them were likely to die, whereas nowadays couples in affluent countries have just one or two children.

Fertilizing and Gestation

In addition to numbers of young, there is the issue of how the organism brings them into the world. There are several methods known on Earth.

Spawning is the method used by fish, amphibians, and many invertebrates; and it is analogous to the way plants reproduce. Organisms that spawn release their gametes (eggs or sperm) into the environment, and fertilization and development take place outside the body. Often females can lay thousands of eggs, in the hope that

some will reach maturity. Obviously, spawning lends itself to r-strategy reproduction, although there are species in which one or both parents remain near the egg mass and do their best to protect and feed the young once they hatch.

Plants use a similar method, pollination, in which they release pollen into the air or water. Some plants enlist the aid of animals, either by stealth or bribery, and get them to carry pollen to a likely mate. The plants develop colorful flowers and sugary nectar to attract pollinators. In some cases, they are specialized for one particular pollinating organism.

Egg-laying creatures have internal fertilization, but then release the young into the world before they develop. This is an extremely common method on Earth. The chief drawback is that the egg has to contain all the food necessary to support the embryo through development to hatching; this can be inconveniently large. Another problem is that the egg must be tough enough to protect the embryo, without being so strong that the little creature can't get out when it's ready.

Live-bearing organisms fertilize internally and carry the young within the parent's body until it is ready to be born. This allows longer development (since the size of an egg is no longer a factor) and better protection, at the cost of putting a greater burden on the mother. Live-bearing organisms often care fairly well for the young after birth. Some, the mammals, have specialized glands to nourish the young.

Marsupials add another wrinkle, bearing the young live through part of their development, then carrying them in a pouch until they are ready to live on their own. This frees up the reproductive tract for another offspring.

Finding Mates

Any sexual organisms put some effort into finding or attracting potential mates. Among spawning creatures, it's usually a matter of tracking down some eggs that need fertilizing. But internal fertilizers have to win a mate by charm, bribery, bullying, or trickery. In an interesting twist, males usually wind up compensating for the relative "cheapness" of their reproductive cells (sperm) by expending a lot of resources on methods to attract or keep a mate. (A few species reverse this, and in many the sexes show off and compete for mates in different ways.)

In some species this takes the form of advertising – elaborate displays of good health in the form of huge racks of antlers, long iridescent tail feathers, loud singing, or scent markings. Other males show off their resources by grabbing good nesting sites, building bowers, or picking up shiny trinkets (cynics may include humans in this group). Still others take a more direct approach, chasing away rival males by force. Some males become parasites, attaching themselves permanently to a single female.

The sheer variety of mating displays and techniques is impossible to list in a simple table. Game Masters must decide on their own what investment the species makes in mating. Some can be represented as advantages: loud songs or calls could be the Penetrating Voice perk, or even a sound-based Affliction. Males sometimes sport natural weaponry to battle potential rivals, giving them Strikers. Mating displays can also be a disadvantage: sexual behavior can give organisms a Compulsive Behavior, Lecherousness, or even Intolerance (own sex).

Mating strategies can lead to species with very different body forms in males and females. They can have different attributes, advantages, and disadvantages. Some writers have even speculated about alien species in which only one sex is sapient. In any species with two or more sexes, the GM can either assign sex differences to suit the campaign, or accompany each step in the alien design process (except fundamentals like chemical basis and habitat) with a dimorphism roll on 1d: if the result is a 6, then roll that trait separately for males and females.

Taking Care of the Kids

How long the parents care for the offspring is a function of strategy. Strong r-strategy species invest no care at all. You spawn, you swim away, and the young either survive or not. (In some species, the adults don't even distinguish between juveniles and other prey when they're looking for food.) Other spawners and egg-layers stick around to guard the nest until the young hatch, but then lose interest.

K-strategists devote care to the young after they hatch or are born. Birds feed their offspring until they can fly, mammals nurse them until they are old enough to find food, and some fish dutifully carry their young around in their mouths.

Some organisms may arrange a surrogate parent before abandoning their young; these are known as brood parasites. Cuckoos lay their eggs in the nests of other birds to ensure a proper upbringing. Other parents make their young into genuine parasites – the botfly lays its eggs under the skin of a large animal so the grubs have plenty of food until they're ready to break out and fly away.

Among most intermediate strategists, only one parent does any care (usually the mother). Strong K-strategists (particularly some birds and mammals) have both parents doing their best to raise the young. The most fanatical K-strategists gather in groups to pool child-care. Elephant herds and troops of primates do a fair amount of "day care" for their young. The apex of this is among the hive insects, where nearly all the adults are sterile females who spend all their time finding food and caring for the offspring of their mother; only a handful of males and fertile females are born, and they have thousands of dedicated caretakers making sure they can go out and breed.

Alien Creation VII

Sexes

Roll 2d to determine number of sexes.

Modifiers: -1 if immobile; -1 if asymmetric body plan; -1 if autotrophic.

Roll (2d)	***Sexual Arrangement***
4 or less	Asexual reproduction or Parthenogenesis
5-6	Hermaphrodite
7-9	Two Sexes
10	Switching between male and female
11	Three or more Sexes (1d: 1-3: three sexes, 4-5: four sexes, 6: 2d sexes)
12	Roll twice and combine; types either alternate or are triggered by conditions

Gestation

Roll 2d for gestation method.

Modifiers: -1 if aquatic or amphibious; -2 if immobile; +1 if warm-blooded.

Roll (2d)	***Gestation***
6 or less	Spawning/Pollinating
7-8	Egg-Laying
9-10	Live-Bearing
11-13	Live-Bearing with Pouch

Special Gestation

Roll 2d; on a 12 the species uses a special gestation strategy. If so, consult the following table.

Roll (1d)	***Special Gestation Method***
1	Brood Parasite (young raised by another species)
2-3	Parasitic Young (young implanted in a host)
4-5	Cannibalistic Young (young implanted in parent, fatal to parent)
6	Cannibalistic Young (young consume each other)

Strategy

Roll 2d for reproductive strategy. Multiply the number of young per litter by 2d × 10 for spawning organisms (they may actually lay many, many more, but most of those won't even reach childhood).

Modifiers: -2 if Large, +1 if Small; +2 if Spawning.

Roll (2d)	***Reproductive Strategy***
0-4	Strong K-Strategy: one offspring, extensive care after birth
5-6	Moderate K-Strategy: one to two offspring per litter, extensive care after birth
7	Median Strategy: 1d offspring per litter, moderate care after birth
8-9	Moderate r-Strategy: 1d+1 offspring per litter, some care after birth
10-16	Strong r-Strategy: 2d offspring per litter, no care, +1 level of Short Lifespan

Senses

To interact with the world, organisms must be able to perceive it via senses. The simplest senses are chemical receptors. Most creatures add a sense of touch and vibration (hearing). These are nearly universal.

Other senses depend on the environment. If the atmosphere is transparent to light (or other radiation), vision becomes a useful sense. If the creature exists in darkness, echolocation is more important. Creatures that hunt warm-blooded prey may evolve infrared sensors. Migratory organisms or ocean voyagers demonstrate an ability to sense magnetic fields, giving them a built-in compass. More exotic senses are possible. Magma-dwellers might be able to sense radiation. Space-dwelling creatures might "see" using microwave radar.

Information isn't much use if you can't process it. Many species have fairly poor senses, simply because they don't need a higher level of detail. Humans have good vision because we are descended from brachiators (who need depth perception to avoid falling) and evolved to hunt by throwing things. Since we also get food by gathering plants, we can also see colors well. Many carnivores have limited color vision, because it isn't essential to their way of life.

Vision

Vision is only useful if there's any light to see by. On any world with an opaque atmosphere, there isn't much use to having eyes. Deep-ocean creatures either have very bad vision because they use some other sense, or extremely good vision (like the extinct ichthyosaurs) because that's the only way to see in the dark. Underground creatures tend to have very bad vision, and many are completely blind.

Humans have better-than-average vision. Assume the "default" for most creatures with vision is worse than human standard, combining Colorblindness and Bad Sight. Organisms with dark-adapted eyes may have Night Vision up to 9, but may also have Colorblindness or suffer daytime vision penalties.

Sight is extremely constrained by physics. The resolving power of an eye of a given size is in inverse proportion to the wavelength it senses. Consequently low wavelengths – infrared, microwave, and radio – require bigger eyes, and quickly get too big to be practical. The big waves also run into problems because they are bigger than some objects. You can't see a mosquito with radar because the radar waves are bigger than the mosquito is. A creature must be at least Human-sized to have any kind of radio detection sense, and must be Large to be able to use radar.

Infrared "vision" on Earth tends to be more a directional heat detector rather than actual sight. To model this in ***GURPS*** terms, use Detect (Heat) or Detect (Infrared Light) rather than Infravision. Note that a heat detector must be *cooler* than what it is detecting, making this chiefly useful for creatures with low body temperature trying to spot warm-blooded prey.

There are problems with short wavelengths, too. Many Terran organisms can see in ultraviolet light, including many insects, but nothing we know sees with gamma or X-rays. The trouble with using high-energy photons is that it's very difficult to create a focusing lens for them, and there aren't usually good sources of high-energy particles in the environment to see by. Creatures made of denser material (like silicon-based organisms) might be better able to see by high-frequency light, but only if they live near an active black hole or other "bright" source of hard radiation.

Some organisms on Earth have polarized vision, which helps cut glare and allows them to see better through clouds and haze. Such creatures typically have two to four levels of Acute Vision (Accessibility, Only to compensate for glare and haze, -50%) [1/level].

Hearing

Hearing is an outgrowth of the sense of touch, optimized to pick up air vibrations. Humans have average to poor hearing (partly because we subject ourselves to a lot more noise than most animals). Most organisms can have Acute Hearing sufficient to bring their Hearing roll up to 12. Since sound travels better in a denser medium, water-dwelling creatures tend to hear quite well, at least underwater, and presumably magma-swimmers would have exceptionally acute hearing.

Echolocation combines superb hearing with specialized processing in the brain to convert echoes from sound pulses into an "image." It can be quite precise – bats can catch small insects using echolocation. However, since it is an active sense, requiring the creature to emit a pulse, echolocation is relatively short-ranged due to the slow speed of sound. The *Sonar* form of the Scanning Sense advantage (see p. B81) gives full details.

Touch

The sense of touch actually incorporates several senses. First is the obvious tactile sense embedded in the skin. Some organisms are more sensitive than others in this respect. Extremely thick fur, scales, armor, or blubber tends to interfere with the sense of touch, so that any organisms with those abilities are likely to have a poor touch sense. Some animals use specialized hairs as touch sensors, like the whiskers of a cat. Touch also has a size component: a small creature can feel textures more easily than a large creature, simply because the bumps are larger in proportion. Game Masters may wish to give Small-sized organisms a bonus for their sense of touch, and impose a penalty on Large ones.

A related sense is proprioception, the mental "image" of the body's position. For creatures like octopuses and squids, keeping track of one's arms takes up a major chunk of the brain's processing power. This sense seems to be more important for creatures with many limbs, and is likely to be more important for land-dwelling organisms, if only because it's a key part of being able to walk. In ***GURPS*** terms, this sense is the primary component of Dexterity.

The sense of balance is another component of proprioception. More generally, it's the "gravity sense" that any planet-living organism needs. Swimmers have a related ability to keep themselves properly oriented underwater. Brachiators and mountain-living creatures are likely to have excellent balance, for obvious reasons. The Perfect Balance advantage plus some increase in DX are appropriate for organisms with above-average gravity sense.

Taste and Smell

The simplest one-celled life forms have only one way to perceive their environment: chemical receptors. They taste the world around them, eating anything that tastes good and moving away from anything that tastes bad. Nearly any chemical-based life will have some sense of taste. While humans keep theirs inside the mouth to check food before it is swallowed, other organisms put taste receptors outside, on antennae or skin, to analyze things they encounter.

Smell is a more sensitive form of chemical detection, specialized to pick up airborne molecules. Whales have lost their ability to smell, but they do taste the water they swim in. Vacuum-dwellers can't smell anything, but they might well taste whatever they touch or eat.

Humans seem to have a good sense of taste, which is what one might expect from creatures with gathering herbivore ancestors, but our sense of smell is only about average. Some of us can identify vintages by taste, but you don't see humans tracking by scent. Dogs can track by scent, and identify individuals. Moths can detect one another by smell across miles of distance. Anything up to Acute Taste and Smell 10 is quite within the realm of biological possibility. Game Masters may want to break apart Taste and Smell, giving some creatures a Smell bonus but not Taste, or vice-versa, at 1 point per level.

Because Earth creatures often use scent molecules as a form of communication without conscious control, creatures with very acute sense of smell could easily justify having Animal Empathy or Sensitive.

Other Senses

Creatures on Earth have a remarkable variety of senses, and it's possible to imagine exotic senses unknown to Earthly life. There are, after all, a relatively limited number of ways an organism can perceive its environment.

Electromagnetic waves have already been discussed under vision. In addition to sight, one can imagine senses like Detect (Microwaves) or Scanning Sense (Radar) on huge space-dwelling creatures, or Detect (Gamma or X-Rays) on dense organisms.

Most Earth life uses "passive" electromagnetic senses, relying on the sun to provide illumination to see by. But that's not strictly necessary. There are some deep-sea creatures that generate their own light, and one can imagine alien organisms capable of generating bright pulses like a strobe light to see in darkness. If a creature could generate coherent light, a form of Ladar (see p. B81) might even be possible. (The drawback to any "active" sense, of course, is that it makes one visible to anyone else with the same sort of sensor.)

Electromagnetic field senses exist already in many Earth animals. Many fish have electric-field detectors, picking up the emissions of other creatures' muscle impulses. Note that this requires a medium like water that conducts electricity. Air is an insulator, and so blocks electric impulses. This would be Detect (Electric Fields) or possibly Detect (Living Things).

Air doesn't interfere with magnetic fields, however, and there are several species of birds that apparently have internal magnetic sensors to provide a compass for long-range navigation. This is not normally precise enough to qualify as Absolute Direction; it's simplest to just call it a 0-point feature, as on p. B34. Alien beings with more precise magnetic sense could have Detect (Magnetic Fields) or possibly Absolute Direction.

Gravity detection is part of balance and proprioception. Space-dwelling creatures might be able to detect gravity fields even in free-fall, or sense mass by the curvature of space. Obviously this would only pick up large masses, the size of asteroids or planets. It would be Detect (Gravity Fields).

Vibration senses are essentially an extension of hearing, and work best in a dense medium that conducts waves easily. Many fish have a "lateral line" – a set of receptors on the skin that pick up faint water movements. This wouldn't work as well in air, because air isn't dense enough to transmit vibrations very far, but any swimmer might have a similar sense. This would be Vibration Sense. Any land-dwelling creatures could have a kind of "seismic sense" to pick up ground vibrations; this would be Vibration Sense with the limitation "Ground Only" (-10%).

Chemical senses are variants on taste and smell, possibly specialized for different kinds of molecules. On Earth most chemical senses are attuned to molecules made by living things, to either help find food or warn of danger from predators. Aliens might be able to smell things humans cannot – minerals, trace atmospheric gases, or poisons. This could be as simple as a very precise Detect added to normal sense of smell, like Detect (Methane) or Detect (Pheromones). Or it could replace Taste and Smell with something like Detect (Minerals).

Exotic senses are weird or super-science abilities that are either based on imaginary science or require bending the rules to function in the real world. This includes nearly all psionic abilities, "X-ray" vision as depicted in comic books, neutrino vision, extra-dimensional or faster-than-light senses, and so on.

Communication

Just about all organisms have some way to send signals. Even seemingly passive things like plants are constantly pumping out chemicals to affect each other. Animals make use of their more sophisticated senses to communicate with sound and visual displays, but don't give up on chemical cues. In general creatures use all their senses for communication to some extent – humans speak to each other, but we also use gestures and facial expressions, and our bodies do respond to scents.

Organisms with no intelligence (IQ 0) tend to communicate by instinctive, "automatic" methods, like scents released in response to certain stimuli. More intelligent creatures (IQ 1) add channels under voluntary control. Organisms without complicated social structures tend to stick to simple "broadcast" communications, like scent sprays or calls to any creature within earshot. Creatures with more elaborate societies may add more selective "person-to-person" communication. Actual *language* only really becomes possible with sapience and IQ 6 or better.

Alien Creation VIII

Sense options marked with an asterisk are possible communication channels. Roll 1d for each marked sense; the highest roll indicates the primary method of communication and the second highest indicates the secondary. Channels marked with two asterisks get a +1 on this roll. If the two highest rolls are the same, the species uses the two together as a single channel.

Primary Sense

Most creatures have a primary sense that is what they rely on to get around and find food. Roll 3d on this table to determine the primary sense. When rolling on the sense tables below, the primary sense gets a +4 bonus.

Modifiers: -2 for aquatic; +2 for autotrophs.

Roll (3d)	Primary Sense
1-7	Hearing
8-12	Vision
13-20	Touch and Taste

Vision

Roll 3d; space-dwelling life treats any result of 9 or less as 3.

Modifiers: -4 if Digging is primary locomotion, +2 if climbing, +3 if flying, -4 if immobile; -4 if Deep Ocean Vent habitat; -2 if filter-feeder, +2 if carnivore or gathering herbivore.

Roll (3d)	Visual Ability
6 or less	Blindness
7	Blindness (Can sense light and dark, -10%) [-45]
8-9	Bad Sight and Colorblindness
10-11	Bad Sight or Colorblindness*
12-14	Normal Vision*
15-23	Telescopic Vision 4*

Hearing

Roll 3d; space-dwelling life is automatically Deaf.

Modifiers: +2 if Completely or Nearly Blind, +1 if Bad Sight; +1 if aquatic, -4 if immobile.

Roll (3d)	Hearing Ability
6 or less	Deafness
7-8	Hard of Hearing
9-10	Normal Hearing*
11	Normal Hearing with extended range (Subsonic Hearing if Large, Ultrahearing otherwise)*
12	Acute Hearing 4**
13	Acute Hearing 4 and either Subsonic Hearing or Ultrahearing**
14-21	Acute Hearing 4 with Ultrasonic Hearing and Sonar**

Touch

Roll 2d for sense of touch.

Modifiers: -2 for external skeleton; +2 for aquatic organisms, +2 for digging organisms, -2 for flyers; +2 if Blind or Nearly Blind; +1 if Trapping carnivore; +1 if Small.

Roll (2d)	Touch Ability
2 or less	Numb
3-4	-2 DX from poor sense of touch
5-6	-1 DX from poor sense of touch
7-8	Human-level touch
9-10	Acute Touch 4*
11-18	Acute Touch 4 and either Sensitive Touch or Vibration Sense*

Taste/Smell

Roll 2d for taste and smell ability.

Modifiers: +2 for chasing carnivores, +2 for gathering herbivores, -2 for filter-feeders, autotrophs or trapping carnivores; +2 if sexual reproduction; -4 if immobile.

Roll (2d)	Taste/Smell Ability
3 or less	No Sense of Smell/Taste
4-5	No Sense of Smell (can taste, -50%) [-2 points]
6-8	Normal taste/smell
9-10	Acute Taste/Smell 4 (aquatic organisms use Acute Taste only)*
11-16	Acute Taste/Smell 4 and Discriminatory Smell (aquatic organisms use Discriminatory Taste)*

Special Senses

For each sense roll 2d; it is present on a roll of 11 or more unless noted. Modifiers to the roll are listed with each special sense.

360° Vision:* +1 for plains or desert habitat; +1 for herbivore; +1 for radial or spherical symmetry.

Absolute Direction: +1 for Open Ocean habitat; +1 for flying, +1 for digging.

Discriminatory Hearing:* +2 if organism has Sonar.

Peripheral Vision (10-12): +1 for plains or desert habitat; +2 for herbivore.

Night Vision 1d+3:* +2 for aquatic organisms; +2 for carnivores.

Ultravision:* no for aquatic organisms, no for ammonia-based life.

Detect (Heat):* +1 for carnivores; +1 for arctic habitat, no for aquatic life.

Detect (Electric Fields):* aquatic only; +1 for carnivores.

Perfect Balance: land-dwelling only; +2 for climbing; +1 for mountain habitat; -1 if gravity 0.5 or less, +1 if gravity 1.5 or more.

Scanning Sense (Radar):* no if Small size or aquatic; +2 if space-dwelling.

Special Abilities

Other special abilities are impossible to predict. Why did woodpeckers become specialized to bore holes in trees? Why did electric eels evolve into living capacitors? On alien worlds, things can get even more bizarre, but the basic laws of nature still apply.

What's Plausible

The most plausible special abilities for aliens are those that we know are possible because they already exist. Anything used by existing or extinct Earth species are perfectly defensible. Many special abilities based on Earth life are already described above, but there are more possibilities. Without turning this chapter into a biology encyclopedia, there are some abilities to consider.

Afflictions in the form of chemical defenses are fairly common. Some are ranged sprays, like a skunk's musk or a bombardier beetle's superheated chemical spray. Range tends to be fairly short for spray attacks – typically no more than the animal's ST in yards, up to a maximum of about 10 yards. They take the Limited Use or Takes Recharge limitations, since all creatures have a finite amount of material to work with.

Hibernation in unpleasant conditions is another common ability. Northern animals do it in winter, when food is hard to find and it makes sense to huddle up and conserve energy. Warmer-climate organisms may hibernate (technically, they are *estivating*, the summer version of hibernation) during droughts. Some creatures can survive in drought mode for extraordinary periods – tardigrades or brine shrimp can be revived after decades in stasis. In ***GURPS*** terms this is Metabolism Control (Hibernation) as described on p. B68.

While *shapeshifting* in the comic-book sense is not really possible (see below), there are creatures that undergo changes, either seasonally or as part of maturation. Snowshoe rabbits switch between white and brown spotted pelt depending on the season, while many invertebrates completely remodel their bodies as they go through different life stages. These are all simply 0-point features, since they happen either once or according to a predictable schedule.

On Earth there are many *invisible* creatures – undersea organisms whose bodies are exactly as transparent as the water around them. They take advantage of a specific environment and have adapted to those conditions. It requires a medium about as optically dense as one's body tissues. This would be modeled as Invisibility to sight only, with several limitations – only in water, a slight chance of being seen. It also works best for small organisms, no more than Human-Scale in size.

What's Possible

There are also abilities that are unknown (or nearly so) on Earth but that aren't actually forbidden by the laws of nature.

Projectile weapons (as opposed to sprays) don't show up on Earth but they aren't completely impossible. Medieval folklore and American frontier legends both describe spiny animals capable of throwing their quills; on an alien world a species might combine quills with a chemical organ like the bombardier beetle to produce an actual dart gun. Creatures might have multiple "launchers" but each would be single-shot, taking days or weeks to regrow a new dart. Some kind of "blowgun" arrangement that could use pebbles or seeds as projectiles might be possible, but it would require a reliable source of ammunition – and something to shoot at.

Breath weapons like those of fantasy dragons are also within the realm of possibility, but unlikely. A creature could generate a burning spray, but the energy represented by a large burst of flame is tremendous. The creature either needs an external source of "fuel" or a very long "recharge" time between shots. Poison gas is also unlikely because of the difficulty in generating a large volume of gas.

"Blob monster" abilities like Elastic Skin, Stretching, or Morph would suffer some severe limitations. For Earth animals to change their form generally requires substantial amounts of time. Even small insects undergoing metamorphosis take several days. Among larger animals, "shape changes" in pregnancy take months. Anyone designing alien shape-changers should make the process as slow as possible. (This only applies to evolved "natural" species: an artificial organism or machine life might be able to

Moving in Clades

Humans have speculated about the possibility of genetic engineering and cybernetic augmentation. Advanced alien civilizations could alter themselves using the same methods, creating "daughter species" with new or improved abilities.

One thing to remember in such cases is that new species don't automatically replace old ones. When one species of bird-like dinosaur gave rise to the ancestors of birds, the dinosaurs didn't all disappear; they remained doing the same bird-like dinosaur things they always had, while their ancestral-bird cousins started doing different things. Similarly, a genetically modified subspecies or widespread use of cybernetics won't necessarily replace the original species. They may coexist – and both the new species and the original group can spin off other new "daughter species," which in turn can create variants of their own.

The result is that once a species starts modifying itself, one can expect a tremendous diversification. Unless some strong authority enforces uniformity by force, there are likely to be lots of different populations with different modifications and combinations of traits. Human explorers contacting alien civilizations should expect to find a lot of "multispecies" worlds with wildly varying populations, all descended from a common ancestral type.

do real-time rearrangement of body parts under conscious control.) An exception might exist if the body is actually a swarm of independent creatures (see p. 153).

Having an *Extra Head* is not unknown on Earth, usually the result of a birth defect that conjoins twins. It could be an inherited trait. If the heads share a single "mind" (or don't contain the brain, as with Larry Niven's Puppeteers) then this is simply a matter of a better arc of vision and an extra mouth. If they do have separate or redundant brains, then use the ***GURPS*** advantage as described.

Racial Memory is possible, especially for creatures that rely a great deal upon instinct. The memories could be passed only from parent to child, so that a given individual would only have its parents' memories – but those memories could include the parental memories of its parents, and so on. This is especially likely for creatures that reproduce by budding. Alternately, the species might be able to "write" memories into the genetic code, giving access to ancestors thousands of generations back.

What's Impossible

Overtly "paranormal" abilities are impossible under the laws of nature as we understand them. That being said, GMs are free to allow some of them as the result of superscience unknown on Earth.

Duplication violates the laws of conservation of matter. Creatures that reproduce by fission, creating two identical, smaller copies with shared memories aren't using Duplication because it's rare, permanent, and there is no further connection between the two offspring.

Mental Influence abilities like Mind Control, Mind Probe, Mind Reading, or Mindlink are superscience – unless the species has a form of radio communication and all members of the species can use the channel. Mind Control by physical or chemical means is definitely possible.

Para-senses like Clairsentience, Penetrating Vision, or Precognition are in the same situation as teleportation. If creatures could use them, they would confer a tremendous advantage and would quickly become widespread. Note that Precognition opens the whole Pandora's Box of time paradoxes.

Size changing abilities like Growth or Shrinking are pretty much impossible. They violate the law of conservation of matter, and creatures getting huge or tiny without changing mass run into severe mechanical constraints – how do tiny muscles lift normal-size mass? Best to leave these for "four-color" comics reality.

Telekinesis, Temperature Control, DR (Force Field), and other energetic abilities are another "superscience only" set. They violate more laws of nature than we can conveniently list!

Teleportation fits into the realm of superscience. If it exists, it can be described in a logical, consistent manner. But current science says it can't happen. This applies to the advantages Warp, Jumper, and Snatcher.

Alien Minds

Just because a creature is intelligent doesn't mean it will have a mind like ours. The editor John W. Campbell was famous for his dictum: "Show me a creature that thinks *as well as* a man, but not *like* a man."

Brains

Humans have extremely complex brains, allowing us to do things that no other known creature can. Though the behaviors and abilities found among Earth's living things are amazing, there's only one species that builds space probes, drills for oil, or writes roleplaying games.

The vast majority of Earth's living things are quite literally mindless. Plants, fungi, and single-celled organisms have no brains at all (IQ 0). *Alien* plants might be brainier. Among animals, most invertebrates appear to be almost robotic, following "pre-programmed" behaviors refined by long evolution, but with no trace of thought. Maximum IQ for most organisms of this type is 1. They may qualify for the Cannot Learn disadvantage. (An important exception to this is among the cephalopods – octopuses and squids appear to be as smart as any nonhumans on Earth.)

Vertebrates appear capable of generally more sophisticated behavior, and among the vertebrates mammals and birds are particularly good at learning and inventing new behaviors. Most vertebrates would have IQ of 1-4, with the Bestial disadvantage. Mammals and birds (and possibly cephalopods) can have IQ as high as 5, and are Bestial.

Sapience, or human-level intelligence, is very difficult to define, but most people know it when they see it. Why it arose among humans and why it never appeared among any other species is something of a mystery. We naturally see all the advantages to being smart, but evidently it's just one method among many as far as evolution is concerned. Sapience eliminates the Bestial disadvantage and allows IQ levels of 6 or more.

The question of whether it is possible for organisms to be superhumanly intelligent is, of course, a matter of complete speculation. One theory holds that natural selection ceases to apply to any species that reaches human-level intelligence, and that this suggests that no species would naturally evolve a higher average intellect. (Some extremely pessimistic thinkers, like SF author Cyril Kornbluth in his story "The Marching Morons," posit that civilization causes a *decline* in intellect as stupidity ceases to be fatal.)

The opposite idea, familiar to all fans of classic *Star Trek*, is that sentient beings become more and more specialized for intelligence, eventually turning into frail, huge-brained creatures dependent on technology to survive. Even if creatures don't evolve naturally toward higher intelligence, an advanced civilization could artificially boost its average IQ by genetic engineering, excellent education, or cybernetic augmentation.

Nature: The Influence of Biology

Exactly how much of human behavior is derived from our evolutionary heritage is a hotly debated topic. It is also fraught with ideological minefields. If humans act a certain way because we have evolved to do so, does that mean we *should* behave that way? Is what is natural the same as what is right? And what does it say about free will if our personalities are the result of our genes?

Still, it is possible to speculate on how an organism's evolutionary past may affect its psychology. Certainly animals in different niches on Earth behave differently, even when removed from their native environment. Game Masters who don't like that idea can downgrade any personality traits to the level of "racial quirks."

Ecology

The ecological niche a species occupies can affect its behavior quite strongly. Grazing herbivores have abundant food, so can gather in large groups for mutual protection. Gathering herbivores have to compete for scarcer but more rewarding food, so they live in small groups or are solitary. Omnivores are often loners, as are scavengers.

Pouncing predators work either alone or in small groups, but chasing predators sometimes form large packs to bring down really huge prey. Trappers are almost always solitary.

The environment has its effects, too. In harsher environments like arctic or desert conditions there is a greater penalty associated with being in a group (there just isn't enough food or water to support them). However, warm-blooded creatures may band together in those environments to literally share heat! The dense nature of a woodland or jungle environment makes it hard to keep a group together, encouraging smaller bands or solitary organisms.

The Mating Game

Mating patterns come in several types. For many creatures the male and female meet only at fertilization and never see one another again. This is typically linked to strong R-strategy behavior. Males have as many partners as they can get, limited only by competition from other males. If there are any differences between the sexes, they tend to be functional – larger females because it takes more energy to produce eggs or bear young. In many species the males are short-lived, "one-shot" creatures that fertilize and then die.

Other species have a temporary pair-bond, in which the parents remain together until the offspring hatch or are capable of fending for themselves. (On Earth this usually means one year.) Since these creatures have to attract a new partner each year, they often go in for elaborate mating displays, especially the males. Males may also stake out prime territory or good nesting sites.

If the parents remain together for several seasons, they are said to "mate for life." (A fair amount of cheating goes on even in these arrangements.) The couple rears multiple sets of offspring, and often shares food with each other. This naturally goes well with a moderate K-strategy setup. Life-mating species often have little visible difference between the sexes; if there is a difference it is often the case that males are small or even parasitic.

Males sometimes try to monopolize all the available females by driving away or killing any rival males. This "harem" system is particularly common in species that gather in groups anyway, like plains grazers. The advantage is that the strongest male fathers many children, and the females often cooperate in caring for the offspring. Harem species often have a noticeable difference between the sexes, with males typically large and bristling with weaponry to fight off challengers. In some harem species the males and females live apart except during mating season.

Nurture: The Influence of Society

Creatures form social systems, often highly complex ones. Social relations refer to how a creature interacts with others of the same species. Interspecies relationships generally fall into the categories of eating, hijacking food, or running away.

Solitary species live alone, except possibly during mating season. They often have a territory that they defend against interlopers. Large organisms are frequently solitary (simply because big creatures need a big territory for support). Low-intelligence solitary organisms may not even recognize a distinction between their own species and prey.

Alien Creation IX

Intelligence

There are two tables here, one for animals and one for sapient aliens capable of technological civilization. Game Masters who want the possibility of randomly generating a sapient species can assume that a result of 13+ on the first table indicates sapience and IQ 6 or better.

Animals: Roll 2d for intelligence level.

Modifiers: -1 for autotroph, filter-feeder or grazing herbivore, +1 for gathering herbivore or omnivore; -1 for small size; -1 for strong r-strategy, +1 for strong K-strategy; +1 for normal or extended lifespan.

Roll (2d)	***Animal Intelligence***
3 or less	Mindless (IQ 0)
4-5	Preprogrammed (IQ 1 and Cannot Learn)
6-8	Low Intelligence (IQ 1-3 and Bestial)
9-10	High Intelligence (IQ 3-5 and Bestial)
11-15	Presapient (IQ 5)

Sapient Beings: Roll 1d+5 for the average species IQ. The minimum IQ for sapience is 6, so treat any result of 5 or less as a 6.

Modifiers: -1 for autotroph, filter-feeder or grazing herbivore, +1 for gathering herbivore or omnivore; -1 for small size; -1 for strong r-strategy, +1 for strong K-strategy.

Mating Behavior

Roll 2d for mating behavior.

Modifiers: -2 for hermaphrodites, -1 for spawning, +1 for live-bearing; -1 for strong r-strategy, +1 for strong K-strategy.

Roll (2d)	***Mating Behavior***
5 or less	Mating only, no pair bond
6-7	Temporary pair bond
8	Permanent pair bond
9-10	Harem
11-14	Hive

Social Organization

Roll 2d for social organization. Hive species have a "pregenerated" social organization already and need not roll here.

Modifiers: -1 for carnivores, +1 for grazing herbivores; -1 for large size; +1 for harem mating, -1 for no pair bond.

Roll (2d)	***Social Organization Type***
6 or less	Solitary
7-8	Pair-bonded
9-10	Small group of 2d members (1-2 Troop, 3-4 Pack, 5-6 Herd)
11	Medium group of 4d members (1-2 Pack, 3-6 Herd)
12-14	Large Herd of 1d × 10 members

Pair-bonded species (as noted above) live in "nuclear family" groups of parents and offspring. They may or may not be able to tolerate the presence of other pairs nearby – some birds live quite happily in huge communal rookeries with thousands of neighbors, while eagles have widely separated nests.

A small group of creatures (four to 10) living together is called a *troop*, (or band, or pride). This often is based on a mating arrangement: several mated pairs or a male and his harem. Troops share child-care and often work a lot of food-sharing into their social arrangements. Any social group larger than a mated pair requires fairly sophisticated communication – even the "mindless" workers in a hive are using complex chemical signals and body movements to communicate.

A larger group is a *pack,* with six to 20 members. This is typical among chasing carnivores on Earth, but could be used by grazers or gatherers just as well. In a pack there is a hierarchy, with the "alpha male" and "alpha female" as the leaders. They lead in hunting and get a larger share of the food. Alphas mate with other alphas, and prevent low-status members of the pack from mating at all (or at least make sure the young don't survive if they do). The result is that the alphas' offspring benefits from the entire pack's efforts. This is obviously a strong K-strategy setup, and requires constant communication and social jockeying.

Huge groups of animals (10-100 or more) are known as *herds*, schools, or flocks. On Earth they are typically found among grazers, since a huge group requires a huge food supply. Small herds may be a harem, but really big herds are simply too much for even the most ambitious male to monopolize. Herds don't seem to have as much of the hierarchy found in packs; the biggest or oldest members may be the herd leader, but that seems to be "merit-based" rather than "political."

Hives are a very successful social unit based on a single family. The queen is the only fertile female, and spends her life as an egg-making machine. Most of her offspring are sterile females, who spend their time caring for eggs. A small number of fertile females and males leave the hive in search of mates, in order to start new colonies. In some species, all members of the hive are potentially fertile, but are kept from developing by pheromones given off by the queen; when the queen dies her young compete to take the role. Other hives die with their queen. Hive systems combine the vast numbers of young cranked out by r-strategists with the guaranteed-survival care of K-strategists. The only drawback is the "overhead" of all the sterile workers.

Alien Creation X

There are nine mental qualities that define a species' collective "personality." For species whose mentality is closely coupled to their biology, simply apply the modifiers on each table and use the result. For more variation, roll a die, then roll a second and subtract that result from the first. Add the result (positive or negative) to the sum of modifiers. Do that for each table.

Chauvinism

Chauvinism measures how the species views itself as a group compared to others.

Modifiers: -1 for autotrophs or filter-feeders, -2 for parasites or scavengers; +2 for small or medium groups and hives; -1 for asexual or spawning organisms; -1 for solitary or pair-bonded.

Total	***Chauvinism Level***
+3 or more	Chauvinistic (quirk) (becomes Racial Intolerance if Empathy is less than +1 or Suspicion greater than -1; becomes Xenophobia if Suspicion is greater than +1)
+2	Chauvinistic (quirk) (becomes Racial Intolerance if Empathy is less than +1 or Suspicion greater than -1)
+1	Chauvinistic (quirk) (becomes Racial Intolerance if Empathy is less than 0 or Suspicion greater than 0)
0	Normal
-1	Broad-Minded (quirk)
-2	Broad-Minded (quirk) (becomes Xenophilia at 15 if Suspicion is less than 0 and Empathy is greater than 0)
-3 or less	Undiscriminating (quirk – considers all intelligence to be one "species") (becomes Xenophilia at 12 if Suspicion is less than 0 or Empathy is greater than 0; Xenophilia at 9 if both are true)

Concentration

Concentration describes how well individual members of a species can focus on a task.

Modifiers: +1 for pouncing or chasing carnivore, -1 for any herbivore; +1 for strong K-strategy.

Total	***Concentration Level***
+3 or more	Single-Minded and either High Pain Threshold or one 5-point Talent
+2	Single-Minded
+1	Attentive (quirk)
0	Normal
-1	Distractible (quirk)
-2	Short Attention Span (12)
-3 or less	Short Attention Span (9)

Curiosity

Curiosity includes how receptive the species is to new things, and how interested they are in finding them.

Modifiers: +1 for omnivores, -1 for grazing herbivores or filter-feeders; -1 for Blind or Nearly Blind species; -1 for strong r-strategy, +1 for strong K-strategy.

Total	***Curiosity Level***
+3 or more	Curious (9) (if Concentration or Suspicion is 0 or less, reduce self-control number to 6)
+2	Curious (12) (if Concentration is 0 or less, change self-control number to 9)
+1	Nosy (quirk) (becomes Curious at 12 if Concentration is 0 or less)
0	Normal
-1	Staid (quirk)
-2	Incurious (12) (self-control number becomes 9 if Suspicion is less than 0)
-3 or less	Incurious (9)

Egoism

Egoism is a measure of how personally self-important members of this species are, compared with others. It is the individual counterpart to species Chauvinism.

Modifiers: +1 for solitary, +1 for harem (males only), -1 for hives; +1 for strong K-strategy, -1 for strong r-strategy.

Total	***Egoism Level***
+3 or more	Selfish (9)
+2	Selfish (12) (control number becomes 9 if Suspicion is more than 0 or Empathy is less than 0)
+1	Proud (quirk) (Selfish at 12 if Suspicion is more than 0; Selfish at 9 if Suspicion is +2 or more or if Empathy is -2 or less)
0	Normal
-1	Humble (quirk)
-2	Selfless (12) (control number becomes 9 if Chauvinism is +2 or more)
-3 or less	Selfless (6)

Continued on next page . . .

Alien Creation X (Continued)

Empathy

Empathy measures how well individuals can sense or care about the feelings of others, both within and outside their species.

Modifiers: +1 for chasing carnivores, -1 for autotrophs, filter-feeders, grazers or scavengers; -1 for solitary or pair-bonded, +1 for small or medium group; +1 for strong K-strategy.

Total	*Empathy Level*
+3 or more	Empathy (if Gregariousness is more than 0 add Charitable at 12)
+2	Empathy (Sensitive)
+1	Responsive (quirk) (becomes Sensitive if Gregariousness is more than 0 and Suspicion is less than 0)
0	Normal
-1	Oblivious
-2	Callous
-3 or less	Low Empathy (carnivores add Bloodlust at 12)

Gregariousness

This indicates how sociable members of the species are, and how much they need the company of others. It doesn't say how the *species* feels about other forms of life.

Modifiers: -1 for pouncing carnivore, scavenger, filter-feeder, autotroph, or any herbivore; -1 for solitary or pair-bonded, +1 for medium or large group, +2 for hive; -1 for asexual or hermaphrodite, -1 for spawning.

Total	*Gregariousness Level*
+3 or more	Gregarious
+2	Chummy
+1	Congenial (quirk)
0	Normal
-1	Uncongenial (quirk)
-2	Loner (12)
-3 or less	Loner (9)

Imagination

Imagination indicates how well members of the species come up with new ideas, see patterns, and invent new behaviors.

Modifiers: +1 for pouncing carnivores, omnivores, or gathering herbivores, -1 for autotrophs, filter-feeders, or grazers; +1 for strong K-strategy, -1 for strong r-strategy.

Total	*Imagination Level*
+3 or more	Imaginative (quirk) (as with +2 below, but if Empathy is less than +1 add the Odious Racial Habit (Nonstop Idea Factory) [-5])
+2	Imaginative (quirk) (as with +1 below, but adds the quirk Dreamer if Egoism is greater than 0 or if Concentration is less than +1)
+1	Imaginative (quirk) (becomes Versatile if Concentration is 0 or more and Egoism is less than +2)
0	Normal
-1	Dull (quirk)
-2	Hidebound
-3 or less	Hidebound and -1 IQ

Suspicion

This is how distrustful and fearful individuals of the species are about new things or surprises.

Modifiers: -1 for any carnivore, +1 for grazing herbivores; +1 for Blind or Nearly Blind; -1 for large, +1 for small; +1 for solitary or pair-bonded.

Total	*Suspicion Level*
+3 or more	Fearfulness 2, and Cowardice (if herbivore) or Paranoia (if carnivore)
+2	Fearfulness 1 (becomes Careful quirk if Curiosity is -3)
+1	Careful (quirk) (ignore if Curiosity is -2 or less)
0	Normal
-1	Fearlessness 1
-2	Fearlessness 2 (add Overconfidence if Egoism is +2 or more)
-3 or less	Fearlessness 3 (add Overconfidence if Egoism is +1 or more; Fearlessness becomes Unfazeable if Chauvinism is -3 or less)

Playfulness

Playfulness measures how willing a species is to play – to do things purely for fun rather than for any material benefit. Playful animals may be easier to train, and playful sapients are likely to have a sense of humor. This is one table on which humans may not be "normal," since we appear to be unusually playful as a species. To reflect this, Game Masters may decide to give all *other* intelligent species an additional -1 modifier, to make humans seem more playful by comparison.

Modifiers: +1 if K-strategy, +2 if strong K-strategy; +1 for IQ 2 or higher; -1 if Solitary; -3 if Cannot Learn.

Total	*Playfulness Level*
+3 or more	Compulsive Playfulness (9) (becomes Trickster at 12 if species is Overconfident)
+2	Compulsive Playfulness (12) [-5*]
+1	Playful (quirk)
0	Normal (occasionally playful)
-1	Serious (quirk)
-2	Odious Racial Habit (Wet Blanket) [-5]
-3 or less	No Sense of Humor

Chapter Seven

Future and Alien Civilizations

Shiro and Tatsumi walked through the old Imperial Gardens in Tokyo, hand in hand as if they were just another pair of teenage lovers out for a stroll. They really were lovers now, thought Shiro, and he couldn't keep from blushing.

The old palace buildings were completely gone, leveled during the Shahar campaign to erase human history. In their place was the Family of Species Culture and Education Center. The two Alien Fighter Army operatives were hoping the library there would help them figure out the alien tech Shiro had found.

They passed through a security checkpoint under the gaze of a looming Gustrogin soldier in combat armor. Actually, Shiro was glad the huge alien was there – nobody would wonder why his heart was pounding or his mouth was dry. Once inside they followed the signs in Shahar glyphs to the library. Tatsumi had better marks than Shiro in the alien language, so she was going to be the one doing most of the actual research.

They were met at the library entrance by a Tarcaser in a white jacket. It watched them with its top eye while the other two flicked about, scanning the room. "What are your needs?" it asked in slow Japanese.

"We're just looking for some books," said Tatsumi in her best Shahar.

"This facility has millions of works stored on crystals, but no 'books,'" said the Tarcaser, and Shiro decided at that moment that he really hated this alien. The two Alien Fighters had hoped for hardcopy books precisely because nobody would be able to trace what they were researching.

"We're doing a report on industrial design and ergonomics in multi-species equipment," said Shiro as smoothly as he could. "Please, show us how to use the system here."

Suddenly the Tarcaser stiffened, and Shiro realized everyone in the room beyond was staring at them. No – behind them. He turned and found himself looking into the single cloudy eye of a Shahar. A very high-ranking one, if he was reading the insignia on its neckband correctly. There was a little knot of Shuman and Tarcaser flunkies standing four paces behind it.

"It is good for humans to study our technology," said the Shahar. "They will be happy doing their tasks in the Family of Species." It nodded at the Tarcaser and turned to go.

"Please come this way," said the Tarcaser in a much more humble tone.

This chapter covers the business of choosing and designing science-fictional societies for the space-genre campaign. It examines the ways in which advanced technology and alien biology might change how society is structured, and discusses some of the pragmatics of designing a government, its legal structure, and its military forces.

Story Concerns

Roleplaying campaigns are frameworks for stories – the adventures and exploits of the player characters. The purpose of the society is to serve as a story element. Most commonly, societies are simply backdrops, the scenery against which the actors strut and declaim. Occasionally the story focuses on a conflict between the characters and their society, which elevates the society to the status of a "character" in its own right. The role in the story in turn determines elements of the society's structure and function. Is it an open, free society, or a restrictive culture? Who holds power?

Society in the Story

It's up to the GM to determine the purpose of a society. Is it scenery, is it an adversary for the heroes, or a mystery to solve? Sometimes it can be all three, or change over time.

Society as Backdrop

The simplest use for any society in a story or roleplaying campaign is as a backdrop. Making a world or culture alien and exotic reminds the players that this is a science-fiction adventure. An especially well-designed backdrop can provide lots of fun just by letting the characters "play tourist" and explore the setting. Life doesn't have to be a series of shootouts and bar fights, after all.

A useful thing for Game Masters to keep in mind is that all the people in the backdrop society *don't know they're in the background*. Each of them is the main character of his or her own story. Giving the PCs encounters with people who have their own goals and aren't especially interested in the evening's adventure will help make the setting seem more real and give it depth.

Society as Obstacle

Of course, a society can be more than just the setting for the heroes, it can be their foe. This can be overt, as when the PCs are military personnel fighting a hostile alien civilization, spies infiltrating a tightly monitored state, or rebels trying to bring down a tyrannical empire. But characters can come into conflict with a society even if they aren't trading blaster shots with armored stormtroopers. A merchant trying to make a profit in the face of heavy taxes and trade barriers is at odds with society. So is a lawman bringing justice to a wild frontier. Or lovers in a society that forbids marriage between social classes.

Obstacle societies obviously need features that will put them at odds with the heroes – restrictive laws, aggressive plans for Galactic conquest, widespread corruption, lack of interest in space exploration, or whatever. They also need ways for the heroes to circumvent or overcome those obstacles. Can they change the laws, or halt the conquering fleets? If change is impossible, can they get away to someplace more congenial, or find a way to accomplish their goals secretly? A society that is intolerable and inescapable doesn't make for particularly entertaining adventures, after all.

A different form of obstacle society is one that presents the characters with a puzzle. This often happens to explorers visiting strange new worlds, but can befall anyone trying to operate in an unfamiliar environment without enough information. A puzzle society is one that seems to not make sense on first examination. The inhabitants behave or think in a way that just doesn't seem rational. For example, why do the Venusians exile their adults to wilderness preserves when they reach 30 years of age? On the face of it, this is a puzzle, since one would assume people in their prime years would be an asset to society. The puzzle can also create an obstacle if the heroes will suffer some negative effect if they don't solve it in time (in this case the Venusians insist that all PCs over 30 must also be exiled).

But of course a puzzle must have a solution. In the case of the Venusians, it turns out that their species is infected by a parasitic fungus that gradually destroys the individual's intelligence. They send their adults off when they begin to revert to an animalistic state. Puzzles don't have to be science problems like that one, of course. The Venusian situation could be the result of a strong religious belief (one must "return to nature" in order to achieve enlightenment or salvation), a political struggle (the Youth Party took over and is attempting to eliminate the middle-aged as a class), or economics (Venus has a constantly changing, information-driven economy, and Venusians over 30 just aren't mentally flexible enough to keep up). Often solving a puzzle presents a new obstacle or puzzle – can the PCs find a cure for the parasite, or will they too begin to lose intelligence? And if they do cure the parasite, then all of a sudden the Venusians are going to be facing some major social changes.

Evolving Societies

Social change causes conflict, and conflicts are the heart of roleplaying adventures. So any society undergoing change will offer many opportunities for heroes to show their stuff. Of course, all societies are changing, all the time, in different ways. Technological change is one potent driver of social transformation; exposure to new ideas from other cultures is another. Economic cycles drive social change – a generation that grew up during a boom era won't have the same attitudes as one that came of age in a depression. External events like wars or even climate changes can alter societies.

In a game, social changes can be divided into three types: ongoing trends, cycles, and catastrophic shifts. Trends are quiet, gradual changes that often get lost in the "background noise" of everyday events, even though they may turn out to be very profound transformations. Emigration by Europeans to America radically changed the European social and economic system by knocking the economic props out from under the old noble landowners, but it took place over the course of a century and mostly happened "offstage," in places like

Kansas. In game terms, these changes are likely to be too small to notice on the scale of the characters' adventures.

Cycles include things like business cycles, the "generational personality" model of popular attitudes, the political "pendulum" of liberal and conservative ascendancy, and the rise and fall of civilizations as posited by historians like Spengler and Toynbee. Most of these cycles are beyond the ability of PCs to influence, and many of them happen on such a long time scale they don't really affect the campaign. It can be interesting if the GM wants to posit a "jackpot year" in which several long and short term cycles all peak at once, leading to major economic and political shifts. This can be especially interesting if the PCs (or an NPC) can predict the crisis. Aliens with differing lifespans could have different cycle lengths: very long in the case of beings with Extended Lifespan, blindingly fast for short-lived species.

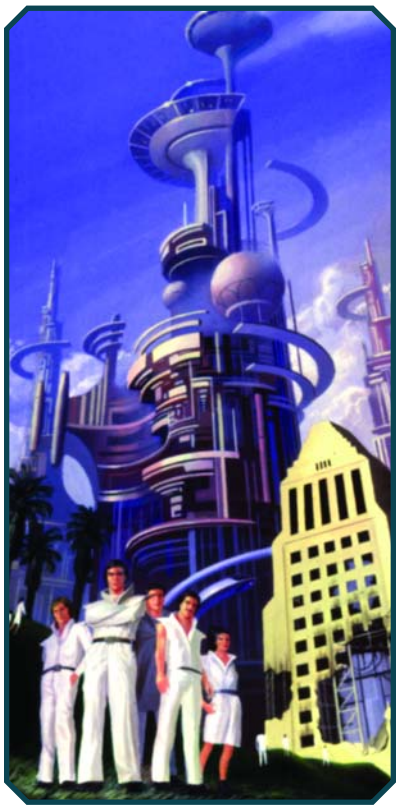
Catastrophic shifts, unlike the others, can take place almost literally overnight. In the case of wars, stock market crashes, or shocking events like political assassinations, massive changes can happen in a few days. Characters who get caught up in those changes can face all kinds of interesting challenges, and potentially valuable opportunities as well.

Dropping a major shift into the game setting should not be undertaken lightly. It must feel right to the players. If their characters have overcome some initial obstacles and are getting to feel at home in the setting, a major change will feel appropriate: the "second act" of the ongoing drama. But if the campaign has been running for a long time and the GM throws in a massive change just to "shake things up" the result may feel like one of the periodic continuity rewrites in a comic book series – a sign that the writers are running out of ideas.

It's also important to make sure that the post-change setting is as interesting a place to have adventures as the original situation. If the players have been having fun running characters who are space merchants, an interstellar war that brings commerce to a halt and gets them drafted into the Navy may not be what they want to do.

Control and Intrusiveness

Exactly how much the social background affects the player characters depends in part on how much control that society has over its citizens. In general, the looser the society, the more the characters can ignore it and focus on their own plots and goals. As society becomes more intrusive, it takes up more of the PCs' attention, eventually becoming an obstacle.



Control Ratings

The ***GURPS Basic Set*** includes the concept of Control Ratings for each society (p. B506). This is an abstract numerical rating of the intrusiveness and oppressiveness of a given state or culture. As with any single-axis description of something as complex as a civilization, it involves some oversimplification. Consider a frontier town on a remote world without many laws, but with summary execution as the only form of punishment. Is that an open society or a restrictive one? If the police can't carry weapons but are allowed to read all your e-mail, is that oppressive?

Game Masters may wish to break down a particular society's Control Rating into distinct sub-ratings for Civil Rights, Social Control, Legal Restrictions, Punishment Severity, and Economic Freedom. The overall Control Rating is the average of these.

Civil Rights are the rights reserved for the citizens that the government may not infringe. The nature and extent of those rights depends on the culture's priorities and history. For instance, many foreigners are baffled by modern Americans' attachment to their Second Amendment right to keep weapons, while Americans abroad are startled by things like government-licensed prostitution or marijuana sales. Typically a low CR in the Civil Rights department means that the citizens have the "upper hand" and will react with anger and indignation when their rights are infringed; a high CR means they are resigned to oppression and know not to complain.

Economic Freedom fundamentally represents how free the people are to buy, sell, and conduct business. Restrictive societies may make it very difficult to do business without government involvement, while open ones may consider commerce to be an entirely separate sphere. Economic Freedom also indicates how heavy the tax burden is (unless there is some unusual situation, like a war to fight raising the tax level or government-controlled resource sales providing a "free" income stream). Game Masters may wish to apply a society's economic CR as a penalty to Merchant skill when non-native characters are trying to do business there, in place of the normal -3 penalty for dealing with foreign cultures.

Legal Restrictions are simply how many things are against the law. Very free societies only ban violence against other citizens (and may even tolerate a certain amount of violence as "private wars"). As CR rises, more things are banned. Typically property crimes come next, followed by laws against fraud and deception, then laws banning reckless acts, then laws governing offensive speech and behavior. Cultures with a high Legal Restrictions CR try to regulate all aspects of behavior, leaving nothing untouched by the laws.

Note that alien or future societies may have very different ideas about what is restrictive and what is free. In a strongly religious culture, casual blasphemy could be a serious crime even at low CR, while in an honor-bound society murder in a "fair fight" could be far less serious than lying.

Punishment Severity is a measure of how harshly the culture treats law-breakers. A low Punishment CR means sentences are light, fines are more common than jail time, and the emphasis may be on treatment or rehabilitation of offenders. High Punishment CR means that the society imposes heavy penalties to punish the guilty or deter future wrongdoers. This also affects how likely law enforcement agents are to use physical or lethal force. A low Punishment CR probably means they don't go armed, or carry only stunning weapons. High Punishment CR means they can use lethal force to stop fleeing suspects.

Social Control reflects how much of a society's intrusiveness represents extralegal mechanisms. There may not be any law against carrying a blaster on Aspen Station, but if you try it you'll find the hotel won't give you a room, the cantina won't seat you or sell you a drink, and the repair dock won't give you credit. Low social CR means that people mind their own business and don't stick their noses into other people's lives. High social CR means that everyone knows what everyone else is doing and lets them know what they think of it. Typically, social control CR is high in small close-knit societies, and low in diverse urban cultures.

Avenues to Power

Characters within a society may wish to gain positions of power and authority themselves. There are at least three ways to do this.

Work the System

All systems of government have a mechanism for choosing who rules. There's no reason why player characters can't join in. This can mean running for office in a democracy, getting hired and rising to the top in a corporation, or assassinating everyone with a better claim to the throne in a hereditary monarchy. Rising to the top by working within the system usually takes a while, and may become the focus of an ongoing campaign. Of course, it's easier for adventurous types to rise in some societies than in others. A feudal culture might reward boldness and cunning with ennoblement, but in a democracy the voters are seldom likely to keep re-electing someone who spends all his time off having adventures instead of doing his job.

Start Your Own

Characters may get the opportunity to be "Founding Fathers" of a new society as a result of their actions in the campaign. Leaders of a rebellion or independence movement have to create a government to replace the one they've overthrown, and entrepreneurs setting up a colony on a distant world can establish the kind of regime they like.

Becoming the new rulers is a good way to retire characters after a successful adventuring career. They may become patrons to new, less powerful PCs, or the whole tone and structure of the campaign can shift from colony-building and rebel heroics to political infighting and diplomatic struggles.

The Cortez Option

Finally, sufficiently aggressive PCs may attempt to simply take over an existing state and make it their own private empire. This requires something to give a small group of characters (and whatever followers or mercenaries they bring along) an edge over the people they're fighting. In the case of Cortez it was steel weapons and the sophisticated military tactics and command structure the Europeans inherited from the Romans. Empire builders in a space campaign can leverage their firepower by choosing low-tech opponents – even a single TL difference can have a huge effect.

It's also useful to choose a target society that is ripe for toppling. The Aztec Empire had lots of discontented subject tribes ready to ally with the Spanish. Even gold-obsessed strangers from over the sea were apparently preferable to the Aztecs' industrial-scale human sacrifice. In Cortez's case, this was pure luck, but future conquistadors can do careful intelligence-gathering beforehand to find a suitably unstable target regime.

Low-tech cultures may have high-tech protectors. Primitive planets can be guarded by the space Patrol or the rangers. Trading partners or neighbors may get upset if some upstart

Corruptibility

A society's *Corruptibility* is an index of how easy it is to evade the laws by bribery, connections, or bluffing. Apply Corruptibility as a modifier to Control Rating in appropriate situations. If the Corruptibility index is 0, the laws are enforced equally and fairly, and violators can't weasel out of a penalty. But if Corruptibility is, say, -5 in a CR 6 culture, then for the "right people" almost anything is permitted.

Exactly how to take advantage of the local Corruptibility index depends on the structure of the society. In status-conscious or feudal societies, a Savoir-Faire roll might allow one to act like one of the elite. Almost anywhere Streetwise rolls tell one when and how much to bribe (or locate a speakeasy or black market that has already paid off the authorities). In highly bureaucratized societies, an Administration roll lets one work the system to avoid arrest or punishment. Politics can be used in oligarchies or one-party states to behave like a high-ranking member of the Party.

Additional skills can help. Area Knowledge lets the character know what method to try. Fast-Talk can replace one of the other skills, but at a penalty equal to the local CR.

takes control of a nearby world. There may even be bands of bold adventurers on scene willing to help fight for the planet's freedom. A clever conquistador will try to neutralize potential interference beforehand: point out the instability or awful conditions on the target world so that the new regime seems like an improvement to the interstellar community. Reassure trading partners that existing contracts will be honored (even if they won't). Buy off adventurers with a promise of a share in the loot. Bribe the rangers to look the other way, or choose a moment when the nebula pirates are occupying all of the Patrol's attention.

Society and Biology

A creature's biology affects the way it thinks and behaves. Exactly how much effect biology has is still in debate: some scientists maintain that "biology is destiny" and most of our behavior is hard-wired, while others insist on free will and the importance of environment. Without another intelligent species to study and compare ourselves to, the debate is likely to continue.

Biological Constraints

Setting aside questions of free will for the moment, it is nevertheless true that a creature's physical body and evolutionary history must have an effect on the type of society it builds.

Numbers and Density

Diet and size affect how many beings a given environment can support, which in turn will affect population density and things like the design of cities. Humans can eat plants, which means that agriculture can feed fairly large, concentrated populations. Larger organisms would require more food, reducing the numbers a given region can support. Smaller beings could have much bigger populations. As a rough guideline, divide the creature's mass (unmodified by gravity) by 200 lbs., then take the cube root of that ratio, square it, and divide the population by the result. Thus if an average individual weighs 500 lbs., the species population is only 54% of the normal level.

Carnivores need proportionally more area for support, since they can't eat plants directly. Divide population by 10 if the species are pure carnivores or scavengers. Omnivores can presumably shift to a plant-based diet if necessary. For parasites, figure population based on the species they parasitize.

Metabolic rate also plays a role. Cold-blooded creatures don't need as much food, so can support a bigger population in the same space as warm-blooded ones. Double the population number for a cold-blooded species.

Habitable Environments

Where a species evolved affects where it can live. In general, organisms can't really thrive in an environment that is poorer in food and water than where they evolved. Humans arose in dry African grasslands, so could easily handle forests, jungles, and coasts. We don't do so well in deserts, mountains, or the arctic. Warm-blooded organisms like humans seem to be able to handle cooler climates than their native environment fairly well, while cold-blooded creatures might spread into warmer territories.

Aquatic creatures have similar constraints. Animals with gills can't go between salt and fresh water very easily, although air-breathers can (creatures with gills have problems with salt concentration gradients that air-breathers don't have to deal with). Creatures native to shallow water (lagoon or reef) can colonize other shallows, but probably can't spread into deep water. Deep-ocean organisms may thrive in the shallows, where energy and nutrients are abundant.

Ultimately a Game Master must decide how much of his home planet a given species can use. Much depends on technology, as with TL6+ equipment beings can live just about anywhere if they must.

Psychological Constraints

Even if you don't assume all behavior is hard-wired, it's pretty obvious that at least some traits are innate, and those in turn will have an effect on society. In particular, the psychological traits discussed in Chapter 6 will influence how an alien culture develops.

Chauvinism

One can assume that chauvinism also applies within a species as well as in dealings with aliens. Chauvinistic beings probably are loyal to their own social group and dislike outsiders. High Chauvinism translates to a lack of unity in the culture, since it will be hard to bring different subcultures together. Broad-minded or Xenophilic races, by contrast, may have no trouble uniting – but may also feel little loyalty to their own species if an alien culture seems more attractive.

Setting aside questions of free will for the moment, it is nevertheless true that a creature's physical body and evolutionary history must have an effect on the type of society it builds.

Concentration

A race's Concentration level is likely to affect its economic productivity. Single-Minded beings can work harder and thus produce more; their society may have a higher-than-average Wealth. Concentration may also affect the race's ability to undertake long-term projects. Distractible or Short Attention Span creatures will tend to "live in the moment" and have a hard time planning ahead or considering consequences. They may not have any capital assets greater than what one group or individual can build and make use of. They are likely to be poor stewards of a planetary environment, and be limited to low TL.

Curiosity

Science and technology depend ultimately on the curiosity of individual researchers and inventors. A race with high Curiosity is likely to advance quickly, while Incurious species may never achieve much advanced science on their own. Curiosity is a major driving force behind things like exploration and contact with aliens. An Incurious race will probably never leave its home planet unless there's a very good reason to do so. The far-ranging starships will belong to the Curious.

Egoism

Individual ego has its biggest effect on a society's Control Rating and economic structure. Egoistic species won't cooperate easily and will have a healthy sense of their own importance. Control Ratings for Egoistic species societies will tend to be either very low (no more than 2) or very high (5 or more).

Selfless organisms will tolerate high Control Ratings (even if they don't need them), and are more likely to adopt non-market economic systems. A very Selfless species might be able to make socialism work better than egoistical humans have managed.

Empathy

Racial Empathy affects how "nicely" a species behaves, both individually and as a society. Species with Empathy pay lots of attention to good manners and proper conduct – though it can also mean a very prickly willingness to take offense when others fail to behave properly. High Empathy also implies a fairly high level of Social Control (see above) instead of formal legal structures. Reluctance to give offense may mean the species has trouble stating unpleasant truths.

By contrast, low Empathy encourages a "laissez-faire" attitude, but is also conducive to "brutal honesty" and a sense of individual freedom. Combined with high Egoism it can make it hard to form any kind of society at all. Low-Empathy societies may require elaborate and clearly defined legal codes to avoid a total "war of all against all" situation.

Gregariousness

A species' Gregariousness will affect its population levels and how urbanized society can become. Chummy or Gregarious species can have a higher population since individuals don't mind crowding. Cities may be huge and packed. This in turn may stimulate economic activity and technological progress, so Gregarious species may well be richer and more advanced than others. Low Gregariousness requires a more dispersed population, which means fewer big cities and more small towns and settlements. A species with a Gregariousness of -3 or below may never form a society at all.

Imagination

This trait is another technology and science driver, and also reflects how willing the species is to try new social structures. A highly Imaginative race may have a great diversity of social patterns and lots of new technologies. Low Imagination reflects a love of stability. Note that an Imaginative culture may try lots of *bad* ideas, while a Hidebound race will at least stick with what works. Imaginativeness coupled with Suspicion can create a race of paranoids, sensing dangers that don't actually exist.

Playfulness

Playfulness is connected to imagination and curiosity. Socially, it reflects a culture's willingness to devote resources to nonessentials like art, sports, entertainment, and games. Species with high Playfulness are likely to produce lots of art, literature, and media. They may have elaborate sports. Aggressive but Playful species may channel their warlike impulses into intense competition in athletics or wargames. Low Playfulness suggests a very "utilitarian" species, only doing things for practical reasons. They are likely to value rationalism and measurable results rather than aesthetics or inspiring gestures. It means a lot less waste on frivolity, but that very practicality may mean the culture lacks any sort of "safety valve" for individual or group discontent.

What is the use of a house if you haven't got a tolerable planet to put it on?

– Henry David Thoreau

Suspicion

Suspicion has a strong effect on government type. A strongly suspicious race will favor a high CR, but may also insist on protections for civil rights. High Suspicion leads to a strong reliance on following proper procedures and documenting everything. Lack of trust in others does make it hard to organize large-scale operations.

Low Suspicion makes for personal bravery and a certain level of optimism. A low-Suspicion culture is likely to be adventurous and expansionistic; coupled with low Empathy and high Chauvinism it could make for a race of aggressive conquerers.

Oxygen-Breathers Unite!

Some space settings have so many alien species there's no way anyone can keep track of them all. David Brin's "Uplift" series and James White's "Sector General" stories involve incredibly diverse multispecies societies. In such a setting beings may feel kinship with related or similar species.

White and "Doc" Smith both used classification systems for alien species, based on various characteristics of biology and environment. Knowing your proper species code could be a matter of life and death for interstellar travelers, especially when a mistyped digit could put you in the fluorine-breather section of a starship!

Of course, even species that eat and breathe the same stuff can be radically different in habits and outlook, and there is a lot of dramatic (and comic) potential in having humans lumped together with a hideous or hostile species that happens to share the same classification code.

Society and Technology

The technology level has a tremendous effect on any society. Changes like the birth of cities, the industrial revolution, and the modern "information society" all came about because of new technologies. A strongly "technological determinist" view postulates that societies at the same TL will tend to look the same even if they are different species on different planets.

Technology and Daily Life

Modern readers know perfectly well how much technology affects their lives. But how will it affect the characters in a space game? Here are some social and personal attitudes to consider for a futuristic society.

Dead Without It

Humans can live on Earth without advanced technology. Even the most tech-dependent city-dweller can still breathe the air. On any world without a fully Earthlike environment, that won't be the case, and humans in those environments will be much more aware of the machinery that keeps them alive. Anything that might disrupt the life support will be viewed as a serious crime, and all citizens are likely to know at least some basic damage-control techniques. This could foster either a strongly communitarian culture ("we must all work together") or a certain degree of callousness ("incompetence is its own punishment").

Invisible Tech

In very high-tech societies, devices can be so advanced as to be invisible. Instead of typing commands or pressing buttons, people just speak to the air when they want something to happen. Hidden computers hear and obey. Inhabitants of such a society would have almost godlike control over their surroundings – but might be completely helpless if the machines stop listening. One can see aspects of this already: modern automobiles with computerized engines are more efficient, but there are fewer people who can fix their own cars.

Pictures Do Lie

Already it's possible for a computer-generated actor to steal scenes in a film. In a future setting, *any* recorded or transmitted data could be falsified, and any kind of verification can be forged. Such societies may see a return to reliance on face-to-face transactions and the importance of an individual's word as a guarantee of truth. (Or they could lead to a paranoid society in which everything really *is* a lie and trust is a forgotten concept.)

Safety Uber Alles

Advances in science and technology also make people aware of dangers. Sometimes they are new dangers resulting from technology; but there are also natural dangers that become avoidable. For most of human history, disease was a "random event," but with modern medicine it is something to control and prevent. Future generations may feel the same way about things we see as normal. Future societies could require people to eat properly, or prosecute makers of "unhealthy" products like chocolate or butter. If computer-controlled cars are safer, it may be illegal for humans to drive themselves. By modern standards, a future world of hyper-safety might seem dull, and its people oddly repressed and unadventurous. (Or a hyper-safe world might breed reckless risk-takers, unaware that bad things *can* happen.)

Controlling Technology

The question of how to control technology and who decides when to do so is a major theme in science fiction. In SF gaming, it has direct effects on the game environment.

Why?

Inhabitants of modern Western civilization may find the whole issue of controlling technology mysterious. Why bother? Technology has been good to Europe and its colonies over the past thousand years. More must be better, right?

Maybe not. There are several good reasons why people might want to control technology.

Social Disruption: New technologies change the playing field. Some people get rich, but those whose fortunes are tied to older ways of doing things sometimes get poor. Usually the economic growth associated with technological change overcomes the disruption, but for the individuals actually affected, things can be rough. They may try to protect their jobs by putting the brakes on technology change.

Technologies also change social structures. The birth control pill and the private automobile led to the Sexual Revolution, which in turn had ripple effects on religious life, family structure, demographics, and people's views of morality. Naturally, many of those who don't like the social changes may wish to ban the technologies that cause them.

In a science-fiction setting, where stellar-level supertech can meet stone-age societies, the possibilities for disruption are immense. Even with entirely good intentions, advanced cultures can destroy primitive ones – and as yet there isn't a technology that can eliminate bad intentions. It should be noted, however, that supposedly "primitive" societies on Earth have sometimes proved very adept at using new technologies and assimilating them into their existing culture. Low-tech doesn't equal stupid or helpless, after all. The "natives" may have very different ideas about whether they are "ready" for advanced technology, and may be very resentful of the arrogant aliens trying to keep it from them.

Danger: Some technologies are just plain dangerous. Nuclear power provides vast amounts of energy, but gives its users the potential to create nuclear or radiological weapons. Space travel lets people explore the Universe, or lob weapons at enemies thousands of miles away. Nanotechnology holds the potential for immortality – and for deadly "gray goo" capable of destroying all life.

Any society may decide that some technology is simply too dangerous to let anyone have free access to. Even the open, technophilic West keeps nuclear weapon designs secret. Exactly how secret depends on how dangerous the technology is (or is perceived to be) and how easily it can be misused. Nuclear weapons are really dangerous, but they're also really hard to build, requiring resources on the scale of at least a minor nation-state. So people can still study nuclear physics, and the textbooks don't come with a security clearance.

Weapon technology is often restricted, but how it is restricted depends on the situation. During the Cold War, both the United States and the Soviet Union sponsored massive research programs into weapon systems, and trained thousands of engineers, but also tightly limited exports and contact with the other side. Both sides *wanted* new tech, they just didn't want the other guys to share it. By contrast, in the 1890s Great Britain had the world's best battleships, and the introduction of the *Dreadnought* class suddenly made them obsolete. Suddenly, Britain's naval supremacy evaporated because of a ship they themselves built. Many in the Royal Navy would have been perfectly happy if *nobody* had that new technology.

Political Instability: Related to the idea of social disruption is the potential for *political* disruption, especially in tyrannical societies. When the Evil Overlord controls all sources of information, a new channel of communication can threaten his rule. Dissidents can get in touch without being monitored; they can contact supporters abroad and plan how to get rid of the Overlord. Naturally, the Overlord wants to keep that technology out of people's hands. If the new technology is a weapon that can even the odds between the rebels and the Overlord's legions, he'll be even more intent on suppressing it – at least until he can refit his troops.

Getting Out Of Control: Sometimes technologies can literally get out of control, especially biotechnology or artificial intelligences. Computers are powerful and vital to all parts of daily life – what if they stop obeying orders? Compared to most machines, humans are frail and easily damaged, and the technology that makes it possible to support a city of millions means those millions are vulnerable when something goes wrong. Do humans want to create machines smarter than we are?

In the modern world, this is one reason for the alarm about genetically modified foods or human cloning. In science fiction, this fear is often the root of things, like Asimov's Laws of Robotics or the social stigma suffered by genetically modified creatures. In a sense, science fiction has been grappling with this issue ever since Mary Shelley's Victor Frankenstein brought his monster to life and discovered it had a mind of its own.

How?

Even if people agree that a given technology should be controlled, actually doing so is sometimes quite difficult. There are a variety of methods.

Absolute Ban: Just say no. If society decides that nanotechnology is just too dangerous, then forbid it. No research into the subject, no making nanotech items, no nothing. Anyone who does can be jailed, fined, or torn apart by an angry mob. This method works, but it has its vulnerabilities. In particular, it's hard for one society to enforce its ban on others. The European Community has had mixed success using economic pressure to discourage the use of genetic engineering in other countries. And if a dangerous technology is also powerful, the society that bans it is putting itself at a disadvantage.

If the ban is maintained by force or by some external power (a high-tech civilization trying to keep some worlds low-tech, for instance), then the question becomes how far the external power is willing to go. Will they censor textbooks? Destroy research labs? Assassinate or kidnap scientists? At some point the measures to control the technology may become as disruptive as the effects they are intended to prevent.

Embargo: This can go in either direction. A society might try to maintain its monopoly on a given technology by strict controls on exports, while others might try to keep out "harmful" tech by import restrictions. This works fairly well to control the spread of large items, but it can't stop information very well at all, and no border is absolutely "leakproof." If somebody on one side wants technology that is only available on the other side, then somebody else is going to make money smuggling it across.

In the case of a low-tech society denied access to high tech, an embargo can prevent the import of items,

and might even limit the spread of things like textbooks and schematics, but it's almost impossible to stop *ideas* from getting across. Once the locals have seen firearms, they'll try to build their own. If they succeed, then either the embargo power must try to enforce an absolute ban, or admit that the society has "joined the club" and relax the restrictions.

Licensing: An open society may try to limit the spread of dangerous technology by requiring anyone who uses it to pass rigorous tests, and possibly security checks or psychological exams. This has the advantage of letting society enjoy the benefits of the technology, but it also means the safety of the society depends on how well the licensing exams work at weeding out crooks, fanatics, lunatics, and enemy agents. It's vulnerable to corruption, and won't stop a really determined foe from learning what they want.

Technical Fixes: It's possible to use technology to control technology. The simplest way is to attempt to make devices tamper-proof, so that anyone trying to find out how they work ends up with useless fragments. A variant on this is to include fingerprint or DNA recognition pads on equipment, and install a self-destruct if anyone who isn't an authorized user tries to activate it.

A brute-force method might employ large electromagnetic pulse generators to fry any electrical technology in use on a given world. Every few months, the Technology Patrol comes through and zaps the planet back to the Steam Age. A more sophisticated version of this might employ nanotech devices built to home in on gunpowder or plastic and break them down into useless dust.

More elaborate "superscience" methods can be used to enforce a tech embargo or an absolute ban. In L. Sprague deCamp's "Planet Krishna" stories, the authorities used sophisticated brainwashing equipment to make sure nobody cheated on the technology embargo – but even then the inventive Krishnans found ways to beat the system.

Losing Technology

A common trope in science fiction, going well back before even the invention of nuclear weapons, is the decline of modern civilization and the loss of technological capability and scientific knowledge.

There are a couple of reasons why this is such an appealing idea in fiction. First (and simplest), the image of barbarians wandering through the weed-choked ruins of New York and Paris is a dramatic and compelling one. It lets writers comment on things like hubris, mortality, and other Big Topics.

Second, reducing or limiting technology makes for fun adventures. Destroying civilization in a story lets the reader (and the author) experience the vicarious fun of getting away from all the bothersome details of modern life. No IRS audits, no taking the kids to soccer practice, no pesky supervisors at work – just a pure struggle for life against mutant cannibals and psychotic motorcycle gangs.

Limiting technology also lets science fiction dip into the deep wells of historical and fantasy fiction. Cutlasses were good enough for the pirates of the Spanish Main, why can't space pirates use them? And it's much more sporting to fight a dragon without an elephant gun or blaster cannon handy.

Dark Ages can be useful even if the characters aren't living in them. A "Long Night" or "Chaos Years" in the past lets the GM "press reset" on the setting's history. He doesn't have to envision a future society that knows everything known today plus centuries of future scientific and cultural accumulation. He can focus on the period of rebuilding leading up to the campaign date.

A post-Dark Age setting allows for more variety in technology and societies. There can be super-advanced technology from before the Collapse left lying around, and isolated human societies on different worlds can diverge into strange and interesting forms. Explorers can go out to re-establish contact with human worlds, leading to all kinds of cool Planetary Romance possibilities.

How It Happens

Actually losing technical knowledge is difficult. Even during the Dark Ages following the fall of Rome, Europe retained its technology. What it lacked was resources – the sheer wealth needed to finance big construction projects or equip a professional legion to Roman standards. The knowledge was there, just not the money. That being said, there are several ways to reduce the available technology of a culture, even if they have knowledge of more advanced techniques.

The simplest and most brutal is a population crash. Most modern technology works best on a large scale. A silicon chip plant requires a market for millions of chips to be profitable. Reduce the population and the tech level possible goes down. Maintaining TL8 requires a society about as big as a large modern nation-state, like Japan or the United States, with 100 million people or more. A TL7 culture can be smaller – the size of a country like Great Britain or Italy, with a population of 50 million or more people. For TL6, a society can get by with about 20 million. Maintaining TL5 needs at least 10 million, the size of the young United States at the start of industrialization. (TL5 is also about the highest technology a town-sized community could easily keep running with occasional infusions from outside.)

Lower technology levels require much smaller populations. An Age of Sail ship's crew could fabricate and maintain just about everything they needed on board, except for the cannons. A town of a few thousand could be technologically self-sufficient and self-sustaining at TL4. Given the poor communication and transport available, even small communities of only a few hundred *had* to be self-sufficient at TL3, and TL2 needs about the same population. Bronze Age TL1 cultures can be maintained with even a small village.

These population levels assume reasonable levels of trade and communication. Any disaster that cuts off transportation would effectively make every town a self-contained unit, limiting them to the technology they can support with local resources. Similarly, an interstellar colony that is cut off (by war, or some interference in hyperspace, or whatever) would have to manage with whatever technology its population can maintain.

If you don't want to kill everyone off, another way to reduce technology is to assume some kind of massive social movement in favor of a low-tech existence. In practice this works out to an absolute ban on high technology, but one enforced as much by popular prejudice as by government action. A voluntarily low-tech society might stockpile advanced weapons for self-defense, leading to unpleasant surprises in store for would-be conquistadors seeking an easy victory over a "primitive society."

Another method is to assume that the society's technology all depends on a single key resource, then cut off the supply. Energy sources are an obvious choice, but there are others. One interesting variant is to assume the society's technology is based on a supply of Precursor artifacts – perhaps all starship drive cores are Ancient tech, and if the supply runs out, there won't be any more starships!

Finally, information itself can run out. A culture that stores all its records in electronic format could lose huge chunks of knowledge to an "infowar" of virus programs or EMP weapons, or to some catastrophic software accident like the much-feared "Y2K bug." This is especially likely for a small colony without a lot of backup libraries and archives.

Economics

One of the most important aspects of any society is how it generates and distributes wealth. The science of *economics* studies how societies perform this basic function.

Economic Output

Any society, even a pre-industrial one with very primitive economic institutions, will produce goods and services. *Economic output* is one way to think of the sum total of all economic activity within a society: food harvested, raw materials gathered, manufactured goods produced, housing erected, professional services used, artistic works created and performed . . . everything that the society's citizens might wish to produce, offer for trade, and use.

Resources

The resources available to a society are one factor controlling its economic output. Resources are *found* items, products of nature that can be turned to productive use once a society applies its available technology to the problem.

Resources become valuable when they are very useful *and* in short supply. If a resource isn't useful, it won't be valuable. For example, uranium ores were nothing but a geological curiosity before technologists learned how to extract power and explosive force from them. Meanwhile, even a useful resource won't be valuable if it is plentiful. Iron is extremely useful in many industries, but since iron ore is common it remains relatively cheap.

Any science-fiction universe needs to make note of what resources are particularly valuable, given the available technology and the needs of society. A resource that is rare and critical to important technologies can be a good plot hook, driving conflicts between characters and between societies.

One trap to avoid, of course, is the invention of a mysterious resource that was completely *unknown* to pre-spaceflight society, but which has somehow become critical to civilization. Many science-fiction stories have postulated such resources, and it's not unreasonable to have one in a space setting, but they shouldn't be multiplied beyond reason. See *Unobtainium* (p. 181) for examples of such resources.

Unobtainium

Here are some examples of special resources not found on present-day Earth, which *are* reasonable to include in a science-fiction universe.

Antimatter

The visible universe is dominated by "normal" matter. Antimatter doesn't seem to exist naturally in large masses, for a very good reason: if a large quantity of antimatter was produced by some natural process, it would annihilate itself spectacularly the moment it encountered normal matter.

Antimatter is thus likely to be produced only in a laboratory – but if some odd natural process produced large quantities of antimatter, then somehow *confined* it away from contact with normal matter, it could be "mined." The engineering processes involved would be difficult, but any civilization that already uses artificial antimatter for power distribution will be up to the challenge.

Antimatter, of course, is the basic power source in the *Star Trek* universe. The television series has never established whether antimatter is produced or mined, but given the wealth of other odd materials in that universe, natural production seems possible . . .

Artifacts

Alien or Precursor devices of technology beyond what human civilization can achieve are fabulously valuable. If the super-advanced aliens are still around, getting their artifacts requires finding something they think is worth trading for, and avoiding any restrictions their government may place on giving high tech to primitive humans. If the aliens are extinct (or have "passed on to a higher state of being") then finding artifacts is a cross between prospecting and archaeology, and the chief dangers are claim jumpers and huge rolling stone balls.

Exotic Biologicals

Living organisms produce a bewildering variety of chemicals even on Earth, where almost everything uses the same basic biochemistry. On alien worlds, where life may be based on other chemical processes, truly exotic substances will be produced.

Any one biochemical is unlikely to be useful, but biologists and pharmaceutical researchers make their living by investigating thousands of them at a time. Any living world might yield useful, yet previously unknown, industrial chemicals or drugs. Meanwhile, alien organisms will produce other substances, valuable for their rarity or curiosity value: exotic woods, unusual amber-like secretions, and so on.

The classic example of an exotic biological – the basis for an entire series of novels, in fact – is the *melange* spice in Frank Herbert's *Dune*.

Exotic Matter

Quantum black holes, magnetic monopoles, cosmic string loops, or negative matter could all be valuable in a future society. Even if there's no industrial use for them, scientists will likely pay good money for samples to study, and some types of weird matter may be essential for antigravity or FTL travel. Most of them are likely to be *very* hard to collect and store.

Transuranic Elements

It's a common cliché to invent "new" chemical elements that were somehow unknown to pre-spaceflight society, but which are critical to interstellar society. In fact, there are no gaps in the periodic table of the elements; we already know all the chemical building blocks of matter, from here to the furthest star.

There is one set of chemical elements – the stable *transuranic* elements – that have not been found on Earth, but which could conceivably be found in other star systems. As atomic nuclei become heavier, they become more unstable and more radioactive, which is why elements heavier than uranium aren't found in nature and must be produced in a laboratory. However, there are theoretical "islands of stability," ranges of atomic weights well beyond that of uranium, in which nuclei might be more or less stable. Tiny amounts of such ultra-heavy metals might be produced in supernova explosions; if some natural process could concentrate them, it might be possible to find and mine them.

What properties do these stable transuranics have? It's anyone's guess, since no one has found or produced any of them yet. Perhaps some superscience technologies depend on the unusual properties of these weird substances. Several pieces of classic science fiction, particularly Poul Anderson's "Polesotechnic League" stories, turn on the rarity and special properties of stable transuranics.

Technology

Advances in technology have a variety of effects on a society's economy. Every new technology increases the *variety* of goods and services, and creates a demand for items that didn't even exist before the technology was developed. New technologies create brand-new industries, each with its own pattern of supply and demand, and this can increase a society's economic volume.

Another profound effect of new technology is on *productivity*. A worker who is given better tools will often produce more goods, or more useful services, in the same amount of time. Technological advances can also make the use of resources more efficient, so that more goods can be produced with the same amount of energy and raw materials.

One common theme in science fiction is the economic disruption caused by new technology. It's true that when new technologies change patterns of supply and demand, some industries (and some occupations) will decline in importance. Many stories have described societies in which citizens are being made obsolete by advances in technology.

On the other hand, the economic law of *comparative advantage* suggests that advances in technology will never render human workers completely useless. Even if automated ultra-tech tools can do *everything* more efficiently than human labor, society will still be more productive if humans are permitted to do whatever they do best, trading the products of their work for other goods and services produced by machines. Some recent science fiction envisions societies in which sophisticated computers do most of the administration and industrial production . . . but humans still thrive by producing art, music, philosophy, and other cultural goods!

Economic Distribution

Once an economy produces goods and services, the economic system has to determine how to *distribute* them. Who benefits – who profits – from manufactured goods and delivered services?

Surpluses

Every society defines a minimum standard of living for its members, often reinforced by moral or political codes. No matter how hard times get, a society's members tend to share their goods and labor so that no one falls below a certain level. This level can be quite low, of course – either because everyone is facing true deprivation, or because the society regards its poorest members as expendable. Any economic production, beyond what is needed to meet this minimal standard of living for everyone, is an economic *surplus*.

One question that needs to be considered is the source of a society's economic surplus. Which members of society actually do the most to produce the surplus – unskilled laborers, skilled laborers, managers, technologists, or automated machines? What status do these productive classes hold in society? How do they produce the surplus, and what form does it take? Economic surpluses are often generated by a society's newest industries, based on new resources or new technologies that haven't been fully assimilated by the society as a whole.

Economic Equality

Every society must develop mechanisms to *distribute* its economic surplus. The question of who benefits from the surplus is as important as the question of who produces it in the first place . . . and there's no guarantee that they're the same people.

One feature of a distributive system is the degree of *coercion* that it involves. Many societies distribute their economic surpluses coercively.

Money

There's a long tradition of coming up with new names for money in futuristic settings, and one can tell a lot about a society by what its currency is called. "Credits" are a very common currency in science fiction, suggesting a highly abstract money system, possibly with no physical "money" circulating at all. Other societies might prefer a currency with a more objective basis of value: the gigajoule (about $10), the megabyte (about $0.20), or grams of various metals. If counterfeiting is a problem, "money" may take the form of one-time cryptographic keys.

Currency names can also reflect the society's history and values. Monarchies may have "Royals" or "Imperials." Any human culture might use "Solars" in honor of the home system, or "Stars" as a more generic unit.

Of course, an especially balkanized setting might not *have* any kind of standard interstellar currency. *All* transactions off-planet must be in barter, and the value of an item shifts wildly depending on who you're negotiating with.

The Leisure Society

Many science-fiction stories have portrayed a *leisure society*, a society in which almost no one is forced to work in order to support a comfortable lifestyle. In a leisure society, even many luxuries (advanced education, luxury goods, wide-ranging travel, and so on) are freely available to every citizen.

A leisure society can happen when industries are so productive that they can easily provide every citizen's needs without requiring them to work. This can be the result of extremely advanced technology, such as automated factories and "magic" nanotech. In effect, so much wealth is available that the minimum standard of living for every citizen can be placed very high.

Naturally, even in a leisure society some people will have more leisure than others. Just because the minimum standard of living is high doesn't mean there isn't an economic surplus, which may be distributed very unequally. In fact, in a world where no one is suffering real starvation or deprivation, it may be easier to justify vast differences in wealth.

Of course, another way to generate a leisure society is to have an underclass of non-citizens who do all the necessary work. This is an extreme example of an unequal system of distribution – the luxurious standard of living of a few citizens is supported by the labor of many non-citizens. If the relationship is very coercive, the society holds slaves or serfs. If the system is only mildly coercive, the laboring class may be "migrant" or "guest" workers. If the laboring class has the Slave Mentality disadvantage, then no coercion may be needed at all!

In science fiction, leisure societies can be a useful way to examine a variety of social or philosophical issues. When no one needs to struggle to survive or enjoy life, does life still have meaning? If the leisure society is supported by non-citizen labor, what moral obligations exist between citizens and non-citizens? Do the answers change if the non-citizens are themselves products of advanced technology (robots or artificial life forms)?

The surplus is gathered in the form of taxes, fees, tribute, or other enforced contributions, and is then distributed by the conscious action of an administrative or governing class. Other societies use some form of "free market" to distribute an economic surplus. In a free market, ownership of goods and services is assigned to the people who produce them, who are then permitted to offer them freely to anyone who can meet a reasonable price. Most societies use some mix of these methods, using some level of coercive taxation to support the government's operations, and permitting other economic activity to take place in a free market.

Another important feature of any distributive system is its level of *equity*. In some systems, the economic surplus is concentrated into very few hands, leading to strong inequalities of wealth. Such inequalities often encourage the formation of an elite social class – administrators, entrepreneurs, high priests, or military leaders who use wealth, social position, and political power to reinforce each other. Other systems tend to spread the economic surplus more widely, permitting more of a society's members to benefit.

There are many societies in which wealth means more than money or goods. Prestige, religious merit, or political influence are immaterial forms of "wealth" that might be as valuable as cash in some settings.

Coercion and equity are almost "independent variables," only loosely correlated with each other. A despotic or feudal society will be both strongly coercive and very unequal in its distribution of wealth. A communistic or hive-mind society may be very coercive, but also very egalitarian. A capitalistic society may be very free, while still permitting wealth to concentrate in the hands of a property-owning or entrepreneurial class. Finally, a communitarian or "natural communist" society may be very free while still distributing the economic surplus almost equally across the population. Superintelligent AI computers might be able to make central planning work in a way that humans have not been able to achieve.

The coerciveness of a distributive system is related to the Control Rating of a society (p. B506). A society in which wealth is coercively distributed will almost always have a high Control Rating. The equity of a distributive system doesn't have a simple measure in the ***GURPS*** rules – but it will have an effect on how many people have Wealth (p. B25) far above or below the average. A strongly unequal society will have some people with several levels of the Multimillionaire advantage, and a *lot* of Dead Broke people to balance them out. An egalitarian society will have few Multimillionaires and relatively few Dead Broke or Poor people. The *average* wealth will remain the same.

Law and Justice

Of course, governments aren't really governments without laws. A despot may rule by whims and decrees, but any stable society requires a set of known and consistent rules. Otherwise any kind of planning for the future becomes impossible.

Sources of Law

Laws can come from a variety of sources, and the source of law must ultimately be something that makes the law legitimate in the eyes of the people who obey them.

Common Law

Many English-speaking countries on Earth follow a system of common law, based on tradition and precedent. While sometimes unwieldy, it has the weight of tradition and the powerful concept of "because we've always done it that way" to lend legitimacy. Nowadays all countries supplement that with laws enacted by legislatures, but on another world or in an alien civilization, tradition could be the only true source of law. Such a system gives a lot of power to the judges who interpret the law and make decisions that get enshrined as precedent. Common law systems are sometimes slow to adapt to changing conditions and unexpected situations. They can often preserve odd quirks and remnants of the past. In organized, literate societies, common law can amass a huge database of precedents and decisions, while in low-tech cultures it may only include what the judges can remember.

Religious Law

When you can't trust other humans to make the laws, who can you trust? God, that's who. Many societies on Earth still use legal systems based on religion. Islamic law combines the principles laid down by Muhammad with what amounts to a common-law system of precedents and interpretations; ancient Jewish law was very similar. Religious law has the advantage of divine authority to lend legitimacy, but that can break down if the populace changes its beliefs or abandons the religion. Like common law, religious law is very slow to change, especially since the divine revelations simply *cannot* be wrong.

In science-fiction settings, there is the possibility that genuine "higher powers" might actually exist. A superintelligent AI, or aliens with vast intellects, might give a culture a set of laws to follow, then either move on to another world or lose interest in the project. Colony founders might give their descendants a legal code that acquires mythical status after civilization collapses.

Legislated Law

Law codes are systems of rules drawn up by a government. An absolute ruler can draw up a code to suit himself and impose it by fiat (as Justinian or Napoleon did); democratic states have legislatures to make and amend laws. Code law depends on respect for the government for its legitimacy, although an especially well-crafted set of laws can be accepted for their sheer functionality. In a monarchy the legitimacy of the laws is the same as the ruler's claim to the right to rule. In a democracy it is often codified in a constitution (which is really nothing more than a "meta-law" to define the system for making and changing the rules). The same authority that drafts the laws can change them, so that a law code system can adapt to changing conditions; however there is no guarantee the changes will be wise ones, and the ease of amendment makes it easy to follow a disastrous course.

In many Earth nations law codes exist uneasily with other systems. In the Anglophone democracies, acts of the legislatures can supersede common law, but in Islamic lands conflicts between religious law and secular law can erode the legitimacy of the civil authority.

Fiat Law

In some situations, the law is simply what the people in power say it is. What they say can change from day to day, and it's up to the population to stay informed. On Earth this sort of rule by edict is usually confined to dictatorships, emergency governments, military occupation authorities, and any other situation where there is power to enforce order, but no established rules. But in a future society with AI computers, a legal system that adapts moment-to-moment, taking all factors into account and judging each situation on its merits, might be highly enlightened and efficient.

Other Systems

Science-fictional societies can add all kinds of new wrinkles to the idea of making laws.

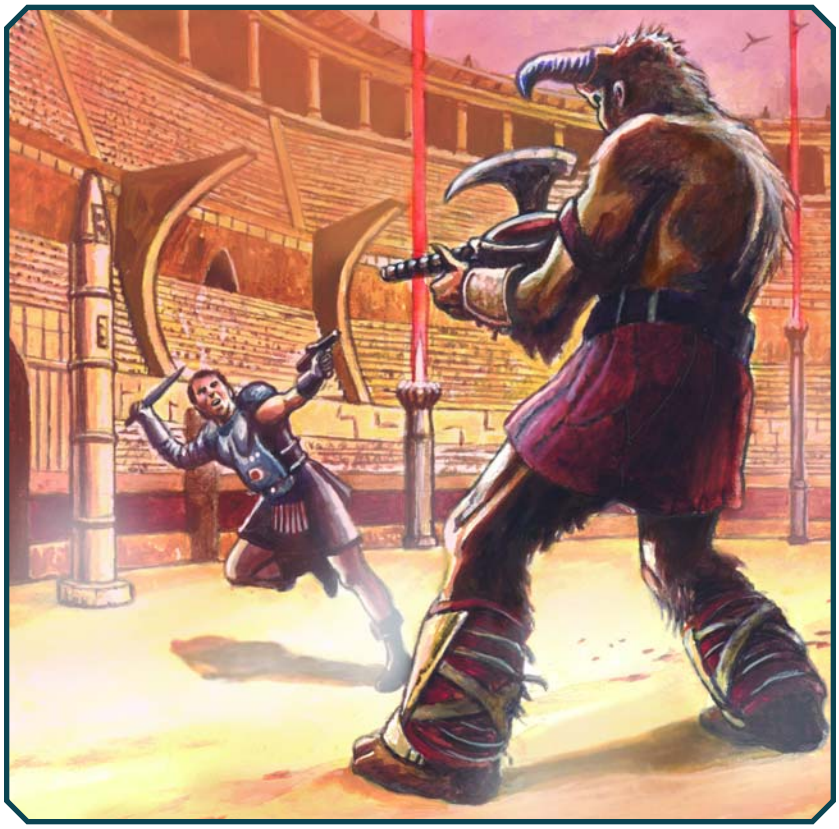
Consensus systems use the input of everyone in the society, or at least all adults. In low-tech societies this only works in small groups, and often requires a lot of discussion. But an information-age society could link up its citizens in an "online democracy." It can either enact codified law as a kind of super-legislature, or apply fiat law to situations as they occur.

Instinct is seldom a basis for law among humans (though consider the ancient tradition sanctioning a man killing his wife's lover). Alien creatures might have much more of their

behavior determined by hard-wired instinct, and use that as the basis for law and administering society.

Prestige might give an individual's statements or opinions the force of law in some societies. This assumes that prestige comes from some source other than brute force or religious authority. On Earth this sometimes works in democratic societies, when prominent individuals can urge legislation and sway public opinion.

Participation could be the source of law in a utopian anarchy or a laissez-faire free enterprise system. Individual laws or sections of legal code could be made available to the public, and if the public adheres to those laws, they remain in force. This is akin to common law, but with the built-in "sunset" policy that if enough people break the law it ceases to apply.



Resolving Disputes

One of the reasons to have laws is to resolve disputes between people or groups. When there is no mechanism for dispute-resolution, the only recourse available is fighting. On Earth, dispute-resolution is handled by the courts, through the whole system of civil law and litigation. Other cultures might do things differently.

Augury seeks the will of the Gods through omens, and has been used on Earth as a means of dispute-resolution. If reading omens requires a priest, then in effect the priests are the civil judges. But if anyone can read the omens, then this is essentially justice by random die rolls. Clever operators will learn to "game the system" by choosing situations so that the omens favor their side. In some settings, the omens may be picking up the will of some superhuman being.

Democracy means that the whole society gets to resolve disputes, probably through some kind of Athenian democracy vote. Even in modern America people talk about the "court of public opinion" and note that the judges follow the election returns. This requires either a small, close-knit society or a *very* efficient communication system.

Mediation is used in some cases in modern society, but another culture might use it for *all* dispute resolution. Mediation seeks to work out a "compromise position" that both sides can live with, instead of the more familiar "winner and loser" outcome. Mediation helped by psionics or super-intelligent computers might try to achieve the goal that is best for *everyone*, including the participants and society.

Ordeals are an old method, similar to augury, in which the disputants go through an ordeal like submersion, holding a burning coal, handling poisonous snakes, or other unpleasantness. The theory is that whoever is in the right will be protected by divine power and so will be unharmed. If the ordeals are dreadful enough, people will only demand a trial when they are *sure* they are right!

Telepathy lets a skilled psi discover the true right or wrong based on the memories of those involved in a dispute. This makes psis into arbitrators, and means that privacy is impossible for anyone who wants justice. This is an obvious choice for a society ruled by psis.

Trial by Combat has an old history on Earth, and is based on the idea that Fate or the Gods will uphold justice by giving victory in a fight to the one who is right. A culture that values martial prowess might retain trial by combat even in a high-tech society. There may be limits on weapons one can use, rules about hiring a champion to fight in one's stead (in which case skilled champions can become very well-paid), and so on. It's quite likely that a society with trial by combat as a legal mechanism will also have a *lot* of informal duels and fistfights.

Verification by supersophisticated lie detectors or completely reliable truth drugs could make the whole question of dispute resolution a technical matter. This would reflect a society in which getting at the truth is more important than privacy.

Criminal Detection

Criminal law can be considered a special case of civil law, in which the society as a collective entity considers itself wronged by one person's actions. Again, the major purpose in having criminal laws is to make society the agent of justice rather than letting individuals carry on personal vendettas.

How a society deals with crime reflects both its ideals and the practical realities the law enforcers must face. In the United States we insist that the police read the accused their rights (idealism) and allow minor criminals to plea-bargain in exchange for testifying against major ones (practicality). These two are often buckets in a well, changing relative importance depending on how serious the crime problem is. When crime is running rampant, "get tough" policies are enacted, shifting the balance to practicality. When things are under control or there are outrageous abuses, the idealists demand reforms.

In modern Western societies the police are a distinct agency, separate from the military, the courts, and fire/rescue services. Other cultures may combine elements – a frontier marshal might be both police and magistrate, authorized to track criminals and mete out punishments on his own authority. In a society facing serious violent crime, the army may take over some or all law-enforcement tasks. Conversely, a very peaceful culture might view policing as just an extension of fire and rescue, dealing with all threats to the safety of the citizens.

New Crimes

New technologies and new societies mean new ways to break laws. In just the past couple of decades computer crime has gone from a curiosity to a major concern of law enforcement. Some possible future crimes include:

Illegal Insentiation: Creating a computer system with free will, contrary to the rules governing AIs.

Irreversible Murder: Killing a person in such a way as to preclude easy recreation or revival.

Mindrape: Mind-reading or mental manipulation without consent.

Personality Theft: Stealing an individual's mind record.

Social Tampering: Influencing a low-tech or alien civilization for personal gain. The most common method would probably be the "God Grift" (impersonating a divinity for criminal purposes).

Unlicensed Cloning: Making a genetic duplicate of someone (probably someone famous) for exploitation in various ways. This could range from making copies of famous actresses for bordellos to something as relatively benign as cloning great athletes and then seeing how much teams pay to hire a legend "reborn."

Punishment

While the details of law enforcement and dispute resolution get short shrift in most science fiction, writers and filmmakers get really creative when it comes to punishments. Just regular jail never seems to be enough. Over the years, they have come up with lots of imaginative ways to punish evildoers.

Brainwashing

Mind control, either through psionics, hypnotic conditioning, or brain surgery, lets society try to "cure" criminals. The simplest level just makes it impossible for a convict to perform violent or criminal acts. The film *A Clockwork Orange* shows one technique and its effects. Sometimes clever crooks can find ways to beat the conditioning.

More elaborate brainwashing may "kill" the criminal's personality and replace it with a new person who doesn't remember the crimes he committed. The brainwashers may or may not tell the reprogrammed person what he did. This kind of treatment lends itself to complications when the treatment goes wrong. Is the mass murderer's personality starting to resurface in his new mind? What if a mindwiped person runs into a victim of his former personality – a victim who wants revenge?

Exile

If space travel is easy, then criminals can be exiled to another world, either for a limited term or for life. A relatively humane society may simply use this as a form of "compulsory colonization" intended to let troublemakers and tough guys fight a hostile planet instead of peaceful citizens. A tyrannical or sadistic culture may use convicts as slave labor, or ship them to an especially nasty "hell planet" where only the toughest can survive.

Internal Exile requires some kind of preserve or "prison zone" where criminals are sent to serve out their sentences. Often the Zone's borders are sealed by some kind of ultra-tech barrier. Violent criminals tend to build their own vicious anarchy, while political prisoners may use internal exile as a chance to put their ideals into action.

Finally, a criminal could be exiled by simply becoming "invisible." In a high-tech culture this means being Zeroed, but with no chance to acquire a temporary identity. Cut off from computer networks, bank terminals, and communication, the exile lives in society but can't participate.

Organ Banks

Larry Niven was probably the first author to suggest that capital punishment becomes a lot easier for people to stomach if they know that all the criminal's usable organs will go to help sick and dying people get a new lease on life. Niven also speculated that if living a long and healthy life depends on lots of executions, people might start imposing the death sentence for more and more offenses. So far, no government has connected the same dots, but it may only be a matter of time. In a space campaign, many high-CR societies may fill organ banks with parts of condemned criminals.

With sufficiently advanced medicine, the criminal doesn't even have to die. A particularly cruel culture might remove organs for transplant from a *live* felon, condemning him to an existence tied to life-support machines but helping others. Cordwainer Smith's hell-planet Shayol took this to an even more baroque extreme, as convicts were sentenced to life on a world where local microorganisms stimulated the growth of extra organs!

Virtual Prison

One complaint about modern jails is the expense. It costs money to house a criminal in even minimally decent standards. It would be so much simpler if they could be just stacked up like cordwood in a warehouse somewhere until their sentences are up. Suspended animation offers a way to do just that. Crooks get frozen for the length of their sentence. No muss, no fuss.

Of course, some might object that freezing felons means they aren't getting punished for their crimes. They enter jail, go to sleep, and wake up free men. Virtual reality technology can solve that problem: the prisoner's body sleeps, but his mind is awake in a simulated environment. The nature of that environment depends on how cruel the prison system planners want to be. It could be educational, merely tedious, or actively horrific. One idea that is just sadistic enough to be plausible is for the criminal to spend his sentence experiencing all his crimes from the viewpoint of the victims.

Alien Punishment

A nonhuman culture could use very different penalties, based on alien psychology or anatomy. For instance, a species of gregarious herd creatures might consider exile the equivalent of the death penalty, while a society of solitary carnivores would hardly consider it a punishment at all. A species that regrows limbs might use amputation as a penalty for minor offenses.

For some beings, the question of *how* to punish them becomes important. A teleporting psionic can't be kept in jail, and a superintelligent AI could simply "upload" its personality to a different computer brain. Would an immortal even mind spending a few years locked up? In any society where these things are normal, the laws and courts must have ways to deal with them. Perhaps the psionic gets an implanted "inhibitor chip," while the computer is isolated from all networks.

Military Forces

Almost every society maintains military forces – institutions designed to use force to defend the society from attack or impose the society's will on its enemies. The nature and organization of these forces can have a big effect on how a society works, so it's an important thing to consider when designing an alien or futuristic society.

Military Types

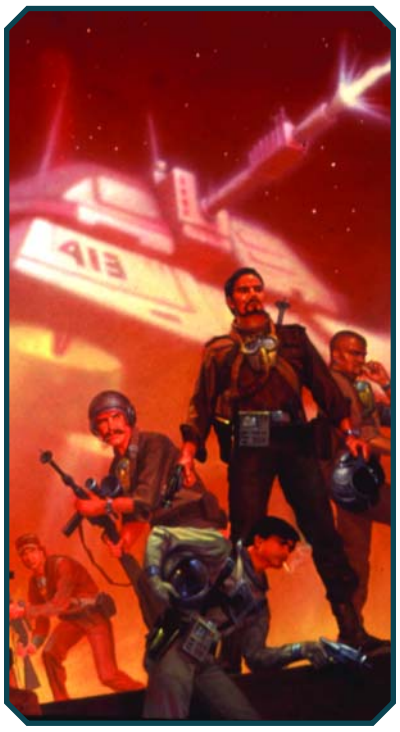
Throughout history, military forces have been organized in a variety of different ways. Many of these institutional forms may be resurrected in the future, as military technology (and the political environment) change.

Standing Armies

The concept of a *standing army* – a permanent military force manned by trained professionals – is relatively new in human history. Although military forces can be economically productive, as when they're used for public-works projects or humanitarian aid, they're usually a net drain on a society's wealth. As a result, a society needs to have a significant economic surplus before it can maintain permanent military forces. Societies without standing armies have used a variety of techniques to maintain a military force for use in wartime.

Militias

Many societies use a *militia* instead of a standing army. A militia is drawn from the civilian population, and can be called up when an emergency threatens. Depending on how much time and money is spent on training and organization, a militia can be an untrained rabble, or it can be a highly trained near-professional force. Some societies require every citizen to undergo basic military training, providing a large pool of people who can take up arms immediately when needed.



Militias are found most often in frontier societies, or in small "city-state" societies that have only limited manpower. They are more common in democratic societies, where the common citizen is encouraged to feel that he has a stake in the society's military success. Even very advanced and prosperous societies often use militias; for example, most modern industrial states maintain "national guard" units to supplement their relatively small standing armies.

Both standing armies and militias can be made up of volunteers or conscripts. Conscript armies can be vastly larger, but tend to have lower overall morale and training levels. Some nations have a volunteer standing army in peacetime and expand it through conscription when war breaks out. Being a volunteer soldier gives characters a Duty to the service, while conscripts have an Involuntary Duty.

Mercenaries

Some societies make heavy use of *mercenaries*. Mercenaries are professional soldiers who are not dedicated to the service of one ruler or state; instead, they temporarily serve whatever ruler or state pays them. Mercenaries can be very effective, because they are professional soldiers. Mercenaries also have the advantage that they don't need to be kept on the payroll during peacetime. On the other hand, both of these advantages can turn against a mercenary force's employers. Mercenaries will rarely take great risks in battle, because their interest is in surviving long enough to collect their pay and move on to the next assignment. Mercenaries can also be dangerous if they don't get paid on time . . .

Mercenary forces are common in aristocratic societies, where the rulers may prefer to rely on professional soldiers but can't afford to maintain a standing army (or are reluctant to arm the common citizenry, for fear of revolution). Mercenaries are also more common in situations where warfare is considered to have "rules" limiting its destructive potential.

Military Units

Military units are usually organized in a hierarchical fashion, with smaller units being used as building blocks for the larger ones. Historically, the number of small units that make up the next larger one is often quite consistent. This is because of the concept of *span of control:* a single human commander can only deal with so many subordinates before being overwhelmed by the stream of information and needed decisions. Military officers deal with this problem by delegating some of their authority to other officers of lower rank, who command smaller units.

This section describes a fairly "generic" system of military organization, based on modern Western models. This system may be useful for a wide variety of science-fiction settings, especially in the "military SF" genre where many authors draw on their own experience of military life to flesh out their description of futuristic military institutions.

GMs who want something more exotic may wish to research alternative military models – although the hierarchical organization of military units is likely to be a constant for *any* human military force.

Aliens, or other beings not subject to human limitations, may organize their military forces quite differently. One simple variant is to change the span of control: beings descended from herd or hive animals might be able to manage larger numbers of subordinates, leading to bigger units at each level of the organization scale. Conversely, solitary aliens might prefer a more "hands-on" style with fewer subunits. Proud, solitary beings might not be able to organize into hierarchies at all, and could retain more of a "heroic warrior" model for armed forces – devastatingly effective special ops squads, but no armored divisions.

Army Organization

"Ground forces" military units (an army, a marine corps, and so on) will usually be organized in the following hierarchy. *Teams* of two to four individuals are the smallest tactical unit. *Squads* are composed of two to three teams (more in a high span of control culture), or are the crew of a single large fighting machine. *Platoons* are formed of three to five squads under an officer, and may include some support personnel outside the combat squads. A *Company* consists of three to five platoons, a command or headquarters element, and some additional support vehicles and personnel. It is normally commanded by an officer of Rank 4. Artillery companies are called *batteries*, while cavalry or armored companies are *troops* or *squadrons*.

A *battalion* consists of two to five companies, with a headquarters element and a significant number of extra support vehicles and personnel. A battalion is usually the smallest unit to have extensive "rear echelon" support elements, such as a medical field hospital, a motor pool, or a military-police unit. *Regiments* consist of two to three battalions, normally commanded by a colonel (Military Rank 5-6). Regiments are often composed of battalions and companies of different types, and can exchange these smaller units to fit changing circumstances. Some armies use regiments as a purely administrative unit, while others dispense with them entirely, but they were the primary unit for the British Army during the colonial era, so they show up in Kiplingesque space settings often.

A *brigade* consists of two regiments or three to five battalions. Like a regiment, a brigade is usually composed of a variety of smaller unit types, and may exchange smaller units as needed. *Divisions* are the smallest self-contained military units, with all their administrative and support functions "in-house." A division consists of a variable number of regiments or brigades, usually averaging about 20 battalions in all. It is normally commanded by a major general or lieutenant general (Military Rank 7). Above the division are a variety of units – the *corps*, the *army* or *field army*, the *army group*, and so on. These are rarely standardized, and are usually assembled and reassembled as needed. Units above the division level are usually commanded by full generals (Military Rank 8+).

Navy Organization

In science fiction, "space forces" (the navy, the Patrol, and so on) are usually organized along the lines of a present-day oceangoing or "wet" navy. Since space navies are organized around spaceships of varying size and complexity, they won't use the simple hierarchy to be found in a ground-based army.

Note that a "space navy" doesn't have to use "wet-navy" ranks and titles. A space force derived from the air force would have ships commanded by majors and colonels, and fleets led by generals. Alternately, the spacers might come up with their own set of titles – astronaut, specialist, mission commander, etc.

Team: A team is the smallest organized unit, and consists of two to six crewmen who work together to support some common function. A team will usually be led by an experienced crewman (Military Rank 0-1), although a team with a particularly important function may be led by a senior NCO or even an officer. On a very small vessel, a "team" may consist of only one crewman, in which case the team isn't considered part of the command structure.

Department: A department (sometimes called a *section*) is a group of teams that work together to take care of one function aboard a vessel or naval base. A department is usually referred to by its function: the *command* department, the *communications* department, the *engineering* department, and so on. A department head is often called a *chief*, a *department officer*, or a *commander*. He may be a senior NCO for a small department, or an officer for a medium-sized or large one. His Military Rank depends on the number of people in department.

Crew: A single ship's crew consists of all the departments and individuals who work on board the ship. A ship and its crew are commanded by an officer, who is always called the *captain* as a job title regardless of his actual rank. Ship's captains usually have Military Rank 3-6, depending on the

size of the ship and its crew. Small bases are organized much like a single ship.

Task Force: A task force is a group of ships of varying sizes, organized for a specific purpose. They are also known as squadrons or battle groups. The exact makeup is determined by what the mission is and what ships are available. Typically the most powerful combat unit is the flagship of the force commander, though some fleets may have specialized command ships with extra communication and data-handling capacity. A task force's commander is usually Rank 7, or at least one level above the highest-ranking ship commander in the force. A large base is the equivalent of a task force in terms of size and command rank.

Fleet: A fleet is more of an adminstrative division than a combat unit. It typically has responsibility for operations within a given region, and includes not only ships but bases and support facilities. Fleet commanders are always Rank 7 or higher, but the number of people they command can vary. A military could have a "fleet" assigned to a quiet or empty sector with almost no ships or people, but a fully active headquarters.

Logistics

There's an old saying, "Amateurs talk tactics and strategy, professionals talk logistics." No military unit can fight without supplies, and that dependence only increases as units become more technologically advanced. The soldiers of Napoleon's *Grand Armée* could get by with little beyond ammunition and hardtack, but a modern force needs fuel, spare parts, medical supplies, *lots* of ammunition, electronics – a whole shopping list. It's likely that future armies will need even more.

Having a logistical "tail" stretching across interstellar space makes warfare very difficult. Assume 10 lbs. of supplies *per day* for each soldier in the field, and at least 100 lbs. of fuel per vehicle. If all that has to be hauled by starship, interstellar war will be very expensive. That's not a bad thing for gaming purposes: expensive wars will rely on fast-moving, hard-hitting teams of highly trained soldiers – the perfect environment for PCs.

The more units can "live off the land" the bigger armies can be in a space war. Automated factories could produce spares in the war zone, and destroying an enemy's autofacs would be a key goal for commando raids. Fusion or cosmic power sources could eliminate the need for fuel, drastically improving an army's supply situation. Nanotech "food fabricators" could turn local air and dirt into rations – though the troops will probably still gripe about the taste.

Alternate Armies

Many science-fiction writers have imagined future armies without any soldiers at all – or at least no *human* soldiers.

Robot soldiers would be hard to kill, easy to replace, and never complain. But it's proving to be very hard to make robots smart enough to act as soldiers, and machinery always seems to need maintenance. Modern armies are beginning to field robots as remote surveillance units or remote-controlled guns, but so far nobody's willing to take the human finger off the trigger button. One possible solution is to use humans safe in the rear "teleoperating" robot soldiers in combat. Jamming the control channels would be a primary goal of the enemy.

If you can't make robots into soldiers, make the soldiers into robots. Partly, anyway. Cyborg soldiers would be strong, fast, possibly armored and equipped with built-in weaponry, but still human. Finding volunteers willing to become cyborg-soldiers might be difficult; a tyrannical state might use prisoners or conscripts – though that runs the risk of having alienated, angry super-soldiers turning mutinous.

Finally, genetic engineering could produce combat bioroids or uplifted animal troopers. They could have animal ferocity and human intelligence, and with a few scavenger genes could live off almost anything – including enemy casualties. As with cyborg soldiers, there could be serious problems if the genetically engineered super-soldiers decide they don't like the society that made them.

How Much Military Rank?

There's a useful rule of thumb when deciding what Military Rank a given soldier or spacer should have. Each level of Military Rank means that the character has about four to five times as many *subordinates* under his direct command. This number has to do with the span-of-control concept – most humans can deal with about that many subordinates before becoming overwhelmed and needing to delegate authority. So someone with Rank 0 has no subordinates, Rank 1 has four to five people, Rank 2 commands 16-25 men, Rank 3 has 64-125 troops, and so on.

This rule of thumb often breaks down across the transition between senior enlisted rank and officer rank; a very junior officer may have Military Rank 3 while still only commanding a section or platoon. Also, a serviceman in a *staff* position, with no one under his direct command, will usually have lower Military Rank than his position in the hierarchy would otherwise indicate. Characters on staff might add levels of Courtesy Rank to reflect their anomalous position of great influence but no subordinates.

The rule of thumb for Military Rank may be extended to other forms of Rank as well, since the span-of-control concept works for every human institution!

Mobility

Related to the issue of logistics is the question of how mobile military units are. If it takes weeks or months to move a battalion from one world to another, then units won't relocate often. There will be semi-permanent garrisons on frontier worlds, big enough to hold off an attack until reinforcements can arrive. Offensives against other advanced military powers will be very difficult, and borders will be stable.

Fast but expensive travel will force militaries to use small forces with as much offensive power as possible – high-tech battlesuit troopers, supertanks, or transforming mecha. This is a good environment for PCs. Instead of big wars there are lots of commando raids, and "special warfare" troops working with discontented citizens to start rebellions in enemy territory.

Fast *and* cheap transport, equivalent to modern air transport, lets powerful military units move about easily. This lets states centralize their military forces, reacting quickly to crises. However, since *other* states can do the same, large-scale wars become possible.

Interstellar Governments

In any campaign extending beyond a single world, there is likely to be at least one interstellar government. There may be several contending powers, or even a vast patchwork of states. The nature of those states reflects and influences the nature of the campaign setting. Most of the notes on governments in this section can also be applied to states at planetary or national scale, but for simplicity the descriptions assume a multiplanetary interstellar government.

Anarchy

Anarchy is a state that isn't a state at all. There is no government, at least not in the sense we know today. Anarchies come in three main types.

Patchwork States

It's possible to have an interstellar civilization with no government above the planetary or even the continental level. This simply mimics the situation in the modern world, just on a vastly larger scale. This arrangement is likely if interstellar transport is very slow and difficult, so that colonies have to be independent if they can survive at all, and there is no way for one world to exert military force against another. In this situation, space beyond the claims of planetary governments could be a dangerous haunt of pirates or bandits, but worlds could cooperate in patrolling deep space, forming the basis of an alliance (see p. 191). Conflict among patchwork states is likely to be localized, pitting a few worlds against each other, and rebellions will be directed against specific planetary governments (often with the help of unfriendly neighbors). Trade can be as free or restricted as individual worlds wish, and companies with operations on many worlds can grow rich enough to become independent powers in their own right.

Failed States

Contemporary news readers are probably familiar with what happens when the government of a country can no longer maintain any order. Law disappears, and society returns to a state of nature, in which the strong do what they want to the weak. On an interstellar scale, there could be entire star systems in which order is maintained by a local regime, but in deep space or on remote planets the law of the jungle prevails. This is also the situation in a frontier zone with little or no control by the central government.

An interstellar failed state can remain in anarchy until either some external force imposes order (which may unite the quarrelling natives to resist the invaders), or until one world sets up an empire or several enter into an alliance to dominate the rest. If the new rulers can suppress or co-opt the local bosses, the new state may survive, but often the civil war drags on through several more cycles.

Anarchist Utopias

Very different from the thugs-with-guns style are stable anarchies deliberately set up as states without a government. These can be quite large, even galactic in scale, but recognize no sovereignty above the level of individual beings. The Culture in Iain Banks' series of novels is a huge anarchy that is the dominant civilization in the galaxy. Anarchies on an interstellar scale must either be the only society there is, or else must be wealthy and powerful enough to defend themselves against aggressive neighbor governments. Social arrangements are either fiercely "libertarian capitalist" setups, with contractual agreements and payment for all services, or "true communist" societies in which automated labor and superintelligent computers have really made it possible for everyone to have what they need without money.

Government

While the whole point of an anarchy is that there is no government, any society has some way of making decisions. In patchwork anarchies there are the local governments, and in failed states there is whoever has the biggest gun at the moment. Utopian anarchies may have no official government, but citizens can form ad-hoc "working groups" to undertake projects or deal with crises.

The Military

In patchwork anarchies, individual worlds can have as much armed force as they can afford (see p. 187). This means that in aggregate, a patchwork anarchy can have more military force than an empire – it's just that there's no central command to point it all in the same direction. There's little distinction between the Patrol and the navy, and planetary armies are most likely configured for defense. Mercenaries are a prime method of foreign intervention, and thrive in this kind of system.

In failed state areas, no formal military exists. Instead there are people

with whatever hardware they can get their hands on. Space forces consist of a few battered old ships, and there's no distinction between the Patrol and pirates. Armies are simply the local goon squad. Failed state militaries can't go toe-to-toe with any kind of organized opposition, but are lethally effective at low-level terrorism and guerrilla warfare.

An anarchist utopia won't have a formal military either, but in a sufficiently wealthy and advanced society, the ad-hoc groups formed for military operations can be quite powerful. The Patrol and the navy alike consist only of ships built and manned by volunteers, and fleets form for specific missions. Defense against invaders is the most likely, but there's nothing to prevent citizens of an anarchy from mounting an offensive to topple an unfriendly state or spread the anarchist ideology at blaster point.

Law and Order

Patchwork anarchies have law at the planetary or national level, and enforcement can be as efficient or lax as the citizens tolerate. Beyond planetary orbit there is *no* law, and unless a pair of worlds have specific treaties of friendship and commerce, *all* spacecraft will be viewed as potential raiders by the planetary navy. Extradition treaties may exist between specific worlds, but otherwise all law enforcement is concerned only with local crimes.

Mere anarchy is loosed upon the world,
The blood-dimmed tide is loosed,
and everywhere
The ceremony of innocence is drowned . . .
– William Butler Yeats

A failed state has no law at all. The strong do what they want and the weak suffer what they must. Some warlords may maintain order among their followers or in a given territory, but that just makes them tempting prey for raiders. Bounty hunters may venture into a failed state's territory in search of particularly valuable fugitives.

Utopian anarchies also have no laws. Nevertheless they may have fairly strict non-legal methods of social control. Custom and tradition can be as powerful as law, or there may be technical fixes like monitor robots to zap anyone attempting violence. Free-enterprise police services could protect subscribers.

Origin

A patchwork anarchy originates when there are several inhabited worlds but no power capable of imposing a government and no desire among the planetary rulers to unite. It is, in effect, the "state of nature" from which other interstellar governments arise.

Failed states, on the other hand, are the endpoint of a society's collapse. There has to be some kind of organization that has broken down. Fallen empires, based on the Roman model, are the most common in fiction, but the real world has seen republics and other systems collapse. A corporate state might go bankrupt leading to anarchy.

Anarchist utopias are generally founded by groups with a specific ideology, and are designed to be functioning societies. Anarchists might simply be from a species that needs authority to get along, or could be reformers or exiles from an oppressive state.

Alliance

An alliance is a loose affiliation of several sovereign states for mutual benefit. In the modern world, NATO and the North American Free Trade Agreement are military and economic alliances. The European Community is an example of an alliance moving toward federation (see p. 193). The structure of an alliance can be formal and tightly organized (like NATO), an ad-hoc arrangement like the Escobar alliance in Lois McMaster Bujold's "Vorkosigan" series, or just a loose and general "we're on the same side" agreement like the human worlds in Niven's "Known Space" stories.

If the members of an alliance continue to improve their ties and work together, it can become a federation, but if one member predominates, it can take on qualities of an empire. Conflict within an alliance can be forbidden or strictly limited, as any major war would shatter it into two or more smaller alliances. Since the

Macro-Life

An especially interesting form of interstellar anarchy is "Macro-Life." This concept was invented shortly after the idea of space colonies independent of planets. If a space colony is self-sufficient, then it's essentially a giant spaceship. It can move about the Solar System or venture to other stars. It can build "daughter" colonies and spread its culture and heritage. In short, it can act like a really huge living organism. The humans within the colony act as its DNA.

A civilization consisting of mobile, self-sufficient, advanced city-states is very difficult to subject to any sort of central authority, so a macro-life society would be anarchic by default. Some "clans" of city-ships might form temporary alliances, or build "empires" in certain star systems, but their influence would be limited. The GSVs of Iain M. Banks' "Culture" series are effectively macro-life vessels, controlled by superintelligent AIs.

members are trying to remain friends, open war is much less likely than espionage, political meddling, and covert operations. Rebellions will oppose specific members of the alliance, and can cause serious conflict when allies are called on to help fight rebels whose ideals they may actually agree with. In a trade alliance, commerce is free and easy – within the borders, anyway. A free-trade pact may well include very tough tariff walls against non-members.

Government

The governing body is a council of delegations from each member world. If a world has multiple governments, all must be represented in the delegation. In some cases, an alliance may give special power to important members – extra votes or veto power.

Normally, the Council may only pass laws affecting relations among its members, and seldom intrudes on its members' internal affairs. A majority of the Council – usually two-thirds – must favor any measure before it can be voted into law. A world can disregard alliance laws by seceding or by becoming an associate member – giving up its vote on the Council to gain full freedom in interstellar policy, yet retaining many benefits of membership.

The council also acts as a court or mediator among member worlds.

When it comes to politics, an alliance is wide open. Member worlds can practice assassination, war among themselves, bribe alliance officials – and until the council comes up with a two-thirds majority, the alliance will be powerless to stop it. Each member world, protective of its own sovereignty, is loathe to allow the extra police powers – including counterespionage or expanded military forces – that would allow the alliance to maintain order among its members. Only an outside threat is likely to unify the council to legislate the needed action.

The Military

Alliances typically maintain a small interstellar navy, while member worlds maintain their own defense forces. If member worlds are stingy, the alliance military may be desperately underfunded until actual war breaks out; if not, they can be small but formidable forces.

Navy operations beyond routine patrols must be approved by the council. Alliance military forces may not intervene in a member's internal affairs without permission from that member. In extreme cases – if conflict on a world or between member worlds is a clear threat to the alliance and its other members – the council may send in a peacekeeping force.

During peacetime, planetary fleets usually restrict themselves to their own star systems. They may also take turns performing border patrols or other routine duties at the request of the alliance. In wartime, the council can request members to mobilize their fleets to supplement the Alliance Navy. Even then, officers may challenge the nominal authority of the alliance admiral, especially when their homeworlds are threatened.

Ground combat forces might consist of a small core group – a "Marine Corps" or "Presidential Guard" – supplemented in wartime by member worlds' armies. Mercenary organizations thrive in the loosely regulated clime of an alliance, and are always available to aid with the defense . . . for a price.

Law and Order

There will be an interstellar police force, usually called the Space Patrol (see p. 203). From a 20th-century perspective, the Patrol is a combination of state police and coast guard. It may be the only permanent armed space force an alliance maintains. The Patrol has full judicial and legal powers within the alliance and outside the member worlds' borders. Anyone arrested by the Patrol is tried in a Patrol court.

Since alliance laws deal only with interstellar matters, adventurers will not be bothered by alliance law except when operating in space. Within the political boundaries of a member world – which usually extend throughout its solar system – they are subject to local laws and ordinances, which can vary widely from member to member! One world could be a liberal democracy where citizens enjoy great personal freedom, while others might be dictatorial, tribal, theocratic, corporate . . .

Extradition of criminals from member worlds is possible, but never certain. Once a criminal is on a world, he is under its jurisdiction – the alliance legal system only has jurisdiction in interstellar space between member borders.

The Patrol seldom interferes in commerce between member worlds –

restrictions are more likely to be imposed by the members themselves. Exceptions may be made if the Patrol is after terrorists or pirates, or if a ship is acting suspiciously, but the Patrol must be careful not to offend member worlds – and delaying cargoes or disturbing tourists is often offensive.

The Patrol exerts more control over travelers from beyond alliance borders. Patrol ships and border stations carefully screen incoming traffic, even if the destination worlds protest such scrutiny. Passengers are checked against lists of wanted criminals. Cargoes are checked for contraband, dangerous animals, or illegal weapon shipments, and routine tests are made for disease or pests. Leaving alliance territory, on the other hand, is usually simple.

Certain goods may be taxed or banned, either because they're dangerous or to protect the industry of member worlds. Enforcement is up to the Patrol. Taxation of individuals is a power strictly held by member worlds, not by the alliance. The alliance is funded by tariffs, fines, and contributions from member worlds for protection and services. Payment may be made in kind rather than in cash. Worlds that cannot pay their "dues" may be subject to coercion by other worlds or by alliance forces.

Terrorist and fanatic groups may exist. If they do, the limited authority of the alliance may make them hard to root out. Member worlds might secretly shelter terrorist bases, letting them train beyond the reach of the Patrol.

Origin

Alliances may form in response to external threats, or from the weakening of a more controlled society. This is a natural first stage for interstellar government. Often, the original members have ties besides geography – common ancestry, trade ties, or similar histories.

Federation

A federation is a union of sovereign states, preserving a fair amount of power for member states but surrendering certain areas to federal control. The most famous federations in science fiction are *Star Trek*'s United Federation of Planets and the Federation in H. Beam Piper's book of the same name.

At the weak end, federations are like close-knit alliances combining military and free trade pacts. Stronger federations give more power to the central government, like the modern-day United States or Germany, and a very strong federation puts all power into the central government, leaving the member states as little more than administrative regions. If one member of a federation dominates the others and interferes in their domestic affairs, the federation becomes more like an empire.

Even a fairly weak federation can keep order in space – that may be all the members allow it to do – so trade and travel thrive. Member worlds may or may not be allowed to maintain their own military forces, but the Patrol and any exploration service are probably federal operations. If the members distrust central government, then the federal armed forces are stretched thin and need to call in member militaries for backup. Mercenaries won't find much work within a federation, but member states or the federal government may use them for "deniable" operations beyond the border. Rebellions may arise when a member wants to withdraw but the central government won't let it go, or when a very powerful group of members try to turn the federation into an empire with themselves as the center.

Laws can vary from place to place within a federation, and in a weak one criminals from one member world can find sanctuary on others. This makes lots of business for bounty hunters. Federal law enforcement probably focuses on crimes outside planetary jurisdiction, and on really dangerous criminals who are too mobile for any single member's police to catch.

Government

The exact structure of a federation's government can vary. Most have been republics of some sort, with representatives of the member states voting in a council or parliament. Some federations, like the old German Empire of the Kaisers, were federations of monarchies with a supreme monarch over all. The modern United States is a federation in which the central government is chosen directly by the citizens, rather than the governments of member states. The governments of the members can vary. One can imagine an interstellar federation that includes planets governed by republics, monarchies, one-party states, and theocracies.

A typical legislative body is a Federation Congress, elected by individual worlds (delegation size depends on world population); it is usually responsive to the will of the citizens. There is usually a separate judicial branch. The Patrol is responsible for enforcing federation law, but offenders are tried by a federation court at the appropriate level.

The United Galaxy

As on 21st-century Earth, nearly all worlds or civilizations in the galaxy may be enrolled in an alliance to preserve peace among them. How well this alliance actually works depends on how it is structured and what the member states think of it. A "United Galaxy Organization" could be the last best hope for peace, or nothing but a glorified debating society where career bureaucrats from minor states can lord it over the representatives of the galactic great powers. If some great peril threatens, getting the United Galaxy to recognize the danger and respond to it can be a daunting task for even the most heroic characters. A minor civilization threatened by aggressors might desperately try to get the United Galaxy to intervene, while a civilization devoted to personal freedom might try equally desperately to prevent United Galaxy interference.

When a world joins the federation, it agrees to abide by the federation charter. For this reason, sector or planetary government and law are much more homogeneous than those of an alliance's member worlds – divergence is prevented by swift federation action, including economic blockade and military invasion.

Secession usually isn't an option for members of a federation, unless several worlds secede at once or outside military protection is available. Planetary nationalists favoring secession may become rebels or terrorists. In rare cases, politics will allow a peaceful evolution to "special autonomous status" and finally independence.

There may also be frontier districts. These are similar to member systems, except that their populations are new (mainly colonists or the newly conquered) or scattered (a blighted region of space). The district government and officials are appointed by the federation.

The Military

Federation politics recognize that military and political power are linked. The Federation Navy is the only group authorized to have interstellar warcraft. Member worlds must surrender their navies upon joining. Hearkening back to the days of independence, however, naval vessels may be named after and manned by a particular world – the cruiser Lotvik, for instance, is crewed largely by native Lotvikians. Size of the fleet depends on the political will and wealth of its citizens. If the people will tolerate the cost of a major fleet, a federation can be as militant as any society.

With federation permission, individual worlds may establish planetary guard units. These include ground troops and possibly atmospheric and sublight warcraft, but no significant armed starships.

The Interstellar Marine Corps is the federation's military ground force. Planetary guard troops and draftees supplement the marines in wartime, but it is the experienced, well-trained marines who handle the dirty work – planetary invasions and defenses, commando raids, etc. If there is a continuing threat to the nation, federations may institute a draft, requiring young citizens to serve terms in the armed forces.

Mercenary companies are rare except in frontier sectors, as the government distrusts independent military forces in central areas. In times of upheaval, mercs may be called in, but liaison officers will be assigned to ensure that they remain under strict control. A federation may form its own legion of mercenaries. These troops are useful for prosecuting politically unpopular wars, especially if they are recruited solely from frontier or foreign worlds – which have no representation in Congress and cannot easily complain about combat losses.

Law and Order

Unlike an alliance, which is concerned with the rights of its member worlds, a federation guards the rights of its citizens. Federation laws are designed to protect the individual citizen and to provide security and unity for the society. On the whole, federation citizens get more benefits, services, and protection than citizens of an alliance.

Police functions may be handled by planetary or sector law-enforcement organizations or by the Space Patrol. The Patrol has full authority anywhere in federation territory, but must cooperate with planetary police – it cannot investigate and arrest independently of local authorities, unless they are obstructing justice.

Extradition of accused criminals between worlds is mandatory under federation law, provided the requesting world can guarantee a fair trial. Otherwise, the accused will be tried in a federation court. Federation authorities (such as the Patrol) carry out the extradition process.

Terrorists may be present, but bases must be well-hidden to survive. Any world known to be harboring terrorists can expect swift reprisals.

Federations keep tabs on interstellar trade within their borders, routinely inspecting cargoes and travelers. Traffic entering and leaving the nation will be more restricted than that of an alliance. Passports will be required – especially if the federation has hostile neighbors – but the emphasis will be on the right of the average citizen to travel, limited by the security needs of the society.

The Space Patrol is on hand to combat pirates or terrorists and to conduct rescue operations when needed. It will also ensure that unscrupulous transport companies do not take advantage of citizens.

Interstellar trade involving federation worlds is regulated by the Interstellar Trade Commission (p. 202). Congress may ban some goods – usually harmful drugs, proscribed weapons, dangerous animals, etc. Tariffs and duties may exist to control imports that might harm world economies. This means there may be a lucrative business for smugglers in some areas, but that's what the Patrol is for. Customs offices are maintained at all starports in federation space. Starports are considered federation territory, and local police do not have jurisdiction there. The Patrol operates these ports, plus any additional posts needed at jump points or along trade routes.

Free news services thrive, restricted only in the name of federation security.

Taxes may be collected by federation, sector, and local governments. There may be a personal income tax, taxes on commerce, or both. Merchants and entrepreneurs will do their best to beat any such tax!

Origin

A federation often evolves when an alliance is forced by some threat to strengthen its central government. Federations last longer than alliances because their society can quickly meet and deal with external threats, and often has the power and authority to deal with internal ones as well.

Corporate State

Ever since the rise of large commercial corporations, people have worried about them becoming powerful enough to rival governments. In history, it has even happened from time to time: the British East India Company *was* the government of India for nearly a century. In science fiction, corporate governments come in several different flavors, depending on how the corporations are structured and how they exercise power.

In history, corporations often exercise power indirectly. In Central America before World War II, for instance, the United Fruit Company was effectively the ruling power, even though each of the countries in which it operated had a sovereign government. The company paid heavy bribes to the government leaders to keep them agreeable, and could sometimes call upon the United States military when bribery wasn't enough. Powerful corporations ruling indirectly are a standard feature of cyberpunk science fiction.

If a setting has multiple corporations, the dynamic changes. Competition among companies can give the people a great deal of leverage (see *The Free Enterprise Society*, p. 196). Of course corporations can band together to avoid competition, forming a cartel. If there is no higher power to prevent it, the result is an interlocked group of companies that function as a single operation.

Corporate-ruled societies are likely to be awful places for independent traders to operate in, because naturally the ruling company or companies will monopolize all the lucrative trade routes. Mercenary soldiers, on the other hand, can often do quite well since a corporate state might prefer to hire military forces only when there's a war to fight, then downsize during peacetime. Spies can be agents of rival companies seeking trade secrets, and explorers can be "trade scouts" looking for new markets and business opportunities.

Government

A corporate state is "managed" rather than governed. Leadership follows standard business practice – the CEO directs day-to-day affairs, appointed and supervised by the Board of Directors. As long as the CEO has the support of the board, he has dictatorial powers, and may hire and fire all other executive officers.

The Board of Directors is elected by the company stockholders. Directors have no responsibility for the day-to-day operation of the company, but act as a policy council to advise and direct the CEO. The directors elect one of their number as Chairman. The Chairman is the single most powerful person in the corporate state, though he operates behind the scenes.

Minor rules and regulations are set by corporate bureaucrats at all levels. Major policy decisions are made by the board. The board also decides the amount of stock available on the market, and possibly its current cost.

The relative benevolence of the corporate state depends on how the stockholders are organized. Citizenship is defined as owning stock in the company. Sometimes a stock certificate is issued along with a birth certificate; sometimes citizenship must be earned. More stock means more voting power; in a malevolent corporate state, the board is dominated by a wealthy minority. But sometimes the "poor" stockholders can band together into "blocs" of common interest, similar to political parties in a democracy. If they have the numbers, they can vote their own representative to the board.

Stock ownership is power. If a few wealthy magnates control the board, society will be managed for their benefit and individual rights will suffer. If other voting blocs gain power on the board, interests will be protected; as more blocs gain power, rights are gradually extended to all citizens.

Stockholders also receive dividends, as long as the corporation makes money. Militant stockholders may demand profits, steering CEOs away from long-term investments and toward short-term gains. After an unusually profitable period, the board may declare a jubilee year – paying extra dividends and sponsoring celebrations.

Individual worlds are run by corporate middle managers, many of whom are working hard to show a profit and earn a promotion. Local management styles may vary from enlightened to dictatorial, and don't have to match overall corporate policy if the board is far away.

The Military

The company has a monopoly on armed might, from local police to interstellar fleets. Local forces will be controlled by planetary directors. Major operations may be ordered by the CEO and must be approved by the board. There may also be an elite security force – possibly a secret police in all but name – under the direct command of the Chairman of the Board.

The Free Enterprise Society

A variant of the corporate state is the free enterprise society. This is simply a government run entirely on business principles, with the overriding ideal of open competition for everything. Military forces are entirely staffed by mercenaries, all services are contracted out to private firms, and instead of political parties there are competing government management companies. In extreme versions, individual citizens can contract with different governments, the way they now do business with rival insurance carriers or long-distance phone companies. The good thing about a free enterprise society is that there is tremendous freedom and opportunity – as long as you can pay for it.

Free enterprise states are usually not expansionist or aggressive, and are open to all kinds of trade – but competition is fierce and sometimes violent. Multiple planets with free enterprise government may merge into a kind of libertarian federation.

Law and Order

Company regulations have the force of law. Many rules exist to insure that individuals put company concerns over any of their own.

Personal freedoms are often allowed only to the point where they interfere with job performance. Failure to follow regulations, meet quotas, or get along with one's supervisor can result in demotions and salary cuts (and loss of social status), criminal sentences, or firing. Firing is the ultimate punishment, since there is no other employer – shopping at the company store, banking and credit rights, and health benefits are lost along with employment.

Rebels aren't acknowledged as such. They are instead saboteurs, pirates, socialists, communists, or – worst of all – unionists, and are to be rooted out at all costs. The losers of a takeover bid could decide on armed resistance instead of golden parachutes.

There is no judicial branch. Local executives conduct hearings and trials in their localities. There may be a "corporate ombudsman" to see that workers get fair treatment and fair trials. The power of the ombudsman depends on the stockholders. If the company is repressive, the ombudsman is helpless, or a pawn of management; in a benevolent society, the ombudsman has enough influence that middle management must respect his views.

Travel between worlds is controlled by the company. Travel for corporate reasons is easily arranged. Individual citizens are also free to travel, using their own time and money, though they may be "bumped" from scheduled flights by business travelers. Productive employees are often rewarded with paid vacations to pleasure worlds. Most employees, however, rarely get to leave the worlds on which they are employed – unless their skills are temporarily needed on another planet.

News is handled by the corporation's public relations or communications department, and reflects the company line. There are many stories about corporate success and happy employees. Failures are seldom reported.

Trade is company-regulated. Company employees must obtain all their goods at the local company store, paying whatever prices the company sets. With the company in control of all commerce, there's no competition and no chance of getting bargains somewhere else. Of course there's a black market, but it's grossly illegal.

Specific taxes in a corporate state are not necessary, since the company makes a "profit" on everything that is bought or sold. Occasionally, in a profitable year, the corporation will even pay bonuses to its workers.

Origin

A corporate state may evolve from the conflict between a super-corporation and a weak government, or when government gives too much authority to business.

If world colonization and exploitation is run by private enterprise, then single-company settlements may result. If corporate rule is unchecked by government, the corporation can expand its power base until it *is* the government on the colonies, while controlling trade with the mother world.

In a far-flung society, corporations may be allowed to form private fleets for defense in remote areas – similar to the East India merchant ships in Earth history. Such military power can allow total despotism in colonial regions, and may give the force needed (perhaps in alliance with other corporations) to secede from or take control of the society.

A corporation may also control a technology so valuable – FTL travel, for instance – that it can do whatever it likes!

Why People Support Rotten Empires

It's nice to think that a government that Goes Too Far will eventually cause the citizens to rise in righteous wrath and throw the rascals out. It's also convenient when all the defenders of the Evil Empire wear uniforms (except for the occasional Secret Police spy). Unfortunately, we know from centuries of experience that it doesn't really work this way. The worst tyrannies imaginable have been enthusiastically supported by people no worse than you or me.

Without going deeply into psychology, here are some of the reasons why citizens support tyrannies. You can use these to make your fictional Evil Empire and its people something more than laser fodder.

Citizens fear that the unknown will be worse than the known: a foreign philosophy, a strange religion, or perhaps society breaking down to anarchy. They may fear and hate an enemy population, especially if they are a different religion or race, let alone species: Do you hate the Bug soldiers because they are cruel and ruthless, or because bugs are icky? Many people fear that a new government would cost them their jobs or personal power; in a corrupt regime, they may have good reason to be afraid of justice. A clever regime's propaganda will play on all these fears, constantly portraying the foe as inhuman, the rebels as terrorist killers.

People who are used to obeying the law often have a hard time changing their habits when the law becomes oppressive. They still believe that "the police only arrest criminals; honest people have nothing to fear." When the rebels break into an armory to get guns, these people see only that a robbery was committed. Enough of this and patriotic citizens may volunteer for the army to fight the wicked rebels. Obviously, rebellions find more support on worlds that were free until the empire conquered them. But even there, some citizens may hate the occupier but doubt the rebels would be any better. You can fight for "freedom" – but once you win, you have to set up a government.

And people may be loyal to the idea, or to the ideals, of a nation or empire, even when the reality is tarnished. "My country, right or wrong . . ."

It is not evil, or even cowardly, to be afraid of starvation, torture, and death. Any successful rebellion must overcome these fears . . . to convince the people that anything is better than slavery. Meanwhile, the government is telling them that anything is better than anarchy. Which is why rebellions have a hard time of it.

– John M. Ford

Empire

When historians or political scientists speak of an empire, they mean a system in which one state controls the internal and external affairs of one or more other states. If this is a legally recognized situation, it's a formal empire; if it's done by ad hoc arrangement or under the cloak of some other structure, it's an "informal" empire.

Many empires in history have been combinations of both. The rulers of Rome had a formal empire of provinces under Roman governors, but they also had an informal empire of client states and allies. Sometimes it was necessary to take over the administration of a client state and shift it from informal to formal empire. Sometimes a province can get more autonomy, as when the British government granted dominion status to its colonies in Canada and Australia, recognizing that they were capable of self-rule – and capable of fighting for it if Britain refused.

All empires tend to expand even when the central government has no desire to annex more territory. To safeguard the border, the empire's rulers naturally want friendly states as neighbors. To ensure that they stay friendly, the empire starts to take an interest in their internal affairs. Eventually, some crisis provokes intervention by the empire and what was formerly a neighbor becomes a conquered province. Naturally, to protect this province, the empire has to make sure there are no hostile states on the border, and the cycle begins all over again. Commercial interests and religious or ideological missionaries can accelerate the process.

The process of expansion can continue until the empire bumps up against a power strong enough to resist. If they border directly on each other, the situation may be quite tense, with constant patrols along the line, "incidents" provoked by hotheaded commanders, and a clampdown on trade. Alternately, the empires may agree to back off and sponsor a neutral zone or buffer state in between. The action shifts from military to diplomatic and political as each empire strives to exert influence in the buffer region and prevent its rival from doing the same. This sort of thing can happen even when the empires are nominally friendly.

Government

Any kind of government can have an empire. Rome gained its first imperial possessions as a republic, and expanded them as a monarchy; the British Empire was acquired as Britain itself moved from absolute monarchy to parliamentary democracy. Republican France had a large formal empire in Africa, and the United States had a substantial informal empire in Latin America.

In science fiction, empires are usually based on the Roman model, with an actual emperor as the absolute ruler. If there is a senate or other legislature, it is distinctly secondary to the monarch's power. Monarchical empires in fiction are usually evil and oppressive, as in the *Star Wars* movies, but some stories like Niven and Pournelle's *The Mote in God's Eye* or Poul Anderson's tales of Dominic Flandry depict empires that are reasonably well run and humane.

States with a single ruler have all the advantages and disadvantages of extremely centralized power. If the emperor wants something done, it gets done – but if the emperor can't be bothered, a problem can fester. And if the emperor is foolish, or crazy, or just plain mean, a lot of *bad* things can get done.

The feel of a monarchical empire depends a lot on how the ruler gained power. Dictators or emperors who seized power by their own efforts tend to build strong but paranoid regimes, with lots of secret police, censorship, and murder of potential rivals. On the other hand, they do tend to be personally very competent rulers. But even the competent ones often make the mistake of assuming that being good at gaining and holding political power makes them experts at economics, military strategy, and city planning. This is seldom true. In human history only a handful of dictators have been competent, sane, and humane all at the same time. Few self-made dictators die natural deaths. Some empires have no set rule of succession, so all the rulers are essentially self-made dictators.

By contrast, a ruler who has inherited power has a lot more legitimacy in the eyes of the people and can afford to be more tolerant. However, with hereditary rulers there is a great deal of random chance involved: will this one be a lunatic? Or just an idiot? It's rare for a dynasty to win the lottery of genetics and upbringing even twice in a row, so a strong ruler is usually followed by one or more weak ones. Sometimes the weak rulers are at least wise enough to recognize their limits and rely on competent ministers and generals, but sometimes they're so incompetent they don't even realize it. Since the chaos of civil war is sufficiently unpleasant, most people are willing to put up with hereditary rule if the only alternative is warlords fighting to become the next dictator.

Some of the Roman emperors chose their own successors, which combines the legitimacy of inheritance with a merit-based choice. Unfortunately, some rulers can be swayed or tricked when picking an heir. High-tech societies might leave the choice of a new emperor to super-intelligent computers, or design the next monarch from scratch using genetic engineering and sophisticated psychological manipulation.

Of course, sometimes it doesn't matter who the emperor is, if he's just a figurehead. This can be a constitutional monarchy like modern European kingdoms, or a puppet ruler dominated by powerful ministers or generals. In some cases a weak figurehead emperor can regain authority if the ministers or warlords fail spectacularly.

The Military

Most monarchical empires, hereditary or new, rely on military power. (Theocracies or especially beloved monarchies may be able to get by without overwhelming power.) Some rulers are content to do nothing more than stamp out dissent, letting the army and the fleet rot and exposing the empire to threats of invasion. Others (particularly self-made dictators) want to expand their dominions and crush all possible foreign enemies as well as domestic ones. Historically, this encourages other states to band together in alliances to crush the dictatorship.

In most space empires, the navy is the dominant service, with fleets of huge starships. Being an admiral is a stepping-stone to the throne, which means senior officers are watched very carefully. Shrewd emperors divide the navy into entirely separate fleets, so that the admirals can keep each other under control. If there is a separate Patrol at all, it is subordinate to the navy. The marines are the navy's integral ground-combat arm, spearheading planetary invasions. The army does a lot of pacifying conquered worlds and suppressing dissent. Mercenaries can take service with local imperial governors to supplement the thin-stretched imperial forces, and in an informal empire situation they may be the primary instrument of policy.

Law and Order

The word of the emperor is law. Some emperors rule by personal decree, but others are happy to let a huge bureaucracy make all the "boring" decisions. Imperial laws take precedence over all other laws.

Empires are restrictive by nature. In some cases there is a drastic difference in personal freedom between inhabitants of the ruling state and those of the provinces. Frustration with that difference is often the motive for rebellion.

The Space Patrol has police powers. Routine trials are held by local

Alternate Empires

There are a number of variant types of empires, depending on the exact details of their government and organization.

Feudalism

In a feudal system, political, military, and economic power are combined in a pyramidal arrangement. At each level the rulers are also the military commanders, and are also the largest landowners (or other resource owners in a science fiction setting). They hold their lands as fiefs, granted by the lord at the next higher level, and in exchange owe that lord support and allegiance. Feudal arrangements can get very complicated when a low to medium level lord nevertheless acquires vast wealth and power, or when two lords owe each other allegiance. Feudal lords tend to be rebellious and quarrelsome, hard for the central government to control; on the other hand, invaders have their hands full fighting against an endless series of local rulers who know the territory. In practice, a feudal society functions like a loose federation, or a cartel-based corporate state. Mercenaries can do very well in a feudal system, and can look forward to being awarded fiefs of their own.

Imperium

A really huge or widespread empire may be so big that the ruler can't directly control the whole thing, and consequently delegates power to governors or proconsuls in the provinces. The governors have absolute power themselves, but can be removed or reshuffled at the emperor's whim. The result functions like a federation or alliance of monarchies, as the various governors may or may not cooperate with one another in a crisis. Naturally, governorship is a good stepping-stone to the imperial throne, which means the emperor's chief worry is keeping his underlings under control.

Theocracy

In a theocracy, rule is through a religious hierarchy rather than a civil government. The ruler is the head of the church, and may have divine status. If the head of the church can rule absolutely, the result is like a hereditary monarchy with much more ritual (and probably an inquisition instead of secret police). A church that has more input from the lower members of the hierarchy may resemble a republic or a corporate state. As recent Earth history shows, a democratic theocracy is possible if the people are sufficiently devout and elect rulers with a religious agenda, but once in power the theocrats tend to dig in and resist changes in the will of the people.

governors, or by the Patrol for offenses in space, but important matters must come before an Imperial Magistrate. Punishments include prison, forced-labor camps, slavery, torture, and impressed military service.

An autocrat may tolerate protest against his policies, but never against his rule. At the first hint of any actual threat, dissension is crushed.

In tyrannical empires travel is tightly regulated and requires the right documents. Common citizens find it next to impossible to obtain permission to travel beyond the borders. One of the Space Patrol's duties is to police the borders for refugees attempting to escape.

Interstellar trade may still flourish, but heavy regulations and duties make it difficult to prosper without buying influence in the imperial court. Nearly all empires have a system of tariffs and monopolies to reward certain merchants and exclude others. Small traders may turn to smuggling to survive.

The empire will ban commerce it deems a threat, including military supplies; gunrunning to rebels carries an automatic death sentence. Traffic in drugs and vices may be prohibited by a puritanical emperor or encouraged by a decadent one. But the Imperial Trade Commission is notoriously easy to bribe.

Taxes are numerous and burdensome, although some empires tax the subject provinces heavily to keep rates low in the home country.

Origin

Empires can come about in various ways. An expanding frontier of settlement and colonization can create a very tight-knit empire. Both Russia and the United States eventually absorbed their areas of settlement into the mother country. Britain's settlement colonies have become independent nations. Alliances can develop into empires when the most powerful member of the alliance starts meddling in the internal affairs of its partners, as happened when the Greek city-states banded together against the Persians and then the Athenians turned the league into an empire. A state that is home to many vigorous commercial enterprises can develop an informal empire based on trade. And of course, an aggressive military power can deliberately go out and conquer weak states.

Alien Governments

The list of governments above is naturally based on arrangements devised by humans, for humans. But in a science-fiction universe there are other possibilities suitable for alien civilizations.

Hive Minds

Humans have long been fascinated by the unity and activity of insect colonies, and it's interesting to imagine how a hive would function on a human scale. The term "hive mind" has two meanings, one from classic science fiction, the other from biology and information science.

Alternate Names

Each type of interstellar government can go by a variety of names, depending on specific details of history, ideology, and political thought. Sometimes names can be misleading. Many "people's democracies" aren't democratic at all, and the United Kingdom of Great Britain is functionally a parliamentary republic that just happens to have a Royal Family. Alternate names for the various governments described here include:

Anarchy: Anarchate, Free State, Frontier Zone, Libertarian Republic, Post-Polity, Unorganized Territory, Wild Space.

Alliance: Axis, Bloc, Coalition, Community, Commonwealth, League, Pact, Sphere.

Federation: Concordium, Confederation, Regime, Union, Unity.

Corporate State: Cartel, Combine, Conglomerate, Consortium, Hansa, Keiretsu, Partnership.

Empire: Dominion, Hegemony, Imperium, Kingdom, Monarchy, Principiate, Realm, Reich.

In science fiction, hive minds are societies in which all the individuals are linked together into a single superorganism. This is usually done via telepathy, although it can be natural telepathy or some kind of artificial "brainlink" device. The Borg of *Star Trek* are one well-known SF hive mind. Such hives usually exist to contrast their destruction of individuality and regimentation with human free will and personal liberty. A hive might even duplicate the specialized types found in ant colonies, with castes of workers, warriors, breeders, and so on (SF usually adds a huge-brained "thinker" caste). Hives may be limited in the range across which members can link up, so a multiplanet hive civilization might function as a federation of planetary hives.

An equally interesting type of hive can be based on the "emergent properties" of behavior in actual insect hives. If one thinks of an ant colony as a single organism composed of ants, it's interesting to note how the colony seems capable of more sophisticated behavior than any individual ant could ever manage. Since ants don't have any kind of "thinking ants" in the nest, the clever behavior arises out of the interactions among individual ants. One can imagine a hive big enough to have human-level intelligence arising from its billions of nearly mindless members. Vernor Vinge's Tines in *A Fire Upon the Deep* are close to this concept. Such "hive individuals" could either interact with one another as rational beings the way humans do, or they could combine into a super-hive, a vast single intelligence. As above, this kind of hive would have trouble operating across large distances.

Hive civilizations can be military powers, with inexhaustible armies of purpose-bred warriors. In fiction they tend to be better at ground combat than space battles. Trade, if hive cultures can even grasp the concept, is handled entirely by government representatives.

Machine Civilizations

Another SF standby is the idea of a society either ruled by machines or entirely made up of mechanical beings. Often this is presented as a nightmarish, dystopian society, in which "human" qualities like imagination, freedom, or love are subordinated to mechanical efficiency. The alternate universe codenamed "Steel" (p. B528) is one particularly nasty machine society. Often, machine civilizations take on aspects of a hive mind, with specialized units for each task coordinated by a giant "master computer." (This has the advantage of giving the nightmarish dystopia a single neck to sever.)

Other writers have envisioned civilizations of numerous independent machines, usually united by some preprogrammed obsession. Usually that obsession is highly unpleasant, like the life-destroying goal of the Berserkers in Fred Saberhagen's stories, or the imperial ambitions of the Daleks or Cybermen on *Dr. Who*. Even if they aren't actively hostile, a machine civilization could simply treat humans and other organic life as a nuisance to be tidied up, as in Gregory Benford's *Great Sky River* and sequels.

But other SF writers have speculated that a government by superintelligent, incorruptible machines might be exactly what people need. Isaac Asimov's supercomputer "Multivac" and positronic robots secretly ruled humanity and created a utopian society. More recently, Iain M. Banks' "Culture" stories depict a civilization ruled by extremely powerful computers in partnership with humans. Of course, Jack Williamson's "Humanoids" stories explore the dark side of humanity under the thumb of machines that only want to protect and serve us.

And the ideas of transhumanists include, among other things, blurring or completely removing the dividing line between humans and machines. When it's a matter of personal taste to run your mind on computer hardware or living "meatware," government by superintelligent AI will seem not only desirable but inevitable, about as controversial or utopian as automating telephone switchboards. Such societies might take the form of prosperous libertarian anarchies, or (oddly enough) something resembling a secular theocracy, with supercomputers in place of the church leaders and robots for priests.

Dystopian machine civilizations are best used as the setting for rebels fighting for human survival or to reclaim humanity's dominion over machines. More pleasant settings with humans and machines working together allows for just about any adventure type, although since utopian societies run by superhuman intelligences tend to be peaceful and a little bit boring, the really fun adventures can be found across the border.

Machine cultures can have very impressive armies of steel soldiers, fleets of superintelligent robot battleships, and highly efficient factories to replace losses quickly. Berserker-type machines may wage constant war

against living things, so that the entire civilization is on a constant war footing.

Trade with machine cultures is often difficult. The aggressive, dangerous ones take what they want, and the super-efficient utopian ones are often post-economic cultures of abundance.

Planetary Governments

Of course, planets have to have their own governments. There is a lot more variability in the style of planetary government than in interstellar societies.

Individual planets in a space campaign can use the interstellar government types, though obviously with smaller constituent units. Exactly how large the units are can dramatically affect how a planet is run.

Anarchy on a planetary level, as in an interstellar society, can reflect either a utopian absence of government or a dystopian absence of order. If there are organized states but no planetary government, the term *balkanized* is sometimes used. Contemporary Earth is either a balkanized world or a very weak alliance.

Alliances are common on balkanized planets, and it's entirely possible for one alliance to effectively dominate the whole planet. During the era of the colonial empires, when most of Earth was controlled by a handful of European great powers who often acted in concert to keep order, one could describe Earth's planetary government as a loose alliance.

Federations are a very likely form of planetary government. Many supporters of the United Nations have hoped that it can evolve into a kind of "Federation of Earth." The exact details of the federation's government can dramatically affect its politics. An American-style republic with direct election of federal officials by the citizens is very different from a European-style union in which the central authority is selected by member state governments.

Corporate government of a single planet is likely to be an offworld megacorporation that owns the whole planet (or at least has a monopoly on trade). A corporate-ruled planet that is not part of an interstellar economy is more likely to have a cartel-style government, if only because a single corporation wouldn't have anyone to do business with. *Free Enterprise* planets might be fairly common, especially in the case of colony worlds settled by libertarian idealists. How long those societies endure depends on the GM's opinion of libertarian ideas.

History and Government

The structure of a planet's government will depend in part on the world's history. A world with a native intelligent species will have lots of unique cultures in different parts of the planet, multiple languages, and probably many different religions. Uniting a large, diverse population like that may be best accomplished by one of the looser government types like a federation or alliance. A colonial-style empire might impose unity by force! Either the various parts of the planet come together, or one region imposes its rule on the rest.

By contrast, most colony planets will often begin with a government already in place. The founding settlers draft a constitution, or the Colonization Authority imposes its rules. Colony worlds may tend to more idealistic systems, sometimes highly impractical ones. They may also allow for growth by setting up a federation structure or keeping the whole planet as a single unitary government.

A colony world with multiple colonies planted by different groups may wind up in the same situation as a world with native inhabitants: multiple diverse populations with no great desire to unify. They may function as an alliance, unite in a federation, or one colony may be able to simply annex the others. The growing pains of colonial societies can make for interesting adventures, as PCs get involved in political struggles or decide to carve out their own realms.

Setting History

Everyone and every place has a history, and history affects the way people react to new situations. America and Russia both fought in the world wars, but came away with radically different attitudes. Russia sought to hold all possible enemies at arm's length by controlling Eastern Europe; America wanted to prevent future aggressors from dominating the continent. Those attitudes, stemming from very different histories, locked the two nations in conflict for half a century after World War II.

The simplest way to design the history of the setting is to work forward from the present, extrapolating trends, while throwing in "random events" like scientific breakthroughs or unexpected wars. Sometimes past history makes a good model: base the growth of the Interstellar Federation on the expansion of the United States, while the Trade Alliance mirrors the history of the Venetian Republic. Most of it can be glossed over in generalities (like summarizing the whole 20th century as "a time of technological progress and social change marred by wars among competing ideologies"). The period to describe in detail is the century or so before the campaign's timeline, especially events that would have happened during the lifetimes of the PCs.

Game Masters are allowed to "stack the deck" and create a history that leads to interesting conflicts in the campaign's present. If the game is to take place in a time of "cold war" tension between two evenly matched empires, sow the seeds of that enmity a couple of generations back.

Empires on a planetary scale are certainly possible, even at low technology levels. The Mongols, Romans, Spanish, and British all ruled substantial fractions of the world at one time or another, and one could imagine a more aggressive or durable empire finishing the job. On a planetary scale, empires can have any kind of internal structure. At low tech levels monarchy is likely, and the examples above all show a monarchical empire can be very successful at world conquest.

Alternate Planetary Governments

Some government types are more common at the planetary level than on the interstellar scale. This includes many of the types listed on pp. B509-510, especially Athenian democracy (which pretty much *can't* exist across interstellar distances unless there's some form of very fast interstellar communication), and clan/tribal. The variant forms colony, cybercracy (as opposed to machine civilizations), sanctuary, and subjugated are also single-planet types.

New kinds of planetary administrations include:

Codominion: Rule by two different governments at once. This typically occurs in a colony or "neutral zone" region, either in dispute or a joint project of two states. The functions of government are divided between two administrations, sometimes even with different laws applying to citizens of the two governments. Things can get interesting when the two governments are very different and have different Control Ratings! CR variable.

Conscription: Typically a republic or meritocracy, but one in which the rulers are chosen to serve *whether they want to or not.* Essentially government service is like jury duty in modern America – something you do because it's your responsibility. Conscript governments are usually CR2-4.

One-Party State: A subtype of oligarchy, using the forms of a democracy but with only one legal political party. Power goes to those who can rise within the party hierarchy. Often the party grows to have millions of members, but the rank and file have little control over decision-making. On Earth they are typically socialist, as that allows the party substantial control over the economy to reward followers. CR3+.

Plutocracy: Rule by the rich, often through direct purchase of government offices. Usually the officeholders expect a good return on their investment, leading to massive corruption. This differs from a corporate state in that power is held by wealthy *individuals* instead of companies, making it similar in some ways to a feudal system. CR2-4, with bribery common and accepted.

Psiocracy: A form of caste system or meritocracy, but the key qualification is psionic talent. This gives the government remarkable power, since the rulers can do things ordinary citizens can't. A psiocracy might come about if psis are oppressed and decide they aren't going to take it anymore, but it could also represent an enlightened culture that uses psionics as a tool for the benefit of all. CR3+, sometimes with real "thought police!"

Organizations

Below is a representative collection of organizations likely to exist in a space campaign. The details given are only suggestions – the GM will want to modify them or use different organization names as he adapts them to his universe. None of these organizations has to exist – some may not be appropriate for some civilizations, and other nations may combine multiple functions into a single organization. All of these organizations can also exist in campaigns without interstellar travel – in that case, just replace references to "interstellar" with "interplanetary."

The scale of organizations varies depending on the campaign. For example, Game Masters who want to make life challenging for rebel and smuggler PCs can put a Patrol base on every inhabited world, while GMs who want to make sure Patrol characters can't depend on easy backup can make them scarce and far apart.

Government Organizations

Government bureaus that affect the lives of PCs may not be the most important parts of the government. In the grand scheme of things, the offstage Imperial Revenue Service is far more vital than the Mercenary Regulatory Agency.

Diplomatic Corps

The importance and style of the diplomatic corps depend on what kind of other states or civilizations exist and how the society interacts with them. A powerful empire with no real rivals would have diplomats who act more like viceroys, bossing local rulers around on behalf of the all-powerful emperor. An all-human federation dealing exclusively with alien cultures would have a diplomatic corps specializing in xenology and alien languages, as much scientists as diplomats. Envoys to a species that still practices dueling and ritual combat might be ex-commandos skilled in mayhem. All diplomats have some intelligence-gathering and propaganda functions.

On Earth, foreign embassies are considered "sovereign territory," inviolate by local authorities. Other civilizations might not follow this standard. Differences in how civilizations view and treat diplomats can lead to comic misunderstandings – or endless interstellar war.

Interstellar Trade Commission

The ITC regulates trade, operates the customs stations at all starports, and cooperates with the Patrol (p. 203) against interstellar smuggling. The size and power of the ITC mirrors how much the government controls

the economy. It will be a huge bureaucracy in states with a high economic CR, and an underfunded licensing agency in low-CR cultures that value free trade. In a corporate state, the ITC is the Auditing Department, making sure that shipments and payments go to the right places.

Mercenary Regulatory Agency

In cultures that don't use mercenaries, this agency is simply part of the police, tasked with cracking down on illegal private armies. Where mercenaries are permitted, they set the ground rules.

Regulatory agencies almost always prohibit biological, chemical, or "dirty" nuclear warfare within the nation's borders. Clean tactical nukes are sometimes allowed. Mercs must not go to a troubled world unless hired by someone on the scene, and must leave when the fighting is over.

The MRA may also try to level the technological playing field to prevent high-tech offworlders from completely dominating local forces. Agency inspectors get very good at spotting concealed high-tech gear. Some latitude may be allowed; in certain civilizations the MRA can juggle restrictions on both sides of a fight to make it an "even match." (This is especially true if the MRA works closely with media organizations to make wars a good show for the folks back home.)

The MRA maintains a central office on the capital world. Other offices may be opened if local business makes it worthwhile. Regulators are assigned to each merc outfit. Some are self-righteous and obnoxious; some can be bought; some do their jobs.

The MRA is also a clearinghouse for licensed mercenary outfits seeking work. When contracts are negotiated, the employers place half the agreed payment on bond with the MRA. If there is a dispute later between the mercs and their boss, the MRA arbitrates – paying the mercenaries from the bond fund if necessary. Societies like informal empires that use mercenaries may subsidize them during long periods of peace.

Navy

The space navy is generally the dominant military force in any interstellar society, if only because soldiers can't fly from planet to planet without a spaceship. The Navy's job is to control space and deny it to enemy forces. Spaceships can also make devastating strikes against planets and bases, but aren't much good at taking and holding territory. Between wars, the navy maintains readiness by carrying out mock battles – often in barren, remote systems where it can use live ammunition.

Large naval bases are maintained at strategic locations, often on airless moons or navy-controlled worlds. Small bases – mostly for refueling and repairs – are attached to many larger starports. The navy also has an intelligence branch, responsible for gathering current information on enemy military forces.

In an alliance or other loose society, the navy may be the professional core of the fleet, supplemented in wartime by regional forces of varying ability. Where the navy is the sole military arm, tight control must be maintained or the admirals may seize command and declare an empire.

During peacetime, governments often find other things for the Navy to do. Navy ships may conduct science missions, provide aid at disaster sites, or support colony projects. Ships may be detached for tours with the Patrol, or may simply *be* the Patrol.

Office of Colonial Affairs

The Office of Colonial Affairs oversees colony ventures. In an expanding society with lots of colonies, the OCA may rule dozens or hundreds of star systems, making it very powerful. One or two obscure clerks in an office in the capital city may decide the fate of whole sectors. New colonies may be planted on resource-rich worlds, or to secure a contested sector, or on deliberately harsh worlds as dumping-grounds for prisoners and dissidents. If colonization is typically a private enterprise, the OCA may serve as "referees" to decide which group of settlers gets control of a given planet.

Settings with very few habitable worlds may replace the OCA with the Terraforming Authority, in charge of modifying planets and seeding them with life. The staggering cost of terraforming means that colonies will only be allowed with government approval, and illegals may be hunted down and deported.

Patrol

The primary responsibility of the Space Patrol is law enforcement: anti-piracy and anti-smuggling patrols, and police duty on small or remote colonies. They also regulate and inspect starships and space stations, assist vessels in distress, and generally keep space peaceful and orderly.

Typically, the heaviest Patrol ship will be a light cruiser, but crews are likely to be elite. Patrol vessels get put under navy command during wartime, but at all times there's a rivalry between the two services. Patrolmen consider the navy a bunch of overequipped glory hogs who spend all their time in training, while navy spacers look down on the Patrol as "orbital crossing guards" who can't handle *real* threats.

Patrol bases are attached to many starports; even minor starports are likely to have a Patrol office. The Space Patrol also has separate operation bases, away from the commercial starports, from which major anti-piracy and other missions are launched. The Patrol usually maintains a covert-operations office; its agents infiltrate

criminal organizations. (In a repressive society, they are secret police.) The Patrol is known for rigorous adherence to the letter of the law and rigid interpretation of those laws.

Postal Authority

The Postal Authority is responsible for the mail. Mail between vital worlds is carried by official courier ships. Mail service for minor worlds is contracted out to private trade ships. This is profitable – many independent traders depend on mail runs for steady cash – but PA standards are high! Other interstellar communications may also be controlled by the Postal Authority, depending on technology.

Control of interstellar communications makes the Postal Authority *extremely* powerful. In any high-CR society, the PA *reads* the mail and forbids distribution of "treasonous" publications.

In some settings, the PA may be a huge private company or nonprofit entity. It may be galaxy-wide, using the threat of cutting off communications to keep governments from interfering. And whoever *does* control the post office can rule the galaxy!

Security and Intelligence Agency

Just about all governments want to keep some things secret, and just about all of them want to find out what everyone *else* is trying to hide. This task can be divided into three main categories: foreign intelligence (spying on other governments), domestic intelligence (spying on the government's own citizens), and counterintelligence (catching or fooling enemy spies).

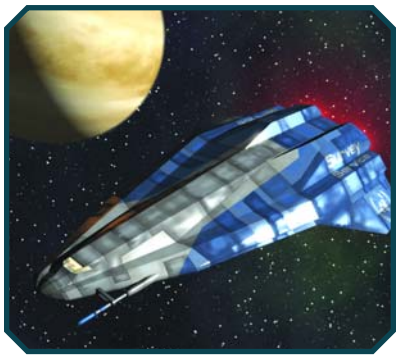
Foreign intelligence agencies spend most of their time reading news reports, census data, and other public information in order to get a comprehensive picture of what other governments are doing. Their chief concern is identifying military or terrorist threats, though some governments use their intelligence agencies to spy on foreign corporations to help domestic firms compete. They also make use of electronic signal interception, and of course hire spies.

Domestic intelligence is part of law enforcement, but focuses on people who might commit crimes instead of those who have actually done something. In particular, domestic spies seek terrorists and organized crime. In tyrannical states, domestic intelligence also rounds up dissidents, critics of the regime, and anyone who looks like they might be one.

Counterintelligence works on uncovering foreign spies, and on spreading disinformation to make it harder for the other guys to get accurate information.

The three types of espionage are often combined with covert operations forces – secret military or paramilitary units trained to be stealthy, fast-moving, and well-hidden. Covert ops do the things the government needs to do secretly.

A state may have different agencies for each job. Or it may have multiple agencies, each of which does a few of those tasks. Given the nature of the secret world, that means they often wind up spying on each other.



Special Justice Group

The Special Justice Group controls large corporations. Its precise role varies depending on the society. Where there are few restrictions, it is simply a "referee" focused on keeping a level playing field. In societies more suspicious of big business, the SJG monitors corporations closely, scrutinizing ads for subliminal messages and analyzing tax data in search of "financial anomalies."

Of course, in some societies the government runs the corporations, either directly (in a Corporate State or socialist system) or indirectly (through "crony capitalism" or state-granted monopolies). In those situations the SJG acts as a liason office, or directs its attentions at corporations that *don't* have the favor of the government.

The Special Justice Group is likely to keep its base of operations wherever businesses are most concentrated, with branch offices in all the major financial hubs. Field investigators must rely on civilian transport or call in the Patrol to assist on raids.

Survey Service

The Survey Service is in charge of discovering new worlds and maintaining accurate information about known ones. Discovering new worlds is the task of the Scout Service or Exploration Division. Maintaining data on known worlds falls to the Survey Division, sometimes known as the Grand Survey or the Astrographic Division.

First-in scouts are a quirky lot, solitary and temperamental. Often using one- or two-man craft, they visit unexplored systems. If they find a potentially habitable world, they make the best report they can, landing for close inspection if there are no apparent hazards. First-in scouts especially watch for signs of intelligent life. If an intelligent species is detected, they may avoid contact – that's a job for specialists. In some settings, first-in scouts may be freelance explorers, ranging into unknown space in second-hand ships looking for valuable worlds, and then selling their data to the Survey Service.

When the scouts make a favorable report on a new world, the survey team goes in. A survey team may be a single ship or a full expedition; it includes xenobiologists, planetologists, xenoarchaeologists, and first-contact specialists. They begin by making an exhaustive orbital study, landing only when the planet is judged safe. Survey scouts certify worlds as suitable for colonization, and make recommendations about relations with new alien societies. Survey scouts are more intellectual than their first-in brethren, but they are still adventurous survivors.

Survey stations, manned by exploration division personnel, may be set up for the long-term scientific study of planets or interesting space phenomena (e.g., black holes) and major

archaeological finds (like Precursor sites). Covert survey stations may be established if a planet has a low-TL native race deemed worthy of study but "unready" for contact. In an interplanetary campaign with no FTL travel, most worlds will have been explored already, so manning such projects may be the scouts' main role.

During wartime, scouts are attached to the navy. First-in scouts perform long-range reconnaissance, while survey scouts are attached to naval intelligence, often acting as fleet intelligence forces.

Private Organizations

Alien Rights League

The Alien Rights League is an altruistic group dedicated to promoting equality for all sapient beings. In societies that respect individual rights, the ARL focuses on fighting prejudice among the citizens, and works closely with government legal agencies.

But in societies that legally oppress aliens, the ARL must work *against* the government. Sometimes it exists underground, operating safe houses and secret transport routes for aliens fleeing oppression.

In any setting the ARL is likely to be a perennial thorn in the side of the Office of Colonial Affairs, standing up for the rights of low-tech or presapient natives the OCA wants to displace. Often the xenologists of the scout service are the ARL's best allies in government.

As a private organization, the ARL likely maintains a modest office near the seat of power in the society, and a network of supporters (both open and secret) throughout the galaxy.

Corporations

Big business can't be bigger than the society that supports it. In a free-market society that prevents monopolies and encourages competition, even a huge corporation won't be bigger than 1d% of the society's total economic volume (see p. 95). Monopolies that control an entire industry can be bigger, up to 2d%. A corporate state would consist of several monopolies joined into a single conglomerate, controlling the lion's share of an entire economy.

Multistellar corporations operate across many worlds or star systems. The quickest way to figure the size of a multistellar is to add up the economic volume of all the worlds where it operates and roll one or two dice to determine its share of the economy. A more detailed approach would consider how much of a share it has on each world separately: on some planets GalactiCo is merely a big company among many, but on others it has a monopoly in its industry, and on a few worlds it dominates the local economy.

A typical corporation has one employee per $100,000 to $500,000 in sales (at lower TLs this may be higher). This doesn't count things like private armies, spies, goons, bribes, or secret black-technology projects, of course. Following the usual rule for military budgets, a corporation probably won't spend more than 1% of its sales on such "nonessentials." Of course, a multiplanet corporation can concentrate its forces and overwhelm the military of a small planet, and use advanced technology as an advantage against primitive societies.

Free Trade League

At first, it was little more than an association of independent traders that met at market worlds to swap information. As interstellar competition – and regulation – grew, the Free Trade League became a lobbying group for the rights of independent traders. It now has offices everywhere that traders gather.

The league is a clearinghouse for market information. An independent trader who has valuable information he can't use will pass it to the league – which brokers the data to other independents before the big corporations get the word. The original trader gets a 5-10% royalty; the League itself takes a percentage as well.

The league also arbitrates grievances among members and operates as a bank, facilitating transactions between races and cultures. Traders down on their luck can apply for a loan – but if they can't pay it back, they'll be pariahs in the trade community.

Governments that want to control trade (or are chummy with big corporations) may view the Free Trade League as a nuisance, but others may support it as a valuable aid to maintaining free markets and competition.

Mercenary Companies

Mercenary units are simply small to mid-size corporations who deal in mayhem. They may use euphemisms like "private security firms." Merc outfits are typically small in size – generally not more than 1,000 troops, and often fewer. Companies can be contracted for specific missions or hired by the month. Sensible mercenaries know that a company's reputation is its biggest asset, so they fulfill contracts and keep up high standards of training and off-duty behavior. Other mercs may be more interested in getting a quick profit by looting, betrayal, or seizing power. Mercs can be the equalizer when a remote colony comes into conflict with a major power or megacorporation, or they can be the "deniable assets" used by the big guys.

Mercenary space fleets are rarer, due to the immense cost of warships and the understandable reluctance of governments to have them in private hands. Where they do exist, they are generally called "privateers" rather than mercenaries.

News Services

News services can be either private corporations or government-controlled media. Which type depends on the Control Rating of the home society. Each one requires reporters or stringers to gather news, who may or may not be the same as the people who present it to the public. News services are extremely important in any society: in tyrannies they are one of the chief methods the government uses to maintain control, and in open societies they are the battleground where ideas are presented.

The available technology determines what the news services will look like. If messages have to be carried by starships, then interstellar news will be more like a newspaper or magazine in presentation, with no "breaking news" coverage because of the lag times in transit. Interstellar

"broadcasting" in real time allows something like network television news. Interstellar computer networks make it possible to have decentralized, ad-hoc volunteer news services. In general, the more difficult it is to send messages, the easier it would be for someone to control the spread of information and manipulate what people know.

Governments and corporations hate news services when they run stories revealing embarrassing secrets. Activist groups love them because they can "leverage" a small organization's influence.

The Organization

The Organization (if it really exists) can only thrive in a middle ground of legal strictness. In high-CR societies, police monitoring makes it too hard to operate. In very low-CR cultures, there's too much legitimate competition for what the Organization has to sell! What the Organization prizes are planets with moderate to strict laws and lots of corruption.

The Organization is effectively a multiplanet corporation, with a near-monopoly in its chosen field. As such it's comparable in size to a big multistellar company and has similar assets. On the rare occasions when it's been necessary, the Organization can even hire mercenary armies and pirate ships for full-scale military operations.

On many worlds, *all* criminal activities require the approval of the Organization – with a piece of the action going to the syndicate. And on any world with a population of more than a few hundred, there's an Organization contact. Organization VIPs live like royalty, often on syndicate-controlled worlds where crime bosses are feudal lords. The Organization also sponsors sanctuary worlds beyond the reach of police.

Should the PCs want to find an Organization contact on a new world, the best place is a startown or similar port area. Roll against Streetwise, minus the Control Rating of the local government (see p. 94). Each attempt takes two days of barhopping and hint dropping. As a rule, about the time the searcher gives up, he'll be tapped on the shoulder and escorted to Mr. Big's office. A critical failure will lead to unwelcome interest by either the Organization or the local authorities.

Psionic Studies Institute

The PSI is a research foundation dedicated to the study of psionics, but there's more to it than that. It is a secret psionic society that offers aid and training to psis. The institute has branches on major worlds, particularly those with large universities. PSI members constantly search for promising candidates for training. Some are willing recruits, rescued from death at the hands of anti-psionic mobs. Others get a mysterious "scholarship award" and learn what's going on only after they're already enrolled. And there are rumors that some PSI members were abducted and brainwashed . . .

In worlds where psionics are widely known and at least marginally accepted, PSI is the semi-official training and licensing organization for psionics. There will still be some crackpots who think it's a conspiracy – and sometimes the crackpots are right! Where psis are oppressed, PSI helps them avoid vivisection or conscription into the government's psi-force. Where psionics don't exist, PSI is a group of crackpots and frauds. (Or is that just what they *want* you to think?)

Universities and Scientific Foundations

Scholarly organizations can be huge and influential, and very long-lived. In a wealthy interstellar society, a university might be "endowed" with a whole planet! Healthy, growing societies have academies that develop young minds and expand the frontiers of knowledge. Decadent cultures have universities devoted to nothing but rehashing the work of past scholars and savage infighting over academic privileges.

Scientific foundations can range in size from giant government research agencies to tiny groups funded by one or two wealthy enthusiasts. Either end of the spectrum can produce cutting-edge research or monumental quackery. In tyrannical societies, scholars tend to "discover" results that conform to official ideology (or the emperor's whims).

Startown

A long-standing trope in space fiction is the rough-and-tumble "startown" district near the spaceport. On all but the most xenophobic worlds, the authorities realize that offworlders will have strange customs, may not understand local rules, and need to "cool their jets" after a long voyage. So most planets have a small area (often no more than a few city blocks) near the spaceport where officials turn a blind eye to strange behavior. Assume the CR in Startown is one or two levels lower than the norm for that world.

In addition to visitors, startowns attract locals with unconventional tastes or ideas. Some just drop in to gawk at the offworlders, but a few move in and settle down. Add to them a few spacers permanently "between berths" and an assortment of crooks and opportunists, and you've got startown.

On some worlds, startown is legally defined, perhaps even lying within the port's perimeter fence under control of the spaceport authority. It may even be an entire city, a "treaty port" like old Shanghai, the only place on the planet where offworlders and locals can mix.

While the cops may tolerate some violations of local mores in startown, that doesn't mean the place is a free-fire zone. Violence, especially violence involving weapons, will bring an appropriate response. Crimes committed against locals are investigated as usual. (Crimes against offworlders may not be such a big deal.) The regulars in startowns understand this, and try to do their part to keep the peace.

Chapter Eight
Adventures

The cabin of the old fishing boat was crowded and smelly, but Shiro tried to look cool and unconcerned. Inside he was practically bubbling. Here he was, surrounded by genuine resistance fighters, planning to strike at the alien overlords!

The old Russian captain coughed quietly and everyone fell silent. He unrolled a sheet of coarse paper on the chart table. "This is our target: the cosmodrome at Narita. Each of you and your organizations will have an important job to do."

Shiro listened, memorizing everything, as the captain outlined each resistance group's role in the plan. As the briefing went on, he began to feel a little crestfallen. What was the Alien Fighter Army going to do? After all the trouble they'd gone to just getting in touch with the resistance, it would be terrible if the Alien Fighter Army wasn't allowed to help.

"Shiro – still with us? Good. Your people are in charge of creating a diversion. You need to cause chaos all through central Tokyo, beginning around sunset. That should draw the police away from Narita."

"What kind of chaos?"

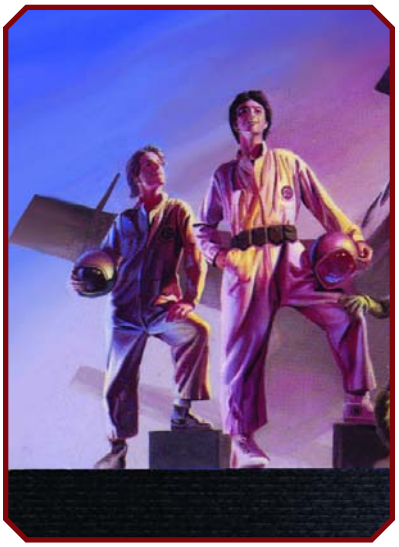
"It should look serious. Could you start a riot?"

Shiro thought desperately, then beamed as an idea came to him. "Comics!"

"Eh?" The old Russian looked skeptical.

"The Shahar banned comics and had all the old ones destroyed because there were too many alien bad guys. If I pass the word that a big cache of old comics has been found, I can get thousands of fans to show up! When they find out there's nothing, you'll get your riot."

The captain looked off into the distance for a moment, then smiled a little. "Very well, comics it is. We use every weapon we can get."



Having set up the campaign, the Game Master needs to create some adventures for the players to run their characters through. This, ultimately, is where "the rubber hits the road." No matter how much planning and work went into the campaign, if the adventures aren't interesting and fun, nobody's going to know or care about the setting.

Any roleplaying adventure has certain key features: there is a *hook* which gets the PCs involved, a *goal* for them to pursue, and *obstacles* to overcome. The precise nature of all these things depends on the characters and the setting.

The Default Adventure

A useful concept in designing a campaign is to think of the "default adventure." This is simply what the characters are expected to do. In classic ***Dungeons & Dragons***, for instance, the default adventure is exploring an underground complex full of monsters and treasure. In ***Call of Cthulhu***, the default adventure is investigating an ancient cosmic horror. The default adventure and the campaign concept tend to be closely linked – one is simply an application of the other. So for a band of tough space mercenaries, the default is a military operation – attacking an enemy force. For explorers, it's finding a new planet and solving its mysteries.

Not all the adventures have to fit the same template – in fact it would be deadly dull to make them all the same. The default adventure serves as the point of departure, the "zero setting" on all the knobs before you start to twiddle them. Characters can enter new and different adventures once they have "mastered" the default scenario. So after the space mercenaries have run a few basic military operations, the GM can start throwing curve balls: betrayal by allies, a natural disaster which interrupts the battle, maybe even the discovery of an underground complex full of monsters and treasure. The explorers could be called upon to conduct a military operation because the rest of the fleet is mysteriously absent, or find clues on a new planet that lead to an ancient cosmic horror.

The GM can use default adventures to play up different aspects of the game and the setting. One mercenary operation might wind up being mostly negotiation, as a besieged garrison bargains for honorable terms of surrender. Another could turn into an investigation as the soldiers realize there is a traitor among them. The GM can drop default adventures into different crossover genres, so that the explorers face a horror story scenario on one planet, a swashbuckling adventure on the next, and a tense thriller on a third.

The Hook

The hook for an adventure is what gets the characters involved in the situation. Some campaigns have hooks built into their structure, while others allow the heroes to blunder into situations on their own.

Your Mission, Should You Choose to Accept It . . .

Heroes who have a duty to some agency can simply be assigned missions that will lead to adventures – although often the mission doesn't *seem* particularly exciting when it's assigned. This applies to military personnel, explorers working for the survey service, police, spies, and possibly diplomats. Some freelance character types are also good for mission-style adventure hooks. Bounty hunters, independent scouts, or mercenaries are essentially "adventurers for hire" and the latest client can send them on a mission of danger and excitement.

The useful thing about this kind of "assigned adventure" is that there's little chance the characters will turn it down and go bowling instead. If you're a space marine and the colonel says go attack that pirate base, well, that's what you're going to do. The emphasis is on *how* the characters accomplish the mission rather than what they're going to do. This approach works very well with "set-piece" adventures, and appeals to players who want to get straight to the crunchy bits of tactical plans, blowing stuff up, and infiltrating through the air ducts. The chief drawback is that it may be hard to surprise the players or get the characters into unusual situations. It may also be hard to create much continuity from adventure to adventure.

Going Fishing

Other characters aren't looking for adventure, and their ostensible jobs don't normally lead to mysteries and shootouts. Merchants, asteroid miners, colonists, and some scientists require hooks that are at least vaguely related to the job they're supposed to be doing. For merchants the canonical adventure hook is the weird cargo or mysterious passenger, prospectors and colonists can run across strange

things in the wilderness, and scientists discover something that becomes the focus of an adventure.

For this kind of campaign, it's often best for the GM to toss out lots of potential adventure hooks and let the characters follow up whichever ones interest them. (To save on effort, the GM can have several hooks lead to the same scenario.) So the merchants hear a rumor in the spaceport bar about a lost treasure, bump into an old spacer who's trying to get revenge on the pirates who killed his family, see a news item offering a reward for a hijacked ship, and are offered a good price on a cargo of alien artifacts. Any one of these can lead to an adventure, and they give the feeling of a vibrant universe full of mysteries and excitement.

Drawbacks to this approach is that players may get kind of scatterbrained – pursuing one adventure hook and then dropping it to take up a different one. Game Masters who like to create detailed scenarios in advance may wind up with a lot of unused material.

Let me make this abundantly clear. I do the job, and then I get paid.

–Mal, ***Firefly***

And if *every* option leads to a mystery or a battle, the PCs may start to feel a little put-upon – "Can't we ever haul a *normal* passenger?"

A Date With Destiny

Any characters can simply have the bad luck to get caught up in a strange or dangerous happening. The marines are on leave, the merchants are buying new reactor parts, or the colonists are building a new wind turbine – when suddenly the kidnapped princess begs for help! Or the aliens attack! Or whatever.

This is a very good approach to use for an introductory adventure, when the characters may not know one another and the players are still learning about the setting. It also works well for "change of pace" adventures – getting the marines into a romantic comedy situation or the merchants into a technothriller. The chief drawback is that adventures by chance don't happen very often. If "one in a million chance" things happen to the heroes every few weeks it starts to erode the sense of realism in the campaign (unless, of course, there's something *causing* all these weird things).

Metaplot

"Metaplot" is a term used to describe the ongoing storyline within a game world. Many published role-playing games, especially those tied to a specific setting, have a metaplot that is gradually revealed in new supplements and sourcebooks. Here, we use the term to describe the unfolding history of the game world, which may or may not have any connection to the actions of the heroes. So in a campaign involving archaeologist-astronauts digging up alien ruins on Mars, the metaplot might have growing international tension between the United States and China explode into war. America and China are a long way from Mars, and it's unlikely anything the PCs did had anything to do with the start of the war, but it will affect how the Chinese and American characters interact.

Why have a metaplot? Three reasons. First, a game world which changes and evolves helps make it all seem more real. Players may find themselves getting interested in the unfolding history of the setting. In a small-scale campaign, the sense that this is a big world full of things going on helps make things more exciting. A newspaper or "Galactic Action News" report at the start of each session makes a nice transition from mundane reality to the world of the game.

Second, a metaplot is a great source of adventure hooks, especially if large-scale conflicts are underway. Characters in a military campaign will be greatly affected by wars and changing alliances. Merchants may profit – or lose their shirts – as a result of large-scale events. The introduction of new technologies can change everything, giving some the chance to benefit and forcing others to struggle to adapt.

Finally, metaplots make a good scale indicator or "scorecard" for the player characters. When their actions *do* start to affect the course of events, they know they've made it to the big time.

Before the Game Master hurries off to start planning half a dozen world-shaking events for the campaign, there are some things to keep in mind. First, players have limited time and attention to devote to the game, and expecting them to keep up with a barrage of in-game current events may be asking too much. Keep the amount of information down to maybe half a dozen "news bulletins" per game session. Second, be sure that the changes don't destroy the appealing features of the campaign. If the players are happily building up a thriving little commercial empire as star merchants, wrecking everything with a massive alien invasion can provoke resentment – aimed at the Game Master, not the aliens.

Goals

The *goal* in an adventure is simply what the characters are trying to accomplish. Very often the goal and the hook are the same thing: you're hired to find the killer androids, so tracking them down is the goal. But it can be interesting when the hook *isn't* the real goal. This comes about either because the heroes have been misinformed about the true nature of the mission, or because something unforeseen happens along the way.

As an example, suppose the heroes are mercenaries hired to do a simple strike mission against a remote corporate research lab. The mission goes off flawlessly, but it turns out the lab was doing biowarfare research and some of the troops are now infected with a virus causing compulsive cannibalism. So now instead of a straight up shootout, the heroes are caught in a nightmare of paranoia and horror.

Goals that diverge from the original hook are a good way to throw some variety into mission-driven adventures, and are practically required in hard-boiled, grim-and-gritty scenarios in which nobody tells the whole truth and there are wheels within wheels at work. They are also a good way to challenge players who tend to over-plan things in advance. As with "date with destiny" adventures, they can be done too often – if every adventure involves some unexpected challenge, the players may get restive.

Types of Goals

There is a limitless range of possible goals, but most of them can be generalized into three types.

Go Someplace

The characters have to get to a place. But of course they can't just walk in. Perhaps the place is hidden, so they have to find it. Maybe they have to evade traps and alarms to get in. The place can be defended by force fields and an army. Or maybe it's very exclusive and they have to get an invitation. It could simply be very far away. If getting there isn't the problem, maybe the heroes have to arrive before something happens, or before someone else does. Sometimes going someplace really means getting *out* of someplace.

Get Something

The heroes have to get their hands on a particular thing (or person, or information). The Something may be inside a Someplace, but there are other ways to make it hard to get. Something that is hidden must be located. Mobile or intelligent beings may not *want* to be found, and may even fight the PCs when discovered. The heroes may be trading for the thing in question, and must be able to meet the price. Having gotten it, the heroes must keep the thing, even though others may have the same goal. Often getting *the reward* (money, prestige, the handsome prince) is the ultimate goal which lies behind all the others in an adventure.

Do Something

The PCs wish to make a change in the world. This can be as peaceful as building a new colony, or as violent as destroying the emperor's flagship. It may mean preventing someone else from achieving a particular goal. Survival is probably the most basic thing to accomplish. Often one must go Someplace in order to do something, and there may be things to acquire to ensure success.

Goals can be nested or linked, so that the heroes must repair the starship in order to travel to an unexplored system in order to penetrate the pirate fortress in order to steal the crystal nanocomputer in order to counteract the gray-goo plague that is destroying New Earth.

Obstacles

The obstacles faced by the heroes are the true meat of the adventure. Without obstacles, there's really not much of a story. Obstacles are either internal or external. Internal obstacles are situations where a character's personality or desires (mental disadvantages, in ***GURPS*** terms) conflict with what they must do. External obstacles are the various threats, barriers, puzzles, and enemies the heroes have to overcome.

Puzzles and Mysteries

Science is all about solving mysteries. Some of them are big mysteries like "What is the origin of the universe?" while others are smaller mysteries like "What is the effect of hydrolyzation on this particular protein?" Part of the fun of science-fiction roleplaying is that the players get to experience some of the same thrill of discovery that scientists get from their work. Giving the heroes a puzzle to solve is always an interesting obstacle.

Conventional Puzzles

A conventional puzzle is a mystery or question with an answer based on human motivations or the mundane details of the setting, rather than science or fantastic elements. This doesn't make them any less interesting or potentially important. Conventional puzzles can be things like "Why is the port commander refusing to let us unload our cargo?" or "How can our squad get past that guard tower without being seen?" or "Who murdered Dr. Fortunato?" Solving them may require roleplaying and information gathering, physical action and combat, or a combination. Sometimes what seems to be a conventional mystery turns into a science puzzle. Conventional puzzles have the advantage that they don't require a lot of background knowledge, either of real or imaginary science, which makes them especially suitable when the players don't know a lot of science

even though their characters do. Solving non-scientific puzzles can give them the same feeling of discovery.

Scientific Puzzles

A science puzzle is one where the answer specifically lies in the realm of undiscovered scientific facts. This does not mean they must be dry or unimportant: finding the vaccine to a deadly plague is a science puzzle, as is coming up with a way to prevent an asteroid impact, or working out the purpose of an ancient alien device.

Fiction and roleplaying games add the possibility of "rubber science puzzles" in which the science involved is imaginary or at least highly speculative.

A problem with science puzzles is that they require a very good level of science knowledge on the part of both players and Game Master. The GM has to know enough to set up a fair and interesting problem, and the players must be able to at least partly figure it out themselves. Science problems which are solved entirely by die rolls against the characters' science skills are pretty boring, so it helps if the players can at least figure out the broad outlines of the answer, then do the die rolling to fill in the details.

Even when the Game Master is using an imaginary science as the basis for an adventure, he must be absolutely clear about how that imaginary science works, so that clever or merely inquisitive players can't poke holes in his creation by asking the wrong questions.

Alien Psychology

A fertile source for mysteries in science fiction is in the behavior and motivations of aliens. Especially when communication is difficult or impossible, working out what an alien creature is doing and why can be an excellent mystery for players to solve. The tone and style of the campaign determine exactly what the mystery is and why they need to solve it: if the alien is devouring the brains of Terrans, the heroes probably want to find out what it's hungry for in order to stop or destroy it. Conversely, if the aliens are just building huge crystal towers on a distant asteroid, the mystery is what the towers are for.

Sometimes an alien-behavior puzzle is the result of biology. ("It's trying to learn about us by eating brains!") Other mysteries result from quirks of alien culture. ("We eat the brains of strangers to demonstrate our oneness with all life.") Finally, the alien motives may be all too understandable, and the problem is simply coming up with a way to resolve conflicts. ("I convinced him that ice cream is better than brains, at least on a hot day like this.")

To make an alien puzzle, the GM obviously has to have a very good understanding of the made-up aliens. Since the GM is the one making them up, that shouldn't be too hard. The other important element is to make sure there's a good reason the PCs don't already know the answer to the mystery. ("It says in the guidebook that these guys like to eat brains, so never take your hat off in a restaurant.") Are the aliens recently discovered? Are they keeping this a secret on purpose? Has something changed in the environment causing new behavior? ("The brain mines are running out!")

Adversaries

Adversaries are people or other beings who function as obstacles in an adventure. They must be defeated, subverted, evaded, or otherwise dealt with. One of the chief ways science fiction differs from other genres is its emphasis on rationality. The underlying assumption is that we can understand the universe. This is reflected in the nature of enemies in many SF stories.

Good and evil certainly have their place, and there are no shortage of stories, especially older ones, in which the heroes are good guys and the villains are bad guys and that's that. Adventures that try to duplicate the classic pulp feel may do likewise. But a more common approach (reflecting some of the basic optimism of the field) is to redefine Evil as Ignorance. Enemies are enemies because either they don't understand the heroes, or because the heroes haven't discovered the key piece of data that lets them understand the enemies. This applies to "monsters" as well as people – the alien creature is only a danger until the scientists can figure out how to communicate with it or control its behavior (though sometimes the only way to do that is to kill it).

Monsters

Monsters in space adventures can be any sort of dangerous alien creature, deadly robot, or genetically engineered horror. The important thing about monsters is that they have to be a credible threat. Because futuristic weaponry packs a big punch, science-fiction monsters need some special abilities to keep from getting fried.

Some creatures may be immune to the effects of laser pistols or plasma guns. Plasma-based life might shrug off (or even enjoy) shots from energy weapons. Well-armored silicon-based organisms or beings with tough exoskeletons might be able to withstand a few hits. Swarms are not very vulnerable to a narrow beam.

You can't hit what you can't see. Monsters can use stealth and camouflage to remain hidden until it's time to

strike. Burrowers can lurk underground. Psionic monsters could even use "psychic invisibility" to stroll right up to their victims in plain sight. Speed and size modifiers can also help monsters survive and remain a viable threat. Fast-moving flyers or small fast-running creatures could be very difficult to hit.

Monsters also need believable motivations. Few creatures on Earth attack humans without provocation. Suitable motives include hunger (even if they can't eat humans, the alien animals won't know that until it's too late), protecting young (especially if the humans don't recognize what the young are), or guarding territory against rivals. *Trained* animals, of course, might be taught to attack funny-looking two-legged creatures, and could even be fitted out with cybernetic enhancements to make them into very dangerous living weapons.

Villains

Villains are those who oppose the heroes. They can be enemies, working directly to prevent the heroes from succeeding; or they can be rivals, who simply want to succeed at their own goals even if that thwarts the heroes. A vengeance-crazed ex-lover who wants to kill one of the PCs is an enemy, while a greedy merchant who steals the last available shipment of dronfberries is a rival.

Motivation is important for a convincing villain. In space opera settings, villains can be motivated by a love of evil for its own sake, but other science fiction subgenres tend to emphasize rational villainy. Characters can have extremely logical motives and still not be nice (greed is logical). Alien villains may have motives that initially appear to be nothing but senseless evil, but which on closer examination turn out to have an entirely reasonable cause.

To be a credible opponent, a villain must also be powerful enough to challenge the PCs. That doesn't necessarily mean all villains must be unstoppable combat monsters; merely that in the specific context of the adventure, they have enough power to be a threat. If the PCs need to get into a formal party to speak with the ambassador, the ambassador's protocol-obsessed social secretary is a powerful foe, even if he's frail and unarmed, because in that situation he has tremendous clout that the heroes lack.

Adventure Seeds

Bounty Hunters

Lee Kang wiped out a whole space station full of people to collect on an insurance scam. He's been on the run for years, but now someone's spotted him: he's in neutral space, living very well on a world ruled by a corrupt oligarchy. The price on his head is big, but is it worth sneaking him off a well-defended world to earn?

Colonists

A band of space pirates have crash-landed near the only settlement on a remote world where the Patrol seldom ventures. The raiders claim they just need time to make repairs and then they'll leave, but they seem to be making a big effort to make friends among the colonists. Someone needs to stand up to them before the colony becomes a pirate hideout.

Criminals

Someone has skipped out on a loan, and the Boss wants to make an example of him to keep anyone else from getting ideas. The deadbeat is a scientist, who needed the money to fund an expedition to some far-off planet to study the local primitives; she claims they once had some kind of big-deal civilization. The Boss wants you to go there and ice the scientist. If you mess up, don't bother coming back.

Diplomats

Your government has sent you to arrange a treaty of friendship with a newly discovered space-capable civilization. Not much is known about them, but several scout ships did disappear in this part of space before contact. Adding urgency to the mission is the presence of envoys from a rival power, trying to win the aliens over to their side.

Explorers

The heroes have made a very interesting find: a star system that has been completely converted into a "Dyson swarm" of giant space habitats, absorbing all the energy of the central sun. Mysteriously, the swarm appears to be completely abandoned. What could destroy a civilization powerful enough to dismantle planets?

Continued on next page . . .

Goons

One thing that makes villains impressive is that they usually come with a big horde of obedient goons. They're usually humans, but can also be big tough aliens, robots, or cyborgs.

Goons, like their masters, need to be a credible threat to the heroes. If a small band of PCs can wipe the floor with the cream of the galactic tyrant's legions, the question arises, "How did those wimps conquer the galaxy, anyway?" Of course, a large force of competent goons will defeat the heroes in short order. Balancing the two factors is tricky.

The Aim maneuver is one useful technique, giving the heroes the chance to duck for cover or fast-draw their own weapon, while still leaving the goons a chance to do some serious damage. Another method is to make sure that encounters with large forces of goons only happen in constricted areas where they can't make their numbers effective. Finally, GMs can encourage (and reward) attempts by heroes to sneak, bluff, or use disguise to avoid combat with the goons. If the heroes have had one tough battle with just a few goons early in the adventure, they'll have a healthy respect for them later on.

Credible goons shouldn't be too dumb. Bluffing through a checkpoint should require a hero who is highly skilled at Fast-talk or Acting, and there should still be some tense moments when it seems the goons may not be falling for the charade. It also helps maintain believability if the goons follow sensible tactics. If one guard fails to check in (because he's been taken out by surprise), a whole team of other troops should arrive to see what's the matter.

Adventure Seeds (Continued)

Mercenaries

Here's the job: two multistellar corporations are trying to get control of a world rich in rare minerals. The native sapients are low-tech and balkanized, but know about interstellar civilization. A revolution just broke out in the biggest kingdom, and the two corps are backing different factions. Your job is to make sure your employers' faction wins. (Of course, if you want to get all idealistic, you could side with whoever's going to give the natives the best deal.)

Merchants

It sounded like a simple contract: some aliens hired you to haul a consignment of eggs to a new colony world. What they forgot to mention is that the eggs are genetically engineered predators to help control pests on the new colony. They also forgot to mention that they're going to start hatching midway through the voyage. They certainly won't pay for any predators damaged in shipment.

Navy

A band of rebels have stolen the plans for a key defense installation. The ships of the star fleet have spread out to recover the plans before the rebels can use them to mount a surprise attack. But the heroes discover that someone within the government is passing information to the rebels – is the rebel scare merely part of something bigger?

Patrol

There's a new wrinkle in piracy on the frontier, and it's pretty ugly. Raiders have been hitting poorly defended settlements and carrying off the inhabitants to sell as slaves. The Patrol has to locate and infiltrate the slave market in order to find out who's buying the slaves and where they're being sent. Then they can shut the whole operation down with extreme prejudice.

Prospectors

The Golconda Trojans are a rich asteroid cluster where many prospectors operate. But now a big mining company is moving in, buying out or scaring off the independents. They recently took over the only station in the Golcondas where prospectors could get their ships repaired. Some of the guys are cashing in and retiring, others are heading out to find a new belt to work. But others are organizing; they're going to stay and fight back. What about you?

Scientists

The Ikana were a civilization that spanned this part of the galaxy when humans were still hunting mammoths. They were wiped out in a huge war with some unknown enemy. Now excavations on a remote Ikana outpost world have turned up traces of active machinery deep underground. Are there still Ikana surviving in hibernation? Or is it their destroyers, ready to emerge?

Soldiers

A Patrol investigation has found the home base of a slaver operation: a well-defended space station. Now it's time for the marines to go in and take the place, without getting all the captives killed. The Patrol is providing a couple of disguised merchant ships to get the marines into the docking bay. The enemy will be pirates and slavers – well-armed, not very well-trained, and willing to fight to the death to avoid capture.

Spies

Someone in Stellardyne is passing information on cutting-edge weapon technology to rival powers. It's your job to infiltrate the company's research station and find the spy. Of course, Stellardyne may have its own secrets to hide – and just who is the spy working for, really?

Chapter Nine
Characters

"Recovering that disk's not going to be easy."

"Thank you for pointing out the obvious, Captain," I snapped. "Kervan Kang didn't get to be the galaxy's leading crime lord by making it easy for people to steal from him."

"We're going to need help. I can fly a ship, and you know as much as anyone about how to find the tablet once we get into Kang's private museum. I figure we'll need some specialists: a tech who can shut down or spoof Kang's security web, and a couple of guys who can hold off Kang's guards during the raid. Can you think of anyone else?"

"A medic, I suppose – somebody's liable to catch a few blaster shots during this whole operation. Maybe someone to provide a distraction. Can we afford to hire three or four experts?"

"Not really. We could offer shares," he suggested, but my glare ended that speculation. I wasn't going to all the trouble of acquiring the Fomalhaut Disk only to sell it! The sole record of an entire civilization would be enough to restore my scientific reputation a dozen times over.

"So we just have to find one super-agent who'll work cheap," I said bitterly, and then stopped. "That's it!"

"You know someone like that?"

"As a matter of fact, I do. Zelia Meff. She's a xenobiologist, but before she got her degree, she spent a few years working for the Federation Intelligence Agency, in the Anomaly Correction Office."

"What did she do?"

"Corrected anomalies, of course. She said only four people in the galaxy are cleared to know about her history, and that two of them have to be kept sedated because of what they know. I do know she catches Vreeba lizards for her research by shooting them with tranq darts from a kilometer away." I didn't tell Panatic about the time she'd inadvertently broken a would-be mugger's spine after a late night at the lab. No sense in intimidating the good Captain, after all.

"Can we hire her?"

"Hire? I'm not going to hire her! I've got something much more valuable to offer: I'm going to make her my co-author!"

Group Structures

One important way in which role-playing adventures differ from film or written fiction is that they are team efforts. A typical gaming group has from three to six players, each of whom has at least one character. Each one of those characters is (to that player, at least) the star of the story. When creating characters, it's useful to think of ways to connect them, and set up plausible situations for a team of adventurers to keep hanging around together.

Military Team

The exploits and adventures of a team of soldiers have a long history in fiction, both in SF and outside the genre. A squad or fire team is the right size for a gaming group, and explains why these particular soldiers are always together. Fighter pilots can be in the same squadron, and tank or mecha crews may be aboard one or two vehicles, depending on crew size. In a military team, the characters have a lot of overlap in skills and training, especially if they're all in the same branch of service. They're all "combat monsters" by definition. Making them individuals is a matter of choosing vivid disadvantages and quirks, and some distinctive non-military skills. Nicknames and regional or ethnic traits verging on caricature are common in fiction.

A variant military team is the Special Forces or commando squad. The troops have to be quick to adapt

to unexpected situations, which means the characters get a lot more initiative than the average grunt in the ranks. Special Forces teams can also include some highly trained specialists in unusual fields, giving room for more diversity among the characters.

Spaceship Crew

On a small vessel the PCs can make up the entire ship's complement, while on larger ships they can be the senior officers. For an interesting variant, the PCs might be low-ranking crew, perhaps part of a special "contact group" or the ship's security troops. Another possibility is to let each player have two or more PCs: one senior officer who seldom leaves the ship, and a low-ranking crewman or space marine for planetside adventures.

Exploration Team

A group of scientists or explorers makes for a somewhat different type of campaign. Whether they are planet-based or aboard a spaceship, explorers are likely to be much less rigidly disciplined than a military unit. The characters can be more quirky and diverse, especially if it's a privately funded expedition. An exploration team can contain scientists, experts on outdoor survival, journalists or video-camera operators, linguists, traders, missionaries, and bodyguards. The potential for personality clashes within such a group does mean that the GM and players should enjoy that kind of roleplaying before undertaking the campaign.

The Professionals

A team of expert crooks assembled for the Big Score is an old favorite in crime fiction, and the same situation can be dropped into a science fiction setting. Characters can be from a wide variety of backgrounds, with odd and flawed personalities. The only requirement is the necessary skills for the job, at suitably high levels. Niche protection (see the box) is especially important in this arrangement, and the GM needs to be ruthless about making sure the characters have the right abilities. To inject a note of paranoia and mistrust, characters can have hidden agendas – secrets, hidden patrons, or personal enemies.

Niche Protection

It's always a good idea to make sure that each character has a "niche" – some particular area of expertise in which no other character has higher effective skill levels. In general, the character's niche should match the concept – if someone wants to play a "two-fisted space marine," then that character should have the best brawling skill in the party. (Sometimes it's fun to play with those assumptions, and have the party's best fighter be the shy astrogator who just happens to be a martial-arts champion.)

Niche protection ensures that all the characters get something to do. If one of the heroes is a good all-around character but someone else is better at any specific task, then the good all-around guy will always be standing around while someone else takes on the tricky jobs. This doesn't mean that every character should be absurdly specialized and only able to do one thing; having a backup on hand if one person is taken out of action is only prudent.

Character niches also make sure none of the *players* are sitting idle too much. The GM can give each person's character a chance to shine during each play session by creating adventures that play to each niche. (Sometimes the situation simply doesn't allow for this, but it's a worthy goal to aspire to.)

Character Concepts

Once the Game Master has designed the campaign setting, the players need to come up with characters.

Astronauts

Space voyagers are almost the "default" character type for a space campaign. Science fiction has shown a great variety of possible models. The earliest fictional space travelers reflected the Victorian milieu of stories like Wells' *The First Men in the Moon* or Verne's *From Earth to the Moon.* They were a mix of brilliant-but-eccentric scientists, gentlemen explorers, and the occasional virtuous sweetheart.

Many of the interwar pulp magazines kept the same blend, with a few lower-class mechanics for comedy relief or gangsters as villains. But tales set in the future introduced a new concept: space explorer as a profession. The Legion of Space in Jack Williamson's stories, the Galactic Patrol of E.E. Smith's "Lensman" series, and Edmond Hamilton's Captain Future became the new models.

Beginning with Yuri Gagarin, space exploration became a real-world career path, and writers began to adjust their stories to reflect new realities. Heroes became less two-fisted and trigger-happy, and shed their jodhpurs and jackboots for jumpsuits. In the 1980s gritty realism took another giant step with the appearance of blue-collar space heroes like those of the film *Alien.*

Whatever the character's specific background, an astronaut needs certain basic skills: Spacer (p. B185), Piloting (spacecraft type) (p. B214), Free Fall (p. B197), and Vacc Suit (p. 192) are mandatory. G-Experience (p. B57) or Improved G-Tolerance (p. B60) allow them to be at home in a variety of gravity levels.

Space Knights

The idea of a superhuman warrior for justice is surprisingly common in science fiction. From the Lensmen of E.E. Smith to the Jedi of George Lucas,

orders of elite, highly trained Space Knights have been defending the galaxy and fighting for justice. In comics they merged with superheroes to become the Green Lantern Corps. Space knights are more than just superior fighters – they have powers unavailable to lesser mortals, and often they serve a higher purpose rather than simply drawing a paycheck from the government. That's what distinguishes a space knight from, say, a galactic Green Beret or even the stalwart officers of *Star Trek*'s starfleet.

Of course, space knights, like real feudal aristocrats, can have a dark side. In past centuries, millions of people fought to be free of rule by hereditary elites; aristocrats with superhuman powers could create an unshakeable tyranny. And again, history shows that the worst tyrants of all are those who think they are doing good.

Space knights must naturally be highly competent (even the bumbling novices are merely less supercompetent than the veterans). If they are truly noble heroes, their disadvantages should only be heroic ones – Code of Honor, Sense of Duty, and the like – although it can be fun to play a tarnished hero with one serious flaw. In a darker campaign, the space knights may be less noble, adding Bully, Intolerance, and Fanaticism.

The nature of the knights' skills depends on the technology and setting. If elite warriors duke it out with energy swords, then Force Sword skill and martial arts are most important. Settings where mecha jockeys or fighter aces are the "knights" require Piloting or Driving skills and Gunner. Often knights have access to hidden or secret lore unknown to the rest of society.

Tramp Freighters and Merchant Princes

Merchant characters can be just as wide-ranging as knights, and can get into a much wider range of trouble. They need a good array of skills: Law, Merchant, and Administration to run the business side, social skills to make contacts and close deals, space-piloting skills to get from market to market, and combat skills to deal with bandits, pirates, and hypercompetitive rivals.

In a ship crew, the characters can specialize. The captain can focus on the trading side, the pilot on spacecraft operation, and the engineer on keeping the old girl running. Combat can be the responsibility of the marine veteran security officer (or maybe just the cook), or all the crew can have at least minimal competence with blaster or fists.

More high-powered campaigns may involve individuals who run whole trading companies. This doesn't mean they can't get into trouble (Poul Anderson's Nicholas Van Rijn did his share of field work when he wasn't managing his empire), but it does change the necessary skill mix. Social skills and Administration become vastly more important, along with Area Knowledge and Current Events to stay abreast of developments.

Modified Humans

Humans have always wished to be better than they are. The ancient Greeks told stories of super-strong Herakles and invulnerable Achilles. Science fiction allows realistic characters with superhuman abilities. While early stories such as Philip Wylie's "Gladiator" postulated giving chemical treatments to a developing fetus to create a superman, modern writers rely on either genetic modification or advanced cybernetic implants to give characters special abilities. ***GURPS Bio-Tech*** covers biological modifications and technology.

Tailored Genes

Genetic engineering has tremendous potential. Think of all the amazing things that real living organisms already do. Early stage genetic engineering would likely focus on removing genes for undesirable traits (and the definition of "undesirable" is still a huge seething can of giant mutant worms for society to resolve). The next stage would be to pick and choose among the best of the human genome to create people with at least the potential to be great at everything. Beyond that, engineers could start importing genes from other primates, then other mammals, and finally any Terran life. By then they could even start inventing new genes, and human capabilities would be limited only by the physical laws of nature.

In ***GURPS*** terms, first-stage genetic engineering (late TL8 to TL9) would simply remove most of the inborn physical Disadvantages from play. With widespread gene selection, nobody would be born color-blind or hemophiliac. Depending on the society, even below-average looks would become rare.

Second-stage engineering (TL9-10) drastically widens the range of possibilities. Borrowing abilities from the animal kingdom makes it quite feasible to create amphibious people, people with Night Vision or echolocation, people with fur or armor skin, people with wings, or people with incredible attribute levels. Chapter 6 includes useful guidelines for biological superpowers that don't violate any natural laws. Game Masters can (and should) set limits on how many points characters can spend on genetic modifications.

Metal and Flesh

Another way to make people superhuman is simply to bolt advanced machines onto them, or implant devices inside their bodies. One might call this the "Tin Woodman" solution, after L. Frank Baum's character who gradually replaced lost body parts with tin until he was all metal. Martin Caidin's novel *Cyborg* (which inspired the TV series *The Six Million Dollar Man*) envisioned a man with super-strong "bionic" limbs. A decade later the cyberpunk authors took the idea to baroque excess, imagining just about every possible combination of human and machine. More recently, as the possibilities of nanotechnology have become more celebrated, the old ideas of cold metal attached to living flesh have given way to new images of a merging at the cellular level – bodies laced with tiny machines that are themselves almost alive.

Detailed rules about body modifications are covered on p. B294. In a ***GURPS*** campaign there are three

ways to handle cybernetics. Implants and bionic limbs can be treated as part of the character – in which case they cost character points based on effect, can't easily be removed, and don't count against the character's starting wealth. This kind of cybernetics is effectively a "special effect," and the character shouldn't get disadvantage points for missing the parts the bionics replace. This is probably the best method for invisible internal systems and full-body nanotech upgrades.

The second way is to treat bionics as possessions, which just happen to be attached to the person's body. They cost money rather than points (although for really expensive systems the character may wind up trading points for wealth to afford them), and can be stolen or removed about as easily as any other possession. The character does get the disadvantage points for any missing limbs or organs that the bionics replace, though the Mitigator limitation still applies. This method encourages players to "trade up," constantly upgrading their characters' systems just as they buy new guns and gadgets. Obviously this works best for external hardware like mechanical hands or legs.

Finally, the GM may elect to do both, charging points *and* money for cyberware. This is a bit rough at character creation, since the PCs are getting hit both for the Wealth they need to afford stuff and the point value of the bionics, but it does keep things under control in play. Players can offset the point cost with disadvantages based on missing body parts, and can limit the cost of cybersystems with limitations like Takes Recharge. Individuals with cybernetic systems can take the Maintenance disadvantage to reflect the need for periodic overhauls.

The price in dollars of cyberware varies with the campaign world and the tech level. If implants or mechanical arms are common fashion accessories, mass-produced by the million, then they'll be cheap – though the cheap ones may have built-in glitches due to hasty manufacturing and poor quality control. In settings where cybertech is rare or secret, the cost can run to millions.

Uplifted Animals

If genetic engineering can improve humans, it can do the same for other species as well. People could make animals stronger, healthier, faster – and smarter. Possibly as smart as humans themselves. David Brin's "Uplift" series depicts a whole galactic civilization based on species boosting others to intelligence, and gives us the name for the process, but the idea has been around much longer. Olaf Stapledon's novel *Sirius* focuses on an intelligent dog, and Cordwainer Smith wrote of animal-derived "Underpeople."

The best candidates for such improvement are naturally the animals that already show great natural intelligence, language ability, or tool use. Chimpanzees are an obvious choice, with dolphins and dogs as runners-up. Other possible uplift subjects include cats, raccoons, elephants, octopuses, bears, gorillas, parrots, ravens, killer whales, and coyotes.

The most important change for an uplifted animal is to raise IQ to 6 or more and buy off the Bestial disadvantage. This creates an intelligent creature, but with severely limited ability to communicate or manipulate items. For species without natural hands the designers may either try to modify the animal's paws to give them manipulating ability, or simply create tools that overcome the lack of hands. The dolphins in Brin's "Uplift" stories use sophisticated robot arms controlled by cybernetic implants.

As to communication, the engineers have three options. They can modify the animals to approximate human speech (though probably with the Disturbing Voice disadvantage); they can go for a technical fix by providing them with voice-synthesizer boxes or translation computers (the Cannot Speak disadvantage with a Mitigator); or they can create a language which the animals can speak but humans can understand.

Exactly how much modification is possible depends on the animal and the campaign background. Raising a dog's intelligence would probably be easier than modifying its entire anatomy and posture to give it hands and bipedal locomotion. Making a dolphin into a humanoid would be about as hard as creating a new species from scratch (and would negate most of the dolphin's natural advantages anyway).

In many fictional worlds and campaign settings, engineered animals are second-class citizens, considered inferior to their human creators. Cordwainer Smith's "Underpeople" were animal-derived humanoids who served as slaves to humans. This would be a combination of low Status and Social Stigma.

Psionic Mutants

Humans with psionic powers have been around in science fiction since at least the days of Edgar Allen Poe, who wrote about mind-controlling hypnotists and psychic phenomena. The exact nature of psi powers depends on the campaign, of course. Traditional abilities include telepathy, clairvoyance, and telekinesis. More exotic psi powers allow teleportation, time-jumping, world-jumping, probability alteration, and reality manipulation. Old-time "steampunk" psychic powers are closer to magic, with abilities like spirit medium, psychometry, and animal communication. For details on particular powers and abilities, see pp. B254-257.

Psionic mutants became a fixture in SF during the 1940s and 1950s, when public fears of nuclear war met the legendary editor John W. Campbell's interest in psionic experiments. Writers began using post-apocalyptic mutations as a way to explain the growth of powerful psionics.

Unlike comic-book mutants, SF psionics tend to have a single ability, like mind reading or telekinesis, often with interesting limitations. Larry Niven wrote about Gil the ARM, a future police officer whose telekinesis and ESP manifest themselves as an "imaginary arm" which is no stronger than an ordinary limb but can reach through walls or even video screens! Player characters may require psi-booster drugs or cybernetic implants to activate their powers – or to shut them off! Game Masters should feel free to limit the points characters can spend on psionics, and encourage them to come up with limitations to make their powers unique and interesting.

The rarity of psionic powers determines how much of an Unusual Background the character should have. In some settings, *everyone* can have psionics, so it isn't unusual at all! Alfred Bester's novels *The Demolished Man* and *The Stars My Destination* both feature worlds of universal psychic ability. If psionics is a secret from everyone without powers, then having psi powers is worth 20 points or more. If powers are known to secret government agencies and underground psionic conspiracies but are considered a myth by the general public, which would be worth about 10 points. In worlds where psionics are known but are limited to those born with the talent, it's a 5-point Unusual Background.

Psionics may also suffer a Social Stigma, especially if their powers result from mutation. Normal humans may view them as inhuman, unnatural, or dangerous. Marvel Comics' X-Men titles show this attitude among the general public. The level of stigma depends on the campaign: in some worlds it may be a minor one, equivalent to Social Stigma (Second-Class Citizen); other societies may oppress or even seek to exterminate psionics! Some governments may draft psionics to use their powers "for the greater good," imposing an Involuntary Duty on psis.

By contrast, a society that accepts and respects psionics may give levels of Social Regard based on the character's power level. Details will vary depending on the campaign, but a good guideline is 1 level of Social Regard just for being psionic, 2 if the character has an ability powerful or useful enough to use professionally, and 3 or more if the character's powers are notably strong or impressive. This Regard may be either respect or fear!

Robots and AIs

One of the earliest SF stories, Mary Shelley's *Frankenstein,* is all about the creation of an artificial intelligence and the consequences of it. Shelley's scientist used biological and alchemical methods instead of electronics, but the "Frankenstein theme" has remained a key part of science fiction for two centuries and shows no sign of disappearing.

There have been several reinterpretations of the idea. Most early stories treated the idea of creating life or intelligence as a blasphemy. Karel Capek's play *R.U.R.* used androids as a way to comment on the exploitation of workers by industrial society, and depicted their destruction of humans as a natural and perhaps desirable result. Isaac Asimov rejected the whole concept of conflict by positing robots programmed with the "Three Laws of Robotics." The three laws made robots ethical, possibly even morally better than humans, and Asimov suggested rule by beings who are made to be ethical could be superior to rule by flawed and fallible humans. Jack Williamson's stories of the "Humanoids" showed a possible flaw in that reasoning, as his robots deprived humans of all freedom in the drive to protect them.

Parallel to the idea of the robot is the concept of the computer. Where robots were in some way "people" – a way to comment on how humans act and how they treat each other – the giant super-intelligent computer rapidly took on the qualities of a god. D.F. Jones' Colossus and Asimov's Multivac were both titanic thinking machines in fiction, so vastly intelligent that humans often had trouble understanding their motives.

As computer technology has become more powerful and widespread in recent decades, depictions of artificial intelligence have become more realistic and sophisticated. Modern stories tend to focus on intelligent *programs* that can run on any sufficiently powerful machine. A humanoid metal body or a giant box with blinking lights are just the "platform" now for the AI.

Giant computers and realistic-style AIs should take the Digital Mind advantage, but old-style robots and androids may not; their intelligence is bound to a particular robot brain. On the other hand, robots do take the Machine meta-trait, while an AI program living entirely in cyberspace would not.

As with psionics and uplifted organisms, robots and AIs get a Social Stigma in many settings. Often they are considered property, or lack certain legal rights enjoyed by humans (the right to reproduce, for instance). Of course, in some settings (like the ***GURPS Reign of Steel*** world) computers are the masters and it's *humans* who are the victims of oppression!

Aliens

The first speculations about alien beings are nearly two thousand years old. The Roman satirist Lucian of Samosata wrote of a ship being carried by a whirlwind to the Moon, where the crew encounters strange vegetable-people. Johannes Kepler imagined more scientific Moon creatures in his *Somnium*, and H.G. Wells' *The War of the Worlds* introduced that dependable SF cliche, the tentacled space monster.

Chapter 6 includes plenty of material on creating alien species, but it's also important to keep in mind the *role* the alien will play in the campaign. There are several possibilities. If humans are the "default species," then alien characters are *outsiders.* They are not human, and so their attitudes and behavior can comment on the things humans take for granted. Tales of outsiders interacting with humanity can replay or comment on human contacts with "alien" human cultures – the conquest of the Americas, the slave trade, and the Boxer rebellion. In early episodes of *Star Trek,* Mr. Spock filled the role of alien outsider. Outsiders may have a Social Stigma, depending on how tolerant the majority culture is of aliens. They also can have disadvantages like Clueless, Low TL, or Unusual Biochemistry, reflecting how little they know of the majority society and how little it knows of them.

A campaign in which humans are roughly equal to several alien civilizations can have aliens as *rivals*. They aren't outsiders – indeed they may be embarrassingly well informed about human culture and psychology – but they don't have the same goals as humans. Their ambitions may be opposed to those of humans (in which case they are likely to be enemies), or they may simply be unrelated. In that sort of universe, the focus is often on coming to terms with the aliens and avoiding violent conflict. The various squabbling civilizations of *Babylon 5* are good examples of alien rivals. Rival aliens may get a Social Stigma

or a racial Reputation among other civilizations. Multispecies settings typically ignore the problems of incompatible biochemistries or food, assuming that spacecraft and starports are set up to handle at least the members of known or important alien species.

If humans are the outsiders in an alien-dominated civilization, then the aliens are the *insiders*. Insider aliens naturally lend themselves to adventures in which learning about the alien civilization or forming social ties with aliens are the goal. The aliens of *Farscape* are insiders. Insider aliens may or may not know much about humans, but the difficulty is in making them *care*. Since theirs is the majority culture, they don't suffer any disadvantages simply because they are aliens.

Finally, aliens can be simply *monsters*. This is an old role that springs from, and can be used to comment on, human xenophobia and racism. Alien monsters are destructive and dangerous. Communication with them is either impossible, or is the key to stopping their rampage. This is perhaps somewhat "unenlightened" but it's a dependable SF standby. The predatory alien of *Alien* or Wells' Martians are examples of alien monsters. Monsters get a severe Social Stigma, and may also have Horrific appearance, Cannot Speak, and various Odious Racial Habits reflecting their monstrous behavior.

It is possible for one alien species or civilization to occupy several of these roles at different times. A species encountered first as a monster may reappear later in the outsider role, before joining the community of spacefaring cultures as another rival.

Advantages, Disadvantages, and Skills

The ***GURPS*** rules are extremely flexible, but creating characters for far-future or alien settings may require a few adjustments or special interpretations.

Advantages

A science-fiction campaign makes some advantages very useful, while others become less important.

3D Spatial Sense

see p. B34

This advantage becomes quite important in any campaign in which the heroes spend a lot of time in zero gravity. It's also good for space pilots and navigators. Game Masters should decide if 3D Spatial Sense works in hyperspace or "jumpspace," and whether or not a person with the advantage can retain his direction sense even through an interstellar jump.

Alternate Identity

see p. B39

One useful limitation characters can take on an Alternate Identity is to limit it to a specific world. So if Captain Templeton of the Space Patrol has an alternate identity on the pirate station Port Royal as the smuggler Captain Notelpmet, that reduces the cost. Exactly how much reduction depends on how much time the characters are in the area where the alternate identity is valid. An identity valid during half the campaign would be a -20% reduction, a fourth of the time is -30%, and a particularly obscure or secret place would be -80%. Note that this only applies to seemingly valid, "legal" identities with all the associated paperwork. Captain Templeton can always *call* himself something else when he visits a new world.

Charisma

see p. B41

The Game Master must decide in advance if advantages like Charisma or Empathy work on different species. The default assumption is that they *do* work on aliens, but appearance and Voice do not. If the GM decides that Charisma and Empathy don't affect aliens, reduce the point value by applying the limitation "Humans Only," worth -20%.

Cultural Adaptability

see p. B46

At the 10-point level this makes a character familiar with all cultures of his race. If he is native to a "multiracial" civilization (like *Star Trek*'s Federation), this includes all "member species" cultures but not those beyond the border.

At the 20-point level, the character is familiar with all cultures – but of course this only applies to *known* cultures. It doesn't mean the character knows anything about undiscovered civilizations!

Cultural Familiarity

see p. B23

Those who lack familiarity with an alien civilization will be fish out of water. PCs should not be allowed to start with familiarity with newly discovered (or *undiscovered*) civilizations. Robots and AIs are likely to have their own cultures, different from those of humans or aliens, and will be similarly unfamiliar with human ways.

Digital Mind

see p. B48

This is the standard advantage for any robot or AI character. Humans may take this advantage (indicating some kind of computer brain implant) but should probably pay an Unusual Background cost of 5-10 points.

G-Experience

see p. B57

This advantage is likely to be quite common in any game that involves interplanetary travel. Characters are assumed to have experience in their native gravity level for free. Game Masters may allow characters to buy familiarity with several different gravities at 1 point each, then "trade up" to familiarity with all gravity levels once they've spent 10 points.

High TL

see p. B23

The issue of what constitutes "high TL" can be tricky in a game universe that includes civilizations at different technology levels. A character has the High TL advantage if he can *legally acquire* equipment which otherwise would not be available to other PCs in the game setting. Getting a super-tech weapon from the body of an alien assassin doesn't make one High TL; knowing where the assassin got his weapon and being able to shop there does.

Improved G-Tolerance

see p. B60

This advantage is an alternate way to model characters who can function on a variety of different worlds without penalty. Unlike G-Experience (see above), it is an innate ability (possibly genetically engineered) rather than something one might pick up as a result of travel.

Languages

see p. B23

In a setting that includes aliens, members of some races might be unable to learn the languages of other races at better than Broken or Accented level – or at all! This is a 0-point racial feature, and cannot be bypassed with Language Talent.

Magery

see p. B66

Magical ability is obviously a fantasy concept rather than science fiction, but writers and gamers love to blur the distinction between the two. If magic is a known effect in the campaign, then use the listed value for Magery. If magic is secret or unknown, there are two approaches possible: either charge an Unusual Background to let a PC use magic, or declare that since magic is hidden, learning about magic is very difficult. Characters can only learn spells in play from NPCs, who are likely to charge a stiff price or demand services.

Racial Memory

see p. B78

This ability may actually exist among certain alien species, especially those that reproduce by budding. It can also be used to represent the preloaded files and memories of an artificial intelligence character.

Resistant

see p. B80

An important type of the Resistant advantage in a space campaign is the ability to withstand acceleration; this is especially common among astronauts and pilots who have to withstand high-gee maneuvers in planes and spacecraft. Resistant to Acceleration (+3 to HT to resist sudden acceleration) is worth 1 point, and Resistant to Acceleration (+8) is worth 2 points. See p. B434 for more on acceleration effects.

Social Chameleon

see p. B86

As with advantages like Empathy and Charisma, the GM should decide if this advantage works in alien societies. If not, apply the -20% limitation "human cultures only."

Status

see p. B28

Status only gives a benefit or disadvantage if the people you're dealing with recognize it. Characters from alien or exotic civilizations adventuring in galactic society may wish to buy "courtesy Status" at 1 point per level; if you want to call yourself Baron of Callisto, the natives of Rigel VII won't argue, but it won't affect their reactions, either.

Talents

see p. B89

Some new Talents appropriate for SF campaigns include:

Alien Friend: Anthropology (any alien culture), Diplomacy, Expert Skill (Xenology), History (any alien specialty), and Psychology (any alien race). *Reaction bonus:* aliens. *5 points/level.*

Cyberneticist: Computer Hacking, Computer Operation, Computer Programming, Computer Programming (AI), and Electronics Repair (computers). *Reaction bonus:* other computer professionals, AI systems, and robots. *5 points/level.*

Hot Pilot: Gunner (any), Navigation (Air or Space), Piloting (all types). *Reaction bonus:* other pilots. *5 points/level.*

Zeroed

see p. B100

In a far-flung campaign with slow communications, planetary datanets may not be able to share information very well. Individuals may be Zeroed on one world but not another. Game Masters may wish to let PCs be Zeroed on a given world (or star system) with an Accessibility limitation based on how often the characters go there.

Disadvantages

Addiction

see p. B122

A science-fiction setting offers new possibilities for addiction, including virtual reality, psionic contact, or electric stimulation of the pleasure center.

Virtual Reality is Cheap, Incapacitating (in that one can't do anything

else while using it), and is likely to be Legal, giving it a value of -10 points. *Psionic Contact* is Cheap (assuming one is psionic), likely to be incapacitating, and probably is illegal, for a value of -15. *Direct Pleasure Stimulation* is Cheap, Incapacitating, Totally Addictive, and probably Illegal, for a cost of -25 points.

Amnesia

see p. B123

A setting with advanced brain-hacking or mind manipulation could add another type of Amnesia: *Selective Amnesia.* The victim knows who he is and knows most of his skills and background, but there are certain periods that are "missing" because those memories have been blocked or erased. It's quite likely that those missing periods included some important events, since otherwise nobody would go to the trouble of erasing them. Selective Amnesia is worth -5 points.

Appearance

see p. B21

In any culture that has contact with alien races (or at least knows they exist), simply looking like an alien is not necessarily enough to give an Appearance penalty. Unless species have notably similar standards of beauty, Appearance modifiers don't cross over from one race to another.

Bad Sight

see p. B123

Given the present-day availability of laser eye surgery and the prospect of genetic engineering to prevent vision problems, Bad Sight may become a forgotten disadvantage in future societies.

Cannot Speak

see p. B125

Aliens with different mouth structures may be unable to pronounce human languages, effectively giving them the Cannot Speak disadvantage. Others may actually be mute, unable to produce sounds. In any society above TL7, this can be mitigated by a computer speech synthesizer, at a -60% cost reduction. See *Mitigator*, p. B112.

Code of Honor

see p. B127

Science fiction opens up a whole universe of possible Codes of Honor for aliens and other forms of intelligence. Some possible new codes include:

Asteroid Miner's Code: Don't jump someone else's claim. A handshake is as good as a contract. Help other prospectors in distress. *-5 points.*

Ethical Psionic's Code: Never use your powers on someone without their consent. Always help out another psi. Show restraint and self-control in front of the mundanes. Always stand up for your rights and the rights of other psis. *-10 points.*

Hacker's Code: Never steal money. Share information. Don't use your skills to harm people. Clever work is better than brute force. *-5 points.*

Mercenary's Code: A merc should look out for his buddies, take care of his gear, and fight for the honor of the unit. Obey the rules of engagement. Don't poach on another unit's contract. Do the job you're hired for. *-10 points.*

Dependency

see p. B130

Breathing a different atmosphere is a common Dependency in science fiction. Assume the right air mix for a known species is Very Common, while a more obscure race's air would be Common. Only really unusual atmospheres (vaporized metal, for instance) would be Occasional or Rare, if only because no space traveler would ever leave home if there was no reliable source of stuff to breathe! All air Dependencies are Constant, so this is a -25 point disadvantage for most species, and -50 points for races that breathe obscure gases.

This disadvantage only applies if the alien is spending all his time in an environment that is hostile to him but in which other characters can operate normally. A team of explorers on the Moon all need air, so it doesn't matter if one of them has tanks of methane on his back while the others carry oxygen.

Most other requirements of life don't qualify as a Dependency. Alien food is better modeled as a Restricted Diet, and medical needs fit Unusual Biochemistry. The need for a different temperature range is a form of Increased Life Support, since the actual vulnerability to different temperatures is balanced by the tolerance for extreme conditions.

Disturbing Voice

see p. B132

In general, an alien's way of speaking should not qualify as a Disturbing Voice. An individual alien may have a Disturbing Voice, but the way a species communicates should probably be subsumed into any Social Stigma they suffer as aliens.

Electrical

see p. B134

This is a very common disadvantage for robots, computers, and "weird life" aliens based on electric fields or ionized plasma. It doesn't apply to androids formed by "synthetic life," or to steampunk-style Babbage engines.

Enemies

see p. B135

In a society with widespread human cloning or cheap and easy plastic surgery, having an Evil Twin Enemy may not be so unlikely or even unusual. If "my clone did it" is a valid excuse in a setting, then the disadvantage of having an Evil Twin is reduced by 5 points. Characters with "off-the-shelf looks" (see Appearance, p. B21) can't take this form of the Enemy disadvantage at all, because everyone *knows* they look like a lot of other people.

Fragile

see p. B136

A science-fiction setting adds a new variation on Fragile for beings whose bodies are made of gas or a swarm of tiny objects: *Tenuous*. Any critical failure on the HT roll for a major wound from an explosive attack means your body is dispersed, instantly reducing you to -10×HP and killing you. *-15 points.*

G-Intolerance

see p. B137

Beings who cannot function without penalty in *any* gravity level other than their native one can take a higher value of disadvantage, *Total G-Intolerance* (-25 points). Those with Total G-Intolerance suffer the ill effects of different gravity as if their G-Increment were 0.05G, but always add one *extra* increment in any gravity but their home gravity. In addition, they cannot take G-Experience for other gravity levels.

Increased Life Support

see p. B139

Aquatic creatures require flooded living quarters and water-filled environment suits. This makes their life support Massive, worth -10 points. Organisms from different atmospheres (chlorine-breathers, methane-breathers, or hydrogen-breathers) require Pressurized quarters; -10 points.

Some aliens may require new forms of Increased Life Support. Extremely large beings (4 or more meters in height/length) take the *Large* life support requirement, which doubles the minimum space for bunks, quarters, and airlocks. For each additional doubling of height, add another level. -5 points/level, to a maximum of -30.

Space-dwelling organisms need vacuum and zero gravity, which combines the Massive and Pressurized requirements (assuming artificial zero gravity is possible at all) for -20 points.

Lecherousness

see p. B142

In a realistic (or even semi-realistic campaign), characters with Lecherousness will not be attracted to aliens, even attractive ones. Lecherous characters who also have Xenophilia will be attracted to aliens normally. (And for -20% they can be Lecherous only toward aliens.) In less realistic campaigns, in which cross-species liaisons are common, apply the Physiology Modifiers (p. B181) as a *negative* modifier to the lecher's self-control roll.

Lifebane

see p. B142

While this is normally a supernatural disadvantage, it can be used to model the lethal effect of aliens who are intensely radioactive, or whose tissues exude toxic gas. If a protective suit can reduce or prevent the effect, take the standard -60% limitation. See *Mitigator*, p. B112.

Pacifism

see p. B148

All forms of pacifism normally treat other intelligent beings as "people." Someone might be a Pacifist toward members of his own species, but be willing to use violence against aliens. This assumes that aliens are relatively common. "Single species" pacifists get a -20% reduction in the value of the disadvantage.

Phobias

see p. B148

Some new phobias that are particularly appropriate in a space campaign include:

Radiation (Radiophobia): You are terrified of invisible, deadly radiation or radioactive contamination. You must make a self-control roll to approach or touch something labeled "radioactive" or bearing the radiation trefoil, and must roll once per turn to remain near a source of radiation, even if the level isn't harmful. You will constantly monitor the rad level in your surroundings. *-5 points**

Robots (Cyberphobia): You are afraid of intelligent machines, or machines which act intelligent. You must make a self-control roll when encountering any seemingly sentient machine. There is a -3 penalty on the roll whenever you must entrust your life or safety to a "friendly" machine (like an autodoc or a robot pilot), and a -6 penalty when you face a hostile robot or computer intending harm. You will also react at -1 to people with cybernetic implants. *-15 points* if sentient machines are common in the setting, -5 points* if they are rare.*

Space: You cannot stand being away from a real solid planet. Aboard a space station or spaceship, make a self-control roll to avoid complete panic during any stressful situation (with a penalty of -2 if you can see out a window at the time). Any time you must go outside into space wearing only a suit, a roll is required *each turn* to avoid panic. *-10 points* if space travel is common, -5 if it is rare*.*

Restricted Diet

see p. B151

In a strictly realistic campaign, all aliens should take this disadvantage when adventuring away from their home planets. The value depends on what they eat. DNA-based creatures who breathe oxygen would have the -10 point level, exotic-chemistry organisms would have it at -20, and non-chemical life would have it at -30. Multispecies civilizations or high-tech societies that have contact with many alien races are assumed to have facilities and food for known species, so this disadvantage doesn't apply in those circumstances unless the characters are from an undiscovered or obscure race. This advantage could also be used to model robots or androids with "nonstandard components," so that all repairs require custom-built parts at 10 times normal cost, for -10 points.

Social Stigma

see p. B155

Several forms of Social Stigma occur frequently in science-fiction campaigns.

Aliens are outsiders, considered funny-looking, possibly dangerous, and certainly inferior to humans. Aliens get -2 on reaction rolls made by humans (or whatever race is the majority in the culture), but a +2 from members of their own species (at least in human-dominated areas). *-10 points*.

Psionics are often considered not quite human, with abilities that make them potentially dangerous. They get a -2 on reaction rolls from normals, but +2 from other psionics in situations where they are a minority. In some cultures, psionics may require a license to use their powers at all! *-10 points, -15 if a license is needed to use psi powers.*

Robots are typically considered "valuable property" just like slaves or

animals. Some robots or AIs are "free machines" with legal rights but a -1 reaction penalty from humans. *-10 points for property machines, -5 points for free ones.*

Uplifted Animals are often second-class citizens, with restricted rights and privileges. They get a -1 on reaction rolls from humans, but not from other uplifts. *-5 points.*

Stress Atavism

see p. B156

This disadvantage may be common among uplifted animals or synthetic organisms with animal genes. Some alien species may have a form of Stress Atavism if they shift into an animalistic state under certain conditions. One likely condition is mating season: Accessibility (Mating season only) is a -80% limitation.

Supernatural Features

see p. B157

No alien features are considered Supernatural Features, unless by a strange coincidence they match up with another species' legends about magical creatures. Since that would be for a single culture, it would be worth a -40% limitation on the Supernatural Feature disadvantage.

Susceptible

see p. B158

Aliens may be immune to poisons or allergens that affect humans, but are likely to have their own suite of things to be susceptible to. Uplifted animals, robots, or bioroids may have built-in susceptibilities as a method of social control. For animals and bioroids it could take the form of a specific poison or a tailored disease – which law-enforcement agencies probably stockpile. For robots there might be a particular gas mix or liquid (treat as a poison) with devastating effects.

Unusual Biochemistry

see p. B160

In a realistic campaign, *all* aliens should have Unusual Biochemistry, since even oxygen-breathers based on DNA would likely use very different hormones, blood chemicals, and proteins. In a less realistic campaign, assume all "humanoids" have similar biochemistry, but anything based on different chemicals (chlorine-breathers, hydrogen life, etc.) would still get this disadvantage. In a multi-species civilization, no member race's biochemistry would qualify as "unusual," since presumably doctors and pharmacists would be trained in how to treat them.

Vulnerability

see p. B161

Some aliens, especially those with very different chemistries, may be vulnerable to certain types of attack. In particular, a nitrogen-based organism would probably take ×3 or ×4 injury from any kind of incendiary attack, as it would cause a chain-reaction in the molecules of the organism's body!

Robots may be designed with vulnerabilities to allay human fears of them. Microwave or electrical attacks might get a multiplier of ×2 or more, and in a setting with robots as part of society microwave or electrical weapons are likely to be common.

Weakness

see p. B161

This might be quite common in a science-fiction campaign, both for humans on other planets and aliens visiting Earth. Any alien biosphere is likely to have chemicals or particulates that irritate or harm organisms that aren't used to them. There are several levels of sensitivity.

Allergens are irritants in the atmosphere or local food that cause an immediate reaction. This is typically Occasional in frequency, although a particularly nasty atmospheric gas (like oxygen for non-breathers) would be Very Common. The frequency is typically 1d per 5 minutes or 1d per 30 minutes, and most allergies do Fatigue damage only.

Heat or even room temperature might be harmful to aliens whose body tissues can melt (this is in addition to the effects of temperature above the comfort zone). The exact temperatures depend on the chemistry; see Chapter 6 for some numbers on freezing and boiling points. Above the melting temperature you suffer 1d damage per turn, and damage from melting cannot be healed or regenerated. This is Weakness (any significant heat; Very Common, 1d per minute) [-60].

Slow Poisons are trace elements in the environment that accumulate in a body, gradually killing the organism. This is Common, and does 1d per 30 minutes. The body can probably flush out the toxins in a few hours as long as there isn't new exposure.

In all cases, a Weakness only applies to something that affects one character or race, but which is otherwise harmless. On a world with a lethal atmosphere that kills just about everyone, there's no point in taking a Weakness, any more than one would take a Weakness to bullets! Similarly, the GM should rigorously enforce the frequency of occurrence modifiers – an effect that occurs on a single planet is an adventure hook or a setting detail, not a disadvantage. Only if the campaign spends a lot of time in that environment should characters get points for a Weakness there.

Weirdness Magnet

see p. B161

In a science-fiction setting, many "weird" elements become fairly mundane. Getting visited by aliens isn't "weirdness" if you can see aliens down at the mall every weekend buying used CDs. (If *nobody else* can see them, that's another matter entirely. . .) The Game Master should adjust the effect of this disadvantage to reflect what is really weird in the campaign. This may mean paranormal events and psionics in a hard-SF campaign, or magic and Forteana in a space opera setting. In a *really* weird campaign, the GM may disallow this disadvantage altogether because *everyone* has it!

Planet Types Revisited

Biology (p. B180), Geology (p. B198), and Meteorology (p. B209) *require* you to specialize by "planet type," as does the "Physical" specialty of Geography (p. B198). The six types listed represent a middle ground in the quest for realism. For real hard-SF accuracy, all those sciences should specialize by individual planet – so a researcher can be an expert at Mars geology, Earth geology, or Pluto geology.

Players may also wish to broaden the list of options by using the list of planet types in Chapter 4, so that one could be a specialist in Large Hadean meteorology or Standard Garden World biology.

Xenophilia

see p. B162

If an alien species is a well-known part of the setting, then it probably doesn't count as "strange and exotic," so Xenophilia would not apply. (If there is a Rigelian neighborhood in every city on Earth, then a human attracted to Rigelians only has a 1-point Quirk.) Xenophilia only applies to unusual, unfamiliar, or exotic aliens.

Skills

Acrobatics

see p. B174

Game Masters may wish to add a new specialty: *Zero-Gravity Acrobatics*, sometimes known as "Astrobatics." It requires Free-Fall as a prerequisite, and defaults to Aerobatics at -2, other forms of Acrobatics at -6. Perfect Balance gives no benefit, but 3D Spatial Sense does give a +2 bonus.

Animal Skills

Different planets will require new and exotic specialties of Animal Handling, Riding, and Teamster, with no defaults to Earthly specialties. Also, remember to apply Physiology Modifiers (p. B181) to Veterinary skill.

Bioengineering

see p. B180

Characters with Bioengineering skill can invent biological modifications or even entire new species at TL9+. Use the rules governing inventions to determine cost and time required. Note that for things like new animals, the creature still has to actually grow up at the normal rate. GMs may require would-be bioengineers to take the Gadgeteer advantage as well.

Boating/TL†

see p. B180

Add the new speciality *Hydrofoils,* which governs the use of powered vessels that ride on underwater hydrofoils rather than floating. Hydrofoils are experimental at TL6, begin to come into use at TL7, and are a mature technology at TL8+. It defaults to Large Powerboat-2 and Motorboat-3.

Environment Suit/TL

see p. B192

Add a new specialization: *Hydrosuit.* This is the skill of wearing a water-filled suit when moving about in air or vacuum. It is learned by aquatic beings who want to explore other environments. Just about all hydrosuits include some kind of powered exoskeleton. The skill defaults to DX-5 or Battlesuit-2.

Erotic Art

see p. B192

This skill (and Sex Appeal) is *entirely* limited to a particular species. Extremely broad-minded or Xenophilic characters may study alien Erotic Art techniques, but there is no default and they only work on the species that invented them.

Explosives

see p. B194

Add the new subspecialty *Nuclear Demolition,* the use of nuclear charges to demolish structures or excavate rock and soil. As with Nuclear Ordnance Disposal, setting the charges requires a double critical failure to cause a spontaneous detonation. However, a critical failure in placing the charge can have catastrophic effects after detonation, in the form of landslides, shockwave damage, flying debris, and radioactive contamination. Nuclear Demolition defaults to conventional Demolition at -2, to Engineer (Mining) at -3, and to Nuclear Ordnance Disposal at -4.

Hypnotism

see p. B201

Alien brains may not be affected by Hypnotism the way human brains are. There are several possibilities. The least realistic is to assume the same skill works on all species. Alternately, human Hypnotism is at a skill penalty on aliens (see *Physiology Modifiers,* p. B181). Human hypnotists could learn hypnosis for a specific alien race to offset the penalty.

More realistically, there may be no default between human-style Hypnotism and alien hypnosis, but humans could still learn alien hypnotic methods to use on individuals of another species. Hypnotism (species) is thus a separate skill with no cross-defaults.

Finally, it may be that humans are unique in the galaxy in being vulnerable to hypnotic effects. Hypnotism *only* works on humans, never affects aliens, and is probably a secret humans don't talk about much off-world.

Linguistics

see p. B205

Linguistics is another skill that requires specialization in a multi-species campaign setting. Each species has its own form of Linguistics, and the study of all languages across species lines is Linguistics (Comparative). The Game Master should decide the default levels. In a hard-SF campaign there may be *no*

default between Linguistics skills for different species, and a -5 default between any species' Linguistics and Linguistics (Comparative). A less realistic campaign may improve the default, putting it at -5 for different species in a moderate-realism game, or -2 in a space opera setting.

When studying the language of a species that communicate in a way very different from human speech (radio pulses, or consuming memory RNA), Linguistics skill gets an additional penalty of -3 to -5 depending on just how alien the method is.

Lip Reading

see p. B205

Since Lip Reading depends on an understanding of how a being shapes sounds, use the *Physiology Modifiers* (p. B181) when trying to read the lips of an alien being. Of course, some aliens may communicate by methods that don't involve any physical motion at all, in which case Lip Reading is simply impossible for them.

Medical Skills

Medical skills naturally concentrate on a particular species, and there are penalties when using medical skills on alien creatures. Use the *Physiology Modifiers* (p. B181) to determine how hard it is to treat an alien.

Mimicry

see p. B210

Add a new specialization in campaigns with alien civilizations: *Alien Speech*. This skill lets a character imitate the sound of a particular alien race's speech. It may involve the use of handclaps, musical instruments, or other sound effects. As with mimicry of human speech, it doesn't give one the ability to speak an alien language, but it would fool another non-speaker. Obviously this only works with alien languages that use sound!

Paleontology

see p. B212

As with other natural sciences, this should include a subspecialization by planet, or the "comparative" speciality, which concentrates on similarities across alien biologies. The techniques of paleontology are quite similar, so a character doing field work is at no penalty on an alien world, but background knowledge and interpretation default across world specializations at -2 for similar planet and biology types, -4 for similar worlds with different biologies, and -6 for entirely alien environments.

Piloting/TL†

see p. B214

Depending on the setting, there may be new specializations of Piloting skill for a space game. If Hyperspace is an unusual environment, then Piloting (Hyperspace) is important for any star pilot. Hyperspace piloting defaults to other space piloting at -4 (or more).

Warp drives or other methods of going faster than light in normal space require the Piloting (FTL) specialization. It defaults to High- or Low-Performance Spacecraft at -3.

Savoir-Faire

see p. B218

Instead of the normal -3 penalty for an unfamiliar culture (see p. B23), Game Masters may wish to apply the modifiers described under *Alien Psychology* (see below) to reflect the greater difficulty in trying to master the social rules of an alien mentality. Halve (or ignore) the normal status modifiers when dealing with aliens, since they may not understand differences among humans very well.

Alien Psychology Modifiers

Each alien species requires its own specialty of Anthropology (p. B175) and Psychology (p. B216). Defaults between such specialties are at -2 for species with similar mentalities ("rubber suit" humanoids, members of a multi-species civilization, etc.) or -5 for species with different but comprehensible mentalities (most other naturally evolved sapient species). Specialties dealing with utterly alien species (hyperdimensional intelligences, machine entities, etc.) would default to "normal" specialties at -6 or worse!

If the default between two cultures is -5 or worse, members of those species should use this penalty *instead* of the usual -3 for unfamiliarity when they interact using the skills listed under *Culture* on p. B23. This is why Cultural Familiarity with an alien culture costs 2 points.

Social Sciences

Skills that deal with the study of cultures and their products – Anthropology, Archaeology, History, Literature, Occultism, and Sociology – must specialize by civilization. Defaults are nonexistent across species lines, since knowing about Terran societies tells you nothing useful about Rigellian cultures, and vice versa. This specialty does not reduce the point cost; the basic skill already assumes it. To make a character who really does know about all the galaxy's literatures, take the specialization Galactic, or possibly Comparative. Local culture skills default to Galactic or Comparative ones at -4 for most places, -3 for important worlds that have had a lot of influence on the grand scheme of things, and -8 for obscure or remote planets. Undiscovered planets get *no* default on local cultural skills from Galactic ones. Obviously a student of Galactic history won't know nearly as much about events on a particular planet as students of that world's history would.

Spacer

see p. B185

This is an essential background skill for characters who grew up in an orbital habitat or other space station. Just about any character who spends a fair amount of time aboard spacecraft or space stations should have at least some familiarity with Spacer skill.

Submarine

see p. B223

Aquatic civilizations make extensive use of the specialty *Free-Flooding Sub,* as that is the most common vehicle type among undersea dwellers. Ignore the Diving Suit or Scuba prerequisites for any species that can breathe underwater.

Tactics

see p. B224

Available weapon technologies can affect the tactical environment. Game Masters may wish to define Tactics as a "TL" skill, especially in settings with different technology levels. The usual tech level penalties apply.

Urban Survival

see p. B228

Cities on other worlds are likely to have important differences in services and physical layout. Until characters are familiar with a particular environment (spending at least a week in a city on a given world type or in an alien civilization), impose a -2 penalty to Urban Survival for an alien culture, -2 for an unfamiliar world type, or -4 for both.

Weird Science

see p. B228

In a rigorously hard-SF game, this skill is effectively the skill of *bogus* science, and represents familiarity with pseudosciences and crank theories. In settings with incomprehensible alien or Ancient tech, Weird Science is a fairly serious discipline, the study of sciences that lie beyond human understanding.

Character Templates

Players can use these templates as a guide when creating characters; Game Masters can use them when making up NPCs. Both should feel free to alter details to fit the campaign or the character concept.

Astronaut

100 points

Astronauts are officers or crew aboard space vessels. They command and run the ship, operate sensors and weapons, and make sure the passengers and cargo get where they are going without mishap. There are numerous variations on the type in science fiction: low-tech Astronauts, bold Starship Captains, swaggering Fighter Jocks, miracle-working Engineering Officers, and grungy blue-collar merchant crews.

Attributes: ST 10 [0]; DX 12 [40]; IQ 12 [40]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 12 [0]; Per 12 [0]; FP 10 [0]; Basic Speed 6 [10]; Basic Move 6 [0].

Advantages: 20 points chosen from among 3D Spatial Sense [10], Acute Vision 1-5 [2-10], Ambidexterity [5], Fearlessness 1-5 [2-10], G-Experience [1-10], High Manual Dexterity +1 [5], Immunity to Space Sickness [5], Improved G-Tolerance (1 or 2 increments) [5-10], Perfect Balance [15], Rank 1-4 [5-20], Security Clearance [5], Single-Minded [5], +1 HT [10], and +1 to +4 Per [5-20].

Disadvantages: -35 points chosen from among Duty [-2 to -15], Honesty [-10*], Jealousy [-10], Loner [-5*], No Sense of Humor [-10], Oblivious [-5], Overconfidence [-5*], Post-Combat Shakes [-5*], Sense of Duty (Comrades) [-5], Squeamish [-10*], Stubbornness [-5], and Workaholic [-5].

Primary Skills: Mathematics (Applied) (H) IQ-1 [2]-11, and 8 points chosen from: Artillery (any) (A) IQ [2]-12, Electronics Operation (any) (A) IQ [2]-12, Electronics Repair (any) (A) IQ [2]-12, Freight Handling (A) IQ [2]-12, Gunner (any) (A) DX [2] -12, Leadership (A) IQ [2]-12, Mechanic (spacecraft type) (A) IQ [2]-12, Navigation (Space or Hyperspace) (A) IQ [2]-12, Piloting (spacecraft type) (A) DX+1 [4]-13, Shiphandling (Spaceship or Starship) (H) IQ [4]-12.

Secondary Skills: Astronomy (H) IQ-1 [2]-11, Free Fall (A) DX [2] -12, Physics (VH) IQ-2 [2]-10, Spacer (E) IQ+2 [4]-14, Vacc Suit (A) DX [2]-12.

Background Skills: Computer Operation (E) IQ [1]-12, First Aid (E) IQ [1]-12, and one of: Beam Weapons (Pistol) (E) DX [1]-12, Carousing (E) HT [1]-10, or Smuggling (A) IQ-1 [1]-11.

Engineering Officer (120 points): Add Computer Programming (H) IQ [4]-12 and Engineer (spacecraft type) (H) IQ [4]-12; add 1 level of Artificer [10]; add +1 level to Physics skill [2].

Fighter Jock (120 points): Must take Piloting as a Primary Skill and either Beam Weapons or Carousing as Background. Add one of: Danger Sense [15], Daredevil [15], Luck [15], or Serendipity [15]; add +1 level to Piloting skill [4]; add +1 to either Carousing or Beam Weapons [1].

Present-Day Astronaut (120 points): Add Fit [5], Research (A) IQ [2] -12, Survival (any) (A) Per-1 [1] -11, and one of the following: Biology (any) (H) IQ+2 [12]-14, Geology/TL8 (any) (H) IQ+2 [12]-14, Physician (H) IQ+2 [12]-14, or Physics +3 [10] and +1 Math (Applied) [2].

Starship Captain (120 points): Must take Navigation and Shiphandling as Primary Skills. Add +2 Rank [10]; choose 10 points from among: Diplomacy (H) IQ [4]-12, Law (Space) (H) IQ [4] -12, Leadership (A) IQ [2] -12, Merchant (A) IQ [2]-12, Market Analysis (H) IQ [4]-12, +1 level to Navigation [2], Savoir-Faire (Military) (E) IQ+1 [2]-13, +1 level to Shiphandling [4], Tactics (H) IQ [4]-12.

* Multiplied for self-control number; see p. B120.

Bounty Hunter

120 points

In many science-fiction stories and films, easy interplanetary travel and limited jurisdiction for police means criminals can escape offworld. Bounty hunters catch fugitives and bring them back in exchange for a hefty reward. In some stories (like Mike Resnick's "Widowmaker" series), bounty hunters are tough but usually honorable, while in the *Star Wars* films the sinister bounty hunter Boba Fett is enigmatic and ruthless. PCs may be bounty hunters themselves, or may find themselves pursued by them if they commit crimes or do something the authorities don't like. A variant on the standard bounty hunter is the Repo Man, who specializes in recovering starships when the owners have defaulted on their bank payments.

A bounty hunter's Legal Enforcement Powers are a *license*, not police authority, and are very limited; essentially they are civilians performing "citizens' arrests" on fugitives or repossessing private property. They tend to operate in places where formal law-enforcement is spotty or nonexistent.

Attributes: ST 11 [10]; DX 12 [40]; IQ 11 [20]; HT 10 [0].

Secondary Characteristics: Damage 1d-1/1d+1; BL 24 lbs.; HP 12 [2]; Will 11 [0]; Per 12 [5]; FP 10 [0]; Basic Speed 6 [10]; Basic Move 6 [0].

Advantages: Legal Enforcement Powers [5] and 25 points from among the following: Combat Reflexes [15], Cultural Adaptability [10], Danger Sense [15], Enhanced Dodge [15], Fearlessness 1-5 [2-10], Gizmos [5-15], Gunslinger [25], Hard to Kill 1-5 [2-10], High Pain Threshold [10], Indomitable [15], Intuition [15], Photographic Memory [10], Rapid Healing [5], Single-Minded [5], Social Chameleon [5], Unfazeable [15].

Disadvantages: Choose total of -35 points from among: Bad Temper [-10*], Bully [-10*], Callous [-5], Code of Honor (Pirate's or Professional) [-5], Greed [-15*], Jealousy [-10], Obsession (capturing specific person) [-5*], Post-Combat Shakes [-5*], Selfish [-5*], Status -1 [-5], Stubbornness [-5], Trademark [-5], Vow (bring in specific person) [-15].

Primary Skills: Criminology (A) IQ+1 [4]-12, Law (region) (H) IQ+1 [8]-12, and Streetwise (A) IQ+1 [4]-12.

Secondary Skills: Intimidation (A) WILL [2]-11, Research (A) IQ [2]-11, Shadowing (A) IQ+1 [4] -12, and any two of the following: Beam Weapons (Pistol) (E) DX+2 [4]-14, Brawling (E) DX+2 [4]-14, Fast-Draw (weapon) (E) DX+2 [4]-14, Guns (Pistol or Shotgun) (E) DX+2 [4]-14

Background Skills: Computer Operation (E) IQ+1 [2]-12, First Aid (E) IQ+1 [2]-12, and either Acting (A) IQ [2]-11 or Fast-Talk (A) IQ [2]-11.

Repo Man (130 points): Add Free Fall (A) DX [2]-12, Lockpicking (A) IQ [2]-11, Navigation (Space or Hyperspace) (A) IQ-1 [1]-10, Piloting (spacecraft type) (A) DX [2]-12, Spacer (E) IQ [1]-11, Vacc Suit (A) DX [2]-12.

* Multiplied for self-control number; see p. B120.

Colonist

50 points

The people who settle on untamed new planets or build space habitats need to be tough, resourceful, and persistent. Some encounter unexpected dangers on their new home world, while others find settled life too boring and constantly move on ahead of the frontier looking for adventure.

This template is priced fairly low so that it can be combined with others to reflect a character's background on a colony world.

Attributes: ST 10 [0]; DX 10 [0]; IQ 11 [20]; HT 11 [10].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 12 [4]; Will 12 [5]; Per 11 [0]; FP 11 [0]; Basic Speed 5.25 [0]; Basic Move 5 [0].

Advantages: G-Experience (colony world gravity) [1] and any two of: Absolute Direction [5], Animal Empathy [5], Fit [5], Plant Empathy [5], Rapid Healing [5], Resistant (one hazard of colony world) [5], or Single-Minded [5].

Disadvantages: A total of -10 points from among: Debt 5 [-5], Hidebound [-5], Honesty [-10*], Loner [-5*], Low TL 1 [-5], Miserliness [-10*], Pacifism (Reluctant Killer) [-5],

Post-Combat Shakes [-5*], Selfless [-5*], Sense of Duty (Fellow colonists) [-10], Shyness (Mild) [-5], Social Stigma (Uncultured rube) [-5], Stubbornness [-5], Struggling [-10], Truthfulness [-5*], Workaholic [-5].

Primary Skills: One of: Animal Handling (any) (A) IQ+1 [4]-12, Farming (A) IQ+1 [4]-12, Mechanic (vehicle or system type) (A) IQ+1 [4]-12, Merchant (A) IQ+1 [4]-12, or Prospecting (A) IQ+1 [4]-12.

Secondary Skills: Either the pair Driving (any) (A) DX-1 [1]-9 and Survival (colony environment) (A) Per [2]-11, or the pair Free Fall (A) DX-1 [1]-9 and Vacc Suit (A) DX [2]-10.

Background Skills: First Aid (E) IQ [1]-11, Scrounging (E) Per [1] -11, and either Beam Weapons (any) DX [1]-10 or Guns (any) (E) DX [1]-10.

Separatist or Utopian (40 points): Add one of Fanaticism [-15], Pacifism (Self-Defense Only) [-15] or Xenophobia [-15*]; add Public Speaking (A) IQ-1 [1]-10, and either Philosophy (colony ideology) (H) IQ [4]-11 or Theology (colony religion) (H) IQ [4]-11.

* Multiplied for self-control number; see p. B120.

Con Man

75 points

Likeable rogues have a solid history in science fiction, dating back to Jack Williamson's Giles Habibula, if not earlier. Sometimes they are merchants, more shrewd than honest, and sometimes they are outright crooks bilking the unwary. Fictional con men often conceal a heart of gold, putting their talents to work in order to deceive humorless aliens or tyrannical regimes. Real ones tend to be callous or self-deluding, and can often be surprisingly gullible themselves. A variant con man is the Gambler, who often supplements his skill with a marked deck or loaded dice.

Attributes: ST 10 [0]; DX 10 [0]; IQ 13 [60]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 13 [0]; Per 13 [0]; FP 10 [0]; Basic Speed 5 [0]; Basic Move 5 [0].

Advantages: 30 points' worth from among: Attractive [4], Alternate Identity (Illegal) [15], Charisma 1-3 [5-15], Courtesy Rank 1-6 [1-6], Cultural Adaptability [10], Daredevil [15], Eidetic Memory [5], Intuition [15], Luck [15], Pitiable [5], Rapier Wit [5], Social Chameleon [5], Smooth Operator 1 [15], Status 1 [5], Unfazeable [15], Versatile [5], or Zeroed [10].

Disadvantages: A total of -35 points from among: Addiction (cheap, legal stimulant or Tobacco) [-5], Bully [-10*], Callous [-5], Chummy [-5], Cowardice [-10*], Greed [-15*], Jealousy [-10], Laziness [-10], Loner [-5*], On the Edge [-15*], Overconfidence [-5*], Pacifism (Reluctant Killer) [-5], Paranoia [-10], Post-Combat Shakes [-5*], Reputation (Crook) [-5], Secret [-5 or -10], Selfish [-5*], Slow Riser [-5], Social Stigma (Criminal record) [-5], Struggling [-10], Trickster [-15*].

Primary Skills: Streetwise (A) IQ+1 [4]-14; one of Acting (A) IQ+1 [4]-14, Fast-Talk (A) IQ+1 [4]-14, or Sex Appeal (A) HT+1 [4]-11.

Secondary Skills: 8 points from among the following: Accounting (H) IQ [4]-13, Beam Weapons (Pistol) DX [1]-10, Computer Hacking (VH) IQ-1 [4]-12, Computer Programming (H) IQ [4]-13, Disguise (A) IQ [2]-13, Forgery (H) IQ [4]-13, Guns (Pistol) (E) DX [1]-10, Merchant (A) IQ [2]-13, Propaganda (A) IQ [2]-13, Public Speaking (A) IQ [2]-13, Savoir-Faire (E) IQ [1]-13, or Sleight of Hand (H) DX-1 [2]-9.

Background Skills: Carousing (E) HT [1]-10, Computer Operation (E) IQ [1]-13, Law (region) (H) IQ-1 [2]-12.

Gambler (100 points): Add High Manual Dexterity +2 [10], Lightning Calculator [2], Area Knowledge (any) (E) IQ [1]-13, Gambling (A) IQ+1 [4]-14, and Sleight of Hand (H) DX+1 [8] -13**.

Scientific Fraud (80 points): Add Weird Science (VH) IQ-3 [1]-10, and any two of: Archaeology (H) IQ-1 [2]-12, Astronomy (H) IQ-1 [2]-12, Biology (any) (H) IQ-1 [2]-12, Chemistry (H) IQ-1 [2]-12, Geology (H) IQ-1 [2]-12, Mathematics (any) (H) IQ-1 [2]-12, Paleontology (any) (H) IQ-1 [2]-12, Physician (H) IQ-1 [2]-12, Physics (any) (H) IQ-1 [2]-12, or Psychology (H) IQ-1 [2]-12.

* Multiplied for self-control number; see p. B120.

**Includes bonus for High Manual Dexterity.

Detective

110 points

Detectives perform criminal investigations, usually as agents of a law-enforcement agency. In large agencies they often specialize in a particular kind of crime. Exactly what constitutes a crime varies from culture to culture, and detectives serving a repressive regime may focus on rooting out political dissidents rather than thieves or murderers. At high tech levels, detective work involves a lot of science, though many prefer to rely on intuition and personal interviews with witnesses and suspects.

Private detectives have no official sanction, but by the same token have greater independence of action. Their job may overlap with that of bounty hunters, especially if they must pursue a culprit beyond the reach of police forces.

If psionic powers exist in the game world, they will have a dramatic impact on law enforcement. Psionic detectives may fight mundane crime, or concentrate on bringing in rogue psis who abuse their powers.

Brian Stableford's "Emortality" series includes several stories of police investigating crimes in a future society where death is optional and genetic engineering is an art form. Alfred Bester's *The Demolished Man* is a classic murder story in a world of psionics.

Attributes: ST 10 [0]; DX 11 [20]; IQ 12 [40]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 12 [4];

Will 12 [0]; Per 13 [5]; FP 10 [0]; Basic Speed 5.25 [0]; Basic Move 5 [0].

Advantages: Legal Enforcement Powers [5], Police Rank 1 [5] and 25 points from among the following: Combat Reflexes [15], Danger Sense [15], Eidetic or Photographic Memory [5 or 10], Fearlessness 1-5 [2-10], Hard to Kill 1-5 [2-10], High Pain Threshold [10], Indomitable [15], Intuition [15], Legal Enforcement Powers [+5], Police Rank +1-3 [5-15], Rapid Healing [5], Single-Minded [5], Social Chameleon [5], or Unfazeable [15].

Disadvantages: Duty (police department, 12-) [-10], and choose a total of -25 points from among: Addiction (legal stimulants or Tobacco) [-5], Alcoholism [-15], Bad Temper [-10*], Bully [-10*], Callous [-5], Cannot Harm Innocents [-10], Code of Honor (Professional) [-5], Curious [-5*], Greed [-15*], Honesty [-10*], Intolerance (choose group) [-5], Jealousy [-10], Obsession (capturing specific person) [-5*], On The Edge [-15*], Paranoia [-10], Post-Combat Shakes [-5*], Sense of Duty (Fellow officers) [-5], Sense of Duty (Civilians) [-10], Stubbornness [-5], or Workaholic [-5].

Primary Skills: Criminology (A) IQ+2 [8]-14, Forensics (H) IQ [4]-12, Interrogation (A) IQ [2] -12, Law (region) (H) IQ [4]-12, Observation (A) Per+1 [4]-14, Research (A) IQ [2]-12,

Secondary Skills: Area Knowledge (jurisdiction) (E) IQ [1]-12, Driving (Auto or Hovercraft) (A) DX [2]-11, Electronics Operation (Security or Surveillance) (A) IQ [2]-12, Forced Entry (E) DX [1] -11, Search (A) Per [2]-13, one of Beam Weapons (Pistol) (E) DX+1 [2]-12 or Guns (Gyroc, Pistol or Shotgun) (E) DX+1 [2]-12.

Background Skills: Computer Operation (E) IQ [1]-12, First Aid (E) IQ [1]-12, Savoir-Faire (Police) (E) IQ [1]-12, Streetwise (A) IQ [2]-12, and one of Brawling (E) DX+1 [2]-12 or Fast-Draw (weapon) (E) DX+1 [2]-12.

Private Detective (110 points): Delete Legal Enforcement Powers, Police Rank, and Duty.

Psionic Detective (125 points): Increase Will by 1 [5]; add Electronics Operation (Psychotronics) (A) IQ [2]-12, Expert Skill (Psionics) (H) IQ [4]-12, and Mind Block (A) Will+1 [4] -14. Add psi powers as appropriate for campaign.

Secret Police Inspector (122 points): Improve Legal Enforcement Powers [+5], add Security Clearance [5] and Intimidation (A) Will [2]-12.

* Multiplied for self-control number; see p. B120.

Doctor

90 points

Future medical technology holds amazing promise, but no gadgets are effective without someone who knows how and when to use them. This template represents a physician with a medical degree, who presumably has access to state-of-the-art medical equipment.

Field medics, on the other hand, must emphasize fast response and treating patients on the spot with minimal equipment. They usually have other training, as rescue workers, police, military personnel, or vehicle crew.

Xenomedical specialists, like the doctors in James White's "Sector General" stories, treat aliens, and consequently must be able to operate in a variety of environments, often dealing with patients who can't communicate with them.

Attributes: ST 10 [0]; DX 10 [0]; IQ 13 [60]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 13 [0]; Per 13 [0]; FP 10 [0]; Basic Speed 5 [0]; Basic Move 5 [0].

Advantages: 20 points from among: Comfortable Wealth [10], High Manual Dexterity 2 [10], Healer [10], Intuition [15], Status 1-2 [5-10], Unfazeable [15], Versatile [5].

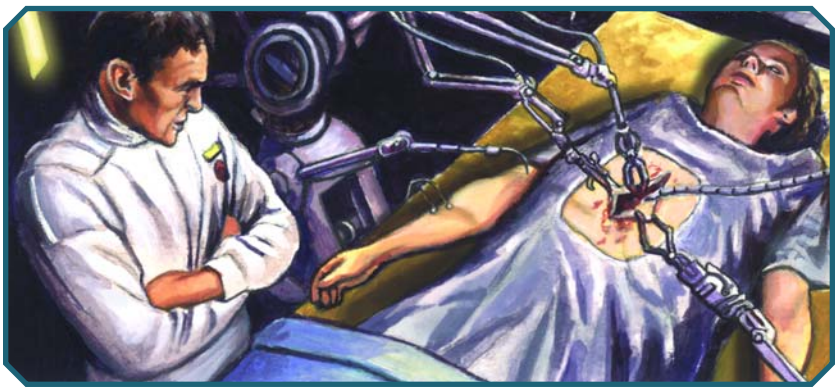
Disadvantages: Choose -35 points from among: Code of Honor (Hippocratic Oath) [-5], Charitable [-15*], Combat Paralysis [-15], Duty (12-, nonhazardous) [-5], Honesty [-10*], Overconfidence [-5*], Pacifism (Cannot Kill or Self Defense) [-15], Workaholic [-5].

Primary Skills: Diagnosis (H) IQ+1 [8]-14, Physician (H) IQ+1 [8] -14, and either Bioengineering (any) (H) IQ+1 [8]-14 or Surgery (any) (H) IQ+1 [8]-14.

Secondary Skills: Electronic Operation (Medical) (A) IQ [2] -13, Hazardous Materials (any) (A) IQ [2]-13, Law (Medical) (H) IQ-1 [2]-12, Pharmacy (H) IQ-1 [2]-12, Physiology (H) IQ-1 [2] -12, Psychology (H) IQ-1 [2]-12.

Background Skills: Biology (any) (H) IQ [4]-13, Chemistry (H) IQ-1 [2]-12, Computer Operation (E) IQ [1]-13, Research (A) IQ-1 [1]-12, Savoir-Faire (High Society) (E) IQ [1]-13.

Field Medic (14 points): Choose any other template and add the following skills: Diagnosis (H) IQ [4], Electronics Operation (Medical) (A) IQ [2], First Aid (E) IQ+2 [4], Hazardous Materials (any) (A) IQ [2], and Surgery (VH) IQ-2 [2].



Xenomedical Specialist (120 points): Add the following: Biology (alien world specialization) (H) IQ-1 [2]-12, Expert Skill (Xenology) (H) IQ+1 [8]-14, Physiology (alien species) (H) IQ [4]-13, Vacc Suit (A) DX+2 [8]-12, and Veterinary (H) IQ+1 [8]-14.

* Multiplied for self-control number; see p. B120.

Explorer

150 points

Explorers venture into unknown territory to find out what's there. They must be adaptable and tough if they want to get home and tell anybody what they've discovered. This template is for a planetary explorer whose skills are optimized for travel and survival in hostile environments. Explorers who spend most of their time aboard spacecraft should use the Astronaut template instead. Scientist-explorers who wish to perform detailed studies of their new finds should use the Scientist template.

Some explorers venture into regions with intelligent inhabitants, and so must be experts in establishing peaceful contact and learning to communicate with aliens. They use the "Contact Specialist" lens below.

Attributes: ST 12 [20]; DX 12 [40]; IQ 12 [40]; HT 12 [20].

Secondary Characteristics: Damage 1d-1/1d+2; BL 29 lbs.; HP 15 [6]; Will 12 [0]; Per 12 [0]; FP 15 [9]; Basic Speed 6 [0]; Basic Move 6 [0].

Advantages: 20 points chosen from among Absolute Direction [5], Combat Reflexes [15], Cultural Adaptablility [10], Danger Sense [15], Fearlessness 1-5 [2-10], Fit [5], G-Experience [1-10], High Pain Threshold [10], Improved G-Tolerance [5-10], Language Talent [10], Luck [15], Outdoorsman [10], Rank 1-4 [5 -20], Rapid Healing [5], Serendipity [15], Single-Minded [5], and Unfazeable [15].

Disadvantages: -35 points chosen from among Curious [-5*], Honesty [-10*], Jealousy [-10], Loner [-5*], Miserliness [-10*], Obsession (reaching a particular place) [-5*], Overconfidence [-5*], Pacifism (Cannot Kill or Self-Defense Only) [-15], Post-Combat Shakes [-5*], Sense of Duty (Comrades) [-5], Stubbornness [-5], Workaholic [-5], or Xenophilia [-10*].

Primary Skills: Cartography (A) IQ [2]-12, Geography (Physical, choose planet type) (H) IQ [4] -12, Navigation (Sea, Air or Land) (A) IQ+2 [8]-14, and any two of the following: Boating (any) (A) DX [2]-12, Driving (any) (A) DX [2]-12, Hiking (A) HT [2]-12, Piloting (any) (A) DX [2]-12, Scuba (A) IQ [2]-12, Submarine (any) (A) DX [2]-12, or Vacc Suit (A) DX [2]-12.

Secondary Skills: Biology (choose planet type) (VH) IQ-2 [2]-10, Survival (any) (A) Per [2]-12, and either Electronic Operation (Communication, Scientific, Sensor, or Sonar) [A] IQ [2]-12 or Photography (A) IQ [2]-12.

Background Skills: Computer Operation (E) IQ [1]-12, First Aid (E) IQ [1]-12, Swimming (E) HT [1]-12, Writing (A) IQ [2]-12, and one of the following: Beam Weapons (any) (E) DX [1]-12, Brawling (E) DX [1]-12, Crossbow (E) DX [1]-12, or Guns (any) (E) DX [1]-12.

Contact Specialist (170 points): Delete Cartography, Geography and Survival skills [-8]; add Diplomacy (H) IQ+2 [12]-14, Expert Skill (Xenology) (H) IQ+2 [12]-14, and Linguistics (H) IQ [4]-12.

* Multiplied for self-control number; see p. B120.

Merchant

75 points

Merchants must often go far afield to find goods or markets. Far, of course, is a relative term – on a low-tech colony world the local merchant may have to travel a hundred miles over bad roads to the spaceport, while the space merchant he does business with travels hundreds of light-years. This template assumes a "hands-on" merchant who does a lot of traveling and negotiating in person. For a more desk-bound sort, use the Executive lens.

A more specialized merchant is the Antiquities Dealer, who sells rare and possibly alien-made items that may or may not be legal. Antiquities dealers must be fairly knowledgeable about what they sell, even if what they're selling is bogus.

Attributes: ST 10 [0]; DX 10 [0]; IQ 12 [40]; HT 10 [0].

Secondary Characteristics: Damage 1d-1/1d+2; BL 20 lbs.; HP 10 [0]; Will 12 [0]; Per 12 [0]; FP 10 [0]; Basic Speed 5 [0]; Basic Move 5 [0].

Advantages: 30 points chosen from among Business Acumen [10], Comfortable or Wealthy [10 or 20], Courtesy Rank 1-5 [1-5], Cultural Adaptability [10], Cultural Familiarity [1 or 2/culture], Eidetic Memory [5], G-Experience [1-10], Improved G-Tolerance [5-10], Independent Income 1-5 [1-5], Language Talent [10], Lightning Calculator [2], Luck [15], Rank 1-4 [5 -20], Serendipity [15], Status 1-2 [5-10], Unfazeable [15], or Versatile [5].

Disadvantages: -35 points chosen from among Bad Temper [-10*], Callous [-5], Chummy [-5], Code of Honor (Professional) [-5], Debt 1-10 [-1-10], Duty (to employer, 12-, nonhazardous) [-5], Greed [-15*], Honesty [-10*], Jealousy [-10], Miserliness [-10*], Overconfidence [-5*], Pacifism (Reluctant Killer) [-5], Post-Combat Shakes [-5*], Stubbornness [-5], or Workaholic [-5].

Primary Skills: Administration (A) IQ [1]-12**, Accounting (H) IQ [4]-12, Current Affairs (Business) (E) IQ+2 [4]-14, Finance (H) IQ [4]-12, Law (Trade) (H) IQ [4]-12, Market Analysis (H) IQ [3]-12**, Merchant (A) IQ+2 [8]-14.

Secondary Skills: Either Leadership (A) IQ [2]-12 or Propaganda (A) IQ [2]-12; and any three of the following: Driving (any) (A) DX [2]-10, Freight Handling (A) IQ [2]-12, Navigation (any) (A) IQ [2]-12, Packing (A) IQ [2]-12, Piloting (any) (A) DX [2]-10, Shiphandling (any) (H) IQ-1 [2]-11, Spacer (E) IQ+1 [2]-13, or Teamster (A) IQ [2]-12.

Background Skills: Computer Operation (E) IQ [1]-12, First Aid (E) IQ [1]-12, one of the following: Beam Weapons (type) (E) DX [1]-10, Brawling (E) DX [1]-10, or Guns (any) (E) DX [1]-10; and one of either Carousing (E) HT [1]-10 or Savoir-Faire (E) IQ [1]-12.

Antiquities Dealer (85 points): Add connoisseur (art) (A) IQ [2]-12, Forgery (H) IQ [4]-12, and either Archaeology (H) IQ [4]-12, Expert Skill (Xenology) (H) IQ [4]-12, or Hidden Lore (Lost civilizations) (A) IQ+1 [4]-13.

Executive (80 points): Delete all the secondary skills except Propaganda [-6], increase Computer Operation to IQ+2 [+3], delete combat background skills and First Aid [-2], increase Administration to IQ+2 [+6], add Leadership (A) IQ [2]-12 and Public Speaking (A) IQ [2]-12.

* Multiplied for self-control number; see p. B120.

**Bought from Merchant default.

Scientist

75 points

Scientists gather knowledge about the universe. In the modern world they tend to be specialists in a particular field or topic, but fictional scientists are often generalists to a ridiculous degree. Contrary to stereotype, modern scientists are usually quite adept at practical tasks like building apparatuses, catching specimens, and surviving in the wild while on field season.

Fictional uber-scientists should use the Cinematic Scientist lens, possibly combined with the Inventor template below. Science officers aboard spaceships use the Science Officer lens.

Attributes: ST 10 [0]; DX 10 [0]; IQ 13 [60]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 13 [0]; Per 13 [0]; FP 10 [0]; Basic Speed 5 [0]; Basic Move 5 [0].

Advantages: 20 points chosen from among Eidetic Memory [5], Fit [5], G-Experience [1-10], High Manual Dexterity 1-2 [5-10], Language Talent [10], Lightning Calculator or Intuitive Mathematician [2 or 5], Mathematical Ability 1 [10], Reputation +1 (among scientists in field) [1 per level], Security Clearance [5], Serendipity [15], Single-Minded [5], Status 1-2 [5-10], Tenure [5], Unfazeable [15], Versatile [5] or +1 to +2 Per [5-10].

Disadvantages: -35 points chosen from among Absent-Mindedness [-15], Clueless [-10], Code of Honor (Professional) [-5], Combat Paralysis [-15], Curious [-5*], Gullibility [-10*], Honesty [-10*], Indecisive [-10*], Jealousy [-10], Loner [-5*], Miserliness [-10*], Obsession (solving a particular problem) [-5*], Overconfidence [-5*], Pacifism (Cannot Kill or Self-Defense Only) [-15], Post-Combat Shakes [-5*], Reputation -1 (among scientists in field, as a sloppy researcher or crackpot) [varies], Shyness [-5 or -10], Stubbornness [-5], Truthfulness [-5*], Workaholic [-5], or Xenophilia [-10*].

Primary Skills: Research (A) IQ+1 [4]-14, and any two of: Anthropology, Archaeology, Astronomy, Bioengineering (any), Biology (any), Chemistry, Computer Programming, Economics, Expert Skill (any), Engineer (any), Geography, Geology, Mathematics (any), Metallurgy, Paleontology (any), Physics (any), Psychology, or Sociology – all are (H) IQ+1 [8]-14.

Secondary Skills: Teaching (A) IQ-1 [1]-12, Writing (A) IQ-1 [1]-12; one of: Cartography (A) IQ-1 [1]-12, Electronic Operation (Scientific, Sensor, or Sonar) (A) IQ-1 [1]-12 or Photography (A) IQ-1 [1]-12; and one of: Hazardous Materials (any) (A) IQ [2]-13, Scuba (A) IQ [2]-13, Survival (any) (A) Per [2]-13, or Vacc Suit (A) DX [2]-10.

Background Skills: Computer Operation (E) IQ [1]-13, First Aid (E) IQ [1]-13, Public Speaking (A) IQ-1 [1]-12, Scrounging (E) Per [1]-13, Swimming (E) HT [1]-10.

Cinematic Scientist (100 points): Delete primary science skills [-16], add Science! (W) IQ [24]-13 and Weird Science (VH) IQ-1 [4]-12; add Independent Income 3 [3], High TL 1 [5] and Gizmo [5].

Science Officer (120 points): Add Duty [-5 to -15] to disadvantage options, increase DX to 11 [20], add Rank 3 [15], Beam Weapon (Pistol) (E) DX+1 [2]-12, Electronics Operation (Scientific or Sensor) (A) IQ [2]-13, Free Fall (A) DX+1 [4]-12, Spacer (E) IQ+1 [2]-14.

* Multiplied for self-control number; see p. B120.

Secret Agent

100 points

Spies and secret agents have a long history in science fiction, from the one-man guerrilla movement of Eric Frank Russell's *Wasp* to the starkly incredible Lensmen of E.E. Smith. At the fringes of the genre, where SF meets technothrillers and political novels, spies are everywhere. Certainly many of James Bond's cinematic exploits have SF elements.

Science-fiction secret agents come in two main types: the grittily realistic operatives and the dashing Bondian heroes. Superspies have a natural niche in space opera fiction, while bleak, paranoid spies hang out in cyberpunk stories – often working for megacorporations instead of government agencies. The template depicts a realistic spy, while lenses present a cinematic Superspy and a "Military Advisor" suitable for covert warfare.

Attributes: ST 10 [0]; DX 11 [20]; IQ 12 [40]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 12 [4]; Will 12 [0]; Per 13 [5]; FP 10 [0]; Basic Speed 5.25 [0]; Basic Move 5 [0].

Advantages: Security Clearance [5] and 25 points from among the following: Combat Reflexes [15], Cultural Adaptability or Xeno-Adaptability [10 or 20], Cultural Familiarity [1 or 2/culture], Danger Sense [15], Eidetic or Photographic Memory [5 or 10], Fearlessness 1-5 [2-10], High Pain Threshold [10], Indomitable [15], Intuition [15], Language Talent [10], Legal Enforcement Powers [5-15], Legal Immunity [5-20], Rank (Military or Administrative) 1-4 [5-20], Security Clearance +1 [5], Single-Minded [5], Social Chameleon [5], Unfazeable [15], Versatile [5].

Disadvantages: Duty (agency, 12-) [-10], and choose a total of -25 points from among: Addiction (legal stimulants or Tobacco) [-5], Alcoholism [-15], Bloodlust [-10*], Callous [-5], Code of Honor (Professional) [-5], Curious [-5*], Loner [-5*], On The Edge [-15*], Paranoia [-10], Post-Combat Shakes [-5*], Secret (Undercover agent) [-20], Sense of Duty (Fellow agents) [-5], Stubbornness [-5], or Workaholic [-5].

Primary Skills: Area Knowledge (any) (E) IQ+2 [4]-14, Current Affairs (any) (E) IQ+2 [4]-14, Law (international) (H) IQ [4] -12, and one of: Acting (A) IQ+2 [8]-14, Observation (A) Per+2 [8]-15, or Research (A) IQ+2 [8] -14.

Secondary Skills: Choose 12 points from among the following: Beam Weapons (Pistol) (E) DX+1 [2]-12, Computer Programming (H) IQ [4]-12, Computer Hacking (VH) IQ-1 [4]-11, Cryptography (H) IQ [4] -12, Detect Lies (H) Per-1 [2]-12, Diplomacy (H) IQ [4]-12, Driving (any) (A) DX [2]-11, Electronics Operation (Communications, Security or Surveillance) (A) IQ [2]-12, Expert Skill (Political Science or Xenology) (H) IQ [4]-12, Fast Talk (A) IQ [2]-12, Forgery (H) IQ [4]-12, Guns (Gyroc, Pistol or Shotgun) (E) DX+1 [2]-12, Holdout (A) IQ [2]-12, Intelligence Analysis (H) IQ [4] -12, Interrogation (A) IQ [2]-12, Lockpicking (A) IQ [2]-12, Propaganda (A) IQ [2]-12, or Shadowing (A) IQ [2]-12.

Background Skills: Computer Operation (E) IQ [1]-12, First Aid (E) IQ [1]-12, Savoir-Faire (E) IQ [1]-12 or Streetwise (A) IQ-1 [1]-11, and either Brawling (E) DX [1]-11 or Fast-Draw (weapon) (E) DX [1]-11.

Superspy (150 points): DX 12 [20]; add 20 points from among: Gizmos 1-3 [5-15], Hard to Kill 1-5 [2-10], High TL [5], Luck [15], Rapid Healing [5], Security Clearance +1 [+5], Smooth Operator 1 [15]; add Overconfidence [-5*] and Trademark [-5] to disadvantage options; add Disguise (A) IQ [2] -12, Judo (H) DX [4]-12, Stealth (A) DX [2]-12, and either Connoisseur (any) (A) IQ-1 [1] -11 or Fast-Draw (any) (E) DX [1]-12.

Covert Military Advisor (165 points): DX 12 [20], ST or HT 11 [10], and 20 points from among Fit [5], High Pain Threshold [10], and Military Rank 1-4 [5-20]; add Code of Honor (Soldier's) [-10], Duty (Extremely Hazardous) [-15] to disadvantage options; add Soldier (A) IQ+2 [8]-14, either Beam Weapons (Rifle) (E) DX [1]-12 or Guns (Rifle) (E) DX [1]-12; and 6 points from among: Camouflage (E) IQ [1]-12, Explosives (Demolition) (A) IQ [2]-12, Forward Observer (A) IQ [2]-12, Gunner (any) (E) DX [1] -12, Knife (E) DX [1]-12, Stealth (A) DX [2]-12, Tactics (H) IQ [4] -12.

* Multiplied for self-control number; see p. B120.

Security Officer

115 points

They're known as guards, police officers, goons, and rent-a-cops. They spend most of their time watching for trouble and being bored. When something happens, they're the guys on the spot.

This template assumes a fairly ordinary "beat cop." For professional investigators, use the Detective template. On the frontier, the local Marshal may be the only law enforcement available, requiring more investigative skills. Space station or shipboard security add appropriate skills.

Attributes: ST 11 [10]; DX 12 [40]; IQ 10 [0]; HT 12 [20].

Secondary Characteristics: Damage 1d-1/1d+1; BL 24 lbs.; HP 12 [2]; Will 11 [5]; Per 11 [5]; FP 10 [0]; Basic Speed 6 [0]; Basic Move 6 [0].

Advantages: Legal Enforcement Powers [5], Police Rank 0 [0], and 25 points from among the following: Combat Reflexes [15], Danger Sense [15], Fearlessness 1-5 [2-10], Fit [5], Hard to Kill 1 -5 [2-10], High Pain Threshold [10], Indomitable [15], Intuition [15], Legal Enforcement Powers [+5], Police Rank 1-2 [5-10], Rapid Healing [5], Security Clearance [5], Single-Minded [5], or Unfazeable [15].

Disadvantages: Duty (Police Department, 12-) [-10], and choose a total of -25 points from among: Addiction (legal stimulants or Tobacco) [-5], Alcoholism [-15], Bad Temper [-10*], Bully [-10*], Callous [-5], Code of Honor (Professional) [-5], Flashbacks [-5], Gluttony [-5*], Greed [-15*], Honesty [-10*], Intolerance (choose group) [-5], Loner [-5*], On The Edge [-15*],Overconfidence

[-5*], Paranoia [-10], Post-Combat Shakes [-5*], Secret (Corrupt) [-10], Sense of Duty (Fellow officers) [-5], Sense of Duty (Civilians) [-10], Stubbornness [-5], or Workaholic [-5].

Primary Skills: Criminology (A) IQ [2]-10, Law (Local Police) (H) IQ [4]-10, and Savoir-Faire (Police) (E) IQ+2 [4]-12.

Secondary Skills: Brawling (E) DX+2 [4]-14, Detect Lies (H) Per-1 [2]-10, Driving (any) (A) DX [2]-12, Fast-Draw (weapon) (E) DX [1]-12, Forced Entry (E) DX [1]-12, Forensics (H) IQ-1 [2]-9, Search (A) Per [2]-10, Stealth (A) DX [2]-12, Tonfa (A) DX [2]-12, and either Beam Weapons (Pistol) (E) DX+2 [4]-14 or Guns (Pistol or Shotgun) (E) DX+2 [4]-14.

Background Skills: Carousing (E) HT [1]-12, Computer Operation (E) IQ [1]-10, First Aid (E) IQ+1 [2]-11, and Streetwise (A) IQ [2]-10.

Frontier Marshal (135 points): Improve IQ to 11 [20]; delete Savoir-Faire [-4], add Survival (local environment) (A) Per [2]-12, and either Beam Weapons (Rifle) (E) DX+1 [2]-13 or Guns (Rifle) (E) DX+1 [2]-13.

Rescue Squad (145 points): Improve IQ to 11 [20]; add Climbing (A) DX [2]-12, Explosives (EOD) (A) IQ [2]-11, Hazardous Materials (any) (A) IQ [2]-11, Liquid Projector (Sprayer) (E) DX [1]-12, NBC Suit (A) DX [2]-12; improve Forced Entry to DX+1 [+1].

Starship Security (125 points): Add G-Experience (5 other gravity levels) [5], Free Fall (A) DX [2]-12, Spacer (E) IQ [1]-10, Vacc Suit (A) DX [2]-12.

* Multiplied for self-control number; see p. B120.

Soldier

70 points

The Poor Bloody Infantry. The Leathernecks. Tommy Atkins and G.I. Joe. Stories about soldiers have been around as long as there have been stories. Over time, soldiers have changed from big guys with swords to tech-savvy men and women with an arsenal of gadgets at their fingertips. This template represents a basic soldier with no special training. As is, it can represent a trainee or a green trooper from an underfunded army, or can be combined with other templates to create a combat medic or a military technician. Add one of the specialization packages to create a skilled front-line combatant. Officers add the Officer package to the specialization. Veterans add the Veteran package, and elite soldiers the Elite package. It is possible to be a Veteran Elite Officer.

Attributes: ST 11 [10]; DX 12 [40]; IQ 10 [0]; HT 11 [10].

Secondary Characteristics: Damage 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 10 [0]; Per 10 [0]; FP 11 [0]; Basic Speed 6 [5]; Basic Move 6 [0].

Advantages: Military Rank 0 [0], and 20 points chosen from among Ambidexterity [5], Combat Reflexes [15], Fit or Very Fit [5 or 15], High Pain Threshold [10], Rank 1-2 [5-10], Rapid Healing [5], +1 to ST or HT [10], +1 to +5 to HP [2-10], and +1 to +4 to Per [5-20].

Disadvantages: Duty (15 or less) [-15] and -20 points chosen from among Alcoholism [-15], Bad Temper [-10*], Bloodlust [-10*], Code of Honor (soldier's) [-10], Compulsive Carousing or Spending [-5*], add Extremely Hazardous to Duty [-5], Fanaticism [-15], Flashbacks (Mild) [-5], Gullibility [-10*], Honesty [-10*], Impulsiveness [-10*], Lecherousness [-15*], Overconfidence [-5*], Post-Combat Shakes [-5*], Sense of Duty (Comrades) [-5].

Primary Skills: Soldier (A) IQ+2 [8]-12, and either Beam Weapons (any) or Guns (any) (E) DX+2 [4]-14.

Secondary Skills: Driving (any) (A) DX [2]-12, Explosives (any) (A) IQ [2]-10, Scrounging (E) Per [1]-10, and either Brawling (E) DX [1]-12 or Knife (E) DX [1]-12.

Background Skills: Computer Operation (E) IQ [1]-10, First Aid (E) IQ [1]-10.

Armored (90 points): Improve Driving to DX+2 [+6]. Add Electronics Operation (any) (A) IQ [2]-10, Forward Observer (A) IQ [2]-10, Mechanic (vehicle type) (A) IQ+1 [4]-11, Navigation (Land) (A) IQ [2]-10, and either Artillery (any) (A) IQ+1 [4]-11 or Gunner (any) (E) DX+2 [4]-14.

Battlesuit Trooper (100 points): Battlesuit (A) DX+2 [8]-14, Camouflage (E) IQ+2 [4]-12, Electronics Operation (any) (A) IQ [2]-10, Forward Observer (A) IQ [2]-10, Gunner (any) (E) DX+2 [4]-14, Mechanic (Battlesuit) (A) IQ+1 [4]-11, Navigation (land) (A) IQ+1 [4]-11, Throwing (A) DX [2]-12.

Engineer (110 points): Increase IQ to 11 [20]; add Camouflage (E) IQ+1 [2]-12, Electronics Operation (any) (A) IQ-1 [1]-10, Engineer (Combat) (H) IQ+2 [12]-13, Gunner (any) (E) DX+1 [2]-13, Mathematics (Applied) (H) IQ-1 [2]-10, Navigation (Land) (A) IQ-1 [1]-10.

Infantry (90 points): Add Camouflage (E) IQ+2 [4]-12, Electronics Operation (any) (A) IQ [2]-10, Forward Observer (A) IQ [2]-10, Gunner (any) (E) DX+2 [4]-14, Hiking (A) HT+1 [4]-12, Navigation (Land) (A) IQ [2]-10, and either Survival (any) (A) Per [2]-10 or Urban Survival (A) Per [2]-10.

Ranger (130 points): Increase IQ to 11 [20]; add Camouflage (E) IQ+2 [4]-13, Climbing (A) DX+1 [4]-13, Electronics Operation (any) (A) IQ [2]-11, Forward Observer (A) IQ [2]-11, Gunner (any) (E) DX+2 [4]-14, Hiking (A) HT+1 [4]-12, Navigation (Land) (A) IQ+1 [4]-12, Stealth (A) DX+1 [4]-13, and Survival (any) (A) Per+3 [12]-14.

Space Marine (95 points): Add Free Fall (A) DX+2 [8]-14, Spacer (E) IQ+2 [4]-12, Vacc Suit (A) DX+2 [8]-14, add one of the following: G-Experience 5 [5], Immunity to Space Sickness [5] or Improved G-Tolerance 1 [5].

Elite Trooper (+60 points): Increase ST by 1 [10], DX by 1 [20], and IQ by 1 [20], increase Will by 1 [5], improve Soldier skill to IQ+3 [4], add Savoir-Faire (Military) (E) IQ [1]-11.

Officer (+55 points): Increase IQ by 1 [20]; raise Rank by 3 [15]; add Administration (A) IQ+1 [4]-12, Law (Military) IQ-1 [2]-10, Leadership (A) IQ+1 [4]-12, Savoir-Faire (Military) (E) IQ+1 [2]-12, Tactics (H) IQ+1 [8]-12.

Veteran (+40 points): Increase IQ by 1 [20], add either Danger Sense or Luck [15], increase Soldier skill to IQ+3 [4], increase Scrounging to Per+1 [1].

* Multiplied for self-control number; see p. B120.

Space Knight

150 points

You're an elite warrior, trained with secret martial arts and equipped with super-technology to be a defender of galactic society. More than a mere soldier, you fight for honor and out of a sense of duty to all sentient life. The exact nature of your training depends on the weapons available, but whatever they are, you're a master.

Attributes: ST 11 [10]; DX 13 [60]; IQ 12 [40]; HT 11 [10].

Secondary Characteristics: Damage 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 12 [0]; Per 12 [0]; FP 11 [0]; Basic Speed 6 [0]; Basic Move 6 [0].

Advantages: Social Regard (Feared or Respected) 2 [10] or Status 2 [10], and 30 points chosen from among Ambidexterity [5], Combat Reflexes [15], Danger Sense [15], Fit or Very Fit [5 or 15], High Pain Threshold [10], Luck [15], Rank 1-2 [5-10], Rapid Healing [5], Trained by a Master [30], Weapon Master (Knightly Weapons) [30], +1 to ST or HT [10], +1 to +5 to HP [2 -10], and +1 to +4 to Per [5-20].

Disadvantages: Either Code of Honor (chivalrous) [-15] or Duty (to Order, 15 or less) [-15], and -20 points chosen from among adding Extremely Hazardous to Duty [-5], Fanaticism [-15], Flashbacks (Mild) [-5], Gullibility [-10*], Honesty [-10*], Impulsiveness [-10*], Overconfidence [-5*], Pacifism (Cannot harm innocents) [-10], Selfless [-5*], Sense of Duty (Nation or All Life) [-10 or -15], Truthfulness [-5*], Vow [-5 to -15].

Primary Skills: Any two of the following: Battlesuit (A) DX+1 [4]-14, Broadsword (A) DX+1 [4]-14, Driving (any) (A) DX+1 [4]-14, Force Sword (A) DX+1 [4]-14, Gunner (any) (E) DX+2 [4]-15, Judo (H) DX [4]-13, Karate (H) DX [4]-13, Piloting (spacecraft type) (A) DX+1 [4]-14, Rapier (A) DX+1 [4]-14.

Secondary Skills: Beam Weapon (Pistol) (E) DX+1 [2]-14, Electronics Operation (any) (A) IQ [2]-12, Law (Galactic) (H) IQ [4]-12, Leadership (A) IQ [2]-12, Navigation (any) (A) IQ [2]-12, Savoir-Faire (Dojo, High Society, or Military) (E) IQ [1] -12, Stealth (A) DX [2]-13

Background Skills: Computer Operation (E) IQ [1]-12, First Aid (E) IQ [1]-12.

* Multiplied for self-control number; see p. B120.

Space Worker

75 points

Some people explore space, and some people just work there. They build space colonies, mine asteroids, salvage wrecked spaceships, and do all the other tough jobs the star pilots and eggheads are too busy for. Space workers can be independent prospectors or salvagers; or they can get a regular paycheck.

Attributes: ST 11 [10]; DX 11 [20]; IQ 11 [20]; HT 11 [10].

Secondary Characteristics: Damage 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 11 [0]; Per 11 [0]; FP 11 [0]; Basic Speed 5.5 [0]; Basic Move 5 [0].

Advantages: G-Experience (choose gravity) [1], Immunity to Space Sickness) [5], and two of: +1 Per [5], Fit [5], Improved

G-Tolerance [5], Rapid Healing [5], Single-Minded [5].

Disadvantages: A total of -35 points from among: Addiction (cheap, legal stimulant or tobacco) [-5], Debt 5 [-5], Honesty [-10*], Loner [-5*], Miserliness [-10*], Pacifism (Reluctant Killer) [-5], Post-Combat Shakes [-5*], Sense of Duty (work crew) [-5], Shyness (Mild) [-5], Stubbornness [-5], Struggling [-10], Truthfulness [-5*], Workaholic [-5].

Primary Skills: Free Fall (A) DX+2 [8]-13, Vacc Suit (A) DX+2 [8] -13.

Secondary Skills: Any three of: Electrician (A) IQ+1 [4]-12, Explosives (Demolition) (A) IQ+1 [4]-12, Freight Handling (A) IQ+1 [4]-12, Hazardous Materials (any) (A) IQ+1 [4]-12, Machinist (A) IQ+1 [4]-12, Mechanic (system type) (A) IQ+1 [4]-12, Prospecting (A) IQ+1 [4]-12.

Background Skills: Brawling (E) DX [1]-11, Carousing (E) HT [1]-11, First Aid (E) IQ [1]-11, Piloting (spacecraft type) (A) DX-1 [1] -10, Scrounging (E) Per [1]-11, Spacer (E) IQ [1]-11.

* Multiplied for self-control number; see p. B120.

Technician

55 points

Just about everyone in a SF setting can use the advanced devices available, but technicians are the ones who understand how they work, and can repair, improve, or build them. Contemporary stereotypes assume all technicians are geeky and shy, but in some settings being a tech wizard could be glamorous. This template is fairly low-priced in order to allow players to combine it with others.

Attributes: ST 10 [0]; DX 10 [0]; IQ 11 [20]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 11 [0]; Per 11 [0]; FP 10 [0]; Basic Speed 5 [0]; Basic Move 5 [0].

Advantages: Choose 20 points from among: Artificer 1-2 [10-20], Eidetic Memory [5], Gizmos [5-15], High Manual Dexterity 1 -2 [5-10], Intuitive Mathematician [5], Lightning Calculator [2], Mathematical Ability [10], Security Clearance [5], Serendipity [15], Single-Minded [5], Versatile [5] or +1 to +2 Per [5-10].

Disadvantages: A total of -10 points from among: Addiction (cheap, legal stimulant or tobacco) [-5], Absent-Mindedness [-15], Clueless [-10], Code of Honor (professional) [-5], Combat Paralysis [-15], Curious [-5*], Gullibility [-10*], Honesty [-10*], Indecisive [-10*], Loner [-5*], Miserliness [-10*], Overconfidence [-5*], Pacifism (Reluctant Killer) [-5], Post-Combat Shakes [-5*], Shyness (Mild or Severe) [-5 or -10], Stubbornness [-5], Truthfulness [-5*], or Workaholic [-5].

Primary Skills: Any two of: Armoury (any), Electrician, Electronics Repair (any), Explosives (any), Lockpicking, Machinist, or Mechanic (any) – all are (A) IQ+2 [8]-13, or Computer Programming (H) IQ+1 [8]-12.

Secondary Skills: Electronics Operation (any) (A) IQ [2]-11, Hazardous Materials (any) (A) IQ [2]-11, and either NBC Suit (A) DX [2]-10 or Vacc Suit (A) DX [2]-10.

Background Skills:. Computer Operation (E) IQ [1]-11, First Aid (E) IQ [1]-11, Scrounging (E) Per [1]-11.

Inventor (100 points): Increase IQ to 12 [20]; add Gadgeteer [25].

* Multiplied for self-control number; see p. B120.

Thief

75 points

Crime won't go away just because humans travel to the stars, but the crooks will have to get more clever to defeat high-tech locks and security systems. Famous thieves in SF include Slippery Jim diGriz, or the crack team of operatives in Iain M. Banks' *Against a Dark Background*. Cyberpunk SF introduced a new kind of thief, the cyberspace decker, a freelance hacker who steals information or money.

Attributes: ST 10 [0]; DX 11 [20]; IQ 12 [40]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 12 [0]; Per 12 [0]; FP 10 [0]; Basic Speed 5.25 [0]; Basic Move 5 [0].

Advantages: 20 points' worth from among: Alternate Identity (illegal) [15], Artificer 1-2 [10-20], Daredevil [15], Gizmos [5-15], High Manual Dexterity 1-2 [5-10], Luck [15], Serendipity [15], Single-Minded [5], Versatile [5], +1 to +2 Per [5-10], or Zeroed [10].

Disadvantages: A total of -30 points from among: Addiction (cheap, legal stimulant or tobacco) [-5], Callous [-5], Cowardice [-10*], Greed [-15*], Jealousy [-10], Laziness [-10], Loner [-5*], On the Edge [-15*], Overconfidence [-5*], Pacifism (Reluctant Killer) [-5], Paranoia [-10], Post-Combat Shakes [-5*], Reputation (crook) [varies], Secret [-5 or -10], Selfish [-5*], Slow Riser [-5], Social Stigma (Criminal Record) [-5], Struggling [-10], or Trademark [-5 to -10].

Primary Skills: Any two of: Electronics Operation (Security) (A) IQ+2 [8]-14, Electronics Repair (Security) (A) IQ+2 [8] -14, Explosives (Demolition) (A) IQ+2 [8]-14, Forced Entry (E) DX+3 [8]-14, or Lockpicking (A) IQ+2 [8]-14.

Secondary Skills: Any three of: Acting (A) IQ [2]-12, Beam Weapons (Pistol) DX+1 [2]-12, Disguise (A) IQ [2]-12, Driving (any) DX [2]-11, Fast-Talk (A) IQ [2]-12, Forgery (H) IQ-1 [2]-11, Guns (Pistol) (E) DX+1 [2]-12, Law (region, criminal) (H) IQ-1 [2]-11, Merchant (A) IQ [2]-12, Stealth (A) DX [2]-11.

Background Skills: Computer Operation (E) IQ [1]-12, Streetwise (A) IQ [2]-12.

Cyberspace Thief (75 points): Change primary skills to Computer Hacking (VH) IQ+1 [12]-13 and Computer Programming (H) IQ [4]-12.

* Multiplied for self-control number; see p. B120.

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Heppenheimer, T.A. *Colonies in Space* (Warner, 1977). A cheerleading book about O'Neill habitat colonies, somewhat dated now but a good source of ideas and background for space habitat settings.

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Delany, Samuel R. "Time Considered as a Helix of Semi-Precious Stones." This novella won the Hugo and Nebula awards in 1969, but still seems fresh and cutting-edge more than 30 years later.

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an epic series following humans trying to survive in a galaxy dominated by hostile machine intelligences.

Bova, Ben. *Privateers* (Eos, 2000). Red-blooded entrepreneurial adventure, an example of the technothriller genre in space.

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Blade Runner (Ridley Scott, 1982). *The* cyberpunk film, based on the Philip K. Dick novel *Do Androids Dream of Electric Sheep?* Tells of a future cop hunting rogue androids.

Star Wars (George Lucas, 1977). The original film is now Episode 4 in the series, which has proved markedly uneven in quality. One of the most successful films in history.

Television

Babylon 5 (Warner, 1993-98). Excellent old-school space opera, centered on a vast space habitat.

Firefly (Fox, 2002). A short-lived but superb spaceship drama, with clear Old Western inspiration.

Star Trek (Paramount, 1966-69). The original series has spawned nine films and four more television series. For most non-fans, this is what science fiction *is*.

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By Sean Punch and Phil Masters

STEVE JACKSON GAMES

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POWERS™

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Introduction

Not all games feature superhuman gifts – but most do! Fantasy wouldn't be the same without mages and priests pitting their magic and miracles against monsters with exotic attacks. Space opera practically requires telepaths, not to mention godlike aliens. Horror features everything from children with uncontrollable psychokinesis to space-warping, madness-inducing Things. And the entire supers genre is *defined* by unusual abilities.

Even in less "over-the-top" backgrounds, heroes – and their foes – may have special capabilities that set them apart. The kung fu master who can kill with a touch, the psychic detective, the faith healer, the feral child who speaks with beasts . . . characters like these abound in adventure fiction.

Superhuman doesn't have to mean *supernatural,* either. Nature is full of creatures that can do things like inject venom, spin webs, and walk on walls – and in a "hard" science-fiction setting, advances in biotechnology might let humans do all of these things without invoking the impossible. Even shooting devastating energy beams and deflecting bullets might be realistic . . . for a robot.

The common theme here is gifts that no ordinary human can possess. When designing such abilities, the ***GURPS Basic Set*** – with its hundreds of advantages – is an excellent starting point. But all that variety can be daunting: to get the ability you want, you might have to choose between several similar advantages, and apply many modifiers. The top priority of ***GURPS Powers*** is to provide advice, examples, and new options that make this process easier and more *fun.*

In particular, ***Powers*** gives significant thought to a matter that the ***Basic Set*** only touches upon, which is that a character gifted with special abilities might produce some or all of them by manipulating a single superhuman force: divine will, inner strength, life energy, mana, psychic potential, spirits, etc. Someone with the capacity to direct such energies is said to possess a *power.* ***Powers*** includes full rules for creating powers and using them in play – hence the title.

Powers also looks at how to integrate superhuman capabilities into a campaign with due respect for its genre and dramatic mode – and without blowing game balance out of the water. It's a toolkit, and the GM is responsible for choosing the right tools for the job. Before allowing the players to use the rules in this book, the GM should read it all – especially the last two chapters – to discover which options best suit *his* campaign.

Publication History

This is the first edition of ***GURPS Powers.*** The ***GURPS*** *Third Edition* books ***GURPS Psionics*** and ***GURPS Supers*** were inspirational – and a few modifiers for Shapeshifting (p. 74) first appeared in ***GURPS Shapeshifters*** – but it's otherwise a completely new product.

Note to Third Edition Players

If you've been playing ***GURPS*** since the Third Edition (or earlier!), you might ask, "What does ***GURPS Powers*** replace?" The answer is simple . . . and not so simple.

Powers covers a lot of the same ground as ***GURPS Psionics*** and ***GURPS Supers.*** By following the advice in this book, you'll be able to recreate the *effects* of psi and super abilities from those supplements. The implementation isn't the same,

however, so old hands definitely have some learning to do.

For psi powers, there's no overall "level" that rates every one of the power's abilities. Instead, the player crafts each ability separately by buying it as an advantage, choosing the level (where possible) and modifiers that fit his vision of his character's aptitude with *that one ability.* Many of the special rules and "stunts" from ***Psionics*** appear in ***Powers,*** but they're generalized to all powers and *optional,* so that the GM can better tailor them to his campaign.

For supers, the emphasis is on *active* abilities, such as flying and shooting rays. Some passive abilities – e.g., tough skin – appear, but they aren't a priority. This is because the ***GURPS Basic Set,*** *Fourth Edition* covers more territory than did the ***Basic Set,*** *Third Edition.* High ST, DR, extra limbs, and gadgets are all common in supers games, but the ***Basic Set*** has them covered. The same goes for rules for super-speed collisions, picking up and throwing huge objects, and so on. This leaves more space for other things.

The biggest change for both psi *and* super abilities is that they don't require skills. We present skill use as an option (see *Skills for Everyone,* p. 162), but the GM doesn't have to use it. Talents (p. 8) fill this role, and a new enhancement (see *Reliable,* p. 109) permits fine-tuning.

Powers covers much more than just psis and supers, though. It's equally capable of handling high-powered fantasy "spellcasters," *wuxia* fighters, shamans who command spirits . . . even gods. Thus, it represents a truly generic and universal advantage-based alternative to the skill-based abilities of Third Edition books such as ***GURPS Martial Arts, GURPS Religion,*** and ***GURPS Spirits.*** This makes it easy to mix characters with radically different powers in the same campaign.

In other words, ***Powers*** by itself isn't *quite* the complete book of supers or psi – it's something more. It's a "how to" guide to the ***Basic Set*** for these things and nearly every other kind of wondrous ability; think of it as a ***Basic Set: Powers.*** Combined with the ***Basic Set,*** it gives you the tools to create almost *any* powered character you can dream up – a claim that no Third Edition book could make.

About *GURPS*

Steve Jackson Games is committed to full support of ***GURPS*** players. Our address is SJ Games, Box 18957, Austin, TX 78760. Please include a self-addressed, stamped envelope (SASE) any time you write us! We can also be reached by e-mail: **info@sjgames.com**. Resources include:

Pyramid (**www.sjgames.com/pyramid/**). Our online magazine includes new ***GURPS*** rules and articles. It also covers the ***d20*** system, ***Ars Magica, BESM, Call of Cthulhu,*** and many more top games – and other Steve Jackson Games releases like ***Illuminati, Car Wars, Transhuman Space,*** and more. *Pyramid* subscribers also get opportunities to playtest new ***GURPS*** books!

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GURPSnet. This e-mail list hosts much of the online discussion of ***GURPS.*** To join, point your web browser to **www.sjgames.com/mailman/listinfo/gurpsnet-l/**.

Rules and statistics in this book are specifically for the ***GURPS Basic Set,*** *Fourth Edition.* Page references that begin with B refer to that book, not this one.

About the Author

Sean "Dr. Kromm" Punch set out to become a particle physicist and ended up as the ***GURPS*** Line Editor. Since 1995, he has compiled the two ***GURPS Compendium*** volumes, written ***GURPS Wizards*** and ***Undead,*** edited or revised over 20 other ***GURPS*** books, and masterminded the rules behind dozens more. Most recently, he and co-author David Pulver created the ***GURPS Basic Set,*** *Fourth Edition.*

Sean has been a fanatical gamer since 1979. His non-gaming interests include cinema, computers, and wine. He lives in Montréal, Québec, with his wife, Bonnie. They have two cats and a noisy parrot.

Phil Masters has been playing RPGs since 1978; his first professional writing appeared in 1980, his first RPG book in 1990, and his first work for Steve Jackson Games (***GURPS Arabian Nights***) in 1993. Since then, he's worked on many more ***GURPS*** books, including the ***Discworld*** and ***Hellboy*** RPGs (the latter also with Jonathan Woodward). He's also written for White Wolf, Guardians of Order, and Eden Studios, among others. He lives in the U.K., runs a biweekly game, and sometimes helps organize RPG conventions.

Chapter One
Building Powers

The thief stepped off the flat roof of the skyscraper. Falling, he gestured, and wings of fire billowed out and carried him gently to the ground. Where his feet touched the road, the asphalt melted and bubbled.

At the sight of him, and the flames that flared about him, civilians and guards alike fled for their lives. By the time he reached the bank, only a single figure, clad in black and yellow, stood in his path.

"Ah," the thief said, "the mutant freak is back. But this time, I'm ready, and you have nowhere to run. Do you really think that your telepathic trickery will protect you against the power of elemental fire?"

His opponent frowned, as though considering this as a serious academic question. "I'm not sure," she admitted.

"Then die." The thief gestured again, and sent a searing blast of flame toward his opponent. But the telepath was no longer in its path.

"It might not protect me, but it means that I can control your visual cortex." The telepath's amused tones echoed in the thief's head. He frowned, then shrugged. "It makes no difference," he said. "You can project your voice, and maybe you can plant a picture or two in my brain, but I can just burn my way into this place, and burn anything that stands in my way. The more you annoy me, the more I'll destroy. You lack power."

"True," the telepath replied, and suddenly, the blue sky above darkened with black clouds. "I'm a little short on raw force. But I do have range, and I have friends who'll help when I need them." From the clouds, hailstones large as fists came pounding down, quenching the thief's flames and hammering him to his knees. "And I'm told that a fire elemental is a couple of steps down from a storm god."

From ancient demigods to costumed comic-book vigilantes, heroes with superhuman abilities abound in myth and fiction. Each has a different explanation for his gifts, but most have one thing in common: their capabilities are rooted in the energies they control, in the *power* they manipulate – be that inner strength, magic, an elemental force, or the will of the gods.

The ***Basic Set*** presents many advantages that *could* be attributed to such powers, but leaves their source unspecified. On their own, these traits are "wild" gifts; they work like they work. And sometimes, that's enough. In most game worlds, though, it's important to answer the following questions:

- Which advantages could logically originate from a given source of power?
- How does this source change these advantages?
- How do these abilities relate to one another?
- How do these abilities interact with *other* powers?

These are questions that ***GURPS Powers*** aims to answer.

What Is a Power?

A "power" is an exotic or supernatural gift that you can direct in different ways to produce a number of related effects. A good example is Telepathy (see p. B257): the capacity to channel your thoughts in order to affect others' minds. This might let you read minds, transmit thoughts, and lash out with bolts of mental energy. Yet *all* of these things are just manifestations of a single power – the power of Telepathy.

Source

Each power has a *source:* the origin of the energy the wielder manipulates to produce its effects. This is normally chosen from the list under *Advantage Origins* (see p. B33) – for instance, Telepathy is "psionic" – but the GM is free to invent other sources.

The "chi" and "psionic" sources suggest that the power comes from within – from the user's body and mind, respectively. Most other sources imply that the user is channeling external energies: the will of a god for "divine," servitor spirits for "spirit," mana for "magical," and the energy of creation for "cosmic." A few straddle the line, and suffuse the user *and* his surroundings; see *Nature* (p. 28) for a source like this. It's important to be aware of this distinction, as it can affect how powers work in play (see *Channeled Energies,* p. 24).

For more on sources, including a discussion of which sources are appropriate for a given genre and campaign type, see *Origins* (p. 179).

Focus

A power also needs a *focus:* the item it manipulates or the concept it revolves around. This can be broad, but should be well-defined and fit into one of these categories:

- A form of matter or energy, or its absence (e.g., air, cold, darkness, earth, electricity, fire, light, radiation, sound, vacuum, or water).
- A natural phenomenon (e.g., death, disease, volcanic activity, or weather).
- A supernatural phenomenon (e.g., astral projection, second sight, or the will of a *specific* god).
- A class of targets (e.g., animals, computers, living bodies, plants, sentient minds, or spirits – or other *powers* of one particular source).
- An abstract notion (e.g., good, evil, the future, or probability).

Anatomy of a Power

In addition to its source and focus, a power has three game-mechanical components:

1. A set of advantages that represent different ways the power can manifest. These are known as the power's *abilities.*
2. A special modifier – most often a limitation – called a *power modifier.* This turns any advantage that has it into an ability within the associated power.
3. A *Talent* that makes it easier to use all of the power's abilities.

Abilities

Each power has a list of *abilities:* advantages that make sense as manifestations of the power, given its focus. For instance, Telepathy offers such abilities as Empathy, Mind Control, Mind Probe, Mind Reading, Mind Shield, Mindlink, Possession, and Telesend (for a complete list, see *Telepathy,* p. 134). What these advantages have in common is that they lend themselves to interpretation as direct interactions between sentient minds.

A power's abilities usually have a number of structural similarities. They might all be physical or mental, or supernatural – or perhaps they all depend on rolls against the same attribute. This is a suggestion and not a requirement, but the GM should definitely bear it in mind when designing powers. A power will seem contrived if its abilities belong to many different classes of advantages that work nothing alike.

It might be necessary to modify or qualify an advantage to better meet these goals before allowing it as an ability. For instance, Telepathy lists Affliction and Innate Attack as abilities, but only when they cause fatigue, stunning, incapacitation, temporary mental disadvantages, or DX, IQ, or Will penalties – and only with the Malediction enhancement. These restrictions serve to exclude such attacks as fire bolts and death rays, which are inappropriate for Telepathy as depicted in most fiction.

The GM need not treat a power's list of abilities as exhaustive or prescriptive. If a player provides a *reasonable* explanation for why an advantage that isn't on the list would suit a particular power, the GM should be generous.

Focus vs. Source

Focus and source *might* correspond on a one-to-one basis. For instance, the power to command some spirits in order to influence others would have "spirit" as both its source and its focus. This doesn't have to be the case, however.

Most sources encompass more than one focus. For example, the "psionic" source extends to all six powers described in Chapter 6 of the ***Basic Set:*** Antipsi (focus: other psionic powers), ESP (focus: knowledge), Psychic Healing (focus: healing), Psychokinesis (focus: motion), Telepathy (focus: sentient minds), and Teleportation (focus: instantaneous travel). Likewise, the "divine" source is extremely broad; in most settings, each god grants its servitors a unique power.

Conversely, a given power could have more than one source. The focus "fire" might be divine, magical, or psionic in nature, depending on the game world.

See *Choosing Abilities* (p. 9) for a detailed discussion of how to choose appropriate abilities for a power.

Power Modifiers

Each power also has a *power modifier:* a limitation or enhancement that turns an advantage into one of the power's abilities. An advantage *must* have the relevant power modifier in order to be part of the power; there are no exceptions.

An advantage with a power modifier is subject to all the special rules that apply to the power. If the power is subject to a broad set of countermeasures or situational penalties, only works in certain circumstances, or restricts the user's actions, its power modifier is a limitation. If the power's abilities are *more* flexible than the unmodified traits, its power modifier is an enhancement. The value of the limitation or enhancement depends on just how much the restrictions are tightened or relaxed; see *Evaluating Power Modifiers* (p. 20).

Talents

Finally, each power has a *Talent* that represents natural or learned aptitude with the power. This is similar to a mundane Talent (see p. B89), but instead of giving a bonus to skill rolls, it gives a bonus to all success rolls made to activate or use any of the power's abilities; e.g., Telepathy Talent 3 gives +3 to the IQ, Will, and Perception rolls to use telepathic abilities. The GM is free to interpret Talent creatively for abilities that don't normally require a die roll; see *The Role of Talent* (p. 158) for ideas.

The cost per level of Talent can vary, as explained under *Pricing Talents* (p. 29), but most Talents cost 5 points/level. No one may buy more than four levels of a given Talent without the GM's permission.

It's possible to purchase the abilities of a power without taking the associated Talent, but most empowered heroes will find Talent indispensable. Likewise, the GM may allow Talent without abilities. Those in either situation possess the power in question, and can generally add the missing component later on; see *Adding and Improving Powers* (p. 33).

This is all you absolutely *need* to know to skip to Chapter 3 and start adding powers to a character. The remainder of this chapter is aimed at GMs who are designing powers for their campaign, and players who have the GM's permission to give their characters custom-built powers.

Powers vs. "Wild" Advantages

Not everyone with advantages from a power's list of abilities possesses that power. As explained under *Power Modifiers,* an advantage only becomes part of a power if it has the relevant power modifier. The GM decides whether it's possible to buy the advantages that make up powers as stand-alone traits.

In some game worlds, many advantages exist both "in the wild" *and* as part of one or more powers. Without a power modifier, an advantage works exactly as per its description – none of the special rules for powers apply to it. For instance, effects that negate, drain, or enhance an advantage when it's part of a particular power have *no effect* on the wild version. Things that benefit or restrict the wild version have their usual effects on all modified versions, though!

In other settings, the *only* way to obtain certain advantages – especially exotic or supernatural ones – is as part of a power. By ensuring that unusual abilities are always subject to power modifiers, the GM can control dozens or *hundreds* of advantages by defining a small number of modifiers. Of course, unusual NPCs might still have wild versions of such traits . . .

Choosing Abilities

The first step in designing a power is to pick a reasonable list of abilities. The goal is to create a list that's long enough to justify the work of coming up with a power modifier and a Talent (and the special rules that go with them), but short enough that the power doesn't become meaninglessly vague . . . or the only power worth having. Ask yourself two questions before you add any advantage to a power:

1. Does the advantage make sense given the power's ***focus?*** A power's abilities – with *no* exceptions – must directly address its focus. For instance, if you're designing a necromantic power, *all* of its abilities should deal with death and the dead. Channeling and Medium are a perfect fit. Innate Attack would work, too, if given a reasonable set of modifiers to turn it into, say, a "life-draining touch." However, Healing would be hard to justify, and Binding wouldn't make sense at all.

2. Does the advantage make sense given the power's ***source?*** The ability shouldn't clash with the folkloric traditions or genre conventions normally associated with the power's source. For example, psionic abilities should *feel* like powers of the user's mind; therefore, a trait such as True Faith, which traditionally relies on a connection to a god or a spirit, would be unsuitable.

Don't put these tests ahead of creativity, though. A clever choice of special effects and modifiers can sometimes turn an otherwise inappropriate advantage into a good fit. For instance, Binding might actually be quite reasonable for a necromantic power . . . *if* it's defined as skeletal hands that erupt from the ground and seize the victim! All that's needed is an Environmental limitation: "Only in graveyards, old battlefields, and other death-aspected areas."

When choosing a power's abilities – especially those available to PCs – it's crucial to make sure that they're varied enough to make the power useful for some or all of combat, stealth, transportation, information gathering, social interaction, or simply earning a living. Below is an overview of several important categories of abilities. See Chapter 2 for rules for converting *specific* advantages into customized abilities.

Attacks

In most action genres, those who have powers can hurl them at their foes. This is one of the key roles of powers in supers settings, where "elemental" powers are typically capable of a bewildering variety of attacks. For instance, Heat/Fire power might let the user conjure fireballs, flame jets, smoke, spark showers, etc. Of course, not every power is destructive. A power with many other uses – or one that's wholly nonviolent (e.g., Psychic Healing) – can get by with *no* attacks.

Because of the sheer number of modifiers available, always specify *all* enhancements and limitations needed to adapt an attack advantage to a power; see *Selecting Modifiers* (p. 99) for details. A few important examples:

- Normally ranged abilities, like Innate Attack, have the Melee Attack limitation (p. B112) if they charge up a hand or other body part for striking. Touch-only abilities, such as Neutralize and Possession, require Ranged (p. B107) to work at a distance.
- Abilities resisted by IQ or Will need the Based on HT enhancement when added to a fundamentally physical power. Those resisted by HT need Based on Will when included in a mental power. See *Based on (Different Attribute)* (p. B102).
- Curses, mental blasts, and similar supernatural attacks work best with Malediction (p. B106) or Sense-Based (p. B109).

Direct Attacks

The beams, bolts, gazes, curses, etc. wielded as weapons by those with powers most often injure, weaken, subdue, or inconvenience their target directly.

Affliction

The vast range of possible effects available through special enhancements makes this the most common attack. Because of this scope, a power that includes Affliction should always specify the types of enhancements allowed.

Most nonlethal attacks are Afflictions with one of three enhancements: Attribute Penalty, for weakness-inducing attacks that drain ST or neural blasts that reduce DX or IQ; Disadvantage, for psionic or magical abilities that cause madness, decrepitude, etc.; and Incapacitation, for sleep, stunning, and paralysis effects. Lethal attacks are *usually* Innate Attacks (below), but "all or nothing" attacks could instead be Afflictions with the Coma or Heart Attack enhancement.

The Advantage enhancement is perhaps the most versatile of all. Used with Growth and Shrinking, it allows enlargement and diminution, respectively. With Morph, it can turn the target into another creature. With Insubstantiality, it can turn him into a "ghost." And with Jumper or Warp, it can make him disappear altogether!

Binding

With suitable modifiers, Binding can hold the target in place with bonds of telekinetic force, imprison him within a block of ice, summon vines to entangle him, and so on. Like Affliction, Binding should come with a list of special modifiers that adjust it to suit the power. The Environmental limitation is among the most important of these, and is useful for describing abilities that command nature.

Innate Attack

This is the basic "do damage" ability. Always specify permitted damage types, which should suit the power's focus.

If the focus is matter – earth, ice, metal, etc. – choose a Crushing, Cutting, Impaling, or Piercing Attack to represent a solid projectile. A liquid or gas that pushes the target around has Double Knockback (p. B104) and No Wounding (p. B111). A *poisonous* liquid or gas is a Fatigue or Toxic Attack with Contact Agent (p. B111) or Respiratory Agent (p. B108).

Inappropriate Abilities

When narrowing down a power's list of abilities, bear in mind that a power is supposed to be an innate capacity to produce extraordinary effects – usually by actively manipulating some kind of energy. Traits that don't meet this criterion are rarely suitable. In particular, the following are normally off limits:

- *Attributes and secondary characteristics.* A hero can actively use great ST to smite foes or high Basic Move to sprint, but the benefits are mainly passive. A super with extreme scores can *call* his gift a "power" or "super-ability," but he can't claim a discount from a power modifier or a bonus from a Talent.
- *Advantages that grant bonuses to attribute or skill rolls.* Traits such as Acute Vision, Hard to Kill, and Talents are situational attribute bonuses, and are subject to the same cautions as attributes.
- *Advantages that represent physiology, racial traits, implants, or surgery.* Advantages such as Claws and Extra Arms are just body parts, and aren't usually suitable as part of a power. Racial templates are inappropriate for similar reasons; "being a dragon" isn't a power! This applies equally to *technological* body parts: bionic arms, implanted firearms, etc. These are interesting abilities (see Chapter 3 for examples), but they rarely suit powers.
- *Disadvantages and quirks.* These render the user *less* capable, and so are unsuitable as abilities. A power might have disadvantages as prerequisites, though; see *Required Disadvantages* (p. 21).
- *Skills.* Powers can sometimes assist skill use and vice versa (see *Using Abilities with Skills,* p. 161), but this doesn't make the skills involved part of a power, however exotic they are. Skills are learned, not innate.
- *Social traits.* Legal Enforcement Powers, Patrons, Status, etc. originate from society – not powers. A power would have to be *very* unusual to include such advantages as active abilities.

Put creativity first, though. Only disadvantages, quirks, and skills are *always* inappropriate. The other traits above might be fine with suitable modifiers. For instance, attributes are explicitly permitted in some cases (see *Attributes as Abilities,* p. 13), physiological traits are fine if switchable (see *Switchable Body Parts,* p. 18), and even technological body parts are acceptable if the GM allows "Superscience" as a power modifier (see *Gadget Limitations and Powers,* p. 107).

If the focus is energy, the best option is a Burning Attack. This can represent a laser, lightning bolt, fireball, radiation blast, etc. Some force beams and sonic/vibratory attacks work more like solid projectiles, however.

Supernatural powers should use Fatigue Attack for nonlethal effects (e.g., mind blasts) or Toxic Attack for deadly ones (e.g., death rays). Such abilities frequently have the Side Effect enhancement (p. B109).

Only exotic foci are likely to have a Corrosion Attack. This might represent an acid jet, antimatter beam, or disintegrator – or even accelerating time to cause decay.

Leech and Neutralize

Individuals who can rob others of their capabilities exist in most settings with powers. The ability to reduce the victim's FP, HP, or attributes in order to heal oneself is Leech (p. 96). This is most often part of a supernatural power with a vampiric or necromantic bent.

The ability to remove *powers* is Neutralize (p. 97). Powers that include this advantage must specify the affected source, and might use the One Power or One Ability limitation to narrow it down further. If the attacker acquires the stolen powers, add the Power Theft enhancement to the list. This best suits super-powers.

Environmental Control

Some advantages let the user alter his environment in order to compromise opponents in battle. These might not cause direct harm, but it's wise to count them as attacks when designing a power. A power with many of these abilities is *definitely* useful in combat.

Control and Create

A power with these advantages should normally limit them to its focus; e.g., Control (Earth) and Create (Earth) for Earth power. Occasionally, it makes sense for a power to include Control and Create for a diametrically opposed focus, too; for instance, Air power might include Create (Vacuum) if it can move air *out* of an area. See *Control* (p. 90) and *Create* (p. 92) for details.

Obscure

Before adding Obscure to a power, think about which senses the power's focus could block. Heat/Fire power could inhibit vision with smoke and jam Infravision with heat, while servants of Trickster, Spirit Guardian of Thieves, might have a power that includes *all* forms of Obscure. Use the Extended special enhancement for related senses, multiple instances of Obscure for *unrelated* senses.

When narrowing down a power's list of abilities, bear in mind that a power is supposed to be an innate capacity to produce extraordinary effects – usually by actively manipulating some kind of energy.

Static

Static (p. 98) interferes with *all* powers of a particular source. The basic advantage is a personal defense, but it tends to have the Area Effect special enhancement in fiction – and often the Ranged enhancement (p. B107), too – making it more like an attack. If it appears among a power's abilities, the power generally shouldn't include any ability that stems from the affected source, with the exception of Neutralize, Obscure, and Resistant. Thus, Static works best for "anti-powers." For instance, Antipsi (p. 122) includes Static (Psi), but doesn't include psi abilities *other* than those that block psi.

Defenses

Powers are as likely to include defenses as attacks. This might seem odd, given that the majority of suitable traits – notably Damage Resistance and Resistant – are passive, and don't let you *do* anything. But including such advantages in a power often makes it possible to employ extra effort (see *Extra Effort,* p. 160), attempt special active defenses (see *Defending with Powers,* p. 167), and perform "stunts" (see *Stunts,* p. 170) – all of which benefit from Talent. Of course, there's a tradeoff: anything that neutralizes the power also neutralizes the defenses it provides.

Types of Defenses

Before choosing specific defensive abilities, think about *how* the power protects its user. A power might work in any or all of the following ways:

Obstructing the attack. Some powers interpose themselves between the user and the incoming attack, weakening the attack in a way that's logically or dramatically consistent with the power's focus. For example, Cold/Ice power might let the user shroud his body in ice, creating a physical barrier against damage. This best suits powers that manipulate materials (earth, ice, metal, etc.) or create energy fields (e.g., *Psychokinesis*, p. 133).

Diverting the attack. Other powers protect the user by allowing him to channel his focus so effectively that when he's attacked with an item or substance he can control, he can direct it around or away from himself, reducing the attack's effectiveness. Examples include a telepath who can ward off the incursions of other telepaths and a fire elemental who's largely immune to fire. This explanation makes sense for almost *any* focus.

Negating the attack. Certain powers let the defender wholly or partially "cancel out" attacks that are diametrically opposed in focus. This is most appropriate for powers with a clearly defined opposite: Good vs. Evil, Light vs. Darkness, etc.

Optional Rule: Alternative Abilities

It often makes sense to define several abilities as distinct, mutually exclusive "settings" of a single, adaptable trait. For instance, Burning Attack, Ladar, and Laser Communication might be different intensity levels and modulations for a laser that can function as a weapon *or* a sense *or* a means of communication. Similarly, two Innate Attacks might represent different power settings for a ray gun.

If only one such ability works at a time, it's reasonable to give a cost break. If the GM agrees, those with "alternative abilities" pay full price only for their *most expensive* ability. All the rest are at 1/5 cost. Find each ability's final cost after all enhancements and limitations (including the power modifier, if any), apply the divisor, and round up.

Example: Jocko the psychokinetic has Flight (PK, -10%) [36], Super Jump 2 (PK, -10%) [18], and Walk on Air (PK, -10%) [18]. The GM decides that these advantages represent a *single* ability to levitate. Jocko pays full price for Flight, as it's the most expensive trait. He pays 1/5 cost for Super Jump and Walk on Air. Each costs 18/5 = 3.6 points, which rounds up to 4 points. Final cost is 36 + 4 + 4 = 44 points.

The GM shouldn't permit abilities with incompatible in-game explanations as alternatives. Obscure and Burning Attack in the form of smoke and a fireball are reasonable alternatives . . . but if the smoke were darkness and the fireball a laser, the combination would need superscience or the supernatural to make sense!

Alternative abilities have three drawbacks:

1. It's impossible to use the abilities simultaneously or have a Link (p. B106) between them. To change settings requires a Ready maneuver. After switching to an attack (Affliction, Binding, Innate Attack, Leech, Neutralize, Obscure, Static, and anything else the GM views as an "attack"), switching to a different attack is a free action. If the user can make more than one attack per turn, he must use the same setting for *all* of them.
2. Anything that disables one ability disables the whole collection. If injury or critical failure cripples or burns out *any* of the abilities – or a foe neutralizes or drains one – *none* of them are available until the affected one recovers!
3. Using an ability that can't be activated again until its duration expires (e.g., Neutralize with the Power Theft enhancement, or almost anything with the Ranged enhancement) means that *none* of the abilities are available for the duration.

For additional notes that apply to attacks, see *Alternative Attacks* (p. B61).

Typical Defensive Abilities

Once you know *how* a power protects its user, it's easier to choose the advantages and modifiers that make up its defensive abilities.

Damage Resistance

This works well for all three kinds of defenses. As an obstructing defense, DR should work against most or all attacks. The Force Field enhancement is especially appropriate.

As a diverting defense, restrict DR to the power's own source or focus by applying the Limited modifier. For the purposes of *Limited Defenses* (p. B46), an entire source is "Very Common" (-20%), while almost any focus broad enough to justify a power is "Common" (-40%). The Absorption and Reflection enhancements are logical additions.

As a negating defense, use Limited to restrict DR to a focus that *opposes* that of the power.

Resistant

At the +3 or +8 level, Resistant is suitable as a diverting defense against the power's *own* source or focus, or as a negating defense against the *opposite* focus. As with DR, an entire source is "Very Common," while a single focus is "Common."

Immunity is often appropriate, too. However, the GM is free to forbid a power from offering full Immunity to its own source if any shield capable of completely blocking its harmful energies would *also* block external energies that must reach the user to empower him in the first place. This consideration is dramatic, not game-mechanical.

Specific Defenses

Many defensive advantages work against specific threats. The most important are Mind Shield (as a diverting defense for any mental power), Protected Sense (most often a negating defense; e.g., Darkness power might give Protected Vision by reducing glare), Radiation Tolerance (a diverting defense for energy-related powers, but also a suitable as an obstructing defense for powers that manipulate dense materials), Sealed (an obstructing defense that often accompanies DR with the Force Field enhancement), and Temperature Tolerance (which might be diverting *or* negating; e.g., Heat/Fire power vs. heat *or* cold).

Uniqueness

A given advantage *can* belong to more than one power. For instance, Healing isn't just part of the Healing power; the Bioenergy, Good, Life, and Order powers also include it (see Chapter 3). However, variations between power modifiers do mean that the advantage might have unique strengths and weaknesses, relative to its base form, in each case.

An advantage should only be truly unique to a single power if the campaign background demands it. For example, in a world where the only powers are divine, certain abilities might be the exclusive domain of particular gods.

Multiple Copies of the Same Advantage

You can buy the same advantage more than once as the ability of different powers – usually as insurance against one of your powers failing, or to serve as a prerequisite (see p. 31). Pay full price only for the *most expensive* ability, after all modifiers; the others are at 1/5 cost (round up). Unlike *Alternative Abilities* (p. 11), there's no connection between these abilities. The discount simply reflects the diminishing returns on buying an advantage multiple times.

If the advantage comes in levels, you can instead opt to pay *full* price for both versions. This lets you add the levels together in a situation where both powers would work, provided your powers aren't opposed in some way (GM's decision).

Movement Abilities

Movement abilities are another staple of action genres. Most of these traits allow flashy maneuvers that make them every bit as dynamic as combat abilities.

Types of Movement Abilities

There are *many* possible explanations for movement abilities. The most obvious is that the power has "moving things" as its focus. Powers that can move distant objects – like Psychokinsis (p. 133) – can often transport the user, too, with the most common result being Flight. "Moving things" can also mean *instantaneous* movement. Powers of this kind, such as Teleportation (p. 134), offer Jumper, Snatcher, or Warp.

Equally common in fiction are powers that let the user command or conjure his focus in such a way that it carries him along or enhances his movement capabilities. A super with Air power might ride within a miniature tornado (Flight), a hero with Cold/Ice power might slide along an icy trail (Enhanced Move (Ground)) and climb walls by freezing his hands to them (Clinging), and so on.

A few powers allow the wielder to project his focus to generate thrust, like a jet or a rocket. Any power energetic enough to do damage with a direct attack could believably work this way – especially an elemental power that lets its user project water, fire, etc. This most often grants Enhanced Move, Flight, or both.

Finally, a power that gives precise control over a focus is likely to let the user control how his body interacts with that focus. For instance, Gravity power might let a hero reduce the pull of gravity on his body (justifying Catfall, Super Jump, or even Flight), while Earth power could enable him to meld his body with stone in order to climb it (Clinging) or pass *through* it (Permeation).

Typical Movement Abilities

Most movement advantages are suitable abilities for powers, but matching them up can be tricky. Below are a few suggestions.

Amphibious, Terrain Adaptation, and Walk on Liquid

These traits let the user function at full Move in or on a substance that normally limits movement. They're common for elemental powers that let the user adjust the interaction between his body and his power's focus: Amphibious and Walk on Liquid both suit Water, Terrain Adaptation (Ice) fits Cold/Ice, and so on. Powers granted by spirits or gods associated with nature are also candidates for such abilities; for instance, a sea god might bestow Amphibious, while a desert spirit might give Terrain Adaptation (Sand).

Clinging and Super Climbing

Clinging and Super Climbing are logical for any power that lets the user create a bond between his body and a surface. Depending on the power, this bond might be physical (ice, stone, etc.) or due to an attractive force (gravity, magnetism, psychokinetic energy, etc.). If the bond can only form with the focus of the power, or if the focus can only form a bond with certain substances (e.g., metals, for Magnetism), add the Specific limitation.

Enhanced Move

This movement ability nearly always occurs alongside others: Enhanced Move (Air) with Flight, Enhanced Move (Water) with Amphibious, and so on. Enhanced Move (Ground) is *extremely* flexible; it can represent elemental "matter surfing," chi- or psi-based body control, and many other things.

Flight, Super Jump, and Walk on Air

Flight is probably the single most common ability attributed to gods, supers, psis, and others with remarkable powers. A hero might ride the wind, soar atop a column of flame, control gravity or psychokinetic energy, or summon spirits to whisk him through the air. This is one of the few abilities that can, with a little creativity, suit almost any focus! The GM should keep an open mind.

Those trying to save points should consider applying limitations such as Gliding and Lighter Than Air to their Flight. Alternatively, they might buy Super Jump or Walk on Air; either ability is suitable for a power that allows full-fledged Flight.

Jumper, Snatcher, and Warp

In most game worlds, these abilities are the exclusive domain of powers with "instant movement" as their focus. They are frequently the *only* abilities of such powers, with the possible exception of Affliction with the corresponding Advantage enhancements. Since these traits can short-circuit adventures, the GM should be conservative about accepting "creative" explanations as to why they suit atypical powers or sources. By limiting which powers include these advantages, and restricting those powers to PCs who draw power from suitable sources, the GM can easily dampen or jam *just those powers,* allowing him to shore up his plot without robbing the heroes of all their abilities.

Attributes as Abilities

The GM shouldn't allow modified ST, DX, IQ, HT, Will, Per, Basic Speed, or Basic Move as abilities. However, *bonuses* to these scores are appropriate for powers if either of the following is true:

- The bonuses have limitations that mean they require conscious activation or don't always work; e.g., Costs Fatigue, Limited Use, or Trigger. For instance, a ST bonus with Costs Fatigue might suit a biological or chi power.
- The power modifier itself genuinely limits utility. For example, a super-power might grant ST and Basic Move bonuses that can be negated (by Neutralize and related effects) along with the rest of the power.

Price such a bonus as additional levels of the affected score, adjusted as usual for modifiers. List it as an advantage, however – don't factor it into "permanent" attributes, secondary characteristics, skills, etc. It provides the full benefits of a higher score . . . *when it works.* When the player wishes to use his bonus, he must declare this like any other ability use. This gives the GM a chance to rule on whether the bonus is available under the circumstances.

Talent doesn't affect these bonuses at all. A "Wisdom of Horus" power might offer IQ +10 as one of its abilities, and give +10 to IQ and IQ-based skills when it works, but the Wisdom of Horus Talent would give no *further* bonus.

To turn FP and ST-based damage into abilities, use the special rules under *Energy Reserves* (p. 119) and *Modifying ST-Based Damage* (p. 146) instead.

Permeation and Tunneling

Powers with a specific material focus often count Permeation of that material among their abilities. A power might even encompass *several* versions of Permeation; e.g., Permeation (Earth) and Permeation (Stone) for Earth power. Conversely, more than one focus might make sense for a given form of Permeation; e.g., both Cold/Ice power and Water power could include Permeation (Ice).

Tunneling rarely suits powers other than those that deal with earth or stone.

Telekinesis

Telekinesis is unique among movement abilities in that its chief function is to move things other than the user. The most familiar explanation for this ability is psi, but dozens of other phenomena can produce identical results: spirits, tightly focused winds, gravity beams, magnetism, etc. As a result, Telekinesis is nearly as widespread as Flight, and suits an equally broad spectrum of powers.

Mental Abilities

Combat and movement abilities enjoy the highest profile in fiction, but *interesting* powers offer many other possibilities. Particularly important are capabilities useful for investigation and social interaction. Most of these gifts require IQ, Will, or Perception rolls to use, making them "mental" for all practical purposes – however physical their manifestations.

Any power might offer a few mental abilities. However, powers with a divine, magical, psionic, or spiritual source tend to offer *many* such abilities – or even consist solely of these abilities – because of the connections that myth and fiction draw between the supernatural and the mind. Psi powers are *defined* as mental, while divine, magical, and spiritual ones depend on faith, knowledge, and awareness, all of which are ultimately rooted in thought.

Because mental abilities manifest through thoughts more so than actions, they are especially appropriate for contemplative characters. In conspiracy, horror, and secret-powers campaigns, the GM might decide that they are the only abilities available to *anyone.* Telepaths can read minds . . . but not fry the brains of enemies. Shamans can perceive spirits . . . but not fly. And so on.

Here and elsewhere, ***Powers*** splits mental gifts into "communications," "influence," "information," and "senses." These categories overlap a great deal. For example, the Medium advantage allows the user to sense and speak with spirits, raising the possibility of asking them for assistance or information; thus, Medium could fit into any or all of these classes. If it's important to categorize an advantage precisely, the GM's word is final.

Communications

Certain abilities enable the user to communicate with others despite physical barriers (distance, soundproofing, etc.), lack of a common language, physiological differences, and so on. Two classes of powers are especially likely to offer such abilities. Powers that focus on a type of energy often give the ability to signal with that energy, while powers that focus on entities that don't use normal human speech generally include the ability to communicate with those beings.

Channeling and Medium

These advantages enable the user to interact with spirits. They nearly always occur as part of a supernatural power (divine, magical, psionic, or spirit), and rarely suit other kinds of powers. In settings where "spirits" are the perfectly natural residents of another dimension, however, either ability might belong to a power that allows interdimensional communication or travel.

Mimicry

Mimicry is an obvious choice for Sound/Vibration power, and might suit a chi- or psi-based body-control power that allows voluntary reshaping of the vocal apparatus, or a power that focuses on animals or nature. Trickster spirits and gods of language might empower their servants with this ability, too.

Speak with Animals and Speak with Plants

These abilities occur most commonly as part of powers granted by nature deities. In game worlds where psi powers can influence nonsapient life forms, they might instead be obscure telepathic abilities, or belong to distinct Beast Telepathy and Plant Telepathy powers. They also suit more generic animal-, plant-, and nature-control powers.

Speak Underwater

Aquatic supers often possess this ability – almost always as part of Sound/Vibration or Water power. Holy folk empowered by sea gods, ocean spirits, and similar entities might enjoy this capability as well.

Subsonic Speech and Ultrasonic Speech

These abilities mainly suit Sound/Vibration power. They *aren't* appropriate for most supernatural powers. The knowledge that some animals produce sounds at frequencies inaudible to human hearing – in fact, the entire concept of different frequencies of sound – comes from modern science, and doesn't mesh well with traditional beliefs. Druids, shamans, and the like should use Speak with Animals to talk to bats, dolphins, etc.

Telecommunication

Telecommunication is best thought of in terms of "Telesend vs. everything else." *Most* forms use mundane energy to transmit a signal; therefore, they suit powers that focus on the type of energy involved. For instance, Infrared Communication fits Heat/Fire or Light power, Laser Communication is an obvious choice for Light power, and Radio is logical for Electricity power. If the GM wishes, all three might be part of a broader power that focuses on electromagnetism in general; e.g., Electrokinesis.

Telesend uses many of the same rules as other forms of Telecommunication, but it's ill-suited to powers with scientific or pseudo-scientific explanations. For most people, direct thought transference *defines* "psionic." As such, the GM might wish to reserve it for psionic powers – notably Telepathy (p. 134) – and other supernatural powers with similar foci.

Influence

Influence abilities allow the user to read or alter others' emotions, thoughts, or perceptions. Some of these traits would fit equally well under *Communications*. The crucial difference is that the advantages listed below let the user *manipulate* others – either by giving him an uncanny degree of emotional or intellectual access to his "victim," or by enabling him to control his victim directly.

Animal Empathy, Empathy, Plant Empathy, and Spirit Empathy

These traits make it possible to determine the emotional state and predisposition of another being without his knowledge or consent – indeed, without even conversing with him. This makes them especially appropriate for psionic powers (Telepathy in particular), but note that *any* power that focuses on animals, plants, or spirits could logically include the appropriate variety of Empathy, regardless of source. Healing powers might offer these abilities as well, albeit through reading vital signs instead of minds.

Illusion

Illusion (p. 94) represents the ability to project images. In its basic form, it's appropriate for Light power, psionic Electrokinesis, etc. It often occurs with the Mental special modifier, though, which turns it into a *true* influence ability. This makes it an excellent match for supernatural powers – especially Telepathy, magical powers, and divine and spirit powers granted by deceivers and tricksters (although believers might regard the illusions as "visions").

Mind Control and Possession

Mind Control permits the user to order his victim around, while Possession goes a step further and lets him take direct control of his victim's body. Both offer special enhancements that allow the emulation of countless other effects common in fiction – most of which are appropriate as psionic or spirit abilities. In fact, these capabilities are only rarely suitable for powers that *don't* have a supernatural source.

Mind Probe and Mind Reading

These advantages are most often psionic, found as part of Telepathy power – or Machine Telepathy, if given the Cybernetic Only special limitation. Other supernatural powers could offer them, however. For instance, spirits might mentally eavesdrop for a shaman, or a deity might empower "inquisitors" to pry information from mortal minds (or, with a suitable Accessibility limitation, just the faithful).

Rapier Wit

Rapier Wit can represent many different psionic abilities: reading the victim's mind for words guaranteed to shock or incense him, telepathically projecting emotions while speaking, etc. If its source is divine, the user might speak with the voice of the gods. It might instead be a chi-based attack – a variation on the Kiai skill (p. B203). It could even represent the ability of someone with Sound/Vibration power to modulate his voice in order to exploit the physiological effects of sounds above or below the audible range.

Terror

The ability to instill fear is common to many powers. Fictional examples include channeling chi or divine will to intimidate others, using psi to manipulate emotions, summoning frightening spirits, and wielding the power of pure Evil. Terror needn't be supernatural; it's possible to unnerve others with subsonic vibrations (Sound/Vibration power), tuned electric fields (Electricity power), or other "natural" effects.

True Faith

True Faith normally comes from within . . . but many fantasy and horror tales portray the wielder as a conduit for *external* energies. Either way, this gift is best reserved for divine and spirit powers. When True Faith comes from a *divine* power, it's acceptable to include the Pact limitation (see *Required Disadvantages,* p. 21) in the power modifier, as those entrusted to administer divine power by proxy are held to higher standards than True Faith intrinsically assumes!

Information

A few abilities let the user *know* things without perceiving them with his senses (however exotic) or stealing information from others' minds. The GM should realize that any information he gives to PCs with such gifts could paint him into a corner or derail the plot; therefore, it's wise to reserve these capabilities for powers that genuinely call for them.

Blessed and Oracle

These advantages best suit powers that represent an attunement to a divine or spiritual force that provides information directly (Blessed) or indirectly (Oracle). In either case, it's acceptable to include the Pact limitation in the power modifier, as explained under *True Faith* (above). Oracle might be appropriate for other kinds of powers – for instance, psionic ESP – at the GM's discretion.

Danger Sense and Precognition

Foreknowledge – vague (Danger Sense) or precise (Precognition) – is the essence of ESP, making these advantages eminently appropriate as psionic abilities. Rubber-science arguments can justify either as part of a power that includes Jumper (Time) or FTL travel abilities, too. Finally, since some animals *seem* to react to events before they occur, the GM might allow these gifts to those with animal-control powers.

Intuition

Any power that includes other information abilities could logically include Intuition. It might stem from divine guidance, ESP, or an acute awareness of events in alternate universes. A radical but interesting origin for Intuition is a mental power that enhances the user's ability to process data, letting him make extremely accurate guesses!

Psychometry

As explained on p. B78, this ability is most often either psionic or part of a time-travel power of some kind. However, a power that grants its user *extremely* acute senses (see *Senses,* below, for ideas) might grant a variant form of Psychometry that can make limited guesses about the past by building up a composite image from scents, residues, and wear patterns.

Finding the Right Mix

There's more to designing a power than choosing abilities that suit its source and focus. You must also ensure that its abilities work together as a set . . . and that they're appropriate for *your* game. If you're uncertain about a specific ability, test it by answering the questions below. If you answer "no" to any of them, the ability is probably inappropriate.

1. Does it suit the genre? Almost any power intended for an action genre – four-color supers, mythic fantasy, pulp, etc. – should include attacks, defenses, and movement abilities. Impressive physical transformations are suitable, too. Choose mental abilities for their utility in action scenes; e.g., Danger Sense to detect ambushes, Mimicry and Illusion to confuse foes in combat, and Enhanced Tracking to aim weapons.

Powers for investigative genres (including most conspiracy and horror, and more cerebral science fiction) should focus on mental abilities – perhaps exclusively. Where attacks, defenses, movement abilities, or transformations exist, they should be incidental to the power, not its centerpiece.

2. Does it suit the realism level? In a "realistic" game world, abilities shouldn't *blatantly* violate physical laws or generate phenomena unheard of in nature. This rules out attacks, movement abilities, and physical transformations that involve massive amounts of energy (X-ray lasers, FTL flight, etc.) or outré effects such as intangibility and teleportation. Exceptions *must* be supernatural – and subject to real-world beliefs about the supernatural (e.g., "iron is proof against faerie magic").

In a "cinematic" setting, an ability merely needs to match the power's focus to be suitable. Rubber-science justifications and the extravagant excesses of myth are fine, as long as the result is *stylish:* Thundar the Storm God can fly and shoot lightning; Mindforce the psychokinetic super can hurl locomotives; and Ssthr the Reptile Man shaman can turn into a dragon.

3. Does it suit the secrecy level? If powers are a secret, they should consist of abilities that are undetectable or easily dismissed as coincidence: attacks that only affect enemies with powers or who are otherwise "in the know" (e.g., Static), defenses that can pass as luck (e.g., Resistant), mental abilities without obvious side effects (which excludes Telecommunication, Scanning Sense, and anything else that emits detectable energy), self-concealing physical transformations (e.g., Invisibility), and so on.

Bear in mind that neither "action-oriented" nor "cinematic" *automatically* means "obvious." A cinematic action game *can* be a secret-powers game. For instance, a martial-arts master in a violent cinematic campaign might have Telekinesis as a secret ability. It's invisible and impossible to prove – and also entirely unrealistic, and handy for bashing foes!

Racial Memory

Racial Memory might involve contacting spirits of the dead for counsel. If so, it's ideal for powers of a necromantic nature – spirit, magical, or otherwise. Alternative explanations tend to be psionic: usually ESP ("retrocognition"), but possibly Telepathy, if telepaths can read the minds of the dead or tap a "collective consciousness."

Senses

Extended senses are the most common mental abilities granted by powers. Almost *any* power that lets its wielder manipulate a focus will let him sense that focus, too. In the case of supernatural foci, powers that include communications and information abilities frequently bestow enhanced senses. Finally, it's traditional for animal-control and totemic spirit powers to provide the sensory capabilities of beasts.

Vision

Sight is the centerpiece of the human sensorium, which is probably why storytellers attribute so many unusual visual capabilities to those with amazing powers. Possibilities include 360° Vision, Dark Vision, Enhanced Tracking, Hyperspectral Vision, Infravision, Microscopic Vision, Night Vision, Penetrating Vision, Peripheral Vision, See Invisible, Telescopic Vision, and Ultravision. The Light power is the most obvious candidate for such traits, but many of these senses are equally logical as ESP abilities (ESP is called "second sight" for a reason!) – and Dark Vision suits Darkness power, Infravision suits Heat/Fire power, and so on.

Chi powers, too, can give the user an uncanny awareness of his surroundings. This might just be the Blind Fighting skill (p. B180), but a power that includes 360° Vision, Dark Vision, and Enhanced Tracking would cover that ground and more.

Hearing

Hearing is the "second sense" of humans, a status reflected in the relatively short list of hearing-related advantages: Discriminatory Hearing, Parabolic Hearing, Subsonic Hearing, and Ultrahearing. Such abilities might suit an elemental Sound/Vibration power, psionic ESP, or perhaps a specialized form of Psychokinesis ("sonokinesis").

Smell and Taste

Discriminatory Smell and Discriminatory Taste work best as abilities borrowed from beasts using animal-control powers. They might also result from a body-control power; a matter-control power that lets the user analyze and alter chemical compositions; or even a more narrowly focused chemical power.

Touch

Sensitive Touch and Vibration Sense extend the normal human sense of touch considerably. Either might suit Sound/Vibration power. These advantages also offer an interesting alternative explanation for chi-based sensory abilities, with Sensitive Touch allowing a martial artist to detect his opponents' subtle movements and Vibration Sense allowing him to fight blind.

Other Senses

A few senses aren't extensions of the five human senses so much as entirely new capabilities.

Clairsentience: This is the generic "sensing at a distance" advantage, suitable for *any* power that lets the user displace his consciousness. It's usually psionic – part of Astral Projection or ESP – but shamans with spirit abilities often possess it as well. It's hard to justify through non-supernatural means, but powers that deal in time and dimension travel might be able to warp space sufficiently to let the user perceive a distant location as if it were nearby.

Detect: A power with a given focus and source can usually detect one or both of those things – and perhaps related or opposed foci, too. Earth power should include Detect (Earth), Good power might encompass both Detect (Good) and Detect (Evil), and so on. Some foci require creative thinking; for instance, Healing power could allow Detect (Disease) or Detect (Poison), while a sea god might give his servitors Detect (Sea Creatures).

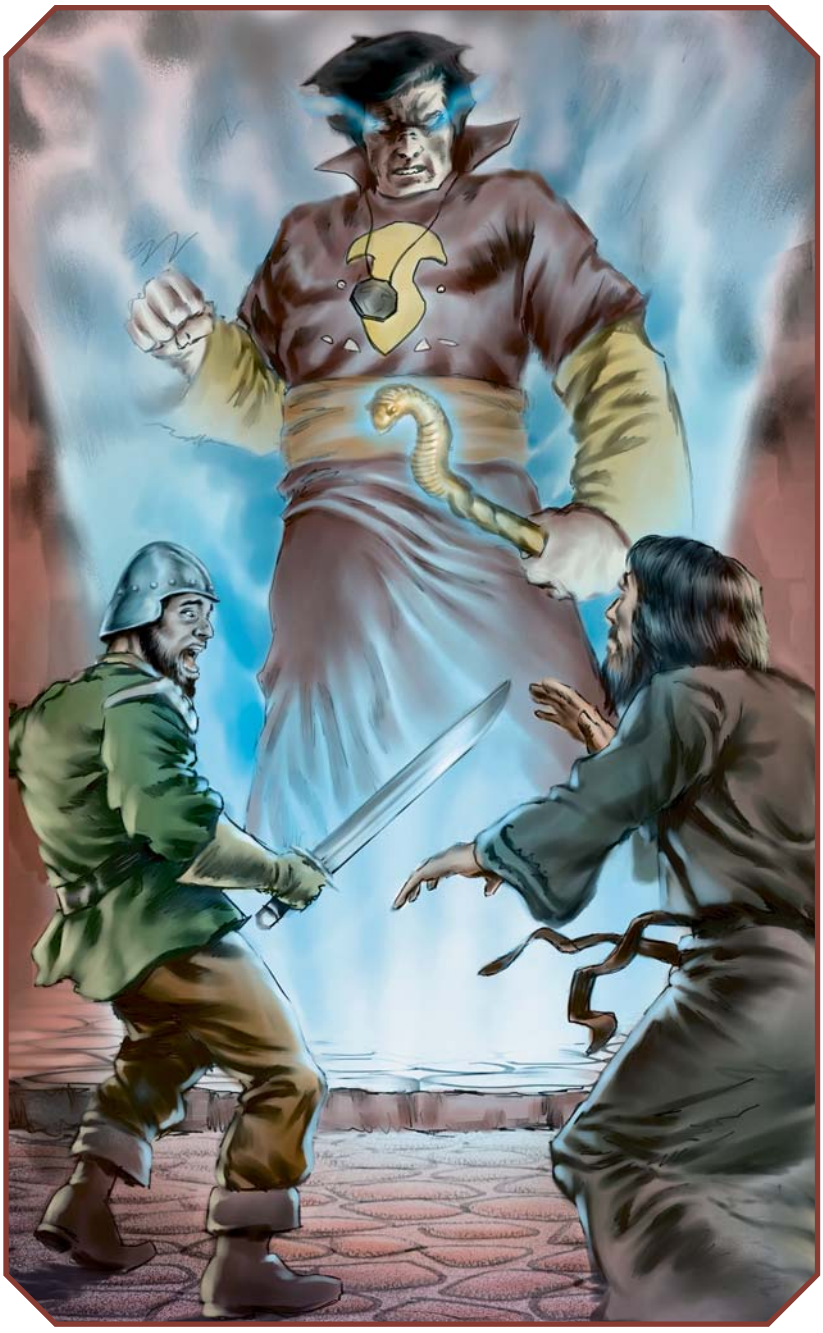
Scanning Sense: Radar suits Electricity power, Ladar fits Light power, and Sonar is ideal for Sound/Vibration power. There are some more subtle matches, too; for instance, a psi with Electrokinesis could justify Radar *or* Ladar, and someone with Water power might have Sonar to navigate underwater. Para-Radar, on the other hand, is nothing like these other senses, and almost always supernatural. It's most often associated with ESP or a form of divine or cosmic awareness.

Physical Transformations

A few abilities enable the user to alter the structure or composition of his body. These can benefit mobility (by letting the hero turn into a fish, sprout wings, become a ghost, etc.), stealth (by altering his appearance), and defense (by healing damage), among other things.

Nearly all of these abilities affect the user only. To transform others, the power must include an Affliction that has a suitable Advantage enhancement. Such Afflictions might accompany transformations that affect the wielder (typical of powers that *focus* on transformations) or replace them.

There's more to designing a power than choosing abilities that suit its source and focus. You must also ensure that its abilities work together as a set . . . and that they're appropriate for your game.



Metamorphoses

The most common transformations are those that allow the user to alter his body's size, shape, or physiology. In general, these *don't* affect composition – transformed people are still made of living flesh, vehicular transformers remain mechanical, and so on.

Chameleon and Elastic Skin

Powers that enable conscious control of the skin might incorporate either of these traits. This is typical of body-control powers – or of beast-control powers that let the user borrow the capabilities of squid, chameleons, etc. Such abilities might instead result from illusions that sit atop the skin, in which case they would be ideal for a dedicated Illusion power, or even a power granted by a mischievous spirit or demonic deceiver.

Growth, Shrinking, and Stretching

These advantages involve physically improbable size changes, and so are best suited to supernatural or cinematic powers. Growth and Shrinking occur frequently in myth; a divine power might let a man become a titan . . . or vice versa. Super-powers that bestow such abilities sometimes "conserve" mass by moving matter into or out of another dimension; thus, these gifts could occur as part of dimension-travel powers. A *cosmic* power, suitable for gods and godlike supers, might let the user convert matter to and from energy, or alter the fundamental scale of creation!

Hermaphromorph

Many spirits and deities seem to change sex at will, and might grant similar abilities to those they bless with powers. Body-control powers might also include this capability. Since Hermaphromorph results in a fully functional change, it *isn't* suitable for illusion and deception powers that merely alter outward appearance.

Shapeshifting

Alternate Form: This versatile advantage can occur as part of *many* powers. The most obvious of these are supernatural; for example, a divine power that lets a priest take on the forms associated with his god, or a spirit power that enables a shaman to become a totem animal. A dimension-travel power might give the wielder the ability to appear in different bodies, storing unused ones "elsewhere" for the duration. And a body-control power could give the user enough control that he can turn into something else.

Morph: All of the explanations given for Alternate Form work here, but Morph is far more flexible. It suits the most cinematic, open-ended forms of beast control and matter control seen in comic books, and provides the truest emulation of the capabilities of mythological shapeshifters.

Switchable Body Parts

Not all transformations are broad changes in shape or size. Many powers permit a few *specific* alterations in form. The GM may allow such advantages as Claws, Extra Arms, Extra Legs, Flight (Winged), Striker, and Teeth to have the Switchable enhancement (p. 109). Any power that can justify a total metamorphosis could reasonably grant such partial changes.

Transmutations

Some abilities *do* let the user alter his body's composition. These tend to be totally unrealistic, and best suited to supernatural powers and highly cinematic super-powers.

Insubstantiality

Interpreted as a spirit form, Insubstantiality suits the entire gamut of divine, magical, and spirit powers. It's also a logical ability for non-supernatural powers that focus on dimensional travel: the user moves into an alternate dimension where he can see but not interact with the "real" world. Four-color supers might even gain this ability from *elemental* powers, using Electricity power to become pure energy, Sound/Vibration power to oscillate out of phase with reality, and so on.

Insubstantiality is not always a transformation. It's sometimes the result of the Astral Projection power. This lets the user separate his consciousness from his material body, which remains unchanged.

Invisibility

Exotic body-control and matter-phasing powers can sometimes transmute the body into something transparent. However, two common explanations for Invisibility *don't* involve body alteration – they just create the *appearance* of a transformation. Chi-based powers and psionic Telepathy work by letting the user affect others' minds so that they don't seem him, while Light and Electrokinesis powers let him vanish by bending light around his body.

Meta-Traits

Any of the forms under *Elemental Meta-Traits* (p. B262) might be the result of a transformation. Such traits mainly suit supernatural powers associated with elemental forces or spirits – and of course elemental super-powers. Those who can switch into and out of these forms have Alternate Form, with the relevant meta-trait as their alternate racial template.

Shadow Form

When enabled supernaturally, this advantage usually represents a spirit form of some kind. The GM might wish to reserve it for powers that spring from sinister forces: black magic, foul spirits, the patron god of assassins, Evil embodied, etc. Shadow Form rarely occurs outside of settings that feature the supernatural, but if the GM allows a Darkness power, this ability certainly fits!

Restorations

Traits that keep the body in good repair are considered physical transformations: they transform the body from "damaged" to "whole" or let the user adjust his physiology to cope with injury, starvation, suffocation, etc. Such abilities are frequently manifestations of powers that channel chi, psionic energy, pure Good, or the blessing of a benevolent spirit or deity. Some supers use a "generic" Healing power that stems from none of these sources, however.

Healing

Healing is one of the few physical transformations that normally affect others. Divine, psionic, and spirit powers are the most common explanations. More unusually, those with time-warping powers might be able to hasten natural recovery by accelerating time – or by *undoing* the harm in the past.

Metabolism Control

Control over bodily functions (such as heartbeat) is one of the best-known abilities of those with chi powers – kung fu masters, yogi, etc. – and psionic healers. This gift rarely originates from other sources.

Regeneration and Regrowth

These abilities are generally just facets of the powers suggested above. An interesting alternative would be a dimension-travel or matter-control power that restores damaged tissue by channeling, converting, or creating matter.

Number of Abilities

A power should offer enough choices that those who possess it don't all seem the same, but not so many *potent* abilities that players come to see it as the only power worth having. Some guidelines for GMs:

- *Attacks:* Two attack advantages is plenty. To encourage player creativity, leave these reasonably general; e.g., "Any Toxic Attack, and any Affliction that causes an incapacitating condition."
- *Defenses:* Aim for two or three major defenses. A "major" defense is one that's open-ended (like DR) or that grants *total* immunity. Add minor defenses as you think of them – there's no need to count.
- *Movement Abilities:* Again, consider two or three *major* abilities. In this case, "major" means an advantage that lets the user move in an environment previously inaccessible to him (e.g., Flight) or that provides more-or-less unrestricted mobility (e.g., Warp).
- *Mental Abilities:* Include at most two or three potentially game-changing senses or communications abilities (e.g., Para-Radar or Telesend). Count potent influence abilities – for instance, Mind Control – as attacks. Make lesser abilities as numerous as you wish.
- *Physical Transformations:* Count any ability with significant combat utility – Insubstantiality, Invisibility, etc. – as a "major defense." Otherwise, there's little need to restrict these abilities; in fiction, most powers that allow body alteration permit *many* transformations.

These limits are only suggestions. If you decide to adhere to them, be open to horse-trading. You might reduce the number of major abilities in one category to add muscle to another. You might compensate for the complete absence of a particular category by adding major abilities elsewhere. Telepathy (p. 134) is a good example: its small number of highly specialized defenses and total lack of movement abilities and transformations balance an impressive list of influence and communications abilities.

Evaluating Power Modifiers

After determining which advantages best suit the power, it's time to work out the modifier that makes those traits part of the power. This enhancement or limitation is the *power modifier.*

The power modifier converts any advantage that has it into one of the power's abilities. If that's *all* it does – if it implies no additional restrictions or capabilities – it's worth +0%. This is comparable to the situation for advantages that don't belong to a power: the source is background color, a "special effect," and doesn't affect game play. The buyer pays the listed cost for the advantage and gets its benefits as written.

But a power's source or focus often suggests restrictions. Most powers let the user channel some kind of energy, and energy can run out . . . or be choked off at the source. If the power is supernatural, the wellspring might be *willful* – an entity that demands propitiation or attaches conditions to the gifts it bestows. Super-powers frequently have dramatic "fatal flaws." And all but the mightiest powers can meet their match in the form of manmade countermeasures or diametrically opposed powers. *Any* of these things would make the power modifier a limitation.

More rarely, the opposite is true, and the power increases the scope of advantages tied to it by letting them ignore built-in limitations or making them useful in situations where they normally wouldn't be. If so, the power modifier is an enhancement.

In all cases, the final value of the power modifier is found by adding up the individual limitations and enhancements it encompasses.

Countermeasures

A *countermeasure* is anything that blocks or negates an advantage or its effects. Even "wild" advantages (those not associated with powers) face countermeasures. For instance, Terror is worthless against those with the Unfazeable advantage, and someone with Night Vision can be blindfolded. But when a countermeasure that doesn't affect the wild version of an advantage *does* affect the version a power provides, that's a limitation. The size of the limitation depends on the nature of the countermeasure and how likely it is to appear during an adventure.

Mundane Countermeasures

If the power loses much of its utility – or just doesn't work – in a reasonably common environment likely to occur in nature, and enemies could exploit this weakness using only everyday items and knowledge (*not* just specialized technology or training, or other powers), add -10% to the power modifier. Individual abilities can't claim a further discount for an overlapping limitation such as Accessibility, Environmental, or Terminal Condition, however.

Example 1: Because fire requires oxygen, the GM may rule that *no* ability of the Heat/Fire power works without it. For instance, if the user is underwater or in a vacuum, he can't use his jet-like Flight, "ignite" his Body of Fire, or launch fiery Innate Attacks. Even if oxygen *is* present, his enemies might be able to extinguish his Body of Fire and blunt his attacks using water, sand, or a fire extinguisher. This gives a -10% limitation – and rules out Accessibility limitations such as "Not underwater" and "Not in a vacuum" on specific abilities.

Example 2: Sound/Vibration power requires the user to have a direct path through air, water, or another fluid to anything he wishes to affect. His Innate Attacks don't work in a vacuum, his Rapier Wit and Terror rely on subtle vibrations that radio can't transmit, and so on. In a soundproof room, his abilities would stop at the walls. These drawbacks add -10% to the power modifier – and individual abilities can't *also* claim "Only with a direct fluid path" as an Accessibility limitation.

As the examples suggest, this modifier suits elemental powers best. The GM may allow it for other powers. Neither an "environment likely to occur in nature" nor "everyday items and knowledge" is likely to affect a *supernatural* power . . . but "the will of a true king," "true love," or something similar just might. If the GM doesn't mind powers being contingent on intangibles, he's welcome to permit such things as mundane countermeasures.

Anti-Powers

If the setting includes natural or artificial countermeasures expressly intended to knock out the power – perhaps even *all* powers of the same source – that's a limitation. The size of the limitation depends on how extensive the countermeasures are:

- If the countermeasures are specific capabilities found only in the hands of those with unusual advantages (notably Neutralize and Static) or skills (including cinematic skills and magic spells), add -5% to the power modifier. For instance, the Dispel Magic spell (p. B250) and Mana Damper advantage (p. B67) can knock out magical powers, so magical powers can claim this -5%.
- If the countermeasures consist of specialized technology that works for anyone who possesses it (jamming fields, shield helmets, drugs that shut down the power or grant immunity to it, etc.), add -5% to the power modifier. For example, if particular drugs and frequencies of sound disrupt the biofeedback needed to make a body-control power work, the power gets this -5%.
- If *both* situations apply, add -10% to the power modifier. This is the case for psionic powers, which are blocked by Antipsi power (p. 122) *and* by shield helmets, dampers, etc. This is also true for "generic superpowers" (see *Super,* p. 29), which are traditionally subject to Neutralize, Static, and a plethora of weird-science gadgets.

These limitations *are* cumulative with the -10% for mundane countermeasures.

Opposed Powers

Some powers "oppose" others; e.g., Heat/Fire vs. Cold/Ice, Good vs. Evil, or Antipsi vs. any psi power. A power *might* be able to claim an opposed power as a countermeasure. The effects, if any, on power modifiers depend on how the two powers interact.

If it takes a specific, active use of one power to cancel out each specific, active use of another, *neither* power qualifies as an anti-power, and their power modifiers are unchanged. Consider Heat/Fire vs. Cold/Ice: the environmental effects of their respective abilities often cancel each other out, and fire and ice attacks might be able to shoot each other down (see *Defending with Powers,* p. 167), but neither power can completely prevent the other from working.

If a power is subject to mundane countermeasures that another power just happens to emulate, it gets only the -10% under *Mundane Countermeasures* (p. 20). There's no *additional* discount for the existence of a power that can exploit its flaws. For example, Heat/Fire power receives -10% because vacuum, water, and cold can negate it. It gets no extra bonus if Vacuum, Water, and Cold/Ice powers exist. Next to the world's oceans, the boundless vacuum of space, and so on, a few people with powers is insignificant.

An opposed power normally only counts as an anti-power if it contains Neutralize and Static abilities that can negate all of the other power's abilities at once. In this situation, the affected power *can* claim the -5% described under *Anti-Powers.* The number of anti-powers is irrelevant – the limitation is a flat -5%, not -5% per anti-power.

The GM may rule that other powers rate as anti-powers. Two possibilities are powers that offer Afflictions with Negated Advantage enhancements intended to cancel another power's Talent or abilities, and those that include Obscure for the express purpose of blinding a power that focuses primarily on enhanced senses. A power should never receive the -5% discount unless another power specifically targets it, though.

Bear in mind that a power can negate another power without being negated by it. For example, Antipsi interferes with Telepathy, but Telepathy doesn't foil Antipsi – indeed, *no* power can block Antipsi! On the other hand, fiction is full of powers that *are* mutual anti-powers (e.g., Good and Evil), in which case both powers have a -5% limitation.

No Countermeasures

Powers that face no countermeasures except those that affect the wild versions of their abilities add +0% to their power modifier. This is the "default" situation; it applies to *any* power that can't claim a limitation under *Mundane Countermeasures* or *Anti-Powers.*

Example 1: It's traditionally impossible to neutralize chi powers. Two such warriors can use their powers to block one another – and in most tales, the stronger fighter eventually exhausts the weaker. However, neither warrior can deprive the other of all of his abilities in an instant . . . and few legends suggest that mundane or technological factors can render such powers useless. Thus, chi powers get +0%.

Example 2: In myths where gods bestow powers upon their servants, no mortal can rob the blessed of their powers. Divine powers therefore have +0%.

The fact that a power faces no unusual countermeasures doesn't mean that its abilities can bypass things that would *normally* negate them. For example, if Invisibility belongs to a power that gets +0% for countermeasures, the *power* has no special flaws that people without See Invisible can exploit to see the user. This doesn't render Invisibility immune to its usual countermeasures, though – it's still useless against those with See Invisible, because that's a weakness built into the *advantage.*

A few powers – such as those of deities and godlike supers – *do* offer abilities that aren't subject to the countermeasures that affect wild advantages. For powers like this, the "countermeasures" aspect of the power modifier is actually an enhancement. This is the equivalent of the Cosmic enhancement (p. B103); therefore, we refer to such powers as "cosmic powers."

Cosmic powers add +50% to their power modifier. This lets their abilities ignore the things that normally block, shut down, or nullify wild versions of those traits, unless those countermeasures are themselves cosmic; e.g., only a cosmic barrier can block cosmic Insubstantiality and only cosmic vision can penetrate cosmic Invisibility. Furthermore, *nothing* can take away the wielder's power – his abilities work on *any* world he visits, are present in *any* body he occupies, and so on.

This power modifier counts as the first +50% of all Cosmic enhancements added to the power's individual abilities. For instance, if the ability includes an irresistible attack, it costs +250% over and above the +50% in the power modifier, for a total of +300%. See p. 101 for two additional versions of Cosmic useful when designing cosmic abilities.

The basic +50% for a cosmic power enables the power's abilities to work normally *against* attacks and opposing abilities enhanced with more expensive Cosmic options.

Required Disadvantages

Some powers stem from dedicated exercise, meditation, prayer, etc. The devotee walks a path that limits his freedom or puts significant demands on his time. In return, he enjoys special abilities. Should he deviate from his chosen path, he loses his power until he takes suitable steps to set things right. This might be merely inconvenient . . . or downright *dangerous.*

Anyone who wishes to possess a power like this *must* take certain self-imposed mental disadvantages (see p. B121) to reflect his dedication. The GM determines these traits – not the buyer. They are prerequisites for all of the power's abilities, and also for its Talent.

The most common "required disadvantages" are Disciplines of Faith and Vows – but Code of Honor, Fanaticism, Honesty, Intolerance, Sense of Duty, and Trademark are also appropriate. In general, required disadvantages should total between -5 and -15 points. See *Suggested Disadvantages* (below) for guidelines.

Required disadvantages give the usual number of points. This reflects their effects on the taker's day-to-day life – he *must* live up to the standards they demand. If he fails, he suffers whatever mundane effects the GM feels are appropriate: loss of standing in his religion or community, psychological breakdown, or just fewer bonus character points.

Since the power-wielder also loses his power if he falters, he has further to fall than an equally dedicated individual who lacks powers. This gives him a discount on the cost of his abilities. See *Required Behavior and Power Modifier* (p. 23) to work this out.

Suggested Disadvantages

Some powers require just one self-imposed mental disadvantage; others prescribe behavior complex enough to justify several. Below are suggestions that suit particular sources and foci. All have variable point costs. The more severe the disadvantage, the harsher the ultimate limitation will be.

Code of Honor, Honesty, and Sense of Duty

These disadvantages are appropriate for powers that emanate from gods or spirits that actively monitor their servants' moral conduct – that is, divine and spirit powers. The most likely result of a holy man failing to uphold his deity's moral code is the *immediate* and *total* loss of power. To recover his abilities, he must atone. This might include a time-consuming cleansing ritual, a sacrifice, or an ordeal (possibly involving privation or scarification).

-5 points: A Code of Honor or Sense of Duty that applies to a small group, such as "all shamans," would suit certain spirit powers and the divine powers of lenient deities. A "good" deity of this kind might instead require Honesty (15).

-10 points: A Code of Honor or Sense of Duty that affects a large group, such as every member of a religion, is appropriate for *most* divine powers. Honesty (12) is equivalent – again, mainly for "good" deities.

-15 points: Honesty (9), or a Code of Honor or Sense of Duty that applies to *everyone,* is only really suitable for those who wield the power of pure Good, or the divine powers of the most benevolent (or *just*) deities.

Disciplines of Faith and Vows

Disciplines of Faith and Vows often indicate a personal commitment to a program of diet, physical exercise, and meditation. This is the traditional origin of chi powers: the master balances *yin* and *yang* in every aspect of his life, and contemplates the nature of the universe. His efforts provide the physical and mental discipline that fuels his power. But should he neglect his exercises and meditation, his abilities will fail under stress! To recover them, he must spend time in contemplative isolation, or undertake a quest for "re-enlightenment."

These disadvantages can also be religious in character, and suitable for divine and spirit powers. In this case, use the point-cost guidelines under *Code of Honor, Honesty, and Sense of Duty* (above).

-5 points: Disciplines of Faith (Ritualism) is suitable for spirit powers. A minor Vow, such as chastity, fits almost *any* supernatural power, whether it comes from within or without.

-10 points: Disciplines of Faith (Monasticism) and (Mysticism) suit both chi and divine powers. Major Vows (e.g., "Never draw blood in battle.") also come in at this point level, and suit many divine powers.

-15 points: Disciplines of Faith (Asceticism) or a great Vow (e.g., "Only fight in self-defense.") would only be appropriate for divine powers granted by exacting deities – or for chi powers that demand complete, lifelong dedication.

Fanaticism and Intolerance

A few powers spring from the wielder's unswerving dedication to a set of beliefs rather than from his purity or enlightenment. This is typical of powers that focus on fundamental moral principles, such as Good and Evil, and of divine and spiritual powers given – often grudgingly – by amoral gods, primeval spirits, and Things Man Was Not Meant To Know. In fiction, such powers are nearly always *frightening,* whatever their moral bent.

Fanaticism demands unquestioning loyalty. If the fanatic refuses *one* order, makes *any* concession that might weaken his cause . . . he's cut off, and his abilities might even turn against him! Intolerance requires an active effort to convert, enslave, or destroy the target group. Any gesture of clemency leads to immediate power loss. In both instances, the nature of the needed reparations mirrors the harsh character of the disadvantage, with sudden injury or affliction being likely.

-5 points: Intolerance of one particular group – possibly fairly abstract (e.g., "Evil") – is suitable for many of the divine powers and pure moral powers of fantasy, which often rely on their opposition to some *other* force for definition.

-10 points: Intolerance of everyone who doesn't worship the same god is appropriate for almost any divine power. Fantasy tends to reserve this for evil deities; good deities are more likely to demand -10-point Honesty or Sense of Duty.

-15 points: Like other -15-point traits, Fanaticism only suits divine powers bestowed by demanding, judgmental deities. It's also a perfect fit for the powers of pure Good and Evil in settings where compromise is impossible.

Trademark

Trademark is the least common required disadvantage. It works just like the rest of these traits, but with a twist: the user must leave a physical sign of his work wherever he uses his abilities. Otherwise, his power fails him the next time he calls upon it. The *only* way to rectify the oversight is to return to the neglected site and mark it appropriately – which might prove difficult if it's a bloody urban battlefield crawling with detectives, or an enemy stronghold. This is most suitable for spirit powers.

-5 points: A simple Trademark might be a single rune or holy symbol, left behind by the user of a divine or spirit power to honor the entity he serves.

-10 points: A complex Trademark resembles a simple one, but the mystic marks are more elaborate and time-consuming, and might offer clues as to the ritualist's identity (his totem, tribal mark, etc.).

-15 points: An elaborate Trademark means the sorcerer must conduct a cleansing ritual after using his power in order to dissipate dangerous spiritual residues that could rebound upon him. He might leave behind fetishes, animal sacrifices, or his *own* blood.

Required Behavior and Power Modifier

If a power requires disadvantages, *any* violation of the behavior code that those traits imply costs the user all of his abilities. The limitation value depends on how taxing the code is, how rapidly the power departs after a transgression, and how difficult the power is to recover. The GM should calculate the effects of these factors on the power modifier using the following guidelines:

1. Choose the required disadvantages, normally worth between -5 and -15 points, and apply a limitation numerically equivalent to the point value of those disadvantages. For instance, a -10-point Vow is worth -10%. This part of the modifier is identical to the Pact limitation (p. B113); you can't take that a second time.

2. Decide on the speed with which the power vanishes (choose one):

- Gradually, with enough warning to escape a dangerous situation: +5%.
- Quickly enough to endanger the user in combat: +0%.

Add -5% if the power doesn't just vanish but *turns against the user!*

3. Determine the act necessary to restore the power (choose one):

- A day out of adventuring to pray, meditate, etc., or sacrifices worth a day's income: +5%.
- A week out of adventuring, or sacrifices worth a week's income; a minor quest; or minor harm (1d injury or an irritating affliction): +0%.
- A month out of adventuring, or sacrifices worth a month's income; a major quest; or serious harm (4d injury, crippling, or an incapacitating affliction): -5%.

4. Add all of the above together to find the final adjustment to the power modifier. If positive, reduce it to +0%. If a power requires minimal devotion, only departs gradually if the user neglects this, and returns if he takes a day to set things right, it isn't limited (the wielder can use it in the current situation and make amends before the next time he needs it) – but it isn't *more* useful than a power without this modifier.

It's possible to get large limitations – up to -25% – using these guidelines. The GM may allow such modifiers, but they're only appropriate for powers granted by a merciless god who would strike down his own servant for the slightest impure thought. The GM *must* enforce this . . . and the players have no room to complain, because they're getting a big discount on a wide array of useful advantages.

Channeled Energies

Every power involves directing *some* kind of energy. "Channeled energy" is energy that originates from a source outside the user. If an external influence can cut this off in transit, that's usually a limitation – for obvious reasons! To understand which powers qualify for this discount, though, it's necessary to know which ones *don't*.

Powers that originate from bioenergy, personal charisma, the mind, or the soul don't qualify, because the energies involved are *internal*. This definitely includes all chi and psi powers. The only external factor likely to interfere with a power like this is an anti-power (see *Anti-Powers*, p. 20). That's a different limitation, because it doesn't cut the target off from his power source – it just keeps him from directing it.

Divine powers don't qualify, either. A holy man *does* channel the will of his patron deity, but the only force that can intercept divine might in transit is another deity. Since a god has cosmic powers that can interfere with a lesser being's capabilities in any case, this weakness isn't a particular limitation of divine powers. A deity might cut off the powers of an unfaithful servant – but again, that's a separate limitation (see *Required Disadvantages*, p. 21).

Powers that only work in a particular environment also don't qualify. Heat/Fire power might not work without oxygen, Sound/Vibration power might fail without a medium to transmit it, and so forth, but such restrictions don't cut the user off from his power source – they limit his ability to *project* his power. See *Mundane Countermeasures* (p. 20) for the appropriate limitation.

This leaves two broad categories of powers that *do* qualify for this limitation.

Ambient Energies

A power might let its user shape and direct energy already present in the environment. In the absence of this energy, it *doesn't work*. The effect on the power modifier depends on how likely the user is to be cut off from his power source:

- If the power commands a form of energy that suffuses the entire universe, and that can't be screened out or drained by any means, add +0% to the power modifier. This is the case for cosmic powers that channel the energy of existence – the absence of which implies nonexistence, which makes power failure irrelevant.
- If the power directs energy that surrounds and permeates all things, and that only esoteric insulators or supernatural intervention or catastrophe can cut off, add -5% to the power modifier. A power that relies on the life force emanating from all living things or the psychic energy field set up by the minds of all sapient beings qualifies; so does a Gravity power that manipulates ambient gravity. This -5% also applies to powers that work at a penalty, or not at all, in certain *places;* e.g., magical powers, which rely on the area's ambient magical energy, or *mana* (see p. B235). A power that gets bonuses for location about as often as it gets penalties doesn't qualify – that's worth +0% (see *Zero-Cost Modifiers*, p. 27).
- If the power manipulates ordinary, natural energy that mundane insulators can block, add -10% to the power modifier. This might be true for certain elemental powers, such as a Light power that lets the user shape ambient light or a Radiation power that concentrates and directs cosmic rays.

Fiction often fails to distinguish these things from countermeasures. Anything that could be an esoteric insulator *or* a technological countermeasure gives -5%; anything that could be a mundane insulator *or* a mundane countermeasure is worth -10%. A power can only claim one limitation per shortcoming – the GM decides which.

Fickle Forces

A few powers channel *willful* energies. The user petitions some kind of intermediary to invoke his power. The game effect is that he must make a reaction roll whenever he wishes to use one of his abilities. Normal reaction modifiers don't affect this roll; neither does Talent. The GM may apply situational modifiers, of course.

Such powers have the Fickle limitation (p. 110), which adds -20% to the power modifier. Fickle is intended chiefly for spirit powers, and is most suitable for powers that command *capricious* spirits: demons, faerie, loas, etc. Powers granted by angels, genii, totems, and the like tend to have required disadvantages instead. Of course, a given spirit power could have *both* limitations!

The GM is free to allow Fickle on any power. It fits many visions of magical powers – even those that don't involve spirits. However, it's rarely suitable for divine powers, save perhaps those granted by tricksters. Required disadvantages are much less random, and better suit the decisive nature of most deities.

Every power involves directing some kind of energy.

Other Factors

The possibilities discussed so far are merely the most common components of power modifiers. The GM is free to add an enhancement if the power is hard to counteract, or if its abilities are otherwise better than wild advantages. Conversely, he might assess a limitation if the power isn't always available, or if its abilities are somehow *less* useful than normal.

Discretionary modifiers must be balanced with respect to standard ones. A good way to ensure this is to base them on the general modifiers in Chapter 2 and the ***Basic Set.*** If *all* of a power's abilities have an ordinary enhancement or limitation, make this part of the power modifier. Doing so has the additional benefit of making the power modifier "shorthand" for a long list of modifiers.

A few examples:

- *Accessibility:* Most GM-defined limitations fall into this category, and affect *when* or *where* the power works. Try to keep the value between -10% and -30%. Limitations that restrict the power to certain targets are only appropriate if *all* of the power's abilities affect others.
- *Costs Fatigue:* This is one way to balance powers against cinematic skills and spells that cost FP. It adds -5% per FP per use – but note that continuing effects follow special rules (see p. B111). If the FP *must* come from an Energy Reserve (p. 119), rendering the power ineffective when the ER is empty, add a further -5%.
- *Nuisance Effect:* A power's abilities might have negative side effects. Be creative! For instance, using each ability might trigger a distinct, loud tone, interfering with stealth and social interaction, and letting the hero's enemies know what he's up to. Most Nuisance Effects are worth -5%.

Finalizing the Modifier

After calculating individual modifiers for countermeasures (or *no* countermeasures), required disadvantages, channeled energies, and anything else you wish to consider, add them together to find the final power modifier. There are no firm limits on this, but there are practical reasons to keep *limitations* between -10% and -20%.

A -5% limitation simply isn't *meaningful* on an advantage worth less than 20 points – point costs round *up,* so 5% off a cost under 20 points means paying full price. Since few players will suffer the restrictions of a limitation without receiving a discount, a -5% limitation encourages players to ignore appropriate and interesting low-cost traits. By contrast, a -10% limitation is meaningful for advantages worth as little as 10 points, and a -20% limitation is significant for traits down to 5 points.

And of course since players *are* frugal with points, the more substantial the discount, the more likely the limitation – and hence the power – is to see use. If you end up with a -5% limitation, consider going back and finding another -5% or more.

If you *want* a trivial limitation, dispense with formal limitations and make the power modifier +0%. That way, the power's abilities are no less useful than wild advantages worth the same number of points, and the players won't be faced with a restriction that doesn't give a fair discount. For more on this option, see *Zero-Cost Modifiers* (p. 27).

Power modifiers much beyond -20% also have problems. Many special limitations are worth -50% or -60% . . . but since a net limitation more severe than -80% becomes -80%, players may avoid these interesting options if the power modifier is large. In fact, suffering the restrictions of -85% or more in limitations in return for an 80% discount is the kind of rotten deal that can steer players away from the *power.* Some will compensate by adding heaps of inappropriate enhancements to balance the limitations, which can ruin character concepts.

Quick Reference: Power Modifiers

When calculating power modifiers, it's useful to have all the numbers in one place. Unless indicated otherwise, all modifiers are *cumulative.*

Channeled Energies
Ambient energies blocked by (choose one):*
Esoteric or supernatural item/condition: -5%
Mundane item/condition: -10%
Fickle: -20%

Cosmic Power: +50%*

Countermeasures*
Mundane countermeasures: -10%
Special advantages or skills: -5%
Technological countermeasures: -5%

Required Disadvantages
Code of conduct: Point value of required disadvantages, expressed as a percentage.
Power disappears (choose one):
Gradually: +5%
Immediately: +0%
Power turns against user: -5%
Restoration requires (choose one):
A day: +5%
A week, a minor quest, or minor harm: +0%
A month, a major quest, or serious harm: -5%

* Cosmic powers can neither be blocked nor have countermeasures.

In addition, when a severe limitation is rigidly enforced, it tends to limit an advantage so much that it's no longer fun. When it *isn't* enforced, some PCs get a free lunch, which can unbalance the game. Either outcome is bad – but it's especially damaging in the case of powers, as the effects extend across *many* advantages.

In general, if a power modifier is a limitation more severe than -20%, consider paring it down to -20% by removing elements that aren't truly necessary to convey the "feel" of the power.

Giving It a Name

Give each power modifier a unique name. Make this descriptive, so that it's clear which power it represents: Animal Control, ESP, Good, Light, Magical, Power of Thor, Psychic Healing, Psychokinesis, Telepathy, etc.

Sample Modifiers

Below are examples of power modifiers appropriate to broad categories of powers. They attempt to stay true to the way novels and movies depict those powers. Each lists its individual subcomponents to make it easier to customize and to demonstrate the principles of design. The overall modifier is the sum of these parts – don't apply the component modifiers a second time! Be sure to change the generic names to suit specific powers.

Biological

-10%

Your power is a physical capability of your body. It's fatiguing to use because your metabolism must supply *all* of the energy: pay an extra 1 FP whenever you use an active ability (Costs Fatigue, 1 FP, -5%). Anything that upsets your unique metabolism might deprive you of your power – including targeted pathogens, drugs, and nanotech designed by your enemies (technological countermeasures, -5%).

Chi

-10%

Your power emanates from your life force – a mysterious energy often called *chi* or *ki.* To strengthen your chi to the point where you can channel it for superhuman feats, you must engage in exercises and meditation for a few hours each day. This requirement is a -10-point disadvantage (-10%), most often Disciplines of Faith (Monasticism or Mysticism) or a comparable major Vow. Should you neglect this, your power fails you the first time you call upon it under stress (+0%). To restore it, you must take 1d days to rebalance your chi (+0%). Until you do, you feel ill; the GM should choose one of these afflictions from *Irritating Conditions* (p. B428): Coughing/Sneezing, Drowsy, Nauseated, or Pain.

Cosmic

+50%

Your power originates from the energy of creation! Your abilities ignore the ordinary countermeasures that work against wild advantages, and you *always* have access to them – nothing can neutralize your power or cut off its energy source. This is identical to the +50% level of the Cosmic enhancement on p. B103. If you have individual abilities with more expensive versions of Cosmic, your power modifier only covers the first +50% of their value; after that, you must pay for Cosmic normally.

Divine

-10%

A deity grants you your power. Nothing can prevent your god's power from reaching you . . . but your patron expects certain behavior in return. The precise details depend on your god.

A good god expects you to lead a virtuous life. The required moral code is a -10-point disadvantage (-10%), typically Honesty (12), Sense of Duty (Coreligionists), or a major Vow. Should you transgress, your god will suspend your power – but since he's benevolent, he won't cut you off if this would endanger you (+5%), save for the most egregious of sins. To make amends, you must offer *significant* penance: up to a month of fasting, questing, or equivalent (-5%).

An evil god lets you do as you wish, provided you make suitable sacrifices, corrupt the innocent, etc. These

Zero-Cost Modifiers

A power modifier can be +0%. This means that, on average, the power's abilities are neither better nor worse than wild advantages. It doesn't mean that they are *identical* to wild advantages.

A power might end up with a +0% modifier because its benefits and drawbacks cancel out. Whether this is by design or coincidence, it's important to spell out the effects to keep players from assuming that zero cost implies zero effect. For instance, Things Man Was Not Meant To Know might grant cultists an unstoppable power (Cosmic, +50%), but they might be fickle (-20%) and demand extremely strict behavior (-25% for required disadvantages) – and using the power might have unpleasant consequences (Nuisance Effect, -5%). The total modifier is +0%, but certainly not *irrelevant!*

The rules for countermeasures, required disadvantages, and channeled energies can also result in a +0% modifier. A power might face countermeasures different from but no more common than those that affect wild advantages . . . or require minor upkeep that the user can safely put off for a day . . . or channel energy that isn't prone to interference. All of these things are worth +0%, but you should still note them, because they can matter in play.

Finally, the GM can add a +0% modifier as a "special effect," possibly for the sole purpose of marking the power's abilities as part of the power. Even then, the modifier isn't *irrelevant*. If nothing else, it determines which advantages benefit from the power's Talent and what traits those who have the power can add later on (see *Adding and Improving Powers,* p. 33). It might even make the power mutually exclusive with some other power.

requirements are worth -10 points (-10%), most often in the form of Intolerance or a heinous major Vow such as "Kill someone on the night of the full moon." If you forget, your deity will revoke your power *instantly* (+0%). It will turn on you in horrible ways until you make amends (-5%). A single killing or desecration will get you back in favor – since you've already sold your soul, this should be easy for you (+5%).

An ineffable force of nature only rarely concerns itself with mortal affairs, leaving you free to act in its name as you see fit. But it *has* principles – often strange, confusing ones – that constitute a -10-point disadvantage (-10%), perhaps a Code of Honor such as "Respect nature, and violently oppose those who do not" or a complex Trademark that few can understand. It will immediately cut you off for any perceived improbity (+0%). To get back in good standing, you must complete a minor quest (+0%) suggested to you through omens.

Elemental

-10%

Your power lets you manipulate an "element": one particular kind of natural matter or energy, or its absence. Examples include Air, Cold/Ice, Darkness, Earth, Electricity, Heat/Fire, Light, Radiation, Sound/Vibration, and Water. This power *isn't* psionic or channeled from an elemental god; powers like that are Psionic or Divine, respectively. Instead, you're cosmically attuned to your element; in effect, you *are* an elemental spirit.

The GM should choose a mundane countermeasure *or* insulator that can interfere with your elemental energy. Either way, this is worth -10%. If your element would not logically merit the full -10% for countermeasures or channeled energies, the GM may rule that this limitation is a little of both. It's fairest if every elemental power is more or less equally limited.

Magical

-10%

Your power channels ambient magical energy (*mana*). This is difficult to block and found almost everywhere. "No-mana zones" – areas where your power doesn't work at all – occur only rarely in nature. However, *low*-mana zones are more common, and all rolls to use your abilities are at -5 in such regions. This aspect of the limitation is worth -5%.

In addition, a variety of anti-powers can thwart your abilities. The Mana Damper advantage simulates the effect of a low- or no-mana zone, while Magic Resistance shields others from your attacks. Moreover, spells that dispel or protect against magic affect your abilities exactly as if they were spells. This is worth another -5%.

This modifier is identical to the Mana Sensitive limitation on p. B34.

Moral

-20%

Your power comes from some cosmic moral principle – Chaos, Evil, Good, Order, etc. – that transcends the mortal and even the divine. This isn't a true cosmic power . . . it's more like *half* a cosmic power, because it has an opposing anti-power (-5%): Chaos vs. Order, Evil vs. Good, and so on. This anti-power offers its wielders Neutralize and Static abilities (and perhaps other gifts) that they can use against you. Your power gives you similar weapons, of course.

Your ability to tap this power stems from your dedication to a moral code, to which you must adhere at all times. This is a -15-point disadvantage (-15%), usually Fanaticism – although Honesty (9) or Sense of Duty (Humanity) is just as likely for Good. If you falter, even for a moment, you lose your power instantly (+0%). To get it back requires an extreme demonstration of commitment that costs at least 2d days of lost time or earnings (+0%). Details are up to the GM, who should pick something appropriate to your power; e.g., a large donation to charity, for Good.

This modifier only exists in settings with absolute morality, where moral forces battle openly in the world and are both tangible and detectable.

Nature

-20%

Your power channels the vital energy that surrounds all living things. This exists even in the driest deserts and on the most barren peaks, but the ravages of civilization interfere with it, acting as a mundane insulator against your power (-10%). You're at -1 to use your abilities in a despoiled wild place such as a clear-cut forest, -3 in a city, -5 amidst ordinary pollution, and -10 in a poisoned wasteland.

Technology – not technological countermeasures, but *any* technology – also impairs your power. In effect, it's a mundane countermeasure (-10%). You're at a penalty equal to *half* the TL (round up) of the most advanced manufactured item you're carrying, wearing, or riding in or on. Use the *full* TL of implants. Thus, a TL3 sword gives -2, while a TL8 pacemaker gives -8.

An ability that requires no die roll loses 10% of its effectiveness (bonus to reactions or skills, DR, etc.) per -1 instead. If the penalties total -10 or worse, you're *powerless*.

This modifier best suits Animal Control, Plant Control, and Weather Control powers.

Psionic

-10%

Your power is an innate capability of your mind. The energy comes from within, but a large number of countermeasures exist, including anti-powers in the form of Antipsi power (-5%) and technological countermeasures in the form of "psychotronic" or "psi-tech" defenses (-5%).

The ***Basic Set*** includes several specific examples of psionic powers: ESP, Psychic Healing, Psychokinesis, Telepathy, and Teleportation.

Spirit

-25%

Your power comes through commanding spirits: you give orders and the spirits do the work. Since only those with powers of their own are likely to realize this, it's often hard to distinguish your abilities from chi, psi, etc. But there are some important differences.

Stacking Power Modifiers

A power modifier works like any other limitation or enhancement. It obeys all the usual rules for modifiers. It applies to *all* of the power's abilities (but *not* to its Talent, required disadvantages, or Unusual Background, if any).

If an ability has other modifiers, add the power modifier to them normally. For example, an advantage with +150% in enhancements and -50% in limitations would cost +100% – but as the ability of a power with a -10% power modifier, its final modifier would be +90%.

Power modifiers *aren't* exempt from the rule that modifiers can't reduce cost by more than 80% (see p. B110). If the total modifier on a given ability, *including* the power modifier, is worse than -80%, treat it as -80%.

No advantage can have multiple power modifiers. (*Exception:* A power can be both Elemental and Super.) It's legal to have multiple *powers,* but their modifiers never apply simultaneously. When someone takes an ability that several of his powers have in common, he must decide which power it comes from and apply the modifier for *that power only.* If he wants the ability for more than one power, he can buy multiple copies – see *Uniqueness* (p. 12).

The discount pricing schemes under *Uniqueness* and *Alternative Abilities* (p. 11) use the final, modified costs of the traits involved. Add all modifiers, including power modifiers, to all relevant abilities, and *then* apply any special discount.

Spirits are *fickle* (-20%), and whether they answer your summons at all depends on an unmodified reaction roll. You can command them, but you must show basic respect. This imposes a -5-point disadvantage (-5%) – typically Disciplines of Faith (Ritualism), Sense of Duty (Servitor Spirits), or a simple Trademark in the form of a small offering or token. If you fail to live up to this, the spirits turn against you, depriving you of your power at the worst possible moment (-5%). Since they ultimately *want* you to turn them loose on the world, though, it's easy to make amends – a minor sacrifice, such as a food offering, is usually enough (+5%).

The spirits associated with an individual ability might be more or less friendly, giving from -4 to +4 on reaction rolls. If so, that one ability has an extra -5% modifier per -1, or +5% per +1, on top of the basic power modifier that applies to all abilities.

In some settings, spirits aren't this capricious and the GM might dispense with the reaction roll. This reduces Spirit to -5%.

Super

-10%

Your power is a "generic super-power." Details depend on the game world. What's common to all such powers is that they face Neutralize and Static – as wild advantages and as part of various anti-powers (-5%) – and that weird-science devices built by gadgeteers can block them or even steal them (-5%). In effect, this is just a special form of the Psionic limitation. In many settings, the two are one and the same.

Certain super-powers are subject to mundane insulators or countermeasures that limit their ability to affect the world. For instance, being underwater might be as effective as Static or a power-suppressing serum for negating a fire-related power. If your power is like this, you may give it both the Super *and* Elemental modifiers. This is an exception to the restriction against "stacking" power modifiers.

Pricing Talents

The final component of a power is its Talent. This advantage comes in levels and gives a bonus equal to its level on *any* success roll made to use *any* of the power's abilities. This includes DX rolls to maneuver with movement abilities; Innate Attack skill rolls to hit with attacks; IQ, Will, and Perception rolls to use mental abilities; and any other success roll the GM requires for the power.

Talent doesn't modify rolls for the *effects* of abilities; e.g., damage rolls, the target's resistance roll, or rolls on the *Fright Check Table* (p. B360). It applies only to success rolls made by the user. Talent doesn't normally modify reaction rolls, either, but the GM might make exceptions for entities directly conjured by the power (such as Allies with the Summonable enhancement) and beings associated with the power's source (such as angels that serve the god behind a divine power).

Talent also doesn't affect rolls to work around limitations on the power's abilities. For instance, it doesn't benefit the activation roll called for by the Unreliable limitation. In particular, it never affects the reaction roll required for fickle channeled energies, even if the GM rules it affects *other* reaction rolls.

Talent for a power only gives a bonus with the abilities of that one power. Since individuals with multiple powers must assign each of their abilities to a specific power, no die roll ever benefits from two or more Talents.

To prevent heroes from becoming too capable, and to avoid watering down the value of attributes and skills, the GM should set a limit on how many levels of Talent are available. Four levels – just as for mundane Talents (see p. B89) – is reasonable for most games. In highly cinematic games, the GM is free to allow as much Talent as he can tolerate.

Most Talents cost 5 points per level. A Talent with a wide range of applicability, comparable to Magery, costs 10 points/level. Talent for a power so broad as to encompass nearly anything (e.g., "Cosmic Talent"), or that otherwise transcends the normal limitations of source, costs 15 points/level. No modifier of any kind ever applies to the price of Talent.

In highly cinematic games, the GM is free to allow as much Talent as he can tolerate.

Existing Advantages as Talents

The GM may opt to interpret advantages from the ***Basic Set*** as Talents for suitable powers. To qualify, a trait must come in at least four levels that cost between 5 and 15 points apiece, act mainly as an aptitude that gives a bonus to some kind of success roll, and *not* be appropriate as the ability of a power in its own right.

Most importantly, the advantage must suit its new role! The best examples are Magery (*without* any special modifiers) as Talent for a magical power and Power Investiture as Talent for a divine power. Even mundane Talents may be suitable; e.g., the GM might rule that Green Thumb represents Talent for a plant-control power.

This is a useful tool when introducing powers into a campaign that formerly lacked them. For instance, a traumatic supernatural ordeal might lead a mage to discover how to use the abilities of a magical power . . . because he had its Talent all along.

The GM can get creative, too. For example, he could use these rules to model *political* power, with nations for sources and economic and military interventions as abilities. What would be appropriate as Talent? Status, of course!

Identifying an existing advantage as the Talent of a power doesn't change its point cost.

Relationships Between Powers

Once you know a power's source, focus, abilities, power modifier, and Talent, you have everything you need to start using it in play – *if* it's the only power in the campaign, or one of a small number of intentionally unrelated powers. If the game incorporates *many* powers that are likely to interact with one another, though, things will run more smoothly if there's an overarching logic to it all. This sometimes means revisiting a few powers to do a little "fine tuning."

Powers With Similar Sources

In fiction, powers with similar sources often differ in focus and have dissimilar abilities. They might even oppose one another. But they generally resemble each other in *composition*. In game terms, they offer comparable options during character creation: they're close in scope, their power modifiers are equal in value (if not effect), and their Talents have the same price. Thus, two characters with the same number of points to spend on a power will enjoy about the same degree of flexibility no matter which power they choose. Below are three cases of particular importance.

Elementals

In settings with elemental powers, individual powers should have roughly the same number of abilities per major category. Each power might include Alternate Form combined with the appropriate elemental metatrait; Create, Control, and Detect with respect to its element; Innate Attack for lethal elemental bolts; one of Binding or Obscure as a nonlethal attack; a suitable movement ability, such as Tunneling for Earth or Flight for Air; and DR with the Limited modifier for that one element.

Variations are reasonable – perhaps even desirable – as long as they're *balanced*. For instance, if one of the above abilities doesn't make sense for a particular element, its power should get a suitable replacement (e.g., Sound/Vibration power might get Mimicry instead of Alternate Form). And to keep things interesting, each power ought to have a list of unique abilities, too – but these lists should be comparable in scope.

To keep one element from seeming obviously "better" or "worse" than the others, use the Elemental power modifier (p. 27) for *all* of these powers. Spell out its precise effects in each case. Finally, give each power a Talent – Heat/Fire Talent, Sound/Vibration Talent, etc. – priced in line with the scope of elemental powers in general, so it costs the same in all cases.

The Pantheon

If the game world features many divine powers, each should mirror the sphere of influence of the deity that bestows it. This means that abilities will vary widely from power to power. For instance, Innate Attack is fine for the Fire God, the Death God, and the God of War, but hard to justify for the Patron God of Masons, and just silly for the Goddess of Healing. But the Goddess of Healing might be the *only* deity who grants the Healing advantage!

It's still important to make the powers comparable in scope. Perhaps each god offers five Great Blessings (or Curses) and 10 Lesser Blessings, or a different ability for each of the 13 lunar months, or some similar arrangement. It *shouldn't* be possible to tell which god is most influential just by looking at what faithful mortals can do . . . not unless you intend that as part of the setting!

A few abilities should be common to *all* divine powers. Details depend on the genre and game world; for instance, in fantasy settings, Blessed and True Faith seem almost universal. Of course, these abilities are likely to manifest differently from deity to deity, and it's important to note the differences.

Once again, power modifier and Talent shouldn't vary from power to power. All divine powers call for the Divine modifier (p. 26), suitably renamed (e.g., "Power of Thor"). Use Power Investiture (p. B77) as Talent; most divine powers are sufficiently broad in scope to justify the expense (10 points/level).

Moral Forces

Moral powers are in many ways a hybrid of the elemental and the divine. On one hand, they deal with "elemental" Good, Evil, Order, Chaos, etc., and like true elemental powers, should include a shared tool kit of abilities that channel their respective foci. In a cinematic setting, this analogy might be complete, with moral powers offering Innate Attack (bolts of power for smiting foes in the eternal struggle for the hearts of men) – and even Create and Control, if the GM wishes to define them.

On the other hand, moral forces – like deities – have different spheres of influence in the world, so the associated powers tend to have unique capabilities, too. For instance, abilities that pertain to light, healing, and warmth suit Good, while those that deal in darkness, harm, and cold befit Evil. All that matters is that the powers are comparable in scope, and that power modifier (see *Moral,* p. 27) and Talent are identical in size for each power.

Power vs. Power

It's also important to consider which powers can cancel out which other powers – and how. Below are the two most common cases. For more information, see *Opposed Powers* (p. 21).

Opposing Foci

If two powers have opposing foci – Light and Darkness, Heat/Fire and Cold/Ice, etc. – but neither can disempower users of the other, there needn't be any game effect. But it's more *fun* if those with such powers can use their abilities to "block" and "parry" one another (see *Defending with Powers,* p. 167) – and in fiction, it's often *impossible* for an individual to possess both powers. Either consideration merits a brief note in the power description.

However you handle it, there's little need to revisit the abilities, power modifier, or Talent of either power . . . although the game will be more exciting if you go back and make sure that the powers have a few abilities that can shoot each other down or cancel each other out in battle!

True Anti-Powers

If the campaign includes powers that receive a discount for having an anti-power (see *Anti-Powers,* p. 20), the implications are more profound: you must create an entire anti-power. At minimum, an anti-power needs Neutralize and Static against any power that names it as a countermeasure. Most anti-powers include other "anti-abilities" as well: Resistant, Obscure, Afflictions that negate abilities or Talent, etc. Further details depend on the nature of the anti-power.

Structure Within Powers

The GM needn't let those who possess a power spend points freely on any of its abilities. Some *reasonable* restrictions can curb abuse and give the power more depth. A few suggestions appear below. These assume that powers are just about the only way to acquire exotic and supernatural advantages. They're meaningless if *every* advantage is available "in the wild."

These stipulations *don't* make the power cheaper. If nothing else, access to the special options in Chapter 4 more than makes up for them. Be sure to note all applicable restrictions and options in the power description – they're as much a part of the power as the abilities themselves.

Prerequisites

Some abilities have other abilities or a minimum level of Talent as prerequisites. To be able to purchase advanced abilities, the buyer must first get the basics. The power might have *several* chains of prerequisites, which might run parallel to one another or converge at the power's "apex" abilities. Usually, the more expensive and powerful the advantage, the further up a chain it is.

A given ability is likely to have a different set of prerequisites for each power that offers it . . . and might itself be a prerequisite for something different in each case. The abilities of one power *never* count as prerequisites for those of another power!

Secret Abilities

Not every user is aware of all of the power's abilities. Perhaps the force that grants the power or the teachers who instruct others in its use deliberately keep the most potent abilities secret, or perhaps certain abilities have been forgotten – or haven't been discovered yet.

A power like this has two lists of abilities: a "public" one, known to all users, and a "secret" one, known only to the GM. To gain access to deliberately hidden abilities, the hero must first prove his worth to his god, masters, etc., or achieve a minimum level of Talent. To discover forgotten or unknown abilities, he must research them.

The GM should decide what specific deeds, skill rolls, and prerequisite traits unlock the abilities on the secret list. Those who wish to *start* with secret abilities must buy an Unusual Background.

Level Limits

Users can't spend as many points as they wish on open-ended abilities or those that come in levels. Instead, each trait has a maximum point expenditure or level – GM's decision – and this defines the limits of the power's capabilities.

Level limits might apply across the board to all users ("Maximum Innate Attack is 8d.") or depend on the user's Talent ("Maximum Innate Attack is 2d × Talent."). They might also vary between powers; for example, the destructive power of Chaos might leave Innate Attack open-ended but limit Damage Resistance, while the protective power of the Mother Goddess might do just the opposite.

Required Modifiers

Particular advantages must have certain modifiers to qualify as abilities of the power. General limitations that apply to *all* of the power's abilities are just part of the power modifier, but the power's source or focus imposes additional modifiers on *specific* abilities.

Required modifiers are frequently enhancements. These make abilities more expensive – which in turn helps curb abuse. For instance, the attacks of cosmic powers must take a +50% or +250% enhancement over and above the power modifier to be lingering or irresistible (see *No Countermeasures,* p. 21).

Required modifiers might instead be limitations. These give the GM a way to control the affected ability in play. For example, the Telekinesis advantage must have the Magnetic limitation when it occurs as part of the Magnetism power.

One-Way

Some anti-powers are strictly one-way: they negate other powers, but nothing negates them. To prevent those who have such powers from striking with relative impunity, which is neither fair nor fun, special design considerations are in order.

A one-way anti-power should *only* include anti-abilities. Since it's almost by definition immune to things that interfere with powers, its power modifier should never be less than +0%. Particularly far-reaching anti-powers might even qualify for the +50% Cosmic enhancement! Finally, the power should be mutually exclusive with any power it negates . . . and perhaps even with *all* other powers.

Contrary to the Antipsi power on p. B255, though, it *isn't* an absolute requirement that powers like this lack a Talent. Many anti-abilities are active, not passive – and even those that are "passive" can be used actively to perform the special feats in Chapter 4.

For examples of powers like this, see *Anti-Magic* (p. 121), *Antipsi* (p. 122), and *Anti-Super* (p. 122).

Two-Way

Not all anti-powers have "negating other powers" as their sole focus. Many are broader powers that happen to include the capacity to disrupt another power – and the flaw that another power can disrupt *them*. There are many possibilities: a pair of opposing foci taken to an extreme (A negates B, B negates A); powers arranged in a "ring," with each power affecting one other (A negates B, B negates C, C negates A); or something more complex.

Be sure that a two-way anti-power possesses abilities that can interfere with the power it's supposed to negate. It might include other abilities, too; this isn't particularly unbalanced, since another power can negate it. For instance, Good and Evil powers might include Neutralize and Static with respect to one another as well as the other abilities mentioned under *Moral Forces* (p. 30).

When calculating the power modifier for such powers, take care that it includes the -5% discount for an anti-power. Some of the modifiers on pp. 26-29 already include this.

Powers, Great and Small

Ordinarily, two advantages that interact in a particular way in their wild form interact no differently when one or both belongs to a power – even if their power sources are very different. For example, Mind Shield resists *all* mental attacks, of any source, whether it's a wild advantage or a chi, psi, or magical ability. Similarly, Damage Resistance subtracts from the damage inflicted by Innate Attack, regardless of the source of either trait, unless the DR is limited not to work against the attack or the Innate Attack is enhanced to bypass DR. Cosmic powers are the sole exception; see p. 21.

If you wish, though, you can set things up so that certain powers operate on a higher plane than others. To do so, arrange the powers into "tiers." Whenever a power interacts with a higher-tier power, treat the higher-tier power as if it were cosmic. For instance, if there are three tiers, then bottom-tier See Invisible can only defeat bottom-tier Invisibility; middle-tier See Invisible can pierce bottom- *or* middle-tier Invisibility; and top-tier See Invisible can penetrate *any* Invisibility.

In this model, *truly* cosmic powers add +50% to their power modifier and are superior to all other powers. The "least" powers add +0% and are inferior to all others. Powers in between add an intermediate value that depends on which tier they occupy and how many tiers there are, as follows:

Two tiers: Tier 1 (Cosmic), +50%; Tier 2 (everything else!), +0%.

Three tiers: Tier 1 (Cosmic), +50%; Tier 2, +25%; Tier 3 (least), +0%.

Four tiers: Tier 1 (Cosmic), +50%; Tier 2, +30%; Tier 3, +15%; Tier 4 (least), +0%.

Five tiers: Tier 1 (Cosmic), +50%; Tier 2, +35%; Tier 3, +25%; Tier 4, +10%; Tier 5 (least), +0%.

Six tiers: Tier 1 (Cosmic), +50%; Tier 2, +40%; Tier 3, +30%; Tier 4, +20%; Tier 5, +10%; Tier 6 (least), +0%.

For powers less than cosmic in importance, add this modifier to the other components of the power modifier. It's the premium for being able to brush aside lower-tier powers.

Apply an *additional* enhancement equal to the basic tier enhancement to any attack with a lingering effect that no lower-tier power can extinguish. Apply an enhancement five times as large if the attack can *ignore* the defenses of lesser powers. Other forms of Cosmic on attacks have their full cost, less that of the tier modifier. For instance, in a three-tier system, the middle-tier power has a basic +25%; pays an extra +25% (total +50%) on lingering attacks and +125% (total +150%) on irresistible attacks; and pays +25% less for all other Cosmic attack modifiers.

These not-quite-Cosmic enhancements don't let powers bypass *wild* advantages! Wild traits exist outside the hierarchy – only truly cosmic powers can ignore them. In a setting where powers are this ordered, though, only mundane and racial advantages should be wild.

Example: Supernatural powers in a particular fantasy world are arranged in five tiers. At the top is the raw power of existence, wielded only by the gods. This is Cosmic, +50%.

On the second tier are grand moral aspects of existence, such as Good and Evil. These powers add +35% to the usual -20% for Moral, for a net +15%.

Next come the powers that the gods bestow upon their servants, "stepped down" so that mortals can use them safely. As third-tier powers, they get +25%. Combined with the -10% for Divine, the final power modifier is +15%.

Fourth are spirit powers, which flow from entities that are more than mortal but less than divine – elementals, demons, etc. They get +10% for being fourth-tier powers. With the -25% for Spirit, this comes to -15%.

Last come the mortal disciplines of chi control, magic, and psionics. These have no links to the divine, and are the least of powers. They use Chi, Magical, and Psionic as written, for -10% each.

Adding and Improving Powers

As the GM, once you've designed or chosen a set of powers for your campaign, and specified how they interact, it's time to consider their impact on character design and growth. Unless you enjoy chaos, you should be ready to answer your players' questions on which powers and abilities are available to PCs, and with what restrictions; how many different powers one person can possess; and how many points each hero may spend on powers. Your answers will often differ for starting characters and those in play.

Chapters 5 and 6 take a detailed look at these matters, but the most important rule fits in one sentence:

You can always say "no" to anything you feel is inappropriate for a PC.

Still, the game is more fun if you don't have to say "no" all that often. Below are some suggestions for keeping powers under control without being heavy-handed. None of these are hard-and-fast rules, and most offer multiple choices. Where several options exist, you are free to choose just one for your entire campaign – but it can be more *interesting* if you make such decisions independently for each source or power.

Starting Out With Powers

In a "powers-centric" game – e.g., a horror campaign that features psychic abilities, an over-the-top kung fu campaign with chi powers, or almost *any* supers campaign – the PCs might have access to powers from the start. Before anyone spends a single point, though, you should decide on the extent of this access.

Allowed Powers and Abilities

Make a list of the powers available to PCs. Clearly state the source of each, and spell out any limitations inherent in its power modifier. If some powers exclude, supersede, or are superseded by others (see *Relationships Between Powers,* p. 30), let the players know ahead of time. Also indicate which abilities of each power are subject to the special restrictions under *Structure Within Powers* (p. 31).

How Many Powers?

Specify how *many* powers a given PC can start out with, too. This usually depends on the scope of the available powers.

Powers, Unlimited

If powers are narrow, with relatively few abilities, then it's reasonable to allow each hero to have several, as long as none of them are mutually exclusive by design. A PC who buys an ability common to more than one of his powers must assign it to a specific power. It only benefits from that power's Talent and counts as a prerequisite for that power's abilities.

One Power Per Hero

On the other hand, if powers are very broad – or in a secret-powers campaign where each hero is supposed to have a single special gift – you might wish to limit each PC to just one power. Specify whether powers are mutually exclusive by nature or if this is just a starting condition. In the latter case, it might be possible to gain new powers in play.

One Source Per Hero

An in-between option is to restrict each hero to a single source but impose no limit on the number of individual powers he may have. For instance, a psi could have multiple *psi* powers but no *other* powers. Treat each deity or moral force as a distinct source. In most settings, it's impossible to have multiple patron deities – or to wield the power of Good *and* Evil.

Points in Powers

It's wise to limit the number of starting points the PCs can spend on powers. This can be as important as how many starting points they have in

PC Powers vs. NPC Powers

A "player character power" is one that players may buy for their characters, either during character creation or in play. It should be *balanced* above all, with a modest power modifier – say, a -10% to -20% limitation – and abilities that are useful but unlikely to short-circuit the plot. The GM should realize that the players won't be impressed by such a power when it shows up in the hands of an NPC opponent . . . they'll be ready for it!

A "non-player character power" is reserved for NPCs under the GM's control. It might include abilities that *could* harm the plot, or have a power modifier that no player (or every player!) would want, or simply be a secret. It should still be fair in cost-to-benefit terms. "Ultimate powers" might befit gods, but the powers of ordinary foes ought to be comparable in strength to those of the PCs – although the effects and trappings may differ.

There's no *rules* distinction between these categories. As the GM, you may assign any power to either category – or move powers between them during the course of the campaign.

the first place. A 200-point game with no limit on powers can get out of hand faster than a 300-point game with a 50-point limit – or even a 400-point game with *no* powers. The point costs of individual traits are balanced, but it's hard to predict every possible abuse of capabilities that don't exist in the real world.

Special Starting Conditions

Here are some additional options that can help keep powers under control at the start of a campaign.

Ability Without Talent

The PCs can buy abilities for their powers (subject to any *other* restrictions you wish to impose) but can't start out with Talent – they must acquire this in play. This has the effect of making powers somewhat imprecise. In effect, the heroes are "just starting out," and must learn to wield their abilities with finesse.

Talent Without Ability

The heroes can only possess powers in the form of Talent. They can't enter play with *any* abilities! They must buy their abilities in play as explained under *Talented Beginners* (p. 35). This is an excellent option for campaigns where powers are supposed to be secret or emergent. It especially suits a common theme in supers settings: the unusual global event – virus, comet, mysterious rays from Sirius, etc. – that triggers special powers in only a few talented individuals.

Dormant Ability

Starting characters can only have abilities they don't know how to use. They must buy these as "potential abilities" and activate them in play, as described under *Potential Abilities* (below). Whether they can have Talent depends on what Talent is: if it's a natural gift, it makes perfect sense for those with potential abilities . . . but if it represents *learned* aptitude, only those who can actively exercise their abilities are likely to have it.

Adding and Improving Powers in Play

Those with a power's Talent or any of its abilities (that is, any advantage with its power modifier) are said to possess that power. In most settings, they can spend earned points to improve their Talent and abilities in play.

Individuals who have neither Talent nor ability lack the power – even if they have wild advantages that appear among the power's abilities. But they *might* be able to acquire the power later on, if the GM wishes.

As the GM, you're free to rule on either situation on a case-by-case basis. To avoid arguments, though, it's best to determine these things in advance and apply your decision fairly and consistently during the course of the campaign.

Improving Existing Powers

Anyone who has at least one of a power's abilities can buy more Talent or abilities if he has enough unspent points to pay for the desired improvement or addition. To keep character development consistent with character experience, it's advisable to enforce a few additional rules:

- To add or improve Talent, the PC must have actively used at least one ability of the associated power during the previous game session or adventure.
- To improve an *existing* ability, the PC must have actively used *that ability* during the previous game session or adventure. Allowed improvements include purchasing more levels of an advantage that comes in levels, reducing or buying off a limitation, and increasing or adding an enhancement.
- To add a *new* ability, the PC must first experience suitable "trigger" conditions; see *Awakenings* (p. 36). He must also meet the ability's prerequisites, if any. At the GM's option, those who gain new abilities must buy them with one or more of Uncontrollable, Unreliable, and Untrainable (see p. B116). Later improvement can remove these limitations.

To keep the heroes from developing so quickly that they become unrecognizable, the GM should allow each PC to do only *one* of the following per game session:

1. Add *one* level of Talent. Those without Talent may buy the first level.
2. Add *one* level to an existing ability that comes in levels. For abilities that allow the buyer to spend any number of points, such as Morph, a recommended limit is 5 points per game session.
3. Add *one* level of an enhancement that comes in levels to *one* ability that already has that enhancement.
4. Add *one* new enhancement to *one* ability. This means the first level of an enhancement that comes in levels.
5. Remove *one* limitation from *one* ability – or reduce it by one level if it comes in levels.
6. Add *one* entirely new ability. This means the first level of an ability that comes in levels. The new ability can have any combination of enhancements or limitations that suits the power. Regardless, if the GM rules that all new abilities come with a limitation such as Uncontrollable, Unreliable, or Untrainable, the buyer *must* take that limitation and cope with it for at least one game session. He can buy off such limitations, one at a time, during later sessions.

Finally, note that it's impossible to add, remove, or alter a power modifier. Power modifiers are *permanent*.

Latent Powers

A power is "latent" if its possessor can't actively use any of its abilities. This might be because his abilities are dormant and as yet unrealized . . . or because he has *no* abilities, just Talent. The two are dramatically equivalent, but lead to important differences in play.

Potential Abilities

Anyone with a power might have abilities that he hasn't yet discovered or learned to use. These "potential

Learning Powers

It might be possible to acquire or improve powers through special training. This only suits a few powers – and only in certain genres. For instance, the greatest martial-arts masters reputedly school their best students in chi powers, elderly shamans traditionally train their successors in spirit powers, and "psi academies" feature in many space-opera settings. In all cases, the GM has the final say.

If it *is* possible to learn powers, the GM must decide how this works. Below are three sets of *independent* options to consider.

New Powers or Existing Ones?

Students who *completely* lack a power might be able to acquire it at the feet of a teacher. This is typical of chi powers and many kinds of spirit powers.

On the other hand, instructors might only be able to educate those who *already* possess the power, although latent power is usually enough (see *Latent Powers,* p. 34). Magical and psionic powers often work this way.

Hours or Points?

Each point of Talent or abilities learned from a teacher requires 200 hours of instruction, like a skill. This might be the *only* requirement, with every 200 hours giving the student 1 point to spend on his power. The GM might even rule that Talent gives the same 10%-per-level reduction in learning time that mundane Talents give for skills (see *Talents,* p. B89).

Alternatively, training might provide no points – just the opportunity to spend earned points more freely. If the student puts in sufficient hours and has enough unspent points, he can buy any improvement that his teachers know about (GM's decision). This option is valuable because it allows heroes to develop previously unneeded abilities *before* they go into dangerous situations where those abilities would be useful. It's especially suitable for supers.

Required or Optional?

If training is the *only* way to improve powers, it may take a long time for the heroes to improve. This can be for the best if powers are supposed to be subtle or mysterious. If instruction is an *additional* option for improvement, however, it actually accelerates the rate at which the PCs gain new capabilities.

These situations aren't necessarily exclusive. Those with latent powers might require training to gain control of their abilities, after which instruction is optional. Conversely, those with potential might be able to learn to use, even improve their formerly untapped gifts on their own – but need a teacher if they wish to add *new* abilities.

abilities" cost half as many points as usual. Halve cost *after* applying any modifiers – don't treat this as a -50% limitation. These points represent a placeholder, not the cost of a more restricted ability.

To be able to use a potential ability, the possessor must pay the residual point cost, in full, out of earned points. Until then, the ability does *nothing* . . . unless the GM wants it to manifest unpredictably. See *Potential Advantages* (p. B33) for ideas.

It's up to the GM to decide *when* those who have potential abilities can pay to activate them. A few possibilities, which can vary from power to power:

- Activation requires points alone. If the PC has enough unspent points, he can activate a potential ability at any time simply by paying the remaining cost.
- Activation works just like adding a completely *new* ability. See *Improving Existing Powers* (p. 34). The PC needs more than points – he must experience suitable "trigger" conditions.
- Activation requires training. See *Learning Powers* (box). An interesting twist is to limit starting PCs to potential abilities *only* and require those who wish to activate their abilities to pay the residual cost at the usual rate of 1 point per 200 hours of instruction.

Talented Beginners

Heroes who possess only Talent can normally add abilities. But gaining that *first* ability might be difficult or traumatic! Options include:

- A talented individual can buy his first ability as soon as he has enough unspent points.
- A hero with Talent can buy his first ability only after he experiences suitable "trigger" conditions. If the GM normally requires die rolls to acquire new abilities, the roll may be at a penalty for a hero's *first* ability. For details, see *Awakenings* (p. 36).
- Those with Talent must gain their first ability through training; see *Learning Powers* (box). This might require a roll against the student's IQ, the instructor's Teaching skill, or both (GM's option). Anything that modifies trigger rolls is likely to apply to these rolls as well. Talent *always* gives a bonus.
- Talented beginners have *no* control over their first ability. The GM chooses an ability and decides when and how it appears. If this is *completely* outside the player's control, the GM shouldn't require the player to pay points, as the ability might not be what he wanted. Instead, the points are effectively a gift – see *Traits Gained in Play* (p. B291). On the other hand, the GM and the player could agree on a list of abilities from which the GM will pick one at random, in which case the ability has its usual cost. See *Paying the Price* (p. 37) for other ideas; most of the suggestions for heroes gaining completely new powers are equally appropriate for someone buying the first ability for a power he already possesses.

All of these options assume that it's possible to add abilities in play. As the GM, you're free to rule that the PCs *can't* acquire new abilities – but if you do, be sure to inform your players so that they don't waste points buying Talent without abilities.

Adding New Powers

Mythic and fictional heroes often acquire powers in the course of their adventures. In settings where this is possible, the GM should decide which powers are only available at character creation and which are also available in play – or *only* available in play.

The GM should determine the *conditions* under which new powers are available, too. These might differ from power to power. The justifications suggested under *Learning Powers* (p. 35) and *Awakenings* (box) for improving existing powers are equally good as explanations for new powers. For the sake of consistency and drama, though, the GM ought to tailor such rationales to the game world and the specific powers found in it.

In technological settings, accidental exposure to power-inducing forces is the most common origin of powers. Aliens, mad scientists, secret super-soldier programs, and so on can sometimes reproduce such effects *intentionally* through drugs, surgery, genetic engineering, etc. These influences most often give rise to biological and psionic powers – and, in supers settings, elemental powers and "generic super-powers."

In worlds with active supernatural forces, divine intervention might grant *any* power – although deities traditionally grant divine or moral powers, or pledge the assistance of servitor beings (spirit powers). A god might bestow powers on those who ask properly, those in need, those who show great faith, or those who make a generous donation to the temple. In fantasy settings, magical wishes are another possibility. These often result in magical powers, and typically *can't* give divine or moral powers.

In nearly *any* background, adventurers might discover special regimes of exercise and meditation that can awaken powers. Those who persevere and "stay with the program" might eventually gain chi or psi powers. Study is another possibility, with martial-arts masters teaching chi powers, shamans training apprentices in spirit powers, and so on.

Finally, a stressful situation could awaken almost *any* kind of power that exists in the setting. Stress might be the final trigger needed to activate weird-science forces . . . or the "push" that drives a hero to pledge his life to a god or a moral cause . . . or the ordeal that enlightens a novice.

Cosmic powers are an exception to all of this. They represent the powers of the gods or all creation in most universes. Unless the heroes achieve godhood in play (which *does* occur in some myth), such powers are likely to be forever out of reach.

What Comes First?

If the heroes *can* add powers in play, it's important to specify exactly what they gain when that fateful trigger roll succeeds, they complete their training, their god empowers them, or whatever. This usually depends on the origin of the power. Some options:

Everything! Newly empowered heroes gain fully functional abilities – and possibly Talent, too. This suits

Awakenings

At the GM's option, points alone aren't enough to justify new abilities for an existing power, awaken a latent power, or acquire an entirely new power. In order to spend points on a power, the subject must *also* experience a suitable external "trigger," which is likely to be different for each power. Some common triggers:

- A deliberate, brute-force attempt to awaken the ability or power *instantly.* In fiction, such an effort is usually either technological (experimental drugs, surgery, etc.) or supernatural (e.g., divine intervention or a magical wish) . . . and there's often a down side, even if it works.
- Intensive exercises, meditation, and so on aimed at gradually awakening the ability or power.
- A stressful or dangerous situation in which the new (or newly activated) trait would *directly* reduce the stress or danger. For example, a heroine's distress at seeing her child mortally wounded might activate her potential Healing ability.
- Unwitting exposure to power-inducing chemicals, microbes, radiation, weird science, supernatural forces, etc. This might be something normally present in the environment; a natural disaster; an accident, weapon, or curse; or spillover from a deliberate attempt to give *somebody else* powers.

Trigger Rolls

A trigger doesn't necessarily work *automatically* – the GM might require the subject to make a "trigger roll." This is a HT roll for physical abilities, a Will roll for mental ones. It's up to the GM what to roll against to acquire a new power with a mixture of physical and mental abilities.

Modifiers: The power's Talent, if the subject has it. A particularly strong or weak trigger might give a bonus or penalty (GM's decision). The subject's *other* abilities also give a modifier, as follows:

+5 to activate a potential ability (see *Potential Abilities,* p. 34).

+0 to acquire a new ability in a power where the subject already has at least one other awakened ability (see *Improving Existing Powers,* p. 34).

-5 to acquire the *first* ability of a power for which the subject has only Talent (see *Talented Beginners,* p. 35).

-10 to acquire any element of a completely new power (if this is possible at all; see *Adding New Powers*.

powers bestowed by deities and magical wishes, and those taught by the best instructors.

*Well, **almost** everything.* As above . . . except that the new abilities come with one or more limitations: Uncontrollable, Unreliable, Untrainable, etc. This is appropriate for *any* new power, particularly one granted by half-understood rituals or weird science.

Potential. A new power gives one or more potential abilities, subject to the usual limits; see *Potential Abilities* (p. 34). This fits powers that result from accidents: the trigger event plants a seed that blossoms into a power at a later date.

Talent. Those who gain powers get a level of Talent. To develop abilities, they must follow the usual path of those with Talent but no abilities; see *Talented Beginners* (p. 35). This is typical of powers gained through exercises, meditation, or training.

Paying the Price

As the GM, you also need to determine whether the PCs must pay for powers gained in play – and if so, *when* and *how.* A few suggestions:

The price of admission. To acquire a new power, the PC must have enough unspent points to buy its abilities or Talent when the opportunity arises. This is the best option for powers the hero is actively working toward – especially if he's earning the necessary points through study.

The installment plan. As above, but if the hero doesn't have enough points to pay for his new power, he can "go into debt." Until he pays off his debt, he must put all earned points toward reducing it. Since this option curtails ongoing character development, it's best reserved for divine and moral powers that truly demand *total* devotion, and for powers that arise from ongoing activities (intensive training, quests, etc.) that constitute an actual adventure on which the hero can earn points.

The gift. The hero gets his power for free: raise his point total and get on with the game. This is a good option for true accidents, divine decrees, and other events that happen to the character without the *player* having a say in the matter. The fairest way to approach this is to award powers *instead* of bonus character points. For instance, if the player roleplays his priest character especially well, a divine power might be a more suitable reward than mere character points.

The gift horse. The power comes with disadvantages that partly or wholly "pay" for it. There are many possibilities; for instance, a Duty to a master for a learned power, a strict Vow for a divine power (see *Required Disadvantages,* p. 21), or physical disadvantages as side effects of powers that stem from accidents, drugs, or surgery.

Player-Designed Powers

This chapter leaves all the important decisions about what powers include, how they're structured, and how PCs can acquire them up to the GM. This is because it's the *GM's* job to design powers for his campaign.

Still, the GM might wish to let players design powers for their characters. This has several benefits – the most notable of which is reducing the GM's workload in campaigns where dozens of gods grant divine powers, each super has a unique power, and so on. And the players might dream up *good* ideas that didn't occur to the GM.

A few tips for GMs who wish to allow player-created powers:

Specify which sources are allowed. Only allow sources appropriate to the game *you* want to run. If you don't want your game to include supernatural beings, tell your players that they may not design divine and spirit powers. If you're running a sci-fi game where all powers must be biological or psionic, say so. And if you want to keep certain sources *secret,* or save them for NPCs, you're under no obligation to let on that they even exist. Sources affect the fundamental nature of the setting, and such matters are far too important to leave to the players.

Veto foci that don't fit the setting. Even if the underlying source is acceptable, a particular focus might be unsuitable for the campaign. For instance, a fantasy game could allow elemental powers, but only Earth, Air, Fire, and Water – not Gravity and Radiation. Likewise, if the fundamental moral conflict in the setting is Good vs. Evil, you don't have to allow Chaos power.

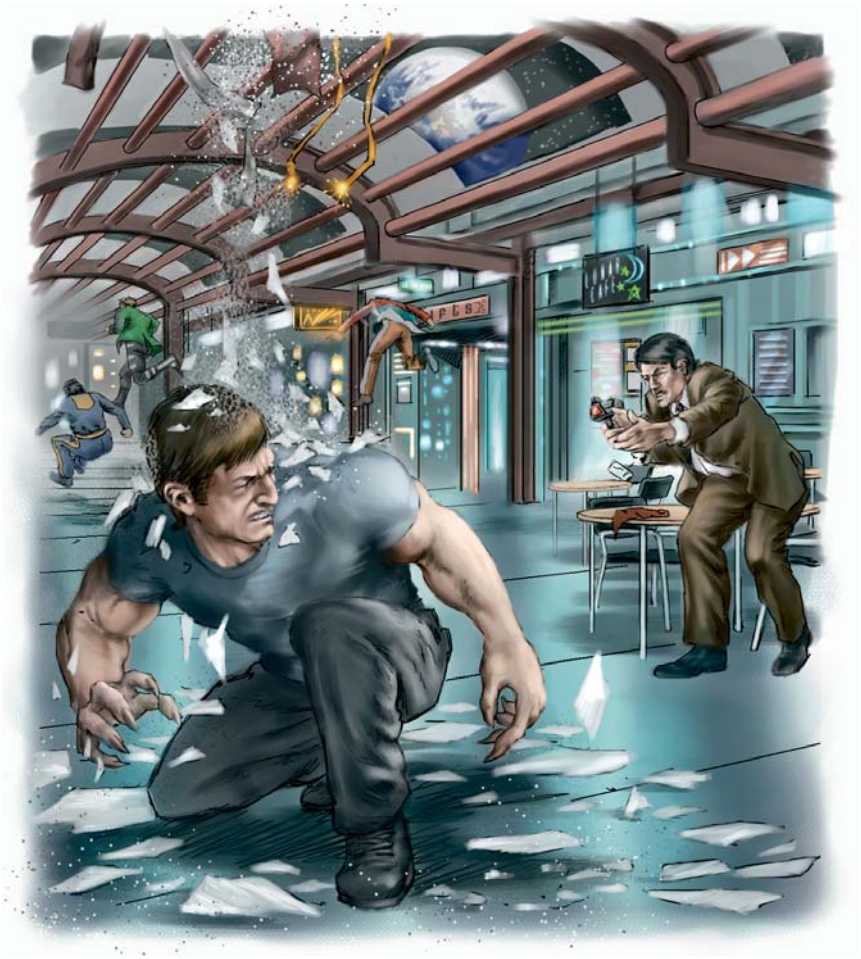
List any abilities that are strictly off-limits. If you think a particular advantage is inappropriate, or if you find it hard to cope with or simply dislike it, you don't have to allow it as an ability – even if it would "make sense" for a power. If a trait is strictly off-limits to *all* PCs, then *how* a PC obtains it should be unimportant.

Consider level limits and required modifiers. Even allowed abilities can get out of hand if players can buy high levels of open-ended traits or apply modifiers at will. Be sure to set general limits on effect – especially damage – and indicate forbidden enhancements or required limitations. For further thoughts on this, see *Structure Within Powers* (p. 31).

Keep an eye on scope. Some players will cook up creative reasons to include every advantage in the ***Basic Set*** in a power. To avoid this, consider limiting each power to a fixed number of abilities per category – e.g., no more than two attacks, three defenses, three movement abilities, four mental abilities, and one physical transformation – and requiring those who wish to trade between categories to seek permission.

Set limits on power modifiers. It's advisable to restrict players to the subset of "stock" power modifiers on pp. 26-29 that match the sources you wish to allow. If you decide to permit custom power modifiers, set strict limits on their size. Few powers truly *need* a limitation outside the -10% to -20% range, and even a flat +0% limit can accommodate plenty of interesting powers.

Chapter Two
Building Abilities



I'd been after Anton Makram for three weeks before I tracked him to Tranquility City. He wasn't hard to locate, once I'd got hold of his full profile. He had various peculiar dietary requirements that made his purchasing records light up like a fusion drive when I ran the right queries.

I wanted to supervise the arrest without any comm lag, so I took a flight down. I wasn't anticipating any real trouble, though; Makram was born into the Schmied Kameradschaft, who are terribly old-fashioned and predictable in some very important ways.

Unfortunately, however, by sheer blind stupid bad luck, before I could locate him precisely, I ran into him in person. I was sitting in a café on a small pedestrian concourse when Makram walked out of a side passage and spotted me. I hadn't had time to have my face changed since our last run-in, and I suddenly saw him staring right at me from 30 yards away.

He leapt instantly, popping claws from his fingertips as he came. Like I said, the Schmied Kameradschaft are terribly old-fashioned, and they have a deeply paranoid cultural memeplex; they think it's smart to give their children boosted reflexes, augmented musculature, and built-in weapons. Strangely enough, at least three percent of them end up as active sociopaths. Makram's idea was doubtless to get to me in a single leap and rip my throat out.

Unfortunately for him, things didn't quite work as he intended. I think I even heard the impact when his head met the ceiling. He landed heavily, 10 yards short of me, and staggered. His so-called "survival-oriented" genemods didn't include any great ability to adjust for different gravities.

Unlike mine. By the time he hit the ground, I was already out of my chair and going for my electrolaser. I'm not quite as fast as him, and his skull was evidently good and solid – but then again, I don't have those stupidly expensive dietary requirements. He was still five yards away from me when I fired and he fell.

People began screaming a second later. I slapped a neurocuff and comm-blocker on Makram, and then turned my carefully designed smile and fine-tuned voice on my audience. They worked just fine, of course; my genemods are ***useful****.*

I mean, really – claws!

An *ability* is an advantage customized to fit a particular game world or work like a specific fictional example. For instance, Innate Attack is an advantage – but Dragon's Breath, defined as Burning Attack 4d (Cone, 5 yards, +100%; Limited Use, 3/day, -20%; Reduced Range, ×1/5, -20%), is an ability.

Abilities typically have four parts, but only the first of these is truly a requirement:

1. Advantage(s). This determines what the ability *does,* on the most basic level. The simplest ability is a single, unmodified advantage. On the other hand, complex abilities might require *several* advantages, possibly connected with Follow-Up (p. B105) or Link (p. B106).

2. Modifiers. Most abilities have at least one enhancement or limitation, if only a power modifier, but this is optional. Not every ability belongs to a power – and in some game worlds, *all* abilities are "wild," unmodified advantages.

3."Special effects." These are small ways in which the ability differs from the underlying advantage. They might have a nontrivial effect on *game play,* but there's no effect on *point cost.* Special effects are essentially informal +0% modifiers. Think of them as "quirks for advantages."

4. Name. A "stock" advantage name will do in a pinch . . . but the more advantages, modifiers, and special effects the ability involves, the handier a simple, descriptive label becomes.

The purpose of this chapter is to help you create interesting abilities, either for use on their own or as part of a power designed using the rules in Chapter 1.

ADVANTAGES

The first step in creating an ability is to visualize what you want it to do and select the advantage that comes closest to this. The choice might be clear (e.g., Innate Attack for Fire Breath), but the most suitable advantage isn't always obvious – and even when you do hit upon it, you might need a new special modifier to get it just right.

EXISTING ADVANTAGES

Below is a list of advantages from the ***Basic Set*** that are especially useful for building abilities. Each entry includes comments on the fictional roles the advantage can fill, and one or more sets of additional notes:

Alternatives: Similar traits that might be more appropriate in certain cases.

New Special Enhancements/Limitations: Additional modifiers that let the advantage simulate effects seen in fiction.

Powering Up: Thoughts on whether the advantage makes sense as part of a power – and if it does, advice on suitable types of powers and suggestions on how Talent might work. Abilities *don't* have to be part of a power, though; you can ignore this section in campaigns that don't use the rules in Chapter 1.

360° Vision

see p. B34

This trait most often represents extra eyes, eyestalks, etc., but it doesn't *have* to be physiological. Espers, martial-arts masters, omniscient deities, and the like might know what's going on behind them without having to look.

Alternatives

To follow several things going on around you at once, take Enhanced Tracking (p. 49) instead or as well. Without this, you must focus on one thing at a time.

New Special Enhancements

Panoptic 1: You can see all around you without turning your head and without the need for extra eyes. This is an enhancement because your gift isn't obvious – you can visibly stare in one direction and actually be looking in another! You still need eyes, though. If you're blindfolded, dazzled, blinded by injuries, etc., you cannot see. +20%.

Panoptic 2: As above, but you *don't* need eyes. You can always perceive everything going on around you, even if blinded or blindfolded. You still need light, unless you have something like Dark Vision. Blows to the eyes injure you normally but won't blind this sense. +60%.

Powering Up

Those with body-alteration or shapeshifting powers often add Switchable (p. 109) to temporarily grow extra eyes. Light power might let the user direct light coming from all directions to his eyes; this calls for Panoptic 1. Panoptic 2 is for those with supernatural powers – ESP, chi, divine omniscience, etc. In all cases, Talent adds to the user's IQ and Vision rolls to notice the presence of "interesting" activity in parts of his visual field he isn't currently focusing on.

Affliction

see p. B35

Affliction covers any attack that causes an effect other than injury (see *Innate Attack,* p. 53) or physical restraint (see *Binding,* p. 42). General forms of Affliction often seen in fiction include:

Beam: A ranged attack that affects one target; e.g., a paralysis beam or a shrinking ray. This is the most basic form of Affliction. It's especially suitable for supers, gods, and ultra-tech beam weapons. Roll against Innate Attack (Beam) to hit.

Curse: Fantasy and horror Afflictions are more often "spells" than "bolts of power," with the attacker calling upon supernatural forces to weaken or incapacitate his foe. The only requirement is Malediction 1 (+100%). To simulate the spells on pp. B242-253, add suitable levels of Costs Fatigue (-5%/level) and Takes Extra Time (-10%/level). Most mental effects are Based on Will (+20%). There's never any roll to hit; Maledictions use a Will roll instead.

Field: The user constantly emits a baneful effect; e.g., a demon might cause those who approach too closely to suffer Agony (+100%). If he affects everyone around him *once,* when they first come within range, take Area Effect (+50%/level) and Emanation (-20%). If he automatically attacks anyone he touches or who touches him *each time* he makes contact, use Aura (+80%) and Melee Attack (-30%) instead. In either case, add Always On. This is a -10% limitation, as Afflictions are socially inconvenient but not physically troublesome for the *user.* No roll

to hit is required, but those with Aura can actively try to affect a victim by making a melee attack.

Gas: Sleeping gas, paralysis gas, and the like. Such Afflictions have Area Effect (+50%/level) and *one* of Respiratory Agent (+50%), Blood Agent (+100%), or Contact Agent (+150%). For a mobile gas cloud, add Drifting (+20%) and Persistent (+40%). A gas that surrounds the attacker has Emanation (-20%) instead. Insidious gases have No Signature (+20%) and possibly Onset (variable). There's no roll to hit; gas has a chance of affecting everyone exposed to it.

Gaze: A gaze is a common vehicle for supernatural Afflictions. For instance, a hypnotic gaze might cause the target to sleep. If the gaze works on any target the attacker can see, it has the Vision-Based *enhancement* (+150%). Roll against Innate Attack (Gaze) to hit. Gaze attacks by fantasy monsters tend to be short-ranged and curse-like; apply Malediction 1 (+100%) and the Vision-Based *limitation* (-20%) instead. To affect the target, make the usual Will roll for Malediction.

Mental Blast: Direct mind-to-mind attacks that stun or daze are common psi abilities. Such Afflictions have Malediction 2 (+150%) and Based on Will (+20%). If the attack is *totally* undetectable, add No Signature (+20%). As with all Maledictions, the only roll required is a Will roll.

Sensory Attack: Some Afflictions affect everyone nearby though their senses. Such attacks have Area Effect (+50%/level) and Emanation (-20%). Bright flashes are Vision-Based (+150%), with a Disadvantage enhancement that inflicts Blindness (+50%); howls, thunderclaps, etc., are Hearing-Based (+150%), and cause Deafness (+20%). As with gas, no roll to hit is necessary – everyone in the area is exposed.

Touch: Monsters, wizards, and supers often have to touch those they wish to afflict. The simplest form of this is Melee Attack (-30%). Attacks that must touch bare skin or an open wound have Contact Agent (-30%) or Blood Agent (-40%), respectively, while supernatural attacks that bypass DR get Malediction 1 (+100%). Make an unarmed melee attack to hit. For Malediction, roll the Quick Contest to see if the Affliction works only *after* scoring a hit.

Venom: Toxins often cause weakness, paralysis, unconsciousness, coma, or heart attack. Those borne on fangs, claws, etc. have Follow-Up (+0%), while poisonous spray or spit has Contact Agent (-30%) or Blood Agent (-40%). Many poisons take time to work; if so, add Onset (variable). Make a melee attack to hit with a natural weapon. Roll against Innate Attack (Breath) to hit with spray or spit.

Afflictions that do more than stun have special enhancements, too. Effects might be inconvenient (Irritant, Negated Advantage, or modest levels of Attribute Penalty or Disadvantage), crippling (Incapacitation, or extreme levels of Attribute Penalty or Disadvantage), or lethal (Coma or Heart Attack). Note that Choking *isn't* usually lethal – it responds to mundane treatment that takes two seconds and a First Aid roll (artificial respiration, oxygen mask, Heimlich maneuver, etc., depending on "special effects").

The Advantage enhancement is a special case. It's useful for specialized attacks; for instance, it might shrink the target (Shrinking, +50%/level) or turn him into a specter (Insubstantiality, +800%). However, it's also a key element of many *beneficial* abilities, which use special rules; see *Beneficial Afflictions* (box).

Remember that an Affliction can have multiple effects. If an effect applies only if the victim fails his HT

Optional Rules for Afflictions

Afflictions don't *have* to do bad things to living targets. These rules address two common exceptions.

Beneficial Afflictions

If an Affliction's effects are so unquestionably positive that no one would ever object to them, the GM may reverse the sign of the HT modifier; e.g., Affliction 3 gives a HT+2 roll instead of a HT-2 roll. Duration becomes minutes equal to the subject's margin of *success,* not his margin of failure.

If such an Affliction has Malediction, the subject can *waive* his right to resist. The ability works if the user can make an unopposed Will roll (at the usual range penalties). In this case, duration in minutes equals the *user's* margin of success.

Afflictions and Inanimate Targets

An Affliction can affect anything with a HT score . . . *if* the target is susceptible to its effects. Most inanimate objects – including all machines – have Immunity to Metabolic Hazards. This stops most Afflictions, with two exceptions.

Afflictions restricted to inanimate targets via Accessibility modifiers (such as "Only on Electrical") affect those objects *instead* of living beings. This is only acceptable in conjunction with effects that make sense for the intended targets. You could render a machine "unconscious" by cutting its power, but you couldn't inflict nausea.

Afflictions that cause Invisibility, Shrinking, and other transformations through the Advantage modifier affect *everything.* To prevent those with low levels from zapping planets, the GM should let unliving, homogenous, and diffuse targets add their SM to their resistance roll (an Earth-sized planet is SM +43). If modified HT comes to 21+ after applying SM and the Affliction's HT modifier, resistance is *automatic* – nothing happens.

roll by 5+ or rolls a critical failure, it's "secondary" and worth 1/5 as much. If the GM wishes, effects that require a critical success on the *user's* roll (attack roll, Will roll for Malediction, etc.) can also be secondary.

Finally, note that it's often more cost-effective to add the Malediction enhancement than to buy high levels of Affliction. Against a high-HT target, a Quick Contest of Will vs. HT is more likely to succeed than an unopposed HT roll (even at a penalty) is to fail.

Alternatives

An Innate Attack with the Side Effect or Symptoms enhancement (see p. B109) can have Affliction-like effects in addition to damage. Side Effect is better than Affliction for simulating "reduced lethality" weapons. Symptoms are generally superior for poisons and diseases that incapacitate with only moderate injury.

Healers should note that the Healing advantage (p. 31) costs *far* less than Affliction with Advantage, Regeneration.

New Special Enhancement

Negated Disadvantage: The victim loses a specific disadvantage for one minute per point by which he fails his HT roll. If he lacks that disadvantage, there's no effect. This is worth +10% per point the disadvantage is worth. If the disadvantage comes in levels, specify the level negated.

Powering Up

Most powers can justify some kind of Affliction. Even wholly *beneficial* powers – Psychic Healing, the divine power of the God of Medicine, etc. – are likely to include Afflictions enhanced with Advantage or Negated Disadvantage, or with Ecstasy, Sleep, or Unconsciousness for use as an anesthetic. Talent gives a bonus to rolls to hit with Afflictions, and benefits Will rolls in the case of Malediction.

Allies

see p. B36

The Summonable enhancement converts Allies from a social trait to a supernatural ability to conjure beasts, monsters, spirits, etc. The GM, with the player's input, decides whether each use summons the *same* beings or

new ones. In the latter case, the GM must make a reaction roll whenever new Allies appear, to determine their willingness to obey orders. If they're killed, the summoner must wait a full day to call replacements. The drawbacks of conjuring entities with no memory of or devotion to the summoner offset the benefits of being able to replace slain Allies; Summonable costs +100% either way.

Summonable often calls for the Minion enhancement as well. If it brings forth new Allies each time, the GM should *require* this, as the summoner won't know his charges well enough to have any special obligation to them. Other modifiers depend on the ability's origin; Accessibility and Costs Fatigue are common.

The GM determines how long it takes summoned beings to appear. This can vary with the circumstances: fire elementals might appear instantly in a volcano but not at all at sea, animals might need to reach the summoner on foot, and so on. This variability makes most modifiers that affect time requirements inappropriate.

Alternatives

Summoned entities that do little but harass and attack foes – insect swarms, animated shadows, etc. – work better as Afflictions (p. 39) or Innate Attacks (p. 53) with Area Effect, Homing, Mobile, and Persistent. To conjure illusionary creatures, take Illusion (p. 94).

Powering Up

Summonable Allies suit many powers: elemental powers that conjure elemental spirits, magical powers that bring forth familiars, nature powers that call on animals, divine and spirit powers that summon servitor spirits, and so on. Talent never affects appearance rolls but *does* add to the summoner's rolls to influence his Allies and his Allies' reactions toward him.

Altered Time Rate

see p. B38

Altered Time Rate (ATR) is typical of super-speedsters and over-the-top cinematic martial artists. It's also appropriate for those who control time, and even suits the fastest computers and robots.

Alternatives

To *react* quickly, improve Basic Speed and consider either Combat Reflexes (p. B43) or Enhanced Time Sense (p. B52). High running speed calls for Enhanced Move (p. 49) – or just a good Basic Move. For multiple attacks, take Extra Attack (p. 49). To speed up learning, get Super-Memorization (see *Modular Abilities,* p. 62).

New Special Enhancement

Super-Speed: You're even faster out of combat! When performing *mundane* or *repetitive* tasks – building things (including new inventions), reading, making repairs, etc. – look up your ATR level in the *Size* column of the *Size and Speed/Range Table* (p. B550) and divide the time required by the number in the *Linear Measurement* column. For example, ATR 6 gives a divisor of 20, which means a repair that normally requires an hour takes you just three minutes. You can reduce time further by taking a skill penalty (see p. B346). You can't hasten learning, special abilities (making magic items, concentrating on Mind Control, etc.), Concept rolls when inventing, or interactions with people or machines incapable of matching your speed. The GM may wish restrict Super-Speed to super-heroic speedsters. +20%.

New Special Limitation

Non-Combat Speed: You enjoy the benefits of Super-Speed out of combat, but get no additional maneuvers in combat. You *can* buy some of your ATR with Super-Speed and the rest with this limitation. -60%.

Powering Up

ATR is most suitable for time-control and dedicated super-speed powers, but might also suit cinematic chi powers. Talent never provides a bonus, but offsets penalties for taking less time to execute a task.

Amphibious

see p. B40

This trait is normally a permanent morphological adaptation, but with Switchable (p. 109), it might represent a minor form of body control, the ability to project a "force bubble" that enables easy movement through the water, or supernatural command over water or water spirits.

Powering Up

When Amphibious occurs as part of an elemental Water power, the power of the Sea God, etc., the associated Talent benefits all Swimming and Aquabatics rolls.

Binding

see p. B40

Most forms of Binding seen in fiction fall into one of these categories:

Bonds: In its simplest form, Binding ensnares the target with some kind of physical "rope." This doesn't *require* special modifiers – but the two most common examples are webbing, which is Sticky (+20%), and the ability to cause existing vegetation to entangle the target, which is Environmental (-40%).

Encasement: Individuals with the power to command elemental forces can sometimes materialize ice, stone, etc. around a foe, sealing him inside.

Simulate this with Engulfing (+60%). Almost any attack can *eventually* chip away the material, so Only Damaged By X and Unbreakable are rarely appropriate.

Entombment: Another common elemental attack is turning the earth beneath the victim's feet to mud or quicksand, causing him to sink into the ground. Wizards and evil priests might even command the ground to open up and swallow him! This is Engulfing (+60%), Unbreakable (+40%), and likely Suffocating (+75%). Since it only affects those who are touching the ground and *not* flying or standing on an artificial surface, it's also Environmental (-20%).

Force Fields: Supers and wizards often restrain opponents with mysterious forces. Such Bindings are Unbreakable (+40%) and in most cases One-Shot (-10%). If the target is actually "tied up" – not just rooted in place – add Engulfing (+60%).

Goo: Some monsters "slime" their prey with sticky goo. This glues the victim's arms to his sides, clogs his mouth, and leaves him helpless. Represent this with Engulfing (+60%), Only Damaged By Burning or Corrosion (+20%), and Sticky (+20%). Range is often limited; if so, add Reduced Range (-10%/level).

These attacks bind a single foe. To affect more than one target by blanketing the area with webbing, quicksand, creeping vines, etc., add Area Effect (+50%/level). If the effect endures, and affects anyone who blunders into it, take Persistent (+40%), too. And if the persistent effect forms a vision-impeding barrier (like dense spider webs), stack Wall (+30% or +60%) on top of *that*.

Alternatives

Binding assumes *external* restraints. If the victim is frozen by magical or psionic control, transfixed by divine will, paralyzed by venom or a superscience weapon, etc., that's an Affliction with a suitable enhancement – most often Attribute Penalty (DX) or Paralysis.

New Special Enhancements

Standard Binding leaves the victim's head poking out and gives him sufficient room to breathe. Certain types of Binding would logically

Supers and wizards often restrain opponents with mysterious forces.

suffocate or squeeze the target, but this *isn't* automatic. To add such effects, buy one of these enhancements:

Constricting: Your Binding actively constricts the victim. Until he breaks free, the Binding attacks him each turn with a Constriction Attack (p. B43), at a ST equal to that of the Binding. +75%.

Suffocating: Your Binding cocoons the target or blocks his breathing passages. While it's in place, the victim cannot breathe. If he runs out of breath before he breaks free (see *Holding Your Breath,* p. B351), he starts to suffocate; see *Suffocation* (p. B436). +75%.

Powering Up

Powers that project force fields – Gravity, Psychokinesis, etc. – almost always include Binding. It makes sense for powers that can summon matter, too; e.g., Water power might encase the target in ice or turn dry earth into muck. Talent adds to rolls to hit, but *not* to ST rolls made for the Binding. For that, buy a higher level of Binding!

Blessed

see p. B40

Despite its name, Blessed doesn't have to be a divine gift. The forces that inform the user might be demons, his *genius* (guardian spirit), or shades from the future. To convert Blessed into a generic, paranormal information-gathering ability, keep the requirements for divination (1 hour, 10 FP, and an IQ roll) but drop both the obligation to serve a deity and the reaction bonus from the faithful. This has no effect on point cost.

Alternatives

Compare Oracle (p. 65), which has no FP cost, and Precognition (p. 68), which is much more controllable (and a better choice for superscience abilities).

Powering Up

Blessed suits any power that admits the existence of supernatural entities that are better informed than mortals. Talent gives a bonus to the IQ roll to use the ability.

Catfall

see p. B41

Unmodified Catfall represents the ability to twist in midair in order to land softly. This might be inborn or the result of secret acrobatic techniques. With suitable modifiers, it can represent other fall-breaking measures, from parachutes or retrorockets to super-powered gravity control.

New Special Enhancement

Feather Fall: You *always* enjoy the benefits of Catfall, even if bound and dropped on your head. +20%.

New Special Limitation

Parachute: You have a natural parachute, such as wings or skin flaps. This works like unmodified Catfall for falls that take two seconds or more, but deploys too slowly to affect shorter falls (distances of 6 × g yards or less). Your parachute needs open air in a radius equal to your height to function; it's worthless if falling down a narrow passage, and is of no use in "very thin" or thinner atmospheres. -30%.

Powering Up

Any power that can lower gravity or density, or justify Flight, might include Catfall. For Gravity, Psychokinesis, etc., add the Feather Fall enhancement. Those who have chi powers can use unmodified Catfall to simulate "body lightening" (*karumi-jutsu*). Talent adds to DX rolls to halve damage in all cases.

Chameleon

see p. B41

This ability is suitable not only for natural chameleons but also for illusionists of all stripes and those with built-in ultra-tech camouflage.

Alternatives

Those who can actually alter their body should take Morph (p. 74), while those who can disappear completely will find Invisibility (p. 56) more effective.

New Special Enhancements

Controllable: You can consciously select your surface pattern. The effects are mainly aesthetic, but there's a useful side benefit: you can assume a high-visibility pattern that gives +2 per level to your attempts to signal others and distract enemies, and to others' rolls to spot you. This is mutually exclusive with Always On. +20%.

Dynamic: Your surface pattern adapts instantly to new surroundings and corrects for "motion blur." You get your *full* Stealth bonus (+2 per level) when moving. +40%.

Powering Up

Any kind of body-alteration or illusion power might include Chameleon. Talent adds a further bonus to Stealth skill rolls to avoid being seen.

Channeling

see p. B41

Channeling normally lets the user serve as a conduit to the spirit world, but the GM may permit variant forms that enable contact with the dream world, the past, parallel universes, cyberspace, etc., instead. Each form of Channeling is a separate advantage.

Alternatives

To *speak* with spirits, take Medium (p. 59). Those who experience possession by a spirit that grants superhuman capabilities should take an Alternate Form (see *Shapeshifting,* p. 74) – possibly with the Uncontrollable limitation – that represents their possessed self.

New Special Enhancement

Aware: You remain aware of the world when using your ability, and can move and act normally while spirits speak through you. +50%.

New Special Limitations

Channeling often requires a ritual or séance to use. If so, add Preparation Required (p. B114). Another limitation is common in many settings:

Specialized: You can only channel one specific class of spirits. Possibilities include angels, demons, elementals, faerie, ghosts, and anything else the GM wishes to allow. -50%.

Powering Up

Channeling suits almost any supernatural power. Talent adds to Will rolls to enter the trance and resist Possession (or other mental attacks) by channeled entities.

Clairsentience

see p. B42

With suitable modifiers, Clairsentience can emulate almost any kind of remote viewing. In a "realistic" setting, most psychics should have Clairaudience (-30%) or Clairvoyance (-10%), as few claim to have full Clairsentience. On the other hand, high levels of Increased Range (p. B106) are appropriate – global range (Increased Range 19, +190%) appears to be commonplace among remote viewers.

Supers, gods, and other high-powered types know no such limits. They're likely to have one or more of the powerful special enhancements below.

Alternatives

Use Detect (p. 47) for abilities that let the user know "something is there" but little else. Penetrating Vision (p. 66) is a better choice for the hero who can see *through* distant objects. Scanning Sense (p. 72) – notably Para-Radar – is more suitable for extrasensory abilities with pseudo-scientific explanations.

New Special Enhancements

Aware: You can sense the environment around your body while using your ability. You can still only *pay attention* to one set of senses. At the start of each turn in combat, state whether you're giving priority to your natural senses or your remote ones. Concentrating to move or change the facing of your displaced senses *automatically* gives them priority, unless you also have Second Nature (below). All tasks that depend on the senses you aren't prioritizing – including attack rolls, defense rolls, and Sense rolls – are at -4. +50%.

Projection: You don't merely send your senses out of body . . . you send out your *consciousness*. Your body falls unconscious unless you also have Aware. Your projected self is only vulnerable to spells, mental abilities, Maledictions, etc. See *Projection* (box) for other rules. +0% if you can only affect the insubstantial world (a new capability that balances leaving your body unconscious, not just insensible); +140% if you can use spells, mental abilities, and Maledictions on the material world from your viewpoint, too. If others can see your projection, take Visible (p. 112) as well.

Second Nature: Your ability is reflexive. You can initiate it as a free action and change viewpoints as quickly as you can shift your gaze. You still need to concentrate for a minute and make an IQ-5 roll if your desired viewpoint is out of sight, with the usual bad effects on a failure. This enhancement is cheaper than Reduced Time, but only applies to Clairsentience. +70%.

Projection

Projection – an enhancement for Clairsentience (see left), a limitation for Insubstantiality (p. 55), Jumper (p. 57), and Warp (p. 88) – makes it possible to send forth a projection while the body lies unconscious in the physical world. The projection's visibility and potency depend on the underlying advantage, but a few rules always apply.

Most importantly, the body *isn't* in suspended animation. If the projector must eat and drink, he'll suffer starvation or dehydration if he stays away for too long, unless he arranges for artificial feeding. (The GM can always let projections take sustenance – spirit energy, astral food, or whatever – that satisfies these needs, if it suits the setting.) If the projector must breathe, his comatose body needs air, too.

Anything that can injure or fatigue the body has its usual effects while the projector is away. Similarly, lack of sleep, attacks enhanced with Affects Insubstantial, and so on affect the projection. All HP and FP losses come out of the *same* pool, regardless of which form suffers them. The projection suffers any negative effects: shock, stunning, etc.

If the projection would become "unconscious," it vanishes instead. The mind snaps back to the body, which remains unconscious until it recovers.

If *death* results, consequences depend on which form suffered the killing injury. If this was the projection, the projector's personality and mind are gone, but his body may survive as a mindless husk; use the *Mortal Wounds* rules (p. B423), but the victim can never awaken. If the body died, the projector gets a Will-15 roll, modified by Talent, at the moment of death. Success means he swaps his projection ability for the Astral Entity meta-trait (p. B263) and becomes a "ghost" in the realm his projection was in. Failure means he's just dead.

Projected Form: These rules also apply to Alternate Form with Projected Form (p. 75). However, *both* forms are physical, and if either dies, both do. If HP or FP differ, use the unconscious body's scores and scale all losses in projected form proportionally; e.g., if a man with 10 HP has 20 HP as a beast, and loses 8 HP in beast form, he marks off 4 HP.

Compartmentalized Mind: Projectors with this trait send out *all* instances of their mind when they project. They can't "leave behind" a mind to control their body. To get two conscious bodies, take Duplication.

Powering Up

This advantage (often limited with Clairaudience, Clairosmia, or Clairvoyance) is one of the definitive abilities of ESP. With the Projection enhancement, it's also a perfect fit for Astral Projection. Modifiers can adapt it to many other supernatural powers – notably spirit powers. Talent adds to IQ rolls to activate the ability and shift viewpoints, and to all Sense rolls to spot things while using this ability.

Clinging

see p. B43

This advantage is most suitable for natural creatures that cling to surfaces, and for robots and supers that stick to walls and ceilings using adhesives, magnetism, suction, etc. Realistic Clinging for human-sized and larger characters calls for the Requires Low Gravity limitation (below) – but supers are free to ignore this.

Alternatives

Flight (p. 50) with the -25% level of Low Ceiling better models the abilities of those who glide along surfaces without touching them. Individuals who rely on exceptional balance and strength of limb to make seemingly impossible climbs are more likely to have Brachiator (p. B41) and Super Climbing (p. 79).

New Special Enhancement

Attraction: You can cling to a surface with any part of your body – you don't need to assume a crawling posture. You can walk "upright" along a vertical surface, leaving your arms free, or even hang from the top of your head or your back in order to use all of your limbs. +25%.

New Special Limitation

Requires Low Gravity: Your ability doesn't function in gravity fields over a certain, maximum strength. For humans, this is typically 0.6G. -5% per 0.1G under 1G (-5% for 0.9G, -10% for 0.8G, and so on – down to -50% for 0G).

Powering Up

Clinging is often mediated by some kind of attractive force, making it suitable for such powers as Psychokinesis, Gravity, and Magnetism (with the Magnetic limitation). An equally common explanation is the ability to form a bond with a particular substance. This requires the Specific limitation (p. 112), and is appropriate for elemental powers – Earth power in particular. Talent adds to all ST, DX, and skill rolls made to negotiate obstacles or stop a fall.

Common Sense

see p. B43

Common Sense usually represents practical wisdom, but there are other possibilities. Digital Minds with extensive databases of past experiences, or the ability to think many steps ahead, might enjoy the same benefits. More dramatically, this trait could represent divine guidance – after all, advice given to the player by the GM comes from a Higher Power from the *character's* point of view.

Alternatives

Those who are good at avoiding *incorrect* decisions as opposed to *stupid* ones have Intuition (p. 56). "Correct" isn't automatically the same thing as "smart"!

New Special Enhancement

Conscious: Not only does the GM warn you when you're about to do something stupid . . . you can ask him to suggest what would be *smart* in your current situation. He'll roll secretly against your IQ; the better the roll, the better the advice. +50%.

Powering Up

Common Sense could be psionic: the ability to draw upon the collective wisdom of others fits Telepathy, while the capacity to see enough of the future to know the outcome of one's actions suits ESP. It might represent divinely imparted wisdom instead, making it appropriate for a divine power. Those with moral powers may receive similar guidance from their "moral compass." Talent adds to IQ rolls to use this ability.

Constriction Attack

see p. B43

In addition to being the classic python ability, this trait is suitable for any being with a "rubber body," including stretching supers, blob-like aliens, and fantasy monsters that envelop their prey.

Alternatives

Constriction Attack isn't necessary to grapple and crush (see *Choke or Strangle,* p. B370); enough ST or Lifting ST (p. 58) makes the -5 to crush the body without this trait irrelevant. Only Constriction Attack lets you choke a foe "hands free," however.

New Special Enhancement

Engulfing: You totally engulf your victim. If he doesn't break free between when you grapple him and when you start to crush him, he's *pinned;* see *Pin* (p. B370). This pin is completely "hands free." Victims with abilities such as Innate Attack and Spines can hit you automatically while engulfed, however. If so, you get no active defense. +60%.

Powering Up

This is a logical ability for a body-alteration power in a supers game, in which case it's likely to accompany Elastic Skin, Flexibility, Morph, and/or Stretching. Talent adds to ST rolls to crush victims.

Damage Resistance

see p. B46

Damage Resistance can represent *many* defenses that bear little resemblance to one another in the game world, including:

Partially Limited Abilities

You needn't apply the same modifiers to every level of a "leveled" advantage like Damage Resistance or Innate Attack. Applying a limitation to only part of the advantage lets you create an ability that's more potent in situations where the limitation doesn't interfere. Other modifiers can still apply to the entire ability.

Example: Many characters have DR with a bonus against certain threats. To get this, buy general DR at full cost and bonus DR with Limited; e.g., "DR 5 (10 vs. Fire)" is DR 5 [25] + DR 5 (Limited, Fire, -40%) [15]. As a force field, this would be DR 5 (Force Field, +20%) [30] + DR 5 (Force Field, +20%; Limited, Fire, -40%) [20].

Active Control: Those with powers – especially elemental ones – can frequently use their gifts to divert or negate incoming energies. Such DR is typically Limited. An entire power source is "Very Common" (-20%), while a specific focus is "Common" (-40%). Many such defenses intercept attacks at a distance from the body, justifying Force Field (+20%). Supers often add Absorption (+80% or +100%) or Reflection (+100%), too. In the case of Absorption, use Extended Duration (+20%/level) to slow the rate at which absorbed points trickle away.

Damage Tolerance: Some creatures are huge, have redundant organs (or *lack* organs), or have a reinforced structure that lets them absorb a lot of punishment. To represent this, use Ablative (-80%). This effectively turns DR into Hit Points that don't result in shock, stunning, knockdown, etc. when lost, but that don't increase the damage needed to cause crippling or death.

Force Field: A close-fitting sheath of energy or matter projected around the body is a common supernatural and superscience defense, and calls for Force Field (+20%). Add Can't Wear Armor (-40%) if this repels *anything* that gets close to the body, and Temporary Disadvantage, No Fine Manipulators (-30%) if it prevents picking things up. A field that only screens against frontal attacks, like a shield, has Directional (-20%). Add Affects Others (+50%) and Area Effect (+50%/level) for a field that covers an area.

Natural Armor: Many natural creatures have a hardened, padded, or thickened outer layer that reduces the impact of attacks. Bone or chitin calls for unmodified DR, a thick fat layer requires Flexible (-20%), and leathery skin has Tough Skin (-40%). If this results in a pointy, irregularly shaped, or bulky body that makes clothing impossible, add Can't Wear Armor (-40%).

It's possible to have more than one of these general classes of DR, but remember the *"Layered" Defenses* rule (p. B47): the order in which different kinds of DR apply must be fixed at character creation. See *Partially Limited Abilities* (box) for a related option.

Alternatives

Injury Tolerance (p. 52) works better for those who "soak up" damage and suffer less injury from it. Unliving, Homogenous, and Diffuse in particular can be more effective, point for point, than DR; see *Injury to Unliving, Homogenous, and Diffuse Targets* (p. B380). Damage Reduction is often a better deal, too – especially against massive attacks.

Psycho killers, hulking supers, etc. should consider Supernatural Durability (p. B89) and Unkillable (p. B95) as alternatives or adjuncts to DR.

Powering Up

Damage Resistance is suitable for nearly *any* power that can affect the physical world – although it might require several modifiers to make sense. As part of a power, it often has the Force Field special modifier. Talent adds to Power Block attempts (see p. 168).

Danger Sense

see p. B47

This is most often a supernatural sensitivity that originates from ESP, finely honed chi, the gods, etc. However, it could represent extremely sensitive *mundane* senses, or even an enhanced capacity to analyze data and predict risky outcomes (appropriate for Digital Minds).

Alternatives

Those who can truly predict the future should take Precognition (p. 68), which *includes* this trait.

Powering Up

Danger Sense is ideally suited to ESP, but fits any supernatural power – chi, divine, magical, spirit, etc. – that provides situational awareness or information. It also suits time-travel powers, since those who can perceive the future well enough to travel there can often sense "ripples" from imminent danger. Talent adds to the Perception roll.

Dark Vision

see p. B47

The exclusion of light, radar, and sonar leaves few realistic explanations for this trait. It almost *has* to be a kind of "sixth sense," attributable to ESP, chi sensitivity, cosmic awareness, etc.

Alternatives

Infravision (p. B60) and Night Vision (p. B71) are cheaper, while Hyperspectral Vision (p. 51) has the same price but different benefits and drawbacks. Other ways to function in total darkness include Scanning Sense (p. 72) and Vibration Sense (p. 86).

New Special Enhancement

Hypersensory: Your brain builds up a "picture" of your surroundings from the input of your senses of hearing, smell, and touch (temperature differences, vibrations, and even electric fields), and from tiny flashes of light due to chemical reactions, static discharges, and cosmic ray impacts. You're not aware of these things individually, but collectively, they let you see in the dark as if it were daylight, and even spot *invisible* foes. Each sense you lose – hearing, smell, touch, or vision – gives -2 to Vision rolls (this penalty can't exceed the

current darkness penalty). You're only truly blind if you lose all four. You're still limited to the standard human arc of vision unless you have Peripheral Vision or 360° Vision. +40%.

Powering Up

Like any vision ability, Dark Vision fits Light and Darkness powers. It's also a good match for chi powers (as an alternative to Blind Fighting skill, p. B180) and ESP. In all cases, Talent adds to Vision rolls.

Detect

see p. B48

Detect is *extremely* common in fiction, where it typically takes one of three forms:

Extended Senses: Detect can emulate almost any kind of believable remote sensing. Senses like Detect (Magnetic Fields) and Detect (Radio) suit realistic robots and vehicles as well as supers. Signal Detection (+0%) is common for such abilities.

Para-Senses: Detect might instead sense ordinary things that would realistically defy discovery without physically searching the area or taking a sample; e.g., Detect (Cats), Detect (Disease), Detect (Gold), or Detect (Poison). Such abilities might be superscience or a form of supernatural divination.

Supernatural Awareness: Detect could be a supernatural sensitivity to otherworldly forces; e.g., Detect (Magic). It might even sense *moral* concepts. What this means is up to the GM – a zombie or serial killer might trigger Detect (Evil) in some worlds but not others. Moral *powers* always set it off, however.

How Detect presents information to the user is a special effect. Someone with Detect (Magic) might experience magic as a glow visible through intervening obstacles, a scent, an odd foreboding, or anything else he likes.

Alternatives

Detect doesn't provide the capacity to comprehend transmissions or see by the "light" they provide, even if it can locate them and analyze their composition. Such capabilities are separate advantages. For instance, Detect (Radio) and Detect (Infrared) can locate radio signals and heat sources, respectively – but you need Radio (p. B91) to *understand* radio signals and Infravision (p. B60) to *see by* infrared radiation.

New Special Enhancement

Analyzing: Your sense has an extremely high resolution, like a superscience scanner. Basic analysis is automatic if your Sense roll succeeds. Only make a separate IQ roll if you opt to do a detailed analysis. Success reveals details such as the form and purity of the item sensed, its precise subclass, etc. This is incompatible with Vague. +100%.

Powering Up

Any power might have Detect for its own focus or an opposed one. For the purpose of Detect, treat a single focus or power as "Rare," a single power source as "Occasional," a group of related sources (e.g., all supernatural powers) as "Common," and all powers as "Very Common." Talent affects Sense rolls to use this ability *and* IQ rolls for analysis.

Discriminatory Senses

see p. B49

Discriminatory Hearing, Smell, and Taste are appropriate for predators that navigate their environment and track prey using a sense other than vision – and for beings with ultra-tech senses and computerized minds capable of precise detection and analysis.

Alternatives

If a high Sense roll is what matters, Acute Senses (p. B35) are more cost-effective. Discriminatory Senses are priced as much for the ability to distinguish things non-visually as for their bonus to Sense rolls.

Equivalent traits for vision and touch are Hyperspectral Vision (p. 51) and Sensitive Touch (p. 73), respectively.

New Special Enhancement

Profiling: You possess an extensive mental database of sensory "signatures" that you can *quickly* compare to new sensory impressions. This doubles the bonus to analyze and recognize targets (but *not* to sense or track them) to +8. As a side benefit, all attempts to memorize new signatures succeed automatically – there's no need for an IQ roll. +50%.

Powering Up

Discriminatory Senses suit animal-related powers and certain elemental powers (e.g., Sound/Vibration power, for Discriminatory Hearing). They might even be appropriate for ESP in some settings. Talent adds to the IQ roll to memorize sensory impressions *and* the Sense roll to use the affected sense.

Discriminatory Hearing, Smell, and Taste are appropriate for predators that navigate their environment and track prey using a sense other than vision – and for beings with ultra-tech senses and computerized minds capable of precise detection and analysis.

Duplication

see p. B50

This is typically a super ability, with two important exceptions. First, with the Digital limitation, Duplication can represent a Digital Mind capable of controlling multiple computers. Second, exotic alien life forms – notably cinematic blobs and amoeboids – can sometimes divide and recombine at will (and should probably have the Shared Resources limitation).

New Special Enhancement

Construct: Your Dupes are material projections under your mental control. When you dispel them, they vanish, leaving you with your *current* – not *average* – FP and HP. You also enjoy all the benefits of No Sympathetic Injury (don't buy it separately). Finally, the death of a Dupe isn't permanent: by taking a Concentrate maneuver and spending 10 FP, you can generate a replacement. But there's only one "true you," and if you die, all your Dupes die with you! This is incompatible with Digital and Shared Resources. +60%.

New Special Limitation

Sequential: You and your Dupes are chained together in a specific order. Number them from 1 (the original you) on up. When a Dupe dies, all higher-numbered Dupes vanish, too. This lets you create a character who can summon copies of himself from one possible future, with "later" copies dependent on the survival of "earlier" ones. Add Construct (above) if you can replace dead Dupes with copies from other possible futures. -40%.

Powering Up

With the Construct enhancement, Duplication is appropriate for any magical or spirit power that allows the user to summon or create a doppelganger. With Sequential, it's suitable for time-travel powers. Talent affects all skill rolls made by one Dupe to interact directly with another (Empathy rolls, First Aid rolls, etc.).

Elastic Skin

see p. B51

As the name implies, Elastic Skin might involve actually altering one's skin. On the other hand, it could just be a skin-deep illusion. Decide which when buying the ability. Each has its pros and cons – there's no difference in point cost.

Alternatives

Individuals who can only change their appearance to camouflage themselves should take Chameleon (p. 43). Those who can transform their *entire* body have Morph (p. 74).

Powering Up

Elastic Skin suits illusion powers and body-alteration powers (often alongside Constriction Attack, Flexibility, Stretching, etc.). With the Glamour limitation (p. 111), it's also reasonable for Telepathy. Talent adds to Disguise rolls made in conjunction with this ability.

Empathy Advantages

Awareness of the emotions and general motivations of other beings is central to several important fictional archetypes. Telepaths and "empaths" usually have Empathy (p. B51); mediums and shamans traditionally possess Spirit Empathy (p. B88); and elves, druids, and rangers in fantasy often enjoy Animal Empathy (p. B40) or Plant Empathy (p. B75).

Alternatives

Communication with animals, plants, and spirits calls for Speak With Animals (p. 77), Speak With Plants (p. 77), and Medium (p. 59), respectively. Animal, Plant, and Spirit Empathy don't include this function. *Seeing* spirits calls for a suitable form of See Invisible (p. 72). To read thoughts – not emotions – buy Mind Probe or Mind Reading (p. 61).

New Special Enhancement

Remote: Your ability isn't limited to direct, personal meetings. You can "read" any subject you can *see* or *hear* – even over electronic media (or by supernatural means, for Spirit Empathy). +50%.

New Special Limitation

Specialized: The Specialized limitations for Speak With Animals (see p. B87) and Speak With Plants (see p. 77) are equally valid on Animal Empathy and Plant Empathy, respectively. Spirit Empathy already includes this limitation.

Powering Up

Powers that focus on animals, plants, or spirits might include the appropriate variety of empathy – and *any* of these traits would suit Telepathy. These advantages are also suitable for powers that let the user read body language (e.g., chi powers) or vital signs (e.g., healing powers). Talent benefits the IQ roll to use any of these abilities.

Enhanced Move

see p. B52

Animals built for speed, superspeedsters, robots, and vehicles are likely to have Enhanced Move in their primary mode of locomotion. Some common explanations:

Physiological: Adaptations such as fins, wings, or a streamlined body often imply such traits as Amphibious, Flight (Small Wings or Winged), and/or No Legs (Aerial or Aquatic), in addition to Enhanced Move. The fastest *land* creatures aren't bipeds, and tend to have Extra Legs – or possibly Extra Arms or Strikers. Creatures that can only use Enhanced Move for a short time before they tire should add Costs Fatigue (-5%/level).

Technological: Wheels, tracks, jets, rockets, propellers, etc. are likely for robots and vehicles. Such options often suggest additional traits – No Legs (Wheeled) for wheels, Burning Attack for a rocket that doubles as a weapon, and so on. Many of them make the user *obvious* while in use, which is a Nuisance Effect (-5%).

Superhuman: Those with powers often have more unusual justifications. These can be invisible (an ordinary-looking man who runs very fast, speedy psychokinetic levitation, etc.) or glaringly obvious (e.g., creating and gliding along a strip of ice). Costs Fatigue and Nuisance Effect are both appropriate.

Alternatives

Enhanced Move is good for long-distance travel and quickly covering a short distance in a straight line – but if the goal is *tactical* mobility, extra Basic Move is a better choice. See *Basic Move* (p. B17) and *Move in Other Environments* (p. B18).

New Special Limitations

Environmental (p. 110) is allowed, but only if it limits Enhanced Move to a *subset* of its usual environment. For instance, Enhanced Move (Air) couldn't take Environmental, Air (-5%) – but it could have Environmental, Trees or tall buildings (-20%) in order to benefit Move with Brachiator (p. B41) but not Flight.

All-Out: Moving fast requires your undivided attention! Using your ability is like making an All-Out Attack . . . but without the attack. You have no active defenses and can't Attack, Concentrate, Ready, etc. Explain what you're doing: flapping your wings, balancing on two wheels, diverting all your power to project a flame jet or ice path, or whatever else fits. This is worth less than the general All-Out modifier (p. 110), because it doesn't limit you to half your Move in a forward direction. -20%.

Powering Up

Powers that offer Flight or Amphibious usually incorporate Enhanced Move (Air) or (Water). The most common explanation for Enhanced Move (Ground) is a chi- or psi-based body-control power. Suitable elemental powers can justify almost *any* form of Enhanced Move. Talent adds to control rolls, and is cumulative with the Handling Bonus enhancement.

Enhanced Tracking

see p. B53

Beings with eyestalks or extra eyes might be able to follow more than one target at a time – as might those with "inner sight" (espers, martial-arts masters, etc.) and robots with advanced sensor arrays.

Alternatives

Enhanced Tracking has no effect on arc of vision – it just makes it possible to track multiple targets within that arc. Peripheral Vision (p. B74) and 360° Vision (p. 39) *do* improve arc of vision, and often accompany Enhanced Tracking.

New Special Enhancement

Multiple Lock-Ons: You can track multiple targets even if you have only one weapon, and gain the benefit of your Aim or Evaluate maneuver if you attack *any* of them. Use this to represent high-tech sensors and the situational awareness of cinematic warriors. +20%.

Powering Up

Like any vision ability, Enhanced Tracking is suitable for Light power. It also fits a wide variety of supernatural powers – notably ESP and chi powers. Talent adds to any Sense roll required to keep track of targets.

Extra Attack

see p. B53

The top candidates for this advantage are monsters that can attack simultaneously with multiple body parts (e.g., claws *and* teeth), superhuman warriors with cinematic levels of combat expertise, and machines with advanced tactical computers. However, the GM might make one or two levels available to *anyone* in a cinematic martial-arts game.

Alternatives

Use Ambidexterity (p. B39) for someone who can use both hands with equal dexterity – Extra Attack is for those who can use both hands at the same time, which isn't the same thing. To *aim* at multiple targets, take Enhanced Tracking (above). Speedy heroes who get multiple *maneuvers* per turn should buy Altered Time Rate (p. 41).

New Special Enhancement

Multi-Strike: You can strike more than once with the *same* weapon or body part. This means you can launch more attacks than you have limbs, natural weapons, and attack abilities. You *can* use your best attack multiple times. +20%.

New Special Limitation

Single Skill: Your Extra Attacks apply only to a particular combat skill. For instance, Extra Attack 2 (Single Skill, Karate) lets you attack three times – but at least two of the attacks must be with the Karate skill. To attack more than once using a *weapon* skill, you need either one weapon per attack or the Multi-Strike enhancement. -20%.

Powering Up

Extra Attack is a classic part of chi powers, granting multiple attacks to martial-arts masters; both Multi-Strike and Single Skill are appropriate. Shapeshifting powers might also include this ability, allowing the effective use of extra body parts in combat. Talent *doesn't* affect rolls to hit.

Flight

see p. B56

Flight is exceedingly common in myth and fiction, attributed to gods, robots, supers, wizards, and a wide range of monsters . . . to name only a few examples. Flying heroes typically hew to one of these archetypes:

Airship: Those who hang in the air like dirigibles ("aerostats") have the Lighter Than Air (-10%) limitation. This is especially suitable for science-fiction "gasbag" aliens.

Bird: Creatures that flap wings to stay airborne – including bats, birds, insects, and many fantastic beasts (dragons, gryphons, etc.) – have the Winged (-25%) limitation. Cannot Hover (-15%), while common, isn't required; many insects and tiny birds *can* hover.

Glider: Hang-glider-like "flight" is Controlled Gliding (-45%) – which is only slightly less versatile than the combination of Cannot Hover and Winged. Movement like that of a flying squirrel or flying snake (*Chrysopelea*) calls for Gliding (-50%).

Helicopter: Rotary-wing flyers have Winged (-25%) but *not* Cannot Hover. Whirling blades are noisy and dangerous; add Nuisance Effect (-5%) as well. Enhanced Move is likely.

Hovercraft: Give those who *must* fly close to the ground Low Ceiling (-10%, -20%, or -25%). Add Small Wings (-10%) if – like a vehicle – they have skirts, stabilizers, or similar assemblies.

Levitator: Most telekinetics, wizards, etc. use unmodified Flight. Those who fly using antigravity have Planetary (-5%). Space Flight (+50%) is common, but incompatible with Planetary. Supers who wish to match aircraft speeds will need Enhanced Move.

Plane: Fixed-wing flyers require both Cannot Hover (-15%) and Winged (-25%), and generally have noisy propellers or jets that qualify for Nuisance Effect (-5%). Enhanced Move is common.

Rocket: Realistic rockets have Newtonian Space Flight (+25%), while space-opera models have Space Flight (+50%). Add Space Flight Only (-75%) if the rocket can *only* travel through space. Rockets are noisy and dangerous enough to rate Nuisance Effect (-5%). Enhanced Move is essential.

Vertol: A vertol flies by directing thrust both straight down to counteract gravity and behind it to move laterally. Its numerous control surfaces qualify as Small Wings (-10%), Most vertols are *extremely* loud – a Nuisance Effect (-5%). Enhanced Move is likely.

Alternatives

Many traits work like limited Flight: Catfall (p. 43), for heroes who can only glide downward; Super Jump (p. 79), for those who can defy gravity for short hops; and Walk on Air (p. 87), for individuals who can climb or walk skyward. For interstellar "flight," Warp (p. 88) with the Hyperjump limitation is usually a better model.

New Special Limitations

Planetary: Your Flight works by "pushing off" against a planet's gravitational or magnetic field. It's useless in the absence of a planet. This is incompatible with *all* types of Space Flight. -5%.

Requires Surface: You fly by "pushing off" of surfaces. You can stay airborne for at most five seconds. After that, you must push off again by moving close enough to a rigid surface (wall, bamboo cane, etc.) – or *any* surface, even water, in a cinematic game – to touch it with part of your body. This doesn't require a maneuver. Otherwise, you start to fall! -20%.

Powering Up

Divine, magical, psionic, and spirit powers generally let the user fly like a levitator, while elemental powers tend to work more like a rocket, vertol, or hovercraft. People with animal-control or shapeshifting powers might sprout wings and fly like a bird or a glider. Talent adds to control rolls, and to rolls against the Aerobatics and Flight skills.

Growth

see p. B58

Growth nearly always occurs in the context of super-powers or "being a god." Few other mythic or fictional explanations exist for Growth, and there's *no* realistic rationale for it. Supers and gods can generally enlarge their equipment as they grow, which calls for the Can Carry Objects enhancement (p. 108).

The GM should permit those with Growth to buy Enhanced Move (Ground) to reflect their vast stride. A reasonable limit is levels of Enhanced Move equal to *half* the level of Growth. If this Enhanced Move appears gradually as the character grows, it requires the Size limitation, just like additional ST.

Alternatives

Growth is for entities that *change* size. Permanently huge beings don't have Growth (Always On) – they just have a large Size Modifier. High SM is a zero-cost feature for aliens, monsters, gods, and anything else the GM feels should have it. The drawbacks of being an easy target and paying extra for giant-sized equipment offset the discount on the price of ST and HP (the Size limitation; see p. B15).

Powering Up

Growth suits any power that changes the fundamental nature of matter or moves mass between universes. It also fits the cosmic powers of deities – and sometimes the divine

Flight is exceedingly common in myth and fiction, attributed to gods, robots, supers, wizards, and a wide range of monsters . . .

powers they grant their servants. Finally, it meshes nicely with the theme of *plant*-related powers. Talent *doesn't* affect die rolls, but those with multiple levels of Growth and Talent may adjust their SM by up to ±(Talent+1) per second instead of just ±1.

Healing

see p. B59

Use Healing for the gifts of those who can repair injuries and cure diseases instantly, without any special medical knowledge. Holy healers should note that the Faith Healing enhancement is simply a special case of the Xenohealing enhancement: "Those my god deems worthy." Faith Healing *isn't* the same as the Divine modifier on p. 26 – Healing can have either modifier on its own, or both.

Alternatives

Those who can only heal *themselves* have Regeneration (p. 70) or Regrowth (p. 71). An Affliction (p. 39) with the Advantage enhancement can grant these traits to others, however, and serve the same purpose as Healing.

Cyborgs and robots with built-in medical equipment for the First Aid, Physician, or Surgery skill should simply buy Accessory perks (p. B100). A first-aid kit, physician's tools, and surgical instruments are three separate perks.

New Special Enhancements

Healing normally involves laying on hands. For a "healing ray," add Ranged (+40%). Two other enhancements are common:

Affects Self: You can also heal *yourself,* provided you're conscious. Shock penalties apply to any Healing roll made on the turn after you're wounded. +50%.

Cure Affliction: You can neutralize ongoing Afflictions – including the Affliction-like effects of the Side Effect and Symptoms enhancements. This requires an IQ roll at -1 per *full* +50% the target effect is worth as an enhancement to Affliction. FP cost is equal to twice the penalty, minimum 1 FP. For instance, blindness is a +50% Disadvantage enhancement, so to cure blindness caused by Affliction, Side Effect, or Symptoms would require a roll at -1 and cost 2 FP. +60%.

New Special Limitations

Affliction Only: You can *only* neutralize Afflictions, as described for Cure Affliction; you can't heal injury or cure disease. -40%.

Capped: You can spend only a limited number of FP per use. This limits the severity of the diseases you can cure, requires multiple uses to heal serious injuries (taking extra time and incurring the usual -3 per previous successful healing), and may prevent you from repairing crippled limbs. This is worth -25% for a cap of 2 FP, -20% for 4 FP, -15% for 6 FP, -10% for 8 FP, and -5% for 10 FP. More than 10 FP isn't an appreciable limitation.

Empathic: When you heal others, you take on the injuries, diseases, and Afflictions you remove *instead* of paying FP. These affect you even if you have specific immunities to them. They get better at the usual "natural" rate unless cured via medicine or a special ability (e.g., you might "transfer" *your* wounds to someone else with Leech). Empathic is incompatible with Capped. -50%.

Powering Up

Healing is the core ability of the Healing power, which is usually chi- or psi-based, and frequently an ability of "good" divine, moral, and spirit powers. Talent adds to all IQ rolls made to use the advantage.

Hearing Advantages

Extended auditory capabilities such as Parabolic Hearing (p. B72), Subsonic Hearing (p. B89), and Ultrahearing (p. B94) are appropriate for predators that locate or track pray using sound – or for supers whose abilities emulate those of such creatures. These traits are especially common among fictional heroes with Bad Sight or Blindness.

Alternatives

Individuals who can "see" using sound should take Sonar (see *Scanning Sense,* p. 72), or Dark Vision (p. 46) with the Hypersensory enhancement. A heightened ability to *feel* vibrations rather than hear them is Sensitive Touch (p. 73) or Vibration Sense (p. 86).

Powering Up

Hearing-related abilities are a good fit for the elemental Sound/Vibration power, ESP, and even Psychokinesis, if it includes a feedback mechanism that lets the psychokinetic sense vibrations in the air. Talent adds to Hearing rolls when using these special senses.

Hyperspectral Vision

see p. B60

Hyperspectral imaging is poised to become the dominant passive sensor technology in the late-TL8 world, making this advantage appropriate for quasi-realistic cyborgs, robots, and vehicles. It works equally well as a "scientific" explanation for seemingly paranormal visual abilities, including the sight of keen-eyed fantasy races such as Elves.

Alternatives

Beings that can *only* see light below or above the visible spectrum have Infravision (p. B60) or Ultravision (p. B94), respectively. Heroes who just want to see in the dark should compare Night Vision (p. B71) and Dark Vision (p. 46).

New Special Enhancement

Extended (Special): You can perceive and see by *non*-electromagnetic radiation. This is mainly useful in science-fiction settings that feature weird radiation . . . or in worlds where magic, psi, and the like emit rays of eldritch power. +30% per added class of radiation.

Powering Up

Hyperspectral Vision suits Light power and possibly Darkness power (especially if it works by *absorbing* light rather than blocking it). Like any extended sense, it could even be an aspect of ESP. Talent adds to Vision rolls when using this ability.

Injury Tolerance

see p. B60

Injury Tolerance is meant for those with fundamentally nonhuman physiologies. Three forms are of particular interest when creating superscience constructs and supers:

Diffuse: Appropriate for beings made of a loose collection of tiny particles (bees, dust motes, nanites, etc.), liquid, gas, plasma, or energy. Examples include sapient swarms, living flames and tornadoes, liquid-metal robots ("nanomorphs"), and superscience "holograms" that can interact with the material world. In some settings, spirits, magical illusions, and related entities that are *tangible* but not *solid* also have this trait.

Homogenous: Use this trait for creatures made out of largely undifferentiated solid matter – living or otherwise. Common examples are dancing swords, golems, unpowered vehicles, walking plants, and anything else made of solid ice, metal, plastic, stone, wood, etc. Very dense supers often have this advantage, despite appearing superficially human.

Unliving: Anything that has differentiated "vital" areas but isn't made of living tissue is Unliving. Powered vehicles and robots, and most other complex machines, qualify – as do vampires, zombies, and similar walking corpses. A total cyborg with few living parts *might* qualify, at the GM's option.

The GM may invent new forms. Some examples of special importance:

Independent Body Parts

If you have this form of Injury Tolerance (p. 53), your limbs and extremities are separate entities. When struck there, don't apply injury to your HP. Instead, apply it to that body part's HP score: your HP/3 for an extremity or HP/2 for a limb (round up).

Attacks injure body parts normally with one exception: a *cutting* attack that would cripple a limb or extremity costs you the use of that part (see p. B421) but inflicts no injury on you or it. Instead, it severs the body part, which falls to the ground and fights as your ally! An extremity separates from its limb, while a limb separates from your torso.

Body parts have your HT. Size Modifier is your own, adjusted by the part's hit location modifier. Other abilities are as follows:

Arms: An arm has your DX, a Move of your ST/4, and a Dodge of DX/2 + 3. It uses your ST for striking or strangling, ST/2 for grappling or dragging things. If it has a hand, it can punch or grapple (but only the feet or legs of a standing foe), or wield a one-handed weapon at -2 damage. If it lacks a hand, it can club for punching damage.

Leg: A leg with a foot has DX equal to your DX-2. Move is your Basic Move-3, while Dodge is your DX/2 + 3. It can leap up and kick foes for full damage. Treat a leg without a foot as an arm without a hand, but at -2 DX.

Hand: A severed hand has your DX, Move equal to DX/2, and a Dodge of DX/2 + 3. Its only effective attack is to crawl up someone's body (treat this as a grapple) and strangle – see p. B370. The hand has your *full* ST for this purpose only.

Foot: A foot has DX equal to your DX-2, Move 1, and Dodge 4. Its only useful combat ability is to trip those who try to pass it. A fighter who tries to run past the foot must evade (see p. B368), and *falls down* if the foot wins.

Round all fractions *up*. Where combat skills would matter, apply your relative skill level to the body part's DX.

A severed body part suffers injury normally from every attack but the one that severed it. At 0 or fewer HP, it's crippled and can't act. Make the usual HT roll to learn whether this is permanent (see p. B422).

You may reattach body parts by holding them in place for a minute. You can reattach crippled body parts if the injury is temporary or lasting, but they remain crippled. Permanently crippled body parts are destroyed.

One final perk: should you die, the severed part lives on, and continues to attack your enemies!

Special Modifiers

Detachable Head: Your *head* uses these rules, too. A cutting attack to the neck that inflicts full HP or more decapitates you without injury. Your head has your DX and HT, HP/2, and Move and Dodge 0. It can bite at full ST in close combat. If your head is your seat of consciousness, your body fights as its ally. If it isn't (for instance, if you have No Brain), it fights as an ally of your body. +15%.

Instant Reattachment: You only have to hold body parts in place for a *second* to reattach them. +50%.

No Reattachment: Your severed body parts are animated, but you can't reattach them. You can't combine this with Instant Reattachment. -60%.

Reattachment Only: Your body parts are inert when severed. Severing them causes you no injury, and you can reattach them, but they can't fight for you. You can't combine this with No Reattachment. -50%.

Damage Reduction: You divide the injury you suffer by 2, 3, or 4 *after* subtracting DR from damage and applying wounding modifiers. Unmodified, this trait reduces all injury – but except in high-powered supers games, the GM should consider *requiring* the Limited modifier; see *Limited Defenses* (p. B46). It would be fair to restrict heroes to "Common," "Occasional," or even "Rare" classes, or to damage types directly related to their powers. *50 points for a divisor of 2, 75 points for 3, 100 points for 4.*

Independent Body Parts: See *Independent Body Parts* (p. 52) for this complex form of Injury Tolerance, intended for undead and fantasy monsters. *35 points.*

Unbreakable Bones: Your bones are nearly indestructible, or you have alternative structural support that's difficult to damage (e.g., internal force fields). Damage to limbs and extremities still causes injury, subject to the usual maximums, but the injury needed to cripple these body parts is *twice* normal; that is, the amount usually required to dismember. This represents damage to the covering, not the "skeleton." Crippling is at worst lasting; you never suffer permanent crippling or dismemberment (see pp. B421-422). The GM may rule that injury that destroys your body (-10×HP) breaks your skeleton, but since you're dead, this is a special effect. If this protection extends to your vitals and brain, add No Vitals and No Brain: your vitals and brain are in their usual locations, but your indestructible skeleton encloses them and prevents severe injury effects. *10 points.*

Alternatives

The line between Diffuse and such traits as Insubstantiality (p. 55) and Shadow Form (p. 73) is fine indeed. The deciding factor is whether the character can affect the material world. If he can, take Diffuse.

The essence of Homogenous, Unliving, and Damage Reduction is extreme toughness. Alternatives include Supernatural Durability (p. B89) and Unkillable (p. B95) – or just lots of Damage Resistance (p. 45) or Hit Points. Damage Resistance is superior for those who expect never to face high-damage attacks.

New Special Enhancements

Infiltration: For Diffuse only. Your body is a fluid that can flow through the tiniest of holes. In addition to the usual benefits of Diffuse, you can ooze through porous barriers and narrow cracks. You can't shapeshift, stretch abnormally, or sprout new body parts – just seep under doors, through screens, etc. +40%.

Swarm: For Diffuse only. You're a coordinated swarm of tiny creatures. You can scatter by taking a Concentrate maneuver. Your outer perimeter travels at your best applicable Move; maximum radius is 1/2 mile (buy Area Effect to change this). While scattered, only area-effect, cone, and explosion attacks can injure you, and only in proportion to the area they blanket; e.g., an attack that covers 5% of your area does 5% normal damage. You can focus your senses on any point within your area; changing viewpoints requires a Ready maneuver. Otherwise, treat this state as Insubstantiality (p. 55). To resume your normal form, you must contract to your usual size (at your Move score) and then take a Concentrate maneuver. Swarm *includes* Infiltration. +80% if you can't affect the material world; +160% if you can.

Powering Up

Elemental powers often grant Damage Reduction (limited to their element), or give access to elemental meta-traits (see p. B262) that include Homogenous or Diffuse. Someone with matter-control or spirit powers that let him become a semi-solid specter could also justify Diffuse.

With the addition of Infiltration, Diffuse suits shapeshifting powers. The GM might allow shapeshifters with particularly outré powers to buy other forms of Injury Tolerance – No Head, No Neck, etc. – with Switchable (p. 109).

Talent rarely affects Injury Tolerance, but the GM *might* permit those with Unliving, Homogenous, or Diffuse to add Talent to HT rolls for structural integrity; e.g., to avoid disintegration or resist Afflictions that cause Insubstantiality. Those with Independent Body Parts or Unbreakable Bones may add Talent to HT rolls for crippling.

Innate Attack

see p. B61

If an ability causes injury and isn't a natural melee weapon (like claws), it's an Innate Attack. Given the variety of attacks possessed by powered heroes in comics, movies, and so on, this covers a *lot* of ground. The first step when designing any Innate Attack is to choose its damage type:

Burning: Use this for electricity, flame, heat, and radiation. Examples include fireballs, lasers, lightning bolts, microwaves, and particle beams. Enhance the attack with Explosion (+50%/level) for a fireball, Radiation (+100%) for a particle beam, or Surge (+20%) for lightning. Exotic attacks might require combinations of damage modifiers: Radiation and Surge for *charged* particle beams, Explosion and Surge for *ball* lightning, Surge and No Wounding (-50%) for an electromagnetic pulse (EMP) that only harms electrical systems, etc.

Corrosion: Realistic examples are strong acids and bases. Powerful oxidizers also qualify, and tend to be Incendiary (+10%). Magical, superpowered, and superscience disintegration effects fall into this category, too.

Crushing: This is most appropriate for attacks that hurl large, blunt chunks of matter, like balls of stone or ice (but *not* bullets – those are piercing). Superscience force beams qualify as well. Explosives are crushing attacks with both Explosion (+50%/level) and Fragmentation (+15%/die); timed explosives, such as grenades, add Delay (variable).

Cutting: Cutting attacks nearly always involve blades or shards, which might be made of bone, glass, ice, metal, or any number of other things. *Tiny* shards that damage mainly as a result of their sharpness have No Blunt Trauma (-20%) and No Knockback (-10%). Cutting attacks are often carriers for venomous Follow-Up attacks.

Fatigue: Tranquilizers are the obvious real-world example, and have Cyclic, Onset, and Resistible (all highly variable). At higher TLs, sonic and electrical stunners become possibilities. Supernatural options include sleep spells and psionic mind blasts. Fatigue is the only damage type that can have Hazard enhancements (see p. B104). It can't *harm* inanimate objects, but with Hazard, the GM may let it *affect* them – Freezing could cool off a cheeseburger, Suffocation might deprive an engine of air, and so on.

Impaling: The notes for cutting damage apply here as well, but No Knockback isn't allowed – impaling attacks don't cause knockback in the first place.

Piercing: The most common example is a bullet or bullet-sized projectile. See below for detailed notes on projectiles; see *Guns as Innate Attacks* (box) to simulate firearms.

Toxic: Realistic poisons and diseases have Cyclic, Onset, and Resistible (all variable) – but supernatural death touches, evil eyes, etc. also qualify as toxic, and often lack these modifiers. A direct, physical attack that delivers a rad dosage *instead* of injury has Radiation (+25%).

Next, define how the attack delivers its damage:

Beam: Supers and energy weapons frequently project damaging rays. Most are burning, and don't absolutely *require* modifiers – but lasers have Armor Divisor (2) (+50%) and blasters have Armor Divisor (5) (+150%). Disintegration beams cause corrosion damage, often with Armor Divisor (10) (+200%) or Cosmic (+300%). Force beams are crushing, typically with Double Knockback (+20%); most other crushing beams have No Knockback (-10%). Stun beams inflict fatigue damage. Only "death rays" (supernatural or superscience) are likely to deliver toxic damage. Roll against Innate Attack (Beam) to hit with any kind of beam.

Curse or Mental Blast: Damaging supernatural effects that bypass DR might do *any* kind of damage. Use burning for pyrokinetic attacks; fatigue for nonlethal attacks, with Freezing (+20%) for cryokinesis, Missed Sleep (+50%) for a sleep spell, and so on; or toxic for a death spell or telekinetic attack. Add Malediction 1 (+100%) for spells or Malediction 2 (+150%) for psionic abilities. See *Affliction* (p. 39) for additional notes. Since there's no physical impact, add No Knockback (-10%) if damage is crushing or cutting. Malediction uses a Will roll, not a standard attack roll.

Field: Most constant, injurious effects that surround the user – sheath of flame, radiation zone, aura of withering, etc. – are burning or toxic, with Aura (+80%), Always On (-40%), and Melee Attack (-30%). Those who attack by emitting an expanding ring of fire, ice, poison, etc. from their body have Area Effect (+50%/level) and Emanation (-20%) instead, with damage type depending on the substance or energy involved. Neither requires a roll to hit – but to use an Aura *actively* calls for an unarmed melee attack.

Guns as Innate Attacks

To simulate a firearm, start with dice of Piercing Attack equal to its damage. Adjust Acc using Accurate (+5%/level) or Inaccurate (-5%/level); Range using Increased Range (+10%/level) or Reduced Range (-10%/level); RoF using Rapid Fire (variable); Shots using Limited Use (variable), usually with Fast Reload; and Rcl using Extra Recoil (-10%/level). If using *Optional Rule: Malfunction* (p. B279), add Unreliable (variable) to give the attack a Malf. Realistic guns almost *never* have the Variable enhancement. For worked examples, see *Built-In Firearms* (p. 136).

Ammunition

Innate Attack can also simulate different ammunition: add Armor Divisor (2) (+50%) and make the attack *small* piercing for armor-piercing ammo; add Armor Divisor (0.5) (-30%) and change the attack to *large* piercing for hollow-point; add Armor Divisor (0.5) and Incendiary (+10%) for tracer. Specialized ammunition might be non-piercing; e.g., flechettes are impaling.

Other Details

Considerations such as caliber and cartridge length are "special effects" (see *Special Effects,* p. 113). They can matter in play – e.g., when forced to reload from captured ammunition – but don't alter *point cost.* The same is true of Shots too generous to qualify for Limited Use: the designer should still give a number. He might not run out in 10-second firefight . . . but he could run out on a four-day mission. The GM may require a Shots statistic close to that for a comparable weapon in the game world. This isn't a limitation; it's no different from the GM ruling that someone who tosses fireballs all day gets tired (see *Abilities and Exertion,* p. 159).

Gas: Lethal gases inflict toxic damage; nonlethal ones, fatigue damage. Fictional breath weapons have Cone (variable), but supers and wizards who can create gas *clouds* should take Area Effect (+50%/level) instead. Add *one* of Respiratory Agent (+50%), Blood Agent (+100%), or Contact Agent (+150%) to any gas attack. Drifting (+20%) and Persistent (+40%) are useful for lingering gases – and the GM might even allow these with Cone. Use Innate Attack (Breath) to hit with a Cone. Area Effects that depend on a beam, gaze, or projectile use the appropriate Innate Attack specialty to hit.

Liquid: Liquids have Cone (variable) or Jet (+0%); fantasy breath weapons with Cone should have Reduced Range, ×1/5 (-20%), too. Acids inflict corrosion damage, while flaming liquids cause burning damage; either might be Cyclic (variable), if it sticks to the target. Water jets are crushing – often with Double Knockback (+20%) and No Wounding (-50%). Poisons inflict either fatigue or toxic damage, and have *one* of Blood Agent (-40% for Jet, +100% for Cone), Contact Agent (-30% for Jet, +150% for Cone), or Respiratory Agent (+50%). Roll against Innate Attack (Beam) or (Breath) to hit with liquids that issue from the hand or mouth, respectively.

Projectile: Projectiles don't *require* modifiers, but are among the few attacks that are routinely Guided (+50%), Homing (variable), or lobbed Overhead (+30%). They can deliver almost any kind of damage: burning for fireballs, crushing for stones, impaling for ice spears, and so on. *Storms* of fire, stones, ice, etc. are common magical and super attacks, and have Area Effect (+50%/level) – with Persistent (+40%) and possibly Wall (+30% or +60%) if they stay in place for some time, and often Bombardment (variable). To emulate firearms, see *Guns as Innate Attacks* (p. 54). Use Innate Attack (Projectile) to hit.

Touch: Most natural body weaponry is just Claws, Strikers, or Teeth – but a melee attack that operates independently of the user's ST is an Innate Attack with the Melee Attack limitation (variable). Use this option for an angel who can summon a sword of flame (burning), a robot with a built-in force sword (cutting), or a kung fu master who attacks with a deadly touch (toxic). Add Contact Agent (-30%) to attacks that must strike bare skin, Cosmic (+300%) to supernatural attacks that *completely* circumvent DR, like the Deathtouch spell (p. B245). Make an unarmed melee attack to hit.

Venom: Poison on Claws, Teeth, etc. should cause fatigue or toxic damage unless it's *very* unusual. Such attacks always have Follow-Up (+0%). Make a melee attack to hit with the carrier attack.

Finally, if the attack has a *chance* of causing a baneful effect in addition to injury if it penetrates DR, add Side Effect (variable). This is common for beams that emulate ultra-tech stunners, paralysis guns, and so on. If the attack *automatically* causes weakness or incapacity after inflicting enough injury, enhance it with Symptoms (variable) instead. Fatigue or toxic attacks that represent venom or poison gas generally have Symptoms.

Alternatives

Affliction (p. 39) is a far better starting point for a *completely* nonlethal attack . . . and the Coma and Heart Attack enhancements make Affliction a superior "all-or-nothing" lethal attack, too. To punch, kick, or strangle opponents at a distance, buy Telekinesis (p. 82).

Powering Up

Any power that isn't completely nonviolent might have an Innate Attack. Match both damage type and means of delivery to the power's focus and source; see above for *many* examples. In all cases, Talent gives a bonus to hit.

Insubstantiality

see p. B62

Beings largely unaffected by the physical world appear in myth and fiction at least as often as those that can fly. Paradoxically, most such entities can "anchor" themselves to material objects as needed, allowing them to stand on floors, ride in vehicles, and so on. This is a standard feature of Insubstantiality. What the insubstantial form looks like, and the things that can impede it, vary with the origin of the trait:

Dimensional: The traveler transports himself into a dimension parallel to the physical world. He looks slightly transparent, as if he weren't all there. Any place in the ordinary world that lacks an equivalent location in the other plane is *completely* off limits. Individuals with dimension-traveling foes often build strongholds in such locales!

Divine: This represents the ability to assume a "god form" that can roam the mortal world at will. The cleric looks normal except for the addition of something symbolic of his patron; e.g., a wreath of flame, for the Fire God. He can't infiltrate places of no or low sanctity, however; see *Special Rules for Divine Powers* (p. 175).

Elemental: The user turns into electricity or light, or vibrates at a weird frequency. He becomes a man-shaped glow, visible shimmering, etc., as befits his element. He can't penetrate barriers that are proof against his element; e.g., a grounded metal cage would exclude an electrical "ghost." Superscience force fields often block such Insubstantiality.

Magical, Psionic, or Spirit: The user enters the ethereal, astral, or spirit realm (these might be the same or quite distinct, depending on the setting). His appearance is misty and ghostly, and possibly luminous or shadowy. Shamans with spirit powers often look like beasts. Spells, psi abilities, and sorcerous rituals that obstruct spirits also block this ability.

Alternatives

Both Clairsentience (Projection, +140%) and Insubstantiality (Affect Substantial, +100%; Projection, -50%) cost 120 points. They're comparable, but there are important differences. Notably, Clairsentience gives an *invisible* form with a 10-yard range limit from the body, while Insubstantiality gives a visible form with *no* range limit.

To represent partial solidity, use Injury Tolerance (Diffuse) (p. 52) or Shadow Form (p. 73). To be able to pass through just one substance, take Permeation (p. 66).

Insubstantiality *doesn't* include invisibility. For that, take Invisibility (below), too – possibly with Substantial Only. Insubstantiality *does* include total silence, though, save when you choose to speak. You're undetectable to hearing, and need only make Stealth rolls if there's a chance you'll be seen.

Jumper (Time) and (World) mainly suit powers concerned with time- or world-travel, such as Teleportation and (with Projection) Astral Projection.

New Special Limitations

No Vertical Move: You can't disregard gravity. You must move across a horizontal surface, or along a slope that wouldn't require Climbing rolls. You still weigh nothing, so you don't leave footprints and can walk on surfaces that wouldn't support a solid body, such as the surface of a body of water. -10%.

Noisy: You *aren't* silent. You make noises equivalent to footfalls when moving and breathing at all times, and are no harder to hear than an ordinary human. -5%.

Projection: Your body doesn't become insubstantial. Instead, it falls unconscious and you step out of it in insubstantial form. Like someone using unmodified Insubstantiality, you're *visible* and *present,* making you subject to anything that affects insubstantial entities . . . while your body remains in the physical world, vulnerable to material threats; see *Projection* (p. 44). You can't use spells, psi abilities, etc. in this form unless you also take Affect Substantial. -50%.

Powering Up

This ability suits almost any kind of supernatural or elemental power, as noted above. With the Projection limitation, it's especially suitable for Astral Projection. Talent adds to any roll required to "push through" a resistible barrier or use Insubstantiality for a Power Dodge (see p. 167).

Intuition

see p. B63

As the ability to compare the current situation to past experiences and make an informed guess, Intuition is ideal for Digital Minds and super-geniuses. Supernatural guidance (e.g., ESP or divine wisdom) is an equally valid interpretation.

At the GM's option, if a skill would normally give useful information in the situation at hand – e.g., Navigation when deciding which way to steer, or Tactics in a military standoff – the user can substitute his level with that skill for IQ when rolling for this ability.

Alternatives

Those who can discover facts *without* guesswork should take Blessed (p. 43) or Oracle (p. 65) instead.

New Special Enhancement

Inspired: Your gift is so finely honed that any success while using it reveals the *best* choice out of those confronting you. The worst possible result on a failure, even a critical failure, is that you don't know; the GM will never suggest a *bad* choice. +100%.

Powering Up

Intuition is a traditional ability of shamans, and might stem from spirit powers. It's also appropriate for ESP or any similar information-gathering power, and for divine and moral powers – especially with Inspired. Finally, it could represent the ability to draw upon the collective wisdom of others, making it part of Telepathy. Talent adds to all IQ or skill rolls to use this ability.

Invisibility

see p. B63

Tales of invisible men – but ironically not *The Invisible Man,* which inspired many of them – usually assume that Invisibility has Switchable (+10%) and Can Carry Objects (at least +10%). Remember to choose the kind of vision affected. If the GM wishes to allow "total"

invisibility, he may rule that +100% worth of Extended interferes with *any* sense that Invisibility could reasonably affect. Common variants include:

Deception: A ninja or telepath who mentally compels others to believe they can't see him has Invisibility to electromagnetic vision with Can Carry Objects, Switchable, and Glamour (p. 111). Deceivers aware of unusual senses might interfere with those, too; add Extended (+20%/type).

Ghost: Ghosts that are invisible to mortals have Invisibility to electromagnetic vision with Usually On (+5%) and Substantial Only (-10%). Traditionally, ghosts can be seen in mirrors and photographs; they have Visible Reflection (-10%), and *can't* take Affects Machines.

Stealth Technology: A vehicle or robot that's invisible to infrared and radar – but not the naked eye – has Invisibility to electromagnetic vision with Machines Only (-50%). The best optical camouflage has Affects Machines (+50%) *instead* of Machines Only, but still suffers from Fringe (-10%). Stealthy submarines have unmodified Invisibility to sonar; the best add Extended, Magnetic Detection (+20%). Switchable is uncommon, as stealth tends to be a permanent structural feature.

Superscience Cloaking: Space-opera "cloaking devices" give Invisibility to electromagnetic vision with Affects Machines (+50%), Extended, Scanners (+20%), and Switchable (+10%).

Alternatives

Represent partial invisibility using Chameleon (p. 43). Those who create darkness or smoke in order to hide from sight should take Obscure (p. 64).

New Special Limitation

Fringe: Your ability leaves a faint outline or shimmering. It works normally when you're standing still, but if you move, others can spot you with a Vision-6 roll and target you in combat at only -6 to hit. -10%.

Powering Up

Invisibility is a key ability for Light and Darkness powers. Electrokinesis could allow a psi to jam signals and become invisible to machines – he might even bend light and become *truly* invisible (a trick called "photokinesis"). The addition of Glamour makes Invisibility suitable for chi powers and Telepathy, too. Talent adds a further bonus to Stealth skill rolls to avoid being seen.

Jumper

see p. B64

Use Jumper (Time) for supers and superscience vehicles that move through time by traveling faster than light, weird-science "time machines," and so on. Jumper (World) is *interdimensional* travel for the purpose of visiting alternate timelines. The GM may add other Jumper advantages. For instance:

Jumper (Spirit): You can enter and leave the "spirit worlds" *in body.* In these realms, you're a spirit. You can interact normally with the spirits there and use any ability that's "standard" for spirits in that world. Likewise, anything that affects spirits affects you. To make the transition, use the standard rules for Jumper. Each attempt costs 1 FP. Success on the IQ roll means you shift between realms. Failure means you stay in your current world; you're at -5 to use this ability again in the next 10 minutes. Critical failure results are up to the GM . . . you might attract evil spirits, end up adrift between worlds, or go to the *wrong* world (e.g., Hell). The special modifiers for Jumper (World) are available to you, although not all of them are meaningful in every setting. *100 points.*

Alternatives

Travelers who "jump" through *space* need Warp (p. 88). Seers who receive glimpses of the past, future, or spirit world have Psychometry (p. 69), Precognition (p. 68), or Medium (p. 59), respectively. Neither requires Jumper.

Those who assume or send forth a "spirit form" often have Clairsentience (p. 44) or Insubstantiality (p. 55). Only use Jumper (Spirit), or Jumper (Time) or (World) with the Projection modifier, for those who truly visit another realm or time.

New Special Enhancements

Interplanar: For Jumper (World) or (Spirit). You can enter higher planes of existence – perhaps even the realms of the gods. +100% if you can reach these worlds as well as parallel worlds (world-jumpers) or spirit worlds (spirit-jumpers); +0% if you can *only* reach higher planes.

Reliable: Your ability is unusually stable. Each level of this enhancement adds +1 to both the IQ roll to use Jumper and the automatic failure threshold (e.g., Reliable 2 gives +2 to IQ and mean a roll of *16* or more always fails). +5% per +1, to a maximum of +10.

New Special Limitations

Limited Access: For Jumper (World) or (Spirit). You can only jump between two *particular* worlds – your home world and one specific parallel, the material world and Hell, etc. The size of this limitation depends on how many worlds exist in the setting. If there's only one, it's meaningless: -0%. If there are many, it might be worth -20% or more, at the GM's discretion.

Projection: For Jumper (Time) or (World). You travel in mind, not in body. Your body remains at your departure point, unconscious and vulnerable, while your consciousness appears at your destination as a visible but intangible projection. This form is subject to anything that affects insubstantial beings. See *Projection* (p. 44) for other rules. If you have Insubstantiality, you can "reverse" it in order to become solid; if you have Possession (Spiritual, -20%), you can possess a resident of the target world. -50% if you can't affect your destination at all *without* Insubstantiality or Possession; -0% if you can use spells, mental abilities, and Maledictions to affect your destination while projecting. Sending a *physical* body to your destination as usual, but also leaving behind an unconscious body as described here, is worth -25%.

Special Movement: You need to move to use your ability. Limitation value depends on how stringent the requirements are. If you merely have to walk a few steps and be free of anything that restricts movement (like manacles), that's -10%. If you need to enter orbit and accelerate past the speed of light with expensive advantages like Flight (Space Flight, +50%) with Enhanced Move 27 (Space), that's -40%.

Special Portal: You need a particular sort of "gateway" to use your advantage; e.g., a natural cave opening, or a sacred stone circle on a moonlit night. Limitation value depends on the rarity of the required portal. "Any reflective surface" is -20%, as is a relatively common geographic feature. If a summoning ritual that specifically names you creates a "channel" that lets you jump into the presence of your summoner – but nowhere else – that's -60%. One specific spot at a certain time of the year is -80%.

Powering Up

Jumper (Time) and (World) mainly suit powers concerned with time- or world-travel, such as Teleportation and (with Projection) Astral Projection. Just about *any* power that grants faster-than-light levels of Enhanced Move (Space) could justify Jumper (Time) with the Special Movement limitation, though.

Heavy Lifting

Mecha and supers often lift extreme weights. Vehicles are especially popular! The following table gives the total ST – basic ST plus Lifting ST – needed to lift a few items of interest. If using Super-Effort, remember to add the *enhanced* ST bonus to basic ST.

Weight (tons)	*Total ST*	*Example*
1	36	Small car
2	50	Large car
5	79	Ship's anchor
10	112	Private jet
25	177	Fighter jet (loaded)
50	250	Main battle tank (loaded)
100	354	Space shuttle
500	791	Heavy passenger jet
1,000	1,118	Small freighter
5,000	2,500	Frigate
10,000	3,536	Light cruiser
50,000	7,906	Battleship

These weights assume a two-handed, overhead lift. For other items, total ST required equals the square root of (1,250 × weight in tons).

Jumper (Spirit) is appropriate for spirit powers – as are other forms of Jumper, with Projection. With the Interplanar enhancement, it also suits divine powers.

Talent adds to the IQ roll required to activate any Jumper advantage.

Lifting ST

see p. B65

Lifting ST is realistic for beasts of burden (e.g., horses and mules) and slow-but-powerful machinery – cargo-handling exoskeletons, tugboats, etc. Comic-book supers are often capable of *extreme* lifts; see the Super-Effort enhancement (below) for a way to handle this.

Alternatives

Lifting ST only augments basic ST for lifting, pushing, etc. – and for grappling and choking in combat. To increase damage with melee weapons, take Striking ST (p. 78). Those who want all of these benefits *and* more HP should just improve their ST.

New Special Enhancement

This *optional* enhancement is intended for demigods and supers. With it, Lifting ST becomes more efficient than usual after eight levels . . . and gets better from there. Thus, it's only of value to heroes with a significant investment in Lifting ST. If the GM sets a limit when using this modifier, it should be at Lifting ST +8 or higher.

Super-Effort: You can make truly heroic lifts! Your Lifting ST works as usual except when you use extra effort. Then ignore the ordinary extra effort rules. Instead, find your Lifting ST level in the *Size* column of the *Size and Speed/Range Table* (p. B550), read across to the *Linear Measurement* column, and use that number as your ST bonus for the lift. For instance, Lifting ST +20 gives +5,000 ST. This costs 1 FP per lift. Once you've made the lift, use *Abilities and Exertion* (p. 159) for ongoing FP costs. Walking around with or pulling the weight counts as "intensive use" (1 FP/minute); just holding it up is "long-term use" (1 FP/hour). You can't take Reduced Fatigue Cost to eliminate these costs unless you also add Cosmic (+50%). Super-Effort never benefits chokes or grapples. +400%.

Powering Up

Lifting ST could belong to a biological body-control power or a matter-control power that affects mass or

density. Divine and chi powers might use Lifting ST – perhaps with Costs Fatigue or Super-Effort – for the ability to perform "heroic feats."

Talent modifies Will and HT rolls for extra effort and to avoid self-inflicted injury while lifting.

Luck

see p. B66

For the fictional protagonist, Luck is usually a "meta-advantage" – a deliberate effort by the storyteller to give him the benefit of the doubt at every turn of the plot. It's rarely an *active* ability known to him and acknowledged by his companions. Still, heroes who are conscious of their luck do exist in fiction, especially in the comics.

Alternatives

Use Daredevil (p. B47) for those whose "luck" depends on risk-taking, Serendipity (p. 73) for heroes whose luck takes the form of coincidence rather than good odds, and Super Luck (p. 80) for masters of probability manipulation.

New Special Enhancement

Wishing: You can consciously manipulate probability. You may request two rerolls for *any* die roll made in your presence – not just your rolls – and choose the one you prefer. It isn't enough for you, the *player* to see the dice roll; your *character* must witness the action you wish to influence. Normal usage limits still apply. The Active limitation is common but not required. +100%.

Powering Up

Luck is a traditional gift from otherworldly guardians, making it suitable for divine and spirit powers. With Active or Wishing, it might instead be part of a probability-control power; this could have almost any source, but is commonly associated with psi in fiction. Talent gives a bonus to any die roll influence by Luck – but only if that use of Luck is declared in advance.

Mana Damper and Mana Enhancer

see pp. B67-68

Neither "mana level" nor the ability to alter it is a traditional concept – but in game-mechanical terms, a high level of Mana Damper is superior to Magic Resistance for magic-resistant fantasy denizens, while Mana Enhancer can explain lone wizards and dragons in prevalently nonmagical settings. Of course, Mana Damper is only *worthwhile* if magic exists, and Mana Enhancer is chiefly of use to those who cast spells.

Those with potent magical gifts might be able to adjust the mana level either way. The GM should require those who want Mana Damper *and* Mana Enhancer to take the Switchable special enhancement (+100%) on both traits – and Variable (+5%), if either trait can alter the ambient mana by more than one level. This is expensive because it's powerful: if the user has Magery, he can elevate the mana level when casting spells . . . and then lower it to neutralize enemy magic.

Alternatives

Compare Mana Damper to Neutralize (p. 97) and Static (p. 98) against magical powers. A high level of Magic Resistance (p. B67) is cheaper than either, but also less capable.

New Special Enhancement

Discriminatory: You and any allies in your area of effect enjoy the *best* mana level your ability can provide – highest if casting spells, lowest if resisting them – while enemies in the area suffer the *worst* level you can generate. This modifier *includes* Switchable, and replaces the Selective Area enhancement for Mana Damper and Mana Enhancer. +150%.

Powering Up

These advantages rarely suit powers other than magical ones. Exceptions might be the divine power granted by a god of magic, or a specialized psionic power that manipulates mana fields. Talent applies mainly to Power Block attempts (see p. 168).

Medium

see p. B68

Medium is the ability to sense the presence of and speak with nearby unbound spirits (ghosts, "wild" elementals, etc.) – *not* spirits of the living or spirits bound to objects. It also works on "spirits of place," but only within the spirit-inhabited area. At the GM's option, variant forms might instead let the user speak with residents of the dream world, parallel universes, or cyberspace. Each form is a separate Medium advantage.

Alternatives

To grasp the motivations of spirits and improve your odds of persuading them, take Spirit Empathy (p. B88). Use Detect (Spirits) [10] to sense the presence of spirits that are bound, possessing someone, or too distant to speak with. To *see* spirits more than a yard away – even those with whom you aren't communicating – buy a suitable form of See Invisible (p. 72). None of these traits lets you *speak* with spirits.

If you can *force* spirits to become visible or solid against their will, buy an Affliction (p. 39) that cancels Invisibility or Insubstantiality via Negated Advantage. If this only affects spirits, or certain kinds of spirits, add an Accessibility limitation.

If spirits simply possess you in order to speak with *others,* that's Channeling (p. 43).

New Special Enhancements

Manifestation: Your presence makes it easier for spirits to become visible, if they wish. As long as they're within a yard of you, those with the Spirit meta-trait (p. B263) needn't pay the 1 FP per second demanded by the Usually On limitation on their Invisibility. +100%.

Universal: You can communicate with *any* spirit you can sense with Medium, even those with whom you don't share a language. +50%.

Visual: You can *see* spirits while communicating with them, even if they would normally be invisible. +50%.

New Special Limitations

In many settings, Medium requires a ritual or séance to use. If so, add Preparation Required (p. B114). Another common limitation:

Specialized: Your ability only works with one specific class of spirits. Possibilities include angels, demons, elementals, faerie creatures, and ghosts. -50%.

Powering Up

Medium is appropriate for any supernatural power, but especially spirit powers and ESP. Talent adds to all IQ or skill rolls made to perceive or understand spirits.

Metabolism Control

see p. B68

The ability to control involuntary bodily functions is a classic shtick of kung fu masters and yogi, not to mention supers and aliens modeled after them. It needn't have mystical overtones, though – genetic engineering or implants might give this advantage to a modified human or cyborg.

At the GM's option, Metabolism Control lets the user feign afflictions: disease, drug reactions, heart attack, etc. To discover the ruse, witnesses must win a Quick Contest of Diagnosis vs. the user's HT + Metabolism Control.

Alternatives

Consider Injury Tolerance (No Blood) (p. B61), Doesn't Breathe (p. B49), or Doesn't Eat or Drink (p. B50) for those who don't bleed, breathe, or eat *at all.* If all that matters is a HT bonus, Resistant (p. 71) is a better deal.

New Special Enhancement

Mastery: You can make precise adjustments to your metabolism and body chemistry instantly, helping you cope with even extreme or unexpected stresses. As long as you're conscious, add your level of Metabolism Control to *any* HT roll. +40%.

Powering Up

This ability best suits biological, chi, and psi powers – especially Body Control and Healing. Talent adds to HT in the Quick Contest to feign death and for any similar feat the GM allows.

Microscopic Vision

see p. B68

Microscopic Vision is most common among robots and crimefighting supers. It lets those who have it do fine work or gather microscopic evidence without any equipment penalty for being without a magnifying lens.

Supers sometimes add Ranged (+40%), which makes it possible to distinguish minute detail on distant objects. This ability works at full magnification out to 1/2D range (10 yards) and at 1/3 that out to Max range (100 yards). Make *two* Vision rolls: one to spot the object, one to see minute details.

Use a combination of Blindness (p. B124) and Microscopic Vision for someone who can see tiny details at point-blank range, but *not* distant objects or the normal-sized world.

Powering Up

Like any vision advantage, Microscopic Vision suits Light power and possibly ESP. Supers with size-control powers might have this ability alongside Shrinking. Talent adds to all Vision rolls for this ability.

Mimicry

see p. B68

This trait is typical of parrots, doppelgangers, robot assassins, and other beings that are physiologically or technologically adapted to emulate sounds and voices. It's up to the GM whether

I see dead people . . . walking around like regular people. They don't see each other. They only see what they want to see. They don't know they're dead.

– Cole Sear, ***The Sixth Sense***

it can emulate the "voiceprints" that high-tech security systems use to verify identity.

Alternatives

Mimicry can *imitate* but not *communicate* with animals – use Speak With Animals (p. 77) for that. Mimicry can't produce inaudibly low- or high-frequency sounds unless the user also has Subsonic Speech (p. B89) or Ultrasonic Speech (p. B94).

Ordinary human mimics have Mimicry *skill* (p. B210). The GM may permit those who have that skill to use the higher of it or IQ when rolling to use this advantage.

New Special Enhancement

Voice Library: You never forget any sound or voice you've successfully mimicked. It's the *player's* job to maintain this list. To recall a sample, take a Concentrate maneuver and make an IQ roll. +50%.

Powering Up

Mimicry fits elemental Sound/-Vibration power and most body-alteration powers. It's also a likely ability for powers pertaining to animals or illusions. Talent adds to IQ rolls to duplicate sounds or imitate voices.

Mind Control

see p. B68

Folklore attributes the ability to control minds to a great many supernatural entities, including demons, nymphs, vampires, and deities. This is likely a diplomatic scrim over the realities of insanity or criminality . . . but the tales could be true in a fantasy or horror setting. Most innate gifts use unmodified Mind Control. Add Telepathic (-10%) if the influence is psionic. A few alternatives:

Cinematic Hypnotism: The controller must lock eyes with his victim and hypnotize him in order to give commands. This calls for Vision-Based (-20%). Suggestion (-40%) is common.

Drugs: The attacker uses a drug to make his victim suggestible. This requires a bite, kiss, or more intimate contact. Some time after exposure, the subject gets a HT-based resistance roll. Add Based on HT (+20%), Blood Agent (-40%), Independent (+70%), and Onset (1 minute or 1 hour) (-10% or -20%). If *anyone* can command the subject, add the Puppet limitation (-40%).

Pheromones: The user exudes an invisible chemical cloud that inspires attraction in those exposed to it. Victims must be within two yards and breathe the gas – this ability doesn't work by touch or sight. The controller can only *command* one subject per second, at the usual -1 per subject after the first. Add Area Effect 1 (+50%), Emanation (-20%), and Scent-Based (-20%). Accessibility (Only on opposite sex) (-20%) and Emotion Control (-50%) are likely but not required.

Vibrations: The controller emits vibrations that influence emotions. Add Emotion Control (-50%), with Based on HT (+20%) for inaudible vibrations or Hearing-Based (-20%) for audible sounds (common for fantasy bards and mythic sirens).

Alternatives

Extreme levels of Charisma (p. B41) can often achieve similar effects. The ability to turn others into Allies over the long term is Dominance (p. B50), while that of entering the subject's mind and operating his body directly is Possession (p. 67).

New Special Enhancement

Independent: Your Mind Control doesn't require ongoing attention. If it works, you're free to do other things. You must still concentrate to initiate control, but you can't claim the +2 or +4 for lengthy concentration. If the victim fails to resist, control persists for one minute per point by which he lost the Quick Contest; you can't maintain it indefinitely by concentrating. These drawbacks are minor next to the benefits. First, only an attempt to force the subject to act against his principles can break control; you're "out of the loop" already, so incapacitating you changes *nothing*. Second, since your attention isn't divided, each contact is separate from all others; there's no -1 per slave, and critical failure with one victim doesn't free the rest. +70%.

New Special Limitations

Emotion Control: You can't control the subject's *actions,* just his feelings. For some guidelines on what's possible, see the Sway Emotions skill (p. B192). Emotion Control is mutually exclusive with Conditioning Only and Suggestion. -50%.

Suggestion: You can't command the subject to take specific actions – you can only suggest a *general* course of action. Effects are as for Suggest skill (p. B191). Suggestion is mutually exclusive with Conditioning Only and Emotion Control. -40%.

Powering Up

Mind Control is appropriate for *many* supernatural powers, especially Telepathy. In addition, hypnotism is common for chi powers, pheromones fit biological and chemical powers, and vibrations suit Sound/Vibration power. With Cybernetic Only (p. B70), Mind Control even allows control over computers ("cyberpsi") – the definitive Machine Telepathy ability. Talent adds to IQ rolls to use the ability in all cases.

Mind Probe and Mind Reading

see p. B69

These closely related advantages feature prominently in fantasy, horror, and science fiction – typically as psionic or magical gifts. Mind Reading is the basic "receive" ability common to telepaths, regardless of origin. Mind Probe is a deep scan or mind-meld; in many ways, it's a higher level of Mind Reading, and the GM might elect to make Mind Reading a prerequisite.

I can kill you with my brain.
– River Tam, ***Firefly***

Both traits are open to interpretation as interrogation under truth drugs; see the notes under *Mind Control* (above) for modifiers and details. If the subject must vocalize his reply, add Accessibility, Must hear subject, -20%.

Alternatives

Use Empathy (see *Empathy Advantages,* p. 48) to "read" emotions instead of thoughts. To *send* thoughts, take Telesend (see *Telecommunication,* p. 81).

Mind Control can also reveal a subject's thoughts: just command him to tell you everything he knows. Of course, this is significantly less *subtle.*

New Special Enhancements

Invasive: Mind Probe only. Your probe works like a mental invasion, not an interrogation. If you win the Quick Contest, you're inside your subject's mental defenses and free to pillage his memories. You're still limited to one question per second, but each answer requires an *uncontested* roll against IQ, Interrogation, Psychology – or Dreaming, if the subject is sleeping. +75%.

Memory Bank: Mind Probe only. You can store a detailed "snapshot" of the subject's mind. This requires the usual Quick Contest, but takes an *hour.* A later IQ roll lets you recall information the subject knew when last probed (just as if you were probing him) or his personality (eliminating penalties to impersonate him with Acting). You can delete a snapshot at any time. +100% if you can store a number of snapshots equal to IQ; +150% for unlimited capacity.

Multiple Contacts: Mind Reading only. You can maintain channels to several minds at once. Roll at a cumulative -1 per contact after the first. You can switch between established contacts without rolling, but you must focus on one contact at a time to read minds. In combat, choose whose mind you're reading each turn. +50%.

Powering Up

Mind Probe and Mind Reading are classic psionic abilities associated with Telepathy (or Machine Telepathy, with the Cybernetic Only limitation), but *any* supernatural power might offer them. Talent adds to IQ and skill rolls made to use either.

Mind Shield

see p. B70

Mental shields are "in genre" for psis, shamans, wizards, martial artists, and others with training at gathering inner strength to ward off psychic incursions. In worlds where mental powers are commonplace, *anyone* might be able to build up a Mind Shield (GM's decision).

In settings with many different supernatural powers and abilities, the GM should let Mind Shield add to IQ, Will, and Perception for the purpose of resisting *any* paranormal influence – including advantages with the Glamour limitation (p. 11). For less sweeping protection, add Limited (below).

With the Cybernetic limitation (-50%), Mind Shield represents "hardened" computer security for Digital Minds. Cybernetic is a specific example of Limited; don't take both.

Alternatives

Magic Resistance (p. B67) and certain varieties of Resistant (p. 71) protect against many of the same things that Mind Shield does. Static (p. 98) is a superior defense, but prevents the user from having other psychic abilities.

People who have studied "mental self-defense" might have the skills Mental Strength (p. B209) and Mind Block (p. B210) instead of Mind Shield.

New Special Limitation

Limited: Your Mind Shield only works against certain mental attacks. An entire power source (e.g., divine, magical, psionic, or spirit) is -50%; a specific focus, power, or college of magic (e.g., Telepathy or Mind Control spells) is -75%.

Powering Up

Mind Shield is a traditional part of Telepathy, extremely appropriate for chi and spirit powers, and often available for divine, magical, and moral powers, too. *Active* use of a mental shield to block a mental attack shows up frequently in fiction. The GM should consider allowing Power Block (see p. 168) for Mind Shield even if he doesn't permit it for other abilities. Talent adds to all such attempts.

Modular Abilities

see p. B71

Many fictional characters can do almost anything . . . but not everything at once. This is what Modular Abilities exist to simulate. Each type suits a particular class of hero:

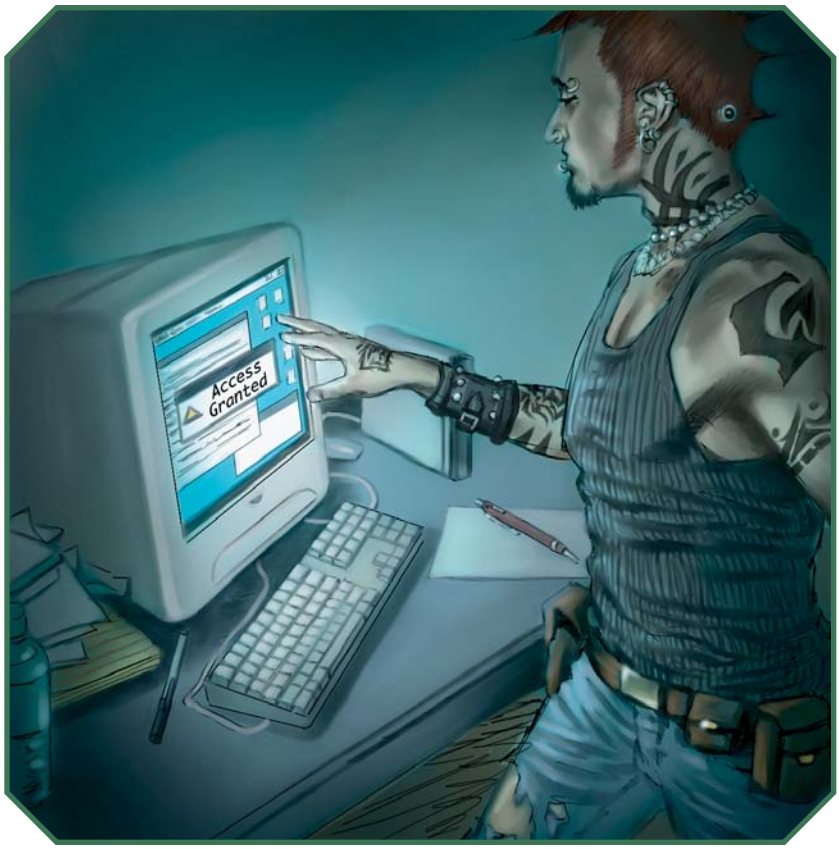
Chip Slots: Use this for cyborgs with removable hardware. This usually means "skill chips," but with the Physical enhancement, sockets for standardized equipment modules – "Gadget Slots" – are an option. Add Limited if these sockets can only accept a specific type of equipment.

Computer Brain: This is for AIs and cyborgs with implanted computers, who download programs instead of plugging them in. The Physical enhancement rarely makes sense, but the Virtual limitation is common and *definitely* allowed for those who can only use their abilities online or in "cyberspace."

Cosmic Power: Ideal for gods and supers! The Physical enhancement is common. Use Limited to confine gods to a "sphere of influence" or restrict

Modular Abilities in Play

Reconfiguring Modular Abilities can slow down the game. To prevent this, the GM should encourage players to work out and list favorite abilities *before* play begins. To speed things up further, the GM may rule that some tasks require a minimum number of points in Modular Abilities, stipulate that the user be able to add mental, physical, or social abilities, but stop short of naming specific traits; e.g., "This task requires 40 points in physical abilities." Anyone whose Modular Abilities are up to the challenge can perform such a task – although this might still require a success roll.



supers to an element. If they shape *existing* matter or energy, and are powerless without it, add Environmental (p. 110) instead.

Super-Memorization: This suits wizards and cinematic geniuses. Physical is rarely appropriate, as few physical advantages are "memorized." Limited frequently restricts use to spells, languages, or specific classes of skills.

The GM may invent other forms. Set the per-slot cost to reflect the scope of available traits: 4 points for a short list, 5 points for a lengthy catalog, 6 points for *nearly* anything, and 7 points for anything. Cost per point in a slot should be 2 points if rearranging points is costly, slow, *and* subject to external interference; 3 points if just two of those; 4 points if only one of those; and 5 points if none of those. For example:

Divine Inspiration: Your abilities are minor wishes granted by a Higher Power. You can request nearly any ability at any time (add Physical or Social to have more options). However, your deity – as played by the GM – occasionally overrules you. Reallocating points requires at least a second of prayer per character point. *Cost per slot: 6 points base + 4 points per point of abilities.*

Alternatives

Heroes who can manipulate a particular element precisely enough to generate a wide variety of effects that *don't* emulate other advantages have Control (p. 90) and/or Create (p. 92). Those who can *become* anything have Morph (p. 74). And those who simply *do* things without acquiring abilities have Wild Talent (p. 89).

Modular Abilities are expensive – even with limitations – because they're so flexible. Those with a small number of related, mutually exclusive abilities should see *Alternative Abilities* (p. 11) for a more affordable option.

New Special Enhancement

Social: You can add social advantages. Work out *how* you do this with the GM. If you somehow alter records, the GM may limit available traits to Alternate Identity, Clerical Investment, Independent Income, Legal Enforcement Powers, Legal Immunity, Rank, Security Clearance, Tenure, and Zeroed. +0% for social advantages only; +50% for any mental or social ability. To add *any* ability, combine Social, +50% with Physical, +100%; other combinations are forbidden.

New Special Limitations

Many fictional users of Modular Abilities require supreme concentration and effort to rearrange their abilities. Represent this using Costs Fatigue, Requires (Attribute) Roll (p. 112), and Takes Extra Time.

It *is* acceptable to fill Modular Abilities slots with advantages that have limitations. These limitations can only duplicate those on Modular Abilities if they represent a different set of drawbacks. For instance, if your Modular Abilities have Costs Fatigue, you can add an Innate Attack with Costs Fatigue, because a FP cost for rearranging points isn't the same limitation as a FP cost for attacking. If your Modular Abilities have Environmental, though, none of the advantages they grant can claim this limitation.

One special limitation is particularly important for Modular Abilities:

Limited: You can only acquire a specific subset of traits. Most such restrictions fall into one of two broad categories.

Your Modular Abilities might be *focus-limited,* meaning you can only add traits that you could logically simulate by shaping or controlling a particular focus. For instance, Limited, Fire would allow Burning Attacks, DR that blocks physical projectiles (by vaporizing them), Temperature Control, etc. – but not Fangs or Parabolic Hearing. Limitation value depends on the degree of restriction:

A highly versatile focus that amounts to a special effect; e.g., green force fields or motion: *-5%.*

Any ordinary variety of matter or energy; e.g., electricity, fire, light, sound, or water: *-10%.*

Anything more specialized; e.g., spider webs: *-15%.*

Most focus-limited Modular Abilities have Physical, +50% ("physical advantages only"). The GM can make exceptions, but these should be rare – few forms of matter or energy can be shaped into mental advantages or skills.

Those with Environmental (p. 110) *can't* claim Limited for the same conditions; this is built into the value of Environmental. For example, if Green Thumb's Cosmic Power only allows him to control vegetation – a -40% Environmental limitation – he can't *also* claim -15% for Limited. The fact that he manipulates plants automatically limits him to advantages that plant control can emulate.

Modular Abilities can also be *trait-limited,* meaning you can only add a specific subset of traits related by function rather than focus:

Advantages Only or Skills Only (includes techniques): *-10%.*

A broad class of advantages (e.g., Attacks Only or Body Parts Only) or skills (e.g., Spells Only or Technological Skills Only), or only being able to add points to abilities you already have: *-20%.*

A medium-sized class of *related* abilities (e.g., Combat Skills Only or Social Skills Only), a subset of a broad class (e.g., Senses Only or Fire Spells Only), or all forms of a flexible, powerful advantage (e.g., Afflictions Only or Innate Attacks Only): *-30%.*

A subset of a medium-sized class (e.g., Unarmed Combat Techniques Only or Vision Advantages Only), or one specific form of a flexible, powerful advantage that's easy to customize with modifiers (e.g., Toxic Attacks Only, which can simulate most diseases and poisons): *-40%.*

One specific trait that allows specialization but not modification (e.g., Languages Only, which *doesn't* let you break ciphers, read encoded data, or grasp concepts simply by learning the words for them), or one flexible advantage subject to restrictive modifiers (e.g., Only Afflictions with Based on Will and Malediction 1, or Only Allies with Minion and Summonable): *-50%.*

Mental Only, Physical Only, and Social Only aren't allowed. Modular Abilities are *always* limited to mental traits without Physical or Social. Take Physical, +50% if restricted to physical advantages, or Social, +0% if restricted to social ones. The presence or absence of Physical and Social does affect the permissible forms of Limited, however. For instance, those with Physical can't limit themselves to a subclass of mental traits, while those *without* Physical can't restrict themselves to a group of physical traits.

Focus- and trait-limited aren't mutually exclusive. For instance, super-gadgeteers often combine the two. They're focus-limited to superscience gadgets (-5%); the focus they manipulate is "available spare parts." They're also trait-limited: "Advantages With Gadget Limitations Only" (-20%). This requires Physical, +50%, and often comes with a high level of Preparation Required to reflect time in the workshop.

Powering Up

Modular Abilities suit capable users of *any* power. Add Limited (or Environmental) and Physical as needed to restrict them to the types of abilities normally allowed for the power. Apply the power modifier to the Modular Abilities themselves but *not* the traits they're rearranged into (doing both is double-counting). Talent adds to all rolls to use any of the advantages granted by Modular Abilities.

Penalties for Obscure also apply to any form of Telecommunication that uses the same type of signal as the blocked senses.

Obscure

see p. B72

Obscure is a flexible advantage that can represent *many* fictional abilities – some of which are unobvious by design. When customizing Obscure, the first step is to specify what senses it affects, and how:

Clairsentience: Obscure usually blocks *one* sense, whether the observer examines the affected area in person or remotely. A supernatural or superscience "anti-power" might specifically prevent *all* remote sensing without affecting *any* mundane senses. Obscure (Clairsentience) often has Extended for Detect, Divination, or Para-Radar (+20% each) and Limited, Psi (-20%).

Detect: An effect that actively jams a specialized sensor should have Obscure against the equivalent Detect. For instance, Obscure (Detect Magnetic Fields) would work against magnetic anomaly detectors. Other forms of Obscure might affect supernatural versions of Detect – imagine a demon with Obscure (Detect Evil)!

Divination: Obscure (Divination) is legitimate, and affects all attempts to gather *facts* from within the area through such means as Information spells and Psychometry. Use Obscure (Clairsentience) to disrupt remote viewing.

Hearing: This might represent a magical stealth spell, white noise, or ultra-tech sound cancellation. Regular hearing, Subsonic Hearing, Ultrasonic Hearing, Sonar, and Vibration Sense are all "related" for the purpose of the Extended enhancement. Obscure (Subsonic Hearing) and (Ultrahearing) suffice to evade geophones and ultrasonic motion detectors, respectively. Discriminatory Hearing, Parabolic Hearing, and so on *aren't* unique senses; they merely make hearing more useful. Those who have such traits have no special ability to ignore Obscure.

Scanning Sense: Treat Radar and Imaging Radar as the *same* sense for the purpose of Obscure. Other Scanning Senses require separate versions of Obscure. These varieties of Obscure nearly always represent jamming of some kind. For the purpose of the Extended enhancement, Ladar is related to all kinds of vision, while Sonar is related to Vibration Sense and all types of hearing. In most settings, Para-Radar is related to Clairsentience and Detect.

Vision: This could be darkness, blinding light, fog, smoke, or a magical blurring spell. Regular vision, Infravision, Ultravision, and Ladar are all "related" for the purpose of the

Extended enhancement. Obscure (Infravision) also interferes with heat-seeking missiles and infrared motion detectors. Microscopic and Telescopic Vision, Peripheral Vision, etc. *aren't* unique senses; they just make vision more useful. Those with such advantages have no special ability to ignore Obscure.

Penalties for Obscure also apply to any form of Telecommunication (p. 81) that uses the same type of signal as the blocked senses, if the sender or receiver is inside the area of effect. Infrared Communication works like Infravision, Laser Communication works like Ladar, Radio works like Radar, and so on. It's up to the GM whether Telesend works like Para-Radar.

By default, Obscure is a detectable jamming field (e.g., darkness, electronic noise, or white noise) or cloud (anti-laser aerosol, radar-defeating chaff, smoke, etc.) around the user. Without special modifiers, it impedes signals crossing it in either direction. There are two common exceptions to these assumptions:

Stealth Field: A *subtle* effect that prevents detection of the user and the field itself is standard for magic and psionics, and common for super-science cloaking. This requires Stealthy (+100%). Supernatural versions rarely inconvenience the user, and also have Defensive (+50%). Ultra-tech devices generally block the user's sensors, too.

Weapon: Many supers and vehicles shoot beams or projectiles that cause these effects at a distance; e.g., flares for Obscure (Infravision) or smoke bombs for Obscure (Vision). Give such abilities Ranged (+50%). *Don't* add Stealthy to anything that's supposed to work as a decoy or distraction.

Alternatives

Obscure creates an effect within which *anyone* could hide. A hero who makes only *himself* less detectable has Cameleon (p. 43), Invisibility (p. 56), or Silence (p. 76).

An Affliction (p. 39) with an enhancement such as Disadvantage (Deafness) or Negated Advantage (Infravision) can knock out someone else's senses. Combined with Area Effect, Emanation, and Sense-Based, this simulates a deafening noise, blinding flash, etc. better than Obscure.

Those who can block senses with *images* – physical or mental – should take Illusion (p. 94).

New Special Limitation

Limited: You can only block a sense that occurs as part of a power. An entire power source (e.g., magical or psionic) is -20%; a specific power (e.g., ESP or Telepathy) is -40%.

Powering Up

Obscure suits nearly *any* power that isn't completely internal. Most elemental powers can create clouds or fields of their element to block senses (e.g., Heat/Fire power might produce "hot smoke" to impede vision and Infravision), supernatural powers frequently include the capability to hide from related powers (e.g., Obscure (Clairsentience), for Antipsi power), and so on. Talent benefits Power Block attempts (see p. 168) and adds to rolls to hit with Ranged abilities.

Oracle

see p. B72

Reading omens – be they hidden wisdom from the gods, signs from the spirit world, or "natural" phenomena in a magical world – is a practice traditionally associated with mysticism. An interesting variant sometimes appears in science fiction, however:

Oracle (Digital): You can analyze "live" data – the Internet, news feeds, etc. – and spot items of hidden *mundane* significance. Roll against Research skill for discovery and Intelligence Analysis skill for interpretation. To use this ability, you *must* have access to prodigious quantities of unprocessed data. This trait is especially appropriate for AIs and other Digital Minds. *15 points.*

Alternatives

Oracle provides answers to *unknown* questions . . . not all of which are about things to come. Use Blessed (p. 43) to get direct answers to specific questions, Precognition (p. 68) to see the future. To spot hidden *conspiratorial* activity, take Illuminated (p. B60).

New Special Enhancement

Inspired: You're *extremely* gifted. Any successful interpretation roll provides you with specific information, and a critical success brings you an unambiguous vision of the truth. +100%.

Powering Up

Oracle is ideal for divine, moral, and spirit powers that involve otherworldly guidance. It also suits some interpretations of ESP. Talent influences both the Sense roll to spot omens and the IQ roll to gain insight from them.

Patrons

see p. B72

A Patron with the Highly Accessible enhancement might represent the supernatural ability to call upon a deity or powerful spirit for aid. If so, Special Abilities and Minimal Intervention might also be appropriate. Limitations such as Accessibility, Costs Fatigue, and Preparation Required are reasonable, too, if contacting the Patron involves a spell-like ritual.

Alternatives

The favor of a higher power might manifest indirectly as Luck (p. 59), Serendipity (p. 73), or Super Luck (p. 80). To represent otherworldly *knowledge,* use Blessed (p. 43) or Oracle (p. 65).

Powering Up

Only divine and spirit powers are likely to have Patrons as abilities. Talent doesn't add to appearance rolls, but *does* add to Influence and reaction rolls made to sway the Patron. This can be extremely useful for Patrons bought with Minimal Intervention.

Penetrating Vision

see p. B74

No *realistic* sense would enable the user to receive light from behind a solid barrier, allowing him to see colors and use his other visual capabilities. This violates the laws of physics. Nevertheless, espers, supers, and superscience sensors from comics and space-opera tales often possess exactly this capability.

Penetrating Vision can look through multiple objects with a *total* thickness no greater than its penetrating power. Distance has its usual effects, but the *spacing* of the barriers is irrelevant. For instance, Penetrating Vision 1 can look through six 1" walls as easily one 6" wall, and these can be any distance apart – but a large total distance would still give a Vision penalty.

Alternatives

To see *inside* things as opposed to *through* them, take Clairsentience (p. 44). For realistic X-ray or T-ray vision, use Scanning Sense (p. 72) – not Clairsentience or Penetrating Vision.

Powering Up

Penetrating Vision is reasonable for ESP, and for elemental powers that deal with *cinematic* radiation. An elemental power that focuses on one particular kind of matter might offer Penetrating Vision with the Specific modifier for that substance. Talent gives no Vision bonus, but adds to comprehension rolls (against IQ or skills) to figure out the relative placement of multiple items and barriers.

Perks

see p. B100

Perks are a good way to handle truly *trivial* abilities. For instance, just as a robot with a built-in flashlight would buy Accessory, a super could spend a point for the ability to illuminate his immediate vicinity. Piling limitations onto full-fledged advantages is overkill in such situations – imagine trying to build that illumination ability from Control (Light) or Illusion. The GM should forbid perks or uses of perks that *do* duplicate full-blown advantages, of course.

Powering Up

Any power might (and perhaps *should*) include perks, but because perks can't have enhancements or limitations, they don't receive the power modifier. This means that there's no discount for the fact that anything that disables the power knocks out the perk. On the other hand, powered heroes can justify perks unavailable to others, and get the benefit of Talent on any die rolls required.

Permeation

see p. B75

Permeation accounts for the traditional ability of otherwise-tangible nature spirits to pass through mountains, trees, and so on with ease. Supers with elemental powers often possess similar capabilities – as do fiendish fantasy monsters that step out of dungeon walls to eat adventurers!

Permeation is normally associated with a particular class of materials. If the GM wishes, though, he can permit a further class – "Everything" – that lets the user walk through *any* solid substance. This costs 80 points.

Alternatives

Those who have Injury Tolerance (Diffuse) (p. 52) modified with Infiltration can seep through porous obstacles. Users of Insubstantiality (p. 55) are intangible, and can pass through *anything.* To burrow through barriers physically, take Tunneling (p. 85).

New Special Enhancements

Extended: You can pass through multiple, similar materials. Buy the most expensive one at full price. Each additional, *related* substance is +20%. For instance, someone with Permeation (Stone) could add Extended, Earth and Metal for +40%.

Meld 1: You can become one with the things you permeate, like a dryad merging with her tree. This works only on *discrete* objects – a tree (not a forest), a mountain (not a planet), etc. Once melded, you can use your senses from or step out of the object at any point along its interior or exterior surfaces, and can breathe if any part of it is touching air. Take a Ready maneuver to shift viewpoints or exit the object. If the object takes damage, it affects you proportionally; e.g., 10 HP of injury to a 100 HP tree results in a 1 HP wound for a 10 HP man. Being part of something larger than you also blunts Afflictions: add the difference between its SM and yours to your resistance roll. If *you* have attacks that affect those touching or standing near you, like Emanations, they're "spread thin" if you merge with a large object: scale down damage in proportion to HP (to 1/10 normal, in the above example), and add the difference between the object's SM and your own to rolls to resist your Afflictions. You can't *control* the items you meld with; get Possession for that. +150%.

Meld 2: As Meld 1, but works even on distributed objects. With Permeation (Earth), you could meld with the ground at your feet to cross the entire planet in the blink of an eye; with Permeation (Wood), you could meld with a forest to traverse it instantly or spy on events within. +300%.

New Special Limitation

Finite Thickness: You can only pass through a barrier of limited thickness. If you try to move through anything thicker, you penetrate as far as your limit and then run into a solid obstacle. Value depends on thickness: -50% for a thin membrane (like a curtain), -30% for an inch, -15% for a foot, and -5% for the distance you can sprint in a second.

Powering Up

Permeation is a typical feature of elemental and nature-spirit powers. It also suits divine powers bestowed by deities associated with the substances it affects. Talent adds to all DX or skill rolls made for movement while using this ability.

Possession

see p. B75

Possession can represent *any* ability to "take over" people or objects. A few notes to supplement those in the ***Basic Set:***

Magical Possession: Some unpleasant horror and fantasy monsters use magic to take over unwary victims . . . who inevitably turn on their companions. This calls for the Magical special limitation (-10%), which is *identical* to the Magical power modifier (p. 27). Some of these creatures jump from body to body, but most stay in their own body and "use" their victims remotely via Telecontrol (+50% or +100%).

Parasitic Possession: Body-snatching aliens are a staple of science fiction. All such beings have the Parasitic limitation (-60%); more "realistic" ones also have Specialized. Some terrifying creatures have Assimilation (+10%), too – possibly with Full Memory Access (+10%). With access to the skills of *all* previous victims, they're formidable foes. It's equally creepy when the host exhibits the invader's mannerisms but none of his *own*. For that, use No Memory Access (-10%) instead.

Psionic Possession: Telepaths capable of Possession require the Telepathic power modifier (-10%). Most fictional psis don't move from body to body, but manipulate victims remotely via Telecontrol (+50% or +100%). A few do swap bodies using Mind Swap (+10%). An adept telepath who can do both needs Mind Swap, Telecontrol, *and* Selectivity (+10%).

Spiritual Possession: Demons, loas, and other spirits in folklore can possess mortals. This calls for Spiritual (-20%). Spiritual *isn't* the same as the Spirit power modifier (p. 28) – it's about *being* a spirit, not *controlling* spirits – and it's rare for both to apply. Few spirits have any power modifier on their Possession. Weak spirits that can "ride" only a few specific subjects have Puppet Only (-30%). Powerful ones that can create new Puppets have Chronic (+20%) instead. The GM may let those without the Spirit meta-trait take Spiritual if they have Insubstantiality or a trait modified with Projection, and are subject to countermeasures equivalent to exorcism. The GM may also let those with Spiritual possess inanimate objects (e.g., statues), which resist with HT – although this is only useful if the possessor has Telekinesis with Animation to animate his new vessel.

Technological Possession: There's no unique type of superscience Possession. Digital (-40%) works for Digital Minds that can possess computers; Chronic (+20%) is extremely common in this case, and represents rewriting the target's software. Those who can "teleoperate" others through surgical implants should take Telecontrol (+50%), Mindlink Required (-40%), and No Memory Access (-10%), and must have Mindlink (p. B70) with the Telecommunication limitation.

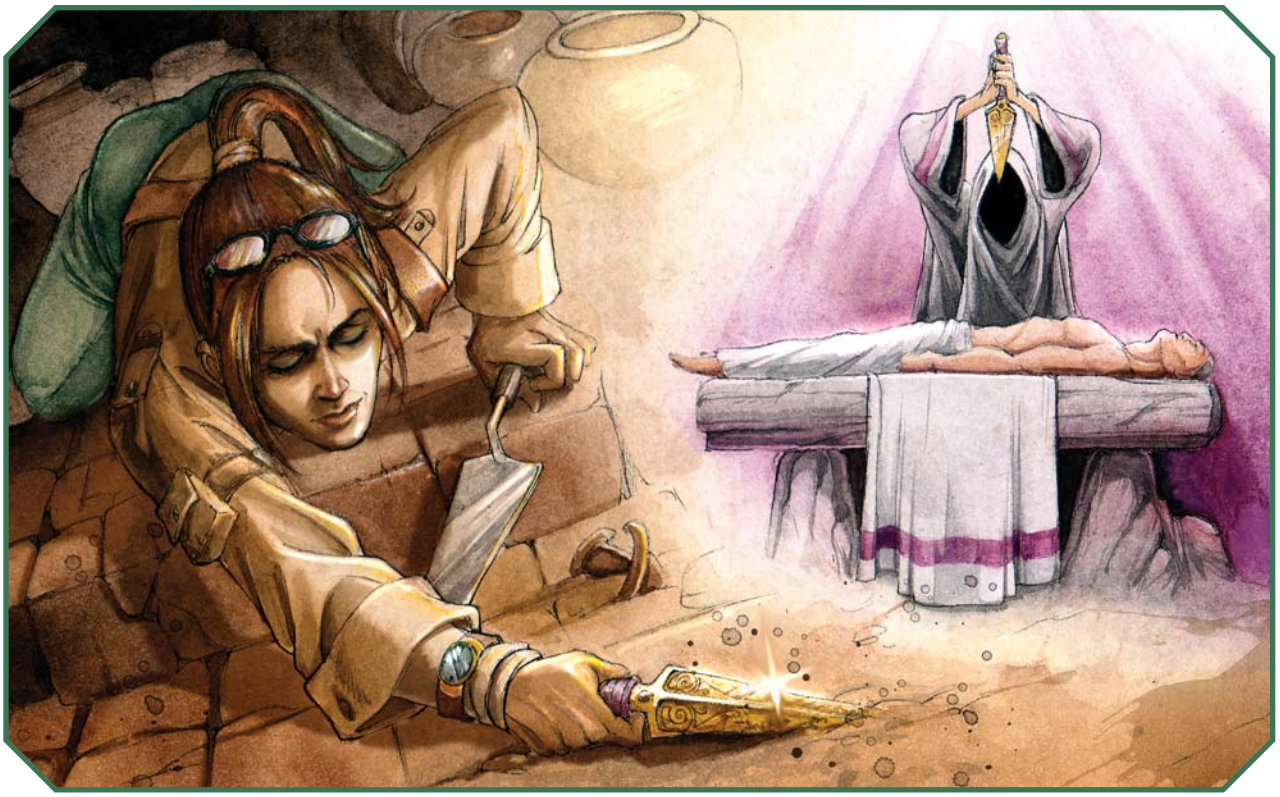
Alternatives

The ability to command the subject *without* taking over his body is Mind Control (p. 61) – or Dominance (p. B50), if it results in permanent Allies.

New Special Enhancements

Full Memory Access: You can freely access the memories of a sentient host at any time. To recall a specific fact from the subject's memories requires a straight IQ roll, at no penalty for the time since takeover. Furthermore, if you also have Assimilation, you can learn the victim's IQ-, Will-, and Perception-based skills. +10%.

Telecontrol 2: As Telecontrol, but your body remains conscious and able to act. You can only exercise *fine* control over one body at a time, though. State whether you're prioritizing your body or your victim's (in combat, do this at the start of each turn). All actions taken by the lower-priority body – including attack, defense, and Sense rolls – are at -4. This is incompatible with Parasitic and Spiritual, which assume that you and your victim are merged in a single body. If you have Compartmentalized Mind (p. B43), you don't *need* this modifier, as some compartments can possess victims while others control your body. Without Telesend (p. B91), though, the "home" and "away" compartments won't be in communication. +100%.



New Special Limitation

Specialized: You can only possess *certain* hosts. The default is "anything alive." All Carbon-Based Life is -10%; All Earthly Life is -20%; Animals Only is -25%; All Mammals, All Reptiles, etc., is -30%; and Dogs Only, Humans Only, Martians Only, etc., is -40%.

Powering Up

Possession is appropriate for magical and psionic powers, obviously. Nature powers, especially animal-control powers, might also include it – nearly always with Specialized. Talent affects all IQ rolls to use Possession, including rolls to recall the host's skills.

Precognition

see p. B77

Prophets, soothsayers, fortunetellers, and others who can see the future appear in the folklore of every culture, but there's little consensus on how their abilities work. The GM should answer the following questions before letting PCs take Precognition:

1. How often do premonitions occur? Precognition could work constantly but subtly, shepherding a hero through life. On the other hand, it might only work during encounters with people, places, or things of great importance, such as individuals with a Destiny (p. B48), in which case the GM must determine whether pictures and second-hand accounts are enough to trigger visions.

2. How far ahead can Precognition see? Premonitions might foreshadow momentous events weeks, months, or *years* away, if it serves the purposes of drama. Grittier tales portray Precognition as more quantified and less forgiving. If the GM prefers, he can roll whenever the user has an encounter that might trigger a vision . . . but at a penalty found by consulting *Long-Distance Modifiers* (p. B241) and reading "miles" as "weeks."

3. Is the future mutable? It's more fun for most players if the future seen by divinatory gifts is one *possible* future, subject to change at the heroes' hands. Still, the GM should not make the future so mutable that this ability is a waste of points. Precognition should always reveal *some* grain of inevitable truth, particularly when a Destiny is involved.

No matter what the answers are, the visions the GM describes should be somewhat vague. Except on a critical success, Precognition never supplies "hard facts" like stock quotes and winning lottery numbers.

Finally, note that Precognition assumes that the GM does *some* advanced planning – if only notes on scrap paper. It's neither useful nor appropriate for a *completely* ad-lib game where even the GM doesn't know what's going to happen next!

Alternatives

Those granted answers to specific questions by a Higher Power are Blessed (p. 43), while the gift of seeing random signs – not always about the future – is Oracle (p. 65). To experience visions from the *past*, take Psychometry (p. 69).

Remember that this trait *includes* Danger Sense (p. 46). There's no need to buy both.

New Special Enhancement

Directed: When you *deliberately* use your ability, you may opt to focus on a specific event involving the subject of your attempt (yourself or someone else). Name the event – e.g., "The battle with the Dark Lord" – before you roll. On a success, you discover the most likely outcome. Failure means you learn nothing, and critical failure "blacks out" the event in all future

premonitions. Passive use is unchanged. Directed is mutually exclusive with One Event. +100%.

New Special Limitations

Active Only: You can *only* use your gift deliberately – you never receive spontaneous visions. Your ability doesn't include Danger Sense. This is mutually exclusive with Can't See Own Death. -60%.

Passive Only: You can *never* use your gift deliberately. This is mutually exclusive with Active Only and Directed. -20%.

Powering Up

Precognition is traditionally an ESP or magical ability. It could also belong to a divine or spirit power, if a supernatural entity mediates the premonitions. *Any* power that includes Jumper (Time) might incorporate Precognition as a "navigational aid."

What kinds of events trigger Precognition, and how it manifests, depend on its source. In particular, gods and spirits tend to have agendas, and may impart knowledge in disturbing ways – such as voices in the head – that make the recipient look like a madman.

Talent influences all IQ rolls to use this ability, actively or passively.

Protected Sense

see p. B78

Remember that this trait protects against sensory overload and Sense-Based attacks, not physical damage. For instance, Protected Vision helps against bright light, but not a splinter in the eye.

The GM may permit a variant ability in campaigns that feature powers:

Protected Power: Your power is protected against direct attacks. It gets +5 to resist Neutralize (p. 97) attempts, and you roll at +5 when you use it "burn through" Static (p. 98) with the Resistible limitation. This doesn't provide Protected Sense for the power's sensory abilities; it only protects the power itself. *5 points/power.*

Alternatives

For protection against chemicals in the eyes, inhaled gas, etc., take Doesn't Breathe (p. B49), Resistant (p. 71), Sealed (p. B82), and similar physical defenses. To *armor* the eyes, use Nictitating Membrane (p. B71).

Powering Up

Protected Senses are often part of elemental powers – Protected Vision for Darkness or Light power, Protected Hearing for Sound/Vibration power, and so on. Biological and chi-based body-control powers sometimes grant this advantage by letting the user adapt his body. *Any* power might include Protected Power.

Talent adds to Power Block attempts (see p. 168).

Psi Static

see p. B78

This is just a special case of the more generic Static advantage; see p. 98.

Psychometry

see p. B78

Psychometry, known also as "object reading" and "retrocognition," is the trademark ability of the psychic detective. It's like Precognition that looks in the opposite direction in time – and as with Precognition, the GM should decide ahead of time what triggers it, and about how often.

Alternatives

Psychometry lets the user "read" objects and places to learn their history. Those who can draw upon knowledge from the past to answer questions about their current situation have Racial Memory (p. 70). Visions about the *future* of an object require Precognition (p. 68).

New Special Enhancements

Directed: You can focus on specific events in the past. State what you're searching for *before* you roll. Success means you glean information pertinent to the event of interest instead of receiving a general flood of emotions. Failure means you learn nothing. On a critical failure, you're permanently blinded to that piece of history. +50%.

Immersive: A successful use of your ability gives you an actual "replay" of emotionally charged events, similar to the vision that those without this enhancement experience on a critical success. If scanning a place, you see and hear things as if you were standing at that location during the events of interest. If reading an object, you witness events from the *object's* point of view. This enhancement can short-circuit mystery adventures – handle with care! +100%.

Sensitive: You can read uneventful history as well as emotionally charged events. For instance, you might learn who made a dagger, how often it was sharpened, and where it was stored when it *wasn't* stabbing people. +30%.

New Special Limitations

Active Only: You can *only* use your ability deliberately. You never receive spontaneous visions, no matter how strong the "vibes." -20%.

Hypersensory: You reconstruct past events from minute pieces of evidence spotted by your mundane senses. You're not consciously aware of these clues, but taken together, they give you a general idea of *what happened here.* This gift relies on your senses, and you roll at -3 if you can't use one of smell, touch, or vision. If you can't use two of these senses, roll at -6. If all three are blocked – or if the GM rules that there are no clues to be found – your ability *doesn't work.* Hypersensory includes Mundane (don't take both), and is mutually exclusive with Immersive and Sensitive. -50%.

Mundane: Your ability detects temporal "echoes" of the past – not the emotional charge on objects or locations. You can *only* read uneventful history, as described for Sensitive (don't take both). -30%.

Passive Only: You possess only the capacity to notice strong impressions on an IQ-4 roll. You can never use your gift deliberately. This is mutually exclusive with Directed, Sensitive, and all three of the special limitations above. -60%.

Powering Up

Psychometry is usually associated with ESP – but with Hypersensory, *any* power that grants keen senses could allow it. A power that offers Jumper (Time) might include it as a "time-scanning" ability, with Active Only, Directed, Mundane, and likely Immersive. Talent influences all IQ rolls to use this ability, actively or passively.

Racial Memory

see p. B78

The idea that some people have access to the collective wisdom of their ancestors appears in religious beliefs and older scientific treatises (e.g., the writings of Carl Jung). Depending on the setting, the ancient memories tapped by Racial Memory could be those of a bloodline, clan, or entire race. Alternatives include the user's *own* dim memories (if he's extremely long-lived) or his recollections of past lives (if reincarnation is fact). The broader the memories' scope, the less specific they are. *None* of this affects point cost.

Alternatives

Precognition (p. 68) is a fair alternative to Racial Memory (Passive); feelings of *déjà vu* could as easily originate from the future as from one's ancestors. Psychometry (p. 69) is a better alternative to Racial Memory (Active), as both provide information from the past – the main difference being vague psychic impressions vs. detailed facts. To share the memories of *living* members of a race, use Mindshare (p. 148).

New Special Enhancement

Immersive: Successful use of your ability gives you a "replay" of ancestral memories, similar to what those without this enhancement experience on a critical success. On Racial Memory (Passive), this removes the need for interpretation when you receive a vision. With Racial Memory (Active), you can replay your ancestors' lives at will! +50%.

Powering Up

Racial Memory is ideal for spirit powers that let the user speak with dead ancestors. The ability to read their minds across time would be part of Telepathy, while sensitivity to persistent psychic echoes from the past is more like ESP. Talent adds to IQ rolls to use this ability.

Radiation Tolerance

see p. B79

Aliens, robots, supers, and vehicles in high-tech settings are often radiation-resistant. This might represent armor (likely in conjunction with Damage Resistance), a force field (see *Force Field,* p. 108), or a basic physiology that isn't sensitive to radiation.

Alternatives

To reduce the macroscopic physical damage from radiation beams (e.g., particle-beam weapons), take Damage Resistance (p. 45) – possibly with Limited.

New Special Enhancement

Extended: Your divisor also affects your dose of a particular variety of *weird* radiation. It might divide character points worth of mutations, or multiply exposure time required before you see effects. Details are up to the GM. +30% per type of radiation.

Powering Up

Radiation Tolerance is an obvious choice for an elemental Radiation power, but many powers that include DR could justify *some* level of this trait. Body-control powers – biological, chi-based, or otherwise – might grant this advantage by letting the user repair cellular damage. Talent adds to HT rolls to resist radiation effects, and to Power Block attempts (see p. 168).

Rapier Wit

see p. B79

As written, Rapier Wit is the larger-than-life gift of knowing precisely how to mortify and provoke enemies. The ability to stun foes with a few words or the sound of the voice doesn't *have* to be silly, though – it could work by delivering a supernatural or vibratory shock to the victim's psyche or body.

Alternatives

A sonic or mental blast that deafens or injures is an Affliction (p. 39) or Innate Attack (p. 53). Those who simply yell loudly have the Penetrating Voice perk (p. B101).

New Special Enhancement

Words of Power: You faze opponents with the supernatural might inherent in your words or voice. Perhaps you know magic words from the dawn of creation – or speak with the voice of the gods! Language is no barrier, and you *can* affect those who have the Unfazeable advantage. To use your ability, roll a Quick Contest of Will with your opponent, ignoring modifiers for Clueless and No Sense of Humor. Standard penalties apply if trying to affect a group. +100%.

Powering Up

Rapier Wit might represent the ability to project one's will using Telepathy or chi powers (in which case Mind Shield aids rolls to resist). In a cinematic supers game, it could be part of Sound/Vibration power. Those with divine powers might also enjoy this gift. With Words of Power and Cosmic (+300%), it suits the cosmic powers of the gods, and would instantly stun *any* mortal!

Talent adds to Public Speaking skill or Will rolls to use this ability.

Regeneration

see p. B80

This could be a natural or bioengineered advantage, or a supernatural healing ability. Note that Regeneration affects the "healing" rate of Damage Resistance with Ablative or Semi-Ablative, the speed of Regrowth, and the recovery time required by Unkillable 2 and 3.

Alternatives

Despite its name, Regeneration *isn't* the ability to regrow lost body parts – that's Regrowth (below). To heal *others,* take Healing (p. 51). Alternatively, buy Affliction (p. 39) and use the Advantage enhancement to give Regeneration to others.

New Special Enhancement

Fatigue Recovery: Only for Fast or better Regeneration. You regain lost FP at the same rate as you recover HP. +100%.

New Special Limitations

Fatigue Only: Your ability only aids FP recovery, as described for Fatigue Recovery. It has no effect on injury, and doesn't include Rapid Healing. -0%.

Limited: Your Regeneration accelerates an advantage, usually *without* restoring HP. It doesn't include Rapid Healing. "DR Only" speeds the recovery of DR lost as a result of corrosion, the Ablative limitation, etc. "Regrowth Only" repairs limbs, not HP. Find the normal recovery time in days and divide by 3 if Slow; read "days" as "hours," "minutes," or "seconds" if

Regular, Fast, or Very Fast; or use the Very Fast time divided by 10 if Extreme. "Unkillable Only" *does* heal HP, but only after you die – and it stops working at positive HP (Unkillable 2) or full HP (Unkillable 3). -40%.

Powering Up

Regeneration is usually part of a biological, chi, or psi power that enables rapid self-repair – or a "good" divine, moral, or spirit power. The capacity to accelerate time just for healing could justify this ability as part of a time-travel power. Talent adds to all HT rolls to recover lost HP (should that matter).

Regrowth

see p. B80

Regrowth might represent natural healing capabilities similar to those of starfish and worms (or aliens and monsters based on these creatures), or be the result of superscience or paranormal powers. The modifiers below offer several options from myth and fiction.

Regrowth *can* replace a severed head, if the possessor could survive such a wound (due to Extra Head, Injury Tolerance, etc.). This takes 2d+2 months.

Alternatives

To heal HP, take Regeneration (p. 70). Those who can replace missing body parts *quickly* need both advantages. The ability to repair *others'* limbs is Healing (p. 51). It's possible to use Affliction (p. 39) with the Advantage enhancement to give someone else Regrowth – but this is too slow to be useful unless the subject also gains (or already has) Regeneration.

New Special Enhancements

Doubling: When you lose a body part, you can sprout *two* replacements, like the Hydra of myth! You must have enough unspent points to buy the relevant advantage (Extra Arm, Extra Head, etc.), and you must pay these points as soon as you lose the body part. Otherwise, you can only grow a single replacement. Regrowth occurs at the usual speed. +25% if this works with only one type of body part (arms, legs, heads, etc.); +50% if it works with *any* missing part.

Reattachment: You can reattach *any* severed but intact body part by holding it in place for a minute. Regeneration reduces this to 30 seconds if Slow, three seconds if Regular, or one second if Fast or better (but Very Fast and Extreme typically remove the need for this enhancement). +50%.

New Special Limitations

Bane: You can't regrow a body part if it's lost to injury from a particular source *or* if the stump is exposed to a specific substance (e.g., fire) – your choice. Limitation value depends on the rarity of the attack: -10% if "Rare," -30% if "Occasional," or -50% if "Common" or "Very Common."

Reattachment Only: You can *only* reattach body parts, as described for Reattachment, making your ability useless if the part is mangled, vaporized, eaten, etc. -50%.

Powering Up

Regrowth is appropriate for biological body-alteration powers, Healing power, and any divine, moral, or spirit power associated with healing. A shapeshifting power that includes such abilities as Morph might let the user rearrange his mass to replace missing parts. Talent adds to all HT rolls to avoid or recover from crippling injuries.

Resistant

see p. B80

Bioengineered, nonhuman, and superhuman heroes often have specific resistances and immunities to hazards or powers that cause afflictions. The GM is the final judge of what levels of Resistant are possible – and to what items – in his game world.

For the purpose of Resistant, an entire power source (biological, psionic, etc.) is "Very Common," while one particular focus, power, or college of magic is "Common." If a source or focus includes a mixture of HT- and Will-resisted effects, Resistant benefits *both* sorts of rolls and Immunity works against either kind of threat.

Alternatives

Remember that Resistant and Immunity only help against threats that offer resistance rolls. To stop physical damage, use Damage Resistance (p. 45). For instance, Immunity to Magic foils all resisted spells . . . but only DR can stop a Fireball spell.

Powering Up

Any power might allow Resistant or full Immunity against the source or focus of an opposing power. It might provide similar protection against its *own* source or focus – but the GM should forbid this if the power requires the user to be "open" to its energies in order to direct them. This is often the case for magic.

Talent adds to Power Block attempts (see p. 168).

Scanning Sense

see p. B81

Realistic robots and vehicles often have Scanning Senses: Radar or Imaging Radar for use in flight, Sonar to navigate underwater, etc. Supers sometimes have similar abilities, not all of them realistic. Para-Radar in particular can represent a variety of supernatural and superscience senses.

The GM may invent new Scanning Senses. Most should cost 20 to 25 points. Here are two more from the real world:

Active IR: Your Scanning Sense uses an infrared (IR) beam. Base range is 200 yards. It can distinguish fine relief as well as the human eye; if someone using ordinary vision could identify details without a die roll, then so can you. Only IR detectors and those with Infravision (p. B60) can detect Active IR. You can switch off your beam in order to avoid detection, in which case this ability functions as Infravision (but when turned on, it *can* spot targets that don't emit heat). Active IR doesn't work underwater. *20 points*.

T-Ray Vision: Your Scanning Sense uses sub-millimeter-wave radar, bordering on the infrared. Base range is 200 yards. Like Imaging Radar, T-Ray Vision can spot small objects and determine their shape, and eliminates penalties to spot objects behind light cover. However, T-Ray Vision is more precise. It gets *+4* to locate concealed weapons, and while it still requires a Sense roll to distinguish fine relief, this roll is also at +4. Only rare, special-purpose sensors can detect T-Ray Vision. T-Ray Vision doesn't work underwater. *25 points*.

Alternatives

The primary role of a Scanning Sense is to let the user function in the dark. Compare Dark Vision (p. 46), Hyperspectral Vision (p. 51), Infravision (p. B60), and Night Vision (p. B71), none of which emit detectable radiation. Another alternative is Vibration Sense (p. 86).

Those who can see through walls using ordinary vision, as opposed to with T-rays, X-rays, etc., should take Penetrating Vision (p. 66). *Remote* viewers have Clairsentience (p. 44).

New Special Enhancements

Bio-Scan: Para-Radar only. You receive vital signs and biochemical information from anything you scan – both the target itself and anything living on its surface. This lets you use skills like Biology and Diagnosis from a safe distance. With Penetrating, you can also examine living beings *inside* inanimate objects (e.g., the passengers of a car). +50%.

No Intercept: Your Scanning Sense is *completely* undetectable. This highly unrealistic enhancement mainly suits psis and supers. +50%.

Scanner: Para-Radar only. You receive detailed information about the composition, energy output, radiation emissions, etc. of anything you scan. This allows detailed analysis from a distance with scientific skills such as Chemistry and Physics. With Penetrating, you can spot specific systems within a complex machine and analyze them using Engineer skill. Sci-fi sensors typically have both enhancements – and often Bio-Scan, too. +50%.

Powering Up

Scanning Senses are perfect for elemental powers: Radar, Imaging Radar, and T-Ray Vision fit Electricity power; Ladar and Active IR suit Light power; and Sonar is logical for Sound/Vibration power. Electrokinesis (usually psionic) could justify any Scanning Sense except Sonar . . . which Psychokinesis could explain. Other supernatural powers are only likely to offer Para-Radar, which is appropriate for ESP and chi, divine, and cosmic powers that grant heightened awareness.

Talent adds to all Sense rolls to use any Scanning Sense.

See Invisible

see p. B83

This is a separate advantage for each kind of invisibility. The buyer must choose *either* one of the descriptive categories under *Invisibility* (p. 56) *or* a particular power source.

If he chooses a descriptive category, he can see anyone using Invisibility with the listed modifiers and special effects, regardless of source. See Invisible (Deception) makes him immune to invisibility through mental influence, be it chi-based or psionic; See Invisible (Ghosts) lets him see specters, whether their invisibility stems from magical powers, spirit powers, or something else; and so on.

If he selects a source, all that matters is the power modifier on Invisibility. For instance, See Invisible (Psionic) can see through electrokinetic light-bending *and* telepathic mind-bending, while See Invisible (Spirit) works on anyone using spirit powers to become invisible . . . but not those using *magical* invisibility, even if they happen to be spirits.

Para-Radar in particular can represent a variety of supernatural and superscience senses.

Alternatives

Against invisibility that affects electromagnetic vision, senses that detect *something else* – e.g., Sonar (p. B81) or Vibration Sense (p. 86) – can stand in for See Invisible. Dark Vision (p. 46) with the Hypersensory enhancement can see through *most* invisibility, but not psychic deceptions.

To fight invisible foes without seeing them, learn the Blind Fighting skill (p. B180).

New Special Enhancement

True Sight: Your vision can penetrate *all* deceptions related to the type of invisibility you can foil, including camouflage, disguises, and illusions. For instance, True Sight would allow See Invisible (Magical) to defeat magical illusions and the Blur spell (p. B250) as easily as magical invisibility. +50%.

Powering Up

See Invisible is a logical part of any elemental power that offers sensory capabilities – especially Light power. It also suits supernatural powers that focus on knowledge, notably divine powers; these often add True Sight. It's a classic ability of martial artists with chi powers, too. As part of a cosmic power, See Invisible defeats *all* power-based invisibility, including cosmic invisibility.

Talent adds to the initial Vision roll to spot an invisible target.

Sensitive Touch

see p. B83

Sensitive Touch is found in nature – a prime example being the mole's nose – and might be available to humans through biotech implants. It's also a classic shtick of blind heroes, especially detectives, martial artists, and supers.

Alternatives

The ability to *hear* low-frequency vibrations at long distances is Subsonic Hearing (p. B89). Those who can navigate using vibrations felt by their skin, whiskers, or antennae have Vibration Sense (p. 86).

New Special Enhancements

Stethoscopic: You can pick up *sounds* from the other side of a barrier, or from within an object, by feeling the vibrations they set up. Make a Touch roll to "hear" conversations through walls. Deafness is no obstacle, but soundproofing gives its usual penalties. +50%.

Ultra-Fine: Your sense of touch lets you "read" print by feeling the outline of the ink. This works even in the dark or if blinded. You also can read computer screens by feeling tiny differences in heat or electric field strength; this requires a Touch roll at -5. +30%.

Powering Up

Sensitive Touch suits Sound/Vibration power best. It's also sometimes found among those with chi powers; the GM might let martial artists with such powers use the +4 bonus to Touch rolls to cancel darkness penalties in close combat. Talent adds to Touch rolls.

Serendipity

see p. B83

Most heroes benefit from the occasional *deus ex machina.* Serendipity is for the hero who's *routinely* favored by coincidence. It normally works at "plot level," but certain fictional characters can use their ability actively – in particular, those whose wishes tend to come true.

Alternatives

Use Luck (p. 59) and Super Luck (p. 80) for quantifiable probability-control abilities. Those who get what they wish for through divine favor might instead have a deity as a Patron (p. 65) – likely with Highly Accessible and Special Abilities.

New Special Enhancement

Wishing: You can *consciously* wish for fortuitous coincidences. These must be within the realm of what's plausible in the current situation. For instance, if you were in prison, you could wish for the jailer to drop his key . . . but you couldn't wish to be teleported home. The GM is free to forbid anything that would unbalance the game. Normal usage limits apply. +100% if you can grant wishes for yourself *and* others; +0% if you can aid others but *not* yourself.

Powering Up

Serendipity works well as part of a divine or spirit power that represents the blessing of supernatural guardians. It might instead belong to a probability-control power (likely psionic) – or even a cosmic power, if the *wielder* is a deity.

Talent gives a bonus to the *first* die roll made in conjunction with a coincidence caused by this ability. For instance, in the example under Wishing, it might give a bonus to Filch skill to palm the key in plain sight.

Shadow Form

see p. B83

Shadow Form is ideal for such fantasy and horror denizens as semi-tangible undead. With the 3-D Movement enhancement (and perhaps Light Insensitive), it can represent illusionary beings, while Finite Thickness lets it model ultra-thin creatures. All of these possibilities suit supers equally well.

Alternatives

Injury Tolerance (Diffuse) (p. 52) with the Infiltration enhancement is pricier, but lets the user pass through cracks without incurring the weaknesses of Shadow Form. A hero who can become a true shadow, immune to physical harm, should take Insubstantiality (p. 55).

New Special Enhancements

3-D Movement: You can turn 90° to a surface and stand up in three-dimensional space – like a two-dimensional "cutout" – in order to bridge gaps or turn around. You can walk at your normal ground Move. All of the other drawbacks of Shadow Form remain. +20%.

Light Insensitive: You're not made of actual shadow. Your body might even look like a projected photograph of a normal human. The only *game* effect is that you don't suffer 50% extra damage from light. +20%.

New Special Limitation

Finite Thickness: You don't *quite* become two-dimensional. You're about as thick as a sheet of paper, and can't fit through microscopic cracks. Being physical, you take *full* damage from physical attacks – and because you're so thin, the wounding multiplier for cutting attacks is ×2 instead of ×1.5. You aren't a shadow, though; light-based attacks get no bonus damage (don't buy Light Insensitive separately). You still can't physically attack, and you can only drag objects around on your surface if you buy the Can Carry Objects enhancement. -50%.

Powering Up

As the supernatural ability to assume an unusual kind of spirit form, Shadow Form is suitable for divine, magical, and spirit powers. Shadows are associated with evil in many settings, making this ability appropriate for unsavory moral powers, too. Finally, it fits the theme of Darkness power, whatever its source. Talent applies to all DX and skill rolls made to squeeze through openings or negotiate tricky surfaces.

Shapeshifting

see p. B83

Shapeshifting features prominently in folklore and fiction. Details vary *greatly* from tale to tale. These notes barely touch on the possible complexity – a detailed treatment could fill its own book.

When designing Alternate Forms, apply enhancements and limitations to the basic 15-point cost per form but *not* to the form-specific cost (that is, 90% the difference in template costs). A similar rule applies to Morph: modifiers affect the 100-point cost of the basic ability but *not* additional points set aside for more powerful forms. The sole exception in either case is Affects Others (p. 107), which affects both components of the cost.

Some important archetypes:

Doppelgangers: Alien blobs, liquid-metal robots, and horrific monsters that "replace" their prey can assume the form of almost *any* living being they sample, within the limits of their mass. This is Morph with Mass Conservation (-20%) and Needs Sample (from -5% for a robot that needs a single cell to -50% for a monster that devours its victims) – often with many points of extra capacity. Some robots and aliens can shift into *unliving* forms. A robot restricted to unliving forms is about as limited as a living being that can only take living forms; there's no extra cost. To assume living *and* unliving forms, add Unlimited (+50%).

Elemental Supers: The ability to become flame, stone, water, and so on often shows up in the comics. Buy this as Alternate Form with the appropriate elemental meta-trait (p. B262) as the target "racial template." The GM may even permit players to create custom meta-traits for new elements. Most elemental supers have Absorptive Change at the "No encumbrance" level (+5%) for their costume, plus Active Change (+20%) or Reduced Time 4 (+80%).

Mythic Morphs: Gods and wizards in many tales can instantly take the form of any earthly creature. This powerful capability is Morph, with a *lot* of extra capacity to cover strong, capable forms – like tigers and sharks – while retaining IQ. No Memorization Required (+50%) and Reduced Time 4 (+80%) agree with most tales. The Unlimited enhancement (+50%) is common but not universal.

Transforming Machines: Robots or vehicles that can become *other* robots or vehicles are a comic-book standby. This is a standard Alternate Form that switches one machine template for another. Add Active Change (+20%) for transformers that can keep moving while changing. There's no need for Absorptive Change if all passengers and cargo are within the machine's Payload (p. B74).

The werewolf is neither man nor wolf, but a Satanic creature with the worst qualities of both.

– Dr. Yogami,
Werewolf of London

Were-Creatures: Werewolves and similar beings use Alternate Form to assume an animal template. Weres who can control their beast form might choose to retain IQ and do away with bestial mental traits – but this *significantly* elevates template cost. Those who change involuntarily during the full moon have Uncontrollable Trigger (a dangerous ability that triggers under occasional circumstances, for -15%) and Unconscious Only (-20%), and often Minimum Duration, One Night (-10%). Reciprocal Rest (+30%) is common . . . the were-form appears rested and ready to rampage!

Alternatives

Shapechangers who can alter size but not form have Growth (p. 50) or Shrinking (p. 75). Those who can change their appearance to resemble members of their own race have Elastic Skin (p. 48). For partial changes, see *Switchable Body Parts* (p. 81). Modular Abilities (p. 62) can cover all of these things, and is an interesting alternative to Morph.

To turn *others* into monsters, use Affliction with Advantage, Alternate Form.

New Special Enhancements

Absorptive Change: Only for Alternate Form. You "absorb" worn and carried items into your Alternate Form. These reappear when you change back. Without this modifier, you must leave your equipment behind when you change, and worn items too small for your Alternate Form risk destruction. Cost depends on encumbrance level: +5% for None, +10% for Light, +15% for Medium, +20% for Heavy, or +25% for Extra-Heavy. The GM decides what's left behind if your encumbrance exceeds your capacity. Apply this modifier separately to each form that can absorb equipment.

Active Change: Your transformation takes the usual amount of time, but you needn't concentrate during this time – you can move and act. You have the abilities of the form you're changing *from* until the transition is complete. (GMs who enjoy extra detail can average the forms' statistics, or even use a weighted average to reflect how far along the change has come.) +20%.

Improvised Forms: Only for Morph. You can improvise new racial templates as you change, mixing and matching the natural *physical* traits you desire. Possibilities range from modifying your native form with a useful body part to creating a completely new template. Improvised templates can't cost more than what you can afford with your Morph ability, but can include physical disadvantages to reduce costs. All traits added must exist in your game world, unless you also have Cosmic (+50%). You can't change your composition (e.g., add elemental meta-traits or Insubstantiality) without Unlimited (+50%). +100%.

No Memorization Required: Only for Morph. Any shape you take instantly becomes part of your repertoire, unless you don't *want* to memorize it for some reason. +50%.

Non-Reciprocal Damage: Only for Alternate Form. Injury you suffer in one form *doesn't* affect any of your other forms – although wounds only heal while you're in the form that sustained them, unless you also take Reciprocal Rest. +50%.

Once On, Stays On: This is identical to the general modifier of the same name (see p. 109), but with a special rule for Alternate Form: it counts as a +50% modifier on the basic 15 points *and* raises the form-specific cost from 90% to 100% of the difference in template costs.

Reciprocal Rest: Only for Alternate Form. Your dormant forms can rest while they're out of sight. Time spent dormant counts toward FP recovery and the sleep needs *of that form.* In conjunction with Non-Reciprocal Damage, these forms can even recover HP and recuperate from crippling injuries. This doesn't preclude dormant forms being aware of and remembering the active form's actions. +30%.

New Special Limitations

Cannot Memorize Forms: Only for Morph. You can't memorize the forms you copy. To assume a form, you must always be able to see or touch the original. -50%.

Flawed: Only for Morph. Every form you take is cosmetically imperfect in some way, which *completely* precludes impersonation. You still gain the abilities of your new form. Flawed is mutually incompatible with Cosmetic. -10%.

Needs Sample: Only for Morph. You must physically sample anything you wish to take the form of. If your target is living, this sample must be *fresh* – you can't sample a rotting corpse. -5% if you need only touch the target; -15% if you require a drop of blood, strand of hair, etc.; -50% if you must eat the whole target.

Projected Form: Only for Alternate Form. Your Alternate Form is a separate entity – perhaps a physical manifestation of your soul. When you use your ability, your native form falls into a trance and your Alternate Form appears nearby (within 10 yards). This is a real, physical form with no special restrictions on its actions. To dismiss it and awaken, it must be within 10 yards of your native form. If *either* form is wounded or killed, so is the other form; see *Projection* (p. 44) for details. -50%

Unliving Forms Only: Only for Morph. You can turn into objects but not creatures. You enjoy most of the capabilities of the Unlimited enhancement, but you can't assume the template of anything *alive.* -0%.

Powering Up

Alternate Form suits many supernatural powers – especially spirit powers, which might call for the Projected Form limitation if they let a shaman become a totem animal. Morph works better for exotic body-alteration powers.

When deciding on what external influence can force the shapeshifter to resume his native form against his will, consider the power's source. Exorcism, prayer, or sacred artifacts might work on divine or spirit powers; the Dispel Magic spell is reasonable for magical powers; and weird-science drugs and radiation are traditional for biological powers and super-powers.

For Morph, Talent gives a bonus to *any* IQ or skill roll the GM requires for disguise or impersonation. For Alternate Form, it adds to rolls to resist external influences that could force the user out of his current form or into one of his other forms.

Shrinking

see p. B85

Shrinking, like Growth (p. 50), is more often a goal unto itself than an explanation for another capability. It's a completely unrealistic ability, best reserved for those with truly fantastic powers – supers, gods, etc.

Supers with Shrinking often enjoy Full Damage (+100%), Full DR (+30%), Full HP (+30%), *and* Full Move (+30%). They sometimes have Can Carry Objects, too, in order to shrink their costumes; the +10% level suffices for most outfits. This greatly inflates cost, but the ability to move and fight as if full-sized while being difficult to hit and see is *extremely* powerful (see *Optional Rule: Small Size and Combat,* p. 76).

Alternatives

Shrinking is strictly for those who *change* size. Permanently tiny creatures *don't* have Shrinking (Always On). A negative Size Modifier is a zero-cost feature for a race small enough to require it (GM's decision). The benefits of being a difficult target are offset by the inconvenience of day-to-day life around adult humans. Just ask any 4-year-old . . . or an ant!

The Affects Others special enhancement for Shrinking is completely identical to the general Affects Others enhancement on p. 107. It only affects willing subjects who remain in physical contact with the user. An attack that shrinks *unwilling* targets is an Affliction (p. 39) enhanced with Advantage, Shrinking.

Powering Up

Shrinking is appropriate for matter-control powers, cinematic biological powers, and the cosmic powers of deities. Talent *doesn't* affect die rolls, but those with multiple levels of Shrinking and Talent may adjust their SM by up to ±(Talent+1) per second instead of just ±1.

Silence

see p. B85

When Silence occurs in fiction, it's typically the result of a physiological adaptation, like a cat's padded feet. However, stealthy supers and robots sometimes have an active capacity to dampen sound or "project" silence.

Alternatives

To create a *zone* of silence, use Obscure (Hearing) (p. 64). Area Effect isn't suitable for the Silence advantage.

New Special Enhancement

Dynamic: Your ability actively cancels out the sounds you make when you move, or helps them blend in with ambient noise. You enjoy your *full* Stealth bonus (+2 per level) when moving. +40%.

Powering Up

Silence most often belongs to an elemental or psionic Sound/Vibration power. It suits body-control powers, too – especially the chi-based powers attributed to legendary ninja. It would also be logical for an animal-control or shapeshifting power that lets the user borrow the features of stealthy predators. Talent adds a further bonus to Stealth skill rolls to avoid being heard.

Snatcher

see p. B86

One of the miracles most often attributed to gods and spirits is conjuring items out of thin air. Snatcher offers an interesting explanation for this trick: the conjured objects are stolen from another reality. The new Creation and Recall modifiers support alternative interpretations.

Alternatives

To *visit* other realities, take Jumper (p. 57). To conjure bulk matter instead of specific objects, use Create (p. 92). To *stow* items in another dimension, buy Payload (p. B74) and add Cosmic (+50%) – which means that stored objects, while still subject to weight limits, can be of any size and are normally undetectable.

New Special Enhancements

Creation: You don't take items *from* anywhere – you create them on the spot. You can get anything you've seen personally, and items sufficiently close to these things that you can visualize them. There are never any penalties for item type. You still can't get "impossible" items, you can only have one created item at a time unless you also take Permanent, and normal weight and size limits apply. +100%.

Large Items: You're not bound by the restriction that the items you snatch must fit in one hand. They can be *any* size, as long as they're within your weight limit. Large items too heavy to lift always appear at arm's reach. +50%.

More Weight: Your weight limit is higher than 5 lbs.

Optional Rule: Small Size and Combat

Truly diminutive combatants – for instance, those with high levels of Shrinking – should realistically enjoy certain *benefits,* despite their size.

A tiny fighter is hard to see. Enemies attack him at a penalty equal to his SM. At SM -10 or smaller, when *he* attacks, his target must make a Vision roll. Modifiers include the attacker's SM and the +10 to spot something in plain sight (see *Vision,* p. B358); e.g., SM -14 requires a Vision-4 roll. Failure means the defender doesn't see the attack coming and gets no defense, as if his attacker were invisible.

The natural weapons, Innate Attacks, and so on of a minuscule warrior scale in proportion to his body – as do weapons reduced by Shrinking. Being narrow, they can more easily target openings in armor. If using *Targeting Chinks in Armor* (p. B400), reduce the penalty to hit by SM, to a minimum of 0. Those with SM -10 or smaller can target gaps in armor at no penalty. Of course, if you're 1.8" tall, attacking anything but a foot is impossible without Flight or cunning tactics . . .

By making a successful grapple, a fighter with SM -13 or smaller can crawl inside unsealed armor, where he can ignore its DR. If he can reach a nostril, ear, or other orifice, a successful grapple lets him get inside his foe's body, where he can also ignore *natural* DR. No defense is possible against attacks from either vantage.

At SM -19 and below, it's possible to get into the bloodstream if injected or able to reach an open wound. Use the rules above, except that all attacks are effectively to the vitals (×3 wounding modifier). To enter the body through its pores requires SM -44 or smaller.

All of this assumes an SM 0 opponent. In battles between tiny combatants, the *difference* in SM is what matters. For instance, if an SM -15 super is fighting an SM -10 foe, he applies these rules as if he had SM -5 and his enemy had SM 0.

Limit	*Cost Modifier*
7 lbs.	+5%
10 lbs.	+10%
15 lbs.	+15%
20 lbs.	+20%
30 lbs.	+25%
50 lbs.	+30%

Each further +30% multiplies weight by 10 (e.g., a ton is +80%). If your weight limit exceeds your one-handed lift (2×BL), you *must* also take the Large Items enhancement.

New Special Limitation

Recall: You call *existing* objects to you across space or dimensions. These must be personal possessions. You could summon your sidearm – or even your battlesuit, with More Weight – but not *someone else's* belongings, let alone items you've merely heard of. This still requires 10 seconds, 2 FP, and an IQ roll, but no penalties apply. Recalled items remain indefinitely, as if you had physically retrieved them. As usual, you can send the items back at any time. Recall is incompatible with Creation, Permanent, and Unpredictable. -25%.

Powering Up

Snatcher is an ideal fit for the cosmic powers of gods and spirits – the most powerful of which have Creation, More Weight, and Permanent. Supers capable of creating "force constructs" have a similar ability, but usually lack Permanent and have a Nuisance Effect (-5%) to reflect the fact that the objects are obviously "fake" and made of force. Finally, Snatcher suits any power capable of dimension travel or matter control. Talent adds to IQ rolls to use the ability.

Speak With Animals

see p. B87

Otherwise-ordinary heroes (often children) who can speak with animals make regular appearances in fantasy, fairy tales, and folklore. The usual justification is that the speaker knows the "secret language of the beasts," but this advantage could as easily originate from supernatural forces, perhaps even the gods.

Alternatives

A true "universal translator" has Mind Reading (p. 61) enhanced with Universal, and doesn't need Speak With Animals. Neither advantage grants the ability to understand the *motivations* of animals, though – that's Animal Empathy (p. B40).

Speak With Animals translates the speech of sapient beings to beast speech and vice versa. It doesn't let the user emulate animal sounds (that's Mimicry, p. 61) or converse in unusual environments or in frequencies inaudible to humans (see *Speech Advantages,* p. 78).

New Special Enhancements

Sapience: The animals you converse with temporarily function as if they had your IQ. They are still limited to their natural perceptions, but can frame these in terms you can grasp. For instance, if an ant sensed 10 sets of footfalls and the scent of humans when the sun was low, it might say, "Ten men came past here before sundown." +40%.

Universal: You can speak with any nonsapient creature, however alien, supernatural, or weird. Universal is mutually exclusive with Specialized. +20%.

Powering Up

Speak With Animals is logical for Telepathy, all kinds of animal- and nature-control powers, and divine powers granted by nature deities. With the Sapience enhancement, it also suits spirit powers that let the user communicate with nature spirits rather than animals themselves. Talent adds to IQ and Hearing rolls to understand beast speech or make oneself understood when using this ability.

Speak With Plants

see p. B87

Gods can generally speak with almost anything – including plants. Otherwise, the ability to converse with plants (which typically lack the means to truly *speak*) is rarely seen except as an obscure gift attributed to the occasional fantasy-game druid or elf.

Alternatives

Plant Empathy (p. B75) is a much better fit for shamans and similar mystics who can "commune with nature" to learn the current mood of trees, fields, etc.

New Special Enhancement

Sapience: The plants you converse with function as if they had your IQ, as described for the enhancement of the same name under *Speak With Animals* (above). +40%.

New Special Limitation

Specialized: You can only communicate with *certain* plants. "All terrestrial plants" (including all trees, bushes, and herbs) and "All aquatic plants" (including algae, kelp, and seaweed) are -40%; a large subset of either (e.g., "Trees" or "Herbs"), -50%; a smaller subset (e.g., "Evergreens" or "Medicinal Herbs"), -60%.

Powering Up

Speak With Plants mainly suits plant- and nature-control powers, and divine powers bestowed by nature deities. Spirit powers that let the user converse with nature spirits rather than plants themselves might grant it, too – likely with the Sapience enhancement. Talent adds to all IQ and Hearing rolls to communicate with plants, in either direction, when using this ability.

Special Rapport

see p. B88

In worlds that feature psychic gifts, a supernatural bond might exist between parent and child, siblings (*especially* twins), or lovers – or between strangers who had such a relationship in a past life. Clones, supers with shared origins, and so on sometimes have similar links, but with rubber-science explanations like "quantum-entangled brainwaves."

Alternatives

Enhanced mental *communication* with a specific person or group of people (such as a hive mind) requires Mindlink (p. B70). Use Puppet (p. B78) for those who can *possess* a particular subject with ease. Individuals who can evaluate the general emotional state of just about anyone have Empathy (p. B51).

New Special Enhancements

One-Way: Your link lets you sense the status of your partner without him having this advantage and being able to sense *your* condition. +20%.

Transferable: You have a link that you can actively "attach" to *anyone.* Your subject must be present. Attachment requires a minute and an IQ roll. Success means you and your subject have a Special Rapport until you reassign your link. To have multiple links, buy more than one Special Rapport with Transferable. Transferable often accompanies One-Way. +100% to affect only your own race; +150% to affect any living being *or* all Digital Minds; +250% to affect any sapient being, living or machine. Add -50% if the subject must be willing or helpless for the initial attachment.

Powering Up

Special Rapport is consistent with powers that encompass mental communication – notably Telepathy. With Transferable, it also suits chi powers, spirit powers, Healing power, and any other power that lets the user establish mystic links with others. It even works for Machine Telepathy, with Transferable, Digital Minds. Talent adds to any roll made to diagnose or analyze the mental, physical, or spiritual state of the other person.

Speech Advantages

Creatures that communicate via ground vibrations use Subsonic Speech (p. B89), while underwater dwellers often have Ultrasonic Speech (p. B94). Remember that Subsonic Speech includes Subsonic Hearing and Ultrasonic Speech includes Ultrahearing. Speak Underwater (p. B87) is fundamentally unrealistic, but widespread among aquatic supers and fantasy races (e.g., "Sea Elves").

Alternatives

Being able to speak in the frequency range used by a particular beast doesn't confer any special ability to mimic or communicate with it; those abilities are Mimicry (p. 161) and Speak With Animals (p. 77), respectively. For other forms of communication inaudible to normal humans, see *Telecommunication* (p. 81).

Powering Up

Any of these traits would be reasonable for an elemental Sound/Vibration power – or Psychokinesis, if it lets the user create and modulate vibrations. Speak Underwater also suits water-related super-powers, divine powers bestowed by sea gods, and spirit powers that influence naiads, undines, etc. Talent adds to all IQ and Hearing rolls to understand speech or be understood when using speech-related abilities.

Stretching

see p. B88

Stretching 1 or 2 is reasonable for octopuses and similar invertebrates that can extend their limbs farther than humans can, proportional to body length. Higher levels aren't realistic for natural creatures. No such restriction applies to supers, bizarre entities that exist partly in another dimension, etc. Extreme Stretching needn't be cinematic, though. Realistic robots and vehicles often have telescoping components, or a "head" or sensor cluster on a retractable stalk or periscope.

Alternatives

Those who can stretch their *skin* to change appearance have Elastic Skin (p. 48). The ability to enlarge one's entire body, not just parts of it, is Growth (p. 50).

Individuals capable of extreme flexing and bending have Double-Jointed (p. B56). Those who have both that advantage *and* Stretching can squeeze through narrow openings by reducing effective SM in one or two dimensions by their Stretching level.

New Special Enhancement

Force Extension: You can project visible, semisolid force fields that act as extensions of your limbs. Treat this like unmodified Stretching, except that the extensions of your limbs past their physical reach aren't subject to injury. You must still move your limbs as if reaching, kicking, stepping, etc., and you still need a free hand to pick something up or wield a weapon. You're limited to your natural ST and DX, and can't take actions that are impossible with a real limb (e.g., reaching through a wall). This *isn't* Telekinesis (p. 82), but suits any power that includes it. +50%.

New Special Limitation

Limited: You can only stretch certain body parts. "Arms Only" and "Legs Only" are -20%, "Single Limb" is -40%, and "Neck Only" is -50%. The GM may allow other limitations, but "Arms *and* Legs Only" isn't a meaningful limitation.

Powering Up

Stretching is appropriate for the same classes of powers that allow Growth: matter-control powers, cinematic biological powers, and cosmic powers. Talent *doesn't* affect die rolls, but those with multiple levels of Stretching and Talent may adjust body-part SM by up to ±(Talent+1) per second instead of just ±1.

Striking ST

see p. B88

Striking ST suits creatures that have evolved to hunt and fight, as well as battlesuits and robots designed with melee combat in mind. It's also an important ability for supers and monsters, which can often hit *much* harder than their size and musculature suggest.

Alternatives

Striking ST only augments basic ST for the purpose of thrust and swing damage, and for throwing. To increase lifting and carrying capacity, buy Lifting ST (p. 58). To gain all of these benefits *and* additional HP, just raise ST.

There are other ways to get a powerful melee attack. An Innate Attack (p. 53) with the Melee Attack limitation (p. B112) can do any amount of

Striking ST only augments basic ST for the purpose of thrust and swing damage, and for throwing.

damage, of any type, but needs an enhancement (p. 103) to be cumulative with ST-based damage. Natural weapons such as Claws (p. B42), Strikers (p. B88), and Teeth (p. B91) are another option, and *always* benefit from ST.

Martial artists who can temporarily boost ST in combat should look at the Power Blow (p. B215) and Push (p. B216) skills.

New Special Limitation

One Attack Only: Your Striking ST only affects one specific natural attack: your bite, a particular Striker, etc. This limitation is intended for a relatively weak creature with an unusually high-ST attack; e.g., a giant rat that can gnaw through armor and bone. -60%.

Powering Up

Striking ST suits chi-based and biological body-control powers. When it represents an active ability to summon a burst of strength, limitations such as Costs Fatigue and Takes Extra Time are likely. Talent adds to any HT roll required to avoid self-inflicted injury when striking.

Super Climbing

see p. B89

Many creatures – realistic and fantastic – climb as fast as they walk. Brachiators often move *faster* while climbing. Explanations include strong hands and arms (which might explain Arm ST or Striking ST), built-in climbing spikes (which could double as Claws), and superhuman powers of adhesion or gravity control.

The meaning of "+1 Move when climbing" is clear for Clinging, with its climbing speed of half Basic Move. For conventional climbing, though, the table under *Climbing* (p. B349) doesn't give Move in yards/second. Assume that each level of Super Climbing raises climbing speed by the base value on the table. For instance, Super Climbing 4 gives +12 rungs/second to climb up a ladder in combat, +80 ft/min to climb up a rope out of combat, and so on. Realistically, gravity limits rappelling speed ("rope-down w/equipment"), which shouldn't benefit from this advantage.

Alternatives

Super Climbing enables speedy *conventional* climbing. To climb like a spider or gecko, take Clinging (p. 45). A robot or vehicle with a built-in line and grapnel, or similar gear useful with the Climbing skill, has an Accessory perk (p. B100).

New Special Limitations

Take Specific (p. 112) if your Move bonus only applies when climbing certain kinds of surfaces. Common materials, such as metal, rock, or wood, are -40%; ferrous metals are -50%; and uncommon materials, such as adobe, ice, or rubber, are -60%.

Requires Low Gravity: Your ability doesn't function in gravity fields over a certain, maximum strength. -5% per 0.1G under 1G (-5% for 0.9G, -10% for 0.8G, and so on – down to -50% for 0G).

Powering Up

When Super Climbing involves force control, it's appropriate for Psychokinesis and elemental powers such as Gravity and Magnetism. If it works by granting incredible balance or a strong grip, it's suitable for body-control powers – especially the chi powers of cinematic ninja. Shapeshifting and animal-control powers might even let the user take on ape-like features in order to climb well. Talent adds to all DX, ST, and Climbing rolls made to climb.

Super Jump

see p. B89

Physiology – specialized limb structure, high strength-to-mass ratio, etc. – can justify Super Jump for real-world creatures such as frogs and grasshoppers. It *isn't* realistic for giant animals and monsters modeled on these beasts . . . but that doesn't stop them from showing up in fantasy. This ability is also popular with mecha, robots, and supers. Some simply have hydraulic jacks or unnaturally powerful legs, but two other possibilities are common:

Jets: Jets of energy or matter powerful enough to provide Super Jump are sufficiently noisy and dangerous to rate Nuisance Effect (-5%). A rocket with a fixed burn has Full Power Only (-10%) – and one of Horizontal Only (-25%), Projectile (-20%), or Vertical Only (-25%), if it can't be steered.

Levitation: Telekinetics and gravity-controlling supers not gifted enough to fly can still make amazing leaps. Most have either Lighter Than Air (-10%) or Maneuverable (+50%), and those that use antigravity should take Planetary (-5%), too.

Alternatives

Anyone considering Super Jump should read *Jumping* (p. B352). A few extra points of Basic Move can give a *modest* boost in jumping distance – and improved groundspeed in the bargain. Enhanced Move (Ground) (p. 45) is an even better deal for those who like to make their mighty leaps at a full run.

The ability to get airborne and stay there is Flight (p. 50). This is also the best value for individuals whose desired level of Super Jump – after modifiers – costs more than Flight with comparable modifiers. Those looking only for the ability to reduce damage from a fall should consider Catfall (p. 43).

Martial artists familiar with secret acrobatic techniques are more likely to have the Flying Leap skill (p. B196).

New Special Enhancements

Bouncing: You can rebound like a rubber ball. Your Super Jump works normally, but you also get a roll against the best of DX, Acrobatics, or Jumping when you experience a fall or collision – deliberate or otherwise. Roll at -5 per multiple of your jumping Move, or fraction thereof, by which your velocity exceeds your jumping Move. Success means you take *no* damage and rebound with 90% of your impact velocity. If this doesn't exceed your jumping Move, you can choose to stop instead; otherwise, you *must* bounce. Failure means you take normal damage and stop ("Splat!"). +50%.

Maneuverable: You can make midair course corrections. Calculate distance and "hang time" as usual, but while airborne, treat your jumping Move as *air* Move, exactly as if you had Flight. For instance, if you can jump 100 yards at 20 yards per second, you can "fly" at Move 20 for five seconds before landing. Maneuverable is mutually exclusive with *all* of the special limitations below except Planetary. +50%.

New Special Limitations

Full Power Only: You must always jump your *maximum* distance when you use Super Jump. The only way to make shorter hops is to jump without using this advantage. -10%.

Horizontal Only: You can only increase your horizontal (broad jump) distance. Your ability doesn't benefit high jumps, and has no special effect on falling damage. -25%.

Lighter Than Air: You jump by becoming lighter than air. For each second you're airborne, your landing zone drifts a yard in the direction the wind is blowing per 5 mph of wind speed. For instance, if you're in the air for three seconds in a 20 mph wind from the west, you'll land 12 yards east of your intended target. -10%.

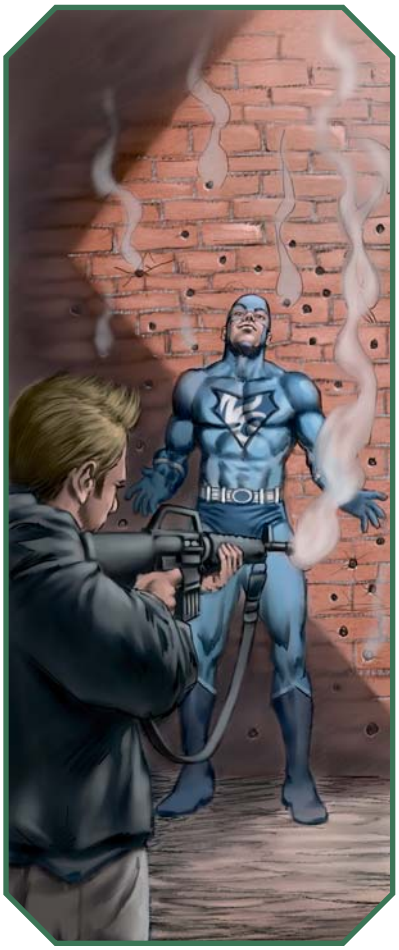
Planetary: You jump by "pushing off" against a planet's gravitational or magnetic field. Your ability is useless in the absence of a planet. -5%.

Projectile: You can only launch yourself directly at your objective. You're an unguided missile, spinning out of control! You can do *nothing* while airborne, and have no active defenses. Make a DX or Jumping roll on landing. Failure means you collide with your target or the ground – unless you *intended* to do so, in which case you miss and crash into something nearby. In either case, you suffer full normal collision damage. -20%.

Vertical Only: You can only increase your vertical (high jump) distance and reduce falling damage. Your ability doesn't benefit broad jumps. This is mutually exclusive with Horizontal Only. -25%.

Powering Up

Any power that explains Flight as levitation – elemental (e.g., Gravity or Magnetism) or supernatural (most often Psychokinesis) – could justify Super Jump as a lower level of the same ability. Air, Fire, and other elemental powers might generate "jump jets." Body-control powers are a third option, be they chi-based ("body lightening") or biological (an adrenaline burst). Talent adds to DX and Jumping rolls to take off and land, and to rolls to hit with jumping slams or kicks while using this ability.



Super Luck

see p. B89

Super Luck is difficult to explain as anything other than a limited degree of control over reality. This capability is traditional for gods and powerful spirits. Among mortals, only the most gifted psis, supers, and wizards are likely to possess it.

The GM probably shouldn't allow this trait outside of cinematic action games, as it's thoroughly unrealistic *and* tends to short-circuit mystery and suspense. On the other hand, if the PCs are demigods, the GM might permit higher levels: Super Luck 2 [200] works every 30 minutes, Super Luck 3 [300] works every 15 minutes, and so on, with each level halving the time between uses.

Alternatives

Most lucky heroes should just use Luck (p. 59) – or Serendipity (p. 73), if their luck doesn't lend itself to interpretation as "good odds." Those who can consciously load the dice in their favor but not *guarantee* success have Visualization (p. 87).

New Special Enhancements

Alter Reality: Your Super Luck works retroactively. You can wait until *after* you roll and then specify a different result, altering the past. You must declare this immediately. Once you or anyone else has made another roll, the flow of time becomes too complex for you to unravel. Alter Reality always produces visible effects; e.g., time rewinds and replays differently, or a glowing hand reaches down from the heavens and changes things. +75%.

Wishing: You can specify the result of *any* die roll made in your presence. You must personally witness the action you wish to influence. Normal usage limits apply. +100% if you can affect your rolls *and* those of others; +0% if you can aid others but *not* yourself.

Powering Up

Super Luck is a perfect fit for cosmic and divine powers. Other options are a magical power, a psionic probability-control power, or even a spirit power, if the user commands spirits that have Super Luck with Wishing. The GM should consider restricting Alter Reality and Wishing (and higher

levels of Super Luck, if allowed) to cosmic powers – although Alter Reality *might* fit less-than-cosmic time-control powers.

Talent gives a bonus to die rolls manipulated by this ability. Since the user can *dictate* outcomes, the practical effect is to alter margin of success or failure, or extend the range of possible results (e.g., for damage rolls).

Switchable Body Parts

Many physical advantages represent body parts, including Claws, Extra Arms, Extra Legs, Extra Mouth, Nictitating Membrane, Spines, Striker, and Teeth. These are "always on" by default, whether they're due to racial makeup, genetic engineering, implants, or super-mutation. The GM may permit shapeshifters and those with retractable implants to add Switchable (+10%), however.

Not every option is immediately obvious. Some changes are subtle, such as being able to darken the eyes to gain Protected Vision. Others involve body parts implied by a special modifier; e.g., Doesn't Breathe (Gills, -50%) and Flight (Winged, -25%). A few even represent the *absence* of a body part, like switchable Payload as the ability to create a new body cavity. Be creative!

Alternatives

For those who can transform into almost anything, Morph (see *Shapeshifting*, p. 74) is more economical – and flexible – than many individual body parts with Switchable. The same is true of Modular Abilities (p. 62) with Physical and Limited, Body Parts Only.

Powering Up

Switchable body parts suit divine powers bestowed by beastly or monstrous deities, especially if transformation into a *full* likeness of the god is sacrilegious; e.g., the Tiger God might grant switchable Claws and Teeth, but not permit Alternate Form (Tiger). Body-alteration and animal-related powers frequently include similar abilities.

Talent benefits HT rolls to avoid or recover from crippling of the body parts, and DX rolls tied to extending or retracting them (e.g., to reach something or escape from bonds). It *doesn't* affect attack rolls for added limbs, Strikers, etc.

Telecommunication

see p. B91

Cyborgs, robots, and vehicles with communicators – and supers who can project modulated energy – might have any form of Telecommunication. Telesend is intended mostly for individuals with supernatural powers, however. Note that there's no "unseen subject" penalty to use Telesend on one's own Compartmentalized Mind (p. B43) or to contact *oneself* across time (see *Time-Spanning*, p. 109).

New forms of Telecommunication invented by the GM should cost from 5 to 25 points. Far-fetched capabilities similar to Telesend might cost more. Some examples:

Directional Sound: You communicate using a laser-thin sound beam. Base range is 100 yards in a direct line of sight. Jamming and eavesdropping require specialized equipment – and even then, the short range and line-of-sight requirement give -5 to attempts. Obscurants (e.g., fog and smoke) and electrical "noise" have *no* effect. You can only communicate with those who have this advantage or a directional-sound communicator. *5 points.*

Gravity-Ripple Comm: You communicate using gravity waves. Base range is 1,000 miles. Your signal is omnidirectional, and as with Radio, eavesdroppers must roll against Electronics Operation (Communications) to listen in. Jamming is *impossible* – although intense gravity sources (neutron stars, pulsars, black holes, etc.) can disrupt your signal. Gravity waves reach underwater and penetrate solid objects at no penalty. You can only communicate with people who have this advantage or a gravity-ripple communicator. *20 points.*

Neutrino Comm: You communicate using a modulated beam of neutrinos (or similar particles). Base range is 1,000 miles in a straight line. The beam is *impossible* to jam or intercept, and functions in *any* environment – it can reach underwater or penetrate solid objects at no penalty, and isn't blocked by the horizon. You can only communicate with people who have this advantage or a neutrino communicator. *25 points.*

Sonar Comm: You communicate using modulated sonar. Base range is three miles underwater. The signal is omnidirectional, and anyone with this advantage or equivalent equipment can hear you. The only way to *jam* this ability continuously is with powerful, specialized equipment – although explosions can cause transient interference. In air, Sonar Comm has a range of 50 yards multiplied by air pressure in atm. It doesn't work at all in vacuum. At the GM's option, Sonar Comm is equivalent to Ultrasonic Speech. *10 points.*

Not every special modifier in the ***Basic Set*** suits all of these traits. Broadcast and Short Wave are inappropriate for all four. Video is only realistic for Gravity-Ripple Comm and Neutrino Comm. Racial, Telepathic, and Universal *might* apply to any of them, if the GM permits. Receive Only, Send Only, and Vague are always acceptable.

Alternatives

For alternative *verbal* communication, consider Speak Underwater (p. B87), Subsonic Speech (p. B89), and Ultrasonic Speech (p. B94). Those who can sense but not understand the signals used by Telecommunication have Detect (p. 47). Note that Telesend allows one to *transmit* thoughts, but unless the subject has Telesend himself, the only way to *receive* his thoughts is with Mind Reading (p. 61).

New Special Enhancements

Burst: Not available for Directional Sound or Sonar Comm. You transmit a high-speed "blip" that conveys information much faster than you could speak or draw. +30% for 10× normal speed, +60% for 100×, +90% for 1,000×, and so on. Each factor of 10 gives -1 to attempts to intercept the transmission.

FTL: Your signal travels faster than the speed of light, letting you communicate with little or no "light lag." The GM decides what kinds of Telecommunication can have this modifier and what it represents in each case: a beam of FTL energy for Radio or Gravity-Ripple Comm, a stream of FTL particles for Neutrino Comm, etc. A "hyperspace tunnel" that carries ordinary signals might suit any kind of Telecommunication. Recommended signal speed is 0.1 parsec/day, to a maximum range in *parsecs* equal to 1/5,000 ordinary range in *miles,* but the GM can adjust this to suit the setting. Only individuals with the same ability or equivalent technology can receive the FTL signal. +120%.

Secure: Your signal employs security measures that make it difficult to interpret if intercepted. Eavesdroppers must *win* a Quick Contest of IQ (if using Telecommunication) or Electronics Operation (if using technology) against your IQ to understand the content of the transmission. If they lose, they get garbage. +20%.

Sensie: You can transmit your sensory impressions in real time. This is possible for any form of Telecommunication save Directional Sound or Sonar Comm – but with anything other than Telesend, the recipient needs a specially equipped receiver to get the "full experience." +80%.

Powering Up

Telecommunication that uses realistic energy or particles is appropriate for elemental Electricity, Gravity, Light, Radiation, and Sound/Vibration powers. Electromagnetic and acoustic forms of Telecommunication are also reasonable for psionic Electrokinesis and Psychokinesis, respectively. Telesend mainly suits paranormal powers – Telepathy in particular. Talent adds to all IQ rolls to establish contact, to intercept or comprehend a signal, or to *prevent* interception or jamming.

Telekinesis

see p. B92

The essence of Telekinesis (TK) is moving distant objects with no more effort than a stare or a gesture – a gift seemingly possessed by every other god, psi, spirit, and wizard. TK isn't always supernatural, though; space-opera "tractor beams" and super-powered magnetism are also common explanations. The many faces of TK include:

Animated Objects: A spirit that uses Possession to occupy an object (like a statue) can use TK with Animation (-30%) to make it move around. If the spirit can *only* use its TK in conjunction with Possession, add an Accessibility limitation (-10%). A sorcerer who makes tables gallop and mannequins dance has Animation, too – with Independent (+70%), if the items keep doing what they're doing without his attention. Together, Animation and Independent can animate one object per second. Total HP can't exceed TK level, but homogenous objects count as having *half* their HP.

Attraction/Repulsion Field: Some force fields push everything nearby away from the user, or draw objects to him. Simulate this using Area Effect (+50%/level), Emanation (-20%), and *one* of Attraction (-60%), Repulsion (-60%), or Attraction/Repulsion (-30%). If the field is magnetic, add Magnetic (-50%), too. Being unable to turn this off is genuinely limiting – Always On is worth -20%.

Poltergeist Effect: Certain people are the nexus of random acts of telekinetic violence when under stress. Parapsychologists refer to this phenomenon as "recurrent spontaneous psychokinesis" (RSPK) or "the poltergeist effect." Represent this with Area Effect (+50%/level), Emanation (-20%), Unconscious Only (-20%), and Uncontrollable (-30%). In general, combinations of Area Effect and Uncontrollable *always* cause chaos over a wide area.

Psychokinesis: Classic psionic psychokinesis is TK with the Psychokinesis power modifier (-10%).

Super-Magnetism: Some supers direct magnetic forces with laser-like precision. This *isn't* realistic – all it has in common with real-world magnetism is that it can only affect ferrous metals, which calls for Magnetic (-50%). Increased Range (+10%/level) is common but not required.

Tractor Beam: Superscience devices that project force beams capable of pushing or pulling distant objects are found on starships, robots, and mecha. These "tractor beams" typically have high levels of Increased Range (+10%/level) and either Attraction (-60%) or Attraction/Repulsion (-30%), and are often Visible (-20%).

Telekinesis *can* have Area Effect, obviously. In combat, it must affect groups of foes in exactly the same way. Roll separately for each target, at a penalty equal to the number of targets, less one; see *Area Effect* (p. 100). Out of combat, it can aid any long task resolved using a single die roll (e.g., an Engineer roll to assemble a machine). The GM may let heroes use the rules under *Time Spent* (p. B346) to hasten such tasks.

For *all* collective uses, calculate Basic Lift from TK level and compare the weight of *everything* affected to find encumbrance level. Objects in the area travel at a Move equal to TK level, reduced by encumbrance as usual.

Alternatives

Flight (p. 50) with Enhanced Move (Air) (p. 49) costs fewer points than TK for levitation at a given top speed – although it doesn't permit instant acceleration to full speed like TK does. Similarly, Innate Attack (p. 53) is less expensive than buying enough TK to inflict comparable damage with a telekinetic "punch." It's also more appropriate for force beams.

To get a force field that can lock onto and prevent damage from attacks that come in too fast for TK, buy Damage Resistance (p. 45) with Force Field. For a short-range force field that works a lot like Telekinesis, compare Stretching (p. 78) with Force Extension.

Some supers explain extraordinary strength as "zero-range telekinesis." Represent this by buying ST and selling back the associated Hit Points. At 10 points per level for ST and -2 points per missing HP, this comes to 8 points per +1 ST. The GM may wish to allow modifiers on this ST; see *Attributes as Abilities* (p. 13) for guidelines.

New Special Enhancement

Super-Effort: The GM may allow the Super-Effort enhancement from *Lifting ST* (p. 58) on TK, too. This affects extra-effort *lifts* – not speed, damage, skill, or anything else. The only differences from the Lifting ST rules are that TK with Super-Effort works at a range and that its bonus adds to levels of TK that lack this modifier, not to personal ST (e.g., TK 20 gives ST 5,000, or adds 5,000 to unmodified TK, if any).

New Special Limitations

Specific (p. 112) is common for TK that originates from elemental powers. Some other limitations of importance:

Animation: Your TK works by enabling inanimate objects to flex. The minimum level required to animate something equals its HP if unliving, *half* its HP if homogenous (see *Object Hit Points Table,* p. B558). An animated object can grab, lift, strike, and throw with ST equal to the TK level needed to animate it. It has your DX. It can walk and jump if it isn't fixed in place; Move equals your TK level minus the level needed to animate it. You can use skills through animated items – but note that objects other than statues and mannequins usually have No Fine Manipulators. Objects return to their rest state once you give up control. Adding Independent (p. 108) lets you animate multiple objects, but you must split your TK level among them. Your TK can't reach *inside* things at all. -30% if the object can't fly; -20% if it can, provided it has wings, rotors, etc. (like a toy dragon or model helicopter).

Attraction/Repulsion: Your TK can only move things directly toward or away from you. Take a Ready maneuver to move an unresisting object, or an Attack maneuver to affect an active opponent. Your TK can't strike blows, manipulate objects, or hold an enemy in place or prevent him from attacking. Attraction simply causes objects to move until they're in contact with you, whereupon they're held there with your telekinetic ST until you turn off your ability. Repulsion shoves objects away from you until they reach the maximum range of your ability. In either case, objects can only move or be moved in the opposite direction if the mover wins a Quick Contest of his ST or TK level against your TK level. This limitation is incompatible with Animation. -60% for Attraction *or* Repulsion; -30% for Attraction/Repulsion (it takes a Ready maneuver to switch between the two).

Lift Only: Levels of TK with this limitation don't add to telekinetic Move. -20%.

Move Only: Levels of TK with this limitation don't add to telekinetic ST. -40%.

Powering Up

Telekinesis is the definitive element of Psychokinesis power, which is traditionally psionic. However, magical and spirit powers are equally likely to include TK, most gods can move objects with their cosmic powers (and enable their servitors to do the same via divine powers), and supers with elemental powers often use gravity, magnetism, or wind to produce similar effects. Talent adds to all DX and IQ rolls to use TK, and to TK level in Contests of ST (but not in general).

Temperature Control

see p. B92

Fictional Temperature Control takes two main forms:

Active: Psis, supers, and ultra-tech machines cause temperature changes using force of will or weird beams. Freeze rays and cryokinesis call for Cold (-50%), while heat rays and pyrokinesis require Heat (-50%). For dramatic effects like freezing or boiling water instantly, add Reduced Time (+20%/level); each level doubles the rate of cooling or heating.

Passive: Spirits, monsters, and elemental creatures of heat and cold sometimes alter the temperature in their immediate vicinity (a two-yard radius) at all times. To simulate this, add Always On (-10%), Emanation (-20%), and either Cold (-50%) or Heat (-50%). The ambient temperature changes by 2° per level per second the entity remains in the area, to the usual maximum of 20° per level.

Alternatives

Temperature Control doesn't directly affect the temperature of people or things – only that of an *area.* The extremes of ambient temperature are dangerous, but the effects are too gradual to affect combat (see *Cold,* p. B430, and *Heat,* p. B434). To use heat or cold as a weapon, take Innate Attack (p. 53). Heat is a Burning Attack, while cold is a Fatigue Attack with the Freezing enhancement (see *Hazard,* p. B104).

Powering Up

Temperature Control is appropriate for Psychokinesis power, elemental Cold/Ice and Heat/Fire powers, and divine and spirit powers associated with ice goddesses, fire elementals, etc. In some settings, it even suits *moral* powers: cold represents life-stealing Evil, while heat can go either way . . . the flames of Hell are Evil, but the sun and life-giving warmth are Good. Weather-control powers often include this ability, usually with high levels of Area Effect.

Talent adds to degrees per second of temperature change after all modifiers, but has no effect on the *maximum* change. It also adds to Power Block attempts (see p. 168).

Terrain Adaptation

see p. B93

Terrain Adaptation can represent a host of exotic abilities, but the most common forms – e.g., clawed toes, crampons, or skates for ice, and snowshoes or skis for snow – are downright prosaic. Such features might result from evolution (for a creature) or design (for a machine).

Alternatives

Terrain Adaptation only aids movement across more-or-less level, solid ground. Take Clinging (p. 45) to travel vertically. Use Walk on Liquid (p. 88) to traverse anything less solid than sand or snow. If Terrain Adaptation results from hard projections that dig into the terrain, buy Claws (p. B42) or Striker (p. B88) separately.

New Special Enhancement

Active: You adapt quickly to *any* terrain. Instead of specifying a particular terrain type, buy the 5-point version of Terrain Adaptation and add this enhancement. This ability might be the result of "smart wheels," shapeshifting, or superhuman balance. +300%.

Powering Up

Terrain Adaptation is typical of elemental powers – especially Cold/Ice and Earth – and powers associated with nature, natural spirits, and nature deities. Individuals with certain chi powers can cross *anything*, even thin paper, by using the Active version of this trait. Those with shapeshifting powers might physically alter their extremities to gain this ability. Talent adds to DX rolls to negotiate terrain, giving a bonus where others would have a penalty.

Terror

see p. B93

Certain monsters – dragons, specters, Things Man Was Not Meant To Know – are just plain *scary*. This might be due to a disturbing visage, a terrifying wail, or sheer size and unnaturalness. Occasionally the reason is less obvious . . . perhaps a telepathic influence (see the modifiers below).

A few entities provoke strong reactions other than fear. Gods and angels induce awe, while weird extradimensional creatures cause mind-boggling confusion. At the GM's option, Awe and Confusion are separate advantages. Use the rules for Terror, but Fright Checks become "Awe Checks" or "Confusion Checks." All the rules for Fright Checks apply to these rolls, including modifiers for advantages and disadvantages (see p. B360). The *only* difference is that failures go to the *Awe and Confusion Check Table* (p. 85).

Alternatives

An *attack* that causes the victim to halt in his tracks is an Affliction (p. 39), often with an enhancement such as Daze, Ecstasy, or Hallucinating. To exercise more subtle control over a victim's emotions, use Mind Control (p. 61) – possibly with the Emotion Control enhancement.

New Special Enhancements

Godlike beings often have the "irresistible attack" level of Cosmic (p. B103). Victims get no benefit from advantages such as Fearlessness and Unfazeable (unless those traits are Cosmic), and suffer their tormentor's choice of Awe, Confusion, *or* Terror if they fail their Fright Check.

Active: Your Terror doesn't affect everyone nearby – it's a direct mental attack on one victim. Your target must be within 10 yards (modified by Increased or Reduced Range), and able to see or hear you. You must take a Concentrate maneuver to affect him. Roll a Quick Contest of Will with your subject. He's at -1 for each -1 to Fright Checks you bought. If you *win*, roll 3d for the result, as usual, but add your margin of victory instead of his margin of failure. +0%.

Presence: Your physical presence within 10 yards is enough to cause Fright Checks, even if your victims can neither see you nor hear you. You could be locked in a coffin and still terrify those who stray too close. Each level of Area Effect doubles your radius, but the GM should consider forbidding *huge* areas. +25%.

Powering Up

Terror suits many supernatural powers, including sinister divine and moral powers that flow from terrifying sources, spirit powers that command horrific ghosts, and chi and psi powers that let the user project his will to unnerve his enemies. Explained as finely tuned electric fields or vibrations, it also fits a few elemental powers. It needn't be subtle, either – a shapeshifting power could grant Terror by letting the user assume a scary face.

When using Terror to bolster Intimidation skill, Talent adds to skill rolls, on top of the +1 to +4 for supernatural powers. Talent also gives a Will bonus when attacking with the Active enhancement.

True Faith

see p. B94

Traditionally, those with profound religious faith enjoy protection from harm at the hands of their deity's moral enemies. Fantasy games associate this with the invested cleric, brandishing his holy symbol and intoning solemn prayer. In folklore, though, the blessed individual is often a devout layperson.

The GM should list *what* True Faith repels in each case. A classic "good" deity might empower its servants to keep demons and undead at bay. An evil priest is more likely to use his True Faith to send away angels and terrorize cute puppies!

It's up to the GM whether a deity shields only the genuinely faithful or anyone acting as its proxy. The latter is common in high fantasy and cinematic horror, and might merit its own trait:

True Faith (Chosen): You enjoy all the benefits of True Faith, but your power is due to the fact that your god has chosen to act through you – possibly without your consent. Barring egregious transgressions, your advantage functions regardless of your *actual* faith. This comes at a cost, however: *non*-supernatural servitors of rival deities can sense your special status and react to you at -3 . . . and your True Faith can't repel these foes. *15 points.*

Alternatives

To repel *any* enemy, take Terror (above). Bolts of holy power and similar attacks that only affect foes of a particular god are Innate Attacks (p. 53) with suitable Accessibility limitations (see p. B110).

To cast out evil spirits possessing a person or place, use the Exorcism skill (p. B193).

New Special Enhancement

Turning: You can aggressively "turn" the entities your True Faith repels. Take a Concentrate maneuver and roll a Quick Contest of Will with any such being that can see you. Roll just once for hordes of *identical* monsters with the same Will. Any creature you win or tie against can't move any closer to you than yards equal to your margin of victory (minimum one yard). If it's inside that radius, it must flee as described for unmodified True Faith. This effect endures for as long as you concentrate and for 1d seconds after you stop. +65%.

Powering Up

True Faith is exclusively the realm of divine, moral, and spirit powers. Its built-in code of conduct *doesn't* preclude claiming a discount for the Divine, Moral, or Spirit power modifier, even when this imposes its own code. The restrictions a *servitor* must live under are often different from those of simple faith, and always far more stringent. Talent adds to Will

Awe and Confusion Check Table

When you fail an Awe or Confusion Check, roll 3d, add your margin of failure on the Check, and consult the table below. Many entries give different outcomes for Awe and Confusion – read carefully. If new quirks or disadvantages result, the *GM* chooses these traits, which should suit the circumstances of the Check.

4, 5 – Stunned for one second, then recover automatically.

6, 7 – Stunned for one second. Every second after that, roll vs. Will to snap out of it.

8, 9 – Stunned for 1d seconds. Every second after that, roll vs. Will to snap out of it.

10, 11 – Stunned for 2d seconds. Every second after that, roll vs. Will to snap out of it.

12, 13 – Awe causes (25 - Will) seconds of ecstasy. **Confusion** causes (25 - IQ) seconds of daze. See *Incapacitating Conditions* (p. B428). After that time, roll vs. Will each second to recover.

14, 15 – Acquire a new mental quirk. **Awe** inspires quirks that reflect admiration. **Confusion** leads to quirks that suggest bafflement or perplexity.

16 – Stunned for 1d seconds, as per **8,** and acquire a new quirk, as per **14.**

17, 18 – Awe causes 1d minutes of ecstasy. **Confusion** causes 1d minutes of hallucinating. See *Incapacitating Conditions* (p. B428). After that time, roll vs. Will each minute to recover.

19 – As **17,** but effects last 2d minutes.

20 – As **17,** but effects last 4d minutes.

21 – Awe causes you to worship at the feet of the one who awed you – you must obey his *every* command as if you had Slave Mentality! **Confusion** causes you to hallucinate (the GM specifies the details, which should fit the situation); you can try to act, but you're out of touch with reality and at -5 on all success rolls. Either lasts 3d minutes; then roll vs. Will once per minute to snap out of it.

22, 23 – Acquire a -10-point mental disadvantage. **Awe** might impel you to adopt one of your new idol's self-imposed mental disadvantages (see p. B121) out of solidarity, turn you into his servant (Reprogrammable), or make you feel inferior (Low Self-Image). **Confusion** "blows your mind," most likely resulting in one of Confused (12), Delusion (Major), Indecisive (12), or Short Attention Span (12).

24, 25 – As **22,** except that if you *already* have a -5 to -10-point disadvantage that could result from Awe or Confusion, it worsens to a -15-point trait!

26, 27 – Experience 1d minutes of ecstasy or hallucinating, as per **17,** and acquire a new -10-point disadvantage, as per **22.**

28, 29 – Experience 2d minutes of ecstasy or hallucinating, as per **19,** and acquire a new -10-point disadvantage, as per **22.**

30, 31 – Experience 4d minutes of ecstasy or hallucinating, as per **20,** and acquire a new -10-point disadvantage, as per **22.**

32, 33 – Awe overcomes you. You immediately collapse in a helpless, ecstatic fit that lasts 1d minutes and costs 1d FP. After that time, roll vs. Will each minute to recover. Any critical failure costs you 1 Will *permanently.* **Confusion** drives you completely mad. You might do *anything!* The GM rolls 3d – the higher the roll, the more dangerous the action. For instance, you might believe you can fly and leap to your doom. Should you survive your first reaction, roll vs. Will to recover. If you fail, the GM rolls for another insane action, and so on.

34, 35 – As **22,** but the disadvantage is worth -15 points. **Awe** usually results in Fanaticism – either for the one who awed you or his cause. **Confusion** tends to cause Confused (9), Delusion (Severe), Indecisive (9), On the Edge (12), or Short Attention Span (9).

36 – As **22,** but the disadvantage is worth -20 points.

37 – As **22,** but the disadvantage is worth -30 points. To make up -30 points, the GM may have to select more than one trait.

38 – Experience 1d minutes of ecstasy or hallucinating, as per **17,** and acquire a new -15-point disadvantage, as per **34.**

39 – Experience 2d minutes of ecstasy or hallucinating, as per **19,** and acquire a new -20-point disadvantage, as per **36.**

40+ – As **39,** but **Awe** costs you 1 point of Will and **Confusion** robs you of 1 point of IQ. These losses are *permanent!*

rolls to resist distraction when taking the Concentrate maneuver to use this ability, and to use the Turning special enhancement.

Tunneling

see p. B94

Tunneling is too speedy to be realistic for natural creatures. It suits monsters that can hew or chew through solid rock (acid-spewing worms, giant moles, etc.), weird-science burrowing machines with whirling augers, and massive real-world mining equipment. At the GM's option, diggers who travel at less than Move 1 can buy Tunneling (Slow) for 5 points and pay 1 point per two yards per *minute* of progress.

Alternatives

Natural burrowers may take "Can tunnel without a shovel" as a perk (see p. B100). This is effectively Accessory (Shovel). It allows the full rates under *Digging* (p. B350).

To pass through solid matter without digging, use Permeation (p. 66). Add the Tunnel enhancement to leave a passage behind.

Tunneling never counts as an attack, regardless of how it works. Buy Claws (p. B42), Striker (p. B88), or Teeth (p. B91) separately if it involves a digging tool that doubles as a weapon. Use Innate Attack (p. 53) for acid jets, beams, and explosives that can blast foes as easily as the earth – possibly with a Link (+10%) to Tunneling.

New Special Enhancement

Hands-Free: You dig with a special body part, disintegrator ray, etc. that leaves all of your hands available to hold things as you tunnel. +20%.

Powering Up

Tunneling best suits elemental powers – particularly Earth power – but might belong to any power that includes an attack or natural weapon that could function as a digging tool. Talent adds to all DX or skill rolls required for tunneling movement, and to the IQ, Engineer, or Prospecting roll to dig a stable tunnel.

Universal Digestion

see p. B95

Voracious monsters, post-holocaust mutants, and various forms of *Homo superior* bioengineered for survival are all good candidates for this trait. When supers possess it, it usually has the new Matter Eater enhancement.

Alternatives

Use Reduced Consumption (p. B80) for those who can survive on less food rather than weird food. To resist poison, add Resistant (p. 71). Individuals who don't require *any* food have Doesn't Eat or Drink (p. B50) and don't need Universal Digestion – but they can still buy it to dispose of evidence.

Universal Digestion doesn't let the user gnaw through *tough* materials. That's Teeth (p. B91), plus Striking ST (p. 78) with the One Attack Only limitation. Tunneling (p. 85) is another option.

New Special Enhancement

Matter Eater: You can eat *anything* (organic or inorganic), even if it's corrosive, toxic, or radioactive. Your body instantly disintegrates it or converts it to something harmless – you could even "digest" a live grenade to prevent it from detonating! Only your digestive system is safe from harm, though. Without protective advantages, it can be tricky to get nasty stuff like nerve agents and plutonium to your mouth without touching it with your hands, breathing it, or being irradiated. You *can't* eat antimatter. +300%.

Powering Up

Basic Universal Digestion really only suits biological body-control powers, unless the GM permits such exotica as the divine power of the All-Devouring Worm God. With Matter Eater, it fits matter-control super-powers and even cosmic powers. Talent adds to all HT rolls to avoid ill effects from ingested material due to causes *other* than toxicity; e.g., to avoid a split gut from a huge quantity of matter.

Vampiric Bite

see p. B96

This is just a special case of the more generic Leech advantage; see p. 96. The GM should use Vampiric Bite as written only if it's the *sole* form of Leech in the setting. If several forms exist, replace Vampiric Bite with Leech (Heals FP, +60%; Blood Agent, -40%) plus Sharp Teeth (p. B91).

Vibration Sense

see p. B96

Vibration Sense is *probably* realistic for animals equipped with antennae, whiskers, or fur growing on highly sensitive skin. Biologists aren't sure how precise this sense is, but it does exist. The aquatic version of this trait is appropriate for the hydrophones (or "passive sonar") carried by naval vessels.

This ability frequently shows up on monsters and supers, too. It's typically a targeting aid for fighting in the dark. The Universal enhancement is common in this context, and *definitely* cinematic.

Alternatives

This sense lets one *fight* in the dark, but to *see* in the dark takes Dark Vision (p. 46), Hyperspectral Vision (p. 51), Infravision (p. B60), or Night Vision (p. B71). Likewise, Vibration Sense can *locate* invisible foes, but to *view* the target requires See Invisible (p. 72).

Those with a highly developed sense of touch have Sensitive Touch (p. 73) instead of or as well as Vibration Sense. *Active* sonar calls for the Sonar advantage (see *Scanning Sense,* p. 72). Sightless heroes often have all three traits.

New Special Enhancements

Sense of Perception: Your ability doesn't depend on air or water currents tickling hairs or your skin. You detect vibrations by virtue of a "sixth sense" (e.g., psychokinetic feedback). This works even when you're in a sealed suit or a vacuum, and isn't subject to interference by environmental noise. This gives all the benefits of Universal; there's no need to take both enhancements. +100%.

Targeting: By taking an Aim maneuver, you can "lock onto" anything you've already detected and determine its precise range and speed, exactly as if you had a technological rangefinder. This gives you +3 to hit that target with an *aimed* ranged attack. +20%.

Powering Up

Vibration Sense is an obvious candidate for an elemental Sound/Vibration power, but it's just as likely to be part of a chi power – an alternative to the Blind Fighting skill (p. B180). Those with Psychokinesis sometimes have this ability, too, typically with the Sense of Perception enhancement. Talent adds to Sense rolls made to use this advantage.

Vision Advantages

All of the vision-related traits not discussed elsewhere in this chapter exist in the real world. Certain snakes possess Infravision (p. B60), many nocturnal predators have Night Vision (p. B71), beasts with widely set eyes enjoy Peripheral Vision (p. B74), eagles and other raptors benefit from Telescopic Vision (p. B92), and some birds and insects employ Ultravision (p. B94). Robots and vehicles often gain identical capabilities from sensors.

Supers and monsters can have any combination of these traits; no particular mix is forbidden. Individuals with the Blindness disadvantage *can't* have vision advantages, however. (Those who can see only infrared or ultraviolet light don't have Blindness – they have the 0-point version of Infravision or Ultravision.)

Alternatives

Be sure to consider 360° Vision (p. 39), Dark Vision (p. 46), Hyperspectral Vision (p. 51), Microscopic Vision (p. 60), Penetrating Vision (p. 66), and See Invisible (p. 72). In addition, Scanning Sense (p. 72) and Vibration Sense (p. 86) are *similar* to – but not the same as – vision.

The ability to see radiation in a frequency range doesn't imply the capacity to *comprehend* signals in that band; get Telecommunication (p. 81) for that. For instance, a hero with Infravision could detect Infrared Communication in use, but only eavesdrop if he had that advantage himself.

Powering Up

Vision-related abilities suit elemental Light powers and psionic Electrokinesis. A body-control or shapeshifting power of *any* source might let the user acquire these gifts by actively adapting his eyes. Talent adds to all Vision rolls when using any of these senses.

Visualization

see p. B96

In mystical traditions that involve directing chi, commanding spirits, or casting spells, the practitioner must form a clear mental picture of the desired outcome to succeed. A Digital Mind might do something similar, planning its actions several steps in advance, with access to a vast library of "worked examples." Either mental process could explain Visualization.

Visualization is also a key ability of gods whose thoughts *shape* reality. The modifiers below are especially suitable for such beings. The GM might even permit Reduced Time 7 (+140%) to make this ability instantaneous. If so, it works in combat – but it only affects one die roll per turn, and the chaos of battle cuts the bonus to 1/3 usual.

Alternatives

Luck (p. 59) and Super Luck (p. 80) can represent a similar capacity to influence the outcome of tasks through sheer willpower. Higher Purpose (p. B59) also grants improved odds of success through focused thinking – although the bonus is both more spontaneous (for instance, it can apply in combat) and more modest (a fixed +1).

New Special Enhancements

Blessing: You can improve the odds of success of any task undertaken by a sapient being just by "thinking good thoughts" for a minute beforehand. You must be able to see or touch the beneficiary. When he rolls for his task, *he* gains the Visualization bonus. You can only have one bonus pending at a time – for yourself or someone else – but you can cancel this to assist another task. +100% if you can affect your rolls *and* those of others; +0% if you can aid others but *not* yourself.

Cursing: You can project "negative energy" to reduce others' odds of success. You must be able to see or touch your victim for a full minute while you visualize him failing at his task. Without special abilities of his own, he *won't* know that you're cursing him. When he carries out his task, he suffers a penalty equal in size to your usual bonus. You can only have one curse active at a time, but you can cancel it to curse another task. Your advantage doesn't affect *you* at all, and you can't combine Cursing with Blessing. If you can also produce beneficial effects, buy Visualization a second time without Cursing, and possibly with Blessing. +100%.

Powering Up

Visualization is a classic ability of divine and spirit powers (the user prays to the gods or spirits for help), as well as chi and psi powers. It also suits probability-control powers, regardless of source. With Blessing or Cursing, Visualization is appropriate for moral powers, too – and even for the cosmic powers of the gods. Talent adds to the IQ roll to visualize, which improves the likely bonus. It doesn't add *directly* to the bonus, however.

Walk on Air

see p. B97

In tales of the fantastic, both modern and traditional, the ability to walk on air isn't as common as true flight. However, it's a fair way to represent the capabilities of those who haven't quite mastered powers that will *eventually* let them fly. The GM should consider treating Walk on Air as a "placeholder" that the PCs can improve to Flight with earned points.

Alternatives

The obvious comparison is with Flight (p. 50), which is far more capable (and twice as expensive). Those capable of limited aerial movement should compare Super Jump (p. 79).

New Special Limitations

Take Specific (p. 112) if you can only walk on a particular type of gas. "Ordinary air" isn't allowed, but dust, smoke, and water vapor (clouds, steam, etc.) are all legal. This is worth -40% for most substances, but especially uncommon or obscure gases – like pure hydrogen – might be -60%, at the GM's discretion.

Lighter Than Air: Your ability works by making you lighter than air or gaseous. Wind moves you a yard per second in the direction it's blowing per 5 mph of wind speed. -10%.

Maximum Height: You can't walk very high off the ground. A 30-foot limit is -10%; a 10-foot limit is -20%; and a 5-foot limit is -25%.

Planetary: You push off against a planet's gravity field or walk along its magnetic field lines. Your ability is useless in the absence of a planet. -5%.

Vertical Only: You can only climb straight up, as if using a ladder made of air. You can't move laterally at all. -25%.

Powering Up

Walk on Air suits almost any power that includes Flight. Elemental powers are especially likely, particularly Air, Earth (with Specific, Dust), Heat/Fire (with Specific, Smoke), Magnetism (with Planetary), and Water (with Specific, Vapor). Psychokinesis is another good fit – as is a spirit power that lets the user summon sylphs to bear him through the air. Cosmic and divine powers might let gods and their servants walk high above their flocks. Talent adds to all DX rolls for movement and to avoid or halt a fall.

Walk on Liquid

see p. B97

Walk on Liquid is famous as a Biblical miracle, but doesn't *have* to be supernatural. Insects of family *Gerridae* stay afloat due to the interaction between surface tension and water-repelling hairs, and "walk" on water by generating tiny vortices that act like the oars of a rowboat. Diminutive supers, faerie, and miniature robots might enjoy similar capabilities.

Those who can only walk on a particular type of liquid have Specific (p. 112). Water, being extremely common, is only -10%. More unusual liquids are -40% to -60%, at the GM's discretion.

In cinematic games, the GM should consider allowing water-walkers to move at the speed of surface currents and waves if they can make a DX or Sports (Surfing) roll to hang on.

Alternatives

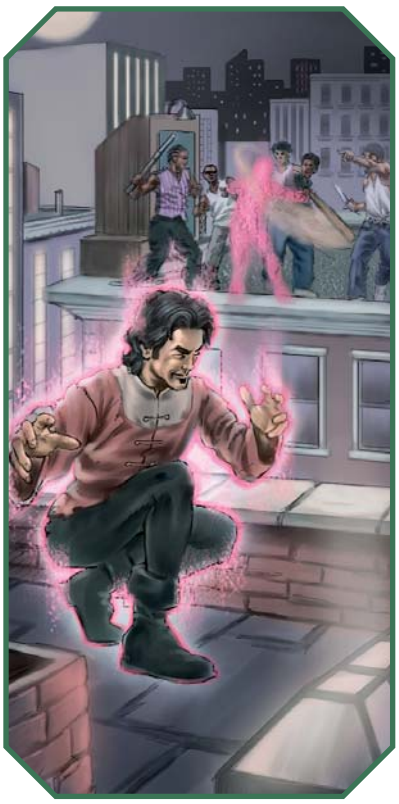
Walk on Liquid only works on liquid water; take Terrain Adaptation (p. 83) to move easily across ice and snow. Individuals who can move rapidly *through* liquid have either Amphibious (p. 42) or No Legs (Aquatic) (p. B145), often with Enhanced Move (Water) (p. 49).

New Special Enhancement

Submerged: You can walk while *under* liquid, too. Use the rules for Walk on Air, but a "fall" just means you're swimming instead of walking. +20%.

Powering Up

The most obvious options are elemental Water power and divine and spirit powers associated with entities that govern water. Individuals with highly developed chi powers might be able to run across liquids, too – a feat attributed to ninja in legend. The most cinematic shapeshifting powers might even let a man-sized super "walk" on water like an insect. Talent adds to DX and skill rolls for movement.



Warp

see p. B97

Be it a supernatural miracle or a miracle of superscience, the capacity to travel at the speed of thought is a virtual necessity for any god, wizard, or ultra-tech space alien that wishes to be taken seriously. Examples from fiction include:

Gate: Mystics and ritualists with Warp traditionally open swirling vortices or glowing portals that *anyone* can step through. A teleporter who can do this requires Tunnel (+40% or +100%) – plus Extra Carrying Capacity, Extra-Heavy (+50%), if he and his companions can bring along anything they can lift. Those who draw magical circles should add Preparation Required, 1 minute (-20%), while those who activate existing artifacts need Special Portal (from -20% for mirrors to -80% for a tiny number of sites of ancient power).

Matter Transmission (MT): Cyborgs, robots, and vehicles can have superscience MT devices built in. Most have orbital range and *require* the user to set coordinates, giving Range Limit (-5%) and Blind Only (-50%). Some transmitters let the user bring along anything he can carry (Extra Carrying Capacity, Extra-Heavy, +50%); others, especially implants, send only his body (Naked, -30%). High-quality technology grants No Strain (+25%), Reliable (+5% per +1), or both. Experimental prototypes, on the other hand, tend to have Drift (-15%).

Psionic Teleportation: Psionic teleporters can typically specify range and direction, and track psychic residues left by other teleporters. These capabilities call for Blind (+50%) and Tracking (+20%). Weak psis often have Range Limit; for a range of less than 10 yards, take Reduced Range *and* Range Limit, -50%. Stronger psis enjoy Extra Carrying Capacity and Reliable. Astral travelers need Projection (-0%), and use Astral Projection – not Psionic Teleportation – as their power modifier (either is -10%).

Stardrive: Some vehicles and supers vanish from one location and appear at another by moving through a realm where faster-than-light (FTL) travel is possible. This calls for Hyperjump (-25% or -50%). Most FTL drives either demand precise coordinates (Blind Only, -50%) or require a "stargate" (Special Portal, -40%). However, the predictability of stardrives tends to offset these limitations, giving No Strain (+25%), Reliable +5 to +10 (+25% to +50%), and/or Tracking (+20%).

Super-Teleportation: Supers and gods with Warp generally use it as if it were second nature. Most have Blink (+25%), No Strain (+25%), Reliable, and no limitations other than a power modifier – although "combat teleports" are sometimes short-ranged, with Range Limit, 10 yards (-50%). Adept supers often have a lot of Extra Carrying Capacity. They *can* grapple enemies and teleport with them, but this requires an Attack followed by a Ready to activate Warp, and the victim may try to break free in between.

Always spell out what goes on during the extra preparation time to reduce penalties: elaborate rituals, psychic visualization, precise computation of target coordinates, etc. Also note whether FP spent to offset penalties correspond to an expenditure of mana or chi, physical or psychic strain, or energy used to boost transmitter power. Such details convert Warp from a generic advantage to an interesting ability.

If the GM feels that a given modifier makes Warp too effective – or too cheap – he's welcome to change its cost or forbid it altogether. This is true for any trait, but Warp merits closer policing because of its tendency to short-circuit plots.

Alternatives

Warp with Hyperjump isn't the only way to handle FTL travel; Flight (p. 50) with extreme levels of Enhanced Move (p. 49) is equally valid. To travel to other times or dimensions, take Jumper (p. 57). To teleport items *to* you, buy either Snatcher (p. 76) or an Affliction (p. 39) with Advantage, Warp.

New Special Enhancements

Blink: Your ability works reflexively in times of stress. Once per turn, you can dodge an attack by making an IQ roll *without* the -10 for lack of preparation. Roll randomly for direction. You appear in the first *safe* open space in that direction. If there's no place like that within 10 yards, you go nowhere and your dodge fails. Blink is triggered by fear and adrenaline; thus, it generally only works in combat, although the GM may let you roll in other dangerous situations. Blink is incompatible with Hyperjump. +25%.

No Strain: You ability isn't vulnerable to strain and burnout. You still go nowhere on a failure – and *somewhere else* on a critical failure – but you can always make an immediate repeated attempt at no extra penalty, and your Warp advantage never "burns out." +25%.

Tracking: You can "follow" another teleporter. Apply all the usual modifiers to your roll, plus -1 per yard of distance between you and his departure point. The *time* since he teleported also affects your roll. Use the modifiers for preparation time but reverse the sign, giving from +10 if he just left to -10 if he left eight hours ago. Add a further -1 per doubling of time after that. If your quarry departed from the same point more than once, you can only follow his most recent trip. Success means you appear at his arrival point . . . even if he went somewhere bad due to a critical failure or Drift. Failure by 1 means you follow but suffer the effects of Drift. Greater failure works as usual for Warp. +20%.

Tunnel: Using your ability always creates a portal of about your size, which lingers for 3d seconds. *Anyone* may step through it. +40% if it forms after *you* teleport; +100% if it forms beforehand, and you must be free to move to use it but don't *have* to go through at all (the GM may allow this version for Jumper and Permeation, too).

New Special Limitations

Anchored: You can only teleport to a specific site or item (e.g., a magical beacon). You can't go *anywhere* else. This is incompatible with all special modifiers except Extra Carrying Capacity, Naked, No Strain, and Reliable. -50% if you teleport to a single site, but can switch this by physically visiting a new site for a minute; -60% if you teleport to a specific item that you can physically move from location to location, but that enemies could steal or place in danger; -80% for a single, fixed site.

Blind Only: You *must* teleport to a set of coordinates exactly as if using the Blind enhancement, even if you can see or visualize your destination. Thus, you're always at -5, and each +1 costs 2 FP. Blind Only is mutually exclusive with Blind. -50%.

Drift: You never arrive right on target. You appear at a random location somewhere in a circle with a radius equal to 1% of the distance you teleported (minimum one yard); e.g., if you teleported 10 miles, you'd materialize somewhere in a 0.1-mile circle around your target. The better your IQ roll, the closer you'll be to your target, but it's up to the GM exactly where you appear. On a critical failure, you're likely to appear high in the air or underground. -15%.

Projection: You teleport your mind as a "ghost" while your body stays behind. See the Projection limitation under *Jumper* (p. 58) for details. Projection is incompatible with Extra Carrying Capacity, Naked, and Tunnel.

Special Portal: You need a particular sort of gateway to use your advantage. The value depends on the rarity of the required portal (GM's decision). "Any reflective surface" is -20%; man-made "stargates" in every important star system are -40%; and a handful of ancient stone circles that only work a few nights of the year are -80%.

Powering Up

Warp best suits supernatural powers, particularly cosmic, magical, and psionic ones. Time- and space-warping powers of almost any source are also likely to include it.

Talent benefits the IQ roll to activate Warp, and is cumulative with the bonus from the Reliable enhancement. It also adds to Body Sense (p. B181) rolls to reorient oneself after teleporting.

Wild Talent

see p. B99

In its most basic form, Wild Talent represents *inspiration.* This is often attributable to a god, a spirit (guardian angel, genius, or muse), or personal enlightenment ("harmony with the Tao"). Below are two other possibilities.

Hidden Gifts: Wild Talent could be a spontaneous manifestation of unrealized natural aptitude – or skills from a past life. Under stress, these gifts emerge in what's usually a learning experience. Take Retention (+25%), Emergencies Only (-30%), and Focused (-20%) in the area of aptitude. A "natural spell-caster" with Magery needs Focused, Magical, while someone who uses Reawakened (p. B80) to recall past lives has Focused, Past Lives.

Telepresence: Someone with Digital Mind or the Machine meta-trait might be able to ask a "remote operator" with useful skills to take control of his body for the duration of a task. He remains aware of what his body is doing, but he has *no* access to his operator's knowledge. Add External (-20%), and use Focused (-20%) to limit skills to those known by the remote operator(s).

Alternatives

Wild Talent enables inspired *deeds*. Intuition (p. 56) better represents inspired *choices,* while Blessed (p. 43), Oracle (p. 65), and Precognition (p. 68) are all more appropriate for inspired *knowledge*. For a completely different take on inspiration, consider Illuminated (p. B60).

Those contemplating Wild Talent should also look at Modular Abilities (p. 62). It, too, can grant access to a wide range of skills initially unknown to the user. It's less spontaneous, but much more flexible.

New Special Enhancement

Wild Ability: Only for those with powers. In addition to unknown skills, you can use *abilities* you don't have. Any such ability must be part of one of your powers, and can't have modifiers other than those required by the power it belongs to (for instance, its power modifier). You get one "use" of the ability – which means exactly what it does for Limited Use (p. B112). If the ability comes in dice or levels, you produce effects equal to one level or 30 points worth, whichever is *better*. +50%.

New Special Limitation

External: Some remote party communicates the necessary skills to you. Specify whether they use radio, telepathy, or something else (for ideas, see *Telecommunication,* p. B91). Enemies might be able to jam the signal, compromise the person at the other end, etc. -20%.

Powering Up

Wild Talent is traditional for chi powers and appropriate for divine and spirit powers. It might even suit Telepathy power, if given External (and possibly Focused, but only if the source is one specific person – "people in general" is too broad to qualify). Gods are likely to have *many* levels of Wild Talent as part of a cosmic power. Talent gives a bonus to the die roll to use any skill or ability granted by Wild Talent.

New Advantages

The ***Basic Set*** includes *hundreds* of advantages. With the general modifiers on pp. B101-117 and pp. 99-112 – and each advantage's special modifiers – it's almost trivial to create vast numbers of abilities. Still, there are a few fictional and traditional abilities that these options can't emulate. Below are some new advantages to cover this ground.

All of these traits are customizable by design, to make it easier to create interesting abilities . . . but some players may be tempted to abuse this flexibility. The GM should examine each advantage and impose whatever restrictions he deems necessary for *his* campaign. In particular, it's probably wise to allow them only as part of a power.

Control

Variable

You can shape and move a particular category of matter, energy, or force (your "element"). The higher your level of Control, the larger the quantity you can affect. Cost per level depends on how significant your element is likely to be *on an adventure:*

Common: An extremely broad or prevalent category such as Earth (including asphalt, brick, ceramic, concrete, and rock, but not purified metals), Fire, Gravity, Light, Metal, Plastic (any manufactured structural material that's neither Earth nor Metal, including oil-based plastics and rubber), Sound, Water (including steam and ice), or Wood (dead plant matter, but not fossils, oil, etc.). *20 points/level.*

Occasional: A broad subcategory of a Common element, such as Ceramics (including glass), Ferrous Metals (iron, nickel, and cobalt – and note that steel is made of iron), Ice, Steam (all hot or cold water vapor), or Stone (brick, concrete, and rock). Most forms of energy are Common, but the GM *might* allow Infrared, Ultrasonics, and so on at this rarity level. *15 points/level.*

Rare: Any relatively specific substance not already given as Common or Occasional, such as Brick, Iron, Paper, or Rubber. *10 points/level.*

The GM should price other elements by comparison, and may allow "Very Common" categories (e.g., "All electromagnetic radiation") for 25 or 30 points/level. Control isn't available for machinery or living beings; to create animal-, plant-, and machine-control abilities, modify advantages such as Mind Control and Possession. Control over complex *processes* (e.g., chemical reactions) requires an entire power – not just a single Control ability.

Limits of Control

The most important limit on Control is that you can only use it if your element is present. Control does *nothing* without your element, and doesn't let you call your element into existence (for that, buy Create).

For solids and liquids, you can affect up to 10 × (level squared) lbs. of matter in the form of a single object or amorphous mass. For example, Control 3 (Iron) would let you affect a 90-lb. iron ingot or even 90 lbs. of iron filings in a heap . . . but against a foe with a 3-lb. sword, 4-lb. helmet, and 18-lb. breastplate, all iron, you could only affect *one* target, even though the total weight is much less than your limit.

For gases, energy, and forces – and diffuse, airborne solids, like dust clouds – you can affect a circular area with a radius equal to your level in yards. Should height matter, the area

is four yards tall. The target item must be *continuous*. For instance, Control 10 (Fire) would let you control a blaze 10 yards in radius, but not "all candle flames within 10 yards."

Finally, Control over matter *doesn't work* on complex, manufactured artifacts unless they're made almost entirely of your element. Control (Metal) could affect a sword or a revolver, but not a ray gun with only a few metallic parts.

*Control does **nothing** without your element, and doesn't let you call your element into existence.*

Establishing Control

To control solids or liquids, you must touch the target object or material. This takes a second and requires a successful unarmed melee attack. If someone is wearing or carrying the target item, he may defend against your touch. If your touch succeeds, make an immediate IQ roll to establish control.

To control gases, energy, or forces, you must reach into or stand within the desired area of effect. To establish control, take a Concentrate maneuver and make an IQ roll.

If your target is *already* under someone else's direct control, roll a Quick Contest. You roll against IQ; they roll against IQ if using Control or Telekinesis, their skill level if using a spell, and so on. You must *win* to establish control. Likewise, others can overpower your Control by winning a Quick Contest against your IQ.

Effects of Control

After establishing control, you can reshape the target. Forming a simple shape (blob, column, sphere, etc.) requires a Concentrate maneuver but no die roll. If the result is meant to be beautiful or functional, though, the GM may deem the effort a long task (see p. B346) and require skill rolls against Armoury, Artist, Machinist, and so on. You *can* work without tools, but you must know what you're doing.

You can also cause the target to elongate or flow at a Move equal to your Control level. This requires constant concentration. The target needn't remain in contact with you, but Control *isn't* Telekinesis. You can make a solid or liquid ooze, roll, or seep along the ground or a surface, and even reshape it in ways that defy gravity, but only gas or energy can actually fly through the air – and you can't "shape" a *force* at all.

For energy, each level of Control gives the *effect* of one two-dimensional reflector or insulator with length and width in yards no larger than your Control level. For instance, Control 3 (Light) would let you route light around obstacles as if you had three mirrors up to 3 yards × 3 yards in size, or block light completely as if you had three 3 yard × 3 yard screens.

For a force, each level of Control lets you adjust the force's strength by ±10% within your radius; e.g., Control 10 (Gravity) could make everything weightless (-100%) or double all weights (+100%), with effects as described in *Different Gravity* (p. B350). This only affects the gross force on entire objects. To disintegrate things by reducing internal binding forces, buy an Innate Attack.

Control includes the ability to make minor, "cosmetic" changes. For instance, Control (Light) can give a colored cast to everything in the area, and Control (Metal) can clean corrosion off metal and make it gleam. You can produce such effects incidentally when reshaping or moving your element.

When you stop concentrating, you immediately give up control. Stable forms become permanent, while unstable ones collapse instantly.

Control in Combat

Defensively, Control over matter lets you move or shape your element to obstruct attacks. This requires a Concentrate maneuver. Such barriers give whatever cover the material *normally* provides. For instance, Control (Metal) might let you shape a steel table into armor with the DR of steel by making an Armoury roll, while Control (Earth) could stir up a sand cloud, with the usual effects on vision and lasers.

Control over energy or force is too slow to stop damage, but a Concentrate maneuver lets you eliminate -1 per level in combat penalties *or* add +1 per level to resistance rolls – your choice – for you and any allies in your area of effect, as long as you can explain the effects in terms of your element. For instance, with Control 5 (Light), you could focus available light onto all foes in your area, allowing your side to ignore up to -5 in darkness penalties . . . or throw up a barrier that gives everyone behind it +5 HT to resist blinding flashes.

Offensively, Control is more limited. By concentrating, you can move an *existing* hazard – gas, fire, radiation, etc., as befits your element – onto a foe, but this is only as harmful as the underlying substance. Nonhazardous liquids or solids merely impede his movement, like any object of that weight. In all cases, your foe can dodge.

Getting Tricky: If a foe is standing in an area where you control matter, energy, or a force – or if you can move matter or energy onto him – you may inflict combat penalties on him. This requires flexibility on the GM's part: Control 3 (Sound) might give -3 to Hearing rolls (e.g., to detect a ninja sneaking up), Control 10 (Earth) might cause a mini-earthquake good for -10 to attack rolls, and Control (Gravity) would simply produce the usual penalties that go along with reduced or elevated gravity. Tricks like this require a Concentrate maneuver and an IQ or Tactics roll.

Special Enhancements

Persistent (+40%) lets the effects of Control endure for 10 seconds after you stop concentrating. Ranged (+40%) allows you to use Control at a distance. You can't add the Area Effect enhancement, though; to affect more of your element, buy a higher level of Control. Additional enhancements include:

Collective: You aren't limited to a single object or continuous area. Your ability affects *all* instances of your element in a circle with a radius equal to your level in yards. You still can't affect more than 10 × (level squared) lbs. of a solid or liquid. For instance, Control 2 (Metal) with Collective lets you affect up to 40 lbs. of any one metal in a two-yard circle; in the example under *Limits of Control,* you could affect the sword, helmet, *and* breastplate. Collective is unnecessary for forces, which already work this way – a fair trade for the fact that you can't reshape them. +100%.

Natural Phenomena: Your element is a large-scale aspect of nature. On an earthlike world, Oceans and Weather are Common; subcategories such as Currents, Precipitation, Waves, and Winds are Occasional; and phenomena like Hail and Snow are Rare. The GM sets rarity elsewhere. This ability isn't Create; it only works if the necessary air, water, etc. are present. Area of effect is 0.1 × level *miles* in radius. If your roll succeeds, every three *full* levels of Control let you produce effects that give -1 or +1 to rolls your element could hinder or help, relative to the prevailing conditions. You can apply this modifier to Influence rolls (to impress others), Survival rolls, Strategy rolls, and anything else the GM allows. Be sure to describe the effects you're producing. The GM may overrule you if the rules or common sense suggest that these conditions are outside the range of modifiers you can produce. For instance, Control 10 (Oceans) could roughen or calm seas in a 1-mile radius, for ±3 to die rolls. In rough water that gives -4 to Boating rolls, you could specify any modifier between -1 (a little foam) and -7 (huge breakers). +100%.

Special Limitation

Cosmetic: You can *only* make superficial changes, such as tinting the color of light or putting a shine on metal. You can't truly move or reshape your element. -80%.

Alternatives

Binding (p. 42), Obscure (p. 64), and Temperature Control (p. 83) can produce similar effects without allowing open-ended control. To do damage with an element, use Innate Attack (p. 53) – adding Malediction (p. B106) if the attack affects the element within the victim's body. Those who can hurl objects around rather than cause them to creep or flow have Telekinesis (p. 82). Apply Environmental (p. 110) to these abilities if they depend on pre-existent materials or conditions. To *summon* the element, get Create (below).

Any of the above traits could have a Link (p. B106) with Control. Individuals who can control an element precisely enough to produce several of these effects should consider Modular Abilities (p. 62).

Powering Up

Control is an obvious match for elemental powers. It's also standard for divine and spirit powers associated with gods and spirits that govern elements, and the cosmic powers of these entities. Adding the Natural Phenomena enhancement makes Control suitable for nature-control powers, too. Talent adds to all IQ and skill rolls to establish or use Control.

Create

Variable

You can create an "element" – a specific category of matter or energy – out of nothing. To do so, take a Concentrate maneuver and roll vs. IQ. Success means your element appears. A solid or liquid coalesces in hand or within arm's reach, while gas or energy appears in the area surrounding you or in an area you're touching (your choice in both cases). Failure means nothing happens. Critical failure means your element appears, but in a way that's inconvenient or dangerous – the GM should be creative!

Creating something out of nothing is *hard.* Each attempt, successful or not, requires 2 FP. There's also a character point cost for permanent creation (see below).

Your level of Create determines how much of your element you can conjure. Point cost per level is a function of the *breadth* of your ability, not the rarity of your element:

Large Category: Solid, Liquid, and Gas let you create any matter that's *naturally* in that state in your present environment. Organic and Inorganic let you create any material of the appropriate category, in the state it normally takes in your environment. Important options for energy are Electromagnetic Waves (all EM radiation) and Physical Waves (all sound and vibration). *40 points/level.*

Medium Category: A broad subset of a single Large category, *or* the area of overlap between two Large categories, *or* a specific class of manufactured substances. Acid, Biochemicals, Drugs, Earth, and Metal qualify. Options for energy include Electricity, Sound, Long-Wave EM (radio, microwaves, and far IR), Light (IR, visible, and UV), and Short-Wave EM (far UV, X-rays, and gamma rays). A dramatically important category that includes aspects of matter *and* energy is Radiation (alpha and beta particles, gamma rays, etc.). *20 points/level.*

Small Category: A narrow subset of a Large category, *or* a broad subset of a Medium category, *or* one fairly specific material that comes in many

Godlike Control

The GM may allow Control over ubiquitous, abstract elements such as Space and Time. This should cost *at least* 30 points/level. Detailed rules are beyond the scope of this book, but the GM who wishes to "wing it" can apply ±1 per level to any task he feels the Control could influence (see *Control in Combat,* p. 91), and then determine the game-world effects by interpreting this as a modifier normally associated with the element. For instance, Control (Space) 6 might give a range modifier from -6 to +6, which corresponds to a distance distortion between ×10 and ×0.1 on the *Size and Speed/Range Table* (p. B550); Control (Time) 5 might give from -5 to +5 to time-dependent tasks, which the *Time Spent* (p. B346) rules suggest would be a time distortion between ×0.5 and ×30.

varieties. Useful examples include Ferrous Metals (iron, nickel, and cobalt), Fire (any incandescent gas), Fossil Fuels (coal, natural gas, oil, etc.), and Wood – and, for energy, things like Gamma Rays, Infrared, Ultrasonics, and Visible Light. *10 points/level.*

Specific Item: A single chemical element or compound, such as Iron, Salt, or Water, or a commonly occurring mixture, such as Air or Brine. You *can* choose nasty materials such as Plutonium, TNT, and VX Gas, but you won't necessarily be able to create a useful amount. *5 points/level.*

Limits on Quantity

There are strict limits on the amount of matter or energy you can create:

- *Solids and liquids* can weigh up to 10 × (level squared) lbs. – 10 lbs. at level 1, 40 lbs. at level 2, 90 lbs. at level 3, and so on.
- *Gases* can fill an area up to one yard in radius per level.
- *Energy* appears in a quantity sufficient to do 1,000 × (level squared) kJ of useful work, released too gradually to inflict damage. The GM should limit power output to 15 kW or so. To store this energy, you need a battery or equivalent technology.

Created matter (but not energy) is *unstable.* It vanishes in 10 seconds unless you use character points to "stabilize" it. Each point spent stabilizes a quantity worth 10% of the campaign's average starting wealth. (This is just the tradeoff used for *Trading Points for Money,* p. B26.) The GM determines the cash value per pound of matter – a ton of gold costs more to stabilize than a ton of sand.

Points spent to stabilize matter come from your "Creation Pool," a number of points set aside for the purpose. You can't apply *any* modifiers to these points. Points used to stabilize matter are unavailable until reclaimed – which causes the matter to vanish. If the matter is crafted into an object, the item is unmade when the matter vanishes. If the matter is mixed with other materials (e.g., alloyed), you must separate it to reclaim your points; this can be a tedious process. If it's destroyed or transformed (e.g., eaten), you can't reclaim your points – they're *gone.* You can increase your Creation Pool with unspent points at any time.

If economics are unimportant to the campaign, the GM is free to waive point costs for permanent matter. Alternatively, he can require those with Create to start with Wealth or Independent Income – or a Vow never to use Create to produce wealth.

If your ability lets you create a *dangerous* element, you can opt to create a minuscule amount in combat without worrying about long-term stability. It just produces its effects and vanishes, like matter or energy projected by an Innate Attack. The following effects are possible, provided your element includes suitable materials:

- *Corrosive* solids and liquids appear in quantity and concentration sufficient to inflict 1d corrosion damage per level, *once,* on a single subject. You must immerse a victim in the substance or throw it at him to do damage.
- *Poisonous* solids and liquids appear in a dosage sufficient to inflict 1d toxic damage per level on one subject. Method of delivery, delay, resistance rolls, cycles, and so on are as usual for the poison (see *Poison Examples,* p. B439). Damage is *total* damage, over all cycles.
- *Noxious gases* fill a circular area with a radius in yards equal to your level, to a height of four yards, for 10 seconds. They affect everyone exposed. Use the rules for noxious solids and liquids (poisonous or corrosive, as appropriate), but total damage is 1 *point* per level. Convert 4 points or more of damage to dice (see p. B269).
- *Fire* and *hazardous energy* (electricity, microwaves, intense sound, etc.) fill an area identical to that for a noxious gas, and inflict 1 point of damage of a suitable type per level *each second* on anyone who stays in the area for at least a second. Convert 4+ points of damage to dice. DR protects normally. Energy dissipates after 10 seconds, but fires it sets burn for as long as they have fuel, devices it overloads remain broken, and so on – these effects don't vanish with the energy.
- *Radioactive* materials work as poisonous ones. *Radiation fields* use the rules for hazardous energy. All "damage" is in rads.
- *Explosives* appear in quantity sufficient to cause a blast that inflicts 1 point of crushing damage per level, and vanish if not detonated within 10 seconds.

If the element would cause an effect other than damage – blindness for bright light, deafness for loud sound, etc. – treat it like an Affliction instead. The HT roll to resist is at -1 per level of Create for a single subject, -1 per three *full* levels for an area.

Energy or matter created as an attack is *by definition* of a quantity and potency that produces the above effects and then vanishes. Such rapid dispersal is totally unrealistic for substances lethal in microscopic doses . . . but no less realistic than the ability to conjure your element in the first place.

Other Restrictions

Create lets you conjure *anything* in your category. This may give access to several of the options above; e.g., Create (Electricity) could charge a battery or fill an area with lightning, while Create (Organic) could produce corrosives, poisons, or explosives. You must specify exactly what you're creating, and for what purpose, before you roll the dice. If you don't, the *GM* decides what happens . . .

If it isn't clear which limit applies – or if more than one limit could apply – the GM selects the one that best suits your intentions and the demands of drama.

Create produces bulk matter, not specific shapes, much less machines. To create pre-shaped matter, buy both Create and Control (p. 90), and connect them with a Link. Such a combination *can* create machines; this is a long task (see p. B346) that requires skill rolls, as explained for Control.

The GM can bend these rules as needed – but be warned that ignoring *Limits on Quantity* can unbalance a campaign.

Special Enhancements

To conjure "essential" elements like those created by the Essential Fire and Essential Water spells in ***GURPS Magic,*** add Cosmic, +50%. Ranged (+40%) lets Create work at a distance, but never *inside* a foe. The GM might even permit attack enhancements for elements useful in combat. Area Effect and Extended Duration are off limits, however. To blanket a wider area, buy more levels of Create. To keep matter around indefinitely, use your Creation Pool. Additional enhancements include:

Destruction: You can destroy your element, subject to the same restrictions on type and quantity described for creation under *Limits on Quantity.* To destroy something, you must touch it (or stand amidst it, for gas or energy), take a Concentrate maneuver, and pay 2 FP. Then make an IQ roll. Success means the target is *gone.* You don't have to spend character points to do this. Destruction only affects inanimate objects. +100% if you can also create your element; +0% if you can only destroy it.

Transmutation: You can convert existing matter or energy into another form. The quantities involved depend on your level. Work out the limits as usual for the initial and final items, and use the *smaller* of the two. If the product is worth more than what you started with, it's unstable and will revert to its original form after 10 seconds unless you stabilize it with your Creation Pool – in which case point cost depends on the *difference* in value. This might be why alchemists can't transmute large amounts of lead into gold! Transmutation costs 1 FP per use. Otherwise, it works like unmodified Create. +50% per transmutation, which can be within your category *or* between your category and another of the same size, in one direction. For instance, Create (Metal) could have Metal to Metal, Metal to Earth, or Earth to Metal for +50% apiece; any two for +100%; or all three for +150%. Add -100% if you can only transmute, not create; if so, you can't also take Destruction.

Alternatives

Those who just want an elemental attack are better off with Innate Attack (p. 53). To conjure complex objects (e.g., machines), take Snatcher (p. 76) with the Creation enhancement; to create images, use Illusion (below). If you can create your element with enough precision to replicate all of these abilities and more, consider Modular Abilities (p. 62) instead.

Several magic spells work a lot like Create, including Create Air, Create Earth, Create Fire, and Create Water (see pp. B242-253). ***GURPS Magic*** offers many other options.

Powering Up

Create is a standard part of elemental powers. There are many possible matches. For instance, Create (Gas) and Create (Air) both suit Air power . . . and with Destruction at the +0% level, either might suit a Vacuum power, too.

Divine and spirit powers associated with entities that govern elements are also likely to offer Create. Gods themselves frequently have access to *many* forms of Create as part of their cosmic powers. Powerful wizards might even obtain Create through magical powers.

Talent adds to all IQ rolls to use Create.

Illusion

25 points

You can create lifelike illusions. By default, these are constructs of light and sound that appear in a two-yard radius around you. You can always specify a smaller area; e.g., to create an illusionary gun in your hand. Illusions lack mass and substance, and can't affect material objects in *any* way besides hiding or illuminating them.

To activate your ability, take a Concentrate maneuver. This requires no special die roll. You can create animated, three-dimensional images of anything you can visualize – in any spectrum you can see – synchronized with sounds in the frequency range audible to you. These persist for as long as you concentrate.

Illusions serve mainly to deceive and distract. Roll a Quick Contest of IQ against the Perception of anyone in a position to notice your illusion. To save time, the GM can roll just once for hordes of foes with the same Per. If you win, the illusion seems real *to that individual.* The GM decides how he reacts. He might attack an illusionary monster, try to sit on an illusionary chair, and so on. Otherwise, he spots a flaw and realizes that the illusion isn't real (although he might not know it's an *illusion*).

Illusion sometimes requires a skill roll instead of an IQ roll. In particular, to make an illusion disturbing enough to cause a Fright Check, you must win a Quick Contest of Artist (Illusion) skill against the higher of IQ or Perception for each victim. To trick someone into believing in an illusion of someone he knows, roll the *lower* of your Acting or Artist (Illusion) skill against the *higher* of your target's IQ or Perception.

Roll a new Quick Contest when someone you've already fooled suddenly changes how he's interacting with the illusion; e.g., he attacks a monster or falls through a chair that isn't there. If he wins or ties, you don't simulate a believable response to his action (such as the monster dodging or the chair slipping) and he catches on.

Modifiers: Your victim gets +4 if someone who knows about the illusion warns him, or if you critically fail in a Quick Contest against someone else. He gets +10 if you create the illusion unsubtly and in plain sight, or if he examines the illusion with a sense you can't deceive – most often touch. At the GM's option, inappropriate illusions (e.g., a pack of rabid wolves in a submarine) give a further +1 to +10, while believable ones (e.g., you pull out an illusionary gun) give from -1 to -5. If the final modifier is a net bonus, *halve* it if the victim is aware of superhuman powers but not the details of *your* powers . . . for all he knows, you *can* summon rabid wolves!

You can easily create babbling crowds and menacing hordes, but it's harder to animate a convincing semblance of an illusionary person for direct, personal interaction (dueling, conversation, etc.). Multiple fake people are progressively more robotic and unresponsive; anyone rolling a Quick Contest to spot the illusion is at +4 per construct after the first.

Believable or not, illusions obstruct vision as effectively as the real thing. They don't block weapons, though. Foes aware of your location can simply shoot through your "cover" . . . and nothing prevents *unbelieving* opponents from walking through your illusions to reach you.

Special Enhancements

Add Area Effect (+50%/level) to increase radius and Ranged (+40%) to project illusions at a distance. Many illusionists also have Telekinesis (p. 82), and add a Link (p. B106) to give the impression that their illusions can interact with the material world – a convincing combination good for +4 in the Quick Contest. Additional options include:

Extended: You can fool other senses. Extending the visual or auditory range beyond your own costs +1% per point the affected hearing and vision advantages are worth; e.g., +10% to deceive Infravision. Totally new senses (Radar, taste/smell, touch, Vibration Sense, etc.) cost +20% apiece. Extended, Touch creates the *sensation* of substance, but the illusion still can't affect the material world; for that, link Illusion to Telekinesis.

Independence: You don't need to concentrate to maintain your illusions. Once you've created them, you can hand off control to your subconscious. Independent illusions can respond in simple ways, but can't *change* unless you concentrate. For instance, an illusionary pistol would make a menacing "click" as you cocked it, and illusionary wolves would shy from a torch or snarl if someone came close, but to turn the gun into a sword or the wolves into tigers would require concentration. In particular, illusionary people can't converse unless you actually concentrate. +40%.

Initiative: This improved form of Independence provides all the benefits of that enhancement (don't take both) *and* gives illusionary people the semblance of free will. They can converse and move freely within your area of effect as if they had your DX, IQ, and skills. This requires *no* concentration. Treat these phantasms as insubstantial NPCs who are completely loyal to you, except that they don't have thoughts and can't carry out tasks for you – they simply react to their environment. +100%.

Mental: Instead of creating images that everyone can see, you project illusions into the mind of a specific target. You can affect anyone you can *touch* or *see;* the Ranged enhancement is unnecessary. Take a Concentrate maneuver and roll a Quick Contest: your IQ vs. the victim's Will. You're at -1 per person already affected. If you win, you seize control of his perceptions and can feed him artificial sensory impressions, including subtle edits (e.g., making a $5 bill look like a $100 bill), total fabrications (e.g., he's standing on Mars without a spacesuit), and complete sensory deprivation (unless you have Auditory Only or Visual Only). These illusions never cause physical harm. Area of effect is irrelevant – it's all in his head. You don't control your victim's *thoughts,* however. If he decides that what he's experiencing makes no sense, he can order his body to act on the last set of impressions he felt were reliable. If he can't see the real world, he acts at -10 – but he can still act. +100%.

Stigmata: Only available in conjunction with Mental. Your illusions are so realistic that they cause the subject to experience harmful stress or shock. To use Stigmata, you must first successfully inflict mental illusions upon your victim. Then roll a Quick Contest of IQ vs. his Will once per second. If you win, you inflict *actual injury* equal to your margin of victory. Specify whatever damaging effect you like – shot, eaten by tigers, fried at ground zero of a nuclear blast, etc. Suitable wounds appear on your victim's body. Those nearby can see the wounds but not their cause; as far as they can tell, the victim is experiencing a stroke, heart attack, or similar distress. Should your victim fall unconscious for any reason (including the injury caused by this ability), you can no longer harm him. +100%.

Special Limitation

Auditory Only: You can create sounds but not images. This is incompatible with Extended and Stigmata. -70%.

Static: Your illusions are unanimated "stills." You can't create any effect that changes or responds to the environment. Those who perceive the illusion get +4 to realize it's fake if it depicts something that's usually stationary, as the reflections and shadows aren't right. If the illusion is of something that normally moves, the bonus is *+10.* Static illusions are mostly useful for concealment. Static is incompatible with Auditory Only, Independent, Initiative, and Stigmata. -30%.

Visual Only: You can create images but not sounds. This is incompatible with Auditory Only and Stigmata. -30%.

Alternatives

To conjure *material* creations, take Create (p. 92) for bulk matter, Snatcher (p. 76) for complex artifacts, and Allies (p. 41) with the Summonable enhancement for creatures. If the goal is simply to generate concealment, Obscure (p. 64) is cheaper.

Powering Up

Illusion enhanced with Mental is a common Telepathy ability in fiction. Elemental Light power, psionic Electrokinesis, and other energy-related powers tend to generate purely *physical* illusions. The magical powers of fantasy illusionists can often create either kind of illusion. Even divine and spirit powers might include Illusion, for "sacred visions" or impressing worshippers. Talent adds to all rolls for any form of Illusion.

Leech

25 points for level 1 + 4 points/additional level

Giant leeches, striges, vampires, and many other traditional and B-movie monsters suck the life from their victims. "Psychic vampires" and evil spirits usually dispense with the traditional bite. Creepy supers sometimes even have *ranged* life-stealing abilities.

To use Leech, you must maintain *ongoing* contact with your victim; a brief touch isn't enough. In combat, you must grapple or pin him – which is trivial if he's unconscious or otherwise helpless. Out of combat, options include a long handshake, hug, or more intimate embrace.

While you maintain contact, each level of Leech lets you drain 1 HP per second from your victim. You heal 1 HP per *full* 3 HP you steal. You can't raise your HP above normal, but you can continue the drain without healing yourself. The drain ends instantly if you release your victim, or if he breaks free or dies. If he survives, the stolen HP heal like any other injury.

Leech 1 costs 25 points; successive levels cost 4 points apiece. For example, to drain 10 HP per second requires Leech 10, which costs 25 + 9 × 4 = 61 points. At the GM's option, points of drain convert to dice as described under *Modifying Dice + Adds* (p. B269); e.g., 4 HP become 1d, 7 HP become 2d, and 10 HP become 2d+3.

Leech only affects living beings. It can't steal HP from machines or inanimate objects. However, the GM may allow a variant ability – Leech (Mechanical) – that *only* affects machines. The point cost is identical. With Steal HT, this could represent the ability of "gremlins" to cause machines to fail and break down. Steal FP is off limits.

Special Enhancements

To work at a distance, Leech *requires* Malediction 1 or 2 (+100% or +150%) on top of Ranged (+40%). Roll the Quick Contest of Will for Malediction every second (once per turn, in combat). Each victory lets you drain 1 HP per level. You can only affect one victim at a time. A few special enhancements are common:

Accelerated Healing: You heal 1 HP per HP stolen. Your attack doesn't harm your *victim* any faster than usual, but it heals *you* more quickly. +25%.

Hazard: You can combine Steal FP with one of the modifiers under *Hazard* (p. B104) to steal dreams (Missed Sleep), warmth (Freezing), and so on. Treat the stolen FP as if they were lost to that hazard. Any FP or HP you gain can heal *your* losses to the same hazard.

Heals FP: Every 3 HP you drain restores 1 HP *or* 1 FP. You can't raise FP above normal. +60% if you can choose whether to heal HP or FP; +30% if you only heal FP when healed to full HP.

Steal (Other Score): You steal ST, DX, IQ, HT, or FP *instead* of HP. ST theft reduces BL and damage. IQ drain lowers Will and Per. ST and HT losses *don't* lower HP and FP, though. Attribute losses affect skills based on those scores. Drain occurs at the rate of 1 point per level of Leech. It ceases if the victim's score reaches 0. Regardless of what you steal, you heal 1 HP (1 FP, with Heals FP or Only Heals FP) per 3 points drained. Your victim regains lost scores at the rate he recovers FP. Cost depends on what you drain: -25% for FP (or +50%, if you drain HP when your victim has 0 FP), +100% for ST or HT, or +300% for DX or IQ. If you can steal more than one of these, buy Leech several times with different enhancements. To use these simultaneously, add Link.

Steal Youth: You permanently age your victim instead of stealing HP. Each second of draining ages him by months equal to your level. See *Age and Aging* (p. B444) for long-term effects, and note that Unaging subjects are immune. You don't heal, but may grow a month younger per *two* months stolen, if desired. This is incompatible with other special modifiers. +300% if victims regain their youth when you die; +450% if truly permanent.

Special Limitations

Leeches who must touch their victim's *skin* have the Contact Agent limitation (-30%). The traditional vampire has Blood Agent (-40%), and must bite his victim; Sharp Teeth (p. B91) are indispensable. These options and the Ranged option discussed above are mutually exclusive. An additional limitation is specific to Leech:

Only Heals FP: You *can't* heal HP. You can only use the HP you drain to restore missing FP, as described for Heals FP. This is incompatible with Heals FP. -20%.

Alternatives

If the goal is just to reduce the victim's HP, FP, or attributes, consider Innate Attack (p. 53) with Malediction, or Affliction (p. 39) with Attribute Penalty. If healing is what's important, take Regeneration (p. 70), or Healing (p. 51) with Affects Self.

If draining others' HP increases your *powers,* buy Leech plus a set of abilities with Trigger, Leeched HP. Victims are "Common" and using Leech is illegal in most worlds, so this is a -30% limitation. Alternatively, buy an Energy Reserve (p. 119) with Special Recharge, fill it up using Leech, and use it with the power-boosting stunts in Chapter 4. To gain powers by stealing them from others, take Neutralize (p. 97) with Power Theft.

Powering Up

Leech fits *many* supernatural powers. It's the definitive ability of so-called "psychic vampires," who might have their own Vampirism power. It's also suitable for sinister divine and moral powers, and for spirit powers that command "astral vampires." With appropriate limitations, it could instead belong to a macabre biological power that lets the user derive

sustenance from blood . . . like the classic vampire of Gothic horror. Talent adds to all rolls to affect the target – including attack rolls to touch victims and Will rolls to use Leech with Malediction.

Neutralize

50 points

The Neutralize advantage on p. B71 is Neutralize (Psi), and just one possible version of the more generic trait below.

This attack lets you neutralize *all* of your victim's powers of a given source. Specify this source when you buy the advantage. Possibilities include magic, psi, spirit, and anything else the GM deems susceptible to neutralization. If "super-powers" are a distinct phenomenon with a single source, the GM might allow Neutralize against those, too. To affect powers from more than one source, buy Neutralize multiple times.

To use Neutralize, you must touch the subject. This requires an Attack maneuver in melee combat. On a hit, roll a Quick Contest of Will. Your victim gets a bonus equal to his *best* Talent with any of the powers affected. For instance, a psi with ESP Talent 4 and Telepathy Talent 2 would resist Neutralize (Psi) at +4.

If you win, you neutralize your victim's powers for minutes equal to your margin of victory. Should enhancements or super-tech (such as "neutralization manacles") generate an effect that continuously neutralizes the target, this is the *residual* duration after shutting off the ability or removing the item. If you lose or tie, there's no effect – but critical failure on your Will roll cripples this ability for 1d hours.

Once you've neutralized a given subject, you can't affect him again until his powers recover. Multiple attackers *can* use Neutralize on the same target. Use only the longest duration; their abilities don't "add" in any way.

Neutralize only deprives the subject of the abilities of the negated powers. It doesn't affect Talent, powers that don't originate from the affected source, or advantages that don't belong to powers (but see *Neutralize and Static vs. Non-Powers,* box).

Neutralize and Static vs. Non-Powers

In some worlds, those *without* powers can harness certain power sources. This usually requires special skills. For example, cinematic martial-arts skills (e.g., Blind Fighting and Power Blow) and chi powers both depend on the user's inner strength, magic spells draw upon energies identical to those tapped by magical powers, and priests channel holy might to perform miracles whether they cast spells or wield divine powers.

For consistency's sake, Neutralize and Static should affect these capabilities. For instance, Neutralize (Magic) should temporarily cancel out a wizard's ability to cast spells, while Static (Magic) should work a lot like a "no mana" area. The user doesn't *forget* his special skills – they just don't work.

The GM decides which skills (and advantages) rely on a given source in his game world. The only hard-and-fast rule is that Neutralize and Static shouldn't interfere with "wild" advantages that aren't associated with *any* power source.

These guidelines also apply to *artifacts* tied to power sources. Examples include items that carry powers bought with gadget limitations (see p. B116), objects imbued with permanent capabilities by enchantment spells (see *Magic Items,* p. B480) and similar special skills, and superscience devices related to powers (e.g., "psi-tech"). For instance, Neutralize (Magic) would temporarily render a magic sword mundane, while Static (Psi) would block artificial telepathic beacons and natural telepaths equally.

Special Enhancements

Enhancements that often appear in fiction include Based on HT (suitable for drugs that block biological or psi powers), Extended Duration, and Ranged. Specific options for Neutralize are:

Cosmic: You can neutralize *any* power, regardless of source. You can only affect one source at a time, but you can attack the same victim repeatedly to affect multiple sources. You still can't drain Talents, or advantages without power modifiers. Cosmic *doesn't* automatically overcome resistance. It provides incredible scope, but your target always gets a chance to resist. +300%.

Power Theft: You temporarily acquire the powers you neutralize – including all their enhancements and limitations – for the duration. You can't use Neutralize again until the "borrowed" powers wear off or you "return" them (a free action on your turn). +200%, or +300% if you don't gain the stolen powers but may use their *point value* to boost your own powers temporarily.

Precise: You can neutralize specific powers of the affected source, or even individual abilities. For instance, you could use Neutralize (Psi) to drain Telepathy only, or just telepathic Mind Probe, or everything *but* Mind Probe. To exclude or target a capability, you must know that your victim has it, and you must declare your intentions before you attack. +20%.

Special Limitations

Derange: You only neutralize your victim's *control* over his abilities. All affected abilities gain the Uncontrollable limitation (p. B116) for the duration. Your attack counts as "stressful," and immediately causes the abilities to act in unpredictable ways. -20%.

One Ability: You can only neutralize one specific ability within one particular power; for instance, *just* Mind Probe within the Telepathy power or *just* Innate Attack within the Heat/Fire power. This is incompatible with Precise. -80%.

One Power: You can only neutralize one specific power that stems from a source that has multiple powers associated with it. The most common example is a single psi power (such as ESP or Telepathy). -50%.

Alternatives

Use Leech (p. 96) to steal attributes instead of powers. Take Affliction (p. 39) with Negated Advantage to remove specific advantages regardless of their origin. To disrupt a power's effects on *you,* get Static (p. 98).

Powering Up

Neutralize suits anti-powers of all kinds, regardless of source (see *Anti-Powers,* p. 20). *Any* power might be able to neutralize "opposed" powers (see *Opposed Powers,* p. 21). In general, a power shouldn't be able to neutralize itself – but the GM is free to make exceptions. Talent adds to Will in the Quick Contest to neutralize powers, but *not* to the roll to hit the target.

Static

30 points

You radiate energies that *completely* prevent all powers of one particular source from affecting you. This extends to anything you're carrying or wearing. Buy Static separately for each source you can negate. Possibilities include magic, psi, "generic super-powers," and anything else the GM deems susceptible to "jamming."

Static only interferes with attempts to affect you or your personal equipment *directly.* For instance, if you had Static (Psi), a psychokinetic couldn't snatch your gun away or levitate you . . . but he could take control of a nearby sword and hit you with it, or drop a ton of rocks on your head.

Static affects friendly and hostile abilities equally. For example, Static (Magic) prevents you from using magic items or receiving beneficial spells, while Static (Psi) blocks the psionic Healing power.

You can never possess the abilities or Talent of any power you can negate.

Special Enhancements

Area Effect: Your Static extends into an area centered on you. The first level of Area Effect gives you a radius of a yard. Each level after that doubles this radius. +50%/level.

Discriminatory: Your Static only interferes with *hostile* powers. Friendly abilities and artifacts function totally unimpeded on you and within your area of effect (although you still can't possess powers you can negate). The definitions of "friendly" and "hostile" are up to you, and can fluctuate from second to second. If you have Area Effect, Discriminatory *replaces* Selective Area. +150%.

Switchable: You can switch your Static off to allow friendly abilities to affect you or operate within your area of effect. Turning Static off or on requires a Ready maneuver. It's up to you whether it switches on or off when you're knocked out, or simply remains in its current state; set this when you buy the ability. If you have Discriminatory, you don't *need* Switchable. +100%.

Special Limitation

Resistible: Your ability isn't absolute. Enemies can "burn" through your Static and affect those protected by it by winning a Quick Contest of Will with you. If the attacking ability *already* requires a Quick Contest of some kind, the attacker rolls only once, but the target gets +5 to resist. -50%.

Alternatives

Be sure to weigh the pros and cons of Static against those of other specialized defenses such as Mana Damper (p. 59), Mind Shield (p. 62), Obscure (p. 64), and Resistant (p. 71). Take Neutralize (p. 97) to interfere directly with a foe's powers rather than their effects.

Powering Up

Static is appropriate primarily for dedicated anti-powers (see *Anti-Powers,* p. 20). There's no "preferred" source, although Static is most *traditional* for psionic powers and super-powers. No power can have Static with respect to itself, however. Talent applies mainly to Power Block attempts (see p. 168), but also adds to Will rolls made for the Resistible special limitation.

If you had Static (Psi), a psychokinetic couldn't snatch your gun away or levitate you . . . but he could take control of a nearby sword and hit you with it, or drop a ton of rocks on your head.

Modifiers

The next step in ability building is to adjust the underlying advantage(s) to work in a way that fits your mental picture of the ability. Many advantages offer user-defined choices, or multiple forms or levels – and sometimes that's enough. Just as often, though, the only way to get things exactly right is to add *modifiers*. Modifiers fall into three categories:

1. Special modifiers. These are modifiers that appear in advantage descriptions. They adjust the details of how a *particular* advantage works, and might effectively convert it into new advantage. Choosing special modifiers is part of advantage selection. For hints and tips, see the relevant advantage entry and the notes in the previous section.

2. Power modifiers. These modifiers make an advantage part of a power, and only exist in campaigns with powers. See *Evaluating Power Modifiers* (p. 20).

3. General modifiers. The enhancements and limitations given on pp. B101-117 are of broad applicability. Choosing the right ones can be tricky; see the next few sections for advice.

Remember that modifiers, regardless of type, *can't* reduce cost by more than 80%. Treat a net modifier of -80% or worse as -80%.

Selecting Modifiers

Below are notes on ways to use the modifiers in the ***Basic Set*** to emulate effects from myth, novels, cinema, and comics. The most radical and unorthodox reinterpretations are *optional;* their use in any campaign is up to the GM.

Accessibility

see p. B110

If an ability only works in a situation that applies an easily calculated percentage of the time (e.g., "Only on a Sunday" is 14% of the time), find the limitation on this table:

"Only on supers" is worth -50% in settings where supers make up *much* less than 1% of the general population, as in most comics. In worlds where a significant percentage of people have powers, use the table. This limitation *doesn't* apply to Neutralize, Static, or any other advantage that only affects those who have powers in the first place.

A common limitation on mental-influence abilities is "Only on those who share a language with me." This is worth -10%, and valid only on abilities that *already* require the user to talk, such as those with Hearing-Based.

Abilities that let the user defy gravity – Clinging, Walk on Air, Walk on Liquid, etc. – often have "Only while moving." If the user stops moving, he falls. This is worth -10% if he must take at least a step per second, -20% if he must travel at half Move, or -30% if he must use his full Move. It's incompatible with All-Out (p. 110).

Some supernatural abilities require ritual or worship by others to work. To evaluate "Only with assistants," *halve* the basic point value that Maintenance (p. B143) gives for that number of people and write it as a percentage; e.g., 11-20 people is -25%.

A limitation that prevents an attack from working on targets it couldn't affect anyhow is *meaningless,* and worth no discount. For instance, "Not on machines" isn't valid for a Fatigue Attack (machines lack FP), and "Only on psis" isn't allowed on Neutralize (Psi).

Finally, limitations such as "Only when using ability X" are forbidden if the limited ability has a Link to X.

Percentage of Time the Ability Works	*Limitation Value*
1-6%	-40%
7-18%	-35%
19-31%	-30%
32-43%	-25%
44-56%	-20%
57-68%	-15%
69-81%	-10%
82-93%	-5%
94-100%	-0%

Accurate

see p. B102

Any ability with the Ranged enhancement (p. B107) can have Accurate. See *Reliable* (p. 109) for an enhancement that affects die rolls other than those for ranged attacks.

Affects Insubstantial

see p. B102

Affects Insubstantial is common on the abilities of divine, magical, psi, and spirit powers. Advantages modified with it affect those using Clairsentience, Jumper, or Warp with the Projection modifier – not just targets using true Insubstantiality. The GM may permit the following variant:

Affects Insubstantial (Selective): You can choose to affect *just* insubstantial targets, *just* substantial targets, or all targets. (If you can *only* affect insubstantial targets, take the Insubstantial Only limitation; see p. 111.) +30%.

Affects Substantial

see p. B102

Those who possess Clairsentience, Jumper, or Warp with the Projection modifier, Shadow Form, or any similar ability that renders them *effectively* insubstantial can use this modifier to let advantages that wouldn't normally affect the physical world do so. As with Affects Insubstantial, a variant exists in some worlds:

Affects Substantial (Selective): You can choose to affect *just* substantial targets, *just* insubstantial targets, or all targets. +50%.

Always On

see p. B110

For Insubstantiality and Obscure, Always On is worth -50%. The GM may permit this level of Always On for other abilities. To qualify, the ability must be at least as crippling as Insubstantiality (user can't interact with the physical world) or Obscure (user is deprived of a sense and can't use stealth). A weaker version of Always On makes sense for many abilities:

Usually On: Any advantage that can be Always On can instead be Usually On. The ability is on *almost* all the time – but the user can switch it off briefly by expending 1 FP per *second*. If Always On is no worse than -20%, Usually On is worth *half* as much; if it's a larger limitation, add a +10% enhancement to find the value of Usually On.

Area Effect

see p. B102

For advantages that *already* affect an area, the area of effect sometimes depends on the advantage level. If so, the only way to increase the area is to buy a higher level of the trait – Area Effect is off limits.

Area Effect makes it possible to affect groups of people with *non*-attack advantages that normally affect just one target; e.g., Healing, Mind Control, and Telekinesis. Several special rules apply to such abilities:

- If the advantage has a FP cost, multiply this by the radius in yards. Paying this cost lets the user affect everyone in the area – he doesn't pay FP separately for each subject. For instance, on a single subject, Healing costs 1 FP per 2 HP healed; on everyone in an eight-yard radius, it costs *8* FP per 2 HP healed (which the GM may interpret as 4 FP per HP).
- If the advantage affects the target via a Quick Contest, the user must roll a *separate* Contest with each potential victim in the area.
- If the advantage specifies a penalty to affect each victim after the first, the user has a penalty equal to the *total* number of potential victims, less one, on his roll for *each* subject. For example, to use Mind Control (Area Effect) on four people at once, roll to affect each of them at -3.
- If the advantage has user-defined effects, these must be the same for *all* subjects. In the Mind Control example above, the controller could tell all four victims, "Attack those men by the door!" He could *not* order, "John, save the girl. Paul, grab the treasure chest. George and Ringo, attack the men by the door!" If the ability is ongoing, it takes a second (or the usual amount of time for the advantage, if longer) to specify different effects for a particular subject, during which time the others continue to experience the last effect specified.

Armor Divisor

see pp. B102, B110

The GM may allow this modifier – as an enhancement or a limitation – on attacks affected by specialized defenses other than DR. Adjust the defense's level just as you would DR. For example, an Affliction with Vision-Based (which bypasses DR) could add Armor Divisor (5) to reduce the effects of Protected Vision from +5 to +1.

When using this option with the Armor Divisor *limitation,* treat targets that lack the specialized defense as if they had the lowest level of the defense. For instance, a radiation beam with little penetrating power might be a Toxic Attack with Radiation and Armor Divisor (0.5). Targets with Radiation Tolerance would get *double* its divisor; those without Radiation Tolerance would gain the benefits of Radiation Tolerance 2 (the lowest level).

Aura

see p. B102

Creatures that bleed acid, flame, and so on when wounded have a Burning Attack or Corrosive Attack that combines Aura (+80%) with Always On (-20%), Blood Agent (-40%), and Melee Attack (-30%), for a net -10%. Always On is worth -20% because it's inconvenient to fry your possessions whenever you're cut. Blood Agent works "in reverse" here; see *Blood Agent* (below) for details.

Based on (Different Attribute)

see p. B102

Some sinister entities (e.g., demons) can "aim" Afflictions, Mind Control, and so on at their victim's weaknesses. If the GM permits, an attack can have several instances of this enhancement, letting the user choose how his attack is resisted. Each attribute – *including* the one that normally resists the attack – costs +20%. For instance, to target IQ, HT, *or* Will costs +60%. The attacker must choose the target attribute before he attacks.

The GM may permit this modifier on advantages that require the user to roll against his *own* DX, IQ, HT, Will, or Per, shifting the roll to another of these scores. This still costs +20%. He can take this enhancement twice to change his roll *and* his target's roll, where logical.

Blood Agent

see pp. B102, B110

When an attack that *normally* ignores DR (like Leech) depends on a natural weapon – such as Claws or Teeth – penetrating the victim's DR, apply the Blood Agent limitation. Don't use Follow-Up; that's intended for attacks that *can't* normally ignore DR.

Blood Agent is also a legitimate limitation for attacks that require the *attacker* to bleed on his victim. When Blood Agent works "in reverse" like this, the attacker must suffer at least 1 HP of injury from a cutting, impaling, or piercing attack, and then ensure that his blood reaches his target. This is automatic with Aura but otherwise requires the usual attack roll. The GM may rule that such attacks simply don't work underwater or in other environments where blood would be diluted or washed away. The target's DR works normally. This variant is worth -40%.

Bombardment

see p. B111

Bombardment is a legitimate limitation for Area Effect and Cone attacks that conjure something that attacks everyone in the area instead of truly "bombarding" it. The classic example is a swarm of biting pests. In this case, the "effective skill" of the attack is the skill of whatever the attack summons. Such attacks often have Blockable (p. 110).

Cone

see p. B103

The notes under *Area Effect* (above) also apply to Cone. The only difference is that the user multiplies the FP cost of non-attack advantages by the maximum width of the cone instead of a radius in yards.

When combining Cone with Malediction – which has no Max statistic – assume that the cone spreads by one yard per yard of range. It attains its maximum width at a range equal to that width (e.g., at five yards, for a five-yard-wide cone), and has *no effect* on more distant targets. Work out the range modifier separately for each target within the cone, following the usual rules for Malediction.

Contact Agent

see pp. B103, B111

Attackers who must touch victims with *their* bare skin should take Touch-Based, not Contact Agent; see *Sense-Based* (p. 105).

Cosmic

see p. B103

The following new options are *powerful,* and not suitable for every campaign:

No die roll required. Only for abilities that require a success roll. Your advantage works if you have *any* chance of success. Apply all the usual modifiers to your base skill. If your effective skill is 3 or more, you succeed – don't bother to roll. The only way you can fail is if your effective skill falls below 3. You *can* add this enhancement to attacks, but not to abilities with effects based entirely on margin of success. This excludes such resisted abilities as Mind Control and Maledictions. +100%.

No active defense allowed. Only for attacks that the target can dodge, block, or parry. Your target gets no active defense against your attack, no matter how fast or skilled he is. If your attack roll succeeds, you *hit*. The victim's DR and other purely passive protection works normally, and this enhancement doesn't prevent *resistance* rolls. +300%.

Cosmic options are cumulative. For instance, an Innate Attack that requires no roll to hit (+100%), allows no active defense (+300%), *and* ignores DR (+300%) is +700%. An Attack maneuver lets you immediately apply your damage roll to your target's HP!

No version of Cosmic bypasses the resistance roll against Affliction, Mind Control, Maledictions, and similar abilities. Despite its name, "irresistible attack" simply negates protection such as DR and Mind Shield – it doesn't deny the target his chance to resist.

On a carrier attack, *all* forms of Cosmic raise the cost of Follow-Up on the follow-up attack.

Cosmic as a Power Modifier: At the +50% level, Cosmic is often a power modifier (see p. 26). On abilities with this modifier, reduce the *total* cost of all Cosmic options by +50%. In effect, the first +50% of Cosmic is built in. When using *Powers, Great and Small* (p. 32), each tier has an enhancement cost, and pays a premium equal to that cost for a lingering attack, or five times that cost for an irresistible attack. "No die roll" and "no active defense" are at full cost, less the value of the tier enhancement.

Cosmic vs. Cosmic: When Cosmic abilities conflict, handle it as if *neither* side had Cosmic. For instance, DR with Cosmic subtracts from "irresistible" attacks with Cosmic. The not-quite-cosmic powers of *Powers, Great and Small* only count as Cosmic against lower tiers – and only top-tier powers count as Cosmic against wild abilities. Powers on the *same* tier interact as if neither were Cosmic.

Costs Fatigue

see p. B111

Those adding Costs Fatigue to an Innate Attack that has the Variable enhancement may, if the GM permits, specify that the FP cost is proportional to the dice of damage used. To find the size of the limitation:

1. Set the FP cost to use the ability at *full* effect.

2. Divide this maximum FP cost by the attack's maximum dice of damage to find the FP cost per die.

3. Multiply cost per die by "average" damage dice – (1 + maximum dice)/2 – to find average FP cost.

4. Drop all fractions.

The result is the number of levels of Cost Fatigue to take.

Example: Laser Lad has Burning Attack 10d with Variable and Costs Fatigue. His FP cost at full effect is 20. His attack requires 20/10 = 2 FP per die. "Average" damage dice are (1 + 10)/2 = 5.5d, so average FP cost is 2 × 5.5 = 11 FP. He takes Costs Fatigue 11, for -55%. When he attacks, he pays 2 FP for 1d, 4 FP for 2d, and so on, to a maximum of 20 FP for 10d.

Use the same method to add a variable FP cost to non-attack abilities that come in levels; just substitute levels of effect for dice. Abilities other than attacks *don't* need the Variable enhancement to use this option (see *Variable,* p. 107).

In campaigns with powers, the GM may require Costs Fatigue on all but completely passive abilities, forcing the heroes to think strategically rather than hurl their powers at every problem. This is especially appropriate if powers are supposed to be mysterious. It can also help balance powers against spells and cinematic martial arts skills.

Cyclic

see p. B103

If the attack is contagious, those who come into contact with victims must roll against HT, per *Contagion* (p. B443). "Mildly contagious" (+20%) means the required contact is holding or being held by an infected victim for a *full* cycle, or contact with bodily fluids. "Highly contagious" (+50%) means the effects spread at the slightest touch.

Damage Modifiers

see pp. B104, B111

Double Knockback: To make this meaningful for low-damage attacks, double the basic damage of the attack, for knockback purposes *only,* instead of doubling yards of knockback.

Fragmentation: The GM may permit options other than regular and hot fragments. *Large Piercing Fragments,* like the ball bearings hurled by modern antipersonnel mines, cost +15% per die. *Impaling Fragments,* like the flechettes scattered by some artillery shells, cost +20% per die. In all cases, use the usual fragmentation rules; damage type is all that changes.

Incendiary: Optionally, to represent superscience and magical attacks with fire-starting potential out of proportion to damage, add Incendiary to a Burning Attack. This moves the effective flammability class of anything damaged by the attack up a step; see *Making Things Burn* (p. B433).

Missing Damage Effect: If the GM agrees and the special effects support it, an attack may lack one of the normal "side effects" of its damage type. The absence of an effect that damages the target's HP, FP, or DR is worth -20% (like No Blunt Trauma); e.g., No DR Reduction, for a Corrosion Attack. Most other limitations are worth -10% (like No Knockback); e.g., No Incendiary Effect, for a Burning Attack.

No Wounding: The GM may allow this on Burning and Corrosion Attacks. For a Burning Attack, roll damage normally but use it only to determine whether the attack sets a fire; see *Making Things Burn* (p. B433). In the case of a Corrosion Attack, the damage only serves to reduce the target's DR.

Radiation: In settings that feature weird, mutation-inducing radiation, attacks with this modifier can bathe the target in these energies *instead* of causing regular radiation damage. Effects are up to the GM.

Surge: Electronics that take over 1/3 HP from an attack with this enhancement must make a HT roll to avoid shorting out. Failure disables the target for seconds equal to the margin of failure; critical failure disables it until repaired (see *Repairs,* p. B484).

Delay

see p. B105

Supernatural attacks often use a variant of Triggered Delay that goes off if the victim performs some forbidden act: attacks someone, speaks, etc. This is worth the usual +50% if the triggering condition is fixed, +100% if the attacker can specify the details of the curse when he attacks. The traditional way to neutralize such attacks is with an exorcism, Remove Curse spell, or similar measure.

Emanation

see p. B112

The GM may allow Emanation in conjunction with Explosion (p. B104) instead of Area Effect. Use this combination to simulate antipersonnel grenades mounted on the hull of an armored vehicle . . . or the attack of an entity that flares like a phoenix without destroying itself.

Emergencies Only

see p. B112

An "emergency" is any event that causes severe mental, emotional, or physical stress. Most situations involving self-control rolls for disadvantages, Fright Checks, or HT rolls for major wounds qualify. The GM should also let a hero with a Code of Honor, Sense of Duty, or Vow that compels him to protect others use his ability to aid an innocent person who's in *immediate* danger (being mugged, falling to his death, suffering a heart attack, etc.).

Extended Duration

see p. B105

Duration occasionally depends on advantage level. If so, the only way to increase it is to buy a higher level of the advantage; Extended Duration isn't allowed.

The +300% level of Permanent can be unbalancing on Afflictions with the Advantage enhancement. If the GM permits this combination, the best way to keep things fair is to require the recipient to buy the granted advantage with unspent points if he wishes to keep it. Otherwise, the benefits vanish after the usual duration.

Extra Recoil

see p. B112

This limitation is incompatible with Very Rapid Fire; see *Rapid Fire* (p. 105).

Follow-Up

see p. B105

Follow-Up is only valid on attacks that can't normally ignore DR. If an attack that *normally* ignores DR (e.g., Leech) only works if a natural weapon – Claws, Teeth, etc. – pierces DR, use the Blood Agent limitation (-40%) instead.

Optional Rule: Multiplicative Modifiers

Normally, enhancements and limitations are *additive:* add them together and apply the total modifier to advantage cost. For instance, +20% in enhancements and -50% in limitations come to -30%, so ability cost is 70% of advantage cost.

Optionally, the GM may treat enhancements and limitations as *multiplicative.* Total the enhancements and apply them first. Then total the limitations (reducing any total over -80% to -80%) and apply them to the result. In the above example, +20% in enhancements would increase ability cost to 120% of advantage cost, and then -50% in limitations would reduce this to 60%.

The GM decides which model to use. The results *aren't* the same (although they're close for small modifiers), so using both isn't recommended. The additive model is a good "default," but the multiplicative model can be fairer in campaigns where huge enhancements (like Cosmic, +300%) occur routinely.

Guided or Homing

see p. B105

Cinematic missiles don't crash on a miss . . . they turn around and make another pass. Add +10% to the enhancement per pass after the first; e.g., a Guided attack that gets three chances to hit is +70%. If the initial attack misses, reroll it a second later, using the same effective skill as on the first attempt. Roll again once per second until the attack hits or runs out of extra passes – or, if Guided, the attacker stops guiding it.

For attacks with Rapid Fire and either Guided or Homing, make the attack roll as usual, but the roll is for the entire *pack* of missiles. Success means one missile hits, plus additional missiles equal to the margin of success, to a maximum of the attack's RoF.

Increased Range

see p. B106

Increased Range isn't allowed on advantages whose range depends on advantage level. To increase the range of such traits, buy more levels of the advantage. When adding this enhancement to a trait that normally doesn't work at a distance, Ranged (p. B107) is a prerequisite.

Jet

see p. B106

Jets have limited range but enjoy many benefits reserved for melee attacks. They can use All-Out Attack (Double), Deceptive Attack, Feint, and Rapid Strike, and get +4 to hit with All-Out Attack (Determined). A jet is *narrow* – no thicker than a pole weapon – and must engage targets one at a time. For a "jet" that can sweep an area, take Cone. Jet is for force blades, flame jets, plasma swords, and so on that are longer than Melee Attack (p. B112) allows.

Limited Use

see p. B112

For the purpose of this limitation, treat any advantage that produces an instantaneous effect – e.g., Healing, Jumper, Rapier Wit, Snatcher, Terror, Visualization, or Warp – like an attack. Each "use" lets you roll *once* per 24 hours to use the advantage. For information-gathering abilities such as Blessed, Mind Probe, and Psychometry, each question answered counts as one "use."

Limited Use isn't allowed on social advantages, advantages that must *always* be "on" to make sense (like Destiny, Digital Mind, and Unaging), or advantages with built-in usage limits (notably Extra Life, Gizmos, Luck, Oracle, Serendipity, and Wild Talent).

Link

see p. B106

Link is a key building block of custom abilities – without it, a tangler grenade that strikes its target for damage (Crushing Attack) and releases webbing that restrains and blinds the victim (Binding and Affliction) would be impossible. Label each Link on the character sheet in a way that distinguishes it from other Links and makes all connections clear. No trait can have multiple Links, but a single Link can connect any number of advantages. The GM wish to use these *optional* rules:

Asymmetric Links: A set of linked advantages can mix the +10% and +20% versions of Link. The advantages with the +20% level work both as part of the Link and on their own. Those with +10% level are only available when using *all* of the linked advantages at once.

Discretionary Links: When a set of advantages has Link at the +20% level, the user can specify that he's using one, some, or all of them, in any combination. For instance, if his Affliction, Binding, and Innate Attack had a +20% Link, he could use just one of the three attacks, *or* any of three combinations of two, *or* all three at once.

Low or No Signature

see p. B106

These enhancements make *any* ability less noticeable – they aren't just for attacks. If the GM desires extra detail, he can charge +5% per -2 to rolls to notice the ability, and treat -10 (+25%) as "undetectable." These penalties apply to Sense rolls to spot most abilities, or to supernatural attempts to trace those that are magical, psionic, etc. If the ability is obvious *and* traceable, buy the enhancement twice to foil both forms of detection.

Malediction

see p. B106

A Malediction affects substantial and insubstantial targets equally, whether the user is substantial or insubstantial. This makes Malediction especially suitable for divine, magical, psi, and spirit abilities. In some settings, it might *only* be available for abilities with supernatural power modifiers.

Melee Attack

see p. B112

Melee Attack results in an effect like energy claws or a flaming sword. This extends from the wielder's body, letting him attack and parry. "Touch only" abilities that call for a light touch with the hand have Reach C and can't parry (-35%). Those that must touch bare skin *also* have Contact Agent (-30%), while attacks that circumvent DR should add Malediction 1 (+100%) if resistance is possible, Cosmic (+300%) if not.

Melee Attack turns an attack advantage into a *powered* melee weapon, not a *ST-based* one; damage isn't cumulative with thrust or swing damage. It lets the user wield his attack in one hand. The GM may permit modifiers that relax these restrictions, possibly turning Melee Attack into a net *enhancement:*

Melee Attack (Destructive Parry): Your attack damages weapons it parries or that parry it. Roll damage normally and apply it to your foe's weapon on a successful parry by either of you. Price Melee Attack as usual, and then add a +10% enhancement.

Melee Attack (Dual): Your ability generates *two* melee weapons – usually one in each hand – permitting a Dual-Weapon Attack (see p. B417). Price Melee Attack as usual, and then add a +10% enhancement.

Melee Attack (ST-Based): Only for Crushing, Cutting, and Impaling Attacks. You can add your dice of

A hero can have a Pact with the GM, if the GM agrees. The GM should only allow this if both the Pact and the modified ability support a genre convention, like "kung fu movie realism."

thrust or swing damage to the damage of your Innate Attack. Work out Melee Attack as usual, and then add a +100% enhancement. (This modifier is more cost-effective than Striking ST; the GM may wish to reserve it for cinematic genres.)

Mobile

see p. B107

This enhancement is legal for *any* ability with an enduring area effect, even if it lacks one or both of Area Effect and Persistent; e.g., Obscure with the Ranged enhancement.

Nuisance Effect

see p. B112

Harsher-than-usual consequences under the optional rules in Chapter 4 can be Nuisance Effects. Examples include being unable to affect a given subject for 24 hours after a failure when using *Repeated Attempts* (p. 159), or having to check for crippling after *any* failure when using *Crippled Abilities* (p. 156). Each such drawback is worth -5%.

An ability that prevents the use of certain skills while active can claim -5% *if* the GM feels the skills it disrupts would be especially useful with that ability. For instance, a rocket-powered robot that can't use Stealth while flying could claim -5% on Flight.

Those whose abilities *severely* inconvenience them may use this variant:

Backlash: You suffer noxious effects when you use your ability. Choose these from among Attribute Penalty, Incapacitation, Irritant, and Stunning, as defined for Affliction (p. B35). If you succumb for a minute (a *second*, for Stunning), and can roll against HT once per minute (second) after that to recover, apply a limitation equal in size to the equivalent enhancements. If you get a HT roll to resist, and the effects last for minutes (seconds) equal to your margin of failure, halve this. For instance, Nauseated is worth +30% on Affliction, so nausea is worth -30% if automatic or -15% if resistible.

Onset

see p. B113

The Exposure Time variant is legal – and appropriate – for advantages that work like Maledictions (e.g., Mind Control). It represents a compulsion that *slowly* creeps over the victim as he views or speaks with his influencer. This is worthless in combat but subtle enough to escape notice in social situations. Limitation value is unchanged.

Overhead

see p. B107

The target of an Overhead attack defends at -2 the first time he's attacked; after that, assume he's on the lookout (see *Attack from Above,* p. B402). Defenses against attacks that swoop *around* the target and strike from behind are also at -2 (see *"Runaround" Attacks,* p. B391). The GM may allow a special variant:

Surprise Attack: Your attack *originates* behind the target. Victims with 360° Vision or Peripheral Vision defend normally, while those with Danger Sense may defend at -2 on a successful Perception roll. Otherwise, no active defense is possible. This is most suitable for attacks that teleport or emerge from extradimensional portals behind the target. +150%.

Pact

see p. B113

A hero can have a Pact with the *GM,* if the GM agrees. The GM should only allow this if both the Pact and the modified ability support a genre convention, like "kung fu movie realism." For instance, the player of a superheroic karate master might make a deal with the GM: if he fights his foes hand-to-hand, bullets mostly won't hurt him. He takes a -10-point Vow ("Never use a gun.") and buys DR with Limited, Bullets, -60% and Pact, -10%. If he uses a gun, he gives up his DR for the rest of the fight.

The GM may also give limitations for disadvantages other than self-imposed mental disadvantages:

Required Disadvantage: You have a disadvantage such as Increased Consumption or Sleepy. If you fail to meet its requirements, you lose your ability in addition to the usual effects of missing meals, sleep, etc. Alternatively, you must indulge an Addiction to keep your ability. In either case, if you lose your ability, the only way to restore it is to satisfy the needs of your disadvantage *and* recover fully from any ill effects it caused you during the period where you didn't: FP or HP loss, attribute penalties, afflictions, etc. Price this limitation exactly as you would Pact.

Abilities with power modifiers that include Pact or Required Disadvantage can't take a separate limitation for these; see *Required Disadvantages* (p. 21).

Persistent

see p. B107

An advantage doesn't need Area Effect as a prerequisite for Persistent if it affects an area *innately.* Any Persistent ability can be "on" in several different areas simultaneously as the result of successive attacks, unless the underlying trait forbids this. Multiple uses in the same area never "stack," however.

Ranged

see p. B107

Abilities that are normally "touch only" or "zero range" – Control, Create, Healing, Illusion, Leech, Mana Damper, Mana Enhancer, Neutralize, Possession, Static, etc. – often work at a distance in fiction. The GM may also permit Ranged on information-gathering abilities (such as Mind Probe, Precognition, and Psychometry), allowing them to "read" distant subjects. Ranged *doesn't* prevent an advantage from working the usual way (in an area around the user or by touch, as appropriate) when the wielder wishes. For other rules on using Ranged with specific advantages, see the advantage text and the notes in this chapter. Where Ranged appears as a special enhancement, as it does for Obscure, use that version of Ranged and *not* the general one.

When creating abilities based on advantages that normally have no range, Ranged is a prerequisite for all modifiers that affect ranged-attack statistics (Range, Acc, RoF, Shots, and Rcl).

Rapid Fire

see p. B108

Rapid Fire assumes the attack delivers its RoF over the course of a full second, but some TL8+ projectile weapons fire their full RoF in a tiny fraction of a second. They shoot so rapidly that recoil isn't felt until *after* the entire burst is in the air. The resulting stream of projectiles is a lot like a beam. The following option simulates this:

Very Rapid Fire: You fire your full RoF almost instantly. Follow the rules under *Rapid Fire* (p. B373), except that you get *two* extra hits per point by which you make your attack roll. When using rapid fire against close stationary targets (see p. B408), *any* success means you hit with all shots. You can't attack multiple targets or an area with spraying fire or suppression fire, however – you can only ever attack *one* target. This costs +10% over and above the cost of Rapid Fire, and is incompatible with Extra Recoil.

Reduced Fatigue Cost

see p. B108

In situations where the rules multiply the FP cost to use an ability, this enhancement subtracts 1 FP per level from the cost *after* multiplying. For example, when using Healing with Area Effect and Reduced Fatigue Cost, multiply FP cost by radius and *then* reduce it.

Reduced Range

see p. B115

When adding this limitation to a trait that normally doesn't work at a distance, Ranged (p. B107) is a prerequisite.

Resistible

see p. B115

A supernatural disease or magical poison (like an alchemical elixir) might allow a Will-based resistance roll. An ultra-tech threat might be engineered to require a ST, DX, or IQ roll. Represent either by adding Resistible and specifying an attribute besides HT; e.g., "Resistible, Will-3, -15%." *Don't* use Based on (Different Attribute). The GM is the final judge of what combinations are allowed.

Selective Area

see p. B108

Abilities without Area Effect or Cone can have "Selective Effect" for +20% if they have the potential to affect an area or multiple targets *actively.* The GM should work out the details, using the following examples for inspiration:

- *Attacks with Rapid Fire.* An attack with Selective Effect *and* Rapid Fire can hose down an area that contains both friend and foe without risking a "friendly fire" incident. The GM might even permit Selective Effect on attacks with RoF 1. This would prevent shots that miss or overpenetrate from hitting allies in the line of fire. Either option is suitable for the "smart bullets" seen in pulp sci-fi.
- *Elastic Skin, Invisibility, and Shapeshifting with the Glamour limitation.* This keeps the user from being misidentified or overlooked by his allies . . . and lets him make his enemies look like madmen ("What *man?* You're talking to a dog!").
- *Illusion.* Another way to make people look crazy!
- *Telecommunication.* This lets the user choose who can receive – or make sense of – a broadcast (e.g., by Radio, or Telesend with the Broadcast enhancement). This combination is useful for simulating secure tactical communicators.
- *Terror.* This is appropriate for dragons, deities, and other powerful entities that can demoralize their foes without frightening off their allies.

Neither regular Selective Area nor Selective Effect is compatible with Always On (which is only a limitation if you *can't* choose who is affected), or with advantages that offer the Discriminatory special enhancement.

Selectivity

see p. B108

Abilities with Selectivity can have mutually incompatible enhancements, if the GM permits. For instance, a spirit might buy Visualization with Selectivity plus both Blessing and Cursing in order to curse *or* bless, while a super might take a Burning Attack with Cone, Jet, and Selectivity so he can "dial down" his broad cone to a precise jet in close quarters. The user pays full price for all of his enhancements, but he must choose just *one* of them when he uses his ability; incompatible enhancements can't be active at the same time.

Sense-Based

see pp. B109, B115

It's permissible to "reverse" Sense-Based to create an ability that works through the *user's* senses. To affect his target, he must see it with his unaided eyes (Vision-Based), hear it with his own ears (Hearing-Based), touch it with his bare hand (Touch-Based), and so on. If he can't – or if he's deprived of his sense (e.g., by a blindfold for Vision-Based or heavy gloves for Touch-Based), or using a technological or paranormal intermediary – his ability doesn't work. This variation is only allowed as a *limitation* on an advantage that's normally unaffected by DR, and gives its usual discount.

Example: A robot that analyzes minerals by detecting minute quantities of airborne dust has Detect (Minerals; Smell-Based, -20%), and can't use its ability in a vacuum or from within a sealed suit.

Side Effect

see p. B109

An Innate Attack with Side Effect can have Based on (Different Attribute) to shift the resistance roll from HT to another attribute. Use this score instead of HT in the duration formulas, too. This is especially suitable for a supernatural attack that produces a curse-like effect that's tied to wound severity but more logically resisted by Will than HT.

Takes Extra Time

see p. B115

Takes Extra Time means the ability is constantly available but demands a long "ready time" immediately prior to use, making it unavailable in "quick response" situations. It isn't the same as Preparation Required, which allows the wielder to prepare in advance, giving him a single use with which to respond *instantly.* To keep the two balanced, the GM may restrict heroes to two levels of Takes Extra Time, which is equal in value to the lowest level of Preparation Required.

When Takes Extra Time results in more than one second of Ready to use an ability, it *is* possible to interrupt the user, just as if he were concentrating (see p. B366).

Takes Recharge

see p. B115

This limitation is suitable for energy attacks that fire from an "accumulator" charged by a power plant or the user's body. If the attack has Rapid Fire, it gets shots equal to its RoF before it needs to recharge. Once all shots are fired, the attack is unavailable until one *full* recharge period passes; then shots equal to RoF are available again. Shots *don't* trickle back gradually during the recharge period.

Temporary Disadvantage

see p. B115

Those who wield evil powers, psi abilities that drive them mad, and so on often suffer a mental breakdown the instant they activate their gifts. To simulate this, select a mental disadvantage that requires a self-control roll (e.g., Berserk or Pyromania), specify a self-control number of "N/A," and price Temporary Disadvantage as if the disadvantage were worth 2.5 times its listed cost (drop fractions). Using the ability *always* causes the effects specified for a failed self-control roll.

Example: El Tigre immediately goes berserk when he uses Alternate Form (Tiger). Berserk is worth -10 points, so it's worth -25 points if irresistible. El Tigre has a -25% limitation, and *must* savagely attack anyone nearby when he uses his ability!

An "always on" advantage *can* have Temporary Disadvantage. Instead of affecting the entire character, the disadvantage has the potential to shut down the advantage. See *Cybernetics* (p. B46) and *Cyberpunk Abilities* (p. 116) for more information. In this case, "temporary" means the disadvantage is irrelevant after it causes the advantage to fail.

Trigger

see p. B115

Injury is an entirely valid Trigger. Since a desperate hero can nearly always find a way to wound himself, this Trigger is Very Common . . . and since injury is by definition dangerous, the limitation is worth -15%. This *isn't* the same as Blood Agent (p. 100) "in reverse." The user needn't bleed on his victim or suffer a particular form of injury; even 1 HP of blunt trauma will do.

Uncontrollable

see p. B116

Situations that involve self-control rolls for disadvantages, Fright Checks, or HT rolls for major wounds qualify as "stressful"; see *Emergencies Only* (p. 102). Disadvantages that don't allow self-control rolls can also trigger this limitation. For instance, a hero with Pacifism might lose control if forced to commit violence.

Anyone who takes Uncontrollable must specify the "intelligence" that commandeers his ability: his subconscious or *something else.* His subconscious uses *his* scores for all rolls, and its first priority is always to deal with the cause of the stress. For example, if a super were to lose control of her Death Ray due to a major wound, her ability would go after whoever caused the injury first – even a foe she must capture unharmed, or a friend with bad aim – and use her Innate Attack skill to hit.

If the ability originates from a demon, implanted AI, or other intelligence the user can't fully control, it has its own scores and agenda (determined by the GM, exactly as for an Enemy). It acts purposefully and perhaps subtly; it could let the user remain "in control" but pervert his intent. For instance, Mind Control might work as desired but send victims *additional* suggestions, unknown to the user.

The GM may allow the following variant:

Uncontrollable Trigger: Your ability manifests uncontrollably in the presence of an *item,* not stress. Use the rarities given for *Weakness* (p. B161). This isn't a meaningful limitation if the item is "Rare." It's worth -5% if

"Occasional," -10% if "Common," or -15% if "Very Common." *Triple* this for destructive abilities. Unconscious Only is a frequent addition.

Underwater

see p. B109

The GM may permit aquatic heroes to add Underwater to abilities other than attacks – e.g., Scanning Sense and Telecommunication – that don't normally work (or work *well*) underwater. Like attacks, they function at 1/10 range underwater. This is unrealistic for radio waves, but comic-book supers often ignore such details.

Unreliable

see p. B116

The GM may allow natural attacks to have a "Malf." statistic similar to that used for gadgets and built-in firearms. This is especially suitable for abilities that originate from experimental drugs or surgery – or *cinematic* genetic engineering or mutation. On an attack roll equal or greater than Malf., roll 3d:

3-4 – The ability fails to go off and is crippled. See *Duration of Crippling Injuries* (p. B422) to determine recovery time. In some worlds, a Bioengineering, Physician, or Surgery roll can hasten recovery.

5-8 – The ability fails to go off and is temporarily unavailable. After three seconds, make a HT roll. Success means the ability comes back online. Otherwise, wait three more seconds and roll again. Critical failure on any of these HT rolls means the ability is crippled as in **3.**

9-11 – The attack fires a single shot and then fails as described for **5.**

12-14 – As **5.**

15-18 – As **3,** but the attack also strains the user. He suffers 1d-3 (minimum 1) each of fatigue and injury. DR doesn't protect.

Gadget Limitations and Powers

In fiction – especially comics – some heroes possess powers partly or wholly by virtue of special items: chi-invested weapons, holy artifacts, magic wands, etc. To create such gadgets, buy a set of abilities and apply both a power modifier *and* any suitable gadget limitations from pp. B116-117.

The power source of many gadgets is "superscience," not magic, psi, etc. The GM can either treat the abilities such items bestow as wild advantages or allow a special Superscience power modifier. Details depend on the setting, but a typical modifier is comparable to Super (p. 29) and worth -10%. If the GM wishes to let heroes take a modifier like this on *innate* powers (to represent techno-evolution, nanotech, etc.), a better model is Biological (p. 26), also -10%.

Talent normally resides in the owner and represents his ability to use the item. For instance, a Helm of Telepathy is more effective for someone with Telepathy Talent. In some tales, though, the *abilities* are native to the user while the *item* improves his control – that is, it grants Talent. To do this, apply gadget limitations to Talent (an exception to the prohibition against modifying Talent). This Talent might even add to the user's own Talent, letting him exceed normal limits.

If a power has required disadvantages (p. 21), the user of an item that grants that power's abilities or Talent *must* have these disadvantages. For example, a holy relic doesn't work for just anyone – only for those of suitable faith. Should the item be lost, the disadvantages *don't* go away. The GM may wish to award a suitable replacement item if the player roleplays his disadvantages well, though.

Untrainable

see p. B116

Abilities with Untrainable gain *no* benefit from Talent. This is in addition to the limitation's other effects. Abilities that require a roll to use can take this special version:

Hard to Use: You have a penalty on all rolls to use your ability, and Talent doesn't help. Each level of Hard to Use gives -3. This is incompatible with Reliable (p. 109) and forbidden on ranged attacks (but see *Inaccurate,* p. B112). -5% per -3, to a limit of -12.

Variable

see p. B109

Variable is strictly for *attacks,* which otherwise work at full power at all times. Non-attack abilities don't need it – their range, area, level of effect, and so on are variable automatically.

New Enhancements

The GM may invent enhancements as needed – see the variants suggested above for inspiration. Below are some entirely new enhancements for use in games that feature many superhuman abilities.

Affects Others

Variable

You can extend your advantage's benefits to others. If you can affect a limited number of willing subjects by touching them, Affects Others costs +50% per person. This isn't an *attack* – it has no effect on unwilling recipients. You must take a separate Ready maneuver to make contact with each companion, who must be within reach. This bestows the *effects* of the advantage, not the ability to use it. You turn it "off" and "on," set its level, and so on, and your decisions apply equally to you and all subjects.

Your ability only affects others while they're touching you. They can end its effects at any time by breaking contact with you. To affect those who are merely nearby, add Area Effect – in which case a Ready maneuver lets you affect any number of people up to your limit, if they're in your area.

The above version of Affects Others is for movement abilities (e.g., Flight and Permeation) and physical transformations (e.g., Growth and Shrinking). It's a good way to keep the PCs together on adventures that would leave behind those who can't fly, shrink, etc. The GM may allow Affects Others on other traits when it serves this purpose.

If you apply Force Field to one of the defenses listed for that enhancement (below), you may add Affects Others for a flat +50%, provided you *also* take at least one level of Area Effect. Together, these three modifiers let you extend your advantage's protection to everyone inside your area. This force field works against *attacks* and *hazards* crossing it from the outside. Threats inside the force field bypass its protection.

If based on Damage Resistance, the force field impedes *movement,* too. Foes who wish to cross it must force their way in. Those who try this as a free action (allowed once per turn) roll thrust damage. Those who use Attack, Move and Attack, or All-Out Attack to blast their way in roll their attack's usual damage. If damage exceeds DR, they make an opening large enough to step through. This closes at the end of their turn, and doesn't weaken the force field.

The GM shouldn't allow either form of Affects Others on advantages that let the user *do* something, such as Healing, Innate Attack, and Mind Control. To grant forbidden traits or affect unwilling subjects, buy Affliction with a suitable Advantage enhancement.

Can Carry Objects

Variable

A physical transformation normally affects your body but not your belongings. With this enhancement, your advantage also transforms objects you're *carrying* or *wearing*. It ceases to affect these things when you put them down. Can Carry Objects is already defined for Insubstantiality, Invisibility, Permeation, Shadow Form, and Shrinking, but it's also useful for Chameleon, Elastic Skin, Growth, Morph, and anything else the GM allows.

Cost depends on how much you can carry: No encumbrance is +10%; Light, +20%; Medium, +50%; and Heavy, +100%.

To affect *people* you're touching, add Affects Others (above). To extend *defensive* effects to your possessions, take Force Field (below).

Erosive

+10%

Erosive must accompany one of Blood Agent, Contact Agent, or Respiratory Agent, and either Area Effect or Cone. Your attack is a gas that eats away at the seals on gas masks, environment suits, etc. Whenever the wearer of such gear is exposed to the gas, roll against his equipment's HT. Assume HT 12 unless otherwise specified. Any failure means enough gas seeps in to affect him *and* reduce the HT of his equipment by 1 (this loss is cumulative). Restoring a point of lost HT is a major repair (see *Repairs,* p. B484).

Force Field

+20%

This enhancement converts a defensive trait into a field projected a short distance from your body. The field engulfs and protects your entire body – including your eyes – and everything you're *carrying* or *wearing* (up to Extra-Heavy encumbrance), even if the unmodified trait wouldn't. Always apply its effects *before* those of armor, environment suits, etc. See *Extending Defenses* (p. 173) for other benefits.

Force Field is suitable for Damage Resistance (but never with Tough Skin), Improved G-Tolerance, Magic Resistance, Pressure Support, Protected Sense, Radiation Tolerance, Resistant, Sealed, Slippery, Temperature Tolerance, and Vacuum Support. The GM may permit it on other advantages. If you have multiple traits with Force Field, note whether you have *one* force field or several (and their order).

Force Field often occurs in combination with Affects Others and Area Effect (see *Affects Others,* p. 107, for rules), and alongside the Active Defense limitation (p. 112).

Game Time

+0%

Some traits – including Luck, Serendipity, and Wild Talent – rely on *real* time. This modifier lets such an advantage use *game* time instead. If it usually works at least once per real hour, you get uses per game day equal to its maximum possible uses per real hour; e.g., Ridiculous Luck, which works every 10 real minutes, gets six uses per game day. If it's rated in uses per session, you get that many uses per game week; e.g., Serendipity 3 gives three uses per game week. The GM may adjust these ratios.

Independent

+40% or +70%

This enhancement is for advantages that require concentration to control. Your ability demands *no* attention after the initial Concentrate or Ready maneuver to activate it. If it requires a die roll, it lasts for minutes equal to your margin of success (your margin of victory, for a resisted ability) or its usual duration – whichever is *less*. During this time, it's completely self-sufficient. Its effects endure even if you're incapacitated or killed.

Independent doesn't allow multiple instances of the advantage's effects unless this is standard for the trait. If this *is* standard, *all* instances are "hands free" and you're exempt from penalties for simultaneous uses.

The only down side is that you don't control your ability after activation. Its effects last for the *entire* duration specified above – you can't end them early or maintain them. You must specify all particulars required by the ability when you activate it, and can't change these later on.

Independent is worth +40% for most advantages, +70% for those with penalties for simultaneous uses.

Long-Range

+50%/level

Your ranged ability uses a better class of range penalties than usual. From worst to best, these classes are -1/yard like a Regular spell (p. B239), the *Size and Speed/Range Table* (p. B550), *Long-Distance Modifiers* (p. B241), and *no* penalties at all. Each

level of Long-Range makes the penalties one step more favorable. The ability's 1/2D and Max range don't change; use Increased Range or Reduced Range for that. Long-Range affects the cost of Follow-Up.

Once On, Stays On

+50%

Only for physical transformations that end if you're knocked out or killed – mainly Elastic Skin, Shadow Form, and Shapeshifting. You revert to your "normal" form only if you consciously choose to do so. Sleep, unconsciousness, and death don't force you to change back. Severed body parts may remain transformed after you change back, if you wish; specify this when you buy your ability.

Reflexive

+40%

Reflexive is for defenses that take a second to activate, senses that require a second of concentration (e.g., Detect), and anything the GM feels serves a purpose similar to either. It lets your ability switch *itself* on – under attack if a defense, in the presence of something "interesting" if a sense – without a Ready or Concentrate maneuver. If this normally requires a success roll, activation requires a roll at -4; otherwise, it's automatic. If you're asleep, successful activation also wakes you up.

Reflexive counts as a level of Reduced Time when you use your ability consciously. It's incompatible with Active Defense, Always On, and Usually On.

Reliable

+5% per +1 bonus

Your ability usually works as intended. Perhaps you have extensive experience or natural aptitude with it, or maybe it's just easy to use. Whatever the reason, you get a bonus on all rolls to use it. This works exactly like Talent, and can't affect anything that Talent wouldn't affect. It's cumulative with Talent, where applicable.

Reliable is handy for advantages that routinely suffer large penalties (e.g., the -8 to use Precognition actively). It *isn't* available for ranged attacks – use Accurate (p. B102) for those. Reliable costs +5% per +1 bonus, to a maximum of +10.

Ricochet

+10%

When using *Ricochets* (p. 166), your attack doesn't lose damage on each bounce.

Selective Effect

see *Selective Area,* p. 105

Surprise Attack

see *Overhead,* p. 104

Switchable

+10%

This enhancement only exists for physiological features (e.g., Claws), defenses, and other traits that are normally "always on." It lets you switch your advantage off and on with a Ready maneuver. Specify whether it switches on or off – or remains in its current state, whatever that is – when you're knocked out.

You can't add Switchable to an advantage that lists special modifiers that enable you to turn it off and on, regardless of whether *your* ability has those modifiers. If an advantage notes Switchable as a special enhancement with a different value, use that value instead. Switchable isn't permitted on meta-traits, either. To get a switchable meta-trait, buy an Alternate Form.

A weaker version of Switchable is logical for some advantages:

Usually On: Only for advantages that are "always on" by default. Your ability is usually on, but you can switch it off by expending 1 FP per *second.* For advantages that are normally *off* by default, this is a limitation; see *Always On* (p. 99). +5%.

Time-Spanning

Variable

Your ability works across time. Rolls to use it this way have a penalty for the time gap between you and your target; use *Long-Distance Modifiers* (p. B241) and substitute "days" for "miles." Find the distance in *space* as if you were at the same point in time. This is worth +50% if you can reach just the past or just the future, or +100% for both; add -50% if your ability doesn't work in the *present.*

The GM decides which advantages can use this enhancement. It's meant for sensory and communications abilities (e.g., Clairsentience and Telesend), but might suit other mental abilities – like Possession – if the user also has an ability that lets him sense his target across time. If the GM allows this on an *attack,* Cosmic (+50%) is a prerequisite.

Usually On

see *Switchable,* above

Very Rapid Fire

see *Rapid Fire,* p. 105

World-Spanning

+50% or +100%

Your ability can reach parallel worlds. Find the distance in *space* as if you and your subject were on the same world. The GM may also permit a Plane-Spanning variant for abilities that work across dimensions other than parallel worlds. Either is worth +50% if you can *only* contact other worlds or planes, or +100% if your ability also works in your current realm. See *Time-Spanning* (above) for guidelines on allowed advantages.

New Limitations

Below are some new limitations of general applicability. The GM might also allow "wild" advantages to have some of the limitations normally reserved for powers, where logical; see *Evaluating Power Modifiers* (p. 20). When creating limitations, remember that a modifier that doesn't restrict the user isn't a limitation – it's a special effect (see *Special Effects,* p. 113).

Active Defense

see *Requires (Attribute) Roll,* p. 112

All-Out

-25%

Your ability requires an All-Out Attack maneuver; you can't use it with any other maneuver (e.g., Move or Change Posture). You have no active defense while using it. If it would let you move more than a step, you're limited to half your Move in a forward direction. You may attack *if* the advantage is one that lets you do so, but All-Out isn't just for attack abilities – you can add it to any advantage that requires a maneuver to use (typically Concentrate or Ready), replacing the standard maneuver with All-Out Attack. Explain what you're doing that limits you: deep concentration, spinning in place, etc.

Aspected

-20%

Your ability works only when pursuing a specific class of *related* tasks or activities (e.g., athletics, combat, investigation, or social interaction), or in a specific area of daily life (e.g., job, personal health, or romance). The GM has the final say, and can make the categories as broad or as narrow as he wishes.

Aspected is meant for Intuition, Serendipity, and advantages that directly alter your odds of success at tasks (Luck, Super Luck, Visualization, etc.). The GM may allow it on other traits. Certain "aspects" aren't *useful* even on normally permitted abilities, though; for instance, Visualization is so slow that Aspected, Combat would make it worthless.

Backlash

see *Nuisance Effect,* p. 104

Blockable

-5% or -10%

Ranged attack abilities (Affliction, Binding, Innate Attack, advantages with the Ranged enhancement, etc.) normally work like firearms when it comes to the target's legal active defenses: the victim can only dodge. Abilities that affect an area – including anything with Area Effect, Cone, or Explosion – only allow an attempt to dive for cover, whether or not they're ranged. If either kind of attack produces an effect that the target could try to block with a shield, it has a -5% limitation – or -10%, if he could also attempt to parry.

Use this limitation to simulate slow-moving projectiles (like nets or Missile spells), summoned swarms of biting creatures, and so on. To block an attack with Blockable *and* Overhead – like a rain of stones – the defender must hold his shield over his head.

Costs Hit Points

Variable

This limitation works exactly like Costs Fatigue (p. B111), except that it depletes HP instead of FP, and is worth twice as much: -10% per HP per use, doubled to -20% if the cost is per *second.* It can also convert FP costs built into advantages to HP costs, at -5% per FP converted – or -10% per FP, if the cost is per second.

Environmental

Variable

Only advantages that affect others can have this limitation. Your ability manipulates an *existing* item or condition, which must touch or surround the target. Unlike Accessibility, this doesn't affect activation – you can trigger your ability anywhere, barring a failed roll or another limitation. However, your ability is only *effective* if the subject is in a particular environment . . . and the GM can alter its effects if the environment you're attempting to manipulate is at all unusual.

Example: A Binding that commands plants to entangle the victim would do nothing in an area without vegetation. It would be little more than a nuisance if the only plant nearby were a small potted fern . . . and totally unpredictable in an alien jungle!

The GM should base the value on the environment's rarity:

Very Common: Environment is present all the time, outside of one or two unusual situations that would be difficult for an enemy to arrange; e.g., in a gravity field, in the presence of air, or on a planet. -5%.

Common: Environment is present most of the time, but a resourceful foe could arrange for it to be absent; e.g., in contact with dust or in the presence of microbes. -10%.

Occasional: Environment is often absent, or easily avoided by enemies (although a crafty user might be able to "rig" an important encounter to work around this); e.g., in a city, in the wilderness, outdoors, or touching the ground. -20%.

Rare: Environment is usually absent *and* difficult for the user to arrange; e.g., in a storm, in dense vegetation, in the desert, or underground. -40%.

Very Rare: Environment is so unlikely that the ability is useless most of the time; e.g., in lava, in quicksand, or in vacuum. -80%.

The GM should forbid proposed Environmental limitations that duplicate one of the ability's built-in restrictions; e.g., "in the water" isn't valid for Control (Water). In games with powers, an ability that gets -10% for a mundane countermeasure or insulator as part of its power modifier *already* has this limitation – don't apply it a second time.

Fickle

-20%

Your ability is or seems sentient, and sometimes reacts poorly. Make an *unmodified* reaction roll whenever you wish to use it. For an attack, make this

roll before each use. For other abilities, the advantage works until you need to make a success roll for it . . . then make a reaction roll. For instance, Flight requires a reaction roll when you try a DX roll to "push the envelope," or an Aerobatics or Flight skill roll, while Dark Vision calls for a reaction roll anytime you attempt a Vision roll in the dark. Even "passive" abilities sometimes require die rolls; see *Extra Effort* (p. 160), *Defending with Powers* (p. 167), and *Stunts* (p. 170).

On a reaction of Neutral or better (10+), the ability works as expected and you can attempt your attack roll, DX roll, Sense roll, etc., as applicable. A Very Good reaction (16-18) gives +1 to the ensuing roll; an Excellent reaction (19+) gives +2.

On a reaction of Poor or worse (9 or less), the ability fails. If it wasn't already active, it refuses to activate. If it *was* active, it shuts down. This doesn't normally endanger you directly; for instance, Flight sets you down gently and Insubstantiality leaves you in open space. Of course, the sudden loss of DR in battle, Dark Vision in an unlit room full of traps, and so forth can endanger you *indirectly*.

On a reaction of Very Bad or worse (3 or less), the ability *does* endanger you, or turns on you in some unpleasant way. Flight drops you like a stone, Insubstantiality leaves you stranded inside a wall, your attack blasts you, and so forth. The GM should be creative!

You can try to invoke a failed ability every second if you wish, but the reaction roll is at a cumulative -1 per repeated attempt as your ability (or the forces behind it) become increasingly annoyed by your requests. To eliminate this penalty, you must go for a full hour without using your ability.

Fickle is often part of a power modifier; see *Fickle Forces* (p. 24). In this case, the outcome of the reaction roll and the hour needed to lift penalties for repeated attempts apply to the entire *power*. The abilities of such powers can't take this limitation – they already have it.

The GM may permit a weaker limitation:

Requires Reaction Roll: Your ability works as described above, but normal reaction modifiers *do* apply to the reaction roll, and you can substitute an Influence roll. -5%.

Glamour

Variable

Only available for Chameleon, Elastic Skin, Invisibility, Shapeshifting (with the Cosmetic limitation), Silence, and similar traits that alter how others perceive *you*. Your ability controls others' perceptions through a persistent hypnotic suggestion, mental illusion, or psychic compulsion. It doesn't affect machines. Living victims get a Will roll to resist your influence and sense you normally – and individuals with Mind Shield may add their level to this roll. A resistance roll against Will-5 is worth -5%. Each +1 to the roll is a worth another -5% (e.g., Will+4 is -50%).

Hard to Use

see *Untrainable*, p. 107

Insubstantial Only

-30%

Your ability *only* affects intangible targets: beings with the Spirit metatrait, individuals using Insubstantiality, and those using Clairsentience, Jumper, or Warp with the Projection special modifier. This modifier is especially useful for attacks intended to exorcise spirits.

Magnetic

see *Specific*, p. 112

Maximum Duration

Variable

Only available for switchable, beneficial abilities that you could normally leave "on" *indefinitely* (e.g., Insubstantiality). Your ability can only operate for a limited length of time. After that, it shuts down without warning and you can't reactivate it for five minutes. Limitation value depends on the time limit:

Less than 30 seconds	-75%
Up to 1 minute	-65%
Up to 10 minutes	-50%
Up to 30 minutes	-25%
Up to 1 hour	-10%
Up to 12 hours (or one night)	-5%
Greater than 12 hours	-0%

Minimum Duration

Variable

Only available for switchable abilities that would – in the GM's opinion – *seriously* inconvenience you if you couldn't deactivate them at will. Your ability must stay "on" for a certain period of time once activated; you can't shut it off before this time is up. Minimum Duration can never exceed Maximum Duration (if any). Limitation value is as follows:

Less than 1 hour	-0%
Up to 8 hours	-5%
Up to 12 hours (or one night)	-10%
Up to 24 hours	-15%
Up to 1 week	-20%
Up to 1 month	-25%
Greater than one month	-30%

On an advantage that allows Always On, this limitation is worth at most -5% less than Always On; e.g., if Always On is -20%, Minimum Duration can't go beyond -15%.

Minimum Range

-5% or -10%

You can't use your ranged ability on a target *inside* a certain range. Use this for weapons that have a minimum fusing distance or that fire in a high arc, and for sensors with a "blind spot" within which they can't resolve targets. The GM should restrict this modifier to ranged abilities that are *normally* useful at relatively close range. This is worth -10% for a minimum range of 5% maximum range, -5% for a minimum range of 1% maximum range (always at least a yard).

Missing Damage Effect

see *Damage Modifiers,* p. 101

Required Disadvantage

see *Pact,* p. 104

Requires (Attribute) Roll

-5 or -10%

This limitation works like Unreliable (p. B116), except that instead of rolling against a fixed activation number to trigger your advantage, you roll against DX, IQ, HT, Will, or Per (choose one when you buy the ability). Things that temporarily modify your score *do* affect this roll. For a defensive ability, roll each time the defense would mitigate an attack or a hazard – or once per minute, for constant exposure. -10% for a DX, IQ, or HT roll; -5% for a Will or Per roll.

A special version of this limitation exists for the defensive traits listed under *Force Field* (p. 108):

Active Defense: Your ability only protects you against threats you're aware of – and only if you make a roll to interpose it in time. This roll is at DX/2 + 3, +1 for Combat Reflexes. If you try to use the same ability more than once in a turn, apply a cumulative -4 per attempt after the first. You roll at -4 if stunned, and can't roll at all in situations where you wouldn't get an active defense (attack from behind, unconscious, etc.). -40%.

Requires Concentrate or Ready

-15% or -10%

Your ability requires a series of Concentrate or Ready maneuvers to maintain. Taking any other maneuver (such as Attack or Move) causes it to switch off. Thus, you can only move one step per second while using it, and can't attack, aim, etc. Requires Ready is worth -10%. Requires Concentrate is worth -15%, and means your ability shuts down if you lose your concentration. You can't combine these with each other or All-Out (p. 110).

Normally, only switchable advantages that would otherwise stay on without an active effort can have these limitations. A passive ability *without* definite activation conditions (e.g., Empathy) can also take them; if so, it requires the maneuver in question to use.

Requires Reaction Roll

see *Fickle,* p. 110

Short-Range

-10%/level

Your ranged ability is subject to more severe range penalties than usual. Use the rules for Long-Range (p. 108), except that each level makes the penalties a step *less* favorable. You *can* combine Short-Range with Reduced Range, but the total limitation value can't exceed -30%. Short-Range affects the cost of Follow-Up. It's incompatible with Guided, Homing, Long-Range, and Melee Attack.

Specific

Variable

Specific restricts an ability that lets you interact with a material to a subset of what it normally affects. Advantages that *already* require a particular choice of materials can't be Specific. This limitation is generally worth -40% for common materials, -60% for uncommon ones, and -80% for absurd ones – but the GM sets the precise value, which might be as little as -10% for very common materials. Abilities that affect ferrous metals – iron (including steel), nickel, and cobalt – have a -50% limitation, called "Magnetic" and not "Specific, Ferrous Metals" to save space. See the examples under *Clinging* (p. B43), *Penetrating Vision* (p. B74), *Super Climbing* (p. 79), *Walk on Air* (p. 87), and *Walk on Liquid* (p. 88) for other suggestions.

Terminal Condition

Variable

Only allowed on abilities that affect others for at least a minute. Your enemies can end your ability's ongoing effects with a simple act: kissing the subject, speaking three words, etc. If this condition isn't met, the effects have their usual duration.

This is worth -5% if the condition is arcane enough to require research; -10% if a skill roll (against Religious Ritual, Ritual Magic, Thaumatology, etc.) can discover it; or -20% if common knowledge. These values become -0% (a special effect), -5%, and -10% if the condition is difficult to arrange even if known, like a kiss *from a princess* or words *spoken by an elf*.

Abilities that *can't* end until a certain condition is met just have Extended Duration, Permanent (+150%). This enhancement already requires such a condition – you can't take Terminal Condition separately.

Uncontrollable Trigger

see *Uncontrollable,* p. 106

Usually On

see *Always On,* p. 99

Visible

-10% or -20%

Your ability has a manifestation that makes it plainly obvious to everyone nearby. The effects and value depend on the underlying advantage:

- A communication, influence, information, or sensory ability that would otherwise have no visible effect – such as Clairsentience or Mind Reading – generates an attention-grabbing effect (shimmering ray, floating eye, etc.) that gives away the fact that you're affecting or observing the subject. This makes subtlety impossible (if it doesn't, you don't have a limitation). -10%.
- An ability that lets you physically attack *might* qualify if it's normally invisible and largely unavoidable; e.g., Telekinesis. In addition to the effects above, your target gets an unpenalized defense roll to avoid the attack. -20%.

Special Effects

Advantages and modifiers are so precisely defined that an ability built from them is liable to seem boring if it's merely the sum of its parts. To make things interesting, try to specify a few ways in which your creation deviates from its generic components. The comics are full of supers with Flight and Burning Attack . . . but one hero might leave a fiery trail and toss fireballs, while another hovers in a green globe of force and zaps his foes with a laser beam. Little details like this are called *special effects*.

Special effects are trivial features with *no* effect on point cost. They describe how the ability works in the game world, what it looks like, and how it differs from other abilities built from the same elements. Any benefits they provide should be minor – with little influence on overall utility – and balanced by modest drawbacks. If the GM feels that a proposed special effect is effectively an enhancement, he's within his rights to price it as such or forbid it altogether.

"Functional" Special Effects

A vital role of special effects is to provide a game-world (as opposed to game-*mechanical*) explanation for how the ability *works*. A Burning Attack might be a laser beam . . . or a fireball. Flight (Winged) might involve two wings, like those of a bird or a plane . . . or four wings, like those of a dragonfly . . . or rotors. Elastic Skin might be an illusion . . . or a physical metamorphosis. Such choices sometimes matter in play, but since they're largely "color" – with no real effect on overall capability – they don't affect point cost.

The GM should *require* players who buy exotic and supernatural advantages to specify such "functional" special effects for their abilities – especially those with many modifiers. The entries for most such advantages in the ***Basic Set*** offer a few suggestions; the notes under *Advantages* (pp. 39-98) and *Modifiers* (pp. 99-112) add many more.

Variant Traits

Functional special effects needn't be subtle. A radical redesign of an advantage is still a special effect if it uses roughly the same game mechanics as the original *and* is no more potent in play than the "stock" version. Examples include Jumper (Spirit) (p. 57), Oracle (Digital) (p. 65), Protected Power (p. 69), and True Faith (Chosen) (p. 84); versions of Medium that communicate with a dream world or parallel universe instead of the spirit realm (p. 59); and the special Awe and Confusion variants of Terror (p. 84).

Modifiers, too, can vary as a special effect. This usually involves extending the list of advantages to which they apply (e.g., allowing Unreliable to give natural attacks a Malf. number; see p. 107) or expanding their definitions (e.g., the Selective Effect variant of Selective Area, p. 105). The GM might also exchange one score for another (like basing Resistible on an attribute other than HT; see p. 105). He might even "reverse" the way the modifier works (see *Blood Agent,* p. 100, and *Sense-Based,* p. 105), if he's willing to define the effects.

The GM is the final judge of which variant traits are allowed.

Cosmetic Effects

Unless a specific advantage description states otherwise, any attack without the Low or No Signature enhancement (p. 103) has obvious effects. Most other advantages lack obvious effects except when given the Visible limitation (p. 112). For obvious abilities, an important special effect is *what observers perceive.* Consider the following questions:

- What color is the effect? If it emits light, how bright is it, and is it steady or lambent? If it looks solid, smoky, or shadowy, is it transparent, translucent, or opaque? Or does it seem to *suck in* light?
- Does the ability make noise? If so, how loud? Is it low- or high-pitched? Is it a sharp report, like a gun? A mechanical hum? A weird screech or warble, like a sci-fi ray gun?
- Does the ability generate a distinctive odor?
- Can others *feel* the ability as vibrations, a breeze, a temperature change, or an electric field that causes hair to stand on end?
- Is the ability obvious to senses beyond the normal human ones? Does it emit infrared or ultraviolet light? Ultrasonics? Electromagnetic noise? *Psionic* noise?
- Does it have *weird* effects, like causing glowing magical symbols to appear, or a rumbling voice from the heavens?

Beam, Breath, and Bolt

Two particularly important functional special effects for ranged attacks are the *body part* that projects the attack and the attack's physical *form*. These factors determine the specialty of Innate Attack skill (p. B201) used to aim the attack.

Continuous beams and jets can stream from the hands, mouth, or eyes, and use Innate Attack (Beam), (Breath), or (Gaze), respectively. Solid projectiles and discrete bolts – like fireballs – use Innate Attack (Projectile). For abilities that don't fit neatly into these categories, the GM may arbitrarily assign an existing specialty or invent a new one.

Those with Burning Attacks should also decide whether their ability is a tight-beam burning attack. Such attacks have both benefits and drawbacks (see *Tight-Beam Burning Attacks,* p. B399), but there's no effect on point cost – the distinction is a special effect.

These effects can be as simple or elaborate as the user wishes. For instance, a death ray might resemble a beam-weapon attack . . . or consist of a stream of wailing, ghostly skulls that swirl around the target, chilling him and making his hair stand on end.

The GM should ruthlessly forbid any cosmetic effect that's a useful ability in its own right; e.g., jamming all radios within a mile, shattering glass, or blinding onlookers. *Minor* benefits are acceptable if they have balancing drawbacks. For instance, a super with a flame jet has a useful light source – but his enemies can target him by its light, and he wouldn't want to use it in the city library!

The GM should ruthlessly forbid any cosmetic effect that's a useful ability in its own right.

Minor Benefits and Drawbacks

If the GM permits, the player can specify one or two trivial benefits for his ability in return for accepting some equally minor drawbacks. Special effects of this kind *must* be related to the ability's primary effect – and to its source and its focus, if the ability is part of a power.

Additions

Special effects often take the form of a modest additional capability balanced by a new restriction. A simple but effective way to balance such effects is to word the advantageous aspects as perks (see *Perks,* p. B100) and the disadvantageous ones as quirks (see *Quirks,* p. B162), and to require an equal number of both.

The most common perks for this purpose are Accessory (for instance, a flame attack might work as a cigarette lighter, a laser beam as a flashlight, and an air attack as a leaf blower) and Shtick (e.g., Damage Resistance with Force Field might repel dirt and keep you clean at all times). Other effects are possible. For instance, a particularly impressive ability might be good for +1 to Intimidation attempts when used.

Quirks should follow the guidelines for physical quirks, giving the user a small penalty to one or two die rolls when he activates his ability – or giving *opponents* a modest bonus (for instance, to spot him).

Example: Revok can run his Mind Control "passively," persuading others he's mostly harmless; he enjoys the benefits of the Honest Face perk most of the time. When he uses his ability actively, though, others perceive him as sinister; he attracts attention as if he had the Distinctive Features quirk.

Omissions

The GM might instead let the player eliminate one built-in restriction on his advantage in return for accepting the loss of one of its normal benefits. This should always be an even trade; that is, the two omitted elements should be roughly comparable in importance. If not, the GM can omit additional elements to balance things, or simply forbid the special effect.

Example: Blessed (p. 43) offers the option of dropping the requirement to serve a deity (a built-in restriction) in return for losing the reaction bonus from the faithful (a standard benefit). This converts Blessed from a "holy" ability to a generic supernatural one. In game terms, this is just a special effect.

Special Effects On the Fly

It's impossible to predict every logical special effect for an ability, especially one with many modifiers. If the player proposes a reasonable special effect in the course of an adventure, the GM should generally go along with it for the sake of drama . . . and if the GM feels that the ability would be slightly limited in a particular situation, the player should accept the GM's judgment and let the game go on.

Trust is crucial here. It's simply more *fun* if everyone is willing to live with rulings like "Of course Snowball's ice bolts can chill drinks!" and "Sorry, Snowball, but the bad guys found you by following the puddles!" The alternative – requiring Snowball to link a low level of Temperature Control to his Innate Attack, add Nuisance Effect (Leaves puddles), and so on – results in needlessly complex abilities.

Finishing Up

After choosing the advantages and modifiers that make up your ability – and noting a few interesting special effects – it's time to clean it up and put it on your character sheet. The following checklist can help you avoid errors and omissions:

1. Drop any modifier that's explicitly incompatible with the advantage. Ignore special modifiers (they're *designed* for the advantage), but note that many *general* modifiers are off-limits for specific advantages. In particular, attack modifiers are normally off-limits for advantages other than attacks.

2. Delete any limitation that duplicates one of the advantage's built-in restrictions. Such limitations don't limit the user . . . so they aren't real limitations, and are forbidden even if there's no explicit note saying so.

3. Verify that all the modifiers are compatible with *each other.* Often, only one of two incompatible modifiers notes a conflict, so be sure to read each description. If there's an incompatibility, remove one of the problem modifiers. An alternative solution in

the case of conflicting enhancements is to add Selectivity (p. 105).

4. If the ability is part of a power, remember its power modifier – and any modifiers that the power requires on this particular advantage.

5. Once *all* of the modifiers check out, add them together to find the ability's overall modifier. If this is a net limitation that exceeds -80%, reduce it to -80%.

6. Apply the net modifier to the advantage's point cost to find the ability's point cost. Round all fractional point costs *up;* for instance, 10.01 and 10.99 both round to 11.

7. Name the ability (see *Naming Your Ability,* below).

8. Write the ability on your character sheet as explained in *Writing it Up* (box).

Writing It Up

You can write down abilities however you like, but the following steps outline a *clear* format that includes all the information needed to use the ability in play:

- Start with the advantage name, exactly as it appears in ***Powers*** or the ***Basic Set.*** *Exception:* For Innate Attack, replace the word "Innate" with the damage type; e.g., if the Innate Attack inflicts burning damage, write "Burning Attack."
- After this, write the advantage's level or dice of effect: Affliction 3, Burning Attack 10d, Damage Resistance 30, Striking ST +10, and so on.
- If the advantage has a particular specialty or form, note this in parentheses after advantage level; e.g., Control 5 (Water) or Regeneration (Fast). For resisted abilities, like Affliction, note the resistance roll instead; e.g., Affliction 3 (HT-2).
- In the same parenthesis, list the ability's modifiers in alphabetical order, separating names, levels, and values with commas. Separate the modifiers from each other – and from the ability's specialty or resistance roll – using semicolons.
- At the very end, write the ability's point cost in brackets.

Example: Affliction 3 (HT-2; Area Effect, 64 yards, +300%; Emanation, -20%; Hearing-Based, +150%; Heart Attack, +300%; Limited Use, 1/day, -40%; Selective Area, +20%) [243].

Naming Your Ability

An interesting ability needs a descriptive, original, *cool* name. Anime heroes and cinematic martial artists shout out impressive names for their abilities ("Four-Way Demon Yin-Yang Fire!"). Wizards prefer names that hint at secret knowledge or the monikers of forgotten magi ("Al-Azrad's Burning Death"). Priests honor gods ("Wrath of Agni"). Even the most serious psis and supers coin names like "Pyrokinesis," "Firebolt," and "Plasma Blast." Never settle for an advantage name like "Burning Attack" – that's boring!

There *is* a practical benefit to naming your ability. If your ability is complex, with many modifiers and perhaps even multiple traits joined with Link or Follow-Up, you can just list its name and point cost on your character sheet to save space. Write out all the gory details elsewhere. A name can replace a paragraph or even a *page* of modifiers, special effects, and notes, making your character sheet much tidier.

Special Cases

It isn't always easy to hit upon the combination of advantages, modifiers, and special effects that does *exactly* what you want. It's often difficult to decide what the starting advantage should be – or which modifiers make it work as desired. Below is advice to help solve some of the more common problems.

Multiple-Choice Problems

The wealth of traits available in ***GURPS*** sometimes makes it possible to represent a capability in more than one way . . . and the point costs might not even be close. The GM decides which choice is "right" for *his* campaign. When in doubt, use the "A-B-C Rule":

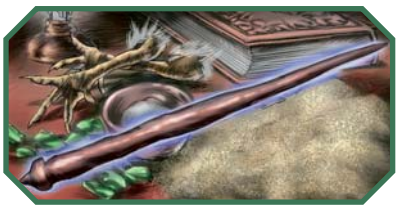
- ***A****ccurate.* When a character concept or fictional precedent provides an explanation for the ability, select the advantages and modifiers whose built-in mechanics and special effects most closely fit that explanation. *Example:* A "universal translator" might have Mind Reading plus Telesend with the Universal enhancement (p. B91) . . . or Modular Abilities with Limited, Languages Only (p. 64). The former is superior for a telepath who "assimilates" the languages of conversation partners. The latter is better for a robot translator that runs language programs – which usually *are* discrete modules.
- ***B****asic.* If none of the redundant options is obviously a better fit – which is often true for highly adaptable "generic" advantages – pick the *simplest* option. *Example:* A super who can become a living flame could buy Injury Tolerance (Diffuse) with the Switchable enhancement, and then take all the other traits that constitute the Body of Fire meta-trait (p. B262) with "Accessibility, Only when diffuse." However, Alternate Form (Body of Fire) would be less convoluted – and easier to record on the character sheet.
- ***C****heap.* If two options are equally suitable and simple, choose the one that costs fewer points. The GM should be wary of "creative accounting," though – the cheaper choice

ought to be less useful. ***GURPS*** tries to enforce this, but like any game, it likely has loopholes. If a player finds one of these, the GM should put special restrictions on the bargain-priced ability, or just forbid it. *Example:* Affliction 1 (HT; Advantage, Warp, +1,000%) [110] costs less than Warp (Extra Carrying Capacity, +50%) [150]. Both can teleport others – but the former is resisted and doesn't let the *user* teleport, while the latter lets the user teleport with anyone he's carrying, regardless of HT or DR.

Emulating Fictional Abilities

Each advantage in the ***Basic Set*** was designed with iconic fictional examples in mind. For instance, Mind Control establishes an invisible mental connection, depends on the user's mental capacity (IQ), and must overcome the target's willpower (Will). It's a good match for the abilities of hypnotists and telepaths. But Mind Control *could* result from an injected drug that's resisted by HT, or be a form of machine control that requires the user to "jack in." There are countless valid interpretations . . . and each requires its own set of modifiers.

The first step when simulating a fictional ability is to choose a few likely advantages and consult their entries under *Existing Advantages* (pp. 39-90) for advice on adapting them. See "Alternatives" for suggestions on how to choose between similar traits. "New Special Enhancements/Limitations" often introduces modifiers specifically intended to cover important fictional examples.



Don't be afraid to apply plenty of special effects. Even major, game-changing special effects are fine, if they apply to all similar abilities in the setting. For an example, see *Stunts* (p. 170). That *entire set of rules* is simply an extensive collection of special effects that let superhuman abilities work more like they do in anime, comic books, and action movies.

Below is some additional advice by genre.

Cyberpunk Abilities

Advantages: Implants ("cyberwear") can grant many mundane and exotic physical advantages, but few if any supernatural ones. Extended senses and additional body parts are especially common; see *Switchable Body Parts* (p. 81) and *Weapon Mounts* (p. 138) for details. Many cyberpunk worlds feature Chip Slots (see *Modular Abilities,* p. B71).

Modifiers: Most advantages that list a Cybernetic or Digital special modifier *require* that modifier in cyberpunk. Use Temporary Disadvantage, Electrical (-20%) to represent vulnerability to electrical overload. Large implants – notably bionic limbs – often have Temporary Disadvantage, Maintenance, 1 person, Weekly (-5%). Experimental implants tend to be Unreliable. See *Guns as Innate Attacks* (p. 54) for modifiers suitable for built-in weapons.

Fantasy Abilities

Advantages: Innate gifts are typically mundane (but often cinematic) or supernatural. Learned "spells" can emulate nearly any advantage – notably attacks and mental abilities – and powerful wizards and priests might meet new challenges with Super-Memorization (see *Modular Abilities,* p. B71). Almost *any* exotic or supernatural trait would suit some fantasy monster, somewhere.

Modifiers: Appropriate power modifiers include Divine, Magical, Moral, Nature, and Spirit. Spells traditionally require fatiguing, time-consuming rituals, and aren't physical, making all of Affects Insubstantial, Costs Fatigue, Malediction, and Takes Extra Time suitable. Glamour and Requires Concentrate often fit, and Terminal Condition suits fairy-tale magic. Such accessibility limitations as "Requires material components," "Requires gestures," and "Requires magic words" are common, and worth -10% apiece.

"Hard" Science-Fiction Abilities

Advantages: Most "realistic" special abilities are mundane or exotic, and physical in nature – granted by surgery, genetic engineering, etc. In settings with advanced AI, Computer Brain is likely (see *Modular Abilities,* p. B71).

Modifiers: A new use for a body part that prevents it from serving its original purpose calls for Temporary Disadvantage. Drug-activated abilities have Trigger. Experimental technology is often Unreliable. Mental traits that affect the *brain* (not the mind) need Based on HT or Requires HT Roll. The Accessibility, Environmental, and Specific limitations can restrict abilities to particular atmospheres, gravity fields, materials, etc. Add Costs Fatigue, Limited Use, or Takes Recharge to enforce energy conservation.

Horror Abilities

Advantages: Low-powered supernatural advantages – typically mental – are likely for heroes. Exotic traits, if allowed, often result from a curse. Cinematic advantages (even mundane ones) can wreck suspense, and are rarely appropriate. Of course, Evil Things can have almost *any* kind of trait!

Modifiers: Much of the discussion under *Fantasy Abilities* applies, but horror abilities are rarely reliable or flashy. Fitting modifiers include Costs Hit Points, Fickle, Maximum Duration, Nuisance Effect (especially Backlash), Preparation Required (for long rituals), Short-Range, Temporary Disadvantage, Trigger (often involving foul ingredients), Untrainable, and weirder forms of Accessibility (e.g., "Only when the stars are right"). Cultists often end up with Pact, while troubled psis have Unconscious Only and Uncontrollable. Reliable is highly *inappropriate.* The Things, on the other hand, often have the Cosmic enhancement.

Martial-Arts and Pulp Abilities

Advantages: The most cinematic mundane advantages, off-limits in many genres, are highly appropriate

here – pulp heroes are frequently Gadgeteers, Weapon Masters, and so on. *Physical* supernatural and exotic traits can represent secret martial-arts techniques.

Modifiers: The most common power modifier is Chi, but Biological works for mad science. Based on Will and Requires Will Roll are commonly added to otherwise physical abilities to represent the triumph of discipline over raw, animal power. The modifiers under *Horror Abilities* fit the bizarre rituals of forgotten civilizations, evil ninja cults, etc.

Mythic Abilities

Advantages: Heroes and demigods of myth generally have a mixture of supernatural advantages and extreme levels of mundane ones – the more cinematic, the better. For actual deities, Control, Create, and Cosmic Power (see *Modular Abilities,* p. B71) are *de rigueur.* Mythic monsters have many exotic advantages.

Modifiers: Peculiar usage limits – e.g., "Three times while the sun is in the sky" – call for creative interpretations of Accessibility, Limited Use, Maximum Duration, Minimum Duration, and Terminal Condition. Heroic gifts often come with a Pact requiring total devotion to a patron deity. Divine beings rarely have severe limitations; often, their abilities are Cosmic, and have powerful enhancements such as Malediction 3, World-Spanning, and Extended Duration, Permanent.

Space-Opera Abilities

Advantages: Almost anyone worthy of being called a hero has cinematic advantages. Space-opera psis have access to most mental advantages, regardless of type. Cinematic aliens and mutants might have almost *any* exotic trait.

Modifiers: The Biological and Psionic power modifiers are common. The Unreliable limitation is traditional for experimental rubber-science abilities. Apply the guidelines under *"Hard" Science-Fiction Abilities* if they would be *dramatic* . . . but don't bother with limitations that merely serve to keep abilities *realistic.*

Supers Abilities

Advantages: Nearly every advantage shows up in *some* comic book. Traits that let the hero adjust his capabilities to suit the situation – e.g., Modular Abilities and Morph – are especially popular. Be sure to use *Alternative Abilities* (p. 11), too.

Modifiers: Any power modifier is possible; Elemental, Psionic, and Super are just the most common. Abilities are often Visible, even if traditionally invisible in other genres. Switchable appears on almost any advantage that permits it, Force Field and Reflexive are popular for defenses, and an attack is likely to have Selectivity, Variable, and *many* enhancements so that the hero can tune it from a 1d-2 jet to a 10d explosion. A handful of special enhancements are *meant* for supers, notably Super-Speed for Altered Time Rate (p. 42) and Super-Effort for Lifting ST (p. 58).

Absolutes

A few classic abilities are *absolute:* invulnerability, death rays, wishes, etc. They're rarely a problem when a skilled author creates all the heroes, and guides them through a plot that conveniently takes their gifts into account . . . but matters are rarely so simple in a roleplaying game. The GM never knows what the players will try, while the players are never sure exactly what will work. This uncertainty is part of the fun, and the finality of "irresistible forces" and "immovable objects" can diminish that. This makes allowing them a risky proposition – but some important genres simply won't work without them.

Unerring Attacks

Attacks that can't miss – divine thunderbolts, spears of vengeance, etc. – have one of the new forms of Cosmic described on p. 101: "no die roll required" or "no active defense allowed." Heroes on a budget can obtain *near*-absolute reliability by taking some combination of Accurate, Guided, Homing, and Surprise Attack (p. 104).

Benchmarking Attacks and Defenses

Below are guidelines on how large an attack must be to simulate a weapon or hazard. Except where noted, damage is per second – the duration of one attack. To *resist* average damage, take DR 3.5 per die; to be *immune,* buy DR 6 per die.

Acid (p. B428): Immersion causes 1d-1 corrosion. This can degrade DR.

Electricity (p. B432): Household current inflicts 3d burning damage, at worst. Industrial accidents and lightning bolts *start* at 6d and range up to 6d×3.

Fire (p. B433): Ordinary fire rarely exceeds 1d burning. To rate other fires, use *Making Things Burn.* For instance, magma should ignite even "highly resistant" items instantly, which takes 30 points of damage – average damage for 8d+2.

Poison (p. B437): Most poisons inflict 1d or 2d toxic damage per cycle, and rarely exceed 12d total. The deadliest poisons inflict up to 6d *immediately.*

Radiation (p. B435): The most lethal radiation accidents actually inflict less than 1 rad/second. Attacks should rarely exceed 1d rads.

Weapons (pp. B267-281): The strongest man is unlikely to inflict more than 4d with a muscle-powered weapon. Pistols range up to 3d; submachine guns, to 4d; rifles, to 9d; grenades, to 10d; and machine guns, to 13d. Rocket launchers and cannon *start* at 6d×2. The heaviest portable weapons (missiles, mortars, etc.) go to 6d×10. Most anti-tank and ultra-tech weapons have armor divisors, too.

Unstoppable Attacks

There are several ways to create attacks that *ignore* DR: Malediction circumvents DR but allows a resistance roll; Sense-Based bypasses DR but requires sensory contact; and Area Effect or Cone combined with Blood Agent, Contact Agent, or Respiratory Agent affect anyone without special defenses. To *unconditionally* avoid protection requires the "irresistible attack" version of Cosmic (p. B103) – and even then, defenses with Cosmic can still interfere, if the GM allows them.

Instant-Death Attacks

The simplest attack that slays the victim outright – like a "death ray" – is an Affliction with the Heart Attack enhancement. For reliable lethality, take lots of levels; a godlike being with Affliction 19 (HT-18; Heart Attack, +300%) [760] could instantly kill anyone with human-level HT (20 or less).

Innate Attack can also do the job. The average man has 10 HP and experiences certain death at -5×HP. That requires 60 points of injury, which is about average for a 17d attack. The GM might instead allow a "0d+60" attack that deals a flat 60 points of damage; this costs the same as 18d. Total bodily destruction (-10×HP) calls for 110 points of injury. This is 32d-2, with a flat "0d+110" costing as much as 33d. Any damage type will do, but attacks that only affect the living should be Toxic Attacks. To affect targets with lots of HP or DR, add a few extra dice – or the Cosmic enhancement.

Disintegration

Follow the Innate Attack guidelines under *Instant-Death Attacks* and use a Corrosion Attack. A target reduced -10×HP by corrosion damage is *gone:* dissolved, disintegrated, or vaporized. Resurrection is impossible. For a cheaper way to disintegrate one specific type of unliving matter, use Create (p. 92) with the Destruction enhancement.

Petrifaction, Banishment, and Other Permanent Curses

Powerful spells and fantasy monsters can petrify their victim, banish him to a prison dimension, and so forth. He isn't exactly dead . . . but his odds of recovering on his own are no better (and possibly worse) than his odds of returning from the grave. Treat all such curses as Afflictions.

Since Heart Attack (+300%) would kill the target on a failed HT roll, barring special medical aid, the GM might let the same +300% buy an effect that removes the target from play *without* killing him. Since either takes care of the target for good in the absence of powerful external intervention, the difference is largely a special effect.

Alternatively, the GM can treat such curses as a combination of Paralysis (+150%) and Extended Duration, Permanent (+150%). Once again, it's the special effects that matter. It's no more "powerful" to petrify someone than to paralyze him forever.

Either option costs +300%. The net effect is that the victim is incapacitated indefinitely until he receives a special cure – usually a spell of some kind, in fantasy settings.

Stopping Time

Beings that can stop time appear frequently in fiction . . . as plot devices. It's *risky* to trust PCs with such capabilities. If the GM wishes to allow this, he should make the ability costly, and limit its scope and duration. The following enhancement for Affliction is fairly balanced:

Temporal Stasis: The victim and his equipment stop in time. Time continues to flow in the rest of the universe, just not for him. He's frozen in place – in mid-action or even midair. He doesn't age, breathe, or require sustenance. Injury, disease, and poison halt their progress. He keeps his position in the local frame of reference (usually a planet), but the physical world doesn't otherwise affect him. He can't be injured, moved, robbed, etc. In most settings, this extends to supernatural powers (e.g., his mind is unreadable). Likewise, he's unaware of the universe and can't act in any way, not even mentally. This lasts for a minute per point by which he fails his HT roll. After that, his actions, perceptions, and so on pick up where they left off. This *isn't* a metabolic effect; it can afflict objects (see *Afflictions and Inanimate Targets,* p. 40). +1,000%.

If the entire *universe* freezes, the GM may represent it by combining Temporal Stasis with an extreme level of Area Effect. More modestly, a high level of Altered Time Rate (p. 41) with Super-Speed or Non-Combat Speed can give functionally similar results by greatly speeding up just the user.

Invulnerability

True invulnerability that makes every attack bounce off harmlessly has no fair price. A fixed cost, however high, invites comparison with the same number of points spent on Damage Resistance . . . and a finite DR is always less favorable than "infinite" DR.

Effective invulnerability is attainable in a variety of ways, each with several inherent limitations to keep things fair. Multiple options could coexist in a given setting.

- *Damage Resistance.* In settings where "invulnerability" means "can't be harmed by typical threats," just buy enough DR to stop the deadliest *ordinary* threat, at the rate of DR 6 per die of damage. Before TL6, DR 30 is enough to stop the blows of the mightiest normal man, ballista bolts, early firearms, dragon's fire, etc. At TL6-8, DR 80 will stop small arms up to heavy machine guns, cars hitting at 50 mph, falls from aircraft, etc. At higher TLs, add levels of Hardened to negate the armor divisors of beam weapons. This gets expensive, but limitations such as Can't Wear Armor and Tough Skin can make it affordable. The Limited modifier is useful, too, as many supers and mythic creatures are only invulnerable to specific threats.
- *Injury Tolerance (Damage Reduction).* The GM might permit heroes to buy divisors larger than 4. A divisor of 5 costs 125 points. To price a divisor of 10 or more, find it in the *Linear Measurement* column of the *Size and Speed/Range Table* (p. B550), add 2 to the corresponding entry in the *Size* column, and multiply the sum by 25. This gives 150 points for a divisor of 10, 300 points for 100, 450 points for 1,000, and so on. The GM might require Limited, but he could waive this restriction for those who are *supposed* to be almost untouchable. Minimum injury from an attack that pierces DR is always 1 HP – but the

GM may rule that those with Cosmic, +50% only suffer this if the injury is at least 1 HP *after* applying the divisor. See *Injury Tolerance* (p. 52).

● *Injury Tolerance (Diffuse).* By limiting injury from impaling and piercing damage to 1 HP per attack and that from other damage to 2 HP per attack, this trait provides limited invulnerability. Even the deadliest hits cause little more than flesh wounds. The GM might allow super-tough heroes who aren't truly diffuse to buy this advantage. It *doesn't* help against area effects, cones, or explosions, though.

● *Insubstantiality.* The GM may allow the ability to become insubstantial for just an instant when exposed to damage. Physical and energy attacks pass through harmlessly. Attacks with Affects Insubstantial or Malediction – and spells, Mind Control, and similar abilities – work normally. This is Insubstantiality (Affect Substantial, +100%; Can Carry Objects, Heavy, +100%; Partial Change, +100%; Reflexive, +40%; Unconscious Only, -20%; Uncontrollable, -10%) [328]. Reflexive briefly activates Insubstantiality when hit. Affect Substantial, Can Carry Objects, and Partial Change keep the user from dropping things, falling through the floor, or losing control of other abilities. Unconscious Only and Uncontrollable prevent him from consciously becoming insubstantial – he can *only* avoid damage. Those with this ability can't shield others with their body, of course.

Wishes

"Granting wishes" can mean many different things. Some godlike entities control the outcome of *events.* Buy this as Super Luck (Wishing, +100%) [200]. Those who can do this reliably might have higher levels of Super Luck (see p. 80). In most games, 12 or 13 levels (2,400 or 2,600 points) suffice to affect *every* die roll made in the user's presence.

Other beings fulfill wishes for *material goods.* Snatcher (Creation, +100%; Large Items, +50%; More Weight, 100 lbs., +40%; Permanent, +300%) [472] can create most items of personal equipment – armor, weapons, etc. Improve More Weight to 1,500 tons (+175%), and raise total cost to 580 points, for enough capacity to summon a modest castle. The GM should probably set an upper weight limit!

A few beings grant new *abilities.* This is Affliction (Advantage, +10% per point of advantages; Extended Duration, Permanent, Irreversible, +300%). Thus, each level costs 40 points plus the price of the advantages – although one level is probably enough. To keep things fair, the GM might rule that the advantages take effect for only one minute times the margin of the HT roll, but let the recipient buy them "for real" if he has enough unspent points.

Entities that can grant *any* advantage require Cosmic Power (see *Modular Abilities,* p. B71) with Physical (+50%) and Limited, Afflictions that grant permanent advantages (-50%). This costs 10 times as much (400 points plus *10* times the cost of traits granted). For instance, a god with 600 points in this ability could grant any advantage worth up to 20 points.

Energy Reserves

Fictional power-wielders often draw on special "power supplies" to fuel their abilities. To represent this, buy Fatigue Points at the usual 3 points apiece but treat them as a new "Energy Reserve" (ER) advantage. This is *always* tied to a particular power source; e.g., 10 FP for psi powers is "ER 10 (Psi) [30]."

An ER can only power abilities of the same source. It can pay the basic FP costs to use advantages, those added by Costs Fatigue, and expenditures for extra effort and stunts (see Chapter 4). It can also fuel related *skills;* e.g., ER (Magical) can energize spells. Powers can still draw on normal FP; if they can't, add -5% to the power modifier.

However, an ER isn't the *same* as FP. Only associated powers can deplete it. Fatigue Attacks, missed sleep, and so on don't sap it, and other powers, wild abilities, and ordinary extra effort can't tap it. Furthermore, depleting an ER causes none of the effects of going below 1/3 FP – and having a full ER doesn't protect against those effects.

An ER recharges by one point every 10 minutes, independent of rest. You can recover FP at the same time if you rest. Factors that alter FP recovery generally have no effect on ER recharge rate.

Skills connected to the ER's source *can* help replenish it. For instance, the Recover Energy spell (p. B248) improves the recharge rate of ER (Magic). Abilities *of that source* can also help. Damage Resistance with Absorption can heal ER, FP, or HP for the usual +80%. Leech can have "Heals ER" or "Only Heals ER" for the price of "Heals FP" or "Only Heals FP." Regeneration can have "ER Recovery" or "ER Only" for the price of "Fatigue Recovery" or "Fatigue Only," and often has an Accessibility limitation such as "Only in direct sunlight" (-10%), "Only on holy days or in holy places" (-40%), or "Only inside a nuclear reactor" (-80%).

Special Modifiers

Abilities Only: Your ER can only pay the basic FP costs of your abilities. It's of no use for extra effort or stunts. -10%.

One Power: Only available if you have two or more powers of a given source. Your ER works with just one of your powers. -50%.

Slow Recharge: Your ER recharges slowly. -20% for one point/hour; -60% for one point/day.

Special Recharge: Your ER doesn't recharge over time. It only recharges via DR with Absorption, Leech, the Steal Energy spell, etc. This is incompatible with Slow Recharge. -70%, or -80% if the energy bleeds away at the rate of one point/second, forcing you to use it quickly.

Stunts Only: Your ER is only useful for extra effort and stunts. It can't pay the FP costs for normal ability use. This is incompatible with Abilities Only. -10%.

Chapter Three
Examples

As he ran through the bamboo forest, Huang Pao pondered the question of his destiny – most specifically, of his fate in the next few minutes. He had long since left the regiment of ordinary government soldiers far behind, but he sensed that at least five or six pursuers were keeping pace with him even now. Evidently, the corrupt Minister Chien Ping had sent some of his elite guards – men trained in the martial arts, adept in killing with blades or bare hands and capable enough of focusing their chi for crude but pragmatic effects.

Huang knew that he could defeat two or even three of these hunters, but his skills were not unlimited. He found that, despite his scrupulous self-discipline, a particle of fear survived in his spirit. He had no wish to determine whether he could survive against more such opponents, given the likelihood that he could not and the certainty that they would have been ordered to slay him.

Hence, he decided to test their agility rather than their fighting skill. Focusing his own chi, he leapt high into the air, grasping the very top of a tall bamboo plant with his fingertips before he could fall back to earth. He let the plant sway downward with his weight then swing back upright, throwing him forward to another. Repeating the action twice more, he was soon running through the upper foliage. He risked a glance backward as he went.

The pursuers were a little further behind, but they were still in sight – and they too were now moving through the heights of the forest. Evidently, these were indeed capable men.

Huang looked around, considering his options further. He glimpsed something through the foliage – a building, high on the mountainside to his left. His grasp of the Tao immediately suggested its nature; with but a glimpse, he could perceive the detached serenity of its feng shui.

Huang permitted himself a flicker of a smile, and turned his course that way. The guards would catch him sooner now, of course, but not before he reached the monastery – and the monks of the mountain not only forbade bloodshed within their precincts, but could enforce such rules, even against the Minister's own guard.

Now we'll show how everything in Chapters 1 and 2 comes together. *Sample Powers* (pp. 121-136) provides a selection of powers popular in games and fiction. *Sample Abilities* (pp. 136-151) offers worked examples of abilities suitable for a variety of genres, plus a few optional rules related to buying abilities. You can use the abilities alone (for aliens, cyborgs, etc.) or to flesh out the sample powers.

Sample Powers

All of these powers follow the guidelines in Chapter 1. The GM decides which powers exist in his campaign. Each entry includes:

Name: A "generic" name for the power.

Sources: Suitable sources for the power; see *Source* (p. 7). If the power is known by another name when associated with a particular source, that name appears in parentheses. The GM decides which sources are valid in his campaign.

Focus: The focus of the power; see *Focus* (p. 7).

Description: What the power does, a few fictional precedents (often associated with specific sources), and any special notes that apply to most or all of the power's abilities.

Talent: The name and point cost of the power's Talent, as well as any special rules for that Talent. Talent gives +1 per level to use the power's abilities; see *The Role of Talent* (p. 158). Those with Talent can also spend points on *new* abilities for that power.

Abilities: Advantages likely to be abilities of the power in most settings – with notes on required or forbidden versions, or modifiers, as applicable. This includes only *some* of the recommendations in Chapters 1 and 2. The GM should customize the list for his campaign.

Power Modifier: The "generic" modifiers (see *Sample Modifiers,* p. 26) that best suit the power. Choose the option that matches the power's source, change its name to suit the power, and use the associated rules and value.

Air

Sources: Divine, Elemental, Magical, Spirit, or Super.

Focus: Gases.

This is the power to create and manipulate gases. Adept practitioners in some settings can even *become* a gas. It might represent direct control over air (Elemental and Super), a college of air spells (Magical), the allegiance of elemental air spirits (Spirit), or the holy favor of a sky god (Divine). Air abilities only affect true gases – not dust clouds, energetic plasmas, or supernatural or superscience "ether."

Air Talent

5 points/level

Air Abilities

Alternate Form (Body of Air); Control (Air); Create (Air or Gas); Damage Resistance, with *either* Limited, Air (-40%) *or* both Force Field and Limited, Physical (-20%); Doesn't Breathe; Enhanced Move (Air); Flight; Modular Abilities, with both Limited, Air (-10%) and Physical; Obscure (Vision); Pressure Support; Protected Power; Resistant, to any kind of inhaled threat; Sealed; Telekinesis, with Environmental (-5%); Vacuum Support; Vibration Sense (Air); and Walk on Air.

Innate Attacks are also allowed. They must be crushing, and can only have modifiers that suit air jets, concussion waves, tornados, etc. (GM decides). Add Environmental (-5%) to any attack that shapes *existing* air.

Power Modifier: Air. The advantage belongs to the Air power. This modifier is usually Divine (-10%), Elemental (-10%), Magical (-10%), Spirit (-25%), or Super (-10%), and may be both Elemental *and* Super.

Animal Control

Sources: Divine, Nature, Psionic ("Beast Telepathy"), Spirit, or Super.

Focus: Natural, nonsapient creatures.

Animal Control lets the user understand and command *ordinary* beasts. It has no effect on sapient or supernatural creatures. Explanations include an innate attunement to animals (Nature or Super), specialized telepathy (Psionic), and the favor of nature gods (Divine) or totem spirits (Spirit). Shapeshifting suits shamans and supers, but not psis; the GM might wish to substitute telepathic abilities (see *Telepathy,* p. 134), specialized to animals, for those with the Psionic modifier.

Animal Control Talent

5 points/level

Animal Control Abilities

Advantages marked * involve direct mental contact, and require Specialized, Animals Only, -25% (see *Possession,* p. 67). They work only on ordinary, nonsapient animals.

Allies (animals), with Summonable; Animal Empathy; Damage Resistance, with Limited, Animals (-60%); Detect, for animals or any type of animal; Enhanced Defenses (any), with Limited, Animals (-60%); Mimicry; Mind Control*; Mind Probe*; Mind Reading*; Mindlink, with an animal; Possession*; Protected Power; Shapeshifting, into any animal form; Speak with Animals; Special Rapport, with an animal; and Telecommunication (Telesend)*.

Power Modifier: Animal Control. The advantage belongs to the Animal Control power. This modifier is most often Divine (-10%), Nature (-20%), Psionic (-10%), Spirit (-25%), or Super (-10%).

Anti-Magic

Sources: Anti-Magic, Divine, or Spirit.

Focus: Negating mana, mages, and magical spells.

This power deals with neutralizing magic. In some worlds, anti-magic is a unique power source and the opposite of magic – just as antimatter is the "opposite" of matter. In others, it originates from gods (Divine) or spirits (Spirit) that resent wizards using magic to tamper with creation. In all cases, it's the anti-power of Magic power (p. 131).

Anti-Magic Talent

5 points/level

Anti-Magic Abilities

Damage Resistance, with Limited, Magic (-20%); Detect, for magic, spells, wizards, etc.; Magic Resistance; Mana Damper; Mind Shield, with Limited, Magic (-50%); Neutralize (Magic), but *not* with Power Theft; Obscure (any), with Limited, Magic (-20%); See Invisible (Magical); and Static (Magic).

Specialized Afflictions are also allowed. These must have Malediction, plus either an Advantage enhancement that grants Magic Resistance, Mana Damper, or Damage Resistance against magic, or a Negated Advantage enhancement that negates Magery or Mana Enhancer.

Power Modifier: Anti-Magic. If the source is some kind of fundamental anti-magic, this is a +0% placeholder that indicates which abilities benefit from Anti-Magic Talent. Otherwise, it's usually Divine (-10%) or Spirit (-25%).

Antipsi

Sources: Antipsi, Biological, Chi, or Super.

Focus: Blocking psionic energy and powers.

Antipsi is the anti-power of *all* powers with the Psionic power modifier, regardless of focus. In many settings, the explanation is unusual psionic energy that interferes with the ordinary variety. These "antipsi" emissions might be categorized as psi, but are immune to effects that block psi (including antipsi itself). Another common explanation is interference by bioenergy, whether through mutation (Biological or Super) or meditation (Chi).

Antipsi Talent

5 points/level

This Talent doesn't exist in every setting. In many game worlds, Antipsi is always random and uncontrollable.

Antipsi Abilities

Damage Resistance, with Limited, Psi (-20%); Detect, for psi powers, psi users, etc.; Mind Shield, with Limited, Psionic (-50%); Neutralize (Psi), but *not* with Power Theft; Obscure (any), with Limited, Psi (-20%) or Limited, ESP or Telepathy (-40%); Resistant or Immunity to all psi or specific powers or abilities; See Invisible (Psionic); and Static (Psi).

Specialized Afflictions are also possible. These require Malediction, plus Advantage to grant Damage Resistance or Resistant against psi, or Negated Advantage to rob the subject of specific psi abilities or Talents temporarily.

Power Modifier: Antipsi. If the source is antipsi energy, this is a +0% placeholder that indicates which abilities benefit from Antipsi Talent. Otherwise, it's usually Biological (-10%), Chi (-10%), or Super (-10%).

Anti-Super

Sources: Anti-Super, Biological, Divine, Nature, or Psionic.

Focus: Negating super-powers.

Settings with generic super-powers typically feature individuals who can negate those powers, regardless of focus. Because this power can interfere with other powers without itself being susceptible to interference, it most often stands alone in its own "Anti-Super" category. Other possibilities are control over mutant genes through bioenergy (Biological or Nature) or psi (Psionic), or the will of a deity that opposes "abominations" (Divine).

Settings with generic super-powers typically feature individuals who can negate those powers, regardless of focus.

Anti-Super Talent

5 points/level

Anti-Super Abilities

Damage Resistance, with Limited, Super (-20%); Detect, for any or all super-powers; Mind Shield, with Limited, Super (-50%); Neutralize (Super), but *not* with Power Theft; Obscure (any), with Limited, Super (-20%); Resistant or Immunity to all super-powers or specific super-powers or super-abilities; See Invisible (Super); and Static (Super).

As with Antipsi (above), Afflictions are allowed if they have Malediction *and* either Advantage to protect against super-powers or Negated Advantage to take away super abilities or Talents.

Power Modifier: Anti-Super. If "anti-super" is its own, unique source, this is a +0% placeholder that indicates which abilities benefit from Anti-Super Talent. Otherwise, it's usually Biological (-10%), Divine (-10%), Nature (-20%), or Psionic (-10%).

Astral Projection

Sources: Divine, Magical, Psionic, or Spirit.

Focus: The Astral Plane.

This is the power of perceiving and journeying through the Astral Plane. Some travelers stay in an "outer" plane that overlaps the material world, allowing them to view it discreetly; others venture to an "inner" plane that adjoins higher planes of existence. Adept projectors can do both. Astral Projection is traditionally either a psychic discipline (Psionic) or a gift from denizens of the Astral Plane or an adjacent realm (Divine or Spirit). Wizards occasionally unlock its secrets, too (Magical).

Astral Projection Talent

5 points/level

Astral Projection Abilities

Alternate Form (Astral Entity), with Projected Form; Channeling, with Specialized, Astral Beings (-50%); Clairsentience, with Projection; Detect, for astral beings, astral projectors, etc.; Insubstantiality, with Projection; Jumper (World), with Projection; Medium, with Specialized, Astral Beings (-50%); Protected Power; and See Invisible (Ghosts).

In addition, Doesn't Breathe, Doesn't Eat or Drink, Doesn't Sleep, Enhanced Move, Flight, Immunity to Metabolic Hazards, Invisibility, and Possession are available with Accessibility, Only when projecting (-10%). Such abilities work when using advantages with Projection or Projected Form modifiers.

The GM may also allow attacks with Insubstantial Only.

Power Modifier: Astral Projection. The advantage belongs to the Astral Projection power. This modifier is usually Divine (-10%), Magical (-10%), Psionic (-10%), or Spirit (-25%).

Bioenergy

Sources: Biological, Chi, Psionic, or Super.

Focus: The body's internal energy.

Comics and anime often portray powerful mutants (Biological), martial artists (Chi), psis (Psionic), and supers (Super) as being able to direct bodily energies – far more than the human body could realistically contain – to blast enemies, project force fields, fly, etc. Unlike most ray-shooting powers, Bioenergy isn't associated with an element such as fire or light. This makes it a useful catch-all power for energy-projecting heroes who don't fit elsewhere.

Bioenergy Talent

5 points/level

Bioenergy Abilities

Damage Resistance, with Force Field; Flight; Healing; Obscure (any), as long as it's flashy; Protected Power; Rapier Wit, with Based on HT; Scanning Sense (Para-Radar); Terror, with Based on HT; and Vibration Sense, with Sense of Perception.

Bioenergy can justify almost any kind of Affliction or Innate Attack, too. The kung fu masters of video games and anime can breathe fire, conjure glowing swords, kill enemies with a touch, and so on. The GM should limit each hero to a small number of "signature" attacks and *require* elaborate power names and special effects.

Power Modifier: Bioenergy. The advantage belongs to the Bioenergy power. This modifier is typically Biological (-10%), Chi (-10%), Psionic (-10%), or Super (-10%).

Body Alteration

Sources: Biological, Divine, Magical, or Super.

Focus: The user's physical form.

This is the power of altering the appearance, structure, and composition of one's body. Fiction often attributes Body Alteration to alien physiology (Biological), powerful magic (Magical), or bizarre "rubber body" mutations (Super). In fantasy settings, servants of demons and mischievous gods sometimes possess this power (Divine).

Body Alteration Talent

5 points/level

Body Alteration Abilities

Chameleon; Constriction Attack; Damage Resistance, with Limited, Crushing (-40%) or Tough Skin; Double-Jointed; Elastic Skin; Growth; Hermaphromorph; Injury Tolerance (any); Mimicry; Modular Abilities, with Limited, Body Parts Only (-20%) and Physical; Morph; Protected Power; Regrowth; Shadow Form, with Finite Thickness; Shrinking; Slippery; Stretching; Super Jump, with Bouncing; and Terrain Adaptation, with Active.

Any advantage that represents extra body parts is also permissible, if it's Switchable (see *Switchable Body Parts*, p. 81). "Always on" advantages bought as part of this power frequently have Switchable, too.

Power Modifier: Body Alteration. The advantage belongs to the Body Alteration power. This modifier is generally Biological (-10%), Divine (-10%), Magical (-10%), or Super (-10%).

Body Control

Sources: Biological, Chi, Psionic, or Super.

Focus: The user's metabolism.

Body Control lets the user take control of his metabolism in order to heal injury, perform amazing physical feats, purge his body of poison, and so on. It's almost *de rigueur* for cinematic masters of yoga and the martial arts (Chi), but could instead be a mutant power (Biological or Super) or even a variant form of psychic healing (Psionic). Fiction often portrays Body Control and Bioenergy as "internal" and "external" paths of a single discipline.

Body Control Talent

5 points/level

Body Control Abilities

Breath Holding; Catfall; Damage Resistance, with Tough Skin; Enhanced Defenses (any); Enhanced Move (Ground); Extra Attack, with Multi-Strike; Lifting ST; Metabolism Control; Perfect Balance; Protected Power; Protected Sense (any); Radiation Tolerance; Reduced Consumption; Regeneration; Resistant, to any *physical* threat; Sensitive Touch; Silence; Striking ST; Super Climbing; Super Jump; Temperature Tolerance; and Universal Digestion.

Power Modifier: Body Control. The advantage belongs to the Body Control power. This modifier is usually Biological (-10%), Chi (-10%), Psionic (-10%), or Super (-10%).

Chaos

Sources: Divine, Moral, Spirit, or Super ("Entropy Control").
Focus: Disorder.

This power deals with increasing the disorder of the universe. It works on every level, allowing the wielder to disorganize material objects and afflict others with delirium. It also includes abilities that protect the user from having order imposed on *his* mind or body. Chaos power most often represents chaos embodied (Moral). Other possibilities are the will of a mad god (Divine) or prankish spirits (Spirit), or even rubber-science "entropy control" (Super). Whatever its source, Chaos is the anti-power of Order (p. 132).

Chaos Talent

5 points/level

Chaos Abilities

Channeling, with Specialized, Chaos Spirits (-50%); Detect, for either Chaos or Order; Injury Tolerance (Diffuse), with both Swarm and Switchable; Medium, with Specialized, Chaos Spirits (-50%); Mind Shield; Neutralize (Order), but *not* with Power Theft; Obscure (Divination); Protected Power; Resistant, to the abilities of Order; Static (Order), with Resistible; Telekinesis, with Uncontrollable; Temperature Control, with Heat; Terror (Confusion); and Visualization, with Cursing.

Afflictions with Hallucinating or a Disadvantage that causes insanity (Delusions, Paranoia, etc.) are allowed, but must have Malediction. Innate Attacks that inflict burning or corrosion damage are also part of this power.

Power Modifier: Chaos. The advantage belongs to the Chaos power. This modifier is most often Divine (-10%), Moral (-20%), Spirit (-25%), or Super (-10%).

Cold/Ice

Sources: Divine, Elemental, or Super.
Focus: Cold and ice.

Cold/Ice power lets the user freeze his foes or bind them with ice, "surf" along an ice slick, and so on. It generally represents direct control over cold (Elemental and Super), but might instead emanate from a god who reigns over winter (Divine). Cold isn't a *traditional* element to wizards and alchemists, but the GM is free to ignore this and permit a Magical or Spirit version of this power. Cold and Ice are separate powers in some settings.

Cold/Ice Talent

5 points/level

Cold/Ice Abilities

Abilities marked * would suit a separate Ice power; those labeled † are appropriate for a separate Cold power.

Alternate Form (Body of Ice)*; Binding, with Engulfing*; Clinging*†; Control (Hail or Snow), with Natural Phenomena*; Control (Ice)*; Create (Ice)*; Damage Resistance, with *either* Ablative or Semi-Ablative*, *or* Limited, Cold (-40%) or Heat (-40%)†; Enhanced Move (Air or Ground)*; Flight, with Low Ceiling and Nuisance Effect*; Modular Abilities, with Limited, Cold (-10%) and Physical†; Obscure (Infravision or Vision)*†; Penetrating Vision, with Specific, Ice (-60%)*; Permeation (Ice)*; Protected Power*†; Slippery*; Temperature Control, with Cold†; Temperature Tolerance†; and Terrain Adaptation (Ice or Snow)*.

Innate Attacks are also possible. Ice attacks are crushing, cutting, impaling, or piercing. Cold attacks inflict fatigue with the Freezing enhancement. Either might add Side Effect, Paralysis if it can "freeze" the victim. Cinematic Cold attacks might instead be Afflictions with the Paralysis modifier.

Power Modifier: Cold/Ice. The advantage belongs to the Cold/Ice power. This modifier is usually Divine (-10%), Elemental (-10%), or Super (-10%), and may be both Elemental *and* Super.

Cosmic

Source: Cosmic.
Focus: Everything!

Cosmic power represents the boundless capabilities of deities and (in some settings) the most powerful supers. It doesn't have a single focus – by definition, it deals with *anything* and *everything* – and the only countermeasure it faces is itself. This kind of

unlimited scope comes at a price: the power modifier and associated Talent are both very expensive.

Cosmic Talent

15 points/level

Cosmic Abilities

Any advantage can be a Cosmic ability, as long as it has the Cosmic modifier. When creating a god, the GM should consider forbidding abilities that oppose the deity's sphere of influence; e.g., no fire blasts for a sea god. Since *most* advantages remain available, this doesn't lower the cost of Talent.

Note that a "Cosmic Power" advantage appears as part of Modular Abilities (p. B71). In some settings, that trait totally *replaces* this power, and cosmically powerful entities simply wish abilities into being as needed. In others, the two options coexist. The GM decides which is the case in his campaign.

Power Modifier: Cosmic, +50%. This is the *basic* modifier. An attack with a more expensive version of Cosmic must pay the difference between +50% and the full cost of that enhancement.

Darkness

Sources: Divine, Elemental, Spirit ("Shadow Control"), or Super.
Focus: Shadow.

This is the power to create and control shadow. Its effects range from blotting out light to letting the wielder *become* a shadow. Some adept users can even conjure semi-material shadows to attack enemies. Darkness power is usually a form of direct control (Elemental and Super), but it could also represent the favor of dark gods (Divine) or a rapport with animate shadows (Spirit).

Darkness Talent

5 points/level

Darkness Abilities

Allies (shadow beings), with Summonable; Control (Light); Create (Light), with Destruction (+0%); Dark Vision; Illusion, with Visual Only; Invisibility; Modular Abilities with Limited, Darkness (-15%) and Physical; Night Vision; Obscure, against Ladar or any type of vision; Protected Power; Protected Sense (Vision); and Shadow Form.

Afflictions must be Vision-Based, and have Disadvantage (Bad Sight or Blindness) or Negated Advantage (Dark Vision, Night Vision, etc.). Innate Attacks represent conjured shadows that deliver blows or a chilling touch. Any damage type is possible. All such attacks require Area Effect, Mobile, and Persistent, and either Bombardment or Homing.

Power Modifier: Darkness. The advantage belongs to the Darkness power. This modifier is typically Divine (-10%), Elemental (-10%), Spirit (-25%), or Super (-10%), and may be both Elemental *and* Super.

Death

Sources: Divine, Magical ("Necromancy"), or Spirit.
Focus: Death and the dead.

This power deals with every aspect of death: corpses, ghosts, and curses that steal the victim's life force. It's most common among worshippers of gods that rule death or the underworld (Divine), wizardly necromancers (Magical), and those who command ghosts or death spirits (Spirit). Many regard Death power as evil, but this isn't automatically true – see *Evil* (p. 127) for that.

Death Talent

5 points/level

Death Abilities

Allies (undead), with Summonable; Alternate Form (any undead template); Channeling, with Specialized, Ghosts (-50%); Detect, for dead bodies, ghosts, undead, etc.; Leech, but *not* with Steal (Other Score); Medium, with Specialized, Ghosts (-50%); Protected Power; Racial Memory; Unaging; and Unkillable.

Attacks must be lethal Afflictions – usually Coma, Heart Attack, or Disadvantage, Terminally Ill – or Toxic Attacks. All must have one of Malediction, Melee Attack, or Sense-Based. The GM *might* allow Afflictions with Advantage, Alternate Form that can raise corpses as undead.

Power Modifier: Death. The advantage belongs to the Death power. This modifier is most often Divine (-10%), Magical (-10%), or Spirit (-25%).

Dimension Travel

Sources: Divine, Magical ("Gate Magic"), Psionic, Spirit, or Super.
Focus: Parallel realities.

Dimension Travel deals with contacting and journeying to other realities. The number and nature of such realms depend on the setting; this power is most valuable in backgrounds with *many* planes of existence. Dimension Travel is common among wizards who study dimensional gates (Magical) and holy folk who can traverse the domains of gods or spirits (Divine or Spirit). Supers settings often feature parallel worlds, and some supers can move between these using psionics (Psionic) or direct "dimension control" (Super).

Dimension Travel Talent

5 points/level

Dimension Travel Abilities

Affliction, with an Advantage enhancement that inflicts Insubstantiality or Jumper; Channeling (Parallel Universes); Clairsentience, with World-Spanning; Detect, for extradimensional phenomena, world-jumpers, etc.; Insubstantiality; Jumper (World), almost always with Interplanar; Medium (Parallel Universes); Protected Power; Snatcher, but *not* with Creation; and Telecommunication (Telesend), with World-Spanning.

Power Modifier: Dimension Travel. The advantage belongs to the Dimension Travel power. This modifier is usually Divine (-10%), Magical (-10%), Psionic (-10%), Spirit (-25%), or Super (-10%).

Divine

Source: Divine.
Focus: Will of one particular deity.

A mortal empowered by a deity might simply apply the Divine modifier to the power on this list that best suits his patron's sphere of influence. This isn't the only possibility, though. The "generic" power described below represents a more traditional arrangement: the priest has a few innate gifts that represent holy status, but flashy miracles – healing, smiting, etc. – require specific prayers or spells (see *Clerical Magic,* p. B242).

Power Investiture

10 points/level

At the GM's option, the Power Investiture advantage (p. B77) gives +1 per level to "clerical" spells *and* the specific abilities below. Like other Talents, it leaves open the possibility of earning new abilities in play – if the deity chooses to bestow them.

Divine Abilities

Deities that would rather have their servants pray for aid than turn them into supermen often bestow these advantages: Allies (servitors of deity), with Summonable; Blessed; Higher Purpose; Modular Abilities (Divine Inspiration), with Limited, Spells Only (-20%); Oracle; Patron (deity), with Highly Accessible; Rapier Wit, with Words of Power; Serendipity; Terror (Awe); True Faith; Visualization; and Wild Talent, usually with Focused, Divine (-20%).

Power Modifier: Divine (-10%).

Earth

Sources: Divine, Elemental, Magical, Spirit, or Super.
Focus: Earth and stone.

This is the power to shape and create earth in any form: soil, sand, clay, stone, etc. It might involve direct control over earth (Elemental and Super), sorcery dealing with earth as a traditional magical element (Magical), or calling upon the aid of an earth goddess (Divine) or elemental earth spirits (Spirit). Earth abilities don't normally affect refined metals or other solids. The GM can easily add such capabilities if he wishes.

Earth Talent

5 points/level

Earth Abilities

Alternate Form (Body of Earth or Stone); Binding, with Engulfing and Environmental (-20%); Clinging, with Specific, Stone (-40%); Control (Earth or Stone); Create (Earth); Damage Resistance; Detect, for earth, specific minerals, etc.; Modular Abilities, with Limited, Earth (-10%) and Physical; Obscure (Vision); Penetrating Vision, with Specific, Stone (-40%); Permeation (Earth or Stone); Protected Power; Terrain Adaptation (Mud or Sand); Tunneling; and Walk on Air, with Specific, Dust (-40%).

Innate Attacks must be crushing, cutting, impaling, or piercing, and take the form of boulders, earthquakes, sandstorms, etc. Add Environmental (-20%) if the attack shapes *existing* Earth.

Power Modifier: Earth. The advantage belongs to the Earth power. This modifier is usually Divine (-10%), Elemental (-10%), Magical (-10%), Spirit (-25%), or Super (-10%), and may be both Elemental *and* Super.

Electricity

Sources: Divine, Elemental, or Super.
Focus: Electrical phenomena.

This power deals with generating and channeling electricity. Its most impressive effects are destructive discharges – like lightning – but precise modulation is possible, letting the user generate radio signals. Due to its technological overtones, this is most often a super-power (Elemental and Super), and rarely suitable for supernatural powers other than those associated with thunder gods (Divine). The GM is free to make exceptions.

Electricity Talent

5 points/level

Electricity Abilities

Control (Electricity); Create (Electricity); Damage Resistance, with Limited, Electricity (-40%); Detect, for electricity, radio signals, or magnetism; Modular Abilities, with Limited, Electricity (-10%) and Physical; Obscure (Radar); Protected Power; Scanning Sense (Imaging Radar, Radar, or T-Ray Vision); and Telecommunication (Radio).

This power permits many attack abilities. Afflictions must be stun-only (no special modifiers), have Heart Attack, *or* have both Accessibility, Only on Electrical (-20%) and Unconsciousness to "dampen" machines. Innate Attacks must inflict burning damage, with both Surge *and* Side Effect, Stunning.

Power Modifier: Electricity. The advantage belongs to the Electricity power. This modifier is usually Divine (-10%), Elemental (-10%), or Super (-10%), and may be both Elemental *and* Super.

Electrokinesis

Sources: Psionic or Super.
Focus: Electromagnetic fields.

Due to its technological overtones, Electricity is most often a super-power (Elemental and Super), and rarely suitable for supernatural powers other than those associated with thunder gods (Divine).

Electrokinesis lets the user sense *existing* electricity and electromagnetic (EM) energy, generate low-powered EM fields in order to control that energy, and produce subtle effects in its absence. Standard explanations are psi (Psionic) or exotic "field control" (Super). Electrokinesis *can't* generate the energetic discharges associated with Electricity power (above), but offers more control and subtlety – so much so that it and Machine Telepathy (p. 130) could justifiably be a single power, if the GM wishes.

Electrokinesis Talent

5 points/level

Electrokinesis Abilities

Control (Electricity or Light); Damage Resistance, with Limited, EM Radiation (-40%); Detect, for EM fields or phenomena; Hyperspectral Vision; Illusion, with Visual Only; Infravision; Invisibility; Obscure, against any visual or Scanning sense save Para-Radar or Sonar; Protected Power; Protected Sense (Scanning Sense or Vision); Radiation Tolerance, with Force Field; Scanning Sense (any but Para-Radar or Sonar); See Invisible; Telecommunication (Infrared, Laser, or Radio); and Ultravision.

Affliction is allowed if it has both Accessibility, Only on Electrical (-20%) and Unconsciousness; this is the ability to stop the flow of electricity. The attacks listed for Electricity (above) and Light (p. 130) are also possibilities, but must have Environmental (-40%) to restrict use to the presence of light sources or electricity energetic enough to do damage in the first place (GM's decision).

Power Modifier: Electrokinesis. The advantage belongs to the Electrokinesis power. This modifier is usually Psionic (-10%) or Super (-10%).

ESP

Sources: Chi, Divine ("Prophecy"), Magical ("Divination"), Psionic, Spirit, or Super.

Focus: Knowledge.

Extrasensory Perception (ESP) is the power to acquire knowledge through means other than the five natural senses. Myth and legend attribute this supernatural gift to martial-arts masters (Chi), prophets (Divine), wizards (Magical), psychics (Psionic), shamans (Spirit), and most other mystics and illuminati. The GM makes ESP skill rolls in secret. The better the roll, the higher the quality of the information received. On any failure, the GM will say, "You learn nothing." If the roll fails by more than 5, the GM will *lie!*

ESP Talent

5 points/level

ESP Abilities

360° Vision, with Panoptic 2; Channeling; Clairsentience; Common Sense; Danger Sense; Dark Vision; Detect, for supernatural beings or activities related to the power source; Enhanced Tracking; Intuition; Medium; Oracle; Penetrating Vision; Precognition; Protected Power; Protected Sense (any *special* sense); Psychometry; Racial Memory; Scanning Sense (Para-Radar); and See Invisible.

Power Modifier: ESP. The advantage belongs to the ESP power. This modifier is generally Chi (-10%), Divine (-10%), Magical (-10%), Psionic (-10%), Spirit (-25%), or Super (-10%).

Evil

Sources: Divine, Magical ("Black Magic"), Moral, or Spirit ("Demonology").

Focus: Pure Evil.

This power only exists in settings where Evil is a tangible force. The wielder is aware of Evil in all its forms and can use it to corrupt foes, summon demons, and afflict others with chills, disease, terror, and many other unpleasant effects. This power might emanate from Evil embodied (Moral), forbidden magic (Magical), or demonic entities (Divine or Spirit). It's the anti-power of Good (p. 128), and includes basic protection from that power.

Evil Talent

5 points/level

Evil Abilities

Allies (demons), with Summonable; Channeling, with Specialized, Demons (-50%); Detect, for either Evil or Good; Leech; Medium, with Specialized, Demons (-50%); Mind Shield; Neutralize (Good), but *not* with Power Theft; Possession; Protected Power; Resistant, to the abilities of Good; Shadow Form, but *not* with Light Insensitive or Finite Thickness; Static (Good), with Resistible; Temperature Control, with Cold; Terror; and Visualization, with Cursing.

Any *bad* Affliction is acceptable. The Advantage enhancement is only permissible if it causes a disturbing effect (e.g., Shadow Form), while Negated Disadvantage must remove "good" disadvantages (e.g., Honesty). Toxic Attacks that work like disease or poison are also allowed. *All* attacks must have Malediction, Melee Attack, or Sense-Based.

Power Modifier: Evil. The advantage belongs to the Evil power. This modifier is most often Divine (-10%), Magical (-10%), Moral (-20%), or Spirit (-25%).

Force Constructs

Sources: Magical, Psionic, or Super.

Focus: Semisolid force fields.

This power lets the user conjure a force that he can shape into attacks, barriers, objects, and even creatures (although these aren't sentient). This isn't a fundamental force like gravity or electromagnetism, but something slightly mysterious – perhaps a superscience phenomenon (Super), or pure magical (Magical) or psychic (Psionic) energy. Force constructs often feel solid and function like physical objects, but they *aren't* matter and always look slightly peculiar (glowing, green, shadowy, etc.).

Force Constructs Talent

5 points/level

Force Constructs Abilities

Allies (tangible force projections), with Minion (+0%) and Summonable; Binding; Control (Mysterious Force); Create (Mysterious Force); Damage Resistance, with Force Field; Illusion; Modular Abilities, with Limited, Force Fields (-5%) and Physical; Protected Power; Snatcher, with Creation and Nuisance Effect, Objects look fake (-5%); and Telekinesis, with Visible.

The force this power shapes can take any number of dangerous, pseudo-solid forms, allowing Crushing, Cutting, Impaling, and Piercing Attacks.

Power Modifier: Force Constructs. The advantage belongs to the Force Constructs power. This modifier is typically Super (-10%), and less often Magical (-10%) or Psionic (-10%).

Good

Sources: Divine, Magical ("White Magic"), Moral, or Spirit.
Focus: Pure Good.

This power enables the wielder to sense and channel the forces of Good. He can call upon benevolent spirits – "angels" – for aid, and can provide warmth, healing, and blessings to those around him. This power normally stems from tangible Good (Moral), but might instead flow from unselfish magic (Magical) or a beneficent higher power (Divine or Spirit). It's the anti-power of Evil (p. 127), and includes defenses against that power.

Good Talent

5 points/level

Good Abilities

Allies (angels), with Summonable; Blessed; Channeling, with Specialized, Angels (-50%); Detect, for either Good or Evil; Empathy; Healing; Higher Purpose; Medium, with Specialized, Angels (-50%); Mind Shield; Neutralize (Evil), but *not* with Power Theft; Protected Power; Resistant, to the abilities of Evil; Static (Evil), with Resistible; Temperature Control, with Heat; Terror (Awe); True Faith, with Turning; and Visualization, with Blessing.

Any *beneficial* Affliction with Advantage or Negated Disadvantage is acceptable. All such abilities must have Malediction, Melee Attack, or Sense-Based. Good power rarely allows true attacks, save perhaps for cinematic "Rays of Truth" or "Bolts of Pure Good." If the GM permits these, they're Burning Attacks with Accessibility, Truly Evil beings only (-50%).

Power Modifier: Good. The advantage belongs to the Good power. This modifier is most often Divine (-10%), Magical (-10%), Moral (-20%), or Spirit (-25%).

Gravity

Sources: Elemental or Super.
Focus: Gravity.

This is the power to control the gravity fields of massive objects (affecting weight) and project focused gravity waves. It's nearly always a form of direct force manipulation (Elemental and Super). Since gravity isn't a traditional magical element or divine sphere, this power rarely has a supernatural source. Use Psychokinesis (p. 133) for supernatural force control.

Gravity Talent

5 points/level

Gravity Abilities

Binding, with Unbreakable; Catfall, with Feather Fall; Clinging, with Attraction; Control (Gravity); Damage Resistance, with Force Field and Limited, Physical (-20%); Detect, for gravity manipulation or massive objects; Enhanced Move (any); Flight, with Planetary; Improved G-Tolerance, with Force Field; Modular Abilities, with Limited, Gravity (-10%) and Physical; Protected Power; Super Climbing; Super Jump, with Planetary; Telecommunication (Gravity-Ripple); Telekinesis; and Walk on Air, with Planetary.

Attacks that represent an abrupt increase in gravity are Crushing Attacks with Cosmic, Irresistible attack (+300%). No ordinary form of DR stops gravity.

Power Modifier: Gravity. The advantage belongs to the Gravity power. This modifier is nearly always Elemental (-10%), and often Super (-10%) as well.

Healing

Sources: Biological, Chi, Divine ("Faith Healing"), Magical, Psionic ("Psychic Healing"), Spirit, or Super.
Focus: Healing living beings.

Healing abilities let the user diagnose and treat sickness and injury. Most healers can heal themselves *and* others, but a suitable choice of advantages and modifiers can create a healer who can do only one *or* the other. Common explanations for Healing include a restorative bioenergy field (Biological or Super), control over yin and yang (Chi), faith healing (Divine or Spirit), healing spells (Magical), and psychic healing (Psionic).

Healing Talent

5 points/level

Healing Abilities

Create (Drugs); Detect, for disease, poison, vital signs, etc.; Empathy; Healing; Metabolism Control; Penetrating Vision, with Specific, Flesh (-60%); Protected Power; Regeneration; Regrowth; Resistant or Immunity to any noxious *physical* effect; and Special Rapport, with Transferable (but *not* for machines).

Healing doesn't permit attacks as such, but *does* allow Afflictions that are useful to healers (GM's decision). Suitable enhancements are any form of Advantage that bestows Regeneration, Regrowth, or another healing-related trait; Negated Disadvantage; and Ecstasy, Sleep, and Unconsciousness (as painkillers).

Power Modifier: Healing. The advantage belongs to the Healing power. This modifier can be Biological (-10%), Chi (-10%), Divine (-10%), Magical (-10%), Psionic (-10%), Spirit (-25%), or Super (-10%).

Heat/Fire

Sources: Divine, Elemental, Magical, Psionic ("Pyrokinesis"), Spirit, or Super.

Focus: Heat and flame.

Heat/Fire power commands heat and its usual consequence, fire – although Heat and Fire might be separate powers in some game worlds. A common power in legend and fiction, it's associated with fire gods (Divine), fire spells (Magical), elemental fire spirits (Spirit), and direct elemental control (Elemental and Super). Psis with such capabilities *might* have Psychokinesis (p. 133) . . . but pyrokinesis (Psionic) is often a unique power.

Heat/Fire Talent

5 points/level

Heat/Fire Abilities

Abilities labeled * would suit a separate Fire power; those with † are appropriate for a separate Heat power.

Alternate Form (Body of Fire)*; Control (Fire)*; Create (Fire)*; Damage Resistance, with Limited for Cold†, Heat†, or Ranged Projectiles* (all -40%); Flight, with Nuisance Effect*; Infravision†; Modular Abilities, with Limited, Fire (-10%) and Physical*; Obscure, against vision or Ladar (smoke)*, or Infravision†; Protected Power*†; Scanning Sense (Active IR)†; Telecommunication (Infrared)†; Temperature Control, with Heat†; Temperature Tolerance†; and Walk on Air, with Specific, Smoke (-40%)*.

A Fire attack is generally a Burning Attack – but an Affliction with Coughing or Suffocation can represent smoke. A Heat attack is a Burning Attack if it delivers a high-intensity "heat ray," a Fatigue Attack if it elevates the target's body temperature. In either case, the GM may permit other damage types with the Incendiary modifier.

Power Modifier: Heat/Fire. The advantage belongs to the Heat/Fire power. This modifier is typically Divine (-10%), Elemental (-10%), Magical (-10%), Psionic (-10%), Spirit (-25%), or Super (-10%), and may be both Elemental *and* Super.

Illusion

Sources: Divine, Magical, Psionic, Spirit, or Super.

Focus: Sensory deception.

This is the power to control what others perceive. The illusionist can alter his voice and appearance; conjure illusory scenery and beings (perhaps even semi-material ones); and make things vanish from sight. This is most often a college of magic (Magical) – or a psionic specialty that combines aspects of Electrokinesis and Telepathy (Psionic). It might instead originate from deceitful demons, puckish spirits, or divine tricksters (Divine or Spirit). Direct, subtle light-and-sound control is another possibility (Super).

Illusion Talent

5 points/level

Illusion Abilities

Allies (semisolid projections or shadows), with Summonable; Chameleon; Detect, for illusions, projections, etc.; Duplication, with Construct; Elastic Skin; Illusion; Invisibility; Mimicry; Morph, with Cosmetic; Obscure (any); Protected Power; See Invisible; and Silence.

Afflictions are allowed if they use Advantage to grant Chameleon, Invisibility, Mimicry, Morph (Cosmetic), or Silence to others – or Disadvantage to inflict Blindness, Deafness, No Sense of Smell/Taste, or Numb. All such attacks must have Malediction or Sense-Based.

Power Modifier: Illusion. The advantage belongs to the Illusion power. This modifier can be Divine (-10%), Magical (-10%), Psionic (-10%), Spirit (-25%), or Super (-10%).

Kinetic Energy

Sources: Elemental or Super.

Focus: Gross physical force.

This is the power to project beams and fields of force that attract or repel objects, act as reactionless thrusters, and so on. It's named "Kinetic Energy" rather than "Force" because the only thing it has in common with any believable physical force is that it alters kinetic energy. Kinetic Energy power is intended mainly for highly cinematic supers. Gravity (p. 128) and Magnetism (p. 131) are *slightly* more realistic, while Psychokinesis (p. 133) is more suitable for psionic force control.

Kinetic Energy Talent

5 points/level

Kinetic Energy Abilities

Binding, with Unbreakable; Catfall, with Feather Fall; Damage Resistance, with Force Field and Limited, Physical (-20%); Enhanced Dodge; Enhanced Move (any); Flight; Lifting ST; Protected Power; Resistant or Immunity to acceleration, motion sickness, etc.; Slippery; Striking ST; Super Jump, with Maneuverable; and Telekinesis.

Crushing Attacks are also permissible. To stay true to the comics, these should have Double Knockback in a supers setting.

Power Modifier: Kinetic Energy. The advantage belongs to the Kinetic Energy power. This modifier is nearly always Elemental (-10%), and often Super (-10%) as well.

Heat/Fire power commands heat and its usual consequence, fire – although Heat and Fire might be separate powers in some game worlds.

Life

Sources: Divine, Magical ("Druidic Magic"), Nature, or Spirit.
Focus: Life force.

This power represents a special attunement to life and living things. It grants the user a long life in harmony with nature, and is found among priests of nature deities (Divine), shamans who can influence nature spirits (Spirit), and fantasy "druids" who work natural magic (Magical). It often occurs alongside Animal Control (p. 121), Plant Control (p. 132), or Spirit Control (p. 134). In some settings, the "life force" of all living things generates a universal energy field that the gifted can channel directly (Nature).

Life Talent

5 points/level

Life Abilities

Animal Empathy; Channeling, with Specialized, Nature Spirits (-50%); Detect, for animals, plants, or all life; Empathy; Healing; Medium, with Specialized, Nature Spirits (-50%); Metabolism Control; Plant Empathy; Protected Power; Regeneration; Resistant or Immunity to any natural threat; Speak with Animals; Speak with Plants; Unaging; and Unkillable.

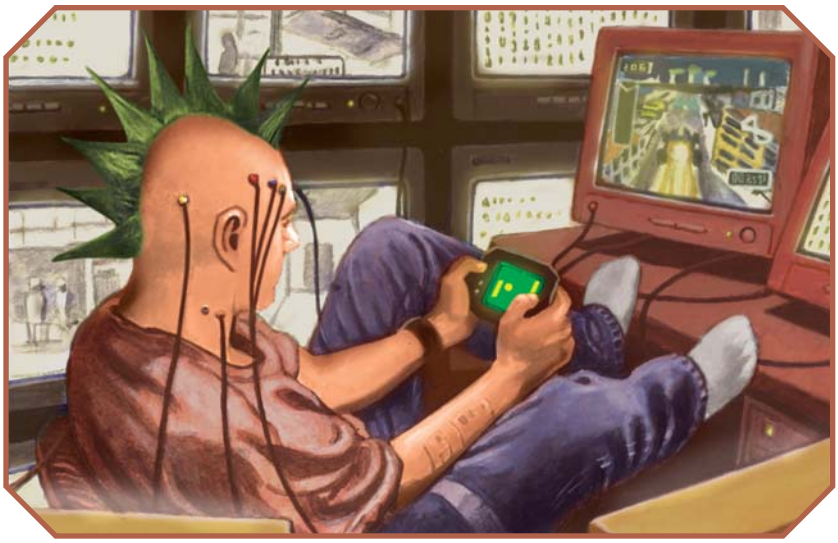
In fantasy settings, Life power includes Burning Attacks and Corrosion Attacks with Accessibility, Only against the undead (-50%). These attacks cause the walking dead to perish in cleansing fire – or just crumble to dust.

Power Modifier: Life. The advantage belongs to the Life power. This modifier is most often Divine (-10%), Magical (-10%), Nature (-20%), or Spirit (-25%).

Light

Sources: Divine, Elemental, Psionic ("Photokinesis"), or Super.
Focus: Visible and near-visible light.

Light power gives the wielder almost complete control over light. He can focus it in order to enhance his vision, bend it to hide things from sight, and concentrate it to attack his foes with blinding flashes and lasers. This is generally either direct elemental control (Elemental and Super) or specialized psionic "photokinesis" (Psionic) – but deities associated with the sun, purity, or good might also grant such a power (Divine).



Light Talent

5 points/level

Light Abilities

360° Vision, with Panoptic 1; Control (Light); Create (Light); Damage Resistance, with Limited, Light (-40%); Dark Vision; Enhanced Defenses, with Limited, Light (-40%); Hyperspectral Vision; Illusion, with Visual Only; Infravision; Invisibility; Microscopic Vision; Modular Abilities, with Limited, Light (-10%) and Physical; Night Vision; Obscure, against Ladar or any kind of vision; Protected Power; Protected Sense (Vision); Scanning Sense (Active IR or Ladar); See Invisible; Telecommunication (Infrared or Laser); Telescopic Vision; and Ultravision.

The GM might allow almost *any* advantage modified with Vision-Based as a Light ability, if it suits his campaign.

Allowed attacks are tight-beam Burning Attacks, and Afflictions with Vision-Based *and* Disadvantage, Bad Sight or Blindness. An attack that focuses *existing* light – meaning it requires strong, direct light to work – has Environmental (-20%).

Power Modifier: Light. The advantage belongs to the Light power. This modifier is usually Divine (-10%), Elemental (-10%), Psionic (-10%), or Super (-10%), and may be both Elemental *and* Super.

Machine Telepathy

Sources: Psionic or Super.
Focus: Digital Minds.

This is the power to establish a mental link with a computer in order to communicate with or control it. It is to Digital Minds what Telepathy (p. 130) is to living minds, and is most often a hybrid power halfway between Electrokinesis and Telepathy (Psionic). It might instead be a brute-force capacity to emit signals that override the normal operation of machines (Super). It only affects machines that have at least a rudimentary computer "brain," and never affects living beings.

Machine Telepathy Talent

5 points/level

Machine Telepathy Abilities

Channeling (Cyberspace); Detect, for Digital Minds, data transmissions, etc.; Invisibility, with Machines Only; Medium (Cyberspace); Mind Control, with Cybernetic Only; Mind Probe,

with Cybernetic Only; Mind Reading, with Cybernetic Only; Mindlink, with Cybernetic Only; Obscure, against any Scanning Sense; Protected Power; Resistant, to any mechanical threat (e.g., nanomachines); Special Rapport, with Transferable, Digital Mind; Telecommunication (any *but* Telesend); and Wild Talent, with External and Focused (skills provided by a "friendly" machine).

Those with Digital Mind can also take Duplication, with Digital; Mind Shield, with Cybernetic; and Possession, with Digital.

Afflictions are allowed, but must have Accessibility, Only on Electrical (-20%). The GM should interpret the effects of such attacks creatively; e.g., Daze puts the machine in "standby mode," Seizure makes it go haywire, and Unconsciousness turns off the power.

Power Modifier: Machine Telepathy. The advantage belongs to the Machine Telepathy power. This modifier is usually Psionic (-10%) or Super (-10%).

Magic

Source: Magical.
Focus: Casting "spells."

Wizards normally work magic using specialized skills called "spells," as described on pp. B234-253. If the GM prefers, though, magic can instead operate through advantages – which can, if desired, be the abilities of a power. To represent a specific "college" of magic, apply the Magical modifier to the most suitable power on this list (e.g., Heat/Fire power for Fire spells). Use the "generic" power below to accompany or replace the spells of *all* magical colleges.

Magery

5 points for Magery 0, +10 points/level

At the GM's option, the Magery advantage (p. B66) gives +1 per level to standard spells *and* Magical abilities. If so, Magery 0 is a prerequisite for all Magical abilities as well as for Magery 1+, and those with Magery can spend earned points to acquire new Magical abilities, even if they didn't start with them.

Magical Abilities

The basic abilities of Magic power are: Detect, for magical creatures, spells, wizards, etc.; Mana Enhancer; Modular Abilities (Super-Memorization), with Limited, Spells Only (-20%); Regeneration, with Fatigue Only; and Wild Talent, with Focused, Magical (-20%).

With the GM's permission, those with Magic power can also buy abilities that simulate spells from pp. B242-253 or ***GURPS Magic*** – and conceivably even variants or entirely new spells. The GM should strictly forbid any ability that doesn't fit *his* vision of magic in his game world; thus, this power isn't truly "open ended."

Power Modifier: Magical (-10%).

Magnetism

Sources: Elemental or Super.
Focus: Magnetism.

This is a *cinematic* magnetism-control power. It lets the wielder do the kinds of tricks justified by "magnetism" in the comics – e.g., surfing along the Earth's magnetic field, hurling heavy objects, and working metal – most of which are hard to explain in terms of *realistic* magnetism. Those who possess this power seem to use direct force manipulation (Elemental and Super), justified through rubber science, if at all.

Magnetism Talent

5 points/level

Magnetism Abilities

Absolute Direction; Binding, with Magnetic (-50%) and Unbreakable; Clinging, with Attraction and Magnetic (-50%); Control (Ferrous Metals or Magnetism); Create (Electricity); Damage Resistance, with Force Field and Limited, Electricity (-40%) or Metal (-40%); Detect, for electricity, magnetism, or ferrous metals; Enhanced Move (Air); Flight, with Planetary; Modular Abilities, with Limited, Magnetism (-15%) and Physical; Obscure, against any kind of magnetic detection; Protected Power; Radiation Tolerance, with Force Field; Super Climbing, with Magnetic (-50%); Super Jump, with Planetary; Telekinesis, with Magnetic (-50%); and Walk on Air, with Planetary.

To use Magnetism offensively – e.g., to wield ferrous objects as melee weapons or hurl them as missiles – buy a high level of Telekinesis (Magnetic).

Power Modifier: Magnetism. The advantage belongs to the Magnetism power. This modifier is nearly always Elemental (-10%), and often Super (-10%) as well.

Matter Control

Source: Super.
Focus: Reshaping matter.

Matter Control lets the wielder alter the shape of macroscopic objects and make fine adjustments to their atomic and even subatomic structure. He can't affect living beings – only *inanimate* objects – but because many of his abilities alter matter in contact with his body, he might *seem* to control his own structure, too. This power is extremely cinematic, and best reserved for high-powered supers (Super).

Matter Control Talent

5 points/level

Matter Control Abilities

Binding, with Environmental (ranges from -5% if it "solidifies" air to -20% if it turns the ground to goo); Clinging; Control (for any variety of *matter*); Create (Solid, Liquid, or Gas), with Transmutation; Damage Resistance; Detect, for any kind of matter; Injury Tolerance (Homogenous or Diffuse); Permeation (any); Protected Power; Terrain Adaptation, with Active; Tunneling; Universal Digestion, with Matter Eater; and Walk on Liquid.

Corrosion Attacks are allowed, and represent disintegration. Buy "air to poison" and similar chemical attacks as Toxic Attacks with suitable modifiers: Environmental (-5%), Respiratory Agent, etc.

Power Modifier: Matter Control. The advantage belongs to the Matter Control power. This modifier is usually Super (-10%).

Order

Sources: Divine, Moral, or Spirit.
Focus: Structure and serenity.

Order power attempts to combat disorganization and impose structure on the world. It enables the wielder to block damage, noise, and other disruptions; restore mind and body to a state of inner peace; and achieve enlightenment by perceiving patterns hidden amidst the chaos of existence. This most often represents order embodied (Moral) or the will of supernatural champions of justice, law, or peace (Divine or Spirit). Order is the anti-power of Chaos (p. 124), and provides protection against that power.

Order Talent

5 points/level

Order Abilities

Channeling, with Specialized, Spirits of Order (-50%); Common Sense; Damage Resistance, with Force Field; Detect, for either Chaos or Order; Healing, with Xenohealing, Anything (+100%); Indomitable; Intuition; Medium, with Specialized, Spirits of Order (-50%); Mind Shield; Neutralize (Chaos), but *not* with Power Theft; Oracle; Protected Power; Regeneration; Regrowth; Resistant, to the abilities of Chaos; Silence; Static (Chaos), with Resistible; Temperature Control, with Cold; Unfazeable; and Visualization.

Attacks that *increase* order are also suitable. Most are Afflictions that use Advantage to bestow Indomitable, Silence, Unfazeable, or a similar trait – or Negated Disadvantage to remove Confused, Impulsiveness, Indecisive, and related mental problems. Fatigue Attacks with Freezing are also appropriate.

Power Modifier: Order. The advantage belongs to the Order power. This modifier is most often Divine (-10%), Moral (-20%), or Spirit (-25%).

Plant Control

Sources: Divine, Nature, Psionic ("Plant Telepathy"), Spirit, or Super.
Focus: Natural, nonsapient plants.

Plant Control lets the user commune with and control *ordinary* plants. It has no effect on sapient plant life, magical flora, or other unnatural vegetation. In fiction, this power is usually the result of a profound empathy with plants (Nature or Super), a variant form of telepathy (Psionic), or the favor of nature gods or spirits (Divine or Spirit).

Plant Control Talent

5 points/level

Plant Control Abilities

Binding, with Environmental (-40%); Control (Wood); Damage Resistance, with Limited, Plants (-40%); Detect, for a type of plant or all plants; Modular Abilities, with Environmental (-40%) and Physical; Penetrating Vision, with Specific, Wood (-40%); Permeation (Wood); Plant Empathy; Possession, with Plants Only (-25%); Protected Power; Speak with Plants; and Telekinesis, with Environmental (-40%).

Most attacks are just creative applications of Modular Abilities or Telekinesis, but the GM may permit those who can turn plants into weapons to purchase Innate Attacks with Environmental (-40%). Damage is crushing for animated trees, cutting for thorns, fatigue (with Suffocation) for strangling vines, and toxic for poisonous plants. Another common "attack" is Affliction with Advantage, Growth and Accessibility, Only on plants (-25%).

Power Modifier: Plant Control. The advantage belongs to the Plant Control power. This modifier is most often Divine (-10%), Nature (-20%), Psionic (-10%), Spirit (-25%), or Super (-10%).

Probability Alteration

Sources: Divine, Magical ("Wishing"), Psionic, Spirit, or Super.
Focus: Luck and fate.

This is the power to alter uncertain outcomes, precipitate fortuitous coincidences, and "bless" or "curse" others. It might represent divine intervention (Divine), wizardly tampering (Magical), psychic visualization (Psionic), the efforts of invisible servitor spirits (Spirit), or a subtle cosmic power (Super). Probability Alteration doesn't visibly *do* anything; its effects manifest in the outcome of the tasks it influences.

Probability Alteration Talent

5 points/level

Probability Alteration Abilities

Abilities marked * are open-ended. The GM decides how many levels are available.

Detect, for blessed or cursed items, reality alteration, wishes, etc.; Enhanced Defenses; Luck, with Wishing; Protected Power; Serendipity*, with Wishing; Super Luck*, especially with Alter Reality and

Wishing; Visualization, with *any* special modifier; and Wild Talent*.

Afflictions that "bless" or "curse" others fit, too. These must have one or more of Advantage, Disadvantage, Negated Advantage, or Negated Disadvantage, and can only affect Cursed, Luck, Serendipity, Super Luck, and Unluckiness. They must also have No Signature and one of Malediction, Melee Attack, or Sense-Based. The user may suggest specific fates for the subject, but the GM decides what *actually* happens – which always looks like a coincidence. To dictate specific coincidences, add Cosmic, +300%.

Power Modifier: Probability Alteration. The advantage belongs to the Probability Alteration power. This modifier is generally Divine (-10%), Magical (-10%), Psionic (-10%), Spirit (-25%), or Super (-10%).

Psychokinesis

Sources: Divine, Magical, Psionic, Spirit, or Super.
Focus: Motion.

Psychokinesis (PK) abilities let the user produce kinetic effects – both macroscopic (visible motion) and microscopic (cooling and heating) – simply by willing them. This is traditionally a psi power (Psionic), but gifted priests (Divine), shamans (Spirit), and wizards (Magical) can achieve similar results using their command over supernatural forces. PK is also suitable as a generic superpower (Super), but see *Heat/Fire* (p. 129), *Gravity* (p. 128), *Kinetic Energy* (p. 129), and *Magnetism* (p. 131) before choosing.

Psychokinesis Talent

5 points/level

Psychokinesis Abilities

Binding, with Unbreakable; Catfall, with Feather Fall; Clinging, with Attraction; Damage Resistance, with Force Field and Limited, Physical (-20%); Enhanced Move (Air); Flight; Protected Power; Stretching, with Force Extension; Super Climbing; Super Jump; Telekinesis; Temperature Control; Vibration Sense, with Sense of Perception; Walk on Air; and Walk on Liquid.

The GM may also permit ST without HP (see *Telekinesis,* p. 82) and Lifting ST (with or without Super-Effort; see p. 58) as PK abilities.

Many Innate Attacks are reasonable: cryokinetic attacks do fatigue damage with Freezing, pyrokinetic attacks deliver burning damage, and telekinetic attacks are crushing. Direct telekinetic attacks on vital areas are Afflictions with Choking or Heart Attack. *All* PK attacks must have No Signature, and Afflictions require Malediction, too.

Power Modifier: Psychokinesis. The advantage belongs to the Psychokinesis power. This modifier is usually Divine (-10%), Magical (-10%), Psionic (-10%), Spirit (-25%), or Super (-10%).

Radiation

Sources: Elemental or Super.
Focus: Energetic particles and electromagnetic radiation.

This power lets the user detect, control, and emit dangerous radiation. It's really only suitable as a superpower (Elemental and Super); the scientific sophistication implied by an understanding of radiation meshes poorly with supernatural powers. Like the comics, Radiation power treats radiation as a monolithic phenomenon. In reality, alpha particles, gamma rays, neutrons, X-rays, and so on differ greatly. The GM decides what impact, if any, such distinctions have on this power.

Radiation Talent

5 points/level

Radiation Abilities

Control (Radiation); Create (Radiation); Damage Resistance, with Limited, Energy (-20%); Detect, for all radiation or particular types; Hyperspectral Vision, with Extended High-Band; Modular Abilities, with Limited, Radiation (-15%) and Physical; Penetrating Vision; Protected Power; Radiation Tolerance; Regeneration, with Radiation Only; Scanning Sense (Para-Radar); and Telecommunication (Neutrino).

Radiation power also includes Burning Attacks and Toxic Attacks with the Radiation enhancement. Given the sheer deadliness of radiation in settings without TL8+ shielding and medicine, the GM might wish to impose serious restrictions on these attacks in low-tech game worlds.

Power Modifier: Radiation. The advantage belongs to the Radiation power. This modifier is nearly always Elemental (-10%), and often Super (-10%) as well.

Sound/ Vibration

Sources: Elemental, Psionic ("Sonokinesis"), or Super.
Focus: Mechanical vibrations of all kinds.

Sound/Vibration power provides total control over mechanical vibrations – including sound, unless the GM rules that Sound and Vibration are separate powers – in air, water, or solids. This lets the user enhance his senses of hearing and touch, generate noise as a diversion, assail his enemies with concentrated sound, and so forth. Sound/Vibration power is most often a specialized offshoot of Psychokinesis (Psionic) or a form of direct elemental control (Elemental and Super).

Sound/Vibration Talent

5 points/level

Sound/Vibration Abilities

Abilities marked * are suitable for a standalone Sound power; those labeled † are appropriate for a separate Vibration power.

Control (Sound)*; Create (Sound)*; Damage Resistance, with Limited, Physical (-20%)†, Sound (-40%)*, or Vibration (-40%)†; Discriminatory Hearing*; Illusion, with Auditory Only*; Mimicry*; Modular Abilities, with Physical and Limited, Sound (-10%)* or Vibration (-15%)†; Obscure (Hearing*, Sonar*†, or Vibration Sense†); Parabolic Hearing*; Protected Power*†; Protected Sense (Hearing)*;

Rapier Wit*†; Scanning Sense (Sonar)*†; Sensitive Touch†; Silence*; Speak Underwater*†; Subsonic Hearing/Speech*†;Telecommunication (Directional Sound* or Sonar*†); Ultrahearing/Ultrasonic Speech*†; and Vibration Sense, but *not* with Sense of Perception†.

The GM might allow almost *any* advantage modified with Hearing-Based as a Sound ability, if it suits his campaign.

Many attacks are possible. Sound attacks are Crushing Attacks, or Afflictions with Hearing-Based *and* Disadvantage, Deafness. Vibration attacks are Burning Attacks with No Incendiary Effect, or Afflictions with no special modifier (stunning only), Nauseated, or Unconsciousness. In extremely cinematic games, Mind Control might be possible, mediated by vibrations (add Based on HT) *or* sounds (add Hearing-Based).

Power Modifier: Sound/Vibration. The advantage belongs to the Sound/Vibration power. This modifier is typically Elemental (-10%), Psionic (-10%), or Super (-10%), and may be both Elemental *and* Super.

Spirit Control

Sources: Divine, Magical, or Spirit.
Focus: Spirits and the spirit world.

A variety of powers can become "spirit powers" with the simple addition of the Spirit modifier. This creates a power that deals with a specific class of spirit: demons, ghosts, totems, fire elementals, etc. Spirit Control empowers the user to perceive, communicate with, and bind *all* manner of spirits. Ritual magicians should buy this power with the Spirit modifier, but the capacity to command spirits is just as suitable for fantasy clerics (Divine) and wizards (Magical).

Spirit Control Talent

5 points/level

Spirit Control Abilities

Allies (minor spirits), with Summonable; Alternate Form, with Projected Form; Blessed; Channeling; Clairsentience; Detect, for spirits, spirit phenomena, etc.; Intuition; Jumper (Spirit); Medium; Mind Shield; Oracle; Patron (major spirit), with Highly Accessible; Protected Power; See Invisible (Ghosts); Spirit Empathy; Telekinesis; True Faith, with Turning; and Visualization.

Direct physical attacks are inappropriate, although spirits can be commanded to hurl things (use Telekinesis for this). "Curses" definitely fit, however; almost any Affliction with Malediction is suitable.

Power Modifier: Spirit Control. The advantage belongs to the Spirit Control power. This modifier is usually Divine (-10%), Magical (-10%), or Spirit (-25%).

Telepathy

Sources: Biological, Magical ("Mind Control"), Psionic, or Super.
Focus: Living, sapient minds.

Telepathy is the power of direct mental communication and control. It's traditionally a psi power (Psionic), but some modern fiction portrays it as a "neural" phenomenon that uses a bioenergy field (Biological or Super). Wizardly mind control (Magical) is another possibility. Telepathy normally only affects living, *sapient* beings (IQ 6+) – but the GM should allow it to work on all *sentient* minds (IQ 1+) in game worlds where the Animal Control power doesn't exist. Attempts to affect machines or plants fail automatically.

Telepathy Talent

5 points/level

Telepathy Abilities

Detect, for telepathic phenomena, sapient minds, etc.; Elastic Skin, with Glamour; Empathy; Illusion, with Mental; Invisibility, with Glamour; Mind Control; Mind Probe; Mind Reading; Mind Shield; Mindlink; Possession, with Mind Swap or Telecontrol; Protected Power; Racial Memory; Rapier Wit; Social Chameleon; Special Rapport; Telecommunication (Telesend); Terror, with Active; and Xeno-Adaptability. Add Animal Empathy and Speak with Animals in backgrounds where Animal Control doesn't exist.

Telepaths often have Charisma as a *side effect* of their power, but it isn't considered one of the power's abilities.

Allowed attacks are Fatigue Attacks and Afflictions that cause stunning, incapacitation, mental disadvantages, or DX, IQ, or Will penalties. The GM may wish to permit telepaths in horror and supers games to fry the subject's nervous system for actual injury – a Toxic Attack. All telepathic attacks require Malediction and No Signature, and Afflictions must be Based on Will.

Power Modifier: Telepathy. The advantage belongs to the Telepathy power. This modifier is most often Biological (-10%), Magical (-10%), Psionic (-10%), or Super (-10%).

Teleportation

Sources: Magical, Psionic, or Super.
Focus: Instantaneous movement.

Teleportation lets the user move himself or other things across space without traversing the intervening distance. Explanations include transmitting matter to the destination as an energy beam (Super) and warping space through sheer willpower (Magical or Psionic). In some backgrounds, Teleportation allows the user to visit parallel worlds, often by accident (add Uncontrollable and Unconscious to Jumper) – although Dimension Travel (p. 125) is better suited to the task.

Teleportation Talent

5 points/level

Teleportation Abilities

Detect, for Warp, matter transmission, wormholes, etc.; Enhanced Dodge; Jumper (World), but *not* with Interplanar; Protected Power; Snatcher, but *not* with Creation; and Warp, with *any* special modifier.

The only "attacks" normally available are Afflictions with Advantage, Jumper or Advantage, Warp, which teleport other people or objects in their entirety. The GM might permit attacks that teleport away *part* of the target or send foreign objects into his

body. Build these as Afflictions with Malediction, or Impaling Attacks with Malediction and Based on HT.

Power Modifier: Teleportation. The advantage belongs to the Teleportation power. This modifier is usually Magical (-10%), Psionic (-10%), or Super (-10%).

Time Mastery

Sources: Divine, Magical, Psionic, or Super.
Focus: Time.

Time Mastery lets the user observe and communicate with the past; receive information from and send messages into the future (and perhaps summon future selves to assist him!); travel in time; and influence the flow of time. Explanations include the favor of a deity that governs time (Divine), powerful sorcery (Magical), a psychic link between past, present, and future selves (Psionic), or direct "time control" (Super).

Time Mastery Talent

5 points/level

Time Mastery Abilities

Absolute Timing; Altered Time Rate; Channeling (The Past); Clairsentience, with Time-Spanning; Danger Sense; Detect, for temporal anomalies, time-jumpers, etc.; Duplication, with Sequential; Enhanced Time Sense; Jumper (Time); Medium (The Past); Precognition; Protected Power; Psychometry; Telecommunication (Telesend), with Time-Spanning; Temporal Inertia; and Unaging.

Afflictions that alter the flow of time are also allowed. These must have Advantage, Disadvantage, Negated Advantage, or Negated Disadvantage, and add or remove Altered Time Rate or Decreased Time Rate. The GM might also permit the Temporal Stasis enhancement; see *Stopping Time* (p. 118).

These abilities can wreak havoc on plots. The GM may restrict PCs to abilities that affect only the past or the future, or time flow in the present. He might even remove the capacity to "move" physical objects (delete Duplication and add Projection to Jumper).

Power Modifier: Time Mastery. The advantage belongs to the Time Mastery power. This modifier is generally Divine (-10%), Magical (-10%), Psionic (-10%), or Super (-10%).

Vampirism involves far more than the mere theft of vitality through bloodsucking or a chilling touch. It's the power to steal thoughts, dreams, and abilities from the living – perhaps even their physical forms.

Vampirism

Sources: Biological, Magical, Psionic ("Psychic Vampirism"), or Super.
Focus: Stealing life force.

Vampirism involves *far* more than the mere theft of vitality through bloodsucking or a chilling touch. It's the power to steal thoughts, dreams, and abilities from the living – perhaps even their physical forms. This might be a feeding mechanism (Biological), an offshoot of necromancy (Magical), traditional "psychic vampirism" (Psionic), or a variation on Anti-Super power (Super). Vampirism doesn't affect machines or inanimate objects.

Vampirism Talent

5 points/level

Vampirism Abilities

Leech is the core Vampirism ability, and can have *any* set of modifiers. Attacks are equally important, and include Afflictions with Attribute Penalty or Negated Advantage, or perhaps Disadvantage, Amnesia (stolen thoughts); Fatigue Attacks with Missed Sleep (stolen dreams) or another Hazard; and Toxic Attacks. All such attacks require Malediction, Melee Attack, or Sense-Based.

Other advantages that can be Vampirism abilities include Detect (Life); Morph, with Cannot Memorize Forms and Needs Sample; Neutralize, with Power Theft and possibly Cosmic; and Protected Power.

Power Modifier: Vampirism. The advantage belongs to the Vampirism power. This modifier is most often Biological (-10%), Magical (-10%), Psionic (-10%), or Super (-10%).

Water

Sources: Divine, Elemental, Magical, Spirit, or Super.
Focus: Water.

This is the power to create and manipulate water. Gifted users can even *become* water. It might represent direct control over water (Elemental and Super), traditional elemental wizardry (Magical), the favor of a sea god (Divine), or command over water elementals (Spirit). Water includes ice and steam, but Cold/Ice (p. 124) and Air (p. 121) more thoroughly address freezing and gases, respectively.

Water Talent

5 points/level

Water Abilities

Alternate Form (Body of Water); Amphibious; Control (Oceans), with Natural Phenomena; Control (Water); Create (Water); Damage Resistance, with Limited, Fire or Water (both -40%); Detect (Water); Doesn't Breathe, with Gills; Enhanced Move (Water); Modular Abilities, with Limited, Water (-10%) and Physical; Obscure (Vision); Permeation (Ice); Pressure Support; Protected Power; Sealed; Speak Underwater; Vibration Sense (Water); Walk on Air, with Specific, Vapor (-40%); and Walk on Liquid.

Many Innate Attacks are possible. Gouts of water cause crushing damage, narrow jets inflict corrosion or cutting damage, and attacks that affect the water in the target's body deliver fatigue damage with Dehydration or Drowning.

Power Modifier: Water. The advantage belongs to the Water power. This modifier is usually Divine (-10%), Elemental (-10%), Magical (-10%), Spirit (-25%), or Super (-10%), and may be both Elemental *and* Super.

Weather Control

Sources: Divine, Magical, Nature, Spirit, or Super.
Focus: Atmospheric conditions.

This is the power to manipulate ambient humidity, pressure, and temperature. It might channel storm gods or spirits (Divine or Spirit), involve "weather witching" (Magical), or represent direct control (Nature or Super). Its effects sometimes overlap Air, Cold/Ice, Electricity, Heat/Fire, and Water, but Weather Control *isn't* an elemental power. The user can only produce *weather;* e.g., hail, lightning, rain, stifling heat, and wind. He can't emit concussion waves, shoot freeze rays, jam radios, turn to flame, etc.

Weather Control Talent

5 points/level

Weather Control Abilities

Control (Weather, or a subset such as Clouds, Precipitation, or Winds), with Natural Phenomena; Damage Resistance, with Limited, Elemental (-20%); Detect, for clouds, rain, storms, etc.; Enhanced Move (Air); Flight; Modular Abilities, with Environmental (-5%) and Physical; Obscure, if justifiable as fog, snow, etc.; Protected Power; Sealed; Temperature Control; Terrain Adaptation, for ice, mud, snow, or other conditions caused by weather; and Walk on Air.

A wide variety of Innate Attacks are suitable: giant hail (piercing), lightning bolts (burning), etc. All must have Area Effect, Bombardment, and Overhead. An attack that only works when there's already a violent storm in the area has Environmental (-40%).

Power Modifier: Weather Control. The advantage belongs to the Weather Control power. This modifier can be Divine (-10%), Magical (-10%), Nature (-20%), Spirit (-25%), or Super (-10%).

You will buy your weather from me! And by God you'll pay for it.

– Sir August de Wynter, ***The Avengers***

Sample Abilities

These worked examples cover a variety of interesting fictional abilities. Each consists of one or more advantages, often highly modified. When buying them, there's no need to note all the details. Just record the ability's name and cost as you would for a meta-trait.

Attacks

For attacks, the *total* value of all modifiers on each advantage appears in parentheses. When designing an attack with an identical set of modifiers, simply note this value and use the name of the associated ability as shorthand for those modifiers; e.g., "Pistol, +70%."

You can vary these attacks by adjusting the underlying advantage and then applying the same collective modifier to its cost. For instance, with a built-in firearm, you might simulate hollow-point bullets by changing Piercing Attack to Large Piercing Attack, or represent a "hot load" by adding more dice of Piercing Attack.

Built-In Firearms

These rarely make sense as part of a power. They're intended as stand-alone abilities for cyborgs and robots.

Antitank Rocket (+250%): Crushing Attack 6d×6 (Armor Divisor (10), +200%; Explosion 1, +50%; Increased Range, ×20, +40%; Limited Use, 1 use, Slow Reload, -35%; Nuisance Effect, Hazardous back-blast, -5%) [630]. *630 points.*

Assault Rifle (+150%): Piercing Attack 5d (Accurate +2, +10%; Extra Recoil +1, -10%; Increased Range, ×50, +50%; Limited Use, 3 uses/30 shots, Fast Reload, -10%; Rapid Fire, RoF 10, Selective Fire, +110%) [63]. *63 points.*

Blaster Pistol (+265%): Burning Attack 3d (Accurate +2, +10%; Armor Divisor (5), +150%; Increased 1/2D, ×20, +20%; Increased Max, ×10, +15%; Rapid Fire, RoF 3, +50%; Surge, +20%) [55]. *Special Effects:* Tight-beam. *55 points.*

Blaster Rifle (+310%): Burning Attack 6d (Accurate +9, +45%; Armor Divisor (5), +150%; Increased 1/2D, ×50, +25%; Increased Max, ×20, +20%; Rapid Fire, RoF 3, +50%; Surge, +20%) [123]. *Special Effects:* Tight-beam. *123 points.*

Flamethrower (+105%): Burning Attack 3d (Armor Divisor (0.5), -30%; Cyclic, 10 seconds, 3 cycles, +100%; Increased Range 4, +40%; Jet, +0%; Limited Use, 10 uses, Slow Reload, -5%) [31]. *31 points.*

Heavy Machine Gun (+165%): Large Piercing Attack 13d+1 (Accurate +3, +15%; Extra Recoil +1, -10%; Increased 1/2D, ×200, +35%; Increased Max, ×100, +30%; Limited Use, 10 uses/100 shots, Fast Reload, -5%; Rapid Fire, RoF 10, +100%) [212]. *212 points.*

Laser Pistol (+210%): Burning Attack 3d (Accurate +3, +15%; Armor Divisor (2), +50%; Increased 1/2D,

×20, +20%; Increased Max, ×10, +15%; Rapid Fire, RoF 10, Selective Fire, +110%) [47]. *Special Effects:* Loses damage in smoke; can bounce off mirrors; tight-beam. *47 points.*

Laser Rifle (+260%): Burning Attack 5d (Accurate +11, +55%; Armor Divisor (2), +50%; Increased 1/2D, ×50, +25%; Increased Max, ×20, +20%; Rapid Fire, RoF 10, Selective Fire, +110%) [90]. *Special Effects:* Loses damage in smoke; can bounce off mirrors; tight-beam. *90 points.*

Light Machine Gun (+150%): Piercing Attack 5d+1 (Accurate +2, +10%; Extra Recoil +1, -10%; Increased 1/2D, ×100, +30%; Increased Max, ×50, +25%; Limited Use, 10 uses/120 shots, Fast Reload, -5%; Rapid Fire, RoF 12, +100%) [68]. *68 points.*

Pistol (+70%): Piercing Attack 2d+2 (Extra Recoil +1, -10%; Inaccurate -1, -5%; Increased Range, ×20, +40%; Limited Use, 5 uses/15 shots, Fast Reload, -5%; Rapid Fire, RoF 3, +50%) [23]. *23 points.*

Shotgun (+135%): Small Piercing Attack 1d+1 (Increased 1/2D, ×5, +10%; Limited Use, 2 uses/6 shots, Slow Reload, -25%; Rapid Fire, RoF 3×9, +150%) [10]. *10 points.*

Sniper Rifle (+80%): Piercing Attack 9d+1 (Accurate +6, +30%; Increased 1/2D, ×100, +30%; Increased Max, ×50, +25%; Limited Use, 5 uses, Fast Reload, -5%) [85]. *85 points.*

Sonic Stunner (+395%): Affliction 4 (HT-3; Armor Divisor (5), +150%; Environmental, Air, -5%; Rapid Fire, RoF 3, +50%; Unconsciousness, +200%) [198]. *198 points.*

Submachine Gun (+135%): Piercing Attack 3d-1 (Accurate +1, +5%; Extra Recoil +1, -10%; Increased Range, ×20, +40%; Limited Use, 3 uses/33 shots, Fast Reload, -10%; Rapid Fire, RoF 11, Selective Fire, +110%) [33]. *33 points.*

Elemental Attacks

These could be superscience weapon implants, super-abilities, combat spells, or natural attacks for monsters. For comparison's sake, all cost *approximately* 50 points. For a more or less powerful attack, vary the level of Affliction, Binding, Innate Attack, or Obscure. Descriptions and special effects appear under "Notes."

Air

Concussion (+50%): Crushing Attack 6d+2 (Explosion 1, +50%) [50]. *Notes:* Creates a ball of compressed air that ruptures explosively on impact. Might blow out *small* fires. *50 points.*

Super-Breath (+50%): Crushing Attack 6d+2 (Cone, 5 yards, +100%; Double Knockback, +20%; No Wounding, -50%; Reduced Range, ×1/5, -20%) [50]. *Notes:* A gust of wind capable of pushing away *groups* of foes without doing serious harm. *50 points.*

Twister (+225%/+95%): Crushing Attack 2d (Area Effect, 2 yards, +50%; Double Knockback, +20%; Environmental, Air, -5%; Link, +10%; Mobile 1, +40%; Persistent, +40%; Side Effect, -2 DX, +70%) [33] + Obscure 5 (Vision; Environmental, Air, -5%; Link, +10%; Mobile 1, +40%; Ranged, +50%) [20]. *Notes:* Spins existing air into a tiny tornado that hurls people around and stirs up debris. Knockback is *vertical.* The side effect represents dizziness. *53 points.*

Vacuum (+100%): Fatigue Attack 2d+2 (Area Effect, 2 yards, +50%; Respiratory Agent, +50%; Suffocation, +0%) [52]. *Notes:* Reduces air pressure to zero over a small area, leaving those without breathing gear gasping for breath (unless they don't breathe). *52 points.*

Wind Blast (+10%): Crushing Attack 9d (Increased 1/2D, ×5, +10%) [50]. *Notes:* Hurls a bolt of compressed air that pummels the target like a clenched fist. *50 points.*

Cold/Ice

Blizzard (+210%/+290%): Obscure 2 (Hearing; Area Effect, 16 yards, +150%; Link, +10%; Ranged, +50%) [13] + Obscure 5 (Vision; Area Effect, 16 yards, +150%; Extended, Active IR, Infravision, Ladar, Ultravision, +80%; Link, +10%; Ranged, +50%) [39]. *Notes:* A raging snowstorm that blocks light and infrared (-5), and absorbs sound (-2). Quickly melts and leaves puddles, except in subfreezing temperatures. *52 points.*

Freeze Ray (+400%): Fatigue Attack 1d (Accurate +2, +10%; Armor Divisor (5), +150%; Freezing, +20%; Increased 1/2D, ×10, +15%; Increased Max, ×2, +5%; Side Effect, Paralysis, +200%) [50]. *Notes:* This thin, icy beam leaves the victim shivering. The side effect represents *being frozen.* Attempts to chill beer, etc. succeed automatically. *50 points.*

Weapon	*Damage*	*Acc*	*Range*	*RoF*	*Shots*	*Rcl*	*Notes*
Antitank Rocket	6d×6(10) cr ex	3	200/2,000	1	1	1	
Assault Rifle	5d pi	5	500/5,000	10	30(3)	2	
Blaster Pistol	3d(5) burn	5	200/1,000	3	–	1	[1, 2]
Blaster Rifle	6d(5) burn	12	500/2,000	3	–	1	[1, 2]
Flamethrower	3d(0.5) burn	–	25/50	Jet	10	–	[3]
Heavy MG	13d+1 pi+	6	2,000/10,000	10!	100(5)	2	
Laser Pistol	3d(2) burn	6	200/1,000	10	–	1	[1]
Laser Rifle	5d(2) burn	14	500/2,000	10	–	1	[1]
Light MG	5d+1 pi	5	1,000/5,000	12!	120(5)	2	
Pistol	2d+2 pi	2	200/2,000	3	15(3)	2	
Shotgun	1d+1 pi-	3	50/100	3×9	6(3i)	1	
Sniper Rifle	9d+1 pi	9	1,000/5,000	1	5(3)	4	[4]
Sonic Stunner	HT-3(5) aff	3	10/100	3	–	1	[1, 5]
Submachine Gun	3d-1 pi	4	200/2,000	11	33(3)	2	

Notes

[1] Gets unlimited shots from possessor's internal energy supply. Add Limited Use if this isn't true, or Takes Recharge for an "accumulator" that recharges slowly.

[2] Damage has the Surge modifier.

[3] Damage is *cyclic:* three 10-second cycles.

[4] Doesn't qualify for Extra Recoil because it lacks Rapid Fire.

[5] Failed HT roll renders target unconscious for minutes equal to margin of failure.

Arms Control

The GM might wish to put limits on the PCs' offensive abilities to keep his campaign from turning into a bloodbath. Attacks no more capable than weapons commonly issued to *ordinary* police and troops in the setting – that is, most LC2+ weapons – are rarely a problem. Advantages are harder to take away and easier to conceal than guns . . . but entire *armies* have similar firepower, and the heroes' enemies can even the odds by buying off-the-shelf weapons.

Built-in attacks comparable to LC1 armaments are *sometimes* a problem. The GM could just forbid them, but it's more fun to permit such abilities to heroes who really want them . . . if they *also* pay for an Unusual Background. Suggested costs are 25 points for attacks on par with portable support weapons, 50 points for those equivalent to light vehicular weapons, and 100 points for those as deadly as heavy vehicular weapons or artillery pieces.

Abilities that emulate LC0 weapons pose a *serious* threat to campaign integrity. If the GM insists on giving the PCs access to strategic weapons, he should charge at least 200 points for an Unusual Background.

These guidelines don't apply to nonlethal attacks or "body weaponry" (claws, venom, etc.), even if they're technically LC1. Such attacks *can* be fight-stoppers, but they're much easier to avoid or resist than an armor-piercing laser. Fatigue Attacks that suffocate, Toxic Attacks that inflict damage in rads instead of HP, and Afflictions that cause comas and heart attacks *aren't* exempt, however – these silent killers are as lethal as any machine gun or blaster.

Example: In a WWII supers campaign, the GM might charge no Unusual Background cost for RoF 1-3 attacks that inflict up to 7d damage (comparable to rifles); 25 points for attacks equivalent to machine guns and bazookas; 50 points for attacks as deadly as 20mm cannon and light antitank guns; and 100 points for attacks comparable to howitzers and aircraft bombs. History-altering "secret weapons" would be LC0, and require a 200-point Unusual Background if the GM allowed them. Nonlethal stunners, tanglers, and so on wouldn't require *any* Unusual Background, despite being futuristic.

Weapon Mounts

In settings where cybernetic implants or armed robots are common, the GM might feel that the heroes shouldn't pay a lot of points for weapons that *anyone* could buy and install. Such game worlds need a mechanism to reduce the cost of attacks available as standard weapons systems.

The GM may opt to let cyborgs and robots buy one or more instances of Extra Arm (Weapon Mount, -80%) [2]. Each can mount a single weapon that weighs no more than BL. Mounted weapons cost cash – *not* points – and their weight counts as encumbrance. Those with suitable mounts and controls might even cost and weigh *more* than regular ones . . . but they leave both hands free.

A mounted weapon is plugged in, not *built* in. The user can swap it for another weapon with a suitable interface. On average, it takes five seconds to mount or unmount a weapon, but this varies by weapon. Such weapons are *obvious,* and enemies or the authorities can *confiscate* them, just like carried weapons.

This measure is effectively the opposite of an Unusual Background, but the two aren't exclusive. The GM might let cyborgs mount standard weapons for 2 points apiece, require mutants to pay full cost for "natural" attacks that don't exceed such weapons in effectiveness, and charge godlike beings an Unusual Background for built-in strategic weapons.

Frost Breath (+250%): Crushing Attack 3d-1 (Cone, 5 yards, +100%; No Blunt Trauma, -20%; No Knockback, -10%; Reduced Range, ×1/5, -20%; Side Effect, Paralysis, +200%) [49]. *Notes:* A broad cone of stinging ice crystals that can actually *freeze* those it injures. *49 points.*

Ice Bonds (+60%): Binding 15 (Engulfing, +60%) [48]. *Notes:* Freezes the victim in ice. Treat FP lost to failed attempts to break free as freezing (see *Cold,* p. B430), but the victim *doesn't* become helplessly entangled on 17-18. This tradeoff is a special effect. *48 points.*

Ice Slick (+155%): Affliction 2 (DX-1; Area Effect, 4 yards, +100%; Based on DX, +20%; Disadvantage, Total Klutz, +15%; Environmental, Touching ground within area, -20%; Persistent, +40%) [51]. *Notes:* Creates a small patch of ice on the ground. Those who leave the area are free of the Affliction, but must make a new resistance roll if they return. The resistance bonus equals the DR of the victim's *footwear* (heavier boots give better purchase). *51 points.*

Ice Spear (+25%): Impaling Attack 5d (Accurate +1, +5%; Increased 1/2D, ×10, +15%; Increased Max, ×2, +5%) [50]. *Notes:* Hurls a razor-sharp icicle that melts shortly after impact. *50 points.*

Ice Storm (+255%): Large Piercing Attack 2d+1 (Area Effect, 16 yards, +200%; Bombardment, skill 10, -15%; Overhead, +30%; Persistent, +40%) [50]. *Notes:* Calls down bullet-like hail over a vast area. This can *kill* unarmored victims who don't flee. *50 points.*

Snowball (+10%): Crushing Attack 9d (Increased 1/2D, ×5, +10%) [50]. *Notes:* Lobs a cannonball-sized lump of hard-packed snow or ice that melts shortly after impact. *50 points.*

Earth

Quicksand (+100%): Binding 12 (Area Effect, 2 yards, +50%; Environmental, Touching ground, -20%; One Shot, -10%; Persistent, +40%; Unbreakable, +40%) [48]. *Notes:* Turns a small patch of ground into quicksand. Anyone who enters it sinks up to his knees. After 10 seconds, the ground hardens and can no longer trap new victims. *48 points.*

Rain of Stones (+100%): Crushing Attack 5d (Area Effect, 2 yards, +50%; Blockable, -5%; Bombardment, skill 10, -15%; Overhead, +30%; Persistent, +40%) [50]. *Notes:* Pounds the area of effect with *boulders.* These crumble to dust and blow away after 10 seconds. *50 points.*

Sandstorm (+250%/+110%): Cutting Attack 1d (Area Effect, 4 yards, +100%; Link, +10%; Persistent, +40%; Side Effect, Blindness, +100%) [25] + Obscure 6 (Vision; Area Effect, 4 yards, +50%; Link, +10%; Ranged, +50%) [26]. *Notes:* Conjures a flesh-tearing blizzard of blinding grit. Machines are more likely to be clogged than blinded. *51 points.*

Stone Missile (+10%): Crushing Attack 9d (Increased 1/2D, ×5, +10%) [50]. *Notes:* Shoots a fist-sized rock at the target. Decide whether it stays behind or crumbles to dust. *50 points.*

Electricity

Arc (+40%): Burning Attack 7d (Melee Attack, Reach C, Cannot Parry, -35%; Side Effect, Stunning, +50%; Surge, +20%; Variable, +5%) [49]. *Notes:* An electrical arc that leaps between the user's hands. At its lowest setting, it can jump-start cars (and hearts!); at its highest setting, it can kill instantly. *49 points.*

Call Lightning (+175%): Burning Attack 3d+2 (Area Effect, 2 yards, +50%; Bombardment, skill 12, -10%; Environmental, Air, -5%; Overhead, +30%; Persistent, +40%; Side Effect, Stunning, +50%; Surge, +20%) [50]. *Notes:* Calls down repeated lightning strikes on the target area. This creates electrical noise nearby. *50 points.*

Dampen (+400%): Affliction 1 (HT; Accessibility, Only on Electrical, -20%; Area Effect, 2 yards, +50%; Malediction 2, +150%; Selective Area, +20%; Unconsciousness, +200%) [50]. *Notes:* Lets the user shut down electrical devices, in a small area he can see, by winning a Quick Contest of Will vs. the HT of each subject. *50 points.*

Electric Stun (+65%): Affliction 3 (HT-2; Accurate +1, +5%; Armor Divisor (2), +50%; Increased 1/2D, ×5, +10%) [50]. *Notes:* Delivers a nerve-jangling electrical pulse similar to an electrolaser bolt – a useful *non-lethal* attack for heroic supers. *50 points.*

Electrified Skin (+140%/+90%): Affliction 1 (HT; Aura, +80%; Link, +10%; Melee Attack, -30%; Secondary Heart Attack, +60%; Underwater, +20%) [24] + Burning Attack 2d+2 (Aura, +80%; Link, +10%; Melee Attack, -30%; No Incendiary Effect, -10%; Surge, +20%; Underwater, +20%) [25]. *Notes:* The user charges himself up like an electric eel. Foes who touch him receive a potentially *lethal* shock. *49 points.*

Lightning Bolt (+100%): Burning Attack 5d (Accurate +2, +10%; Increased 1/2D, ×10, +15%; Increased Max, ×2, +5%; Side Effect, Stunning, +50%; Surge, +20%) [50]. *Notes:* Hurls a destructive bolt of electricity that sets fires and fries machinery. *50 points.*

Surge (+0%): Burning Attack 10d (Accurate +2, +10%; Increased 1/2D, ×10, +15%; Increased Max, ×2, +5%; No Wounding, -50%; Surge, +20%) [50]. *Notes:* A low-energy, high-frequency electrical bolt that scrambles machinery *without* harming living targets. *50 points.*

Heat/Fire

Fire Bolt (+10%): Burning Attack 9d (Increased 1/2D, ×5, +10%) [50]. *Notes:* A simple bolt of flame that sets fires and cooks flesh. *50 points.*

Fireball (+50%): Burning Attack 6d+2 (Explosion 1, +50%) [50]. *Notes:* Similar to Fire Bolt, but the bolt explodes on impact, damaging everything nearby. *50 points.*

Flame Breath (+80%): Burning Attack 5d+1 (Cone, 5 yards, +100%; Reduced Range, ×1/5, -20%) [49]. *Notes:* Classic "dragon-fire" attack that blasts foes in a broad cone. *49 points.*

Flame Jet (+0%): Burning Attack 10d (Jet, +0%) [50]. *Notes:* Lets the user project a flamethrower-like torch from his hand. *50 points.*

Immolation (+50%): Burning Attack 6d+2 (Aura, +80%; Melee Attack, -30%) [50]. *Notes:* User sheathes himself in flames that incinerate enemies who touch his body. *50 points.*

Inferno (+95%): Burning Attack 5d (Area Effect, 2 yards, +50%; Persistent, +40%; Variable, +5%) [49]. *Notes:* The affected area erupts in a roaring pillar of flame. At its lowest levels, this is useful as a bonfire or barbeque. *49 points.*

These could be superscience weapon implants, super-abilities, combat spells, or natural attacks for monsters.

Plasma Torch (+125%): Burning Attack 4d+1 (Armor Divisor (5), +150%; Melee Attack, Reach C, 1, Cannot Parry, -25%) [50]. *Notes:* A hot, short-ranged torch, useful for cutting through armor. *50 points.*

Smoke (+190%/+100%): Affliction 1 (HT; Area Effect, 2 yards, +50%; Coughing, +20%; Drifting, +20%; Link, +10%; Persistent, +40%; Respiratory Agent, +50%) [29] + Obscure 5 (Vision; Drifting, +20%; Extended, Ladar, +20%; Link, +10%; Ranged, +50%) [20]. *Notes:* Raises a cloud of smoke big enough to disappear behind. Enemies who try to follow are left coughing. *49 points.*

Kinetic Energy

Ball of Force (+70%): Crushing Attack 6d-1 (Double Knockback, +20%; Explosion 1, +50%) [50]. *Notes:* This globe of force explodes on impact, pushing aside anything nearby. *50 points.*

Force Beam (+50%): Crushing Attack 6d+2 (Accurate +2, +10%; Double Knockback, +20%; Increased 1/2D, ×10, +15%; Increased Max, ×2, +5%) [50]. *Notes:* A pencil-thin beam of force that breaks bones and sends the victim flying. *50 points.*

Force Bonds (+90%): Binding 13 (Engulfing, +60%; One-Shot, -10%; Unbreakable, +40%) [50]. *Notes:* Conjures glowing bands of force that pin the victim's arms to his sides. *50 points.*

Shove (-5%): Crushing Attack 10d+1 (Double Knockback, +20%; Increased 1/2D, ×10, +15%; Low Signature, +10%; No Wounding, -50%) [50]. *Notes:* A broadly focused attack that forcefully pushes away the target. The bolt is invisible, except perhaps as a vague blur. *50 points.*

Light

Darkness (+150%): Obscure 10 (Vision; Area Effect, 8 yards, +100%; Ranged, +50%) [50]. *Note:* Plunges the area into *total* darkness. Those without enhanced senses are blind while they remain in the area. *50 points.*

Flash (+400%): Affliction 1 (HT; Area Effect, 16 yards, +200%; Disadvantage, Blindness, +50%; Vision-Based, +150%) [50]. *Notes:* Lobs a "flash bomb" that goes off at a distance, potentially blinding those who see the blast. *50 points.*

Images (+100%): Illusion (Area Effect, 4 yards, +50%; Independence, +40%; Ranged, +40%; Visual Only, -30%) [50]. *Notes:* Generates believable, fire-and-forget illusions at a distance. Handy as a distraction! *50 points.*

Laser (+100%): Burning Attack 5d (Accurate +3, +15%; Armor Divisor (2), +50%; Increased 1/2D, ×20, +20%; Increased Max, ×10, +15%) [50]. *Notes:* An accurate, long-ranged laser, suitable for sniping. Attack is tight-beam. *50 points.*

Radiation

Irradiate (+150%): Toxic Attack 5d (Area Effect, 4 yards, +100%; No Signature, +20%; Radiation, +25%; Variable, +5%) [50]. *Notes:* Bathes the area in harmful – and *invisible* – radiation. Variable intensity makes it useful for mad scientists. *50 points.*

Particle Beam (+300%): Burning Attack 2d+2 (Accurate +2, +10%; Armor Divisor (5), +150%; Increased 1/2D, ×10, +15%; Increased Max, ×2, +5%; Radiation, +100%; Surge, +20%) [52]. *Notes:* A tight-beam energy attack that sets fires, irradiates the living, and overloads machines. *52 points.*

Radiation Beam (+80%): Toxic Attack 7d-1 (Accurate +2, +10%; Increased 1/2D, ×10, +15%; Increased Max, ×2, +5%; No Signature, +20%; Radiation, +25%; Variable, +5%) [49]. *Notes:* The classic science-fiction death ray, invisible and deadly. It can also *save* lives, by sterilizing food and (at low levels) destroying tumors. *49 points.*

Sound/Vibration

Sonic Scream (+75%): Burning Attack 6d-1 (Environmental, Air/Water, -5%; No Incendiary Effect, -10%; Side Effect, Deafness, +70%; Underwater, +20%) [51]. *Notes:* A beam of "coherent sound" that cooks the living without the risk of fire. Being *very* broad-beam (not tight-beam), it inflicts full-body damage and can't target hit locations. *51 points.*

Sonic Stun (+365%): Affliction 1 (HT; Armor Divisor (5), +150%; Environmental, Air/Water, -5%; Unconsciousness, +200%; Underwater, +20%) [47]. *Notes:* Similar to a superscience stunner, this incapacitating attack is useful for heroes who dislike killing. *47 points.*

Sound Effects (+110%): Illusion (Area Effect, 8 yards, +100%; Auditory Only, -70%; Independence, +40%; Ranged, +40%) [53]. *Notes:* Projects autonomous sound effects that can distract enemies. The user can specify whatever he likes. If he's a musician, he can even have his own personal soundtrack! *53 points.*

Thunderclap (+395%): Affliction 1 (HT; Area Effect, 16 yards, +200%; Disadvantage, Deafness, +20%; Environmental, Air/Water, -5%; Hearing-Based, +150%; Stunning, +10%; Underwater, +20%) [50]. *Notes:* Causes a *loud* pop or crash that stuns and deafens those in the area. Might shatter extremely brittle objects. *50 points.*

White Noise (+250%): Obscure 7 (Hearing; Area Effect, 8 yards, +100%; Extended, Subsonic Hearing, Ultrasonic Hearing, Sonar, Vibration Sense, +80%; Ranged, +50%; Underwater, +20%) [49]. *Notes:* Fills the area of effect with broad-spectrum acoustic distortion. Insomniacs might welcome the soothing hiss . . . *49 points.*

Water

Dehydrate (+190%): Fatigue Attack 2d-1 (Based on HT, +20%; Dehydration, +20%; Malediction 2, +150%) [50]. *Notes:* Lets the attacker drive moisture from the victim's body by winning a Quick Contest of Will vs. HT. Also dries out wet equipment. *50 points.*

Fog (+240%): Obscure 7 (Vision; Area Effect, 16 yards, +150%; Drifting, +20%; Extended, Ladar, +20%; Ranged, +50%) [48]. *Notes:* Summons a fogbank that interferes with vision and ladar. Weakens fire attacks like the Fog spell (p. B253) – but any wind more forceful than a light breeze disperses it. *48 points.*

Water Blade (+30%): Corrosion Attack 4d-1 (Armor Divisor (2), +50%; Melee Attack, Reach C, 1, -20%) [49]. *Notes:* Projects an abrasive stream of high-pressure water capable of dissolving most materials. *49 points.*

Water Blast (+30%): Crushing Attack 7d+2 (Increased 1/2D, ×5, +10%; Underwater, +20%) [50]. *Notes:* A water jet focused tightly enough to be lethal at long range. *50 points.*

Water Cannon (-10%): Crushing Attack 11d (Double Knockback, +20%; No Wounding, -50%; Underwater, +20%) [50]. *Notes:* More broadly focused, this water jet is useful for crowd control, putting out fires, etc. *50 points.*

White Noise fills the area of effect with broad-spectrum acoustic distortion. Insomniacs might welcome the soothing hiss . . .

Elemental Attack	*Damage*	*Acc*	*Range*	*RoF*	*Rcl*	*Notes*
Arc	7d burn*	–	C	Melee	–	[1, 2]
Ball of Force	6d-1 cr ex	3	100	1	1	[3]
Blizzard	Hearing-2	3	100	1	1	Area 16p
linked	Vision-5	–	–	–	–	Area 16p
Call Lightning	3d+2 burn	3	100	1	1	Area 2p [1, 2, 4]
Concussion	6d+2 cr ex	3	100	1	1	
Dampen	HT aff	–	Malediction 2	–	–	Area 2s [5]
Darkness	Vision-10	3	100	1	1	Area 8p
Dehydrate	2d-1 fat	–	Malediction 2	–	–	[6]
Electric Stun	HT-2(2) aff	4	50/100	1	1	[5]
Electrified Skin	HT aff	–	C	Aura	–	[7]
linked	2d+2 burn	–	C	Aura	–	[2, 8]
Fire Bolt	9d burn	3	50/100	1	1	
Fireball	6d+2 burn ex	3	100	1	1	
Flame Breath	5d+1 burn	3	20	1	1	Cone 5
Flame Jet	10d burn	–	5/10	Jet	–	
Flash	HT aff	3	100	1	1	Area 16 [5, 9]
Fog	Vision-7	3	100	1	1	Area 16dp
Force Beam	6d+2 cr	5	100/200	1	1	[3]
Force Bonds	ST 13 bind	3	100	1	1	[10]
Freeze Ray	1d(5) fat	5	100/200	1	1	[1, 6]
Frost Breath	3d-1 cr	3	20	1	1	Cone 5 [1, 11]
Ice Bonds	ST 15 bind	3	100	1	1	[10]
Ice Slick	DX-1 aff	3	100	1	1	Area 4p [5]
Ice Spear	5d imp	4	100/200	1	1	
Ice Storm	2d+1 pi+	3	100	1	1	Area 16p [4]
Images	Illusion	3	100	1	1	Area 4ip
Immolation	6d+2 burn	–	C	Aura	–	
Inferno	5d burn*	3	100	1	1	Area 2p
Irradiate	5d tox*	3	100	1	1	Area 4 [12]
Laser	5d(2) burn	6	200/1,000	1	1	
Lightning Bolt	5d burn	5	100/200	1	1	[1, 2]
Particle Beam	2d+2(5) burn	5	100/200	1	1	[2, 12]
Plasma Torch	4d+1(5) burn	–	C, 1	Melee	–	
Quicksand	ST 12 bind	3	100	1	1	Area 2p [10]
Radiation Beam	7d-1 tox*	5	100/200	1	1	[12]
Rain of Stones	5d cr	3	100	1	1	Area 2p [4]
Sandstorm	1d cut	3	100	1	1	Area 4p [1]
linked	Vision-6	–	–	–	–	Area 4p
Shove	10d+1 cr	3	100	1	1	[3, 13]
Smoke	HT aff	3	100	1	1	Area 2dp [5, 9]
linked	Vision-5	–	–	–	–	Area 2dp
Snowball	9d cr	3	50/100	1	1	
Sonic Scream	6d-1 burn	3	10/100	1	1	[1, 8]
Sonic Stun	HT(5) aff	3	10/100	1	1	[5]
Sound Effects	Illusion	3	100	1	1	Area 8ip
Stone Missile	9d cr	3	50/100	1	1	
Super-Breath	6d+2 cr	3	20	1	1	Cone 5 [3, 13]
Surge	10d burn	5	100/200	1	1	[2, 13]
Thunderclap	HT aff	3	100	1	1	Area 16 [5, 9]
Twister	2d cr	3	100	1	1	Area 2mp [1, 3]
linked	Vision-5	–	–	–	–	Area 2mp
Vacuum	2d+2 fat	3	100	1	1	Area 2 [6, 9]
Water Blade	4d-1(2) cor	–	C, 1	Melee	–	
Water Blast	7d+2 cr	3	50/100	1	1	
Water Cannon	11d cr	3	10/100	1	1	[3, 13]
White Noise	Hearing-7	3	100	1	1	Area 8p
Wind Blast	9d cr	3	50/100	1	1	

Notes

* Damage is *variable.*

Area is in yards of radius; d = drifting, i = independent, m = mobile, p = persistent (10 seconds), and s = selective.

Cone gives width at maximum range.

[1] Side effect: make a HT roll at -1 per 2 points of penetrating damage or suffer blindness (Sandstorm), deafness (Sonic Scream), paralysis (Freeze Ray, Frost Breath), stunning (Arc, Call Lightning, Lightning Bolt), or -2 DX (Twister).

[2] Surge can disable machinery.

[3] Double knockback.

[4] Bombards the area from *overhead* with skill 10 (Ice Storm, Rain of Stones) or 12 (Call Lightning).

[5] Affliction: make the indicated roll or suffer blindness (Flash), coughing (Smoke), deafness (Thunderclap), stunning (Electric Stun, Thunderclap), Total Klutz (Ice Slick), or unconsciousness (Dampen, Sonic Stun). Dampen only affects those with Electrical.

[6] Treat fatigue as dehydration (Dehydrate), freezing (Freeze Ray), or suffocation (Vacuum).

[7] Affliction: No primary effect. Failure by 5+ on the HT roll indicates a heart attack.

[8] No incendiary effect.

[9] Penetration modifier: Hearing-Based (Thunderclap), Respiratory Agent (Smoke, Vacuum), or Vision-Based (Flash).

[10] Binding modifiers: Force Bonds have Engulfing, One-Shot, and Unbreakable; Ice Bonds have Engulfing; and Quicksand has One-Shot and Unbreakable.

[11] No blunt trauma or knockback.

[12] Inflicts rads equal to damage; see *Radiation* (p. B435).

[13] No wounding.

Supernatural Attacks

These could be chi, divine, magical, psi, or spirit abilities – add power modifiers as necessary. *Touches* are baneful melee attacks, some of which bypass DR. *Curses* are prayers, spells, and similar rituals that require a nearby subject. *Mental attacks* are longer-ranged effects. Curses and mental attacks call for a Concentrate maneuver, not an Attack. See the accompanying notes for the resistance roll (if any) and special effects.

As with elemental attacks, all of these abilities cost *about* 50 points. Expensive abilities have enough Costs Fatigue and Takes Extra Time to reduce cost to this level. Adept users can buy off these limitations, while less-capable ones can add higher levels to save points.

Touches

Burning Touch (+250%): Burning Attack 3d-1 (Accessibility, Only on living beings, -10%; Cosmic, Irresistible attack, +300%; Melee Attack, Reach C, Cannot Parry, -35%; No Incendiary Effect, -10%; Variable, +5%) [49]. *Notes:* Causes flesh to cook and blister *without* heat or fire. This attack passes through and has no effect on inanimate objects – including armor. *49 points.*

Chilling Touch (+290%): Fatigue Attack 1d+1 (Cosmic, Irresistible attack, +300%; Freezing, +20%; Melee Attack, Reach C, Cannot Parry, -35%; Variable, +5%) [51]. *Notes:* Inflicts the effects of extreme cold on a living target, regardless of clothing or armor. *51 points.*

Hand of Death (+400%): Affliction 1 (HT; Contact Agent, -30%; Cosmic, Lingering special effect, +100%; Delay, Triggered, +50%; Heart Attack, +300%; Low Signature, +10%; Melee Attack, Reach C, -30%) [50]. *Notes:* This attack from kung fu legend looks like a punch (only a martial-arts master could tell otherwise) and *must* touch bare skin. The victim gets a HT roll to resist. If he fails, the attacker can inflict a heart attack at some unspecified point in the future, from any distance. To escape this fate, the victim must slay his tormentor or convince him to cancel the Hand – there's no cure! *50 points.*

Leprous Touch (+155%): Affliction 2 (HT-1; Contact Agent, -30%; Disadvantage, Terminally Ill, Up to two years, +50%; Extended Duration, Permanent, +150%; Melee Attack, Reach C, Cannot Parry, -35%; No Signature, +20%) [51]. *Notes:* A subtle "death touch" with no visible effects. The attacker *must* touch his victim's bare skin. The victim gets a HT-1 roll to resist. If he fails, he contracts a wasting disease that will kill him slowly over about two years. Mundane and supernatural medicine work as usual. *51 points.*

Paralyzing Touch (+155%): Affliction 2 (HT-1; Extended Duration, 3×, +20%; Melee Attack, Reach C, Cannot Parry, -35%; Paralysis, +150%; Selective Effect, +20%) [51]. *Notes:* The victim must roll against HT-1 if touched; DR gives its usual bonus. Failure means he suffers paralysis for three minutes times his margin of failure. Selective Effect lets the attacker touch specific hit locations in order to paralyze them. *51 points.*

Steal Energy (-15%): Leech 2d+2 (Accelerated Healing, +25%; Only Heals FP, -20%; Steal FP, -25%; Variable, +5%) [49]. *Notes:* The attacker *quickly* steals the target's FP for himself, on a 1:1 basis. Subject to all the usual restrictions on Leech – see p. 96. *49 points.*

Steal Life (+30%): Leech 1d (Accelerated Healing, +25%; Variable, +5%) [49]. *Notes:* Identical to Steal Energy, above, but transfers HP. *49 points.*

Curses

Curse (+365%): Affliction 1 (Will; Based on Will, +20%; Disadvantage, Cursed, +75%; Extended Duration, Permanent, +150%; Malediction 1, +100%; No Signature, +20%) [47]. *Notes:* Curses the victim until he achieves a notable success . . . at which time his victory *and* the curse evaporate. Spells that remove curses work normally. Roll Will vs. subject's Will. *47 points.*

Death Wish (+400%): Affliction 1 (HT; Costs Fatigue, 4 FP, -20%; Heart Attack, +300%; Malediction 1, +100%; No Signature, +20%) [50]. *Notes:* If the subject fails to resist, his heart stops – which is usually fatal. Costs 4 FP. Roll Will vs. subject's HT. *50 points.*

Diminution (+400%): Affliction 1 (HT; Advantage, Shrinking 6, +300%; Costs Fatigue, 4 FP, -20%; Malediction 1, +100%; No Signature, +20%) [50]. *Notes:* Shrinks the subject to 1/10 normal size over a period of six seconds. Costs 4 FP. Roll Will vs. subject's HT. *50 points.*

Fear (+0%): Terror (-2 to Fright Checks; Active, +0%) [50]. *Notes:* Terrifies a single subject within 10 yards who can *see* or *hear* the user. Roll Will vs. subject's Will-2. *50 points.*

Feeblemindedness (+400%): Affliction 1 (IQ; Attribute Penalty, -20 IQ, +200%; Based on IQ, +20%; Disadvantages, Cannot Speak, Gullibility (6), Hidebound, Short Attention Span (6), +60%; Malediction 1, +100%; No Signature, +20%) [50]. *Notes:* The subject becomes a drooling idiot who can't speak, discern the truth, or focus on tasks. IQ can't fall below 1 (a special effect). Roll Will vs. subject's IQ. *50 points.*

Frog (+400%): Affliction 1 (HT; Advantage, Alternate Form, Frog, +150%; Costs Fatigue, 4 FP, -20%; Extended Duration, Permanent, +150%; Malediction 1, +100%; No Signature, +20%) [50]. *Notes:* Transforms the victim into a frog. Cancelled by a kiss from a member of the opposite sex, or any spell that removes curses. Costs 4 FP. Roll Will vs. subject's HT. *50 points.*

Madness (+150%): Affliction 2 (IQ-1; Based on IQ, +20%; Costs Fatigue, 4 FP, -20%; Disadvantages, Delusion (Severe), Paranoia, Phantom Voices (Diabolical), +40%; Malediction 1, +100%; No Signature, +20%; Takes Extra Time 1, -10%) [50]. *Notes:* The subject believes that friends are foes . . . and hears evil voices that tell him to *kill.* Takes two seconds and costs 4 FP. Roll Will vs. subject's IQ-1. *50 points.*

Pain (+150%): Affliction 2 (HT-1; Costs Fatigue, 2 FP, -10%; Malediction 1, +100%; No Signature, +20%; Severe Pain, +40%) [50]. *Notes:* Subject is in such pain that he has -4 on most rolls. Costs 2 FP. Roll Will vs. subject's HT-1. *50 points.*

Pestilence (+1,560%): Fatigue Attack 1 point (Based on HT, +20%; Costs Fatigue, 6 FP, -30%; Cyclic, 1 hour, 72 cycles, Highly Contagious, +1,470%; Malediction 1, +100%; No Signature, +20%; Onset, 1 hour, -20%) [50]. *Notes:* An *insidious* "death spell." After an hour, the subject becomes ill. He loses 1 FP/hour for three days, and is infectious during this time. Remember that at 0 FP, each FP lost saps 1 HP. Costs 6 FP. Roll Will vs. subject's HT. *50 points.*

Sickness (+150%): Affliction 2 (HT-1; Malediction 1, +100%; Nauseated, +30%; No Signature, +20%) [50]. *Notes:* A quick, easy curse that leaves the subject feeling ill. Roll Will vs. subject's HT-1. *50 points.*

Silence (+395%): Affliction 1 (HT; Advantage, Silence 5, +250%; Disadvantage, Mute, +25%; Malediction 1, +100%; No Signature, +20%) [50]. *Notes:* Completely silences the subject. He can't speak at all. Treat the involuntary Silence advantage as -10 to hear the subject, reduced to -5 if he *tries* to make noise. Roll Will vs. subject's HT. *50 points.*

Sleep (+400%): Affliction 1 (HT; Extended Duration, 100×, +80%; Malediction 1, +100%; No Signature, +20%; Unconsciousness, +200%) [50]. *Notes:* The subject falls into a deep sleep, and can't be awakened for *100* minutes times the attacker's margin of victory (e.g., five hours, if the attacker wins by 3). Roll Will vs. subject's HT. *50 points.*

Slow (+400%): Affliction 1 (HT; Advantage, Subsonic Speech, +100%; Costs Fatigue, 4 FP, -20%; Disadvantage, Decreased Time Rate, +100%; Malediction 1, +100%; Negated Advantage, Altered Time Rate 1, +100%; No Signature, +20%) [50]. *Notes:* Slows the subject by 50% *and* robs him of a level of Altered Time Rate (enough to negate the Great Haste spell, p. B251). Also shifts his speech into the subsonic range – he *can't* speak normally. Costs 4 FP. Roll Will vs. subject's HT. *50 points.*

Strike Blind (+150%): Affliction 2 (HT-1; Disadvantage, Blindness, +50%; Costs Fatigue, 4 FP, -20%; Malediction 1, +100%; No Signature, +20%) [50]. *Notes:* Instantly renders the subject blind. Costs 4 FP. Roll Will vs. subject's HT-1. *50 points.*

Mental Attacks

Cryokinetic Attack (+210%): Fatigue Attack 1d+2 (Based on HT, +20%; Freezing, +20%; Malediction 2, +150%; No Signature, +20%) [50]. *Notes:* Causes the subject's body temperature to plunge, chilling him (see *Cold,* p. B430). Roll Will vs. subject's HT. *50 points.*

Mental Blow (+160%/+150%): Fatigue Attack 1d (Costs Fatigue, 2 FP, -10%; Malediction 2, +150%; No Signature, +20%) [26] + Affliction 1 (HT; Follow-Up, Fatigue Attack, +150%) [25]. *Notes:* A mental blast that wears down the target. Costs 2 FP. Roll Will vs. subject's Will to deliver the attack. If this works, the subject must roll vs. HT to avoid being stunned. *51 points.*

Mental Paralysis (+400%): Affliction 1 (Will; Based on Will, +20%; Malediction 2, +150%; Mobile 1, +40%; No Signature, +20%; Paralysis, +150%; Selective Effect, +20%) [50]. *Notes:* Paralyzes the victim. Mobile and Selective Effect represent the capacity to limit paralysis to particular body parts and move the paralysis to other body parts by concentrating after a successful attack. Roll Will vs. subject's Will. *50 points.*

Mental Stab (+165%/+250%): Toxic Attack 1d+1 (Based on HT, +20%; Costs Fatigue, 5 FP, -25%; Malediction 2, +150%; No Signature, +20%) [16] + Affliction 1 (HT; Follow-Up, Toxic Attack, +150%; Seizure, +100%) [35]. *Notes:* A psychic blast that burns out the target's nervous system. Costs 5 FP. Roll Will vs. subject's HT to deliver the attack. If this works, the subject must roll vs. HT to avoid suffering a seizure. *51 points.*

Mindwipe (+385%): Affliction 1 (Will; Based on Will, +20%; Disadvantage, Total Amnesia, +25%; Extended Duration, Permanent, +150%; Malediction 2, +150%; No Signature, +20%; Selective Effect, +20%) [49]. *Notes:* Obliterates memories. Selective Effect lets the attacker delete *specific* memories, if desired. To undo this effect, use hypnotism, shock therapy, or Mind Control with Conditioning. Roll Will vs. subject's Will. *49 points.*

Psychic Vampirism (+100%): Leech 1 (Accelerated Healing, +25%; Malediction 2, +150%; Only Heals FP, -20%; Ranged, +40%; Steal FP, -25%; Takes Extra Time 6, -60%; Temporary Disadvantages, -10%) [50]. *Notes:* Siphons "psychic energy" from a distant target to the attacker at the rate of 1 FP per *minute* of concentration. This carries some of the victim's personality. The GM picks -10 points of the subject's mental quirks and disadvantages, and the vampire suffers from these as he feeds. Roll Will vs. subject's Will. *50 points.*

Pyrokinetic Attack (+190%/+250%): Burning Attack 1d (Based on HT, +20%; Malediction 2, +150%; No Signature, +20%) [15] + Affliction 1 (HT; Agony, +100%; Follow-Up, Burning Attack, +150%) [35]. *Notes:* The subject's body temperature rises to the point where he begins to *burn.* Roll Will vs. subject's HT to deliver the attack. If this works, the subject must roll vs. HT to avoid collapsing due to the searing pain. *50 points.*

Telekinetic Squeeze (+185%/+250%): Crushing Attack 1d (Based on HT, +20%; Malediction 2, +150%; No Knockback, -10%; No Signature, +20%; Variable, +5%) [15] + Affliction 1 (HT; Choking, +100%; Follow-Up, Crushing Attack, +150%) [35]. *Notes:* A direct attempt to crush the victim's throat or vital organs. Roll Will vs. subject's HT to deliver the attack. If this works, the subject must roll vs. HT to avoid choking. *50 points.*

Poisons

Natural, manmade, and fictional toxins range from annoying to instantly fatal. They defy normalization to a particular number of points. Thus, they cost what they cost.

Venomous Bites and Stings

Poison carried by a bite requires Sharp Teeth [1] or Fangs [2]. Venom on a stinger calls for Striker (Piercing) [5], (Large Piercing) [6], or (Impaling) [8]. Add the cost of this delivery system to that of the venom.

These venoms are "generic" examples, intended to illustrate the principles behind venom design. Real-world venoms can have damage ranging from 1d-3 to 4d, and almost *any* combination of Cyclic, Onset, Resistible, and Symptoms.

Average Venom (+40%): Toxic Attack 2d-1 (Cyclic, 1 day, 4 cycles, Resistible, +15%; Follow-Up, Teeth/Striker, +0%; Onset, 1 hour, -20%; Resistible, HT-3, -15%; Symptoms, 2/3 HP, -3 DX and IQ, +60%) [10]. *Notes:* The victim must make a HT-3 roll an hour after injection and daily for three days. Each failure inflicts 2d-1 injury. Those who lose 2/3 HP or more suffer shakes and fever: -3 DX and IQ until healed. This venom *could* kill an unlucky human. Use it for the nastiest spiders and scorpions, or the average venomous snake. *10 points.*

Fantasy Venom (-5%): Toxic Attack 6d (Follow-Up, Teeth/Striker, +0%; Resistible, HT-5, -5%) [23]. *Notes:* The victim must make an *immediate* HT-5 roll or suffer 6d injury. Acute venoms this fast and symptom-free are unrealistic, yet entirely suitable for fantastic monsters that can instantly incapacitate or kill a hero with a bite. *23 points.*

Paralytic Venom (+290%): Affliction 1 (HT; Extended Duration, 300×, +100%; Follow-Up, Teeth or Striker, +0%; Onset, 1 minute, -10%; Paralysis, +150%; Secondary Coma, +50%) [39]. *Notes:* The victim must make a HT roll a minute after being injected. Failure means he's paralyzed for five *hours* times his margin of failure; failure by 5+ means he falls into a coma. *39 points.*

Strong Venom (+100%): Toxic Attack 3d-1 (Cyclic, 1 hour, 4 cycles, Resistible, +30%; Follow-Up, Teeth/Striker, +0%; Onset, 1 minute, -10%; Resistible, HT-4, -10%; Symptoms, 2/3 HP, -3 ST, DX, IQ, and HT, +90%) [22]. *Notes:* The victim must make a HT-4 roll a minute after injection and hourly for three hours. Each failure inflicts 3d-1 injury. Those who lose 2/3 HP or more become seriously ill: -3 to *all* attributes until healed. This venom *will* kill those who don't receive medical or supernatural aid. It's only appropriate for the deadliest real-world serpents . . . and monsters of fantasy and horror. *22 points.*

Weak Venom (-30%): Toxic Attack 1d (Follow-Up, Teeth/Striker, +0%; Onset, 1 hour, -20%; Resistible, HT-2, -20%; Symptoms, 2/3 HP, -1 DX, +10%) [3]. *Notes:* The victim must make a HT-2 roll an hour after injection or suffer 1d injury. Swelling occurs near the injection site. If damage exceeds 2/3 HP – which is rare, unless the victim receives many doses or has few HP – this gives -1 DX until the injury heals. This is typical of all but the worst scorpion stings and spider bites. *3 points.*

Defensive Venoms

These chemical weapons are meant mainly to discourage others from damaging (or *eating*) the possessor, but have their uses as attacks.

Acidic Blood (+890%): Corrosion Attack 1d-3 (Always On, -20%; Aura, +80%; Blood Agent, Reversed, -40%; Cyclic, 1 second, 10 cycles, +900%; Melee Attack, -30%) [10]. *Notes:* Someone with this ability seeps acid if he suffers *any* cutting, impaling, or piercing injury. He bleeds on the weapon that wounded him – or his *foe,* if attacked with Claws, Teeth, etc. – which immediately begins to corrode. Until he stops bleeding (see *Bleeding,* p. B420), the acid drips on everything nearby. This works like any other Aura, and the user can deliberately attack others by flicking his blood around. *10 points.*

Deadly Skin/Tentacles (+80%): Toxic Attack 3d-1 (Always On, -20%; Aura, +80%; Contact Agent, -30%; Cyclic, 1 hour, 4 cycles, Resistible, +30%; Melee Attack, -30%; Resistible, HT-4, -10%; Symptoms, 2/3 HP, Terrible Pain, +60%) [20]. *Notes:* A coating of lethal contact poison that affects anyone whose bare skin touches or is touched by the possessor. The victim must make a HT-4 roll *immediately* and again hourly for three hours. Each failure inflicts 3d-1 injury. Those who lose 2/3 HP or more suffer searing pain until healed. This venom suits the deadliest jellyfish. *20 points.*

Deadly Spines (+50%): Toxic Attack 3d-1 (Cyclic, 1 hour, 4 cycles, Resistible, +30%; Follow-Up, Spines, -50%; Onset, 1 minute, -10%; Resistible, HT-4, -10%; Symptoms, 2/3 HP, -3 ST, DX, IQ, and HT, +90%) [17]. *Notes:* Must accompany either Short Spines [1] or Long Spines [3]. Anyone injured by the spines must make a HT-4 roll after a minute and hourly for three hours. Each failure inflicts 3d-1 injury. Those who lose 2/3 HP or more

have -3 to *all* attributes until healed. This attack is typical of puffer fish. *17 points.*

Irritating Spines (-20%): Affliction 1 (HT; Attribute Penalty, -3 DX, +30%; Follow-Up, Spines, -50%) [8]. *Notes:* Only available with Short Spines [1] or Long Spines [3]. Anyone injured by the spines must make a HT roll or immediately suffer a terrible itching and burning sensation that gives -3 DX. This is typical of *most* spiny fish and sea urchins. *8 points.*

Stinging Skin/Tentacles (+180%): Toxic Attack 1d-1 (Always On, -20%; Aura, +80%; Contact Agent, -30%; Melee Attack, -30%; Symptoms, 1/3 HP, Terrible Pain, +180%) [9]. *Notes:* The possessor has stinging cells on his skin, or on non-prehensile tentacles dangling from his body. Anyone he touches on bare skin or who touches him with bare skin is stung for 1d-1 damage. If damage exceeds a mere 1/3 HP, the victim experiences burning pain until healed. Use this for ordinary stinging sea creatures. *9 points.*

Gas

These attacks represent "gas grenades" or equivalent abilities, with Acc 3, Range 100, RoF 1, and Rcl 1. They burst on impact, filling a two-yard radius with gas that drifts for 10 seconds. All of these gases are Resistible, and the victim must keep making the *initial* resistance roll until he fails or leaves the area. For most gases, roll every second; for those with Onset, roll on first exposure and again after each full onset period.

Blistering Gas (+295%/+175%): Toxic Attack 1d (Area Effect, 2 yards, +50%; Contact Agent, +150%; Cyclic, 1 day, 8 cycles, Resistible, +35%; Drifting, +20%; Link, +10%; Persistent, +40%; Resistible, HT-4, -10%) [16] + Toxic Attack 1d (Area Effect, 2 yards, +50%; Cyclic, 1 hour, 6 cycles, Resistible, +50%; Drifting, +20%; Link, +10%; Onset, 1 hour, -20%; Persistent, +40%; Resistible, HT-1, -25%; Respiratory Agent, +50%) [11]. *Notes:* Mustard gas, or something similar. Anyone who comes into contact with it must make a HT-4 roll immediately and again daily for a week or suffer 1d injury. Those who *breathe* it must make a HT-1 roll every hour for six hours or suffer 1d injury. These effects are cumulative. *27 points.*

Nerve Gas (+655%): Toxic Attack 2d (Area Effect, 2 yards, +50%; Contact Agent, +150%; Cyclic, 1 minute, 6 cycles, Resistible, +100%; Drifting, +20%; Persistent, +40%; Resistible, HT-5, -5%; Symptoms, 1/2 HP, Paralysis, +300%) [61]. *Notes:* This military weapon is rapidly incapacitating and almost inevitably *lethal.* Anyone who comes into contact with it must make a HT-5 roll immediately and every minute for five minutes; each failure inflicts 2d injury. Once injury passes 1/2 HP, the victim is paralyzed until healed. *61 points.*

Sleeping Gas (+230%): Fatigue Attack 1d (Area Effect, 2 yards, +50%; Cyclic, 1 minute, 3 cycles, Resistible, +40%; Drifting, +20%; Missed Sleep, +50%; Persistent, +40%; Resistible, HT-2, -20%; Respiratory Agent, +50%) [33]. *Notes:* A relatively safe incapacitating agent. Those who breathe it must make a HT-2 roll immediately and twice more at one-minute intervals. Each failure costs 1d FP. This counts as missed sleep, and those who fall to 0 FP sleep until they recover the FP. *33 points.*

Ranged Poisons

Blinding Spray (+190%): Affliction 1 (HT; Blindness, +50%; Jet, +0%; Reduced Range, ×1/2, -10%; Vision-Based, +150%) [29]. *Notes:* A narrow jet of blinding poison. Targets without eye protection must make a HT roll or suffer temporary blindness. *29 points.*

Poison Spit (+15%): Toxic Attack 2d-1 (Blood Agent, -40%; Cyclic, 1 hour, 4 cycles, Resistible, +30%; Jet, +0%; Onset, 1 minute, -10%; Reduced Range, ×1/2, -10%; Resistible, HT-3, -15%; Symptoms, 2/3 HP, -3 DX and IQ, +60%) [9]. *Notes:* This jet of venom must hit the eyes or open mouth, or an open wound, to have *any* effect. Victims must make a HT-3 roll a minute after exposure and hourly for three hours. Each failure means 2d-1 injury. Those who lose 2/3 HP or more grow feverish: -3 DX and IQ until healed. *9 points.*

Tranquilizer Dart (-35%/+210%): Small Piercing Attack 1d (Accurate +1, +5%; Armor Divisor (0.2), -50%; Increased 1/2D, ×5, +10%) [2] + Affliction 1 (HT; Follow-Up, Small Piercing Attack, +10%; Unconsciousness, +200%) [31]. *Notes:* Fires a tiny dart that's unlikely to pierce armor or inflict serious injury . . . but if it inflicts *any* injury, the victim must make a HT roll or fall unconscious. *33 points.*

Defenses

Defensive advantages are generally straightforward – they work "as is," or require at most a power modifier. The following examples, taken from fiction, are more complex. They consist of multiple or modified advantages, assembled into "defensive meta-traits" with a fixed cost per level. Multiple levels are cumulative. Write the defense's name and level *instead* of listing its constituent parts.

To be strictly correct when buying these abilities as part of a power, apply the power modifier separately to each subtrait. If the GM finds this too complex, though, he's free to treat these meta-traits as new advantages and let players apply power modifiers to the overall cost per level. In most cases, the error involved is small.

Armor

These defenses are "skin deep." They protect the user's body – not his possessions.

Electromagnetic Armor: DR 1 (Hardened 4, +80%; Limited, Shaped Charges, -60%) [6]. *Notes:* A special layer that uses an electrical discharge to disrupt the armor-piercing jet of shaped-charged warheads. Each level provides DR 1 against these attacks. This DR *ignores* the (10) armor divisor of such weapons. *6 points/level.*

Poison Attack	*Damage*	*Acc*	*Range*	*RoF*	*Rcl*	*Notes*
Blinding Spray	HT aff.	–	2/5	Jet	–	Causes blindness.
Poison Spit	2d-1 tox	–	2/5	Jet	–	See description for details.
Tranquilizer Dart	1d(0.2) pi-	4	50/100	1	1	
follow-up	HT aff.	–	–	–	–	Causes unconsciousness.

Modifying ST-Based Damage

The GM might permit certain attack modifiers on *unarmed* thrusting damage. Options include Affects Insubstantial (for heroes who combat spirits), All-Out (for strong, awkward fighters), Armor Divisor (to simulate martial-arts training similar to Breaking Blow, p. B182), Double Knockback (for cinematic heroes who punch enemies through walls), Incendiary (for flaming creatures), No Blunt Trauma (for martial artists whose strength is "chi projection," not brute force), No Knockback (ditto!), No Wounding (for semisolid spirits), and Takes Extra Time (for big, *slow* fighters).

The GM may allow other modifiers, but many are strictly forbidden:

- Area Effect, Cone, Explosion, Jet, and anything with such a modifier as a prerequisite: Bombardment, Dissipation, Drifting, Emanation, Erosive, Mobile, Persistent, Selective Area, and Wall.
- Cyclic, Onset, Resistible, and other modifiers intended for toxins.
- Melee Attack, Variable, and Visible, which are *already* built into unarmed damage.
- Modifiers intended only for ranged attacks: Accurate, Blockable, Extra Recoil, Guided, Homing, Inaccurate, Increased Range, Long-Range, Ranged, Rapid Fire, Reduced Range, Ricochet, and Short-Range.
- Modifiers that don't apply to crushing attacks: Double Blunt Trauma, Hazard, Radiation, etc.
- Penetration modifiers other than Armor Divisor: Blood Agent, Contact Agent, Follow-Up, Malediction, Respiratory Agent, and Sense-Based.

To apply modifiers to ST-based damage, follow these steps:

1. Find *thrusting* damage for the highest ST you can use for unarmed combat. This is the sum of regular ST, Arm ST, and Striking ST.
2. Calculate the "effective point cost" of the basic thrust damage from step 1 as if it were a Crushing Attack. Don't pay this cost! You just need it for step 4.
3. Total the desired modifiers. Treat a net limitation larger than -80% as -80%.
4. Multiply the cost from step 2 by the net modifier from step 3 to find the cost of the modifiers. Round *up*. Record a positive cost as an advantage, a negative one as a disadvantage.

Example: Kong has ST 15, Arm ST +10, and Striking ST +10. He can strike with ST 35, which gives him 4d-1 thrusting damage. Crushing Attack 4d-1 would cost 19 points, so Armor Divisor (10), +200%, would be a 38-point advantage for Kong, while All-Out, -25%, would be -4-point disadvantage.

Enhancements benefit kicks, punches, and other unarmed melee attacks, but not muscle-powered weapons. Limitations affect *all* ST-based attacks. If you have Claws, Strikers, or Teeth *and* modifiers on ST-based damage, you must buy your body weaponry with exactly the same modifiers.

Icy Skin: DR 1 [5] + DR 1 (Heat/Fire, -40%) [3] + Slippery 1 [2] + Temperature Tolerance 1 [1]. *Notes:* Coats the user in a slick skin of ice that absorbs damage, makes him hard to hold onto, and keeps him cool. Each level (maximum five) gives him DR 1 – *doubled* vs. heat/fire – and +1 on rolls to break free, and adds HT degrees to the "hot" end of his temperature comfort zone. *11 points/level.*

Insulated Skin: DR 5 (Limited, Energy, -20%) [20] + Radiation Tolerance 10 [15] + Temperature Tolerance 5 [5]. *Notes:* An energy-resistant skin barrier similar to the "superconducting armor" seen in some science fiction. Each level gives DR 5 vs. energy, divides radiation dosage by 10, and adds 5×HT degrees to the "hot" end of the user's comfort zone. *40 points/level.*

Mirrored Skin: DR 2 (Limited, Light, -40%) [6] + Enhanced Dodge 1 (Limited, Light, -40%) [9]. *Notes:* Gives the user a shiny surface. *Any* movement can turn a hit by a light-based attack, such as a laser, into a graze that reflects off harmlessly. Even direct hits hurt less. Each level (maximum six) gives DR 2 and +1 Dodge against light-based attacks. *15 points/level.*

Super-Toughness: DR 1 (Limited, Crushing, -40%; Tough Skin, -40%) [1]. *Notes:* The mysterious physical toughness of comic-book supers! Each level gives DR 1 against *crushing* attacks . . . but follow-up effects on such attacks (poison, electric shock, etc.) work even if the carrier doesn't penetrate DR. This DR has no effect on bullets, knives, lasers, and other non-crushing attacks. *1 point/level.*

Force Fields

These defenses are projected some distance from the user's body. Most extend just enough to engulf his equipment, but a couple of abilities are useful at longer ranges.

Acoustic Dampening Field: DR 2 (Force Field, +20%; Limited, Sound, -40%) [8] + Silence 1 (Dynamic, +40%) [7]. *Notes:* Sheathes the user and his gear in an active sound-canceling field. Each level gives +2 to Stealth vs. hearing at all times and DR 2 against sound-based attacks. *15 points/level.*

Deflector Screen: DR 5 (Force Field, +20%; Limited, Ranged Physical, -40%) [20] + Enhanced Block 1 [5] + Enhanced Dodge 1 [15] + Enhanced Parry (All) 1 [10]. *Notes:* A force field that turns projectiles and deflects *all* attacks enough that they're easier to avoid. Each level (maximum three)

gives DR 5 vs. projectiles and +1 to active defenses. *50 points/level.*

Distortion Field: Chameleon 1 (Dynamic, +40%; Extended, Infravision, Radar, Ultravision, +60%) [10] + DR 2 (Force Field, +20%; Limited, Electromagnetic Radiation, -40%) [8]. *Notes:* This field actively filters all electromagnetic (EM) energy that crosses it in either direction. Each level gives +2 to Stealth to hide from Radar, Infravision, regular vision, and Ultravision, and DR 2 against EM radiation attacks. *18 points/level.*

Energy Screen: DR 5 (Force Field, +20%; Limited, Energy, -20%) [25] + Radiation Tolerance 10 (Force Field, +20%) [18] + Temperature Tolerance 5 (Force Field, +20%) [6]. *Notes:* A field that interferes with *all* dangerous energy. Identical to Insulated Skin (p. 146), except that it also protects the user's eyes and equipment. *49 points/level.*

Force Shield: DR 1 (Active Defense, -40%; Directional, Front, -20%; Force Field, +20%) [3]. *Notes:* Lets the user actively interpose a small, mobile force field between himself and any *frontal* attack. This is a Block defense at DX/2 + 3. A successful block gives DR 1 per level against the attack. *3 points/level.*

Reflective Shield: DR 2 (Active Defense, -40%; Directional, Front, -20%; Force Field, +20%; Limited, Ranged, -20%; Reflection, +100%; Requires DX Roll, -10%) [13]. *Notes:* A force shield that lets the defender bounce *ranged* attacks back at his attacker. It gives DR 2 per level against frontal attacks – but only if the user blocks at DX/2 + 3. Success lets him attempt a separate DX roll to return the blocked damage to the attacker. *13 points/level.*

Wall of Force: Crushing Attack 2d (Area Effect, 2 yards, +50%; No Wounding, -50%; Persistent, +40%; Reduced Range, ×1/10, -30%; Wall, Rigid, +60%) [17]. *Notes:* Lets the user project a force wall anywhere within 10 yards by taking an Attack maneuver. The barrier is 6 yards long and 1 yard thick, arranged in any shape the user likes. It has DR 6 and 1 HP per level. While it's "rigid," it *doesn't* damage those who collide with it. *17 points/level.*

Wall of Matter: Crushing Attack 2d (Area Effect, 2 yards, +50%; Persistent, +40%; Reduced Range, ×1/10, -30%; Wall, Rigid, +60%) [22]. *Notes:* Similar to Wall of Force, above, but the barrier is made of ice, metal, stone, or another solid. Those who collide with it *do* take damage. *22 points/level.*

Movement Abilities

Most of these movement abilities consist of a single modified advantage – although a few include Enhanced Move, too. As with all of the abilities in this chapter, you can save space on character sheets by noting only the ability's name and point cost.

Astral Projection: Jumper (World; Limited Access, Astral Plane, -20%; Projection, Can affect destination, -0%) [80]. *Notes:* The user's mind leaves his unconscious body and enters the Astral Plane. His astral form is visible to and can interact with other astral entities. In some settings, he can enter higher planes of existence by making a "physical" journey. The Move and other scores of his astral form depend on the setting. *80 points.*

Create Door: Permeation (Everything; Can Carry Objects, Heavy, +100%; Costs Fatigue, 1 FP, -5%; Finite Thickness, 1 foot, -15%; Requires IQ Roll, -10%; Takes Extra Time 1, -10%; Tunnel, +40%) [160]. *Notes:* Lets the user create a "door" through a barrier up to a foot thick, regardless of composition. To do so, he must concentrate for a second and make an IQ roll. It costs 1 FP to open a door, 1 FP/minute to hold it open. *160 points.*

Create Gate: Jumper (World; Extra Carrying Capacity, Extra-Heavy, +50%; Special Movement, Must walk, -10%; Tunnel, +40%) [180]. *Notes:* Lets the user open a gate between worlds. Use the standard rules for Jumper and the Tunnel enhancement, except that the summoner (and anyone else who wishes to use the gate) *must* be free to move through the gate – he can't simply vanish. *180 points.*

Create Portal: Warp (Extra Carrying Capacity, Extra-Heavy, +50%; Tunnel, +40%) [190]. *Notes:* Lets the user create a portal linking two points in space. This is subject to the usual rules for Warp and the Tunnel enhancement. In particular, the user must have visited or be able to see his destination point. *190 points.*

Digitization: Jumper (World; Limited Access, Cyberspace, -20%; Naked, -30%; Special Portal, Terminal, -20%) [30]. *Notes:* By touching a terminal on an information network, the jumper – but *not* his gear – can enter the net as a stream of data, allowing rapid travel between "wired" locations. To resume material form, he must roll against Area Knowledge (Cyberspace) to locate a terminal, and then Computer Hacking to gain access to it. Digitization only provides transportation. To affect computers in other ways, buy modified Mind Control, Mind Probe, Possession, and so on. *30 points.*

Force Surfing: Flight (Low Ceiling, 30 feet, -10%; Planetary, -5%) [34]. *Notes:* The flyer moves along a planet's gravitational or magnetic field. He appears to walk on air or glide on a glowing disk of force. He can't venture more than 10 yards from the planetary surface. *34 points.*

Matter Surfing: Flight (Low Ceiling, 5 feet, -25%; Nuisance Effect, -5%) [28]. *Notes:* The "surfer" travels five feet above the ground on a projected trail of matter (e.g., ice). This is *visible* and persists for 3d seconds. Attempts to spot or track the traveler succeed automatically until the trail vanishes. *28 points.*

Matter Transmission: Affliction 1 (HT; Advantage, Warp, +1,950%; Malediction 2, +150%) [220]. *Notes:* If the wielder wins a Quick Contest of Will vs. his target's HT, he may try an *immediate* IQ roll to teleport the subject with Warp (Extra Carrying Capacity, Extra-Heavy, +50%; Range Limit, Orbital, -5%; Reliable +10, +50%). The +10 for Reliable cancels the -10 for no preparation. The user can send the subject to any place he can see or has visited, subject to his range limit, and can cancel range modifiers by spending his own FP. *220 points.*

Reaction Drive: Flight (Newtonian Space Flight, +25%; Nuisance Effect, -5%) [48] + Enhanced Move 11.5 (Space; Newtonian, -50%; Nuisance Effect, -5%) [104]. *Notes:* A "realistic" rocket. It gives a voyager with Basic Speed 5 a delta-v of 30,720 – enough to escape from and return to an Earth-like planet, with room to spare for travel and maneuvering. A rocket is noisy and visible; the flyer *can't* use this ability stealthily. *152 points.*

Reactionless Drive: Flight (Nuisance Effect, -5%; Space Flight, +50%) [58] + Enhanced Move 10.5 (Space; Nuisance Effect, -5%) [200]. *Notes:* A "reactionless" rocket like those seen in space opera. It can do everything that Reaction Drive can . . . and maneuver *indefinitely. 258 points.*

Stardrive: Warp (Blind Only, -50%; Extra Carrying Capacity, Extra-Heavy, +50%; Hyperjump, 1 LY/day, -25%; No Strain, +25%; Reliable +5, +25%; Tracking, +20%) [145]. *Notes:* A space-opera FTL drive. It lets the user cover a light-year per day, along with anything he can carry. It requires precise coordinates (Reliable cancels the -5 for Blind Only), only works in vacuum, and is useless over short distances. However, it never "burns out," and can follow other FTL travelers by sensing their "trail." *145 points.*

Tactical Teleport: Warp (Blink, +25%; Extra Carrying Capacity, Extra-Heavy, +50%; No Strain, +25%; Range Limit, 10 yards, -50%; Reliable +10, +50%) [200]. *Notes:* Supers-style teleportation that lets the teleporter cover *short* distances – up to 10 yards – safely and reliably, with all of his gear. This requires no preparation; he can even use his ability to evade attacks in combat. *200 points.*

Mental Abilities

Below are mental abilities from each of the four categories defined in Chapter 1 (see p. 14). Such gifts are popular in fiction – especially as psi abilities – so we provide *many* examples. The GM should review these before allowing them to PCs, to ensure that any assumptions made for the sake of concreteness are valid in *his* setting. For instance, most of these capabilities imply the existence of superscience or the supernatural.

Communications

Culture Sense: Social Chameleon (Accessibility, Must converse with subject, -20%; Exposure Time, 1 minute, -30%) [3] + Xeno-Adaptability (Accessibility, Must converse with subject, -20%; Exposure Time, 1 minute, -30%) [10]. *Notes:* The user *temporarily* adjusts to foreign social norms through careful observation or "psychic osmosis." After a minute of conversation with a sapient being, he no longer suffers penalties for cultural unfamiliarity or differences in Rank or Status. These benefits last for as long as the user interacts with that person or members of the same culture, and for a minute afterward. *13 points.*

Mindshare: Mindlink (10 billion people; Racial, -20%; Vague, -50%) [33] + Telesend (Broadcast, +50%; Racial, -20%; Vague, -50%) [24]. *Notes:* The communication ability of "hive minds" in speculative fiction. Each member of the race sends his emotions and *general* experiences (no details!) to every other member at all times, with no chance of failure. *57 points.*

Sampler: Mimicry (Voice Library, +50%) [15] + Photographic Memory (Accessibility, Sounds only, -80%) [2]. *Notes:* The user stores recordings of everything he hears. He can play back sounds exactly as he heard them, sample them selectively, or just borrow a *voice* to use with his own speech. *17 points.*

Tactical Radio: Radio (Burst, 1,000×, +90%; Increased Range, ×20, +40%; Secure, +20%) [25]. *Notes:* A long-range (200 miles) radio capable of encrypted bursts. Attempts to intercept it are at -3 *and* require the eavesdropper to win a Quick Contest of interception skill against the sender's IQ to understand the message. *25 points.*

Universal Translator: Mind Reading (Hearing-Based, -20%; Telecommunication, Telesend, -20%; Universal, +50%) [33] + Telesend (Universal, +50%) [45]. *Notes:* The possessor can project his thoughts to make himself understood to anyone, regardless of language. After establishing outgoing contact, he can open full two-way communication. This lets him understand his *subject's* words and intentions – *if* he can hear that person speak. *78 points.*

Influence

Compel Truth: Mind Probe (Accessibility, Must converse with subject, -20%; Vision-Based, -20%) [12]. *Notes:* To use this ability, the user must be close enough to touch his subject, engage his mark in conversation, *and* maintain eye contact. If he satisfies all three requirements, he can compel the subject to give one truthful answer per minute. Roll a Quick Contest of IQ vs. Will for each question. *12 points.*

Cyberpsi: Mind Control (Conditioning, +50%; Cybernetic Only, -50%) [50]. *Notes:* The ability to seize control of a computer or other Digital Mind. The controller must see or touch his subject. Success lets him operate it remotely. Once "inside," he can try to rewrite its programming (Conditioning). Use Computer Operation for rolls to establish control and Computer Hacking for reprogramming attempts, where either is superior to IQ. *50 points.*

Data Probe: Mind Probe (Based on HT, +20%; Cybernetic Only, -50%; Invasive, +75%) [29]. *Notes:* A sensitive electromagnetic probe that affects

Digital Minds. The user must touch – or be close enough to touch – the computer, and roll a Quick Contest of IQ vs. the HT of its *hardware* (this represents its shielding). If he wins, he can root through its memory by making an uncontested roll against the higher of IQ or Computer Hacking for each piece of data. *29 points.*

Emissions Scan: Mind Reading (Based on HT, +20%; Cybernetic Only, -50%) [21]. *Notes:* Enables the user to learn what's being typed on the keyboard and displayed on the screen of a terminal *right now.* To do this, he must have a line of sight to the subject and win a Quick Contest of IQ vs. the HT of the computer hardware. *21 points.*

Emotion Control: Mind Control (Accessibility, Only affects members of own or similar race, -20%; Emotion Control, -50%; Independent, +70%) [50]. *Notes:* Directly implants an emotion of the controller's choice in the subject. Roll IQ vs. Will, as usual. This endures without further concentration. Doesn't work on aliens, animals, monsters, or anything else with emotions foreign to the user. *50 points.*

Illusion Disguise: Elastic Skin (Glamour, Will-4, -10%; Reduced Time 4, +80%) [34]. *Notes:* Alters the possessor's appearance by projecting a suggestion into the minds of those who can see him. This takes *no* time. Viewers can shrug off this influence by making a Will-4 roll. *34 points.*

Linguistic Programming: Mind Control (Area Effect, 8 yards, +150%; Conditioning, +50%; Emanation, -20%; Hearing-Based, -20%; Independent, +70%; Takes Extra Time 1, -10%) [160]. *Notes:* By speaking for two seconds in a master language understood by all sapient minds, the user can "program" anyone within earshot. He can give short- or long-term instructions, and then leave his thralls to execute his orders. Gods often have this ability – usually with Cosmic (+300%). *160 points (310 points with Cosmic).*

Mental Illusions: Illusion (Mental, +100%) [50]. *Notes:* Totally hijacks the subject's perceptions. This requires *constant* concentration. Roll IQ vs. the subject's Will. *50 points.*

Mental Trace: Special Rapport (One-Way, +20%; Transferable, Any willing/helpless living being, +100%) [11]. *Notes:* Mentally bonds one subject to the user, who can then discern his subject's mental state at any time. Establishing the bond requires a minute, an IQ roll, and a willing or helpless target. *11 points.*

Mind Clouding: Invisibility (Can Carry Objects, Heavy, +100%; Glamour, Will-4, -10%; Switchable, +10%) [80]. *Notes:* The user projects a mental compulsion that makes his body and all of his equipment invisible to living beings. Viewers can see through the ruse by making a Will-4 roll. *80 points.*

Mindswitch: Possession (Mind Swap, +10%; No Memory Access, -10%; Ranged, +40%; Specialized, Own race, -40%) [100]. *Notes:* The user can swap minds with another member of his race at a distance. To do so, he must win a Quick Contest of IQ against his target's Will, applying standard range modifiers to his roll. After the swap, neither party has any access whatsoever to the other's mind – just the body. *100 points.*

Suggest: Mind Control (Independent, +70%; Suggestion, -40%) [65]. *Notes:* Lets the controller implant a suggestion by winning a Quick Contest of IQ vs. his subject's Will. The victim acts upon the suggestion as if it were *his* idea. This requires no further concentration on the user's part. *65 points.*

Super-Hypnotism: Mind Control (Independent, +70%; No Memory, +10%; Suggestion, -40%; Vision-Based, -20%) [60]. *Notes:* Lets the user implant suggestions with a glance. This *requires* eye contact; a touch isn't enough. If the controller wins the Quick Contest of IQ vs. his victim's Will, he can silently convey a suggestion. The subject then carries this out independently – there's no need for further concentration. *60 points.*

Telecontrol: Possession (No Memory Access, -10%; Ranged, +40%; Specialized, Own race, -40%; Telecontrol 2, +100%) [190]. *Notes:* Allows the user to control the physical actions of a distant subject without relinquishing control of his own body. He must win a Quick Contest of IQ vs. his target's Will. Standard range modifiers apply. The invader remotely operates his victim's *body* but has no access to the subject's *mind.* He can only affect members of his own race or a nearly identical one. *190 points.*

Telereceive: Mind Reading (Multiple Contacts, +50%; Sensory, +20%; Telecommunication, Telesend, -20%) [45]. *Notes:* Enables the user to read the surface thoughts and sensory impressions of multiple subjects (at -1 per additional subject), but only after contacting them with Telesend. Thus, Telesend is a prerequisite. This has one perk: the user can receive from subjects he can't see by "touching" them mentally. *45 points.*

Information

Absolute Morals: Intuition (Aspected, Moral decisions, -20%; Inspired, +100%) [27]. *Notes:* The user *knows,* with 100% certainty, what his religious or philosophical beliefs would have to say about any situation. He can distinguish "good" people, places, and items from "evil" ones without special senses, and always knows what behavior would appease or anger gods, spirits, etc. *27 points.*

Divination: Precognition (Active Only, -60%; Directed, +100%; Reliable +8, +40%) [45]. *Notes:* The seer must deliberately meditate on one specific question about the future. On a successful IQ roll, he experiences a glimpse of the future pertinent to his question. He never has passive visions – even if he's in severe danger. *45 points.*

Pattern Analysis: Common Sense (Conscious, +50%; Link, +10%) [16] + Intuition (Inspired, +100%; Link, +10%) [32] + Oracle (Digital; Inspired, +100%; Link, +10%) [32]. *Notes:* Lets the user analyze available data and predict outcomes in real time. Make a *single* IQ roll for the entire ability. Success reveals the safest course of action; the most effective path, and its risks; and any choices doomed to failure, and why. It can't predict total coincidence or supernatural interference, however. *80 points.*

Retrocognition: Psychometry (Active Only, -20%; Directed, +50%) [26]. *Notes:* The seer must deliberately meditate on a specific question about the past. A successful IQ roll gives him a glimpse of past events surrounding his question. He never has spontaneous visions – even when exposed to potent psychic residues. *26 points.*

Second Sight: Precognition (Can't See Own Death, -60%; Passive Only, -20%) [5]. *Notes:* Weak precognition, similar to that claimed by most real-world psychics. At random intervals, the possessor gets brief glimpses of random events. He can't control the content or timing, and has no special capacity to sense danger. *5 points.*

Time-Scanning: Psychometry (Active Only, -20%; Directed, +50%; Immersive, +100%; Mundane, -30%) [40]. *Notes:* The scanner mentally replays time at his location. This takes an active effort, and *doesn't* zero in on strong emotions or important events. He sets start and end times . . . and then watches history unfold in real time (he can't "fast forward"). *40 points.*

Senses

Analyze Magic: Detect (Magic; Analyzing, +100%; Short-Range 1, -10%) [19]. *Notes:* Gives the user a Sense roll, at -1 per yard to the target, to detect and analyze magic at roughly the same level of detail as the Analyze Magic spell (p. B249). *19 points.*

Astral Sight: Medium (Specialized, Astral Beings, -50%; Visual, +50%) [10]. *Notes:* Enables the user to see the Astral Plane and communicate with entities therein. This ability doesn't work on ghosts, demons, and so forth unless they happen to be astral. *10 points.*

Electronic Support Measures (ESM): Detect (Radar and Radio; Precise, +100%; Signal Detection, +0%) [20]. *Notes:* On a successful Sense roll, this ability detects radar and radio signals, and reveals the distance to each source. Make an IQ roll to analyze the signal; success tells a random emission from a targeting lock. *20 points.*

Hydrophone: Discriminatory Hearing (Accessibility, Only underwater, -30%; Link, +10%; Profiling, +50%) [20] + Vibration Sense (Water; Link, +10%; Targeting, +20%) [13]. *Notes:* Senses moving objects in the water. Make *one* Sense roll, modified as for Vibration Sense (p. B96), but with +4 for Discriminatory Hearing. Success reveals the target's general class (e.g., "nuclear attack sub"), location, and vector, and gives +8 to identify it, +4 to shadow it, and +3 to hit it with an aimed attack. *33 points.*

Remote Viewing: Clairsentience (Clairvoyance, -10%; Increased Range 19, +190%; Preparation Required, 1 hour, -50%) [115]. *Notes:* This ability simulates the extrasensory capabilities attributed to secret research projects by conspiracy theorists. After an hour of special exercises and meditation, the viewer can displace his vision to any place on the planet! (Increased Range 19 comes to over 11,000 miles; Earth's diameter is about 8,000 miles.) *115 points.*

Tactical Radar: Radar (Increased Range, ×100, +60%; LPI, +10%; Multi-Mode, +50%; Targeting, +20%) [48] + Enhanced Tracking 4 (Accessibility, Only with Radar, -10%; Multiple Lock-Ons, +20%) [22]. *Notes:* Advanced radar, like that of a fighter jet. It can track five targets at once out to 100 nautical miles, identify them at 1/10 that range, and give +3 to hit any of them with an aimed attack. *70 points.*

Targeting Laser: Ladar (Reduced Range, ×1/2, -10%; Targeting Only, -40%) [10]. *Notes:* A built-in laser rangefinder with an operational range of 100 yards. Trained on something already spotted by another sense (usually sight), it places a visible dot on the target and measures its precise range. This gives +3 to hit with aimed attacks. *10 points.*

Telescan: Detect (Sapient Minds; Analyzing, +100%; Long-Range 1, +50%; Precise, +100%) [70]. *Notes:* Detects sapient minds at great distances. A successful Sense roll gives the location and race of everyone nearby – handy for locating guards and ambushers! A follow-up IQ roll reveals the name a particular person would give if asked; roll once per person. Only a critical success discovers a *secret* identity. *70 points.*

Total Awareness: Clairsentience (Aware, +50%; Reduced Range, ×1/10, -30%; Second Nature, +70%) [95]. *Notes:* Gives the user a second set of ranged senses that he can put anywhere within a yard of his body and aim in any direction. He can use and shift the focus of these senses effortlessly, letting him perceive what's going on behind him, in darkness or smoke, etc. at all times. A classic ability of ancient kung fu masters! *95 points.*

Ultra-Scan: Para-Radar (Bio-Scan, +50%; Penetrating, +50%; Scanner, +50%) [100]. *Notes:* This ability works like a superscience sensor suite. It ranges and images the target, analyzes its emissions and composition, and supplies a schematic of the interior – complete with details on occupants and machinery. It works in any environment. The GM should let it do anything he has seen a sensor do in a space-opera movie. *100 points.*

X-Ray Vision: Para-Radar (Link, +10%; Penetrating, +50%; Reduced Range, ×1/2, -10%) [60] + Toxic Attack 1d-2 (Link, +10%; Radiation, +25%) [3]. *Notes:* Quasi-realistic X-ray vision. The user emits radiation out to 100 yards whenever he activates his sense. He *must* make an attack roll for his Toxic Attack against anything he spots – but it's possible to make the Sense roll and fail the attack roll. For "harmless" X-ray vision, use Penetrating Vision (p. B74). *63 points.*

Total Awareness gives the user a second set of ranged senses that he can put anywhere within a yard of his body and aim in any direction.

Physical Transformations

These abilities alter the user or subject's body in some beneficial way. They're among the most powerful of special gifts, and merit close GM scrutiny. Where there are multiple paths to a given effect – e.g., Alternate Form vs. a set of Switchable advantages, Modular Abilities vs. Morph, or Healing vs. Affliction with Advantage, Regeneration – the GM is free to rule that only one option exists in *his* campaign.

Metamorphoses

Active Camouflage: Chameleon 3 (Controllable, +20%; Dynamic, +40%; Extended, Infravision, Radar, +40%) [30]. *Notes:* Lets the user adjust his opacity to radar, infrared, and visible light. He can make himself nearly transparent (+6 to Stealth), highly reflective (+6 to others' Sense rolls), or anything in between. Movement has no effect on these bonuses. Clothing halves them to +3. *30 points.*

Rubber Body: Double-Jointed [15] + Modular Abilities (Cosmic Power, 30 points; All-Out, -25%; Limited, Body Parts Only, -20%; Costs Fatigue, 1 FP/5 points, -15%; Physical, +50%; Requires HT Roll, -10%; Takes Extra Time 3, -30%) [150] + Stretching 5 [30]. *Notes:* Gives the user an extremely elastic body. He can bend as if Double-Jointed (+5 to climb, break free, etc.) and stretch body parts at +1 SM per second (maximum +5 SM). He can even *reshape* his body, adding up to 30 points' worth of body parts; see *Switchable Body Parts* (p. 81). It takes eight seconds and a HT roll to add a body part, and costs 1 FP per 5 points the advantage is worth. The user is defenseless while reshaping himself. *195 points.*

Shape-Stealing: Morph (Cannot Memorize Forms, -50%; Mass Conservation, -20%; Needs Sample, Touch, -5%; Unlimited, +50%) [75]. *Notes:* A shapeshifter with this ability can assume *any* form of roughly his mass, provided its racial template is worth no more than his own. He must touch the person or object he wishes to duplicate for the 10 seconds it takes him to transform – he can't shapeshift on sight or from memory. *75 points.*

Transmutations

Body of Swarm: Injury Tolerance (Diffuse; Swarm, +80%; Switchable, +10%) [190]. *Notes:* Lets the user become a swarm of insects by taking a Ready maneuver. His "body" is cohesive enough to affect the world normally but *diffuse* for injury purposes. Once in swarm form, a Concentrate maneuver lets him scatter, effectively becoming insubstantial (see *Injury Tolerance,* p. 52). Regaining cohesion takes a second Concentrate maneuver; returning to ordinary flesh calls for a further Ready maneuver. *190 points.*

Elemental Form: Alternate Form (Elemental Meta-Trait; Absorptive Change, No Encumbrance, +5%; Active Change, +20%) [Variable]. *Notes:* The user can voluntarily adopt one of the elemental meta-traits on p. B262, absorbing equipment that weighs no more than Basic Lift. He can act during the transformation, but only gains the benefits of his meta-trait after 10 seconds. Cost is 19 points plus 90% of the price of the meta-trait, rounded up. *25 points (Fire), 52 points (Air), 109 points (Ice), 145 points (Stone), or 177 points (Earth, Metal, or Water).*

Spirit Form: Insubstantiality (Affect Substantial, +100%; Requires Will Roll, -5%) [156] + Invisibility (Accessibility, Only when insubstantial, -10%; Substantial Only, -10%) [32] + Doesn't Breathe, Doesn't Eat or Drink, Doesn't Sleep, and Immunity to Metabolic Hazards (all with Accessibility, Only when insubstantial, -10%) [72]. *Notes:* Lets the user become an invisible, immaterial spirit in the material world. This requires a Ready maneuver and a Will roll. He requires neither rest nor sustenance in this form. He can use magic and psi on material targets, but must turn off his ability (rendering him vulnerable to suffocation, poison, etc., unlike a materialized spirit) to interact *physically. 260 points.*

Transparent Body: Invisibility (Affects Machines, +50%; Fringe, -10%; Switchable, +10%) [60]. *Notes:* The user can alter his body's composition to become transparent. The only way to spot him is to notice the slight distortion when he moves (a Vision roll at -6). Sensors are no more effective than the naked eye, unless they detect something other than electromagnetic radiation (e.g., gravity waves, life, or vibrations). *60 points.*

Restorations

Healing Drug: Healing (Affects Self, +50%; Based on HT, +20%; Blood Agent, -40%; Injuries Only, -20%; Onset, 1 minute, -10%) [30]. *Notes:* The user secretes a drug that restores lost HP to anyone who swallows or is injected with it (including himself). After a minute, roll against the subject's HT. Every point by which he succeeds restores 2 HP but costs him 1 FP. Once he's at full HP, there's no further HP gain or FP loss. The user only rolls against HT or pays FP if he's also the recipient. *30 points.*

Laying On Hands: Healing (Capped, 6 FP, -15%; Faith Healing, +20%; Limited Use, 1/day, -40%) [20]. *Notes:* A holy gift of healing. The healer can spend up to 6 FP per day to heal injury (up to 12 HP) or cure disease (up to -3 on his roll) on anyone his gods deem worthy. He must touch the patient. *20 points.*

Rejuvenation: Healing (Capped, 10 FP, -5%; Cure Affliction, +60%; Reduced Fatigue Cost 10, +200%; Reliable +5, +25%; Xenohealing, Anything Alive, +80%) [138]. *Notes:* Miraculous healing – like divine intervention or cinematic nanotech – that repairs nearly any harm to anyone. Each application heals 20 HP *or* cures a disease or Affliction that gives up to -5 on the healing roll. The user rolls at IQ+5 minus normal skill penalties, but needn't pay FP. *138 points.*

Resurrection: Affliction 1 (HT; Advantages, see below, +2,250%; Contact Agent, -30%; Melee Attack, Reach C, Cannot Parry, -35%) [229]. *Notes:* Brings the dead back to life! The healer must touch the subject's skin, whereupon the patient gets a HT roll. Each point of success grants a minute of Unkillable 1 and Regeneration (Very Fast), both with Cosmic, Works on the dead (+50%). Thus, if he's above -10×HP, he regains 60 HP per minute. If he heals to above -HP, he returns to life. To keep this ability balanced, "Cosmic, Works on the dead" means it *only* works on the dead – not injured living people – and gives *one* try, ever. If the subject fails his HT roll or regains too few HP to revive, he's dead for good. *229 points.*

Universal Antibodies: Healing (Affects Self, +50%; Based on HT, +20%; Blood Agent, -40%; Disease Only, -40%; Onset, 1 hour, -20%; Reliable +6, +30%) [30]. *Notes:* The healer produces a broad-spectrum anti-microbial drug. An hour after swallowing it or receiving it via injection, an ill subject (who *can* be the healer) gets a roll at HT+6 minus the usual penalty to cure the disease. Success means he's cured, but must pay FP equal to twice the HT penalty. The user only rolls or pays FP if he's also the patient. *30 points.*

Chapter Four

Powers in Action

It was by the most refined and fastidious of investigations that the Professor's machinations were exposed, and it was by the most refined and fastidious of men that the Professor was confronted. Holding himself to be invulnerable, the Professor responded with mere curiosity when his butler brought him a calling card.

"The Poet!" he declared. "Bring him!"

The Poet entered the room with a languid air. His black velvet suit contrasted with the silk brocade of the Professor's smoking jacket.

"Sir," said the Professor, "I would offer you hospitality, but given our respective positions, I am disinclined to such follies."

"Thank you, Professor. Such an offer would be an intolerable burden, given the vigor with which I would feel obliged to refuse it."

"Why, then, have you come?"

"To inform you, Professor, of your defeat."

The Professor permitted himself the smallest of laughs. "You speak of improbabilities!" he declared.

"My associates have explained the ***precise*** *probabilities involved," said the Poet. "Your Hermetic wards, your Atlantean spiritual science, your electrical barriers – all are measured and assessed."*

"Then you know that none of your associates can harm me, while your own oracular maundering was never any danger to me at all."

"Indeed."

"How, then, can you dare to cross my threshold?"

"I will explain, sir, as it was explained to me. My gift of foresight, it seems, may be regarded as a perception of probability. Hence, by dint of utterly tiresome mathematical disciplines, the need for which I may never forgive you, I am able to use it to guide my steps, and even –" the Poet winced "– to direct me in physical activity."

He gestured with his cane. Its sharpened tip penetrated the plaster of the wall, and damaged the wires embedded therein. There came the scent of ozone.

"What have you done?" demanded the Professor.

"Disabled your electrical defenses," replied the Poet.

"They will recover in but moments." The Professor searched his pockets for his revolver. But at that moment, a galvanic impulse struck the house.

"That," explained the Poet, "has damaged one of your Hermetic wards." The Professor fell to his knees. "The assault that has passed through that breach will in turn distract you from those intricate Atlantean mesmeric exercises, and thus . . ." the Professor collapsed, blood from his nose staining a gaudy Turkish carpet " . . . comes the final stroke."

Since abilities are based on advantages, and powers are just sets of related abilities, all the rules you *need* to use these things in play appear in Chapter 2 of the ***Basic Set.*** The rules that follow are *optional* elaborations, intended primarily to simulate the way powers work in particular genres. The GM decides which options, if any, apply in his campaign.

Turning Abilities Off and On

Certain enhancements and limitations, and several optional rules, require a clear-cut definition of when an ability is *off* and when it's *on*. This isn't always as obvious as it sounds.

"Switchability"

Activation and deactivation always work in just one of three ways for a given ability. *No* ability can belong to multiple categories – although the same advantage can underlie abilities that fall into two or all three categories.

Always On

An ability is "always on" if its effects apply continuously *and* the only way to turn it off is to obstruct its power source (see *Channeled Energies*, p. 24) or negate it using a special attack (Neutralize, an Affliction with Negated Advantage, etc.). This category includes all abilities with the Always On limitation and any ability that meets *all three* of these criteria:

1. The underlying advantage isn't explicitly switchable in its description.

2. The ability doesn't have discrete "uses" built in or added via Costs Fatigue, Limited Use, Takes Recharge, etc.

3. The ability has *none* of these modifiers: Active Defense, All-Out, Emergencies Only, Fickle, Reflexive, Requires (Attribute Roll), Requires Concentrate or Ready, Switchable, Trigger, Unreliable, or Usually On.

Examples: Unmodified Claws, Damage Resistance, Invisibility, and Sealed.

Switchable

An ability is "switchable" if it meets *both* of these criteria:

1. *Either* the description of the underlying advantage explicitly states that it's possible to switch the advantage on and off with a free action or a maneuver (and this hasn't been changed by adding Always On), *or* it has Switchable or Usually On.

2. It has ongoing effects that last until the user turns them off, stops concentrating (for advantages that require concentration), or stops paying FP (for advantages that normally cost FP or have Costs Fatigue or Usually On).

Examples: Flight, Growth, Insubstantiality, Mind Shield, Claws with Switchable, and Innate Attack with Aura.

Transient

An ability is "transient" if *all three* of the following are true:

1. It's normally off.

2. The user must trigger it every time he wants to use it. This can require a free action, an active defense, or a maneuver.

3. It produces its effects (such as healing, injury, or teleportation) in an instant and immediately shuts off, or has a duration that the user can't control because it relies on a random roll or because the underlying advantage or one of its modifiers (e.g., Limited Use) specifies "uses" of finite duration.

Active vs. Passive Abilities

Chapters 1 and 2 often differentiate between "passive" and "active" abilities. This distinction affects several optional rules, and is important when customizing Accessibility limitations, the Detect advantage, and anything else that could carry the qualifier "Active abilities only." Use the following definitions in all cases:

- A *passive* ability has effects that apply constantly, or that activate without the owner's input in a specific situation. If it requires a die roll, the owner or the GM *must* roll – there's no opting out. Passive abilities include body parts (e.g., Extra Arms); defenses (e.g., Resistant and Sealed); abilities that provide spontaneous warnings (e.g., Danger Sense); senses that don't emit energy (e.g., Infravision and Vibration Sense); and sustenance traits (e.g., Doesn't Sleep and Reduced Consumption). Abilities such as Spines and attacks with Aura are also passive: if the possessor touches someone – or if someone touches him – the effects apply whether he likes it or not.
- An *active* ability does nothing until the wielder takes a maneuver to use it – most often Attack, Concentrate, Move, or Ready – or *chooses* to make a die roll. Examples include attacks (Affliction, Innate Attack, etc.) without Aura; most communication and influence traits (e.g., Mind Control and Telesend); movement advantages (e.g., Flight and Warp); and senses that emit energy (e.g., Scanning Sense).

A given advantage can underlie both passive *and* active abilities. Be sure to consider it in the context of its modifiers when deciding which category it belongs in. For example, the Aura enhancement changes Innate Attack from active to passive, while the Active Defense limitation shifts Damage Resistance from passive to active.

The same *ability* can have both passive and active aspects, too. Precognition provides passive warnings, for instance, but also allows the user to concentrate to use it actively. And turning on a switchable ability (e.g., Growth, Mind Shield, or any attack with Aura) counts as an active use, even if the ensuing effects are passive. Unlike the ongoing, passive effects of such abilities, these active efforts *can* trigger sensors or abilities sensitive to active abilities – if only momentarily.

Examples: Healing, Jumper, Luck, Obscure with Ranged, Damage Resistance with Active Defense, and all Afflictions and Innate Attacks except those with Aura.

Voluntary Activation and Deactivation

Voluntary activation is only possible for *switchable* and *transient* abilities. Voluntary deactivation is limited to *switchable* abilities (transient ones turn off on their own). The act required in each case depends on the ability.

Concentrate

Some switchable abilities call for one or more Concentrate maneuvers to activate. These include anything based on Channeling, Clairsentience, Control, Duplication, Elastic Skin, Hermaphromorph, Illusion, Mind Control, Mind Reading, Possession, Shapeshifting, Telecommunication, Telekinesis, Temperature Control, or True Faith. Modifiers can add this requirement to other abilities; e.g., the Swarm enhancement for Injury Tolerance (Diffuse) requires the user to concentrate to scatter his body.

Deactivation varies by ability. Switching off Channeling, Mind Reading, or Telecommunication is a free action on the *user's* turn (he can't break contact on somebody else's turn). Ending Control, Illusion, Mind Control, Telekinesis, Temperature Control, True Faith, or anything with the Requires Concentrate limitation (p. 112) is a matter of ceasing concentration. The user must make this choice at the *start* of his turn – although an interruption might break concentration at any time (see *Involuntary Deactivation,* p. 155). Turning off Clairsentience or reversing Duplication, Elastic Skin, Hermaphromorph, Possession, or Shapeshifting requires one or more Concentrate maneuvers.

A few transient abilities also require Concentrate maneuvers to use. The most important are Allies (Summonable), Create, Detect, Healing, Jumper, Mind Probe, Psychometry, Snatcher, Terror (Active), Visualization, and Warp; active uses of Precognition; and any attack with the Malediction enhancement.

Physical and Mental Abilities

The rules sometimes distinguish between "physical" and "mental" abilities. In general, abilities built from physical advantages are physical, while those based on mental advantages are mental . . . but modifiers such as Based on (Different Attribute), Malediction, and Requires (Attribute) Roll can blur this distinction. Regardless of the underlying trait, any ability that requires an IQ, Will, or Per roll to use is *mental,* while one that calls for a ST, DX, or HT roll is *physical,* unless the GM specifies otherwise.

Attack

Many transient abilities call for an Attack maneuver to activate. The most important of these are Affliction, Binding, Innate Attack, Leech, Neutralize, and any advantage with the Ranged enhancement. (*Exception:* Malediction changes the maneuver needed from Attack to Concentrate.) If the user can't make an Attack, he can't use such abilities.

All-Out Attack: An ability that needs an Attack can instead use an All-Out Attack. For a melee attack, all choices are valid except All-Out Attack (Strong) – only attacks with the Melee Attack (ST-Based) enhancement (p. 103) have that option. For ranged abilities, All-Out Attack (Suppression Fire) is only possible for attacks that have Rapid Fire, RoF 5+; otherwise, use All-Out Attack (Determined). Abilities with the All-Out limitation (p. 110) *require* an All-Out Attack to activate – and, if switchable, a continuous string of All-Out Attacks to maintain.

Move and Attack: Any ability that uses an Attack also works with a Move and Attack. A ranged ability has a Bulk of -2 for this purpose.

Free Action

Those with Luck, Super Luck, or Wild Talent can use them at *any* time. For instance, a hero with Wild Talent, an axe, and no Axe/Mace skill could invoke Wild Talent to parry as if he knew Axe/Mace at DX – even if the attack occurred on somebody else's turn. All other zero-time *transient* abilities (notably Rapier Wit and attacks with enough Reduced Time to work instantaneously) work only on the *user's* turn.

The only *switchable* abilities activated or deactivated with a free action are Mind Shield, attacks with Aura, and switchable advantages that work instantaneously thanks to Reduced Time. The user must switch these on or off at the *start* of his turn.

Active Defense

The Active Defense limitation (p. 112) creates a transient ability that only works if the possessor is attacked – and only if he would normally get an active defense against the attack. Such abilities are useless if the user is unaware of the attack. If the GM is using *Defending with Powers* (p. 167), these restrictions apply to *any* ability used to defend.

Move

To use Enhanced Move or Tunneling requires a Move maneuver. Both advantages are switchable – they operate indefinitely until the user stops taking Move maneuvers.

Ready

All remaining switchable abilities call for one or more Ready maneuvers to turn on *or* off. These include Growth, Insubstantiality, Obscure, Scanning Sense, Shadow Form, Shrinking, Stretching, and Terror; anything modified with Switchable or Usually On; and any advantage with Affects Others, when actually trying to affect another person.

The only *transient* abilities that call for Ready maneuvers are attacks with Takes Extra Time, which require one or more Ready maneuvers before each Attack.

Involuntary Deactivation

Any ability might shut down temporarily under certain circumstances. Details vary (see below), but there are two constants:

- If the rules call for involuntary deactivation, all effects of the terminated ability end *immediately* unless the underlying advantage produces a permanent change in the world (e.g., wounds closed using Healing, or damage caused by Innate Attack) *or* has "residual effects" that persist for a fixed duration unless shut down separately from the advantage (Affliction works like this – as does Mind Control, if the user stops concentrating).
- Once the ability is available again, it requires a new "use" to reactivate. This is especially important if it takes time or FP to activate, or has Limited Use, Preparation Required (the ability now needs preparation), or Takes Recharge (the *full* recharge period must pass).

Distraction and Injury

Mental and physical interruptions only affect *switchable* abilities that require constant concentration; e.g., Control, Illusion, Mind Control, Telekinesis, and anything modified with Requires Concentrate. If the user of such an ability attempts an active defense or resistance roll (against an Affliction, spell, etc.), makes a self-control roll for a mental disadvantage, falls, or suffers affliction or injury, he must make a Will-3 roll. Failure means he loses his focus and his ability switches off. If he's mentally or physically stunned – or stops concentrating – his ability deactivates automatically.

Unconsciousness

Unconsciousness ends the effects of all *active, switchable* abilities except those built from advantages that explicitly stay on once switched on. For instance, Flight shuts down and the user plunges to the ground, Scanning Sense ceases to emit radiation, and abilities that require constant concentration end (unless they have a "residual duration," like Mind Control).

While unconscious, it's impossible to trigger *active, transient* abilities, such as attacks and Wild Talent. If someone falls unconscious after using an ability like this to generate a lasting effect, though, the effect won't end before its entire duration is up. In particular, Affliction, Neutralize, Obscure with Ranged, and abilities with Cyclic, Delay, Onset, or Persistent always run their full course unless somehow negated.

Unconsciousness *might* affect a *passive, switchable* ability. Most such abilities let the user decide whether they switch off or on, or stay in their current state, when he's knocked out. This is a permanent special effect, set when he buys the advantage. Traits like this include Growth, Insubstantiality, Mind Shield, Obscure, Shrinking, and Stretching – and advantages such as Invisibility, Mana Damper, and Static, if given Switchable. The only exceptions are Elastic Skin, Shadow Form, and Shapeshifting, which end when the user is knocked out (but see *Once On, Stays On,* p. 109).

Unconsciousness never has any effect on *passive, transient* abilities; e.g., unmodified Luck. It doesn't affect *always-on* abilities, either – although some always-on advantages (e.g., Damage Resistance and Sealed) are more valuable than others (e.g., Acute Vision and Eidetic Memory) when unconscious.

Interference

Many abilities – but *especially* those that belong to powers – are subject to being shut down by accidental or deliberate interference.

Innate Flaws

Some advantages – e.g., Shadow Form and Shapeshifting – require the user to specify a particular external influence that cancels their effects. Others, notably Possession, can have special limitations that introduce such a weakness. In the presence of the relevant "spoiler," the affected ability instantly switches off and can't be reactivated until the baneful influence passes.

Anti-Abilities

If an enemy uses Affliction with Negated Advantage to remove a specific ability – even one that's passive and otherwise always on – that ability is deactivated until the Affliction ends. If he uses Neutralize to negate a power, *all* abilities of that power switch off for the duration. Lasting effects endure as explained under *Unconsciousness* (above), but aren't maintainable.

Crippled Abilities

The GM may rule that unlucky heroes can suffer from "crippled" abilities, just as they might experience sprains. If so, any critical failure on the roll to use an *active* ability – or for an active use of a passive ability – requires an immediate check for crippling. This is a HT roll for physical abilities, a Will roll for mental ones.

Failure means the ability suffers *temporary* crippling – minor physical or psychic strain – and is unavailable for minutes equal to the margin of failure. Roll once per minute after that; success indicates recovery.

Critical failure results in *lasting* effects: the ability is completely unavailable for 1d months. The GM may allow treatment with special skills – Esoteric Medicine if the ability is chi-based, Religious Ritual if divine, etc. – to hasten recovery, just as Physician skill does for crippled limbs; see *Duration of Crippling Injuries* (p. B422).

Crippling is in addition to the usual effects of critical failure. For alternative abilities (p. 11), note that crippling one ability cripples the whole set. *Passive* abilities are immune to crippling, except during active uses.

Crippled Powers

Critical failure when using extra effort (see *Extra Effort,* p. 160) or performing a stunt (see *Stunts,* p. 170) with a power can cripple the *power.* Roll against HT if the power modifier is Biological, Elemental, Nature, or Super, or against Will if it's Chi, Divine, Magical, Moral, Psionic, or Spirit. The GM chooses for other powers. Cosmic powers are immune to crippling.

Failure or critical failure cripples *all* of the power's abilities, as described above. Roll as usual for recovery – again, for the *entire power.* As with crippled abilities, the GM may let certain skills hasten recovery.

Grit vs. Glory

In gritty campaigns, the GM might want *permanent* crippling to be possible. Use these rules, but read "temporary" as "lasting" and "lasting" as "permanent."

In optimistic games, the opposite might be true: crippling is possible but never serious. Where the rules indicate "temporary" effects, *no* crippling occurs, while "lasting" effects are merely temporary.

Deliberate crippling (below) works as usual in either case.

Deliberate Crippling

To cripple specific abilities, use *either* Affliction with Negated Advantage *or* Neutralize with One Ability or Precise. To cripple a power, use Neutralize *without* One Ability. Both are temporary, but the GM may permit "called shots" that inflict lasting harm. The attacker is at -4 on his attack roll (with Affliction) or Will roll (for Neutralize, or Affliction with Malediction) if targeting an ability, -8 if targeting a power. If the victim fails to resist, his ability or power suffers *lasting* crippling.

Brute-Force Attacks: The GM might let those whose powers include Innate Attacks use them to target the abilities of foes with the *same* power or a *directly opposed* one. Such attacks are at -4. On a hit, find penetrating damage as usual, but instead of converting it to injury, compare it to the point cost of the targeted ability. Consider only the most expensive ability from a set of alternative abilities, but the total cost of advantages connected with Follow-Up or Link. If damage equals or exceeds points, the victim must roll against HT or Will to avoid crippling. This rule especially suits psi powers and super-powers.

Power Modifier Effects

A power modifier may specify conditions under which *all* of a power's abilities cease to function. Examples include:

Required Disadvantages (p. 21): Violating the terms of required disadvantages results in the suspension of all abilities. How quickly this occurs depends on the details of the modifier, but once it does, the abilities deactivate instantly and their effects – *including* "residual" ones – end.

Ambient Energies (p. 24): If the user is cut off from his energy source, his abilities cease to work and shut down immediately. For ongoing effects, the GM should look at how the power defines the energy flow. If energy moves from the source, through the wielder, to the location of the effects, then cutting off the user ends the effects. If the wielder creates a *direct* channel from his source to the location of the effects, then the effects only end after their usual duration.

Limitations

Any ability can have limitations that switch it off under certain circumstances. Most common are situational Accessibility modifiers such as "Only at night" or "Only while flying." If the situation changes to one where the ability wouldn't work, it turns off *immediately.* Other common limitations are Environmental (p. 110), which renders the ability useless if the required environment goes away; Pact, which terminates the ability if the user doesn't uphold his end of the bargain; and of course Terminal Condition (p. 112). In all cases, lasting effects also switch off – they *don't* last out their full duration.

Losing Control

It *is* possible to lose control over abilities. They might switch on or off unexpectedly, go completely haywire, or even fall under enemy control.

Emergencies Only and Uncontrollable

Emergencies Only on a transient or switchable ability means the ability only operates under stress. If a PC takes this limitation, the GM can

switch on the affected ability in an emergency, and turn it off as soon as the danger has passed, without the *player's* consent. See *Emergencies Only* (p. 102) for details.

Uncontrollable means the ability usually works – but under certain circumstances, it can turn on *or* off, change targets, and adjust variable effects against the user's wishes. With Unconscious Only, the ability *always* works this way. For more information, see *Uncontrollable* (p. 106).

In either case, involuntary activation or deactivation is instant and absolute: the user's ability suddenly starts or stops working – and if it stops, all lasting effects cease as well.

Disadvantages and Afflictions

Those suffering from disadvantages or afflictions (pp. B428-429) that render them unusually volatile or erratic might unwittingly activate or deactivate switchable or transient abilities. The GM decides which abilities switch on and when they shut down. Berserk and Stress Atavism tend to set off abilities that help cope with the cause of the stress (just like the Uncontrollable limitation). Uncontrollable Appetite triggers abilities related to feeding. Epilepsy and Sleepwalker – and the seizure affliction – can activate almost *any* ability (GM chooses or rolls randomly).

For Flashbacks, Phantom Voices, or Nightmares – or the hallucinating affliction – the GM should tell the player what his character perceives and let *him* decide what abilities he uses. These go off in the "real world," whatever the consequences. He *can* choose not to use his special gifts . . . but this can backfire if some of the dangers he confronts are real!

Mind Control

Someone under the influence of Dominance, Mind Control, the Charm spell, cinematic hypnotism, or a similar effect can be directed to use any ability that he consciously controls. His controller can order him to turn a switchable ability on or off, trigger a transient ability, or use an active ability for any feat it could normally perform. If the GM is using the optional rules for extra effort, stunts, etc., these are considered "normal" uses.

The controller *can't* order the impossible, however. No amount of mental influence can turn off an always-on ability, make a purely passive ability operate actively, trigger an ability that's "offline" due to interference (p. 155) or crippling (p. 156), or bypass a limitation that restricts activation (e.g., Emergencies Only or Unconscious Only) or limits uses (Limited Use, Preparation Required, Takes Recharge, etc.).

Also note that the controller isn't in *direct* control of his slave's abilities. He gives his thrall instructions on his own turn; each set of orders requires a Concentrate maneuver. Then his victim uses his abilities on *his* next turn. As soon as control expires, the slave regains control of all his abilities – even those activated while enslaved.

Possession

A few forms of control – such as Possession and the Control Person spell – give the controller dominance over the subject's body, not his mind. While "inside" his victim, he enjoys all the benefits of his puppet's physical abilities and his own mental ones, but his host's mental abilities and his own physical ones are *inaccessible.* In the case of body swapping, these guidelines apply equally to the subject: he has his own mental abilities and his possessor's physical ones. For more information, see *Mind Transfer* (p. B296).

Once possession ends, each party regains his own abilities. Ongoing effects anchored to either body (e.g., nausea or crippled limbs) stay with that body. Those tied to a mind (e.g., IQ penalties or ongoing Mind Control) move with that mind.

Success Rolls for Abilities

Most active abilities require one success roll per use (although their effects often lead to additional rolls). The GM will sometimes roll in secret for passive abilities, too. All such rolls work as explained on pp. B343-349, with a few added details.

Base Skill

Base skill with an ability is the attribute, secondary characteristic, or skill specified in the description of the underlying advantage – or by Based on (Different Attribute), Malediction, or Requires (Attribute) Roll, if the ability has one of those modifiers – plus Talent with the ability's power. See *Using Abilities with Skills* (p. 161) for other options.

Modifiers and Effective Skill

To find *effective* skill, start with base skill and add all relevant modifiers from the advantage text, plus any modifier the GM requires for the difficulty of the specific task (see *Task Difficulty,* p. B345). The *Time Spent* rules (p. B346) never apply to ability use. There may be additional modifiers if using optional rules such as *Multiple Feats* (p. 158) and *Trading Fatigue for Skill* (p. 161).

Success and Failure

Success means the ability activates and works as intended. On a *critical success,* apply any special benefits noted in the advantage description, and ignore the ability's FP cost (if any).

Failure means the ability doesn't go off. You can try again, but if using the optional *Repeated Attempts* rule (p. 159), these future attempts will be more difficult. On a *critical failure,* you lose 1d FP in addition to the usual FP cost (if any), and may cripple your ability; see *Crippled Abilities* (p. 156).

Special Cases

Resisted Abilities: Any ability that requires the user to roll a Quick Contest with the victim is *resisted.* This includes most mental-influence abilities (e.g., Mind Control) and all Maledictions. The user must succeed to activate his ability and win the Quick Contest to affect his subject (see *Resistance Rolls,* p. B348). The Rule of 16 always applies (see p. B349), and resisted abilities never automatically defeat the target's resistance – even on a critical success (a major difference from *Resisted Spells,* p. B241).

Attacks: Afflictions, Bindings, Innate Attacks, and abilities with the Ranged modifier activate *automatically* unless they have the Malediction enhancement. The user must roll against Innate Attack skill (p. B201), but this is an attack roll, not an activation roll. Only Talent and ordinary combat modifiers apply. Treat critical success or failure just like any other critical hit or miss; *ignore* the special rules for abilities.

The Role of Talent

Talent with a power acts as a bonus to all success rolls against attributes, secondary characteristics, or skills to use the power's abilities. This includes rolls to activate, attack with, control, or defend with those abilities. This *doesn't* include damage rolls, reaction rolls (except those for Allies with Summonable and Patrons with Highly Accessible), appearance rolls for Associated NPCs bought as abilities, rolls required by limitations, or rolls made by the ability's target. For additional details, see *Pricing Talents* (p. 29).

Some abilities, especially passive ones, rarely call for success rolls. The GM should try to make Talent useful with these, at least occasionally – most often by giving a bonus to an associated skill. If the ability would *never* require a roll, it's acceptable to break the rules and apply another kind of bonus. Some suggestions:

- *Abilities that complement skills:* If the GM feels that a talented hero could employ his ability to improve his odds of success at a task, he may let him add his Talent to his skill roll for that task. This is cumulative with any basic bonus the advantage provides to untalented users. *Examples:* Chameleon, Invisibility, and Silence would benefit Stealth rolls (so would Shadow Form, but only in the dark); Elastic Skin and Morph would aid Disguise rolls; Metabolism Control would assist Acting rolls to feign death; Mimicry would help Acting or Mimicry rolls for impersonation; and Terror would enhance Intimidation rolls.
- *Life-support abilities:* If a power grants life-support abilities, wielders who possess those abilities might have enough subconscious control over the power to add its Talent to HT when resisting attacks or hazards that the abilities could reasonably oppose. *Examples:* Injury Tolerance (Diffuse) might let Talent aid resistance rolls against Affliction (Advantage, Insubstantiality), while Radiation Tolerance would justify adding Talent to HT rolls for radiation effects.
- *Movement abilities:* Add Talent to rolls to maneuver, perform acrobatics, or avoid fatigue or mishap when using a power's movement abilities. *Examples:* Aerobatics and Flight rolls for Flight; Aquabatics and Swimming rolls for Amphibious; Body Sense rolls for Warp; Climbing rolls for Super Climbing; Jumping rolls for Super Jump; and Running rolls for Enhanced Move (Ground).
- *Physical transformations:* Those who can alter their physical form may add Talent to rolls to resist *involuntary* changes of the same or opposite kind, and subtract it from penalties that their transformation would help avoid. *Examples:* Morph would justify a bonus to resist unwanted shapeshifting spells; Shrinking would explain a bonus to resist Affliction (Advantage, Growth); and Stretching would help cancel penalties to Mechanic skill when repairing hard-to-reach machinery. The GM might also wish to increase the rate at which Growth, Shrinking, and Stretching adjust Size Modifier from ±1 to ±(Talent+1) per second.
- *Reality-altering abilities:* Each use of an ability that produces a direct change in reality gets a bonus equal to Talent on the *first* die roll it influences. *Examples:* Luck, Serendipity, and Super Luck.
- *Senses:* Add Talent to Sense rolls affected by a power's sensory abilities. *Examples:* Hearing rolls for Discriminatory Hearing and Ultrahearing; Perception rolls for Vibration Sense; and Vision rolls for Infravision and Microscopic Vision.
- *Switchable body parts:* Add Talent to HT rolls to avoid crippling or harm to body parts added by a power, and to DX rolls where extending or retracting body parts would help (but never to *attack* rolls). *Examples:* Claws, Extra Arms, or Strikers.

See the *Powering Up* entries in Chapter 2 for many specific suggestions. *Extra Effort* (p. 160), *Defending with Powers* (p. 167), *Talent as Resistance* (p. 169), and *Stunts* (p. 170) describe other situations where Talent gives a bonus.

Most of the rules in this chapter are *optional* – the GM can apply them or not, as suits his campaign. However, because Talents give those who use powers a significant edge over those with "wild" advantages, *Multiple Feats* (below) and *Repeated Attempts* (p. 159) are strongly recommended to keep players from wondering why a power modifier should ever give a *discount* on advantage costs.

Multiple Feats

In fiction, those with powers – especially psis and supers – often find it difficult to use their powers for several tasks simultaneously. To make powers work like this, the GM may enforce the following rule:

*All rolls for **active** uses of a power's abilities are at -1 per **active** ability already "on."*

Transient abilities receive penalties for abilities "on," but never cause them – even if they have enduring effects. No passive use of abilities ever receives *or* causes a penalty for multiple feats. Penalties only accrue for abilities within a power; they never "cross" powers. Lastly, these penalties aren't cumulative with those defined for multiple uses of some advantages (e.g., Mind Control and Telecommunication); they're a generalization of those penalties to *all* abilities of a given power.

Example: Revok possesses Telepathy and Psychokinesis. His telepathic abilities include Affliction, Empathy, Mind Control, Mind Shield, and Telesend. His PK abilities are Crushing Attack and Telekinesis.

Revok contacts an ally using Telesend. Since he has no telepathic abilities "on," he rolls at no penalty. After establishing contact, he uses Mind Control on a foe; this is at -1 for Telesend. Leaving both abilities on, he goes on to attack an enemy with Affliction. He rolls at -2 for two abilities on. However, if he stuns his target, he *isn't* at -3 on further tasks until his victim recovers, because residual transient effects don't count as active.

Revok would have *no* penalty to attack with Crushing Attack or Telekinesis, because they're psychokinetic, not telepathic. He also has no penalty if the GM rolls in secret for Empathy to see whether he notices that his ally is under mind control, because that's a passive use. He would be at -2 to perform an active "scan," though. And throughout all this, Revok's Mind Shield would give no penalty to *any* task, because it's passive.

Repeated Attempts

Many fictional heroes, confronted with challenges to their powers, grow desperate and fatigued if their abilities fail. This is especially true of comic-book supers, cinematic psis, and chi-powered martial artists. The following rule reproduces this effect.

When the roll to activate an active ability fails, the user may wait five minutes and try again at no penalty. If he tries *that particular feat* sooner, this is a "repeated attempt" (see p. B348) and costs 1 FP. Furthermore, the roll for the second attempt is at -1. Should this effort fail, he can spend 1 FP and try again at -2, and so on, until he passes out from FP loss or his effective skill drops below 3, at which point success is impossible.

If a repeated attempt succeeds, later attempts at that feat no longer cost FP or worsen skill penalties. However, the *current* skill penalty remains until the user waits a full five minutes. What this represents depends on the power: letting the supernatural interference around the subject die down, calming the mind or body, or simply regaining confidence.

Only successive attempts at the same feat are repeated attempts. This means trying the *same* ability on the *same* subject or an *identical* one, regardless of changes in physical circumstances (distance, speed, etc.). Repeated uses of an ability that requires a Quick Contest (e.g., Mind Control, or anything with Malediction) are always repeated attempts when attempting to affect the *same* subject. Trying to conjure fire on the same patch of ground would also involve the *same* subject.

Attempting to deflect two arrows would involve *identical* subjects. Trying to levitate two handguns held by thugs would, too. Attempting to affect the thugs themselves wouldn't, though – two sapient beings are never identical unless they're Dupes (see *Duplication,* p. B50).

Consecutive *successful* rolls for the same feat are never repeated attempts. As long as the user continues to succeed, he can do the same thing indefinitely at no penalty. Rolls for *passive* abilities never suffer penalties for repeated attempts, either. DX-based rolls to hit with *attacks* are also exempt, because they aren't activation rolls.

When an advantage that already specifies the effects of repeated attempts – e.g., Mind Probe or Mind Reading – is part of a power that uses this rule, apply the worst penalties, highest FP cost, and longest wait between uses. Don't "stack" the two sets of effects.

Abilities and Exertion

From ancient myth to modern comics, most great heroes can use their special gifts for *hours* before they tire. This is why so few abilities cost FP, except for repeated attempts or extra effort – even 1 FP per use would tire all but the fittest heroes in seconds. Fictional heroes *do* eventually tire, though. To represent this, the GM may charge FP after prolonged ability use.

Combat: Assess the FP cost for a battle according to *Fighting a Battle* (p. B426), but add 1 FP for combatants who activated abilities on themselves (e.g., Warp or Insubstantiality), or 2 FP for those who used abilities to affect the environment or someone else (e.g., Control or Innate Attack).

Movement: Long-distance travel with most movement abilities (Flight, Super Climbing, Tunneling, etc.), and out-of-body journeys with abilities that have the Projection modifier, incur the same FP cost as hiking. Top-speed travel – and *all* movement through solid objects using Insubstantiality or Permeation – has the same FP cost as running. See *Fatigue Costs* (p. B426) for details.

Other Intensive Use: High-intensity ability use, with only one or two seconds between rolls, costs 1 FP per *minute. Examples:* A psi at an airport using Mind Reading on everyone who steps off a plane; a super using his energy bolts to blast a path through a mountain.

Long-Term Use: Low-intensity but relatively constant ability use costs 1 FP per *hour. Examples:* A stealth mission during which the hero uses Super Jump to hurdle a fence, switches on Invisibility to avoid guards, and opens a lock using Telekinesis; a super-powered researcher using Detect instead of technological sensors to run lab analyses.

The GM should waive these FP costs if the only abilities used have the Limited Use limitation, or are built-in weapons with a finite number of shots. Such abilities consume "uses," not the owner's internal energy supply. Built-in weapons with no specific limit on shots don't get his exemption, because they *do* rely on the user for power.

Extra Effort

The GM may let heroes push *active* abilities past their usual limits by paying FP – much as they would use extra effort to run faster, lift more, etc. (see *Extra Effort,* p. B356). It's up to the GM whether to permit extra effort for all advantages, only for exotic or supernatural ones, or only for abilities that belong to powers.

In all cases, if an advantage offers specific rules for extra effort, use those rules instead. For instance, Clairsentience lets the user pay 2 FP per minute to double his range without a Will roll, and Warp lets the user trade more than 4 FP for a bonus to his activation roll.

Trading Fatigue for Effect

Extra effort can increase the raw "output" of any active ability with a *quantifiable* effect beyond its success roll. Examples include:

- *Damage,* for Innate Attack.
- *Level,* for Affliction, Control, Create, Leech, Obscure, Temperature Control, etc.
- *ST,* for Binding or Telekinesis (ST *bonus,* for Lifting ST or Striking ST).
- *Top speed,* for movement abilities (Flight, Tunneling, etc.), after multiplying for any Enhanced Move.

The GM may permit extra effort for certain passive abilities, too; e.g., DR with Force Field (extra effort increases DR) and attacks with Aura (extra effort works as usual for Affliction, Innate Attack, etc.). He might also allow it to enhance passive abilities for a Power Block (p. 168). In a high-powered supers game, he could even let it temporarily boost the points in a Modular Abilities slot.

To use extra effort, make a Will roll at -1 per 5% increase in effect or fraction thereof; e.g., Affliction 9 represents 12.5% more effect than Affliction 8, so it would require a roll at -3. The maximum bonus to effect is 100%, at -20 to Will.

Modifiers: +5 in the situations described under *Emergencies Only* (p. 102), regardless of whether the ability has that limitation. Unlike ordinary extra effort, there's no penalty for missing FP – in heroic genres, heroes who are in danger and nearly spent seem *more* able to succeed at extra effort! If using a power, add a bonus equal to your Talent.

Succeed or fail, extra effort costs FP. Instantaneous feats (e.g., attacks) cost a flat 1 FP per use. For maintainable abilities (Flight, Telekinesis, Temperature Control, etc.), make the above roll once per minute of ongoing use, and pay 1 FP *per roll.* Should it matter, you must spend these FP after the Will roll and before the roll to use the ability.

Success means you gain the desired increase in effect. This doesn't guarantee success at *using* your ability; you could still fail your Innate Attack roll and miss with your extra-powerful Bolts o' Doom. On a critical success, you don't have to pay FP for your extra effort.

Failure means you achieve only what you would have accomplished without extra effort. On a critical failure, you push your ability too far. It flickers off for a second – your attack is a dud, your force field provides no DR, your Flight cuts out in midair, etc. – and the task you were attempting *fails.* You must also check for crippling, as explained under *Crippled Abilities* (p. 156). This roll is for your *entire power* if your ability is part of a power. Failure indicates temporary crippling; critical failure means lasting crippling.

Trading fatigue for effect is impossible for *passive* abilities other than those described above, even for active uses; abilities that *already* tie effect to FP spent, such as Healing; and abilities with unquantifiable effects, such as Channeling.

Machines and Extra Effect: Those with the Machine meta-trait (p. B263) can't use extra effort, but the GM might make an exception in campaigns with superscience mecha or space-opera starships. Start with the rules above, replace the Will roll with a HT roll, and mark off FP costs against *HT.* For machines with operators, the GM may replace the Will roll with a skill roll (against Engineer, Piloting, etc.), basing skill on the *machine's* HT instead of the *operator's* DX or IQ (see *Using Skills With Other*

Attributes, p. B172). Handle HT losses, and repairs made to reverse them, as if they were due to missed maintenance (see *Maintenance,* p. B485).

Godlike Extra Effort: In campaigns intended to emulate heroic epics and over-the-top comics, the GM may let heroes trade more than 1 FP for extra effect. Use the same rules, but multiply bonus effect by the FP spent and ignore the 100% limit on the bonus. For instance, a hero who makes a Will-3 roll could burn 1 FP for 15% more effect . . . or 10 FP for *150%* more effect. This greatly magnifies the power of heroes with large Energy Reserves (p. 119). Handle with care!

Trading Fatigue for Skill

You can instead put extra effort into focus and concentration to gain a one-time bonus to your success roll. This costs a flat 1 FP per +1 to the roll, to a maximum of +4. Since this use of extra effort actually *increases* control, it carries no risk of catastrophic failure. It's up to the GM whether you can combine this with trading fatigue for effect.

This option is available for any *active* ability that requires a roll to activate or a Quick Contest with the subject. Passive abilities can't use it. Neither can abilities that require an attack roll instead of an activation roll – the equivalent option for attacks is All-Out Attack (Determined).

Using Abilities with Skills

Usually, when an advantage and a skill interact, either the advantage gives a passive bonus to the skill (e.g., Discriminatory Smell gives +4 to Tracking) or the skill picks up in the wake of the advantage (e.g., Body Sense helps recover after using Warp). It's rare for the two to work together *actively,* tackling the task as a team.

This doesn't have to be the case. Supers frequently exploit mundane skills to put their abilities to new and unexpected uses, legendary martial artists have many gifts that blur the line between the studied and the innate, divine blacksmiths incorporate great power *and* prodigious skill in their craft, and so on. These rules are for GMs who desire such things in their campaign.

Skills Enhancing Abilities

Mundane expertise might provide insight into how to bring superhuman capabilities to bear on a problem. If the GM agrees, when a hero applies an ability to a task that he could accomplish using a mundane skill, he may attempt a roll against his skill – based on the *advantage's* controlling attribute (see *Using Skills With Other Attributes,* p. B172) – if this would be better than his usual roll for the ability. For instance, instead of rolling against IQ to use Healing, he might make an IQ-based Esoteric Medicine roll. If Talent affects the ability, it also adds to these special skill rolls.

Below is a list of advantages that could benefit from skills. It isn't exhaustive – players are welcome to dream up new and creative uses for their skills. However, the GM should only allow a skill roll if, in his opinion, the ability supplies a miraculous tool that someone with suitable know-how could truly put to better use than someone without training.

Binding: If the attack involves webs, vines, etc., use Knot-Tying to bind a prisoner out of combat.

Control: Almost any craft skill – Carpentry, Masonry, Smith, etc. – can replace IQ when shaping suitable materials.

Create: Alchemy, Chemistry, or Physics can replace IQ when using the Transmutation modifier.

Detect: Many skills can replace IQ for *analysis* rolls. Use Chemistry for chemicals, Diagnosis for diseases, Metallurgy for metals, Physics for radiation, Thaumatology for spells, etc.

Healing: Esoteric Medicine or Physician can replace IQ when healing lost HP or curing disease. Use Surgery to repair crippled limbs.

Illusion: Artist (Illusion) can replace the IQ roll in most cases – but if the ability has the Mental enhancement, use Psychology instead.

Innate Attack: Use Explosives (Demolition) to destroy things out of combat, or Forced Entry to blast open doors.

Intuition: Almost *any* IQ-based knowledge skill might replace IQ when dealing with information salient to that skill (e.g., Navigation, when deciding which way to steer).

Mimicry: The Mimicry *skill* can replace IQ when mimicking sounds associated with the appropriate specialty (Animal Sounds, Bird Calls, or Speech).

Mind Control: Many skills can replace IQ: Animal Handling to affect beasts, Computer Hacking to control computers (requires Cybernetic or Cybernetic Only), Brainwashing if using the Conditioning enhancement, or Hypnotism when the ability has the Suggestion limitation.

Mind Probe: Interrogation can replace IQ when probing living beings. When probing a computer (requires Cybernetic or Cybernetic Only), use Computer Hacking instead.

Psychometry: Criminology, Forensics, Search, etc. can replace IQ for *active* attempts to seek clues about past events at a location. Success provides insights appropriate to the skill: motives for Criminology, items for Search, and so forth.

Rapier Wit: This normally calls for Public Speaking, but the GM might allow Poetry or Singing – or even Kiai, for *shouting* insults!

Telekinesis: Suitable DX-based skills *always* work remotely via this advantage.

Terror: Intimidation can replace Will when using the Active enhancement.

True Faith: Use Exorcism in place of Will *if* the entity being repelled is susceptible to exorcism. Religious Ritual might also work, if the user takes the time to conduct a ritual.

Warp: Navigation (Hyperspace) can replace IQ if Warp has the Hyperjump limitation.

Abilities Enhancing Skills

The ***Basic Set*** defines many skill bonuses for passive abilities. Most of these apply all the time; the user doesn't need to *do* anything. Active abilities can also simplify certain tasks – but they require conscious use, and only give bonuses if they *work*. For instance, Telekinesis gives +4 to tasks that benefit from High Manual Dexterity (itself a passive trait that always works) . . . *if* the user makes an IQ roll to use his TK properly. The catch is that active abilities can fail – sometimes badly – and give penalties. This makes them more of a gamble.

The players are welcome to dream up interesting ways for abilities to assist skills. To provide an actual bonus, though, an ability must be a suitable tool for both the skill *and* the task in question. This depends somewhat on the game world – comic-book supers often use their abilities in ways that wouldn't suit a mythic-fantasy setting, and vice versa – but as always, the GM's word is final.

Once the GM and the player agree on what's being attempted, the user rolls normally to activate his ability. Abilities that always activate – e.g., Flight, Innate Attack, Obscure, Telekinesis, and Temperature Control – require an IQ roll to direct them. If the GM lets skills enhance abilities, the user may roll against a skill instead, but this *can't* be the skill that stands to gain a bonus on a success. Talent, if any, applies as usual.

On a success, the user gets a skill bonus for that one task: +2 if his ability does what fine-quality mundane equipment would do, or +4 if its aid is truly miraculous (GM's decision). Inappropriate abilities give no bonus or penalty. These bonuses *aren't* the same as those given under *The Role of Talent* (p. 158). You get a bonus equal to Talent only when your ability is passive and would aid your skill without a conscious effort, or when attempting a skill roll *because* you're using an ability. You get a bonus for enhancing a skill only when you opt to involve one of your abilities in a mundane task that otherwise has nothing to do with your powers. The two never "stack."

On a critical success, the skill roll succeeds normally (don't bother to roll) if effective skill was 3 or more. The user may opt to roll at the bonus above if he wants to try for a critical success – but if he fails, he fails. If effective skill was 2 or less, add the +2 or +4 and roll normally if this raises effective skill to 3 or more. If final skill is less than 3, even with the bonus, the task remains impossible. All this assumes an appropriate ability, but in

Skills for Everyone

In many settings, powers need training to be useful. As explained in *Learning Powers* (p. 35), the GM can require individuals with powers to train if they wish to add or improve abilities. Another, fully compatible option is to associate each of a power's abilities with its own "power skill." Heroes might learn power skills through trial and error (typical of super-powers), or seek training from ancient masters (traditional for chi, magical, and spirit powers), academies (appropriate for psi and magical powers), or monasteries (especially for chi or divine powers).

When using this option, a power skill exists for any ability – passive or active – that requires an activation roll (not just an attack roll). This is a Hard skill named after the underlying advantage and based on its controlling score. Those who possess the ability must roll against the associated skill to use it. Unskilled users roll at default: (controlling attribute)-6. Talent benefits both trained and default use. Individuals who lack the ability can't learn its skill or use it at default, even if they have the correct power and a high level of Talent.

Example: Healing is based on IQ. If the GM requires skills to use psi powers, a psychic healer with Healing must roll against Healing (IQ/Hard) to use his ability – or at IQ-6 if untrained. In either case, his Healing Talent gives a bonus.

The GM decides which powers require skills, and for which abilities. This has *no effect* on the cost of power modifiers or Talents, as the short-term drawbacks balance the long-term benefits. Those without training do have a large penalty (-6 for working at default) relative to individuals with "wild" abilities or powers that don't require skills. Even trainees who know the skill have a small penalty at low levels (-2 or -1 with only 1 or 2 points in the skill). Ultimately, though, they can buy as much skill as they wish, allowing them to perform feats far beyond the capabilities of those limited to just attributes and Talent.

Power Techniques

Another option is to let heroes "buy off" the penalties that certain advantages assign to specific feats. Each such specialized use becomes a Hard technique (see *Techniques,* p. B229) that defaults to the controlling attribute at the penalty given in the advantage description. The ability's owner can improve this like any other technique, but can't exceed the controlling attribute. If using power skills, power techniques default to these at the same penalty, and can't surpass the power skill.

Example: Healing is at -6 to repair a crippled limb. The GM might permit a healer to learn Repair Limb as a Hard technique. Since this task is at -6, Repair Limb defaults to IQ-6. It can't exceed IQ, or default+6 (7 points). If using power skills, the default is Healing-6 and the technique can't exceed Healing skill.

At the GM's option, even those without powers can learn power *techniques,* if they possess suitable abilities – but only those with powers can have Talent and power *skills.*

The players are welcome to dream up interesting ways for abilities to assist skills. To provide an actual bonus, though, an ability must be a suitable tool for both the skill and the task in question.

a silly campaign, the GM might let an *inappropriate* ability give +1 on a critical success, if the explanation was clever enough.

On a failure, the attempt is at -1. This becomes -2 if the ability used was, in the GM's opinion, inappropriate. On a critical failure, the skill roll *also* critically fails, regardless of effective skill – and if the ability was unsuitable, the results should be *embarrassing,* too (-2 to reaction and Influence rolls with any witnesses).

Some examples (this list *isn't* exhaustive!):

Clairsentience: +2 to Diagnosis, Lockpicking, Surgery, and similar skills in situations where being able to see *inside* the subject would be useful. This is equivalent to an X-ray machine or endoscope. Being able to see all the cards in a card game is good for +4 to Gambling.

Control: See *Control in Combat* (p. 91) for bonuses.

Create: +2 to Alchemy, Chemistry, Pharmacy, Poisons, and related skills if using a specialty of Create that can produce useful substances on demand. This is about as useful as a well-stocked lab.

Detect: +2 to Forensics, Observation, Prospecting, Search, etc., when *intentionally* seeking anything the sense can find. A similar bonus applies to Electrician when using Detect (Electricity) to trace wiring. This is comparable to a portable sensor (e.g., a metal detector).

Flight: +4 to Acrobatics (*not* Aerobatics), Climbing, Flying Leap, Jumping, and Light Walk rolls, by virtue of "body lightening."

Illusion: Using Illusion to project charts, images, and other media gives +2 to skill rolls against Public Speaking, Teaching, and so on during briefings and presentations.

Mimicry: +2 to Acting rolls when impersonating someone else.

Mind Reading: +2 to Influence skills, Tactics, or Strategy in situations where knowing what the subject is thinking would be useful. This bonus increases to +4 for Detect Lies or Fortune-Telling, *not* cumulative with the +3 for Empathy (it's a more advanced version of the same thing).

Obscure: +4 to Invisibility Art if using smoke or darkness to distract witnesses. This is better than the +3 for a smoke bomb because viewers aren't warned by seeing the bomb.

Precognition: +4 to Gambling, Market Analysis, Tactics, or Strategy for a successful *active* use to predict the likely outcome of a game of chance, investment, or battle – and a similar bonus to use Meteorology to predict the weather.

Psychometry: +4 to Tracking, but only if you know exactly who you're following.

Scanning Sense: +2 to Observation in any situation where the sense would work and be able to spot the objective. This *is* cumulative with the +2 for Detect.

Telecommunication: Using Telesend on someone gives +2 to Hypnotism attempts, and to Leadership or Teaching rolls to tell him *what to do.*

Telekinesis: +2 to use Filch, cheat at Gambling, or parry with Parry Missile Weapons, by moving objects without using your hands; +4 to DX-based rolls against Lockpicking, Surgery, and any other skill where a pair of hands *inside* what you're working on would be helpful (cumulative with the +2 for Clairsentience).

Warp: +4 to Shadowing attempts on foot, if used to bypass crowds, watch your quarry from rooftops, etc. The GM should require one Warp roll per Shadowing roll.

Detecting Abilities

When it comes to detecting abilities, two rules apply *unless* the underlying advantage specifically says otherwise or has modifiers that make it easier or harder to detect:

1. Observers can only detect the ability if it's currently in use or has enduring effects.

2. *Active* uses are always detectable with vision, hearing, touch, and/or smell, while *passive* uses are only discernable using special senses.

The ability's special effects – and the source and focus of the overarching power, if applicable – determine which senses work in each case.

Obvious Effects

If the ability isn't based on a mental-influence advantage (e.g., Mind Reading or Mind Control) or another trait with explicitly invisible effects, isn't totally passive, and isn't enhanced with No Signature (p. B106), then the buyer must describe a set of effects that are obvious to one or more ordinary human senses. These occur whenever he uses the ability. Observers notice them *automatically,* barring obstructions or missing senses.

If there's any doubt as to whether a potential witness notices the ability, make a Sense roll, modified as usual for his sensory capabilities (e.g., Hyperspectral Vision gives +3 to see visible effects, while Acute Hearing 5 gives +5 to hear audible ones). Observers must *always* roll if the ability has the Low Signature enhancement; see *Low or No Signature* (p. 103) for penalties.

Advantages with invisible effects, such as Clairsentience and Telekinesis, are genuinely ***undetectable*** *to normal senses. The same goes for abilities with the No Signature enhancement.*

In the case of a power, the GM should also specify one or more "special" senses that can detect all of the power's active abilities by sensing its *source* or *focus*. For instance, Detect (Magic) or Magery would sense magical abilities by detecting their source, while Infravision would be able to spot active uses of the Heat/Fire power by perceiving its focus (heat). Special senses work even when normal senses aren't available, unless the ability has No Signature.

All of this remains true when the *user* is undetectable. Invisible heroes who don't want their abilities to give them away should add No Signature.

Subtle Effects

Advantages with invisible effects, such as Clairsentience and Telekinesis, are genuinely *undetectable* to normal senses – even if their consequences are obvious, like a rock tossed with TK – unless given the Visible limitation (p. 112). The same goes for abilities with the No Signature enhancement. In most game worlds, such abilities still leave a "psychic impression," "supernatural residue," or "signature" that those with special senses can track down. Psychometry is the best tool for the job, but specific forms of Detect can also work.

Abilities that aren't currently in use, or totally passive ones, are *never* detectable except with a specialty of Detect specifically designed to identify individuals who have those abilities.

See *Detect* (p. 47) for more on how to rate the rarity of foci and sources when buying the Detect advantage.

Superhuman Abilities in Combat

Most of these notes apply to *all* abilities with combat uses, but a few – notably those under *Defending with Powers* (p. 167) – describe special moves intended for heroes with powers. The GM decides whether fighters whose abilities *don't* stem from powers can use such tricks.

Attacking

Abilities with offensive potential – including Mind Control, Obscure, and many other advantages that aren't "attacks" per se – fall into four categories based on how they work in combat.

Ranged Attacks

Includes: Affliction, Binding, Innate Attack, and abilities that affect others at a distance via the Ranged enhancement. However, attacks modified with Emanation, Malediction, or Melee Attack – or Follow-Up limitations that tie them to melee attacks – fall into other categories.

Hitting the Target: Take an Attack maneuver and roll against Innate Attack skill to hit. This is an ordinary ranged attack, and all the rules under *Ranged Attacks* (p. B372) apply.

Aftermath: Unless the attack is Blockable (p. 110), the target can only dodge (but see *Defending with Powers,* p. 167). If the attack misses or the target dodges, consult *Hitting the Wrong Target* (p. B389) or *Scatter* (p. B414), as applicable, unless the GM is using *Collateral Damage* (p. 165) instead.

Melee Attacks

Includes: All normally ranged attacks modified with Melee Attack, as well as "touch only" abilities such as Leech and Neutralize. Attacks tied to body weaponry via Follow-Up also involve a melee attack.

Hitting the Target: Use an Attack maneuver to launch a melee attack, subject to all the usual rules; see *Melee Attacks* (p. B369). In most cases, a touch suffices and the roll is against DX or *any* unarmed combat skill – but Leech requires a grapple (with DX, Judo, Sumo Wrestling, or Wrestling) and Follow-Up attacks on Claws, Strikers, etc. call for an actual blow (with DX, Boxing, Brawling, or Karate). A few "touch only" abilities, such as Possession, require a Concentrate maneuver before an attack is possible.

Aftermath: The target may try to dodge, block, or parry the touch, grapple, or blow. If he succeeds, the ability has *no effect* unless it has Aura or

Melee Attack (Destructive Parry). In those cases only, the attack affects the defender's shield on a block, weapon on an armed parry, or *arm* on a bare-handed parry; DR applies normally.

Maledictions

Includes: Attacks with the Malediction enhancement, and the majority of mental-influence advantages (e.g., Mind Control).

Hitting the Target: Take a Concentrate maneuver and roll a Quick Contest with the target. The only combat modifiers that apply are those for *range.* Use -1 per yard for Malediction 1, the standard modifiers from the *Size and Speed/Range Table* (p. B550) for mental-influence traits and abilities with Malediction 2, and *Long-Distance Modifiers* (p. B241) for Malediction 3.

Aftermath: The target's defense is his resistance roll (but see *Defending with Powers,* p. 167).

Emanations

Includes: Ordinarily ranged attacks modified with Emanation, advantages such as Obscure and Mana Damper (Switchable), and similar zero-range area-effect abilities.

Hitting the Target: Simply take a Ready maneuver and state that you're turning on your advantage.

Aftermath: Everyone in the area is "hit" automatically, although they may try to dive for cover (see *Dodge and Drop,* p. B377).

Optional Rule: Coordinated Attacks

This option lets heroes vanquish tough foes by carefully timing their attacks. There's no restriction on the attacks used – special abilities, fists, guns, etc. – although it's easier to coordinate related powers.

Everyone who wants to coordinate should be able to communicate, if only with a few words or a gesture. The GM may exclude individuals who can't communicate at all. In a realistic campaign, the GM might even require the group's leader to take a Concentrate maneuver and make a Leadership roll to instruct his allies for at least a second before everyone attacks. This might take *several* seconds if the leader can't speak in person or by radio, and must rely on hand signals. In a cinematic game, ignore this requirement.

In addition, everyone must attack the *same* target at the *same* time. This means that at least some of the coordinating fighters will have to take Wait maneuvers.

As soon as everyone can attack, each fighter attempts his attack roll. Since the attack occurs when the attackers can coordinate – not when their target gives them a clear shot – everyone rolls at -3 per fighter past the first (-3 for two, -6 for three, and so on). Those with Enhanced Time Sense (p. B52) roll at only -2 per extra attacker. Add +1 if everyone in the group is using a power with the same source *or* focus, or +2 if everyone is using the *same* power. Talent and all standard attack modifiers apply as usual.

Collateral Damage

In a high-realism game, the GM should use *Tactical Combat* (pp. B384-392) on a battle map to determine where missed shots go, and *HP and DR of Objects and Cover* (p. B557) to assess damage to the surroundings. In a cinematic game, though, this degree of detail can spoil the mood. The GM is free to decree that all misses vanish harmlessly, of course, but property damage is a hallowed tradition in many genres – especially supers! Below is a quicker, less-realistic alternative for larger-than-life battles.

Whenever an attack misses or is dodged, and whenever *any* area effect, cone, or explosion goes off, roll 3d on the table below. Only roll if there are bystanders or breakable objects present (on a busy street, inside the Secret Underground Fortress, etc.), and only if the attack could actually affect someone or something in the area. Even nonlethal attacks require a roll, though. An Affliction or Fatigue Attack can mean a lawsuit if it causes someone to stumble and break a tooth (or worse), and a "harmless" Binding might foul and damage delicate machinery.

Modifiers: Lethal attacks: +2 for 10d damage, +4 for 100d damage, and so forth; +2 if incendiary or burning; +2 if area effect, cone, or explosion.

Nonlethal attacks (Affliction, Binding, Fatigue Attack, etc.): -8.

All attacks: +2 indoors; +2 in the presence of dangerous surroundings (rocket fuel, high-tension cables, etc.); +2 if the attacker is *trying* to cause collateral damage instead of attacking a specific target; -2 per -1 a cautious attacker accepts on his attack roll specifically to *avoid* collateral damage.

8 or less – No appreciable damage.

9-10 – An object susceptible to the attack sustains $100 worth of damage, or a person is harmed badly enough to justify a $100 fine or lawsuit; e.g., a broken window or dented fender, or a minor graze or torn shirt.

11-12 – Damages totaling $1,000; e.g., a broken computer or car windshield, or a loose tooth or permanent scar.

13-14 – Damages totaling $10,000; e.g., a caved-in wall or totaled car, or a broken limb or other major injury.

15-16 – Damages totaling $100,000; e.g., a house fire, a blast that shatters every window for a block, or a coma or similar injury that causes lasting harm.

17-18 – Damages totaling $1,000,000; e.g., a multi-house fire, or serious injuries to *many* people. The GM might instead rule that a bystander is killed.

19 or more – Damages totaling $10,000,000; e.g., a fire that consumes a city block, the destruction of irreplaceable lab equipment, multiple deaths, or a similar catastrophe.

A fighter can opt out of a Coordinated Attack at the last moment. If so, he ignores the special modifiers above. However, his allies suffer the penalty for the *original* number of fighters involved, as they didn't know their ally's true intentions.

The attackers must choose *one* of these options before anyone rolls to hit:

- *Overwhelm:* This is an attempt to overload the target's defenses with simultaneous attacks from different angles. Each coordinated attacker after the first who hits gives the victim -2 to active defenses or -1 to resistance rolls against *all* of the attacks. Halve this penalty (dropping all fractions) if the target has Enhanced Time Sense.
- *Wound:* The attackers may instead concentrate their attacks on one specific point. They must all be able to attack the same side of the same hit location. Those who hit add their damage together for knockback purposes, which is useful for pushing high-ST foes off precipices, into prison cells, etc. Apply the target's DR *separately* to each attack for the purpose of determining injury – but add together attacks that *don't* penetrate DR when assessing blunt trauma (see p. B379).

After working out the final HP of injury inflicted by each attack – taking into account DR, damage type, hit location, etc. – add the injuries together and treat them as a *single* wound for the purpose of shock, knockdown, stunning, crippling, and anything else that depends on wound size. This lets attackers with relatively weak attacks inflict major wounds on opponents with high DR . . . or blow apart a foe with Supernatural Durability.

Coordinated attackers can even launch (tough!) friends by capitalizing on combined knockback. Apply these rules as usual, but halve "knockback" for a *vertical* launch. The living projectile can coordinate with his launchers; he counts as an attacker, and must make his Jumping roll at the same penalty as the others' attack rolls. Success lets him add his broad-jump distance to horizontal knockback, his high-jump distance to vertical knockback.

New Technique: Coordinated Attack

Hard

Defaults: prerequisite skill.
Prerequisite: Any combat skill.

Fighters who practice together may learn this technique for use when coordinating with members of that group (only). It has no maximum level. Apply Coordinated Attack modifiers to this technique and use the result *instead* of combat skill for the attack. If it exceeds combat skill, reduce it to that level before applying other modifiers.

Optional Rule: Ricochets

The GM may let heroes bounce attacks off walls, the ground, and so on to surprise enemies and hit foes around corners. This is consistent with the laws of physics in comic books and anime. GMs running *realistic* games use this rule at their own risk!

An attack can only ricochet if DR affects it *and* it requires an attack roll. Attacks that bypass DR don't ricochet – they go straight through obstacles. Those that require only a resistance roll (like Maledictions) don't cross the intervening space, and don't *need* a ricochet to hit a target the user knows about.

To attack with a ricochet, the attacker must be able to see his target, detect it using a ranged sense that's equivalent to vision (e.g., Scanning Sense), or know *for sure* where it is. This might be as simple as looking down a hall or peering through a wall with Penetrating Vision – or as complex as using mirrors, cameras, or sensory impressions sent by an ally with Telesend. The GM should require a Sense roll if there's any doubt as to whether the attacker can spot his quarry, at -2 per camera, mirror, telepathic relay, or other "remove."

The attacker must then describe his attack's path. He can bounce his attack off of as many surfaces as he likes. Each ricochet diminishes the attack's effectiveness, though, so he should try to keep the number low. *Ignore* such details as angle of incidence and the DR and HP of the surfaces. Those would only matter if this rule were realistic!

Once the attacker knows where his target is and how his attack will get there, he rolls to hit. This is a regular ranged attack, with three exceptions. First, the *total* path length – not the straight-line distance to the target – determines the range penalty. Second, if spotting the target required a Sense roll at a penalty, that penalty applies to the attack roll, too. Finally, there's an additional -2 *per bounce.*

If the attack succeeds, the target may defend . . . if he knows he's being attacked. An attack that suddenly comes bouncing around a corner is effectively a surprise attack. An attack from in front of the target that bounces around and hits him from behind or above isn't, but it still gives -1 to defenses *per bounce*. The victim knows he's being attacked, just not from what angle.

Reduce the damage rolled for the attack – or the level of Affliction, Binding, etc. – by 10% per bounce (round down). For a Follow-Up attack, only the carrier is weakened. Don't worry about damage to the bouncing surfaces, though. That's no more relevant than DR and HP were in the first place.

In battles between heroes who can see each other, the GM may reduce this rule to its fundamentals: -2 to hit, -1 to defend, and -10% to damage per bounce.

Defending with Powers

Defensive advantages – Damage Resistance, Mind Shield, Resistant, etc. – are nearly always passive. The possessor doesn't have to "use" them to enjoy their protection. In the absence of limitations, they work *all the time*.

Buying such a trait as part of a power changes *nothing* – it protects against everything the "wild" advantage does. For instance, Damage Resistance that belongs to a power stops both mundane and powered attacks, and does so regardless of its power modifier or that of the attack (unless one of the power modifiers is Cosmic). Modifiers can change this, of course: a defense with Limited is effective against only *some* attacks, penetration modifiers (Follow-Up, Malediction, Sense-Based, etc.) often let attacks bypass DR, and so on.

In heroic settings, though, individuals with powers often enjoy a broad mastery of their power that transcends its specific abilities. They can bend the usual assumptions, taking control of normally passive defenses in order to defend actively, perhaps even using *non*-defensive abilities to blunt attacks. These rules cover "power defenses" like this. Work out Power Dodge, Power Parry, and Power Block ahead of time and record them next to the associated abilities on the character sheet.

As with mundane active defenses, power defenses get +1 for Combat Reflexes, +2 for All-Out Defense (Increased Defense), and are unavailable to a fighter who makes an All-Out Attack or doesn't know he's under attack. Power defenses *aren't* mundane defenses, though. A hero can attempt a Power Block and a mundane block on the same turn, has no penalty on future parries if he tries a Power Parry, and *can* attempt a Power Parry during a Move and Attack. No one may use more than *one* power defense per turn, however.

These rules *don't* apply to abilities with the Active Defense limitation. Such abilities use the rules under *Active Defense* (p. 112) instead.

Power Dodge

If a switchable movement ability or physical transformation is *instantaneous* – either in its unmodified form or due to Reduced Time (p. B108) or Reflexive (p. 109) – the user might be able to use it to evade attacks. This is only possible if the GM feels that activating the ability would cause the attack to pass harmlessly *around* or *through* the defender. Treat this as a dodge, but roll against the following score instead of Dodge:

Power Dodge = Basic Speed + 3 + Talent/2

Drop all fractions. Standard Dodge modifiers apply, *except* those for Acrobatic Dodge, bad footing, dodge and drop, encumbrance, posture, relative height, retreating, and shield DB.

Success means the attack doesn't affect the defender at all. Failure means it hits before his ability goes off. Either way, the ability activates. *Exception:* If using *Crippled Abilities* (p. 156), a critical failure means the ability fails completely, in addition to the usual effects of a critically failed defense roll.

Treat a Power Dodge as an active use of the ability for all purposes: detection, FP cost (if any), Limited Use, etc. A physical transformation leaves the defender in altered-body form. On his turn, he can opt to switch back or remain in that form.

Whether a Power Dodge is better than an ordinary dodge depends on the situation and the ability. It can sometimes avoid attacks that a standard dodge couldn't hope to avoid. Examples include:

Insubstantiality: Success means the attack passes right through. This works against *everything* – even area-effect, cone, and explosion attacks. But if the attack has Affects Insubstantial, the Power Dodge is worthless.

Morph: A successful dodge means you change shape in such a way that the attack passes over, under, through, or past you. Specify the details; for instance, "I become a mouse and drop under the attack" or "I turn into a giant donut so that the attack passes through the hole."

Permeation: Only allowed if you're standing on a surface you can permeate. Success means you sink into the ground and the attack passes over you.

Shadow Form: Success means you become a shadow on the ground, wall, etc., before the attack hits. This lets you dodge in many situations where movement is impossible.

Shrinking: Success lets you shrink *away from* or *under* the attack without ducking or sidestepping. This permits a dodge even when restrained.

Warp: This advantage has specific rules for evading attacks (see p. B98). Use those *instead* of a Power Dodge.

Power Parry

An Innate Attack can sometimes knock aside or "shoot down" another Innate Attack, much as one melee weapon can parry another. This is a Power Parry. It's normally only possible in two situations:

1. If the defending and attacking powers share a focus, the defender can exploit his control over the focus to weaken the attack. This is regardless of *source*. For instance, two opponents with Heat/Fire power can use their attack abilities to defend against one another . . . even if one is a priest with a Divine power and the other is a wizard with a Magical power.

2. If the defending and attacking powers are *opposed* (see *Opposed Powers,* p. 21), the defender can partially cancel out the attack by brute force. Again, source doesn't matter. For example, a super with the Cold/Ice power and another with the Heat/Fire power could attack and parry with their icy and fiery bolts.

In games that obey traditional comic-book physics, the GM should ignore all this and let *any* attack parry any other!

The only other requirements are that the parrying ability be currently accessible and have no limitation that prevents immediate activation, such as Takes Extra Time. Neither its *other* modifiers nor its damage type are important. For instance, an expanding ring of frost bought as a Fatigue Attack with Emanation and Freezing can parry a fireball bought as a straight-up Burning Attack. In all cases, the GM's word is final.

Calculate Power Parry as follows:

Power Parry = 3 + (Innate Attack skill + Talent)/2

Drop all fractions. For abilities that don't use Innate Attack skill (e.g., Emanations), use the formula under *Power Block* (below) instead. Standard Parry modifiers apply, with a few exceptions: there's no penalty to parry a ranged attack; shield DB only adds if the *attacking* ability has the Blockable or Melee Attack limitation; and modifiers for bad footing, posture, and relative height only apply if the *parrying* ability has Melee Attack.

On a success, each fighter rolls his damage. The defender subtracts his damage from that of the attacker. (*Exception:* If the parrying ability has Wall, subtract its DR.) If the defender rolls less damage than his attacker, the residual damage affects him normally – but if he took All-Out Defense (Double Defense), he *can* try to dodge this. If his damage equals or exceeds that of his attacker, he's unharmed; he doesn't damage his foe. If using *Collateral Damage* (p. 165), roll once on the table, using the larger attack's damage type and the modifier for the *difference* between damage dice.

On a failure, the defender is hit normally. His attack still goes off, though – roll for *both* attacks if using *Collateral Damage. Exception:* If the GM is using *Crippled Abilities* (p. 156), a critical failure means the ability fails completely, on top of the usual effects of a critically failed defense roll.

*In games that obey traditional comic-book physics, the GM should let **any** attack parry any other!*

Power Parry is meant for Innate Attacks, but the GM can let Afflictions parry other Afflictions and Bindings parry other Bindings. These attacks cancel out on a level-by-level basis: Affliction 3 reduces Affliction 4 to Affliction 1, Binding 15 reduces Binding 25 to Binding 10, and so on.

The GM might even let *any* attack ability parry any other. If so, 1d of Innate Attack, one level of Affliction, and *five* levels of Binding are equivalent for the specific purpose of negating one another; e.g., Affliction 8 reduces Innate Attack 10d to 2d, and Binding 20 reduces Innate Attack 10d to 6d and Affliction 8 to Affliction 4.

Power Parry is an active use of the parrying ability for *all* purposes.

Power Block

If the GM wishes, those with powers can "reinforce" normally passive defensive abilities to better obstruct incoming attacks. This feat – called a Power Block – is possible in three situations:

1. The attack is Affliction or Innate Attack, the defensive ability is a form of Damage Resistance that's effective against the attack, and the two abilities belong to powers that either have the *same* focus or are *opposed.* The justification here is identical to that for Power Parry, and the GM is free to waive the restrictions on focus.

2. The attacking ability calls for a resistance roll and the defending ability provides a bonus to that roll; e.g., Mind Shield vs. Mind Control. In this case, focus and source are unimportant. The GM might even allow a Power Block with an ability that doesn't belong to a power.

3. The attack is Affliction or Innate Attack and the defending ability is a variety of Control or Obscure that could reasonably influence or block the attack's focus; e.g., Control (Light) or Obscure (Vision) vs. a laser.

In cases 1 and 2, the defending ability *can't* have the Active Defense limitation; if it does, it already requires a defense roll to work at all, and can't be reinforced. In case 3, Control and Obscure can't have any limitation that prevents rapid activation (e.g., Takes Extra Time).

Calculate Power Block as follows:

Power Block = 3 + (HT + Talent)/2, for *physical* abilities.

Power Block = 3 + (Will + Talent)/2, for *mental* abilities.

Drop all fractions. Standard Block modifiers apply, *except* those for footing, posture, relative height, retreating, and shield DB.

Success means the attack still hits but the defense is greatly enhanced. A defensive ability gets *double* its usual DR or resistance bonus against the attack, while each level of Control or Obscure provides DR 1 or +1 to resist, as applicable. Thus, a weak-but-talented telepath with Mind Shield 4 could double his resistance bonus to +8, almost ensuring successful resistance, while a smoke-tossing super could use Obscure 10 (Vision) to get DR 10 vs. a laser.

Failure means the defense has *no effect* – not even its usual effect. The attack goes right through it. A defender

taking All-Out Defense (Double Defense) can try another defense; otherwise, he's out of luck. If the GM is using *Crippled Abilities* (p. 156), critical failure can also cripple the ability. Thus, Power Block is a bit of gamble. Use it wisely!

Power Block counts as an active use of the defending ability, even if that ability is normally passive.

Resisting Abilities

These rules are only for abilities that have resistible effects. They apply specifically to *resistance* rolls – not to attack rolls for resisted abilities or defense rolls against them.

Uncontested Resistance

Some abilities offer the subject a simple resistance roll against an attribute, Will, or Per, with success indicating that he's unaffected. Examples include Afflictions (except those with Malediction), Terror (unless given Active), and anything with the Glamour or Resistible limitation. Should it be unclear which score to use, assume HT if the ability affects the body, Will if it affects the mind.

Modifiers to Resistance Roll: A penalty equal to level-1 for Affliction; the Fright Check penalty bought for Terror; a modifier ranging from -5 to a bonus for Glamour or Resistible. Those attacking with Affliction can use *Trading Fatigue for Effect* (p. 160) to increase the level, and hence the penalty, temporarily. Coordinated Attack (Overwhelm) gives -1 per attack after the first that hits; see p. 165. See *Power Block* (p. 168), *Advantages that Aid Resistance* (below), and *Trading Fatigue for Resistance* (below) for bonuses.

Contested Resistance

Other abilities resolve resistance using a Quick Contest between attacker and defender. These obey the rules under *Resistance Rolls* (p. B348). Such attacks include Neutralize, anything modified with Malediction, and most mental-influence abilities – Illusion (Mental), Mind Control, Terror (Active), etc.

Modifiers to Attacker's Roll: A bonus equal to Talent; +1 to +4 from *Trading Fatigue for Skill* (p. 161).

Modifiers to Defender's Roll: All modifiers to resistance rolls given under *Uncontested Resistance* (above).

Enforce *The Rule of 16* (p. B349) *after* both sides have added all modifiers.

Advantages that Aid Resistance

Many advantages give bonuses to resist specific types of attacks, including:

Damage Resistance: Adds to rolls to resist Afflictions – but Armor Divisor adjusts DR, while other penetration modifiers (e.g., Follow-Up, Malediction, Respiratory Agent, and Sense-Based) bypass it completely. Enhancements and limitations on the *DR* can be important, too. Directional and Partial mean the DR only applies if the attack strikes certain hit locations; Limited restricts the bonus to Afflictions in a specific category; and only DR with Force Field covers the *eyes*.

Fearlessness: Adds to rolls to resist any mental-influence ability when the attacker's objective is to cause fear or induce a Fright Check.

Fit: Gives +1 (Fit) or +2 (Very Fit) to any HT-based resistance roll.

Hard to Kill: Adds to resistance against Afflictions modified with Heart Attack.

Hard to Subdue: Adds to resistance against Afflictions modified with Coma, Sleep, or Unconsciousness.

High Pain Threshold: Gives +3 to resist Afflictions modified with Agony or Pain (any level).

Magic Resistance: Adds to rolls to resist any ability with the Magical power modifier.

Metabolism Control: With the Mastery enhancement, gives a bonus equal to its level to any HT-based resistance roll.

Mind Shield: Adds to any IQ, Will, or Perception roll made to resist mental-influence abilities or abilities with the Glamour limitation.

Protected Power (p. 69): Gives +5 to resist *direct* attacks on the power itself; e.g., Neutralize.

Protected Sense: Gives +5 to resist Sense-Based attacks that exploit the shielded sense.

Resistant: Resistant gives +3 or +8 to resist a broad category of attacks; e.g., Resistant (Poison) adds to rolls to resist any Affliction, Fatigue Attack, or Toxic Attack defined as poison. It's possible to buy Resistant against *all* resistible abilities of a given power, focus, or source; see *Resistant* (p. 71) for details.

Trading Fatigue for Resistance

At the GM's option, the target of any ability that allows a *contested* resistance roll can sacrifice FP for a bonus to resist. When using this rule, the attacker rolls secretly and tells the defender whether he succeeded or failed, but *not* his margin of success. The defender then declares how many FP he wishes to spend (maximum 4 FP), marks off the FP, and makes his resistance roll at +1 per FP used. This only benefits that one roll.

This rule is *optional* – but in the interest of fairness, the GM should probably use it if he allows *Trading Fatigue for Skill* (p. 161). Like extra effort, this option is unavailable to individuals with the Machine meta-trait.

Talent as Resistance

Those who possess powers enjoy a degree of subconscious control over their power's focus and source, distinct from its specific abilities. This is the reasoning behind *Power Parry* (p. 167) and *Power Block* (p. 168). Optionally, the GM may use the same logic to permit those who have Talent with a power to add it to all rolls to resist that power's abilities. The defender only gets this bonus if his assailant's power has the same source, focus, *and* power modifier as his own.

Stunts

The players *will* eventually try to use the PCs' abilities in ways that no advantage or modifier provides rules for – particularly in campaigns that emulate myth, high fantasy, or comic books. The GM is free to forbid such attempts, of course, but it's more fun to allow them . . . as long as the risks balance the potential rewards.

These rules cover some of the more common heroic "stunts." They're completely *optional,* and it's up to the GM whether they apply to all advantages, only to exotic or supernatural ones, or only to the abilities of powers. Be aware that these options make abilities *much* more flexible.

In all cases, a critical failure to perform a stunt involving a power can cripple the power, if *Crippled Abilities* (p. 156) is being used.

Combining Powers

In many kinds of fiction, power-wielders – notably wizards, psis, and supers – can cooperate to produce effects that exceed their individual capabilities. This stunt, known as *combining powers,* is an involved process that directly links the participants' powers. If the objective is merely to gang up on an opponent, make a Coordinated Attack (p. 165) instead.

Any number of people can combine powers, but only if their powers have the same source: all divine, all psionic, etc. Their powers needn't have a common *focus,* though. For instance, priests of like-minded gods could combine divine powers, and espers and telepaths could combine psi powers. Those with identical powers (all priests of *Loki,* all psionic *telepaths,* etc.) can combine more effectively, however.

The GM has the final say on who can combine powers with whom.

Linking Up

The first step in combining powers is "linking up." This normally requires the *entire group* to be in physical contact (but see below). Topology is unimportant as long as each participant is touching at least one other. The most common configurations are touching a common center and holding hands – often in a circle. In combat, some group members might have to take Move maneuvers to get close enough to touch others. Establishing contact with someone in reach requires a Ready maneuver.

Individuals unable to touch the rest of the group physically can still join via a *mental* link. The remote participant must either contact or be contacted by another member of the group using Mind Reading or Telesend. Use the standard rules to initiate contact; this generally requires a Concentrate maneuver. There's one drawback, though: mentally linked participants can only combine powers that originate from the same source as the ability used to establish contact; e.g., a mental link via psionic Mind Reading would only be useful when combining *psionic* powers.

Once everyone is in contact, physically or mentally, they must form a link between their *powers.* Each member of the group must take a Concentrate maneuver and roll against IQ.

Any number of people can combine powers, but only if their powers have the same source: all divine, all psionic, etc.

Creative Uses of Special Effects

Most abilities are "second nature," like walking and talking. The GM shouldn't require die rolls for *trivial* feats that take advantage of their special effects (see *Special Effects,* p. 113) – any more than he would make the PCs roll against DX to cross the street or IQ to engage in casual conversation. For instance, if Laser Lad buys Burning Attack (Variable), the GM should let him reduce it to 0d and use it as a laser pointer without a roll against Innate Attack skill.

Exploiting special effects in a manner that affects the plot (see *When to Roll,* p. B343, for guidelines) *does* require a roll, just as crossing a tightrope or inciting a riot requires a skill roll for walking or talking. The roll needn't be against the score that usually controls the ability, however. Use DX if reflexes matter, IQ if strategy or planning is important, and a skill if knowledge is involved. The GM might require Laser Lad to roll against Artist skill to burn a complex diagram on the wall, for example. As long as the stunt is still a minor use of special effects, though, it requires no penalties or costs to be balanced.

If a hero wishes to use one of his abilities as a different ability with similar special effects, that should require a die roll *and* involve costs or penalties; see *Using Abilities at Default* (p. 173). This would be the case if Laser Lad tried to blind someone with his laser, using his Innate Attack as an Affliction.

Modifiers: A penalty equal to the number of *other* people involved (-1 for a group of two, -2 for a group of three, and so on); -2 if connected via a *one*-way mental link; +0 if using a physical link or *two*-way mental link (both parties using Telesend, one party using both Telesend and Mind Reading, etc.); Talent (the *highest* Talent, for those with multiple powers that share the group's common source); +5 if the entire group has the same power.

Success links that individual's powers to the group. Failure means he can't participate, but his power still lets him act as a "bridge" between other group members. Critical failure may cripple his power (see *Crippled Abilities,* p. 156), and cuts off those whose sole link to the group runs through him.

If the entire group agrees, those who failed can try again. *Everyone* must reroll, but this only counts as a repeated attempt for those who failed (see *Repeated Attempts,* p. 159). Use the same rule when a latecomer tries to join – but remember to apply the modifier for the *new* group size.

The GM is free to impose other conditions that suit the powers involved. Onerous requirements should come with compensating benefits. For instance, priests might require a full minute of ritual prayer to link up, but get to roll against the higher of IQ and Religious Ritual skill to do so.

Combined Powers in Action

Linking up lets the group combine its abilities and Talents. For each task, the group must select one of their number as leader. This person can change from task to task. The leader can use any of *his* abilities for the task, and makes all associated die rolls . . . but he gets a big boost from his companions.

Talent

The leader's effective Talent is his native Talent, plus 1/2 the total Talent of all group members who share the power he's using, plus 1/4 the total Talent of members who share only the source of that power. Drop all fractions. Effective Talent *can* exceed four levels.

Ability

If the ability comes in levels, dice, ST points, etc., the leader's effective level is equal to the *highest* level among those who possess the same ability and power, plus 1/2 the total level of all other participants with that ability and power, plus 1/4 the total level of those who have an ability that uses the same advantage but belongs to a different power of the same source. Drop all fractions.

If the ability doesn't come in levels, the extra power lets the leader temporarily add or improve enhancements to his ability, remove or reduce its limitations, or both. Those with the same ability and power as the leader give +50% apiece; those with similar abilities from other powers of the same source give +25% each. The leader can modify his ability in any way his power and the GM allow. The GM should *always* permit boosts in area, duration, and range.

In either case, someone whose ability has limitations can only contribute if the GM agrees that the ability would be useful for *that specific task.*

Other Effects

If the ability has a FP cost – for normal use or for a special feat like extra effort – the group can divide this among themselves however they please. In the event of a dispute, the GM can split the cost equally or just roll randomly to see who pays.

There are only two drawbacks to combining powers. First, critical failures affect each and every member of the group as if he, personally, had rolled a critical failure. Second, each use of a particular ability by the group counts as a use for *every* participant, for all purposes (repeated attempts, Limited Use, etc.).

Unlinking

Any participant can end his involvement at any time, as a free action. Unlinking isn't always voluntary, though. A group member who's stunned must make a Will-3 roll, with failure meaning he's unlinked. One who is knocked out, or suffers an incapacitating or mortal affliction (see *Afflictions,* p. B428), is *automatically* unlinked. A physically linked participant is immediately unlinked if movement, knockback, or anything similar forces him to break physical contact with the group. A mentally linked individual is instantly unlinked if the ability mediating his link fails due to jamming, incapacitation, etc. Those whose sole link to the group is through someone who's no longer linked are themselves unlinked.

The only effect unlinking has on the *group* is the loss of access to the gifts of the unlinked individual(s).

Example of Combined Powers

Four of the East Side Mutants are trapped behind 10 tons of reinforced concrete in the collapsing stronghold of the nefarious Dr. Boom. They all have Telekinesis (TK), but even their strongest telekinetic, Singularity, can't budge the rubble – his TK 40 can only move 3,200 lbs. at Extra-Heavy encumbrance. The Mutants decide to combine their powers to escape.

Degauss has Magnetism power, Talent 2, and Telekinesis 30; his TK has the Magnetic limitation, but the GM rules that he can lock onto the steel rebar in the rubble. Poltergeist has Psychokinesis (PK) power, Talent 3, and TK 30. Singularity has Gravity power, Talent 2, and TK 40. Sk8ter has Kinetic Energy power, Talent 4, and TK 18. All four have the Super power modifier, so they can combine powers.

The Mutants' leader – a brain-in-a-jar known only as Professor Hippocampus – is across town at Mutant HQ. Sk8ter calls the Prof on her cell phone and fills him in on the situation. The Prof has Telepathy power, Telepathy Talent 4, and Telesend . . . and also PK power, PK Talent 2, and TK 40. Luckily, *both* of his powers have the Super modifier, so he can use Telesend to link up with Sk8ter and lend his PK to the task.

With the Prof in her head, Sk8ter touches hands with her three companions and they all concentrate. Everyone has to roll against IQ, at -4 for four other participants. Talent reduces this to -2 for Degauss and Singularity, -1 for Poltergeist, and 0 for Sk8ter and the Prof (he uses his *best* Talent) – but the Prof has an extra -2 for a one-way mental link, for a net -2. Being smarter than average, everyone succeeds, establishing the link.

Since the group has two psychokinetics and knows that identical powers work well together, they designate Poltergeist as their leader (the 10-yard range limit on TK puts the Prof out of the running). Poltergeist gets her PK Talent; plus 1/2 the Prof's PK Talent, since they share PK power; plus 1/4 the others' Talents, since they share only a source. That comes to 3 + 2/2 + (2 + 2 + 4)/4 = 6.

As for Telekinesis, Poltergeist uses the *highest* level possessed by those who share her power, which is the Prof's 40, plus 1/2 her own TK level, plus 1/4 the others' levels. This is 40 + 30/2 + (30 + 40 + 18)/4 = 77.

Telekinesis 77 still isn't enough to move 10 tons . . . but Poltergeist can apply her high effective Talent to use extra effort. At -1 to Will per extra 5%, she goes for an extra 30%. The +6 for Talent cancels the -6 on the roll. She makes her Will roll, pays 1 FP, and adds 30% to the combined TK level. That comes to TK 100 – and ST 100 is just enough to lift 10 tons at Extra-Heavy encumbrance. With a titanic effort, the Mutants toss aside the concrete slab and escape to freedom!

Temporary Enhancements

Many fictional adventurers blithely modify their abilities on the fly, meeting each problem with a creative solution. Players who want to do this kind of thing regularly should consider taking Selectivity (p. B108) alongside many other enhancements, connecting several related abilities using the *Alternative Abilities* rule (p. 11), or just buying Modular Abilities (p. B71). The GM might allow *anyone* to add temporary enhancements in a pinch, though . . . at a cost.

The first step is to specify the game-world effects of the stunt. The player must tell the GM *exactly* what he wishes to accomplish and which enhancements he feels would let his ability do this. The proposed use must be a simple extension of the ability, consistent with the focus and source of the user's power, and involve only enhancements normally allowed on the underlying advantage.

If the GM agrees that a few enhancements would do the job, proceed to the next step. If he feels that the desired changes call for an entirely new advantage, see *Using Abilities at Default* (p. 173). And if he decides that the proposed stunt isn't possible, it isn't! In particular, the GM should consider forbidding anything that calls for Link, Reduced Fatigue Cost, Reduced Time, Reliable (but see *Trading Fatigue for Skill,* p. 161), or enhancements that negate the ability's permanent limitations, and only allow Cosmic when truly appropriate.

Adding temporary enhancements requires a Concentrate maneuver and a Will roll for a mental ability, a Ready maneuver and a HT roll for a physical one. In games that use *Skills Enhancing Abilities* (p. 161), the GM might permit a Will- or HT-based roll against a suitable skill instead. Use Expert Skill (Psionics) for psi powers, Meditation for chi powers, Religious Ritual for divine powers, Ritual Magic for spirit powers, Thaumatology for magical powers, and so on.

Modifiers: -1 per +10% of enhancements added, or fraction thereof. The user can offset this penalty (but never get a net bonus) by voluntarily spending FP; each FP cancels -1 in penalties. Those using powers get a bonus equal to their Talent.

Succeed or fail, the attempt costs *2* FP over and above any voluntary FP expenditure.

Success means the ability gains the desired enhancements. If the enhanced ability is transient – Healing, Innate Attack, etc. – it gets one "shot." The user must prepare and roll again if he wants to repeat the stunt. Ongoing abilities get a minute of enhanced use, and the user can maintain the enhanced effects by making a new roll and paying FP every minute. On a critical success, there's no FP cost for that use or minute.

Failure means the ability gains no enhancements but continues to function normally. On a critical failure, it becomes so scrambled that it's unavailable for 1d seconds. This is true even for always-on abilities. In addition, check for crippling (see *Crippled Abilities,* p. 156) – and note that the consequences apply to the *entire power.*

Below are some suggested uses for temporary enhancements. The GM is free to allow whatever he likes in *his* campaign.

Enhancing Active Abilities

Enhancements that increase an ability's physical *scope* – e.g., Area Effect to widen area, Can Carry Objects to affect more weight, Extended Duration to increase duration (but *never* to permanent), and Increased Range to extend range – are generally suitable for all active abilities that have the relevant parameters. Selectivity is also acceptable; it lets the user switch *off* one or more permanent enhancements that aren't required by his power. The GM should judge other enhancements, particularly special enhancements, on a case-by-case basis.

Improving Attacks

Some specific temporary enhancements are especially suitable for attacks:

- *Area Effect:* A single level (filling a two-yard radius) is reasonable for any attack, and represents spreading the attack over a small area. Attacks that *already* have Area Effect can add any number of levels.
- *Armor Divisor:* Any attack other than an area effect, cone, or explosion can add a level of this enhancement to represent narrowing the attack to better pierce armor.
- *Cone:* As for Area Effect, except that attacks that lack Cone are limited to a cone a yard wide. This represents widening or "fanning" the attack.
- *Cyclic:* Two or three cycles, with an interval no longer than 10 seconds, are suitable for Corrosion and Burning Attacks that don't normally endure.
- *Drifting, Mobile, Persistent,* and *Selective Area:* An attack with Area Effect can have Persistent or Selective Area as a temporary enhancement. Drifting and Mobile can always accompany Persistent.
- *Low or No Signature:* The user can always try to attack stealthily, unless his ability has glaringly obvious effects (GM's decision).

- *Rapid Fire:* The GM might allow this as a kind of Rapid Strike with a ranged attack. Maximum RoF shouldn't exceed twice regular RoF (giving RoF 2 for most attacks).
- *Variable:* This lets the attacker "pull his punch" with an ability that doesn't normally allow that degree of control.
- *Wall:* Attacks that have the +30% level of Wall can boost it to the +60% level, letting the user shape the effects. Attacks that lack Wall in the first place *can't* add it.

The GM *shouldn't* allow temporary enhancements that change the attack's fundamental game-world effects – for instance, by turning a beam to gas. This restriction might prohibit some of the options above, and nearly always excludes Aura, Blood Agent, Contact Agent, Follow-Up, Guided, Homing, Jet, Malediction, Overhead, Respiratory Agent, Sense-Based, Side Effect, Symptoms, Underwater, and most Damage Modifiers.

Enhancing Passive Abilities

Few passive abilities are suitable for temporary enhancement. Those that have active *uses* are the exception. When actively using such abilities, the wielder can enhance them as described for active abilities.

Extending Defenses

Most defensive abilities aren't under the user's conscious control – they're passive and always on. The GM should generally forbid temporary enhancements on them, with two exceptions:

Force Fields: Fictional heroes with personal force fields often extend them to protect others. The GM should allow the combination of Affects Others *and* Area Effect on any ability that already has Force Field. See *Affects Others* (p. 107) for details on combining these modifiers.

Mind Shield: The Force Field enhancement is intended to protect the user's eyes and possessions. It rarely makes sense for Mind Shield, which protects the *mind*. The GM should permit it in conjunction with Affects Others *and* Area Effect, though. This allows powerful mentalists to protect their friends – a feat often seen in fiction.

Using Abilities at Default

The GM might permit cinematic heroes to press active abilities into service as related abilities based on *totally different advantages*. For instance, a super with a laser built from Innate Attack might retool it as a blinding Affliction in an emergency. Such temporary capabilities are called "defaults," by analogy to skill defaults (p. B173). The flexibility of defaults comes at a price, however. Those who plan to engage in constant improvisation are better off with Modular Abilities (p. B71).

Before allowing any default, the GM should have the player describe the proposed stunt's precise game-world effects. The player must specify the ability he intends to use, the one he wishes to emulate, and why he thinks his character could make the first serve as the second. There must be an *uncontrived* relationship between the special effects of the two abilities – and if a power is involved, both abilities must belong to the power. Thus, only related abilities of the same power default to one another. It's up to the GM what defaults, if any, are possible for "wild" advantages.

The default ability *must* share the starting ability's power modifier and all of its usage limitations: Accessibility, Costs Fatigue, Limited Use, Preparation Required, Takes Extra Time, Takes Recharge, Trigger, Unreliable, etc. If the starting ability requires 10 seconds of concentration and costs 5 FP, so does anything that defaults to it . . . and if it only gets one use per day, the default use counts.

Finally, the point value of the default ability can't exceed that of the one providing the default. Use both abilities' *final* costs, after all modifiers. Don't stop the game to do math, though. The GM should simply estimate the point costs involved. Of course, the players are welcome to work out likely default uses before play begins, if they *want* to run the numbers.

The GM decides whether a default is possible given these considerations. If it is, skip to the next step. Otherwise, he rolls secretly against the hero's IQ, with +4 for Common Sense but at -2 or more if a disadvantage such as Bad Temper or Overconfidence is involved. On a success, he tells the player that the proposed improvisation isn't possible. On a failure, he applies the rules below – penalties, FP costs, etc. – but *doesn't* say that the stunt is impossible. When the time comes to *use* the ability, though, it has only its usual effects. Default use is risky for those with an inflated view of their capabilities!

Improvising one ability from another requires a Concentrate maneuver and a Will roll if the starting ability is mental, a Ready maneuver and a HT roll if physical. A Will- or HT-based roll against a skill might be possible instead; see *Temporary Enhancements* (p. 172) for details.

Modifiers: -2 per 25% of the starting ability's point cost the default ability is worth, or fraction thereof; e.g., for a 40-point ability, this would be -2 for a default that costs 1-10 points, -4 for 11-20 points, -6 for 21-30 points, and -8 for 31-40 points. Apply another -2 if the two abilities aren't of the same general type – both attacks, both defenses, both communications abilities, etc. The user can offset these penalties (but never get a bonus) by spending FP; each FP cancels -1. Those using powers may add their Talent.

Succeed or fail, the attempt costs 3 FP *over and above* any voluntary FP expenditure.

Success means the ability works as intended. If it's transient, each use of this stunt gives one "shot." If it's ongoing, the user gets a minute of operation, after which he must roll again and pay FP for another minute. On a critical success, there's no FP cost for that use or minute. Whatever the ability and however great the success, default abilities get -2 to all required die rolls due to unfamiliarity (see *Familiarity,* p. B169). In addition, if the user lacks the skill needed to wield the ability, he must use that skill at default. These penalties *are* cumulative. The GM may allow heroes to reduce the penalties for use (not for the stunt itself) by buying a technique.

Failure means nothing happens, but the ability continues to function normally. This is obvious except when the stunt is impossible and the person attempting it fails his IQ roll and tries it anyhow. On a critical failure, the ability – even one that's always on – goes offline for a second, and the user must check for crippling (see *Crippled Abilities,* p. 156), with the results affecting his *entire power.*

Below are some common options for default use. The GM is the final judge of what's possible.

Amplify

Fictional heroes often "overload" nonlethal attacks, turning them into Innate Attacks. This is especially likely for Afflictions – a blinding light beam becomes a scorching laser, a paralysis ray becomes a neural disruptor, and so on. In the case of Binding, amplification typically involves bludgeoning victims with the projected force or matter. Even Obscure can have lethal potential; e.g., thickening blinding smoke into choking gas.

Occasionally, amplification lets a *non*-attack ability work as an attack. For instance, a desperate hero might use Control to concentrate ambient energy into a weapon, or ramp up the output of Scanning Sense or Telecommunication for offensive use. This can result in Affliction *or* Innate Attack. The -2 for different ability types is mandatory here!

Moderate

It's also possible to "tone down" an ability to produce more subtle effects. The usual application is to turn Innate Attack into a nonlethal weapon; e.g., dial back a sonic blast to a deafening Affliction, or strategically place ice bolts to act as an icy Binding. If the power's *focus* is fundamentally dangerous – like death magic or gamma rays – the GM shouldn't allow nonlethal effects as defaults, though.

By accepting the extra -2 for changing ability types, attacks can also emulate *non*-attack abilities, such as Scanning Sense and Telecommunication. For instance, a sonic blast could become Sonar or Directional Sound.

Moderation isn't just for attacks. *Many* advantages could be "less extreme" versions of others: Possession might act as Mind Control by influencing the target's mind without utterly dominating him, Terror might serve as Rapier Wit by unnerving victims without terrifying them, Flight might scale back to Super Jump, and so on.

Target

Another option is to wield the ability with greater *precision* than usual. Examples include modulating Scanning Sense as makeshift Telecommunication; aiming Binding at the eyes to act as a blinding Affliction; employing Neutralize to burn out one specific ability, turning it into an Affliction with Negated Advantage; and using subtle Mind Control to convince the subject he's afraid, causing Terror. If the default use corresponds to *physical* precision – e.g., aiming at the eyes – use the *larger* of the -2 for unfamiliarity and the usual penalty to hit.

Broadcast

Conversely, a normally precise ability might act entirely differently when spread over an area. Tight-beam Telecommunication might serve as Scanning Sense; someone with Illusion could generate "noise" that acts as Obscure; some types of Innate Attack might disperse enough to function as Create (*especially* those that project electricity, light, or sound); and Telesend could project a disconcerting aura that works as Terror.

Reverse

Even "opposite" abilities might default to one another, if they're part of a power that regards them as halves of a single, two-way capability (GM's decision). For instance, the wielder of a power that includes Control (Air) and Control (Vacuum) might reverse the flow of air, allowing one Control to default to the other. Likewise, the user of a power that offers Precognition and Psychometry might actively use one as the other by looking in the opposite "direction" in time. Reversed uses are *always* at -2 for changing ability type.

SOURCE-SPECIFIC RULES

For each power in the campaign – or at least, each *source* – the GM should examine the options in this chapter and choose those that give the "flavor" he desires. Not every power need allow defaults, extra effort, and so on. A few powers might even be subject to unique rules. Here are some recommendations for optional rules to use with common power modifiers (see *Sample Modifiers,* p. 26), including:

Beneficial Options: Suggestions as to which effectiveness-boosting options best suit that power source, based on fictional precedents. *Abilities Enhancing Skills* (p. 162), *Creative Uses of Special Effects* (p. 170), and *Talent as Resistance* (p. 169) should apply to *all* powers – and the first two to "wild" advantages as well – if they apply at all.

Limiting Options: Recommended "controls" on such powers. *Skills for Everyone* (p. 162) qualifies because those who don't spend extra points on special skills must rely on their defaults, giving them an effective -6 to use their abilities.

Special Rules: Additional optional rules and notes that apply only to those powers.

If the GM feels that a given power is simply *better* because it enjoys many beneficial options or suffers from few or no limiting ones, he's free to adjust its power modifier or assess an Unusual Background cost.

Biological Powers

Beneficial Options: Skills Enhancing Abilities (p. 161) often applies, since the user's special gifts are "natural" and as easily incorporated into mundane training as ordinary physical capabilities. In most worlds, the only absolute limit on what these powers can accomplish is the wielder's supply of bioenergy; thus, *Temporary Enhancements* (p. 172), *Trading Fatigue for Effect* (p. 160), and *Using Abilities at Default* (p. 173) are highly appropriate.

Limiting Options: Biological abilities are about as tiring as lifting, running, and so on – and like physical feats, they can lead to crippling strain if pushed too far. *Abilities and Exertion* (p. 159) and *Crippled Abilities* (p. 156) are strongly recommended.

Special Rules for Biological Powers

Targeting Biological Abilities: Fighters who've studied biological powers might be able to target the unusual organs responsible for these gifts. To attempt this, the attacker must observe the target ability in action and make a successful roll on Expert Skill (Bio-Powers), Physiology (*Homo superior*), or other obscure skill set by the GM. Success lets him target that ability at -8 using any impaling, piercing, or tight-beam burning attack. Figure injury as for the torso. A major wound (see p. B420) cripples the ability. Use *Duration of Crippling Injuries* (p. B422) to determine recovery. Permanent crippling is possible. To overload a power without damaging the target, use *Deliberate Crippling* (p. 156) instead.

Chi Powers

Beneficial Options: The customary link between these powers and the more colorful claims made for the martial arts sets the tone. *Coordinated Attacks* (p. 165) and *Defending with Powers* (p. 167) suit larger-than-life combat; *Power Techniques* (p. 162) complement mundane combat techniques; and *Skills Enhancing Abilities* (p. 161) makes it possible for those with cinematic skills to get the most out of their gifts. Mighty efforts are elemental to martial-arts mythology, so *Trading Fatigue for Effect* (p. 160) and *Trading Fatigue for Skill* (p. 161) also fit.

Limiting Options: Abilities and Exertion (p. 159) and *Crippled Abilities* (p. 156) are highly appropriate, given the blurry line between chi-fuelled feats and ordinary physical ones. *Repeated Attempts* (p. 159) is ideal for settings where true masters do things on the first attempt while novices squander their chi trying and failing. Given the emphasis on training in martial-arts fiction, the GM may wish to consider *Skills for Everyone* (p. 62).

Special Rules for Chi Powers

Chi Imbalance: If a chi-user somehow manages to cripple his *power,* he suffers a chi imbalance in addition to the usual effects. This takes the form of a long-term affliction; see *Chi* (p. 26) for details.

Skill Use: Those who possess a chi ability and a cinematic martial-arts skill that cover similar ground – Invisibility and Invisibility Art, Super Jump and Flying Leap, etc. – get +4 when they use the ability to enhance the skill, and may roll against the skill instead of an attribute to use the ability. The GM should also consider letting Power Blow replace Will for extra effort with chi powers. Finally, Body Control and Meditation might stand in for HT and Will, respectively, when checking for crippled chi abilities or powers. In all cases, only use a skill if it's *better* than the usual score.

Targeting Chi Abilities: The Pressure Secrets skill (p. B215) can target physical chi abilities by striking the vitals, or mental ones by striking the skull, at an *extra* -2 to hit. If the victim suffers at least one point of injury, roll a Quick Contest of Pressure Secrets vs. the subject's HT (physical) or Will (mental). Victory cripples the target ability for 2d seconds, after which it recovers automatically.

Cosmic Powers

Beneficial Options: Godlike powers should have access to the entire gamut of options – even when other powers don't – unless the GM deems a particular rule inappropriate for his campaign.

Limiting Options: Collateral Damage (p. 165) is a classic result of battles that involve truly awesome powers. *Crippled Abilities* (p. 156) should apply when using optional rules that charge FP to "push the envelope," but not at any other time. The GM should also consider waiving *Abilities and Exertion* (p. 159). Of course, demigods might stumble and sweat as much as anyone else in a *silly* campaign . . .

Special Rules for Cosmic Powers

Laws of Creation: In keeping with myth, the GM may rule that even godlike powers are subject to certain basic restrictions built into the universe, and that there's no way to remove these limits . . . save, perhaps, with the unanimous agreement of *every* wielder of cosmic powers. For instance, the GM might declare that cosmic abilities can't disrupt the mass, orbits, and so on of astronomical bodies (planets, stars, etc.) – even when the rules suggest that this is possible.

Divine Powers

Beneficial Options: Combining Powers (p. 170) is ideal for complex rituals involving many priests. Holy folk can sometimes use skills such as Exorcism and Religious Ritual to direct their abilities; this is a special case of *Skills Enhancing Abilities* (p. 161). Use *Temporary Enhancements* (p. 172), *Trading Fatigue for Effect* (p. 160), *Trading Fatigue for Skill* (p. 161), and *Using Abilities at Default* (p. 173) when those blessed with divine powers pray for additional aid.

Limiting Options: When mortals smite foes with divine might, their imperfect control is likely to cause *Collateral Damage* (p. 165). Other ways to represent the limited ability of holy servants to control divine will are *Multiple Feats* (p. 158) and *Repeated Attempts* (p. 159). In settings where each miracle demands a specific ritual, the GM may wish to use *Skills for Everyone* (p. 162).

Special Rules for Divine Powers

Angering the Gods: On a critical failure when using optional rules to improve or alter a divine ability, don't use *Crippled Abilities* (p. 156). Instead, make a reaction roll for the deity, at -1 per similar failure since the miracle-worker last paid penance, sacrificed, etc. A Poor or worse reaction results in the same outcome as violating the power's required disadvantages; see *Divine* (p. 26). Even an ordinary, *successful* application of a divine ability can produce such effects, if the deity doesn't approve.

Holy Days: Divine powers might track a sacred calendar created by the GM. This could be astronomical (solar, lunar, celestial, etc.), numerological, or seemingly *random.* Certain days or seasons might give skill bonuses or extra effect, while others impede power use. Bonuses and penalties should roughly cancel out over the course of a year.

Sanctity Level: In settings where holy powers resemble magic, the "sanctity" levels mentioned for *Clerical Magic* (p. B242) might affect divine abilities. These parallel mana levels (see *Mana,* p. B235), with the following effects:

- In areas of *no* sanctity (places deliberately desecrated with respect to the deity, sites of very high sanctity for diametrically opposed deities, etc.), the abilities don't work at all.
- In areas of *low* sanctity (sites of high sanctity for diametrically opposed deities, and natural places opposed to the deity's sphere of influence; e.g., the sea, for a fire god), die rolls to activate the abilities are at -5.
- In areas where sanctity is *normal* (most places, including the temples of unopposed divinities), *high* (the deity's own temples, as well as natural places attuned to the deity's sphere of influence; e.g., a volcano, for a fire god), or *very high* (ancient and powerful temples, sites where the deity has performed miracles, etc.), the abilities work normally.

Elemental Powers

Beneficial Options: These powers emphasize direct control over an element. In most cases, this implies sufficient precision to fight creatively using *Coordinated Attacks* (p. 165) and *Defending with Powers* (p. 167), as well as some latitude to adapt abilities on the fly via *Temporary Enhancements* (p. 172), *Trading Fatigue for Effect* (p. 160), *Trading Fatigue for Skill* (p. 161), and *Using Abilities at Default* (p. 173).

Limiting Options: Most elemental abilities are *energetic,* and should be subject to both *Abilities and Exertion* (p. 159) and *Collateral Damage* (p. 165). When spending FP to "push the envelope," *Crippled Abilities* (p. 156) applies. Since precise control requires undivided attention, the GM should consider enforcing *Multiple Feats* (p. 158).

Special Rules for Elemental Powers

Aspect: As a twist on *Talent as Resistance* (p. 169), the GM may rule that Talent with an elemental power means the possessor has an innate "aspect" toward his element . . . and away from its opposite. He gets a bonus equal to Talent on all rolls to resist his element in any form, mundane or powered – but Talent acts as a *penalty* whenever he must resist the opposed element. For instance, Heat/Fire Talent 3 would give +3 to resist Heat/Fire abilities and ordinary heat, but -3 to resist Cold/Ice abilities and ordinary cold.

"Out of Your Element": The Elemental power modifier is in essence an Accessibility or Environmental limitation that prevents elemental abilities from working in situations where the element can't exist or the opposed element prevails. In environments where the element is merely suppressed – not completely shut out – the GM may assess a -1 to -9 penalty to related abilities. The power is unavailable in situations where the penalty is -10 or more. For example, in hot environments, Cold/Ice abilities might be subject to the penalties to HT rolls under *Heat* (p. B434).

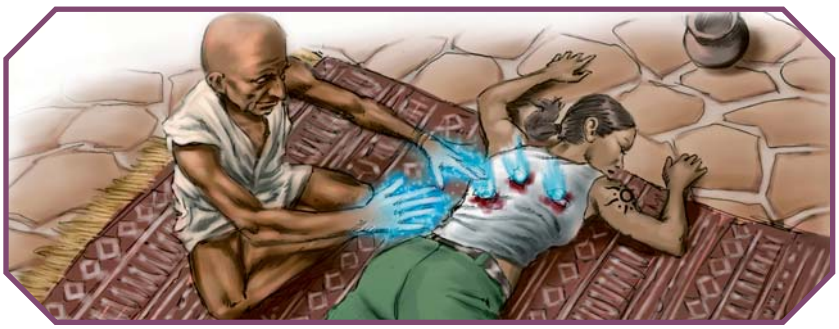
Magical Powers

Beneficial Options: Use *Combining Powers* (p. 170), not *Ceremonial Magic* (p. B238), when those with magical abilities cooperate. Dedicated students of magic might practice *Power Techniques* (p. 162) and have access to *Skills Enhancing Abilities* (p. 161), rolling against Thaumatology and other arcane skills to employ their gifts. The dramatic reason to use magical powers instead of spells is to permit improvisation; thus, the GM should consider *Temporary Enhancements* (p. 172) and *Using Abilities at Default* (p. 173).

Limiting Options: To keep magical abilities in line with spells – which have a FP cost to maintain and take -1 per spell "on" – the GM should probably enforce *Abilities and Exertion* (p. 159) and *Multiple Feats* (p. 158). He might also adopt *Skills for Everyone* (p. 162) and require mages who desire precise control over their abilities to learn spell-like skills.

Special Rules for Magical Powers

Backfires: If a mage critically fails when attempting to use temporary enhancements or default abilities, roll on the *Critical Spell Failure Table* (p. B236) instead of using *Crippled Abilities* (p. 156). A roll of 17 on the table, which would cause a spell-caster to forget his spell, means the ability is crippled.



Drawbacks of Magic: The Magical limitation (p. 27) is worth -10% because magical abilities work at -5 in areas of low mana (and not at all if there's no mana), allow targets with Magic Resistance a bonus to resist, and are subject to disruptive spells – Blocking spells can ward off attacks, Dispel Magic can end ongoing effects, and spells that resist magic can block new effects. In Quick Contests with spells, use the ability's controlling attribute or skill as its effective skill level. If it normally requires no roll, use HT for a physical ability, Will for a mental one. Talent still applies.

Moral Powers

Beneficial Options: Banding together against Evil, Chaos, or some similar menace is a venerable fantasy tradition, so the GM should consider permitting *Combining Powers* (p. 170) and *Coordinated Attacks* (p. 165). An interesting alternative is to allow only Good or Order to combine powers, while only Evil or Chaos can coordinate attacks. In epic moral conflicts, it's traditional for opposing powers to obstruct one another and for true heroes to push themselves past their limits; thus, *Defending with Powers* (p. 167), *Trading Fatigue for Effect* (p. 160), and *Trading Fatigue for Skill* (p. 161) all fit.

Limiting Options: Apply *Abilities and Exertion* (p. 159) when champions use their capabilities in wearying patrols, vigils, and battles to thwart The Other Side. *Collateral Damage* (p. 165) is crucial to epic battles between Light and Darkness. The GM should also look at *Multiple Feats* (p. 158), as it forces heroes to make difficult choices about *where* to apply their limited capabilities, which is quite fitting in great moral struggles.

Special Rules for Moral Powers

Faltering: Don't use *Crippled Abilities* (p. 156) for critical failures with moral powers. Instead, the hero must make an immediate Will roll. Failure means a moment of doubt or hesitation, which counts as a violation of his power's required disadvantages; see *Moral* (p. 27). *Any* application of moral abilities can have similar consequences, if the wielder is acting against his cause.

Places of Power: Sites associated with noble – or heinous – acts can acquire a moral "charge" over time. This gives from +1 to +5 to use the moral power behind said deeds, but a matching penalty (-1 to -5) to employ its anti-power. This can be a serious obstacle when taking the battle to the enemy!

Nature Powers

Beneficial Options: Combining Powers (p. 170) is logical for any power that emanates from a "life energy" field that ties together every living thing. *Skills Enhancing Abilities* (p. 161) – especially with such skills as Herb Lore and Naturalist – supports the traditional identification of nature guardians as wise men. The GM should also entertain *Trading Fatigue for Skill* (p. 161), as it permits those who wield nature powers to work around the penalties for despoilment and technology . . . at a cost.

Limiting Options: A common assumption in folklore is that nature responds poorly to constant prodding, making *Repeated Attempts* (p. 159) appropriate. Nature also appears to reserve *Collateral Damage* (p. 165) for *urban* areas, leaving wild places untouched. *Skills for Everyone* (p. 162) *isn't* appropriate in most cases – wise folk might be learned, but the formality of study is almost antithetical to nature in its wildest form.

Special Rules for Nature Powers

Aspect: As with elemental powers, the GM may rule that *Talent as Resistance* (p. 169) works somewhat differently here. Talent with a nature power might add not only to rolls to resist that power, but also to resistance rolls against truly natural threats, such as plant and animal poisons. If so, it acts as a *penalty* to resist toxic pollution, genetically engineered diseases, and other "abominations." It also subtracts from any roll to adapt to or use surgical implants or bionics.

Despoilment and Technology: Remember to apply the special modifiers under *Nature* (p. 28) to all rolls to use nature abilities.

Psionic Powers

Beneficial Options: Telepaths linking up to form a collective mind is the archetype for *Combining Powers* (p. 170); the GM might wish to permit this option for psi powers even if he forbids it elsewhere. Use *Defending with Powers* (p. 167) for mental blocks, stopping bullets with PK, and so on – and *Temporary Enhancements* (p. 172) to extend such defenses to others. Psi academies often teach *Power Techniques* (p. 162) for feats like active Precognition, and train psis to employ their gifts as extensions of mundane capabilities, leading to *Skills Enhancing Abilities* (p. 161). *Trading Fatigue for Effect* (p. 160) is a standard fictional trope – but so is a penalty for trying too hard, which makes *Trading Fatigue for Skill* (p. 161) unsuitable.

Limiting Options: In most game worlds, psis can burn out their powers if they are careless or unlucky (*Crippled Abilities,* p. 156), are capable of concentrating on only a few tasks at a time (*Multiple Feats,* p. 158), and tend to break a sweat if their initial attempt is frustrated (*Repeated Attempts,* p. 159). Psi is famously difficult to control without training, which the GM can represent with *Skills for Everyone* (p. 162).

Special Rules for Psionic Powers

Brain vs. Mind: Psi powers flow from the *mind* and stay with the psi if he switches into a body with another *brain*. However, the psi's current brain must work properly if he wishes to use psi – just as a computer must be functional for software to run on it. At the GM's option, a psi must make a HT roll for each psi power whenever he suffers a major wound (see p. B420) to the eye or skull. Treat failure exactly as per *Crippled Abilities* (p. 156). Also roll if suffocation, surgery, or drugs inflict over HP/2 as brain damage.

Psi-Tech: Superscience countermeasures are almost standard in settings with psionic powers. Antipsi helmet lining might grant Mind Shield 6 (Limited, Psionic, -50%), and add $1,000 to helmet cost and 1 lb. to weight. Typical antipsi drugs might give Resistant to Psionics (+3) for

6 hours and costs $100 per injectable dose – but such agents, being experimental, are likely to have side effects on a failed HT roll (the irritating conditions on p. B428 all fit). The GM should let gadgeteers develop better drugs using *Ultra-Tech Drugs* (p. B425) with *Gadgeteering* (p. B475).

Spirit Powers

Beneficial Options: Like other ritualists, sorcerers can cooperate to produce powerful effects; see *Combining Powers* (p. 170). Skills such as Ritual Magic and Symbol Drawing could logically replace attribute rolls for spirit abilities – a version of *Skills Enhancing Abilities* (p. 161). *Trading Fatigue for Effect* (p. 160) and *Trading Fatigue for Skill* (p. 161) are both excellent ways to represent "sacrifices" made to spirits for more potent results.

Limiting Options: Since spirits are notoriously indifferent to the harm they cause in the material world, the GM may wish to roll for *Collateral Damage* (p. 165) for *any* use of spirit abilities that could conceivably cause damage. *Multiple Feats* (p. 158) is eminently suitable, since only the greatest sorcerers can command more than a few spirits. In some worlds, each ability involves specific spirits called with a unique invocation; handle this with *Skills for Everyone* (p. 162).

Special Rules for Spirit Powers

Angering the Spirits: Attempts to use spirit abilities call for a reaction roll, per *Fickle* (p. 110). If the result is Neutral or better, the sorcerer can try his ability; otherwise, he can't, and future invocations are at a cumulative -1 to reactions. If the roll to *use* the ability critically fails, handle it just as if the initial reaction roll had come up Poor. If the critical failure involved extra effort, treat it like a Very Bad initial reaction. These effects are instead of *Crippled Abilities* (p. 156), and the cumulative reaction penalty replaces *Repeated Attempts* (p. 159).

Blood: In many worlds, the only way to get spirits to do you a favor is to offer them blood. If this is true, extra effort with spirit powers costs HP instead of FP.

Ritual Modifiers: If the GM wishes to make spirit abilities work more like traditional rituals, he may apply some or all of these modifiers:

- *Affecting others:* Most abilities that work on others assume that the target is in the sorcerer's physical presence. Some have stricter requirements, like touch. Those that can affect targets that *aren't* present – Telesend, Maledictions on those viewed remotely, etc. – require a representation of the subject to work, and even then have a penalty for his absence: -1 for a video or DNA sample, -2 for a photo or blood sample, -3 for hair or fingernails, -4 for clothing, -6 for a drawing, or -10 for nothing. Optionally, these modifiers can replace *Long-Distance Modifiers* (p. B241) for abilities that would normally use them.
- *Consecration:* -1 to -5 for ritually desecrated ground, +0 under most circumstances, or +1 to +5 for specially consecrated areas.
- *Regalia:* -3 if the sorcerer lacks proper ritual trappings – masks, robes, etc.
- *Ritual length:* To negate the above penalties, the sorcerer can take extra time to use his ability. Shifting a time requirement of seconds to minutes, one of minutes to hours, or one of hours to days gives +3; two steps give +5; and three steps give +7.

FP Cost and Source

Sometimes, using an ability costs FP. This requirement might be built into the underlying advantage, a result of the Costs Fatigue limitation, or a consequence of the special rules in this chapter. If the ability belongs to a power, *all* such FP costs are subject to any special rules for FP associated with the power's source in the game world. For instance, since FP spent on magic spells recharge in one second in areas with very high mana (see *Mana,* p. B235), so do FP spent on magical powers. Likewise, if sacrifices to spirits can supply FP for sorcery (see *Sacrificial Magic,* ***GURPS Fantasy,*** p. 165), the same FP can fuel spirit powers.

Super-Powers

Beneficial Options: Super-powers typically occur in cinematic settings, and the GM should plan accordingly. Super-teams often work together by *Combining Powers* (p. 170) and making *Coordinated Attacks* (p. 165). In battle, supers routinely use *Defending with Powers* (p. 167) and *Ricochets* (p. 166). And it's essential to the genre for heroes to stretch their powers with *Temporary Enhancements* (p. 172), *Trading Fatigue for Effect* (p. 160), *Trading Fatigue for Skill* (p. 161), and *Using Abilities at Default* (p. 173).

Limiting Options: Abilities and Exertion (p. 159) explains why supers without massive levels of Enhanced Move can't fly to Mars, and why even the toughest heroes get ground down by war, natural disaster, etc. *Collateral Damage* (p. 165) is practically *required* for super-battles. Super-powers are similar to psi powers in most other respects – they're the same thing in some worlds – and should use *Crippled Abilities* (p. 156), *Multiple Feats* (p. 158), *Repeated Attempts* (p. 159), and possibly *Skills for Everyone* (p. 162).

Special Rules for Super-Powers

Super-Tech: In hallowed comic-book tradition, the GM may rule that weird-science technology can affect super-powers. This is typically the purview of gadgeteers and the operatives of "black" agencies. *Reliable* technology works like the shielding or serum used against psi powers (see *Psionic Powers,* p. 177). More potent gadgets create rays or fields that simulate Neutralize or Static, and shouldn't show up in the hands of common thugs. In most cases, they're *flawed,* with 1d/2 bugs (round up); see *Gadget Bugs Table* (p. B476). Furthermore, they rely on weird science and have 1d-3 side effects (minimum one); see *Random Side Effects Table* (p. B479). All such flaws are permanent – the GM shouldn't let gadgeteer PCs engineer them away to create "perfect weapons."

Chapter Five
Power Games

There was a blonde. A blonde to make a grand hierophant kick a hole in a stained glass window. She had, in fact, done so on three separate occasions. My client was annoyed by this, and wanted her to stop.

I was looking for her on the streets of Sparta Tertia. I didn't think that I was getting very far, but the goons trying to persuade me to drop the case clearly disagreed. I'm used to bruisers pushing me into dark corners and telling me to back off, and I'm used to finding that I've got a shadow – but when that shadow tries to eat my lower soul, just as a warning, I take it badly.

So I went to the top. I walked through the front door of the Shrine of Dark Gateways, and a pale, nervous fellow with watery eyes jumped up from the front desk and tried to tell me that I couldn't come in without an appointment.

"So make me one," I said. "I haven't got time for the runaround."

He tried to talk some more, but just then, there was a shimmering in the air, and somebody who looked like he had some authority was standing there. I decided I was getting somewhere.

Of course, the new fellow had to spoil the moment by ordering two heavies I hadn't seen before to throw me out, but when I said a word, and their hands caught fire as they touched me, he started listening to sense.

It was all a family problem, of course. The tough cases always are.

Powers and abilities increase the options for character design. Hence, they increase the scope of the GM's task. This chapter deals with the art of running games in which powers loom large.

Origins

The various powers discussed in earlier chapters have an equally wide range of possible *origins* – things or events that grant powers to a being. Source and origin are *not* the same thing. Source defines how a power works; origin defines how it came to exist. For example, a character might have psi powers as the result of a genetic mutation, a superscience drug treatment, or quasi-mystical training – but the powers work in exactly the same way in each case. The available origins determine much of the campaign flavor, and are in turn related to the setting's laws of nature and tech level.

Available powers in an ultra-tech, very materialistic game may be technological and mechanical in nature – the product of devices built into robots and cyborgs. A character in that setting with Telecommunication will probably use radio, laser, or infrared. In a psi-based game, Telecommunication will probably mean Telesend with the Telepathic limitation. On the other hand, psionic technology *might* permit robots to be built with superscience "psychotronic circuitry," giving them Telesend – or psis might actually have power over the electromagnetic spectrum, enabling them to communicate via radio.

Biological Powers

Biological powers are often inborn traits. However, they could also be the result of weird lab accidents, superscience treatments, or divine gifts (or even curses: for example, vampires). Nonhuman races or genetically modified humans may have such powers, though most will have just a few minor abilities.

Chi Powers

Chi powers are usually the product of intensive training, similar to cinematic martial arts. Precisely *which* abilities are available, and how they are acquired, may be specified as part of the campaign background. ("You employ the Hundred-Pace Leap! You must have studied at the Green Mountain Monastery!") Players may come up with ingenious stories to get around these restrictions (possibly requiring Unusual Backgrounds), and really advanced chi adepts may create unique tricks of their own.

Cosmic Powers

Cosmic powers involve direct control over the universe. A shorthand definition is that they're "what gods do." As such, in most campaigns, they will be limited to gods or extraordinarily insightful beings – and if no gods exist and no great insights are possible, cosmic powers may be banned outright.

Furthermore, even gods may be restricted by their natures. A fire god might be unable to control anything under the ocean, either because his powers are limited by the mystical nature of water or because he has a binding pact with the god of the sea that neither may venture into the other's realm. (Indeed, legends may say that water douses fire *because of* such a pact. In a mythic fantasy game, this may be true.) Nor do all gods necessarily have cosmic powers; those who are just powerful spirits or creatures of magic may be bound by the same ultimate limitations as lesser beings.

Allowing the Cosmic enhancement has many implications. It bypasses many restrictions that enable the GM to keep a game under some kind of control. Anyone with cosmic powers is playing at the level of the gods, at least some of the time. Even if the campaign allows for divine PCs, they might be better treated as having mostly noncosmic powers; a god may only be able to produce ordinary fire, especially if fire isn't part of his sphere of influence. The high cost of cosmic powers should keep problems under control.

Racial Abilities

Defining a race in game terms is usually the GM's job; he should have the clearest idea of its nature. See the rules for template design in Chapters 7 and 15 of the ***Basic Set***. Remember that racial abilities don't usually constitute a power, though some races do have powers – usually biological or psionic, or technological in the case of robots.

Divine Powers

Cosmic powers are what gods do. Divine powers are what gods empower their servants (priests, angels, daemons, etc.) to do. In some games, they *might* take the Cosmic enhancement (a god with transcendent powers may lend out a fragment of them), but this is *not* mandatory.

Hence, divine powers usually have a very specific origin – the favor of a god. This may imply Clerical Investment, but this *isn't* universal. A devout hermit might receive the ability to work miracles without becoming part of a temple hierarchy. More important, divine powers are restricted by the rules set by the deity. Gods give aid on their own terms! Players who dislike having their PCs told what to do should *not* take divine powers, and campaigns should only be built around such powers if the players are comfortable playing in a world where some beings definitely outrank them.

High-Tech Powers

High-tech powers come from science and technology. In some campaigns, this may be cinematic superscience, or alien or pre-catastrophe knowledge far beyond the PCs' understanding.

What technology can do depends very much on the nature and TL of the campaign. In a gritty near-future game, a few cyborgs may have power-boosters in their bionic limbs, giving them a little Striking ST and Super Jump. In a space opera setting, robots with "memory metal frames" may have Shapeshifting, Stretching, and countless other abilities.

Magic Powers

Most ***GURPS*** campaigns focusing on magic will probably *not* use the ***Powers*** rules; rather, they will employ the "spells" system from Chapter 5 of the ***Basic Set*** and ***GURPS Magic***. However, in some cases, usually in superhero or lightweight fantasy stories, wizards can employ powers without apparently learning and casting specific spells. These characters may

Unified Metaphysical Theories

In some settings, there may be no fundamental distinction between "magical" and "spirit" or even "divine" powers; "magicians" work by commanding or petitioning supernatural beings. Similarly, a world's gods may be exceptionally powerful spirits (certainly, some beliefs make little distinction between the two categories), or creatures of great magical power – far beyond any human wizard, perhaps, but not actually different in kind. Likewise, the gods, or friendly spirits, may grant their priests or servants useful abilities – which may in fact be "spells." A wizard might gain the ability to fly or hurl lightning bolts after years of study, while a priest might have the same knowledge and skill placed in his brain as a reward for his prayers, but they could still end up employing the same methods to exploit the laws of the universe in the same way.

Of course, whether or not the various power-users know that they are manipulating the same basic forces is another question. If there's a rivalry between "toadying priests" and "atheistic wizards," they might *both* become angry at anyone who points out the truth. Certainly, gods with any pride will object to being placed in the same category as mere human conjurers.

Giving apparently different powers the same origin and fundamental nature has various practical advantages for the GM. It can make interactions between different power-users easier to manage, for example. However, it may also make the setting feel less rich and complex.

Magical Psi

In some settings, "magic" and "psi" both tap the same energies, in one case by study and formal disciplines, in the other by raw talent and willpower. If magic is simply psi power unlocked by self-hypnosis, the way that magical powers are defined for game purposes should reflect this.

"Pseudo-magical psi" might be stopped or negated by anti-psi powers (-5%) and have a minor Accessibility limitation to reflect the need to perform brief incantations, make small "casting" gestures, and have "spell components" to hand (-10%) for a net power modifier of -15%. (This assumes a low-tech generic fantasy setting where psionic technology doesn't exist, or at least can't produce effective countermeasures.)

On the other hand, if psi can achieve almost anything, but most humans need *lots* of complicated procedures and tools to produce even restricted effects, it may be simplest to treat it as magic. Psi might even use the standard ***GURPS*** spell system. ("Mana levels" would probably not vary much in such a setting, although some areas might be more "psi-friendly" than others.) The most important practical effect is that "magic" and "psi" could always interact directly, able to detect, negate, and even enhance each other.

Cosmic Magic

Likewise, magic and psi may be "cosmic" in nature, manipulating reality directly – though only the most powerful adepts comprehend its true nature and potential. Magic and full-blown cosmic powers may interact, and magicians might shed most of the restrictions on their powers as they advance in the art.

have internalized the principles of magic so completely that they can improvise new effects at whim, they may be using gifts granted by magic-manipulating deities, or they may have been enchanted like a living magic item.

Psionic Powers

The idea of "psi" is relatively modern, but in the last 50-60 years, it has become the concept most often used to explain super-powers in fiction. Psi appears in a wide range of stories: low-key horror (such as Stephen King's *Carrie*), science fiction with fantastical twists (such as Julian May's "Pliocene Exile" and "Galactic Milieu" series), and superhero comics.

The essential idea here is that a conscious mind – or perhaps any biological organism – can affect the physical universe directly. Occasionally, theories will involve some kind of energy source or a physical process that fits in with accepted science – for example, telepathy might be explained as the brain generating low-power electromagnetic waves – but mostly, things come down to *consciousness* somehow influencing reality. Many or all humans may be potential psis, needing only the right training or insights to unlock the power, or psi may be a rare mutation or the result of a superscience treatment. Some fictional nonhuman races are naturally powerful psis, as a result of evolution, divine gifts, or their own systems of science or training.

Spirit Powers

The idea of commanding spirits probably represents the oldest concept of magic. Spirit powers are very appropriate in some "mythic" or "folkloric" campaigns. They may be inborn, the result of special training, or a gift from a spirit-ruler. They usually differ from divine powers in that the spirit does not imbue a human with power but must itself be present to perform a task, and in that the relationship between mortals and spirits is more equal than that between mortals and gods – more likely to involve negotiation then worship. Still, the distinction between priests (who deal with gods) and shamans (who deal with spirits) is fuzzy.

Some Weirder Origins

Transcendent Attunement: The powers of nature or morality may transcend even the gods, and grant powers to beings who are psychologically attuned to these cosmic principles. This idea fits with "Moral" or "Nature" powers (p. 27), and works well in fantasy universes with pantheistic metaphysics. It is less appropriate for settings where phenomena are explained by quasi-scientific logic or personified by gods.

Evolutionary Regression: A character might gain the ability to access his "evolutionary heritage" through superscience biochemical treatments or "psychic" methods. This implies a Biological power with a lot of minor Switchable physical abilities such as Brachiator, Claws, or Gills (plus, optionally, Racial Memory). The power modifier can vary, depending on exactly how "regression" works. It may require special drugs or lengthy meditation, and induce temporary IQ loss or psychological disadvantages.

Digital Reality Control: Some people are aware that the entire universe is a computer simulation – and have root access, or at least a set of cheat codes. This access can grant Cosmic powers, although the system may have restrictions. Higher levels of authorization grant more spectacular abilities. A "regular user" might have to obey the laws of physics, while "superusers" might be able to fly or create multiple "shells" of themselves.

Nanite Command: In a far-future world where everything and everyone is suffused with "nanites" – microscopic super-technological robots, capable of high-speed molecular manipulation – someone whose genetic code or neural patterns authorize him to control the nanites could have seemingly "magical" powers). He might create and destroy objects (subject to the availability of suitable materials, and to constraints from the laws of thermodynamics), or communicate and observe events over great distances by tapping the nanite communication web.

Super Powers

The "Super" power modifier on p. 29 can be used in settings where "super powers" are a specific class, as distinct as "magic" or "psi." They might come from a mutation in some human brains (making them conceptually similar to psi), a "quasi-cosmic" ability to distort reality itself, radical changes to the human body caused by an alien virus, or infusions of alien-cosmic energy.

However, not all powers in a "superhero" game may use this modifier – *especially* if the setting resembles traditional comics, which regularly feature a mixture of biological, chi, cosmic, divine, elemental, magical, nature, psi, and other powers, with a vast range of origins, all *called* super-powers. Many "super" characters may not even have powers in this book's sense at all, instead featuring superhuman attributes, minor abilities, or high-tech gadgets.

Even if there is a single source for all super-powers, the modifier may be defined differently. Marvel Comics' mutants can be identified by mutant detectors. There are devices that can suppress any mutant power, but no other super-powers. The power modifier used in such a setting would have to incorporate a limitation to reflect this. Another option for a variant supers campaign is to include more severe, even dangerous limitations in the modifier, such as Nuisance Effect (Backlash) plus Uncontrollable. Powers become impossible to control and unpleasant to use, and heroes may even become tragic figures.

While "super powers" may encompass a broad range of effects, GMs should discourage players from giving supers a random assortment of such abilities. Most comic-book heroes and villains have a clear focus and theme to their powers.

In hallowed comic-book tradition, the GM may rule that weird-science technology can affect super-powers. This is typically the purview of gadgeteers and the operatives of "black" agencies.

Characters

Many ***GURPS*** PCs are essentially realistic. Even a barbarian swordsman or a space pilot is simply a human being – with exceptional skills, yes, but nothing too unlike things that any of us might learn.

Powers make characters much more exotic. They also have consequences for scenario and campaign design. It's easy to come up with challenges for normal human PCs: a sheer cliff, an NPC who refuses to tell some important secret . . . However, if a hero can fly or read minds, such problems quickly vanish. The way to deal with this might be to restrict the powers available, or it might be to come up with different challenges.

There are a number of considerations here, starting with questions to be answered before any PCs are designed.

Power Level

Almost every campaign has a fixed starting PC point level. That special powers are available does *not* mean that the campaign must have a high starting value. It's possible to run very interesting powers-heavy campaigns with the starting point level set deliberately *low*. A PC with a low-strength, short-ranged, or unreliable power must use it cautiously and inventively. Every couple of experience points spent on it will likely make an important difference. Genre fiction is full of such characters – young psis discovering their powers, trainee martial artists, apprentice space knights, and so on. On the other hand, impressive and colorful powers do tend to be expensive, so many powers-oriented games work best with substantial starting totals.

In games where PCs start with 100 points or fewer, powers and exotic abilities will be low-powered or limited, especially if the PCs are supposed to be competent in other ways; 100 points (plus a few disadvantages) *can* buy moderately respectable powers, but these won't be much use if the character is hopeless at everything else. A well-balanced team can get around this problem, if the players are willing to run highly specialized PCs.

That doesn't mean that powers are useless in low-points games, especially if they are rare in the setting. An ordinary person with the ability to fly, however slowly, can accomplish plenty. Someone with just enough natural armor to stop pistol bullets and sword cuts can survive incidents that would kill ordinary mortals, even though he must watch out for heavy weapons. Powers in such campaigns often need extra time and special procedures to activate, making them useless in combat – but someone who can see through walls, predict the future, or talk with spirits can avoid many fights, or ensure that they only happen on favorable terms.

"Real" powers usually require starting levels of at least 150-250 points. This doesn't produce superheroes, but it does enable PCs to be capable adventurers, with an array of advantages and skills, and still manifest a power or two. "Empowered" PCs on this level still find ordinary humans of the same point level – who are merely tough, smart, and good with weapons – to be useful partners and dangerous opponents. PC parties may well consist of a mixture of types – psionic adepts and their warrior bodyguards, meditative monks who have refined their control of chi, brethren who concentrate more on martial arts, or cyborg warriors and their support technicians.

"Real" powers-focused campaigns may require several hundred points – exactly how many depends on the intended style. Just 500 points buys someone who can pass fairly convincingly as a comic-book superhero, but who may not quite be able to emulate the feats seen in four-color comics (appropriate for a stories about the gap between the myths of heroism and harsher realities). A well-designed 750-pointer can probably defeat any number of normal human opponents. In all cases, much depends on the balance of defenses, hit points, and regenerative abilities, and also on just how exotic the available powers are, compared to mundane technology.

For PCs who can pass as gods, starting point levels in four figures are essential. At this level, however, the GM needs to set very strong guidelines as to how points should be spent, and what PCs should be capable of accomplishing. An invulnerable individual who can slaughter whole human armies *might* be able to demand worship, and could be created with less than a thousand points, but if he can't answer prayers or travel to the heavens, he's rather unconvincing in the role.

Consistency vs. Realism

PC powers aren't usually "realistic." There are exceptions – robots or genetically modified beings might have abilities that are perfectly plausible in terms of known science, such as built-in weaponry or the ability to fly – but most of the traits covered by this book are blatantly fantastical.

Even so, powers should generally work in a logical, structured way. Magic and psi aren't realistic, but that doesn't mean they have to lack rules. Historically, many beliefs about how magic worked were *full* of internal logic. Ideas about psi derived from serious, though largely unsuccessful, scientific research.

On the other hand, a setting may call for totally unpredictable, arbitrary, subjective powers. GMs can administer such things as they see fit, but will have to make arbitrary judgments about what will work. They will also need the trust of their players. Players who come to RPGs expecting consistency and a sense of objective "fairness" may not be happy if these disappear at crucial moments.

Disadvantage Limits

Character disadvantages have a large effect on the style of any campaign. The guideline of no more than 50% of base point levels holds fairly well for PCs in the 100-300 point range, but outside this range, different limits may well be appropriate.

In a game with 50-point adolescents just discovering their unreliable powers while hunted by sinister forces, mandatory or logical disadvantages – Social Stigma, low Wealth, Enemies, and so on – may exceed that 50% even before the players start individualizing their characters. Conversely, if the PCs are built on 750 points, letting them have -375 points in disadvantages may leave them virtually unplayable, and certainly incapable of following interesting plot leads. Indeed, for a four-color superhero game, the GM can enforce a disadvantage limit as low as -50 to -100 points, ensuring that the heroes have no problems beyond the traditional high-mindedness and a couple of enemies.

Possible Origins

The "metaphysics" of a game world define what origins the PCs' powers may have. It's important for GMs to veto PCs who don't fit. If the setting is "agnostic," with no gods visibly present, no one can have divine powers. For that matter, if there are only a few active gods, and each provides a known, restricted set of powers to its servants, an individual who claims to commune with some previously unknown deity is either a liar, deluded, or the bearer of world-shaking revelations.

Likewise, if the campaign is about the discovery of psi powers in a world much like the present day, "magic" should be excluded. The presence of magic will destroy the game's sense of science-fictional cohesion.

There is nothing wrong with settings in which powers derive from a wide range of sources. However, there's also a lot to be said for working within constraints and exploring the implications of well-defined systems.

Nor need everyone in the game world *know* the limits of its internal logic. Empowered people can lie or be deluded about their powers. A devious god might provide humans with unusual powers under a false name, in order to draw worshippers away from a rival. A naturally gifted psi might think that his powers are divine gifts or temptations offered by evil spirits. This is a common theme in stories, with liars being exposed or gifted characters learning the truth about themselves.

What's Allowed

GMs can restrict not just power origins, but also the exact abilities involved. If psi is defined to represent simply a sensitivity to low-strength electromagnetic patterns, then mind-reading and ESP are plausible, but telekinesis or teleportation are inappropriate.

In games that focus on low-powered abilities, the GM can require specific limitations. For example, psis might be able to paralyze opponents or move moderate weights with several seconds of intense concentration, but in an unexpected fight, they'd have to resort to fist and gun like everyone else.

Starting PCs may simply be banned from buying powers above a certain level, or some abilities at *any* level. In a game about young, untrained, "wild talent" wizards, the PCs may be capable of only a few, unreliable, short-ranged effects. They can improve later, with practice, study, and bonus character points – but getting from here to there is the point of the game. Limited starting point levels help with this, but some players may try to juggle disadvantages and limitations and distort character designs to get more starting power than fits the game concept.

Unusual Backgrounds

The Unusual Background advantage can be a useful tool in permitting players to develop "possible but exotic" character concepts without unbalancing the game. GMs should try to avoid over-using this; if *all* PCs have to take an Unusual Background, presumably their powers aren't as unusual as all that. Also, the point costs of ***GURPS*** powers and abilities were chosen to be as fair and internally balanced as possible; it shouldn't be necessary to charge Unusual Background costs just to stop anyone from being too powerful.

Rather, someone with an Unusual Background should have radically

unusual abilities, giving the wielder an edge by virtue of their scarcity. They should be able to gain some advantage in fights (say, because they can breathe fire in a world where empty-handed combatants can't usually attack at range). Most people will fail to take simple, logical precautions against them. (If a teleporter can get into any room that he can see on live TV, people may be careful where they allow cameras – unless teleportation is thought to be a myth.) If powers *don't* carry an Unusual Background cost, then other people should be prepared for them. A telekinetic cat burglar has a huge advantage in a "secret powers" campaign; in one where telekinesis is old news, he might well choose another career.

The problem is with games where most or all of the PCs possess powers that are new and rare in the world in general. The first wave of superbeings will have huge advantages – but their powers won't be "unusual" among PCs. If powers are going to be truly *universal* in the party, then it's not worth requiring an Unusual Background – the GM can just drop the starting point level. But if some of the players are going to play normal humans, and if the rest of the world isn't going to adapt to the existence of these powers very quickly, then the special advantage granted by the powers justifies an Unusual Background.

Cost

The appropriate cost for an Unusual Background is closely linked to other details of the campaign, and may be proportional to starting point levels. A 50-point Unusual Background for a given power would mean that only a really determined player would take it in a 150-point campaign; in a 500-point game, it would be less of a problem.

In general, 10 points is appropriate if the character merely gains minor, occasional benefits, has an unusual combination of commonplace powers, or has a couple of levels more of the related talent than anyone else. A cost equal to 20-30% of PC starting points suits a power that is rare enough to cause surprise, but which is known to most opponents, or which grants substantial advantages given considerable effort. (Examples might include short-range teleportation that requires an hour of meditation per use, weak and unreliable telepathy or ESP in settings where such are held to be impossible, or magic in a superhero game that focuses heavily on psi powers.) Charging 50% of starting points is only appropriate for game-twisting powers that grant a reliable "killer" advantage; playing the only empowered priest of some powerful deity *might* merit 50%.

GMs should feel free to vary such costs, especially if players insist on taking powers that make the game much harder to GM – although if the power is really a severe nuisance, it's often better to ban it outright. However, the campaign style, and what PCs may be able to achieve, should be negotiated between the players and GM, and negotiation means compromise; a GM may choose to permit a player to take Precognition – so long as he gives it the Unreliable limitation and takes a 100-point Unusual Background . . .

PCs vs. NPCs

In games, PCs generally start at the same point value, but NPCs can vary enormously. While opponents intended to engage PCs in one-to-one physical combat will usually be *around* the same value, some may be master warriors, able to take on the entire PC party simultaneously, while others may be weak cannon-fodder, or simply noncombatants with a single talent that the plot requires. Even "one-to-one" opponents may actually have quite different point values. A focused combat specialist might be designed to take on a versatile PC with many points spent on noncombat abilities, and hence be a tough fight despite being "weaker" in point terms. Another foe might have greater personal abilities to balance some equipment that the PCs have acquired. Powers-oriented games amplify this variation even further, especially if characters are especially vulnerable or resistant to particular attacks. A mighty vampire may be brought down by an elderly priest with True Faith, a crucifix, and a supply of holy water, while an unworldly wizard may be outmaneuvered by a weak but clever mind-controller who knows which leaders and law-enforcers to dominate.

In addition, some powers may only be available to NPCs – or maybe only to PCs, if the campaign concept is "the last gods" or "the first genetic upgrades." Players are often unhappy if they are told that NPCs can do things that PCs can never accomplish, but this may be inevitable if the campaign is basically a war story, and the enemies are relentlessly hostile aliens with specific biological powers or devoted servants of evil who receive special "dark" powers. (If the players insist on playing renegades from the other side, GMs *might* permit this with an Unusual Background.)

Spirit PCs

In some games, the PCs might be spirits. Such beings often embody and control some aspect of the universe on a local scale, making Elemental powers (p. 27) very appropriate. Most will have Elemental or Spirit meta-traits (pp. B262-263), or even both. The GM may define racial templates for various types of spirit, or, for a wilder game, give the players a free hand and a high starting point level, and see what they come up with.

If spirits are susceptible to summoning or control, they may have disadvantages such as Duties (often Involuntary) and Reprogrammable. Their supernatural natures may also give them Dreads or Revulsions. On the other hand, if they build *good* relations with shamans or summoners, they may have useful human Allies.

Remember also that not every "unusual background" is worth any points at all. If someone acquires ESP thanks to 10 years of study in a Himalayan monastery, but other characters gain the same power thanks to the unexpected side-effects of a new type of aspirin, that's no special advantage – unless the monks also taught other useful techniques, or the drug had other, negative effects on everyone who took it.

Balancing Powers

While a character's point total defines how powerful he is, broadly speaking, how those points are distributed is also immensely important. The balance among offense, defense, and mobility needs to be watched quite carefully. Given the flexibility of a point-based design system, it's all too easy to come up with characters who can destroy anything in their path, but never hit a moving target and fall over the moment they themselves are hit, or who can never reach a battle in time to help.

GMs may wish to define a value for expected damage from common attacks by PCs and major NPCs, along with guidelines for combat skill levels, notes on how the PCs are expected to get around, and so on. They may also set a hard upper limit on damage from attacks, to prevent players from coming up with PCs who solve every problem by hitting harder than anybody else. PCs should ideally be able to withstand at least a couple of hits from a "campaign average" attack and survive; rugged "tanks" or "bruisers" might be able to withstand several and keep on coming, while more agile types who depend on avoiding rather than soaking up damage should still be able to suffer at least one unlucky moment and continue breathing, if not standing.

Attacks are mostly defined by the number of dice they do. An average roll does 3.5 points of damage per die, but good or bad rolls can vary from the average. Remember also that impaling, cutting, and large piercing attacks do substantially increased damage after subtracting DR. Characters can survive a hit by having enough DR to stop damage or lots of hit points to absorb it. The latter can be safer in many ways, giving resistance to all sorts of harm and requiring less-frequent rolls to survive when current hit points go negative, but hit points do get worn away by repeated hits. Not taking damage at all is always safe. A good HT score is invaluable for individuals who frequently get into fights; rolls to remain conscious and alive, and to withstand poisons, drugs, and suchlike, are matters of life and death.

Nonpowered characters with normal human levels of strength often have difficulty matching the damage levels that can be inflicted by superstrong PCs, let alone a foe with many points in Innate Attacks. Players of "talented normals" who focus on subtlety and skill rather than raw power should still make sure that they can do *something* in a fight. Good weapons can help, as can clever tactics, intelligent use of "placed shots" at hit locations, and other tricks, but it may be advisable to give PCs whose concept doesn't call for flamboyant powers something subtle but effective. A martial artist might have minor chi powers that provide Striking ST. Alternatively, the subtle hero can leave the major opponents to his colleagues, while taking down cannon fodder, sneaking in and out of enemy bases, or piloting vehicles.

Powers vs. Other Abilities

Not all special abilities are powers. While a power can provide a logical underpinning for extraordinary talents, it's perfectly possible to come up with capable PCs who don't have such things. Even if most PCs can fly, hurl fire or lightning, and shield themselves with force fields, a "merely" strong, fast, smart individual, maybe with some minor advantages such as Claws or Eidetic Memory, or some well-chosen equipment, may survive and distinguish himself in their company. Comic-book examples include DC Comics' Batman or Marvel's Captain America. At times, it may also be important to determine how the different types of character features interact.

Supernatural Advantages

Blessed (p. B40) indicates a relationship with a deity or higher power, as do divine powers. Everyone who receives the aid of the same being will usually be expected to cooperate, while those who are supported by hostile gods will generally be hostile to each other. Blessed characters who receive visions may be expected to give guidance to those with more active divine powers.

Channeling (p. B41) and *Medium* (p. B68) may permit someone to communicate with the same spirits that a character with spirit powers employs. This can be useful if, for example, the spirit power is fickle and fails because of an unfavorable reaction roll. The channeller or medium may be able to ask *why* it is unhappy. Likewise, *Spirit Empathy* (p. B88) can enable the user to sense the spirit's feelings. At the GM's option, especially if there is some specific penalty reducing the chance of success, the empowered character may be able to correct the problem and then attempt a reroll without the usual penalty for repeated attempts.

In addition, a channeller or medium may be able to contact spirits who have recently served someone with spirit powers to ask them about the tasks they performed. This is strictly optional, and may not work very well; "servant" spirits may be bound to silence by the powers that control them, may fly off to distant planes as soon as they have completed their tasks, or may simply be uninterested in things mortals consider important. ("Yes, I started a fire here at some shaman's request. No, I didn't notice what he looked like, or what it was I burned.") Imaginative use of these abilities may help solve a lot of mysteries, and adds to the atmosphere of games with active spirits; *all* dealings with them can become roleplaying opportunities. However, this gives GMs more work to do, as each spirit may have a personality. For simplicity, GMs can roll a reaction for any spirit, and then play out the result to the full. Spirits *are* generally held to be whimsical and slightly unpredictable . . . (Also see *Spirit PCs,* p. 185.)

Dominance (p. B50) changes the nature of a victim, which may have all sorts of consequences for his powers. For example, a goddess of life may regard vampires as abominations. Anyone to whom she grants divine powers will lose them if he is infected with vampirism. (Whether he can forge a new relationship with a god of death, and gain new divine powers thereby, is up to the GM – but switching sides should be a complicated role-playing exercise.) In some settings, such transformations reshape the victim's spiritual essence, destroying many types of innate powers. The psychological trauma and new hungers associated with such a transformation can play havoc with the victim's capacity for focused concentration. Other powers may survive, however. Vampires are often depicted as talented wizards, presumably meaning that magical powers can survive the transition to undeath.

Illuminated characters (p. B60) have a direct insight into the nature of the universe. This may enable them to identify other individuals with cosmic, moral, possibly even divine or spiritual powers, or to recognize those powers in action. They can certainly recognize spirits associated with Illuminated conspiratorial factions, which should extend to recognizing when they are summoned using powers.

Magery (p. B66) bestows a sensitivity to magical forces. GMs may *optionally* permit a mage to recognize a living being imbued with powerful magical forces (such as strong innate powers), and perhaps even extend the rule to other supernatural categories such as spirit powers. Levels of Magery may also function as the talent to use with magical powers; see p. 29.

Magic Resistance and *Mana Damper* (p. B67) oppose or negate magical powers. This is a large part of the definition of the Magical power modifier (p. 27).

Mana Enhancer (p. B68) raises the effective local mana level. In a world where the natural level never falls below "low," anyone with both this and powers with the Magical power modifier will rarely, if ever, be disadvantaged by mana-level variations. GMs may rule that the Magical power modifier (p. 27) is only worth -5% if combined with this advantage.

Mindlink (p. B70) ensures automatic successes for uses of Telesend and Mind Reading between linked characters. The GM may extend this to other basically telepathic powers, such as Illusion with the Mental enhancement (p. 95). This automatic success *might* be limited to psionic powers, but it's also conceivable that, for example, a god might provide his priests with the ability to communicate mentally, giving them Mindlink and "telepathic" divine powers.

Oracle (p. B72) and *Precognition* (p. B77) imply sensitivity to cosmic, divine, or spiritual forces. Omens and precognitive flashes relating to characters with major powers of these types may be strong and clear, giving a bonus to rolls to sense and interpret them. When great forces are loose in the world, oracles and seers tend to notice!

Power Investiture (p. B77) might function as the talent for divine powers; see p. 29.

Psychometry (p. B78) often works by detecting faint "residual energies." Objects that have been in contact with magical, psionic, moral, or cosmic powers may have especially strong residues, giving a bonus to the roll. An object touched by the powers of absolute evil may cause a Fright Check!

Reawakened individuals (p. B80) might acquire powers or talents without training. However, if the power is essentially physical (if it is biological or technological in nature, or involves a brain mutation), remembering that one had such a thing in a previous body is little use. Remembering a past life as a chi adept may be a good start, but the character may still have to spend time mastering the forces in his new body. Reawakened people might also recall encountering certain powers in past lives and be able to remember appropriate countermeasures.

Terror (p. B93) may be linked to the use of certain powers – especially cosmic or moral powers, which are often unnerving for a mere mortal to witness. "Only after using power" may be a reasonable limitation here, with a value depending on how easily and often the power can be used.

True Faith (p. B94) is generally associated with benevolent deities, and may provide protection against demonic powers, malevolent spirits, and powers based directly on supernatural evil. At the GM's option, evil divine and moral powers, and any spirit power effect based on the summoning of "unlawful" spirits, may be excluded from the one-yard zone around someone asserting True Faith. This may seem like a large bonus for anyone with the advantage, but they have limits of their own. It may also seem like a significant restriction on those powers, but True Faith is generally rare enough that it's not worth increasing the size of the power limitation.

In a few settings, pure law, chaos, or even evil may inspire True Faith, protecting against manifestations of opposing principles.

Exotic Advantages

Detect (p. B48) may be used to detect a specific power source, or possibly a power focus. The frequency of occurrence of a given source or focus depends on the setting. As a guideline, cosmic powers are usually rare (except in "gods walk the earth" mythic games), anything that requires an Unusual Background is probably rare or occasional, and *very* few powers are very common.

Digital Mind (p. B48) grants immunity to "telepathic" powers and spells that affect living minds. Any psionic or magical power that affects the mind or perceptions *might* fit.

Speak With Animals and *Speak With Plants* (p. B87) may grant the ability to communicate with beings who possess "animal powers" or "plant powers" respectively – especially if they are visibly nonhuman.

Cinematic Skills

In general, skills or techniques are considered "cinematic" if they have Trained By A Master or Weapon Master as a prerequisite or, in the case of techniques, if they relate to a specifically cinematic combat option (such as Dual-Weapon Attack with melee weapons). Others may be flagged as cinematic on a case-by-case basis; Enthrallment (p. B191) may qualify, as it produces quasi-supernatural effects.

Cinematic skills permit PCs to accomplish superhuman feats comparable to minor powers. Most are associated with the kinds of cinematic martial artists who are Trained By A Master, and indeed a character may well have both cinematic skills and chi powers. In fact, in some campaigns, Trained By A Master might be a prerequisite for chi powers. But the skills alone can accomplish plenty, often with fewer complications!

If cinematic skills and chi powers do coexist in a campaign, remember that they explicitly have the same basis. Somebody who can sense chi manipulation in use ("This is a strong one!") will notice cinematic skills, and something that disrupts a character's chi will also reduce or negate them, perhaps imposing the same penalty on cinematic skill rolls and any roll that benefits from the chi power's Talent.

Similarly, GMs may declare that Enthrallment skills are actually low-level manifestations of magical or psi power. In the former case, they might not work in a no mana area, Magic Resistance might add to Will rolls to resist them, and the effects might be dispelled like magic (perhaps with a penalty to the roll, because of the subtlety of the effect). In the latter case, the Static Psi advantage and technological anti-psi defenses might block them. In either case, a Mind Shield would also defend against them.

Magic

While some of the powers discussed in this book are magical, standard ***GURPS*** magic functions outside the powers rules, using the Magery advantage and spells purchased as skills. (See Chapter 5 of the ***Basic Set***, and ***GURPS Magic***.) If a game setting includes both powers and spells, they provide two different ways to achieve exotic effects that may appear similar.

Spells and magical powers interact in various ways. If a spell that is normally resisted by some other spell interacts with a magical power that doesn't normally require a die roll to function, it is resisted by a roll against the better of the power-user's IQ or Will, plus any Talent applicable to the magic power. For example, if a spellcaster casts Dispel Magic on someone using magical Flight, and the flyer has IQ 12, Will 10, and three levels of magical power Talent, he rolls against 12 + 3 = 15 to keep the power working.

Knowledge spells can be used to detect magical powers, just like spells and items. Detect Magic can determine that magic powers of some kind are currently operating on or through an object ("that ring is magic"). Identify Spell can determine what powers have been used on or by the subject in the last five seconds ("he's using a power"). Analyze Magic can tell which magical powers are operating on the subject ("he's been affected by a power"). The latter two spells will tell the caster "there's magic here, but it's an innate power, not a spell" and will give a fairly good idea of what the power does – "it enables him to fly by interacting with the air" or "it works on the target's mind, probably to extract information, rather than to send messages or control." Additional spells in ***GURPS Magic*** operate similarly in relation to powers.

Of the spells from the Meta-Spells college, Counterspell only works against powers if the caster possesses the exact same ability himself (GM's decision as to whether a much weaker or stronger version, or one with slightly different enhancements or limitations, is the same ability), but Dispel Magic can negate all sorts of abilities. ***GURPS Magic*** provides many spells that expand this college, and which can interact with powers. Scryguard, Scrywall, and Scryfool shield against magical Clairsentience; Suspend Spell, Ward, Reflect, and Great Ward can oppose another's use of a ability that the caster possesses; and so on. Penetrating Spell can be

Power Talents and Cinematic Skills

GMs *might* permit chi power Talent to act as a Talent for cinematic skills that involve chi manipulation. However, most of these are combat skills, which should *not* normally gain benefits from Talents, so this isn't recommended. If GMs decide to permit it anyway, the cost of the Talent should be increased to 10 or 15 points/level. It would grant a reaction bonus from martial arts adepts and the like; such people recognize and respect each other! Likewise, if Enthrallment skills are actually a form of magic or psi, Magery or an appropriate power Talent *might* give a bonus to the skill roll.

used to give a magical attack power an armor divisor.

Spells may also interact with other types of powers, although only powers with an innate limitation that makes them susceptible to such countermeasures can be dispelled, warded, etc., as a matter of course. Rather, specific spells may oppose powers in specific ways. For example, Pentagram (from ***GURPS Magic***) might keep spirit powers from crossing it (roll a Quick Contest between Pentagram skill and the power-user's IQ + talent, or use the relevant spirit's attributes as usual if they are known). This is a small limitation for spirit powers, as Pentagram is fairly rare and cannot be used very effectively in combat, and so does not affect the Spirit power modifier. Sense Spirit might be used to detect the entities invoked by spirit powers; Deflect Energy can be used to parry fireballs, lightning bolts, etc., created by all sorts of powers; Resist Cold can protect against elemental cold powers; and so on.

Auras: The Aura spell (and possibly some similar powers and devices) detects whether someone has Magery and some other supernatural facts. People with magical powers probably have similar auras to a mage. The GM might suggest that they look slightly different and drop hints as to the nature of any powers possessed. The aura of anyone with other supernatural powers may appear distinctive – elemental or spirit powers will almost certainly color a person's aura (magical fire powers might give a ruddy, flickering aura; elemental fire powers might make one's aura blaze fiercely), and that of someone with moral powers could be very striking. Any being with cosmic powers will probably have an *astonishing* aura.

Gaming With Powers vs. Power-Gaming

Roleplaying games are supposed to be about playing *characters*, not simply moving a piece around and fighting other pieces. With some players, this may just be a matter of time. After a few sessions of flying around the scenery, hurling fire blasts, and clouding minds, they'll start thinking about what the people behind these spiffy powers are like. GMs should avoid the sort of antagonistic mindset that makes them seek ways to cripple PCs; players who've gone to the trouble of designing powers should get the chance to use them.

Still, it's worth reminding them occasionally that their powers can't do *everything*, and that the PC has other concerns. If a power has built-in limitations that mean it can be negated, then use them when it's logical to do so. Intelligent, competent opponents may well analyze the PCs and come up with countermeasures. There should also be situations in which power use is impolite or socially dangerous. Hurling magical effects around while visiting the royal court may be illegal, is certainly likely to make the guards intensely nervous, and may mark one down as a gauche braggart in the eyes of sophisticated courtiers.

Disadvantages

The ***GURPS*** disadvantage system is an invaluable tool in reminding players that PCs have an existence beyond their powers. Quite a few empowered characters have major Secrets, whether they're the "secret identity" of the four-color superhero or shadowed mysteries associated with magical training. It's usually easy to set up a situation in which using powers would threaten a PC's Secret . . . or in which powers are completely irrelevant to a problem associated with the Secret. Many superheroes have complicated soap-operatic private lives, and while a supervillain can usually be targeted with a cosmic energy megazap, using that same power on a romantic rival or an irritating kid sister is hardly heroic. Codes of Honor and other idealistic psychological features can also create useful complications; see below for more on this.

Mentors

In many stories, the training required to acquire or control powers gives protagonists their personality and motivation. Classic sources for training include:

- Martial arts movie monasteries.
- Sorcerers who take apprentices.
- Mature, idealistic teachers who act as mentors to teenage mutant superheroes (or ninja turtles).

A campaign may be built around a school, which provides a structure and quite likely a Duty and Patron for every PC, at the cost of limiting things slightly. Alternatively, they may all have trained at the same institution in the past, making it simply a bit of shared background, and maybe a useful source of Contacts and occasional plot threads; or they may be at odds with their old school, making it a source of formidable Enemies with deep knowledge of the PCs' abilities; or it may have been destroyed and the PCs' mentors killed, giving the group a major Enemy and a lot of motivation to fight. Pupils may have a Sense of Duty to their mentors, or a Duty to a school that sets that as the price of admission – or they might rebel, developing Obsessions to prove themselves independently, or just adopting attitudes directly opposed to a school's ideals.

Teachers often demand Pacifism, a Code of Honor, or Fanaticism from all students, and may even claim that certain powers are impossible to attain otherwise – which may be true, if the power modifier includes required disadvantages. However, plenty of stories involve renegade ex-students or failed apprentices who nonetheless retain dangerous amounts of training, and these can make fascinating Enemies – "dark reflections" of loyal students. Conversely, the heroes may have cast off their corrupt teaching, and the "loyalists" may be the dark reflections.

It *may* be possible for a renegade to retain his powers, despite required limitations that should prevent this. A rival school or teacher may help him to adapt his knowledge. An enemy god may replace divine powers with something similar that can use the same talents. A really determined renegade may simply apply cleverness or sheer force of will. The "loyalists" may still retain an edge, thanks to their use of the "unsullied" power, but this advantage may seem rather theoretical, and demonstrating its importance may involve some long, hard fights.

Blank Slates vs. Spotlight Hogs

Not all empowered characters feel the need for training, and some players select disadvantages that don't really imply much in the way of personality – either because their character concept is built more around physical than psychological factors, or because they see psychological problems as an annoying restriction on their ability to do what they like. The latter is fine so long as they are nonetheless interested in developing some kind of personality, but if their sole interest in the PC is his ability to go round blowing things up, a GM who wants to include more subtlety in the game may find it very hard to enjoy playing with them.

Having *some* of a PC group be "blank slate" personalities can be fine. It may even be a relief, if other players are roleplaying to the point of excess. The less melodramatic PCs can play off the others and develop as individuals as the campaign proceeds. But if the entire group seems bland and unmotivated, the GM will have to work hard to run plots more subtle than a glorified assault course, and may have to throw in one or two melodramatic NPCs to provide some interest and provoke reactions.

Players who are *too* dedicated to personality-driven characters can be just as much of a problem as "blank slates." If the entire group tries too hard, the worst that is likely to happen is a bit too much noise and slow progress. More often, one or two players will turn out to be "spotlight hogs," taking up all the GM's time. The solution is to ask such players to calm down and let other people do something, while deliberately setting up events to give other PCs the chance to shine, but GMs should watch out for character descriptions where personality seems to be given *much* more emphasis than powers.

The Forgetful Hero

One way that writers prevent empowered characters from handling every problem with yet another display of power is by having them seemingly forget some of their abilities. Every long-time fan can tell stories of superheroes or fantasy wizards struggling with a problem that they could brush aside with a trick that they demonstrated only a few episodes earlier.

However, it's not something that really works in games. Players are notorious for squeezing every last drop out of PCs' abilities. Some players can be amazingly forgetful, inefficient, or dense from time to time, but such lapses are rarely timed to make the plot more entertaining.

On the other hand, fictional characters are rarely as failure-prone as RPG heroes. They may not always win, but they rarely fail in *trivial* ways. They suffer colorful catastrophes at entertaining moments, or misjudge situations dramatically. A stealthy hero rarely "fails his roll" to slip past an ordinary guard . . . although if some master villain is checking the perimeter at that moment, that's another matter.

Players often regard low skills or power activation rolls as "un-dramatic," and prefer powers that are completely reliable. It might be better to regard unreliable abilities as "emergencies only" options, to be "forgotten" at other times. If the game uses the optional rule for *Influencing Success Rolls* (p. B347 – highly appropriate for cinematic campaigns), players can ensure that such abilities work anyway, so long as they don't use them too often. The rule for *Using Abilities at Default* (p. 173) provides another way of letting heroes pull occasional tricks that they "forget" at other times.

CONSTRAINTS

Other factors in a game can constrain PCs from using their powers to deal with every situation.

Honor

Concepts of honor or propriety, usually described in terms of character disadvantages, are an extremely powerful constraint on fictional and

legendary heroes. Medieval-fantasy knights tend to have Code of Honor (Chivalry), four-color superheroes traditionally have Pacifism (Cannot Kill), and an individual who sees his power as a gift from the gods may have Disciplines of Faith.

Such limitations round out a PC and prevent him from solving every problem the same way. When the question is whether it's right to fight at all, whether one fights with sword, rifle, or mystic thunderbolt is hardly relevant. There's no *obvious* reason for empowered characters to live by stronger codes than normal mortals – except, perhaps, that the discovery that one has powers could make anyone reflect on one's place in the world – but powers and honor codes tend to go together in fiction. It's honor or idealism, not powers, that make a hero admirable.

Personal Style

Anyone can fight monsters, commit crimes, or search for treasure – but if you don't look good doing it, where's the satisfaction? Being good at such things is important because it allows for variation – one doesn't have to go for the boring optimum in every situation.

A style can take the form of Compulsive Behavior, Overconfidence, or Trademark, but if it's an important feature of the setting as a whole, GMs can enforce it in subtle ways. Heroes may be expected to be generous to the poor, accept friendly challenges from visiting warriors, boast colorfully round the fire, or hang out with media stars. Somebody who fails to act thus cannot expect to be *treated* as a hero. Not being taken seriously may seem merely irritating at first, and some players may enjoy a feeling of misunderstood loner angst, but it should ultimately prove frustrating and uncomfortable. Recognized heroes get cooperation (from law enforcers, other heroes, or the general public) in situations where less impressive people get less.

In any case, players who are interested in playing in a specific genre, whether Hong Kong action movies, classic superheroes, or Celtic epics, often want to play a "proper hero" as seen in the source material. Even if they want to play angst-ridden, misunderstood anti-heroes, there's a difference between that and mere thugs.

The mere suggestion that they are being "uncool" may lead them to change. GMs shouldn't assume that it will always work; players tend to like their PCs alive as well as cool, and if the GM seems to make coolness too dangerous, some will choose survival over style. Also, some may only have a marginal interest in the genre, in which case, the idea that most heroes behave in a particular, suboptimal way will just earn a shrug and a mutter of "more fools them." But if they become engaged with the style of the campaign, and acquire a feel for what is and isn't accepted and respected, many will modify their behavior accordingly.

Reputation

Reputation ties into both honor and personal style; being known as dishonorable or unstylish is certainly a valid basis for a negative Reputation. "Dishonorable" usually implies a reaction penalty with most or all members of a society, whereas "unstylish" may only cause trouble with devotees of a particular ideal of heroism – though that means everybody, in some societies! Negative Reputations can be acquired in play, if a PC behaves badly enough in front of enough people.

In short, PCs have to deal with the ramifications of their actions. These can range from dirty looks, high prices, and poor accommodations in a village where they are regarded as bullies, through not receiving employment from nobles who think that they are incompetent, up to being classed as enemies of the realm and outlawed. All the built-in consequences of a bad reaction roll can, and eventually *will,* hit PCs who acquire a large enough penalty – and things will eventually go beyond even this.

A *really* bad Reputation will reach the ears of people with social and legal power. From Bronze Age city governors who hear that the PCs have blasphemed against the gods, and who therefore order the guard to run them out of town, to modern-day newspaper editors who run virulent anti-superhero campaigns that influence politicians, a bad name can influence all sorts of figures who never get to hear the PCs' stories or encounter their looks, charisma, or social skills.

This can be a "big stick," and should be used sparingly, or at least gradually. A bad Reputation takes time to build up. It's not the same thing as a bad report, inconvenient for a few days and forgotten in a month; rather, it's an accumulation of many such reports.

Oversight

Some characters may be systematically watched by groups and factions who are concerned by what they may do with their powers (government agencies will have many reasons to worry), directly involved in their personal histories (priests with divine powers usually serve active gods), or just curious (as with anyone who draws intensive press interest). This sort of thing may be represented on character sheets by an Enemy (Watcher) or Duty disadvantage, but *anyone* who is observed using powers (or doing a lot of other typical PC things) may draw some kind of attention – especially if they acquire a Reputation. This shouldn't usually be intrusive or excessively annoying, unless it comes from a specific disadvantage or the PCs do something overly dramatic or unwise, but it may be enough to remind wiser players that actions can have serious consequences. In most game worlds, there are police, military, state-sanctioned superbeings, organized crime, or potent conspiracies who can (at the very least) cause the PCs trouble.

The behavior that pleases an oversight group may *not* be what is considered "noble" or "heroic" in the setting. In some cases, watchers may even try to nudge PCs *away* from such ideals. A government agency that monitors superheroes might want to know their real identities, might be less worried than they are about protecting human life, and might even use them for morally ambiguous missions. A deity who keeps an eye on his demigod progeny might have feuds with other gods, so that the demigod's family loyalties might clash with his sense of general piety.

GM Bribery

If the conventions of a genre clash with sensible, rational PC behavior, GMs can offer some kind of in-game benefit for "playing along." For example, they could hand out "plot points" in exchange for appropriate behavior or when the players accept a genre-typical plot twist without too much protest. Conversely, GMs could dock players a couple of plot points when they blatantly act in a way not typical for the genre.

Plot points might be used to "purchase" one-time benefits, such as a single reroll or to avoid spending Fatigue or Hit Points.

This option is similar to the guidelines in the ***Basic Set*** for awarding bonus character points for good roleplaying, combined with the optional rule, *Influencing Success Rolls,* on p. B347, and GMs may certainly use these rules instead.

Adventures

Obviously, adventures for PCs with powers have to allow for what those powers can do. This is sometimes harder than it sounds; a flash of ingenuity from a single player may short-circuit a whole scenario.

Powers as Plots

In "empowered" campaigns, scenarios can be *about* the powers. Power origins may be central to plots. If psi powers can be granted by a super-science drug, then anybody researching that chemical may need to be investigated, watched, or guarded. A spiritually empowered monster-slayer might find that the beings who empowered him are taking an interest in his career.

Powers can also have social "side-effects." If the PCs are among the first generation to possess a telepathic mutation, their own families might become nervous of them. Priests of a particular goddess who are granted divine powers will have priestly responsibilities, such as guarding temples or preaching.

Broader plots may involve the nature of powers in the setting. Superheroes might find themselves investigating the common origin of all super-powers or opposing a supervillain who uses dangerous technology to transform ordinary humans into super-minions. Sometimes, the two sides in some great conflict each wield a different power, and possessing a power obliges a being to join in the war; moral good vs. moral evil is an obvious example.

Divine and spirit powers have whole campaigns' worth of plots attached, as they come from powerful beings who tend to have personal rivalries, strong moral codes, and long-term objectives. In some cases, they simply issue instructions to their servants, but it may be more interesting if patron gods take a somewhat "hands off" approach, or are unable to speak directly to mortals very often. PCs will have to work to determine their wishes, or deal with unreliable intermediary spirits.

Meaningful Challenges

If powers can defeat certain problems with trivial ease, then empowered PCs should face greater challenges – or at least different ones. These challenges should *not* always render those powers irrelevant. Rather, they should be tough even *with* those powers, and some incidents should require something more.

At the simplest, this means that heroes should fight enemies of roughly equal power. It can also mean that a hero must play detective to track down an enemy before fighting him, or a mythic warrior who needs to build a temple to his god overnight must consult with architects and theologians to create an appropriate design. Problems may arise when a PC's power is temporarily unavailable, forcing him to choose between waiting to act or acting without the power.

Coming up with suitable challenges is much easier if the opposition, or the world in general, knows

But he who, with strong body serving mind,
Gives up his mortal powers to worthy work,
Not seeking gain, Arjuna! such an one
Is honorable.

– The Bhagavad-Gita

that powers exist and has some idea what they can do. Adventurers who always have the advantage of surprise face far fewer real challenges. This doesn't mean that every enemy should know how to negate the PCs' powers, but if there *is* such a countermeasure, it should come up at least occasionally. Groups facing superhuman foes may deploy heavier weapons or more troops, while organizations facing telepaths will be very careful about internal secrecy. The heroes of ancient Celtic myth sometimes had known dooms that enemies could attempt to activate.

Threats of Force

Some empowered PCs may be so robust that they are effectively immune to any violence that they are likely to face – at least, they may *think* they are. However, it's hard to create a character who's immune to *any* conceivable threat, and probably impossible to come up with one who can always keep every associate and innocent bystander from harm. Even Superman has not only kryptonite but friends and loved ones to worry about. There's usually something, somewhere, that can supply the right kind of damage to hurt any hero.

Mysteries

RPG mystery stories are tricky to run at the best of times. If the PCs include clairvoyants and telepaths, they can seem completely impossible. However, there are plenty of precedents in fiction.

It is generally essential for opponents to know something about the PCs' powers for mysteries to work. If technological mind shields and ESP barriers or reliable magical wards and protective charms are widely available, competent criminals *will* use them. Simpler protections could also work. Criminals might take to wearing masks even when committing quiet burglaries with no witnesses, while smart crooks might simply take extra care to avoid *any* suspicion or attention to avoid the risk of telepathic probing.

If the powers have limited range in space and time, it's easier to keep things challenging. A crime that took place a week ago can't be solved by someone who can't look more than 24 hours into the past – but he could still be hugely helpful in tracking suspects. A telepath can only read the mind of a known, available suspect, and reading over a hundred minds could involve a lot of time and effort.

Another possibility, especially in a world with secret powers, is a "mystery" where the truth is known as soon as the investigators use their powers, but acquiring *proof* that can stand up under legal scrutiny is a lot harder. Criminals would have to take great care to obliterate all physical evidence of their actions – but then, some manage to avoid detection even in the face of modern forensic techniques.

Solutions to the problems posed by particular abilities are discussed further on pp. 194-198. General advice on running mysteries can be found in ***GURPS Mysteries,*** available from e23 (**e23.sjgames.com**).

Time and Distance

One difference between classic "low fantasy" or historical settings and anything set in the present day or an SF future is the speed of transport. A journey from one country to another that would involve weeks of strenuous riding and sailing can take mere hours aboard a commercial airliner. Heroes who can fly, teleport long distances, or run like the wind merely make this difference more pronounced. Even fast long-range communication, without physical travel, can disrupt some plots.

The GM should be prepared for travel and communications to work more like a modern-day game than a medieval setting, whatever the nominal tech level. On the other hand, there's no reason to ignore the subject entirely. GMs are fully entitled to track distances, calculate journey times, and insert the odd problem en route.

Complacent PCs may get themselves into trouble. A fast runner moving independently of the main party may be ambushed, and any solitary scout who lets himself be caught up in fights *will* get into trouble sooner or later. A party may end up scattered all over the map and incapable of coordination if the PCs aren't careful. Meanwhile, communications may be subject to interception, disruption, jamming, or faking.

Social Taboos

Reputations and "proper" behavior are discussed on p. 191, but to repeat the point: living up to the image of the "proper" hero can be a challenge in itself. Some heroes are powerful enough to live by their own rules – and players may even make a point of doing so, especially if the conventional morality of the setting disagrees with their own personal ideals – but that makes the PCs into rebels and outcasts.

Social revolutionaries are at war with society – a determined and well-supported enemy. Just because heroes preach a radical new morality won't make it universally accepted; most people are extremely attached to conventional ideas, and can be fiercely brave in defending them. If the characters don't even *try* to justify their actions, resistance will be even more explicit and determined. In some settings, the PCs may come into conflict with actual gods, who make and enforce moral laws – and even if the deities don't drop thunderbolts on uppity mortals, they may empower champions of their own.

Normals

Even if no gods intervene, ordinary people may oppose the "heroes" – which raises the question of how the nonpowered inhabitants of a setting can be made relevant.

Most PCs, even the most powerful ones, need *something* from mundane society: food, assistance in laboratories or libraries, legal and prison systems to hold captured villains, or just ammunition. The more the adventurers alienate the mass of humanity, the harder, more grudging, and more unreliable such relations will be. Cash payments or sheer terror may accomplish a lot, but even if no normals make a principled stand, the "heroes" may find that their suppliers suffer all sorts of inconvenient "accidents." Even if only a minority of the population objects to them, those objectors may provide support and information to the heroes' enemies. The worst social rebels are seen as monstrous – and monsters inspire monster-slayers.

Plot-Stoppers

The following are among the most egregious game-wrecking abilities. They need to be watched and controlled. If it's clear that a particular ability will damage a campaign, it *can* just be flatly prohibited – but it's best to have a good reason for this absence, in terms of game-world logic. If the ability is one of the chosen genre's standard features, a ban may look very odd.

Healing

Healing is a staple of RPGs, but it also causes problems. If the PCs come to regard any risk of physical injury as a transient threat, an obstacle that would realistically make people look for an alternative route may end up as a joke. "A pitfall with spikes? We'll be okay." Healing can also render tragic NPC death scenes farcical, and make heroes complacent about endangering innocent bystanders.

Banning healing may be fairly easy, especially in worlds where scientific logic applies. Breaking things and people is simple, but – thanks to the laws of thermodynamics – putting them back together again can be hard. Even with magic, achieving a permanent cure may require a permanent enchantment, world-altering spells, or just a heavy expenditure of energy, and the cure may even be reversed in no-mana areas.

Genre conventions also apply. Healing, as opposed to "self only" regeneration, is rare in superhero comics, though not entirely unknown. (A known healer might be overloaded with pleas to help out with ordinary medical problems and end up employed in a hospital rather than fighting crime.) In some fantasy settings, healing magic is fairly widespread, but is controlled by religious groups with their own rules.

If healing is available, GMs should try and keep the level of potential damage from any given threat at least slightly uncertain. PCs may not fear mere injuries, but will be worried if there seems to be a possibility of damage so extreme that it will keep them out of action even after the healer's ministrations, or even instant death. GMs are justified in calling for Will rolls before adventurers willingly risk serious harm, even when they are *certain* that they'll survive and can get instantly healed. This reflects reflexes and survival instincts. People flinch

Some heroes are powerful enough to live by their own rules – and players may even make a point of doing so, especially if the conventional morality of the setting disagrees with their own personal ideals – but that makes the PCs into rebels and outcasts.

from pain, even when it isn't accompanied by any significant injury, but players don't necessarily accept that their characters have such natural reactions. If an injury was especially gory or painful, came from an unexpected direction, or was worse than expected, or the healer was slower or less efficient than expected, a Fright Check may be justified, possibly at a penalty. Repeated pain and injury, even if transient and in a good cause, can leave the toughest of adventurers subconsciously scarred.

If the heroes are visibly depending on healing, their opponents are very likely to target the healer. It's simply good tactics.

Mind Reading and Mind Probe

If a mystery hinges on something that NPCs know but the PCs don't, mind-reading powers can end the adventure in seconds. Sometimes the trick is to make sure that the heroes don't see any reason to read an NPC's mind, but this is rarely a reliable technique, especially if they're in the habit of using their powers indiscriminately. Keeping knowledgeable NPCs out of the way isn't always feasible.

However, there are often limits on the use of such powers. If mind reading is known to exist, using it without the subject's permission could be an illegal invasion of privacy. Telepathic detectives might have to obtain warrants to search a suspect's mind. Even without legal constraints, there might be social problems. Psychically examining high-Status suspects could be fraught with difficulty. Many people are likely to find the idea repulsive, or have serious personal secrets that are irrelevant to the current case. *Some* official telepathic investigators might have specially extended Legal Enforcement Powers permitting them to probe suspects on reasonable suspicion (essentially a form of "violating civil rights," which usually adds 5 points to the advantage cost, up to the normal maximum of 15). A member of a trusted organization, or someone with a personal Reputation for his rigorous code of ethics, might have more leeway. But those would be considerable privileges, specific to the setting and the character, and not completely effective even then.

Mind Control and Possession

If an enemy who can read your mind is worrying, one who can override your willpower is truly terrifying. Mind-controlling heroes can be real plot-wreckers; taking control of an enemy not only eliminates that foe instantly (if temporarily), it provides additional help against other opponents. A mind-controlled victim can be cross-examined at will, making this an effective if indirect form of mind-reading, prone to derail mystery plots. The mind controller *does* need to know what questions to ask, but "What should I ask?" is a good start . . .

Fortunately, these powers almost always come with complications. Often, controlling an opponent requires all of the controller's attention or has an unreliable duration, so the PCs never know quite when they're going to lose their pawn. Cunning enemies may pretend to be still under control when they aren't, enabling them to blindside the controller at the worst moment. While controlling an enemy leader is often the most effective tactic of all, "master villain" types often have formidable willpower *and* invest in psionic or magical protections.

Most importantly, such powers are almost always strongly constrained by ethical or legal considerations. Taking away a person's free will is widely seen as vile, and may be explicitly criminalized if society knows that it's possible – although a brief use of control, in a good cause, without making the subject do anything immoral, may be forgiven. If the law *does* become involved, the use of mind control can lead to huge complications. Proving that the accused wasn't under somebody else's control when he committed the crime, or when he confessed, could be very hard indeed.

Insubstantiality

People with the power to become intangible are formidable. They can not only slip in and out of hostile areas unimpeded, making them almost as effective at spying and solving mysteries as a clairvoyant, they can become effectively invulnerable when they choose.

There are usually ways to stop such beings – force fields, alchemically enhanced wall materials, or magical wards – and to hurt them using specially augmented attacks, but all these require some justification and preparation. Players may justly complain if every opponent seems to automatically negate the power on which they spent so many points. A more challenging but fairer response is for antagonists to act *intelligently*.

By and large, insubstantial PCs aren't invisible, can't move much faster than ordinary people, and have to become substantial to eat and sleep. Hence, they can be caught on security cameras, followed or (with difficulty) tracked, and eventually cornered. GMs should keep a close eye on movement speeds and times.

Even in combat, "ghosts" generally have to become substantial in order to hit back, so competent tacticians will try to watch their movements and keep an attack in reserve. Really effective opponents may simply arrange ambushes or surprise attacks, and aim to take out the "ghost" before he can react. If the problem continues, an NPC *will* invest in countermeasures.

Invisibility

Invisible PCs have more problems with walls and locks than their intangible counterparts, but are even harder to locate. They can do unspeakable things in public and waltz through any security measures based on human observation.

Fortunately, effective countermeasures can be cheap and mundane. Invisible intruders can be spotted by guard animals (dogs, geese, etc.) that have keen senses other than sight, and may set off relatively simple security devices such as pressure pads. Once foes realize that they have an invisible problem, they should triple-check any "false alarm" and always assume the worst about where the foe might be. In combat, improvised tricks involving flour or paint may be effective, or combatants can simply saturate an area with grenades, gas, magic, or automatic weapons in "spray and pray" mode. Invisible enemies are scary, but far from unbeatable.

Penetrating Vision and Clairsentience

Powers that can see through barriers are yet another way to short-circuit an entire plot. A conventional "dungeon crawl" or an espionage mission may be cut short even by very limited powers that can survey the dungeon or probe the enemy base with minimal risk.

Of course, the intruder must know where to look. If the power takes time or effort to use, PCs can still be surprised or ambushed by totally unexpected traps or foes. Few people are likely to keep such abilities active full-time; they would make it hard to see where one was going. Interpreting observations can also be tricky. A guard in a full-face helm may be alert or dozing on his feet; may respond to an attack by fighting, running away, or ringing a bell to summon a dozen friends; and may turn out to be a rank beginner or an elite warrior. Reading written secrets is all very well, but if they're buried among thousands of pages of routine records, finding them could take days.

If such powers are known to exist, or even suspected, competent opponents will take countermeasures. Even if active magical wards or psionic screens are unavailable, keeping secrets in the dark, or encrypting them, may render them secure. Fake objects, humanoid dummies, and false documents can all help.

Any society with serious concerns about privacy and personal modesty will regard powers of this type with suspicion. A known clairvoyant may be treated as a snoop or voyeur. In settings where powerful men keep carefully guarded harems, and public immodesty is severely punished, anyone who can see through walls would be advised to keep the fact *very* quiet.

Precognition

The ability to foretell the future is difficult to GM, and can easily wreck whole campaigns. GMs should never feel obliged to permit it if it would be too troublesome. If it *is* available, exactly how to deal with it depends on the exact form it takes, and how firmly fixed the future might be.

The GM has to walk a fine line. The future may not always work out exactly as foretold, but shrugging and saying "You only saw one possibility" makes the ability worthless. On the other hand, perfectly reliable predictions make the entire game futile. There are several possibilities; GMs should make it very clear from the first which one they have chosen.

First, Precognition may be very restricted and inherently uncontrollable. Passive Only (p. 69) is mandatory, and One Event (p. B77) may also be required. For a really annoying version, add Nuisance Effect ("seizures") and Uncontrollable, so that the seer is prone to startling or terrifying visions at inconvenient moments, and may acquire a Reputation for insanity. This approach is common in fiction. Seers have dreams or waking visions which indicate that *something* (usually bad) is going to happen, and may pick up some clues about the nature of the threat ("An attack on the town! I see darkness and fire!"), but details are always uncertain. This is a good storytelling device, and means that the heroes are less likely to be caught completely unaware, but it may be too frustratingly vague for players.

Another option is to say that the future is fixed, *given* a particular set of actions by the seer. This can be simulated by permitting precognitives to "replay" events from the point where the power activates; each play-through actually represents a vision, until the seer decides to let one actually happen. (This tends to require the Directed enhancement, p. 68.) Unfortunately, this method tends to be lengthy and boring. It's also *very* hard to handle when NPCs have the power. Alternatively, the GM may give visions that will be perfectly true if the PCs remain passive, but which they can change by any action they take – but in most cases, it's hard to imagine PCs not doing *anything* about future events.

Precognition might also give 100% accurate but very brief "flash visions" of the future, with enhancements such as Directed and Reliable prohibited. These scenes *will* happen (and if they're unpleasant, that's just tough – there's a reason why some seers are unpopular), but what they mean, and what's going on "offstage," remain undetermined. For example, the vision might show a hero being shot and falling to the floor covered in blood – but the wound may turn out to be superficial, or the gun might be loaded with blanks and the hero could be faking, or the shot might miss entirely and the blood might come from an earlier fight. GMs have to come up with plausible future scenes, based on their plans for the campaign, and making them come true may require a lot of manipulation.

Finally, predictions may be inherently tricky and ambiguous, in the best traditions of the Oracle of Delphi and newspaper horoscopes. This is often a feature of specific fortune-telling methods, which can add all sorts of limitations: Active Only (p. 69) is normal, and most will add some of Preparation Required, Takes Extra Time, Trigger, or Gadget Limitations – or Fickle, or possibly Pact, if the information actually comes from an unpredictable spirit or deity. (Directed can be added for more-controllable methods.) However, it may simply be a feature of *all* Precognition in the game world. Players should be told that they're buying the right to ask questions that the GM can answer like a gas-inhaling priestess, a lawyer, or the Devil – *not* the right to put the GM on the witness stand. High skill just means good odds of activation. Interpretation should generally be roleplayed.

One possibility with this last approach, especially suitable with PCs who use mystical styles of "fortune-telling," is to read up on just such a method from the real world – the tarot would probably work well – and, when the power is activated, break out a tarot deck, yarrow stalks, or whatever, and make a reading. The GM then decides what the reading means – without telling the players – and starts manipulating events toward that result. Of course, the fear of a bad reading, or the GM's ability to be confusing, may deter people from ever using the power – but the temptation of knowing the future, however uncertainly, is *very* strong . . .

To repeat: whatever option the GM selects, he should make the decision clear at the start of the campaign and then *stand by it.* Some players may ask how they can acquire clear, detailed, unambiguous precognition. The answer can be "**You can't**." If they don't like the level of uncertainty, they can always spend their points elsewhere. GMs are never obliged to permit game-wrecking powers.

If the plot *requires* a particular result or scene, the GM can and *should* twist events mercilessly toward that result: NPCs show up or wander off as required, die rolls get fudged, and any NPC who is "fated to do well" has Ridiculous Luck *and* Serendipity. Yes, this is railroading; players who use precognition are literally and explicitly *asking* to be railroaded. They aren't entitled to complain, and good players might well help in some way.

If two rival seers are both using precognition while attempting to manipulate events, some kind of Quick Contest may determine who gets the most desirable result – but it might be just as reasonable to say that both get screaming headaches and must retire to bed.

Soothsayers whose precognition threatens the campaign can be dealt with by various methods. For once, GMs can become *somewhat* arbitrary with a clear conscience: messing with destiny is traditionally considered to be asking for trouble. Ambiguous predictions, fuzzy images as all history turns on some random trivia, those screaming headaches, and interventions by gods charged with safeguarding fate and preventing mortals from knowing too much are all plausible in some settings, especially if the players have been warned. Anyone viewing a future that contains a high probability of terrible events such as his own death might also be required to make a Fright Check.

Precognition isn't usually legally or socially controlled, but some religions consider it blasphemous (knowledge of the future is the prerogative of Heaven), and some legal systems assume that it's impossible and treat it automatically as fraudulent. Anyone known to possess the ability may attract *lots* of attention from the curious . . . and the obsessive.

Shapeshifting

Shapeshifting can be a minor trick or a game-wrecking problem, depending on precise details and how it's used. Being able to look like someone or something else, instantly, is almost as good as Invisibility, and clever users can achieve numerous other effects as well.

However, many subtle effects of this power demand judgment and skill. Just looking like someone else will usually work for a useful moment, but actually *impersonating* someone requires the ability to emulate their voice and mannerisms. The right skills (mostly Acting, Disguise, and Mimicry, and sometimes Fast-Talk) can deal with this, but rolls should be required, with whatever modifiers are appropriate. Some impersonations will need various kinds of Cultural Familiarity or Savoir-Faire. Some simply will not work unless the target is very carefully studied beforehand.

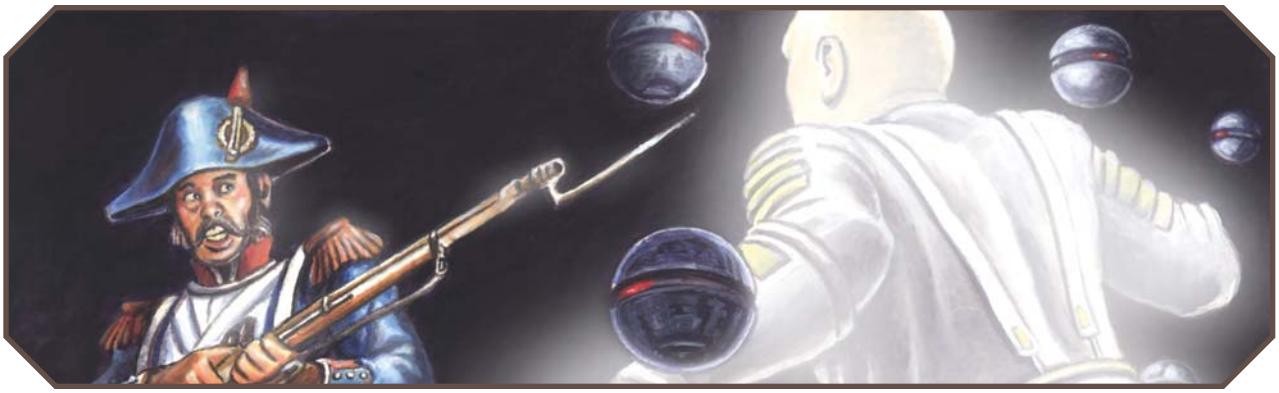
Opponents may not act instantly, but the morphing PC can never be quite sure whether somebody is taken in entirely, somewhat distracted, or seriously suspicious but trying to draw the impersonator in further. GMs should require and make a lot of die rolls, some of them "dummies," to keep players nervous. If opponents know they have a shapeshifter to worry about, they may be driven to paranoia, but they can also institute defensive measures, from high-tech or magical tests to password systems.

Remember also that there are usually limits to the abilities that an alternate form can possess. GMs should be careful that PCs capable of taking multiple forms don't try things that are actually beyond their ability.

Warp and Jumper

Warp represents one of the most "magical" of powers. Jumper achieves many of the same effects and more. The problem is, they can also reduce the tension of many plots. A long-range teleporter can leave any adventure when the going gets difficult, and even a short-range version enables a PC to escape from any conventional prison cell and to bypass many security measures.

Part of the solution is to be very sure to enforce all the built-in problems. PCs must be able to see or visualize their destination, and can still fail and temporarily disable their ability from time to time. Most uses also cost FP, and GMs should be sure to enforce all the relevant rules on that, too. Encumbrance limits are another rule to watch closely; aside from the fact that adventurers may find that they can't carry bulky loot or heavy weapons when they vanish, they will almost certainly be incapable of taking friends or allies along – and even if they don't care about this, their allies might be very unhappy about being left in the lurch.



Those who make a habit of traveling to unseen locations may run into dangerous, or at least unexpected, situations on arrival. GMs shouldn't make a habit of this unless players are complacent – in which case, PCs may transport themselves right into a trap or ambush. This is, after all, another ability that competent enemies will assess carefully for limitations. If captured, known teleporters may well find that they are subject to especially harsh conditions in order to baffle their ability. They may be drugged, blindfolded, or held in pitch-black rooms, and kept unaware of their precise location. Enemies may take hostages to dissuade a teleporter from just wandering off, and will probably hold valued items in secret locations, protected by fast and deadly traps.

While this sort of ability often may not be heavily legally controlled, it's unnerving enough that anyone known to possess it will be regarded with some caution. If someone commits a series of baffling mystery thefts, a teleporter may well find himself under suspicion, however solid his alibis.

Running Adventures

Adventures for empowered PCs are generally much like other sorts, though some scenes may be a little larger and more dramatic. However, there are some specific issues to consider.

Spotlight Time

Giving PCs "spotlight time" means allowing each of them a chance to *participate* – an opportunity to roleplay and earn a mention in stories. In games involving powers, one of the most important things about spotlight time is that everyone should have a chance to show off their particular specialties.

It's generally better not to be too formulaic about this, especially in games with diverse powers. If every adventure has an obstacle for the flyer to fly over, an NPC for the telepath to read, a weight for the "brick" to lift, and so on, the results will look very artificial. Most players are happy enough to take a back seat in some sessions, so long as they get chances to shine in others, or an opportunity for a little roleplaying somewhere along the line. Some heroes' function is to act as a confidant or psychological foil for the others. However, if a PC gets no significant spotlight time at all for several consecutive sessions, there is a problem.

Some players make their own spotlight time, ingeniously finding opportunities to use what they've got. Although excessively pushy players may need a little polite restraining, this saves the GM from having to work too hard. Others may need more encouragement, especially if their powers are most effective when used with a little ingenuity; the other players can help here, and GMs shouldn't discourage them. Very shy, retiring players, especially those unfamiliar with the rules, may even be prompted by the GM. It's better not to overdo this, or the game can end up looking like a story told solely by the GM, but the occasional hint is fine.

The Human Touch

GMs should also make sure that there are places and times where powers are irrelevant and *everybody* gets a chance to roleplay. Having the PCs swept off by one emergency after another, with barely a pause for breath in between, may be very exciting – but it may also get boring. GMs shouldn't be afraid to say "you'll have to spend a couple of days back at base" or "it'll take you a week to sail there," and shouldn't hurry past that downtime if the players look eager to roleplay out some personal stuff.

In powers-oriented campaigns, however, action scenes may *be* the big opportunities for characterization. Quiet types can show their true worth or grow in confidence when their powers prove essential in battle. The grandstanding, fireball-tossing superhero and the devious creature of living darkness demonstrate their personalities by using their powers. The ruthless avenger, the honorable paladin, and the emotionally balanced martial artist can all show their true natures in action.

Meaningful Rewards

Most PCs can be rewarded with wealth, improved abilities, nifty new tricks or devices, and perhaps status or fame, but PCs who are *already* really powerful may require different incentives.

Even an empowered hero should have some *reason* to adventure. Rewards should ideally involve some movement toward a goal. A warrior out of Celtic mythology may dream of becoming a respected member of a king's household, and perhaps eventually a king himself, all within the limits of the Celtic code of honor . . . or he may simply hope for a glorious career culminating in a noble death in battle.

But even such a short-lived hero may want to defeat certain foes, and ensure the security and prosperity of his family, before the end.

While some heroes move from one short-term problem to the next, never worrying too much about the future, others have grand concerns tangential to their adventuring career. A mystic may seek communion with the godhead, while a wizard may want to understand the deeper nature of physical reality. The snag with this sort of thing is that it can distract a PC from adventuring altogether, but he may have lesser reasons to travel and fight or his quest may involve a necessarily practical element – the search for ancient secrets in far-off lands, say, or the need to perfect skills as the path to enlightenment.

Improving and Enhancing Powers

Experience points, the traditional reward for PCs, can certainly be as useful to those with powers as to anyone else. However, using them to improve powers may need some special treatment.

Buying levels of a power-related Talent is generally fine, on a par with getting better at most skills. Likewise, buying an extra die or two of an Innate Attack, increasing the strength of a telekinetic ability, or improving any power's range a little is often comparable to increasing a mundane attribute – justifiable as a matter of exercise and training.

More radical changes include removing limitations, adding enhancements, and adding whole new abilities to an existing power. Such things *may* be justifiable: a telepath might realize that the powers of the mind aren't bounded by distance (adding the Long-Range enhancement, p. 108) or learn to transmit images as well as words (gaining the Illusion ability with the Mental enhancement, p. 95), a fire elemental might learn to focus its blasts to punch through defenses (Armor Divisor, p. B102) or spread them wide (Area Effect, p. B102), or a shaman could master a whole regiment of new spirit-servants with associated abilities.

As this suggests, many abilities and refinements come with new insights, or as rewards for good work. Mentors may teach new lessons to pupils who've proved themselves worthy, patron gods may grant new miracles to priests who've served well, and wizards can acquire scrolls of lore when they plunder ancient ruins. The natural plot break that often follows a successful adventure can give PCs a chance to consider what they've learned recently, practice new techniques, and compare notes.

Plot Points and New Abilities

Abilities can't usually be gained or improved in the middle of an adventure – unless doing so fits the campaign style and genre. In a campaign that uses "plot points" (p. 192), a player might be permitted to spend experience to improve or add abilities during the adventure if he spends a plot point as well.

"If I concentrate my icy fog onto one spot, I can drop the temperature well below freezing. If I remember my freshman physics right, that should make this metal brittle. Hey, I must remember this trick . . ."

CAMPAIGNS

The presence of powers has implications for the parameters of campaign design.

BACKGROUND

To begin with, a campaign needs a general setting – often meaning a specific time, not just a place.

Historical

The snag with empowered games in the historical past is that powered beings don't seem to have existed in history. Even if they did, they apparently failed to use their powers to change the world – so where's the fun?

One possible solution is to set the campaign in an alternate version of the past where powers, having appeared recently, are about to *start* making changes. Such a game can be based on myth (Gilgamesh-style demigods bestriding the city-states of ancient Mesopotamia), a mixture of myth and novelty (Greek philosophers discovering the power of psi and having to deal with Olympian gods who don't approve), or a complete "what if" (aliens with cosmic powers and transcendent technology land in the mid-Victorian era, and recruit and "upgrade" humans to serve as guides and guards).

Another alternative is the "very secret history" game, where powers are being used deep behind the scenes, and the PCs seek to impose their own slant on events that follow the broad pattern of known history. The players may know who'll be king next year – but will that king serve their faction, or an enemy? They may even be specifically charged with keeping the world as it is recorded in our history books, with the threat that, if they fail, it will become a disastrous alternate history. See *Keeping It Real,* p. 200, for ideas about how such secrecy could be maintained.

Modern

Exotic powers give the GM quite enough work in themselves, so it may be easiest to set campaigns in the most familiar milieu of all: the modern world, or something almost indistinguishable. After all, there are plenty of popular "powers-heavy" genres that use this setting, from four-color superheroes through many kung fu movies to tales of teenage vampire hunters.

Keeping It Real

In settings that resemble real history or the present day, but with powers, GMs need an explanation of why these abilities haven't changed events and society beyond recognition.

Powers may be a deep secret, because the people who possess them fear persecution by "mundanes" or because they simply value their privacy. Empowered people may be "enlightened," preferring not to disturb the world too much, or devious behind-the-scenes manipulators. They might also serve – or *be* – godlike beings, constrained by rules or traditions from direct action in human society but able to fight each other in the "divine realms."

Alternatively, powers may be publicly known, but only just have appeared. A campaign can explore the consequences of newly emerged powers: what *would* happen if a new drug enabled 1% of its users to teleport? In some cases, the changes may be predictably large, even preordained, and the campaign can be about how the PCs handle them; for instance, they might be imbued with supernatural power to act as soldiers in some looming Armageddon.

Long-established powers that haven't changed the world are hard to explain, but do appear in fiction. They may simply be very rare, and not powerful enough in total to make huge differences; a few people who can hurl small fireballs or make their skin as tough as steel really aren't much different from a few people who own firearms and Kevlar vests. If powers are difficult or dangerous to use, that makes them effectively rare; they'll change a few emergencies, and a few daredevils and fanatics will make a habit of using them, but most people prefer to avoid risk. If they're very dangerous to other people, heroes may have the job of dissuading foolish or desperate people from summoning demons or turning themselves into walking bombs . . . or of clearing up the mess afterward.

Or powers may cancel each other out, as in some superhero comics. A few villains go around robbing banks or trying to conquer the world, a roughly equal number of heroes spend their time stopping them, and everyone else gets on with their lives.

If the powers in such a campaign are secret, the world can resemble our own very closely – although if powers have been around for very long, the GM will need an explanation of what role, if any, they *really* played in history. If they're publicly known, powers may still somehow not make much difference to the world. See *Keeping it Real* (box) for more on this.

Futuristic

In the future, all sorts of powers may become possible – especially those derived from advanced technology such as cybernetic implants, genetic engineering, or robotics. In some settings, advances in hypothetical sciences such as "applied psionics" enable humans to master the powers of the mind, while encounters with alien races introduce other beings with special capabilities. In a few settings, magic "returns" or is discovered on alien worlds, or "the future" is used as a fantasy setting, with a few references to our own world as "the distant past." In a rigorous hard-SF campaign, the logic of such things should be carefully worked out; in wilder science fantasies, less explanation is required.

Totally Fictional

A "powers game" can avoid many problems of logic by being set in an entirely imaginary world, whether the classic made-up fantasy continent or an alternate history where the open presence of powers has changed everything. As with futuristic games, a "rigorous" style demands that the consequences of these powers be worked out. Even in a more fantastical game, the setting should have, for example, a *social* place for empowered individuals. Often, they'll be the rulers, but scholarly wizards might do better as advisors in the courts of secular kings or presidents, while enlightened sages might even prefer to become hermits.

Style

The style of a powers game determines how it is played, and often what optional rules and restrictions are applied.

Realistic vs. Cinematic

Most powers are somewhat unrealistic; real people can't do these things. However, it's perfectly possible to treat the subject in a logical, "realistic" fashion. A blast of telekinetic force can injure the target in exactly the same way as a thrown rock, empowered heroes can fail disastrously if they attempt dramatic stunts, and love may be a messy and misleading emotion, not an all-conquering miracle.

Still, some genres, notably mythic fantasy, space-operatic SF, and four-color superheroism, are *highly* cinematic. GMs should follow most or all of the guidelines on pp. B488-489 (unless the whole idea is to subvert the conventions). Other games may be grittier: a hero going up against a world-controlling conspiracy or fighting sanity-blasting horrors from outside time, should expect a tough fight . . . won, if at all, by effort, sacrifice, and intelligence.

Realism may work best in controlled doses, as when a superhero who's spent years fighting colorful villains realizes that blandly efficient conspiracies are quietly ruining his world far more effectively than any costumed foe, or a dead loved one turns out to be really, permanently dead, despite the hero's nobility.

Action vs. Investigation

Powers tend to mean *action* – energy blasts, flying heroes, and rugged warriors shrugging off countless blows – but some are subtle, useful less in combat than for investigation and research. "Empowered investigator"

campaigns can be tricky to run – a hero with the senses of a bloodhound or the ability to speak with the dead can solve many mysteries with minimal effort – but also very entertaining. At the very least, heroes may have to trace the source of a subtle problem, using wits and skill, before they stomp on it with raw power. This two-part plot structure, investigation followed by big fight, is standard in many campaigns and genres.

In games featuring secret plots and conspiracies, investigation is the *main* activity. A major fight means that someone has failed disastrously, or at least that the current adventure has come to a revelatory climax. Likewise, if everyone in a particular situation has similar powers, they may cancel out, leaving investigation or social manipulation as the only way for anyone to achieve their ends. Campaigns can involve various proportions of violence and thoughtfulness; GMs should adjust the balance to taste. Even the most popular superhero comics feature master detectives as well as bulletproof flying men.

Serious vs. Humorous

High-powered characters create tension in the mood of a campaign. On the one hand, they probably have great and very serious concerns: the struggle between good and evil, problems of bigotry and persecution, the question of how the world should be governed, and so forth. On the other hand, people who can make weird things happen just by waving their hands, who wear bizarre costumes, and who are prone to agonize about the fate of humanity over breakfast can't help but look slightly ridiculous.

Most good campaigns include elements of both seriousness and comedy, although the proportions vary. Empowered characters tend to make both aspects more pronounced; the threats and dilemmas are vast, but so are the results of folly or clumsiness.

Some campaigns focus not only on seriousness, but on *darkness*. Angst-ridden protagonists are popular, and the drawbacks associated with some categories of power – such as vampirism or religious dedication – are certainly less than fun. On the other hand, powerful characters can *get things done;* many people would say that they have far less right to angst than less-powerful folk whose problems are no smaller. Serious but optimistic games deal with saving the world, successfully battling evil, and so on; admirable stuff, if a little pompous. Optimistic lightweight games are more obviously enjoyable, though they may end up ducking all the issues that make for good, strong plots – if nothing ever goes tragically wrong, then getting things right is less of an achievement. Finally, humorous campaigns with bumbling, unsuccessful protagonists can be very funny, but may also end up feeling very frustrating – nothing ever goes right, and the players can't even angst about it – and if the heroes have powers, they just end up looking like bigger idiots.

Prevalence of Powers

The nature of a world with powers will be heavily influenced by how widespread those powers are. There may be a large difference between the prevalence of powers in the world in general, and in the places where the PCs mostly operate. If the world is inhabited by billions of ordinary mortals, but game events take place in the realms of the gods, then powers are effectively very common.

Unique

If the PCs are the only beings with significant powers, they'll bestride the world like gods – or demons. However, they'll also be *targets*. If they're known to be powerful, they will inevitably be feared, and some very competent factions may make serious attempts to destroy them. If they're too powerful for that, anyone who knows about them will regard them with utter terror. If they aren't powerful enough to be a threat, their powers will make them objects of curiosity, some of it dangerous.

More to the point, the PCs decide what changes powers make to the world – subject to complications. They may set out to do good but end up fighting the wrong people, tearing down systems without putting anything in their place, or being manipulated by "friends." This could turn into a battle of wits between the players and the GM, but that shouldn't be the objective; ideally, the conflict will be between the morality of well-role-played PCs and the nature of the game world.

We've got a blind date with Destiny – and it looks like she's ordered the lobster.

– The Shoveller, ***Mystery Men***

Rare

More likely, powers will be few and far between, but not limited to the PCs. (This could mean that they are limited to a single group of people who are *not* the PCs!) Again, known empowered beings are likely to be regarded with fear or curiosity, but the PCs will be subject to less extreme pressure.

Individuals who choose to use their powers for different purposes or to support different causes may well end up clashing. This could range from polite debates over whether it's better to fight crime, help the starving, or let humanity find its own way to great battles between heroes and villains, as the champions of different moral codes or the soldiers of different nations. If powers are both rare and secret, the chances for conflict may be less; different groups may go for years without meeting.

Common

If powers are commonplace, the pressure is off the PCs, and the trick is to use powers *well*. This probably works best if the game isn't really focused on abilities, but simply a campaign that happens to feature powers. For example, a high-tech future could feature such advanced biotechnology and cybernetics that anyone can be "superhuman" who really feels the need, or a "high-magic, low-fantasy" setting could give a few useful spells to anyone who's prepared to study the art.

Even if many people have powers, not everyone uses them with heroic effectiveness. In a world where many people have weapons and some combat training, PCs can still be heroic warriors. Likewise, PCs may use common powers to more heroic ends than most NPCs.

Universal

If *everyone* has powers, the game world will probably be a very strange place. This situation could result from a sudden change – a cosmic accident, say – or from years of technological progress or magical education.

If these universal powers are very diverse, working out the consequences for society will be extremely difficult, and the results might be an unstable anarchy. It's probably better not to try to run a rigorously logical game – if anyone you meet could in fact turn out to be capable of *anything*, there's no way for PCs to make useful plans or tackle subtle mysteries – but it may be possible to do a lot with tongue-in-cheek social activity and bizarre allegory.

More often, "universal powers" settings give everyone the *same* power, but at different levels. A few "crippled" individuals may lack it altogether. For example, Alfred Bester's classic SF novel *The Stars My Destination* is set in a world where everyone except for a few unfortunates can teleport, though the power is *thought* to have defined limits . . .

Secrecy

Finally, there's the question of whether powers are widely known and accepted or secret and potentially feared. Openly known powers imply a world that is rather unfamiliar, even if it appears to resemble the present day. Secret powers are more limiting for the players, as they'll have to worry about preserving secrecy (or breaking it and surviving) rather than using their powers to the full. In a world of secrecy, the more dramatically powerful a PC is, the *less* effective he may prove. On the other hand, in a setting where powers are well known, merely having a power may not make one anything special.

There are two main reasons for keeping powers secret: fear and greed. Empowered characters may fear being burned as witches, pilloried as freaks, or drafted as super-soldiers. Anyone known to have an exceptional power will attract *some* kind of attention. Even if most people aren't actually hostile, some will be superstitious, want to exploit the possessor, or treat him as a celebrity and destroy his privacy.

Wanting to avoid such difficulties seems only reasonable, but *greedy* power-users want more. Powers can be used for personal profit in countless secret ways – but if they're known to exist, all sorts of countermeasures may be possible. A totally secret telepath can easily advance in business or politics, or become a great seducer; if telepathy is well-known, however, many people might wear mindshields or become deeply suspicious of anyone who seems to "read" them too well. If the individual's powers are well known, his prospects of success will vanish. Conspiracies and factions will try to keep powers *well* hidden.

Transitional Campaigns

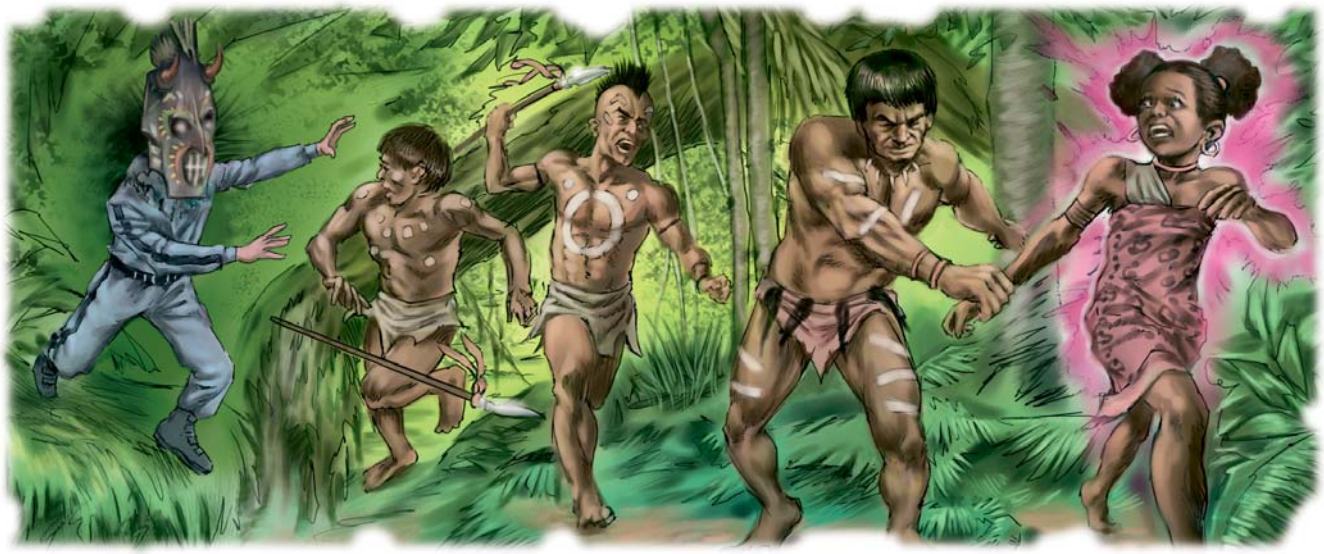
Transforming a campaign from one that didn't include powers to one in which they exist is a big, tricky change. It will have radical consequences, and it may or may not be to the taste of the players. GMs should be especially careful; it's easy to annoy people who thought that they'd signed up for one sort of game, only to get something different.

The change may have been planned from the start, as part of some kind of radical revelation. It might also be an unexpected but logical consequence of events in the course of long-term play, or an attempt to revitalize a tired campaign by adding something radically new. The GM must decide what powers are now available – they will almost always share a single class of origin – and what power modifiers, limits, etc., will apply. The powers are likely to be defined quite specifically by the GM rather than by the players.

PCs may simply have to respond to and investigate sudden displays of power from previously "mundane" NPCs. They may also acquire powers themselves, instantly or over time. In this case, the GM may simply permit the players to buy them with bonus character points, but few players are likely to have saved enough to acquire substantial powers. A GM who wishes to shake a campaign up may either award everyone an allotment of points to be spent on the player's choice of a power, or simply grant each PC a predefined power. The former has the advantage of giving the players freedom of choice; the latter may be more appropriate if the GM wants to control the nature of these new powers precisely.

Chapter Six

Empowered Genres



I reached the village less than an hour after sunrise, but as soon as I rounded the last bend in the trail, I realized that I should have moved faster. There were far fewer people among the huts than there should have been, and I could hear the shouts and screams of the others from the forest to the west. The sound of a mob bent on murder is quite distinctive when you've heard it often enough.

I donned the mask of Wolf, and broke into a sprint. I went right through the village, ignoring the old and confused – and one weeping woman, most likely a mother – as I passed. When I reached the scene of the trouble, I saw that I was in time, but only just.

The child was still alive, and I could see her power flickering about her – too weak to do her any good, blatant enough to get her killed. One man, doubtless one of the village's noblest hunters, had her by the arm and was wrenching hard enough to dislocate it. Another two had just caught up, and had their spears raised, ready to strike at any moment.

I cast Wolf aside and donned the mask of Terror. It hurts like hell to call up anything so primal and foul, but there was no time for subtlety. I hit all three would-be saviors with one blow, and they dropped to the ground screaming.

A nearby man came at me with a club raised. I donned the mask of Bear; my punch smashed him into a tree. He didn't try to get up again. Everyone else backed off long enough for me to get hold of the child and get her away.

An hour later, she'd recovered enough to talk as we sat together in a clearing. "Are you demon-touched, too?" she asked.

"That's one thing to call it," I answered, and then she was distracted by the sound of great wings descending.

"Is that . . . an eagle-demon?" she asked, suddenly quivering with fear again.

"Not exactly," I said, as the ornithopter landed.

This chapter provides a brief overview of various genres involving powers.

Mythic Fantasy

As ***GURPS Fantasy*** says, the fantasy genre exists on the border between reality and myth. *Mythic* fantasy takes it far toward the latter. Its heroes may even be gods. It shares high fantasy's concern with wonder, but it can also be as horrific as anything in dark fantasy, as comic as anything in light fantasy, and as adventurous as anything in sword and sorcery. It can even share some of the psychological realism (and ubiquitous magic) of low fantasy.

By the Book: Mythic Fantasy

The main question about a mythic fantasy campaign is just *how* mythic it's going to be. PCs who are merely favored by the gods are different from those who *are* gods.

Power Level

Campaigns that feature merely heroic humans can have a starting level of around 150-250 points. If some or all of them are demigods, 300-400 may be more appropriate. Mythic heroes who expect to shape the world by their actions start at 500 or more. True gods and titans probably need at least 1,000 points.

Unusual Backgrounds

In some mythic settings, supernatural forces regularly walk the earth, and even ordinary mortals aren't too surprised to encounter them (although they may be rationally fearful). No Unusual Background is required for protagonists who wield divine powers or reality-warping magics in such cases. One might still be required for a power that is unusual even among the gods, such as psi in a world that mostly features magic.

However, in "epic heroes" games, full-fledged magical powers or obvious divine gifts may be prohibited entirely, or permitted only with a 50-point Unusual Background, in order to preserve the focus on powerful but essentially human protagonists. Relatively limited supernatural abilities that fall short of being an actual power, such as Achilles' near-total immunity to physical harm, might require a lesser Unusual Background, perhaps 25 points.

Subgenres

Subcategories of mythic fantasy can primarily be defined in terms of the power levels of the protagonists, although the cultural background of a story – its implicit assumptions about metaphysics, the nature of heroism, and divine law – can make a large difference to the flavor and style.

Epic Heroes

The heroes of Homer's works, the Germanic legends of Siegfried, and the Anglo-Saxon tale of Beowulf are "merely" mortal men writ large. They're great warriors and leaders, may be of divine descent, and they sometimes wield magic weapons, but they don't fly or throw lightning. Some modern fantasy stories operate on a similar level. Tolkien's Númenoreans are long-lived, noble-spirited humans who shape the early history of Middle-Earth.

Fantasy of this type downplays powers – or leaves them in the hands of deities, angelic beings, and strange wizards and enchantresses. However, they may appear occasionally, in the form of a small piece of aid from some supernatural Patron or an incidental threat. Using blatant powers in combat may be considered unworthy or dishonorable although supernatural strength or vitality, and the occasional magic weapon are accepted heroic features.

Wondrous Heroes

The heroes of, for example, Celtic mythology are much like those of the Homeric tales – leaders of society, often partly divine. However, they can master truly supernatural feats, leaping onto spears in flight or bringing down a dozen foes with a single sling-stone. In other words, they have powers.

These heroes are still essentially "augmented humans" – faster, stronger, and deadlier than most, able to use amazing tricks and maybe the odd magic spell, but not actually gods. Many such stories are concerned with the heroes' mortality; they seek to make their mark in the world and achieve noble goals before they die. The gods themselves are far above the heroes; they may act as Patrons or behind-the-scenes Enemies, but woe betide any hero vain enough to think that he is on their level.

It's not impossible for wizards, sorcerers, or miracle-working priests to play a heroic role in this sort of fantasy, although most are seen as weird bit-part players who come and go through the lives of the warriors, occasionally dispensing aid, advice, or threats.

Tales of the Gods

In some legends, gods are shown behaving very like mortal humans – except that the world they live in is *bigger*, one way or another, and their actions have global consequences. When Thor gets into a drinking contest, his opponents magically connect his horn to the sea itself – and his efforts cause the tides! This is an extreme case, far beyond the scale that most games can handle, but in some worlds, the adventures of godlike beings may be quite manageable. Roger Zelazny's *Lord of Light* and *Creatures of Light and Darkness*, in which the "gods" are powerful psis with ultra-tech equipment, provide one useful model.

Powers in Non-Mythic Fantasy

Fantasy is often taken to require magic, but other powers – psionic, divine, moral, or cosmic – can take its place in ensuring the wonder and other-worldliness of a setting. (They may, of course, be *called* magic.) The powers available in such games should be specifically defined by the GM; if every sort of power is available, the setting will become either mythic or just silly. However, a few powers can make a fantasy world more exotic.

For example, while Yrth (see ***GURPS Banestorm***) mostly uses the ***GURPS*** spell-magic system, it also features a few religious mystics of various kinds. Each faction of mystics has a small number of unusual advantages, each with the Pact limitation. In effect, each faction has its own power.

Often, the gods are very like mortals in their motives and reactions, if only for comic effect. They're vain, quarrelsome, ambitious, jealous, passionate, loyal, or spiteful. Given that the purpose of the gods is to *enforce* morality and law rather than to *obey* it, they may act rather badly by mortal standards. However, they are usually bound by family loyalty, vows, and the specific rulings of higher gods, rather than behaving in a completely anarchic fashion.

Mythic Fantasy Genre Conventions

In this genre, players should always feel that every action has a chance of ending up in *myth*. Motivations should be grandiose; even petty personal lusts can lead to decade-long wars and the fall of nations. In some cases, protagonists are walking symbols or embodiments of some principle or race. Even the most mortal of them will become inspirations to peoples yet unborn.

Campaigns in which gods or near-godlike beings appear should aim for a sense of *significance*; these are cosmic forces interacting, establishing a template for how the world works. The *death* of a god leaves a whole aspect of reality ungoverned. At the same time, the human pettiness of these great entities provides countless opportunities for comedy.

In some cases, mortal heroes may be able to "borrow" some of the power of a god by re-enacting his legend, maybe with a "spirit journey" to the realm of the gods, into the underworld, or to confront some powerful being. In some cases, this may be a process of initiation into magical mysteries; in others, the journey may be an incidental part of the hero's career – though it may still change him significantly.

While mythic heroes are people who get things done – conquering cities, saving the world, stealing fire from the gods – it's entirely possible for them to fail. Tragedy is as important as heroism in myth. Heroic death in battle isn't necessarily considered to be defeat, but it's death nonetheless. Heroes who overreach themselves – for example, by trying to acquire immortality – may suffer painfully for their ambition.

Mythic Origins

The heroes of mythic fantasy are typically close to the gods – sometimes *genetically* close. Even in legends and stories about human protagonists, many are the descendants of human-deity couplings. The gods may also possess magical techniques that they can use to empower their chosen agents, such as "apples of immortality" or the treatment that made Achilles largely invulnerable. In other cases, human characters seek near-divine status by mastery of supernatural powers – although that is notoriously difficult in legend, where hubris is often punished.

The commonest power origin is "divine ancestry," which may grant biological, magical, divine, cosmic, or even elemental powers. (Some heroes might also command spirits.) Mortals who achieve heroic status through intensive study might have magical or spirit powers; those who are favored by the gods would have divine powers.

Although western myths don't talk about "chi" as such, the part-divine heroes of European myth had greater strength, vitality, and life energy than lesser mortals. Treating this divine vitality as chi, assuming that it can be unlocked by training and prayer, and using this book's rules for chi powers could work very well.

Mythic Fantasy Antagonists

If the heroes of mythic fantasy are grandiose, their opponents must be on the same scale. At a minimum, they challenge the PCs' ambitions and ideals, In some cases, they symbolize opposing cosmic principles.

Deities

On occasion, even if the heroes aren't actually gods, their opponents *are*. If the gods are true immortals with cosmic powers, while the PCs are merely capable mortal men, divine enemies cannot attack the heroes *directly*, or the campaign won't last very long. Gods may refrain from direct action out of a sense of sportsmanship or in obedience to divine law, but they can still be terribly dangerous foes, directing rival heroes, monsters, and minions against their mortal foes, and perhaps controlling the elements or even fate itself. If they're lucky, the PCs have divine patrons who are using *them* as agents, and who will make sure that the enemy deities don't cheat.

A PC may make an enemy of a god because he, his patron, or one of his parents is also a god and a hated rival to that enemy; because his actions interfere with the god's plans; or because he has offended the god in some incidental way. This offense may be accidental or trivial; gods are terribly prone to grudge-bearing, and don't have a human sense of proportion. Destroying a god's sacred places or injuring his priests are classic mistakes, but so is harming the god's offspring – and given that many gods are the parents of monsters, which inherit a fragment of the god's power but little of his intelligence or restraint, those heroes who kill monsters can suffer disastrous consequences.

Players who get the feeling that their PCs have become mere playing pieces in the private games of uncaring gods may become irritated. Even the heroes of legend occasionally took the considerable risk of telling the gods that they objected to being used. However, if a patron god has a serious objective that accords with the PC's ethics, the hero may be willing to go along with it. It may be more important to make sure that the players don't rely on their divine patron to get them out of trouble at every turn, but this can be easy enough. Friendly gods may be bound by the rules just as strongly as the enemy, or may just not be *that* friendly.

Wizards

In mythic fantasy, a wizard's powers can be *vast;* some wizards dream of approaching godhood. Heroes or demigods who are committed to defending the order of the cosmos may regard wizards as metaphysical anarchists who'd tear down the universe for the sake of personal power. Ambitious wizards may ally with dark gods or demons, opening gates to Hell in exchange for personal rewards.

Heroes sometimes confront wizards directly. The result may be a titanic battle – or it may just as easily be short and anticlimactic, as the hero skewers the wizard before he can get a spell off or the wizard vaporizes the hero on sight. Wizards don't generally see themselves as fighters, bound by codes of warrior honor. They tend to attack heroes through minions: armies of faceless guards, the occasional high-grade underling with a few magical augmentations, and some trained or summoned monsters. In a sword-and-sorcery-flavored fantasy, the heroes battle through these forces to a final confrontation in the wizard's lair (usually a tower). In other cases, the heroes may have to locate some magical key to the wizard's power and destroy or commandeer it.

Monsters

Mythic-fantasy monsters are more than big ugly carnivorous animals. Like the gods and heroes they so often fight, they may symbolize something important – perhaps explicitly, perhaps just by virtue of being monsters. At a minimum, they represent the power of untamed nature or raw chaos, devouring any human who comes their way out of casual hunger – or threatening to devour, say, the sun itself.

Mythic monsters are often unique, not members of a "species" in the modern biological sense. (See ***GURPS Fantasy*** for more on this.) As mentioned above, they are often the offspring of gods. Deities who symbolize evil, destruction, or primal chaos (such as Loki or Tiamat – beings mostly feared rather than worshipped) are often happy to sire devastating monstrosities. Other deities (such as Poseidon) are little concerned with the well-being of individual humans, and look on their monstrous progeny with an indulgent eye, as long as they don't threaten the world as a whole.

Mythic monsters may threaten the hero, his friends, or helpless strangers, or they may have been set to guard some important treasure or magic item. Powerful heroes go toe-to-toe with monsters; those with lesser abilities use trickery or borrowed magic. Monsters don't usually employ minions or subtlety, although some may engender lesser monstrous spawn.

Rival Heroes

Mythic heroes face few opponents who are truly their equals, but when they do, it's often because those antagonists are very similar to them indeed. They may be servants of antagonistic gods, or simply after the same loot as the PCs. The fate of humanity and the world may well depend on which faction's representatives win out. In some myths, arrogant heroes see other heroes, on the same side, as rivals. Jealousy can then distract everyone from important matters, leading to dangerously competitive behavior and even violence.

In some cases, rival heroes may wield strange, dark forces, or even be partly nonhuman – perhaps descended from or created by a deity who doesn't limit himself to human forms – and hence be somewhat monstrous. In general, though, a rival hero should be someone a PC can respect and understand, if not necessarily like. Codes of honor may oblige heroes to fight fairly against rivals, not resorting to the sort of tricks that are considered legitimate against monsters and evil wizards. Human rivals can also have the support of leaders and factions in human society, friends who will assist them or try to avenge them. In stories with a tragic twist, a rival might be a friend or blood relation to the hero.

Mythic Magic

If magic is a common feature of fantasy, then mythic fantasy must feature *mythic* magic. In some cases, this can be a matter of raw power: mythic priests who bring down fire on whole cities with a gesture, mythic necromancers who call up dead armies with a word, and mythic gods who twist reality with a thought. Super-wizardry may be represented as a power with a large number of abilities, the Cosmic Power version of Modular Abilities (p. B71), multiple levels of Wild Talent (p. B99), or Ritual Magic (p. B242) with high levels in the core skill and many paths.

Playing Monsters

The protagonists of high-power mythic fantasy aren't necessarily human. Some don't even *look* it. PCs might have the shapes of supernatural beasts out of legend or nightmare, often with exotic powers tied to those forms. (While "being a dragon" isn't a valid power, "flame breath" or "mighty wings" might be.) GMs can veto the idea of monster PCs if they wish – there may be practical problems – but if the game can handle really high-level powers, questions of physical shape should be trivial. Apart from anything else, mythic nonhuman beings are often shapeshifters, and can take human guise when convenient.

On the other hand, radically nonhumanoid monsters are often viewed in myth as the enemies of humanity. Gods generally represent cosmic order and tend to be somewhat human in shape and thinking. Great monsters, by contrast, represent primal chaos, implacably hostile to everything human. Playing rebels may be cool, but playing rampaging forces of destruction is likely to get boring fairly fast. Still, some myths feature benevolent nonhuman super-beings such as the Chinese Ki Rin (or Kilin), or nonhuman creatures in service to the gods such as Odin's ravens, so anything is possible. ***GURPS Dragons*** has rules and guidelines for playing one important type of high-powered mythical creature.

Wuxia Fantasy

Chinese "wuxia" martial arts movies have become especially well-known in the West in recent years with the success of films such as *Hero*, *House of Flying Daggers*, and *Crouching Tiger, Hidden Dragon*. These are melodramatic fantasies, although their settings are often nominally "historical" (using a *very* loose, mythologized version of history). Martial arts adepts often use impressive chi powers, mostly to augment their innate physical abilities: they can leap over buildings, run through treetops, and parry any missile. Some movies feature wilder abilities, such as flame breath and flight.

This subject will be covered in more depth in ***GURPS Martial Arts***; wuxia movies are more about advanced fighting arts than superhuman powers. Still, wuxia sometimes comes very close to mythic fantasy, with legendary heroes battling whole armies to decide the fate of nations. The key differences are the explicit focus on chi, rather than divine and magical effects, and the absence of active gods. Enemies tend to be human, or possibly formerly human undead, although these enemies often wield impressive chi-based powers of their own.

Along with oriental weapons, costumes, and scenery, such stories tend to involve eastern philosophies such as Taoism or Buddhism; their heroes are often *very* concerned with the moral and ethical aspects of their actions. Tragedy – especially the conflict between love and duty – is a common theme.

In other cases, magic may be restricted and structured enough that the standard ***GURPS*** spell system is appropriate – but at very high power levels. There may be no cap on levels of Magery, and little restriction on acquiring more with earned character points or even training. Any wizard worthy of the name will have *at least* Magery 3, granting potential access to every spell in ***GURPS Magic*** (which is strongly recommended for such campaigns). See p. 188 for rules on the interaction of spell-magic, Magery, and powers.

Obviously, a "mythic magic" setting permits powerful spells, and the general mana level may well be high. But this *isn't* mandatory. In some stories, "mythic" magic is relatively subtle or uncommon, for all its power. As ***GURPS Fantasy*** points out, scarcity makes magic all the more wonderful when it does appear. The average mana level of the game world might actually be *low;* mythic wizards are impressive because they can overcome this penalty. Low mana also serves to *help* mythic wizards; it reduces the danger from critical failures. Some wizards might control "places of power" – small zones of higher mana – and will fight like rabid wolves to acquire and defend such advantageous terrain. GMs should be wary of letting PCs acquire a place of power, as they may become unwilling to venture away from home. This is fine in a campaign structured around noble estates and politics, but unfortunate if the GM was planning an epic quest.

Spell Availability

Not every spell in ***GURPS Magic*** is necessarily available in a mythic-fantasy world. In a setting that focuses on heroic mortal warriors on one hand and transcendent deities on the other, wizards may be marginal characters with a limited repertoire of effects. Some specific spells might certainly be contrary to the setting's core assumptions.

For example, many myths state firmly that humans are all doomed to die, and mortality cannot be transcended. In a world where this is an absolute law, Resurrection should be unavailable – and Halt Aging and Youth might also be banned, although wizards who merely avoid death for a few decades aren't the same thing as true immortals. Lich might be in the same category, or it might be considered a blasphemy that enables a wizard to circumvent the laws of the gods – for a while. Even the likes of Restoration and Regeneration might be banned, fitting the harsh atmosphere of some myths.

A plot might revolve around a wizard who seeks to cheat death by researching prohibited spells. In a traditional sort of setting, this will have ghastly consequences for the researcher and perhaps for the whole world, although some GMs might take a "modern" attitude, saying that ambition is a fine thing and breaking rules set by smug deities is heroism. Another possible candidate for prohibition is Plane Shift. Journeys to the realms of the gods or the dead are supposed to be major quests, not just spell-castings.

Spells should not be prohibited just because they're "too powerful." Power is part of the point of mythic fantasy. GMs who think that a specific spell could be a game-wrecker but who want it to be an occasional possibility can always adjust its parameters, especially by increasing the energy cost or making it *obscure*. Beginning characters might only know an obscure spell if they have a 50-point Unusual Background, and PCs who wish to learn it might have to go on great quests.

Mythic Fantasy Adventures

Most gamers probably feel that they have a very good idea how fantasy adventures are supposed to go. However, these ideas may not always apply to mythic fantasy, which aspires to *significance*.

Mythic heroes don't just slay a few goblins to protect a village; they battle whole armies and save whole nations. They *certainly* don't venture into dungeons to plunder them for gold coins and minor magical swords; they journey into the underworld to face Death himself, and return with the weapons of the gods. Even the most human of epic heroes fight decade-long wars and rise to rule kingdoms.

Hence, mythic fantasy campaigns may have a strong main plotline to give them focus, and perhaps a fixed duration. They end when the war is over, all the monsters have been slain, or the world is created and functioning. ("Sequel" campaigns may be possible – a 10-year war may be followed by a 20-year voyage home.) Others may be more open-ended, but the PCs should have or find a very clear place in the world. They may have to defend the universe, or at least their corner of it, against attacks by demons, titans, or rival gods, all the while dealing with the internal politics of their own faction.

Tales of the Uncanny

"Uncanny" fiction evolved from folklore via late Victorian tales of ghosts, animated mummies, and psychical research. Vampire stories, especially Bram Stoker's *Dracula*, had dangerous foes and some tough, active heroes. The likes of William Hope Hodgson's "Carnacki the Ghost-Finder" introduced an element of weird science. Supernatural horror became a feature of the pulp magazines of the 1920s and '30s, notably in the work of H.P. Lovecraft and his followers. Lovecraft's monsters are totally alien beings and ancient, inhuman gods, and his heroes are in danger of losing their minds as well as of dying horribly. On the other hand, many pulp stories that began with seemingly supernatural events actually turned out to be detective mysteries with natural explanations. The form survives today as a branch of horror fiction, in movies as well as print.

The approach taken by such tales ranges from subtle mystery, through genteel horror and weird-science ghostbusting, to "splatterpunk" gruesomeness. The heroes tend to be normal humans; to fight the supernatural, they employ specialized knowledge, religious faith, or just willpower and a trusty shotgun. However, some are in contact with the spirit world, and the problems they face can be decidedly powerful: ghosts who can possess the living, vampires, reanimated Egyptian mummies, or Lovecraftian monstrosities. A few of these nonhuman beings are even depicted in a fairly sympathetic light; powerful nonhuman PCs might not be entirely out of the question in a wilder campaign.

Remember that tragedy is a common theme of myth. A mythic campaign could culminate in the deaths of the PCs or the destruction of the universe. Even those catastrophes might be followed by sequel campaigns, if this doesn't diminish the tragedy and heroism of what went before too much. Dead heroes can find new battles to fight in the afterlife, while demigods who survive the end of their universe could become the creator-gods of its replacement.

Modern Adventure

Once fiction and literature became distinct from myth, the supernatural and superhuman became less common in stories. While magical or divinely granted powers continued to appear occasionally, it was the pulp magazines and related fictions of the 1920s and '30s which brought superhumanly powered heroes back to the foreground. Combining fantasy with horror and science fiction, the pulps gave birth to many ideas about empowered heroes that remain popular today.

Modern action-adventure stories are in many ways the heirs of the pulps, and some of them feature more-than-human characters. Aside from the implausible toughness and luck of many heroes, some have martial arts, psionics, or supernatural abilities. While there are plenty of modern adventure novels, this genre's stories and style are shaped by movies and TV.

By the Book: Modern Adventure

Modern adventure heroes vary by subgenre, but most are a little beyond the most exceptional of realistic humans. Pulp and other games may feature a single empowered PC supported by a team of "competent normals"; see p. 209. High skill levels, and *especially* wildcard skills (p. B175), are often appropriate for "pulpier" campaigns.

Power Level

If the hero has powers, they should be *effective*; 250 points is probably the

minimum viable starting level. A magically enhanced monster-slayer, a mystical adept, or an advanced cyborg might require much more than this, but even these characters should be recognizably human. Games that go above 500 points are moving into "supers" territory (see pp. 222-234).

Some members of a group may be empowered, while others, built on the same base points, are "merely" normal humans with very good attributes and skills. A common idea in the pulps is that the square-jawed, can-do hero is ultimately a match for any strangeness, although *some* heroes have a little exoticism of their own.

Unusual Backgrounds

Most modern adventure games will be limited to one class of power, or at most two or three, and the powers will be the focus of the campaign – so Unusual Backgrounds won't usually be required. However, some odd personal histories might merit one. If the PCs are all chi-using martial artists from a remote Asian monastery, obliged to find their way in the modern world, then an American monk, who is already familiar with Western culture and who has Contacts and high-tech skills, might have to take a 20-point Unusual Background. A pulp hero who is the only person in the world with powers could certainly require an Unusual Background.

In modern entertainment, a successful story or character needs to stand out to be noticed. The simplest way to achieve this is to have a gimmick, which may mean a power.

SUBGENRES

In modern entertainment, a successful story or character needs to stand out to be noticed. The simplest way to achieve this is to have a gimmick, which may mean a power. While heroes and gimmicks vary widely, there are some identifiable categories.

Pulp Crime-Fighting

Most of the original pulp-era stories of two-fisted crime-fighting involved competent but unpowered humans – detectives and cops. However, a few featured heroes with exotic powers. The Shadow, for one, sometimes demonstrated a psychic ability to "cloud men's minds with his thoughts." There were also a few more-than-human heroes in other fiction of the period. The Nyctalope, with his artificial heart and ability to see in the dark, appeared in French novels starting in 1908, and was one of the first crime-fighting heroes to possess non-supernatural super-powers. The hero of Philip Wylie's 1930 novel *Gladiator* gained superhuman strength and invulnerability from his mad-scientist father's experiments.

To recreate the full flavor of their sources, pulp crime-busting games should generally be set in the historical era of the original pulps. Pulp plots typically featured straightforward gunplay and fisticuffs, but often also involved international travel. Many were fairly sophisticated detective mysteries. The ***GURPS*** *Third Edition* supplement ***GURPS Cliffhangers*** is a detailed guide.

Almost-superhuman adventurers such as the Shadow, Doc Savage, and the Avenger often accumulated a crew of loyal, capable, and *human* assistants and friends. Sometimes, these sidekicks were less capable than the title character, but provided extra hands. In other cases, they had special talents of their own.

While the main focus of the pulp crime-fighting genre is on battles against ordinary crooks, more exotic foes also appeared – scheming foreigners with fanatical followers, mad scientists, and femmes fatale. A leading villain would probably be supported by armies of faceless goons, either fanatically loyal or rather stupid (and often both). A few opponents had their own uncanny abilities. Pulp morality was generally black-and-white, so bad guys were unambiguously *villains*. They could have some complexity in their personalities, though, to make them a little more interesting.

Pulp Chi

Chi-based powers are not generally a feature of the original pulps. Exotic legends about martial arts masters hadn't entered the western mainstream in the period. On the other hand, there is a rich tradition in Asian cultures of pulp-like stories about heroes who can focus and employ their chi, and wild martial arts have become a feature of the modern descendants of the pulps.

Even in the original pulp era, stories about the uncanny abilities of eastern yogis and mystics had become popular in some circles. Classic pulp heroes such as the Shadow sometimes used weird powers that they had learned somewhere in Asia. Hence, chi powers might be incorporated into pulp campaigns without endangering the essential flavor. Their users should be either Asian themselves, or experienced travelers who've learned things "out east" that even their friends find unbelievable. GMs who wish to permit such options without having chi powers take over the game can require such PCs to take an Unusual Background with a cost of 10% or 20% of the campaign's starting point totals.

Martial Arts

Martial arts stories in a modern-day setting don't tend to include as many wild chi powers as historical wuxia movies (p. 207); the more familiar scenery would make such things look a little too ridiculous. Still, the heroes often display far greater abilities than any realistic human, and can add "gun fu" to the traditional high kicks and swordplay.

This is a literally cinematic subgenre, and the majority of movies involved come from the energetic Hong Kong film industry – although Hollywood has noticed their popularity and imitated them. Typical heroes for a modern martial arts movie are ultra-tough cops, martial artists called away from their monastic retreats by some personal problem, and even mercenary criminals with a code of ethics. They usually fight human foes – ruthless criminals or renegade martial artists – but, in some stories, they collide with the paranormal. In a few cases, the heroes actually wield magic against evil sorcerers or supernatural monsters.

Monster Hunters

Monsters are in the world – vampires prowling the darkness, aliens abducting motorists for experimentation, werewolves lurking in forests, and fish-men emerging from the sea on moonless nights. Unlike the victims and investigators of conventional horror, the heroes of a monster-hunter game fight back on equal terms.

Powers may be limited to the monsters, with the heroes' skill and high-tech equipment evening the odds, or may be granted to at least some of the "good guys." Such "hero powers" can be anything: refined martial arts skills and chi manipulation, magic learned from ancient tomes or ancient blessings passed down the generations (as in *Buffy the Vampire Slayer*), or technology so advanced that it verges on super-powers. Heroes may even be "monsters" themselves, turned to the side of good (see the TV series *Angel*, or the ***Hellboy Sourcebook and Roleplaying Game***).

Power often has danger attached, Magic may be associated with dark forces so that mastering it edges the user toward evil. Other powers, combined with the obsessive focus and caution of the effective monster-hunter, can endanger a hero's sanity. Battling with monsters, one can become a monster – metaphorically or even literally.

Monster-hunting stories never quite forget their roots in horror. Even if the heroes are tough, innocent bystanders can endure horrible fates . . . and unlucky or careless heroes can suffer very badly. The border between heroic monster-hunting and raw horror is fuzzy. A game can cross back and forth, depending on the power of the monsters and the resources currently available to the hunters.

Such games also typically have much in common with the "Secret Powers" subgenre (p. 214). If the world resembles our present day, but there are monsters out there, this truth must be a secret. This may well suit both sides; the monsters prefer that their victims not take precautions, while the hunters want to avoid mass panic. Conversely, the hunters might struggle to acquire enough evidence to convince the public, or at least the authorities. The monsters might be all in favor of mass panic (perhaps they feed on human fear, or they will warp reality to their own advantage when enough people believe in them), and hunters work to suppress both infestations and the rumors that follow them.

Cross-Time Adventures

If multiple timelines exist, and some of them produce beings with exotic abilities, adventuring across the multiverse can become a powers-heavy campaign. The "Infinite Worlds" in the ***GURPS Basic Set*** and ***GURPS Infinite Worlds*** is precisely such a setting, and its secretive ISWAT recruits all the empowered individuals it can get. ISWAT has robots, vampires, and allegedly even exiled gods.

Cinematic Technothrillers

The "technothriller" genre attempts to maintain at least a façade of realism, with plausible human heroes using equipment somewhere at the cutting edge of what's known to exist. At the point where such stories merge into science fiction, some heroes may be enhanced in some way, even possessing powers.

Such heroes include (very expensive) cyborgs and the products of

Horror and Monster-Only Powers

Horror games (including "Uncanny Tales" – see p. 208) may limit powers to NPC monsters. The heroes of stories from dragon-slaying myths to *Dracula* and *Alien* are ordinary mortals. They use skills, weapons, and wits to defeat creatures far more physically formidable than themselves.

Certainly, the heroes of real *horror* games should be scared, even if the bad things that define the genre mostly happen to somebody else. Any powers they *do* possess should be limited enough that they can't defeat every threat, or come with a cost, usually horrific.

Anti-Monster Tactics

Heroes fighting powerful monsters should tailor their tactics to the opposition. Knowledge is the key, which may mean hours in dusty libraries, complex scientific analysis, or just asking the right people. The heroes will want to acquire anything that hits known weaknesses or blocks known attacks – wooden stakes and garlic, glowing green meteors, technological mindshields, whatever it takes. They should exploit numerical advantages; it's usually easiest and best to divide the enemy up and pick them off one at a time, unless they can get a whole group of them with a *guaranteed* killing method. Smart heroes look for terrain and conditions that give any possible benefit, press every advantage, and aren't ashamed to run when necessary.

genetic engineering programs. Their abilities are generally impressive but not as flamboyant as those of comic-book superheroes – enhanced strength, running speed, and reaction times, or impressive mental abilities. In short, they can appear on TV without wiping out the special effects budget. Heroes may have the patronage of a suitably high-tech agency (and an associated Duty), or they may be freelancers or renegades with dangerous Enemies.

Modern Adventure Genre Conventions

Modern adventure stories combine escapism and fantasies of significance with a grounding in reality. They're about being tough enough to deal with threats, charismatic enough to be popular, and lucky enough to have survivable adventures – but all in the "real world," making the competent hero somebody with whom the audience can identify. That's not to say that things should be too easy for the heroes – many of them suffer a lot – but even suffering serves to add an edge of gritty plausibility.

Heroes are typically self-assured, honorable but not priggish. Many are always ready with a quip, refusing to take enemies as seriously as the enemies take themselves. Others are grimmer, perhaps pursuing justice or revenge for some terrible incident in the past, but even the vengeful hero will generally be wounded and tragic rather than blatantly psychotic. Exotic powers don't have to be central. A hero may set up a situation with precognition, blindside the foe by teleporting – and then drop him with an old-fashioned punch.

Personal powers may or may not be unique, but it's never *easy* to replicate them; the world has to remain recognizably akin to the one in which we live. Magic has strange costs, psychic or chi powers require innate talent and intensive training, and advanced technology is experimental, expensive, and hard to operate or replicate. Dangerous inventions and ideas may even need be suppressed for the safety of the world.

Origins for Modern Action Heroes

The modern action hero is generally human, but may be highly trained, technologically modified, or magically talented. He might be an alien visiting Earth, but even then, he'll almost certainly *appear* human.

His powers should be reasonably subtle, with origins tied to the theme of the game: technological or genetically engineered for high-tech adventures, magical or quasi-magical for supernatural stories, chi-based for martial arts games, "moral" (or maybe cosmic) for moral parables about angels on Earth, and so on. A campaign may mix things up – chi-based and psychic powers can appear in magic-oriented games as other aspects of the supernatural. In wilder games drawing their flavor from the whole range of "pop fantasy," any origin may coexist with weird superscience. The more power origins the GM permits, the weirder the campaign will be. Weirdness is fine if that's what people want, but "modern-day adventures" differ from "superheroics" in their stronger grounding in plausibility. "Single source" games may be more satisfying.

Modern Antagonists

The nature of "modern" opponents varies. Monster-slayers fight monsters, martial arts adepts face crime lords and renegade martial artists, and so on. Still, there may be some crossovers, and some types can fit in anywhere.

Gangsters

Crime is widespread, and generally seen as a problem, but when the heroes of the story have more-than-human powers, ordinary muggers and bank robbers aren't serious opposition. Crime needs to be *organized* to be a big enough problem.

Gangsters *can* be played rather stereotypically, especially in pulp games. In the '30s, that means a dark overcoat and an ill-fitting suit; today, it means whatever "street style" is fashionable. On the other hand, crooks with a personal, nonstereotyped appearance can seem all the more sinister. Some street slang and a sneering, laconic delivery also help the hood or hit man sound the part; ruthless greed and a gun with a high rate of fire make him dangerous.

To provide heroes with something clear to fight, organized crime may need a strong leader – the crime lord. Such a foe may be a ruthless, street-smart gang boss, a mobster whose underlings owe quasi-feudal loyalty, or a cerebral mastermind. These bosses need some pragmatic tactical smarts. Many have enough corrupt public officials in their pockets, or enough carefully arranged cover stories, that heroes who care about due process will have a hard time bringing them down. Even if they die or go to prison, the mean streets will soon throw up a replacement.

Crime bosses are unlikely to have powers of their own, but it's not impossible; it might help them keep employees in line. A boss who feels threatened by empowered heroes may employ empowered enforcers and bodyguards.

Upgraded Animals

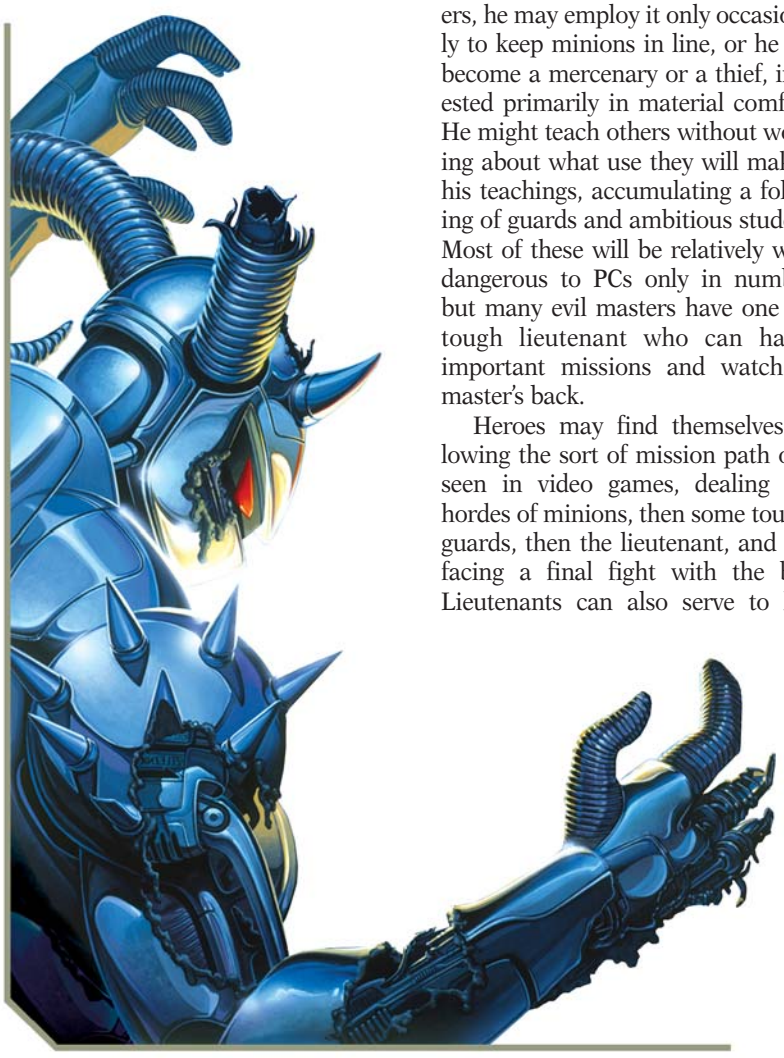
A subcategory of modern adventure fiction features animal protagonists. Aside from fantasies in which animal intelligence is simply taken as given, this can be explained in terms of biological or cybernetic experiments "uplifting" the creatures' intellects.

Animals can be created as PCs in ***GURPS*** easily enough. They won't generally have actual powers (unless these are a separate side effect of the experiments), but they may well have "animal abilities" such as flight or superhuman senses.

Terrorists

Terrorists make effective villains because of their edge of uncontrolled violence. Ordinary criminals are, for the most part, merely selfish; they only cause harm to others when there's something in it for themselves. Terrorists, on the other hand, are in the business of spreading fear and destruction. They are often fanatical and sometimes suicidal, making them harder to stop and deadlier when they succeed.

Terrorists can also challenge heroes' assumptions and beliefs. However deranged their methods, they are often inspired by some genuine injustice or past wrong. This makes it hard to undermine their fanaticism and gains them support from less active but equally dedicated sympathizers. It also means that heroes who track them back to their bases or seek to analyze their strategies may confront their own side's dirtier secrets.



While most fictional terrorists have normal human levels of competence, an empowered foe who dedicates himself to extremist ideals is especially fearsome. A super-terrorist may simply perform acts of spectacular violence, but an even greater threat might come from subtler powers. If fanatics are hard to stop at the best of times, how much worse would they be if they could divert guards with mind control or anticipate countermeasures with precognition?

Evil Masters

If the hero who desires powers and cinematic abilities must learn them from a master, the most formidable of foes may be a master who has turned to evil.

The classic evil master sees power as desirable in itself, rather than as a tool or a side effect of enlightenment. He may enjoy using his training for the dominance it gives him over others, he may employ it only occasionally to keep minions in line, or he may become a mercenary or a thief, interested primarily in material comforts. He might teach others without worrying about what use they will make of his teachings, accumulating a following of guards and ambitious students. Most of these will be relatively weak, dangerous to PCs only in numbers, but many evil masters have one very tough lieutenant who can handle important missions and watch the master's back.

Heroes may find themselves following the sort of mission path often seen in video games, dealing with hordes of minions, then some tougher guards, then the lieutenant, and then facing a final fight with the boss. Lieutenants can also serve to keep some PCs entertained while the party leader tackles the boss. Because the evil master and his lieutenant can resemble dark mirrors of the heroes, such fights can become very personal; revenge is often an important motive.

Mad Scientists

Mad scientists, a common feature of "pulpier" tales, make dangerous opponents because they can match even the smartest hero for intellect, and their creations are often formidable in combat. Fortunately, they're also mad. They rant wildly, less interested in conquering the world efficiently than in having their genius recognized. They are especially fond of complicated and unreliable deathtraps.

Any self-respecting mad scientist will have created at least one example of applied superscience. This may simply be an invention from a tech level or two ahead of the rest of the game world – modern players in pulp games may recognize the "death ray" as a laser, or the "super-bomb" as a nuclear weapon – but mad science is often rather divergent, contradicting mainstream scientific theories. Villainous inventions are usually the sort of dangerous science which needs to be suppressed, and mad scientists often give up on an idea after it's been used on one failed plot, and move on to something new.

Supernatural Monsters

When modern-day "empowered" stories feature supernatural creatures as opponents, they usually fall into one of two general types. The *beast* is simply a tough combat opponent. There may be plot complications involved in determining its motives and weaknesses and tracking it down, as well as in actually killing it. Supernatural monsters can be smart and have flexible powers, but a merely tough or evasive foe, such as a rampaging werewolf or an acid-dripping blob, can be interesting enough for a single adventure.

The *boss monster* is a more complicated problem. It has considerable power, but even more importantly, it has intelligence, minions, and great plans. Slaying a beast probably

represents the climax of a single scenario; defeating the boss can be the climax of a whole campaign. Supernatural boss monsters typically have extensive, flexible powers, making it hard to destroy them even when they're cornered. Some are dark gods or embodiments of chaos and *cannot* be destroyed, only driven off. Other common boss monsters include "master" vampires and demon lords.

Supernatural monsters have either of two general natures: traditional or uncannily alien. Some ideas about what's "traditional" for monsters originate in the pulp era or thereabouts – the suave vampire is essentially a Victorian invention, while the bipedal "wolf-man" is largely a creation of the movies. This category ranges from rampaging werewolves and lurching zombies, through tragic ghosts that need to be exorcised rather than destroyed, up to Dracula-style "mastermind monsters." ***GURPS*** details for such creatures can be found in a number of places, including Chapter 6 of ***GURPS Fantasy***.

Alien monstrosities range from fairly straightforward extraterrestrial races up to near-godlike "Things Man Was Not Meant To Know." They may have wildly inhuman powers. Psychic abilities are commonplace. Many alien creatures are physically formidable, with superhuman senses and strength, as well as claws or fangs. Horror-story alien races are also sometimes shapeshifters, enabling them to infiltrate human society. Many aliens manage without powers as defined in this book, but a range of biological and psionic abilities may be appropriate.

Explorers

One alternative plot structure found in the pulps and SF is the journey of exploration. The heroes may be literal explorers, or they may be archaeologists or other sorts of scientists.

The heroes' opponents may be rival explorers, especially if there's something valuable to find. It's also possible to discover lost cities or hidden peoples (or, in space opera games, whole planets) run by villainous leaders, who will very likely attack the visitors, and who certainly deserve to be taken down a peg.

Modern Adventures

Empowered adventurers in a close analog of the modern world must be subtle – otherwise, the setting will soon change beyond recognition. Their battles may still be quite spectacular; they just have to take place in back alleys or on remote islands. The virtue of action-adventure stories traditionally lies in energy and speed. Characters may be somewhat two-dimensional, and plots rather predictable, but the stories *work* because they sweep audiences up in the excitement of the moment.

Typically, plots are *reactive*. A house is reported to be haunted, or criminals begin a crime spree, or vampires are killing people, and the heroes set out to put matters to rights. The heroes investigate the problem, distracted from time to time by lesser villains, villain minions, or personal issues, until a new development emerges. This may not be good news: the villains may achieve some incidental goal, the heroes may suffer a serious defeat, or a supposed friend may actually be a traitor. Thus, the heroes pursue more desperate courses of action until they finally confront the villain, just in time to prevent his final victory.

This is an effective plot structure, though it shouldn't become a straitjacket. In other cases, a plot can center on the PCs' weaknesses. They may be tempted by power or find that their organization has been corrupted or subverted, so that they must reform it or escape.

Adventures that follow the format of the source material can be highly *episodic*. When they resemble short stories or standalone TV series episodes, this means thwarting a different villain or solving a new mystery every week; when they run to greater length, it means dealing with an ascending series of threats before defeating the source of evil and bringing about a happy ending. In the latter case, many "chapters" may end on cliffhangers.

Going Macrocosmic

A "macrocosmic" campaign features major protagonists who are gods, archangels, lords of Hell, or manifestations of universal principles or powers – not *just* superhumans, but beings whose actions literally shape the universe. Plots in such a setting may involve defending the universe or attempting to make a major change in the nature of things – or they may be more personal, even soap-operatic, with the emotional complications gaining a grand and primal edge.

A macrocosmic campaign usually features one or more worlds inhabited by normal "human-level" beings. Some of the action takes place there, and the protagonists have some reason to take an interest in these lesser beings. If this world resembles Earth, the campaign will tend toward cosmic supers (p. 224). If it's a fantasy world, the campaign will have more in common with high-power mythic fantasy (pp. 203-208).

In ***GURPS*** terms, protagonists in a macrocosmic campaign may be built on thousands or even tens of thousands of points, or may simply transcend the point system entirely – it's silly to try to assign a point cost for omnipotence! Such entities generally possess abilities such as very long-range teleportation, matter creation, ESP, Unaging, and Unkillable, many of them with a Cosmic enhancement – and probably substantial Modular Abilities (p. B71), enabling them to do almost anything if they really try.

Secret Powers

In some campaigns, powers are important, available to both heroes and villains – but are kept secret from the general public. This may be because selfish factions want the added advantages that come when most people don't know that they should defend against powers, or because public exposure would cause huge problems for everyone. The "visible" world is usually based on present-day reality, although it's perfectly possible to set such stories in the historic past, the future, or a fantasy world. Thus, Secret Powers games have a large overlap with the Modern Adventure genre (pp. 208-213); the difference is a specific focus on secrecy. They also overlap with the Psionics genre (pp. 217-219), which often features subtle powers.

By the Book: Secret Powers

Powers in a secrecy-oriented campaign should be fairly limited, almost always tightly constrained by the campaign concept. Some nonhuman PCs (such as angels or vampires) may all have very similar abilities. To keep things interesting, such beings may actually come in subcategories with different specializations and talents.

Power Level

Human agents in a game where conspiracies just know a few useful tricks should be competent enough to catch those conspiracies' attentions, but need not be super-powered; 150-200 points may be a perfectly adequate starting level. At the other end of the scale, secret superheroes or angels in material form may well come in at several hundred points. Nonhuman PCs should have enough points to buy appropriate racial templates. When in doubt, GMs should err on the low side; secret powers games are about thinking problems through, not blasting them aside.

Unusual Backgrounds

Here as elsewhere, PCs shouldn't have to take an Unusual Background just to have powers that are part of the campaign's basic concept. However, in some "conspiracy" campaigns, most of the conspirators and their opponents are nonpowered humans. Powers exist, but as the exotic and rare products of the conspiracy's experiments or accidents. In that case, empowered PCs who get a real, special advantage should also have an Unusual Background.

Subgenres

If "secret powers" games are defined by secrecy, then the genre's subcategories are defined by the types of powers involved.

Conspirators with an Edge

In some low-key stories, the existence of powers is just one of the secrets to be discovered – possibly even one of the *less* important ones. This secrecy is enforced by one or more conspiracies, either because they fear those powers and want to destroy them or because they are carefully preserving a monopoly.

This sort of campaign is set in a paranoid world of plots, spies, and betrayal, in which "freelance powers" are likely to be hunted down, and even those who align themselves with a conspiracy can't be sure who to trust. The most common power type is probably psionic, but conspiracies may also use advanced technology to augment their agents (giving them technological powers, or biological powers via genetic engineering), or even adopt advanced training that grants chi powers.

The Scheming Sorcerers

In the real world, magic is generally regarded as imaginary. But suppose that modern materialism is a convenient fiction created by scheming magic-wielders who decided to go undercover?

The traditional capabilities of magic would give any conspiracy a huge edge. If the conspirators are occasionally seen as eccentrics or lunatics, which just means that their victims and enemies are even less likely to guess what's really going on. The sorcerers may be the unchallenged rulers of the world, or they may face some kind of secret opposition – anything from dedicated secret agencies with a little bit of high technology to old-school religious witch-hunters who might even have divine powers of their own.

The ***GURPS*** *Third Edition* supplements ***GURPS Voodoo*** and ***GURPS Cabal*** depict such "conspiracies of secret magic." It's possible to run secret magic games without using powers as such, but there will be *some* powers around in most cases.

This style of campaign comes close to "Monster Hunters" (p. 210) and "Nightmares in Conflict" (below); the difference is that "sorcerers" are generally human, seeing themselves as using trained skills rather than gross powers. However, there may be some monsters, subordinate to the human sorcerers or on a par with them. Human PCs may find themselves fighting demons, exorcising ghosts, or collaborating uneasily with forgotten gods.

Secret Superheroes

A secret superheroes campaign adopts many of the assumptions and features of a supers setting (pp. 222-234) – except for the ones involving highly visible public activities, such as battles between flying, energy-blasting figures over major metropolitan areas. This tends to rule out colorful costumes, although "secret supers" may wear practical, rugged gear that could pass as drab bodysuits, and some of them may favor quirkish personal styles of clothing and appearance.

The assumption is that the exotic power sources of the typical supers world exist, but most people who discover that they have powers also decide to be tactful about them. They may fear persecution by frightened "normals" or be controlled or hunted by some powerful agency that wants to preserve a near-monopoly over powers. Hints about the existence of super-powers may seep out to the public and press, but be dismissed as exaggerations or sheer nonsense. Very few observers understand the potential of the most powerful supers.

In such a campaign, there is less need to make combat nonlethal than in a standard "four-color" game. PCs are more likely to be secretive if they face a real danger of being killed by a lucky shot from a thug or security guard, and the fear of persecution is more likely to seem real if some supers sometimes kill "normals," accidentally or otherwise.

Comic Illuminati

Many ideas about secret conspiracies and hidden powers are rather ridiculous, especially for anyone who tries to believe *all* of them. It's entirely possible to play them for comedy. Although many "conspiratorial" games exclude superhuman powers, or at least downplay them to keep the focus on serious human concerns, a comic game can let them run riot.

The ***GURPS*** *Third Edition* supplement ***GURPS Illuminati University*** shows one example of this comic approach. Many beings who students could encounter had powers of one sort or another. A "supermarket tabloid" game could also work, pitching cattle-mutilating aliens and vampires against psychics, redneck mutants, and Bigfoot. The PCs might be government agents battling to prevent public hysteria, valiant reporters attempting to expose the truth to a mysteriously cynical public, or innocent freaks caught in the crossfire.

Nightmares in Conflict

Secretive beings with vast supernatural powers walk the streets of the modern world – and they *aren't human* . . .

Games on this theme draw on ideas that have long been present in genre fiction. The reason why the powers and conflicts in this subgenre are kept secret is usually simple. While the monsters are powerful, maybe even controlling society from the shadows, they couldn't stand up to the combined power of an alerted and angry human race. So even rival "monster" factions unite to hunt down anyone who threatens their security. Fortunately for them, few people in the modern world believe in monsters. Because of this secrecy, such games tend to focus on power politics and social scheming, but the protagonists have powers in reserve for when they need them.

Campaigns may also be built around (fairly) normal mortals discovering terrible secrets, though the powers will lie in the hands of NPCs only. Games of empowered hunters fighting against secret monsters move toward the "Monster-Hunters" subgenre of Modern Adventures.

Heaven vs. Hell, Today

Or Heavens vs. Hells, or Law vs. Chaos, or whatever. Great cosmic powers use the Earth as their battleground, but secretly and relatively subtly. Perhaps there's an explicit agreement not to worry their mortal pawns too badly, perhaps both sides simply recognize that an overt battle would destroy the world that both seek as a prize, or perhaps some still higher power has made a rule. For instance, God may have declared that humans should choose their path of their own free will. *Knowing* that angels and demons exist, let alone meeting them, would remove real freedom of choice.

One treatment of this theme is Steve Jackson Games' ***In Nomine.*** The comic *Lucifer* is another. However, the idea of subtle conflicts of higher powers being fought out in the mundane world is probably as old as religion. Mortals usually serve as agents of one side or the other, often being granted powers of their own when they sign up.

Secret Powers Genre Conventions

In a Secret Powers campaign, there should be some logical reason that will convince individuals who know the truth not to speak out. The powers themselves may not be visible, or ordinary mortals may forget or rationalize away anything that they do see. There may also be some powerful faction or agency diligently enforcing the secrecy. Really sophisticated conspiracies may even fight battles in public in broad daylight without anybody noticing; in that case, anyone who does anything obvious must be assumed to have lost by default (unless they can utterly obliterate their opponents in the process).

In many cases, the structure of the campaign will define both the origin of the antagonists and the nature of their powers. Rivals with similar or diametrically opposite powers provide strong, interesting opponents, and plenty of motivation to fight.

Factions and conspiracies are not only a common feature of this genre, they can also provide a source for powers. Such conspiracies are usually ancient and appear monolithic to outsiders, while actually being shot through with factional politics. Their prime concern is usually power for its own sake, but they may also have specific ideas about what's good for humanity . . . or more cryptic objectives, obscure even to their own agents. Naturally, they must be ruthless and efficient, although they may have become somewhat cumbersome and inflexible over the years. Different factions are usually bitter rivals, but there is often a certain amount of quiet cooperation going on.

There are often places where powers *can* be exercised in relative safety, perhaps even more effectively than usual. These may vary from minor secret bases and hidden schools, up to whole extra-dimensional realms – Heaven and Hell, spirit worlds, dreamlands, and so on. These secret places can serve as strongholds . . . or battlegrounds.

Secret Power Origins

The power origins appropriate in a secret powers campaign are largely determined by the subgenre. What does matter is how the PCs discover they have powers, and how they react to the discovery. If powers are seen as a curse, there's scope for lots of angst. If they are given out, very carefully, to loyal agents of the conspiracy, then empowered "freelance" PCs must be rebels, which requires a lot of explanation. If they're an accident of birth, then empowered characters may find themselves hunted by powerful forces, intent on recruiting or destroying them.

Conspiratorial groups will try hard to control powers and power-wielders. When a faction has extensive access to powers, those powers are likely to be either the basis for its whole existence – their origin is also the origin of the faction itself – or the key to its strength, and hence one of the most important secrets which it must keep.

If, on the other hand, such groups are weak or relatively ineffective, and humans gain powers at random, there will probably be a number of confused and nervous power-wielders wandering around. Some may be located by well-meaning groups; others may find each other and form secret gangs or societies; others again will doubtless fall into the clutches of criminals, minor conspiracies, or fanatics. This can give a campaign its overall structure: the PCs start out trying to survive, then join or form a stable group with an ideal, which eventually has to solve the problems caused by less fortunate or high-minded individuals.

Secret Powers Antagonists

Enemies for secretly empowered PCs must either know about the secret or be powerful enough to be a threat anyway. An enemy may know enough to be a threat without knowing *everything*, and any foe tough enough to survive a battle against the heroes will come out of it with some idea about their nature.

Rival Powers

In many cases, the structure of the campaign will define both the origin of the antagonists and the nature of their powers. Rivals with similar or diametrically opposite powers provide strong, interesting opponents, and plenty of motivation to fight. Their main drawback for plot purposes may be that the PCs have little reason to do anything *except* fight them, at every opportunity.

Turncoat Powers

A slightly more complex type of opponent is one who started out on the same side and chose to turn against his former allies. Given that intrigue and betrayal are often part of a secret powers campaign, such foes are bound to appear from time to time. They will probably have betrayed important secrets to the enemy, and quite likely cost some lives in the process, so they can inspire considerable righteous wrath.

Moreover, played cleverly, they can unnerve their former friends just by existing. Introspective PCs should wonder if they, too, could fall – and maybe reassess the reasons for their loyalty. What tempted the traitor? Or is betrayal sometimes the honorable course?

Mortals/Mundanes

Although powers should provide a serious advantage, "normals" can still be a threat. They have numbers, some of them can fight, and the need to preserve secrecy can be crippling in combat. (Morality aside, "leave no witnesses" isn't always a feasible option.) Depending on the setting,

religious faith – or strong unbelief – may even disable some powers.

In worlds resembling present-day reality, "mundanes" include police and intelligence agencies with substantial resources and excellent investigative skills. The question of how much "the government" knows can become a worrying problem.

Secret Powers Adventures

A secret powers campaign should involve subtle, thoughtful adventures. The PCs or their foes may be able to deploy formidable powers, but public fireworks are discouraged. Careful planning should be at least as important. Plots can cover faction politics, investigations of which groups are responsible for which events, efforts to recruit or eliminate new talents or to escape being recruited, protecting secrecy, and preventing witch-hunts.

Which is not to say that the occasional big set-piece battle is out of the question. If one group goes for broke – attempting to grab power, destroy its enemies, or pull off some weird and dangerous scheme – the PCs may have to do whatever's necessary to stop them. Likewise, there will be battles in whatever hidden realms or pocket dimensions exist. However, quiet victories are best.

Illuminati

Historically, the Illuminati were (or are believed to have been) a secret society founded by Adam Weishaupt in Bavaria in 1776, with the objective of taking over the world. Although it was apparently suppressed by the church and German governments in the 1780s, some conspiracy theorists believe that the society survived and plays a large part in the hidden history of the world.

More generally, the term "Illuminati" is used for any powerful, secret, conspiratorial group. The term hints that the conspirators possess a special understanding of the world that guides them in their quest for power. A number of groups have claimed such knowledge throughout history, including the Cathars and the original Assassins. Because such groups are secretive, they are prime paranoia fodder.

While Illuminati-style groups are often portrayed as basically ordinary humans, the idea that they are "illuminated" can suggest that they have special powers. If nothing else, it is only logical for an Illuminatus to have the Illuminated advantage (p. B60). Special knowledge and insights can also suggest psi powers (especially ESP or telepathy). Some of the original Illuminati certainly dabbled in magic. Wealth might grant access to advanced technology.

Psionics

An entire fictional genre has developed around what it might be like to be able to manipulate the world directly using force of will, examining what the consequences of such powers might be for society. Such stories often involve newly discovered psis being persecuted by fearful normal humans or exploited by amoral power groups. In other tales, psis are established, respected figures – cops in futuristic SF settings, or wizards in pseudo-medieval fantasy worlds. In still other settings, psi powers are widespread enough that those who possess them aren't automatically very remarkable.

By the Book: Psionics

PCs in Psionics campaigns can rely as much on courage and skill as on powers, or they can be galaxy-dominating supermen.

Power Level

PC point totals should be determined by the campaign's intended atmosphere and style. "Adolescence metaphor" stories can feature limited starting values, as low as 50 points and certainly no more than 150, although GMs may be generous with experience to represent the flowering of new powers. Protagonists in the "psychic wars" are usually more experienced and capable psis or brilliant researchers, tough secret agents, or special forces troops; 250 points would be entirely reasonable. Space-opera or fantasy games can feature truly formidable psis, built on several hundred points – though more than about 750 is probably getting out of hand.

One option that can work very well is a split of starting points. Players in an "adolescence metaphor" game might be given 25 or 50 points with a disadvantage cap of -10 or -20 points. On top of this, however, they get another 50 points, plus more from disadvantages, to buy powers. They might also be banned from buying more than one or two levels of Talent at the start.

Unusual Backgrounds

When psi powers are the campaign focus, there's no need to require an Unusual Background. However, if they are rare and hard to control, and PCs may well be nonpsionic, an Unusual Background may be appropriate, with a level depending on how rare psi powers are.

If most psis peak at a specific power level, exceptional individuals might be seen as very special. If most teleporters are limited to line-of-sight "jumps," someone who can teleport several miles into a place he can't see can bypass most anti-teleport protections. Such a PC might have to take a 50-point Unusual Background.

Subgenres

Subcategories of the psionics genre are defined partly by the setting, and partly by the nature of the lead characters.

The Adolescence Metaphor

Protagonists may discover their powers in adolescence and have to come to terms with being different. They may spend some time feeling lonely and persecuted before finding others of their kind. When they eventually master their powers, they become formidable. This plot appears in A.E. Van Vogt's *Slan* and numerous children's SF stories.

In other words, psi can be a metaphor for adolescence. If the youth gains power and respect quickly, this is wish fulfillment; if he has to learn hard lessons, it is more of a moral fable. In this type of story, widespread psi may be new, or at least secret, ensuring misunderstandings and probably persecution.

Alternatively, psi may be well-established but difficult to master. The adolescent psi might have to deal with manipulative factions, press attention, and friends and family, who may be jealous, frightened, or exploitative.

The Psychic Wars

In the present or near future, psi powers have been discovered. Training methods or psionic technology are being developed, but this new source of power has been co-opted by powerful factions – governments, intelligence agencies, and giant corporations – and kept secret. The heroes are psis who just try to do the right thing. This is the basis of a number of SF novels and Japanese manga and anime stories.

Plots can range from "adolescence metaphor" tales with dark and ruthless parent-figure factions to superhero stories with less-flashy costumes. The most typical treatment, though, overlaps with the "Secret Powers" genre, borrowing much of its style from paranoid conspiracy thrillers and the grittier sort of espionage story. Telepaths and ESP users make effective spies, able to ferret out any secret protected by conventional means. They can also guard against both psionic and mundane spies. Intelligence agencies would naturally become major players in the psychic wars. Even without psi, protagonists are often asked to do terrible things to defend against enemies who are supposed to be worse. Psionics merely adds an extra level to this.

"Psychic war" stories often feature experimental technology and drugs that boost or emulate powers. These inventions may be dangerous to the user. GMs can see ***GURPS Ultra-Tech*** for useful ideas, but should limit technological aids; these stories are primarily about people, not raw power.

Science Fantasy

Science fiction (pp. 220-222) maintains at least a façade of rational logic, generally treating psionics as susceptible to rational analysis. Science fantasy uses some of the same tropes, but drops rationality in favor of an extreme sense of wonder. Psi may function very much like magic, alongside incomprehensible "ancient technologies" and suchlike.

Science fantasy may be set in the far future, with technology either regressed or advanced and splintered into barely comprehensible arts; in some galaxy far away and quite possibly long ago; or in a world transformed by catastrophes or miracles. (See p. 220 for more on post-catastrophe stories.) Psionic gifts in such settings may be the result of mutation or genetic engineering, or taught by organizations styled like a temple or a school of magic.

Psionics Genre Conventions

Being "special" is often depicted as lonely and alienating, and a psi can still be a failure despite his advantages – but powers, especially telepathy, can also be a way for an individual to form relationships. High power levels may cause someone, usually a villain, to tip over into megalomania. Normal humans are often shown as fearing and persecuting what they don't understand. The genre's concerns with accidents of birth and genetics means that family relationships sometimes loom large; heroes and villains may turn out to be cousins or brothers.

Psionic Origins

Psi powers are generally either inborn or the product of a special training regime, newly invented or kept very secret (thus explaining why not everyone has powers). These two origins can be combined; individuals can have different degrees of *potential* psionic power, but those with aptitude may still need training to unlock it.

If some humans are born psis, there should be some explanation why psi powers weren't widely noticed for much of history. If the power needs training or technological aid to be effective, the process could be newly invented or an old secret. Psi talents could be a mutation triggered by radiation from nuclear technology, some kind of industrial pollution, or a side effect of a new drug. Meddling aliens in the distant past may have inserted the genes into human cells, to be activated at a certain point in our evolution. Or perhaps latent psi powers are simply *very* hard to trigger, and only the modern world's population makes them statistically likely to occur – but once they've been found, science can learn to trigger them in others.

Psionic Antagonists

At a minimum, effective opponents must be able to withstand the most common psi powers – which usually means, given telepathy's prominence, that they need good mental defenses. The ability to hit back is less crucial; the heroes are usually ordinary human beings with a few exotic talents, and unless they happen to have strong telekinetic shields, weapons such as firearms are sufficient once the violence starts.

The Conspiracy

Psi powers may enable their possessors to ferret out secrets, cause carnage while seemingly unarmed, or go places where normal people can't. Any self-respecting conspiracy will want to control such powers itself – or, if that

isn't possible, to destroy them. In stories about psionic powers, there is often at least one conspiracy run by amoral psis.

A conspiracy of competent psis, in a world with few countermeasures, will be extremely powerful, able to overwhelm any ordinary PC group, even one with psi powers of its own. Unless the heroes are meant to be hunted fugitives, it's necessary to limit the conspiracy's capabilities.

If the conspiracy's leaders are much more powerful than the PCs, the campaign has an inherent balance. The heroes can defeat any number of enemy agents, but if they ever cross paths with their chief antagonists, they're in serious trouble. Matters come to a satisfying climax when the heroes have acquired the resources or skill to defeat those leaders.

The Government

From a sufficiently cynical or paranoid viewpoint, a government differs from a conspiracy only in that its existence, and some of its activities, are public knowledge. Politicians and law enforcers could probably make a plausible case for controlling those who have psionic powers. They may be sincere in such concerns, frightened for their own power, or a little of each.

Rulers usually attain their positions by political skill or social influence rather than raw personal power, but they can recruit formidable aid . . . and they have the resources of a whole nation to call upon. Also, the PCs can't just destroy them and walk away. *Someone* has to run the country, and if the old leaders were destroyed by psis, their replacements may be even more determined to deal with the problem.

Psis who discover that others of their kind are test subjects in secret government labs or targets for state-sponsored assassins may expose the fact. Unless propaganda has turned the citizenry against psis on a massive scale, these abuses will probably be shut down. The government will doubtlessly disavow these "horrific excesses" and promise a thorough house-cleaning. How sincere they are about this, and how much they *really* knew, depends on the general nature of the campaign. Even if the country isn't being run by paranoid murderers, they may be scared or amoral enough to turn a blind eye.

Rogue Psis

The obvious opponent for a psi hero is a psi villain. "Rogue" psis may be amoral mercenaries, puppets of an enemy faction, or ruthless power-seekers. Major "rogue" psis will often be more powerful than the PCs at the start of the campaign, which may well center on gaining the experience and training to defeat them. They usually have one of two personality types: nervous and dangerously unstable, or coldly controlled. The former are likely to be puppets or mercenaries, merely after profit or short-term survival. Conversely, powerful mercenaries and psionic master villains must be calm and efficient.

A specific type of rogue psi found in some stories is the psychic vampire, who takes energy or satisfaction from others. This may involve draining life energy directly or feeding on extreme emotions. Those who steal enough to kill each time, or who feed on suffering, are monsters; the heroes' main task is usually just to *stop* them. However, their behavior may be a form of addiction, making them not cold-blooded serial killers but twitching junkies.

Aliens

Psi powers typically appear in science fiction or modern-day paranoia settings. Both of these also commonly feature aliens, which may be a completely separate aspect of the setting or be tied up with the presence of psi. Human psi powers may have developed as a result of alien experiments on kidnapped humans or have been unlocked by alien teachings. Ancient alien visitors may even have implanted genes for psi power . . .

Aliens may be as psionically adept as humanity, much more powerful – or psionically weak, even "psi-blind." Such crippled aliens will need other resources to make them serious antagonists; one obvious option is superior technology, with perhaps just enough knowledge of psionic science to build some kind of limited anti-psi screens or jammers. Meddling amoral aliens might be trying to transform humanity into obedient psionic servants and tools. Aliens in these stories are often shapeshifters, infiltrating human society. This makes them hostile to telepathic humans, who can penetrate their disguises. Aliens might also have psi powers that are *different* from those possessed by humans – humans can read minds while aliens can master telekinesis, or humans can teleport much farther than aliens but take longer to trigger the power.

Psionic Adventures

Psionic campaigns tend to be cat-and-mouse games of investigation and detection, subversion and evasion, with occasional outbursts of violence. While these set-piece battles can be exciting, it's often more important that the campaign includes interesting, motivated, capable figures on both sides, and a slew of ongoing plots and problems for the heroes to tackle.

Adventures also often become journeys of self-discovery for the heroes, as they learn to control their powers, moving from early vulnerability to a level where they can defeat some great enemy. GMs should permit players to spend bonus character points on abilities and Talents at a rate that reflects such progress.

Futuristic SF

SF games are most likely to feature technological, biological, or psi powers. Others appear on occasion, but too much that's explicitly supernatural (as opposed to merely "beyond the comprehension of current science") is likely to destroy the sense of quasi-scientific logic that distinguishes the genre.

By the Book: Futuristic SF

Futuristic SF may have ordinary human protagonists, with an occasional alien or robot who has fairly minor powers, or it may focus on powers.

Power Level

SF campaigns with "normal" human heroes usually involve skilled individuals with all the benefits of high-tech medical care and advanced educations. The usual minimum for starting PC point totals is 150 points, and 200-250 is quite reasonable for elite interstellar explorers and ultra-tech commando squads. Disadvantages tend to be minor. Advanced medicine and psychology should eliminate many problems, and elite services prefer stable, adaptable recruits.

Cinematic games featuring "best of the best" heroes – psis, genetically enhanced humans, or aliens with expensive racial packages – can move into the 300-to-500-point range. *Lensman*-style galactic champions or posthumans with a huge array of genetic modifications and access to extraordinary cybernetic resources can go even higher.

Unusual Backgrounds

An Unusual Background is only required if the PC has something both unusual in the setting and genuinely advantageous. Merely being an alien, genetically enhanced, a psi, or a robot doesn't qualify. Being a member of a rare species or embodying experimental technology might.

Data, in *Star Trek: The Next Generation*, is the only (known) sapient android in the Federation. However, he'd have to pay points for his strength, resilience, and rapid calculation ability anyway, and they only rarely give him a significant advantage. He'd probably have a 10- or 20-point Unusual Background.

John Crichton, in *Farscape*, wouldn't have an Unusual Background as the only Earthman in his part of the galaxy; that merely makes him a minor curiosity. He probably *does* have one for his unique comprehension of wormhole physics, especially his intuitive ability to anticipate wormhole events.

Subgenres

While hard SF is very different from space opera, the two are on a continuum, with all sorts of "spaceships and blasters" stories somewhere in between.

Pulp Space Opera

SF as a marketing category was a product of the pulp era (see p. 209). Pulp SF ranged from "planetary romances" by the likes of Edgar Rice Burroughs and C.L. Moore, with heroes wandering the deserts of Mars or the jungles of Venus, to the galaxy-spanning interstellar wars of E.E. "Doc" Smith (see ***GURPS Lensman***). "Space opera" developed in the pulps. Most had continuous action and straightforward morality, with little time for thoughtful scientific speculation – chemical rockets could span interstellar distances and atomic fuel could be hurled into furnaces with shovels. This style spread to comic strips and movie serials such as *Flash Gordon* and *Buck Rogers*. The *Star Wars* movies are a modern recreation.

Such stories most often featured square-jawed or intellectually brilliant *human* heroes. Writers looking for more-futuristic thrills would often throw in a few aliens who might have exotic racial abilities (i.e., biological powers). Aliens and human heroes could also be psis; Smith's stories involve enormously powerful telepaths, and what is *Star Wars'* Force but psi power?

Modern Space Opera

Space opera evolved from its pulp roots to its modern form. Modern "media" space opera really begins with the appearance of *Star Trek* in the '60s. ***GURPS Traveller*** is one of many examples of this subgenre in RPGs.

Modern writers pay at least lip service to scientific and technological logic – starships use fusion or antimatter power and "hyperspace" or "warp drives" – and the special effects have grown increasingly impressive over time. Some writers seek to merge hard SF into stories of spacefaring adventure; others set "gothic" tales in the far future, with ancient, decadent stellar empires and half-forgotten science. Aliens, robots, and other characters with superhuman abilities remain popular. Psionics have faded, as real-world research has failed to produce clear evidence of their existence, but they still sometimes appear.

Post-Apocalypse SF

Post-apocalypse SF is based on the idea of some disaster wiping out civilization. In some less-realistic versions, some of the survivors develop powers. Their offspring may display radiation-induced mutations, or the disease virus may have bizarre side effects. There may also be some "old technology" around, including robots, cyborgs, or the products of genetic engineering.

Such settings often resemble genre fantasy, with "feudal" rulers dominating patches of the landscape and monsters lurking in the wilderness. They also have an element of horror, given the billions of deaths in the background story.

Transhumanist SF

Modern hard SF abandons the less plausible wonders of space opera, avoiding "superscience" technologies such as antigravity and faster-than-light travel. It can still feature impressive personal powers, because transhumans are less bound by limitations that earlier writers took for granted. Settings range from cyberpunk worlds with cyborgs and

vast computer networks to "transhumanist" futures such as the one depicted in ***Transhuman Space***.

"Transhuman" or "posthuman" heroes may be heavily genetically modified, with biological abilities impossible to ordinary humans, or they may be computer programs – artificial intelligences or "uploaded" human minds – installed in robot bodies. However, this *is* hard SF, and abilities should look scientifically plausible. A genetically enhanced transhuman *might* produce shocks like an electric eel, given extensive modification, but throwing lightning bolts hundreds of yards would be difficult with any sort of biological body. Likewise, a robot might be capable of flight, but would need wings, rotors, or a powerful engine.

SF Genre Conventions

Science fiction is a broad field; the conventions and possibilities of the space-going version are discussed at length in ***GURPS Space***. When they concern themselves with personal powers, however, stories are often more limited. An alien race or human mutant may possess a single ability, or a robot's built-in systems may function as simply another gadget. That said, a few stories take a broader approach; some of Roger Zelazny's novels, such as *Lord of Light*, involve a wide array of technological and psi powers, used with almost superheroic flair. SF writers and fans may talk about the genre's regard for scientific consistency, but space opera tends to use the trappings, not the rigor.

SF and Psionics

Psi powers are sometimes assumed to be a natural aspect of the universe, as comprehensible and controllable as electricity, which means that psionic science and technology can exist. "Psionic SF" includes near-future variants of the adolescence metaphor (see p. 218), post-apocalypse stories in which psi ability is a common mutation, and grandiose space operas in which the heroes' mental powers compete with starship weaponry to provide the most spectacular set pieces.

Space opera doesn't pay too much attention to *theories* about psi. It's a plot device and a source of wonder. However, stories may feature psionic technology, including devices such as "psionic shields" that enable normal humans to defend themselves against telepathic intrusion.

Origins for SF Heroes

SF heroes tend to be fairly normal; even aliens or robots with exotic powers are, after all, just born or built that way. Psi powers may be inborn or produced by training, or even induced by superscience, but those are just features of the setting. Typically, starship crews or soldiers in interstellar armed forces are depicted as receiving *good* training, but that's just how elite explorers and warriors tend to be.

A few empowered SF heroes do have unusual abilities even by the standards of their universes. They may be exposed to weird influences on strange worlds or in the ruins of fallen alien civilizations. Or they could be changed and trained by meddling super-aliens. In "transhuman" SF, they may well be genetically modified – a theme which earlier space opera avoided, although a kind of selective breeding was common enough, whether informal (as with heroes who came from heroic families) or deliberate (as in the "Lensman" stories).

SF Antagonists

Space travel may lead to encounters with dangerous beings, but human society also continues to produce criminals, tyrants, and other nefarious individuals.

Militaristic Aliens

Militaristic aliens range from unemotional robotic conquerors to glory-loving macho warriors. Their cultures tend to be extremely regimented, with huge military budgets. They see human society as weak and divided, although they may respect some human warriors as honorable opponents.

Militaristic aliens don't have to have powers – good weapons, determination, and numbers can achieve plenty. If they are empowered, they may all have offensive abilities (rarely better than a good blaster, but symbolic of their attitude), or they may include a subgroup of spies or leaders with advanced mental abilities. They are generally quite tough – well-armored or just very healthy.

Sneaky Aliens

Whereas militaristic aliens set out to conquer the universe by raw power, organization, and frontal assaults, sneaky aliens are masters of subversion and intrusion. Typically psis or shapeshifters, they may set out to soften their enemies up for a military assault, they may seek political power, or they may be totally selfish predators with strictly individual goals. Some are carnivores with a fondness for sapient flesh – SF counterparts to the vampire and werewolf.

Star Beasts

Nonsapient animals shouldn't usually be a threat to well-equipped high-tech heroes, but some may have biological or psionic powers that compensate for lower intelligence and their lack of technology. Human heroes may find themselves trapped in a base or starship, light-years from home, with limited equipment and an alien monster on the loose. One modern cliché is a devious and ruthless human faction that wants to capture the star beast for exploitation, and to whom the heroes are disposable. Monsters typically display instinctive cunning, as well as implausibly active metabolisms and bizarre life-cycles.

Cosmic Aliens

Militaristic or sneaky aliens want power and control over others, but cosmic aliens already have lots of power – and want to play with it. Space opera uses such beings as plot devices, with little regard for plausibility – but then, it's hard for humans to say what is plausible behavior for a vastly superhuman being. Cosmic aliens naturally have vast, almost supernatural powers.

A cosmic alien who wants to destroy ordinary beings can generally do so with ease, unless other cosmic aliens work to prevent it. Cosmic antagonists in SF are more often *nuisances:* playing games with the heroes, studying them and setting weird tests, or using them as pawns in complex plans. Heroes may play along, try to distract or even outwit the alien, work with its cosmic rivals, or study it for weaknesses.

SF Adventures

Space opera plots are often high-energy action-adventure stories involving exploration (see the box on p. 213) or warfare. Some heroes are fugitives, with enemies who think it's worth chasing them across light-years. Life on board a starship can lead to technical problems and stories of interpersonal relationships. Cosmic aliens can show up and cause trouble for their own peculiar reasons.

Other stories are set on inhabited planets. Detective mysteries, espionage, and diplomatic relationships can all be given a few twists by the presence of aliens, robots, and advanced technology. Psis struggling for control of a near future world overlap with the "Secret Powers" genre. Dealings with alien civilizations or "transhuman" changes in the nature of humanity can lead to violent conflicts over long-term policy.

Supers

Tales of superheroes and supervillains, sometimes known as "comic-book supers," place high-end powers in the foreground. They will usually involve several different power types. Villains want to fulfill their selfish desires, heroes want to stop them, and the fights are spectacular. These stories can verge on a kind of morality play, especially as both sides often favor flamboyant costumes and meaningful codenames. However, it's perfectly possible for superhero stories to feature subtle characterization and moral complexity.

This genre originated in comic books, and that remains its primary medium, although "supers" have also appeared in novels, radio, television, and the movies, often as spin-offs from comics.

By the Book: Supers

Supers campaigns in general have few constraints – both the level and the range of powers may be vast. This, of course, makes it extremely important for the GM to make *all* relevant facts about the setting *very* clear. If magic doesn't work, or technological mind

shields are available off the shelf, say so! Superhero comics have featured virtually every type of power, though "moral" powers are rare; the genre takes enough of a modern, materialistic approach that people aren't usually powerful *just* because they're very good or evil. On the other hand, a campaign might focus on a single type of power, such as mutations or magic, and explore that theme.

Wildcard skills (p. B175) are often *extremely* appropriate. Super-scientists aren't just bright and well-read; they're frequently omni-competent. An instinctive grasp of every weapon in a broad category or a spectacular talent for all sorts of engineering may be classed as a super-power in its own right – so combining Gadgeteer, Gunslinger, or Weapon Master and a wildcard skill may be entirely appropriate.

Power Level

"Supers" are by definition superior to the run of humanity. The absolute minimum plausible starting level for the grittiest vigilante campaigns is 250 points, and most will start at higher levels – possibly *much* higher, from 500 up to 1,000 or more. The higher the baseline point total, the more important it is to provide guidelines for reasonable attack damage levels, defenses, and so on.

Unusual Backgrounds

In a typical comic-book supers setting, full of exotic powers, the idea of an "Unusual Background" is effectively meaningless. *Every* major character has an Unusual Background, to the point where people speculate about cosmic entities influencing probability to create all these champions.

In a more restricted campaign, the Unusual Background advantage may restrict the *really* unusual or offbeat. PCs who've mastered some widespread power source that most people are still struggling to comprehend or who have access to advanced technologies in a world where most powers are magical might qualify. The cost is up to the GM, but should usually be quite high (*at least* 10% of starting base points); supers PCs have a lot of points to play with, and unusual character features may amplify the effectiveness of already-significant powers.

SUBGENRES

Most supers subgenres derive from phases in the history of comics over the last 60 years or so. Some even represent conscious reactions to something that went before.

Four-Color Supers

The "baseline" type is usually set in the present day, but sometimes takes place in a space-operatic future or the recent past. "Four-color" stories feature spectacular powers, flamboyant costumes, melodramatic dialogue, and fairly clear morality – all stuff appropriate for comics aimed at fairly young audiences. Still, the basic format is robust and adaptable.

This subgenre has passed through a number of phases in its history. "Golden Age" comics, from the 1930s through the '50s, were straightforward and energetic. Morality tended to be very uncomplicated – heroes were good, and always won out in the end, while villains were evil and had to be stopped, though heroes could always manage this without excessive force or moral compromise. Deep character motivations and detailed attention to continuity were uncommon.

The "Silver Age," starting in the late '50s and early '60s, produced what is now generally seen as the archetypal pattern for superheroes. The colorful costumes, morality, and powers survived from earlier days, but superheroes now gained deeper characterization and a little more attention to continuity and plot logic. Dialogue became wittier and more verbose, and heroes sometimes slipped into angst or pretentiousness.

With decades of history behind them, and many ideas having seen heavy use, the modern four-color style tends to be somewhat self-aware, even cynical. "Mainstream" superheroes remain essentially moralistic, but it's possible for them to endanger opponents and maybe even cause some deaths; accidents happen. Meanwhile, supervillains, who always had an uncanny ability to survive defeats and escape from prisons, sometimes seem close to victory. In an uncertain and complicated world, four-color heroics sometimes shades into other subgenres.

Four-color superheroics can seem artificial and slightly campy, with "superheroism" treated as a career choice, "supers" forming trade associations, and the world threatened on a weekly basis but somehow never feeling really endangered. But it can also include fairly deep meditations on power and humanity. A campaign can cover a range of flavors, though it's hard to recover a sense of seriousness if there's been too much camp, while an emphasis on grittiness and darkness moves stories into a different subgenre.

But, fortunately, Moir had discovered that his sister was mediumistic – in other words, that she was a battery of that animal magnetic force which is the only form of energy which is subtle enough to be acted upon from the spiritual plane as well as from our own material one.

– Sir Arthur Conan Doyle, ***Playing With Fire***

Super-Vigilantes

Even early in the history of super comics, a darker style of story would sometimes appear alongside four-color heroism. Strictly speaking, most superheroes are vigilantes – unauthorized crime-fighters who actually break a few laws themselves. However, the term is mostly used of a dark and brooding sort of hero, who may well *kill* criminals.

Vigilante stories usually feature relatively low-powered characters on both sides of the battle; apart from anything else, the threat of death and serious injury should be ever-present, and any street punk (or cop) with a handgun should be a real danger to a careless or unlucky PC. Many vigilante heroes have *no* powers – just high levels of skill and some good equipment. Still, a minor power can give a vigilante a crucial edge, which can keep him alive from one episode to the next.

Vigilante supers can sometimes "cross over" with their four-color brethren. Although the latter may disapprove of vigilante tactics, some modern heroes tolerate such allies when the opposition is even worse. Games about vigilantes and other lower-power supers operating in a "four-color" world can combine the "set dressing" of wild powers and the occasional exotic plot device with a more controllable, gritty level of action. It's best to establish from the outset of such a game what kind of moral code and how much brutal pragmatism is going to be normal in the campaign.

High-Power Horror

In a world where some beings are powerful, secretive, and villainous, plots can easily shift toward horror, especially if four-color conventions are relaxed slightly. After all, even if the heroes survive, innocent bystanders can easily suffer terrible fates, and very powerful opponents can seriously threaten the world – even the universe itself – with destruction or damnation.

This mixture of supers and horror usually involves supernatural powers, and occasionally poorly controlled psi or very weird science. The heroes may be powerful, but their powers probably come with a heavy price. They may be transformed into monsters (*Swamp Thing*), forced to share their bodies with barely controlled demons (*Ghost Rider*), or driven to the edge of sanity by terrible knowledge (*Animal Man*). They may dream of being restored to normal humanity – and hence be vulnerable to tempting offers from clever villains. Enemies sometimes seek to steal their power, envying the very thing that the hero hates.

High-power horror plots often have a large personal element; heroes alternate among saving the world, defending their few friends, and seeking cures for their conditions. The heroes may sometimes whine, but their powers *shouldn't* make them happy; this is *horror*, after all. On the other hand, they have the satisfaction of saving the world from really terrible fates.

Historical Supers

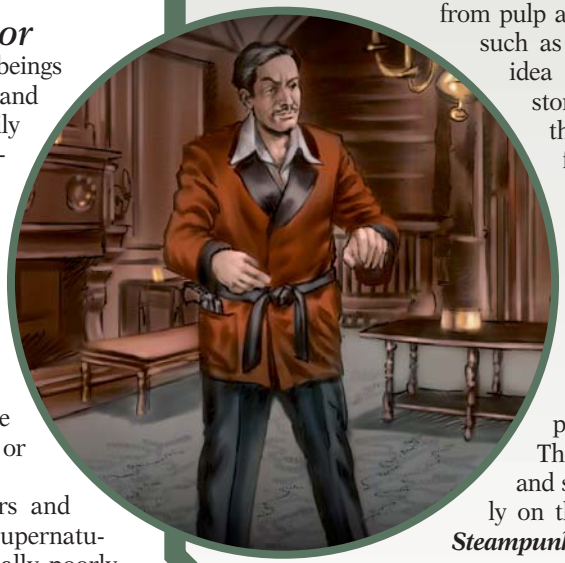
While "supers" stories are mostly set in the present or future, a few are set in the past – usually in alternate histories, so that flamboyant empowered beings can be added with less trouble.

Superhero comics date from 1939, and stories set from then onward often set out to reconstruct the style of comics of a specific era – or to reassess them in a modern light. *Comics* set in this period often come from a writer's ransacking of the publisher's back catalogue. World War II is popular, as it combines a distinctive style with the opportunity for heroes to fight real, much-reviled enemies. (Explaining why the heroes didn't change the course of the war can be hard, but not impossible; see p. 200.) Later decades, such as the 1950s or '60s, present more difficult challenges, but not impossible ones.

Supers stories set in earlier eras are often alternate histories that ask "What if four-color supers appeared in Ancient Rome (or Elizabethan England, or the Wild West)?" They may also (or instead) draw on the heroic myths and imagery of their chosen period, telling tales of paladins and wizards in medieval times or steam-powered gadgets and revivified mummies in Victorian England (which overlap with the "Extraordinary Gentlemen" style discussed below), but adding a touch of superheroic flamboyance. Either way, they require a certain amount of work to set up – the GM has to be familiar with the chosen era *and* have a good idea how to handle powers – but they may repay the effort for gamers who are interested.

Extraordinary Gentlemen

This subgenre is a modern invention, typified by Alan Moore's *The League of Extraordinary Gentlemen*. It marries elements from pulp and proto-pulp fiction with concepts such as superheroes and super-teams. The idea is to take characters from period stories, give their powers full rein, and then have them work together, often fighting menaces from the same period fiction.



"Extraordinary gentleman" stories can be quite modern in their attitudes and sensibilities, although they can also play the chosen period as straight as modern audiences will accept. (Authentic period codes of honor are one thing; authentic period racial attitudes are another.) They can also feature a lot of "retrotech" and scientific ideas, and may draw heavily on the "steampunk" genre (see ***GURPS Steampunk***).

Cosmic Supers

Many four-color stories involve *very* powerful characters. These plots may involve threats to the entire world (or the universe), interstellar wars, and encounters with truly godlike beings. It's possible to run a whole campaign on this level. Examples include Marvel Comics stories involving Adam Warlock and Captain Marvel, and DC Comics' "New Gods" stories.

"Cosmic" supers may be straightforwardly adventurous, but are often somewhat horrific; the universe holds great dangers, and cosmic-level villains can be mind-bogglingly powerful. Even the noblest cosmic heroes can seem rather detached from the human concerns of most four-color supers; after all, they have whole worlds to worry about.

This subgenre can overlap with "Tales of the Gods" Mythic Fantasy (p. 204) and with the "Heaven vs. Hell" Secret Powers approach (p. 215). As in those cases, stories often involve visits to an ordinary-seeming Earth, whose inhabitants remain unaware of the great struggles taking place in the wider universe.

Postmodern Supers

"Postmodern" supers stories are created by writers who are aware of the formal conventions of four-color style and play with their consequences.

In the simplest version, superhumans at least *try* to follow a version of the typical four-color conventions – but the universe proves remorselessly unsupportive, resulting in dramas of ideals vs. harsh reality. "Logical" supers often have very limited powers or are just well-trained humans. More typical superheroes may find that even the greatest powers leave them with weaknesses and blind spots. Superheroes may actually be *manufactured* by cynical factions who hide their sinister schemes under colorful costumes and innocent cultural assumptions inspired by generations of comics.

Some supers abandon the essentially reactive approach of traditional comics. Instead of waiting for bad things to happen, they set out to make the world a better place. This often ends in tears, or at least turns the heroes into ruthless manipulators, but some writers suggest that proactive heroes would actually do more good. Mark Gruenwald's *Squadron Supreme* and Alan Moore's *Watchmen* are classic examples of this sort of postmodernism; more recently, *The Authority* explores other angles.

In a more tongue-in-cheek or bizarre story, supers may be aware that they are living under peculiar rules, and even make flippant references to the fact. Heroes may say that they are *obliged* to fight each other when they first meet, even if they know that they're really on the same side (a comics cliché mostly designed to show how two popular heroes compare). Or they may comment how strange it is that no one ever recognizes them, despite the skimpiness of their masks. In itself, this is simply a joke, but the idea can be extended as the protagonists probe the true nature of their artificial-seeming reality. Recent comics series such as *Marvels* and *Powers* have looked at "superhero universes" from the point of view of ordinary people – press reporters, cops, and so on – living in the shadows of these peculiar demigods.

Characters may end up exploring different aspects of their world, finding different ground rules and conventions at work, just as different comics set in the same "superhero universe" may have distinctly different styles and atmospheres. They may fight reality-warping menaces (*Doom Patrol*) or wonder who benefits from the artificiality of their world (*Planetary*). "Postmodern" superhumans often eschew "sillier" superheroic conventions such as skimpy masks, cumbersome cloaks, frivolous codenames, or unsustainable secret identities.

Cartoon-Animal Supers

The earliest stories featuring super-powered talking animals were probably anthropomorphic-animal cartoons that parodied four-color comics. More recently, some "furry" supers stories have taken the idea more seriously, using the animal form of the protagonists as a distancing device, a way to make the characters even more different from mundane humanity.

A "furry supers" campaign can be played as a fairly straightforward four-color game, in which the people beneath the masks happen to be cats, dogs, rabbits, and turtles . . . or it can emphasize the nonhuman nature of even non-super characters, giving "ordinary" talking animals modifiers to their attributes, enhanced senses, and "racial" enmities (dogs fight cats, wolves eat pigs).

Supers Genre Conventions

Four-color supers is a very formalized genre, with many conventions that have more to do with comics marketing than internal logic. That said, any supers campaign can eliminate some of the standard features, and some subgenres do so deliberately. If too many conventions are discarded, however, it stops being a supers game as most people understand the idea.

Secret Identities

The traditional four-color hero is an idealistic freelance crime-fighter with a mundane day job. To protect his friends and family (and his privacy), he adopts a dual identity, fighting crime with costume and code-name, then performing quick changes to return to his mundane life and ordinary name. The hero's "civilian" persona is often mild-mannered, even wimpish. This helps obscure the truth and reflects a heroic tendency not to boast about one's power – but it also makes superheroes a more appealing fantasy for unprepossessing and downtrodden adolescents.

Secret identities are *not* universal, even in four-color comics; some superheroes are celebrities, or live quiet but not very secret lives. Still, the idea is quite widespread.

Masks and Costumes

A secret identity won't last long if the hero looks the same in both guises, so supers often wear masks. These are typically bizarrely small and skimpy (sometimes nothing more than a pair of eyeglasses!) – despite which, even a superhero's family will generally fail to recognize him in costume. Indeed, some get by for years with no mask at all.

For supers with no secret identity, a costume might seem like a pointless affectation, but actually, some kind of special clothing can be entirely logical. Anybody who engages in athletic combat will want unencumbering clothes, and a recognizable costume will help a hero exploit a reputation for good deeds and effectiveness, or a villain to intimidate victims with his reputation for evil. Costumes may also incorporate body armor (though most in the comics seem too skimpy for this) or gadgets, while dark colors can help with stealth. Some heroes see their costumes as uniforms, showing their allegiance; a few become living symbols of a nation or cause, and wear lurid flag-based garb.

Cloaks and capes, one traditional feature of superheroism, have been the subject of much cynicism in recent years. They look stylish, certainly, and may make wearers more intimidating if swirled with panache, but they also have the clear potential to cause a lot of practical problems, getting stuck in doors, caught in machinery, and so on. The presence or absence of cloaks may be a subtle marker of a setting's "four-color flavor" level.

GMs might even declare that "Can wear a cloak without silly accidents" is a ***GURPS*** perk (just like the ability to run comfortably in high heels; actually, some female supers' costumes defy common sense in multiple respects). Generous GMs can then allow a +1 bonus to influence skills when the PC can use the cloak to look imposing – and of course, it *could* be used in combat with Cloak skill, though few supers seem to bother with this.

Super Names

A secondary identity also implies a second name, but "super names" go beyond that. They're a personal trademark, something for ordinary humans to speak with admiration or fear, and often a broad hint as to what the character can do. Like costumes, they may indicate identification with some nation or cause. They may also be tagged onto an unidentified super by sensationalist press reporters, or carefully selected by some calculating government or corporate sponsor.

Gun Control

Guns do appear in superhero stories, and not just in the hands of criminals and ordinary cops – but most superheroes don't carry them. Many do not need to, but in some cases, having a backup sidearm to go with less combat-oriented powers would seem only logical. Even so, guns tend to be limited to "vigilante" or quasi-military characters.

There are several reasons for this. First, guns are distinctly lethal, and idealistic heroes who refuse to kill

Minor Gadgets

Even supers with innate abilities often have one or two minor gadgets, or even cybernetic implants. Some are talented inventors in their own right, while others are given handy devices by super-scientist allies or friendly agencies. Team radios are commonplace.

This can work fine in games. A gadget or two can help distinguish one character from another with similar powers, and can also fill some practical requirement that isn't covered by the PC's innate powers. A telepath might wear body armor, giving him a better chance of survival if he gets caught up in gunplay, while a brawler with superhuman toughness and strength might use a flight gadget to keep up with his more mobile allies.

couldn't use them without risk. Second, they're hard to disguise, forbidden in many places, and would seem inappropriate for many heroes' mild-mannered secret identities . . . someone who wanders around with one in civilian gear will have it noticed sooner or later, and it will then draw comment, if not worse. (Eccentric "theme villains" who carry weird gadgets rather than guns may also sometimes gain the benefit of surprise.) Innate powers are much less likely to be detected, so it's probably better to rely on them if the hero has them. If the PC is a member of a persecuted minority, whether an ethnic group or super-powered mutants, a gun may also cause further trouble, and the hero may prefer to look as harmless as possible: "My powers are an *accident* – but I *choose* not to carry weapons." Training to real competence with a gun may also distract supers from learning to use more important powers.

Finally, in the world of urban crime-fighting which is the primary arena of the superhero story, guns are the mark of the criminal – "the enemy." Cops go armed, but they have to fight crime without the benefit of super-powers. The heroes don't have that disadvantage.

Super Origins

The diversity of the powers in superhero stories is reflected in the diversity of their origins. Indeed, the "origin story" is a much-discussed feature of the genre. It can set the tone for a super's whole career: is he a dabbler in weird science or strange lore, lucky, unlucky, the gullible pawn of a manipulative faction, or just *dedicated*? His origin may also involve someone who becomes a long-running Enemy (and who may even gain powers at the same time), or an important Dependent. Later major revisions may revisit this origin, revealing that it wasn't an accident after all or that someone with an apparently minor role in the story was really much more significant.

If super-powers are to remain at all special, power origins must be rare and difficult or impossible to reproduce. Sometimes, it turns out that a lab accident actually triggered mutant genes, or that a cosmic being secretly intervened. Some powers may be acquired by intensive training, but this requires a large degree of natural talent and years of study. Alternatively, the superhuman may have been kidnapped by experiment-loving aliens who don't choose to explain their motives.

Accidents

Accidental origins, usually involving science labs or large energy sources, are perhaps the most common, although they may have become a little less popular in recent years as the sheer weight of implausibility became ever more obvious. In some cases, the "accident" involves an attempt to induce powers that succeeds beyond anyone's dreams, but with radical side effects (such as turning the subject into a megalomaniac villain) that make it unlikely to be repeated. Perhaps some alien object or substance was present, or the hero was uniquely susceptible, or the key secret was known to only one person who subsequently died.

Accidental origin stories are typically associated with the "cutting edge" science of the time. In the '30s and '40s, supers got their powers from chemicals; in the '50s, '60s, and '70s, it was radiation; in the '80s, it was "cyber"; most recently, it's been genetic engineering or nanotechnology. (Witness the change in Spider-Man's origin from the original comic book to the recent movies.)

Purchased Super-Powers

If super-powers can be granted by identifiable processes, scientific researchers will recreate them, sooner or later. It may take a while, and the resulting treatments may be pricey and unreliable, but it's a logical consequence. Likewise, engineers may build "battlesuits" that render the wearer effectively super-powered.

Such treatments should generally be kept rare and expensive. If it costs, say, $10,000,000 to acquire super-powers, a small number of millionaire industrialists, aristocrats, and third-world dictators might be interested – although if they're told it will hurt a lot, and the nature and reliability of the results can't be guaranteed, most will probably spend their money elsewhere. However, some might offer the option to a trusted bodyguard or two, just as many governments and a few very large corporations would doubtless acquire a few trusted super-agents.

Sometimes, the "power process" is cheaper but highly unreliable, with horrific side effects such as a shortened lifespan or a high proportion of lethal failures. If these problems are publicly known, only dedicated fanatics will seek powers. In other cases, ruthless organizations and crime lords may acquire small armies of deluded super-goons.

Battlesuits are logically harder to keep rare – it's the nature of modern technology to be mass-produced – but they may have to be hand-crafted at huge expense by genius engineers, and operated by highly skilled users who understand their weird intricacies.

Dr. Evil: Scott, I want you to meet daddy's nemesis, Austin Powers.

Scott Evil: What? Are you feeding him? Why don't you just kill him?

Dr. Evil: I have an even better idea. I'm going to place him in an easily escapable situation involving an overly elaborate and exotic death.

Scott Evil: Wait, aren't you even going to watch them? They could get away!

Dr. Evil: No, no, no. I'm going to leave them alone and not actually witness them dying. I'm just gonna assume it all went to plan . . . What?

– Austin Powers: International Man of Mystery

Dialogue

Superheroes are big talkers. This is necessary in comics, because it lets writers transmit information that's hard to depict pictorially, but it's also part of many heroes' personalities – whether the speech in question takes the form of high-minded proclamations, obsessive vows, or snappy witticisms that drive villains to enraged distraction. Villains, meanwhile, are often incorrigible ranters, to the point that a taciturn villain, who only makes threats he can carry out, seems all the more sinister for his restraint.

In all but the grittiest of carefully written comics, heroes seem able to deliver a multi-sentence speech in the time it takes them to throw a punch. GMs running four-color games should respect this convention; if a player can come up with a good heroic line, never claim that they don't have time to say it. However, super-verbosity only goes so far; if a speech runs to more than the length that can fit into a single-panel speech balloon, it *can* be cut short by events.

Some supers with relatively subtle powers, such as the ability to absorb the energy of others' attacks and use it for themselves, even make a point of boasting about their abilities . . . when they'd surely do better to keep quiet and exploit the ensuing surprise. GMs may choose to allow supers to take the Visible limitation (p. 112) when a power is not *actually* visible but the character's bragging and behavior make its effects obvious anyway.

Death Is Unreliable

Comics writers can rarely resist bringing back an interesting character for another story – even after he was supposedly killed. (Certainly, killing off a popular hero is commercially unwise!) Death is notoriously impermanent in the genre; any kind of get-out clause can be and has been used, from magic through cloning to "I got better." Villains *very* rarely die "on stage"; even if they don't return for a while, the possibility of their involvement can feature in intervening plots.

In games, NPCs as well as PCs may have the option to spend bonus character points to modify die rolls (p. B347) – and should often have a few in reserve to ensure that they succeed on HT checks to avoid death and other rolls to escape terminal problems. Major characters may also be permitted to buy several levels of Hard to Kill (p. B58) with minimal or no justification.

Earth, the Cosmic Crossroads

While supers stories generally accept modern cosmology, making Earth a very small body in a very large universe, they also tend to treat our world as somehow important. For one thing, humanity is often said to produce a much greater number and variety of super-powered beings than any alien race; we have "unstable genes" or

Alternate History and Supers

Alternate histories are an occasional theme of superhero stories (like virtually every other concept found in SF or fantasy). The major comic publishers' core lines are already set in what are, in effect, alternate histories similar to our own but with supers. However, some stories take protagonists off to other alternates (usually but not always featuring superbeings) or feature time travel plots in which the heroes struggle to prevent historical divergences. It's often assumed that there are whole multiverses with countless parallel timelines, or at least multiple potential futures, alongside the main setting.

Some "postmodern" superhero stories, such as Alan Moore's *Watchmen,* have taken the "alternate history" concept more seriously, exploring the historical consequences and ramifications of the existence of super-powers, becoming rigorously worked-out alternate-history stories in the process.

Supers and Infinite Worlds

While ***GURPS Infinite Worlds*** doesn't specifically describe any worlds where superheroes exist, they're surely out there. Maybe they have yet to be discovered, or maybe Infinity is just keeping them secret.

At the simplest, a timeline similar to Homeline could have a fashion for freelance vigilantism and flamboyant criminal activity. More spectacular "supers worlds" could range from coldly logical settings with "wild talents" who are mostly co-opted by governments and other large organizations, but with the occasional fancy costume showing up on the odd figurehead, to outright "four color" universes with multiple power types, weird science, and an uncanny tendency for costumed heroes to collide with villains of similar power while out on patrol. A "superhero timeline" could even be a *pocket multiverse* (p. B529) or *skerry* (described in ***GURPS Infinite Worlds***), with multiple secondary paradimensional realms filled with supernatural beings, and frequent reality quakes causing "continuity errors" and explaining how history could be so jammed full of exotic phenomena without their seemingly changing its course very much.

Infinity Unlimited could take a vigilante supers parallel in its stride (ISWAT might see it as a good recruiting ground). Even a logical/post-modernist super-world would rate as a *relatively* minor worry – unless any empowered beings looked like they might be world-jumpers, in which case they'd be watched very carefully indeed. Four-color worlds would seem more threatening, simply because of their unpredictability; tourism would probably be banned, despite the long queues of importunate comics fans, because the Infinity Secret wouldn't survive five minutes in the face of telepaths and superscience. Overt contact by Homeline might barely cause a stir in such a setting ("Parallel worlds? Yes, we know about the idea. Can't say much for your costumes, I'm afraid."), but Infinity really doesn't want supervillains loose across the timelines.

A "supers world" could even be built around the results of runaway transdimensional travel, on a timeline with easy access to others (say, lying on a dimensional highway) where Infinity's secrecy had failed. With Cabal members playing their subtle games, supernatural beings slipping in and out, superscience imported from Gernsback and Caliph, Nazis from Reich-5, dragon-servants from Wyvern, renegade gods from Orichalcum, and "super agent" I-Cops desperately attempting damage control, things could get as (four) colorful as any comic.

are the product of meddling by an ancient super-race. While many aliens have powers of some kind, these tend to be relatively minor and common to all members of their species.

Furthermore, Earth may be some kind of "cosmic nexus." Its position may be significant in terms of galactic political borders or hyperspace travel routes; it may also be the location of many gateways to other universes or a weakness in the structure of reality, making it important to many extra-dimensional beings. This in turn makes it the natural home for sorcerous guardians of reality and the like.

Types of Supers

Comics writers try to make every superhero and villain unique. They don't always succeed – certain abilities (flight, super-strength, martial arts skill) are commonplace – but anyone creating supers should at least try to make them distinctive. Still, there are a number of stock types:

Super-Normals

Some supers are, in a broad sense, normal human beings, trained or armed to the limits of plausibility and way beyond. Such super-normals may be very powerful indeed, especially if they make use of advanced technology and weird science. Superheroic power armor (such as Iron Man's suit) may grant powers on a par with many "innate" supers, while alien devices may be so powerful as to resemble mythic magic (as with the Green Lanterns' rings). While such things don't represent *innate* powers, they may be defined using the powers rules and gadget-related limitations (pp. B116-117).

Other super-normals – most famously Batman – don't bother with such things. Most still prove that a highly competent human being, with the right tools and a few cinematic skills, can hold his own among "supers."

Magicians

In a sense, most magicians are just a type of super-normal, using training and knowledge to raise them beyond humanity. However, the awesome powers and effects that they wield justify a category of their own.

While some comic-book magicians use just their knowledge and training, others – probably the majority – have one or two magical devices, if only to simplify some tasks (as with Dr. Strange's "cloak of levitation") and to save them from having to cast too many spells at once. Some have power-boosting artifacts, while others may be associated with godlike beings (such as the mighty "lord of law" linked to Dr. Fate's helmet).

Most comic-book magicians are "normal" humans aside from their magical training, but some may be mutants or aliens, or, like Merlin in Arthurian myth, have part-supernatural ancestry (explaining their exceptional magical talent). In a few cases, fully supernatural beings rely primarily on trained abilities, meaning that they function much like magicians, although they may also have a few innate supernatural advantages as well.

Superhumans

Other supers are human enough, but have acquired serious powers. There are, of course, a wide variety.

Übermenschen are on the edge of normal humanity, but have been raised one notch beyond by uncanny training, careful breeding, or superscience (such as the serum that produced Captain America). They often have physical attributes at marginally superhuman levels, and minds as well-honed as their bodies. The difference between them and super-normals is small; although they usually lack powers, übermenschen may add a gimmick or two to their array of skills, such as superhuman senses (as with Marvel Comics' Daredevil).

Scientifically changed humans gain powers from something that comes out of a laboratory (such as the spider that bit Spider-Man) or as a side effect of other scientific research (such as the space incident that created the Fantastic Four). See *Super Origins* (p. 227) for more on this topic.

Mutants are similar to scientifically changed humans, but they changed before birth; their powers come from their genes. The success of the *X-Men* comics and spin-offs has made this a popular type. Mutants may simply have been subject to radiation or other mutagens in the womb – making super-mutants a side effect of modern nuclear power or industrial pollution – but to explain why there should be a wide range of mostly beneficial human mutations around, the setting may feature alien genetic manipulators in the distant past, who left a lot of powers latent in the human genome. Comics often depict mutants as a persecuted minority, though their persecutors seem curiously tolerant of aliens or lab-accident victims with otherwise very similar powers.

Cyborgs are "scientifically changed" – but on a gross physical level, with mechanical limbs for strength and speed, artificial organs for durability, built-in armor and weapons, special sensors, and so on. This is usually an experimental treatment for someone who has suffered a tragic accident, but a few supercyborgs are the voluntary products of rare and very advanced (possibly alien) superscience. Cyborg features may be obvious and disfiguring (in a glossy, high-tech, stylish way) or disguised. Although extensive, high-powered "cyborgization" is needed to produce a true superhuman, some supers combine implants with advanced training or other powers (such as Wolverine, with his metal skeleton).

Magically changed humans are again similar to the scientifically changed type, but the boosts they receive are supernatural, such as from ancient artifacts of power or the blessings (or curses) of godlike beings. They differ from magicians in that they don't cast spells or claim much special knowledge (though there's some scope for overlap, if magicians cast permanent spells on themselves or magically changed humans study special techniques). Some are deliberately created as the champions or servants of cosmic entities. *Undead* are a subcategory of this type, and the most traditional altered humans, having been changed by death. Cinematic vampires, for example, have an array of tricks able to challenge most superheroes.

Nonhumans

Not all heroes are human – some don't even look it.

Aliens have featured in supers stories since the very early days, thanks to Superman. They may come to Earth as exiles from dead or dying worlds, researchers or diplomats with no ethical barrier to involving themselves in local affairs, interstellar cops, or renegades from *hostile* alien cultures. Many appear remarkably human, but possess all sorts of exotic abilities (perhaps natural, perhaps thanks to alien superscience); others are more obviously nonhuman. Some have access to advanced technology, ranging from the impressive to the godlike.

Robots are usually the product of superscience projects that are even less effective at reproducing their results than those that produce human powers or power armor. They are typically humanoid but weird-looking; heroic types (such as Marvel's Vision) typically look more human than robot villains (such as the Vision's creator, Ultron). Most are stronger than humans; many display a range of other powers. Most claim to have difficulty comprehending human emotions, though they typically display a range of motivations such as anger, loyalty, curiosity, or paranoia.

Spirits – intangible supernatural beings – often feature in horror-tinged

Four-Color Morality

"Classic" comic-book supers are usually bound by a strict code of ethics, ensuring that their comics are seen as suitable for young readers. This primarily means that heroes should be essentially law-abiding (apart from some minor trespasses and assaults – always in a good cause, though), and they absolutely must not kill.

This strict morality can be the baseline assumption in any true four-color campaign, although modern mainstream comics are flexible enough that a cynical, ruthless "outsider" won't look entirely out of place. Likewise, stories can explore subjects such as alternative sexualities without looking too postmodern, although a real Golden Age campaign would avoid them.

The key feature of superheroic morality, though, is *restraint*. Superheroes are powerful, and while they feel obliged to use that power for good, it's generally accepted that if they use it too wildly or self-indulgently, they'll lose contact with their essential humanity and eventually be corrupted. Stories and campaigns where this rule doesn't apply will end up exploring the consequences. Unrestrained supers may spiral into corruption, or factions of supers may become involved in unending wars – or the supers may succeed in building a utopia, at least on their own terms.

stories, especially as many of them are in fact formerly-human ghosts. Others may come from "spirit realms" such as Heaven or Hell or be manifestations of principles or aspects of reality such as the Earth's vegetation (*Swamp Thing*) or elemental fire. They typically possess traditional "spirit powers" such as limited materialization, the ability to possess and control humans, or cosmic insights.

Super Antagonists

The sheer variety of powers and personalities in a supers setting is typically reflected in the variety of problems and enemies.

Super Criminals

The generic supervillain is in many ways the counterpart of the generic hero, often complete with costume, mask, code name, origin story, and secret identity. However, he's not motivated by idealism or morality; he uses his powers for profit, power, or glory.

Supervillains vary at least as much as superheroes, from trivial and comic to star-spanning. In classic four-color stories, they do a good job of sounding menacing, but *most* seem more interested in profit and fun than in actually killing people. In grittier subgenres, they can inflict serious casualties, at least on bystanders and minor characters. (Batman's enemy the Joker, a harmless prankster in some older versions, is depicted committing multiple murders for fun in darker modern comics.) Major villains are notoriously hard to kill (see p. 228), so they can always come back to fight another day if they are interesting enough.

Supervillains often form teams to take on superhero groups, bring down a single very tough hero, or commit bigger crimes. The problems of establishing communications between wanted criminals, then holding a team of egocentric (often crazy) criminals together without their killing each other would logically make this quite hard, but comic-book villains manage – often thanks to the efforts of a strong-willed, charismatic, and wealthy master villain with resources and leadership (or intimidation) skills. The authorities might build "super prisons" to hold captured supervillains; while entirely logical, this could have the unfortunate side effect of bringing villains together in a situation where they can start plotting.

Master Villains

While almost any supervillain can attempt long-term plots, true master villains are *good* at it. Some have super-powers of their own, and may indeed be formidable in a fight if they bother (raw power helps keep minions in line), but others are normal humans, albeit with considerable intelligence, strategic skill, and perhaps a few tricks up their sleeves. Some don't even bother with costumes or code names, especially if they're clever enough to maintain a façade of social respectability.

Fighting a master villain is typically a long-term project, as they may have lots of cover stories, escape systems, and cinematically effective lawyers to get them off every charge. Some are genuinely hard to identify, either because they have costumed secret identities, or because they live as legitimate members of society and keep their illegal activities well concealed. However, in most cases, heroes identify a master villain quickly, even if they can't actually catch him or prove anything in court.

Master villains also typically employ one or two really good empowered bodyguards or "personal assassins," especially if they themselves lack powers or dislike dirtying their hands with combat. This makes "showdown" fights, when the villain's schemes are finally broken (for now), very tough.

Organized Crime

Organized crime – traditionally secretive, well-established, and vicious – can be a worthy opponent for superheroes. While ordinary goons may not be serious opponents for bulletproof supers, even in large quantities, organized criminals can locate and attack a hero's friends, corrupt society, escape punishment and otherwise abuse the legal system, and hire mercenary supervillains to handle super-powered problems. In supers games, high-ranking crime lords may turn out to be supervillains themselves, having fought their way to the top or employed their organization's wealth to acquire a personal edge from, say, an amoral technologist. Certainly, many mob bosses qualify as master villains.

But a campaign involving the battle against organized crime is likely to consist more of a steady stream of low-level fights and investigations. It's an implicit assumption of most superhero stories that there are *always* more low-level gangsters and thugs ready to replace any who the heroes put away, and the supply of competent gang leaders is nearly as reliable. Games focusing on this topic will tend to be gritty, not because it's terribly hard to win most battles, but because the war never ends.

Evil Agencies

An evil agency is typically distinguished from a mere criminal gang by the use of advanced technology or sometimes supernatural powers, and often by twisted ideologies, strange uniforms, and grandiose plans. Many agencies have large, well-equipped secret bases. They include purely criminal groups whose objectives are wealth and petty power, but also

political radicals (it's traditional to have some of these founded by escaped former Nazis, though crazies from all over the political spectrum sometimes join the fun), ninjas and other assassination sects with uncanny martial arts skills, and fanatical mystical cults.

While the typical agent is a normal human, most agencies have a few more exotic enforcers and "cell leaders," or at least hire the occasional mercenary supervillain. Some employ or are led by brilliant but twisted scientists who build huge superweapons, or insane mystics who create the magical equivalent. Some supers may turn out to have been empowered or created by an evil agency in the past, giving the fight a personal edge on both sides.

Monsters

Occasionally, superheroes get to deal with large but relatively straightforward problems straight from monster movies: titans bent on stomping whole cities flat. These creatures are often too big to be stopped even by superhero attacks, and may even seem entirely immune. The heroes must investigate their nature to find their weaknesses. Battles with monsters can thus be complicated by the need to conduct research in the middle of a major disaster, and perhaps by opportunistic villains trying to control the creature or steal genetic material.

Aliens

"Coming from space" is a classic origin for supers of all kinds, heroes and villains, but relatively low-powered aliens, operating in groups, can also make effective antagonists. They are likely to have access to very advanced technology and the odd innate ability, and can have all the classic alien motives for villainy, such as conquering the Earth (or kidnapping its women, if they're more traditional than logical). Some seek to prevent humanity, with its unnerving ability to produce numerous super-powered beings, from getting out into the galaxy and disturbing the status quo; they may hope to achieve this by conquering the Earth, destroying it, or inducing humanity to fight apocalyptic global wars. Most comic-book aliens are humanoid, though some are visibly nonhuman; they may have racial powers.

Logically, introducing powerful alien races, with the technology to reach Earth and an inclination to conquer, should make a radical difference to any campaign world – but traditionally, four-color supers just don't work that way. Aliens come to Earth, but even if they're noticed by the general public, they go away again without anybody managing to emulate their technology, or worrying about what this proves about humanity's place in the universe or proven faster-than-light travel's implications for physical science of. There may be some mention of diplomatic relationships or planetary defenses, but not very much. This is a four-color convention; exploring more-logical implications of this tradition could transform a supers game into something more space-operatic or post-modern.

Natural Disasters

Superheroes may also tackle problems with no active malice behind them, such as earthquakes, aircraft crashes, fires, or floods. Typical heroic responses involve clearing away rubble, rescuing people from burning buildings, or searching out victims using super-senses. This is a good way for heroes to build goodwill, although a misunderstood hero or antihero may have difficulty convincing people of his good intentions.

While disaster relief is a good option for an occasional fairly low-key plot, realistically, heroes who set out to tackle such problems at all systematically could be occupied 24 hours a day. They'd save a *lot* of lives, but not have many real adventures. Hence, as a matter of genre convention as much as anything, natural disasters should only come up occasionally.

Cosmic Incursions

Supers may also have to deal with bizarre threats from outside their universe, ranging from demonic invasions to attempts to revise the narrative structure of reality. Demons, transdimensional conquerors, and the PCs' villainous counterparts from worlds where morality is inverted all make dangerous enemies.

Cosmic incursions should usually have a distinctly strange and sinister edge to them. At the very least, demons are traditionally devious, ruthless, and adept at temptation. It's easy to make them rather comic, but really, their presence should make plots distinctly horrific. True cosmic evil is supposed to be eternal – and largely immune to mere physical force.

Other threats from outside reality can be *stranger*. Things Man Was Not Meant To Know may not be evil so much as totally uninterested in humanity, and able to drive the strongest hero insane just by existing. Other "outsiders" can have distinctly nonhuman moral codes of their own. Heroes may find that only one of two universes can ultimately exist, so that defending their own reality means fighting beings who are just doing the same.

Super Teams

While some superheroes are essentially solitary, the idea of the team-up goes back a long way, and can be very convenient in RPGs.

Types of Teams

Teams form for various reasons. In some cases, several heroes share the same origin, and may even be members of the same family or all have been working in the same place when some cosmic accident gave them powers. Relatives or long-time colleagues start with a basis of friendship and trust, and may stick together for mutual protection and moral support in a strange new life.

Other groups simply share a job or obsession (such as crime-fighting), meet in the course of this "work," and recognize that sharing information and having someone to guard one's back are good ideas. The first meeting may require a rather large coincidence, although if the campaign's home city is attacked by a powerful villain or monster, several heroes may well all appear at once. After the group has an established base, other new heroes may apply to join, or perhaps be tracked down and recruited.

A national government or the United Nations may decide to sponsor a group, on the grounds that the heroes will do more good if they're a little more organized. The rather obvious hidden agenda here is that this also lets the authorities keep an eye on them – maybe even learning their secret identities – and send them against problems that worry the authorities more than they do the heroes, but the heroes may decide that this is a risk worth taking. Really skilled agents may penetrate the heroes' secret identities before recruiting them. Ethical agents may keep these secret, but more ruthless groups might apply pressure verging on blackmail to get the heroes on board.

Other teams might be sponsored by corporations (probably for publicity – those who want super-mercenaries aren't going to appeal to many heroes) or even by wealthy individuals. Supporting a team properly could get *very* expensive, especially if halfway realistic legal bills start mounting up, but super-wealth is a feature of supers settings. A variant is the "secret school," dedicated to enabling supers to control and understand their powers more than to using them to fight evil – though that could be a sideline. While the archetypical super-school in four-color comics is an academy for mutants (in the "X-Men" titles), a hidden monastery dedicated to the martial arts or an ancient college of magics could fulfill the same role. In a world where superscience is becoming spectacularly widespread, an initially innocuous technical college for gifted young researchers could find itself becoming a center of superheroism.

Many variants on all these are possible. In a story set in wartime, heroes could easily be organized as a special ops team; this would of course mean government sponsorship, with a bit more direction and discipline. For that matter, if super-powers can be created deliberately, major militaries would doubtless do so – overtly for public relations and as a deterrent, quietly for research purposes, or secretly for deniable missions. Likewise, a team could start out as a supervillain gang and move over to the side of good for some reason. They might be offered pardons in exchange for working for the government, help fight off an alien invasion and decide that they like the ensuing popularity, or just try to live up to some kind of Robin Hood ideal in a setting where the law is seriously corrupt and "noble outlaws" really are the only heroes.

Roles in the Team

A particular type or style of super-power can determine a member's role in the team. For example, a super-tough hero, able to soak up heavy weapons fire, would make a logical combat "point man," while shadow or invisibility powers could make a very effective scout. While the range of super-powers is vast, and many heroes have abilities that enable them to fill different roles at different times, there are some standard slots.

Well-recognized examples include tough, strong "bricks," who make good point men and who can at least delay most opponents or cover retreats; "blasters" who provide long-range hitting power, and who can often also fly, expanding tactical options further; "speedsters" who provide mobility and a range of subsidiary tricks; telepathic "mentalists" who can subvert or confuse opponents and solve many mysteries; stealth specialists (often martial artists) who can deal with many problems that are not susceptible to raw force; and "gadgeteers" who usually carry an assortment of devices, providing a team with flexibility, although they may be noted for one or two particular tricks. Healers are relatively rare in comics, though not entirely unknown; see p. 194 for more on the problems with this type of power.

Villain Teams

Supervillain teams are often structured like hero groups, with a brick, a stealth expert, and so on, but the psychological balance is frequently different. In particular, villain leaders are often far more physically powerful than their followers, or at least have very forceful personalities, simply because they have to cow a group of surly super-criminals into obedience.

Other four-color supervillain team members typically fall into one of four categories. *Soldiers* are in the team for money and fun – or for some not-too-strong ideological reason, if the team has a cause. Soldiers don't see themselves as leadership material – leaders have more work and are bigger targets – and may be impressed by the leader's charisma or have a basic sense of mercenary ethics. They'll stick around happily as long as the team is winning, but will probably quit if things go badly.

Lackeys, on the other hand, are *very* loyal. They may exhibit cringing inferiority complexes, or they may be devoted to the team's cause. Leaders like lackeys, even if they lack useful powers. Everyone else tends to hold them in contempt, unless their loyalty achieves real nobility. They generally lack initiative. Programmed robots and bound spirits are special types of lackey.

The opposite is the *Rebel*, who covets the leadership. Rebels may be blatant, continually arguing with the leader, or secretive; in some comics, their real attitudes are revealed in frequent thought bubbles. The leader may keep a rebel in line by threats and violence, or the rebel may be prepared to smile and wait. Heroes can exploit rebels, but should never *trust* them; the rebel may be using the heroes to eliminate the leader.

Finally, *Innocents* have probably been tricked into the team by a cunning leader, perhaps after an unusually sheltered upbringing or bad experiences with bigoted "normal" people. Traditionally, they can be reformed, maybe even becoming heroes. However, an innocent who remains a loyal villain despite everything can be very unnerving – a demonstration of the leader's terrible charisma or the power of an ideal, or a challenge to the idealization of loyalty.

Teams also have requirements that aren't directly related to an individual's powers, although the two may be linked by style or personal history. For example, the combat commander may be a super-soldier with tactical and command experience, a telepath with a good grasp of psychology and the ability to send instructions clearly in the heat of battle, or simply a mature, intelligent father figure. Likewise, experts on subjects such as technology or magic are often very helpful. "Face men," useful when conducting investigations or dealing with the press or government, may be subtle psis, martial artists who look a bit less weird and intimidating than their barely-human colleagues, or just whichever team member sank a few points into Charisma and Diplomacy.

Team Tactics

Once the team has an established membership roster, it can start developing group tactics. This is often presented as an important advantage, though many super-fights seem to come down to each member taking on one opponent individually. Still, at the very least, team members can learn each others' strengths and weaknesses, enabling them to ask for the most appropriate help when necessary and to avoid using area attacks that will hurt their own side more than the opposition. See also *Optional Rule: Coordinated Attacks* (p. 165) and *Combining Powers* (p. 170); superteams often use such ideas.

Some teams have specific training facilities, and even high-tech "danger rooms" that enable them to prepare for specific situations and enemies. Others simply learn by working together over a period of time. Teams can develop a "flavor" and a sense of unity by agreeing on code words for preplanned tactics and developing tricks such as a fast flyer grabbing a slower colleague and moving him where he's most needed.

If a group trains together intensively, GMs might permit its members to buy Leadership or Tactics skills with optional specialties in "Teamwork." These can only be used in situations where knowing the team and its members provides a significant advantage, such as deploying members to make best use of their particular attacks. If the group includes members with whom you haven't trained at length, use the nonspecialized version of the skill (which will usually be at -2 from the specialty).

Headquarters and Vehicles

A team needs an HQ; meeting in public places or hanging out in each others' apartments will cramp the heroes' style. Groups with sponsors will often be given a base (a gritty/postmodern game might feature a military-style installation), and schools and the like may have buildings; otherwise, arrangements will have to be made. Likewise, teams may find a use for a vehicle that can get them anywhere in their chosen area of operations at speed.

In fact, the team HQ is another rather implausible four-color convention. Such bases come under attack fairly often in the comics, and may even show damage and need repair from issue to issue, but these attacks rarely seem to imperil and terrify the neighbors as often as would seem logical . . . nor do enemies often track heroes in and out of the base in an attempt to assess the team's strength or break someone's secret identity.

An HQ large enough for a multimember team will be expensive, especially if it's located in a major city and has good security. A multimillionaire sponsor, or a similarly wealthy team member who can access his wealth without imperiling his secret identity, will be extremely useful. The orbital or lunar bases seen in some comics imply *extraordinary* resources. The facilities often depicted in comics (training facilities, high-tech defense systems, vehicle pens) all add to the cost. Then again, some less formal teams manage perfectly well with nothing but one member's larger-than-average house.

Super Adventures

Four-color stories are often about fighting crime, saving the world, and foiling villains – which makes for simple adventures when the GM can't think of anything more complicated. Have the heroes encounter or learn of a crime in progress, probably involving a supervillain, and let them tackle it. A series of such crimes may imply a master villain at work; a slightly more complex sequence of events may point the PCs toward some globe-spanning menace.

GMs can draw general inspiration from anything from gritty TV cop shows for vigilante games – with a few highly competent heroes taking the plot-role of the entire police department – to James Bond movies for master villain or evil agency operations. Just add enough super-powered opposition to make fight scenes feel serious. High-power supers, especially those of a supernatural bent, can become involved in plots inspired by or based on mythology, battling giant monsters or diabolical tempters bent on subverting humanity.

However, superheroes are also notorious for their soap-operatic personal lives, and many players, familiar with the genre or just eager for more points, will doubtless take plenty of disadvantages. GMs shouldn't be ashamed to exploit these by imperiling dependents, threatening secret identities with exposure, and creating moral quandaries. This shouldn't be carried to the point where players feel unpleasantly harassed by the GM, or that every disadvantage they take is being used to cripple the PC – that's not fun, and it's not in genre – but those disadvantage points should be earned.

Plots can also revolve around the nature of powers, and how the world sees heroes in general. Governments can try to control these "walking arsenals," reporters can harass them, cops can complain that they're loose cannons, members of the public can worry about their attitudes and barely human natures, and supervillains can try to subvert them. Part of the point of the supers genre is that power comes with a price – not just the responsibility of getting into superfights, but the difficulty of retaining contact with humanity.

Glossary

Powers uses the following vocabulary to discuss superhuman gifts. Several terms found elsewhere in ***GURPS*** pick up more nuanced definitions here – read carefully!

ability: A superhuman gift, such as being able to fly or shoot lightning bolts. It might be a single advantage, perhaps heavily modified. It might instead be *several* advantages, either sitting there like elements of a meta-trait or connected by Follow-Up or Link.

active ability: An ability that does nothing until the wielder chooses to use it by taking a maneuver or making a die roll. See p. 153.

active use: Any use of an ability that requires a deliberate effort, most often a maneuver. This describes all uses of active abilities and certain uses of passive abilities, notably power defenses and exceptions mandated in advantage descriptions.

alternative abilities: A collection of related abilities that behave as a single ability with multiple settings, allowing the wielder to use only one at a time. See p. 11.

always on: Describes an ability that operates constantly because the user can't consciously deactivate it. See p. 153.

anti-power: A power, superscience technology, or natural phenomenon that specifically blocks or negates a particular power or an entire source. See p. 20.

attack ability: Any ability that can injure an opponent or compromise his capabilities – most often Affliction, Binding, Innate Attack, Leech, or Neutralize. Often shortened to "attack."

biological power: A power that originates from the user's body. See p. 26.

channeled energies: Any power source external to the power's wielder. See p. 24.

chi power: A power that springs from the user's "inner strength" (*chi*). See p. 26.

combining powers: A stunt that lets multiple users of related powers combine forces to produce enhanced effects. See p. 170.

Coordinated Attack: A combat tactic that lets multiple fighters attack a single target more effectively. See p. 165.

cosmic power: A power that emanates from creation itself. Often reserved for deities. See p. 26.

default ability: An ability used by someone who lacks it by dint of modifying a similar ability he does have. This stunt costs FP. See p. 173.

defensive ability: Any ability that reduces the impact of an attack or environmental hazard. Often shortened to "defense."

diverting defense: A defense that stops an attack by channeling the incoming energy away. See p. 11.

divine power: A power granted by a deity. See p. 26.

elemental power: A power that originates from an innate affinity with a particular form of matter or energy, like a fire god or fire spirit's control over flame. See p. 27.

Energy Reserve: A pool of FP isolated from mundane FP and useful only for paying FP costs associated with powers of a specific source. See p. 119.

enhancement: An extra capability added to an advantage. This increases the advantage's point cost by a percentage.

extra effort: Spending FP to get increased effect or skill with an ability. See p. 160.

focus: The force or substance a power manipulates, or the abstract concept it revolves around. See p. 7.

gestalt: A group of psis, usually telepaths, who are combining powers.

latent power: A power the possessor can't actively use, whether because his abilities are dormant and as yet unrealized, or because he has Talent but no abilities. See p. 34.

limitation: A restriction on the use of an advantage. This reduces the advantage's point cost by a percentage.

magical power: A power that draws upon *mana* – the ambient supernatural energy tapped by wizards. See p. 27.

mental ability: Any ability based on a mental advantage or that requires an IQ, Will, or Per roll – especially if it helps the user communicate, gather information, or influence others. See p. 154.

mental-influence ability: An ability that manipulates or reads others' thoughts, emotions, or perceptions.

metamorphosis: A physical transformation that alters the user's size, shape, or physiology. See p. 18.

modifier: An enhancement or limitation.

moral power: A power that emanates from a grand moral principle – Good, Evil, etc. – in a setting where such things are real, tangible forces. See p. 27.

mundane countermeasure: An ordinary item or condition that incidentally blocks or negates a power. See p. 20.

nature power: A power that flows from the ambient life-energy field that surrounds all living things. See p. 28.

negating defense: A defense that stops an attack by canceling out its source. See p. 11.

obstructing defense: A defense that stops an attack by interposing a barrier. See p. 11.

ongoing effect: Any effect of an ability that endures after initial activation without requiring a new use of the ability.

opposed powers: Powers with inimical foci (fire vs. ice) or sources (Good vs. Evil). They needn't be anti-powers, but often are. See p. 21.

origin: The story behind how a power-wielder acquired his power. Not the same as "source." See p. 179.

passive ability: An ability that applies constantly or activates in response to a stimulus without any input from the owner. The GM makes all required die rolls. See p. 153.

physical ability: Any ability based on a physical advantage or that requires a ST, DX, or HT roll. See p. 154.

physical transformation: Any ability that lets the user alter the structure or composition of his body. See p. 17.

power: An innate capacity to direct a superhuman energy source – internal or external – to generate different effects related by a *focus*. Each effect corresponds to an *ability*.

Power Block: An active defense that concentrates a defensive ability for improved effect, at the risk of having *no* effect on a failure. See p. 168.

power defense: Any active attempt to use a power to avoid an attack; see *Power Block, Power Dodge,* and *Power Parry*.

Power Dodge: An active defense with a movement ability or physical transformation that takes the defender out of the attack's path. See p. 167.

power modifier: A modifier – usually a limitation – shared by every ability of a power. It makes the ability subject to the power's inherent drawbacks and benefits. See p. 20.

Power Parry: An active defense with an attack ability that attempts to weaken or stop an attack by deflecting it or shooting it down. See p. 167.

power skill: A skill that replaces the attribute roll to use an ability, but only for certain powers in some settings. It defaults to the usual controlling attribute at -6. See p. 162.

power source: Same as *source*.

power technique: A technique that lets an ability's wielder buy off the penalty for a special feat with that ability. See p. 162.

psi: The generic term for psionic powers or one who possesses them.

psionic power: A power that springs from the user's mind. See p. 28.

repeated attempt: The second or later attempt to use an ability on the same subject or an identical one after an initial failure. For certain powers, this results in a FP cost and a penalty to use the ability. See p. 159.

required disadvantage: A disadvantage – usually a self-imposed mental disadvantage – that anyone who possesses a particular power must take. Violating the disadvantage's restrictions costs the user access to his power. See p. 21.

source: The driving force or paranormal energy that ultimately makes a power or set of powers work. Examples include *biological, chi, cosmic, divine, elemental, magical, nature, psionic, spirit,* and *super*. Not the same as "origin."

special effect: Any feature that differentiates an ability from the underlying advantage without affecting point cost – usually because it's cosmetic or because the GM feels it isn't an overall drawback or benefit. See p. 113.

spirit power: A power that works by commanding spirits to do one's bidding. See p. 28.

stunt: A creative use of an ability, not addressed in the description of the underlying advantage or the normal rules for advantage use. See p. 170.

super: A comic-book style hero or villain with superhuman powers (but not necessarily *super-powers*).

super-power: A "comic book" power that grants diverse superhuman abilities and has no real connection to magic, spirits, or other traditional sources from myth, folklore, and literature. Common explanations are mutation and weird science. See p. 29.

superscience: Technology that violates physical laws. This can be a source of powers, especially powers granted by gadgets. See *Gadget Limitations and Powers* (p. 107).

switchable: Describes an ability with ongoing effects that the user can consciously activate and deactivate. See p. 153.

Talent: A natural or learned aptitude for a power. Add its level to all success rolls to use that power's abilities. See p. 8.

temporary enhancement: A single use of an enhancement, bought with FP as a stunt. See p. 172.

transient: Describes an ability with momentary effects that the user can consciously trigger. See p. 153.

transmutation: A physical transformation that alters the user's composition. See p. 19.

variant trait: A redesigned advantage that works in a radically different situation than the original but shares its game mechanics and point cost. The differences amount to special effects. See p. 113.

wild ability: An ability that isn't part of a power and isn't affected by rules that apply specifically to powers.

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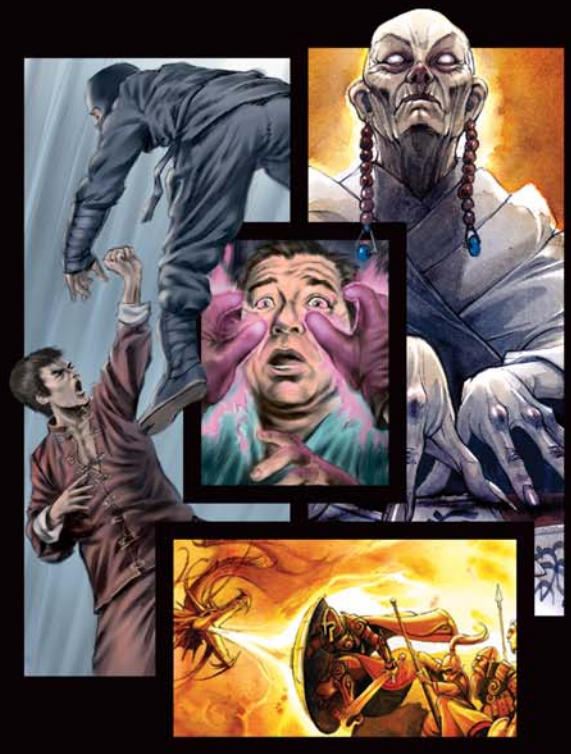

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By Steve Jackson, S. John Ross, and Daniel U. Thibault

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About *GURPS*

Steve Jackson Games is committed to full support of the ***GURPS*** system. Our address is SJ Games, Box 18957, Austin, TX 78760. Please include a self-addressed, stamped envelope (SASE) any time you write us! We can also be reached by e-mail: **info@sjgames.com**. Resources include:

Pyramid (**www.sjgames.com/pyramid/**). Our online magazine includes new ***GURPS*** rules and articles. It also covers the ***d20*** system, ***Ars Magica, BESM, Call of Cthulhu,*** and many more top games – and other Steve Jackson Games releases like ***Illuminati, Car Wars, Transhuman Space,*** and more. *Pyramid* subscribers also get opportunities to playtest new ***GURPS*** books!

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Internet. Visit us on the World Wide Web at **www.sjgames.com** for errata, updates, Q&A, free webforums, and much more. The ***GURPS Magic*** web page is **www.sjgames.com/gurps/books/magic/**.

Bibliographies. Many of our books have extensive bibliographies, and we're putting them online – with links to let you buy the books that interest you! Go to the book's web page and look for the "Bibliography" link.

GURPSnet. This e-mail list hosts much of the online discussion of ***GURPS.*** To join, point your web browser to **www.sjgames.com/mailman/listinfo/gurpsnet-l/**.

Rules and statistics in this book are specifically for the ***GURPS Basic Set,*** *Fourth Edition.* Page references that begin with B refer to that book, not this one.

Introduction

Any sufficiently advanced technology is indistinguishable from magic.
– Clarke's Law

Any sufficiently advanced magic is indistinguishable from technology.
– Murphy's reformulation of Clarke's Law

The very first roleplaying was *fantasy* roleplaying, and fantasy is still the most popular type of RPG. Magic brings power and wonder to the gaming table. Yet all too often, fantasy campaigns seem trite and predictable, trapped by their sources in Tolkien and Arthurian England.

It needn't be that way. Magic and magical worlds can have infinite variety, and so can magical heroes. A wizard might be the stereotypical graybeard with a pointed hat . . . but he also might be a palace cook with a couple of minor but useful food spells, a plane-hopping mage who roams the timelines looking for people in trouble, or a battle-hardened soldier whose mastery of magic has brought empires to their knees. With ***GURPS Magic,*** you can play these spellcasters and many others.

The meat of this book comprises 24 spell colleges with hundreds of spells . . . but there's much more! Within these pages you'll also find expanded rules for magic use and enchantment, alternate magic systems, and a full treatment of alchemy, ready to drop into your game.

Publication History

This is the third edition of ***GURPS Magic***; it has been revised to the ***GURPS*** *Fourth Edition* rules. We hope that's not overly confusing. The oldest material here dates back to the first edition of ***GURPS Fantasy*** (which covered magic as well as fantasy world-building). The second edition of ***Magic*** added more spells and the Improvisational Magic system created by Brett Slocum and Steffan O'Sullivan. This edition adds the entire contents of ***GURPS Grimoire***, by S. John Ross and Daniel U. Thibault, plus the Black Magic system created by S. John Ross. Many others created material or suggested spells for one or another of these volumes; see the credits on p. 2. And Michael Suileabhain-Wilson converted the entire collection to Fourth Edition standards.

About the Authors

Steve Jackson played his first RPG when there was only one title on the market. It was fantasy. His first professional job was developing a fantasy RPG (***Monsters! Monsters!).*** His second game design was a tactical game intended to be used with fantasy RPGs (***Melee***). His first *big* design was a fantasy RPG (***The Fantasy Trip***). He wrote the first editions of ***GURPS Fantasy*** and ***GURPS Magic***. One might conclude that he likes fantasy RPGs. He doesn't get to play them as much as he likes, though, since being president and editor-in-chief of Steve Jackson Games continues to demand huge chunks of time. Anyone feel like GMing a ***GURPS*** campaign in Austin?

S. John Ross wrote the Black Magic rules (p. 156) and co-wrote ***GURPS Grimoire*** (1994), the collection of spells which is incorporated into this book. He is one of gaming's first commercial electronic publishers, the founder of Cumberland Games & Diversions. His home on the Web is also the home of ***Risus: The Anything RPG***, the ***HexPaper*** font, and ***Sparks*** paper miniatures. His home in the *physical* world is Austin, Texas, where he games weekly and snuggles daily with his wife, Sandra. In addition to his ***GURPS*** and other work for Steve Jackson Games, he's written, edited, mapped, and cartooned his way across the gaming industry, including work for Wizards of the Coast, White Wolf, TSR, Guardians of Order, Last Unicorn Games, and Flying Buffalo.

Daniel U. Thibault was a graduate student in computer science when he submitted spells for the first edition of ***GURPS Fantasy***. He then proceeded to ransack books, movies, bulletin boards and his imagination to produce ***GURPS Grimoire***. He also collaborated on several other ***GURPS*** books. Meanwhile, he became a scientist with Defence R&D Canada, got a spouse, cats, dogs, and a child, and moved multiple times. All this has put severe limitations on his roleplaying time, but things are getting better.

Chapter One

Principles of Magic

Bid me discourse, I will enchant thine ear.

– William Shakespeare, "Venus and Adonis"

The table groaned under the weight of strange and wonderful things – cups and belts and boxes and other things that Patrick didn't recognize. He looked up nervously at the big man in the brown robes.

"Go on now, boy," the man said gently. "Pick out something special."

Patrick turned back to the table and chewed his thumb. There were so many things, and they were all so nice. He petted a soft fur hat, thinking about the coming winter.

He kept looking back at a set of knucklebones, like the men used down at the public house. He reached out and picked them up. They seemed almost alive in his hand – warm and trembling, like a mouse.

He stepped back from the table and turned. "These," he said, holding out the knucklebones.

The big man raised an eyebrow as he took them. He looked to the back of the room, where Patrick's parents waited with the mayor, and nodded. Patrick's mother made a small noise.

Squatting in front of Patrick, the big man offered his hand. Patrick took it; it was huge, but strangely soft. The man clasped his hand firmly.

"Welcome to the vocation, Magus."

Magic is a powerful force that can be manipulated with skills called *spells*. By casting spells, a wizard can direct magical energy – known as *mana* – to produce almost any effect. This is a mysterious art in some settings, a precise science in others.

Although hundreds of spells exist, each has a unique effect. Finding the right spell for a given task can be a painstaking process. Very experienced wizards can strike out into new territory, creating new spells for new tasks, but magical experimentation is not for the novice or the faint of heart.

The best wizards have an inborn ability to learn and use magic, called *Magery*. Anyone with any degree of Magery is called a *mage*. In many game worlds, only mages can use magic. In all worlds, they are *better* with magic than nonmages.

Glossary of Magical Terms

abort: To stop the casting of a spell before its completion.
backfire: A critical failure when casting a spell.
base skill: Your unmodified skill with a spell; compare with *effective skill*.
basic spell: A spell with no other spells as prerequisites.
cancel: To end a spell before it would normally expire.
caster: The person casting a spell.
class: A group of spells that use the same special rules. Two examples appear in this glossary: *melee spells*, *Missile spells* and *Resisted spells*.
college: A group of spells that deal with the same subject – fire, healing, etc.
effective skill: Your base skill, plus any modifiers (usually penalties) for range, circumstances, etc. A caster rolls against effective skill.
enchantment spell: A spell for creating permanent magic items. See Chapter 2.
energy: The "cost" to cast a spell. You may pay this in either FP or HP. Some game worlds offer alternative energy sources.
grimoire: The list of spells *you* know (more generally, any book of spells).
mage: Anyone with the Magery advantage.
Magery: The advantage of being "in tune" with magic; see pp. B66-67.
maintain: To continue a spell after it would normally end. This costs more energy, unless you have high skill.
mana: The ambient magical energy manipulated by spells. Different areas (or worlds) have different levels of mana; see *Mana* (p. 6).
melee spell: A spell that "charges" your hand or a magic staff with harmful energies that affect the first target you strike.
missile spell: A spell that summons a magical projectile that you must "throw" at the subject.
prerequisite: A requirement for learning a spell.
Resisted spell: Any spell that must overcome the "power" of its subject before it works.
sapient: Racial IQ 6 or higher.
spell: A skill that produces a specific magical effect when used successfully.
subject: The person, place, or thing on which a spell is cast.
wizard: *Any* user of magic, whether he is a mage or not.

Learning Magic

Anyone can learn most spells – although in some worlds, you must be a mage to *use* the spells you know. Some spells specify a particular level of Magery as a prerequisite: if you lack the required Magery level, *you cannot learn the spell.*

Each magic spell is a separate *skill,* learned just like any other skill. Most spells are IQ/Hard skills, but a few potent spells are IQ/Very Hard. Spells have *no default* – you can only cast spells you know.

Add your Magery to IQ when you learn spells. For instance, if you have IQ 12 and Magery 3, you learn spells as if you had IQ 15. In addition, reduce the time required to learn spells (but *not* the point cost) by 10% per Magery level, to a minimum of 60% the usual time at Magery 4; e.g., Magery 3 would let you learn spells in 70% the usual time.

The maximum level of Magery available in your world is up to the GM. Most GMs will want to limit PCs to Magery 3 or 4.

If you know more than a few spells, you may wish to make a "grimoire." This is a list of the spells you know and your skill with each, along with the energy cost, time to cast, duration, etc. for each spell. This will save a lot of reference time in play! A form is included on p. 240.

Mana

Mana is the ambient energy that empowers magic. Magic will work only if the *mana level* of the game world or specific area allows it, as follows:

Very High Mana: Anyone who knows spells can cast them. A *mage* who spends FP to cast a spell on his turn gets those FP back at the start of his *next* turn. However, all failures are treated as critical failures – and actual critical failures produce spectacular disasters! Very high mana is extremely rare in most settings.

High Mana: Anyone who knows spells can cast them. This mana level is rare in most worlds, but some game worlds have high mana throughout.

Normal Mana: Only *mages* can cast spells. These spells work normally, according to all rules given in this chapter. This is the default mana level in most fantasy settings: mages use magic, others don't.

Low Mana: Only mages can cast spells, and all spells perform at -5 to skill, for all purposes. (Magic items are similarly affected; see *Power of a Magic Item,* p. 17.) However, critical failures have mild effects or no effect at all.

No Mana: No one can use magic at all. Enchantments and permanent magic effects are suspended and do not function while within a no-mana zone, but resume when taken to an area with mana. Temporary and lasting spells (p. 10) are dispelled when they enter a no-mana zone. This mana level occurs in isolated spots in magical worlds. Some entire game worlds can lack mana, making magic use impossible.

In most regions, mana is uniform and static. However, in some locations mana may favor certain types of magic, or fluctuate over time. Some powerful spells can even change the mana level of an area (p. 127). ***GURPS Fantasy*** discusses more possibilities for the magical properties of a world.

Sensing Mana

Mages cannot automatically sense the mana level of an area, but they may sense the change when they cross a boundary between levels. When a mage crosses such a boundary, roll vs. Perception + Magery-3. Add 3 to the roll if the mage was explicitly searching for the boundary.

Finding a Teacher

The difficulty of learning magic depends largely on the role of magic in a setting – and especially on its prevalence. In a world where magic is common, wizardry is likely a trade like any other, learned through apprenticeships or in schools. If magic is rare, on the other hand, prospective teachers may be cloistered in far-off monasteries or isolated towers. If magic is illegal, those mentors will be in hiding.

Once the would-be wizard finds a teacher, he must convince the teacher to take him on as a student. Some teachers give lessons for a fee; others demand service in exchange for training. Still others ask for nothing in advance, but expect their students to know their duty when the need arises.

If no instructor is available, an aspiring wizard may study magic without a teacher, like any other intellectual skill. However, lone study demands that the wizard has access to good texts on magic, in a language he can read. Even then, his progress is only half as fast as it would be with a mentor, taking 400 hours for every character point of progress (though Magery will offset some of this; see *Magery,* pp. B66-67). What's more, finding those texts may be just as hard as finding a teacher.

In a world with improvised magic (p. 201), there may be no magic teachers at all; wizards might learn by experimentation and lots of hard knocks.

Prerequisites

All but the most basic spells have one or more *prerequisites:* requirements you must meet in order to learn the spell. If the prerequisite is another spell, you must have at least one point in the prerequisite spell before you can study the advanced spell. Not all prerequisites are spells. Some spells require a minimum Magery level; for instance, "Magery 2" means you must have Magery 2 or more to learn the spell. A few spells require a minimum basic attribute score, an advantage, or even a mundane skill.

Casting Spells

You must know a spell in order to cast it, unless you possess a magic item that lets you cast it (see Chapter 2). Tell the GM what spell you are casting, then take Concentrate maneuvers for the requisite number of turns (see *Time Required,* below). At the end of the *last* second of concentration, make a success roll for the spell.

Casting a spell works like any other use of a skill: roll 3d and compare the total to your *effective* skill (your base skill with the spell adjusted by any applicable modifiers). Modifiers depend on the class of spell (see *Spell Classes,* p. 11). If your roll is less than or equal to your effective skill, the spell works. If it is greater than your effective skill, the spell fails.

Improvisations should be appropriate to the spell and the situation, and should never kill the caster outright.

On a *success,* mark off the spell's energy cost against your FP or HP (see *Energy Cost,* p. 8). Its effects take place immediately. On a *critical success,* the spell works especially well. Details are up to the GM, who should be both generous and creative. Whatever else occurs, there is never an energy cost if you get a critical success when you cast a spell.

On a *failure,* the spell does not work. If success would have cost energy, you lose one energy point; otherwise, you lose nothing. (*Exception:* You must pay the full energy cost for an Information spell even on a failure; see *Information Spells,* p. 13.) On a *critical failure,* you must spend the full energy cost *and the spell fails badly!* The GM may use the *Critical Spell Failure Table* or improvise some other "backfire" he finds amusing.

Critical Spell Failure Table

Roll 3d on the table below. If the result is inappropriate – or if it is the result that the caster *intended* – roll again. The GM is free to improvise instead of using the table. Improvisations should be appropriate to the spell and the situation, and should never kill the caster outright.

3 – Spell fails entirely. Caster takes 1d of injury.

4 – Spell is cast on caster (if harmful) or on a random nearby foe (if beneficial).

5-6 – Spell is cast on one of the caster's companions (if harmful) or on a random nearby foe (if beneficial).

7 – Spell affects someone or something other than its intended target – friend, foe, or random object. Roll randomly or make an interesting choice.

8 – Spell fails entirely. Caster takes 1 point of injury.

9 – Spell fails entirely. Caster is stunned (IQ roll to recover).

10-11 – Spell produces nothing but a loud noise, bright flash of light, awful odor, etc.

12 – Spell produces a weak and useless shadow of the intended effect.

13 – Spell produces the reverse of the intended effect.

14 – Spell seems to work, but it is only a useless illusion. The GM should do his best to convince the wizard and his companions that the spell *did* work!

15-16 – Spell has the reverse of the intended effect, on the wrong target. Roll randomly.

17 – Spell fails entirely. Caster temporarily forgets the spell. Make an IQ roll after a week, and again each following week, until he remembers.

18 – Spell fails entirely. A demon or other malign entity appropriate to the setting appears and attacks the caster. (The GM may waive this result if, *in his opinion,* caster and spell were both lily-white, pure good in intent.)

Distraction and Injury

If you use an active defense against an attack, or are knocked back, knocked down, injured, grappled, or otherwise distracted while concentrating, make a Will roll at -3 to continue casting your spell. On a failure, your spell is spoiled and you must start over.

If you are *stunned* while concentrating, your spell is automatically spoiled.

If you are *injured* but not stunned while concentrating, and succeed on the roll to avoid distraction, you may cast your spell. However, the shock penalty for your injury will reduce your effective skill. See *Shock* (p. B419) for details on shock.

Caster and Subject

The "caster" of a spell is the person who is attempting to cast it.

The "subject" of a spell is the person, place, or thing upon which the spell is cast. If you are casting a spell on yourself, you are both caster and subject. The subject can also be another being, an inanimate object, or even a patch of ground. If the subject is a place, the caster can "touch" it by extending a hand over it or touching the ground, as appropriate for the spell.

Time Required

Most spells take one second to cast. Take the Concentrate maneuver for one turn and attempt your skill roll at the end of your turn. If you succeed, the spell takes effect instantly. Whether you succeed or fail, your turn ends as soon as you roll the dice. No one can interrupt a one-second spell unless he took the Wait maneuver on his own turn before the caster began concentrating.

Example: Patrick wants to cast Create Fire, a one-second spell. On his turn, Patrick says, "I'm concentrating on Create Fire." This uses his entire turn. He then rolls the dice for his spell. If he succeeds, he creates fire – but either way, Patrick's turn ends. Aidan, standing next to him, cannot try to disrupt the spell unless he took the Wait maneuver before Patrick's turn began.

Some spells take more than one second to cast. This requires multiple, consecutive Concentrate maneuvers in combat. Make the skill roll at the end of the *last* turn of concentration. You may "abort" an unfinished spell before it is cast, at no penalty, but you must start over if you wish to try again.

Example: If a spell takes three seconds to cast, you must spend three turns doing nothing but concentrating. You roll the dice at the end of your third turn.

Blocking spells may be cast without concentrating, during a foe's turn, to defend against an attack. See *Blocking Spells* (pp. 12-13).

Optional Rule: Magic Ingredients

Traditionally, spells have often required the use of exotic ingredients: dragon scale, virgin's blood, eye of newt, mandrake root, Nixon campaign buttons, or what have you. This book, however, does not specify what ingredients are required for spells, aside from some materials required for enchantments. It would be nearly impossible to produce a list of ingredients that would make sense across a variety of settings, to say nothing of the space such a list would take up.

Instead, spell ingredients should be regarded as a powerful tool for GMs to use for fine-tuning the feel of magic in their games. Spells you wish to constrain may require expensive and rare ingredients. If a particular spell is getting out of hand, maybe the mandrake crop will fail this year. Spell ingredients can also serve as a useful cash sink, if the amount of money in PC hands is getting excessive.

Exotic ingredients can be extremely useful for moderating the use of magic. Ordinarily, wizards have little incentive not to use up all their energy at every encounter; as long as the party has some time to rest afterwards, they'll be back up to scratch in no time. If there's only so much eye of newt to last until the next visit to town, however, wizards may start trying to use their magic to best effect, and to find alternate ways to be useful in a pinch.

For some possible ingredients and their typical uses, see *Magically Potent Materials*, p. 222.

Energy Cost

Each spell has an energy cost. When you cast the spell, you must pay this cost in either FP or HP. The better you know the spell, the less energy you need to cast it. If you know it well enough, you can cast it at *no* cost. *Exception:* Never reduce the cost of a Blocking spell; see *Blocking Spells* (pp. 12-13).

If your *base skill* with a spell – modified only by the -5 for low mana, if applicable – is 15 or more, reduce the cost to cast the spell by 1. If you have skill 20 or more, reduce cost by 2. Cost continues to decrease by 1 per full five skill levels beyond skill 20. Apply the same reduction to the cost to *maintain* a spell. Calculate the entire cost for a spell (for instance, by multiplying cost for the size of the subject or the area affected) before applying energy cost reductions for high skill. Energy is still going into the spell, but your skill lets you draw it from the surrounding mana instead of supplying it yourself!

You normally pay the energy cost of a spell in FP. You can recover lost FP by resting. A *mage* with the Recover Energy spell (p. 89) recovers FP faster than normal.

Burning HP

You may also expend life energy to pay the cost of a spell. Mark off some or all of the cost against HP instead of FP – the spell is actually harming you! You are at -1 on your spell roll per HP used. This is *instead* of the usual shock penalty for injury, and High Pain Threshold has no effect.

Using HP to power spells is dangerous, but it may be necessary if you are badly fatigued and *must* cast another spell. You may "burn" HP until you fall unconscious. Should a failed HT roll indicate that you have died, you do not actually spend the HP. Instead, you fall unconscious.

Treat HP lost this way just like any other injury.

Magic Rituals

To cast a spell, you must usually perform a ritual that involves gestures and speech. If you can't perform the ritual, you can't cast the spell! For instance, if the ritual for a spell requires you to speak, you cannot cast the spell if you are gagged or under a spell of silence.

The higher your skill with a spell, the easier it is to cast. It takes less time, requires less energy, and has less stringent ritual requirements. See the list below for details. In all cases, "skill" refers to *base* skill, not effective skill. The *only* modifier that matters here is the -5 for low mana, if applicable.

Skill 9 or less – *Ritual:* You must have both hands and both feet free for elaborate ritual movements, and you must speak certain words of power in a firm voice. *Time:* Doubled. *Cost:* As listed.

Skill 10-14 – *Ritual:* You must speak a few quiet words *and* make a gesture. *Time:* As listed. *Cost:* As listed.

Skill 15-19 – *Ritual:* You must speak a word or two *or* make a small gesture (a couple of fingers are enough), but not necessarily both. You are allowed to move one yard per second while taking the Concentrate maneuver. *Time:* As listed. *Cost:* Reduced by 1.

Skill 20-24 – *Ritual:* None! You simply stare into space as you concentrate.

Time: Halved (round fractions up to the next second). Minimum casting time is still one second. *Cost:* Reduced by 2.

Skill 25-29 – *Ritual:* None. *Time:* Divided by 4 (round up). *Cost:* Reduced by 3.

Skill 30 or more – As above, but for every five levels of skill beyond skill 25 (that is, at levels 30, 35, 40, etc.), halve casting time again (always rounding up) *and* reduce energy cost by one more point.

Certain spells always require a specific ritual. Such requirements override the rules above. For instance, high skill has no effect on the *cost* to cast Blocking spells (pp. 12-13) or the *time* to cast Missile spells (p. 12).

Limits on Effect

The effects of many spells vary with the energy spent. For instance, a healing spell might heal 1 HP per energy point, or a combat spell might inflict 1d damage per point.

If the spell description sets no upper limit, then you may spend *as much energy as you can afford!* The more you spend, the greater the effect.

If the spell specifies a finite range of effects and associated energy costs, though, you *cannot* exceed the upper limit without a high level of Magery (see below).

If *either* type of variable spell is cast on the same subject more than once, only the spell with the most powerful effects counts – multiple instances of a given spell do not "stack" or add in any way. Spells that heal, damage, or otherwise *permanently* affect the subject are an exception: you may cast such spells repeatedly, healing or damaging the subject by the full amount each time.

Magery and Effect

Talented mages may exceed the usual limits for spells that allow a finite number of "levels of effect" (dice of damage, bonuses to skill, etc.). The upper limit is the *higher* of the standard number of levels or the caster's Magery level.

Example: Major Healing (p. 91) allows you to spend 1, 2, 3, or 4 energy points to heal 2, 4, 6, or 8 HP. It has four levels of effect. Magery 10 would let you revise this limit to *10* levels of effect – you could spend 1-10 energy points to heal 2-20 HP!

The GM is free not to use this rule if he thinks it would be unbalanced. Of course, if he puts a limit on the highest level of Magery available, this will not be a problem!

Optional Rule: Alternate Magic Rituals

Here is an alternative way to handle the rituals required for spells. It gives wizards more flexibility in the way they cast their spells, but denies powerful wizards the ability to forget about ritual entirely.

By default, all spells require two-handed gestures, subtle foot motions like dance steps, and a clearly spoken incantation. However, any wizard may choose to omit parts of the ritual by accepting a penalty to skill. Omitting the foot movements requires a -2 penalty. Gestures with only one hand require a -2 penalty, while casting with no hand gestures at all requires a -4 penalty. Softly spoken incantations demand a -2 penalty, and no incantation requires a -4 penalty.

If, on the other hand, a wizard has time to be especially precise with his movements and speaks the incantation loudly and articulately, doubling the casting time, he gets +1 to his effective skill.

Duration of Spells and Maintaining Spells

Some spells produce an instantaneous effect when cast and then end immediately. Other spells last for a fixed "duration" (given for the particular spell, but most often one minute) and then wear off – unless you *maintain* them.

If you can maintain a spell, the energy cost to do so appears alongside the cost to cast. When the spell reaches the end of its duration, you may continue the spell by paying its maintenance cost. If you do, the spell endures for another interval equal to its duration. This takes no time and requires no skill roll. Distance is not a factor.

Example: The Light spell (p. 110) notes "Duration: 1 minute" and "Cost: 1 to cast; 1 to maintain." It ends after a minute unless, at the end of that minute, you spend one more energy point to maintain it. If you do, it lasts another minute.

You may repeat this process for as long as you wish, provided you can supply the required energy. As long as you are conscious, you will know when one of your spells needs to be renewed. However, you cannot maintain a spell while you sleep, and you cannot "hand off" a spell to someone else so he can maintain it for you.

Secret Spells

It is rarely clear what spell a wizard is casting while he's casting it – especially if he knows it well enough to cast it silently! In general, if a spell has no obvious visible effect (unlike Fireball), it can be kept a secret. This can make magical battles much more interesting, when only the GM knows exactly what spells are in effect and on whom.

Even if the spell is audible, observers may have to make a Thaumatology roll to recognize a spell they do not themselves know. Observers without Thaumatology are completely out of luck!

High Skill and Cost to Maintain

Energy cost reduction for high skill also applies to the cost to maintain a spell. This *can* reduce maintenance cost to 0. For instance, if you know a spell at skill 15-19, you may reduce its maintenance cost by 1; if this cost is 1 to begin with, you can maintain the spell indefinitely at *no* energy cost!

Concentration and Maintenance

You can maintain a spell without concentration unless the spell requires constant manipulation and change; e.g., to maneuver a levitating object. Spells like this require you to take the Concentrate maneuver only. If you are distracted, injured, or stunned, you must make a Will roll at -3. If you fail, the spell does not end, but it remains in precisely the state it had when you were distracted, and does not respond to change until you can concentrate on it again. On a critical failure, the spell ends.

Casting another spell does *not* break concentration, but you suffer a skill penalty for doing two things at once (see *Casting Spells While Maintaining Other Spells,* below).

Changing Maintained Spells

A spell with a variable area of effect cannot be expanded after it has been cast. However, a wizard may choose to maintain only part of a spell's area, paying the maintenance cost for only a portion of the original area affected.

Duration Types

There are five classes of duration for spells: instantaneous, temporary, lasting, permanent, and enchantment.

Canceling Spells

Sometimes, you may want to end a spell before its full duration is up. If you specify a shorter duration when you cast the spell, the spell lasts exactly the time desired. If you suddenly decide to "cancel" a spell before its time is up, though, you must pay one energy point (from FP or HP) to do so, regardless of the spell or your skill level.

Instantaneous spells produce an instant effect when cast and then end immediately. Note that some instantaneous spells appear to last longer because they leave behind a persistent but nonmagical effect – Flesh to Stone, for example, instantly turns a living being to stone and ends, leaving behind a stone statue.

Temporary spells are spells that require the continuing expenditure of energy to maintain. If it has a cost to maintain, it is most likely a temporary spell. Only temporary spells count as spells "on" (see below).

Lasting spells do not require maintenance, but have a limited effective duration. Typically, they last until some event ends the spell. Bless is a good example; the spell lasts until the blessing is used.

Permanent spells create a magical effect that lasts indefinitely. Zombie is a good example: the magic force that animates the body persists until the body has been physically destroyed. A permanent spell, unlike temporary and lasting spells, does not end in a no-mana zone, but it *is* suspended until the subject leaves the zone. At that point the spell resumes.

Enchantments produce a still more enduring magical effect – usually one that generates other magical effects in turn. Enchantments are not dispelled by spells like Dispel Magic or Remove Curse. Like permanent spells, enchantments are suspended, not dispelled, by no-mana zones.

Spell Endurance

Spells usually resist other spells or attacks with the effective skill of the wizard who cast them. Some temporary and lasting spells, however, can be whittled away by repeated assaults. Such spells are said to have Endurance. Like an enchantment's Power, a spell's Endurance at casting time is equal to its caster's effective skill. However, it may be reduced by later events. A spell's description always discusses whether the spell has Endurance and at what Endurance the spell fails and dissipates.

One Try

Some spells only provide a wizard with one chance. These spells note "One Try" in their descriptions. If such a spell fails, the caster (and any assistants) may not try that spell again on the same subject. Some spells permit only a single try within a given time period – "one try per week," for example. In this case, the caster(s) may try again after the appropriate time has passed. If no time period is specified, the caster(s) may never try again.

Casting Spells While Maintaining Other Spells

You can only cast one new spell at a time. However, you *can* cast new spells before older ones end. Apply the following modifiers whenever you cast spells while you have other spells active:

-3 per spell you are *concentrating* on at the moment. See the individual spell descriptions to learn which spells require concentration.

-1 per other spell you have "on" at the moment. Only temporary spells carry this penalty.

Different Kinds of Magic

Many types of magic exist. Spells fall into "colleges" according to their subject matter, and "classes" according to the way they work.

Colleges of Magic

Spells related by subject matter – e.g., fire, healing, or mind control – belong to the same *college*. The basic spells of a college are prerequisites for the more advanced ones. Some spells fall into more than one college. For instance, Earth to Air (p. 25) is both an Earth and an Air spell. This is only important when counting prerequisites.

Most wizards specialize in only a few colleges. This is the most efficient way to learn advanced magic. However, you may learn spells from as many colleges as you wish.

Spell Classes

Each spell falls into one or more *classes* that define how it works in play. These classes are not mutually exclusive, except as explicitly noted in the rules below.

Regular Spells

Most spells fall into this class. A Regular spell affects only one subject. Its energy cost assumes a human-sized subject – that is, one with Size modifier 0. For a subject with a *positive* SM, multiply cost by 1 + SM: ×2 energy for SM +1, ×3 for SM +2, ×4 for SM +3, and so on. There is no cost reduction for a subject with a *negative* SM. A few Regular spells have special cost schemes that override these rules.

Regular spells work best if you can *touch* or *see* the subject. You do not have to see through your own eyes; any spell that lets you see by magical means will do.

If you cannot *touch* the subject, apply a skill penalty equal to your distance in yards from the subject; e.g., -5 at five yards. Figure distance at the moment you roll the dice for the spell.

If you cannot touch *or* see the subject, there is a further -5 penalty. There are two ways to direct such a spell:

- Name a *target location*. For instance, if you specify "One yard beyond the other side of this door," you'll get whoever is standing on the other side of the door. If there is nobody there, you wasted the spell.
- Name a *subject;* e.g., "The closest person in the next room," or, "George, who I know is around here somewhere." The GM determines the actual range to the subject. This is risky! If the subject is farther away than you think – or simply absent – you are inviting failure or even critical failure!

No physical barrier affects a Regular spell. Unless it backfires, the spell never hits the wrong target.

Area Spells

These spells affect an area instead of an individual. They are cast on a surface – floor, ground, etc. – and their effects extend four yards (12 feet) up from that surface. A few Area spells work differently; see the individual spell descriptions for details.

The area's size governs the energy cost, but not the difficulty of the roll. The cost listed for an Area spell is always its "base cost." The actual cost to cast the spell is equal to its base cost multiplied by the radius of the area of effect in yards (minimum one yard): base cost ×1 for a one-yard radius, ×2 for a two-yard radius, ×3 for a three-yard radius, and so on.

Area spells with a fractional base cost, such as 1/2 or 1/10, cost a minimum of one energy point. A few Area spells specify a minimum cost, which you must *always* pay, even if it is larger than the base cost multiplied by the desired radius.

If an Area spell affects living beings, it affects *everyone* in the area of effect. You may choose to affect only a part of the area, instead of the whole circle, but the cost is still the same – i.e., you may create an area of effect with "holes" in it, but must still spend energy as if you had filled the entire radius of the spell.

If you cannot touch any part of the affected area, apply a skill penalty equal to your distance in yards from the *nearest* edge of the area.

Otherwise, Area spells work like Regular spells.

Melee Spells

Melee spells "charge" your hand or magic staff (see box) with harmful energies that affect the first target you strike. These spells require *two* skill rolls: a roll against spell skill to cast the spell, and a normal melee attack roll to hit the target with your hand or staff.

To cast a Melee spell, concentrate for the required time, roll against spell skill at the end of the final turn of concentration, and pay the energy cost. *No* distance modifier applies because you are casting the spell on yourself! On a success, you energize your hand or staff with the spell's magic. On your *next* turn, you must either hold your spell or attack with it.

If you hold your spell, your hand or staff remains "charged." This costs no energy and requires no skill roll. You *cannot* cast another spell while holding a Melee spell. You can take any other combat maneuver (but an attack with the energized hand or staff discharges the spell). A parry with the hand or staff does not discharge the spell; only an *attack* in combat is a part of the ritual.

A Melee spell held on a staff persists for as long as you wield the staff. If you lose hold of your staff, even for an instant, the spell drains away harmlessly. If someone *grabs* your staff, and you are both holding it on your turn, your attempt to wrench it free counts as an attack, and your opponent instantly suffers the spell's effects!

To attack, roll against DX or an unarmed combat skill to hit with a hand, or the appropriate Melee Weapon skill to hit with a staff. This is a standard melee attack. Your target may attempt any active defense. If he succeeds, your spell is not triggered; you may try again next turn. If he fails, your melee attack does its usual damage *and* your spell affects him immediately.

Armor protects normally against some Melee spells, not at all against others. If the spell is one that ignores armor, neither an unarmed parry (even with an armored limb) nor a block can protect the target from the spell. Even if such a defense wards off the melee attack, the spell arcs through the target's armor or shield and affects him.

Ceremonial Magic

If you know a spell at skill 15 or higher and have a group of *willing* assistants, you may opt to cast the spell by leading your assistants in an elaborate ritual that maximizes the spell's power. Such "ceremonial magic" is time-consuming, but lets you cast more powerful spells than you could cast on your own.

When you work ceremonial magic, multiply casting time by *10*. Energy cost does not change, but your assistants can supplement your energy input as follows:

Each mage who knows the spell at level 15+: as much energy as he wishes to contribute.

Each nonmage who knows the spell at level 15+: up to 3 points.

Each mage who knows the spell at level 14 or lower: up to 3 points.

*Each unskilled spectator who **supports** the casting (by chanting, holding candles, etc.):* 1 point, to a maximum of 100 points from all spectators.

*Each spectator who **opposes** the casting:* -5 points, to a maximum penalty of -100 points from all spectators!

The sum of the energy from all sources represents the total energy available. If this exceeds the cost to cast the spell, you receive a skill bonus: +1 for 20% extra energy, +2 for 40%, +3 for 60%, +4 for 100%, and another +1 per additional 100% of the required energy.

At the end of the ritual, make a skill roll to cast the spell. Apply all standard modifiers for magic use and any bonus for extra energy. Regardless of the outcome of the die roll, all contributed energy is spent when you roll the dice.

Notes on Ceremonial Magic

- You *must* have assistants to perform ceremonial magic.
- High skill does *not* reduce casting time, energy cost, or the ritual actions required.
- A group aids concentration. If you are distracted during the ritual, roll at Will as opposed to Will-3 to avoid distraction.
- Ceremonial magic is hard to coordinate. A roll of 16 is always a failure, and a roll of 17-18 is always a critical failure – even if effective skill is 16+.
- Once the spell is cast, the participants can continue to provide energy to maintain the spell. The composition of the group may change, as long as the ritual continues uninterrupted. Thus, ceremonial magic lets you maintain a spell indefinitely.
- Ceremonial magic may not be assisted with Wishes, Luck, or Bless spells. In general, magic cannot affect or predict the outcome of a ceremonial ritual.
- A spectator must support the ceremony of his own free will. A mind-controlled subject cannot focus sufficient will to contribute energy.

Some Melee spells are Resisted (pp. 13-14). These spells require a *second* roll against spell skill, when the spell actually takes effect, to overcome the target's resistance.

Missile Spells

This class of spells encompasses long-distance "projectile" or "bolt" attacks, such as Fireball (p. 74) and Lightning (p. 196). Missile spells require *two* skill rolls: a roll against spell skill to cast the spell, and a roll against Innate Attack skill (p. B201) to hit the target.

To cast a Missile spell, you must concentrate for one second. At the end of your turn, roll against your skill with the spell. There is *no* modifier for distance – you are creating a magical missile in your hand. On a success, you may invest one or more points of energy in the spell, to a maximum of a number of energy points equal to your Magery level. The missile then appears in your hand, "charged" to the desired level.

On your *next* turn, you have three options with your missile: make a ranged attack with it, hold it, or *enlarge* it. If you opt to enlarge your missile, you must concentrate for another second. At the end of your turn, you may invest more energy in the spell – anything from one point to points equal to your Magery level. This does not require a skill roll.

The turn after that, you have the same options: attack, hold, or enlarge. On your fourth turn, you may only attack or hold. You cannot spend more than three seconds building up a Missile spell.

Once you stop enlarging a Missile spell, you may "hold" it in hand, ready to attack. You do not have to launch the missile until you want to. While holding a Missile spell, you may move up to your full Move, take a Wait or Aim maneuver, or even attack using the hand that isn't "holding" the missile. You may defend normally. However, you *cannot* cast another spell.

There is one drawback: if you are *injured* while you have a missile "in hand," you must make a Will roll. If you fail, the missile immediately affects you!

When you are ready to attack, roll against your Innate Attack skill to hit. This is a standard ranged attack, subject to the usual modifiers for target size, speed, and range. Once launched, the missile flies in a straight line to the target. Physical barriers affect it just as they would affect any missile weapon.

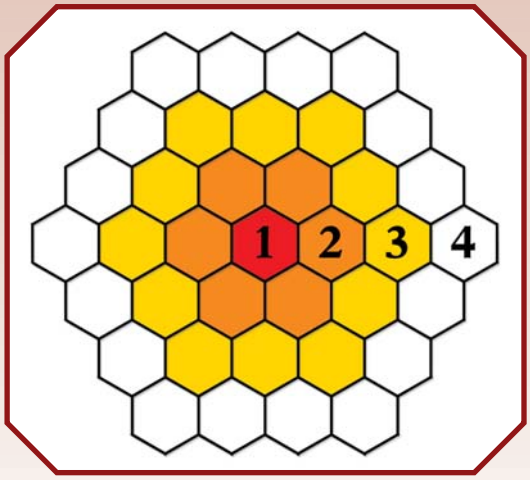
Your target may block or dodge, but cannot parry (Parry Missile Weapons skill may work on some Missile spells, at the GM's discretion). If he fails, the spell affects him. The *strength* of the effect depends on the energy invested. Most Missile spells inflict 1d of damage per point of energy. Damage Resistance – natural or from armor – protects normally against damaging Missile spells.

Blocking Spells

A Blocking spell is cast *instantly* as a defense against either a physical attack or another spell. It is the

Area Spells on a Battle Map

Represent Area spells on a battle map as follows. The area of effect of a spell cast over a one-yard radius is a *single hex*. The area of effect of a spell cast over a two-yard radius is a central hex and *all adjacent hexes*. The area of effect of a spell cast over a three-yard radius is a central two-yard area of effect plus the ring of hexes adjacent to *that*. And so on, building up larger areas by annexing successive rings of hexes.



magical equivalent of a block, parry, or dodge (and often counts as one of these defenses; see the spell description for details). You may cast only *one* Blocking spell per turn, no matter how skilled you are. You cannot attempt a Blocking spell against a critical hit.

If you try a Blocking spell, it *automatically* interrupts your concentration. You lose any spell you were preparing, exactly as if you had failed the Will roll to resist a distraction. If you are holding (not *casting*) a Melee spell, it is unaffected. If you are holding a Missile spell, you cannot enlarge it further but may retain it for later use.

Blocking spells do *not* get an energy cost reduction for high skill.

Information Spells

Information spells are cast to gain knowledge. Some require you to touch the subject, while others function at a distance; see *Long-Distance Modifiers* (box) for range penalties. Spells intended to find things are at -1 per "known" item you choose to ignore in your search; it takes some concentration to bypass your canteen when casting Seek Water in the desert. Most Information spells have additional special modifiers, so read the spell description carefully.

When you cast an Information spell, *the GM rolls for you in secret*. If the spell succeeds, the GM gives you the desired information – the better the roll, the better the information. If the spell fails, the GM will say, "You sense nothing." On a critical failure, the GM *lies* to you! Regardless of the outcome, you must always pay the full energy cost for the spell – you have no way to know if it succeeded or not.

Information spells generally allow only one attempt per day by each caster (or ceremonial group). "Seek" spells are an exception to this.

Except where specifically noted, Information spells have no duration. They grant a momentary glimpse of insight and end immediately; therefore, you cannot maintain them.

Resisted Spells

A spell of any type can also be "Resisted." A spell like this works automatically only on a critical success. On a regular success, your spell must defeat the subject's resistance to work.

Magic Staffs

A "magic staff" is any wand or staff imbued with the power to extend your reach for the purpose of casting spells (see *Staff*, p. 70). It gives three main benefits:

- Touching a subject with your staff lets you cast spells on that subject at *no* distance penalty. This is useful in situations where you must cast a spell on a subject you cannot touch with your hand (e.g., a healing spell on someone trapped under rubble). This also allows a wizard to tap a Powerstone set into his staff.
- Pointing with a staff reduces the range to a distant subject by the length of the staff. This is valuable for Regular spells, as a one-yard wand shaves -1 off distance penalties, while a two-yard quarterstaff eliminates -2! You can point as part of the ritual to cast a spell. Tell the GM you are pointing at the subject when you *start* concentrating. (This might warn an unwilling subject!)
- A staff can carry Melee spells. This gives them more reach, letting you strike and parry without putting your hand in harm's way.

A magic staff can be any length up to two yards. A wand is Reach C, too light to do damage, and uses Knife or Main-Gauche skill. A long wand or short staff is Reach 1, functions as a baton in combat, and uses Shortsword or Smallsword skill. A full-length staff is Reach 2, counts as a quarterstaff in combat, and uses Staff or Two-Handed Sword skill. In most game worlds, a suitable ordinary item can be enchanted as a magic staff for $30, but it must be made from once-living materials (wood, bone, ivory, coral, etc.).

In some settings, magic staffs are more than mere aids, but the fundamental tool of magecraft! In these worlds, mages buy some or all of their Magery with gadget limitations (p. B116) – usually Breakable or Can Be Stolen. A mage who loses his staff may be nearly crippled.

The subject always has a chance to resist, *even if he is unconscious.* A conscious subject who is aware that something is happening may choose not to resist. Individuals who are unconscious, unfamiliar with magic, or wary of hostile magic always try to resist.

To resolve a Resisted spell, you must first attempt your skill roll. If the spell has a single subject (that is, it isn't an Area spell), you have a penalty equal to the subject's Magic Resistance, if any – even if he is willing! On a failure, the spell fails and the subject notices nothing. On a success, note your margin of success; e.g., if you rolled a 6 against an effective skill of 13, you succeeded by 7. If the subject is *living* or *sapient,* the Rule of 16 applies (see *The Rule of 16*, p. B349). There is no such limit if the subject is another spell.

The subject then attempts a resistance roll. A character resists using the attribute or other trait indicated in the spell description – usually HT or Will. The subject's Magic Resistance, if any, adds to his resistance. A spell resists using the caster's effective skill when he cast the spell.

Compare the subject's resistance roll to your skill roll in a Quick Contest. If you win, your spell affects the subject. If you lose or tie, the spell has no effect – but you must still pay the full energy cost! A conscious subject feels a slight mental or physical wrench (depending on which attribute he Resisted with), but no other effect. You know whether or not the subject Resisted your spell.

Resisted Area Spells: When casting an Area spell that is Resisted, make the usual success roll for the spell and record your margin of success if you succeed. Everyone in the area gets a resistance roll, and those with Magic Resistance get *double* the usual benefit. Your spell affects those who make their roll by less than you did.

Long-Distance Modifiers

Use these modifiers for Information spells that work over long distances, such as "Seek" spells.

Distance	*Penalty*
200 yards	0
1/2 mile	-1
1 mile	-2
3 miles	-3
10 miles	-4
30 miles	-5
100 miles	-6
300 miles	-7
1,000 miles	-8

Add another -2 per additional factor of 10.

Dissipating Held Melee and Missile Spells

You will sometimes need to dispel a held Melee or Missile spell *quickly,* without taking a full turn to make an attack – for instance, so you can concentrate on another spell. You can do this as a free action at any point during your turn; simply state that you are dissipating the spell and it "evaporates" harmlessly.

You can also get rid of a Missile spell (*not* a Melee spell) by "dropping" it at your feet. This, too, is a free action. This does not damage you, unless the missile is explosive, but it damages whatever you are standing on. Missiles that inflict burning damage are liable to set fires!

Enchantment Spells

Enchantment spells are used to make or unmake magical items. They are fully detailed in Chapter 2.

Special Spells

These spells follow special rules given in the spell description.

Inventing New Spells

Innovative GMs may create new spells at their pleasure. These new spells generally need balance compared to existing spells. Balancing spells in this fashion is never an exact science, but the following guidelines should help. The costs given are appropriate for the cost to cast for a Regular spell or the base cost for an Area spell. Cost to maintain for most spells is equal to half the cost to cast, rounding up.

These guidelines are guidelines only! The GM should *never* feel compelled to use the cost recommended for a spell under these guidelines if it seems inappropriate.

Combat Spells: In general, one point of energy buys 1d damage, 2d knockback, 1 point of fatigue damage, or one second of blindness.

Irritating and Incapacitating Conditions: Spells that cause irritating conditions (p. B428) cost about 2 points of energy; spells which cause incapacitating conditions (pp. B428-429) cost about 5 points of energy.

Ability Enhancements: One point of energy buys two skill levels or one point of a secondary characteristic; two points of energy buys a point of an attribute.

Hazards and Obstructions: One point of energy creates an area which people must leave or take damage – poison gas clouds, radiation fields, etc. Two points of energy creates an obstruction that cannot easily be passed across or through – walls, pits, and so on. Three points of energy enables a subject to

ignore a certain type of obstruction and pass through it freely. Four points of energy renders a subject immune to a certain type of hazard.

Advantages and Disadvantages: Spells that grant a subject an advantage or disadvantage cost one point of energy for every three CP of the advantage or disadvantage.

Information: Most informational spells cost about two points of energy; spells that reveal secrets cost four points of energy or more.

Special Effects: Spells that have neither a significant effect on game mechanics nor a long-lasting effect should cost one point of energy.

Missile spells have a default Max range of 80 yards, though the GM should feel free to adjust range up or down if a spell's concept demands a different range or if the spell's effectiveness needs to be adjusted.

Spells that change or control living, aware beings should usually be Resisted.

Powerful spells should usually have a long list of prerequisites, be Very Hard spells, or both.

New spells may be commonly available to any PC who wants to learn them, or may be esoteric mysteries known only to a handful of NPCs or contained only in a hidden book of secret lore. The latter case can lead to interesting new quests; beside the personal advantages of discovering new spells, powerful wizards back in civilized lands may pay handsomely for such precious knowledge.

Player-Created Spells

On the other hand, the PCs may decide that forgotten libraries in lost cities are boring, and try to research their own new spells. Only a mage can invent new spells.

Use the New Inventions rules on p. B473 to devise a new spell. The required skill for designing new spells is Thaumatology (p. B225). Most spells do not have TL modifiers, but Technological spells may. Spells also do not have Complexity ratings. There is no final "product" for a spell, so there is no production stage for the development of spells.

The process begins when the researcher describes the spell he wishes to develop. The GM then writes the spell up in the standard format, including class, college, energy cost, casting time, duration, and prerequisites. He may decide that the intended spell has prerequisites, which must be learned or invented before research on the intended spell can even begin.

The Concept roll is made against Thaumatology, instead of a Complexity modifier; subtract the prerequisite count for the new spell (p. 6). Apply a -5 penalty for any spell in a college in which the researcher knows no spells. Apply a -5 penalty in a low-mana zone.

Once the Concept phase has produced a viable incantation, the researcher (or an assistant) must invest a character point in learning the new spell. At that point, a prototype may be developed. A magical workshop is required, with accoutrements that cost $(prerequisite count +1)×(400 energy)×(the setting's prevailing price per energy point (pp. 21-22)). The researcher and his assistants may choose to offset up to 90% of this investment by enchanting the supplies themselves; 10% of the cost is consumable supplies which must be purchased. Once built, a magical workshop may also be used for future research – the nonconsumable portion of the workshop's cost may be reused indefinitely (though critical failures may damage or destroy some of that equipment).

The Prototype roll is a roll against the new spell itself, cast ceremonially (this can be done alone; the process is similar to enchantment). The normal Prototype bonuses for qualified assistants apply, though the ceremonial magic penalties for assistants typically offset them. Apply any modifiers from the Concept stage that apply. A critical failure on the Prototype roll is like any other critical failure on a spell; roll on the Critical Spell Failure table (p. 7). Each attempt takes a full day.

A successful Prototype spell may have bugs, but they are rarely tested. A major bug is indistinguishable from a normal critical failure, so bugs are typically left to surface at some later date. Established spells have had any bugs worked out by generations of wizards, but new spells may be unexpected trouble waiting to happen.

The process used to enchant a new spell into an item is a separate invention from the spell itself. An enchantment process is actually even harder than the original spell, because the enchantment also has Enchant as a prerequisite, increasing its effective prerequisite count by 13! Experimental enchanters are a dogged bunch.

The GM may allow mage Gadgeteers to apply Gadgeteering to spell invention. However, such a combination is likely to lead to a number of wild thaumaturgical innovations that not every GM will be happy to handle.

Designing Wizard Characters

Most wizards are designed with high IQ and some level of Magery. Fatigue Points are also essential; some wizards buy high HT, while some simply buy FP directly. Fatigue Points may be bought with the limitation "Usable only for spellcasting," worth -10%.

There are also several useful advantages for wizards that may not be immediately obvious. Compartmentalized Mind, if available, allows a wizard to concentrate on multiple spells at once, which can be incredibly valuable. A wizard with Doesn't Sleep can potentially maintain a spell indefinitely. Mana Enhancer has obvious advantages for wizards in low- and normal-mana worlds (though it can be positively dangerous in high-mana worlds). Visualization is extremely useful for enchanters, or any wizard performing ceremonial magic; the ritual nature of these spells lends itself to visualization. A wizard with Visualization and a high IQ has a powerful advantage with ceremonial magic.

In most settings, wizards also acquire skills that represent the breadth of their occult learning. This virtually always includes Thaumatology, but wizards may also want to learn such skills as Alchemy, Esoteric Medicine, Hidden Lore, Mental Strength, and Occultism.

Chapter Two
Magic Items

Neville Hawthorne, Free and Accepted Thaumaturge, glared at the low ceiling of his garret.

"Is this what you expected to do with your patent of mastery, Tubbs? Spending your days lighting candles and getting covered in chalk, churning out trinkets to fill the Old Man's pockets, only to get a lecture on the privilege of teamwork, a bowl of stew, and a lumpy mattress?"

His roommate sighed from the next cot. "I didn't think it would be easy, at least starting out. But I expected to be doing more interesting projects, like we did at the academy – like that bow of flames we did third year. The Old Man is right, though: the money these days is in the quick jobs."

Hawthorne snorted. "As if we'd know." A silence descended.

Suddenly, he sat bolt upright. "Let's find out."

"What?"

"Let's go independent."

"Are you insane? I don't like this job any more than you do, but we're nowhere near the Old Man's level. We won't be that skilled for years."

"We don't have to be. Look, we're not apprentices. We know our jobs, we work well together, and between the two of us we're more than capable of making simple enchantments. We'll sell staffs and Powerstones to the academy, and maybe some magic arrows on the side. It'll be rough for a while, but at least we'll be working for ourselves."

Tubbs stared at him for a few moments. "We'll need money."

"Then from now on, we put one guilder aside out of every week's pay. By this time next year, we'll be on our own. Then you'll see what an enchanter can really do."

Enchantment spells allow wizards to imbue objects with magic powers. Some magic items permit the user to cast spells that he does not know; others have a spell-like effect placed upon them permanently; still others do various kinds of strange and wonderful things.

Most magic items are usable by anyone, but a few may only be used by a mage. The power of a magic item endures until it is removed magically, or until the physical item breaks or wears out, at which point the magic dissolves permanently.

Enchanting

"Enchanting" is the process of creating a magic item using spells from the Enchantment college. Enchantments must be performed using Ceremonial Magic (p. 12). Unlike most Ceremonial spells, however, enchantments *can* be performed alone (though most enchanters take advantage of the benefits of assistants). Lone enchanters cannot gain a skill bonus for using extra energy. To perform enchantments, the caster and any assistants must know both the Enchant spell and the specific spell being put on the item at an effective skill of 15 or better. Unskilled spectators cannot contribute energy to an enchantment.

Enchanting always requires time and energy. A particular enchantment might also require a specific item or material (e.g., a gem), or the expenditure of cash for "generic" magic supplies.

A given magic item may carry any number of spells. Each one requires a separate enchantment. The presence of an enchantment has no effect on later enchantments.

Power of a Magic Item

Each magic item has a "Power," which is set upon creation. An item's Power equals the caster's effective skill with either the Enchant spell or the spell contained in the item – whichever is *lower.* The skill penalty for low mana does *not* apply when determining an item's Power. Since enchanting is ceremonial magic, the caster *can* spend extra energy to raise his effective skill, and hence the Power of the item.

Record Power for each magic item created or found (to learn the Power of a found item, the PCs must use Analyze Magic). If an item has several spells on it, each spell has its own Power. Whenever it would be important to know the skill level of a spell cast by a magic item, use the item's Power.

An item's Power must be 15 or more for the item to work. Apply a temporary -5 to Power in a low-mana area; thus, an item with less than Power 20 *will not work at all* in a low-mana zone. *No* magic item works in a no-mana region!

Success Rolls for Enchanting

The GM makes all rolls to enchant magic items. As with other ceremonial magic, a roll of 16 fails automatically and a roll of 17-18 is a critical failure.

On a success, the item is enchanted. On a critical success, increase the Power of the item by 2d – and if the success roll was a natural 3, the item might have some further enhancement (GM's discretion). The caster will know that his spell went well, but he will have to use Analyze Magic to know *how* well.

On a failure, the results depend on the method used to enchant the item – see below. A critical failure always destroys the item and all materials used.

Quick and Dirty Enchantment

This method creates a magic item *quickly.* It takes one hour per 100 points of energy required (round up). Make the success roll at the end of that time. Succeed or fail, *all* the energy is spent when the GM rolls the dice.

A lone caster is limited to the energy provided by his FP, HP, and one Powerstone. But assistants can contribute their own FP and HP as described for ceremonial magic. Assistants may also use one Powerstone each. The caster is at -1 to skill for each assistant; therefore, the number of assistants allowed is the number that would reduce the caster's effective skill to 15. With more assistants, the enchantment won't work.

If the caster uses HP to cast the spell, his effective skill is at -1 for every HP used. The same is true for assistants, but their skill does not affect the item's power, as long as their effective skill is at least 15.

If anyone but the caster and his assistants is within 10 yards, the spell is at a further -1.

On a failure, the enchantment perverts in some way. It might acquire unpleasant side effects (see the *Random Side Effects Table*, p. B479), become an entirely different spell, or anything else the GM likes. The caster won't know his spell went wrong unless he uses Analyze Magic or tries the item!

Example: Tubbs and Hawthorne decide to make some Powerstones as their first independent project, having secured three suitable gems. Hawthorne has skill 16 in Powerstone and Enchant, while Tubbs has 15 in both, so Hawthorne does the actual casting. After the minimum hour of casting, Hawthorne rolls 12 against his effective skill of 15 – success! Each enchanter spends 10 FP. Hawthorne sets aside the newly enchanted 1-point Powerstone, and they lean back in their easy chairs to recover. Since they both have Recover Energy-15, they recover fully in 50 minutes.

In an eight-hour workday, they can repeat this process four times – five if they stay an hour late. A week later, they have successfully created two 10-point Powerstones (the third gem was shattered in a critical failure, but Tubbs promises he'll keep the cat out of the workshop from now on).

The following week, a mage comes in needing an emergency replacement staff. Hawthorne selects a good length of wood, and they start enchanting. Hawthorne's skill with the Staff spell is 17. His effective skill is 15 (-1 for Tubbs, -1 for the customer, who refuses to leave them be while they work). He rolls a 9, succeeding. He spends 8 FP and 8 points from his new Powerstone, while Tubbs spends 9 FP and 5 points from his Powerstone, for a total of the required 30 points.

Controlling PC Enchantment

When wizards become frustrated with the availability of magic items in their world, they will likely look into producing their own. If the GM feels that a particular item is too easy to make, or might imbalance the campaign, many approaches can make the item's creation more difficult.

Rare Materials: Many items demand specific materials for their enchantment. The GM could change these to rarer and more precious ingredients. In addition to making it more difficult and costly to enchant the item, the search for rare ingredients can become an adventure unto itself.

Side Effects: Enchantments are unpredictable. After making an item, the PCs might discover that odd things happen whenever they use their new toy. Further obscure rituals or precautions might be necessary to make the item safe.

Additional Expenses: The GM may simply raise the cost of making magic items, demanding that more expensive materials be consumed in the item's manufacture. This is not the same as demanding rare ingredients – the additional material is readily available, but expensive. Perhaps a workshop similar to the type required for spell research (p. 15) is required for enchantment.

Slow and Sure Enchantment

Use this method when the enchanter wants to be sure it's done *right*. It takes one "mage-day" per point of energy required. A mage-day represents a full eight-hour workday for one mage. For instance, an item that requires 100 energy points would take one mage 100 days, two mages 50 days, and so on. A mage may work on only one enchantment at a time; he may not "work two shifts," either on the same or different items.

All of the caster's assistants must be present every day. If a day's work is skipped or interrupted, it takes *two* days to make it up. Loss of a mage ends the project!

Make the success roll at the end of the last day. There is no FP or HP cost to the enchanters – they invested the energy gradually as the spell progressed.

On a failure, the enchantment didn't work. The time was wasted, and any materials used in the spell are lost. (*Exception:* If the mage was adding a spell to an already-enchanted item, it is unharmed, though *extra* materials are lost.)

Time spent enchanting with the Slow and Sure method counts as on-the-job training (p. B293); the enchanter must split these hours between the Enchant spell and whatever spell is being enchanted into an item.

Multiply Enchanted Items

An item may carry any number of spells; each one requires a separate enchantment. The presence of a spell on an item does not affect further enchantments. *Exception:* The Bane spell (p. 62) limits an item's use, but makes it *easier* to enchant it further.

Placing multiple spells on a single item has advantages and disadvantages. A multiply enchanted item is easy to carry and use; dedicated Powerstones (p. 69) can be used by all the spells in the item. On the other hand, that single item is vulnerable. If it breaks, *all* the enchantments are lost . . . and a critical failure while adding a new enchantment destroys the item *and* all previous enchantments.

Enchantments Without Items

Some spells have "item" options that do not create an item. Typically, this entails making the spell permanent with the expenditure of substantially more energy – usually 10 or 100 times the usual casting cost. Generally, spells with this option take an area or person as their subject and thus cannot be enchanted into an item. Nevertheless, the resulting effect is a true enchantment, and can only be removed with Remove Enchantment.

Enchantments Without Spells

Some magical items are not created by enchanters. Alchemists can create a variety of enduring objects with magical power – alchemical amulets and talismans, homunculi, and the philosopher's stone, to name a few (see pp. 220-221 for details). Other items become magical spontaneously; very-high-mana zones sometimes generate magic items with weird and potent abilities.

Remove Enchantment and Suspend Enchantment will still work on these items, but at a -2 unfamiliarity penalty.

Interruptions

If a mage is interrupted while enchanting using the Slow and Sure method, note the following:

- He will be fatigued. Assume he will be missing 1d FP.
- He must keep concentrating on his enchantment; therefore, any other spell use is at -3. (If he stops concentrating, he loses the day's work.)

A wizard who is bothered while *not* actively working on his enchantment is at *no* disadvantage!

Using Magic Items

Magic items follow the rules for the spell(s) they contain. Many give the user the power to cast the spell – perhaps only on himself, possibly on any subject. Some are usable only by mages; that is, they only work for users who possess Magery. If an item has *any* "mage only" effects on it, only a mage may use the item's powers.

A spell's description will explain if it can be placed into a magic item. Unless specified otherwise:

- *There is no ritual.* The user just wills the item to work.
- *Casting time is as described for the spell.* High Power doesn't affect this.
- *Energy cost is the same as for a normal casting of the spell.* High Power does not affect this (but the Power spell *does* – see p. 57).
- *Determine success normally.* Use the item's Power as the caster's *base* skill and apply all the usual modifiers for the kind of spell being cast. Power is at -5 in low-mana areas. A Resisted spell allows a normal resistance roll; use the item's modified Power as the caster's skill in the Quick Contest.
- *Only one person at a time can use the item.* If two people attempt to use it, only the first to touch it can use it. If one *can't* use it – for instance, the item is usable only by mages and he lacks Magery – his touch doesn't count.
- *All other effects are as usual for that spell.*

Identifying Magical Items

The new owner of a magic item may not immediately learn its powers. "Always on" items (see below) or items with Link spells are the easiest to figure out. Other items will not work until they are willed to do so, and the user must will the correct effect. Thinking "Do something!" at a magical item will not activate it.

Some effects (increased attributes, for example) are obvious once the item is activated. Others (water breathing, skill augmentation) will not be apparent until a situation occurs where they can take effect. In these cases, the GM should try not to drop too many hints about the item's nature.

The Analyze Magic spell (p. 102) reveals any enchantments on an item.

"Always On" Items

Certain magic items are "always on." For the item to work, the user must wear or carry it in the usual manner (a ring on a finger, a sword in a hand, and so on). These items don't let the wearer cast the spell – they automatically cast the spell *on the wearer* at no energy cost.

If an arrow or dart is enchanted with hostile magic, it may be carried without harm; in this case, only a person stuck with the projectile qualified as "wearing" it. The effects continue until the item is removed by a successful Physician or First Aid roll (requires one minute) or is ripped out (doing the same damage that it did going in).

For all "always on" items, unless specified otherwise:

- *Ritual, casting time, and energy cost are all irrelevant.* The item does not let the wearer cast the spell – it puts the spell on *him,* at no cost, as soon as he wears or wields the item. An "always on" item can be designed to phase in its effects over a few minutes, so that the source of the effect is not obvious; this does not affect cost or difficulty, and is often used on hostile items intended as traps.
- *The effects last as long as the item is worn or carried.*
- *All other effects are as usual for that spell.* If the wearer desires (as in the case of an item with a bad effect), he may make a resistance roll against the item if the spell in question can normally be Resisted.

Controlling Magic Items

Plentiful magic items are not appropriate to every campaign, and GMs may wish to limit the number of magic items in circulation. The simplest way to do this is to restrict Quick and Dirty Enchantment – either prohibiting it outright, or changing its parameters to require a *day* of enchanting per 100 energy points, rather than an hour. This makes minor magic items much more tedious and costly to produce.

Alternately, the GM can institute setting elements to restrain the availability of magic items, such as the following:

Disorganization: Enchantment on any large scale typically requires ample assistance. If enchanters are rare, or if wizards don't often get along, the resources may rarely come together for an enchantment.

Fragility: Enchantment confers no particular durability to an item, and owners of magic items often insist on bringing them into dangerous situations. Since a magic item loses its power when damaged, breakage inevitably reduces the quantity of magic items in circulation.

Limiting spells: Many magic items have limiting spells cast upon them, and do not work for anyone but their intended user.

Harassment: It's not hard to disrupt an enchantment. A Slow and Sure Enchantment can be disrupted easily by organizing a distraction. Delaying one member can throw off a circle of Quick and Dirty enchanters. If enchanters' rivals and enemies are in the habit of trying to disrupt enchantments, dealing with these disruptions drives the cost of magic items up and the supply down.

Buying Magic Items

The universe is full of magical things, patiently waiting for our wits to grow sharper.

– Eden Phillpotts

The cash price of magic items is up to the GM. For a typical TL3 fantasy setting with plentiful wizardry and shops full of magic items, it should be possible to commission a magic item for about $33 per energy point. For instance, a sword with Accuracy +2, a 1,000-energy item, would cost $33,000 over and above the cost of the sword and any materials required for the enchantment.

This price, however, assumes that enchanters are using the reliable Slow and Sure method; low-energy-cost items could be mass-produced using the Quick and Dirty method. A talented enchanter with skill 20 and five assistants could pour 60 energy into an item easily, without the use of Powerstones or HP. The exact breakpoint is up to the GM, but the availability of Quick and Dirty Enchantment is sure to drop the price of minor magic items drastically.

Therefore, at the GM's discretion, any magic item that a typical enchanter or circle of enchanters could produce with Quick and Dirty Enchantment (60 energy is a reasonable default) costs only $1 per energy point. Thus, an Accuracy +1 arrow would be $25, and a magic staff would be $30, but that sword with Accuracy +2 is still $33,000.

In all cases, add the cost of the item to be enchanted and any special materials required to the cost for the enchantment itself.

These prices go upward as enchanters become rarer, of course. See *Economics and Enchantment*, pp. 21-22, for a more detailed treatment of how to figure out magic item prices in different settings.

The prospective buyer also has to find an enchanter capable of producing the item he wants – one capable of casting both Enchant and the spell(s) to be placed on the item. Some settings have shops devoted to magic items, which are likely to have done that work for him; if he must track down a competent enchanter, it may take a good deal of time and effort over and above the actual price to get the desired item.

Powerstone Costs

The Powerstone is an essential tool for a wizard. Even a mana source with only a few points' capacity can extend his magical efficacy immensely. As such, they are hotly sought after.

A typical Powerstone for sale is quirk-free. Powerstones with a single noncrippling quirk are usually marked down about 10%; Powerstones with multiple quirks or a single crippling one are marked down at least 50%.

The following assumptions are incorporated into the table below.

Materials: The cost of an object suitable to be enchanted into a Powerstone of capacity P in an energy-effective manner is equal to: $\$10\times P^2 + \$40\times P$. However, 1 in 54 castings of the Powerstone spell causes a critical failure that destroys the object. Powerstone prices account for this risk; hence, the true materials cost is divided by 53/54 to the power of P.

Labor: Assuming the default $1/point of energy cost, each casting of the Powerstone spell costs $20. The possibility of failure is already incorporated into the $1/point figure, so labor costs are simply $\$20\times P$.

Capacity	*Cost*
1	70
2	165
3	280
4	425
5	595
6	790
7	1,000
8	1,300
9	1,550
10	1,900
12	2,650
15	4,050
20	7,350
25	12,000
30	18,500
35	27,000
40	38,000
45	52,000
50	69,500
60	120,000
70	195,000
80	300,000
90	460,000
100	675,000

In worlds where magic is unknown or secret, magic items have no fair market value. Each item is a one-of-a-kind treasure, and the seller can often name his own price!

Second-Hand Enchantments

In any world – especially one where magic is plentiful – $33 per point is a lot to pay for a magic item. Fortunately, most people don't have to. In a world where lots of people have magic items, lots of people have magic items that they don't want anymore. Buying them is usually cheaper than paying an enchanter to make something new.

Several sources provide good second-hand magic items. In some settings, the vast majority of magic items are commissioned by nobles with more money than sense – or taste. Some of these foibles become family heirlooms, but most wind up gathering dust in some closet until the family falls on hard times and nonessential trinkets must be sold off. Worse, some items go out of style. To a typical scion of privilege, a sword with one of those tacky basket hilts from when his father was young is worthless, Quick-Draw enchantment notwithstanding. For this and other reasons, cast-offs from nobles form the lion's share of the second-hand market.

Another important source of used enchantments is the adventuring party. Exploring lost cities, defeating evil necromancers, clearing infested dungeons – whatever adventurers do, they tend to run across some magic item or another. They can't possibly use them all; they sell them for money to fund the next expedition.

Most used magic items pass through the hands of enchantment brokers, often failed enchanters who couldn't make it as working enchanters but still have an eye for quality. They offer magic items at a discount of up to 40%, dropping prices to about $20 per energy point. Brokers don't usually handle items that can be enchanted with Quick and Dirty Enchantment; the margin of profit is too narrow.

The downside to buying second-hand is that you can't always buy exactly what you want. Some enchantments are not available used; if the broker doesn't have a wand of Stench, you're out of luck. You may only be able to find the enchantment you want in an inconvenient form – perhaps the unfashionable sword mentioned before, or maybe the broker's Purify Water item is the size of a hula hoop. Sometimes the only item that does what you want has another spell on it, or an irksome Limiting Enchantment. The GM is not encouraged to go overboard, harassing the players with ridiculous items, but sometimes you get what you pay for when you buy cut-rate.

Selling Magic Items

Sometimes the PCs are on the other side of the transaction. When they are trying to realize a profit on items found on adventures, an enchantment broker is likely their only buyer. Brokers usually try to buy at double the discount from the new price – so an item that they might sell for 30% off, they try to buy for 60% off. PCs can try to sell directly, but it may be hard to find an interesting buyer. Even if they can locate someone who might want the item in question, they have to compete on price with the brokers, and they lack whatever reputation the brokers have to rely on.

If a PC is trying to sell items that *he* has enchanted, however, things are slightly different. Brokers buy new items, and sometimes can be persuaded to pay a higher rate than they otherwise might; the assurance of an item's enchanter is worth more than that of some scruffy adventurer who dug it out of a crypt. If the PC has any connections (perhaps through the Mages' Guild), an established enchanter may be willing to sell the item on consignment. Some enchanters carry a few minor items as examples of craftsmanship and impulse buys; for a 10% cut, they may agree to sell a PC's magic item. The PC enchanter will get paid when the item sells, not before.

Economics and Enchantment

As mentioned above, magic items bought new in a TL3 abundant-magic setting should cost $1/energy point up to about 60 points, and $33/point above 60 points. These figures were not arrived at arbitrarily; instead, they follow from the structure of the enchantment system and certain assumptions about the role and capacity of a typical enchanter.

Naturally, those assumptions might not apply in all settings. Thus, this section explains how to take different assumptions about the role of magic in a particular world and arrive at price points that are more appropriate for that world than the default.

The Business of Enchantment

Most enchantments are performed using ceremonial circles. A lone enchanter takes a long time to do anything with Slow and Sure Enchantment, and lacks the energy reserves to accomplish much with Quick and Dirty Enchantment.

Thus, enchanting lends itself to two tiers of enchanters – master enchanters, highly skilled and able to lead large circles, and journeyman enchanters, who participate in a circle but aren't skilled enough to lead it. To determine the price of magic items, we need to know three things: the average salary for a master enchanter, the average salary for a journeyman enchanter, and the average size of an enchanting circle. While other parameters matter, those three are critical.

For our hypothetical abundant-magic setting, we posit that a journeyman enchanter makes an Average salary, while a master enchanter makes a Comfortable salary (pp. B516-517). Thus, monthly pay for a journeyman enchanter is $700, while monthly pay for a master is $1,400. At the same time, we posit that the average master enchanter has Enchant-20, and can therefore lead a circle with up to 5 assistants.

Slow and Sure Enchantment

In Slow and Sure Enchantment, each enchanter contributes one point of energy per day, no matter how large the item or the circle. Thus, the cost of a point of energy is equal to an enchanter's daily pay.

We assume an Average salary for all Slow and Sure enchanters; there is no real advantage to having a master on hand for these projects, and they cost more. Thus, most Slow and Sure projects are done by groups of two or three journeyman enchanters.

Assuming a five-day workweek, most enchanters put in an average of 22 workdays per month. So the cost per point should be equal to $700 divided by 22.

However, enchanters also have to assume responsibility for the possibility of failure. Failed enchantments are rare; since enchantments must be cast at skill 15 or higher, they succeed at least 95% of the time. However, the cost of replacing that 5% of failed projects must be figured into the daily rate.

Thus, the final labor cost per point is equal to $700 (monthly pay) divided by 22 (workdays/month) divided by .9547 (chance of success), or about $33.

Quick and Dirty Enchantment

Quick and Dirty Enchantment is where master enchanters come into their own; their skill determines how many enchanters may join a circle, and thus how many points of energy are available for any given item.

We begin by assuming that every enchanter working in a Quick and Dirty circle contributes 10 energy to the enchantment. (Obviously, some enchanters will be able to contribute more or less, but 10 is a reasonable average.) Powerstones are essentially irrelevant; a professional Quick and Dirty enchanter, as we will see, performs several enchantments each day, and trying to use Powerstones is not a good return on investment. We also assume that the average enchanter knows Recover Energy at 15.

So, Quick and Dirty Enchantment takes place in cycles of one hour enchanting and 50 minutes recovering 10 FP. An eight-hour workday therefore yields about 4.4 cycles (some days the enchanters stay late, others they pack it in early).

The number of enchanters in a circle depends on the master's Enchant skill; since every member of the circle subtracts 1 from his skill, and his effective skill must remain 15 or higher, the number of enchanters beside himself is equal to his Enchant skill minus 15. Therefore, our standard circle size is six – the master plus five assistants (Enchant-20 minus 15).

This determines the largest item a standard circle can make with Quick and Dirty Enchantment: 60 points, at six enchanters and 10 points per enchanter. It also determines the circle's total energy output per day: six enchanters times 10 energy per cycle times 4.4 cycles per day is 264 energy per day.

To figure the total labor cost for a day's work, we add the monthly salary for the master ($1,400) to the monthly salary for the five assistants ($700×5, or $3,500), and divide by the 22-workday month for a daily labor cost of $223.

Finally, we divide the total daily labor cost ($223) by the chance of success (.9547), and then divide by the total energy produced per day (264) to get the average cost per point of energy, which is about $.90. For ease of use, we'll round that to $1/point.

Conclusions

These numbers show why there's such a breakpoint in magic item prices. Quick and Dirty Enchantment is *vastly* cheaper; it's completely uneconomical to make any magic item which can be made with Quick and Dirty Enchantment any other way. The limit, then, is the number of enchanters that can be packed into a circle. In settings where master enchanters have Enchant-24, the viable threshold for cheap magic items is 100 points; where they have Enchant-16, the threshold is 20.

Similarly, the numbers change a lot if the social status of enchanters changes. If journeyman enchanters become Comfortable while master enchanters become Wealthy, the price for Slow and Sure Enchantment jumps to nearly $70/point, while Quick and Dirty leaps to $2/point.

Spell Descriptions

The next twenty-four chapters contain descriptions for hundreds of spells. Each spell description includes the following information:

Name of Spell and the *Class(es)* it belongs to. A "(VH)" indicates an IQ/Very Hard spell; otherwise, it's IQ/Hard.

Description: The spell's effects, special rules, etc. If the spell requires particular items, assume it uses them up unless the description states otherwise.

Duration: The time the spell's effects last. If you maintain the spell, it lasts for another period equal to this. Spells with an instantaneous effect do not list duration.

Cost: The energy (FP or HP) spent when you cast the spell. If given as *Base cost,* this is the cost per yard of radius of an Area spell. Maintainable spells also give a cost to maintain. You cannot maintain spells with instantaneous effects.

Time to cast: If no time is given, the spell requires *one second* of concentration and takes place at the end of your turn.

Prerequisites: Other spells you must know (at least one point in the spell) before you may study this spell, as well as any Magery, IQ, or other requirements.

Item: Types of permanent magical item that can be made with the spell, and special rules (if any) for that item. Also includes energy cost to create the item(s) and costs for required materials (if any). If there is no "Item" listing, no magic item can be made with that spell.

Chapter Three
Air Spells

"It was a clever plan, Severin." Rudolph slowly advanced on the rogue aeromancer. "Choking the councilmen with dead air to make their deaths seem natural. A pity for you we could trace the remains of your spell – your treacherous little magic!"

The tip of Rudolph's blade was aimed squarely at the murderer's heart, but touched nothing as Severin's body dissolved into a whirling mass of wind. A gust picked Rudolph up and slammed him against a wall with inhuman force. He felt ribs crack. His vision faded as the whirlwind spun away with a mocking laugh.

These spells deal with the traditional magical "element" of air. Except as noted, assume that "air" is normal breathing air at one atmosphere of pressure. Races who do not breathe an Earth-normal atmosphere may learn Air spells customized for their own atmosphere – i.e., the version of Create Air taught on Neptune might create methane!

The College of Air has strong affinities with the College of Weather.

Purify Air

Area

Removes all impurities from the air in its area of effect. It is often used to neutralize the effects of poisonous gas or vapors. Note that a room full of smoke may safely be purified one section at a time – but truly deadly vapors must all be removed at once, or some may escape.

This spell can also turn old "stale" air into fresh breathable air. The air in a one-yard radius, if not renewed from the outside, lasts 45 minutes for one person at rest, or less for multiple persons or someone violently exercising (GM's discretion).

Duration: Works instantly. Purification is permanent.

Base cost: 1. Cannot be maintained; must be recast.

Item

Staff, wand, or jewelry. *Energy cost to create:* 50.

Seek Air

Information

Tells the caster the direction and approximate distance of the nearest significant amount of air. Use the long-distance modifiers (p. 14). In settings where air is understood as a combination of gases, the caster may also seek out a specific gas or combination of gases, rather than ordinary air. Any known source of air may be excluded if the caster specifically mentions it before beginning.

Cost: 1.

Item

A forked stick (usually of bird bone). *Cost to create:* 60 energy and a $200 onyx.

Create Air

Area

Manufactures air where none exists. When cast where there is already air, it produces an outward breeze lasting about five seconds. When cast in a vacuum, it instantly creates breathable air. When cast within earth, stone, or other material, it fills any empty spaces with air, but does not burst the stone. When cast underwater, it makes bubbles! When cast on a one-yard-radius area, the spell creates about 45 cubic feet of air every second for five seconds; each cubic foot of air will last a single person at rest about a minute. However, in some environments the air created will rapidly dissipate into vacuum or bubble away. This spell cannot be cast inside a living being.

Duration: Breeze, bubbles, etc. last 5 seconds. Air created is permanent.

Base cost: 1. Cannot be maintained; must be recast.

Prerequisite: Purify Air *or* Seek Air.

Item

Staff, wand, or jewelry. *Energy cost to create:* 200.

No-Smell

Regular

Removes the subject's odor and makes it (or him) totally undetectable by smell. Any possessions are also affected. This spell changes no other properties of the subject.

Duration: 1 hour.
Cost: 2 to cast. 2 to maintain.
Prerequisite: Purify Air.

Item

Jewelry; only affects the wearer. *Cost to create:* 150 energy and $300.

Stench

Area

Produces a cloud of vile, yellowish gas that reeks of brimstone. Until it dissipates, anyone who breathes it must make a HT roll or take 1d damage. Roll once per minute. Those in the area begin to suffocate (see *Suffocation,* p. B436). The cloud is heavy, and "rolls" downhill if the ground is not level. The rate of dissipation depends on the area and presence of wind; indoors, it usually lasts until the spell expires, but outdoors on a windy day, it might only last 10 seconds or so. Those with Doesn't Breathe or Filter Lungs are immune to the toxic effects of the gas.

Duration: 5 minutes, except in windy areas.
Base cost: 1. Cannot be maintained; must be recast.
Prerequisite: Purify Air.

Item

Staff, wand, or jewelry. *Energy cost to create:* 60.

Destroy Air

Area

Destroy all air within a designated area of effect. This can create a vacuum within a very strong vessel, but in open air it just causes a momentary thunderclap as surrounding air rushes in. This effect does 1d-2 damage to anyone in the area of effect who fails a HT roll. Any beings with the Body of Air meta-trait (p. B262) take 2d damage. In certain situations (e.g., in an airtight room) this spell can be much deadlier, leaving no air to breathe.

Duration: Lasts only an instant, but destroyed air stays gone.
Base cost: 2.
Prerequisite: Create Air.

Odor

Area

Produces any odor the caster is familiar with. The odor lingers for about an hour, gradually diminishing (outdoors it spreads out and quickly dissipates). The spell produces no other physical effects – for instance, the odor of a poison is not poisonous.

Duration: 1 hour.
Base cost: 1. Cannot be maintained.
Prerequisite: No-Smell.

Item

Jewelry that constantly surrounds the wearer with one scent (set at time of casting). *Energy cost to create:* 40.

Shape Air

Regular

Create movements of air over a small area. The caster must choose a starting point (calculate distance penalties from that point). The wind starts there and blows in a stream one yard wide, for a distance in yards equal to 5 times the energy put into the spell, and then dissipates. This may cause knockback (see *Knockback,* p. B378) on someone it hits; each second, roll 1d per full 2 points of energy in the spell. Treat this as damage for knockback purposes only (this spell does *not* cause injury).

Duration: 1 minute.
Cost: 1 to 10. 1 produces a gentle breeze; 4 a wind; 6 a heavy wind; 8 or more a violent blast. Same cost to maintain.
Prerequisite: Create Air.

Item

Staff, wand, or jewelry. *Energy cost to create:* 200.

Air Jet

Regular

Shoot a thin jet of air from one finger. Each turn, the caster rolls versus DX-4 or Innate Attack skill to hit. This attack may be dodged or blocked, but not parried. The jet does 2d knockback damage for every point of energy put into the spell, and has a range in yards equal to the number of dice in the attack. The jet does injury damage to vaporous beings or swarms. It is also good for sweeping the floor.

Duration: 1 second.
Cost: 1 to 3. Same cost to maintain.
Prerequisite: Shape Air.

Item

Staff, wand, or jewelry. Usable only by mages; if the item is a staff or wand, the air jet comes from its tip. *Energy cost to create:* 200.

Air Vision

Regular

See clearly through smoke, fog, dust, sand, etc., eliminating any Vision penalties caused by the condition of the air around him.

This is also a Knowledge spell.

Duration: 1 minute.
Cost: 1 per mile to cast. Half that to maintain.
Prerequisite: Shape Air.

Item

Any. *Energy cost to create:* 200.

Body of Air

Regular; Resisted by HT

The subject's body becomes vaporous, temporarily granting the subject the Body of Air meta-trait (p. B262). Clothes (up to 6 pounds) also become vaporous, but lose any magic powers they might have had while in this form.

Duration: 1 minute.
Cost: 4 to cast. 1 to maintain.
Time to cast: 5 seconds.
Prerequisite: Shape Air.

Item

(a) Staff, wand, or jewelry; only affects the wearer. Unfortunately, as soon as it is activated, the item falls through the user's hand – thus, a spell cast with this item lasts only a minute. *Energy cost to create:* 800. (b) Staff, wand, or jewelry. Unlike the previous item, this item becomes vaporous along with the subject, allowing the subject to maintain the spell longer than 1 minute. It loses any other magic powers it might have while in vaporous form. *Energy cost to create:* 1,500.

Devitalize Air

Area

Removes the life-sustaining essence from the air within its area of effect, rendering it unbreathable. Until the "dead" air dissipates, any being who needs to breathe begins to suffocate (see *Suffocation*, p. B436), and flames within the spell's area of effect flicker and die. Victims may not notice the spell's effect until they begin losing FP; roll vs. Per to notice the changed quality of the air. Sleeping victims must roll vs. HT to wake up once they begin suffocating.

The spell lasts until living air diffuses back into the affected area. This takes 1 minute per yard of radius in an unventilated area, or as little as 10 seconds on a windy day outdoors. In an airtight room, the air stays devitalized indefinitely! Purify Air reverses this spell's effects.

Base cost: 2. Cannot be maintained; must be recast.
Prerequisite: Destroy Air.

Item

Staff, wand, or jewelry. *Cost to create:* 300 energy and a $200 onyx.

Walk on Air

Regular

Temporarily grants the subject the Walk on Air advantage (p. B97). If the subject falls for any reason (e.g., injury), the spell will be broken! If the spell is recast immediately, he falls for only one second (about 5 yards) and then "lands" on the air (taking 1d damage) – unless he hits ground before then. If he's 10 feet over a lava pit, too bad!

Duration: 1 minute.
Cost: 3 to cast. 2 to maintain.
Prerequisite: Shape Air.

Item

Staff, wand, jewelry, or shoes; only affects the wearer. *Cost to create:* 500 energy and $1,000.

Wall of Wind

Area

Surrounds an area with a wall of roiling air that impedes movement.

The wall is one yard thick and four yards high, but may be made higher by multiplying the cost as you multiply the height (double for 8 yards high, triple for 12 yards high, and so on). Low-tech missiles are buffeted off course as they cross it, and suffer a -10 penalty to hit for every yard of wall they pass through. High-tech bullets suffer a -2 penalty to hit for every yard of the wall of wind they pass through. Beings standing within the wall's thickness are at -3 DX and suffer 2d of knockback in a random direction every second.

The wall also churns up loose ground material, such as dust, small leaves, insects, and twigs. Each second, beings crossing the wall or standing in it must either shut their eyes or roll vs. HT to avoid being blinded, as per a one-point Sand Jet (p. 52) (unless the GM rules that the area is very clean, with no debris to circulate).

Duration: 1 minute.
Base cost: 2. Half that to maintain.
Time to cast: The wall appears as soon as the casting starts, initially surrounding a one-yard-radius area; the caster may move the perimeter outward at a rate of one yard of radius per second of concentration.
Prerequisite: Shape Air.

Item

Staff, wand, or jewelry. Usable only by mages. *Cost to create:* 400 energy and a $500 onyx.

Windstorm

Area

Create a circular windstorm with an "eye" of calm inside (a good place for the caster to stand). The radius of the eye can be up to half that of the storm – or smaller, if the caster wishes. By concentrating, the caster can move the storm any distance up to its own diameter per second; the eye moves with it. The caster may move up to half his normal Move inside the eye while concentrating on this spell.

Anyone within a full-strength Windstorm must roll vs. ST once per second to avoid being knocked over by the wind. All DX-based skills are at -5, and ranged attacks are at a -10 penalty for every yard of the windstorm they pass through.

For double energy cost, the caster may create a more powerful windstorm, like a tornado. ST rolls to remain standing in such a gale are at -5, ranged attacks through it are impossible, and visibility inside it is a yard at best. This powerful windstorm physically lifts and hurls objects up to 30 pounds per yard of radius.

Duration: 1 minute after reaching full strength.
Base cost: 2. Half that to maintain.
Time to cast: The storm starts immediately, but the caster must concentrate for a number of seconds equal to the storm's radius in yards to bring the storm to full strength.
Prerequisite: Shape Air.

Earth to Air

Regular

Turns earth or stone into air, which can be valuable to someone who is trapped underground. The more energy the caster spends, the more earth he can transform, but he is limited to regular shapes with the largest dimension no more than four times the smallest one.

This is also an Earth spell.

Duration: Permanent.
Cost: 1 to transform one cubic foot of earth/stone to air, giving enough air for one person to breathe for 1 minute. To transform larger quantities of earth/stone at once, the cost is 5 per cubic yard. Metal may be turned to air for triple cost.
Time to cast: 2 seconds.
Prerequisites: Create Air and Shape Earth.

Item

Staff, wand, or jewelry. Usable only by mages. The item must touch the stone to be transformed. *Cost to create:* 750 energy and $1,000 in jewels.

Clouds

Area

As listed under *Weather Spells*, p. 194.

Predict Weather

Information

As listed under *Weather Spells*, p. 193.

Wind

Special; Area

As listed under *Weather Spells*, p. 195.

Rain

Area

As listed under *Weather Spells*, p. 195.

Snow

Area

As listed under *Weather Spells*, p. 195.

Concussion

Missile

The caster creates a ball of highly pressurized air in his hand. When the air strikes a target, it explodes. The blast is extremely loud; anyone within 10 yards must roll against HT-3 or be stunned. Stunned people may roll against HT-3 every second to recover. Protected Hearing gives a +5 bonus to this roll. Concussion has 1/2D 20, Max 40, Acc 1; roll vs. Innate Attack skill to hit.

This is also a Sound spell.

Cost: Any amount up to *twice* your Magery level per second, for three seconds. For every 2 energy put into the spell, the missile does 1d crushing damage. See *Explosions*, p. B414, for a full treatment of explosive damage.

Time to cast: 1 to 3 seconds.

Prerequisites: Shape Air and Thunderclap (p. 171).

Item

Staff or wand – the missile is thrown from the end of the item. Usable only by mages. *Cost to create:* 1,000 energy and a $400 onyx.

Breathe Air

Regular

Breathe air as though it were water; the spell also prevents water creatures from dehydrating in air. This spell is primarily useful for keeping fish, mermen, etc., alive out of water. The subject can also still breathe water normally.

This is also a Water spell.

Duration: 1 minute.

Cost: 3 to cast. 1 to maintain.

Prerequisites: Create Water and Destroy Air.

Item

Staff, wand, jewelry, or clothing; only affects the wearer. *Energy cost to create:* 150.

Breathe Water

Regular

As listed under *Water Spells*, p. 189.

Essential Air

Area

Creates the magical essence of Air. Essential Air is "purer" and can be used (breathed or consumed) three times as long before becoming foul. Fire burns hotter (but not faster) in Essential Air, adding an extra point of damage to each die (this will even increase the heat of Essential Flame!). If the air is created in an open area, it disperses within 5 seconds.

Duration: Permanent until dispersed or used up.

Base cost: 2.

Time to cast: 3 seconds.

Prerequisites: At least six Air spells.

Item

Staff, wand, or jewelry. Usable only by mages. *Cost to create:* 800 energy and a $400 onyx.

Resist Lightning

Regular

As listed under *Weather Spells*, p. 196.

Lightning

Missile

As listed under *Weather Spells*, p. 196.

Air Vortex

Area; Resisted by HT or DX

Whisks all persons within the original area of effect to somewhere else inside a giant swirling Air Vortex. The Vortex has a Move of 10. The caster may exclude anyone in the area that he specifies during casting. Those within in the area resist with the higher of their HT and DX scores.

Those whisked away by the Vortex are rendered temporarily vaporous, as per the Body of Air spell (p. 24). The Vortex may not penetrate solid objects.

This is also a Movement spell.

Duration: 10 seconds.

Base cost: 8 to cast. 3 to maintain.

Time to cast: 2 seconds.

Prerequisites: Magery 2, Body of Air, and Windstorm.

Item

Staff. Usable only by mages. *Cost to create:* 1200 energy and an $800 onyx.

Explosive Lightning

Missile

As listed under *Weather Spells*, p. 196.

Lightning Whip

Regular

As listed under *Weather Spells*, p. 196.

Shocking Touch

Melee

As listed under *Weather Spells*, p. 196.

Spark Cloud

Area

As listed under *Weather Spells*, p. 196.

Spark Storm

Area

As listed under *Weather Spells*, p. 197.

Atmosphere Dome

Area

As listed under *Protection & Warning Spells*, p. 169.

Wall of Lightning

Area

As listed under *Weather Spells*, p. 197.

Warm

Area

As listed under *Weather Spells*, p. 195.

Cool

Area

As listed under *Weather Spells*, p. 195.

Ball of Lightning

Missile

As listed under *Weather Spells*, p. 197.

Lightning Stare

Regular

As listed under *Weather Spells*, p. 198.

Body of Lightning

Regular; Resisted by HT

As listed under *Weather Spells*, p. 198.

Lightning Weapon

Regular

As listed under *Weather Spells*, p. 198.

Sandstorm

Area

Creates a Windstorm (p. 25) with the addition of flying sand! The sand is created by the spell – it is not necessary for the area to be sandy. The Sandstorm obscures vision (-2 per intervening yard of Sandstorm, excluding the "eye" of the storm).

Each second, every being within the area must shut its eyes or roll vs. HT to avoid being blinded, as per a one-point Sand Jet (p. 52).

This is also an Earth spell.

Duration: 1 minute after reaching full strength.

Base cost: 3 to cast. Half that to maintain.

Time to cast: The storm starts immediately, but the caster must concentrate for a number of seconds equal to the storm's radius in yards to bring the storm to full strength.

Prerequisites: Windstorm and Create Earth.

Item

Staff, wand, or jewelry. Usable only by mages. *Energy cost to create:* 1,000.

Storm

Area

As listed under *Weather Spells*, p. 195.

Lightning Missiles

Regular

As listed under *Weather Spells*, p. 198.

Lightning Armor

Regular

As listed under *Weather Spells*, p. 198.

Body of Wind

Regular; Resisted by HT

The subject's body becomes a whirlwind, with a radius of 2 to 4 yards (caster's choice). In this form, he has a variant form of the Body of Air meta-trait (p. B262); he lacks the listed Vulnerability to vacuum and wind-based attacks, he has No Fine Manipulators rather than the usual No Manipulators, and he has effective ST equal to twice his normal ST. Clothes (up to 6 pounds), also become wind, but lose any magic powers they might have had while in wind-form.

Anyone within the radius of the subject must make a ST roll each second to remain standing. All DX-based skills are at -5, and missile attacks that pass through the whirlwind only hit on a critical success. There is no safe "eye."

Duration: 5 minutes.

Cost: 8 to cast. 4 to maintain. Cost does *not* multiply when casting it on larger creatures, as with most Regular spells.

Time to cast: 2 seconds; the storm springs into full strength immediately upon completion of the spell.

Prerequisites: Magery 3; Body of Air and Windstorm at 16+ each; and one spell from each of five different colleges besides Air.

Item

(a) Staff, wand, or jewelry; only affects the wearer. As soon as it is activated, the item falls through the user's hand; thus, a spell cast with this item lasts only a minute. *Cost to create:* 1,700 energy and a $1,000 onyx. (b) Staff, wand, or jewelry; only affects the wearer. Unlike the previous item, this item turns to wind along with the wearer, allowing him to maintain the spell longer than a minute. While vaporous, it loses any magical powers it might have while solid. *Cost to create:* 3,500 energy and a $2,500 onyx.

Elemental Spirit Spells

These spells deal with spirits embodying the four classical elements – air, earth, fire, and water. There are different spells for each of the four elements, but in general they conform to the spells given here for air elementals.

Summon (Air) Elemental

Special

This is a different spell for each of the four elements. It allows the caster to call a nearby elemental – if one exists. In general, the GM should assume that an elemental is available if the location is appropriate, unless the scenario or situation requires that elementals are opportunely absent. The caster determines the elemental's power level by the amount of energy he spends on the spell, but the GM determines the elemental's precise capabilities.

The summoned elemental is not under the caster's control, but must remain for one hour unless it is dismissed or destroys the caster. Note that a dismissal does not guarantee the elemental will leave. If it is hostile, or simply curious, it may choose to stay!

The caster may question the summoned elemental, request a service, etc. The elemental immediately makes a reaction roll to see how it feels about the wizard. On a good reaction, the elemental cooperates for an hour – no longer – and then vanishes. An elemental's opinion may be swayed with appropriate enticements, assuming a wizard can figure out what an elemental might desire.

Duration: One hour. May not be maintained.

Cost: 1 point per 10 character points used to build the elemental. Minimum energy cost is 4 (although this will not always summon a 40-point being).

Time to cast: 30 seconds. The elemental may take up to 2d minutes to appear.

Prerequisites: Magery 1 and either eight spells of the appropriate element or four spells of the appropriate element *and* another Summon Elemental spell.

Item

Staff, wand, or jewelry decorated with appropriate elemental images – a different enchantment is required for each of the four types. *Cost to create:* 800 energy, $1,300 gold and platinum.

Control (Air) Elemental

Regular; Resisted by higher of ST and Will

Control all actions of a single elemental while the spell continues. For direct control, the elemental must remain within the caster's view. If the elemental is simply told to leave, it does so. If the elemental is sent to do a task, rather than controlled directly, its IQ must be sufficient (GM's decision) to comprehend its instructions!

This spell can also be used as an information spell, to judge the four attributes of that type of elemental (within 15 feet). A successful roll is required, but there is no energy cost.

Duration: 1 minute.

Cost: 1 point per 10 character points used to build the elemental. Half that (round up) to maintain.

Time to cast: 2 seconds.

Prerequisite: Summon Elemental for the appropriate element.

Item

Staff, wand, or jewelry decorated with appropriate elemental images – a different enchantment is required for each of the four types. This item does not let the user cast the spell, but gives a noncumulative +2 bonus to any attempt to *use* the spell. *Cost to create:* 1,000 energy, $1,300 gold and platinum.

Create (Air) Elemental

Special

Create a spirit of the appropriate element. The caster may determine the capabilities of the created elemental by increasing or decreasing the attributes of the basic elemental of that type; he may only change, add or subtract advantages and disadvantages with GM permission. There are no limits to the alteration of attributes, though a very stupid elemental will not understand complex commands. A newly created elemental serves the caster obediently for one hour. At the end of that time, roll a contest between the caster's skill with the spell, and the elemental's combined IQ and ST. If the caster wins, the elemental serves for a further hour, at the end of which another contest is required, and so on. When the caster loses, the elemental escapes control and leaves (or attacks, on a very bad reaction).

Cost: 1 point per 5 character points used to build the elemental.

Time to cast: Seconds equal to the total character points used to build the elemental.

Prerequisites: Magery 2 and Control Elemental for the appropriate element.

Small Air Elemental

This basic air elemental is summoned by casting Summon Air Elemental at the minimum energy cost of 4. More energy put into the spell summons a more powerful elemental. Usually, this simply means a larger elemental; 1 point of energy is equal to 1 additional point of ST, 5 HP, or 2 points of DR. However, the GM may choose to build a more exotic elemental, adding unusual traits to the following template, or working one up from scratch.

Small Air Elemental

40 points

Attribute Modifiers: ST-4 [-40]; DX-1 [-20]; IQ-2 [-40]; HT-3 [-30].
Secondary Characteristic Modifiers: SM -1; HP+2 [4].
Advantages: Doesn't Breathe [20]; Doesn't Eat or Drink [10]; Doesn't Sleep [20]; Flight (Lighter Than Air, -10%) [36]; Immunity to Metabolic Hazards [30]; Injury Tolerance (Diffuse) [100].
Disadvantages: No Fine Manipulators [-30]; No Legs (Aerial) [0]; Vulnerability (Vacuum and wind-based attacks ×2) [-20].

Chapter Four
Animal Spells

The poacher paled as she saw the silver chain in her partner's hand.

"You idiot! Of all the bucks in the forest, why'd you have to take this one?"

Kai wasn't sharp, but he knew when he was being chewed out. "What's the problem, Sylvie? I saw the silver on this one, so I thought it'd be a nice bonus."

"Bonus! Are you simple? Animals don't just have silver amulets dangling off them. This thing's magic; that buck was the property of one of the forest guardians!"

"He was my friend, actually," rumbled a voice behind her.

Sylvie spared one glance behind her, and then bolted into the forest. The thing at the edge of the clearing had the body of a man, the paws of a mountain lion, and the legs of a stag. There was no way she'd be able to outrun the guardian. But then, she didn't have to.

She just had to outrun Kai.

These spells relate to animal control and communication. None of these spells give their subjects any special powers; animals controlled cannot do anything they are normally unable to do, but they will follow the caster's mental commands to the best of their abilities. Likewise, the ability to talk to an animal only lets you learn what the animal knows and understands.

Some spells apply to a single type of creature. The default assumption for these rules is that the animal kingdom is divided into five categories: Vermin (including worms, insects, and other creepy-crawly things), Fish (including most mollusks), Reptiles (including most amphibians), Birds, and Mammals. These categories are loosely based on the "life form" categories that cognitive anthropologists find in most human cultures. However, this pseudo-scientific taxonomy may not reflect the reality of every game setting. In some worlds, the animal categories may be Creatures of the Land, Creatures of the Air, and Creatures of the Sea. In others, every modern biological class may be represented, from Arachnida to Scyphozoa.

The spells of this college only work on nonsapient animals, which typically means species with a racial IQ of 5 or less. There are a few animals, such as the apes, with racial IQ of 6; whether Animal spells or Mind and Body spells are more appropriate to use on them is up to the GM.

All magical items of this college must depict the appropriate type of animal, or contain an inset piece of tooth or bone from that creature.

Hybrids

Some magical monsters are neither fish nor fowl, but unnatural beasts that transcend the usual categories for animals. Gryphons are a classic example – part eagle, part lion. The hippocampus, a legendary beast with the forequarters of a horse and the rear of a fish, is another hybrid.

Animals that combine traits from different animals within a category do not qualify as hybrids. A creature that has a wolf's head on a donkey's body is composed of parts from within the Mammal category, and is thus not a hybrid for this purpose.

Any animal that defies classification – giant space amoebas, for example – can be classified as a hybrid, at the GM's discretion.

Beast-Soother

Regular

Calms a single animal. The beast's reaction roll to the caster is improved by twice the energy put into the spell.

Duration: Permanent, until something disturbs the animal.

Cost: 1 to 3.

Prerequisite: Persuasion *or* the Animal Empathy advantage.

Item

Staff, wand, or jewelry. *Energy cost to create:* 600.

Beast-Rouser

Regular

Excites a single animal. The beast's reaction roll (to anyone) is worsened by twice the energy put into the spell.

Duration: Until a reaction roll is called for or an hour passes.
Cost: 1 to 3. Cannot be maintained.
Prerequisite: Vexation *or* the Animal Empathy advantage.

Item

Staff, wand, or jewelry. *Energy cost to create:* 500.

(Animal) Control

Regular; Resisted by Will

Controls the actions of one large animal (any size) or a single swarm (see *Swarm Attacks*, p. B461). Remember, however, that subjects larger than SM 0 increase the casting cost. Concentration is required. This spell will not work on a sapient being (racial IQ 6 or higher). There is a separate Control spell for each category of animal.

Duration: 1 minute.
Cost: Variable. Cost to cast is equal to the racial IQ of the most intelligent species within the category. Half that to maintain.
Prerequisite: Beast-Soother.

Item

(a) Staff, wand, or jewelry. Allows the user to control a single species of animal. *Energy cost to create:* 100 energy per point of target species' racial IQ. (b) Staff, wand, or jewelry. Allows the user to control any animal within a category. *Energy cost to create:* 200 energy times the cost to cast for that category.

Hybrid Control (VH)

Regular; Resisted by Will

Controls the actions of one large hybrid creature (any size) or a single swarm (see *Swarm Attacks,* p. B461). Remember, however, that subjects larger than SM 0 increase the casting cost. Concentration is required. The caster must know all the Control spells relevant to the hybrid (controlling a gryphon would require knowledge of both Mammal and Bird Control, for example); his effective skill with this spell is the lowest of the various spells involved, including Hybrid Control. This spell does not work on a sapient being (racial IQ 6 or higher).

Duration: 1 minute.
Cost: 6 to cast. 3 to maintain.
Prerequisites: At least two (Animal) Control spells.

Item

Staff, wand, or jewelry. *Energy cost to create:* 800 (will control only one particular type of hybrid).

Sample Animal Control Energy Costs

Spell	*Cost*
Vermin Control	1/1
Fish Control	2/1
Reptile Control	2/1
Bird Control	3/2
Mammal Control	5/3

Beast Summoning

Regular

Calls one creature of a named type (anything under IQ 6). Range does not matter for this spell. If the spell is cast successfully, the caster knows the location of the closest creature of the type, and how long it will take for that creature to come to him. It moves toward the caster as fast as it can, until the spell ends or the animal can see the caster. It stays nearby, without attacking, until the spell ends. The summoned animal then has a +1 on its reaction to the caster (only). If the caster or someone near the caster attacks the creature, the spell is broken.

Duration: 1 minute.
Cost: 3 to cast. 2 to maintain. To call many animals, double the cost of the spell. All creatures within a certain area (usually about a 10-mile radius; more for a very successful casting) are summoned. Of course, the time they take to arrive depends on the speed at which they can travel, and if the spell ends before they arrive, they will turn and go about their business.
Prerequisite: Beast-Soother.

Item

Staff, wand, or jewelry. *Energy cost to create:* 400 for an item that summons one particular species, or 800 for an item that can summon any beast.

Master

Regular or Blocking; Resisted by IQ

Holds any beast motionless and quiet as long as the caster maintains eye contact and concentration. Note that darkness breaks eye contact! May be cast as a Blocking spell if the animal is entering Close Combat range with the caster – e.g., to attack.

Duration: Indefinite.
Cost: 2.
Prerequisite: Beast-Soother.

Item

Staff, wand, or jewelry. *Energy cost to create:* 800.

Beast Link

Regular

Establishes a mental link with an animal. The animal will not stray far from the caster after that (generally not more than a half-hour's travel). It will then come, once, whenever the caster wishes, at a fast but not killing pace. If it is a wild beast, any reactions must be re-determined when the creature arrives; previous good reactions from Beast-Soother, for instance, no longer hold! This spell is similar to Beast-Summoning, but is cast in advance and on a specific creature.

Duration: Until the beast is next called. This counts as a spell "on."
Cost: 3.
Time to cast: 5 seconds.
Prerequisite: Beast Summoning.

Item

Matched amulets. The gold one is worn by the human, the silver one by the animal. This gives the human the power to cast the Beast Link, or (if self-powered) creates the link automatically. *Energy cost to create:* 500 for the pair.

Beast Speech

Regular

Communicate with any animal in the creature's own "language." The amount of information exchanged depends on the animal's intelligence; no creature below the level of a bird is likely to know much of interest. An ant may crawl over gold, but it knows only that the material is hard and inedible. Each minute of the spell allows one question and answer.

Duration: 1 minute.
Cost: 4 to cast. 2 to maintain.
Prerequisite: Beast Summoning.

Item

Staff, wand, or jewelry. *Energy cost to create:* 1,000 for an item that talks to one particular species, or 4,000 for an item that can talk to any creature.

Repel (Animal)

Area

Repels animals from an area. The spell resists attempts by animals to enter it (or stay in it) every second; roll a Quick Contest between the caster's effective skill and the Animal's ST.

Like (Animal) Control, this is actually several different spells. There is a Repel (Animal) spell for each category of animal. Like all Area spells, the affected area extends 4 yards upward (an important detail for flying animals such as bats or birds). Casters may extend the area upward by spending proportionately more energy; double base cost will create an area 8 yards high, and so on. Beings with Animal Empathy may feel uneasy and irritable while in the affected area.

The caster may exclude specific animals from the spell's effect at the time of casting; thus, a shepherd may drive off wolves without driving away his flock.

Duration: 1 hour.
Base cost: Equal to the cost to cast (Animal) Control for the affected animal type.
Time to cast: 10 seconds.
Prerequisite: The (Animal) Control spell appropriate to the type of animal to be repelled.

Item

An area can be made permanently repellent at an energy cost of 100 times normal.

Repel Hybrids (VH)

Area

Repels hybrids from an area. The spell resists attempts by hybrids to enter it (or stay in it); every second, roll a Quick Contest between the caster's effective skill and the beast's ST. The caster must know all the Repel (Animal) spells relevant to the hybrid; his effective skill with this spell is the lowest of the various spells involved, including Repel Hybrids. Beings with Animal Empathy may feel uneasy and irritable while in the area.

The caster may exclude specific animals from the spell's effect at the time of casting.

Duration: 1 hour.
Base cost: 6 to cast. 3 to maintain.
Time to cast: 10 seconds.
Prerequisite: Hybrid Control.

Item

An area can be made permanently repellent at an energy cost of 100 times normal.

Rider

Regular

Mount and ride a subject creature as though it were a trained, loyal riding animal. The creature must be capable of carrying the caster, and the caster must still make a Riding roll whenever it would normally be required. No concentration is required on the caster's part.

Duration: 5 minutes.
Cost: 2 to cast. 1 to maintain.
Prerequisite: At least one (Animal) Control spell. You cannot use the Rider spell on a beast unless you know the appropriate Control spell and cast it first.

The animal is one with its life activity.
It does not distinguish the activity from itself.
It is its activity.

– Karl Marx

Item

Staff, wand, or jewelry. The spell does not affect the creature until the would-be rider actually mounts it. If the rider dismounts, the creature will remain docile for about a minute before fleeing or attacking (whichever is its nature). *Energy cost to create:* 800 for an item that controls one particular species, or 3,000 for an item that can control any creature.

Rider Within

Regular

Works on any type of animal (but not sapient beings). This is the animal version of the Soul Rider spell. The caster becomes able to see through the subject's eyes, hear through its ears, etc, as long as he concentrates. (He also remains aware of his own body and may act normally.) The caster exerts no control whatsoever over the subject, and the subject is unaware the caster is "watching."

Duration: 1 minute.
Cost: 4 to cast. 1 to maintain.
Time to cast: 3 seconds.
Prerequisites: At least two different (Animal) Control spells. The caster must also know the (Animal) Control spell for the type of animal being "ridden" before he can use this spell on that type of animal.

Item

A pair of identical pieces of jewelry – one gold, one silver. The gold one must be worn by the caster, the silver one by the subject (e.g., on a collar). The spell can then be cast at any time, regardless of distance. Usable only by a mage. If a Powerstone is included in the item, it is in the gold one. If either item is broken, the other loses its enchantment. *Energy cost to create:* 1,000 (for the pair). Each of the pair must contain an opal worth $100.

Spider Silk

Special; Missile

The caster shoots a strand of spider silk, which stretches from his fingertip to the target. The strands appear wispy and weightless, but are very strong, and can support up to 500 pounds without snapping. As a missile, the strand has 1/2D n/a, Max equal to strand length, Acc 3; use the caster's DX-4 or Innate Attack to hit. On a hit, the victim as grappled and immobilized as per the Binding advantage with the Sticky enhancement (see p. B40). A single strand has an effective ST of 10 and DR 3. Spider Silk takes triple damage from fire-based attacks.

The caster may shoot as many strands as he has arms from a single casting of Spider Silk; however, the cost to cast is based on the total length of all strands created. Thus, a many-armed spider demon can throw half a dozen strands at once, but it won't be cheap.

Strands of Spider Silk may also be used to build a web by anchoring successive strands between two surfaces. This web creates an area that will grapple anyone who passes through it; mechanically, this is similar to a Binding attack with the Sticky and Area Effect enhancements (p. B40). The web has ST 10 and DR 3, plus 1 ST for each additional strand.

Duration: 1 minute.
Cost: 1 to cast per 5 yards of strand length (maximum 100 yards). Half that to maintain.
Prerequisites: Magery 1 and two Animal spells.

Item

Staff or wand. Usable only by mages. The item must bear a picture of a spider. The strand is shot from the item's tip. *Energy cost to create:* 400.

Beast Seeker

Information

This spell is similar to Seeker (p. 105), but it works only on animals. It may be cast for any species of animal, an individual, or simply any animal.

Cost: 3. One try per week per species.
Prerequisites: Either Beast Summoning *and* at least two other Seek spells, or Seeker.

Item

A forked stick (wood, bone, or ivory) or compass-needle (carved out of bone) that will point to a particular species of animal, specified when the item is created, or to any animal. One ounce of bone from the animal species must be used in making the item. *Energy cost to create:* 500.

Beast Possession

Regular; Resisted by Will

Like Rider Within – except caster is in full control of the subject, "from the inside," and has full access to the beast's memories and abilities. While in the subject's body, the caster may use all its skills and abilities as though they were his own. He may use his own mental abilities, but not his physical ones (so he cannot cast spells unless he knows them so well that they require no speech or gesture). The caster's own body lies unconscious during the spell, and must be safeguarded.

Duration: 1 minute.
Cost: 6 to cast. 2 to maintain.
Time to cast: 5 seconds.
Prerequisite: Rider Within *or* Possession.

Item

As for Rider Within, but more costly. *Energy cost to create:* 1,500 (for the pair). Each of the pair must include an opal worth $200.

Permanent Beast Possession (VH)

Regular; Resisted by Will

Like Beast Possession, but the caster's consciousness remains in the body of the subject until he chooses to leave or is "exorcised" by a Dispel Possession, Counterspell, Remove Curse, or similar spell. Remember that the caster must know the appropriate (Animal) Control spell for the spell to work on the chosen subject. The caster's body is in Suspended Animation (p. 94) while the spell continues. If the caster's body dies, the spell is broken. Whenever the subject body takes damage, the caster must roll against his own body's HT or take the same damage. If the subject animal dies, the caster must roll vs. HT or die himself!

In addition, the caster must roll against his IQ every day; a failed roll means that he loses one point of IQ. The caster does not need to roll once he reaches the beast's normal IQ range. The lost IQ is regained when the spell is ended. Should IQ drop to 5, only Remove Curse or Dispel Possession will end the spell.

Duration: Indefinite (could be permanent).
Cost: 20.
Time to cast: 1 minute.
Prerequisites: Magery 2 and Beast Possession.

Item

Cap, crown, helmet, or other headgear. The item must bear a picture of the animal form it is usable on. Usable only by mages. *Energy cost to create:* 2,000.

Protect Animal

Area

Cast on an area, this spell protects all animals of a certain kind within its borders. Attempts to harm them are warded off as if by invisible defenders; protected animals gain DB +3 and DR 5.

This is also a Protection and Warning spell.

Duration: 1 minute.
Base cost: 1. Same cost to maintain.
Time to cast: 1 minute.
Prerequisites: Armor, Watchdog, and any three Animal spells.

Shapeshifting (VH)

Special

Change to the form of an animal. Each animal form is a different spell,

to be learned separately. The caster may only learn the form of an animal with which he is familiar. Many worlds have only a limited number of animal forms available. Clothing, jewelry, and armor vanish when the beast-form is taken and reappear when the human form is resumed (magical jewelry cannot be detected while "vanished"). Backpacks, carried items, etc., simply fall to the ground.

The caster retains his intelligence, but gains all the physical attributes of the new form. This means that the wearer cannot cast spells unless he knows them so well that they can be performed without gestures! Note that Fatigue Points are not increased for spellcasting purposes.

Each hour that the spell continues, the caster must make a roll against IQ; failure means that the caster loses a point of IQ, continuing until the normal IQ of that beast is reached. Should the caster's IQ drop to 5, he is trapped in beast form forever unless the spell is removed by Remove Curse (other spells won't counter it). Lost IQ is regained when human form is reassumed.

For most natural beast forms, an energy cost of 6 to cast and 2 to maintain is appropriate; animals with great strength, for example, tend to be counterbalanced by reduced agility. If the GM allows supernatural creatures as beast forms, however, or if he is concerned about the power of a given animal form, he may wish to change the cost of the spell. A reasonable guideline is to calculate the point value of the physical characteristics of the beast form and charge 1/20 of the form's cost to cast and 1/60 to maintain, with a minimum cost of 3 to cast and 1 to maintain.

Duration: 1 hour.
Cost: Varies (see above).
Time to cast: 3 seconds.
Prerequisite: Magery 1, and at least six other spells of any type.

Item

(a) Jewelry. The item must bear the likeness of the shape to be taken; usable only by a mage, or by someone descended from a natural were. It remains with the caster when the spell is cast – therefore, a collar or necklace is most convenient. There is no cost to maintain the spell, but the caster cannot change back unless he still has the item; otherwise, a Remove Curse spell must be used if he is to regain normal form. *Energy cost to create:* 1,500. (b) Skin of the shape to be taken. As above, but merges into the subject and so cannot be lost! *Energy cost to create:* 3,000.

Shapeshift Others (VH)

Special; Resisted by Will

As Shapeshifting, but usable on others. The subject cannot end the spell; only the caster, or a Remove Curse spell, can do that. If the spell continues until the subject's IQ drops to 5, he is trapped in the beast form!

Duration: 1 hour.
Cost: As Shapeshifting, but the minimum cost of the spell is 6 to cast and 2 to maintain.
Time to cast: 30 seconds.
Prerequisite: Magery 2 and Shapeshifting for that form.

Item

(a) Staff or wand. Usable only by a mage; the item must touch the subject. *Energy cost to create:* 3,000. (b) Skin of the shape to be taken. Always on. Placed on the subject, it puts the spell on him permanently (soon causing IQ loss as per Shapeshifting) until it is taken off by Remove Curse; the item may then be reused. *Energy cost to create:* 3,000.

Permanent Shapeshifting (VH)

Regular

Like Shapeshifting, but the subject remains in animal form until he chooses to resume his normal form. He must roll for IQ loss daily rather than hourly.

Duration: Indefinite (could be permanent).
Cost: 5 times the cost of the corresponding Shapeshifting spell.
Time to cast: 1 minute.
Prerequisites: Magery 3 and Shapeshifting for that form.

Item

(a) Jewelry. The item must bear a picture of the form to be taken. Usable only by a mage or a descendant of a natural were. It remains with the subject when the spell is cast; note that the subject cannot end the spell if he loses the item while in beast form (if he does, only Remove Curse can turn him back!). *Energy cost to create:* 3,000. (b) Skin of the shape to be taken. As above, but merges into the subject and cannot be lost. *Energy cost to create:* 4,500.

Partial Shapeshifting (VH)

Regular; Resisted by Will

As Shapeshifting, but affects only one body part. The subject of the spell can be the caster or someone else. Each variation is a separate spell.

The resulting body part preserves the subject's scale: Shapeshifting a human's head into a hummingbird's head results in a human with a human-sized hummingbird head. Some variations bear misleading titles: Crocodile Jaws, for example, transforms the subject's entire head, not just his jaws – the jaw muscles must be properly anchored!

Some known variations are:

Chameleon Eyes (3 to cast): The subject gains Enhanced Tracking 1 (p. B53) and Peripheral Vision (p. B74).

Crocodile Jaws (5 to cast): The subject's head becomes a crocodile's, granting the subject Sharp Teeth (p. B91) and a ST of 20 for the purposes of biting only. Speech is slurred but intelligible. He also gains Peripheral Vision and Colorblindness (p. B127) as side effects.

Elephant Trunk (3 to cast): The subject's nose becomes a trunk, granting him an Extra Arm (p. B53). He also gains Peripheral Vision and Colorblindness as side effects.

Feathered Arms (3 to cast): The subject's arms transform into wings, giving him Flight (Winged) (p. B56).

Fish Tail (3 to cast): The subject's legs fuse into a single powerful fluke, giving him Enhanced Move 1 (Water) (p. B52).

Mountain Goat Hooves (4 to cast): The subject's feet become mountain goat hooves, granting him Climbing-14 (only usable while mountaineering) and Jumping-14.

Saber Teeth (5 to cast): The subject's canines become saber-teeth, granting him Fangs (p. B91) and ST 25 for the purposes of biting only. Speech is slightly slurred. The subject acquires Colorblindness as a side effect.

Scorpion Tail (7 to cast): The subject grows a scorpion's stinger, complete with poison gland. This is an Impaling Striker (p. B88) with the Follow-Up enhancement; on a successful penetrating hit, a 1d+2 Innate Attack (Toxic, Melee Attack, Resistible) takes effect. A victim may resist the scorpion venom by making a HT-6 roll.

Serpent's Fangs (3 to cast): The subject's canines become fangs, able to deliver a venomous bite; this is a 1d+1 Innate Attack (Melee Attack, Contact Agent, Toxic, Resistible (HT-4), Cyclic (daily, expires after three days)).

Skunk Tail (3 to cast): The subject grows a huge skunk's tail (2 yards long), and gains the ability to use the Stench spell (p. 24) at will. The area of effect is two yards in radius and must be centered on some portion of the tail. This ability costs 2 FP to use.

Spider Arms (7 to cast): The subject grows two Extra Arms and gains one Extra Attack (p. B53).

Tiger Paws (4 to cast): The subject's hands become tiger paws, granting him Sharp Claws and Striking ST 24, but he also gains No Fine Manipulators (p. B145).

Toad Tongue (3 to cast): The subject's tongue becomes long and adhesive, serving as an Extra Arm with the Long and Weak enhancements and additional Striking ST – it attacks with the subject's full strength, but lifts with only 1/4 of the subject's ST. The subject also gains Peripheral Vision as a side effect.

Turtle Shell (10 to cast): The subject becomes encased in a turtle shell. It has DR 5 and weighs 4 pounds per point of ST of the subject.

Duration: 1 hour.
Cost: Varies; never less than 3. One third (round up) to maintain.
Time to cast: 10 seconds.
Prerequisites: Magery 3, Shapeshift Others for the appropriate animal, and Alter Body.

Item

The item's form depends on the body part affected – gloves to shapeshift the hands, boots for the feet, a mask for the face, and so on. It must bear a likeness of the shape to be taken. There is no cost to maintain; the spell ends when the user mimics pulling off the item. *Energy cost to create:* 1,000 plus 250 per point of casting cost.

Great Shapeshift (VH)

Special

Perform multiple, fast, repeated changes of shape, temporarily accessing the Morph ability (p. B84). The spell lapses, however, if at any point the caster returns to his natural form. The caster is mentally stunned when the spell ends.

Clothing, jewelry, and armor vanish when the spell is cast, reappearing when it lapses (magical jewelry cannot be detected while "vanished"). Items that the caster was carrying when the spell was cast (including backpacks, etc.) simply fall to the ground.

At its minimum cost, Great Shapeshift allows the caster to change into any creature whose racial template costs 0 points or less (note that this is slightly different from the Morph ability). Each additional point of energy, however, adds 5 character points to the maximum point value of the allowable templates.

A caster remains subject to the Magic Rituals requirements (p. 8) while shapeshifted; if he changes into a form that cannot gesture or speak, he cannot use any spell known at a skill less than 20.

Mages who know Great Shapeshift can use Counterspell to hold a Great Shapeshifted caster in whatever form he currently has, for as many seconds as the Counterspell wins the contest by (or until the Great Shapeshift lapses).

Duration: 1 minute.
Cost: 20 to cast, plus 1 per additional 5 character points of template limit. Half that to maintain.
Time to cast: 5 seconds.
Prerequisites: Magery 3, Alter Body, four types of Shapeshifting, and at least 10 other spells of any kind.

Item

Jewelry, decorated with an abundance of animal motifs. Usable only by mages. The item vanishes when the spell is cast, to reappear when it lapses. *Energy cost to create:* 5,000.

Chapter Five
Body Control Spells

The Fist of the West was the ultimate fortress. Its walls were built from interlocking blocks of adamant, each weighing 10 tons, and they towered hundreds of feet above the ground, bristling with artillery. Its moats and trenches were deep and wide, filled with noxious and deadly hazards. No attacker had ever forded the moats successfully, let alone scaled the walls. All the military theorists agreed that the Fist was unassailable, and this self-proclaimed Empire would do no better than the many besiegers who preceded them.

Thus, the Fist's defenders were quite surprised when the Imperial archmages transformed a squad of legionnaires into three-hundred-foot titans who promptly strode across the moats and began pulling down the walls.

These spells directly affect the body. Except as noted, they only affect *living* beings.

The College of Body Control is a common starting point for wizards who want to work magic on people. Body Control spells are prerequisites to many spells in other colleges that affect sapient beings.

Climbing

Regular

Gives the subject a strong, sure grip, increasing his Climbing skill.

Duration: 1 minute.
Cost: 1 to 3 to cast. Same cost to maintain. The increase in the subject's Climbing skill is equal to twice the energy put into the spell.

Item

Shoes, gloves, clothing, or jewelry; only affects the wearer. *Energy cost to create:* 250 times the maximum Climbing bonus (no more than 5) the item can give.

Itch

Regular; Resisted by HT

Causes the subject to itch fiercely in a spot of the caster's choice. The subject is at -2 DX until he takes one full second to scratch (more, if armor, etc. is in the way!). Only one Itch spell can affect a given subject at a time.

Duration: Until subject takes a turn to scratch.
Cost: 2. Cannot be maintained; must be recast.

Item

(a) Staff or wand; usable only by mages. The item must touch the victim. *Energy cost to create:* 100. (b) Any item; always on. The wearer itches constantly, and remains at -2 DX while item is worn. *Energy cost to create:* 60.

Touch

Regular

The subject feels a light touch at a spot of the caster's choice. The touch is easily felt, even through armor, but has no effect other than to attract the subject's attention; it cannot cause pain or discomfort, but it is very likely to *distract* him.

Cost: 1.

Item

Staff, wand, or jewelry. *Energy cost to create:* 50.

Perfume

Regular; Resisted by HT

The subject smells strongly of any odor that the caster desires. The subject can detect the odor, but does not find it especially offensive (although his companions certainly might), regardless of its nature.

Duration: 10 minutes.
Cost: 2 to cast. 1 to maintain.
Prerequisite: Odor (p. 24).

Item

Staff or wand. The item must touch the subject. *Energy cost to create:* 200.

Spasm

Regular; Resisted by HT

Can be directed against any of the subject's *voluntary* muscles. Directed against a hand, it causes the subject to drop whatever he is holding (usually a weapon). If the subject is in the middle of a lengthy spell requiring gestures, he must make a DX roll or start over. Ingenious casters will find other uses . . .

Duration: Instant.
Cost: 2. Cannot be maintained.
Prerequisite: Itch.

Item

(a) Staff or wand; usable only by mages. The item must touch the victim. *Energy cost to create:* 300. (b) Any item; always on. The wearer must roll vs. HT each time he does something delicate (e.g., pick a lock, cast a spell) or suffer a spasm as above. *Energy cost to create:* 100.

Stop Spasm

Regular

Stops any seizure the subject is undergoing. This works against epilepsy, vomiting fits, etc.

This is also a Healing spell.

Cost: 1.
Prerequisite: Spasm *or* Lend Vitality.

Item

(a) Staff or wand, decorated in a snake pattern. Usable only by a mage or a nonmage with Physician-15 or higher. *Energy cost to create:* 400. (b) Any item. Always on. The item prevents its wearer from suffering seizures (grants a bonus of +5 when resisting Spasm). *Energy cost to create:* 750.

Tickle

Regular; Resisted by Will

The subject feels he is being tickled. If he does not resist, he is helpless with laughter, jerking about to try to escape from his invisible tormentor. This is a serious ticklefest; the victim is incapacitated as if by a seizure (see *Incapacitating Conditions,* p. B428). The subject must make a second Will roll if he tries to keep silent. High/Low Pain Threshold has no effect on the spell's outcome. Unfazeable characters get a +5 bonus to their resistance roll.

Duration: 1 minute.
Cost: 5 to cast. 5 to maintain (requires concentration).
Prerequisite: Spasm.

Item

(a) Wand, staff, or feather. Usable only by mages; the item must touch the subject. *Energy cost to create:* 600. (b) Chair, cushion, or pillow. Always on. Anyone sitting in it is immediately "attacked" by the spell. A great practical joke. *Energy cost to create:* 250.

Pain

Regular; Resisted by HT

The subject feels a stab of agonizing pain. He must make a Will roll to avoid crying out. If he is in a precarious position (climbing, for instance), he must make a DX roll to avoid catastrophe! His DX and all DX-based skills are at -3 for the next second only. If the subject is in the middle of a spell requiring gestures, he must roll vs. Will or start over. High Pain Threshold gives +3 to the Will and DX rolls above; Low Pain Threshold gives -4.

Duration: 1 second.
Cost: 2. Cannot be maintained.
Time to cast: 2 seconds.
Prerequisite: Spasm.

Item

(a) Staff or wand; usable only by mages. The item must touch the victim. *Energy cost to create:* 400. (b) Any item; always on. The wearer feels stabbing pain, as above, continuing until he makes a HT roll. The wearer can do nothing until he succeeds at the roll! *Energy cost to create:* 300.

Clumsiness

Regular; Resisted by HT

The subject suffers -1 to his DX and DX-based skills for every point of energy put into the spell.

Duration: 1 minute.
Cost: 1 to 5 to cast. Half that to maintain (round up).
Prerequisite: Spasm.

Item

(a) Any item. Always on; reduces the wearer's DX. *Energy cost to create:* 100 for each point of DX reduction. (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 800.

Hinder

Regular; Resisted by HT

The subject is at -1 to his Move and Dodge scores for every point of energy put into the spell.

This is also a Movement spell.

Duration: 1 minute.
Cost: 1 to 4 to cast. Same cost to maintain.
Prerequisite: Clumsiness *or* Haste (p. 142).

Item

(a) Staff or wand. Usable only by mages; the item must be pointed at (but not necessarily touch) subject. *Energy cost to create:* 600. (b) Any item. Always on; reduces wearer's Move score. *Energy cost to create:* 200 for every 1-yard reduction in wearer's Move.

Rooted Feet

Regular; Resisted by ST

The subject's feet are glued in place! He may try another resistance roll at -5 *every turn,* against the original spell skill roll, to break free. While the spell continues, the subject's skill with any weapon except a ranged weapon is at -2 and his Dodge score is cut in half (round down).

Duration: 1 minute, or until subject breaks free.
Cost: 3. Cannot be maintained; must be recast.
Prerequisite: Hinder.

Item

(a) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 400. (b) Any item. Always on; the wearer must make a (ST-5) roll every turn in order to move. A failed roll means he cannot move. *Energy cost to create:* 600.

Tanglefoot

Regular; Resisted by DX

The subject trips and falls down.

Duration: Instantaneous.
Cost: 2.
Prerequisite: Clumsiness.

Item

Staff or wand. Usable only by mages; the item must be pointed at (but not necessarily touching) the subject. *Energy cost to create:* 600.

Roundabout

Regular; Resisted by HT

Change the facing of a subject to any direction desired. This is not a teleport-in-place, but a physical spin. On the subject's next turn, a roll vs. Body Sense or DX-6 is needed to take any action. If the subject moved 2 or more yards the previous turn, he must make an IQ roll to avoid continuing in the new direction.

Duration: Instantaneous.
Cost: 3.
Prerequisite: Tanglefoot.

Debility

Regular; Resisted by HT

Reduces the subject's ST temporarily. This will affect the subject's basic damage with weapons, but not HP. It does affect encumbrance, but GMs are free to ignore this detail in the interest of playability.

Duration: 1 minute.
Cost: 1 for every point of ST reduction (maximum 5). Half that amount (round up) to maintain.

Item

(a) Staff or wand. Usable only by mages; the item must be pointed at (but not necessarily touch) subject. *Energy cost to create:* 900. (b) Any item. Always on; reduces wearer's ST. *Energy cost to create:* 100 for every point by which wearer's ST is reduced.

Frailty

Regular; Resisted by HT

Lowers the subject's HT temporarily. This affects all considerations that depend upon HT (Basic Speed, HT-based skills, poison and spell resistance, unconsciousness, death, etc.) except for those dependent upon FP, which is unaffected. The cost to cast is not reduced by high skill.

Duration: 1 minute.
Cost: 2 per point of HT decrease (maximum 5). Same cost to maintain.
Prerequisite: Lend Energy (p. 89).

Item

(a) Any. Always on; the wearer's HT is lowered while the item is worn. *Energy cost to create:* 200 per point of HT reduction. (b) Staff or wand. Usable only by mages; the user must touch the subject. *Energy cost to create:* 1,000.

Might

Regular

Raises the subject's ST temporarily. This affects damage, encumbrance, and hit points, but does not heal wounds. If, when the spell wears off, the subject's wounds put him below -HT, he will have to make a HT roll to live. High skill does not reduce cost to cast this spell.

Duration: 1 minute.
Cost: 2 for every point of ST increase (maximum of 5). Same cost to maintain.
Prerequisite: Lend Energy.

Item

(a) Any item. Always on; the wearer's ST is raised while item is worn. *Energy cost to create:* 1,500 per point of increase (maximum 5). (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 1,000.

Grace

Regular

Raises the subject's DX temporarily. His Basic Speed and ability with all DX-based skills are also raised. A caster can raise his own DX to increase his chances of hitting with missile spells, etc.

Duration: 1 minute.
Cost: 4 for every point of DX increase (maximum of 5). Same cost to maintain.
Prerequisite: Clumsiness.

Item

(a) Any item. Always on; the wearer's DX is raised while item is worn! This is a very rare item. *Energy cost to create:* 2,000 per point of increase (maximum 5). (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 2,000.

Vigor

Regular

Raises the subject's HT temporarily. This affects his Basic Speed, FP, and ability to resist trauma and disease. A caster can raise his HT. If the subject's FP when the spell wears off is below zero, he will immediately take 1 point of damage for every point of fatigue below zero, risking unconsciousness. High skill does not reduce cost to cast this spell.

Duration: 1 minute.
Cost: 2 for every point of HT increase (maximum of 5). Same cost to maintain.
Prerequisite: Lend Vitality *or* Frailty.

Item

(a) Any item. Always on; the wearer's HT is raised while item is worn. *Energy cost to create:* 1,500 per point of increase (maximum 5). (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 1,000.

Boost (Attribute)

Regular or Blocking

This spell has four separate variants: Boost Dexterity, Boost Health, Boost Intelligence, and Boost Strength. Each must be studied separately, but all four work identically.

This spell raises the subject's attribute just long enough for a single die roll or short action – one Quick Contest, one attribute check, delivering a blow, readying a weapon, resisting a spell, throwing an object, etc. It cannot be used to increase a roll that represents several seconds of effort, such as a Regular Contest. The boosted attribute affects all secondary characteristics except HP and FP. High skill does not reduce the cost to cast this spell.

Boost Intelligence is a Mind Control spell, not a Body Control spell.

Cost: 1 for every point of attribute increase (maximum of 5).
Prerequisite: Each variant has a different prerequisite:

Spell	*Prerequisite*
Boost Dexterity	Grace
Boost Health	Vigor
Boost Strength	Might
Boost Intelligence	Wisdom

Item

Staff, wand, jewelry, or article of clothing. *Energy cost to create:* 300.

Stun

Regular; Resisted by HT

The subject is physically stunned (p. B420) and must roll vs. HT each second to recover.

Cost: 2. Cannot be maintained.
Prerequisite: Pain.

Item

(a) Any item. Always on; the wearer is stunned until it is removed. *Energy cost to create:* 500. (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 1,100.

Nauseate

Regular; Resisted by HT

The subject becomes nauseated (see *Irritating Conditions,* p. B428).

Duration: 10 seconds.
Cost: 2. Same cost to maintain.
Prerequisites: Perfume and at least one other Body Control spell.

Item

Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 100.

Retch

Regular; Resisted by HT

The subject loses his lunch, retching for (25-HT) seconds (see *Incapacitating Conditions,* p. B428).

Cost: 3. Cannot be maintained.
Time to cast: 4 seconds.
Prerequisites: Nauseate and Spasm.

Item

Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 100.

Fumble

Blocking; Resisted by DX

The subject automatically fumbles the action he is taking. Regular range penalties apply. If the action is an attack or parry, roll on the Critical Miss Table. A fumbled dodge results in a fall, and a fumbled block unreadies the shield. If he was taking some other action (Move, Ready Weapon, etc), the GM should determine the result as he sees fit. "Mental" actions (concentration, speech, and so on) are unaffected, but a spell requiring body motions of some sort *is* affected!

Cost: 3.
Prerequisite: Clumsiness.

Item

(a) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 1,000. (b) Jewelry. Always on; only affects the wearer. The wearer keeps fumbling! *Energy cost to create:* 1,500.

Strike Dumb

Regular; Resisted by HT

The subject cannot speak. This makes it impossible to cast any spell that requires speaking (p. 8).

Duration: 10 seconds.
Cost: 3 to cast. 1 to maintain.
Prerequisite: Spasm.

Item

(a) Any item. Always on; the wearer cannot speak. *Energy cost to create:* 500. (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 2,500.

Strike Blind

Regular; Resisted by HT

The subject is temporarily blinded. See *Blindness,* p. B124, for a full description of the effects; the most important is that he is at -10 to attack anyone physically, and cannot see to target spells.

Duration: 10 seconds.
Cost: 4 to cast. 2 to maintain.
Prerequisite: Spasm and at least two Light and Darkness spells.

Item

(a) Any item. Always on; the wearer is blinded. *Energy cost to create:* 500. (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 2,000.

Strike Deaf

Regular; Resisted by HT

The subject is temporarily deafened.

Duration: 10 seconds.
Cost: 3 to cast. 1 to maintain.
Prerequisite: Spasm and at least two Sound spells.

Item

(a) Any item. Always on; the wearer is deafened. *Energy cost to create:* 400. (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 1,000.

Hunger

Regular; Resisted by HT

Inflicts 1 FP of starvation damage, equivalent to a single missed meal. Fatigue taken in this fashion can only be recovered by a day of rest and adequate nourishment (see *Starvation,* p. B426).

This is also a Food spell.

Cost: 2.
Time to cast: 5 seconds.
Prerequisites: Magery 1, Debility, and Decay.

Item

Staff, wand, or jewelry. Usable only by mages; the item must touch the subject. *Energy cost to create:* 2,000.

Thirst

Regular; Resisted by HT

Inflicts 4 FP and 1 HP of dehydration damage, equivalent to a full day without water. Dehydration fatigue may be recovered in full with a full day's rest and plentiful water (see *Dehydration,* p. B426). HP damage heals normally. Repeated castings may render the subject nearly unable to speak, because his throat will be parched and his tongue swollen.

This is also a Food spell.

Cost: 5.
Time to cast: 10 seconds.
Prerequisites: Magery 1, Debility, and Destroy Water (p. 185).

Item

Staff, wand, or jewelry. Usable only by mages; the item must touch the subject. *Energy cost to create:* 2,000.

Resist Pain

Regular

The subject becomes temporarily impervious to pain. He may ignore Spasm and other pain-causing spells. He cannot be stunned in combat, and does not suffer a shock penalty when he is wounded or slow down when his HT is reduced to 3. However, he does not gain any actual resistance to injury – only to the pain it causes.

Duration: 1 minute.
Cost: 4 to cast. 2 to maintain.
Prerequisite: Magery 2 and Pain.

Item

Any item; only affects the wearer. *Energy cost to create:* 800.

Hold Breath

Regular

Temporarily eliminates the caster's need for air, as if he had Doesn't Breathe (p. B49). He could thus stay underwater, or in a room full of poison gas, without trouble. This spell does not actually provide air; it simply delays suffocation while the caster seeks (or creates) a safer environment. This spell does not supply pressure support against vacuum or deep sea pressure.

Duration: 1 minute.
Cost: 4 to cast. 2 to maintain.
Prerequisites: Magery 1 and Vigor.

Item

Wand, staff, or jewelry. *Energy cost to create:* 900.

Ambidexterity

Regular

Subject gains Ambidexterity (p. B39) for the duration of the spell. The spell has no effect on beings that already have the advantage. It also only affects a single pair of limbs; beings with more than two limbs require multiple castings of the spell.

Duration: 1 minute.
Cost: 3 to cast. 2 to maintain.
Prerequisite: Grace.

Item

(a) Any. Always on; the wearer becomes ambidextrous. A rare item! *Energy cost to create:* 1,500. (b) Staff or wand. Usable only by mages. *Energy cost to create:* 500.

Balance

Regular

The subject gains Perfect Balance (p. B74) for the duration of the spell. It has no effect on beings that already possess this advantage.

Duration: 1 minute.
Cost: 5 to cast. 3 to maintain.
Prerequisite: Grace.

Item

(a) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 300. (b) Jewelry or headgear. Always on; affects only the wearer. *Energy cost to create:* 750.

Reflexes

Regular

The subject gains Combat Reflexes (p. B43) for the duration of the spell. The spell has no effect on beings that already have the advantage.

Duration: 1 minute.
Cost: 5 to cast. 3 to maintain.
Prerequisites: Grace and Haste.

Item

(a) Any item. Always on; the wearer gains the Combat Reflexes advantage. Rare item! *Energy cost to create:* 1,200. (b) Staff or wand. Usable only by mages. *Energy cost to create:* 800.

Cadence

Regular

Doubles the rate of production of crafted items by both hastening the craftsman's movements and making them surer, eliminating wasted strokes. Any use of a skill that creates or improves a handmade object can be assisted by this spell; magical craft work (such as scroll writing or enchantment) *cannot*.

Duration: 1 hour. The spell is broken if the subject interrupts his work.
Cost: 5 to cast. 3 to maintain. The spell costs the subject an equal amount of energy every hour, unless it is the caster himself.
Time to cast: 10 seconds.
Prerequisites: Grace and Haste.

Item

Tool. *Energy cost to create:* 1,000.

Hair Growth

Regular; Resisted by HT

Causes the subject's hair and nails to grow at a million times the usual rate (meaning an inch of hair every five seconds and an inch of nails every 30 seconds). If left unchecked, such growth interferes with vision (as hair falls in the eyes), movement (as the subject trips on his beard) and handling ability (as nails get in the way). Some bald people appreciate this spell, while it lasts (baldness returns within about a month as the hair falls out naturally).

Duration: 5 seconds.
Cost: 1 to cast. 1 to maintain.
Prerequisites: At least five Body Control spells.

Item

(a) Any item; always on. Hair starts growing an hour after the item is put on and grows for an hour after the item is taken off. *Energy cost to create:* 100. (b) Staff or wand. The item must touch the subject. *Energy cost to create:* 250.

Haircut

Regular; Resisted by HT

Trims the subject's hair (beard, mustache, fur, etc.) as the caster sees fit. To determine the aesthetic quality of the job, roll against Barber skill (a DX/Average Professional Skill). Can also be used to shear sheep, pluck chickens, or to trim the subject's nails. The spell will not blunt the subject's claws or horns (although it may give them a manicure).

Duration: The trim is instantaneous, the cut matter falling at the subject's feet.
Cost: 2.
Time to cast: 2 seconds.
Prerequisites: Hair Growth.

Item

(a) The effect may be made permanent (preventing hair from growing back) for 10 times casting cost. (b) Headgear. The item trims the hair of whoever puts it on, to the style specified by the creator. *Energy cost to create:* 150. (c) Staff or wand. *Energy cost to create:* 300.

Sensitize

Regular; Resisted by HT

The subject becomes extremely sensitive to pain, gaining the Low Pain Threshold disadvantage (p. B142). The spell does not affect characters that already have the disadvantage.

Duration: 1 minute.
Cost: 3 to cast. 2 to maintain.
Prerequisites: Magery 1 and Stun.

Item

(a) Any. Always on; only affects the wearer. *Energy cost to create:* 300. (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 400.

Agonize

Regular; Resisted by HT

Magnifies the subject's sense of touch to painful levels: a gentle touch feels like a blow, someone else's breath feels like a scorching flame, a cool breeze feels like a freezing blast. Even the contact of his own clothes becomes unbearable; the subject feels like his skin is being scraped raw. He is rendered helpless with agony (see *Incapacitating Conditions,* p. B428).

Duration: 1 minute.
Cost: 8 to cast. 6 to maintain.
Prerequisites: Magery 2 and Sensitize.

Item

(a) Any. Always on; only affects the wearer. *Energy cost to create:* 500. (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 800.

Weaken Blood

Regular; Resisted by HT

The subject acquires Hemophilia (p. B138) for the duration of the spell. All wounds will cause severe bleeding.

This is also a Necromantic spell.

Duration: 1 day
Cost: 9 to cast. 5 to maintain.
Prerequisite: Sickness *or* Steal Vitality.

Item

Any item; always on. The wearer is a hemophiliac! *Energy cost to create:* 200. (Usually combined with Hex.)

Strike Numb

Regular; Resisted by HT

The subject temporarily loses all sense of touch, as per the Numb disadvantage (p. B146). This includes the effects of the Resist Pain spell, so it is sometimes a blessing in disguise. The subject does not feel blows (beyond a jolt), does not feel a pickpocket going through his possessions, does not feel the heat of the stove top he is leaning on . . . If the caster desires, the spell can selectively numb the subject (numbing only the arms, for instance).

Duration: 10 seconds.
Cost: 3 to cast. 1 to maintain.
Prerequisite: Resist Pain.

Item

(a) Any. Always on; only affects the wearer. *Energy cost to create:* 300. (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 800.

Choke

Regular; Resisted by HT

The subject becomes unable to breathe (or speak) and suffers the effects of suffocation (see *Suffocation,* p. B436). The spell cannot be maintained; so constant recasting is required to cut off enough of the victim's air supply to do any real harm.

Duration: 30 seconds.
Cost: 4. Cannot be maintained.
Prerequisites: Magery 1 and at least five Body Control spells, including Spasm.

Item

Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 200.

Control Limb

Regular; Resisted by Will

One of the subject's limbs (including wings, tentacles, etc) is under the caster's control! Arms can be made to swing weapons (use the caster's skill); legs can be made to kick, twist, and so on. The caster must continually concentrate to control the limb once the spell is cast; failure to do so causes the limb to "go dead" for the duration. The victim may attempt to grapple himself to prevent his limb from acting, but he is at -3 on contests of ST or DX with himself!

If a caster forces the subject to attack himself with his own weapon or fist, hit rolls are still required (against the subject's skill+4), and the victim may Dodge at -2. He can even parry (also at -2) if he has an appropriate weapon in his other hand! Treat as Close Combat for legal weapons and any appropriate penalties.

Duration: 5 seconds.
Cost: 3 to cast. 3 to maintain. If cast only on a hand (or analogous limb), the cost to cast or maintain is only 2, but the subject can only be forced to increase or release his grip, and so on. This can still interfere with spellcasting gestures, throwing grenades, and discharging firearms . . .
Prerequisites: Magery 1 and at least five Body Control spells, including Spasm.

Item

Staff or wand. Usable only by mages; the item must be pointed at the subject. *Energy cost to create:* 800.

Paralyze Limb

Melee; Resisted by HT

The caster must strike the subject on a *limb* to trigger this spell (hits elsewhere have no effect). Armor does not protect. Resolve resistance on contact. If the subject fails to resist, the subject's limb is paralyzed; it is considered crippled for one minute.

Duration: 1 minute.
Cost: 3. Cannot be maintained; must be recast.
Prerequisites: Magery 1 and at least five Body Control spells, including Clumsiness.

Item

Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 1,000.

Total Paralysis

Melee; Resisted by HT

The caster must touch the subject on the head (-5 to caster's attack roll). If the subject fails to resist, he is totally paralyzed and cannot move at all for one minute (in the average game, until that battle is over).

Duration: 1 minute.
Cost: 5. Cannot be maintained; must be recast.
Prerequisite: Paralyze Limb.

Item

Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 2,000.

Wither Limb

Melee; Resisted by HT

The caster must strike the subject on a *limb* to trigger this spell (hits elsewhere have no effect). Armor does not protect. Resolve resistance on contact. If the caster wins, the subject's limb withers immediately; it is crippled for all purposes (see *Crippling Injury,* p. B420). The subject also takes 1d damage.

Duration: Permanent unless healed by magic or extraordinary technology.
Cost: 5.
Prerequisites: Magery 2 and Paralyze Limb.

Item

Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 2,000.

Strike Barren

Regular; Resisted by HT

Renders infertile any subject that was capable of producing offspring. Restoration or Remove Curse will undo the spell. Used on a plant, this spell prevents it from ever bearing pollen, fruit, or seed.

This is also a Necromantic spell.

Duration: Permanent.
Cost: 5.
Time to cast: 30 seconds.
Prerequisites: Magery 1, Steal Vitality, and Decay.

Item

(a) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 200. (b) Any item. Always on; the wearer is infertile/barren while the item is worn. *Energy cost to create:* 800.

Sickness

Regular; Resisted by HT

As listed under *Mind Control Spells* p. 138.

Deathtouch

Melee

The caster must strike the subject to trigger this spell; hit location is irrelevant. The subject takes 1d damage per point of energy in the spell. Armor does not protect. This spell *does* affect the undead.

Cost: 1 to 3.
Prerequisite: Wither Limb.

Item

Staff or wand; the item must be colored jet black. Usable only by mages; the item must touch the subject. *Energy cost to create:* 2,500.

Alter Voice

Regular; Resisted by HT

Changes the subject's voice as the caster wills. If the caster is trying to duplicate an existing voice, the "model" voice should be available. Recreating a familiar voice from memory is at -2 to skill, -3 or worse if the caster has only heard the voice a few times, or a long time ago. Eidetic Memory is helpful here (p. 51).

The subject's voice can also be altered to make it more pleasing or more grating, granting a bonus or penalty (from +2 to -2) to reaction rolls and skills involving vocal communication for the duration of the spell.

The spell cannot "give" a voice to a mute person. If this spell is used to permanently improve a PC's voice (giving him the Voice advantage), the GM should require him to pay the appropriate character points!

This is also a Sound spell.

Duration: 1 hour.
Cost: 2 to cast. 2 to maintain. The change may be made permanent, as an enchantment, for a cost of 200.
Time to cast: 1 minute.
Prerequisites: At least four Body Control and four Sound spells.

Item

Any, but usually jewelry. Gives the wearer a new voice, preset by the caster. *Energy cost to create:* 1,000.

Alter Visage

Regular; Resisted by HT

Changes the subject's face as the caster wills. Any new organs (e.g., extra eyes) do not really function. Other than that, any change is possible. If the caster is trying to duplicate an existing face, he is at -1 if he does not have the model (or a good picture) available; if he is not too familiar with the model, -2 or worse.

This spell cannot be used to injure the subject. Mages do not get an automatic IQ + Magery roll to realize someone is under this spell.

If this spell or Alter Body (below) is used to permanently improve a PC's looks, the GM should require him to pay the appropriate character points for the improvement!

Duration: 1 hour unless made permanent. May be removed by Alter Visage, Alter Body, or Remove Curse.
Cost: 4 to cast. 3 to maintain. May be made permanent, as an enchantment, for an energy cost of 40.
Time to cast: 1 minute.
Prerequisites: Eight Body Control spells and either Shapeshifting or Perfect Illusion.

Item

Any, but usually clothing or jewelry. Gives the wearer a new face, preset by the caster. *Energy cost to create:* 1,000.

Alter Body

Regular; Resisted by HT

As for Alter Visage, except that the subject's entire body (e.g., skin, hair, limbs) may be altered. The subject's general form cannot change: humanoids stay humanoid. No extra limbs, wings, etc., may be added. Simpler additions are possible (nonprehensile tails, horns, hooves), but the subject will be unfamiliar with them, and may suffer penalties to DX until a suitable adjustment period (GM's decision) has passed. The subject's mass must remain the same; basic stats do not change.

Duration: 1 hour unless made permanent. May be removed by Alter Body or Remove Curse.
Cost: 8 to cast. 6 to maintain. May be made permanent, as an enchantment, for an energy cost of 200.
Time to cast: 2 minutes.
Prerequisite: Alter Visage.

Item

Any, but usually clothing or jewelry. Gives the wearer a new appearance, preset by the caster. *Energy cost to create:* 4,000.

Lengthen Limb

Regular

The caster's arm (usually – but legs, pseudopods and so on are also legal) lengthens, becoming like a very long snake. The limb lengthens at a rate of 1 yard per second, with no upper limit. The caster retains his full sense of touch, and must feel his way forward once the end of the limb grows out of view, or use Wizard Eye or some similar spell to guide it. He must remain still; the actual lengthening requires concentration, but the caster may relax once he has achieved the desired length.

The extended limb may make a tempting target for whoever happens on it! When the spell ends, or in an emergency, the limb is "reeled back in" at the caster's full Basic Speed score. This is useful for reaching the keys outside the cell, or snatching the caliph's prize jewel as he sleeps.

Duration: 1 minute.
Cost: 2 to cast. 2 to maintain.
Time to cast: 5 seconds.
Prerequisites: Magery 3 and Shapeshifting.

Item

Wand. Usable only by mages. *Energy cost to create:* 1,000.

Decapitation

Regular; Resisted by HT+2

The subject's head comes off! When this spell is cast, the subject's head (or one of them, if the subject has several) comes free of its body, but continues to live on its own. The subject is not harmed, but the head takes falling damage if it is not carefully removed or caught! The head can talk, see, and control the actions of its body normally. If the head is somehow blinded (put in a bag, for instance), then it will have trouble telling its body where to walk . . .

The spell, once cast, is permanent until somebody puts the head back in the proper place and wills it to attach (if the head is unwilling, proceed to a Regular Contest of Wills). If it is cast on a foe, who then regains the head and reattaches it, the caster has no say in the matter, although he can certainly cast the spell again . . .

This spell, while useful in combat, has several other uses. A mage with a broken leg could leave his body behind and travel with the party as a head! Note, however, that bodies cannot feed themselves without mouths, and if the mage attempted to cast a spell requiring hand motions, the range penalties would apply from his *body*, not his head!

Duration: As above.
Cost: 4.
Time to cast: 2 seconds.
Prerequisites: Magery 2 and Alter Body.

Item

Staff, wand, or jewelry. Usable only by mages. *Energy cost to create:* 1,000.

Shrink (VH)

Regular

The caster's size decreases, reducing his Size modifier. For every 1 point of SM reduction, the caster's ST, HP, and Move are all multiplied by 2/3. For every 2 points of SM reduction, his DR is reduced by 1. The caster's clothing shrinks with him if he wishes, but jewelry, armor, weapons, carried items, and other substantial volumes of harder substances remain at their original size (though they can be reduced separately with Shrink Object).

IQ, DX, HT, FP, Basic Speed, and Dodge do not change with size. Weight decreases dramatically; every point of SM reduction divides the caster's weight by 3.5. The caster is harder to hit, as appropriate to his new SM.

The GM may opt to set a floor of 1 HP and Move 1, so that shrunken wizards may still accomplish something on foot. This may not be realistic, but it is in keeping with the traditions of heroic fiction.

Duration: 1 hour.
Cost: 2 per -1 SM. Same cost to maintain.
Time to cast: 5 seconds. Shrinkage occurs at a rate of 1 SM per second after the spell is complete.
Prerequisites: Magery 2 and Alter Body.

Item

(a) Wand. Usable only by mages. *Energy cost to create:* 2,000. (b) A size change can be made permanent for 100 times casting cost (the GM may require that the subject's new size be maintained while the enchantment goes on!)

Shrink Other (VH)

Regular; Resisted by HT

As Shrink, but usable on other beings. The spell can only be countered by the original caster or by Remove Curse. The GM should keep in mind the potential psychological effects of this spell on unaware or unwilling subjects.

Duration: 1 hour.
Cost: 2 per -1 SM. Same cost to maintain.
Time to cast: 10 seconds.
Prerequisites: Magery 3 and Shrink.

Item

(a) Wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 2,000. (b) A size change can be made permanent for 100 times casting cost (the GM may require that the subject's new size be maintained while the enchantment goes on!)

Enlarge (VH)

Regular

The caster grows in size, increasing his Size modifier. For every 1 point of increased SM, the caster's ST, HP, and Basic Move are all multiplied by 1.5. For every 2 points of increased SM, his DR increases by 1. The caster's clothing grows with him if he wishes, but jewelry, armor, weapons, carried items, and other substantial volumes of harder substances remain at their original size (though they can be enlarged separately with Enlarge Object). See *Corpulence*, p. 43, for the effects of "bursting" out of armor.

IQ, DX, HT, FP, Basic Speed, and Dodge do not change with size. Weight increases dramatically; every point of increased SM multiplies the caster's weight by 3.5.

If the caster is enclosed in a room or other space that is too small to accommodate his larger size, his growth stops. However, if his maximum thrusting damage is enough to penetrate the enclosure's DR, he bursts through in one second per point of DR.

Duration: 1 hour.
Cost: 2 per +1 SM. Same cost to maintain.
Time to cast: 5 seconds.
Prerequisites: Magery 2 and Alter Body.

Item

(a) Wand. Usable only by mages. *Energy cost to create:* 2,000. (b) A size change can be made permanent for 100 times casting cost (the GM may require that the subject's new size be maintained while the enchantment goes on!)

Enlarge Other (VH)

Regular; Resisted by HT

As Enlarge, but usable on other beings. The spell can only be countered by the original caster or by Remove Curse. Cast on a volunteer soldier, this changes him into an instant siege engine . . . but also makes him a prime target for the enemy's artillery and magic.

Duration: 1 hour.
Cost: 2 per +1 SM. Same cost to maintain.
Time to cast: 10 seconds.
Prerequisites: Magery 3 and Enlarge.

Item

(a) Wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 2,000. (b) A size change can be made permanent for 100 times casting cost (the GM may require that the subject's new size be maintained while the enchantment goes on!)

Corpulence (VH)

Regular; Resisted by HT

The subject's girth temporarily increases by one level, going from Skinny to Normal, from Normal to Overweight, from Overweight to Fat, or from Fat to Very Fat, as applicable (see *Build,* p. B18, for details). Beyond Very Fat, the subject's weight increases by 100% of his base weight (not counting Fat or Skinny modifiers from this spell or otherwise) per casting. Subjects already affected resist repeated castings at a cumulative +5 per casting.

In addition to the normal effects of the increased weight, ordinary clothes will rip; each piece of rigid armor will constrict, inflicting DR/3 points of crushing damage (round down), and then suffocate (p. B436). Once the subject is incapable of moving, he may be suffocated by his own weight.

Duration: 10 minutes.
Cost: 6 to cast. 6 to maintain.
Time to cast: 3 seconds.
Prerequisites: Magery 2, Create Earth, Create Water, and at least four Body Control spells including Alter Body.

Item

(a) Any. Wearer acquires the new girth specified by the creator of the item. *Energy cost to create:* 2,000. (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 1,000.

Gauntness (VH)

Regular; Resisted by HT

The subject is temporarily emaciated, *losing* one level of weight (the opposite of the Corpulence spell). Armor and clothing hangs on the subject, hampering him (-2 DX). Beyond Skinny, the subject loses 20% of his *current* weight, and loses 1d FP, per casting. Repeated castings on already-affected subjects are resisted at a cumulative +5 per casting.

Duration: 10 minutes.
Cost: 6 to cast. 6 to maintain.
Time to cast: 3 seconds.
Prerequisites: Magery 2, Earth to Air, Destroy Water, and at least four Body Control spells, including Hunger.

Item

(a) Any. The wearer acquires the gauntness specified by the creator of the item. *Energy cost to create:* 2,000. (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 1,000.

Transform Body

Special

Take the form of another sapient race. Each race is a different spell, to be learned separately. The caster may only learn the form of a race with which he is familiar. Clothing, jewelry, and armor do *not* vanish when the transformation occurs; a caster who fails to shed rigid armor may be painfully squeezed (see *Corpulence*, above, for details).

The caster acquires only the physical traits of the new form, keeping his original mental traits. Note that Fatigue Points are not increased for spellcasting purposes.

The energy cost of this spell depends on the point value of the assumed form's physical traits; it costs 1/10 of the form's cost to cast and 1/20 to maintain, with a minimum of 5 to cast and 2 to maintain.

Duration: 1 hour.
Cost: Varies (see above).
Time to cast: 1 minute.
Prerequisite: Alter Body and three forms of Shapeshifting.

Item

Jewelry. The item must bear the likeness of the shape to be taken; usable only by mages. There is no cost to maintain the spell, but the caster cannot change back unless he still has the item; otherwise, a Remove Curse spell must be used if he is to regain normal form. *Energy cost to create:* 1,500.

Transform Other

Special; Resisted by Will

As Transform Body, but usable on others. The subject cannot end the spell; only the caster, or a Remove Curse spell, can do that.

Duration: 1 hour.
Cost: As Transform Body, but the minimum cost of the spell is 10 to cast and 4 to maintain.
Time to cast: 2 minutes.
Prerequisites: Shapeshift Others and the appropriate form of Transform Body.

Item

(a) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 3,000.

Transmogrification

Regular; Resisted by Will

Change a person into an inanimate object of similar weight. The object may be anything that the caster is familiar with. A living thing with IQ 0, such as a plant, qualifies as an inanimate object for this purpose. The subject is conscious throughout the duration of the spell, but cannot take any action, including spells or psionic powers. He can dimly hear what goes on around him and feel whatever his transformed self is in contact with, but cannot see or smell anything. If the object is destroyed, the subject dies; if it is damaged, the subject will suffer a proportionate loss of HP upon being returned to his natural form.

Duration: 1 hour.
Cost: 20. Same cost to maintain.
Time to cast: 2 minutes.
Prerequisites: Magery 3, Transform Other, Transform Object, and Flesh to Stone.

Item

Staff, wand, or jewelry. Usable only by mages. *Energy cost to create:* 5,000.

Chapter Six

Communication and Empathy Spells

Rolfe squatted and peered into the crevice. "This is the place, then?"

"It is, Master Rolfe," replied the cadaverous man behind him. The Tenebrous Assembly's factotum had no magical talent of his own, but he had served the Grand Masters for longer than anyone would admit to recalling. "A Master enters this place; a Grand Master leaves."

Rolfe said nothing, but ducked into the opening and walked confidently into the darkness. Hours passed, and if the factotum heard sounds from within the mountain, he did not show it.

Finally, as the first rays of the morning began to creep over the horizon, Rolfe emerged from the cave, a bit unsteady on his feet.

"Grand Master?" the factotum asked, slightly hesitant.

"It's Liese this time," the Grand Master replied. "What name belongs to this body?"

"Rolfe, Grand Master."

"Mm. Rolfe took good care of himself. I appreciate that; this should last a while before I have to return to the vessel. I'd prefer a woman, of course."

"Of course."

"He was good, this Rolfe. He nearly fought me off. If it had been Melchior's turn this time, we might have had to let him go, let him build a vessel of his own."

"That is the rule, Grand Master; a Grand Master leaves this place . . . one way or the other."

These spells deal with discerning (or *concealing*) thought and intent. For spells that manipulate emotions and loyalties, see *Mind Control Spells* (p. 133).

Most wizards eventually learn a few basic Communication and Empathy spells; its sensing spells are crucial prerequisites for such diverse colleges as Mind Control, Healing, Protection and Warning, and Necromancy.

Powerful Communication and Empathy wizards often live a very long time – not so much because their own lives are extended, but because they can spend a great deal of time in someone else's body while their own lies preserved in suspended animation.

Sense Foes

Information; Area

Tells the caster if the subject has hostile intent, and what the degree of hostility is. Can be cast on one person or a whole area. If cast over an area, this spell will only detect that *someone* is hostile, without telling *who*.

Base cost: 1 (minimum 2).

Item

Staff, wand, or jewelry. *Energy cost to create:* 200.

Sense Life

Information; Area

Tells the caster if there is any life in the subject area, and gives a general impression (on a good roll) of what kind. The caster can also specify he is looking for a specific sort of life: plants, elves, redheaded girls, or a named person who the caster knows.

Base cost: 1/2 (minimum 1).

Item

Staff, wand, or jewelry. *Energy cost to create:* 80.

Sense Emotion

Regular

Know what emotions the subject is feeling at the moment. It works on any living being, though it tends to be most useful on sapient beings. This will also tell how loyal the subject is to the caster (see *Loyalty of Hirelings*, p. B518).

Cost: 2.
Prerequisite: Sense Foes.

Item

Staff, wand, or jewelry. *Energy cost to create:* 300.

Hide Emotion

Regular; Resists emotion readings

This spell gives its subject the outward appearance of deep calm. It resists Aura and Sense Emotion (and Sense Foes, at the GM's option) as well as any attempt to gauge the subject's emotional state by other means (Empathy, psionics, Body Language, etc). This spell is a great favorite of diplomats, courtiers, and poker players. It can grant up to a +4 bonus (GM's judgment) to any skill where masked emotions are valuable.

Duration: 1 hour.
Cost: 2 to cast. 2 to maintain.
Prerequisite: Sense Emotion.

Item

Cap, crown, or other headgear. *Energy cost to create:* 200.

Persuasion

Regular; Resisted by Will

Used when a reaction roll is required, this spell makes the subject (one sapient creature – racial IQ 6 or better) more likely to react favorably.

Duration: 1 minute.
Cost: Twice the bonus to be added to the roll. Same cost to maintain (maximum 5).
Prerequisite: Sense Emotion.

Item

Cap, crown, helmet, or other headgear. The item must include a purple jewel (garnet or amethyst) worth at least $200. Usable only by mages. *Energy cost to create:* 1,000.

Vexation

Regular; Resisted by Will

Used when a reaction roll is required, this spell makes the subject (one sapient creature of racial IQ 6 or better) more likely to react unfavorably. Frequently used by spies to sabotage diplomatic missions.

Duration: 1 minute.
Cost: Twice the penalty subtracted from the roll to cast. Same cost to maintain (maximum 5).
Prerequisite: Sense Emotion.

Item

Cap, crown, or other headgear. Usable only by mages. *Energy cost to create:* 1,000; the item must include a purple jewel (garnet or amethyst) worth at least $200.

Truthsayer

Information; Resisted by Will

Tells whether the subject is lying or not. May be cast in two ways:

1. To tell whether the subject has told *any* lies in the last five minutes.
2. To tell whether the *last* thing the subject said was a lie.

May also give an indication of how great the lie is. If caster is not touching subject, calculate range as for a Regular spell.

Cost: 2.
Prerequisite: Sense Emotion.

Item

Crown, helmet, or other headgear. *Energy cost to create:* 500.

Dream Viewing

Regular; Resisted by Will

View a subject's dreams; they appear on any smooth surface of your choice (such as a basin of water, mirror, gem facet, etc). Use the long-distance and Mind-Reading modifiers (p. 14 and p. 46, respectively). If the caster and subject don't know each other, there is a further -2 penalty.

Duration: 1 hour.
Cost: 2 to cast. 1 to maintain.
Time to cast: 10 seconds.
Prerequisite: Truthsayer *or* Sleep.

Item

Mirror. *Energy cost to create:* 300.

Dream Sending

Regular; Resisted by Will

The caster uses this spell to send a dream vision to the subject, who must be asleep at the time of the casting. The message is seen in dream-symbols by the subject, who must roll vs. IQ-5 or a skill such as Fortune-Telling (Dream Interpretation) (p. B196) to interpret it correctly. The margin of success of the roll indicates how well the message is understood. Use of the Dreaming skill by the subject could distort or obliterate the message (GM's discretion).

The caster tells the GM the exact meaning (it is a good idea to limit the length of the message to as many words as the caster has skill with the spell). The GM, in turn, tells the subject what he understood (roll in secret, as a critical failure will lead to complete misunderstanding!). Use the long-distance and Mind-Reading modifiers (p. 14 and p. 46). If the caster and subject don't know each other, there is a further -2 penalty. This is also a Mind Control spell.

Duration: 1 hour.
Cost: 3. One try per night. Cannot be maintained.
Time to cast: 1 minute.
Prerequisite: Dream Viewing *or* Sleep.

Item

Wand or staff. *Energy cost to create:* 400.

Dream Projection

Regular

Using this spell, the caster projects his presence into the subject's dreams to converse with him. Roll a Quick Contest of the spell's skill vs. the subject's Will every minute; once the subject wins, the spell is broken and no further contact is possible that night.

Use the long-distance and Mind-Reading modifiers (p. 14 and p. 46). If the caster and subject don't know each other, there is a further -2 penalty. The subject may use his Dreaming skill (see p. B188) to help the process; roll every minute to skip the contest. This is also a Mind Control spell.

Duration: 1 minute. Each minute allows the exchange of two sentences (one from the caster and one from the subject).
Cost: 3 to cast. 3 to maintain. One try per night.
Time to cast: 1 minute.
Prerequisite: Dream Sending.

Item

Headgear. Usable only by mages. *Energy cost to create:* 800.

Hide Thoughts

Regular

Resists all Mind-Reading and Thought-Control attempts on the subject. The "attacking" ability must *win* a Quick Contest against this spell in order to affect the subject. If the attacking ability pierces Hide Thoughts, the subject still gets his normal resistance roll (roll separately). This spell does not affect previously established mental control.

Duration: 10 minutes.
Cost: 3 to cast. 1 to maintain.
Prerequisite: Truthsayer *or* Hide Emotion.

Item

Crown, helmet, or other headgear. *Energy cost to create:* 1,000.

Lend Language

Regular

Subject gains a language (sapient creatures only) at the caster's comprehension level or Accented – whichever is less. The caster must know the language in question.

Duration: 1 minute.
Cost: 3 to cast. 1 to maintain.
Time to cast: 3 seconds.
Prerequisites: Either Beast Speech or three Communication and Empathy spells.

Borrow Language

Regular

Caster gains a language at the subject's comprehension level or Accented – whichever is less. The subject must know the language in question.

Duration: 1 minute.
Cost: 3 to cast. 1 to maintain.
Time to cast: 3 seconds.
Prerequisite: Lend Language.

Gift of Tongues (VH)

Regular

Give speech and understanding of any language (sapient creatures only). Cannot provide speech or hearing to one who lacks these abilities.

Duration: 1 minute.
Cost: 2 for Broken comprehension; 4 for Accented comprehension; 6 for Native comprehension. Half to maintain.
Prerequisites: Borrow Language and three languages spoken at Accented or better.

Item

Headgear or jewelry. Only affects the wearer, and only for certain languages. *Energy cost to create:* 300 per language included (must be known to creator).

Gift of Letters (VH)

Regular

Give literacy in any language (sapient creatures only).

Duration: 1 minute.
Cost: 2 for Broken comprehension; 4 for Accented comprehension; 6 for Native comprehension. Half to maintain.
Prerequisites: Borrow Language and three languages written at Accented or better.

Item

Headgear or jewelry. Only affects the wearer, and only for certain languages. *Energy cost to create:* 300 per language included (must be known to creator).

Mind-Reading

Regular; Resisted by Will

Read a subject's mind. Works on any living being, but is most useful on sapient creatures. Detects only surface thoughts (what the subject is thinking at that moment). This spell will not work on sleeping or unconscious subjects. The subject is not aware his mind is being read, except in the case of a critical failure.

Modifiers: -2 if the caster does not know the subject's *native* language; -2 if the subject is of a different race – or -4 or more if the subject is totally alien!

Duration: 1 minute.
Cost: 4 to cast. 2 to maintain.
Time to cast: 10 seconds.
Prerequisite: Truthsayer *or* Borrow Language.

Item

Crown, helmet, or other headgear. Usable only by mages. *Energy cost to create:* 1,000.

Mind-Search (VH)

Regular; Resisted by Will

Search a subject's mind to find deep thoughts and knowledge of things the subject is not thinking about at the moment. In effect, the caster may ask one simple question (answered by no more than 10 words) per minute, and get the most truthful answer the subject can give. The subject is not aware of the intrusion, except in case of a critical failure.

Language is no barrier for this spell, and the subject may even be asleep. Subjects of different races may be harder to mind-search, at the GM's discretion.

Modifiers: Same as Mind-Reading, above. If the subject has magically been caused to forget something, this spell cannot recover it.

Duration: 1 minute.
Cost: 6 to cast. 3 to maintain.
Time to cast: 1 minute.
Prerequisite: Mind-Reading.

Item

Cap, crown, helmet, or other headgear. Usable only by mages. *Energy cost to create:* 1,500.

Mind-Sending

Regular

Send your thoughts to a subject in a one-way communication. Transmission proceeds at only talking speed, though the caster may also send simple pictures (the time required is equal to the time it would take the subject to copy the picture on paper or parchment).

When figuring the distance penalty, use the long-distance modifiers (p. 14). If caster and subject don't know each other, there is an additional -4 penalty.

Duration: 1 minute.
Cost: 4 to cast. 4 to maintain.
Time to cast: 4 seconds.
Prerequisite: Mind-Reading.

Item

Cap, crown, helmet, or other headgear. Usable only by mages. *Energy cost to create:* 1,500.

Telepathy (VH)

Regular

Full two-way communication, like Mind-Reading and Mind-Sending combined. The subject *must* be willing. Both caster and subject know the whole of each others' thoughts *and* what the other is experiencing; they communicate at the speed of thought. Other people can "enter the link" – a new casting of the spell (by anyone involved) is required for each new person to enter. To eavesdrop on an existing telepathic link without being noticed, there is a -4 skill penalty.

If caster and subject know each other and the subject expects the "call," there is no distance penalty. Otherwise, assess penalties as for Mind-Sending. The spell cannot work across time, dimensions, interplanetary space, etc.

Duration: 1 minute.
Cost: 4 to cast. 4 to maintain, for a 2-way link. Same cost for each additional person added.
Time to cast: 4 seconds.
Prerequisite: Mind-Sending.

Item

Cap, crown, helmet, or other headgear. Usable only by mages. *Energy cost to create:* 2,000.

Retrogression

Regular; Resisted by Will

Causes a subject to re-experience an event from his past life (or lives!) This can be a torment or as a boon.

Different kinds of memories have different effects. A terrifying memory requires a Fright Check at -3 or more; the memory of one's violent death, for example (in a campaign where Resurrection is possible), requires a Fright Check at -5. The memory of a wound or illness requires a HT-3 roll; failure inflicts one point of damage. A memory of slavery or degradation reduces Will by 1 for 3d hours unless a Will-3 roll is made. A memory of personal triumph and power increases Will by 1 for 3d hours if an IQ roll is made. The GM judges the effects of any other type of memory.

The caster only specifies the *type* of event to be relived; he cannot use this spell to "rummage" through the memories of the subject.

Unless stunned, the subject must roll his Body Sense to act on the turn following a Retrogression.

Duration: The memory takes one second to relive (although it may seem like more to the subject).

Cost: 5. Cannot be maintained. One try per day.
Time to cast: 10 seconds.
Prerequisites: Mind-Search and Mind-Sending.

Item

(a) Headgear. Every time it is put on, the wearer relives his worst or best memory (creator's decision, but GM's judgment as to which memory that turns out to be). *Energy cost to create:* 350. (b) Staff, wand, or jewelry. Usable only by mages. *Energy cost to create:* 400.

Lend Skill

Regular

Subject gains a skill at (controlling attribute)+4 or increases his existing skill by 4 levels – whichever is more. Subject's skill cannot become higher than caster's skill. Caster must know the skill in question (either normally or by Borrow Skill, below). Does not work on languages or spells.

Duration: 1 minute.
Cost: 3 to cast. 2 to maintain.
Time to cast: 3 seconds.
Prerequisites: Mind-Sending and IQ 11+.

Borrow Skill

Regular

The caster gains a skill at (controlling attribute)+4 or increases his existing skill by 4 levels – whichever is more. Caster's skill cannot become higher than subject's skill. Subject must be willing, and know the skill in question. Will not work on languages or spells.

Duration: 1 minute.
Cost: 4 to cast. 3 to maintain.
Time to cast: 3 seconds.
Prerequisites: Lend Skill.

Whoso regardeth dreams is like him that catcheth at a shadow, and followeth after the wind.

– Ecclesiasticus 34:2

Compel Truth

Information; Resisted by Will

The subject becomes unable to lie, though he may keep silent or tell partial truths (this must be roleplayed). The spell does not force him to volunteer information; he merely cannot say anything he believes to be untrue.

Duration: 5 minutes.
Cost: 4 to cast. 2 to maintain.
Prerequisites: Magery 2 and Truthsayer.

Item

Torc or heavy necklace; the wearer cannot lie. *Energy cost to create:* 600.

Compel Lie

Regular; Resisted by Will

As listed under *Mind Control Spells*, p. 137.

Insignificance

Regular; Special Resistance

Causes all beings with whom the subject has social contact to ignore or disregard him. Only beings who have a reason to notice that particular person or someone in his particular situation can resist the spell with Per – the subject himself does not get to resist. Viewers get a bonus to their resistance roll equal to the subject's total Appearance modifier, *whether positive or negative*. Thus, viewers of an Attractive subject resist with Per+1, but viewers of an Unattractive subject also resist with Per+1.

The spell's effects are limited in magnitude; the subject could slip unnoticed through a crowd, but would be stopped by guards if trying to go where he should not. He can get someone's attention by grabbing him, but is then likely to get a negative reaction. If he steals something or commits some other objectionable act (removing his clothing, perhaps), all witnesses get a new resistance roll. If he attacks someone, that person is automatically released from the spell – furthermore, the victim's cries for help *won't* be ignored!

Insignificance and Presence resist each other.

Duration: 1 hour.
Cost: 4 to cast. 4 to maintain.
Time to cast: 10 seconds.
Prerequisites: Persuasion and Avoid.

Item

(a) Cloak, jewelry, or headgear. Always on; the wearer is ignored! *Energy cost to create:* 700. (b) Wand or staff; usable only by mages. *Energy cost to create:* 450.

Presence

Regular; Special Resistance

Causes all beings with whom the subject has social contact to pay attention. Each being who attempts to ignore the subject gets to resist the spell with Will – but the subject himself does not get to resist! The spell does not guarantee a good reaction from those it affects – it doubles the positive or negative modifier! If he has no positive or negative modifiers, it gives him a +1 modifier. Most people will assume, if a person stands out for no reason that they can put their fingers on, that there must be something worth seeing.

Someone affected by this spell can easily be followed in a crowd or along city streets. The searcher can simply ask bystanders, "Did you see so-and-so come by here?" and quickly resume the pursuit.

Presence and Insignificance resist each other.

Duration: 1 hour.
Cost: 4 to cast. 4 to maintain.
Time to cast: 10 seconds.
Prerequisites: Persuasion and Lure.

Item

(a) Cloak, jewelry, or headgear. Always on; the wearer attracts attention. *Energy cost to create:* 700. (b) Wand or staff; usable only by mages. *Energy cost to create:* 450.

Communication (VH)

Regular

This spell allows the caster to set up two-way communication with the subject. Each participant sees an image of the other, allowing "real-time" conversation. Use the long-distance modifiers (p. 14) unless the caster knows the subject *and* the subject was expecting the "call," in which case no distance modifiers apply! Apply an additional -4 to skill if the caster does not know the subject.

The communication is audio-visual only. However, if the caster also knows Far-Tasting and Odor, he may add smell to the communication for an extra point of energy (both for casting and maintenance).

Others can join the "conference" at any time – a new casting of the spell (by anyone involved) is required for each new person to enter.

This communication is, obviously, not secure.

Duration: 1 minute.
Cost: 4 to cast. 4 to maintain. Same cost for each additional person joining the communication.
Time to cast: 4 seconds.

Prerequisites: Wizard Eye, Far-Hearing, Voices, and Simple Illusion.

Item

Headgear, bowl, mirror, or crystal ball. Usable only by mages. *Energy cost to create:* 800.

Message

Regular; Resisted by spells that block sound

As listed under *Sound Spells*, p. 174.

Machine Speech/TL

Regular

As listed under *Technological Spells*, p. 176.

Soul Rider

Regular; Resisted by Will

The caster can see through the subject's eyes, hear through his ears, etc., whenever he concentrates. (The caster also remains aware of his own body and may act normally). The caster exerts no control whatsoever over the subject, and does not know the subject's thoughts. The subject must be sapient (IQ 6 or better). Skill is at -2 if the subject is of a different race; if the subject is totally alien, -4 or more!

Duration: 1 minute.
Cost: 5 to cast. 2 to maintain.
Time to cast: 3 seconds.
Prerequisite: Mind-Reading.

Item

A pair of identical pieces of jewelry – one gold, one silver. The gold one must be worn by the caster, the silver one by the subject. The spell can then be cast at any time, regardless of distance. Usable only by mages. If a Powerstone is included in the item, it is in the gold one. If either item is broken, the other loses its enchantment. *Cost to create:* 1,000 energy (for the pair), and a $100 opal for each piece.

Control Person

Regular; Resisted by Will

Use all the victim's senses and control all the victim's physical actions (the caster has no access to the subject's memories, skills, spells, etc.). The subject retains his memory and wits and is aware of what is happening – though not of the caster's identity. The caster can only "animate" one body at a time, and must concentrate to control the subject's body. When he concentrates, his own body falls limp; when he stops concentrating, the subject regains control of his own body. The caster can move between the bodies freely while the spell lasts.

Duration: 1 minute.
Cost: 6 to cast. 3 to maintain.
Time to cast: 10 seconds.
Prerequisite: Soul Rider *or* Telepathy.

Item

Crown, helmet, or other headgear. Usable only by mages. *Energy cost to create:* 1,500.

Possession (VH)

Regular; Resisted by Will

Like Control Person – except the victim is unconscious throughout the "possession," and the caster has full access to the subject's memories, skills, and spells. While in the subject's body, the caster has his own skills and spells, and may use all the subject's skills, spells, and memories as though they were his own (the subject's physical skills are at -1). The caster's own body lies unconscious during the spell, and must be safeguarded.

Duration: 1 minute.
Cost: 10 to cast. 4 to maintain.
Time to cast: 1 minute.
Prerequisite: Magery 1 and either Control Person or Beast Possession.

Item

Cap, crown, helmet, or other headgear. Usable only by mages. *Energy cost to create:* 2,500.

Dispel Possession

Regular; Resisted by spell on subject

Ends any Soul Rider, Control, or Possession spell (or their animal equivalents) affecting the subject.

Cost: 10.
Time to cast: 10 seconds.
Prerequisite: Soul Rider, Possession, *or* (GM's option) "holy" religious status.

Item

Staff or wand. Usable only by mages. The item must touch the possessed subject. *Energy cost to create:* 300.

Permanent Possession (VH)

Regular; Resisted by Will

Like Possession – but the caster remains in the body of the subject until he chooses to leave, or is expelled by Dispel Possession or Remove Curse. The caster's own body is in Suspended Animation (p. 94) while the spell continues. If the caster's body dies, the spell is broken. Whenever the subject body takes damage, the caster must roll vs. his own body's HT, or take the same damage. If the subject body dies, the caster must roll vs. HT or die himself!

Duration: Indefinite (could be permanent).
Cost: 30.
Time to cast: 5 minutes.
Prerequisites: Magery 3 and Possession.

Item

Cap, crown, helmet, or other headgear. Usable only by mages. *Energy cost to create:* 3,000.

Exchange Bodies (VH)

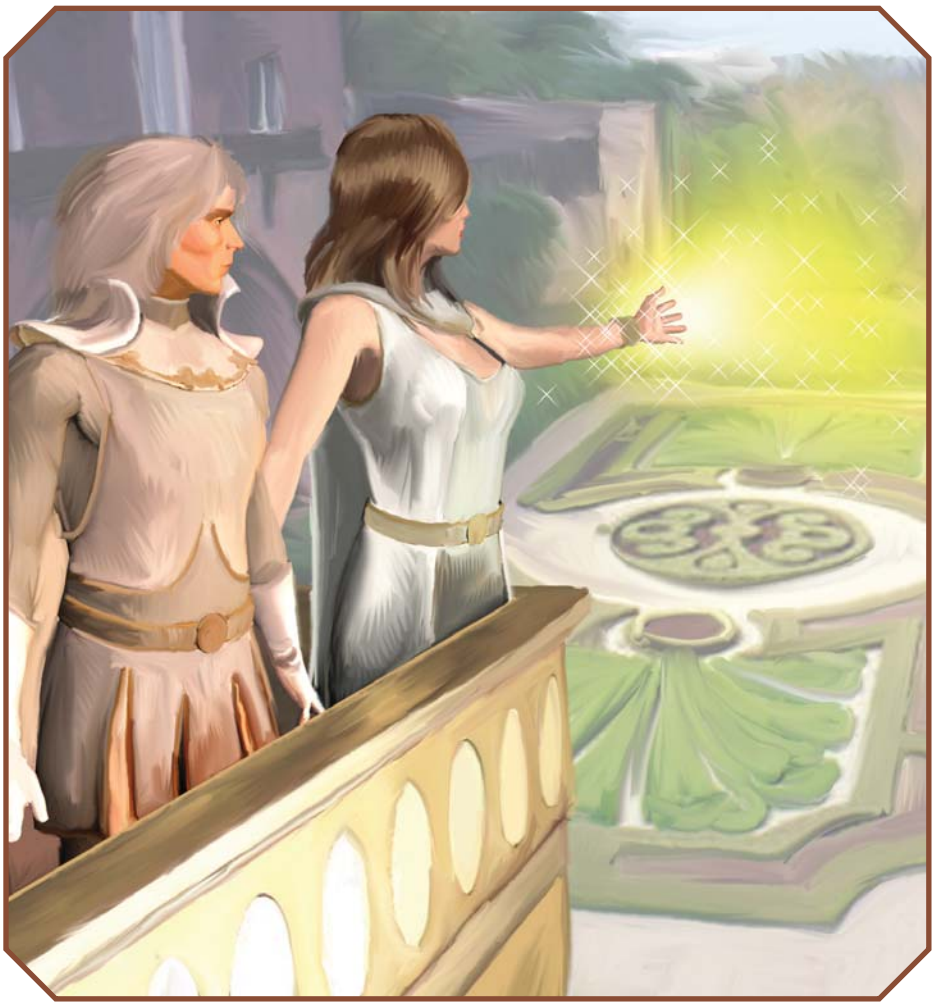
Regular; Resisted by Will

The caster permanently exchanges bodies with the subject. The subject may be any living creature. The only way this spell can be reversed, once it has been cast, is to cast it again; Dispel Possession or other anti-magic will not work. The attributes of ST, DX, and HT, as well as all physical advantages and disadvantages, go with the body; IQ, memory, personality, and all skills and spells go with the mind.

Note: Exchange Bodies may result in the caster increasing his point value. The GM may wish to charge the old wizard for the difference in character point value. See Mind Transfer (p. B296) for more on this. To help keep body-hopping wizards under control, the GM may wish to require some rare spell materials for this spell (p. 8).

Duration: Permanent.
Cost: 120.
Time to cast: 1 hour.
Prerequisites: Permanent Possession and Soul Jar.

Chapter Seven
Earth Spells



Lady Ann glared at a small hillock at the southeast corner of the garden.

"Bayard!" she called to her cousin.

Reclining on a couch inside, Bayard sighed heavily, handed his book to a faceless servitor, and glided over to join her on the balcony.

"Ann, darling, I'm sure that whatever you're doing is a credit to the Goulding name, but I'd really rather not be bothered."

"Be useful for a change, dear. That rise out there: too low?"

Bayard sniffed. "At the moment, yes. I'm not sure what you can do, though; if it gets any higher you'll be blocking the view of the path to the creek. What did you do with the pond that used to be on the left there?"

"I didn't like it there in the shade. Here, let me try something."

Her fingers flicked carefully and precisely, and a depression formed in the lawn in front of the hillock. As they watched, water turned the depression into a small pond, sparkling in the afternoon sun.

"Oh, that *is* nice. It balances well, and now you don't need to raise that mound. Brilliant as always."

"Thank you, Bayard. You can go back to whatever it was now."

Bayard grinned and skipped back into the mansion. Lady Ann turned her eye to the garden maze; she'd had some novel ideas about topiary.

These spells deal with the traditional magical "element" of earth. Except as noted, none of these spells affect stone or metal. More spells for affecting metal appear under *Technological Spells* (p. 182).

The College of Earth is not for dabblers. Very few spells are available to wizards who have not mastered all the basic spells of the college, and few spells of any kind are accessible to nonmages.

Seek Earth

Information

Tells the caster the *direction* and *approximate distance* of the nearest significant amount of any one type of earth, metal, or stone. Use the long-distance modifiers (p. 14). Any known sources of that material may be excluded if the caster specifically mentions them before beginning.

Cost: 3.
Time to cast: 10 seconds.

Item

A forked stick with an ounce of the desired earth/stone/metal set in the tip; each stick will find only that one kind of earth. *Cost to create:* 50 energy, and cash to buy an ounce of the material sought.

Shape Earth

Regular

Move earth about and shape it into any form. If the form is stable (e.g., a hill), it will permanently remain after

shaping. An unstable form (e.g., a column or wall) lasts only while the spell continues – no special concentration is required – and then collapses. An Architecture roll may be required to create a stable form.

Earth *moved* with this spell travels at only Move 2; stone travels at Move 1. It can harm no one except by flowing over an immobile person and burying him. If earth is moved onto a person to bury him – or from beneath him, to create a hole – he may move normally on his next turn, to escape. He is trapped only if he fails to do so.

Anyone buried in loose earth by this spell may try to claw his way out. One roll, at ST-4, is allowed per second. GMs may make this roll harder if the victim is buried under more than 2 cubic yards of earth! The victim can hold his breath (see *Holding Your Breath,* p. B351), but he eventually risks suffocation (see *Suffocation,* p. B436). A victim buried in stone may hold his breath, but unless he has some means of digging through solid stone, escape is unlikely.

Duration: 1 minute.
Cost: 1 per cubic yard of earth shaped (minimum 2). Half that to maintain (round up). Double cost to shape stone; *sextuple* cost to shape cut or worked stone, like a wall. It's not easy to make your own door into the castle.
Prerequisite: Seek Earth.

Item
Staff, wand, piece of jewelry, or digging tool. *Energy cost to create:* 200 (500 for an item that will shape stone).

Seek Pass

Information

Tells the caster the direction and approximate distance of the nearest pass through a mountain range. Use the long-distance modifiers (p. 14).

Cost: 3.
Time to cast: 10 seconds.
Prerequisite: Seek Earth.

Earth Vision

Regular

See through the earth – to find caves, bodies of ore, buried treasure, entombed victims, etc. Earth and uncut stone (up to 50 yards deep) are transparent to the subject, wherever he looks. Metal is not transparent; neither are cut stone, bricks, etc. Thus, this spell won't let you look through castle walls.

This is also a Knowledge spell.

Duration: 30 seconds.
Cost: 2 per 10 yards of depth to cast. Same cost to maintain.
Prerequisite: Shape Earth.

Item
Any. *Energy cost to create:* 400.

Earth to Stone

Regular

Turns an item of earth or clay into hard stone (but not gemstone), or turns an item of stone into a simple metal like bronze or iron. For double energy cost, turns an item of earth or clay into metal.

Duration: Permanent.
Cost: 3 per cubic yard (minimum 3).
Prerequisites: Magery 1 and Shape Earth.

Item
Staff, wand, or jewelry. *Energy cost to create:* 300.

Create Earth

Regular

Create good, solid earth where none existed before. This earth must be created in contact with the ground – not hanging in the air or floating in the sea!

Duration: Permanent.
Cost: 2 per cubic yard to create earth from nothingness (minimum 2); 1 per cubic yard to solidify mud into good earth (minimum 1).
Prerequisite: Earth to Stone.

Item
Staff or wand. *Energy cost to create:* 500.

Earth to Air

Regular

As listed under *Air Spells* p. 25.

Flesh to Stone

Regular; Resisted by HT

"Petrifies" a living subject (and all his gear!), turning him to stone. Must affect the *entire* subject.

Duration: Instantaneous, unless reversed by Stone to Flesh.
Cost: 10. For double cost, a subject may be turned into a metallic statue.
Time to cast: 2 seconds.
Prerequisite: Earth to Stone.

Item
Staff or wand. Usable only by mages. *Energy cost to create:* 1,000. The item must touch the victim for the spell to work.

Stone to Earth

Regular

Turns any kind of stone (including gemstone) into simple earth. Must be cast on a whole stone or block, rather than a part of it. This spell also transmutes metal into stone, or transmutes metal into earth for double cost.

Duration: Permanent.
Cost: 6 per cubic yard (minimum 6).
Prerequisites: Earth to Stone *or* any four Earth spells.

Item
Staff, wand, or jewelry. *Energy cost to create:* 400.

Predict Earth Movement

Information

Accurately predicts any landslides, earthquakes, or volcanic activity likely to occur within a given area over a given period. It gives approximate information regarding the nature, location, and severity of the impending disaster. This spell cannot forecast magically created earthquakes or volcanoes.

Cost: 2 times the length of the forecast in days. Double the cost for a place outside the local area (beyond the horizon). Quadruple the cost for a place on another continent.
Time to cast: 5 seconds per day of forecast.
Prerequisite: Four Earth spells.

Sand Jet

Regular

Shoot a thin jet of sand particles from one hand. Each turn, the caster rolls versus DX-4 or Innate Attack skill to hit. This attack may be dodged or blocked, but not parried. If the spell strikes the face, it causes no injury, but temporarily blinds the target unless he makes a HT roll.

If he fails the HT roll, he is blinded (see *Visibility,* p. B394) for one second per energy point put into the spell. After the target can see again, blurry vision gives him a -3 penalty to all combat skills for a further 1d seconds. On a critically failed HT roll, the target is blinded for 1d seconds per point put into the spell. On a successful HT roll, the victim closes his eyes for the duration of the spell, and is thus unable to see for one second. On a critical success, the victim is unaffected.

Duration: 1 second.

Cost: 1 to 3. The jet's range in yards is equal to the energy put into it. Cost to maintain is the same.

Prerequisite: Create Earth.

Item

Jewelry, staff, or wand; usable only by mages. *Energy cost to create:* 600.

Mud Jet

Regular

Shoot a thin jet of mud from one finger. Each turn, the caster rolls versus DX-4 or Innate Attack skill to hit. This attack may be dodged or blocked, but not parried. It does knockback on all targets; it can kill or knock down flying swarm creatures. It will extinguish a one-yard-radius area of normal fire.

If the spell strikes the face, it temporarily blinds the target (see *Visibility,* p. B394) unless he makes a HT roll. If he fails the HT roll, each energy point in the spell blinds him for one second. After the target can see again, blurry vision gives him a -3 penalty to all combat skills for a further 1d seconds. On a critical failure of the HT roll, the target is blinded for 1d seconds per point in the spell. On a successful HT roll, the victim covers his eyes and is therefore unable to see for one second. On a critical success, the victim is unaffected.

This is also a Water spell.

Duration: 1 second.

Cost: 1 to 3. Does 1d of knockback for every point used. Range is equal to the number of dice. Cost to maintain is the same.

Prerequisites: Water Jet and Create Earth, or Create Water and Sand Jet.

Item

Staff or wand. Usable only by mages. The jet issues from the item's tip. *Energy cost to create:* 600.

Stone Missile

Missile

Create a ball of stone and fire it from one hand, injuring anything it hits. This spell has 1/2D 40, Max 80, Acc 2.

Cost: Any amount up to your Magery level per second, for 3 seconds. The missile does 1d + 1 crushing damage per energy point.

Time to cast: 1 to 3 seconds.

Prerequisite: Create Earth.

Item

Staff or wand – the missile is fired from the end of the item. Usable only by mages. *Energy cost to create:* 400.

Walk Through Earth

Regular

Pass through earth as if it were air. With this spell, the subject could walk through the stone wall of a dungeon or the earthen wall of a hut. This spell does not open a passage so that others can follow. It also doesn't reveal what is on the other side. If the caster also knows Earth to Air, he will automatically have breathing air during his journey, at no energy cost. Otherwise, he must hold his breath!

Should the spell end before the subject regains the open air, he is buried in earth or stone, as the case may be. He is not automatically harmed, but will suffocate (see *Suffocation,* p. B436) if he cannot escape.

Duration: 10 seconds.

Cost: 3 to cast. 3 to maintain. Double cost to pass through stone. Triple cost to pass through metal.

Prerequisites: Four Earth spells.

Item

Gray cloak or silver jewelry; only affects the wearer. *Energy cost to create:* 1,200.

Earth to Water

Regular

Turns earth to mud (or water). Various uses of this spell include bogging down enemies or pursuers, making mud packs to treat insect stings, softening earth to use for clay dummies or decoys, etc.

This is also a Water spell.

Duration: Permanent.

Cost: 1 per cubic yard of earth turned into mud. Double to turn earth into water.

Prerequisites: Magery 1, Create Water, and Shape Earth.

Item

Staff, wand, or jewelry. Usable only by mages; the item must touch the subject. *Energy cost to create:* 500.

Partial Petrifaction (VH)

Melee; Resisted by HT

Turns part of a living subject to stone, usually leaving him immobile but still able to talk or be tortured. The caster must touch the subject. The body parts changed are at the discretion of the caster; the spell can petrify anything from a single finger to the entire body from the neck down, but the head can *never* be affected. The subject's metabolism is magically altered to survive the experience, but he understandably finds the experience intensely uncomfortable, whatever else is done to him.

Petrified body parts are immobile, numb, and have DR 10. Victims of this spell suffer a DX penalty on any physical action they attempt: -1 or more, depending on details of the casting and the action.

Clothes, jewelry, etc., may be "caught up" in the spell and included in the petrifaction, but magic items or anything carried in the hand or a backpack remain unchanged.

Either Stone to Flesh or Remove Curse is required to negate this spell.

Duration: Permanent (until negated).

Cost: 12. It costs more to petrify larger subjects, just as if it were a Regular spell (i.e., 24 energy for SM +1, 36 energy for SM +2, etc.)

Time to cast: 3 seconds.

Prerequisites: Magery 2 and Flesh to Stone.

Item

Staff, wand, or jewelry. Usable only by mages; the item must touch the subject. *Energy cost to create:* 1,300.

Rain of Stones

Area

Stones rain from the sky onto the area, causing 1d-1 crushing damage per second to all within it. Characters and creatures under the rain of stones take damage on their own turns; if less than an entire second is spent in the affected area, damage is halved (round down).

The spell can only be cast outdoors. Armor protects in the usual fashion. A shield with a DB of 2 or better can be held overhead to block the stones, but it may take damage (p. B484). This requires two hands and a Ready action, and succeeds automatically in protecting the character once the shield is readied upward, but this *unreadies* the shield from its normal protective functions!

Inanimate objects, such as buildings, protect with their DR.

Duration: 1 minute.
Base cost: 1 to cast (minimum 2). Same cost to maintain. For double base cost, the Rain of Stones does 2d-2 per second!
Prerequisites: Magery 2 and Create Earth.

Item

Staff. Usable only by mages. *Energy cost to create:* 500.

Entombment

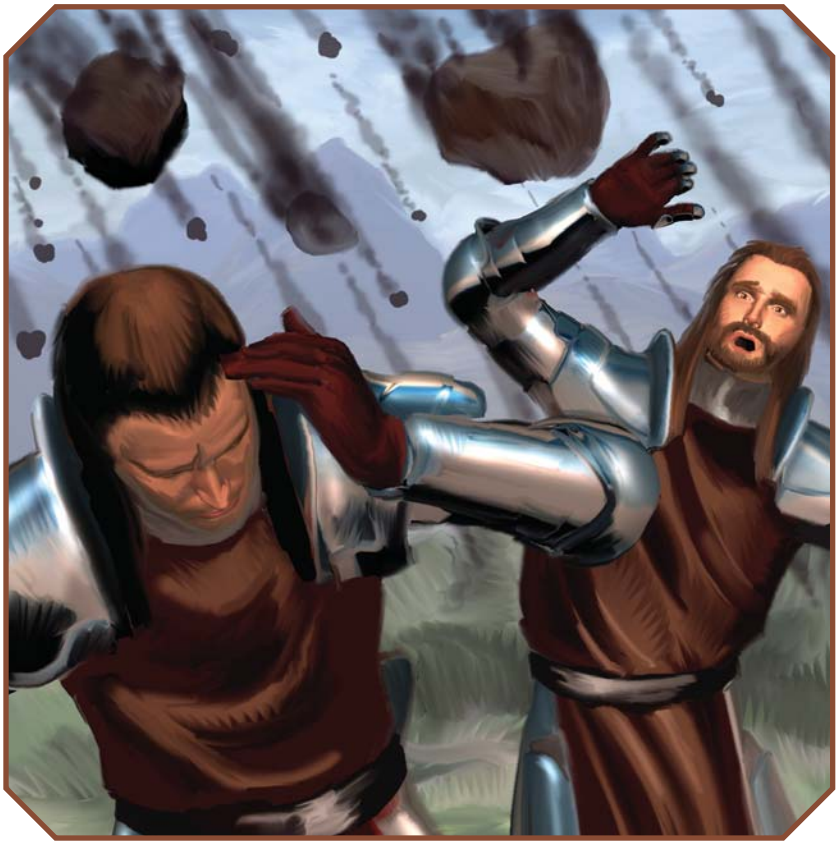
Regular; Resisted by HT

The earth instantly swallows the subject. He remains in Suspended Animation (as per p. 94), in a tiny spherical chamber 50 feet underground, until rescued by tunneling or the reverse of this spell. A mage who casts Entombment on *himself* may elect to stay awake, but this is unwise unless he has some means of breathing while entombed!

Duration: Permanent, unless reversed by this spell.
Cost: 10 (but only 6 to *reverse* an entombment).
Time to cast: 3 seconds.
Prerequisites: Magery 2 and five Earth spells.

Item

Wand or staff – must be colored jet black. Usable only by mages. *Energy cost to create:* 1,200. The item must touch the victim for the spell to work.



Essential Earth

Regular

Creates the magical essence of Earth. Essential Earth is three times as fertile: plants germinate three times faster and grow three times taller or bigger than normal. In addition, if Essential Earth is transformed into stone via the Earth to Stone spell, it will be three times as strong (DR and HP); columns or blocks cut from such stone would support three times as much weight. This Essential Stone is similar to the legendary material adamant, discussed in more detail in ***GURPS Fantasy***.

If Essential Earth is transformed into metal via Earth to Stone, that Essential Metal will also have triple the strength (HP, DR, and carrying capacity) of normal metal; this is similar to the legendary alloy orichalcum, discussed in more detail in ***GURPS Fantasy***.

Duration: Permanent.
Cost: 8.
Time to cast: 30 seconds.
Prerequisites: Six Earth spells.

Item

Staff. Usable only by mages. *Energy cost to create:* 500.

Stone to Flesh

Regular

Reverses the effects of Flesh to Stone and brings the victim back to life (stunned). Cannot be used to animate a statue that was never alive.

Duration: Instantaneous.
Cost: 10. Double cost to restore a person turned to metal.
Time to cast: 5 seconds.
Prerequisites: Magery 2, Flesh to Stone, and Stone to Earth.

Item

Staff or wand. Usable only by mages. *Energy cost to create:* 1,000. The item must touch the victim for the spell to work.

Body of Stone (VH)

Regular; Resisted by HT

Subject becomes an animated stone statue; he temporarily acquires the Body of Stone meta-trait (p. B262). Clothes also become stone, but carried equipment does not.

Duration: 1 minute.
Cost: 10 to cast. 5 to maintain.
Time to cast: 5 seconds.
Prerequisites: Stone to Flesh.

Item

Staff, wand, or jewelry. Only affects the wearer. *Energy cost to create:* 1,500.

Steelwraith

Regular; Resisted by HT

Renders the subject intangible to the touch of metal. Swords pass through him, he cannot hold metal keys or to wear metal armor, he passes through bars and metal floors . . .

Duration: 1 minute.
Cost: 7 to cast. 4 to maintain.
Time to cast: 2 seconds.
Prerequisites: Magery 2 and Walk Through Earth.

Item

(a) Wand, staff, or jewelry. Usable only by mages. *Energy cost to create:* 1,200. (b) A metallic weapon may be enchanted to counter the spell (so that it may be wielded by or against a Steelwraithed being). *Energy cost to create:* 250 per pound of weight (minimum 1 pound).

Purify Earth

Area

Removes foreign objects, poisons, and harmful elements from soil, rendering it fit to support growing plants. This spell also remedies any deficiencies in the soil's composition. Small foreign objects (coins, nails) underground are destroyed; medium ones (swords, artillery shells, chests, statuettes) "float" to the surface. Large objects (coffins, walls, large statues) will cause the spell to fail, but the caster gets a general idea of the reason.

This is also a Plant spell.

Duration: Permanent.
Base cost: 2. Double cost in poor soil such as rocky flats or sandy desert.
Time to cast: 30 seconds.
Prerequisites: Create Earth and Plant Growth.

Item

Staff. *Energy cost to create:* 400.

Sandstorm

Area

As listed under *Air Spells*, p. 27.

Earthquake

Area

Shakes the affected area. The caster probably won't want the area to include him. Divide the actual distance from caster to edge of affected area by 20 before figuring the skill penalty.

The spell must be cast over a fairly large area to be useful. Shaking one corner of a building will upset the occupants, but won't wreck the building. Cost depends on strength of the quake:

Tiny: Just a demonstration – a slight swaying. Pay base cost.
Mild: Slight damage to buildings. Multiply base cost by 2. DX roll required, every second, for those in affected area to keep their feet.
Severe: Stone walls crack; towers may fall. Multiply base cost by 4. DX-3 roll required, every second, for those in affected area to keep their feet.

Duration: One minute.
Base cost: 2 to cast. Same cost to maintain.
Time to cast: 30 seconds.
Prerequisites: Magery 2 and at least six Earth spells, including Earth Vision.

Volcano

Regular

Causes vapor and lava to spew from a chosen spot of ground. This is not a quick spell, but it is very serious! The volcano starts out small – a small hole spitting stones and vapors – and increase its diameter by a couple of yards per day. This spell can also reactivate a dormant volcano. When the spell is allowed to lapse, the volcano ceases to grow and will soon die (a formerly dormant volcano may stay active at the GM's discretion).

Duration: One day.
Cost: 15 to cast. 10 to maintain.
Time to cast: One hour until the first effects are visible. Continued concentration for 8 hours each day is necessary to keep the volcano growing.
Prerequisites: Earthquake and at least six Fire spells.

Alter Terrain (VH)

Area

Can be used to completely transform vast amounts of terrain. If cast over a large enough area, this spell can turn a city into a lake or sea, or an offshore island into a mountain range.

The profile of the ground (including sea, lake, or river beds) within the affected area can be raised, lowered, or reshaped as the caster chooses, or changed in texture to anything between soft earth and sand to hard granite. Stone or brick buildings and vegetable matter can all be transformed into "natural" stone or earth, but not vice-versa. Submerged areas raised above their natural level become dry land; any area lowered below the local water table may be flooded. The GM should require Architecture, Artist, or Engineer rolls if the caster tries to alter the area into something specific.

Beings and loose items on the surface at the time the spell is cast are simply raised or lowered, with no personal injury. If they are inside buildings, they are gently expelled rather than entombed. Of course, if they find themselves under water, they may have problems . . .

If the spell is countered or dispelled, the whole area returns to its former condition; even transformed buildings and trees are restored.

Duration: 2d days.

Base cost: 1 to cast (minimum cost 15). Cannot be maintained. Volumes taller than 4 yards may be affected by multiplying the base cost accordingly.

Time to cast: 10 seconds.

Prerequisites: Magery 3 and all four elemental "Shape" spells.

Item

An area may be permanently altered for 100 times casting cost.

Move Terrain (VH)

Area; Special Resistance

Enables an entire area of terrain, with all buildings, animals, plants, and people on or in it, to be moved over large distances. Once the spell is cast, the area to be transported vanishes (see below), replaced by bare earth or open water. The caster is now "carrying" that area in invisible, intangible form (this fact can be determined by Detect Magic or something similar). Beings caught in the affected area have a resistance roll based on the best Will among them, modified by -1 for every additional yard of radius of the subject area (thus, Move Terrain with a 2-yard radius is resisted by Will-1). Successful resistance negates the spell.

Once the casting is successfully completed, the subject area "shrinks" in radius at the rate of 1 yard per second, moving toward the caster at the same rate. Victims quick enough on their feet should be able to jump out of the area as it shrinks (this has good dramatic potential) – make DX *and* IQ rolls! GMs may decide this warrants a Fright Check.

Beings caught by the spell are aware of a wild, swirling sky above their heads and a physically impenetrable barrier all around them. The atmosphere inside remains breathable and comfortable (so this spell cannot be used to suffocate someone!). Spells cast out of the area automatically hit the Move Terrain's holder – thus, a trapped mage could walk up to the affected area's edge, lay his hand against the barrier, and cast Deathtouch at the holder! Captive mages could also cast Dispel Magic or Counterspell on the affected area, forcing the spell to end abruptly if they are successful.

When the caster stops maintaining the spell, the terrain reappears. The caster's location falls anywhere within it or at its edge. The subject area "expands" back to normal size at the same rate it shrank. If there is no suitable space available, anything in the way is moved aside as if by Shape Earth.

The caster may not use this spell again for one full day. The subject area or any part of it cannot be moved again by this spell (from any caster or magic item) for the same period.

Cast over a large enough area, this spell can place mountains in the middle of plains, open water (as deep as half the radius of effect, transported from lake or ocean) in the midst of a desert – or shift islands miles inland to form hills!

Duration: 1 hour. (The effects, once the area is "placed," are permanent.)

Base cost: 10 to cast. 8 to maintain.

Time to cast: 1 minute.

Prerequisites: Alter Terrain and Hide Object.

Item

Staff. Usable only by mages. *Energy cost to create:* 3,000.

Summon Earth Elemental, Control Earth Elemental, Create Earth Elemental

see pp. 27-28

Small Earth Elemental

This is the basic earth elemental summoned by casting Summon Earth Elemental at the minimum energy cost of 4. More energy put into the spell summons a more powerful elemental. Usually, this simply means a larger elemental; 1 point of energy is equal to 1 additional point of ST, 5 HP, or 2 points of DR. However, the GM may choose to build a more exotic elemental, adding unusual traits to the following template, or working one up from scratch.

Small Earth Elemental

40 points

Attribute Modifiers: ST+1 [10]; DX-2 [-40]; IQ-4 [-80].
Secondary Characteristic Modifiers: SM -1.
Advantages: Doesn't Breathe [20]; Doesn't Eat or Drink [10]; Doesn't Sleep [20]; DR 2 [10]; Immunity to Metabolic Hazards [30]; Injury Tolerance (Homogenous) [40]; Pressure Support 3 [15]; Vacuum Support [5].

Chapter Eight
Enchantment Spells

Hawthorne reverently picked the last needle out of a shallow dish of salamander oil. He passed it a few times over the onyx, the opal, and the bar of platinum, spoke a few palate-twisting words, and carefully dipped the tip into the special ink he'd imported from across the Bight. Then, slowly, he inserted the needle into the skin of his client's chest. He released the needle; it stayed in place. He spoke the final word of the incantation, and the needle flashed blue for a moment. The client grimaced.

"We're done," Hawthorne said as he retrieved the needles and stepped back to take a final look at the intricate pattern he'd traced out across the client's body over the better part of a year. "Your amulet is finished, and will protect you indefinitely, as long as the pattern remains intact.

"Thank you again for the opportunity to work on this. My partner and I have been mostly making Powerstones since we set up shop, and to work on a project like this is . . . well, really quite wonderful.

"If it's not an intrusion, though . . . why did you choose to have this amulet done this way?"

The client grinned wolfishly, pulling on a shirt to cover the elaborate tattoo.

"I'm off to see an old acquaintance who's very particular about people carrying magic items in his house. And, well . . . blast me with lightning once, shame on you. Blast me with lightning twice, shame on me."

These spells allow mages to make and unmake permanently magical items. They can only be cast with ceremonial magic (p. 12). A PC may only learn these spells with the GM's permission; nearly all of them are only available to quite advanced mages.

Enchant (VH)

Enchantment

A prerequisite for all other Enchantment spells *except* Scroll. To enchant an item, the caster must *also* know this spell. The caster rolls against the *lower* of his skill with this spell and the specific spell he wishes to place on the item. If he has assistants, they must have skill 15 or higher with both spells, but the roll is based on the *caster's* skill.

Duration: Magic items are permanent until destroyed.

Cost and Time: See *Enchanting* (p. 16).

Prerequisites: Magery 2 and at least one spell from each of 10 other colleges.

Temporary Enchantment

Enchantment

This lets the enchanter create magic items that only function a few times before losing their enchantment, at a substantial savings in energy cost (and therefore time).

An item can be temporarily enchanted at an energy cost of 15% the normal cost for an item of that type per use. An item with only a single use can be created for 15% of the normal energy, two uses would cost 30%, four would cost 60% (very cost-ineffective under most circumstances) and the cost for an item limited to 7 or more uses actually exceeds the cost of a permanent item.

The temporarily enchanted item acts, in all respects, as a normal item of that type until all of its uses are consumed. Once all the uses of the temporary item are gone, the item is no longer magical.

The Temporary Enchantment spell is used in place of the Enchant spell. A single item may not be enchanted with both temporary and permanent spells simultaneously.

Temporary Enchantment can only be used to give items a one-time ability to cast a certain spell – not to cast the spell on the object. For example, a

mage couldn't make a one-shot set of invisible armor – it would never wear off. He could give the armor the ability to cast the Invisibility spell on itself at normal energy and duration costs.

Temporary Enchantment cannot be used in conjunction with any Enchantment college or Meta-Spell college spells except the following: Hex, Limit, Link, Name, Power, and Speed. Temporary Enchantment absolutely cannot be used to further reduce the cost of enchantments that already have limited uses (e.g., Skull-Spirit).

Duration: Until all of the item's uses have been expended.

Cost and time: See *Enchanting*, p. 16.

Prerequisite: Enchant.

Scroll

Enchantment

Write a magical scroll charged with a spell from one of the other colleges. If a mage who understands the scroll's language at Accented comprehension or better reads it aloud, the scroll casts its spell, after which its power dissipates and the writing on the scroll vanishes. Reading a scroll requires twice the normal casting time for the spell; the mage reading the scroll pays the normal energy cost. No skill roll is required when the spell is read unless it is Resisted. In that case, roll using the skill level of the mage who wrote the scroll.

Pronunciation is important when reading a scroll aloud! If the mage reading the scroll has Accented *spoken* comprehension of the scroll's language, the scroll casts its spell at a -1 penalty; if he has Broken spoken comprehension, the scroll casts at -3. If he has None, he cannot articulate the words properly and cannot cast the spell.

A scroll can be read silently, to see what it says. Any mage who understands the language will know what spell it is supposed to be. This does not cast the spell!

Spells may be written on any material, but parchment is traditional. Damage to a scroll does not affect its power as long as the scroll is legible.

Time to cast: The number of days needed to write a scroll is equal to the energy cost required to cast the spell originally (base cost for area spells), not counting any bonuses for skill. Multiply this by $33 (or the setting's usual per-point enchantment rate; see pp. 21-22) to get the normal market value of the scroll.

Example: The Rear Vision spell normally costs 3 energy to cast. A Rear Vision scroll would take 3 full days to write, and would normally cost $100. At the end of the writing time, the GM rolls against the writer's skill with Scroll or the spell being written – whichever is lower. A successful roll means the spell is good. A failure means the scroll will not work. A critical failure means it will cast a flawed spell!

Duration: As long as the spell would normally last. The mage who reads the scroll can maintain the spell, if it could normally be maintained.

Prerequisites: Magery 1 and must have at least Accented written comprehension in the language the scroll is to be written in. A mage may not write a scroll for a spell he does not know.

Hex

Enchantment

Makes the item impossible to put down/take off/get out of/etc. In itself, this effect is merely inconvenient, and can even be useful – for instance, you will never drop a hexed weapon, and a hexed pair of glasses will never fall off. However, if the hexed object has another malign spell on it, it becomes much more dangerous. The hex effect is "always on."

To escape from a hexed object, you must remove or suppress the enchantment, find someone to cast a Remove Curse spell, or amputate the body part involved. Attempts to break or cut off the hexed item will fail (or result in amputation). GMs should permit this rule to have illogical results, if necessary, to keep the hexed object on the victim. Hexes aren't logical!

A hex may be limited by a Link or Password spell. For instance, a ring could be made with a Hex, the Strike Blind spell, and the password "Gesundheit." Anyone wearing the ring would go blind – but should they say the magic word, the ring would fall off!

Energy cost to create: 200.

Prerequisite: Enchant.

Power

Enchantment

Makes a magic item partially or completely "self-powered." Each point of Power reduces the energy cost to *cast* or to *maintain* any spell on the item by one. Halve this bonus in a low-mana area (round down); double it in a high- or very-high-mana area. Power has no effect on the energy cost of the *user's* spells!

If Power reduces the cost to *maintain* a spell to zero, treat the item as "always on" after the cost to cast is paid – but the wearer must stay awake to maintain the spell. If Power reduces the cost to *cast* to zero, the item is "always on" for *all* purposes, although the owner may turn it off if he wishes.

Energy Cost: See table below.

Power	*Cost*
1 point	500
2 points	1,000
3 points	2,000
4 points	4,000

Double the cost for each additional point. May be recast at a higher level, as per Accuracy (p. 65).

Prerequisites: Enchant and Recover Energy.

Speed

Enchantment

Decreases the casting time of any other enchantments on an item enchanted with Speed. Each point of Speed cuts the casting time in half, just as high skill does for a mage. If the casting time is reduced below 1 second, the item can be used to cast the spell without concentration.

Energy Cost: See table below.

Speed	*Cost*
1 point	500
2 points	1,000
3 points	2,000
4 points	4,000

Double the cost for each additional point. May be recast at a higher level, as per Accuracy (p. 65).

Prerequisites: Enchant and Haste.

Remove Enchantment

Enchantment

Takes one enchantment spell off the subject item. This does not affect other enchantments on that same item. *Exception:* A failed attempt to remove a Limiting Enchantment removes all enchantments from the item.

Skill modifiers: -3 if the caster does not know how to cast the enchantment he is trying to remove. -3 if he does not know exactly what that spell is. -3 for each other spell on the item. These are cumulative.

Duration: Removal is permanent.
Cost: 100 or 1/10 of the cost to place the enchantment originally, whichever is more.
Time to cast: see *Enchanting* (p. 16).
Prerequisite: Enchant.

Suspend Enchantment

Enchantment

As Remove Enchantment, but the enchantment is merely suppressed. It seems to vanish, but reappears when the Suspend Enchantment spell ends. If anyone attempts to study or detect a suspended enchantment, it resists the information spell at -5.

Skill modifiers: -3 if the caster does not know how to cast the enchantment he is trying to suspend. -3 if he does not know exactly what that spell is. -3 for each other spell on the item. These are cumulative.

Duration: One hour.
Cost: 25 or 1/100 of the cost to place the enchantment originally, whichever is more. Half this amount to maintain.
Prerequisite: Enchant.

Resist Enchantment

Enchantment

An item enchanted with this spell resists attempts to enchant it further, imposing a penalty on the enchantment skill roll. Further, this enchantment itself resists any attempt to remove or suspend it, imposing *twice* the regular penalty.

It is possible for the enchanter to set Resist Enchantment to not resist specific further enchantments, but the enchanter himself must cast those spells or be present for the entire casting.

Energy Cost: See table below.

Penalty	*Cost*
-1	50
-2	100
-3	200
-4	500
-5	1,000

Prerequisite: Any Limiting Enchantment (see p. 68).

Lesser Wish (VH)

Enchantment

This spell, like the more powerful Wish spells (below), must be cast on a ring, amulet, or jewel. The wearer of that item may then specify the result of any one die roll made in his presence, just before that roll is made – except a die roll involving magic. This is not an "action." It takes no time, and may be done at any time. Once used, a wish is lost.

Only one roll or action can be affected by one wish; you could use a wish on your attack roll or on the damage, but not both. GMs should feel free to disallow any wish use that they consider abusive or imbalancing.

Cost: 180.
Prerequisite: Enchant.

Talisman

Enchantment

A talisman is an item that grants the wearer a *one-time* boon when attacked by a specific spell or nonmagical attack or affliction. The talisman's enchantment adds to the resistance roll, attribute check, or defense roll against its specific attack or affliction. The talisman is always "on" while worn by or in physical contact with its owner; otherwise it is inactive. It lasts until the thing it protects against happens; then it loses its enchantment. Talismans may protect against disease, arrows, curses, lightning, and other calamities.

Although most talismans are created using pieces of jewelry, any item may be so enchanted. It is even possible to *tattoo* a talisman onto its wearer! When creating a talisman against a spell, the enchanter uses the lower of his skills with Talisman and the spell being opposed.

Each protection is a different spell, to be learned separately. Talismans also work against variants of the base spell: a talisman against Fireball also works against Explosive Fireball.

Alchemists can create magical objects called talismans (p. 220); they are, however, not the same as the items produced by this spell.

Energy Cost: See table below.

Protection	*Cost*
1 point	15
2 points	45
3 points	90
4 points	150

Prerequisites: Enchant and the spell to be opposed by the talisman (if any).

Amulet

Enchantment

An amulet is an item that grants the wearer magic resistance against a specific spell. Amulets are often enchanted with several Amulet spells, to cover a wide spectrum of effects. Although most amulets are pieces of jewelry, any item may be so enchanted. It is even possible to *tattoo* an amulet onto its wearer!

The enchanter uses the lower of his skills with Amulet and the spell being opposed. Amulets also work against variants of the base spell: an amulet against Fireball also works against Explosive Fireball.

Alchemists can create magical objects called amulets (p. 220); although they have a similar function, they are not the same as the items produced by this spell.

Energy cost to cast: 50 per point of magic resistance the amulet grants (maximum of 5).
Prerequisite: The appropriate Talisman spell (that is, to learn the Amulet spell to protect from Panic, the caster must know the Talisman spell for Panic).

Adjustable Clothing

Enchantment

Causes an item of clothing to adjust to fit whoever wears it, within limits. The adjustment occurs as the wearer begins to put it on, so the

enchantment won't be discovered if someone picks up the item and immediately discards it as "obviously" the wrong size. When removed, the item returns to its original size. The change in size does change weight as well; an object that doubled in size would increase in weight eightfold.

This enchantment is rare; few enchanters need to make "any size fits all" enchanted clothing. It is sometimes found in extremely expensive theatrical costumes. It is also used when the item is intended to outlive its original wearer, and often commissioned for intended heirlooms.

Energy cost to cast: The cost to enchant a cloth shirt or pair of pants that can increase or decrease in every dimension by 10% is 50. This cost varies widely depending on size, materials, and adaptability; round fractions up.

For gloves, boots, shoes, a belt, a hat, or similar small items, halve the cost. For something ring or earring-sized, use one-third cost. For overalls, or a full-length gown, double cost. For a pressure suit or other item that literally covers the whole body, triple the cost.

An item with a few incidental metal parts (zippers, buttons, etc.) counts as "cloth," as does thin leather. Leather thick enough to have DR doubles cost. Scale armor, chainmail, or similar items triple the cost. Plate armor and other solid metal clothing multiply cost by five. For exceptionally light clothing (a veil or lingerie), halve cost.

If the item can adjust in size by 25%, double cost. If it can halve or double in size, triple cost. If it can decrease to 1/5 size, or grow to five times size, quadruple cost.

Prerequisites: Enchant and Reshape.

Golem (VH)

Enchantment

Create and animate a permanent servant or warrior. Golems make excellent warriors; they never grow tired, and are immune to stunning, pain, and the like. Likewise, there is no known spell to "steal" a golem from its maker. The spell is permanent; the golem is "always on." A golem follows verbal orders from its maker; the maker may instruct it to obey others. It understands only one language (which must be spoken by the caster). It takes no initiative, and ignores any situation for which it has been given no orders. However, it never forgets anything it sees or is told.

Golems do not heal on their own, and are destroyed if reduced to -HP. They may be repaired with Healing spells (except Resurrection) if cast by the golem's creator. There is no other way to repair a golem. To create a golem, the creator must make its body – doing all the work himself – then animate it with this spell. Once animated, a golem lasts until reduced to 0 HP or until its creator commands it to cease functioning. No concentration or maintenance is required to control a golem.

A basic clay golem (see box) costs 250 energy to enchant. A more powerful golem costs an additional 2 energy for every extra character point of abilities added to the golem. In most cases, additional abilities should be restricted to extra ST, HP, and DR (a rule of thumb: 20 points of energy buys 1 ST, 5 HP, or 2 DR); however, GMs may allow more sweeping changes to the basic golem if they feel comfortable doing so. More powerful golems may require more durable (and more costly) materials, adding to the cost and time required to create the golem's body. (Optionally, the GM may allow less powerful golems; golems worth less than 0 points cost 2 less energy for every character point below zero, to a minimum of 130 energy.)

Energy cost to cast: 250 or more.

Prerequisites: Enchant, Shape Earth, and Animation. Other spells may be necessary to work with unusual materials, such as Shape Plant for a wood golem or Restoration for a flesh golem.

Clay Golem

Clay is the default material for golems; it is easily molded, both physically and supernaturally. Golem enchanters often go on to work with more difficult materials – stone, plastic, flesh – but if a golem is needed in a hurry, most enchanters return to clay.

Clay Golem

0 points

Attribute Modifiers: ST+5 [50]; DX+1 [20]; IQ-2 [-40]; HT+4 [40].

Advantages: Doesn't Breathe [20]; Doesn't Eat or Drink [10]; Doesn't Sleep [20]; High Pain Threshold [10]; Immunity to Metabolic Hazards [30]; Injury Tolerance (Homogenous, No Blood) [45]; Single-Minded [5]; Unaging [15]; Unfazeable [15]; Vacuum Support [5].

Disadvantages: Automaton [-85]; Cannot Learn [-30]; Disturbing Voice [-10]; No Sense of Smell/Taste [-5]; Reprogrammable [-10]; Social Stigma (Valuable Property) [-10]; Unhealing (Total) [-30]; Unnatural [-50]; Wealth (Dead Broke) [-25].

Features: Neither has nor spends Fatigue Points.

Skills: 10 points of skills appropriate to the golem's intended function [10].

Golems make excellent warriors; they never grow tired, and are immune to stunning, pain, and the like.

Impression Blocker

Enchantment

Seeker (p. 105) and related spells require an object associated with the item or person sought in order to work. The Impression Blocker Enchantment creates a container that allows people to carry items without them becoming "associated" with the carrier.

An object in a closed blocker container retains the impressions it had when the container was shut. If removed, handled briefly, and replaced, the object will acquire a very faint impression of the handler, but it won't be enough for a Seeker spell unless the handler does so once a day for *decades*. It is possible for an object in a blocker container still to be useful; for example, a book open to an important page, and stored in a glass container, can still be read! At sufficiently advanced tech levels, a "waldo" or remote-manipulation box can be enchanted, allowing handling of the object without opening the box.

In some settings, these containers can also be used to preserve evidence. If an object is owned for one person for a long time, and then transferred to a new owner, the original owner's impressions may wear off. A blocker container preserves the original owner's impressions. (In other settings, impressions never wear off; they just accumulate, so an item can be used to cast Seeker on any previous owner.)

Energy cost to cast: 20 per pound of capacity, minimum 20.

Prerequisites: Enchant, Seeker, and Scrywall.

Malefice (VH)

Enchantment

Through this foul enchantment, the caster can put a victim under his thrall. He must fashion a doll (usually out of wax, but clay, straw, and other materials may be appropriate with the GM's permission) with something personally relevant to the target imbedded in it. Parts of the body (nail clippings, hair, blood, spittle, etc.) allow a casting at base skill. Other items allow a casting at a varying penalty; for example, threads from a shirt worn for years might be worth -2, while dirt from a fresh footprint might be worth -6.

Malefice is a lasting spell (p. 10) that continues until its Endurance is reduced to 0. It starts with an Endurance equal to its caster's effective skill.

The doll can be used by its maker (and no one else) to cast harmful spells (such as Pain) on the target, at normal energy cost, *while ignoring distance penalties*. The caster uses the lower of the Malefice's Endurance and his skill with the channeled spell. The target resists all such attacks, even if the spell is normally not Resisted (spells without normal resistance rules are Resisted by HT when cast through a Malefice doll).

If the victim resists the very first spell cast upon him through the doll, the enchantment is immediately broken. Otherwise, every successful resistance simply weakens the Malefice, reducing its Endurance by 1. Upon reaching Endurance 0, the Malefice dissipates (though the doll is still a viable item for re-enchantment, and its magical association with the target offsets one point of casting penalty). A critical failure by the channeled spell or a critical success by the subject also breaks the enchantment, reducing the doll's Endurance to zero.

Destroying the doll breaks the spell, but it also inflicts on the target a Deathtouch (p. 41) of as many dice as the Malefice's current Endurance divided by 5 (round down, maximum of 3d). This damage occurs as long as the Malefice has any Endurance remaining. Remove Curse frees the target from the Malefice without harm to him.

Energy cost to cast: 250. The wax and special ingredients cost $500.

Prerequisites: Enchant and Seeker.

Ensorcel (VH)

Enchantment; Special Resistance

An ensorcelment is a durable spell, usually malign but sometimes beneficial, cast on a single being. The process requires something that is personally relevant to the subject; use the modifiers listed under Malefice.

The caster's spell roll is determined by the *lower* of his skills with this spell and the specific spell being placed on the subject. If the caster has assistants, their skills with both spells must be 15 or greater, but the roll is based on the *caster's* skill.

Possible ensorcelments include quite a few Body or Mind Control spells and others such as Shapeshift Other, Flesh to Stone, the various "Body of" spells, Walk on Air, the various "Resist" spells, Hide, Invisibility, the various "Vision" spells and Plant Form Other. In all cases, it must be a maintainable Regular spell.

When the spell is cast, the subject gets a resistance roll if the object spell allows one; distance is *not* a factor. Remove Curse is effective against any ensorcelment.

The cost of the enchantment can be reduced if the caster includes an "escape clause" – a particular action or condition that will break the spell. Examples include speaking a magic word, being kissed as a gesture of true love, abstaining from speech for three years, and so on. The value of the energy reduction depends on just how difficult the condition will be to meet – and the "escape clause" must be at least possible to be worth any reduction. The "discount" can be anything from 10% (for truly difficult or unlikely conditions) to 90% (for something that the subject could easily and automatically do, and easily discover).

Energy cost to cast: 200 times the casting cost of the spell being placed on the subject.

Prerequisite: Malefice.

Spell Stone

Enchantment

A spell stone stores a spell until someone (even a nonmage) uses it. The stone's user concentrates for a second while crushing the spell stone in his hand, thus casting the spell. At the beginning of his next turn, roll against the spell stone's Power. If the roll is successful, the spell is cast. If it is failed, the stone is simply wasted. If the stone is crushed *without* the requisite second of concentration, it is likewise wasted.

The spell's energy is included in the enchantment; none is required of the user, who also may not opt to supply any power to maintain the spell. Likewise, he may not cancel the spell once cast, although the creator of the

stone may specify a shorter duration than ordinary and may also invest extra energy into the enchantment so that the spell will maintain itself. A person may use only one spell stone per second.

A spell stone must be made from a jewel worth $\$10\times P^2 + \$40\times P$, where P is the maximum energy of the spell that may be contained.

Any spell except a Blocking or Enchantment spell may be stored in a spell stone. Limiting Enchantments may be put on the stone. If the spell stored in the stone requires that the caster know another spell (Counterspell, for instance), that other spell must be specified at creation time. It is thus possible to create a spell stone that will counter one *specific* spell, but it is impossible to create a *generic* Counterspell spell stone.

It is also possible to create spell stones which, when crushed, do not cast the spell *for* the user, but *on* him!

Analyze Magic reveals which spell a spell stone contains, whether the spell will be cast for or on the caster, how much energy was invested, etc. (one question per casting).

Energy cost to cast: 20 times the spell's casting cost, including maintenance cost if so desired.

Prerequisites: Enchant and Delay.

Wish (VH)

Enchantment

Allows the wisher to change the very recent past. It erases any just-made die roll – except a die roll for spell casting – and replaces it with the wisher's desired roll. The restrictions on use for Lesser Wish also apply to Wish.

Cost: 250.

Prerequisites: Lesser Wish and at least one spell in each of 15 different colleges.

Hideaway

Enchantment

When cast on an object, Hideaway makes it larger inside than it is outside. Can be used on a pocket, pouch, drawer, pitcher – anything that can normally hold other things. The caster may add any amount of pound-capacity he can afford, while increasing the size of the "inside" by 2 cubic feet for each pound; the extra space may be hidden by a false bottom, etc. Depending on the energy used to cast the spell, objects within the Hideaway may or may not count as encumbrance. The contents vanish forever if the object is destroyed. The time required to find an object in a Hideaway depends on how deep it is!

A large enough Hideaway could hold a person. There is no problem with air unless the Hideaway is sealed off.

Be careful what you wish for. You might get it.

Energy cost to cast: 50 per pound of extra capacity if the objects count as encumbrance; 100 if they do not.

Prerequisite: Enchant, Create Object, and Lighten.

Leak

Enchantment

A perversion of the Cornucopia spell (p. 64). The bag, purse, quiver, backpack, or other container enchanted will have an uncanny tendency to "lose" whatever is put in it (coins, arrows, clothes, etc.). A Leaky purse would lose a coin or two a day, a Leaky quiver would lose an arrow or two a day, a Leaky back-pack would lose a piece of equipment once in a while . . . The lost items may "drop" out of the container, be whisked away by thieving magpies, or magically vanish into thin air (as the GM's fancy takes him). Living beings are unaffected.

Energy cost to cast: 100.

Prerequisite: Hideaway.

Simulacrum (VH)

Enchantment

Create a golem in the exact image of a particular victim. The golem must be prepared for a specific target; this requires the incorporation of something from the original's body (hair, blood, etc.) into the creation. Otherwise, any materials appropriate for golems (clay, stone, flesh, etc.) may be used, along with any other materials that the GM approves. An appropriate Shape spell or Artist (Sculpting) skill roll at -10 is necessary to achieve a good likeness – the caster need not do this himself. The simulacrum, once enchanted, appears identical to the target (including such details as eye color and skin tone) through a sort of always-on Perfect Illusion Disguise.

The simulacrum has the same attributes as the underlying golem. Golems intended as simulacra are often designed with higher IQ than ordinary golems, to improve the deception.

Once the simulacrum is activated, it takes on the persona and knowledge of the target, *as the caster perceives them*. That is, the Simulacrum cannot know something that the target does if the caster didn't. IQ rolls may be required of the caster as challenges come up (what *was* the name of his great-uncle, anyway?). Like any golem, the simulacrum is under the direct control of the caster.

Time to build body: As for the underlying golem, adding a week of work.

Energy cost to activate: Double that of the underlying golem.

Prerequisites: Magery 3, Golem, Perfect Illusion, and Illusion Disguise.

Doppelgänger (VH)

Enchantment

A Doppelgänger is a duplicate of a person, fabricated through powerful magic. The Doppelgänger must be prepared for a specific target; both a sample of the target's body (hair, blood, etc.) and a cherished personal possession of the target are required. A statue of the original must be sculpted, using some pure elemental "material" – pure ice or snow from a mountaintop, stone or fire from the bowels of a volcano, and so on are all appropriate materials. The likeness is achieved with an appropriate Shape spell or Artist (Sculpting) skill roll at -10.

The Doppelgänger has all the attributes, skills, and knowledge of the original, with the exception of magic; it has no Magery and cannot cast any spells. It gets its knowledge from the embedded object; anything that the History spell could divine, it will know. It acts as the original would, had the Doppelgänger's creator enslaved him. Suspend Curse paralyzes it, and Remove Curse destroys it. When destroyed, all that is left is a mass of the original material (a puddle of water, a mound of earth, a sudden rush of flames) and the personal possession.

It is very difficult to detect the trickery. Whenever the GM judges an Information spell does not altogether fail to tell the copy from the original, he should let the Doppelgänger spell resist. The Aura spell and the Empathy advantage would be Resisted, for example.

Time to build body: 6 weeks of work.

Energy cost to activate: 1,000.

Prerequisites: Magery 3, Golem, History, and Enslave.

Great Wish (VH)

Enchantment

This spell can do just about anything. In particular:

(1) It can be used to cast any one spell, at no energy cost, with automatic success and no chance of resistance (for spells with variable cost, the maximum energy available is 1,000). The caster does not have to know the spell, or even have it in a book – he just has to know the spell exists. If the spell is a "continuing" one, it is up to the GM to determine how long it should last.

(2) It can permanently improve a character's scores. It will increase any one attribute by 1 level, or any one skill or spell by 3 levels. It can also reduce an enemy's scores, but only if that enemy is present when the wish is made.

(3) It will grant any one advantage worth 20 points or less, or remove any one disadvantage worth 20 points or less. An enemy can likewise be cursed by losing an advantage or gaining a disadvantage, but only if that enemy is present when the wish is made. The enemy does not get a chance to resist!

(4) It can do absolutely anything else that the GM feels will not ridiculously unbalance the adventure or the campaign!

Though incredibly powerful, this spell is not used often. It can never be learned at a level better than 15. Furthermore, any failed roll when creating a Great Wish costs the caster, and each helper, 1 point of IQ and 6d damage! Critical failures have toppled civilizations. Great Wishes are not normally found for sale. If they are, the price should be at least $100,000.

Cost: 2,000.

Prerequisites: Magery 3, Wish, and a combined DX and IQ of 30+.

Weapon Enchantments

Unless specified otherwise, the subject of any of these spells must be a weapon, and the last person to pick the item up is its "owner." All these spells are permanent and require no energy expenditure on the user's part.

Bane

Enchantment

This is also considered a Limiting Enchantment (p. 68). It is used to make a magical weapon with powers that work only against one type of foe. Successfully cast before any offensive weapon enchantment, it reduces the energy cost of those spells, but they will work only against the named foe. For instance, a sword could be made that did +3 damage, but only against orcs – and this would be easier to

enchant than a weapon that did +3 against everything. Note that a Bane spell cannot be removed unless the enchantments it controls are also removed.

The same caster who placed the Bane on the sword must cast the enchantments limited by the Bane. The more specific the bane (GM's decision) the greater the reduction in the other spells' cost(s). Banes like "All my foes" are not allowed! Examples of legal Banes:

Against a specific nation, religion, or race: Divide costs by 2.

Against a specific type of creature, or folk of a certain city: Divide costs by 3.

Against all members of one specific family: Divide costs by 4.

Against one specific foe: Divide costs by 10.

Energy cost to cast: 100. The caster must also possess some item or relic pertaining to the person, creature, race, etc. involved.

Prerequisite: Enchant.

Graceful Weapon

Enchantment

This enchantment is a toned-down version of Quick-Draw (below). The item does not become unready after attacking or parrying, even on a critical miss. If Graceful Weapon encounters Turn Blade or Bladeturning, it resists those spells with its Power.

Energy cost to cast: 150 per pound of weight (minimum 1 pound).

Prerequisites: Enchant and Apportation.

Item

May be cast on any sort of tool – not just a weapon.

Loyal Sword

Enchantment

The subject weapon seeks to return to the wearer's hand if it is dropped or thrown – even if the wearer becomes unable to fight. When dropped, it returns on the next turn, as though Quick-Drawn (below). When thrown, it flies until it hits something or falls to the ground, and then returns in as straight a line as possible, with a Move of 12. It avoids enemies and obstacles when returning! If its owner dies, it returns to the body – but after that, it becomes loyal to the next person to pick it up.

A loyal weapon can be trapped, captured out of the air, etc., while returning, but it requires a DX-4 roll to catch it, and its constant attempts to return to its owner give anyone else a -4 to fight with it.

A loyal weapon can be sold or given away at any time, but the transaction must be wholly voluntary; it is then loyal to the new owner. It may have only one owner at a time. Limiting spells may be used to limit the class of people who can use it.

Note that if this spell is placed on a Dancing Weapon (below) it makes the Dancing Weapon spell almost worthless. The effect will be a Loyal weapon that strikes at foes on its way back to its owner (but at no other time).

Energy cost to cast: 750 per pound of the weapon (minimum 1 pound).

Prerequisites: Enchant and Apportation.

Item

May be cast on any sort of tool – not just a weapon.

Quick-Draw

Enchantment

The weapon will leap to the owner's hand when he wants it, becoming ready instantly (no Ready maneuver required!). Only the owner's mental command is required; no die roll is needed.

The enchantment does not work if the weapon is more than a yard away, or if it is tied down, peacebonded (tied into the scabbard with rope or wire), within a pack, etc. A weapon with this spell does not become unready after attacking or parrying (p. B382).

Energy cost to cast: 300 per pound of weight (minimum 1 pound); 2,000 for a quiver, bag, etc., from which ordinary missiles will leap into the wearer's hand at need.

Prerequisites: Enchant and Apportation.

Item

May be cast on any sort of tool – not just a weapon.

Penetrating Weapon

Enchantment

Cutting, impaling, or piercing weapons with this enchantment pass through armor as if it were butter. Specifically, the spell grants the weapon an armor divisor (p. B268). Such a weapon does not do extra damage to unarmored foes. Hardened DR defends against the armor divisor conferred by this spell as normal.

Energy cost to cast: Depends on the armor divisor conferred on the weapon.

Armor Divisor	*Cost*
2	250
3	750
5	2,500
10	7,500
Ignores DR	25,000

Double the cost if the subject is a missile weapon (e.g., a bow). Divide the cost by 10 if subject is a missile (e.g., an arrow). If the item falls in more than one class (weapon, missile weapon, missile), use the higher enchantment cost. In addition to weapons, any sort of cutting tool may be enchanted. Note that this spell may be recast at a higher level as per Accuracy.

Prerequisites: Enchant and Find Weakness.

Dancing Weapon

Enchantment

A weapon enchanted with this spell fights on its own at the owner's command, hanging in the air as though wielded by an invisible warrior. It has a skill of 15, a Basic Speed of 5, and a ST (for damage purposes) equal to its Power. It uses intelligent strategy and follows its owner's spoken or mental commands about which enemy to attack. It continues fighting until it is dealt with (see below) or its owner dies or tells it to stop. This spell does not work on a missile weapon!

Any attack on a dancing weapon is at a penalty: from -4 (for a polearm) to -5 (a sword or axe) to -6 (a dagger or pistol). If the weapon gets a critical miss, or is struck by a critical hit, it is "stunned" and out of the fight (unless it breaks, in which case it is destroyed). If its owner is killed, it falls

to the floor – but if he is merely knocked unconscious, it continues to attack the closest foe. A dancing weapon can also be trapped in a net or bag (same basic roll as to hit it, but the GM can give bonuses or penalties depending on the cleverness of the method used).

The weapon can also be left with orders to attack anyone who approaches within a certain distance; a Link can be used to activate it only if a certain event takes place. Once activated, if its owner is not around, it attacks anyone in range – closest first, unless the Link had other instructions.

A dancing weapon cannot change owners while animated; grasping the handle of a dancing weapon is not enough to make it change sides.

Energy cost to cast: 1,000 per pound of the weapon's weight (minimum 1 pound). Double the cost to get a weapon with a Basic Speed of 6, or with skill of 18. Multiply cost by 4 to get a weapon with both advantages.

Prerequisites: Enchant and Dancing Object.

Defending Weapon

Enchantment

The subject weapon permits its wielder to parry more skillfully; each level of enchantment will give the wielder a +1 to Parry, up to a maximum of +3. The spell does *not* protect the weapon from being broken (p. B401).

If this enchantment is combined with Dancing Weapon, the weapon attacks opponents engaged with the owner and wards off blows from attackers when possible. It uses the weapon's skill as per Dancing Weapon, plus this spell's bonus. The owner can command it to defend a given side of him (much like Dancing Shield) and to either defend (in which case it gets two parries per turn) or attack (in which case it gets a single attack and a single parry each turn). If a dancing, defending weapon does not parry a blow, the owner may still use any of his own applicable defenses.

This spell can only be cast on a balanced weapon that can normally parry.

Energy cost to cast: 500 for +1 to parry, 1,000 for +2, and 2,000 for +3. The spell may be recast at a higher level as per Accuracy.

Prerequisites: Enchant and Dancing Object.

Weapon Spirit (VH)

Enchantment

Transfers the personality and some of the intelligence of a recently deceased being (humanoid or not – dogs are popular subjects) to a weapon, usually a sword. The enchantment is at -1 for each full day that elapsed between the donor's death and the beginning of the enchantment. Most of the body must be present at the beginning of the enchantment, but may disposed of after it commences.

The enchanter can pass on as little or as much of the donor's IQ as he wishes to the weapon, as well as some of the donor's skills, advantages, and disadvantages. The weapon has no memory of its former existence. Although it has no sensory organs, it possesses sight and hearing (Per 10). Quirks (or disadvantages reduced to quirk level) are sometimes transferred from the donor to the weapon, whether the enchanter wants them or not (this is why dogs are popular; their personalities tend to make biddable but effective weapons).

The weapon can communicate with its wielder through an extremely basic empathy. When the wielder takes a course of action the weapon approves of, he gets a "good feeling," and if he takes one the weapon disapproves of, he gets an equivalent "bad feeling." The weapon may be enchanted with the Voices spell to give it a voice. Various Communication and Empathy enchantments may be added to the weapon to enhance the communication.

Each time it gets a new wielder, the weapon must make a single reaction roll, which sets the tone for its relationship with the wielder from that point on. On a very good reaction, the weapon will do literally anything for its wielder; on a very bad one, it refuses to communicate or cooperate in any way. The GM should record the result; the weapon cannot be forced to roll a new reaction by being passed back and forth between wielders!

The weapon's skills cannot be improved, although skills such as History or Area Knowledge may be kept current through the absorption of new knowledge.

Energy cost to cast: 100 per point of IQ transferred, plus 25 times the CP cost of each skill, plus 50 times the total CP cost of all the advantages and disadvantages (minimum of zero). Add 300 for Voices.

Prerequisites: Enchant and Summon Spirit.

Cornucopia

Enchantment

Gives a quiver, bag of pellets, or other container of ammunition an "infinite" supply of one type of ammunition – but items must be taken out by hand, one at a time. Each missile exists for one minute after being removed from the container; then it vanishes (or, if picked up by anyone but the Cornucopia's owner, it vanishes immediately). Therefore, this spell cannot be used to make a single quiver supply enough arrows for an army! It cannot be cast on a weapon. A high-tech wizard could create a pouch that always contained one armor-piercing tracer shell; he could not enchant a .50-caliber machine-gun to fire forever.

Energy cost to cast: This is tricky, because skillful players will find many creative ways to pervert this item. GMs who find Cornucopia a nuisance may ban it entirely. In general: Energy cost is equal to 50 times the $ value, in the current game world, of the missile provided by the Cornucopia quiver. Thus, a quiver that provided ordinary arrows ($2 each) would cost 100 energy to create.

This means that a mage in a medieval world could not make a "quiver" for high-tech ammo; that ammo is priceless in his world. A Cornucopia quiver can be made to produce magic arrows, but only if the creating mage is capable of making such an arrow – and the energy cost will be tremendous.

Prerequisites: Enchant and two other Weapon Enchantment spells.

Quick-Aim

Enchantment

The subject missile weapon (bow, sling, etc) gains uncanny responsiveness; in game terms, an Aim action taken with the subject weapon has the effect of two turns of aiming.

Energy cost to cast: 100. For 200 energy, one Aim action may count for three turns of aiming. Halve the cost if subject is a missile (e.g., a javelin or throwing axe). The enchantment doesn't work on ammunition (like arrows). Note that this spell may be recast at a higher level as per Accuracy.

Prerequisites: Enchant and Grace.

Accuracy

Enchantment

Makes a weapon more likely to hit by adding to the user's effective skill.

Cost: See table below. Divide cost by 10 if the subject is a missile (e.g., an arrow or a bullet).

Bonus	*Cost*
+1	250
+2	1,000
+3	5,000

Prerequisites: Enchant and at least five Air spells.

Note: If a weapon already has this spell at a low level, a caster may recast the spell at a higher level (making the weapon more accurate). The cost for the new spell is the difference between the levels; the "old" spell does not add to the item's resistance to the "new" one.

Puissance

Enchantment

Adds to the basic damage a weapon does when it hits.

Cost: See table below. Divide cost by 10 if the subject is a missile (e.g., an arrow or a bullet). Double cost if the subject is a missile weapon (e.g., a bow or a gun).

Damage Bonus	*Cost*
+1	250
+2	1,000
+3	5,000

May be recast at a higher level, as per Accuracy (p. 65).

Prerequisites: Enchant and at least five Earth spells.

Ghost Weapon

Enchantment

A weapon enchanted with this spell affects ghosts (and other insubstantial beings and spirits) as if they were tangible. If the weapon itself is made intangible (through whatever means the GM deems feasible), the weapon still affects the physical world at the whim of its wielder.

Energy cost to cast: 250 per pound of weight (minimum 1 pound).

Prerequisites: Enchant and Solidify.

On a very good reaction, the weapon will do literally anything for its wielder; on a very bad one, it refuses to communicate or cooperate in any way.

Spell Arrow

Enchantment

Similar to a Spell Stone, a spell arrow stores a spell until it is fired. The archer need not be a mage. The arrow's user must concentrate for the appropriate time to cast to "arm" the spell. This cannot be simultaneous with aiming the bow, and isn't reduced by high skill (but see Speed Skill Arrow, below). An unused spell arrow disarms after 1 minute. The spell activates when the arrow hits a solid object; roll against the effective skill of the arrow's enchanter. If the roll is successful, the spell is cast. If it is a normal failure, the spell is simply wasted. Critical failures go to the *Critical Spell Failure Table* (p. 7). If the arrow is fired without the required concentration, the spell is wasted, but the arrow still does normal damage.

The spell's energy is included in the enchantment. The archer need not (and cannot) provide any to cast the spell or maintain it. Similarly, the archer may not cancel the spell once cast, though the enchanter may specify a shorter duration than normal, and may also invest extra energy so the spell will maintain itself.

The head of a spell arrow must contain a jewel worth $\$10\times P^2 + \$40\times P$, where P is the maximum energy of the contained spell. The gem is destroyed when the spell activates. (The rest of the arrow may be recoverable, but is now nonmagical.)

Any spell that can be enchanted into a magic item can be placed in a spell arrow, except for Blocking spells, Enchantment spells, Melee spells, or spells whose magic item description specifies "must touch." Note that some permissible spells are pointless (e.g., Beast-Soother), since the archer must hit the target with an arrow anyway. Enchantments may be placed on the arrow itself normally, including limiting enchantments.

The only decision the archer can make is what he's aiming at. If the spell requires a subject, whatever the arrow hits is the subject. (If it is not a legal subject – e.g., a wooden wall for Strike Blind – the spell is wasted.) What constitutes a "solid object" may require the GM's judgment (for example, drops of rain are not enough to trigger the spell). If it is an Area spell, the point of impact is the center of the area. If it is a Missile spell, the effect is as if the missile hit the target, in addition to the arrow (the missile does *not* launch itself from the point of impact). If the spell creates an object, the object appears as close as possible to the point of impact. If the spell would normally affect both a subject and the caster (e.g., (Animal) Control) the archer is treated as the caster. If the spell requires a human target, the spell still works even if the arrow hits clothing instead of skin. The enchanter specifies everything else: duration, area, precise effect, etc.

Analyze Magic can reveal what spell a spell arrow contains, how much energy was invested, and so on (one question per casting). Arrows intended for the consumer market are usually color-coded.

Energy cost to cast: 30 times the contained spell's casting cost, including maintenance cost if desired, so long as the item is an arrow or crossbow bolt.

The GM may decide this spell can work on other kinds of missiles (e.g., bullets). If so, for those missiles, multiply the contained spell's casting cost by 1/10 the missile's Max range, instead of 30. If the missile should pass beyond the Max range (for example, if fired from a more powerful gun) the spell is wasted. (This last rules does not apply to actual arrows and bolts.) Note that the need for a jewel still applies to bullets!

Prerequisite: Spell Stone.

Blank Spell Arrow (VH)

Enchantment

This enchantment creates a spell arrow with no spell stored. Instead, any spellcaster may, at a later date, place a spell in the blank spell arrow, and then use it as if it were a normal spell arrow.

Blank spell arrows have a capacity, representing the energy cost of the largest spell they can hold. When a spellcaster wishes to use the arrow, he casts the spell normally, but directs it into the arrow. If the spell is too big for the arrow, it is wasted. After the arrow has been filled, it must be used within one day (by the spellcaster or someone else), or the spell dissipates harmlessly, making the arrow blank again.

All other rules for spell arrows also apply to blank spell arrows, with one exception. If the caster of the spell is also the archer, he can determine its effect at firing time, and maintain it normally. (He cannot put more or less casting energy into the spell at firing; casting energy must be in the arrow.)

Energy cost to cast: 30 times the desired capacity. The Spell Arrow rules for non-arrow missiles apply to Blank Spell Arrow as well.

Prerequisite: Spell Arrow.

Speed Spell Arrow

Enchantment

This spell can only be cast on missiles enchanted with Spell Arrow. Like the Speed enchantment, it reduces the time the archer must concentrate to activate the contained spell. Each level of Speed Spell Arrow halves the concentration time. If time is reduced below 1 second, no concentration is required.

Cost: See table below.

Speed	*Cost*
1	50
2	100
3	200

Double the cost for each additional point. May be recast at a higher level, as per Accuracy (p. 65).

Prerequisites: Speed, Spell Arrow.

Armor Enchantments

These spells work only on clothing, armor, and shields. They are "always on" and are excellent protection. The drawback is that when the item is badly enough damaged, the spell also vanishes. Keep track of the number of times the item is penetrated by enemy blows. When it has been penetrated (DR×5) times, using natural DR, it is damaged enough that the enchantment leaves. If the clothing has no natural DR – e.g., a cotton shirt enchanted into armor – it loses its power after the fifth penetration.

Ordinary repairs may fix the item but do not count against the number of penetrations for purposes of deciding when the enchantment wears off. However, the Repair spell restores the item to its original state.

The energy costs listed are for a full suit of armor; individual pieces of armor cost a fraction of the full-suit price (see box).

Piece-By-Piece Armor Prices

Armor Pieces	*Percentage of Listed Cost*
Full Suit	100%
Torso and Vitals	50%
Groin	10%
Neck	2.5%
Arms	15%
Legs	30%
Hands	5%
Feet	7.5%
Head (skull and face)	10%
Skull	5%
Face	5%

Fortify

Enchantment

Increases the DR of clothing or a suit of armor.

Cost: See table below.

DR Bonus	*Cost*
+1	50
+2	200
+3	800
+4	3,000
+5	8,000

The spell can be recast to strengthen it, as per Accuracy (p. 65).

Prerequisite: Enchant.

Deflect

Enchantment

Adds a Defense Bonus to armor, clothing, a shield, or a weapon. This adds to all active defense rolls made by the user.

Cost: See table below.

DB	*Cost*
+1	100
+2	500
+3	2,000
+4	8,000
+5	20,000

This spell can be recast to strengthen it, as per Accuracy (p. 65).

Prerequisite: Enchant.

Lighten

Enchantment

Makes armor or shields lighter and easier to carry. The subject becomes lighter only when it is actually being worn. Armor in a backpack would still have its full weight.

Energy cost to cast: 100 to cut the item's weight by 25%. 500 to cut its weight in half.

Prerequisite: Enchant.

Dancing Shield

Enchantment

A shield enchanted with this spell protects its owner as if wielded by an invisible shield-bearer. The shield has Shield-16, Basic Speed 5, and ST equal to the Power of the enchantment (for bashing purposes). It follows its owner's mental or spoken instructions as to which side to guard. If the owner is knocked out, the shield continues protecting him to the best of its abilities. If the owner dies, the shield falls to the ground.

The shield can Block two different attacks per turn, regardless of its owner's actions (so the owner could parry any blow that got by the shield, for instance). The shield can be instructed to bash (p. B406), in which case its owner forfeits the shield's protection until the beginning of his next turn (the shield will travel no more than two yards from the owner to bash).

The shield can be attacked at a penalty of its DB-4. The shield's defense will be either a Block (using Shield/2) or a Dodge (using Speed); it does not get any DB bonus from itself. The shield could also be netted or bagged (standard to-hit roll). If the shield gets a critical miss or is struck by a critical hit, it is *stunned* and out of the fight until its owner grasps it and "wakes it up" (a Ready maneuver). The shield loses its magic if destroyed; if penetrated by an impaling or piercing weapon, it loses one point each of Power, Shield skill, and Basic Speed. As always, if Power drops below 15, the item ceases to function.

Energy cost to cast: 250 per pound of the shield's weight (minimum 1 pound). Double the cost to enchant a shield with Speed 6 or Skill 18. Quadruple the cost to get both. This spell may be recast at a higher level as with Accuracy (p. 65), either to improve or repair the Shield.

Prerequisites: Enchant and Dancing Object.

Defending Shield

Enchantment

The enchanted shield allows its wielder to block more skillfully; each level of enchantment gives the wielder a +1 to Block, up to a maximum of +3. The spell may not be combined with Dancing Shield.

Energy cost to cast: 500 for +1 to Block, 1,000 for +2, and 2,000 for +3.

Cost: See table below.

Block Bonus	*Cost*
+1	500
+2	1000
+3	2,000

The spell may be recast at a higher level as with Accuracy (p. 65).

Prerequisites: Enchant and Grace.

Limiting Enchantments

All these enchantments limit the way that enchanted items work. The GM should make sure that he gets the details in writing, to avoid arguments about when or how an item can work. Since these spells merely limit the way other spells work, they never add an energy cost for the user.

These spells are hard to remove. Name, Password, and Bane cannot be removed unless the spells they limit are also removed. Limit and Link resist removal at +5, and any failure may be treated as "critical." This can remove all spells on the item, strengthen the limit, or have any other result the GM feels is inconvenient for the clumsy mage.

If an item has multiple spells on it, including one or more limiting spells, the mage casting each new spell determines whether it governs (or is governed by) previous spells. For instance, a named sword might have +3 against orcs for any user, but act as a Dancing Sword only for one who knew its name.

Limit

Enchantment

The enchanted item works only for the user, or class of users, specified by the caster when the Limit is cast. This class of users may be as simple or complex as the caster wishes. A Limit spell may affect all the spells on the item, or just some of them.

Energy cost to cast: 200.
Prerequisite: Enchant.

Name

Enchantment

Gives a magical name to an enchanted object. The magic of the subject functions only for someone who knows its name. The user must speak the item's name the first time he tries to use it, to show he knows the name.

Energy cost to cast: 400, or 200 if the name is written on the item. It must be readable (GM's decision). It may be small, hidden, or even disguised, but a person examining the item must be able to see it. This provision is a major reason for the popularity of dead and obscure languages among wizards – writing your item's name on it in an extinct language is almost as safe as not writing it at all, and much cheaper.

Prerequisite: Enchant.

Password

Enchantment

The reverse of the Name enchantment. A magical item with a Password functions *unless* the Password is spoken. If the Password is spoken, the item will be inert until the next time its powers would normally be invoked – or for one minute (choice of person making the item). An item may have some spells that are passworded and others that are not. The details, of course, depend on the spell.

Examples: (a) a magic ring that gave the power of flight – but puts the wearer in Suspended Animation unless the password was used; (b) a

Pentagram that can be "turned off" with a word; (c) a Dancing Sword that stops swinging for one minute if the password is said.

Energy cost to cast: 400. Halve this cost if the password is written on the item (must be readable).

Prerequisite: Enchant.

Link

Enchantment

Same as the "Item" description under *Meta-Spells*, pp. 131-132.

Attune

Enchantment

This limiting enchantment, a derivative of Bane, makes a magic item work better against a specific target. It works on any Resisted spell, providing a penalty to the target's resistance roll. If enchanted into a magic item before the spell to be affected, the cost to enchant the affected spell is halved.

The enchanter must possess something connected to the target. The accuracy of the symbolic representation determines the penalty to the resistance roll.

In every case but the last, the representation must be incorporated into the magic item, though it need not remain intact (e.g., a videotape may be crushed to powder). If the target is present, presumably he has either been misled as to the purpose of the enchantment, or has agreed to it for more complex reasons (for instance, he's worried he might run amok in the future).

The downside of this enchantment is that, when the item is used against other targets, they get a +5 to their resistance roll. An Attune Enchantment cannot be removed from an item unless the enchantment or enchantments it controls are removed first.

Energy Cost to Cast: 100.
Prerequisite: Bane.

Symbolic Representation	*Penalty*
Minimal (drawing)	-2
Small belonging/piece of clothing	-4
Hair or fingernail clippings	-5
Photographs or blood samples	-6
DNA sample or video	-7
Target is present during enchantment	-8

Wizardly Tools

Items enchanted with these spells can be used only by mages. All these spells are always on.

Powerstone

Enchantment

Infuses mana into an object for later use by a wizard. Traditionally, a gemstone serves as the subject of this spell (for this reason, "Powerstone" is the generic word for an object containing stored mana), but any object can potentially be used. Any wizard touching a Powerstone may take any or all of the energy it contains, using it instead of his body's own energy to cast a spell.

Each Powerstone is said to have a "capacity." This is the maximum amount of energy it can hold. Since a wizard can only use one Powerstone at a time, a large Powerstone is more useful than a handful of small ones. A large Powerstone can be used to cast a large spell; a group of small ones can be used one at a time to help maintain a spell, but cannot be used all at once.

A Powerstone "recharges" itself after use, by absorbing mana from the surrounding area. The rate of recharge varies with the area's mana level.

Local Mana	*Recharge Rate*
None	None
Low	1 point/week
Normal	1 point/day
High	1 point/12 hours
Very High	1 point/6 hours

A Powerstone does not recharge if it is within six feet of a larger Powerstone. Stones of the same size split the available mana and recharge at slower speed. This unfortunate fact means that the owner of several Powerstones must let some of them out of his sight to get them recharged!

A Powerstone is enchanted one step at a time. The first time Powerstone is cast on an object, it becomes an uncharged Powerstone with capacity 1. Each additional casting increases its capacity by 1. Thus, 15 castings would create a Powerstone with a capacity of 15. But note that with this many castings, there would be a cumulative chance of nearly 1 in 4 that a critical failure would be rolled at some point, destroying the stone. For 60 successive castings, the cumulative chance of critical failure is 2 in 3!

Further, each ordinary failure while casting puts some sort of magical "quirk" on the stone. Thus, it is possible for work for months and end up with a 20-energy Powerstone that smells like fish and can only be used on Wednesdays . . . This makes big stones without serious flaws more valuable than others of the same strength. The quirks of a Powerstone are set by the GM, and can be used as a tool for campaign balance. Most of them will be peculiar, arbitrary limitations on how the stone can recharge (e.g., only while bathed in bat blood) or how it can be used (e.g., only on Fire spells; only by a green-eyed virgin; not by anyone wearing a hat). A severe quirk affects the user of the stone (e.g., renders him mute for an hour).

The caster knows if his spell has failed, but not what quirk his Powerstone now has. The Analyze Magic spell can determine what quirks a Powerstone has. Two failures in a row indicate that no further growth is possible for that stone.

Any object may be used to produce a Powerstone. However, it is easier to enchant a Powerstone using an item with intrinsic value. The cost to cast Powerstone is *quadrupled* if the item being enchanted has a value of less than $\$10\times P^2 + \$40\times P$, where P is the target capacity of the Powerstone. This is one reason gemstones are popular; a valuable stone is compact and durable.

A Powerstone is uncharged when created (though if it already contained energy, that energy is unaffected by a casting to increase its capacity). The energy from a Powerstone cannot be used for further enchantments on that stone – a Powerstone cannot be used to help enchant itself!

Energy cost for each casting: 20.
Prerequisite: Enchant.

"Dedicated" Powerstones

If a Powerstone is attached to an item before that item is enchanted, the Powerstone becomes a part of the magical item. It is then a "dedicated" Powerstone. The item's user may tap its energy – but only to power the spells cast by or through that item.

If a dedicated Powerstone is removed from a magical item, the magical item is automatically broken and loses its enchantment, but the Powerstone is intact, and becomes a "normal" Powerstone again. (Of course, if the Powerstone is built into the item in some way – e.g., set in a magic ring – a successful skill roll may be required to remove it without breaking it.)

The advantage of a dedicated Powerstone is that its energy, being specifically channeled, is used twice as efficiently. A one-point dedicated Powerstone gives two points of energy (but still recharges in one day in a normal-mana area).

"Exclusive" Powerstones

An item can also be made with a built-in Powerstone, in such a way that only its integral Powerstone(s) can power it. This is done exactly as for dedicated Powerstones, but the energy of an exclusive Powerstone is three times as efficient – i.e., a one-point exclusive Powerstone delivers three points of energy, but then the item is useless until the stone recharges.

One-College Powerstones

This is a variation that follows all normal Powerstone rules. A One-College Powerstone is enchanted in such a way that it can provide energy only for spells of a particular college. One-College Powerstones may not be Dedicated or Exclusive.

The advantage of a One-College Powerstone is that each casting only requires 12 energy, not 20.

Manastone (VH)

Enchantment

A Manastone is an unrechargeable Powerstone. Use all normal Powerstone rules (limits by value, etc.), except that a Manastone does not recharge its power – although the item may be re-enchanted with multiple applications of the spell. If a Manastone "quirks" in enchanting, the quirks (naturally) must be appropriate to a nonrecharging object (no quirks about recharging limitations!). Manastones have no effect on the recharge rate of nearby Powerstones.

Energy cost to cast: 5. Each casting charges the stone with a single point of energy.
Prerequisite: Enchant.

Staff

Enchantment

Enchants a magic staff – see *Magic Staffs* (p. 13) for details. Though many magic items must be in the form of a wand or staff, they do *not* have to have this spell on them. Many mages use various Limiting enchantments so that others can't use their staffs – but this is not automatic.

Energy Cost: 30.
Prerequisite: Enchant.

Item

Any rod-shaped piece of organic material (wood, bone, ivory, etc.) up to 6 feet long. May be decorated with other materials, like gems and precious metals. A small staff is often called a "rod," and a very short and slender one, a "wand."

Homunculus

Enchantment

Grow a miniature image from your flesh. This image, called a homunculus, has ST 1, DX 0, and no IQ or HT. It must be kept inside a glass bottle and fed at least 1 HP worth of human blood each day to remain alive. If the bottle is broken or submitted to intense heat or light, the homunculus dies.

Whenever he wishes, the caster can move his spirit into the homunculus, no matter how far away it is (as per Possession, p. 49), at an energy cost of 4 for the first minute and 2 for every minute thereafter. He may then observe and communicate with anyone in the homunculus' presence. Although the caster can cast spells from the homunculus (using his own energy), he cannot perform any physical action, since the homunculus is trapped inside the bottle. The caster may return to his original body at will.

If a hostile wizard gains possession of a live homunculus, he can cast Communication and Empathy spells at the homunculus' creator at no range penalty! The creator also resists any such spells at -5 when cast through the homunculus. A homunculus is thus a great vulnerability and is only entrusted to the most faithful of servants.

The caster may own several homunculi; he can move his spirit to only one at a time. While thus "away," the caster's body is very vulnerable and should be safeguarded.

Energy cost to cast: 800.
Prerequisites: Magery 2 and Mind-Sending.

Effigy (VH)

Enchantment

A mage can enchant an effigy, a life-size statue of himself, which attracts hostile magic directed at him to itself. Like Malefice, Effigy is a lasting spell, which continues until its Endurance is reduced to zero. Every time a spell attacks the effigy's maker, the effigy resists with its current Endurance, modified for the distance separating it from him (use the long-distance modifiers, p. 14). If the effigy succeeds, the spell affects *it* rather than its maker,

The GM must decide what constitutes a "hostile" spell; for instance, Deathtouch is, but Mind-Reading *isn't*. Redirected spells that have no effect on inanimate statues (such as Paralyze Limb or Death Vision) instead "attack" the enchantment. The effigy then resists with its current Endurance. Every such successful attack reduces the effigy's Endurance by one; when the effigy's Endurance drops below 0, it ceases functioning. A critical failure by the effigy or a critical success by the attacking spell also breaks the enchantment, as does physical destruction. An enchanter may only have one effigy at any one time.

Energy cost to cast: 1,000.
Prerequisites: Magery 2, Enchant, Scryguard, and Ward.

Soul Stone (VH)

Enchantment

By transferring his life force to a Soul Stone, a sorcerer becomes immortal. Although his body may still be *hurt* (burned, cut, crushed . . .), he may not be *killed* as long as the soul stone is safe. The caster becomes immune to disease, poison, and aging. He automatically makes all HT "death checks" caused by injury. He may still fall unconscious.

If the soul stone is destroyed, the caster dies, so it is usually hidden in a very hard-to-reach place. Death may also come from some magical causes, such as a Planar Visit failure. Note that the stone need not literally be a piece of rock; examples from folklore and fiction include the caster's own heart (removed once the spell is cast, presumably!), eggs, and more.

Soul Stone and Soul Jar are mutually exclusive.

Cost: 500. One try; if the enchantment fails, the caster dies!
Prerequisites: Magery 3, Enchant, and Soul Jar.

Crystal Ball

Enchantment

Used in the Crystal-Gazing variant of Divination. Requires a ball of flawless crystal at least 2" in diameter (value $1,000). A 3" ball (value $5,000) gives +1 to divinations. A 4" ball (value $20,000) gives +2.

Energy cost to create: 1,000.
Prerequisite: Divination (Crystal-Gazing).

Lich (VH)

Enchantment

As listed under *Necromantic Spells*, p. 159.

Wraith (VH)

Enchantment

As listed under *Necromantic Spells*, p. 160.

Devotional Enchantment

In some settings, enchantment is not the province of magical craftsmen, but an almost meditative outgrowth of the studies of holy men. Magic items are created as part and parcel of a life devoted to a higher principle.

A practitioner of devotional enchantment must be Very Blessed (p. B40), and a corresponding Discipline of Faith for his chosen faith, worth at least -10 points. Not every faith has devotional enchanters.

Devotional enchanters are not mages, and they use neither mana nor their own personal energies in their enchantments. Instead, they power their creations with character points acquired through study.

Every 200 hours of prayer generates 1 character point that may be spent to create magic items, at a rate of 1 character point per every 25 points of energy (note that this makes devotional enchantment about as efficient a use of time as Slow and Sure Enchantment). Hours spent in religious study accrue usable character points at half speed, and the strict conduct of a virtuous life accrues points at quarter speed. An important meritorious act – pilgrimages, entering a cloister, etc. – grants one character point that may be used for enchantments.

The actual enchantment uses a system essentially similar to symbol enchantment (p. 205); devotional enchanters must learn Symbol Drawing or an equivalent Very Hard skill and the symbols necessary to enchant the desired item. The process of enchanting an item by this method is quite fast, usually a day or less; mage enchanters are often astounded by the seeming effortlessness with which devotional enchanters produce items, not realizing that decades of rigorous practice go into the preparations for such an enchantment. If the rolls for all the symbols are made, the character points are invested in the item and the item is enchanted. On a failure, the points are not spent, but the enchanter may not attempt that enchantment again until he has raised his skill in all the symbols for which he failed the rolls; his knowledge was inadequate to the task. On a critical failure, he may *never* try that enchantment again; divine displeasure attended the attempt.

Chapter Nine
Fire Spells

"Don't give me any trouble, and no one gets hurt, OK?" Jack's stiletto hovered an inch from the young woman's left eye. "Keep your hands where I can see them. Tell me where you keep your wallet."

Her lips quivered, and she stammered something incomprehensible. Maybe she didn't even speak English.

Jack pulled his knife back a bit as he leaned closer. "What? Speak up."

The girl got herself under control, took a deep breath, and exhaled a jet of flame into Jack's face. Jack was dimly aware of his own voice screaming as the pain overwhelmed him and he fell into blackness.

The pyromancer pulled the collar of her sweater over her nose against the charred-bacon smell in the alley. "Nothing."

These spells deal with the traditional magical "element" of fire. Should the volume of a particular fire matter in play, assume that the flames created or controlled by Fire spells shoot six feet high. See *Flame* (p. B433) for rules for setting things on fire.

Ignite Fire

Regular

Produces a single spot of heat, and is used to set fire to a *readily* flammable object. It works best on paper and cloth, and will not affect any item that would not burn in an ordinary fire. In particular, it will *not* set fire to a living being! Once ignited, the fire burns normally.

Duration: One second.

Cost: Depends on the amount of heat desired:

1 – As though a match had been held to the subject. Lights a candle, pipe, or tinder in one second.

2 – As though a torch had been held to the subject. Ignites paper or loose cloth in one second, ordinary clothes being worn in four seconds.

3 – As though a blowtorch had been held to the subject. Ignites dry firewood or clothes being worn in one second, leather in two seconds, and heavy wood in six seconds.

4 – As though burning magnesium or phosphorus had been held to the subject. Ignites coal in one second, heavy wood in two seconds.

Cost to maintain is the same as the original cost to cast.

Item

Staff, wand, or jewelry. *Energy cost to create:* 100; item must include a small ruby worth $50.

Seek Fire

Information

Tells the caster the direction and approximate distance of the nearest significant fire or source of intense heat. Use the long-distance modifiers (p. 14). Any known fires or sources of heat may be excluded if the caster specifically mentions them before beginning. The caster may also specify that he is seeking a specific *type* of fire, based on the fire's fuel (natural gas flame, alcohol fire, wood fire, etc.).

Cost: 1.

Item

A forked stick. *Cost to create:* 50 energy and a small ruby worth $100.

Create Fire

Area

Fills the area of effect with fire that requires no fuel (if cast in midair, it produces a sphere of flame, which falls to the ground). This is real fire, and will eventually ignite any flammable objects it touches. Cannot be cast within rock, foes, etc.

Duration: 1 minute.

Base cost: 2. Half that to maintain. Ordinary fires set by this spell do not require maintenance.

Prerequisite: Ignite Fire *or* Seek Fire.

Item

Staff, wand, or jewelry. *Energy cost to create:* 300; item must include a ruby worth $200.

Extinguish Fire

Area

Puts out all ordinary and magical fires in its area of effect. Has no effect on materials that are intrinsically superheated – molten steel, lava, plasma, etc.

Duration: Once out, a fire stays out.
Base cost: 3.
Prerequisite: Ignite Fire.

Item

Staff, wand, or jewelry. *Energy cost to create:* 400; item must include a ruby worth $300 and a black onyx worth $100.

Shape Fire

Area

Control the shape of any flame. Each shape change requires a second of concentration. Once shaped, the flame keeps that shape until the spell expires, without concentration. *Moving* a flame requires constant concentration (the flame moves at Move 5, on the caster's turn). A natural fire cannot move to a place that it can't burn, but flame made

with the Create Fire spell needs no fuel and can move almost anywhere.

Flame shaped with this spell normally retains its volume. If the fire is "spread out" across twice its original area, it only does half damage; if spread across three times its original area, it does 1/3 damage; and so on.

Duration: 1 minute.
Base cost: 2. Half that to maintain.
Prerequisite: Ignite Fire.

Item

Staff, wand, or jewelry. *Energy cost to create:* 400; item must include a ruby worth $300.

Phantom Flame

Area

Creates an area of imaginary flame. Those nearby feel heat (and pain, if they touch it); items inside appear to burn. However, the flame does not spread, and does no real damage. Even the pain it creates subsides to a tingling after the first shock. Shape Fire and Extinguish Fire both affect this phantom flame; water will not affect it.

This is also an Illusion and Creation spell.

Duration: 1 minute.
Base cost: 1. Same cost to maintain.
Prerequisite: Shape Fire *or* Simple Illusion.

Item

Wand, staff, or jewelry. *Energy cost to create:* 200; must include a $100 ruby.

Fireproof

Area

Prevents ignition of fires within the affected area: matches won't light, flint won't make sparks, and so on. Does not extinguish a fire brought in from outside the spell's area, although such a fire would fail to ignite anything else. Useful anywhere that fire is a hazard (as in a gunpowder factory, for example). Any magical attempt to light a fire is at -5 to skill. This spell doesn't resist really intense heat (as from lava or battle lasers), but it does stop guns from working!

Duration: 1 day.
Base cost: 3. Doubled cost gives a -10 to magical attempts to light fires, and resists all heat less than star-heat. Same cost to maintain.
Time to cast: 5 minutes.
Prerequisite: Extinguish Fire.

Item

An area may be permanently Fireproofed; multiply the base cost by 100. A small quantity of powdered ruby must be used (about $10 per energy point's worth).

Slow Fire

Area

Causes flames to cool down, consuming their surroundings (and burning people) at a slower rate. The damage that the flames do is reduced proportionately. This spell acts as a Slow spell on fire elementals and beings with the Body of Fire meta-trait (p. B262). Slow Fire resists Fast Fire.

Duration: 1 minute.
Base cost: 2 for a fire that burns at half the usual rate, 3 for a fire that burns at 1/3 the usual rate, and so on. Same cost to maintain.
Prerequisite: Extinguish Fire.

Item

Staff, wand, or jewelry. *Cost to create:* 350 energy, a $500 ruby, and a $500 black onyx.

Fast Fire

Regular

Makes flames hotter, consuming their surroundings (and burning people) at a faster rate. The damage that the flames do is proportionately increased. This spell acts as a Great Haste spell on fire elementals and beings with the Body of Fire meta-trait.

Duration: 1 minute.
Cost: 2 for a double-rate fire, 3 for a triple-rate fire, and so on. Same cost to maintain.
Prerequisite: Slow Fire.

Item

Staff, wand, or jewelry. *Cost to create:* 375 energy and a $500 ruby.

Deflect Energy

Blocking

Deflects *one* energy attack about to hit the subject – including a beam weapon attack or a Fireball or Lightning spell. Counts as a parry for combat purposes. If the caster is not the subject, apply distance modifiers as for a Regular spell. Deflected attacks may still hit a target *beyond* the subject.

Cost: 1.
Prerequisites: Magery 1 and Shape Fire.

Flame Jet

Regular

Shoot a jet of flame from one fist. Each turn, the caster rolls versus DX-4 or Innate Attack skill to hit, and rolls for damage if he hits. This attack may be dodged or blocked, but not parried. Treat it as a hand weapon – a flaming sword without the sword – but it cannot parry! This is a wonderfully flashy spell, good for magic shows, melee combat, burning through ropes, etc. The caster may cast the spell as many times as he has hands and have a Flame Jet in each hand; a Flame Jet held in the caster's "off" hand suffers the usual -4 penalty to hit.

For cinematic mage-dueling action, the GM may allow a Flame Jet to parry another Flame Jet. This allows fire wizards to duel *mano a mano*, which some groups may prefer to the casting and dodging of a more typical duel of magic.

Duration: 1 second.
Cost: 1 to 3 points. Does 1d damage for each point put into the spell. The jet's range in yards is equal to the number of dice. Same cost to maintain.
Prerequisites: Create Fire and Shape Fire.

Item

Jewelry. *Energy cost to create:* 800; must include $500 worth of gold and a $300 ruby. Usable only by mages.

Smoke

Area

Creates an area of dense smoke. Even one yard's thickness of such smoke will block vision. Until it dissipates, it has the effect of tear gas (anyone failing a HT roll is unable to do anything but cough and weep). The smoke is somewhat hot and rises slowly (about one foot per second).

The rate of dissipation depends on the area and the presence of wind; indoors, it usually lasts until the spell expires, but outdoors on a windy day it may last only 10 seconds or so.

Duration: 5 minutes, except in windy areas.
Base cost: 1. Half that to maintain.
Prerequisites: Shape Fire and Extinguish Fire.

Item
Staff, wand, or jewelry. *Energy cost to create:* 50.

Heat

Regular

Raises the temperature of an object. It does not necessarily produce fire, though most things will burn if heated enough. Heat will be radiated away normally. (Use this as a guideline for playable effects – don't try to turn the spell into a physics exercise!)

Any wizard planning to make extensive use of this spell should arm himself with a list of the melting points of various materials. The spell can have drawbacks. If you were in jail, you might melt your way through the bars . . . but the radiated heat would probably broil you first.

Duration: 1 minute. Each minute raises the target's temperature by 20°. Maximum temperature possible with this spell is 2,800°.
Cost: 1 for an object up to the size of a fist, 2 for an object up to one cubic yard, and 2 per cubic yard for a larger object. Temperature change can be doubled to 40° per minute for double cost, tripled to 60° per minute for triple cost, and so on. *Slower* heating costs no less. Same cost to maintain.
Time to cast: 1 minute.
Prerequisites: Create Fire and Shape Fire.

Item
Staff, wand, or jewelry. *Energy cost to create:* 400; item must include a ruby worth $300.

Cold

Regular

The reverse of Heat (above). It can reduce the temperature of any object to absolute zero, if maintained for long enough.

Duration, Cost, and Time to cast: Exactly as for Heat, except that each minute *lowers* the target's temperature by 20°.
Prerequisite: Heat.

Item
Staff, wand, or jewelry. *Energy cost to create:* 400; items must include a $300 ruby and a $300 sapphire.

Rain of Fire

Area

Fiery droplets rain from the sky onto the area of effect, causing 1d-1 fire damage per second to all within it. Creatures under the Rain of Fire take damage on their own turns; if less than an entire second is spent in the affected area, damage is halved (round down).

The spell can only be cast outdoors. Armor protects in the usual fashion. A shield with a DB of 2 or better can be held overhead to block the flames, but it may take damage (p. B484). This requires two hands and a Ready action, and succeeds automatically in protecting the character once the shield is readied upwards, but this *unreadies* the shield from its normal protective functions!

Inanimate objects such as buildings protect with their DR, but some structures (see *HP and DR of Structures*, p. B558) may be damaged or catch fire.

Duration: 1 minute.
Base cost: 1 to cast (minimum 2). Same cost to maintain. For double base cost, the Rain of Fire does 2d-2 per second!
Time to cast: One minute.
Prerequisites: Magery 2 and Create Fire.

Item
Staff. Usable only by mages. *Energy cost to create:* 600.

Resist Fire

Regular

The subject (person, creature, or object) and anything he carries become immune to the effects of heat and fire (but not electricity).

Duration: 1 minute.
Cost: 2 to cast. 1 to maintain. Cost doubles if subject must resist a blast furnace or volcano; cost triples if subject must resist the heat of a star, nuclear bomb, etc. Only the first level of protection is necessary against combat-type Fire spells.
Prerequisite: Fireproof.

Item
Staff, wand, or jewelry; only affects the wearer. *Energy cost to create:* 800; must include a ruby worth $500 and a black onyx worth $200.

Resist Cold

Regular

The subject (person, creature, or object) and anything he carries become immune to the effects of cold and frostbite (but *not* falling ice, magical ice spears, etc.).

Duration: 1 minute.
Cost: 2 to cast. 1 to maintain. Cost doubles if subject must resist cold of -40° or more; cost triples if subject must resist the cold of absolute zero.
Prerequisite: Heat.

Item
Staff, wand, or jewelry; only affects the wearer. *Cost to create:* 800 energy, a $500 emerald and a $200 black onyx.

Warmth

Regular

The subject remains comfortably warm in cold weather, avoiding the risk of frostbite or hypothermia. This effectively increases the subject's "local temperature" by 30°F towards his optimum comfort level (p. B93). The spell offers no protection against magical cold attacks such as Frostbite. This is also a Protection and Warning spell.

Duration: 1 hour.
Cost: 2 to cast. 1 to maintain.
Time to cast: 10 seconds.
Prerequisite: Heat.

Item
Clothing, staff, jewelry, or blanket; only affects the wearer (holder in the case of the staff). *Energy cost to create:* 200.

Fireball

Missile

Throw a ball of fire from one hand. This has 1/2D 25, Max 50, Acc 1. When it strikes something, it vanishes in a

puff of flame. This spell is likely to ignite flammable targets.

Cost: Any amount up to your Magery level per second, for three seconds. The fireball does 1d burning damage per energy point.
Time to cast: 1 to 3 seconds.
Prerequisites: Magery 1, Create Fire, and Shape Fire.

Item

Staff or wand – the bolt is fired from the end of the item. *Energy cost to create:* 800; must include a ruby worth $400. Usable only by mages.

Explosive Fireball

Missile

Creates a fireball that affects both its target and things nearby. This has 1/2D 25, Max 50, Acc 1. Can be thrown at a wall, floor, etc. (at +4 to hit) to catch foes in the blast. The target and anyone closer to the target than one yard takes full damage. Those further away divide damage by three times their distance in yards (round down).

Cost: Any amount up to *twice* your Magery level per second, for three seconds. The fireball does 1d burning damage per *full* 2 points of energy.
Time to cast: 1 to 3 seconds.
Prerequisite: Fireball.

Item

Staff or wand – the bolt is fired from the end of the item. *Energy cost to create:* 1,200; must include a ruby worth $500. Usable only by mages.

Essential Flame

Area

As for Create Fire, except that the fire created is the magical essence of fire. Any mage can tell the difference by looking. It cannot be extinguished by ordinary water or ordinary magic, but only by a similar quantity of Essential Water or by a Dispel Magic spell. Essential Flame does +1 damage to anyone it burns (+2 to watery creatures).

Duration: 1 minute.
Base cost: 3. 2 to maintain. This flame ignites all flammable materials, and the entire blaze remains Essential as long as the spell is maintained. If the spell is not maintained, any materials that were ignited continue to burn with ordinary flame.
Time to cast: 3 seconds.
Prerequisites: At least six other Fire spells.

Item

Wand, staff, or jewelry. Usable only by mages. *Energy cost to create:* 800; must include a $400 ruby.

Flaming Weapon

Regular

Causes any weapon to burst into flame, which does not harm the user but lets the weapon do +2 damage to foes or flammable objects (after penetrating armor and figuring other bonuses). Metal weapons are not damaged; wooden ones turn to ashes as soon as the spell ends. The weapon also gives off light as a torch.

Duration: 1 minute.
Cost: 4 to cast. 1 to maintain.
Time to cast: 2 seconds.
Prerequisites: Magery 2 and Heat.

Item

A weapon that flames whenever used, at no energy cost to the user. *Energy cost to create:* 750; a $400 ruby must be set in the weapon.

Flaming Missiles

Regular

Like Flaming Weapon, but cast on a missile weapon. The weapon itself acquires a shimmering, fiery appearance. Any missile it fires bursts into flame, doing +2 damage as per Flaming Weapon; it burns to ashes after it hits a target or after 10 seconds, whichever comes first.

Duration: 1 minute.
Cost: 4 to cast. 2 to maintain. Cost doubles if the missiles to be fired are stone or metal.
Time to cast: 3 seconds.
Prerequisite: Flaming Weapon.

Item

A missile weapon that fires flaming missiles whenever used, at no energy cost to the user. *Energy cost to create:* 1,000; a $500 ruby must be set in the weapon.

Flaming Armor

Regular

The subject is sheathed in flames without feeling any discomfort – he, and anything he carries, is under a basic Resist Fire spell. The flames provide the usual illumination and heat to their surroundings. The subject's melee attacks do an extra point of fire damage.

Any melee attack that hits the subject triggers a 1d Flame Jet backlash along the weapon at the foe. This attack automatically hits the hand holding the weapon if the weapon's Reach was 1 or less. Should the subject grapple or be grappled, the foe takes 3d burning damage, but the spell will be broken.

Duration: 1 minute.
Cost: 6 to cast. 3 to maintain.
Prerequisites: Magery 1, Resist Fire, and Flame Jet.

Item

(a) Staff or jewelry. Usable only by mages. *Energy cost to create:* 600; must include $300 worth of rubies. (b) Cape or armor. Only affects the wearer. When activated, the cape seems literally woven of flames; it will protect against attacks from the back and sides, but not from the front, unless it is wielded as a light cloak (see *Cloak,* p. B184). *Energy cost to create:* 700 for the cape, 1,000 for armor.

Fire Cloud

Area

Creates a swirling cloud of flames and fiery embers. It does not block vision, but inflicts burning damage to all within it. Creatures in the cloud take damage on their own turns. If less than an entire second is spent in the affected area, damage is halved (round down). Armor protects normally. Only highly flammable materials may catch fire.

Duration: 10 seconds.
Base cost: 1 to 5; the cloud inflicts 1 point of damage per second for every energy point put into the base cost. Same cost to maintain.
Time to cast: 1 to 5 seconds, depending on base cost.
Prerequisites: Shape Air and Fireball.

Item

Staff, wand, or jewelry. Usable only by mages. *Cost to create:* 175 energy and a $500 ruby.

Breathe Fire (VH)

Regular

Similar to Flame Jet, except that the flame issues from the caster's mouth, Breathe Fire cannot be maintained, and each energy point buys 1d+1 damage instead of 1d. Caster rolls to hit against DX-2 or Innate Attack skill. This counts as an action; the caster must be facing the target. No hand gestures are required to cast this spell; certain lip and tongue motions are made instead. Thus, Breathe Fire can be cast "no hands" at any level of skill.

Duration: 1 second.
Cost: 1 to 4. Cannot be maintained.
Time to cast: 2 seconds.
Prerequisites: Magery 1, Flame Jet, and Resist Fire.

Item

Jewelry. Usable only by mages. *Energy cost to create:* 1,000; must include $500 worth of gold and a $500 ruby.

Burning Touch

Melee

Wreathes the caster's hand in flames. The first target struck after the spell is cast suffers 1d of fire damage for every point of energy that the caster puts into the spell. Armor does not protect, but natural DR does.

Cost: 1 to 3.
Prerequisites: Magery 2 and at least six Fire spells including Heat.

Item

Staff, wand, or glove. The item must touch the subject. *Energy cost to create:* 300.

Body of Flames (VH)

Regular; Resisted by HT

Subject gains the Body of Fire meta-trait (p. B262) for the duration of the spell. Clothes (up to 6 pounds) also become fire, but lose any magic powers they might have had. He can carry nothing while in this form.

Duration: 1 minute. The spell expires if the subject loses consciousness.
Cost: 12 to cast. 4 to maintain.
Time to cast: 5 seconds.
Prerequisite: Breathe Fire.

Item

(a) Staff, wand, or jewelry. Only affects the wearer. A severe drawback is that, as soon as it is activated, the item falls through the user's hand. Thus, a spell cast with this item lasts only a minute. *Energy cost to create:* 3,000. (b) Staff, wand, or jewelry. Only affects the wearer. Unlike the previous item, this item turns to fire along with the wearer, allowing him to maintain the spell longer than 1 minute. While in flame form, the item loses any magical powers it might ordinarily have. *Energy cost to create:* 6,000.

Burning Death (VH)

Melee; Resisted by HT

Causes the victim to burn from within. The caster must strike the subject to trigger this spell; hit location is irrelevant. Every turn, the victim must roll against HT; on a failure (critical or not), he takes 1d-1 fire damage. On a success, he takes no damage that turn; on a critical success, the spell is broken. Neither DR nor Resist Fire protects against this injury! For the duration of the spell, the victim experiences almost unbearable discomfort, equivalent to the effects of a Sickness spell (p. 138).

If the spell is maintained long enough, the victim's skin and clothes start to char and little flames dart out here and there. Once the victim dies, his body bursts into flame and burns until only a little pile of ashes remains.

Undead beings are not affected. The caster must concentrate while maintaining this spell, but need not remain in physical contact.

This is also a Necromantic spell.

Duration: 1 second.
Cost: 3 to cast. 2 to maintain.
Prerequisites: Magery 2, Heat, and Sickness.

Item

Staff, wand, or jewelry. Usable only by mages; the item must touch the subject. *Cost to create:* 700 energy and a $500 ruby.

Summon Fire Elemental, Control Fire Elemental, Create Fire Elemental

see pp. 27-28

Small Fire Elemental

This is the basic fire elemental summoned by casting Summon Fire Elemental at the minimum energy cost of 4. More energy put into the spell summons a more powerful elemental. Usually, this simply means a larger elemental; 1 point of energy is equal to 1 additional point of ST, 5 HP, or 2 points of DR. However, the GM may choose to build a more exotic elemental, adding unusual traits to the following template, or working one up from scratch.

Small Fire Elemental

40 points

Attribute Modifiers: ST-2 [-20]; DX-1 [-20]; IQ-2 [-40]; HT-3 [-30].
Secondary Characteristic Modifiers: SM -1; HP+2 [4].
Advantages: Burning Attack 2d (Always On, -40%; Aura, +80%; Melee Attack, Range C, -30%) [11]; Charisma 1 [5]; Doesn't Breathe (Oxygen Combustion, -50%) [10]; Doesn't Eat or Drink [10]; Doesn't Sleep [20]; DR 10 (Limited: Heat/Fire, -40%) [30]; Immunity to Metabolic Hazards [30]; Injury Tolerance (Diffuse) [100].
Disadvantages: No Fine Manipulators [-30]; Weakness (Water, 1d/min.) [-40].

Chapter Ten
Food Spells

Christophe's cleaver bit into bone and stuck. He swore volubly at the enchanter who'd sold him the knife and waved an assistant over to finish the carving. Turning away, he dipped a spoon into a soup pot, tasted, frowned, and muttered an incantation to correct the seasoning. A dash of salt, a sprinkling of turbinado sugar, and on a whim he spoke the Old Draconic word for tarragon.

Across the kitchen, the main course was emerging from the ovens . . . a roast boar stuffed with winter vegetables. Beaming, Christophe made his way over to his masterpiece, pausing along the way to reduce a pan sauce with a flick of three fingers and ripen a bowl of hard plums with a magic couplet. Watching the scullions lever the mighty roast onto a tremendous silver platter, he peered with satisfaction at the deep brown skin glistening with drippings. That dwarven oven had been well worth the price – not like that useless cleaver. He watched his sous-chef like a hawk as the garnishes went on the platter, watching for the slightest imperfection. Today, however, all went well.

Satisfied, Christophe worked an incantation against scrying over the roast, lest some prying mage at the table try to steal his recipes. He clapped his hands, and the kitchen stopped to look.

"Sound the fanfare!" he bellowed. "Dinner is served!"

These spells are concerned with food and drink. None of these spells can turn living beings (or the undead) directly into food; they can't be used in combat. For the purposes of these spells, a "meal" is about a pound of normal food, or half a pound of dried travelers' rations.

The College of Food is often one of the least respected, but many great healers got their start as food-mages.

Seek Food

Information

Determines the direction, distance, and general nature of the nearest significant source of food. Use the long-distance modifiers (p. 14). The food found will be wholesome, but not necessarily appetizing – e.g., edible insects. Any known sources of food (such as those delicious insects) may be excluded if the caster specifically mentions them before beginning.

Cost: 2.

Item

A forked stick. *Energy cost to create:* 300.

Test Food

Information

Identifies whether a substance is good to eat. The spell tells nothing about taste or nutrition; it detects poisons, dangerous decay, or foreign objects (razor blades in fruit). It does not check for magic on food.

Cost: 1 to test a single meal or a single bottle of wine; 3 to check all the food and drink within a 1-yard radius.

Item

Staff, wand, or jewelry. *Energy cost to create:* 100.

Decay

Regular

Makes food rot away immediately and become worthless (it can be saved if a Counterspell is cast, or Purify Food is cast, within a minute).

Cost: 1 per meal destroyed.
Prerequisite: Test Food.

Item

Staff or wand. The item must touch the subject. *Energy cost to create:* 100.

Season

Regular

Spices and seasons a single container of food to the caster's preference. The caster's cooking skill determines whether the food tastes any better for it – the spell simply adds the flavors that the caster demands.

Duration: Permanent.
Cost: 2 per meal.
Time to cast: 10 seconds.
Prerequisite: Test Food.

Item

A spoon which, when stirred through food, will spice it to the owner's taste. *Energy cost to create:* 150.

Far-Tasting

Regular

The subject can taste and smell any object that he can see (even at a great distance) or taste/smell through solid objects totaling no more than two yards of thickness. He automatically makes all Taste/Smell rolls, though any substance that would ordinarily be impossible to taste or smell (an odorless, tasteless gas such as carbon monoxide, for example) will remain undetected. This can be especially useful for sniffing out poisons, since the effects of a poison do not transfer via their odors.

This is also a Knowledge spell.

Duration: 1 minute.
Cost: 3 to cast. 1 to maintain.
Time to cast: 3 seconds.
Prerequisites: Magery 1 and either Seek Food or Seek Air; cannot have No Sense of Taste/Smell disadvantage.

Item

Clothing or jewelry; only affects the wearer. *Energy cost to create:* 200.

Mature

Regular

Causes any foodstuff that must age and mature as part of its production to do so more quickly. This is most often used with beer and wine, but it can also be used to accelerate cheese, yogurt, bread dough, or even meat.

Aging processes that normally take days or weeks (beer, wine, aged cheese, pickles, dry-aged meats) take only an hour with this spell. Processes that normally take hours (bread dough, yogurt, fresh cheese) take only a minute. Processes which take years (vintage wines, thousand-year eggs) accelerate a year for every casting of the spell . . . this is a wonderful way to discover whether a particular vintage will age well.

Duration: The process takes an hour (or a minute, as above), but the food remains mature permanently.

Cost: 1 per pound of food. Cannot be maintained.

Time to cast: 10 seconds.

Prerequisite: Decay *or* Season.

Item

A small keg that works at no energy cost to the user, but only works a limited number of times per day. *Energy cost to create:* 50 per gallon of size, per each time/day the item is usable. For example, a 10-gallon keg that works twice per day costs 50×10×2=1,000 energy to create.

Purify Food

Regular

Removes foreign objects, poisons, and decay, and renders food fit to eat. Works only on an edible or formerly edible item – and if the whole item is unwholesome, the spell removes all the unwholesomeness and leave nothing.

Cost: 1 per pound of material to be purified.

Prerequisite: Decay.

Item

Staff, wand, or jewelry. The item must touch the subject. *Energy cost to create:* 400.

Cook

Regular

Turns raw ingredients into a finished meal. Produces only simple fare (stews, etc.), which is only as wholesome as the ingredients. No cooking-fire is necessary; the spell provides the heat.

Cost: 1 per meal.

Time to cast: 5 seconds.

Prerequisites: Test Food and Create Fire.

Item

A pot that cooks any food placed within it, at no energy cost to the user. Requires about a minute to cook. The size of the pot does not matter, but each pot can be used only a limited number of times daily. *Energy cost to create:* 30 per meal per day (e.g., a pot which would cook three meals per day would have an energy cost of 90 to create).

Prepare Game

Regular

"Dresses out" a slain animal. If cast on a deer, for instance, the hide is removed, along with all extraneous body parts and innards. If cast on a fish, it is gutted and scaled. Nothing is destroyed by the spell; all of the parts are simply appropriately separated and cleaned in such a way as to best prepare the animal for cooking.

Duration: Permanent.

Cost: 2.

Time to cast: 10 seconds.

Prerequisite: Purify Food.

Item

(a) Wand, staff, jewelry, or knife. *Energy cost to create:* 300. (b) Skinning knife, scaling knife, vegetable peeler, etc. Usable only on the appropriate food type. *Energy cost to create:* 150.

Know Recipe

Information; Special Resistance

When cast on an item of food, this spell places complete knowledge of the components of the food (and the method of preparation used by the cook) into the mind of the caster.

This spell may even be used on alchemical creations. However, such elixirs resist this spell with the skill of the alchemist that made them.

At the GM's discretion, this spell may be usable to analyze chemicals or drugs.

This is also a Knowledge spell.

Duration: The memory remains crystal clear in the mind of the caster for 1 day. After that, it fades per the Memorize spell (p. 105). Altered recipes may lead to anything from embarrassment (replacing sugar with salt in a dessert) to serious trouble (replacing sugar with salt in a dessert for the King).

Cost: 3. Cannot be maintained.

Time to cast: 15 seconds.

Prerequisites: Far-Tasting and Season.

Item

Wand, staff, or jewelry. *Energy cost to create:* 450.

Poison Food

Regular

Introduces a physical poison into food. This poison remains indefinitely, but can be detected by Test Food. Anyone eating the poisoned food must make a HT roll. On a successful roll, they merely feel sick and lose 2 HP. On a failed roll, they will be seized by painful stomach cramps and lose 1d+1 HP immediately; they will be at -3 for all skills or spells until the lost HP is restored.

Cost: 3 per meal.

Prerequisite: Purify Food.

Item

Staff or wand. The item must touch the subject. *Energy cost to create:* 600.

Hunger

Regular; Resisted by HT

As listed under *Body Control Spells*, p. 38.

Thirst

Regular; Resisted by HT

As listed under *Body Control Spells*, p. 38.

Foul Water

Area

As listed under *Water Spells*, p. 185.

Preserve Food

Regular

Keeps any organic material from spoiling, drying out, etc. Very useful for travelers!

Duration: 1 week.
Cost: 2 per pound of food. 1 per pound to maintain.
Prerequisite: Decay.

Item

(a) Staff, wand, or jewelry. *Energy cost to create:* 200. (b) Chest or sack; always on; the contents of the chest are preserved indefinitely. *Energy cost to create:* 20 for every pound of food to be held (round up).

Create Food

Regular

Produces edible food. This spell is easier when used to convert already existing material into food; the closer the starting material is to food, the tastier the end result will be.

Duration: Permanent.
Cost: 2 per meal to change organic material into food; 3 to change inorganic material into food; 4 to conjure food from thin air.
Time to cast: 30 seconds.
Prerequisites: Cook and Seek Food.

Item

(a) Wand, staff, or jewelry; usable only by mages. The item must touch material to be turned into food. *Energy cost to create:* 600. (b) A pot, as described for Cook, which will turn anything placed inside into a cooked meal. *Energy cost to create:* 200 per meal per day. (c) A vessel that will create food from nothing. *Energy cost to create:* 400 per meal per day.

Essential Food

Regular

Transforms food, or any other material, into unbelievably good, filling, and nutritious food. Essential Food does not spoil, and six meals of it weigh only a pound

Duration: Indefinite.
Cost: 3 per meal if the starting substance is organic material of some kind; 5 per meal if the original substance is totally inedible.
Time to cast: 30 seconds.
Prerequisites: Six Food spells, including Create Food.

Wizard Nose

Regular

As listed under *Knowledge Spells*, p. 104.

Wizard Mouth

Regular

As listed under *Knowledge Spells*, p. 104.

Water to Wine

Regular

Turns water or other drinkable liquid into a mildly alcoholic beverage. The nature of the resulting drink depends on the starting material. Water or grape juice becomes wine; fruit juices become "coolers." The quality of the result depends on the caster's roll and the quality of the starting liquid.

Duration: Permanent.
Time to cast: 10 seconds.
Cost: 4 per gallon (half cost for beer, double cost for spirits).
Prerequisites: Purify Water and Mature.

Item

A bottle or drinking vessel that can, once per day, change the contents into an alcoholic beverage. The quality of the result depends on the starting material; seawater would make pretty bad beer, while newly melted mountain snow would give excellent wine. *Energy cost to create:* 500 per gallon capacity of the container. Note that critical failures with this spell have been known to create dangerous items, such as goblets that poison the wine they create – but no one has yet found an enchantment to do this deliberately!

Distill

Regular

Concentrates a liquid by removing water from it. This spell is mostly used to make strong alcoholic beverages, but alchemists also employ it for other purposes. Each use of the spell halves the volume of the liquid, doubling its concentration. One casting turns wine into fortified wine, two turns it into brandy, and three leaves a distillate of almost pure alcohol. Distill does not work on living subjects.

This is also a Water spell.

Duration: Permanent.
Cost: 1 per original quart of liquid.
Time to cast: 10 seconds.
Prerequisites: Mature and Destroy Water.

Item

A large closed kettle holding up to 5 gallons. *Energy cost to create:* 400. Illegal anywhere that a mundane "still" is illegal!

Fool's Banquet

Regular

Makes any item seem like attractive, tasty food. The underlying nature of the matter does not change, but those who eat it will find it delicious – not necessarily nutritious, but delicious. Can only be cast on things that can be eaten; it would work on mud, but not on stones. A classic complement to the often dull provender created with Create Food.

Duration: 1 day.
Cost: 2 per meal. Cannot be maintained.
Prerequisites: Magery 1, Cook, and Foolishness.

Item

Wand, staff, or jewelry; usable only by mages. The item must touch the material to be affected. *Energy cost to create:* 600.

Monk's Banquet

Regular

Go without food or water for about a day with no ill effects.

Duration: 24 hours.
Cost: 6. Cannot be maintained.
Prerequisites: Fool's Banquet and Resist Pain.

Item

Clothing or jewelry; usable only by mages, or (at GM's option) a "pure" or "holy" person. *Energy cost to create:* 1,000.

Scents of the Past

Regular

As listed under *Knowledge Spells*, p. 107.

Chapter Eleven
Gate Spells

It stood, untroubled, on top of the hill, a perfect black rectangle neatly bisecting a red-and-white gingham picnic blanket. A few feet away, two people crouched among the weeds.

"What is that thing? It's on our picnic," Jenny hissed.

"I can see that," whispered Sam.

Carefully, he got to his feet and gingerly approached the thing that had popped into existence on top of the potato salad. It didn't move. It didn't speak. It simply stood, a flat lozenge of swirling matte black.

"What is it?" Jenny asked behind him.

"I've never seen anything like it," Sam said wonderingly. He touched the thing's surface to check its texture, and his hand sank through it. He jerked back; his hand didn't follow.

"Jenny, I'm stuck," he said, alarmed.

His hand was cold inside the thing. He wiggled his fingers; he couldn't feel anything in there, but he couldn't pull his hand back out.

Suddenly, something grabbed his hand and pulled hard. There was no time to brace himself; he squawked, once, and then he was Somewhere Else.

These spells manipulate time, space, and dimensions. As such, the Gate college has a strong affinity with the Movement college; most Gate mages begin as Movement mages. Gate magic is difficult, often dangerous, and always rare. It may not even exist in some settings.

Magical Gates and Portals

Gates (or portals; the terms are used interchangeably) are magical shortcuts between points in time and space. If the campaign setting includes multiple universes or "planes of existence," then gates can also provide passage among these.

A gate can take nearly any shape or color, but the "default" gate is a rectangle of softly shimmering energy, roughly the size of an ordinary modern doorway, and without any thickness or back side. Gates can be either free-standing or set against a wall, into a floor, into a mirror, and so on. They are not physical in any sense – they are holes in reality.

As long as the gate is large enough, an object or willing being need only step into it to be transported. If an unwilling (or unwitting) person sticks a hand into a gate, removing it can be difficult; 1d seconds of effort, the same amount of FP, and a Will roll is required. Only one try is permissible; if the Will roll fails, the victim has no choice but to either stay stuck in the gateway, or to pass through.

If the gate isn't large enough, it feels like an impenetrable wall. Gates are impervious to physical attacks and to most magic. They are also opaque to light and nonparticulate radiation in general. Spells other than Information spells may be cast through a gate, at the usual penalty for casting blindly (unless Scry Gate is used). Area spells do not "spill through" an open gate, but matter created by such a spell may. Objects, spells, and beings can step through a gate from its "back" as if it wasn't there . . . because it isn't!

Closed gates can only be detected by the Seek Gate spell. Optionally, the GM may permit Mage Sight to detect them, or even a Magery roll.

To tell where a gate leads without stepping through it is difficult; a successful Analyze Magic only reveals the nature of the gate: across distance, through time, or between universes/planes (or some combination of the three). A critical success reveals the gate's destination, its opening or

closing clauses, whether several gates share the same spot, etc. The Scry Gate spell can also be used to gain clues as to a portal's "connecting point."

Gates may be the subject of many spells, but the GM should keep in mind that they are in no way physical objects. A free-standing illusion spell could disguise one, but Illusion Shell could not be used. Gates can be the subject of Invisibility.

Teleport

Special

As listed under *Movement Spells*, p. 147.

Teleport Other

Regular; Resisted by Will+1

As listed under *Movement Spells*, p. 147.

Blink

Blocking

As listed under *Movement Spells*, p. 148.

Blink Other

Blocking

As listed under *Movement Spells*, p. 148.

Timeport (VH)

Special

This spell is similar to Teleport, except that it moves the caster to another time instead of another place. Subjective "movement" is instantaneous.

The more "distant" the target time is, the greater the energy cost and skill penalty (see Time modifiers, box). Unlike Teleport, there is no penalty to timeport to an "unfamiliar" time; the GM may, however, decree that any timeport to the future bears an extra penalty (-2, perhaps).

If this spell takes the caster to the future, it is the most likely of many possible futures. If he returns from that future and acts on the information gained, there is no guarantee that the future he visited will actually occur.

Similarly, a caster who returns to the past, changes something, and then returns to his starting time might return to an alternate timeline. The amount of variation between the caster's "home" timeline and the new one will depend on the GMs view of how "tamper-resistant" the timestream is in his game world(s).

This spell is dangerous – the penalties for a failed roll are the same as for Teleport, substituting time for space. Also as in Teleport, the caster can carry no more than Heavy encumbrance (objects and beings). Roll vs. Body Sense skill upon arrival, modifying the roll for changes in velocity, facing, and orientation.

If the caster wishes to travel simultaneously in both time and space, use the caster's Teleport or Timeport skill (whichever is lowest), and combine the penalties and costs for distance and time.

Cost: see box.
Prerequisites: Magery 3 and Teleport.

Item

Staff, wand, or timepiece. Usable only by mages. *Energy cost to create:* 4,000. An item that will take its user to one, predetermined time costs 2,000 to create; the item's creator must be very familiar with that time.

Time Modifiers

	Cost	*Penalty*
Within 1 minute	4	0
1 to 10 minutes	6	-1
10 minutes to 1 hour	8	-2
1 to 10 hours	10	-3
10 hours to 4 days	12	-4
4 to 40 days	14	-5
40 days to 1 year	16	-6
1 to 10 years	18	-7
10 to 100 years	20	-8
each further 10×	+2	-1

Timeport Other (VH)

Special; Resisted by Will+1

Same as Teleport Other (p. 147), except that the subject is Timeported away from (or to) the caster.

Apply the usual penalty for Regular spells for the distance between caster and subject; the Timeport penalties apply for the time span over which the caster wants to timeport the subject.

One important difference between Timeport and Timeport Other is that if the caster fails the spell roll or if the spell is successfully Resisted, the subject does not timeport away!

Cost: As Timeport; also uses the Teleport Other weight multipliers.
Prerequisite: Timeport.

Item

Staff or wand. Usable only by mages. *Energy cost to create:* 4,000.

Timeslip

Blocking

Avoid an attack by timeporting out of its way. The caster slips a few seconds ahead into the future, reappearing in his original location – unless that spot is now obstructed or occupied! A location is not clear if someone is standing in it. Any lesser obstruction is ignored by the spell.

The caster must roll his Body Sense skill to act on the turn he reappears. If his original location remains obstructed or occupied, the caster stays in limbo, reappearing as soon as the spot becomes clear . . . even if it takes years! Critical failures have been known to produce similar disastrous effects.

If the caster had any spells requiring concentration "on" when he cast Timeslip, they automatically lapse (unless they had the caster as their subject). Likewise, any spell whose maintenance comes due during the timeslip also lapses (but see Maintain Spell, p. 128).

Cost: 1 per second of intended displacement. The spell skill roll is at a -1 penalty for every second of intended displacement beyond the first one.
Prerequisite: Timeport.

Item

Clothing, jewelry, or timepiece. *Energy cost to create:* 500.

Timeslip Other

Blocking

As Timeslip, but usable on others.

Cost: 1 per second of intended displacement. The spell skill roll is at a -1 penalty for every second of intended displacement beyond the first one.
Prerequisite: Timeport.

Item

Wand, staff, or jewelry. Usable only by mages. *Energy cost to create:* 1,000.

Rapid Journey (VH)

Special

Similar to Teleport and Timeport, except that it allows an immediate return journey. It works only on the caster. It does not work with Plane Shift. Anything carried on the caster's person, up to Heavy encumbrance, goes with him on the trip.

If the skill roll fails, the caster goes nowhere but otherwise suffers the normal penalties for a failed teleport or timeport (possible damage, disorientation, and stunning). Teleport Shield gets to resist twice; once when the caster leaves, and once when he returns.

Once the caster arrives at his destination, he must expend FP to remain there. As soon as he stops maintaining his presence (this includes failing a distraction roll), he snaps back to his starting place or time.

The return trip normally cannot fail. However, if the caster succeeded in the spellcasting by a small margin (3 or less), the caster must make an IQ roll (at the distance/time penalty), while maintaining the spell, to return to his starting point. One roll may be attempted per minute. If he then stops maintaining the spell, he remains stranded where or when he went. He may also be stranded if he is knocked out or if he teleports to a no-mana zone.

This is also a Movement spell.

Duration: 1 minute.

Cost: As Teleport or Timeport, plus one-fourth the trip's cost to remain, per minute.

Time to cast: 5 seconds.

Prerequisites: Magery 3 and either Teleport (for a Rapid Journey in space) or Timeport (for a Rapid Journey in time, or in both time and space).

Item

Staff or wand. Usable only by mages. *Energy cost to create:* 5,000.

Planar Summons

Special

Summons a creature, such as a demon or a Thing Man Was Not Meant To Know, from another plane of existence. The GM determines the predisposition and abilities of this being. Each plane requires a different Planar Summons spell. Some exceptionally potent entities might require their own spells! If the version of Planar Summons used does not specify an individual entity, the caster has no control over whom the spell summons. Planar Summons cannot be used on the plane for which it is intended.

When the creature appears, the caster must immediately try to *control* it. Treat this as a Quick Contest between the caster's Planar Summons skill and the entity's Will. The caster is at +4 if he knows the creature's "true name."

If the caster wins, he can give the creature a single command, which it *must* carry out. On completing this task – or after one hour in any event – the entity usually vanishes. However, some powerful entities can stay for as long as they wish . . .

If the caster ties or loses, the creature will react badly. An "evil" being commits violence or vandalism, while a "good" one is more likely to depart in a huff and put in a bad word with the caster's gods. Wild or chaotic creatures are liable to engage in theft and mischief. Extremely alien entities might react in disturbing and unpredictable ways.

Duration: Until the task is done or one hour, whichever is less. Usually.

Cost: 1 point per 10 character points used to build the summoned entity. Minimum energy cost is 20 (although this will not always summon a 200-point being). The GM secretly determines the capabilities of all summoned creatures. Cannot be maintained.

Time to cast: 5 minutes.

Prerequisites: Magery 1 and at least one spell from each of 10 different colleges.

Planar Visit (VH)

Special

The caster leaves his body behind and wanders freely as a spirit on another plane of existence. He is totally insubstantial and cannot affect anything or interact with his surroundings in any way (a blessing in disguise, since this also confers total physical immunity to whatever environment he is traversing). He cannot even cast spells, although he can maintain existing ones. He is likewise immune to magic that does not affect minds or spirits (which the caster is, until he returns to his body). The caster is imperceptible to ordinary senses; only magic (Astral Vision, Sense Spirit, Sense Observation and similar spells) will detect his presence.

There is a different spell for travel to each plane or dimension. Which spells exist, and the precise details of the dimensions they lead to, is up to the GM. The subject's senses are altered to correspond to the average plane dweller's; on a plane of perpetual gloom he would have Dark Vision, on the astral plane he would have his senses augmented as per Astral Vision, and on a dimension where all life forms sense only via sound he would have Scanning Sense (Sonar). Visiting very strange alternate planes can be hazardous to the mental health of an unsuspecting traveler . . .

The most common plane visited in most worlds is the astral, which coexists with the mundane universe and allows visitors to observe real-world places unseen (at least, unseen except by natives of the astral realm, if there are any). While traveling astrally, the caster moves at twice his full unencumbered Speed and may walk through walls, mountains, creatures . . . He may also walk down into the bowels of the earth or up into the higher atmosphere. Astral Block (p. 159), Pentagram (p. 124) and the "Utter" spells (p. 170) stop him, while Repel Spirits (p. 158) will resist his intrusion.

If the spell ends before his spirit rejoins his body or if his body is harmed while his spirit is away, he must roll vs. HT, using the long-distance modifiers (p. 14), to stay alive! Needless to say, his body is totally defenseless for the duration of the spell, though a casual medical examination will reveal it to be (barely) alive.

Duration: 1 minute.

Cost: 4 to cast. 2 to maintain. Some planes may cost more, carry a skill penalty, or both.

Time to cast: 30 seconds.

Prerequisites: Magery 2 and either Projection or Planar Summons.

Item

(a) Staff, wand, or jewelry. Usable only by mages; only affects the wearer. *Energy cost to create:* 1,000. Although the item stays with the body while the spirit walks about, it may still be used

to maintain the spell. (b) Weapon. Usable only by mages. A spiritual analogue of this item accompanies the spirit of its user! *Energy cost to create:* 2,000 per pound (minimum of 1 pound).

Plane Shift (VH)

Special

Bodily transports the caster – along with anything he is carrying (up to Heavy encumbrance) – to a particular plane of existence. Each plane requires its own Plane Shift spell. This is a one-way trip. To get back, the caster must know Plane Shift for his home plane or get a wizard in the other plane to cast Banish (p. 156) on him.

This spell gives the caster no special immunity to his surroundings. To safely visit a plane where the natural conditions are vacuum, flame, etc., you must learn the necessary protective spells.

Duration: Permanent.
Cost: 20. Some planes may cost more, carry a skill penalty, or both.
Time to cast: 5 seconds.
Prerequisite: Planar Summons for the same plane.

Item

Any item; can be used to travel to a single plane only. *Energy cost to create:* 100 times the casting cost for the plane.

Plane Shift Other (VH)

Regular; Resisted by Will+1

As Plane Shift, but usable on any being or object. A subject who doesn't expect to be plane-shifted must make his Body Sense skill or be disoriented for one second.

Duration: Permanent.
Cost: 20. Some planes may cost more and/or carry a skill penalty.
Time to cast: 5 seconds.
Prerequisite: Plane Shift.

Item

Wand, staff, or jewelry. Usable only by mages; sends the subject to a single plane only. *Energy cost to create:* 100 times the casting cost for the plane.

Phase

Blocking

Avoid an attack by phasing out of this plane of existence for a moment. The caster actually becomes ethereal just long enough for the attack to pass through him. He neither disappears nor loses track of his surroundings; no Body Sense roll is required.

Cost: 3.
Prerequisites: Magery 3 and either Plane Shift or Ethereal Body.

Item

Clothing or jewelry. *Energy cost to create:* 1,000.

Phase Other (VH)

Blocking

As Phase, but usable on others.

Cost: 3.
Prerequisite: Phase.

Item

Wand, staff, or jewelry. Usable only by mages. *Energy cost to create:* 2,000.

Beacon

Area

"Softens up" local space-time, making the area of effect easy to teleport, timeport, or plane-shift to. The energy cost and skill penalties to travel to a beacon are halved (round down). A beacon may also be used to help teleport a subject from its vicinity toward the caster.

A beacon is not private; any caster magically transporting himself (or someone else) to the area will benefit from the spell (however, permanently enchanted areas may be Limited or Named; see p. 68).

The caster must, at casting, specify which travel spells his beacon assists. There is no extra cost to create a multi-purpose beacon.

This is also a Movement spell.

Duration: 24 hours.
Base cost: 10 to cast. Half that to maintain.
Time to cast: 30 seconds.
Prerequisite: Teleport, Timeport, *or* Plane Shift. The enchanter must know Teleport to create a teleport beacon, Timeport to create a timeport beacon and Plane Shift to create a plane-shift beacon.

Item

(a) Any area may be permanently enchanted as a teleport beacon for 100 times the normal energy cost. (b) Any object can be enchanted as a portable beacon; any attempt to magically transport into the vicinity of the object receives the bonus. *Energy cost to create:* 1,500.

Trace Teleport

Information; Resisted by subject spell

When cast soon after someone or something teleports, timeports or plane-shifts in or out, this spell gives the caster a vision of the destination of the teleported subject. The caster also gets a good idea of the magnitude of the skill penalty involved to cast the spell. On a critical success, the actual destination will be known, but any success gives the caster enough of a sense of the destination to follow, if he does so within a minute of casting Trace Teleport.

This is also a Movement spell.

Modifiers: The spell operates at a cumulative -1 for each minute that elapses between the teleport and the casting. There is a further -5 penalty if the caster didn't witness the teleport.

Cost: 3.

Prerequisite: Teleport, Timeport, *or* Plane Shift.

Item

Any. *Energy cost to create:* 100.

Divert Teleport (VH)

Blocking; Resisted by subject spell

When cast on the turn someone or something teleports, timeports, or plane-shifts out, this spell allows the caster to dictate where or when the subject goes.

The caster must know the spell he is diverting; he uses the lower of his skill with Divert Teleport and the subject spell. If the caster wants to divert a Teleport into a plane shift (for example), he must know both spells and uses the lowest of his three skills.

The resistance is resolved by comparing the margins of success of both spells – if the mage who is teleporting makes his roll by 5, then the mage attempting to divert him must make his roll by 6 or more to succeed.

The Divert Teleport takes normal range penalties between the caster of Divert Teleport and the caster of Teleport (or Timeport, etc.), and the standard skill penalty for the destination that the caster wishes to send the teleporter to.

The cost to cast the spell is equal to the difference in cost between the teleporter's intended destination and his new destination. If a mage attempts to teleport 40 miles (9 energy), and another mage forces him to another location only 10 yards away (3 energy), the diverting mage will have to pay 6 energy. The same cost would apply if the destinations were reversed. The minimum cost to cast is 3, in any case (high skill will reduce this normally), and the caster pays the full energy cost whether or not the spell succeeds.

Example: Suppose Severin knows Teleport at 16 and attempts to teleport 100 yards away to his waiting carriage (skill penalty -2, cost 4). Two yards away stands Elsdon, who knows Divert Teleport at 18 and Teleport at 20, and who would prefer that Severin end up just above a lake which happens to be a mile away (skill penalty -4, cost 7).

First, Severin makes his attempt, spending 4 energy and rolling a 10. Since he needed a 14 or less, this is success by 4.

Elsdon, using a base skill of 18 (the lowest of his appropriate spells), takes a -2 for being two yards away from Severin, and a further -4 for his intended diversion – his effective skill is 12. He must roll a 7 (succeeding by 5), to win the contest and divert Severin. Whether he does so or not, the calculated cost is 3 energy, so Elsdon must pay the minimum cost of 3.

This is also a Movement spell.

Cost: As described above; minimum cost 3.

Prerequisites: Magery 3 and Trace Teleport.

Item

Any. Usable only by mages. *Energy cost to create:* 700.

Teleport Shield

Area

As listed under *Protection Spells*, p. 170.

Create Door

Regular

When cast at the near side of a solid obstruction (wall, hedge, cliff, etc.), this spell creates a short-term, short-range gate leading to the other side. The intervening distance is not actually traversed by the door's users – they are simultaneously teleported from the near side to the far one.

This spell has the advantage over Teleport of allowing access to places unknown to the caster, as well as allowing him to transport more than Heavy encumbrance.

Modifiers: The spell is at a -1 penalty per yard of obstruction thickness; there is no penalty if the obstruction is half a yard thick or less. The GM should not tell the player what the penalty is; he should simply tell him whether the spell failed or not.

Duration: 10 seconds.

Cost: 2 per 10 square feet of door size. 2 to maintain. For reference, a modern door is usually about seven feet high and three feet wide. A door created for 2 energy would have to be significantly smaller.

Time to cast: 5 seconds.

Prerequisites: Teleport and any one "Walk Through" spell.

Gates are not physical in any sense – they are holes in reality.

Item

(a) Staff, wand, jewelry, or writing implement (the latter is used to "draw" the door on the obstacle). *Energy cost to create:* 500. (b) Portable door. It is activated (if its Power is above 15 after deducting the penalty for obstruction thickness) after leaning it against the obstruction. *Energy cost to create:* 500 per 10 square feet of size.

Seek Gate

Information

Tells the caster the direction and approximate distance of the nearest gate. Any known gates may be excluded if the caster specifically mentions them before beginning.

Modifiers: Long-distance modifiers (p. 14), -2 if the gate is currently closed, -5 if seeking a gate's arrival point, -10 if seeking a gate leading to a specific destination. Note that the gate itself may be Scryguarded or under a Conceal Magic spell.

Cost: 3.
Time to cast: 10 seconds.
Prerequisites: Magery 2, Seek Magic, and one spell from each of 10 colleges.

Item

A forked stick. *Energy cost to create:* 100.

Scry Gate

Regular

When cast on an open gate, this spell allows images, sounds and smells to come through it from the other side, just as if one were peering through an open window. No corresponding "window" opens at the gate's other end.

If the gate leads into an area protected by Scrywall, the Scrywall gets to resist the Scry Gate. Sense Observation may pick up the Scry Gate. Scryfool cannot fool Scry Gate, however.

Duration: 1 minute.
Cost: 4 to cast. 4 to maintain.
Time to cast: 10 seconds.
Prerequisite: Seek Gate.

Item

(a) Staff, wand, or jewelry. *Energy cost to create:* 200. (b) A gate may also be made to display its destination permanently; this is determined when the gate is created, and adds 100 energy to the creation cost. The gate's creator must know Scry Gate at a level equal to or greater than Create Gate.

Control Gate

Regular; Resisted by the Gate

Forces an open gate to close, a closed gate to open, or tilts and displaces the subject gate as the caster wishes. Closing a permanent gate does not destroy it; closing a temporary one does (to destroy a permanent gate, use Remove Enchantment).

This spell moves gates at up to 3 yards per second. Control Gate can also be used to "choose" a particular destination of a multiple-destination Gate (see Create Gate).

Once control is relinquished, the Gate reverts to its "programmed" state, moving back to its original place at top speed and by the shortest path.

If several Control Gate spells are active at once on a single Gate, the latter resists them with a single roll, control going to the spell with the largest margin of success.

Duration: 1 minute.
Cost: 6 to cast. 3 to maintain.
Time to cast: 10 seconds.
Prerequisites: Magery 3 and Seek Gate.

Item

Staff, wand, or jewelry. Usable only by mages. *Energy cost to create:* 300.

Create Gate (VH)

Regular

Creates a temporary magical portal leading to another place, time, or dimension – effectively, a hole in time and space from which those who enter will teleport, timeport, and/or plane-shift to a predetermined destination. The more "distance" between the gate and its destination, the greater the energy cost and skill penalty.

To determine the skill penalty, combine the penalties for the equivalent Teleport, Timeport, or Plane Shift spell(s). To determine the energy cost, combine the energy costs from the same spell(s), and multiply the cost by 10. This cost will permit the caster to create a gate of any size up to a 3' × 6' doorway (or equivalent surface area). Larger gates are no more difficult, but cost proportionately more energy.

This spell may also be used to enchant a permanent gate, in which case a few more considerations become important. The caster(s) must specify if it will be always open, always closed, or open and closed when certain conditions are fulfilled (opens only on the hour of the full moon, opens only when someone utters a password, etc).

Several gates may share a single location. Only one of them may be open at any time, so it is common to have them cycle in time, giving the net effect of a single gate leading to a choice of destinations. They must be created separately, but otherwise behave as a single gate. Permanent gates can be "anchored" to a physical gateway; they then resist displacement or destruction at a bonus given by the gateway's DR.

When a gate has a Timeport component, the creator must specify if the gate merely displaces its users in time by a fixed amount (1 year into the past, for example) or if it sends its users to a specific, unchanging point in time (December 25, 1066, say). In the latter case, since subjects that step into the gate at various departure times can't all arrive at the same time, the gate either "drifts" slowly in time so as to space the arrivals at least a second apart, or the various subjects arrive in different "pasts" (GM's decision).

Duration: 1 minute.
Cost: 10 times the total energy cost for the Teleport, Timeport, and Plane Shift spells involved (more for larger gates). Same cost to maintain. Making the gate permanent instead costs 100 times as much.
Time to cast: 1 second per energy point.
Prerequisites: Control Gate. The caster must also know Teleport to create a gate leading to another place, Timeport to create a gate leading to another time, or Plane Shift to create a gate leading to another plane of existence.

Item

(a) Staff or wand. Usable only by mages. *Energy cost to create:* 1,000. (b) A stylus or paintbrush. Usable only by a mage, who must draw an outline of a doorway on a solid surface. *Energy cost to create:* 900.

Slow Time (VH)

Area; Special Resistance

Time in the area slows down. Any unwilling beings within the area when the spell is cast resist with the highest of their ST and IQ; they must all fail for the spell to take effect. Objects and spells may cross the area's edge without being hampered. Beings crossing into or out of the area must roll vs. IQ or be mentally stunned.

Duration: 1 minute (outside time).
Base cost: One-half normal temporal "speed" costs 2, one-third costs 3, one-fourth costs 4, and so on (no limit, but see the Suspend Time spell, below). Same costs to maintain.
Time to cast: 2 seconds.
Prerequisites: Magery 2, IQ 13+, and at least two spells from each of 10 different colleges.

Item

Staff or timepiece. Usable only by mages. *Energy cost to create:* 1,000.

Accelerate Time (VH)

Area; Special Resistance

The opposite of Slow Time. Time in the affected area speeds up. Otherwise, all of the rules for crossing the area's edge, resistance, and so on, are as per Slow Time.

Powerstones recharge at outside rates, so Accelerate Time does not speed up Powerstone recharge. Of course, relative rest-time can be increased, permitting mages to regain lost FP more rapidly.

Duration: 1 minute (outside time).
Base cost: 2 for double, 3 for triple, 4 for quadruple, and so on (no limit, but see the Time Out spell, below). Same costs to maintain.
Time to cast: 2 seconds.
Prerequisites: Magery 2, IQ 13+, and at least two spells from each of 10 different colleges.

Item

Staff or timepiece. Usable only by mages. *Energy cost to create:* 1,000.

Hide Object

Regular

The subject (which must be nonliving) disappears into an other-dimensional space from which it can be recalled at will. Failure to maintain the spell causes the object to reappear in mid-air next to the caster. If the subject is being held by a living being, the holder can resist the spell with his IQ.

Seeker won't find objects hidden by this method; Trace loses touch for the duration of the Hide Object, regaining it when the object reappears in this world. Teleport Shield will oppose this spell (the original margin of success of the Hide Object spell would need to be 5 or better for the object to reappear within an area affected by a base casting of Teleport Shield, for example). The object reappears in the caster's grasp or in his immediate vicinity (caster's choice).

Duration: 1 hour.
Cost: 1 per pound of object weight to cast. Same cost to maintain.
Time to cast: 10 seconds.
Prerequisites: Hideaway and Teleport.

Item

(a) Staff, wand, or jewelry. Usable only by mages. *Energy cost to create:* 500. (b) Any object may be enchanted to "disappear" and "reappear" at its owner's command. *Energy cost to enchant:* 100 per pound of item weight. This is a popular enchantment on illegal objects . . .

Sanctuary (VH)

Special

Opens a door-sized portal to a pocket dimension. The portal closes immediately after the caster passes through it (others may pass through it first, of course). The portal leads to a small dimly lit room with blank walls and no visible exits. When the caster wishes to leave, he simply concentrates and a portal appears on one of the walls, leading back to his original point of departure. The space can have a size up to that of a cube equal to the caster's skill, in yards, on a side.

The real world completely loses touch with the occupants of the pocket dimension; Seeker won't find them, Trace will lose them for the duration (but will pick them up as soon as they step back out) and so on. Of course, the reverse is also true.

Long-term visits to the pocket dimension will require the creation of air, food, and water (and decent lighting, for comfort's sake), as well as the disposal of wastes. This is slightly complicated by the fact that the pocket dimension is low-mana; all spell-casting is at -5, and the Recover Energy spell doesn't work.

Should the spell expire or the caster lose consciousness, all the room's contents reappear as if teleported; its occupants each take 1d of damage and are physically stunned if they fail a Body Sense roll. This also happens to anyone who is foolish enough not to exit before the caster!

If the caster wishes to return to the real world, but not to his point of departure, he may cast an appropriate magical transport spell from the pocket dimension as if he were casting it from the departure point (if he is willing to take the risk of a low-mana casting).

Note: This "default" description of the pocket universe created by this spell should by no means be taken as gospel. A less bare-bones version might include opulent (but magical and temporary) furnishings and features, illusionary windows, and so on. In some worlds, this will be determined by the GM's views on alternate dimensions. In others, the details of sanctuary dimensions might be conscious, or unconscious, reflections of the mage's personality.

Duration: 1 hour.
Cost: 5 to cast. 5 to maintain.
Time to cast: 10 seconds.
Prerequisites: Hideaway and Teleport.

Item

Staff, wand, jewelry, or door. Usable only by mages. *Energy cost to create:* 2,000.

Suspend Time (VH)

Area; Resisted by IQ

Time is suspended in the area; relative to the outside world, the occupants of a time-suspended area will not move, breathe, age, or even think. As far as the affected beings are concerned, no time elapses for the spell's duration. One moment they were having tea in a pleasant spring

meadow, and the next moment winter has come outside the circle of grass they are sitting in . . .

Any unwilling beings within the area when the spell is cast resist with IQ. They must all fail for the spell to take effect.

From the outside, the area appears to be surrounded by a perfectly reflective surface, which nothing (including magic and magical beings) can cross. Objects thrown at it bounce off. Any spell requiring concentration and lying outside the area immediately lapses if its caster is caught inside. Likewise, any outside spell whose maintenance comes due during the suspended time also lapses (but see Maintain Spell, p. 128).

Duration: 1 day (outside time).
Base cost: 5 to cast. 5 to maintain.
Time to cast: 5 minutes.
Prerequisites: Magery 3 and Slow Time.

Item

Staff or timepiece. Usable only by mages. *Energy cost to create:* 2,500.

Time Out (VH)

Area

The area and all within it are temporarily removed from the time stream; the effect is equivalent to having the area's time accelerated infinitely. Unlike Suspend Time, this spell can only be cast from the inside, centered on the caster (the spell ends as soon as he touches its edge). Should the caster die alone in the area, the spell will never end! The caster and any objects caught in the area would simply seem to vanish from the time stream.

As far as outside observers are concerned, the area "ages" instantaneously (which may or may not be perceptible). One moment five ogres were attacking the party while their wizard cast a spell, and the next moment the ogres were dead, the party magically healed, and everybody was in a different position and drinking rum to celebrate.

From the inside, the area is bounded by a wall (and covered by a ceiling) of utter blackness. Anyone or anything touching the edge of the area is immediately expelled from the area, back into normal time. This causes an automatic mental stun to anyone other than the caster. Missiles of any sort can be thrown blindly out of the area (see *Shooting Blind*, p. B389) but not into it. Note that, since all missiles fired out of the area will emerge at the same outside time, an archer could create an impressive burst of arrows by simply firing casually for a few subjective hours . . .

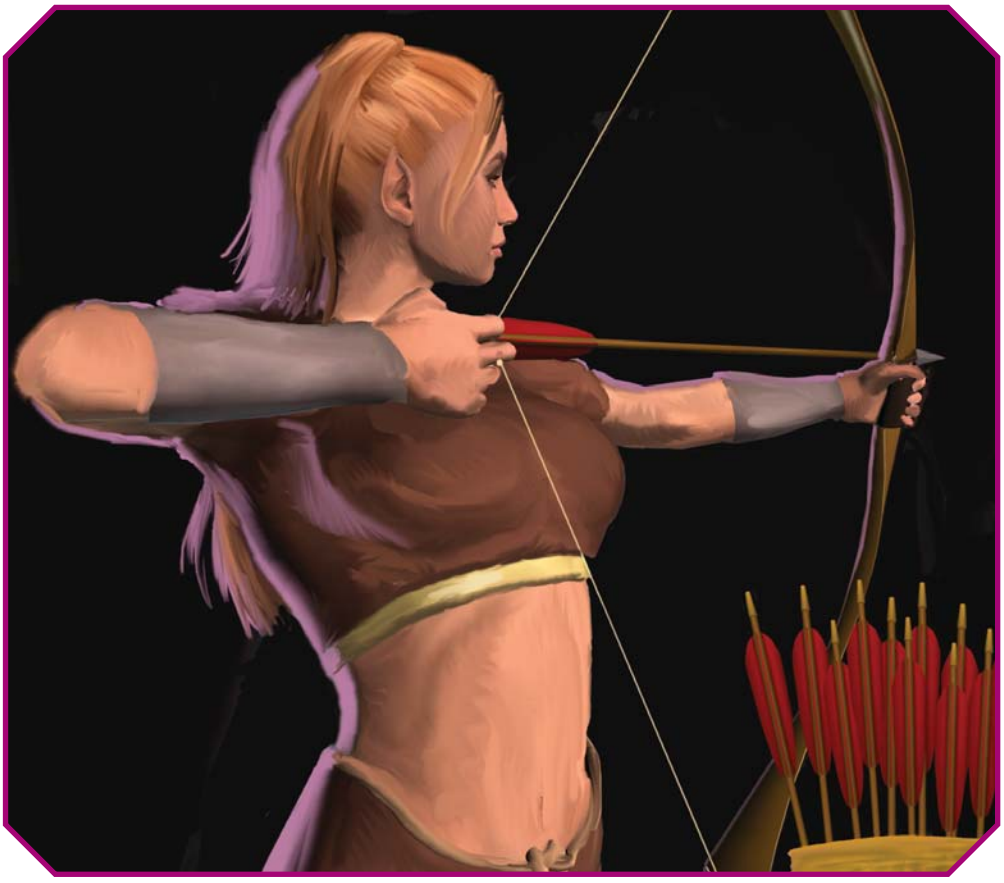
Spells involving the outside simply fail. Any spell requiring concentration and lying inside the area lapses immediately if its caster is left outside. Likewise, any inside spell whose maintenance comes due during the Time Out lapses unless its caster is also inside.

The "flow" of mana into the Timed Out area is effectively nil. Powerstones won't recharge, enchantment is impossible, etc. Mages still recover lost energy (the physical consequences of manipulating mana go away regardless of the local mana supply), but GMs may decree that spells cost much more, or are impossible, within the time-stopped area (since the power must be drawn entirely from the caster's personal life-force). This is entirely dependent on the GM's view of mana in his setting.

Duration: An instant (outside time). Within the area, the caster and any other occupants have as much time as they need.
Base cost: 5.
Time to cast: 5 minutes.
Prerequisites: Magery 3 and Accelerate Time.

Item

Staff or timepiece. Usable only by mages. *Energy cost to create:* 2,500.



Chapter Twelve
Healing Spells

Ghalhan had thought his leg had seen an end to pain, but this withered old torturer had put an end to that notion with his probing. His bony fingers were like hot knives.

"Enough!" he roared. "Enough poking at me! Can you make me a false leg that I can run with, or must I relieve the donkey's son who sent me here of his nose?"

The old man straightened. "I can do you one better, my good man. I can give you back your true leg."

Ghalhan's brow lowered. "Don't taunt me, old man. It's bad for your health."

"You don't believe me, hey?" He spoke a tongue-twisting phrase in an unfamiliar tongue and thrust a long finger toward Ghalhan's face. The finger stopped just short of the patch over Ghalhan's right eye; Ghalhan's knife stopped just short of the old man's throat.

The old man looked down at the knife, smirked slightly, and flipped Ghalhan's eyepatch up with the tip of his finger.

Proper vision was a shock after years of one eye. Ghalhan choked.

"It won't last, I'm afraid. It takes some preparation to fix a wound that old so that it stays fixed. But I can bring your eye back for good, given some time. And your leg, if you can hold back that impatience of yours. Are you interested, or will you be off to relieve that gentleman of his nose?"

These spells are the whitest of white magic. Yet ironically, the healing spells are precursors of the dark spells of necromancy. Some healers even refuse to learn Resurrection, because of the necromantic knowledge required to make the spell function.

Most healers are mages; Magery 1 is a prerequisite for even the first few spells of the college, and higher levels quickly become necessary. Some nonmage healers, however, make up for their magical deficit with an abundance of compassion. In many magical hospitals, this leads to a division of labor between the sympathetic nonmages, who handle minor injuries and care, and the mages, who have the power to heal plagues and mortal wounds, but may have the bedside manner of a stump.

Almost every mage at least dabbles in healing; the Recover Energy spell, which can be vital to a practicing mage, belongs to the College of Healing.

Anyone who tries to heal *himself* has a skill penalty equal to the amount of injury he has. For example, a wizard who is missing 4 HP rolls at -4 to heal himself.

A *critical* failure with a Healing spell will always have some appropriate bad effect on the patient, aggravating the injury, creating a new wound, or the like.

Body-Reading

Information; Resisted by Will

Creates in the mind of the caster a visual and tactile "image" of the interior of the subject's body. Useful for diagnosing pain or illness of uncertain origins, this spell reveals organ ruptures and internal bleeding, bone fractures – even the sex of an unborn child. Use Regular range modifiers. Essentially, this is the magical equivalent of a detailed series of X-rays; what the caster can do with the information gained depends on his medical skills.

The spell does not reveal the exact nature of any poisons or diseases that may be affecting the subject, but it gives a +2 to any subsequent Poisons or Diagnosis roll. The caster must touch the subject.

Modifiers: -2 if the subject is of a different species than the caster (an Elven wizard reading a human subject, for instance), -4 or worse if totally alien!

Cost: 2.

Time to cast: 30 seconds.

Prerequisite: Sense Life *or* Awaken.

Item

Headgear or jewelry. Works only on wearer. *Energy cost to create:* 200.

Detect Poison

Area; Information

As listed under *Protection and Warning Spells*, p. 166.

Final Rest

Regular

When cast on a dead body, this spell renders the subject immune to all Necromantic magic. The spirit of the deceased cannot be summoned, nor can the body be animated (or Resurrected). It has no physical effect on the body. The spell may be cast at any time after the subject dies, but there is a cumulative -1 penalty for each month that the subject has been dead, to a maximum of -10. Any given caster may attempt the spell only once per subject.

This spell has no effect on a living person, and will not affect the undead who have already risen.

In many settings, this spell is an intrinsic part of funeral rites, and may be restricted to the clergy. GMs may wish to change the prerequisite from Magery to Power Investiture or Blessed. In other settings, this spell is unnecessary; ordinary nonmagical funeral rites are sufficient to safeguard the dead from necromancy.

It is usually assumed that this spell functions by sending the soul of the deceased from the mortal plane into the presence of their deity. Some, however (usually members of one death-cult or another), believe that this spell works by *destroying* the disembodied spirits of the dead!

This is also a Necromantic spell.

Duration: Permanent.
Cost: 20.
Time to cast: Minimum 10 minutes. This spell is always cast ceremonially.
Prerequisite: Magery 1 *or* Spirit Empathy. "Holy" persons may be able to cast this spell without either prerequisite.

Item

This spell may be consecrated into funerary regalia. Energy cost: 1,200.

Lend Energy

Regular

Restores the subject's lost Fatigue Points, at an energy cost to the caster. Cannot increase the subject's FP score above its normal maximum.

Cost: Any amount; the energy spent by the caster goes to the subject as restored FP (e.g., if the caster spends 5 energy, the subject regains 5 lost FP). Casting cost is not reduced by high skill.
Prerequisite: Magery 1 *or* Empathy (p. B51).

Item

Wand, staff, or jewelry. *Energy cost to create:* 100.

Lend Vitality

Regular

Temporarily restores the subject's lost Hit Points, at an energy cost to the caster. Cannot increase the subject's HP score above its normal maximum. Since restored HP vanish after one hour and the spell cannot be maintained, this spell is only a stopgap measure.

Duration: 1 hour.
Cost: Any amount; the energy spent by the caster goes to the subject as restored HP (e.g., if the caster spends 5 energy, the subject regains 5 lost HP). Casting cost is not reduced by high skill. Cannot be maintained; must be recast.
Prerequisite: Lend Energy.

Item

Wand, staff, or jewelry. *Energy cost to create:* 250.

Share Energy

Regular

The caster makes his FP available to another wizard's spell casting. The caster may only cast this spell on himself. He must specify who can draw FP from him in the next second – nobody else may do so. More than one wizard may be specified, and a limit of 5 FP may be drawn in a single second. The caster may specify a lower limit! HP may not be used to cast this spell.

If a specified wizard does not draw FP before the caster's next turn, the Share Energy spell expires, costing the caster one FP. The wizard casting the other spell does not have to be aware of the Share spell's existence. As he casts his spell, he will feel an outside energy attempting to aid him – he may yield to that or deny it, paying the cost himself.

A spell can draw power from only one Share spell. If more than one Share spell is cast, use the closest one; roll randomly if two are equally close.

Duration: The FP must be used in a spell that turn. Cannot be maintained.
Cost: Twice the amount actually used by the wizard who draws the FP. The energy spent by the caster goes to power another wizard's spell. FP beyond that needed by the spell is not transferred to the other wizard – use Lend Energy to do that. The cost to cast this spell is never reduced by high skill. A minimum of 1 FP is always spent when casting this spell.
Prerequisite: Lend Energy.

Recover Energy

Special

Rest and recover Fatigue Points more quickly than normal by drawing energy from the mana around him. A normal person recovers 1 FP every 10 minutes. A mage who knows this spell at skill 15 or higher recovers 1 FP every 5 minutes. A mage who knows this spell at skill 20 or higher recovers 1 FP every 2 minutes. No further improvement is possible. Note that this spell works on the caster himself; it cannot restore FP to others.

The mage must rest quietly, but no ritual or die roll is required. While resting, he can maintain ordinary spells, but not those that require concentration.

This spell does not function in low- or no-mana areas.

Cost: None.
Prerequisites: Magery 1 and Lend Energy.

Item

Jewelry. Permits wearer to recover as though he had this spell at level equal to item's Power; always on. A very rare item! *Energy cost to create:* 1,000; must be made of alloyed gold and platinum (minimum value of a small ring $500).

Remove Contagion

Area

Purifies the subject area of contagious disease-causing agents – microbes, disease spirits, foul air, etc. – rendering it sterile and free from infection. This spell can be used to cleanse and sterilize anything from a disease-cult temple to an operating theatre. It will not cure or relieve disease in living creatures; it serves only to cleanse and purify objects and surfaces.

Infectious areas or objects treated with Remove Contagion cannot serve as a source of contagion (see *Contagion,* p. B443) until reinfected.

Duration: Until disease-causing agents return to the affected area.
Base cost: 3.
Time to cast: 2 seconds.
Prerequisite: Decay, Clean, *or* Cure Disease.

Item

Wand or staff, decorated in a snake pattern. Subject must be touched by item. *Energy cost to create:* 400.

Stop Spasm

Regular

As listed under *Body Control Spells*, p. 35.

Awaken

Area

Renders the subject(s) awake and alert. It instantly counters the effects of stunning. If the subject is very fatigued (less than 1/3 basic FP), this spell renders him alert for an hour but *costs* him 1 FP at the end of that time. It has no effect on those with 0 or fewer FP. Sleeping or unconscious subjects get a HT roll to awaken, at a bonus equal to the caster's margin of success. A subject rolls at -3 if unconscious due to injury, at -6 if drugged.

Base cost: 1.
Prerequisite: Lend Vitality.

Item

Wand or staff. The item must touch the subject. *Energy cost to create:* 300.

Relieve Sickness

Regular; Resisted by subject spell

Temporarily relieves a subject of any sickness symptoms he may have been displaying (fever, dizziness, rash, cough, etc.). The spells Sickness and Drunkenness get to resist. Note that only the *symptoms* are cured. Relieve Sickness will sober a drunk for the duration – but for a permanent cure, use Neutralize Poison.

Duration: 10 minutes.
Cost: 2. Cannot be maintained; must be recast.
Time to cast: 10 seconds.
Prerequisite: Lend Vitality.

Item

Wand, staff, or jewelry. *Energy cost to create:* 250.

Share Vitality

Regular

The caster heals another's injuries by transferring them to *himself*, losing as many HP as the subject heals. If the subject had a crippled limb, it will remain so – only the HP loss is healed. Likewise, the injury applied to the caster will not cripple him (although it could certainly put him into unconsciousness or even kill him; the spell includes no "safety net" for overly kind wizards). The caster does *not* suffer the normal skill penalty for spending HP to cast spells, nor is he penalized for recasting on the same subject.

Duration: Permanent; the caster can be healed of his new injuries through normal or magical means.
Cost: No energy need be expended; high skill only affects casting time.
Time to cast: 1 second per HP transferred.
Prerequisite: Lend Vitality.

Resist Disease

Regular

The subject is immune to diseases for the duration of the spell, as per the Immunity to Disease advantage (p. B80). This is also a Protection and Warning spell.

Duration: 1 hour.
Cost: 4 to cast. 3 to maintain.
Time to cast: 10 seconds.

Prerequisite: Remove Contagion *or* Vigor.

Item

(a) Jewelry. Always on; the wearer is immune to diseases. A rare and prized item! *Energy cost to create:* 1,000 for an item that resists one specific disease, 2,500 for one that resists all diseases. (b) Jewelry. Always on; prevents the wearer from spreading any disease he may have. "Lepers' Cords" are an example of this item. *Energy cost to create:* 250.

Resist Poison

Regular

The subject becomes immune to poisons for the duration of the spell. For some very persistent poisons, this is only a delay of the inevitable, since traces of the poison may still be in the subject's system when the spell ends!

This is also a Protection and Warning spell.

Duration: 1 hour.
Cost: 4 to cast. 3 to maintain.
Time to cast: 10 seconds.
Prerequisite: Vigor.

Item

Jewelry. The item must bear a picture of a unicorn. Always on; wearer is immune to poison. A rare and prized item! *Energy cost to create:* 500 for an item that resists one specific poison, 4,000 for one that resists all poisons.

Stop Bleeding

Regular

The subject stops bleeding immediately, as if bandaged by someone with the First Aid skill (p. B195). This restores 1 HP, and prevents further HP loss from bleeding if the optional bleeding rules (p. B420) are in effect. The subject of this spell may not subsequently benefit from further bandaging of the same wounds.

This spell may also be used to stabilize a mortal wound (p. B423), at a substantially higher cost.

Duration: Permanent, although later injuries will bleed normally.
Cost: 1 to stop bleeding on a normal wound; 10 to stabilize a mortal wound.
Prerequisite: Lend Vitality.

Item

Any item. The item must bear a picture of a pelican. It prevents its wearer from bleeding and from suffering mortal wounds. *Energy cost to create:* 500.

Minor Healing

Regular

Restores up to 3 HP to the subject. Does not eliminate disease or poison, but will cure damage caused by these things.

This spell is risky if used more than once per day by the same caster on the same subject. If you try, roll at -3 for the first repetition, -6 for the second, and so on.

If you have the Physician skill at level 15 or higher, a critical failure with this spell counts only as an ordinary failure – unless you are trying the spell more than once per day on the same subject.

Cost: 1 to 3. The same amount is restored to the subject.
Prerequisite: Lend Vitality.

Item

Wand or staff, decorated in a snake pattern. The item must touch the subject. Usable only by mages, or by nonmages with Physician skill 15 or higher. *Energy cost to create:* 600.

Major Healing (VH)

Regular

Restores up to 8 HP to the subject. Does not eliminate disease or poison, but will cure damage caused by these things.

Otherwise, this spell functions just like Minor Healing: it is at -3 per casting on the same subject in one day, and Physician skill at level 15 or higher will mitigate the effects of a critical failure.

The penalties for repeated casting accrue *separately* for Minor Healing and Major Healing. For instance, a caster could cast both spells on the same subject in the same day at no penalty.

Cost: 1 to 4. *Twice* the amount spent is restored to the subject.
Prerequisites: Magery 1 and Minor Healing.

Item

Wand or staff decorated in a snake pattern. The item must touch the subject. Usable only by mages, or by nonmages with Physician skill 20 or higher. *Energy cost to create:* 1,500.

Great Healing (VH)

Regular

Restores *all* of the subject's missing HP. Does not eliminate disease or poison, nor does it restore crippled or missing body parts, but it can heal HP lost to any of these things.

A given subject can only benefit from this spell *once per day,* whether cast by the same caster or by a different caster each time.

If you have the Physician skill at level 15 or higher, a critical failure with this spell counts only as an ordinary failure.

Cost: 20. One try per day per subject.
Time to cast: 1 minute.
Prerequisites: Magery 3 and Major Healing.

Item

Wand or staff decorated in a snake pattern. The item must touch the subject. Usable only by mages, or by nonmages with Physician skill 25 or higher. *Energy cost to create:* 4,000.

Cure Disease

Regular

Eliminates one type of disease or infection from the body of the subject. A successful Diagnosis roll (by the caster or another) should precede the casting; if not, spell use is at -5! Does not cure any damage the illness has done to the subject; the spell just eliminates the underlying sickness.

Duration: The illness is gone, but the subject isn't immune forever . . .
Cost: 4.
Time to cast: 10 minutes. One try.
Prerequisites: Relieve Sickness and Major Healing.

Item

Wand or staff, decorated in a snake pattern. The item must touch the subject. Usable only by mages. *Energy cost to create:* 800 to cure one specific disease, or 1,500 for an item that cures any disease.

Neutralize Poison

Regular

Eliminates all traces of one chosen poison from the body of the subject. A successful Poisons roll (by the caster or another character) should precede the casting in order to identify the poison being treated; if not, spell use is at -5! This spell is of no use against alchemical elixirs other than those that do direct damage. Does not cure existing damage – the spell just removes the remaining poison, avoiding any further damage.

Duration: Permanent.
Cost: 5.
Time to cast: 30 seconds (beware fast-acting poisons!). One try.
Prerequisites: Either Magery 3 *and* Test Food or Cure Disease.

Item

Staff or wand decorated in a snake pattern. Usable only by a mage or a nonmage with Physician-20 or higher. The item must touch the subject. Cost to create: 400 for an item that cures one specific poison, 1,500 for an item that cures any poison.

Instant Neutralize Poison (VH)

Regular

As Neutralize Poison, but works instantly. A Poisons roll is not required for successful use of this spell!

Cost: 8. One try per day.
Prerequisites: Magery 2 and Neutralize Poison.

Item

Wand or staff, decorated in a snake pattern. The item must touch the subject. Usable only by a mage or a nonmage with Physician-20 or higher. *Energy cost to create:* 800 for an item that neutralizes one specific poison, 3,000 for an item that will neutralize any poison.

Relieve Addiction

Regular

Partially replaces a "daily dose" of some drug required by the subject. The subject will still feel the psychological effects of missing a dose (that is, a Will-modified HT roll is still required to count the day toward shaking off the addiction), but will not suffer any physical damage from withdrawal.

Modifiers: This spell is at a -4 penalty if the caster casts it on himself, and at a cumulative -4 per consecutive daily casting on the same subject (thus, it gets harder and harder for the spell to replace the drug). In addition, the withdrawal penalty inherent to the drug is applied to any casting!

Duration: 1 day.
Cost: 6. Cannot be maintained.
Time to cast: 10 seconds.
Prerequisite: Neutralize Poison.

Relieve Madness

Regular

Temporarily restores a subject's sanity, relieving him from a single Delusion, Phobia, Compulsion, or spell-induced Madness (caster's choice). The Madness and Permanent Madness spells get to resist.

This is also a Mind Control spell.

Duration: 10 minutes.
Cost: 2. Cannot be maintained.
Time to cast: 10 seconds.
Prerequisites: Lend Vitality and Wisdom.

Item

Wand, staff, or jewelry. *Energy cost to create:* 850.

Restore Sight

Regular

Temporarily restores the subject's sight, regardless of what caused the loss (if the loss of sight is magical in nature, however, the responsible spell gets to resist). The eyes must not be completely missing (that requires Regeneration). For a permanent cure, use Restoration.

Duration: 1 hour.
Cost: Equal to half of the restored Vision score (Per + Acute Vision); half to maintain.
Time to cast: 5 seconds.
Prerequisites: Minor Healing and either Keen Vision or Strike Blind.

Item

Jewelry or clothing. Always on. *Energy cost to create:* 1,000.

Restore Hearing

Regular

Similar to Restore Sight, but for Hearing. The eardrums or other organs of hearing must not be completely missing.

Duration: 1 hour.
Cost: Equal to half of the restored Hearing score (Per + Acute Hearing); half to maintain.
Time to cast: 5 seconds.
Prerequisites: Minor Healing and either Keen Hearing or Strike Deaf.

Item

Jewelry (earrings are especially appropriate) or clothing. Always on. *Energy cost to create:* 1,000.

Restore Memory

Regular

Used to cure the victims of memory loss, either mundane or magical. The spell restores one forgotten fact or skill at a time. The Forgetfulness spell resists; Permanent Forgetfulness resists at +5. This spell will not permit the subject to recall something that he never actually memorized in the first place (but see the Recall spell, p. 106).

The spell is risky if used more than once per day on the same subject: each repeat casting is at a cumulative -3 penalty. A critical failure is very hazardous – the memory being sought is destroyed forever, and the subject is plunged into a frightening sequence of buried memories lasting 2d minutes. This causes a Fright Check at a -6 penalty.

If the caster has Psychology skill at 15 or higher, a "critical failure" on this spell counts as an ordinary failure – unless he has already tried the spell more than once that day on the same subject.

Duration: The memory is recovered permanently.
Time to cast: 10 seconds.
Cost: 3.
Prerequisites: Awaken and IQ 11 or higher.

Item

Wand or staff; the item must bear a picture of an elephant. The item must touch the subject. *Energy cost to create:* 600.

Restore Speech

Regular

Similar to Restore Sight, but for Speech. The tongue and vocal cords cannot be completely missing.

Duration: 1 hour.
Cost: 5 to cast. 3 to maintain.
Time to cast: 5 seconds.
Prerequisites: Minor Healing and either Great Voice or Strike Dumb.

Item

Jewelry or clothing. Always on. *Energy cost to create:* 1,000.

Stop Paralysis

Regular

Counters temporary paralysis (due to spell, paralysis gun, etc.). An ongoing spell (such as Paralyze Limb or Total Paralysis) gets a resistance roll.

Cost: 1 for a single limb. 2 for the whole body.
Prerequisites: Either Minor Healing *and* Paralyze Limb or Major Healing.

Item

Staff, wand, or jewelry. *Energy cost to create:* 200.

Relieve Paralysis

Regular

Temporarily restores a subject's use of his paralyzed or crippled limbs. The limbs must not, of course, be completely missing (that requires Regeneration). Since limbs wither with disuse, the GM should use his judgment and assess DX and ST penalties to the use of such restored limbs.

Duration: 1 minute.
Cost: Equal to the crippling threshold for the limbs affected. Same to maintain.
Time to cast: 10 seconds.
Prerequisite: Stop Paralysis.

Item

Jewelry or clothing. Always on. *Energy cost to create:* 200 per point of crippling threshold effectively restored (should the wearer's crippling threshold be higher than the capacity of the item, assess the difference as a penalty to DX and ST for that limb).

Restoration (VH)

Regular

Regain the use of one crippled limb or damaged eye – also restores lost hearing, smell, etc. Will not work on a lost limb or eye – that requires Regeneration. (If a limb has been amputated and is intact, you may try Restoration within the hour, at -5 to skill, to put it back on!)

Duration: Permanent.
Cost: 15. One try.
Time to cast: 1 minute to cast the spell; 1 month before the process of restoration is complete. The part may not be used at all until the month has passed; it simply won't work, even though it may appear to be healthy.
Prerequisites: Either Major Healing or any *two* of Relieve Paralysis and the various "Restore" spells.

Item

Wand or staff, decorated in a snake pattern. Usable only by mages. Subject must be touched by item. *Energy cost to create:* 2,000.

Instant Restoration (VH)

Regular

As Restoration, but works instantly.

Cost: 50. One try.
Prerequisites: Magery 2 and Restoration.

Item

Wand or staff, decorated in a snake pattern. Usable only by mages. The item must touch the subject. *Energy cost to create:* 2,500.

Regeneration (VH)

Regular

Regrow one lost limb or eye.

Duration: Permanent.
Cost: 20. One try.
Time to cast: 1 minute to cast the spell; 1 month before the process of regeneration is complete. The regenerating part may not be used at all until the month has passed.
Prerequisites: Magery 2 and Restoration.

Item

Wand or staff, decorated in a snake pattern. Usable only by mages. The item must touch the subject. *Energy cost to create:* 3,000.

Instant Regeneration (VH)

Regular

As Regeneration, but works instantly.

Cost: 80. One try.
Prerequisites: Magery 3 and Regeneration.

Item

Wand or staff, decorated in a snake pattern. Usable only by mages. The item must touch the subject. *Energy cost to create:* 4,000.

Cure Radiation

Regular

As listed under *Technological Spells*, p. 182.

Cleansing

Regular; Special Resistance

Cleanses the subject of any foreign matter in his tissues, including cactus or porcupine spines, arrowheads, barbs, bullets, splinters, etc. Also eliminates external (but not internal) bacteria and parasites. Has no effect against diseases, poisons or drugs. The subject must be willing or totally helpless (e.g., bound or unconscious) and the caster must touch him.

"Foreign matter" that is somehow integral to the subject (gold teeth, steel plates or rods, glass eyes, cyberware, and so on) must be excluded by the caster or it may be destroyed as well! If the caster is careless (or malicious), each item resists separately with HT+5 of the *subject*.

Cost: 2 to cleanse a hand or foot, 4 for a torso or limb, 6 for an entire body.
Time to cast: 3 seconds.
Prerequisites: Minor Healing and Purify Earth.

Item

Wand or staff, decorated in a snake pattern. The item must touch the subject. Usable only by a mage or a nonmage with Surgery-15 or higher. *Energy cost to create:* 250.

Suspended Animation

Regular; Resisted by HT

Holds the subject in apparent sleep, indefinitely. The effects of severe bleeding, disease, age, etc. are all halted while the spell is in effect. The subject requires neither food nor air, but can still be harmed by fire, weapons, and other natural hazards.

Duration: Remains in effect until broken (the Awaken spell works well).
Cost: 6.
Time to cast: 30 seconds.
Prerequisites: Sleep and at least four Healing spells.

Item

(a) Jewelry, arrow, or clothing. Always on; the item puts its wearer in suspended animation instantly. The spell lifts immediately when the item is removed. *Energy cost to create:* 2,000. (b) Crypt, coffin, etc. Always on; puts the occupant in suspended animation. *Energy cost to create:* 2,000 per human-sized space.

Healing Slumber

Regular; Automatic Resistance

Subject falls into a deep restorative sleep, and heals 1 HP for every hour of rest. Fatigue is recovered at double the normal rate.

The subject wakes once completely healed, or after 8 hours have passed; any fatigue from lost sleep is also completely recovered after that time. Otherwise, he can only be awakened by a word from the caster, an injury or the Awaken spell (or Remove Curse, Counterspell, etc.). An unwilling subject resists automatically.

Duration: Up to 8 hours (maximum recovery of 8 HP per day).
Cost: 6. For a cost of 10, the speed of recovery is *doubled*. Maximum recovery is unchanged.

Time to cast: 30 seconds.
Prerequisites: Magery 2, Sleep, and Minor Healing.

Item

(a) Wand or staff, decorated in a snake pattern. The item must touch the subject. Usable only by a mage or a nonmage with Physician-15 or higher. *Energy cost to create:* 1,000. (b) Any item. If the wearer is willing to sleep (or faints from fatigue or injury), the item activates. The wearer wakes if the item is removed or once the spell lapses (if the wearer's HP is still negative, see *Recovering From Unconsciousness*, p. B423). *Energy cost to create:* 900.

Halt Aging (VH)

Regular

Stops the subject from aging for one month. Cannot be cast again until the first spell wears off.

Duration: One month.
Cost: 20. One try per week.
Prerequisites: Magery 2 and at least eight Healing spells.

Item

Jewelry. Always on; the item prevents aging while it is worn. Kingdoms have been toppled for possession of such things . . . *Energy cost to create:* 10,000.

Youth (VH)

Regular

Removes one year from the subject's age. Any attribute levels lost in that period are automatically regained. Does not affect memories, skills, injuries, etc., gained during the "lost" months.

Duration: Subject starts aging again immediately.
Cost: 100. One try per month.
Prerequisites: Magery 3 and Halt Aging.

Those wounds heal ill that men do give themselves.

– William Shakespeare, ***Troilus and Cressida***

Resurrection (VH)

Regular

Brings the subject back to life, provided that the body, or most of it, is available. This is the GM's decision; note that a body that has reached -10×HP is by definition too damaged for resurrection. The resurrected subject has FP and HP 0, and must regain FP and HP in the normal fashion. All his limbs will be intact, regardless of the injuries that killed him. The caster's skill is at a -1 penalty for each full day between the subject's death and the beginning of the spell.

This is also a Necromantic spell.

Duration: Permanent, until you're killed again . . .
Cost: 300. One try.
Time to cast: 2 hours.
Prerequisites: Instant Regeneration and Summon Spirit.

Item

There are persistent rumors of a magic item that will bring the dead to life, but nothing specific is known.

Chapter Thirteen

Illusion and Creation Spells

Eric unlocked and opened his door, tossed his keys onto the counter, and dropped his bag by the door. With a miserable groan, he flopped back onto his decrepit couch.

Worst. Birthday. Ever.

His alarm clock hadn't gone off, work had been the usual parade of jerks, and someone stole the front wheel off his bike. Now he couldn't even find anyone to take his mind off the lousy day. Sheila wasn't answering her phone. Jim had vaguely alluded to something he had to do and hung up. All the usual suspects were nowhere to be found.

"Well," he said to the TV, "looks like just you and me tonight."

The room shimmered.

"SURPRISE!" people shouted from every corner of the room, and burst into laughter.

Sheila, sitting next to him on the couch, kissed him on the cheek. "Happy birthday! You should see the expression on your face."

"Dude," Jim said from underneath him, "happy birthday and all, but could you get off me now?"

These spells let the wizard create what is not. An "illusion" has no real substance. A "creation" does have substance, while it exists. Each illusion or creation counts as a spell "on," giving -1 to the caster's other spell rolls.

The College of Illusion and Creation is challenging; not everyone has the wit and imagination to master the art of illusion. Nonetheless, the principles within the college are necessary to many potent spells in other colleges.

Simple Illusion

Area

Creates a purely visual image that can be seen by anyone in view of the area it occupies. It may be a single object or an entire scene. It may move to a different area, or change size or shape up to its maximum area, if the caster concentrates. Any sapient creature can dispel it by "disbelieving" – taking a Concentrate action and making a successful Will roll. The illusion is automatically dispelled by any attack, any other spell except Control Illusion, or the touch of any sapient creature.

Duration: 1 minute.

Base cost: 1 to cast. Half that to maintain.

Prerequisites: Caster must be able to see and have IQ 11 or better.

Scary Illusions

Illusions are often used to terrify. If you know your foe has a phobia of reptiles, a well-timed Simple Illusion of a snake can be more effective than a Fireball! However, knowledge of illusion magic permits a wizard to produce images that seem *real*, but not necessarily images that are *scary*. A real-looking dragon, with smoke curling from its nostrils and talons gleaming in the sunlight, will likely make anybody nervous – but a *creative* illusionist will contort the dragon's expression into a nasty leer, place a few scraps of bloody meat between the talons, and have the beast's muscles flexing menacingly beneath the scales.

The GM may want to assess an illusion's Fright Check penalty (if any) based on the player's description. However, to link an illusion's impact to character skill rather than player skill, the GM may permit an Artist (Illusion) roll; the higher the margin of success, the more frightening (or beautiful, or moving) the illusion is.

Phantom Flame

Area

As listed under *Fire Spells*, p. 73.

Complex Illusion

Area

As Simple Illusion, but affects hearing as well as sight. It is not automatically dispelled by a spell or touch; however, any amount of actual damage will dispel the illusion.

Duration: 1 minute.
Base cost: 2 to cast. Half that to maintain.
Prerequisites: Sound and Simple Illusion.

Perfect Illusion

Area

As Complex Illusion, but affects all the senses except touch; your hand will go through it. It cannot be dispelled except by Dispel Magic or Dispel Illusion. Any damage at all will temporarily disturb the illusion, revealing it for what it is without dispelling it.

Duration: 1 minute.
Base cost: 3 to cast. Half that to maintain. For double cost, even the sense of touch will be fooled, though you cannot "really" warm yourself from an illusionary fire.
Prerequisites: Magery 1 and Complex Illusion.

Illusion Shell

Regular

This illusion makes a chosen object look, sound, and feel different. The base object must be of the appropriate size and shape. The illusion may be disbelieved, but is otherwise stable. However, it will not move about unless the underlying object moves. Damage done by the underlying object is unaffected. For example, an illusion shell of a horse could be cast over a wooden horse. It would stamp, nicker, and smell like a horse, but could not be ridden! Concentration is not required to maintain the illusion.

Duration: 1 minute.
Cost: 1 for an object small enough to be hand-held, or 2 for larger objects. Half that cost to maintain.
Prerequisite: Simple Illusion.

Item

For 200 times the base cost, the spell can be made permanent; it will not be disbelieved!

Illusion Disguise

Regular

This illusion disguises a living being. The caster must first create the illusion (using any basic Illusion spell). The Illusion Disguise spell then superimposes the illusion over the subject, so it covers him and moves with him. The better the Illusion spell used, the better and more permanent the disguise; a Perfect Illusion Disguise even fools the sense of touch. Concentration is not required to maintain the disguise. The illusion disguise counts as only a single spell "on."

Duration: Until the illusion ends.
Cost: 3. Cannot be maintained.
Prerequisite: Simple Illusion.

Item

Jewelry or clothing; the item casts an Illusion Disguise (specified when the item is enchanted) over the wearer. *Energy cost to create:* 150 Simple, 300 Complex, 500 Perfect Illusion. There is no energy cost to the wearer!

Independence

Area

This spell can be used with any controlled creation or illusion. It lets the caster "program" the creation or

illusion to move about, speak (if it can make sounds), and even react in predetermined ways. All this is done with no further concentration on the caster's part; it does not count as a separate spell "on." If faced with something for which it is not "programmed," it may do nothing or (if an illusion) simply vanish, at the GM's whim.

Duration: As long as the creation or illusion lasts.
Base cost: 2. Does not require maintenance.
Time to cast: As long as it takes the casting player to describe the instructions to the GM, or to read them aloud if they are in writing (writing them down will save arguments!). Complex instructions take a long time to cast. Minimum 5 seconds.
Prerequisite: Simple Illusion.

Know Illusion

Information

Tells whether the subject is either an illusion or creation, and if so, just what kind it is. The caster must be able to see the subject.

Cost: 2.
Prerequisite: Simple Illusion.

Control Illusion

Regular; Resisted by subject spell

Take control of an illusion that someone else has cast. If your spell succeeds, you must pay any further energy costs to maintain the illusion. If you fail, the illusion still belongs to the original caster. This spell does not affect an Illusion Disguise. If the spell is cast over something that is not an illusion, the energy cost is still spent but the spell has no effect.

Duration: Once established, control is permanent unless someone else takes control.
Cost: 1.
Time to cast: 2 seconds.
Prerequisite: Perfect Illusion.

Item

Wand or staff. *Energy cost to create:* 300. The item must touch the illusion to be controlled.

Dispel Illusion

Regular; Resisted by subject spell

Dispels any Illusion or Illusion Disguise. Does not affect creations.

Cost: 1.
Prerequisite: Control Illusion.

Item

Wand or staff; the item must touch the subject illusion. *Energy cost to create:* 400.

Inscribe

Area; Resisted by Will

Creates an inscription (either writing or images) on any surface. Appropriate specializations of Artist (Calligraphy, Illumination, etc.) should be used to assess the aesthetics of the result. The image can be as stylish as the caster desires: letters of silver flame, simple block-lettering, reflected light on the surface of water, and so on. The inscription is integral to the subject's surface, fading only when the spell is canceled or expires. Any living things to be inscribed get to resist.

This is also a Making and Breaking spell.

Duration: 1 minute.
Base cost: 1 to cast. Same cost to maintain. Minimum 2.
Prerequisites: Simple Illusion and Copy.

Item

(a) Any inscription can be made permanent for 20 times the cost to cast the spell. (b) A stylus, brush, etc. that can leave inscriptions on anything, without ever needing ink or paint. *Energy cost to create:* 30.

Phantom (VH)

Area

Like Perfect Illusion, but a phantom can impede movement and inflict real damage. The first time any living creature physically contacts a phantom, roll a Quick Contest between the caster's effective skill and the being's IQ. If the caster loses, then the phantom is treated as a Perfect Illusion for all purposes with regards to that character.

If the caster wins, the phantom has substance and may proceed to strike, grapple, shove, and so on as if it were real. A phantom may have any ST and DX up to the mage's skill with the spell for the purposes of contests, damage inflicted, and so on.

When the spell is first cast, the GM should note the margin of success. If a single attack on the phantom inflicts this amount (or more) of basic damage, the phantom is immediately dispelled. Any spells that work on illusions (Dispel Illusion, Control Illusion, Independence, etc.) work on phantoms.

Duration: 1 minute.
Base cost: 5. Half that to maintain. For a base cost of 9, the phantom can have twice the normal ST (DX is unchanged).
Prerequisites: Magery 2, Perfect Illusion, Hinder, and Apportation.

Item

Staff, wand, or jewelry. Usable only by mages. *Energy cost to create:* 300; half cost for an item that will create a single, creator-determined phantom.

Initiative

Area

This spell can be cast on any creation or illusion the caster controls, giving it a semblance of intelligence in order to act on its own initiative. The subject is totally loyal to the caster, and obeys him (or anyone else the caster orders it to heed) to the best of its ability.

The base cost of the spell is based on what knowledge the caster grants the subject. Creations *start* with their own DX and IQ as listed in the spell description. For the purposes of this spell, Illusions and Phantoms start with IQ 0 and DX 8. The subject's DX and IQ may be raised as high as the caster's. The subject may also be given the caster's skills – every skill granted is known at the same *relative* level as the caster. Illusions and creations with Initiative may use defaults on any skill.

Once the spell is cast, the subject acts on its own until the spell expires. If the subject comes across a situation that confuses it, it attempts to return to the caster for clarification. Like Independence (p. 96), this spell does not count as a spell "on," and does not require separate maintenance.

Example: Lady Ann Goulding has created a magical servant to amuse her noble and decadent guests. She wishes it to circulate throughout the party, serving food, dancing with the noblewomen, and showing appropriate respect – *without* requiring constant supervision, so that she can enjoy herself. It begins with 9 in every attribute, but no skills (Lady Ann could have created a skilled servitor, but she has Create Servant-15 and can maintain an unskilled one indefinitely). To this base she adds 2 points of DX (bringing it up to her own DX of 11), and 2 points of IQ (well below her own IQ of 14) to make it wittier. This is a total attribute increase of 4, for a base cost of 2.

Lady Ann then gives it two skills – Dancing and Savoir-Faire. She has Dancing-14 (DX+3), and since the servant has the same DX as she does, the servant will, too. The lady's knowledge of Savoir-Faire is considerable (skill 15, or IQ+1), but the servant is not as smart as she, and will only have it at its own IQ+1, for a net Savoir-Faire-13. These two skills add 2 more to the base cost, for a total of 4. Since the servant is less than 1 yard in radius, a casting at base cost will suffice.

Duration: As long as the subject lasts.

Base cost: 1/3 per point of DX or IQ increase (round up), plus 1 per skill; minimum base cost of 3.

Time to cast: 10 seconds.

Prerequisites: Independence and Wisdom.

Create Object (VH)

Regular

Create any sort of simple artifact with which the caster is familiar – e.g., a robe, a sword, a cup. It cannot create a magical item or a living creature.

Limitations: Food created this way will seem nourishing, but in fact is not. *Information* cannot be created; a book could not be created unless the caster knew all its contents by heart. A work of art will be only as good as the caster could make it by hand. A *mechanical device* cannot be created unless the caster could build it himself. (GMs – the intent of this rule is to make it almost impossible for mages to create cars, transistor radios, etc. Be strict.)

Duration: The created object lasts indefinitely – as long as it is touching a living, thinking being. Thus, a wizard can create a sword, and use it himself or give it to a friend – but if he creates a coin to cheat a merchant, it will vanish if the merchant drops it on the counter or tosses it in the air! A created item does not actually have to touch flesh, but it must be very close to someone. It could be held in a gloved hand, carried in a pocket, etc., but not stored in a backpack.

Cost: 2 for every 5 pounds the created item weighs.

Time to cast: Equal to cost, in seconds.

Prerequisites: Magery 2, Create Earth, and Perfect Illusion.

Duplicate (VH)

Regular

Like Create Object, but instead of creating an object from the caster's mind, the Duplicate spell duplicates an actual item, which must be held or touched by the caster while the spell is cast. This permits a mage with no knowledge of Armoury to create a gun – if he has another one handy to copy. It also permits perfect forgeries of works of art, money, documents, and so on. The magical duplicate follows all normal rules for items made with Create Object – it must remain in contact with a living thing, for instance, or it will disappear.

The mage may also attempt to *alter* the creation. For instance, he could copy a sword and add inscribed runes, or forge a passport with a different name or picture, etc. In this case, normal rules for the caster's abilities apply; Forgery skill rolls may be required. A mage with no knowledge of guns could gold-plate a duplicate, but he couldn't modify the firing mechanism or ammunition capacity.

Duration: As per Create Object (above)

Cost: 3 for every 5 pounds that the created object weighs.

Time to cast: Equal to the cost, in seconds.

Prerequisites: Create Object and Copy.

Item

a) Staff, wand, or jewelry. Usable only by mages. *Energy cost to create:* 650. (b) A duplicate may be made permanent for 100 times casting cost.

Create Servant

Regular

Creates a stupid but obedient servitor (all attributes equal to 9) to do the caster's bidding. The caster determines the servant's appearance. This same spell can also create a Brute – a servant with ST of 16, and all other attributes at 9. Or it can create a servant with attributes at 9 *and* one non-combat non-IQ-based skill at level 16. Any created servant follows simple spoken commands, delivers verbal messages, etc. It is under the GM's control. It cannot fight or handle confusing situations; it has *no* skills. Faced with danger, it whimpers, flees, or simply vanishes. If questioned, it knows only who its master is and what its orders are.

Duration: 1 minute.

Cost: 3 to cast. 1 to maintain. For a skilled servitor, 4 to cast; 2 to maintain. For a Brute, 6 to cast; 2 to maintain.

Time to cast: 3 seconds.

Prerequisites: Magery 3, IQ 12 or higher, and Create Object.

Create Warrior

Regular

Creates a warrior to fight as the caster commands. He has IQ 10; ST, DX, and HT 12; and skill 16 with any single weapon (or unarmed combat ability) the caster desires. He has no weapons or armor when created, but uses what he is given.

Duration: 1 minute.

Cost: 4 to cast. 4 to maintain. Cost to create a Brute Warrior (ST of 16) is 6 to cast; 6 to maintain.

Time to cast: 4 seconds.

Prerequisite: Create Servant.

Create Animal

Regular

Create an animal (IQ 5 or less) that does your mental bidding while it exists. A created living being continues to exist until the caster stops maintaining the spell, or until it is killed, at which point it vanishes.

A living creation must be identical to a "real" living being with which the caster is familiar. You cannot create an imaginary being, or even a real creature of which you have only heard stories. Neither can you create a bear with poison fangs . . . but some wizards occasionally research private variations on the spell to make unusual creatures.

Create Animal may also be used to create a swarm of small creatures (p. B461). A "swarm" costs 2 energy to create.

Duration: 1 minute.
Cost: 2, multiplied by 1 + SM for animals larger than SM 0. Half that to maintain.
Time to cast: Equal to cost, in seconds.
Prerequisites: Create Water, Create Object, and IQ 12 or higher.

Create Mount

Regular

Create a stupid but obedient mount on which to ride while it exists. It can also be used as a draft animal.

The mount's traits are equivalent to a pony (p. B460), but the caster sets its appearance at casting time; it can be a horse, camel, dolphin, dwarf elephant, huge ostrich, or anything else the GM agrees to (use the Create Animal guidelines). The mount can only understand very simple spoken commands, such as stop, go, left, right, about face, etc. It is under the GM's control and cannot fight or handle confusing situations; it has *no* skills. Faced with danger, it will whimper, bolt, or simply vanish.

The caster may also choose to create a Brute mount with ST 35, a Winged mount with Move 7/14, a Racing mount with Move 18, or a War-Trained mount that remains calm in dangerous situations and can be ordered to trample or attack.

Duration: 1 hour.
Cost: 8 to cast. 3 to maintain. Double the cost for a Brute mount, a Winged mount, a War-Trained mount, or a Racing mount. Triple the cost for a Winged Racing mount, etc.
Time to cast: 3 seconds.
Prerequisites: Magery 3 and Create Animal.

Item

(a) A mage may create a permanent mount for 100 times the casting cost. (b) Horn or whistle. Usable only by mages. Sounding the horn or whistle causes the mount to appear as if summoned. *Energy cost to create:* 200 times the casting cost for the intended type of mount.

Cost: 1.
Time to cast: 2 seconds.
Prerequisite: Create Animal or Create Servant.

Item

Wand or staff; the item must touch the subject creation. *Energy cost to create:* 400.

Control Creation

Regular; Resisted by subject spell

Takes control of a living Creation cast by someone else. On a success, further energy costs are necessary to maintain the creation. On a failure, the creation remains the original caster's. This spell cannot affect an Illusion.

Dispel Creation

Regular; Resisted by subject spell

Destroys any sort of Creation. Does not affect illusions.

Cost: 1 to dispel a nonliving subject, or 3 to dispel a living creation.
Prerequisite: Control Creation.

Item

Wand or staff. Energy cost to create: 500.

Chapter Fourteen
Knowledge Spells

The diviner placed the oblong device on the table in front of him. Even in the dim candlelight, Gulden could see that he seemed worried.

"Where did you acquire this object?"

"That is my own business. What can you tell me of it?"

The diviner scowled. "You've been rooting in the Ruined City with the rest of the fools, then, and like them you have found only trouble. This object is old . . . perhaps three centuries, perhaps four. I can tell you nothing of its creator, save that he was a mage of great power. I cannot tell you its full capacities. They are too complex for me to determine magically – spells layered upon spells, enchantments on enchantments – and I dare experiment with it no further.

"As you told me, it can detect whether an item is magical. But it can also determine whether an item is magical by spell or enchantment, and analyze the nature of that magic accordingly. It can reveal the history of an item – or of its holder. It can remove the enchantment from a magical item, and it can do so *of its own volition*.

"This abomination *thinks*, somehow. It perceives, it decides, and it acts. Yet it does not live. I have tested it with every method I know, and I cannot say how such a thing can be. It is an inert thing, and yet it thinks.

"I urge you to destroy it, if you can. If it were within my power, I would already have done so. Now get out."

These spells provide information. Duration is "instantaneous" unless noted otherwise – that is, the caster gets one flash of knowledge, but not a continuing picture.

Measurement

Area; Information

Tells the caster any *one* of the following things about the subject: (a) its weight; (b) its measurements in all dimensions; (c) its area; (d) its volume. This spell will provide information in the native system of the caster, be that pounds, grams, or stones about the size of your head. The measurement is as precise as the caster can comprehend.

In some settings, where other quantities are commonly measured, other measurements may be possible. At high TLs, for example, the wavelength of a color may be determined, or the frequency of a sound. The speed of a moving object or the local gravity are also quantities that could be measured in some settings.

Base cost: 1.

Item

A different item exists for each of the above functions: an enchanted ruler for measurement, scales for weight, a lens for color, or an onyx cube for volume. The item must touch the subject. *Energy cost to create:* 50.

Tell Time

Information

Tells the caster what time it is – as well as the day and year, should that be in doubt.

Cost: 1.

Item

Jewelry that lets the wearer know the exact time whenever he wants. *Energy cost to create:* 250.

Alarm

Regular

Alerts the subject at a specified time in the future, awakening him if necessary. It will also remind him of one thing (in effect, delivering a message), provided he specified that thing at the time the Alarm spell was cast. Can be set to "go off" up to a week from time of casting.

Duration: 1 week.
Cost: 1. Cannot be maintained.
Prerequisite: Tell Time.

Item

Jewelry. It will buzz or vibrate at exactly the same time every day, as set by the original creator. *Energy cost to create:* 60.

Far-Feeling

Regular

The subject can feel by touch any object that he can see (even at a great distance) or through solid objects totaling no more than 6 feet in thickness. The sensations are one-way (to pinch a wench, use the Manipulate

spell); in particular, a mage *cannot* deliver spells by Far-Feeling!

Duration: 1 minute.
Cost: 3 to cast. 1 to maintain.
Time to cast: 3 seconds.
Prerequisite: Magery 1.

Item

Gloves or jewelry. Affects only the wearer. *Energy cost to create:* 200.

Find Direction

Information

Tells the caster which direction is North. Alternately, it can tell which way his home is. Note that no one can have more than one true home, and a wanderer may have none!

Cost: 2.
Prerequisite: Magery 1.

Item

Enchanted compass needle that points north, or to the user's home, on command. *Energy cost to create:* 250.

Tell Position

Information

Tells the caster the subject's exact distance, azimuth, and altitude relative to the caster. The caster must be able to see the subject.

Cost: 1.
Prerequisite: Measurement.

Item

Staff, wand, or jewelry. *Energy cost to create:* 150.

Test Load

Area; Information

Tells the caster how much weight the subject can support before warping or breaking. This can reveal the capacity of bridges, baskets, ropes, etc.

Base cost: 1 (minimum 2).
Prerequisite: Measurement.

Item

Staff or wand; the item must touch the subject. *Energy cost to create:* 80.

Small Vision

Regular

As listed under *Light and Darkness Spells*, p. 111.

Earth Vision

Regular

As listed under *Earth Spells*, p. 51.

Air Vision

Regular

As listed under *Air Spells*, p. 24.

Of making many books there is no end;
and much study is a weariness of the flesh.
– Ecclesiastes 12:12

Detect Magic

Regular

Determines whether any one object is magical. If the spell is successful, a second casting tells whether the magic is temporary or permanent. A critical success on either roll fully identifies the spell, as for Analyze Magic.

This is *not* the same as the ability to detect magic items that comes with Magery 0; that ability only detects permanent magic items, while Detect Magic detects items, spells, magical creatures, and any other ongoing magical effect.

Cost: 2.
Time to cast: 5 seconds.
Prerequisite: Magery 1.

Item

(a) Staff, wand, or jewelry. Usable only by mages. *Energy cost to create:* 100. (b) Ring or necklace. Always on. It vibrates, alerting the wearer, when any magical item is within 5 yards. A Limit spell is often used to make it alert the wearer only to certain kinds of magic. *Energy cost to create:* 300.

Sense Mana

Information

Tells the caster the mana level at the point where he is standing, and whether the local mana is aspected (see ***GURPS Fantasy***) or otherwise unusual. If the spell is successful, a second casting will reveal the precise nature and level of any aspect or other peculiarity.

Cost: 3.
Time to cast: 5 seconds.
Prerequisite: Detect Magic.

Item

(a) Staff, wand, or jewelry. Usable only by mages. *Energy cost to create:* 200. (b) Ring or necklace. Always on. It vibrates whenever the wearer passes over a boundary between areas of different mana. *Energy cost to create:* 500.

Aura

Information

Creates a glowing halo, or "aura," around the subject. This aura gives the caster a general insight into the subject's personality – the better the skill roll, the better the insight. The aura also shows whether the subject has Magery, Magic Resistance, or Magic Susceptibility (and what level); whether the subject is possessed or controlled in any way; and whether the subject is in the grip of any violent emotion. A critical success will detect "secret" traits, such as lycanthropy, vampirism, and unnatural longevity.

All living beings have auras; inanimate things do not. A zombie is detectable by his faint, death-haunted aura, while a vampire retains the aura he had in life. Illusions and created beings have *no* aura, so a successful casting of this spell distinguishes them from real persons.

Cost: 3 (for *any* size subject).
Prerequisite: Detect Magic.

Item

Staff, wand, or jewelry. Usable only by mages. *Energy cost to create:* 100.

Identify Spell

Information

Identifies what spell or spells have just been cast (within the last five seconds), or are being cast at the moment, *on* or *by* the subject. It does not identify the spells on a permanently enchanted item. One casting identifies *all* spells cast on or by the subject. However, if any of these spells are totally unknown to the caster – not just spells he doesn't know, but spells he has never *heard of* – the GM should provide only a vague description; e.g., "Some kind of physical protection." Wizards have heard of every spell in this book (unless the GM rules that some are secret) but *not* new spells created by the GM or players.

Cost: 2.
Prerequisite: Detect Magic.

Item

Staff, wand, or jewelry. *Energy cost to create:* 1,100.

Mage Sight

Regular

Detect all magical items in your field of vision. Each such item will have a glow or "aura," similar to the aura of a living being. This glow is visible through clothes, armor, or up to 1/2" of solid material.

The aura of a permanently enchanted item will be stronger than that of something under a temporary spell. Enchanted (or magical) beings also glow, though mages themselves do not unless they actually have spells on them at the moment. The aura may also give a clue to an item's nature. On a good roll, for instance, fire spells will have a distinctive red glow, and evil items will somehow seem to have a "black glow" in their auras. A critical success with this spell lets the caster fully identify every magic item he sees. Note that this ability is essentially a more reliable version of the magical sense that comes with Magery 0 (p. B66).

Duration: 1 minute.
Cost: 3 to cast. 2 to maintain.
Prerequisite: Detect Magic.

Item

Staff, wand, or jewelry. *Energy cost to create:* 800.

Mage Sense

Information

Tells the caster whether some unseen magical item or creature is nearby. The caster may specify that he is looking for any unseen item, or he may specify a certain object.

Skill modifier: the distance in yards to the object sought. Use the closest distance if the caster moves around during the spell's duration, and roll at the end of that time. At the GM's option, some very powerful magic items may be easier to sense.

Duration: 1 minute.
Cost: 3 to cast. 2 to maintain.
Prerequisite: Detect Magic.

Item

Staff, wand, or jewelry. *Energy cost to create:* 1,200.

Seek Magic

Information

Determines the direction and approximate distance of the nearest significant magical item, active spell, or magical being (magical beings include demons, elementals, spirits, etc., but not races or individuals with Magery). Regular range penalties apply. Any known examples of magic may be excluded if the caster specifically mentions them before casting.

This is also a Meta-Spell.

Cost: 6.
Time to cast: 10 seconds.
Prerequisite: Detect Magic.

Item

Staff, wand, or jewelry. *Energy cost to create:* 1,200.

Analyze Magic

Information; Resisted by spells that conceal magic

Identifies exactly what spells are on the subject. If the subject has more than one spell on it, Analyze Magic identifies the one that took the least energy, and tells the caster "there are more spells." It can then be cast again to determine the next spell, and so on. Name and Password enchantments (p. 68) count as separate spells that resist at +5; any individual wizard may only attempt to Analyze a Name or Password once. Like Identify Spell, above, it will give limited results when the caster is faced with an unknown spell.

Cost: 8.
Time to cast: 1 hour.
Prerequisite: Identify Spell.

Item

Staff, wand, or jewelry. *Energy cost to create:* 1,200.

Summon Shade (VH)

Information; Resisted by Will

Summons a "shade" of the subject from a possible future, to answer the caster's questions. The shade will not lie (except on a critical failure) but it will be disoriented; therefore its answers may be unclear and imprecise. One question may be asked per minute the spell is maintained. Since the shade only comes from the most likely future, this spell may be an unsatisfactory augury.

Example: Felix Magister might summon a shade of his friend Rudolph from two months ahead, and ask if his attack on the dragon succeeded – and then, if the answer was "no," persuade the real Rudolph not to try. The shade simply came from a different future. Of course, the shade might also reply "no – it was called off."

At the time from which the shade is drawn, the subject will have a vivid dream in which he will see his questioner(s) and remember all that is said – if the predicted event came true.

Skill modifiers: -1 for each year in the future that the shade is drawn; -5 if the subject is not present or -10 if nothing pertaining to the subject (clothing, hair clippings, etc.) is present. -10 if the subjects full name is not known.

This spell may not be attempted more than once per year on the same person. This is a very powerful spell, and GMs may wish to restrict access to this spell, or require expensive materials.

Duration: 1 minute.

Cost: 50 to cast. 20 to maintain.

Time to cast: 10 minutes. One try per year.

Prerequisite: Summon Spirit *or* Divination.

Item

Staff, wand, or jewelry. Usable only by a mage. The item does not give ability to cast the spell, but gives +2 skill to one who knows the spell. *Energy cost to create:* 800.

Glass Wall

Regular

See through a single wall, floor, ceiling, or other similar barrier up to 4 feet thick (material doesn't matter).

Duration: 1 minute.

Cost: 4 to cast. 2 to maintain.

Prerequisites: Either five other Knowledge spells *or* Earth Vision.

Item

Staff, wand, or jewelry. *Energy cost to create:* 600.

Far-Tasting

Regular

As listed under *Food Spells*, p. 77.

Far-Hearing

Regular

As listed under *Sound Spells*, p. 173.

Water Vision

Information

As listed under *Water Spells*, p. 187.

Plant Vision

Regular

As listed under *Plant Spells*, p. 162.

Know Location

Information

Gives the caster a reasonable idea of his geographical location (to within a couple of miles). This will be expressed in terms of the nearest named features that the caster has heard of (if in doubt as to whether or not the caster has heard of the feature, the GM should roll against the caster's Area Knowledge). For example, "You are in the Sahara Desert, roughly 30 miles north of Timbuktu."

Cost: 2.

Time to cast: 10 seconds. On successive castings, the spell repeats its last answer (right or wrong) until the caster moves a mile or so from the location.

Prerequisites: Magery 1 and Tell Position.

Item

Any map, globe, etc., can be enchanted to show the user's location whenever the spell is cast. A mark (chosen by the item's creator) appears at the appropriate spot if successful. No mark appears if the user is outside the map's boundaries. If the casting fails, either no mark appears or an erroneous one does. *Energy cost to create:* 225.

Know Recipe

Information; Special Resistance

As listed under *Food Spells*, p. 78.

Wizard Eye

Regular

Creates a physical eye – a 2" ball – through which the caster can see. The Eye can fly through the air, vertically and/or horizontally, with a Move of 10; it moves on the caster's turn. Concentration is necessary to move the eye, but not to see through it. Any vision-enhancing spells affecting the caster will also be usable through the Eye. The Eye is small, with a SM of -7, so it is hard to hit – but if it is hit by a physical attack, or any spell that would reasonably incapacitate it, it is destroyed.

Duration: 1 minute.
Cost: 4 to cast. 2 to maintain.
Time to cast: 2 seconds.
Prerequisites: Apportation and Keen Vision.

Item

An eyeball carved of ivory and inset with jewels. Usable only by mages. At its holder's command, it will turn into a Wizard Eye; on returning to his hand it will revert to the jeweled form. *Cost to create:* 1,100 energy; $1,000 for skilled ivory carving, and $600 for emeralds.

Invisible Wizard Eye

Regular

Creates a Wizard Eye that cannot be seen without the See Invisible spell. Anyone who guesses where it is may still attack, but the -7 penalty for SM combined with the -6 penalty for invisibility makes it very hard to hit.

Duration: 1 minute.
Cost: 5 to cast. 3 to maintain.
Time to cast: 4 seconds.
Prerequisites: Wizard Eye and Invisibility.

Item

As Wizard Eye, but more costly. *Cost to create:* 1,600 energy; $1,000 for skilled ivory carving, and $900 for emeralds and opals.

Wizard Mouth

Regular

Creates a replica – about 4" across – of the caster's physical mouth and lips, through which he can speak as well as taste. The Mouth flies through the air with a Move of 10, on the caster's turn, though it may *not* do so without bumping into things unless accompanied by a Wizard Eye or Ear! Concentration is necessary to move the Mouth, but not to speak or taste through it. Any voice or taste-enhancing spells affecting the caster will also be usable through the Mouth. The Mouth may not cast spells! While tasting through the Mouth, the wizard's own mouth is insensitive. Every turn, he must specify whether he is tasting through the Mouth or through his own mouth.

The Mouth is small, with a SM of -6, so it is hard to hit – but if it is hit by a physical attack, or any spell that could reasonably incapacitate it, it is destroyed. The Mouth itself cannot inflict any biting damage.

This is also a Food spell and a Sound spell.

Duration: 1 minute.
Cost: 4 to cast. 2 to maintain.
Time to cast: 2 seconds.
Prerequisites: Apportation, Far-Tasting, and Great Voice.

Item

(a) Any item depicting a human mouth may be turned into an immobile Wizard Mouth, through which the holder of a mouth-shaped amulet, enchanted at the same time, may speak regardless of distance. Each such Mouth links to one amulet and vice versa. *Energy cost to create:* 325. (b) A mouth carved of red coral and inset with ivory teeth. Usable only by mages. At its holder's command, it turns into a Wizard Mouth; on returning to his hand it reverts to the object form. *Cost to create:* 650 energy, $1,000 for skilled coral carving and $400 in ivory.

Wizard Nose

Regular

Creates a disembodied replica – about 2" to 3" long – of the caster's physical nose, through which he can smell. The Nose flies through the air with a Move of 10, on the caster's turn, though it may *not* do so without bumping into things unless accompanied by a Wizard Ear or Eye! Concentration is necessary to move the Nose, but not to smell through it. Any smell-enhancing spells affecting the caster will also be usable through the Nose. While smelling through the Nose, the wizard's own nose is insensitive. Every turn, he must specify whether he is smelling through the Nose or through his own nose.

The Nose is small, with a SM of -7, but if it is hit by a physical attack or any spell that could reasonably incapacitate it, it is destroyed.

This is also a Food spell.

Duration: 1 minute.
Cost: 3 to cast. 2 to maintain.
Time to cast: 2 seconds.
Prerequisites: Apportation and Far-Tasting.

Item

(a) Any item depicting a human nose may be turned into an immobile Wizard Nose, through which the holder of a flower-shaped amulet, enchanted at the same time, may smell regardless of distance. Each such Nose links to one amulet and vice versa. *Energy cost to create:* 475. (b) A Nose carved of precious stone. Usable only by mages. At its holder's command, it will turn into a Wizard Nose; on returning to his hand it will revert to the object form. *Cost to create:* 500 energy and $500 in materials and workmanship.

Wizard Hand

Regular

Creates a replica of the caster's physical hand, through which he can grasp as well as feel. The hand flies through the air with a Move of 10, on the caster's turn, though it may *not* do so without bumping into things unless accompanied by a Wizard Ear or Eye!

Alternatively, it may grope its way along walls, floors, and ceilings at a Move of 3. Concentration is necessary to move the hand, but not to hold or feel through it. The hand may not cast or deliver spells! Any touch-enhancing spells affecting the caster will also be usable through the hand. While feeling through the hand, the wizard's own hands are insensitive. Every turn, he must specify whether he is feeling

through the Hand or through his own hands.

The Hand is small, with a SM of -5, but any hit with a physical attack or any spell that could reasonably incapacitate it will destroy it. The Hand itself cannot inflict any punching damage; it has ST 2 and the caster's DX.

This is also a Movement spell.

Duration: 1 minute.
Cost: 4 to cast and 3 to maintain for one Hand; 6 to cast and 4 to maintain for two Hands.
Time to cast: 3 seconds.
Prerequisites: Manipulate and Far-Feeling.

Item

(a) Any item depicting a human hand may be turned into a stationary Wizard Hand, through which the wearer of a glove, enchanted at the same time, may feel regardless of distance. Each such hand links to one glove and vice versa. *Energy cost to create:* 300. (b) A hand carved of precious wood. Usable only by mages. At its holder's command, it will turn into a Wizard Hand; on returning to his hand it will revert to the object form. *Cost to create:* 400 energy and $500 in materials and workmanship.

Plastic Vision

Regular

As listed under *Technological Spells*, p. 183.

Metal Vision

Regular

As listed under *Technological Spells*, p. 183.

Astral Vision (VH)

Regular

See insubstantial entities. Examples include ghosts and subjects of Ethereal Body, Projection, or Astral Trip spells.

This is also a Necromantic spell.

Duration: 1 minute.
Cost: 4 to cast. 2 to maintain.
Prerequisites: Sense Spirit and See Invisible.

Item

(a) Wand or staff. Usable only by mages. *Energy cost to create:* 900. (b) Spectacles or jewelry. Affects only the wearer; always on. *Energy cost to create:* 1,400.

Memorize

Regular

All that the caster perceives at the time of casting (and for 10 seconds thereafter) is implanted perfectly in his memory, as if he had Photographic Memory (p. B51). The spell can be used to memorize maps, faces, an event, etc. It cannot be used to learn a skill or to retain a magically borrowed one.

This is also a Mind Control spell.

Duration: 1 day. After that, check IQ every day, at a cumulative -1 per day. On a critical success, the memory becomes permanent; on an ordinary success, the memory is still there. On an ordinary failure, the memory fades to the level that the caster would normally have of the event; on a critical failure, a false memory is created (still susceptible to eventual fading).
Cost: 3 to cast. Cannot be maintained.
Time to cast: 2 seconds.
Prerequisites: Wisdom *or* at least six Knowledge spells.

Item

(a) Jewelry or headgear. *Energy cost to create:* 1,000. (b) Any. Always on; the wearer can recall one thing specified by the creator. The memory fades completely one hour after the item is removed. *Energy cost to create:* 400. (c) A memory can be made permanent for an energy cost of 50, but it must remain intact while the enchantment occurs.

Pathfinder

Information

Tells the caster the direction to a certain place, or the proper way to go to get to that place – his choice. Use long-distance modifiers (p. 14). The GM should apply penalties if the caster has never been to the place, and severe penalties if the caster isn't sure that the place really exists or what it is like. This spell does not find people or things. A city, mountain pass, or public building can be a place. A certain person's home or office isn't a "place" for this spell unless the caster has been there.

Cost: 4. One try per day.
Time to cast: 10 seconds.
Prerequisites: Magery 1, IQ 12 or higher, and at least two "Seek" spells.

Item

A forked stick or compass needle that will point, once per day, toward the goal the user names. It will continue pointing for 10 minutes for each point by which the spell roll is made, based on the item's Power. *Energy cost to create:* 1,000.

Projection

Regular

The caster briefly projects his mind away from his body, to any spot within line of sight (use long-distance modifiers, p. 14), to peruse his surroundings from a different viewpoint. His projected self is totally insubstantial and can only see, hear, feel, smell, and taste. Its presence can be detected by Astral Vision, Sense Spirit, Sense Observation, or the like; it is otherwise imperceptible.

The Projection cannot cross an Astral Block, Pentagram, or an Utter spell. Repel Spirits will resist its intrusion.

The Projection cannot move; it can only turn to look in different directions. The body is catatonic for the duration of the spell; it cannot act. If someone attacks the body, the spell is broken automatically.

Duration: 1 minute.
Cost: 4 to cast. 2 to maintain.
Time to cast: 3 seconds.
Prerequisites: Sense Spirit and at least four Knowledge spells.

Item

Staff, wand, or jewelry. Usable only by mages; only affects the wearer. *Energy cost to create:* 500.

Seeker

Information

Attunes the caster to one individual or manmade object he is looking for. A success gives the caster a vision of the item's whereabouts – or leads him to it, if it is within a mile.

To seek a person, the caster must either know his name or know him well enough to visualize him. For instance, you cannot use this spell to solve a murder by seeking "the murderer" if you don't know who that is – but if you do, Seeker will find him.

Modifiers: Long-distance modifiers (p. 14). Something associated with the item sought (e.g., part of a lost person's clothing) should be available at the time of casting; if not, roll at -5. The roll is at +1 if the caster has held or is otherwise familiar with the item sought.

Cost: 3. One try per week.
Prerequisites: Magery 1, IQ 12 or higher, and at least two "Seek" spells.

Item

A forked stick (wood, bone, or ivory) or compass needle (carved out of ivory) that will always point to one particular subject, chosen when the item is created. Something pertaining to the subject must be used in making the item, and incorporated into it. *Energy cost to create:* 500.

Trace

Regular

May be cast on any object or living being. As long as the spell is maintained, the caster will know where the subject is if he concentrates for a second. Either the subject must be with the caster when the spell is first cast, or the caster must first cast Seeker successfully.

Long-distance modifiers (p. 14) apply if the subject is not in the caster's presence.

Duration: 1 hour.
Cost: 3 to cast. 1 to maintain. One try per day.
Time to cast: 1 minute.
Prerequisite: Seeker.

History

Information

When cast on any inanimate object (or a 1-yard-radius section of a large object), History lets the caster determine the recent past of that object, user's personality, and so on – but no names!

Cost: 3 for one day's history; 5 for a week; 8 for a month; 10 for a year.
Time to cast: 1 second for each energy point spent.
Prerequisite: Trace.

Ancient History

Information

As History, but gives a general impression of an item's history over a much greater time.

Cost: 3 for one year's history; 5 for 10 years' history; 8 for 100 years; 10 for 1,000 years.
Time to cast: 1 minute for each energy point spent.
Prerequisite: History.

Prehistory

Information

This spell is similar to Ancient History, but it gives even less specific information over a period of millennia. The age and function of an item can always be determined, but unless the item took part in an important event, age and function may be the only information available. Fortunately, that's often enough for the archaeological scholars who most often use Prehistory.

Cost: 3 for 1,000 years' history; 5 for 10,000 years; 8 for 100,000 years; 10 for longer periods.
Time to cast: 1 hour for each energy point spent.
Prerequisite: Ancient History.

Reconstruct Spell

Information

Tells the caster what spells were cast on, at, or by the subject at a specific point in the past selected by the caster. If there were multiple spells on the subject at the selected point, Reconstruct Spell will identify the spell that cost the least energy and tell the caster "there are more spells." The Time modifiers (p. 81) apply. Spells are identified as per Identify Spell (p. 102).

Cost: 3. The magnitude of the Time modifier is added to the cost, so the spell costs 3 (3 + 0) for "within a minute," but would cost 8 (3 + 5) for "4 to 40 days."
Time to cast: 10 seconds.
Prerequisites: Magery 2, History, and Identify Spell.

Item

Staff, wand, or jewelry. Usable only by mages. *Energy cost to create:* 1,400.

Know True Shape

Information

Tells if the subject is under any kind of Shapeshifting spell or similar magical effect, including Alter Visage, Alter Body, and illusions. The caster must be able to see the subject. The spell also gives a general idea of the subject's true shape; on a critical success, it identifies the subject's true nature (including a common name or description) and the magic used to disguise it. It does *not* reveal the nature of Hallucinations.

Cost: 2.
Prerequisites: Magery 1, any one shifting spell (Shapeshifting, Alter Visage or Body, Plant Form, Shrink, etc.), and either Aura or Know Illusion.

Item

Wand, staff, or jewelry (a favorite is a medallion or coin with an "Aperture of True Vision" in it). Usable only by mages. *Energy cost to create:* 250.

Recall

Regular

The subject recalls a single forgotten or obscured fact or event as if he had Photographic Memory (p. B51). The penalties given under Time modifiers (p. 81) apply, based on the time since the forgotten event occurred. Eidetic Memory gives a +5 bonus; Photographic Memory gives a +10 bonus (though individuals with Photographic Memory will only need

this spell to restore unnaturally removed memories). Only a critical success allows a magically blocked memory to be recalled. A critical failure could cause a false or distorted memory, or eradicate the memory beyond hope of future recovery!

This is also a Mind Control spell.

Duration: 1 day. Afterwards, the memory fades as per the Memorize spell.

Cost: 4. Cannot be maintained.

Time to cast: 10 seconds.

Prerequisites: Magery 2, Memorize, and History.

Item

(a) Headgear, wand, or jewelry. Usable only by a mage. *Energy cost to create:* 2,500. (b) A memory can be made permanent for an energy cost of 50, but the memory must remain intact while the enchantment occurs.

Remember Path

Regular

While this spell is active, its subject will perfectly remember any path he treads on. The memory would allow the subject to draw an accurate map of his travels or to retrace his steps without error, even in pitch darkness or through distractions such as combat.

Of course, later alterations of previously traveled terrain will be unknown to the subject (a mine cave-in after the subject has left it, for example).

Duration: 1 hour. Once the spell lapses, the memory begins to fade as per the Memorize spell, with IQ checks being made hourly, not daily. Once recalled, a memory can be made permanent for an energy cost of 50 (via enchantment), but the memory must remain intact while the enchantment occurs.

Cost: 3 to cast. 1 to maintain.

Time to cast: 10 seconds.

Prerequisites: Find Direction and Memorize.

Item

(a) Jewelry or staff. *Energy cost to create:* 600. (b) A forked stick or compass needle that will point the way along one path specified by the creator. If activated from off the path, it will point to the nearest point along the path. An alternate form of this item is a small magical ball that will roll along the path just ahead of the traveler, at walking speed. Yet another form of this item is footwear that, while worn, guides the wearer along the path to follow. *Energy cost to create:* 400.

See Secrets

Regular

Causes hidden items, doors, traps, etc., to stand out clearly in the subject's vision. This spell works only on things that were deliberately hidden – not lost.

Duration: 1 minute.

Cost: 5 to cast. 2 to maintain.

Time to cast: 5 seconds.

Prerequisites: Seeker and Aura.

Item

Staff, wand, or jewelry. The item must be carved with a picture of an eye. *Energy cost to create:* 400.

Schematic/TL

Information

As listed under *Technological Spells*, p. 177.

Scents of the Past

Regular

When cast on a wall or some object, this spell releases whatever scents it may have been exposed to in the past. The caster specifies the moment from which to start the "playback." The Time modifiers (p. 81) apply. Each time this spell is cast for the same time period, there is a further -1 penalty to skill. A critical failure wipes away the object's "memory" of that time period.

This is also a Food spell.

Duration: 1 minute.

Cost: 1 to cast. Same cost to maintain. The magnitude of the Time modifier is added to the cost, so the spell costs 1 (1 + 0) for "within a minute," but would cost 6 (1 + 5) for "4 to 40 days."

Time to cast: 10 seconds.

Prerequisites: Magery 2, History, and Odor.

Item

Staff, wand, or jewelry. Usable only by mages. *Energy cost to create:* 350.

Images of the Past

Regular

When cast on a mirror or reflective surface, this spell "plays back" whatever images it may have "seen" in the past. The caster specifies the moment from which to start viewing ("Let us see what happened in this room a year ago . . . "). The Time modifiers (p. 81) apply. Each time this spell is cast for the same time period, there is a further -1 penalty to skill. A critical failure will wipe away the object's "memory" of that time period.

GMs may also allow the spell to be cast on any floor, wall or object, the "playback" manifesting itself as a Simple Illusion.

This is also a Light and Darkness spell.

Duration: 1 minute.

Cost: 3 to cast. 3 to maintain. The magnitude of the Time modifier is added to the cost, so the spell costs 3 (3 + 0) for "within a minute," but would cost 8 (3 + 5) for "4 to 40 days."

Time to cast: 10 seconds.

Prerequisites: Magery 2, History, and Simple Illusion.

Item

Staff, wand, or jewelry. Usable only by mages. *Energy cost to create:* 700.

Echoes of the Past

Regular

When cast on a wall, floor or some object, this spell "plays back" whatever sounds it may have "heard" in the past. The caster specifies the moment from which to start listening ("Let us listen to what was said in this room a year ago . . ."). Time modifiers (p. 81) apply. Each time this spell is cast for the same time period, there is a further -1 penalty to skill. A critical failure will wipe away the object's "memory" of that time period.

This is also a Sound spell.

Duration: 1 minute.

Cost: 2 to cast. 2 to maintain. The magnitude of the Time modifier is added to the cost, so the spell costs 2 (2 + 0) for "within a minute," but would cost 7 (2 + 5) for "4 to 40 days."

Time to cast: 10 seconds.

Prerequisites: Magery 2, History, and Voices.

Item

Staff, wand, or jewelry. Usable only by mages. *Energy cost to create:* 500.

Divination

Unlike more flashy sorts of magic, which have direct and quantifiable effects on the game environment (blasting dragons, healing heroes, calling stone bridges into existence, and so on), divinations and other Information spells deal only with PC knowledge, and thus require special consideration.

When PCs have access to information on such a wide scope, many problems can result. Sometimes, the GM doesn't have an answer to the players' questions; perhaps he didn't anticipate that the continent on the other side of the ocean would be relevant this session. At the same time, a particularly insightful question at just the right moment can bring the GM's plans for the adventure crashing down. Mystery adventures, in particular, are subject to devastation at the hands of divinations.

It's hardly fair, however, to be deliberately evasive or untruthful to players who spent valuable character points to play diviners. Fortunately, there are alternatives. Symbolic visions are viable answers for anything but a yes-or-no question, and may often be more interesting than a straightforward answer. Penalties for continued questioning on a single subject may at least buy the GM some time to prepare for the PCs' line of inquiry.

The GM should always roll for the success of the divination, and should feel free to be delphic when appropriate; diviners should never be *entirely* sure that their visions are complete and reliable.

The existence of divinations can also have radical effects on a game world. Most people would want to consult a diviner before embarking on major decisions – marriages, crimes, wars, and the like. Court procedures would be changed radically. Indeed, the law may strictly regulate the use of divination.

Not every form of divination will exist in every game world. The GM should select those methods that match the feel and flavor of his setting.

Divination

Information

Gives the caster a vision relevant to his question, or the answer to one yes-or-no question. There are many sorts of divination; each is a separate spell, and requires the appropriate materials (see below). Each has its own strengths and weaknesses. Those methods that are linked to a particular element or elements will give more detailed answers if the answer has something to do with that element – e.g., lecanomancy would work better than extispicy for a question about the sea.

Skill modifiers: Standard long-distance modifiers (p. 14). If repeated questions are asked on the same subject within a day, the "vibes" are muddled; -4 skill for the second question, -8 for the third, and so on. Questions about the past or future are also harder; use the Time modifiers (p. 81).

Cost: 10.

Time to cast: 1 hour unless specified otherwise.

Prerequisites: History, and other spells as specified for the particular method of divination.

Standard Divinations

Astrology is divination through examination of the heavens, including weather. Observation of the sky is necessary; the caster must be outside, and is at a -5 penalty unless it is a clear night, away from city lights. Without a reference library (cost $2,000; weight 200 pounds), all rolls are at -5. Because astrology relies on the predictable movements of the stars, it excels at divinations into the far past or future; no time modifiers apply to astrological divination. If the divination involves an individual, however, his birthplace and birthdate *must* be known, or all rolls are at -5. All penalties do stack! *Prerequisites:* Predict Weather and Astronomy-15+.

Augury is the study of portents or omens. The exact nature of the omens is dependent on the culture of the diviner; ancient Roman priests studied the flight and behavior of birds, for instance. Fantasy cultures might find portents in anything from a feeding bear beside a stream to the movement of a breeze through a willow tree; the common factor is the observation of some natural event. When this divination is cast, the GM must roll against the caster's Vision in secret. On a failed roll, the roll to cast the divination is made at -5. Augury is not ideal for divining the past; time modifiers are *doubled* when using augury to ask questions about past events. *Prerequisites:* One spell from each of the four elements.

Cartomancy is divination using the tarot or other fortune-telling cards. The cards, symbolic as they are, rarely give a straightforward yes-or-no answer. The only equipment required is a tarot deck (hand-painted and worth $1,000 at TL3 and below, but mass-produced inexpensively at higher tech levels). Cartomancy is highly personal; any attempt to ask questions about people other than the subject is at -5. *Prerequisites:* One spell from each of the four elements.

Crystal-Gazing is the use of a crystal ball (p. 71) or mirror to facilitate a divinatory vision. If it works, the GM describes a scene; it is up to the player to interpret it! The caster may use clear, still water for this divination, but at a -10 to skill. *Prerequisite:* Earth Vision *or* Water Vision.

Dactylomancy is divination by movement of a pointer around a board with all the letters of the alphabet, plus Yes and No. Dactylomantic divinations are usually straightforward, but extremely unsubtle; a complex question (indeed, almost any question that cannot be answered in five words or less) is likely to produce cryptic gibberish. *Prerequisites:* One spell from each of the four elements.

Extispicy is divination by examining the entrails of a slaughtered animal (must be at least 20 pounds – no pigeons!). It is illegal in many areas. Only one question can be asked per animal. Extispicy is most useful in divining matters of life and death:

sickness and health, war and peace, victory and defeat – all are good candidates for extispicy. Other matters are more likely to receive vague and unhelpful answers. *Prerequisites:* Four Animal spells.

Gastromancy requires a willing subject. The subject is placed in a trance, during which he utters things of a prophetic and cryptic nature. When the spell is cast, the subject loses 5 FP in addition to the energy spent by the caster, whether or not the spell was successful. *Prerequisites:* Hypnotism at 15 or higher and three Mind Control spells.

Geomancy is divination by examining the earth. Geomancy must be practiced outdoors, where the geomancer can examine the lay of the land. Geomancy is very location-specific; any questions that do not pertain to the area where the divination is being performed are at -10. *Prerequisites:* Four Earth spells.

Lecanomancy is divination by observing the results of casting objects into water. Like augury, lecanomancy takes different forms in different cultures. Some diviners pour molten metal into water to observe the shapes the metal takes, while others examine tea leaves or simply throw stones into a pool and observe the ripples. Lecanomancy is invariably vague, and is always subject to a -5 penalty; on the other hand, all time modifiers are halved. *Prerequisites:* Four Water spells.

Numerology, or *arithmancy*, is divination by the various numbers that define an individual, including those derived from name, birthday and, in contemporary settings, even such things as social security numbers. If the birthday of the subject is unknown, the caster is at a -10 to effective skill. *Prerequisite:* Mathematical Ability.

Oneiromancy is the interpretation of the caster's own dreams. It requires no equipment, but only one question can be asked per night, and there is only a 50% chance that the caster dreams at all! The use of Dreaming skill, or any dream spell, disrupts any attempt at oneiromancy. The GM tells the caster what he dreamed; the player must interpret it. Energy cost is paid on awakening. *Prerequisites:* Four Communication and Empathy spells.

Physiognomy is divination by examining and measuring parts of a subject's body. Different traditions usually focus on a particular body part – hands, feet, head, etc. Physiognomy is only really suited to answering questions about the subject or his fortune; attempts to divine information about absent persons are at -5. *Prerequisites:* Four Body Control spells.

Pyromancy is divination by staring into fire or smoke. It may produce a vision, or the caster may hear a voice in the flames. Small amounts of certain rare herbs (value $100 per attempt) must be burned. Questions are at -4 unless something pertaining to the question (e.g., hair of the subject of the divination) is also burned. *Prerequisites*: Four Fire spells.

Sortilege is divination through the casting of lots or other objects that reveal information through the pattern in which they fall. The I Ching is a form of sortilege; other cultures have used sortilege by throwing a handful of arrows in the ground to interpret where they fall. *Prerequisites:* One spell from each of the four elements.

Symbol-Casting is divination by means of symbol tokens (p. 205). The caster must have a complete set of tokens for his symbolic language, and is at -1 to skill for each stone missing. Mock symbol tokens work perfectly well, but a full set of true tokens gives +2 to skill. A detailed divination takes 30 minutes, or the caster may simply reach into a bag and pull out one or more stones. In the latter case, energy cost is only 1. The GM tells the caster which symbol(s) he drew; it is up to the caster to interpret this, and the symbols drawn on a failed roll will be misleading. *Prerequisite:* Symbol Drawing-15 or higher.

Chapter Fifteen
Light and Darkness Spells

The night filled with the howling of wolves and other, less savory things. A dozen men cowered in a knot around the two torches.

"Stay together!" one shouted. "They can't come into the light! We'll head for the river and the toll-gate – if we stay in the light, we'll live!"

Their weak torchlight reflected in dozens of pairs of eyes, yellow and red and fish-belly white. But the eyes receded as the group moved slowly toward the river, every man staying in the feeble circle of safety afforded by a pair of torches. The screeches and yowls ascended as the hosts of darkness realized that their prey might escape them.

Then, all at once, the noise faded away. The men stopped.

"What . . . what's that?"

The eyes disappeared on one side, and the blackness seemed even deeper. Then, as the men looked on in horror, the edge of the light seemed to bulge inward, and the dark of night surged toward them like a wave of pitch.

The night filled with howling and gibbering and other, more human noises. But not for long.

These spells affect not just visible light, but also infrared and ultraviolet light. Spells that provide illumination will allow those with Infravision and Ultravision to see, while spells that block ordinary vision will also block those senses.

Many Light spells can produce varying levels of light. If a Light spell is used as the sole source of illumination, the following Vision modifiers are appropriate.

Intensity	*Vision Modifier*
Starlight	-7
Candlelight or moonlight	-5
Torchlight	-3
Daylight	0

Light

Regular

Produces a small light like a candleflame. It stays still unless the caster concentrates on moving it; then it can travel at Move 5.

Duration: 1 minute.
Cost: 1 to cast. 1 to maintain.

Item

Wand, staff, or jewelry. *Energy cost to create:* 100.

Continual Light

Regular

When cast on a small object (up to fist-sized or 1 pound) or a small part of a larger object, makes that object glow with white light.

Duration: Variable. Roll 2d for number of days. Does *not* count as a spell "on."
Cost: 2 for a dim glow like moonlight, 4 for the brightness of a torch, 6 for a glare as bright as day.
Prerequisite: Light.

Item

Any item can be made to glow permanently, for 100 times the above energy cost (e.g., 200 for a dim glow, etc.).

Colors

Regular

Changes the color of any light. The spell must be cast on the source of the light. If the caster concentrates, multiple color-changes are possible with the same spell.

Duration: 1 minute.
Cost: 2 to cast. 1 to maintain (but the change is permanent on a Continual Light spell).
Prerequisite: Light.

Remove Shadow

Regular; Resisted by Will

The subject's shadow seems to disappear. Unwilling subjects resist with Will. (If there is more than one light source, all shadows vanish!)

Duration: 1 minute.
Cost: 2 to cast. 1 to maintain.
Prerequisite: Light.

Item

Jewelry. Always on; only affects the wearer. *Energy cost to create:* 100; must include a $100 black onyx.

Shape Light

Regular

With this spell, the caster may transform a uniform light source into a directional one. The caster may specify any number of "baffles" or restrict the illumination to specific beams. Thus, the spell can change a torch into a hooded lantern of sorts. Concentration is required to change the light's shape, but not to maintain it.

The spell can also be used to bend and twist light beams. The GM should allow any effect that isn't already covered by such spells as Simple Illusion, Small Vision, Invisibility, and so on.

Duration: 1 minute.
Cost: 2. Same cost to maintain.
Prerequisite: Light.

Item

(a) The effects may be made permanent for 100 times casting cost (creating a permanent light-sculpture), although the light itself must also somehow be preserved. (b) Staff, wand, or jewelry. *Energy cost to create:* 100.

Bright Vision

Regular

Peer safely into intense sources of light (like a roaring fire or the sun) and protect against blinding from the Flash spell, Vision-based attacks, or similar occurrences.

Duration: 1 minute.
Cost: 2 to cast. 1 to maintain.
Prerequisites: Keen Vision *or* at least five Light and Darkness spells. Subject must not suffer from Blindness.

Item

Staff, wand, or jewelry (sunglasses or welding visors are certainly appropriate in more modern settings). Only affects the wearer. *Energy cost to create:* 200.

Infravision

Regular

See "infrared" or heat rays in addition to normal light, as with the Infravision advantage (p. B60). This spell does not let invisible objects be seen.

Duration: 1 minute.
Cost: 3 to cast. 1 to maintain.
Prerequisite: Keen Vision or 5 Light spells.

Item

Staff, wand, or jewelry; affects only the wearer. *Energy cost to create:* 100.

Night Vision

Regular

See clearly as long as there is any light at all, as with Night Vision 9. In utter darkness, the subject is still blind.

Duration: 1 minute.
Cost: 3 to cast. 1 to maintain.
Prerequisite: Keen Vision or 5 Light spells.

Item

Staff, wand, or jewelry; affects only the wearer. *Energy cost to create:* 200.

Hawk Vision

Regular

Grants the subject extraordinary clarity of vision and the ability to "zoom in" on distant objects, providing the equivalent of Telescopic Vision (p. B92). Each level lets the subject ignore -1 in range penalties to Vision rolls at all times, or -2 in range penalties if you take an Aim maneuver to zoom in on a particular target. This ability can also function as a telescopic sight, giving up to +1 Accuracy per level with ranged attacks provided you take an Aim maneuver for seconds equal to the bonus. These benefits of this spell are not cumulative with those of technological aids such as binoculars or scopes. If you use both, you must opt for one or the other.

Duration: 1 minute.
Base cost: 2 per level of Telescopic Vision. Half that to maintain.
Time to cast: 2 seconds.
Prerequisites: Keen Vision or 5 Light spells. Subject must not suffer from Blindness or Bad Sight disadvantages.

Item

Clothing or jewelry, including a picture of a hawk. Affects only the wearer. *Energy cost to create:* 400.

Small Vision

Regular

The subject can examine objects within his reach as if they were under ×100 magnification, as per Microscopic Vision 2 (p. B68). While the spell is on, the subject is extremely nearsighted (see *Bad Sight*. p. B123): he is incapable of seeing objects further than a yard away clearly – they appear blurred and all melee attacks are made at -2 to skill.

This is also a Knowledge spell.

Duration: 1 minute.
Cost: 4 to cast. 2 to maintain. Each doubling of casting cost increases the magnification ten-fold.
Time to cast: 2 seconds.
Prerequisites: Keen Vision *or* at least five Light and Darkness spells. Subject must not suffer from Blindness or Bad Sight.

Item

(a) Clothing or jewelry. The item must bear a life-size picture of a flea. Only affects the wearer. *Energy cost to create:* 400. (b) A gem that works as a magnifying glass. *Cost to create:* 400 energy, plus the cost of the gem.

Dark Vision

Regular

The subject can see even in pitch darkness, as if he had the Dark Vision advantage. He can also ignore the effects of the Darkness spell.

Duration: 1 minute.
Cost: 5 to cast. 2 to maintain.
Prerequisite: Night Vision *or* Infravision.

Item

Staff, wand, or jewelry; only affects the wearer. *Energy cost to create:* 400.

Darkness

Area

Cloaks the area of effect in pitch darkness. A person inside the area can see out normally, but can see nothing else *within* the area. Those outside the area can see only darkness within. Thus, attacks out of darkness suffer no penalty, but attacks into darkness are at a penalty; see p. B394 for combat rules.

The Dark Vision advantage lets you see through a Darkness spell, but Night Vision and Infravision do not.

Duration: 1 minute.
Base cost: 2 to cast. 1 to maintain.
Prerequisite: Continual Light.

Item

Floor, ground, or a rug can be enchanted so that the area above (about 6 feet) is in permanent darkness. *Energy cost to create:* 12 per square foot.

Blackout

Area

Shrouds the affected area in impenetrable blackness. No one can see into the affected area, and no one within the affected area can see anything; see p. B394 for combat rules.

The Dark Vision advantage lets you see through a Blackout spell, but Night Vision and Infravision do not.

Duration: 1 minute.
Base cost: 2 to cast. 1 to maintain.
Prerequisite: Darkness.

Item

Floor, ground, or a rug can be enchanted so that the area above (about 6 feet) is in permanent blackout. *Energy cost to create:* 15 per square foot.

Glow

Area

Suffuses an area with a uniform glow. Objects and beings standing in the area won't project any shadows unless a source of light stronger than the ambient glow is brought in.

Duration: Variable. The GM should roll 2d for the number of days.
Base cost: 1/2 for starlight; 1 for moonlight; 3/2 for torchlight; 2 for daylight (bright, no Vision penalty). Minimum radius is 2 yards.
Time to cast: 1 second per half-point of base cost
Prerequisite: Continual Light.

Item

(a) Wand, staff, or jewelry. *Energy cost to create:* 250. (b) An area can be permanently illuminated for 100 times casting cost.

Gloom

Area

Plunges an area into gloom. The more energy is put into the base cost, the gloomier the ambient light becomes. Unlike the Darkness spell, sources of light still work normally within the area.

Duration: Variable. The GM should roll 2d for the number of days.
Base cost: 1/2 for torchlight; 1 for moonlight; 3/2 for starlight; 2 for total darkness. Minimum radius is 2 yards.
Time to cast: 1 second per half-point of base cost.
Prerequisite: Continual Light.

Item

(a) Wand, staff, or jewelry. *Energy cost to create:* 250. (b) An area can be permanently darkened for 100 times casting cost.

Light Jet

Regular

Emit a beam of bright light from one finger. This beam can be used like a flashlight. It gives good illumination for 10 yards in the direction it is pointed, and some vision will be possible up to 30 yards away. It can be used as a signal for up to a mile if visibility is good.

Can be used in combat to blind foes within 10 yards, but only in relative darkness (e.g., when the combat penalty is at least -5). Each turn, the caster rolls against Innate Attack skill or DX-4, with a -5 penalty to hit the face. This attack can be dodged or blocked, but not parried. If the target is hit, he will be at a -4 penalty to combat skills on his next turn, and at a -1 penalty for the remainder of the combat. This effect is not cumulative. Foes with Night Vision double these penalties.

Duration: 1 minute.
Cost: 2 to cast. 1 to maintain.
Prerequisite: Continual Light *or* Shape Light.

Item

Glove or ring; the item lets the wearer cast the spell. *Energy cost to create:* 200.

Mirror

Regular

Creates a reflective surface. It can be cast on an object or can be free-standing (in which case it is two-sided). The mirror surface is not necessarily flat; the caster could create fun-house mirrors, for example.

In a scientific-paradigm universe, casters with knowledge of physics can use this spell to create parabolic reflectors. A simple curve can be sufficient to cook meat; a large and precise one could be used to melt lead, given sufficient sunlight at appropriate angles. Against living targets, the GM can assume that such a mirror would do 1 point of burning damage per yard radius of mirror every 10 seconds. To ignite things, use the Ignite Fire guidelines (p. 72), substituting the Mirror size for the listed energy cost. An 8-yard-radius Mirror ignites heavy wood in about 10 seconds. Other, similar uses are subject to GM approval.

Duration: 1 minute.
Cost: 2. Same cost to maintain.
Prerequisite: Colors.

Item

Wand, staff, or jewelry. *Energy cost to create:* 350; the item must include a tiny mirror.

Flash

Regular

Creates a brilliant flash of light. This will totally blind some that see it, and reduce the DX of others by 3 (which reduces all DX-based skills). It may affect anyone who is facing the flash and has his eyes open (GM's decision, if miniatures are not being used). The caster himself is not affected if he closes his eyes as he casts the spell. Each other creature in range must make a HT roll to avoid the worst effects:

Distance	*If HT roll is made*	*If HT roll is not made*
Within 10 yards	1 minute at -3 DX	3 sec. blind, 1 min. at -3 DX
11 to 25 yards	10 sec. at -3 DX	1 minute at -3 DX
26 or more yards	no effect	3 seconds at -3 DX

Cost: 4.
Time to cast: 2 seconds.
Prerequisite: Continual Light.

Remove Reflection

Regular; Resisted by Will

The subject's reflection(s) seem to disappear from mirrors, pools, etc. At higher TLs, this may make the subject invisible to sensors that use mirrors as part of their optical pathways, at the GM's discretion.

Duration: 1 minute.
Cost: 2 to cast. 1 to maintain.
Prerequisite: Remove Shadow.

Item

Jewelry. Always on. Only affects the wearer. *Energy cost to create:* 200; must include a $100 black onyx.

Wall of Light

Area

Creates a curtain of light around an area. The wall is four yards high, but may be made higher; simply scale the cost as the height (double for 8 yards high, triple for 12 yards high and so on).

The only thing it blocks is vision, both ways. It has no effect on spells, beings, sounds, etc. Bright Vision allows one to see through the wall.

Duration: 1 minute.
Base cost: 1 to 3 to cast. Same cost to maintain. The Wall's glow depends on the energy put into its base cost, as per Continual Light.
Prerequisite: Continual Light.

Item

(a) Staff, wand, or jewelry. *Energy cost to create:* 200. (b) A Wall of Light may be made permanent at an energy cost of 100 times normal.

Shade

Regular

As listed under *Protection and Warning Spells*, p. 169.

Blur

Regular

Makes the subject harder to see and therefore harder to hit with attacks. Each point of energy gives -1 to the effective skill of any attack on the subject, to a maximum of -5.

Duration: 1 minute.
Cost: 1 to 5 to cast. Same cost to maintain.
Time to cast: 2 seconds.
Prerequisite: Darkness *or* Gloom.

Item

Staff, wand, or jewelry; only affects the wearer/holder. *Energy cost to create:* 100 per point of penalty.

Shape Darkness

Area

Shape and move three-dimensional darkness created with the Darkness or Blackout spells at a Move of 5. It also allows the caster to shape existing two-dimensional shadows into other two-dimensional shadowy shapes. Shadows can be reduced in size easily, but enlarging the shadows makes them slightly transparent. The average casual observer won't notice, but anyone looking intently at the shadow gets an IQ roll to notice that it doesn't have the "substance" it should. Shadows do not have to remain attached to the objects that cast them.

Duration: 1 minute.
Base cost: 2. Same cost to maintain. For two-dimensional shadows, the base cost is 1.
Prerequisite: Darkness.

Item

Staff, wand, or jewelry. *Energy cost to create:* 200.

Hide

Regular

Makes the subject harder to find. A Vision roll is necessary to see a subject in plain sight; Sense rolls to detect a subject already hidden are at -1 per point of energy spent, to a maximum of -5. These effects only apply while the subject remains still, but if he moves and then stops moving before the spell expires, the effects resume.

Duration: 1 hour.
Cost: 1 to 5 to cast. Same cost to maintain.
Time to cast: 5 seconds.
Prerequisite: Blur *or* Forgetfulness.

Item

(a) Jewelry, wand, or staff; only affects the wearer. *Energy cost to create:* 1,000. (b) Any item can be enchanted to make it permanently "hidden," at an energy cost of 200 per point of "hiddenness."

See Invisible

Regular

Subject can see anything concealed by the Invisibility spell or by "natural" invisibility. These things will be slightly translucent; thus, you can see through them and tell that they appear invisible to others.

Duration: 1 minute.
Cost: 4 to cast. 2 to maintain.
Prerequisites: Either Dark Vision *and* Infravision or Invisibility.

Item

Staff, wand, or jewelry; only affects the wearer. *Energy cost to create:* 400.

Mage Light

Regular

Creates a small light. However, the illumination that it provides is only perceptible to mages, magical creatures, and those under the influence of Mage Sight. It moves just like Light does. An IQ+Magery roll is *not* required to see or use the light provided.

Duration: 1 minute.
Cost: 1 for a dim glow like candlelight, 2 for the brightness of a torch, 3 for a glare as bright as day. Same cost to maintain.
Prerequisites: Mage Sight and Light.

Item

Wand, staff, jewelry, or lantern. Usable only by mages. *Energy cost to create:* 100.

Continual Mage Light

Regular

When cast on a small object (up to fist-sized, or 1 pound), or a small part of a large object, this spell makes that object glow with Mage Light

Duration: Variable. The GM should roll 2d for the number of days.
Cost: 2 for a dim glow like candlelight, 4 for the brightness of a torch, 6 for a glare as bright as day. Same cost to maintain.
Prerequisites: Mage Light and Continual Light.

Item

Any item may be made to radiate mage light permanently, for 100 times the above energy cost (e.g., 200 for a dim glow, etc.)

Sunlight

Area

The area is illuminated in full daylight – even underground! The area extends skyward, stopping only when it hits some sort of ceiling. If cast in a cave, the area is a huge shaft of light extending upward to the rock. If cast on a cloudy day outdoors, the light appears to break through the clouds above. If cast at night, the light appears to come from an overhead star which brightens to sun level for those inside the area.

Treat the light as natural sunlight for all purposes – it can be used to grow plants, get a tan, etc. Creatures who are susceptible to the effects of sunlight (such as vampires) are fully affected.

Duration: 1 minute.
Base cost: 2 to cast. 1 to maintain.
Prerequisites: Magery 1, Glow, and Colors.

Item

Wand, staff, or jewelry. Usable only by mages. *Energy cost to create:* 150.

Continual Sunlight

Area

Illuminates an area as per the Sunlight spell, but lasts longer and cannot be maintained.

Duration: Variable. Roll 2d for number of days.
Base cost: 3.
Prerequisite: Sunlight.

Item

The area may be permanently illuminated for 100 times the cost to cast the spell.

Invisibility

Regular

The subject cannot be seen and does not appear in reflections or photographs. He still makes sounds and can be tracked by scent or footprints. Anything he picks up becomes invisible, unless he wills it to stay visible. Infravision cannot detect him, but See Invisible can. Invisible characters have a great advantage in combat: see p. B394.

Duration: 1 minute.
Cost: 5 to cast. 3 to maintain.
Time to cast: 3 seconds.
Prerequisites: Six Light spells, including Blur.

Item

(a) Jewelry, wand, or staff; only affects the wearer. *Energy cost to create:* 1,200. (b) An item can be made permanently invisible at an energy cost of 500 per hex of size or 50 pounds of weight, whichever is greater.

Body of Shadow (VH)

Regular; Resisted by HT

The subject's body fades away, leaving only his shadow. The subject is now a two-dimensional shadow on the wall or floor, gaining the Shadow Form advantage (p. B83) for the duration of the spell. His clothing (up to 6 pounds) also becomes shadow, but while in shadow form it loses any magic powers it might have had. The rest of his equipment tumbles to the ground; he can carry *nothing* while in this form.

Note that this spell does not augment the subject's senses to allow him to see in pitch darkness!

Duration: 1 minute. The spell expires if the subject loses consciousness.
Cost: 6 to cast. 3 to maintain.
Time to cast: 5 seconds.
Prerequisites: Magery 2, Shape Darkness, and at least three Movement spells.

Item

Staff, wand, jewelry, or cape. Only affects the wearer. A severe drawback of each of these items except the cape is that it falls through the subject as soon as the spell is cast! *Energy cost to create:* 2,500 (6,000 for the cape).

Sunbolt

Missile

Shoot a bolt of concentrated sunlight from one fingertip. It has 1/2D 75, Max 150, Acc 2; use the Innate Attack skill. The light burns like laser light and does burning damage. Increase a shield's DB against this spell by 50%, rounding down, if it is highly polished.

Whether or not damage gets through armor, a hit to the face blinds the victim unless he makes a HT roll. A hit to the eyes does double damage and blinds the victim unless he makes a HT roll at a penalty equal to the damage suffered. Treat Sunbolt-induced blindness as a crippling injury for recovery purposes (p. B420).

Any mirror will reflect a Sunbolt; if the GM is uncertain of the exact angle of incidence/reflection (if the Sunbolt hits a hand-held mirror, for instance), determine its new direction randomly. Use the rules for hitting the wrong target (p. B389) to determine if anything along the new path is hit.

Deliberately reflected shots are a much trickier matter; range penalties will be for the total range to the target, with an additional -2 for each "bounce." And unless the mirrors are very large and/or stable and/or deliberately placed for the purpose, the GM may simply declare the shot impossible.

Defending characters holding mirrors may attempt to reflect the bolt back at the caster – treat this as a Block defense at a -2 penalty; also apply the normal range penalties from the defender to the caster. The DB of the mirror (if it is large enough to offer any; GM call) adds to this roll normally. The caster may defend normally, unless totally surprised.

Sunbolt is not affected by Missile Shield or Reverse Missiles. Force Dome and Deflect Energy do offer protection. Areas of magical Darkness or Blackout resist Sunbolt.

Cost: Any amount up to your Magery level per second, for three seconds. The bolt does 1d-1 impaling damage per energy point.
Time to cast: 1 to 3 seconds.
Prerequisites: At least six other Light and Darkness spells, including Sunlight.

Item

Staff or wand; the bolt is fired from the tip of the item. Usable only by mages. *Cost to create:* 800 energy and a sunstone worth at least $1,000.

Images of the Past

Regular

As listed under *Knowledge Spells*, p. 107.

Chapter Sixteen
Making and Breaking Spells

Hargaz, Overlord-General of the Inexorable Legion of the All-Consuming Empire, sneered at the little balding man the Alliance of the West had sent him. He glared across the Ancient bridge, as if he could make the Western commanders feel his ire.

"I agree to a duel of magicks, and they send you? This is an insult."

"Are you ready, General?" the man replied evenly.

Hargaz laughed. The mouse had a backbone. "Why not?"

The small man wasted no time before launching into his first spell, something Hargaz didn't recognize. For his own part, Hargaz snapped his fingers, a spark rapidly growing into an expanding globe of flame.

"Westerners. I agree to meet a mage of war, and they send me a quartermaster. A clerk! An orderly!"

Without comment, his opponent finished his spell and dropped to one knee, driving a faintly glowing fist into the massive basalt keystone of the mile-long bridge.

In an instant, Hargaz realized his error, and knew that it was fatal. Around the little mage's fist, cracks began to spread through the keystone. A chorus of cracks and groans rose from the bridge, as the Ancient magic holding it together faltered.

He glanced over his shoulder at the bank from where he'd come, knowing he could never make it before the bridge collapsed into the abyss. When he turned back, his opponent had risen to his feet.

"They sent you an *engineer*, General."

With a mighty boom, the main buttresses failed, and they fell.

The College of Making and Breaking is most popular among wizards whose primary vocation is non-magical; smiths with a touch of Magery often learn Making and Breaking.

Inspired Creation (VH)

Regular

Helps a subject create one craft work – a weapon, suit of armor, painting, etc. – of a quality far beyond his usual ability. The process is grueling, costing the subject 5 HP and 10 FP. The work is as good as if it were made with a critical success by an artisan of skill 5 levels higher than the subject's actual skill; no roll is required. A weapon created under the effects of this spell is automatically of very fine quality. Such items are not technically magic items, but can be (and often are) enchanted further.

At the GM's option, this spell may be used on works of art other than crafts – books, performances, songs, etc.

Duration: Permanent.
Cost: 5 per day spent creating the object.
Time to cast: The usual time to make the object.

Awaken Craft Spirit

Regular

Every well-crafted object, whether a tool, a weapon, or a work of art, may contain a spirit slumbering within it. This spell allows the caster to awaken the spirit of any item created by an artisan with a margin of success by 5 or more (the GM can assume this was the case for an artisan with skill of at least 15, or for any fine or very fine item). Any item created with Inspired Creation has a craft spirit. The spirit can answer one question per minute regarding its maker or any of its owners. The spirit remains awake for the duration of the spell; it may remain awake or return to sleep when the spell expires, according to its own whim.

Not every setting has craft spirits; if the GM does not feel that they are appropriate to the setting, this spell does not exist.

This is also a Necromantic spell.

Duration: 1 minute.
Cost: 3 to cast. 1 to maintain.
Time to cast: 5 seconds.
Prerequisites: Inspired Creation and Sense Spirit.

Find Weakness

Information

Sense the weakest part of the subject. Can be cast on any part of a large object; you would not have to cast it on a whole city wall, for instance, but could check one yard of wall at a time. Of course, many subjects will have no special weakness.

This spell can be used to troubleshoot complex objects; a defect that prevents a machine from working usually qualifies as its weakest part.

Cost: 1, or 1 per yard radius for a large object. Double this cost if the subject is alive.
Time to cast: 2 seconds.
Prerequisites: One spell from each of the four elements.

Item

Jewelry. *Energy cost to create:* 100.

Weaken

Regular

Does 1d damage to the weakest part of the subject (works only on inanimate items) for every two points of energy put into the spell. See p. B557, for DR and HP of various items. No caster may use this spell on the same subject more than once per hour. Subject's DR does not protect it.

Duration: Permanent.
Cost: 2 to 6.
Time to cast: 5 seconds.
Prerequisite: Find Weakness.

Item

Wand, staff, or glove. The item must be used to strike the subject. *Energy cost to create:* 200.

Restore

Regular

Temporarily makes a broken inanimate object look as good as new. Other senses will not be fooled, nor will Mage Sight.

Duration: 10 minutes.
Cost: 2 to cast. 1 to maintain.
Time to cast: 3 seconds.
Prerequisite: Find Weakness *or* Simple Illusion.

Clean

Area

Cleans the subject area or being (i.e., removes dirt and stains, and polishes surfaces which can hold a polish). Does not remove lingering odors (use Purify Air for that).

Duration: Permanent.
Base cost: 2.
Prerequisite: Restore.

Item

Staff, wand, or cleaning instrument (broom, feather duster, etc.). The item must touch the affected area. *Energy cost to create:* 100.

Soilproof

Regular

The subject (person, creature, or object) and anything he carries become soilproof. Clothes neither stain nor become dusty, hands won't collect grime, and so on. The spell doesn't affect stains already on the subject at the time of casting.

Duration: 10 minutes.
Cost: 2 to cast. 1 to maintain.
Time to cast: 2 seconds.
Prerequisite: Clean.

Item

(a) Wand, staff, or jewelry. *Energy cost to create:* 400. (b) For 100 times casting cost, any item may be permanently soilproofed. The item can be made to also resist Ruin (with the Endurance of the enchantment) at double cost. On an ordinary failure, the enchantment loses one point of Endurance. Upon dropping to Endurance 0, the enchantment ceases to function. A critical failure by the Soilproof or a critical success by the Ruin also breaks the enchantment.

Dye

Regular

Changes the color of any unliving material, as desired by the caster (note that hair is unliving, as is a thin outer layer of skin!). The color fades in 2d days, but is unaffected by ordinary washing or application of solvents. Only a single, uniform, color can be produced – patterns are not possible, but only part of the subject may be affected if the caster desires.

Duration: 2d days.
Cost: 1 for a small (up to palm-sized) object, 2 to change a person's hair color or an object about a square foot in size, 5 for a person-sized (SM 0) object.
Time to cast: 3 seconds.
Prerequisites: Restore and Colors.

Copy

Regular

Makes one or more copies of a single page of writing. Paper or parchment must be supplied for the copies to be made on. Copies of magical scrolls, rune parchments, and so on do not have magic power.

At higher TLs, this spell may be used on digital media; a single casting of this spell will copy about one kilobyte of information.

Duration: Permanent.
Cost: 2 plus 1 for each copy made. The document copied may be 10 times longer if the caster doubles the energy cost; thus, 4 energy would produce one copy of a ten-page document, while 8 energy would copy a 100-page book.
Time to cast: 5 seconds.
Prerequisites: Dye and at least Accented written proficiency in some language.

Rejoin

Regular

Temporarily fixes a broken inanimate object. If some small parts are missing, skill is at -3, but if the spell succeeds the object holds together without the missing parts.

Duration: 10 minutes.
Cost: 1 per 10 pound of subject's weight (minimum 2) to cast. Half that (rounded up) to maintain.
Time to cast: 4 seconds per 10 pounds of subject's weight.
Prerequisites: Weaken and Restore.

Shatter (VH)

Regular

Similar to Weaken, but quicker – it can be cast in a single second, and may be cast repeatedly. If the spell does not do enough damage to actually break the subject, the subject takes no harm.

This spell only affects inanimate objects.

Cost: 1 to 3; does 1d damage for each point of energy put into it.
Prerequisites: Magery 1 and Weaken.

Item

Wand, staff, or glove. The item must be used to strike the subject. *Energy cost to create:* 500.

Animate Object (VH)

Regular; Special Resistance

Animates an existing object (statue, sword, chair . . .). Its abilities and attributes depend on its body – this is entirely up to the GM.

Examples: a chair could move about and kick people in the shins or a sword could snake around its wielder's arm, but a teapot could do little more than scuttle amusingly across a table . . .

Concentration is required; the animated object has no IQ score and is little more than a puppet. Independence and Initiative will *not* work on an animated object.

A being holding such an object resists with Will.

Duration: 1 minute.
Cost: 1 to cast for every 5 pounds the object weighs. Double cost to animate stone, triple for metal. Same cost to maintain.
Time to cast: 3 seconds.
Prerequisites: Magery 2 and at least three "Shape" spells.

Item

(a) Any object may be permanently animated for 100 times casting cost. (b) Wand, staff, or jewelry. Usable only by mages; the item must touch the subject. *Energy cost to create:* 2,000.

Inscribe

Area; Resisted by Will

As listed under *Illusion and Creation Spells*, p. 97.

Stiffen

Regular; Special Resistance

Temporarily stiffens a limp object; turns a rope into a pole, for example, or a thread into a lockpick. Does not work on living beings. This spell can be used to make improvised weapons; the GM judges their effectiveness.

This spell may also be used to stiffen a foe's clothes. In this case, the foe resists the spell with his ST+2. If it works, he is at -1 DX for each pound of clothing that was stiffened, and this DX change does affect his Move.

Duration: 10 minutes.
Cost: 1 per pound of subject's weight – minimum 2. Half that to maintain.
Time to cast: 2 seconds per pound of weight.
Prerequisite: Rejoin.

A man should have a farm or a mechanical craft for his culture. We must have a basis for our higher accomplishments, our delicate entertainments of poetry and philosophy, in the work of our hands.

– Ralph Waldo Emerson

Knot

Regular

Ties a knot that cannot be untied without magic (though the rope can be cut, of course). The knot unties when someone says the password (specified at casting) while touching the rope at any point along its length. Thus, a rope tied at the top of a cliff will come loose when someone at the bottom of the cliff says the password, if he can touch the rope. Knot also works for string, chastity belts, etc.

The Undo spell also unties a Knot spell, but the Knot spell gets a resistance roll.

Duration: Until the password is spoken, or the rope is cut or broken!
Cost: 2. Cannot be maintained – must be recast if the rope is untied.
Time to cast: 3 seconds.
Prerequisite: Stiffen.

Item

Rope. Any knot tied with this rope cannot be untied without magic. A password is set when the rope is enchanted. The enchantment is broken if the rope is cut. *Energy cost to cast:* 20 per foot of rope.

Reshape

Regular

Mold any inanimate substance as though it were clay. Does not convey any additional artistic ability to the subject, however! Any inanimate object the subject picks up while under this spell will soften slightly – this can be troublesome. For instance, if he tries to wield a sword or staff, it does only half damage! A gun fired while "soft" will be ruined. Any material molded will become hard again, in its new form, as soon as the subject removes his hands from it.

Inconvenient doors and walls can be removed, at a double-handful of material per second. This spell can even be used to tunnel through rock, but since in effect the subject is digging through soft earth with his hands, it is slow and tiring.

Duration: 1 minute.
Cost: 6 to cast. 3 to maintain.
Time to cast: 10 seconds.
Prerequisites: Magery 1, Weaken, and either Shape Earth or Shape Plant.

Item

Gloves. *Energy cost to create:* 500.

Rive (VH)

Regular

Pokes holes in inanimate objects, walls, etc. See p. B557, for the DR and HP of common objects. This spell works like a *huge piercing* attack, punching a 2-foot-diameter hole (the affected area may be smaller at the caster's discretion).

Cost: 1 per die of damage to be inflicted to the object.

Prerequisites: Magery 2 and Shatter.

Item

Wand, staff, or glove. Must strike the object. *Energy cost to create:* 1,000.

Ruin

Regular

Accelerates the natural process of decay on unliving materials. It rusts iron and steel, but has little effect on other metals unless maintained for a very long time. It causes organic material – leather, fur, wood, plastics, etc. – to decay to uselessness. Ceramics are unaffected by Ruin.

Duration: 1 minute. Each 1-minute casting has the general effect of aging the subject 5 years. It will remove 1 DR and 1 HP from most subjects. Weapons simply lose one grade of quality per casting, except for Very Fine weapons, which are unaffected!

Cost: 2 per pound of material ruined. Same cost to maintain.

Time to cast: 5 seconds per pound of material ruined.

Prerequisites: Magery 1, Weaken, and Decay.

Explode (VH)

Regular

As Shatter, but the subject, if it shatters, explodes violently, doing fragmentation damage (p. B414).

Cost: 2 to 6; does 1d damage for every two points of energy put into it. Double cost to increase damage to 1d+2.

Prerequisites: Magery 2, Shatter, and Apportation.

Item

Wand, staff, or glove. The item must strike the subject. *Energy cost to create:* 1,000.

Fasten

Regular

Ties up the subject with a length of rope or chain (which is not created by the spell, only animated). Useful to wrap packages, moor boats, bind prisoners, and so on. An actively resisting subject resists using DX. The bond is a normal knot (though it may be turned into a magical Knot by increasing the energy expenditure).

Duration: Permanent.

Cost: 3 to cast (1 extra to have a Knot in it).

Prerequisite: Knot.

Item

A rope or chain which will wrap itself around the subject (which it must touch) when a command word is spoken; the enchantment is lost if it is cut or broken. *Energy cost to create:* 90 per yard of length.

Mapmaker

Special

When cast on a scroll or any other writing surface (including a previously unfinished map), this spell creates a map of what the scroll's holder perceives.

The caster must declare the scale used for the map, which way is north, the spot on the scroll where mapping begins and which features are to appear on the map. The map thus created is of the same quality as if it had been drawn by someone with a Cartography skill equal to the lower of the caster's effective skill with this spell and his Cartography skill. It is no better in content than if the holder had taken the time to write it himself – the spell is nothing more than a time-saver.

Duration: 1 hour. The spell does not expire if the scroll's user moves off the edge of the map; it just fails to inscribe anything until he moves back on. The inscriptions themselves are permanent.

Cost: 4 to cast. 2 to maintain.

Time to cast: 10 seconds.

Prerequisites: Inscribe and Measurement.

Item

(a) A scroll can be made self-mapping, updating itself whenever its holder enters a new area (and spends energy to activate it). *Energy cost to create:* 100. (b) Wand or staff. *Energy cost to create:* 300.

Repair

Regular

Permanently repairs a broken inanimate object. If some small parts are missing, skill is at -5, and the appropriate materials to make the missing parts must be provided – e.g., a lump of gold to make gold filigree-work. If the spell succeeds, the missing parts reappear. Formerly magical items do not regain their magic when repaired (although this spell will restore a weakened magic item to full durability).

Duration: Permanent.

Cost: 2 per 5 pounds of subject's weight. Minimum cost 6 for objects with moving parts.

Time to cast: 1 second per pound (minimum 10).

Prerequisites: Magery 2 and Rejoin.

Shatterproof

Regular

Makes a small object (like a weapon, or anything else that a normal human could hold in one hand) resistant to breakage. A cheap or regular metal weapon is treated as a "fine" quality weapon while the spell lasts, and a "fine" weapon as "very fine." Other items have their hit points doubled, and will never break due to accidental dropping, etc. It doubles the DR and HP of a shield if the shield-breaking rules are used (p. B484). This spell does not increase resistance to "penetration," so it's no good for walls, armor, etc.

Duration: 1 hour.

Cost: 3 to cast. 3 to maintain.

Prerequisites: Repair and Shatter.

Item

Any item can be made permanently shatterproof; if the item *does* break, the pieces are no longer enchanted. *Energy cost to create:* 400.

Sharpen

Regular

Temporarily produces an extraordinary sharpness on cutting and impaling weapons. +1 or more to basic damage.

Duration: 1 minute.
Cost: The formula is 1 energy for every 6" of edge. Typical costs (use these unless the circumstances are very special): 1 to cast on an arrow; 2 for a knife, spear or axe; 3 for a one-handed sword; 5 for a two-handed sword. Double these for +2 bonus, or triple for +3. Half that (round up) to maintain.
Time to cast: 4 seconds.
Prerequisite: Repair.

Item

See Puissance (p. 65). If a weapon already has the Puissance spell on it, the spells don't add; only the stronger one works.

Toughen

Regular

Makes an inanimate object more difficult to penetrate by increasing its DR. Has no effect on the protective value of armor. If the object takes basic damage equal to or greater than its (toughened) DR, the spell is broken, and must be recast.

Duration: 1 hour.
Cost: 1 to cast per point of DR (maximum of 8) for an object the size of a fist, double for an object up to a cubic foot, triple for an SM 0 object. Same cost to maintain.
Time to cast: 5 seconds.
Prerequisite: Shatterproof.

Item

See Fortify (p. 66).

Transparency

Regular

Makes an object transparent. The object's outlines remain visible and its physical characteristics remain unchanged (hardness, weight, etc.). The caster can choose to tint the object as he desires instead of making it colorless.

Duration: 1 minute.
Cost: 4 to cast. 2 to maintain.
Time to cast: 10 seconds.
Prerequisites: Dye and Stone to Earth.

Item

(a) Wand, staff, or jewelry. *Energy cost to create:* 850. (b) For 400 points (multiplied by 1+SM), any items can be made permanently transparent.

Mystic Mark

Regular

Places an invisible mark on the subject. The mark is visible to the caster at will (simple concentration) and to others using Aura, See Secrets, Mage Sight, Detect Magic, or similar spells. It may be a rune, sigil, monogram, etc. (A Heraldry specialty may be learned to recognize the Mystic Marks in use in the campaign world.) Unwilling subjects resist with IQ.

Should Seeker be cast regarding a subject bearing the caster's Mystic Mark, there will be no need for "something associated with the subject sought."

The mark can be erased with Remove Curse.

Duration: Mystic Mark is a lasting spell that fades with time. Every month, roll against the Mystic Mark's Endurance (p. 10). On an ordinary failure, the Mark's Endurance is reduced by the margin of failure. On a critical failure or when the Mark's Endurance reaches 0, the spell expires. Marks placed on durable objects are themselves more durable; apply the DR of the surface as a bonus to the "fading" roll.
Cost: 3.
Time to cast: 10 seconds.
Prerequisites: Dye and Trace.

Item

(a) The mark may be made permanent (no need for the monthly "fading" roll) for 30 energy. (b) Staff, wand or writing instrument (including a branding iron). *Energy cost to create:* 300.

Weapon Self (VH)

Regular; Resisted by HT (or by effective skill for magic weapons)

The caster's body magically melds with the melee weapon he is wielding. Clothes (up to 6 pounds) disappear along with him, but the rest of his equipment falls to the ground. The weapon now dances through the air, as if wielded by an invisible opponent. The subject keeps his weapon skill and attributes while assuming a minimum Speed of 5. Attacks on the weapon are at a normal penalty for size (p. B400). The weapon may only dodge or parry, but has natural DR appropriate to its material (p. B483). If the weapon is broken, the spell ends and the subject reappears, unharmed but physically stunned, holding the useless weapon in his hand(s).

The subject may not speak, so he can only cast spells he knows at skill 20 or better. The subject's HT resists Making and Breaking spells such as Weaken and Shatter.

Magic weapons resist the melding with their Power. If the subject wishes to activate any of the enchantments on the magic weapon, he must win a Regular Contest of his Will against the weapon's Power.

Duration: 1 minute.
Cost: 8 to cast. 4 to maintain.
Time to cast: 5 seconds.
Prerequisites: Magery 2, Apportation, and at least six Making and Breaking spells including Reshape.

Item

(a) Jewelry. The item disappears along with its wearer when the spell is cast, so the caster can maintain it. *Energy cost to create:* 2,000. (b) Any weapon. *Energy cost to create:* 500 per pound of weapon weight (minimum 1 pound). (c) A magical weapon may be enchanted not to resist the melding for an energy cost of 500 per pound of weapon weight (minimum 1 pound).

Transform Object (VH)

Regular; Special Resistance

Changes an object into another object of the same weight. The change can be anything – a gun could be turned into a rag doll, for instance. As with Create Object (p. 98), anything the mage brings into existence must be something he is familiar with. To turn something into a functional object, the caster must have the appropriate skill for making a similar object; the rag doll mentioned above will be a pretty poor rag doll unless the caster has Sewing skill, and if he wants to turn a rag doll into a gun, he'd better have Armoury skill.

An object held or worn by someone resists with its owner's Will.

Duration: 1 hour.
Cost: 1 to cast for every pound the object weighs (minimum of 1 pound). Double cost to change to (or from) stone, triple for metal. Same cost to maintain.
Time to cast: Equal to cost, in seconds.
Prerequisites: Magery 2, Reshape, and at least four "Create" spells.

Item

Staff, wand, or jewelry. Usable only by mages. *Energy cost to create:* 1,000.

Contract Object (VH)

Regular

Scales an object down in one dimension. A rope or blade can be made shorter, for instance. This spell could easily render most clothing unwearable. This reduces the object's Size modifier unless the object is not being contracted in its longest dimension. The object's DR is unchanged, but its HP usually decreases in direct proportion to the rescaling.

Duration: 1 hour.
Cost: 1 per pound of original weight (minimum of 1 pound) for every halving of the chosen dimension. Same cost to maintain.
Time to cast: 3 seconds.
Prerequisites: Magery 3 and Transform Object.

Item

Wand, staff, or jewelry. Usable only by mages; the item must touch the subject. *Energy cost to create:* 800.

Extend Object (VH)

Regular

Scales an object up in one dimension; the opposite of Contract Object (above).

Duration: 1 hour.
Cost: 1 per pound of original weight (minimum of 1 pound), per doubling of the chosen dimension. Same cost to maintain.
Time to cast: 3 seconds.
Prerequisites: Magery 3 and Transform Object.

Item

Wand, staff, or jewelry. Usable only by mages; the item must touch the subject. *Energy cost to create:* 800.

Shrink Object (VH)

Regular

Scales an object down in size while maintaining its proportions, decreasing its Size modifier. Multiply weight by 1/3, and HP by 2/3, for every subtracted point of Size modifier; subtract 1 DR for every 2 subtracted points of Size modifier.

Duration: 1 hour.
Cost: 1 per pound of original weight (minimum one pound) for every point of SM reduction. Same cost to maintain.
Time to cast: 3 seconds.
Prerequisite: Contract Object.

Item

Wand, staff, or jewelry. Usable only by mages; the item must touch the subject. *Energy cost to create:* 800.

Enlarge Object (VH)

Regular

Scales an object up in size while maintaining its proportions, increasing its Size modifier. Multiply weight by 3.5, and HP by 1.5, for every added point of Size modifier; add 1 DR for every 2 added points of Size modifier.

Duration: 1 hour.
Cost: 1 per pound of original weight (minimum of 1 pound) for every additional point of SM. Same cost to maintain.
Time to cast: 3 seconds.
Prerequisite: Extend Object.

Item

Wand, staff, or jewelry. Usable only by mages; the item must touch the subject. *Energy cost to create:* 800.

Disintegrate (VH)

Regular

Similar to Shatter, but leaves only dust (cannot be repaired!). If damage rolled doesn't destroy the subject, it is unaffected. This spell affects inanimate objects only and cannot affect parts of objects.

Duration: Permanent.
Cost: 1 to 4; does 1d damage for each point of energy put into it.
Prerequisites: Magery 2, Shatter, Ruin, Earth to Air, Destroy Air, and Destroy Water.

Item

As for Shatter. *Energy cost to create:* 1,500.

Rebuild/TL

Regular

As listed under *Technological Spells*, p. 177.

Chapter Seventeen
Meta-Spells

"Fascinating. Simply fascinating."

Lady Ann smiled. "Was it worth the trip, then, Doctor?"

"And more, my dear lady. How did your family came into possession of such a singular device?" Doctor Bernard asked.

"I honestly don't know. It's been a Goulding heirloom for centuries, and there are all sorts of rumors and legends about it, but its origins are a mystery. No one really even knows what it does. When I was little, my nurse told me it was alive and I should never touch it."

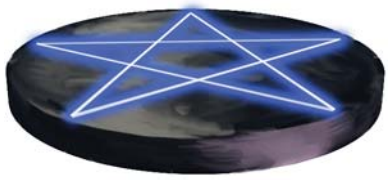
"Well, that's an understandable conclusion for a layman. Judging from its age and design, I suspect that this hails from the Archigulonian city-states, created for handling magical plunder. It's a masterful piece of work: it identifies enchantments and spells, removes magical traps, and destroys items of infernal origin entirely.

"Most interestingly, however, it operates itself. There must be several hundred enchanted pieces inside that oblong case, supporting hundreds of interlocking conditional spells. Whoever enchanted this created an item that can respond intelligently to events, after a fashion. I stand in awe of him."

"Intriguing. It's not alive, then?"

"Oh, no. Simply bogglingly complex."

"Well, that is a comfort, Doctor. I can't thank you enough for coming. Won't you stay to dinner?"



These spells have to do with the structure of magic itself. They are spells about spells, or spells that affect other spells. Only mages can learn meta-spells; even the most basic meta-spell requires Magery 1.

Counterspell

Regular; Resisted by subject spell

Nullify any one ongoing spell. It cannot "counter" spells that make a *permanent* change in the world (e.g., Extinguish Fire, Flesh to Stone, or Zombie), and it cannot affect permanently enchanted items, but it *can* counter spells cast using magic items. The "subject" of Counterspell may be either the subject of the spell to be countered or the person who cast that spell.

Counterspell is a single spell – but to counter a given spell, you must *also* know that spell. Roll against the *lower* of your Counterspell skill or your skill with the spell being countered. You must win a Quick Contest with the target spell to cancel it. You can cast multiple Counterspells to negate an Area spell piece by piece.

Cost: Half that of the spell countered, *not* counting bonuses the other caster got for high skill.
Time to cast: 5 seconds.
Prerequisite: Magery 1.

Scryguard

Regular; Resists any Information spells

Any information spell cast on the subject must win a Quick Contest of Spells with the Scryguard to "see" him. Identify Spell still detects that the Scryguard is present.

Duration: 10 hours.
Cost: 3 to cast. 1 to maintain.
Time to cast: 5 seconds.
Prerequisite: Magery 1.

Item

This spell may be cast permanently on any item to make it resist any attempt to sense it with magic. *Energy cost to cast:* 500, multiplied by 1+SM for items larger than SM 0.

Suspend Spell

Regular; Resisted by subject spell

Temporarily nullify any one ongoing spell. The caster must know the spell he suspends. Suspend Spell does not affect magic items, but can affect spells cast through one. Spells that can only be removed by Remove Curse cannot be suspended; use Suspend Curse for those.

Suspend Spell is cast at the lower of the user's Suspend Spell skill and his skill with the spell being suspended. When the suspension expires, the suspended spell "picks up where it left off" and resumes operation. If the subject spell is maintained, its caster will automatically know it is being suspended. Otherwise, roll against Perception + Magery - 3 – distance is not a factor.

We are all apprentices in a craft where no one ever becomes a master.

– Ernest Hemingway

Duration: 1 minute.
Cost: 1/10 that of the spell suspended to cast, not counting bonuses the other caster may have received for high skill (round up). Same cost to maintain.
Prerequisites: Magery 1 and Counterspell.

Item

Staff, wand, or jewelry. Usable only by mages. *Energy cost to create:* 500.

Ward

Blocking; Resisted by subject spell

When cast immediately after a spell is thrown at its subject, this spell can prevent the opposed spell from working. It works against only a single magical attack. If an attacking spell affects several people, each Ward can only save one subject. It does not protect against missile spells.

The caster may only Ward against a spell that he knows at skill 12 or higher; a caster who knows (for instance) Sleep may also ward a single subject against Mass Sleep. The caster rolls at the lower of his Ward skill or his skill in the spell being warded. The caster must announce he is using Ward before the opposed spell's subject tries a resistance roll. If it turns out the spell being cast is not one the defending mage can ward against, the ward is wasted.

Cost: 2 to cast it on yourself, or 3 to cast on anyone you can see. You cannot Ward someone you cannot see.
Prerequisite: Magery 1.

Seek Magic

Information

As listed under *Knowledge Spells*, p. 102.

Conceal Magic

Regular

Cast on a single person or item, this spell interferes with any informational spell cast on the subject. Twice the energy put into the spell (up to 5 points) is subtracted from any skill roll made to learn about the item, find it, etc.

Example: 4 points of energy are put into a Conceal Magic spell on a ring. Until the spell expires, any Detect Magic spell will be at -8 to work on that ring; Identify Magic will be at -8 to find any spells on the ring; Mage Sight will not see the ring unless the mage made his roll by at least 8 (though he may still see other things) – and so on.

Note that this spell has similar effects in some ways to Scryguard (p. 121), but they're not the same!

Duration: 10 hours.
Cost: 1 through 5 to cast. Same cost to maintain.
Time to cast: 3 seconds.
Prerequisites: Magery 1 and Detect Magic.

Item

This spell may be cast permanently on any item to make it harder to sense or identify with magic. *Energy cost to cast:* 100 times the cost above – e.g., 200 to give a -4 on all attempts to detect or identify.

Reflect

Blocking; Resisted by subject spell

This spell is an improved version of Ward, and works like it. The difference is that it will reflect the opposed spell instead of negating it. Thus, if the Reflect succeeds, the opposed spell now attacks its original caster as if it had been cast on him to begin with. If the attacking spell is an area spell, a successful Reflect protects its subject and affects the caster as though he were in the area being attacked, but otherwise the area is still attacked normally.

Cost: 4 to cast it on yourself, 6 to cast it on someone you can see; you cannot protect someone you cannot see.
Prerequisite: Ward.

Scrywall

Area; Resists any Information spells

As Scryguard, but to protect a whole area and everything in it.

Duration: 10 hours.
Base cost: 3 to cast. 2 to maintain.
Time to cast: Seconds equal to energy cost.
Prerequisite: Scryguard.

Item

(a) Any container. It, and everything inside, is protected by the Scrywall spell. *Energy cost to cast:* 200 per cubic foot (minimum cost 500). (b) Any rug or area of floor; protects people and things standing atop it. *Energy cost to cast:* 300 per yard radius.

Great Ward

Blocking; Resisted by subject spell

As Ward, but – if it works – protects any number of those who would have been affected by the attacking spell.

Cost: 1 per subject protected (minimum cost 4).
Prerequisites: Magery 2 and Ward.

False Aura

Regular, Area; Special Resistance; Resists Information spells

Replaces the magical emanations of a being, area, or object with false ones; the term "aura" is only literal for living things. For instance, a human could be made to have the aura of a Zombie, a sword could appear to be enchanted with Dancing Weapon, an area could appear to be under linked Create Fire and Glue spells, etc. Roll a Quick Contest between the False Aura and any spell (Information or Regular) that can see or detect the emanations (such as Aura, Mage Sight, or Analyze Magic). If the False Aura wins, the other spell is fooled. False Aura also works against equivalent senses some creatures may possess.

Unwilling subjects resist with IQ. The chosen False Aura must be familiar to the caster – a mage could not put a False Aura of Golem on a statue

unless he knew the Golem spell, for instance.

Duration: 10 hours.
Cost: 4 to cast. Half that to maintain. When cast on an area, the base cost is 4.
Time to cast: 10 seconds.
Prerequisites: Conceal Magic and Aura.

Item

(a) Any. Only affects the holder. *Energy cost to create:* 300. (b) Any object or area may be given a permanent False Aura for 100 times casting cost.

Magic Resistance

Regular; Resisted by Will+Magery

For each point of energy put into the spell (up to 5), the subject's magic resistance goes up by 2 if he is willing, or by 1 if he tried to resist. This MR works like normal Magic Resistance (p. B67) when spells are cast on the subject. The subject can still cast spells, but at a penalty equal to the MR. Spells already affecting the subject (or already cast by him) continue unchanged. He can use potions and magical items normally.

Duration: 1 minute.
Cost: 1 to 5 to cast. Same cost to maintain.
Time to cast: 3 seconds.
Prerequisites: Magery 1 and one or more spells from each of seven different colleges.

Item

(a) Wand, staff, weapon, or jewelry; only affects the wearer. Usable by anyone, but energy cost is doubled for nonmages. *Energy cost to create:* 300 per maximum point of magic resistance it can offer. (b) Any item. The item's own magic resistance is increased by 1 through 10; the user's magic resistance is unaffected. *Energy cost to create:* 200 per point of added magic resistance. Does not affect spell-casting ability of its user.

Scryfool

Regular; Special Resistance

Redirect Information spells targeted at a first subject onto a second subject, the "decoy." Both subjects must be present at casting time; add the range penalties, if any. Unwilling subjects resist with Will.

From then on, any Information spell attempting to scry the first subject must win a Quick Contest of Spells with the Scryfool to scry the correct subject. Otherwise, it scries the decoy instead.

Duration: 10 hours.
Cost: 4 to cast. 2 to maintain.
Time to cast: 10 seconds.
Prerequisites: Magery 2, Sense Observation, and Simple Illusion.

Item

Wand, staff, or jewelry. This item can only be used to divert Information spells from the wearer. *Energy cost to create:* 300.

Penetrating Spell

Regular

This spell is cast on another damage-dealing spell, granting it an armor divisor (p. B378). The spells are cast one after the other, with no delays between castings. Penetrating Spell is cast first, and counts as a spell "on" for determining the effective skill for the second spell.

A spell fortified with Penetrating Spell does not do extra damage to unarmored foes. Hardened DR defends against the armor divisor conferred by this spell as normal.

Duration: Until the second spell expires.
Cost: See table below.

Armor Divisor	*Cost*
2	2
3	4
5	6
10	8
Ignores DR	10

Time to cast: 3 seconds.
Prerequisites: Delay and Find Weakness.

Catch Spell (VH)

Blocking; Special

When cast immediately after a Missile spell is thrown (not when it is cast), this spell allows its caster to catch the missile as it comes within reach of him. Once caught, the spell can be held by the caster just as if he himself had cast it, to be thrown later (back at its original caster, perhaps . . .). The caster need not know the spell he is catching.

If the Catch Spell roll succeeds, its caster physically catches the missile when it comes close enough to grab. If the Catch Spell roll fails, its caster gets hit dead-on by the spell (on a critical failure, he takes maximum damage from the spell!).

Cost: 3.
Prerequisites: Magery 2, DX 12 or higher, and Return Missile.

Item

Glove. Usable only by mages. Such a glove can catch only one specific Missile spell. Treat variations (such as Fireball/Explosive Fireball) as a single spell for this purpose. *Energy cost to create:* 300. A glove that could catch any Missile spell would require 1,200 energy.

Suspend Magic

Area; Resisted by subject spells

Temporarily nullify all other spells within the area. It has no effect on enchanted items. Certain powerful spells are also unaffected – specifically, those which can only be removed by Remove Curse. Each spell resists separately.

Suspend Magic is *not* selective; the caster can choose the shape of the area within the boundaries he pays energy for (as with all Area spells), but may not exclude objects within the affected area. The caster need not know the spell(s) being suspended. To suspend a specific spell without affecting others, use Suspend Spell.

Duration: 1 minute.
Base cost: 3 to cast. 2 to maintain.
Time to cast: 1 second per energy point spent.
Prerequisites: Suspend Spell and at least eight other spells of any type.

Item

Staff, wand, or jewelry. Usable only by mages. *Energy cost to create:* 1,500.

Displace Spell

Regular; Resisted by subject spell

Changes the location of an Area spell, permanently. Certain powerful spells are unaffected – specifically, those which can only be removed by Remove Curse. Each Area spell must be displaced separately, except linked spells, which move together. The caster need not know the spell being displaced.

Once the casting is complete, the area moves with Move equal to the caster's Magery. Each turn, the displaced spell gets a new resistance roll; once it successfully resists, it stops moving and the Displace Spell is broken – though it may be cast anew. The subject spell *always* rolls to resist, even if its caster doesn't wish it to (the caster's own spells resist at -5).

While being Displaced, the subject spell remains active (thus, the caster could trigger a Link by moving it over its intended target). If the subject spell is being maintained, its caster will automatically know it is being displaced. Otherwise, roll against Perception + Magery - 3 – distance is not a factor.

Duration: Until the caster stops concentrating or the subject spell resists successfully.

Cost: 1/4 that of the spell being moved, not counting bonuses the other caster may have gotten for high skill (round up).

Time to cast: 5 seconds.

Prerequisite: Suspend Magic.

Item

Staff, wand, or jewelry. Usable only by mages. *Energy cost to create:* 1,000.

Spell Shield

Area; Resists all spells cast through it

Resist any spell cast through it at the Spell Shield's Endurance (p. 10). It also acts as a Scrywall (above). *Exception:* It does not affect missile spells at all, including Thrown spells. Note that if the attacking spell wins the contest, it gets through, but the Spell Shield is not destroyed – instead, its Endurance is reduced by 1. When a Spell Shield's Endurance is reduced to 0, the spell dissipates and cannot be maintained.

Duration: 1 minute.

Base cost: 3 to cast. 2 to maintain.

Prerequisites: Magery 2, Scryguard, and Magic Resistance.

Item

(a) Any container. It, and everything inside, is protected by the Spell Shield. *Energy cost to cast:* 250 per cubic foot (minimum cost 500). (b) Any rug or area of floor; protects people and things standing atop it. *Energy cost to create:* 400 per yard radius.

Spell Wall

Regular; Resists spells cast through it

Creates a wall of anti-magic. The wall resists any spell cast through it from *one* side, specified by the caster upon casting Spell Wall. It also acts as a Scrywall. *Exception:* It does not affect Missile spells at all, including Thrown spells.

If the Spell Wall fails to resist a spell cast through it, the spell breaks through, but the wall still stands, its Endurance (p. 10) weakened by 1. Upon reaching Endurance 0, the wall dissipates. Spells passing through the wall from the "safe" direction (usually the side that the caster stands on!) are not resisted or affected in any way.

The wall is cast in one-yard increments, either all at once or piece by piece. When adding new segments to a weakened Spell Wall, the new segments assume the Endurance of the "weakest link." The only way to "repair" a weakened Wall is to cast it anew.

The Spell Wall is four yards high, so it is possible to cast across it from a high enough elevation. Higher walls can be created by spending proportionately more energy (double energy for double height, and so on).

Duration: 1 minute.

Cost: 2 per one-yard piece of Wall to cast. Same cost to maintain. The Spell Wall may also be cast horizontally, as a "ceiling" or "floor"; each point of energy will then cover two hexes on a battle map.

Prerequisite: Spell Shield.

Item

A Spell Wall may be made permanent for 100 times casting cost. Mages often cover windows or skylights in this fashion. "Permanent" Spell Walls do not weaken when penetrated.

Pentagram

Special; Resists attempts to cross it

Produces a magical barrier, which blocks hostile spells and magical creatures from passing in either direction. The barrier is a star-shaped figure drawn on the floor or ground. Magical creatures (demons, golems, creations, zombies, elementals, and the like) cannot cross the border of a pentagram; neither may they cast spells, or move any physical object, across the border. Nonmagical creatures – including mages – can freely cross a pentagram, though they cannot cast spells across its border. Spells of transport (e.g., Flight, Teleport) cannot be used to enter a pentagram for hostile purposes.

Certain very hostile creatures may be summoned within a pentagram; the caster stands outside and summons the creature to a spot inside the pentagram. The caster will open the pentagram only when he is sure he can control the summoned creature.

Magical creatures (demons, golems, creations, zombies, elementals, and the like) cannot cross the border of a pentagram; neither may they cast spells, or move any physical object, across the border.

If part of the pentagram is cut or erased, its power will be lost until the caster can rejoin the pentagram – all this requires is a piece of chalk and time (usually just a second) to draw the line. No magic spell can injure the pentagram, but physical attacks – like walking up and scuffing out a line with your shoe – can succeed if they are made by nonmagical beings. A demon or creation could not do it; an ordinary person could. Likewise, an ordinary person could throw a rock into a pentagram, but a demon or golem could not.

A magical creature may try to force its way through a pentagram. Roll a contest between the creature's (ST+Will)/2 and the skill with which the pentagram was cast. If the creature wins, it destroys the pentagram! No one creature can thus "test" a pentagram more than once per day.

Duration: Permanent unless broken.

Cost: 1 per square foot protected (minimum 10). When the spell is cast ceremonially, the casters can spend extra energy to increase the effective skill of the Pentagram. A mage can also use the Slow and Sure Enchantment method (though Pentagram is not technically an Enchantment spell) to create a large pentagram by himself.

Time to cast: One second per square foot. This time is spent in tracing the line, and is necessary no matter how well the spell is known or how much power is available.

Prerequisite: Spell Shield.

Item

Mages' Guilds may have permanent pentagrams, inlaid with tile or jewels to avoid accidental scuffing, and cast at a very high level of skill. Such a design can be ritually "cut," when necessary, by a chalk-mark. But there is no intrinsic difference between these and a regular pentagram – any pentagram is "permanent" until erased or broken. (If a hostile creature breaks through a Pentagram spell, it destroys the enchantment but does not affect the physical design, which can be re-enchanted later . . . if its owner survives.)

Suspend Curse

Regular; Resisted by subject spell

Temporarily nullifies any one of the following spells, among others: Alter (any type), Curse, Enlarge Other, Ensorcelment (any type), Flesh to Ice, Geas (either type), Healing Slumber, Hex, Malefice, Mystic Mark, Oath, Partial Petrification, Plant Form (any type), Possession (any type), Shapeshift (any type), Shrink Other, Stone to Flesh, Stop Healing, Strike Barren, Suspend Magery, Suspend Time. It will also suspend any physical or mental impairment caused by an hostile Wish of any kind. If for any reason the skill level of the subject spell is unknown, the GM's assessment is final.

Duration: 10 minutes.
Cost: 10. Same cost to maintain.
Time to cast: 1 minute.
Prerequisites: Magery 1 and spells from at least 12 different colleges.

Suspend Mana (VH)

Area

The subject area is (temporarily) a no-mana zone, dead to the flow of magic. A critical failure costs the caster a level of Magery for 2d days. At the end of that time, the caster should roll vs. IQ+Magery; any roll except a critical failure means that the lost Magery is regained – a critical failure means the loss is permanent!

Duration: The mana is restored at a rate depending on the surrounding mana level. In a low-mana zone, the area affected by the spell shrinks by one yard in radius every three days; in normal mana, by one yard every hour; in high mana or very high mana, by one yard every minute!

Base cost: 5. Cannot be maintained.
Time to cast: 10 minutes.
Prerequisites: Suspend Magic and spells from at least 10 different colleges.

Mages' Guilds may have permanent pentagrams, inlaid with tile or jewels to avoid accidental scuffing, and cast at a very high level of skill.

Dispel Magic

Area; Resisted by subject spells

Negates other spells within the area if successful. It has no effect on enchantments, but dispels any temporary, lasting, or permanent spell (p. 10), unless the spell specifies otherwise. Each spell resists separately. Dispel Magic is *not* selective! The caster need not know the spell(s) being dispelled. To nullify a specific spell without affecting others, use Counterspell, above.

Duration: Dispelled magic is permanently gone.

Base cost: 3.

Time to cast: 1 second for each energy point spent.

Prerequisites: Counterspell and at least 12 other spells of any type.

Lend Spell

Regular

"Lend" an already-cast maintainable spell to someone else. The recipient acquires full control over and responsibility for the loaned spell, just as if he had cast it himself; he can maintain it or manipulate it at will, within the limits of the spell itself.

The recipient must meet all of the advantage and attribute qualifications of the loaned spell, but need not know its spell prerequisites. Thus, a spell requiring Magery 2 could only be loaned to a character with Magery 2, but a spell requiring no Magery and no special advantages or attributes could be loaned to *anybody*. If the recipient has Magic Resistance, Lend Spell must overcome it.

Lend Spell is cast at the lower of the caster's skill with Lend Spell and the subject spell. The caster must touch the recipient.

Modifiers: If the recipient does not know all the prerequisites of the spell to be loaned, the caster gets a -2 to skill. If the recipient knows all the prerequisites, the spell is cast at par. If the recipient actually *knows* the spell, the caster gets a +2.

Duration: Permanent; once "loaned," the spell no longer belongs to its original caster.

Cost: Equal to the maintenance cost of the spell to be lent.

Time to cast: 3 seconds.

Prerequisites: Magery 1, Lend Skill, and spells from at least six different colleges.

Item

Staff, wand, or jewelry. Usable only by mages. The mage loans the subject spell by activating the item and physically passing the item to the recipient; the item must be held at all times for the magic to work – it may *not* be thrown. The recipient "owns" the spell for as long as he holds the item, and may pass it along to yet another recipient, *whether or not either is a mage*. *Energy cost to create:* 1,000.

Remove Curse

Regular; Resisted by subject spell

Nullifies any one of the following spells: Alter (any type), Curse, Enlarge Other, Ensorcelment (any type), Flesh to Ice, Geas (either type), Healing Slumber, Hex, Malefice, Mystic Mark, Oath, Partial Petrification, Plant Form (any type), Possession (any type), Shapeshift (any type), Shrink Other, Stone to Flesh, Stop Healing, Strike Barren, Suspend Magery, Suspend Time. It also negates any physical or mental impairment caused by a hostile Wish of any kind. If for any reason the skill level of the subject spell is unknown, the GM's assessment is final.

Cost: 20.

Time to cast: 1 hour.

Prerequisites: Magery 2 and at least one spell from each of 15 different colleges.

Charge Powerstone (VH)

Regular

Recharges a Powerstone at a higher rate than the stone recharges itself. Every 3 energy spent by the caster restores 1 point of energy to the stone, but every point restored is counted as an "advance" against future "natural" recharging. Thus, if a 10-point Powerstone is recharged with this spell in a normal-mana area, it will not begin to recharge for 10 days after it is used. If it is used, and then recharged again using this spell, it will be 20 days until the stone begins

to recharge normally, and so on. The presence of multiple Powerstones does not inhibit the casting of this spell.

On any ordinary failure with this spell, the Powerstone gains a new quirk (p. 69). On a critical failure, the Powerstone cracks and is destroyed.

This spell can safely recharge Powerstones with quirks that limit recharging only if the conditions imposed by the quirk have been met. Attempts to ignore those conditions may cause the Powerstone to shatter.

This spell does not work on Manastones.

Duration: The energy remains in the Powerstone until needed.

Cost: 3 per point of energy recharged.

Time to cast: 10 minutes.

Prerequisites: Magery 3, Powerstone, and Lend Energy.

Spellguard (VH)

Regular; Resists attempts to tamper with its subject spell

This spell is cast *on another spell* to protect it from tampering attempts. Twice the energy put into the spell (up to 3 points) is subtracted from the skill of any casting of the following Meta-spells against the subject spell: Counterspell, Displace Spell, False Aura, Remove Aura, Remove Curse, Steal Spell, Suspend Curse, and Suspend Spell. Twice the energy put into the Spellguard is added to the effective skill of the subject spell's caster when resisting Dispel Magic or Suspend Magic. When the spell it protects lapses or is dispelled, the Spellguard also lapses.

Duration: 10 hours.

Cost: 1 to 3 to cast. Same cost to maintain. Cost is not reduced for high skill.

Time to cast: 1 second for each energy point spent.

Prerequisite: Dispel Magic.

Item

(a) Staff, wand, or jewelry. Usable only by mages. *Energy cost to create:* 500. (b) May be cast permanently on an enchanted item or area to make it harder to tamper with; it then hampers Suspend Enchantment and Remove Enchantment as well. *Energy cost to cast:* 100 times normal cost.

Remove Aura

Regular; Special Resistance; Resists Information spells

Like False Aura, but removes the magical emanations of the subject *entirely*. When cast on an inanimate object, this spell turns it into a blank slate for spells such as Ancient History, History, See Secrets, or Seeker (in the latter case, the Remove Aura breaks the "association," so the Seeker is cast at -5). To resolve this, any future casting of the aforementioned spells is resisted by the Remove Aura – whenever the other spell fails, the information it tried to access was successfully removed. Whatever happens to the object after its aura is removed can still be freely accessed by those spells, of course.

When cast on a living or magical subject, the Remove Aura only lasts one day and cannot be maintained. It interferes with such spells as Aura, Detect Magic, Seek Magic, or Mage Sight. Unwilling subject beings resist with Will.

Duration: Permanent (but see above).

Cost: 5.

Time to cast: 10 seconds.

Prerequisites: Dispel Magic and Aura.

Item

(a) Wand, staff, or jewelry. Usable only by mages; the item must touch the subject. *Energy cost to create:* 250. (b) Jewelry or clothing. Always on; only affects the wearer. *Energy cost to create:* 750.

Drain Mana (VH)

Area

Remove all mana from an area, leaving it permanently "dead" to magic. Spells do not work there, and magic cannot sense anyone or anything in a no-mana zone; magical spells end, and magical items do not function until they are removed from the area.

This spell is used to create areas in which mages, magical creatures, and magical objects can safely be confined or hidden. A no-mana zone stays stable with respect to the earth, but not to objects. Thus, if you make the inside of a box mana-dead, when you move the box, the dead space will stay where it was, rather than moving with the box.

A critical failure with this spell costs the caster one level of Magery!

Duration: Permanent.

Base cost: 10.

Time to cast: 1 hour.

Prerequisites: Dispel Magic and Suspend Mana.

Restore Mana (VH)

Area

The reverse of Drain Mana; restores mana to a dead zone. The area gains a mana equal to the "average" mana level of the surrounding area, regardless of what it might have been before. Cost, time, and prerequisites are the same as for Drain Mana, but there is no risk of losing Magery.

Steal Spell (VH)

Regular; Resisted by subject spell

Steal control of an already-cast maintainable spell from its original caster. Note that it is cast *at the other spell's caster* and is therefore subject to range modifiers. The caster must know precisely what he is stealing – Identify Spell is very useful for this purpose. Spells operating under Maintain Spell can also be stolen; the "caster," for range purposes, is then the maintained spell's area or subject.

You cannot steal a spell if you do not have the required Magery, advantage, attribute level, or lack of disadvantage (see conditions under Lend Spell, above). A held Missile cannot be stolen.

Modifiers: -3 if the caster does not know the spell he is stealing; a further -2 if the caster doesn't know its prerequisites either.

Duration: Permanent; once stolen, the spell no longer belongs to its original caster.

Cost: Equal to the maintenance cost of the spell to be stolen.

Time to cast: 1 second per energy point spent.

Prerequisites: Lend Spell and Great Ward.

Telecast (VH)

Special

Create and teleport a Wizard Eye to a distant location. The caster may then cast spells through the Wizard Eye as if he was present. Missiles may not be telecast, but Jet spells may. Spells requiring touch may also be telecast, but the Wizard Eye must score a hit and the defender must fail his defense.

Use the cost and casting penalties from the Teleport spell (p. 147). Spells cast from the Telecast's "other end" measure range from that spot. The Telecast counts as a spell "on" and requires concentration. GMs who wish to further limit this powerful spell may apply the penalties for no speech, foot, or hand motions (p. 9).

If the Telecast roll is failed by 1, the Wizard Eye reaches its intended destination but the caster is mentally stunned. If the roll is failed by more than 1, the Wizard Eye winds up somewhere else (GM's choice!) and the caster is still mentally stunned. In all cases, a Body Sense roll at a -2 penalty is required before the caster can get his bearings and start casting another spell; on a critical failure, he is mentally stunned.

There are persistent rumors of variants of this spell which Timeport or Plane Shift the Wizard Eye instead.

Duration: 5 seconds.

Cost: As Teleport to cast; same cost to maintain. High skill does not reduce the cost. The energy is spent whether the spell is successful or not.

Time to cast: 1 minute.

Prerequisites: Magery 3, Teleport, Wizard Eye, and spells from at least 10 different colleges.

Item

An eyeball carved of ivory and inset with jewels. Usable only by mages. At its holder's command, it teleports itself away; when the spell lapses, it reappears in the holder's hand (unless it has been physically destroyed). *Cost to create:* 1,900 energy, $1,000 for skilled ivory carving, $600 for jewels.

Hang Spell (VH)

Special

This spell is cast on another spell to delay its activation until the caster wills it. Blocking spells may not be hung.

Hang Spell is cast immediately before its subject spell, with no delays between castings. The caster rolls for the Hang Spell when it is cast; *the roll for the subject spell is not made until it is activated*. Range penalties, spells "on," magic resistance, mana level changes and the like are applied at the subject spell's activation time.

The caster must pay full energy and time costs for the Hang Spell and its subject must be paid at the time of casting. If the caster hangs a spell tailored to a human-sized subject and then activates it on a larger subject, there is either no effect or a reduced effect, as the GM sees fit.

A hung spell counts as one spell "on" (p. 10) for casting purposes; it does not, however, count against *itself* when it is activated. Thus, if a mage has four hung spells, he casts other spells at -4, but casts any one of the hung spells at -3. A hung spell takes a Concentrate action to activate.

Hung spells are susceptible to Dispel Magic and Counterspell (which destroys them), as well as to Suspend Magic and Suspend Spell (which prevents them from activating for the duration). They cannot be stolen or lent because they have not yet been cast.

Duration: 1 hour.

Cost: Same as the underlying spell's cost to cast (minimum of 2); same cost to maintain. The hung spell may be maintained normally once it has taken effect.

Time to cast: 10 seconds.

Prerequisite: Delay.

Maintain Spell (VH)

Special

This spell is cast on one of the caster's ongoing spells, providing it a pool of energy to maintain itself. Once Maintain Spell has been cast, the subject spell draws its maintenance energy from Maintain Spell. It no longer belongs to its original caster; it no longer counts as a spell "on," may not be cancelled, etc. Maintain Spell may be cast any time the subject spell is active. Some maintained spells may be "programmed" as per Independence (p. 96) or perhaps even Initiative (p. 97) (GM's discretion).

Control of a spell operating under Maintain Spell can be stolen using Steal Spell.

Duration: Until the energy pool is drained or the underlying spell lapses.

Cost: Equal to the normal maintenance of the subject spell for as long as the caster wants it to last (including the caster's cost reductions for high skill). Thus, a spell that costs 1 per minute to maintain could be set to maintain itself for 10 minutes at a cost of 10 energy.

If the caster can maintain the spell indefinitely for no energy cost (due to high skill), the cost is 1 energy for every five full duration periods. Thus, a mage with Earthquake at skill 20 could set the spell to last 30 minutes for 6 energy. High skill with this spell likewise reduces cost normally!

Time to cast: 2 seconds, plus "programming time" if necessary.

Prerequisite: Link.

Throw Spell

Missile; Special

This spell is cast on another spell, transforming it into a Missile spell. The spells are cast one after the other, with no delays between castings. The Throw Spell is cast first and counts as a spell "on" when determining the skill level of the subject spell (p. 10).

The caster must pay full energy and time costs for Throw Spell and its subject at the time of casting; if the caster throws a spell powered for a human-sized subject at a larger subject, there is either no effect or a reduced effect, as the GM sees fit.

The caster rolls for the Throw Spell when it is cast; the roll for the subject spell is not made until it is thrown. Thrown spells have 1/2D n/a, Max 80, Acc 1; roll against DX-4 or Innate Attack skill to hit.

All thrown spells take effect at the moment they hit something. Thrown Area spells center on their point of impact. Jet spells take effect at the point of impact, in the direction they were going (treat them as Wild Swings, p. B388). Most other spells simply allow the caster to use spells at longer ranges than normally possible – a thrown Sense Emotion, for instance, or Minor Healing. This spell allows spells that normally require touch to be applied at a distance (Deathtouch,

for instance). Missile spells and Blocking spells may not be thrown.

Thrown spells may be blocked or dodged, but not parried. However, they can be caught using Catch Spell – by anyone, including enemies!

Duration: Until thrown.

Cost: 3. The thrown spell may be maintained normally once it has taken effect.

Prerequisites: Delay and Catch Spell.

Item

Any missile weapon may be enchanted to throw one specific spell, which flies just as if the weapon had fired its ordinary ammunition. *Energy cost to create:* 2,500 times the casting cost of the subject spell. There are rumors of enchanted missile weapons that can throw any spell known to their wielder, but nothing more specific is known about them.

Bless

Regular

A general spell of aid and protection. It must be cast on another; you cannot bless yourself. In some game worlds, only holy men or "good" wizards can cast this spell; this decision is the GM's to make.

The effect of a blessing is as follows: All the subject's die rolls are modified favorably by one point (or more, for a more powerful blessing). The modification will not affect critical successes and failures. This lasts indefinitely . . . until the subject fails some die roll (or a foe makes a good die roll) and the subject is in some serious danger. Then the blessing miraculously averts or reduces the danger – and ends. It is up to the GM to decide when the blessing has its final effect, and what form the protection takes. If an arrow is aimed at your heart, a 1-point blessing might move it to your arm, while a 2-point one would send it through your hat, and a 3-point one would let it slay a foe behind you.

Duration: As above.

Cost: 10 for a 1-point blessing, 50 for a 2-point blessing, 500 for a 3-point blessing. Blessings may not be "stacked" – a stronger blessing dispels a weaker one.

Time to cast: 1 minute for every point of energy in the spell.

Prerequisites: Magery 2 and at least two spells from each of 10 different colleges. Magery 3 is required to cast a 3-point blessing. A GM may require "holy" or "good" status if he wishes.

Item

Any. The blessing is cast on the item rather than a person, and affects the wearer of the item. When the blessing finally averts some great danger, the item loses its enchantment. *Energy cost to cast:* 10 times the cost to cast on a person.

Curse

Regular

Exactly the opposite of Bless. All the subject's die rolls are modified unfavorably, lasting until he scores some notable success despite the bad rolls – GM's decision as to exactly what this is. Then the success turns somehow to ashes, and the curse is ended.

Cost: 3 for a 1-point Curse, 10 for a 2-point Curse, 20 for a 3-point Curse. Like Blessings, Curses cannot be "stacked."

Time to cast: 2 seconds for a 1-point Curse, 4 for a 2-point Curse, 6 for a 3-point Curse.

Prerequisites: As for Bless, except that both very good and very evil characters can curse.

Item

Any. The curse is cast on the item rather than a person, and affects the wearer of the item. GMs should make rolls in secret, and otherwise do whatever they can, to keep players from realizing they have encountered a cursed item! When the Curse delivers its final "zap," the enchantment vanishes. *Energy cost to cast:* 10 times the cost to cast on a person.

Suspend Magery (VH)

Regular; Resisted by Will+Magery

Temporarily nullifies the subject's Magery. The caster must touch the subject throughout the casting. The subject retains his knowledge of spells, but cannot cast them – unless he is in a high-mana area, of course, in which case he simply loses the bonus. Even in a high-mana area, the subject cannot cast spells that require Magery of any level. Suspend Magery can only be removed by Remove Curse.

A critical failure with this spell costs the caster a level of Magery for 2d days. At the end of that time, the caster should roll vs. IQ+Magery; any roll except a critical failure means that the lost Magery is regained – a critical failure means the loss is permanent!

Duration: 1 hour.

Cost: 12 to cast. Same cost to maintain. However, the subject gets to resist every time the spell is maintained.

Time to cast: 10 seconds.

Prerequisites: Magery 2 and two spells from at least 10 different colleges.

Item

Clothing or jewelry (shackles are a favorite). Always on; only affects the wearer. *Energy cost to create:* 2,200.

Drain Magery (VH)

Regular; Resisted by Will+Magery

Permanently drains one level of the subject's Magery advantage. The caster must touch the subject throughout the casting.

The subject retains his knowledge of spells (albeit at a lower skill level), but cannot cast those that require a higher degree of Magery than his new one.

A critical failure with this spell costs the *caster* a degree of Magery *and* a point of IQ!

Duration: Permanent.

Cost: 30.

Time to cast: 10 minutes.

Prerequisites: Magery 3 and Suspend Magery.

Item

There are persistent rumors of malevolent items that drain Magery from their victims, but nothing specific is known.

Linking Spells

These three spells are related. Delay, a Regular spell, is used for quick coupling of spells, while Link, an Area spell, is more useful for long-term linkings. Reflex is a Special spell cast on another spell to convert it to a one-shot Blocking spell – see pp. 12-13 for rules governing Blocking spells.

With any of these spells, the "linking spell" is Delay, Link, or Reflex. A "linked spell" is another spell controlled by the linking spell. Linked spells must be cast by the same person who cast the linking spell, and must be cast within one minute after the linking spell is cast.

If any questions arise on the interpretation of a spell's ability to detect a particular event, or whether a particular spell may be linked, the GM's word is final. GMs wishing to restrict any of these spells may allow only a small list of spells to be linked, or exclude certain spells.

Any item with a spell linked to it is visible as such to Mage Sight but not to a mage's IQ+Magery roll. Only Analyze Magic can tell the nature of the linked spell.

Delay

Regular

This spell is cast on another spell to delay its activation until a certain thing happens in the linked spell's presence – that is, in the presence of the item or area on which the linked spell was cast. This triggering event may be as simple or complex as the caster desires; if complex, it should be put in writing. The triggering event must be something that could reasonably be determined by a normal person at the Delay site; the GM's decision is final. If the Delay is to be triggered by a more esoteric event, an appropriate spell such as Mage Sight may be cast on the Delay. The Delay may also be triggered by the activation of another spell, such as Watchdog or another linked spell. A Delay can activate only one other spell.

The spells are cast one after the other, with no delays between spells. The Delay must be cast first, and counts as a spell "on" when determining the skill level of the linked spell – see p. 10. Full cost for the linked spell and for the Delay must be paid at the time of casting. If the caster specifies a spell to affect a human-sized subject, and a larger victim (requiring more energy – see p. 11) actually triggers the Delay, there is either no effect or reduced effect, depending on the spell. The GM's ruling on this is final.

Delay may be cast two ways: to activate the linked spell on a specific subject, or as a trap, to activate the linked spell against any subject that meets the triggering conditions. In the latter case, the Delay and the linked spell are both cast on a "trap item," and range is figured from the trap item at the moment the spell is triggered. Magic Resistance penalties also apply to the linked spell at the time of triggering.

The caster rolls for Delay when it is first cast; the roll for the linked spell is not made until the triggering event occurs. If the intended subject of a linked spell is not present at the time of casting, there is an additional -5 penalty for the linked spell (but not for the Link) for not being able to touch or see the subject – see p. 11. So, for instance, the dreaded "deathtouch doorknob," set to "attack" the first person to touch it, would activate at a -5 penalty.

When a Delay is triggered, the linked spell begins to activate, taking effect the next turn. Thus, a Delay cannot be used as a Blocking spell. It can be used as a trap; the victim may be taken by surprise. An unsuspecting victim must make an IQ roll to respond before the linked spell is fully activated – Combat Reflexes gives +6 to this roll.

Both the Delay and the linked spell count as "on" for spellcasting purposes; if an Information spell has been added, it is also on. The linked spell does not need to be maintained, though the Delay or its Information spell may need to be. Once the Delay is triggered, it vanishes, and no longer counts as on. The linked spell continues to count as on as long as it is active. It may be maintained normally.

A Delay may also be set to "turn off" an ongoing spell when a triggering event occurs. In that case, the linked spell lasts only while the caster maintains it, but the Delay itself requires no maintenance.

Blocking and Missile spells cannot be Delayed – all other spells can. An "instantaneous" spell like Thunderclap will happen once, when activated; then the spell will be gone. A continuing spell like Voices will start when activated, and then operate until it expires.

Duration: 2 hours.
Time to cast: 10 seconds.
Cost: 3 to cast. 3 to maintain.
Prerequisites: Magery 3 and any 15 spells.

Link

Area

Postpones the activation of one or more linked spells cast in its area of effect, until a certain thing happens in the Link's presence. This triggering event may be as simple or complex as the caster desires, and is governed like Delay (above). The Link may also be triggered by the activation of a spell placed on the area after the Link, such as Watchdog, Delay or another Link.

The caster pays the energy costs and makes the skill rolls for the Link spell and all linked spells at the time of casting. Linked spells may not benefit from cost reductions for high skill. If the intended subject of a linked spell is not present at the time of casting, there is an additional -5 penalty for the linked spell (but not for the Link) for not being able to touch or see the subject – see p. 11.

The size of the area of the Link spell is determined at the time of casting. Any linked spells may go off anywhere within the Linked area; for instance, if a one-yard-radius Create Fire and one-yard-radius Glue spell were linked to a 20-yard-radius Link to catch intruders, the first intruder to enter the Link's area would find himself in a zone of flaming glue, but subsequent intruders would be safe (from that Link, anyway). The size of the linked spells must be set at the time of casting. If the subject is larger than the estimated target, the spell either has no effect, or a weaker effect, depending on the spell. The GM's ruling on this is final.

Only subjects within the Linked area are affected, unless the spell results in an effect that would not be bound to that area – summoning a demon, for example! The triggering event may occur outside of the area, however.

The time to cast the linked spells is spent when initially set up. There is no delay when the Link is triggered – all linked spells are activated instantly.

The linked spells do not count as a spell "on" for any purpose. Every three Link spells on count as one spell on, rounding down. A mage cannot detect a Link simply by looking at it. The Mage Sight spell or the Detect Magic spell will reveal the Link, however.

If the mage knows the Conceal Magic spell, the Link may be made harder to detect by magical means. Simply adding the Conceal Magic costs to the base cost of the Link spell accomplishes this effect. The mage must know Conceal Magic to use this option.

If the subject of a linked spell is not present at the casting, and has Magic Resistance, refer to the original die roll to determine the results. If the original die roll of the linked spell is not recorded, reroll the spell for this purpose only.

Blocking and missile spells cannot be Linked – other spells can. An "instantaneous" spell like Thunderclap will happen once, when activated; then the spell will be gone. A continuing spell like Voices will start when activated, and then operate until it expires.

A single Link can be made to activate a spell when the area is entered, and deactivate the spell when the area is left. This may continue until the linked spell expires. As an example, a mage may cast Link on Continual Light. If he then rolls seven days for the duration of the Continual Light spell (168 hours), he can have the Link set up to turn the Light on when he enters the room, and turn it off when he leaves. When 168 hours of light have been used, both spells expire. For instantaneous spells, the Link vanishes after activating the other spells.

No maintenance of a Link is required, either for the Link itself, the linked spells, or any information spells cast on the Link to tell it when to trigger.

Link may also be set in reverse, to stop one or more spells when a triggering event occurs. In that case, the linked spell will last only while the caster maintains it, but the Link itself requires no maintenance.

Link can also be used for *Limiting Enchantments* (see pp. 68-69).

Duration: Until triggered, and its linked spells expire.
Base cost: 8; linked spells cannot be maintained.
Time to cast: 4 hours – there is no reduction in time to cast, no matter how well Link is learned.
Prerequisite: Delay.

I'll break my staff
Bury it certain fathoms in the earth
And deeper than did ever plummet sound
I'll drown my book.

– William Shakespeare,
The Tempest

Item

This spell may be cast permanently on any enchanted item, to determine the circumstances under which it works. The Limit spell would be used to determine the class of users that could use the item, but Link might be used, for instance, to make it work only at night. *Energy cost to cast:* 200. Any Information spells required to tell it when to trigger (e.g., Detect Magic) must be cast as separate enchantments on the item. For instance, a sword might be Linked with a Light spell and a Sense Life spell, so that it would glow in the presence of orcs.

A reversed Link may be cast permanently on any enchanted item, to deactivate it under set circumstances. This is often used to keep magic items from falling into the wrong hands. *Energy cost to cast:* 200.

Reflex

Special

This spell is cast on another spell. It converts that spell to function as a Blocking spell for one time only, then disappear. Unlike Delay or Link, a Reflexed spell is triggered by the will of the caster, not by an external event. This means that while Reverse Missiles may be Reflexed to activate if the caster sees someone shoot at him, it will not be triggered by a shot in the back. It is treated as an active defense, similar to Parry or Block for all practical purposes (except retreating does not add 3 to the roll). Casting a Reflexed spell will interrupt any spell the caster is concentrating on, and is handled like any other Blocking spell – see pp. 12-13.

When Reflex is cast, the linked spell must be cast immediately after Reflex, by the same caster. Each casting of Reflex will only work on one spell – it is not possible to have multiple spells operate as one Blocking spell. The skill roll for Reflex is rolled at the time of casting, but the roll for the linked spell is not made until it is cast as a Blocking spell. The energy cost for Reflex is paid at the time of casting Reflex, but the energy for the Reflexed spell is not paid until it is cast, whether as an active defense or otherwise. The time to cast a Reflexed spell is spent immediately after the Reflex is cast, but the success roll and energy cost are handled later.

A Reflexed spell counts as one spell "on" for spellcasting purposes – see p. 10. A Reflexed spell does not count as "on" when making the roll to cast itself. Thus, if a mage has four Reflexed spells on, any other spell he casts is at -4, but when he casts one of the Reflexed spells, it is only at -3 for the other three Reflexed spells on.

It is extravagant or even useless to cast certain spells as Reflexed!

A Reflexed spell may be cast only once. It then disappears, and no longer counts as a spell on. The effects are immediate, and the duration is instantaneous, not the duration listed for the original spell. This means that it is extravagant or even useless to cast certain spells as Reflexed! A Force Dome, for example, would stop one physical attack, then disappear – a fatiguing, but effective, defense! A Created Animal will appear, then disappear before it can make any action. (It might stop a missile during its brief existence, however. The GM may rule such an animal must be nearly equal in size to the target it is shielding.) Exceptions to this instantaneous-result rule are spells with permanent results, such as Major Healing – their effects are indeed permanent.

Any person may carry any number of Reflexes. However, only one spell may be cast in any one turn. Remember also, that if a Reflexed spell is used as an active defense, no other active defense may be used against that attack, unless All-Out Defense is chosen. See p. B366.

A Reflexed spell may be cast as a regular action – it does not have to be cast as a defense. It takes one second to cast, regardless of the time it would normally require to cast.

All normal modifiers for distance and Magic Resistance are used when casting the Reflexed spell, if the subject of the Reflexed spell is distant from the person or object the Reflex itself is cast on.

Note that a mage may cast a Reflex on another person. The caster (not the subject) may activate it at any time, using long-distance modifiers. If the linked spell is cast on a subject other than the subject of the Reflex itself, the regular modifier for the distance to that subject is added to the long-distance modifier for the caster.

Example: Felix gives Beast-Soother as a Reflexed spell to Rudolph. Felix then activates a Wizard Eye to keep tabs on Rudolph as he goes hunting. Rudolph meets a short-tempered wild boar, which Felix observes through the Wizard Eye. Rudolph cannot activate the spell. Fortunately, he does not have to! Felix activates Beast-Soother as Rudolph tries an Animal Handling roll to calm the boar. Rudolph has gone about two miles into the woods, so Felix is at -3 for long distance. The boar is 3 yards away from Rudolph, so Felix is at another -3 for the range to the subject of the Reflexed spell. He is also at -1 for having Wizard Eye on. Thus, Felix casts Beast-Soother at -7, and pays the energy for the spell at that time. Fortunately he has it at level 21, so he casts it for the maximum effect. The boar is indeed calmed, and Rudolph goes on his way while Felix rests. The Reflexed Beast-Soother spell no longer exists. If Rudolph meets another animal, he's on his own, though Felix may still be observing any action with his Wizard Eye.

Blocking spells and Missile spells cannot be Reflexed; other spells can be.

Duration: 1 hour.
Time to cast: 10 seconds.
Cost: Equal to the cost to cast the subject spell – minimum of 1. Cost to maintain is the same. Note that skill with the Reflex spell does not affect cost to cast it.
Prerequisites: Delay and Ward.

Chapter Eighteen

Mind Control Spells

The mayor's body sagged into his chair, the rictus grin of unspeakable pleasure fading from his face as he came back to himself.

"Did you enjoy yourself, then?" Rolfe said from his seat across the table.

The mayor nodded dumbly. "Would you . . . I'd like more, please."

"Of course, in due time. Have patience. Now, I believe we were discussing the possibility of taking one of your daughters as an apprentice."

"Yes, yes, and I believe you're entirely correct, entirely. Thaumaturgy would be an excellent career for Annaliese."

"Annaliese? How convenient. Why don't you go fetch the dear girl, your Excellency? We can get her settled here, and then perhaps you and I could discuss that spell you seem to enjoy so much."

"I'll do that, Master Rolfe. I'll be back in no time at all."

Rolfe looked at his aging hands as the mayor bustled out, turning them over.

"I could do better for fathers, I suppose, but it'll be worth it to get out of this body."

Mind Control spells work only on subjects with sapience (racial IQ 6+) and free will (free will is hard to define, but any being with the Automaton meta-trait (p. B263) doesn't qualify). Thus, they will not work on most animals, golems, robots, zombies, etc. As a rule, if there's a specific spell for the purpose of controlling a creature (Control Zombie, Control Elemental, etc.) it cannot be affected by Mind Control spells.

Note that none of these spells can improve a faculty that does not exist. For instance, none of the sight-related spells can restore sight to the blind, even temporarily.

The spells of the College of Mind Control all require either an unusually sharp intellect or a good grounding in the College of Communication and Empathy. They also have important cross-relationships with Body Control spells; sapient beings cannot be cleanly split into body and mind.

Keen (Sense)

Regular

This spell is actually several different spells, as with (Animal) Control or Boost (Attribute). The most common variants are Keen Vision, Keen Hearing, and Keen Taste and Smell, but variants are possible for unusual methods of perception as Detect, Scanning Sense, or Vibration Sense.

Keen (Sense) gives a +1 bonus per point of energy spent to Sense rolls of the appropriate type.

Kenn Hearing is also a Sound spell.

Duration: 30 minutes.

Cost: 1 for each point of increase (maximum 5). Half that amount (round up) to maintain.

Item

Clothing or jewelry. *Energy cost to create:* 150 per point of improvement.

Dull (Sense)

Regular; Resisted by HT

The inverse of Keen (Sense), this spell reduces all the subject's Sense rolls for the appropriate sense.

Duration: 30 minutes.

Cost: 1 to 3 to cast. Half that to maintain. The affected sense drops by 2 for each point of energy put into the spell.

Item

(a) Clothing or jewelry. The wearer's Sense score is reduced. *Energy cost to create:* 50 per point of Sense decrease. (b) Staff or wand. Usable only by mages. *Energy cost to create:* 500.

Alertness (VH)

Regular

Increases all the subject's Sense rolls.

Duration: 10 minutes.

Cost: 2 per point of increase (maximum 5). Half that to maintain.

Prerequisites: Any two variants of Keen (Sense).

Item

Clothing or jewelry. *Energy cost to create:* 300 per point of improvement.

Dullness (VH)

Regular; Resisted by HT

Reduces all of the subject's Sense rolls.

Duration: 10 minutes.
Cost: 2 to 10 to cast. Half that to maintain. Senses are reduced by 1 for each two points of energy put into the spell.
Prerequisites: Any two variants of Dull (Sense).

Item

Clothing or jewelry. The wearer's Sense scores are reduced. *Energy cost to create:* 200 per point of decrease.

Fear

Area; Resisted by Will

The subject(s) feel fright. The caster receives a +3 bonus to reaction rolls in potential combat situations and other situations where threats are effective, but suffers a -3 penalty on loyalty rolls and situations where terrorizing NPCs is counterproductive.

Duration: 10 minutes unless countered by Bravery.
Base cost: 1. Cannot be maintained.
Prerequisite: Sense Emotion *or* the Empathy advantage.

Item

(a) Any item. Always on; the item causes wearer to feel fear. *Energy cost to create:* 200. (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 300.

Panic

Area; Resisted by Will

Those in the affected area flee in mindless fear, away from the caster, for the duration of the spell. A subject who cannot escape can turn and take the All-Out Defense maneuver, if attacked.

Duration: 1 minute.
Base cost: 4 to cast. 2 to maintain.
Prerequisite: Fear.

Item

Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 500.

Terror

Area; Resisted by Will

Anyone in the area who fails to resist must make an immediate Fright Check at -3.

Base cost: 4.
Prerequisite: Fear.

Item

Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 600.

Bravery

Area; Resisted by Will-1

Makes the subject(s) fearless. Anyone under this spell must make an IQ roll to avoid being brave, should caution be called for.

Duration: 1 hour unless countered by Fear.
Base cost: 2. Cannot be maintained.
Prerequisite: Fear.

Item

(a) Any item. Always on; the item maintains a Bravery spell on its wearer. *Energy cost to create:* 500. (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 500.

Rear Vision

Regular

The subject can see all around himself, as if he had the 360° Vision advantage (p. B34).

Duration: 1 minute.
Cost: 3 to cast. 1 to maintain.
Prerequisite: Alertness.

Item

Weapon, clothing, or jewelry. *Energy cost to create:* 1,000.

Berserker

Regular; Resisted by Will

Causes the subject to fight as a berserker (see Berserk disadvantage, p. B124). If known foes are in sight (or even in earshot), they will be attacked first.

Duration: 10 minutes, or less if the fight ends and the subject comes out of the berserk rage as per p. B124.
Time to cast: 4 seconds.
Cost: 3 to cast. 2 to maintain.
Prerequisite: Bravery.

Item

(a) Staff or wand; usable only by mages. The item must include a representation of a bear, or a bear's tooth. *Energy cost to create:* 750. (b) Bearskin cloak which casts the spell on its wearer at no energy cost (normal resistance roll is possible). It serves as a Heavy Cloak with DB 2, DR 2, and 20 HP. If the cloak loses all its HP, the enchantment is destroyed. *Energy cost to create:* 500.

Foolishness

Regular; Resisted by Will

The subject suffers -1 to his IQ and IQ-based skills (including spells) for every point of energy put into the spell. The GM may also require an IQ roll to remember complex things while under the influence of this spell.

Duration: 1 minute.
Cost: 1 to 5 to cast. Half that to maintain (round up).
Prerequisite: IQ 12 or higher.

Item

(a) Any item. Always on; the item reduces wearer's IQ. *Energy cost to create:* 100 for each point of IQ reduction. (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 800.

Daze

Regular; Resisted by HT

The subject looks and acts normal, but does not notice what is going on around him, or remember it later. A dazed guard stands quietly while a thief walks past! Any injury, or successful resistance to a spell, causes the subject to snap out of the daze and return to full alert status.

Duration: 1 minute.
Cost: 3 to cast. 2 to maintain.
Time to cast: 2 seconds.
Prerequisite: Foolishness.

Item

(a) Any item. Always on; the item causes effects of Daze spell. *Energy cost to create:* 400. (b) Staff or wand.

Usable only by mages; the item must touch the subject. *Energy cost to create:* 1,000.

Mental Stun

Regular; Resisted by Will

The subject is mentally stunned until he can make an IQ roll to recover.

Cost: 2.
Prerequisite: Daze *or* Stun.

Item

(a) Any item. Always on; the wearer is mentally stunned until the item is removed. *Energy cost to create:* 500. (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 1,100.

Disorient

Area; Resisted by Will

All within the area lose their bearings. They will not immediately *feel* lost, but as soon as it becomes necessary to remember the path they've taken, or remember their position relative to a landmark, they will draw a blank. Those with Absolute Direction resist at +5.

Duration: The subjects can regain their bearings in the usual fashion (Navigation roll, back-tracking, comparing notes, etc.).
Time to cast: 10 seconds.
Base cost: 1. Cannot be maintained.
Prerequisite: Foolishness.

Item

Staff or wand. Usable only by mages. *Energy cost to create:* 200.

Encrypt

Regular

When cast on any writing or other visual information medium, this spell makes it unreadable to any but the caster. Anyone can see the writing, but they will be convinced that it is hopelessly arcane, complex, or foreign. Other media dependent on the senses (including any arcane taste- or smell-based "writing" that might be used by nonhuman races, as well as Braille in modern settings) may be encrypted if the GM permits it.

Duration: 1 week.
Cost: 1 for up to 1000 words of plaintext; 2 for up to 10,000 words of plaintext; 3 for up to 100,000 words of plaintext; +1 for each additional 100,000 words. Thus, a stack of six typical ***GURPS*** *Fourth Edition* sourcebooks, at about 175,000 words per book, would cost 12 energy to encrypt.
Prerequisite: Daze.

Item

(a) Any writing may be permanently encrypted for 100 times the cost to cast the spell. (b) Staff, wand, or jewelry. *Energy cost to create:* 100.

Fascinate

Regular or Blocking; Resisted by Will

Holds the subject (a sapient being) motionless and unaware of the passage of time as long as the caster maintains eye contact and concentration. Darkness breaks eye contact! May be cast as a Blocking spell if the subject is entering Close Combat range. The caster may move slowly (Move 1) while maintaining eye contact if he knows the spell at level 15 or better; each yard he moves away from the subject allows it another resistance roll to break the spell. The spell is also broken by any attack (physical or magical) on the subject.

Duration: Indefinite.
Cost: 4.
Prerequisite: Daze.

Item

Mirror, painting, or statuette. Always on. *Energy cost to create:* 1,000. This item is used as a guardian in some places (the spell is broken when the victim falls unconscious through starvation, dehydration, or exhaustion).

Forgetfulness

Regular; Resisted by Will or skill

Causes the subject to forget one fact, skill, or spell temporarily. The skill or spell cannot be used while Forgetfulness is in effect. If (for instance) a forgotten spell is a prerequisite for other spells, the other spells *can* still be used, at -2 to skill.

Duration: 1 hour.
Cost: 3 to cast. 3 to maintain.
Time to cast: 10 seconds.
Prerequisites: Magery 1 and Foolishness.

Item

Any item. Always on; the item causes the wearer to forget one thing specified when the item is created. The wearer will remember again an hour after the item is removed. *Energy cost to create:* 500.

Sleep

Regular; Resisted by HT

The subject falls asleep. If standing, he falls – but this does *not* wake him. He can be awakened by a blow, loud noise, etc., but will be mentally stunned (see *Effects of Stun,* p. B420). The Awaken spell (p. 90) will arouse him instantly. If not awakened, he will sleep for around eight hours and awaken normally.

Cost: 4.
Time to cast: 3 seconds.
Prerequisite: Daze.

Item

(a) Any item. Always on; the item puts wearer to sleep until it is removed. When the item is created, the caster can specify whether its effects are gradual or immediate. *Energy cost to create:* 600. (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 1,200.

Wisdom

Regular

Raises the subject's IQ temporarily. This raises his ability with skills, but not with spells! The subject's IQ cannot become higher than the caster's.

Duration: 1 minute.
Cost: 4 for every point of IQ increase (maximum of 5). Same cost to maintain.
Prerequisites: At least six other Mind Control spells.

Item

(a) Any item. Always on; the wearer's IQ is raised while the item is worn! This is a very rare and prized item. *Energy cost to create:* 2,000 per point of increase (maximum 5). (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 2,000.

Boost (Attribute)

Regular or Blocking

As listed under *Body Control Spells*, p. 37.

Weaken Will

Regular; Resisted by Will

Temporarily reduces the subject's Will.

Duration: 1 minute.
Cost: 2 per point of Will reduction (maximum Will reduction of 5). Half that to maintain.
Prerequisites: Magery 1 and Foolishness.

Item

(a) Any item. Always on; the wearer has his Will weakened. *Energy cost to create:* 100 for each point of Weak Will. (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 700.

Strengthen Will

Regular

Temporarily increases the subject's Will.

Duration: 1 minute.
Cost: 1 for every +1 to Will (maximum Will increase of 5). Half that to maintain.
Prerequisites: Magery 1 and at least six Mind Control spells.

Item

(a) Any item. Always on; the wearer gains up to 5 points of Will. This is a rare item. *Energy cost to create:* 1,000 per point of Will (maximum of 5). (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 1,500.

Memorize

Regular

As listed under *Knowledge Spells*, p. 105.

Loyalty

Regular; Resisted by Will

Makes the subject loyal to the caster. The subject follows any direct order the caster gives; in the absence of direct orders, he acts in the caster's best interest as he understands it. The spell is immediately broken if the caster attacks the subject. If the subject is told to do something very hazardous or against his normal code of behavior (GM's decision), he gets an IQ roll to break the spell.

Duration: 1 hour.
Cost: 2 to cast. 2 to maintain. Double this cost if the subject does not know the caster, or triple if the subject is a foe of the caster.
Time to cast: 2 seconds.
Prerequisites: Bravery and two other Mind Control spells.

Item

(a) Any item. Always on; the wearer becomes loyal to the original creator of the item (when that person dies, the item loses its power). *Energy cost to create:* 500. Double this cost for an item that makes the wearer loyal to some specific third person. (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 2,000.

Command

Blocking; Resisted by Will

Give a subject one *immediate* command – a word and a gesture, or at most two words – which the subject must obey. If the subject is unable to fulfill the command immediately or on his next turn, the spell has no effect.

Examples:
"Drop it!" – the subject drops whatever he was holding.
"Look!" – the subject looks in the direction the caster indicates.
"Wait!" – the subject takes the Wait maneuver on his next turn.

Cost: 2.
Prerequisites: Magery 2 and Forgetfulness.

Item

Wand, staff, or jewelry. *Energy cost to create:* 500.

Drunkenness

Regular; Resisted by Will

Makes the victim temporarily intoxicated: he is loud, cheerful, and badly coordinated. Both IQ and DX are reduced by the amount of energy put into the spell. If the victim is a PC, he should be told he feels drunk, and encouraged to roleplay it! When the spell ends, it does so instantly (no hangover).

Duration: 1 minute.
Cost: 1 for each point of IQ and DX lost (maximum 5). Half that to maintain.
Time to cast: 2 seconds.
Prerequisites: Foolishness and Clumsiness.

Item

(a) Any item. Always on; the item causes the effects of the Drunkenness spell. *Energy cost to create:* 200 per point of reduction. (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 800.

Madness

Regular; Resisted by Will-2

The subject is driven temporarily insane; this should be roleplayed. The caster selects the severity of madness he wishes to inflict, and the GM decides which madness at that severity is appropriate to the situation (rolling a die is a perfectly acceptable way to make this decision). On a critical success, the caster may select the madness to be inflicted.

Unless noted otherwise, each madness is identical to the disadvantage of the same name. Some madnesses are equivalent to disadvantages that require self-control rolls. The subject always fails his self-control rolls against the magical madness.

Mild: Delusion [-5], Flashbacks [-5], Phantom Voices [-5], Phobia [-5].
Moderate: Bestial [-10], Confused, Delusion [-10], Flashbacks [-10], Paranoia [-10], Phantom Voices [-10].
Severe: Berserk, Bestial [-15], Chronic Depression, Delusion [-15], Hallucinations (as the *Hallucinating* incapacitating condition, p. B429), Phantom Voices [-15].
Extreme: Catatonia (as the *Daze* incapacitating condition (p. B428), but the subject cannot snap out of it until the spell ends), Flashbacks [-20].

Duration: 1 minute.
Cost: 2 for a Mild madness; 3 for Moderate; 4 for Severe; 6 for Extreme. Half that to maintain.
Time to cast: 2 seconds.
Prerequisite: Forgetfulness *or* Drunkenness.

Item

(a) Any item. Always on; the item causes the effects of the Madness spell. When the item is created, the caster can specify whether its effects are gradual or immediate, and (if desired) a specific type of madness. *Energy cost to create:* 500. (b) Staff or wand. Usable only by mages. *Energy cost to create:* 1,000.

Emotion Control

Area; Resisted by Will

Instills the subject(s) with any one emotion the caster chooses. There is no "game system" effect unless the GM feels it necessary, but subjects should roleplay it! Some sample emotions: love, hate, lust, anger, greed, jealousy, hunger, fear, sadness, joy, peace, unrest, depression, patriotism, boredom.

Duration: 1 hour.
Base cost: 2. Cannot be maintained; spell must be recast.
Prerequisite: Loyalty *or* Mental Stun.

Item

(a) Any item. Always on; the wearer is affected by the emotion instilled in the item when it was created. *Energy cost to create:* 300. (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 1,000 for an item that can instill only one emotion, or 2,200 for one that instills any desired emotion.

Mass Daze

Area; Resisted by HT

As Daze, but can be cast over an area.

Duration: 1 minute.
Base cost: 2 to cast. 1 to maintain. Minimum radius 2 yards.
Time to cast: 1 second for each energy point spent.
Prerequisites: Daze and IQ 13 or higher.

Mindlessness (VH)

Regular; Resisted by Will

Reduces the subject's IQ to 1 temporarily, reducing him to babbling idiocy. The subject cannot cast or maintain spells, use skills, talk, or other actions determined by the GM. The subject can walk, laugh, cry, drool, eat with his hands, react to heat and cold, etc. He has a very short attention span and notices only colors, pretty things, movement, and other things that a baby would be curious about. If the subject is a PC, the player should roleplay this state.

Duration: 1 minute.
Cost: 8 to cast. 4 to maintain.
Time to cast: 5 seconds.
Prerequisites: Magery 2 and Forgetfulness.

Item

Any item. The item casts Mindlessness on its wearer. *Energy cost to create:* 800.

Compel Lie

Regular; Resisted by Will

The subject becomes unable to tell the truth: he cannot make any statement he believes to be true, and in fact feels compelled to tell lies, although he may (if he realizes that he is under a spell) choose to remain silent.

Compel Lie and Compel Truth resist each other. Aura may be required to find out which spell has won out!

This is also a Communication and Empathy spell.

Duration: 5 minutes.
Cost: 4 to cast. 2 to maintain.
Prerequisite: Emotion Control.

Item

Torc or heavy necklace; the wearer cannot tell the truth. *Energy cost to create:* 600.

Lure

Area; Resisted by Will

Each being who steps within this spell's area of effect feels compelled to approach the center of the affected region. The GM should roll the creature's resistance in secret and then tell the unlucky victim that he "feels curious about the chest" or some such subtle hint. Once the victim has reached the center, he is immune to the spell until he leaves the affected area (if he returns, he will once again be "attacked" by the spell).

Lure and Avoid are antagonistic spells and thus resist each other.

Duration: 1 hour.
Base cost: 1 to cast. Same cost to maintain.
Time to cast: 10 seconds.
Prerequisite: Emotion Control.

Item

An area may be made permanently attractive for 100 times normal energy cost.

Mass Sleep

Area; Resisted by HT

As Sleep, but can be cast over an area.

Base cost: 3. Minimum radius 2 yards.
Time to cast: 1 second for each energy point spent.
Prerequisites: Sleep and IQ 13 or higher.

Peaceful Sleep

Regular; Special Resistance

The subject gets an undisturbed night's sleep. This spell cures insomnia, allows sleep in noisy, disruptive environments, and protects against nightmares and the Nightmare spell. This period counts double in terms of HP and FP recovery. The caster can awaken the subject with a word. Otherwise, subject cannot be awakened, except by injury or with the Awaken spell.

This spell works only on a willing subject; otherwise, resistance is automatic.

Duration: 8 hours.
Cost: 4.
Time to cast: 30 seconds.
Prerequisites: Sleep and Silence.

Item

(a) Wand or staff that gives the power to cast this spell. *Energy cost to create:* 900. (b) Any item. If the wearer is willing to sleep, the item puts him to sleep as per the spell; he awakens in eight hours, or if the item is removed. *Energy cost to create:* 800.

Sickness

Regular; Resisted by HT

Makes the subject feel sick and nauseated (dizzy, vomiting, etc.). He may run if necessary (at half his normal Move) but may do nothing else except maintain existing spells and give very simple answers. When the spell wears off, the sickness vanishes instantly.

This is also a Body Control spell.

Duration: 1 minute.
Cost: 3 to cast. 3 to maintain.
Time to cast: 4 seconds.
Prerequisite: Drunkenness *or* Pestilence.

Item

(a) Any item. Always on; the item causes effects of Sickness spell. *Energy cost to create:* 300. (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 1,500.

Will Lock

Area; Resisted by (ST+Will)/2

Creates a circular zone that traps anyone inside at the moment of its creation. The barrier is purely mental, working on the wills of the people trapped. For this reason, the subjects *must* be aware they are being circled – if they are not, the Will Lock has no effect on them.

Each being trapped inside has one chance to escape each day; roll a Regular Contest between the being's (ST+Will)/2 and the Will Lock's Endurance (p. 10). Each being that escapes weakens the Will Lock's Endurance by 1. Upon reaching Endurance 0 or on a critical failure on its part, the Will Lock dissipates. A critical success by an escaping being does not break the Will Lock. The spell can also be broken if an outside party scuffs the circles away.

The beings trapped can freely cast spells or throw missiles across the Will Lock's boundary. An interesting method of escape is to be knocked unconscious and then thrown bodily outside the Will Lock!

Duration: One day.
Base cost: 3 to cast. Cannot be maintained; must be recast.
Time to cast: As long as it takes the caster to circle the area three times widdershins (counter-clockwise).
Prerequisite: Emotion Control.

Oath

Regular; Special Resistance

Similar to Great Geas, but works on a willing subject only. Although the caster casts the spell, the subject must speak the oath.

The subject may knowingly attempt to break his oath (rolling vs. Will) no more than once per day. The spell resists the attempt; if the subject overcomes the resistance, he manages to break the oath just this once. A critical success by the subject or a critical failure by the spell breaks the spell. The spell may otherwise be broken only by Remove Curse.

Unknowing attempts, such as when the subject is tricked into breaking his oath, are not Resisted by the spell.

Duration: Permanent.
Cost: 4
Time to cast: 1 minute.
Prerequisites: Magery 1 and Emotion Control.

Item

Jewelry. Always on; only affects the wearer. *Energy cost to create:* 550.

Permanent Forgetfulness (VH)

Regular; Resisted by Will or skill

As Forgetfulness, but permanent. The subject also forgets he ever knew that thing or that he was enchanted. Another mage with this spell can restore forgotten things by recasting the spell and winning a Quick Contest of Spells with the original Permanent Forgetfulness spell.

Duration: Permanent.
Cost: 15.
Time to cast: 1 hour.
Prerequisites: Magery 2, Forgetfulness, and IQ 13 or higher.

Item

Any item. Same effect as for Forgetfulness item, but if it is worn for a full day, the thing is forgotten forever unless the spell is removed by Remove Curse or an opposed Permanent Forgetfulness spell. *Energy cost to create:* 1,000.

Recall

Regular

As listed under *Knowledge Spells*, p. 106.

Vigil (VH)

Regular

Skip a night's sleep with no ill effects. Each successive night's casting on the same subject is at a cumulative -3 to skill.

Duration: 1 night.
Cost: 8. Cannot be maintained, but may be recast.

Prerequisites: Magery 2, Sleep, and Lend Energy. At the GM's option, "holy" status may be sufficient.

Item

Headgear or jewelry. Usable only by a mage or (at the GM's option) by "holy" beings. *Energy cost to create:* 1,000. Rumors persist of an "always-on" version.

Relieve Madness

Regular; Resisted by Madness and Permanent Madness

As listed under *Healing Spells*, p. 92.

Charm

Regular; Resisted by Will

The subject becomes caster's faithful slave until the spell expires, following any orders, no matter how dangerous. There is no mental link – the caster must give his orders to the subject verbally or in writing. However, the subject will protect the caster without orders. In all other respects the subject will be mentally normal and alert. He will be unable to explain (and unwilling to discuss or even think about) his loyalty to the caster.

Duration: 1 minute.
Cost: 6 to cast. 3 to maintain.
Time to cast: 3 seconds.
Prerequisites: Magery 1, Loyalty, and seven other Mind Control spells.

Item

(a) Any item. Always on; the wearer becomes loyal to the original creator of the item (when that person dies, the item loses its power). *Energy cost to create:* 1,000. Double this cost for an item that makes the wearer loyal to some specific third person. (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 3,000.

Ecstasy (VH)

Regular; Resisted by Will

The subject feels an incapacitating rush of pleasure; he can take no action for the duration, not even to move out of harm's way! High/Low Pain Threshold is irrelevant.

Repeated exposure can be dangerous to the subject. If any character has been the subject of an Ecstasy spell three times within 10 days, he must make a Will+2 roll after the third time, and after each subsequent time until five days pass without exposure to the spell. If any of these rolls are failed, the subject gains an Addiction (see p. B122) to the spell, and will beg the caster (or anyone else who is known to have the spell) for more! Withdrawal from the Ecstasy spell follows the normal rules for a psychological dependency (see *Drug Withdrawal*, p. B440).

Duration: 10 seconds.
Cost: 6 to cast. Cannot be maintained.
Time to cast: 3 seconds.
Prerequisites: Magery 2 and Emotion Control.

Item

(a) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 800. (b) Headgear. Always on. The wearer may not voluntarily remove the item, and addiction occurs within 15 minutes. *Energy cost to create:* 1,300.

Enthrall

Special; Resisted by Will

The caster tells an enthralling tale. Anyone within earshot who knows the language and pays attention falls under the spell, resisting with Will. An hour of real time passes, but the victims notice only a minute slipping by. Anyone who resists will perceive the caster and his victims as paralyzed, although prolonged examination will reveal they are moving, very slowly. Any subject that is attacked or shaken breaks free of the spell (in the latter case, the victim gets an extra resistance roll for every second that he's disturbed).

This spell may never be higher than the caster's Public Speaking skill, or Performance if the story is mimed or acted out.

Duration: 1 hour (real time).
Cost: 3 to cast. 3 to maintain.
Prerequisites: Forgetfulness, Daze, and Slow.

Item

Staff, comedian's mask, or musical instrument. *Energy cost to create:* 500.

Permanent Madness (VH)

Regular; Resisted by Will-2

As for Madness, but permanent.

Duration: Permanent.
Cost: 20.
Time to cast: 10 minutes.
Prerequisites: Magery 2, Madness, and IQ 13 or higher.

Dream Sending

Regular; Resisted by Will

As listed under *Communication and Empathy Spells*, p. 45.

Dream Projection

Regular

As listed under *Communication and Empathy Spells*, p. 46.

False Memory

Regular; Resisted by Will

Insert a single, simple false memory into a subject's mind. This spell is often used to avoid paying bills, and is considered highly illegal in many areas.

If the implanted memory conflicts with a real memory, the subject's brain will usually fit the new one in anyway, leaving him slightly confused but convinced. In case of extreme direct conflict – "You remember killing the duke" (when the subject saw the *caster* kill the duke!) – the subject should be allowed a bonus on his resistance roll; the example above would be a +5 for a loyal subject, but probably only +1 for somebody who *wanted* to kill the duke.

Duration: Variable (see below). When the spell ends, the subject gets a second resistance roll, at -1 for each day the spell lasted. If this roll is failed, the subject will believe the false memory indefinitely, but is likely to remember the truth at some unpredictable time, perhaps as a result of a shock.
Cost: 3 for a duration of an hour, or 8 for a whole day. Cost to maintain is 3 per hour if cast for an hour, or 4 per day if cast for a day.
Time to cast: 5 seconds.
Prerequisites: Forgetfulness and six other Mind Control spells.

Item

Any item. Always on; the item causes the wearer to remember one false memory specified when the item is created. The wearer will forget the memory one hour after the item is removed. *Energy cost to create:* 500.

Avoid

Area

Makes the subject area unattractive to all creatures except the caster. Gazes will be averted, and approaching characters will feel an intense unease, an urge to be somewhere else. The spell resists attempts to look at it or to approach it (roll caster's skill vs. searcher's Will). Victims won't be aware of the repulsion if it can act in a subtle way (e.g., you just felt like sitting in front rather than in the middle . . .). This is a subtle spell, and GMs should roll in secret to see if it works. If it does, the victims should not be told "You can't look in that closet," but just "you see nothing." The spell made them think they had checked the closet, or made each searcher think that another one had checked it . . . and so on.

If a single caster uses both Hide and Avoid, the GM should not check for the results of the Hide spell unless a searcher penetrates the Avoid spell and looks in the caster's direction.

Duration: 1 hour.
Base cost: 3 to cast. 3 to maintain.
Time to cast: 1 minute.
Prerequisites: Hide, Fear, and Forgetfulness.

Item

An area can be made permanently "avoided" at an energy cost of 100 times normal.

Nightmare

Regular; Resisted by Will

When cast on a sleeping subject, this spell causes a nightmare of the caster's choice. Knowledge of the subject's fears and phobias gives a +2 to effective skill. The subject gets an IQ-4 roll to realize the nightmare was caused by hostile magic. If the spell succeeds, the subject gets no rest from the night's sleep, and instead loses 2 FP. Dispel Magic will stop the nightmare while it is occurring, preventing FP loss. This spell is also countered by the Peaceful Sleep spell.

If the spell is recast the next night, the effects are cumulative. If the subject's FP falls to zero due to this spell, he falls into a coma and will lose 1d HP each day until he dies, unless Dispel Magic is cast.

Duration: 1 hour.
Cost: 6.
Time to cast: 1 minute.
Prerequisites: Magery 2, Death Vision, Fear, and Sleep.

Item

(a) Wand or staff that gives the power to cast this spell. *Energy cost to create:* 800. (b) Any item. If the item is worn for more than eight hours a day, it causes a nightmare as per the spell, even if taken off at night! *Energy cost to create:* 500.

Hallucination

Regular; Resisted by Will

The subject's perceptions are addled. He is completely convinced that one thing that is not present *is* (or vice versa); he can see it, hear it, feel it, and so on. This is similar to an illusion in some ways, but it exists entirely in the mind of the subject.

The hallucination must concern the presence or absence of a single "thing": one person the subject knows or knew, one crowd of revelers, one pair of shackles on the subject's wrists, one pride of lions . . . If it can be described as a single entity in English (without amazing gymnastics), then it should pass. The GM's judgment is final, as usual.

The hallucination does not require concentration: the subject supplies, unconsciously, all the "realism" necessary. By concentrating, the caster can "direct" the hallucination – put words in the mouth of the absent person, have the revelers head off in a certain direction or start singing a particular song, etc.

Impossible or obviously false hallucinations (a long-dead uncle, for example) are Resisted at a bonus of up to +5.

Duration: 1 minute.
Cost: 4 to cast. 2 to maintain.
Time to cast: 2 seconds.
Prerequisites: Madness and Suggestion.

Item

(a) Any item. Always on; the item causes the effects of Hallucination spell. When the item is created, the caster must specify the nature of the hallucination. *Energy cost to create:* 1,000. (b) Staff or wand. Usable only by mages. *Energy cost to create:* 1,200.

Lesser Geas (VH)

Regular; Resisted by Will

Give a subject one command, which the subject must obey. This must be a command to do one specific thing. It must be reasonably possible, in the GM's opinion. "Destroy every tree on this continent" is not a legal geas (at least in a low-tech world). Until the geas is fulfilled or removed (only Remove Curse will do this), the subject must make it his first priority.

Duration: Permanent until fulfilled.
Cost: 12.
Time to cast: 30 seconds.
Prerequisites: Magery 2 and at least 10 Mind Control spells, including Command.

Item

Any item. Always on; the item places a Lesser Geas (specified at the time of its creation) on the wearer. The wearer may not voluntarily remove the item; if it is removed anyway, the geas will persist for a month unless removed by Remove Curse. *Energy cost to create:* 2,000.

Suggestion

Regular; Resisted by Will

Instills a suggestion in the subject's mind. It must be one simple idea; language is no barrier unless the subject's language cannot encompass the idea. If the suggestion goes against the subject's personal safety, it is Resisted at +5; if it goes against his beliefs, convictions or knowledge, it is Resisted at +3. The subject will try to accomplish the suggestion or otherwise act as if the idea was his own.

Duration: 10 minutes.
Cost: 4 to cast. 3 to maintain.
Time to cast: 10 seconds.
Prerequisites: Emotion Control and Forgetfulness.

Item

Any. Always on; the item causes wearer to have one idea, specified when the object was created. The suggestion dissipates an hour after the object is removed. *Cost to create:* 400 energy. (b) Wand, staff, or jewelry. Usable only by mages; the item must touch the subject. *Cost to create:* 500 energy.

Mass Suggestion

Area; Resisted by Will

As Suggestion, but affects an area and all those within it with a single suggestion.

Duration: 10 minutes.
Base cost: 4 to cast. 2 to maintain (minimum radius is 2 yards).
Time to cast: 1 second per energy point.
Prerequisite: Suggestion.

Item

Musical instrument. The user must be skilled in it (use the lower of spell and musical skills). *Energy cost to create:* 1,500 energy.

Glib Tongue

Regular; Resisted by Will

The caster can mystically make anything he says be what the subject wants to hear. Whatever the caster says, even total gibberish, will find hearty agreement. However, the caster won't have a clue what the target thinks he's saying . . . GMs may give up to +3 on reaction rolls, depending on how cleverly the PC roleplays this.

Duration: 5 minutes.
Cost: 2 to cast. 1 to maintain.
Prerequisite: Suggestion.

Item

Wand, staff, or jewelry. *Energy cost to create:* 650.

Enslave (VH)

Regular; Resisted by Will

Like the Charm spell, but permanent. The subject will follow the caster's orders until the spell ends or is removed. At any time the caster concentrates, he can form a mental link with the subject to see through the subject's eyes, hear through his ears, and give orders.

Cost: 30.
Prerequisites: Charm and Telepathy.

Great Hallucination (VH)

Regular; Resisted by Will

Like Hallucination, but the subject's entire *environment* can be falsified. He might see himself stranded on a cliff side, in a crowded city street, in the middle of a lake, etc. The only limits are the fiendishness of the caster's imagination and the judgment of the GM.

For any significant changes to occur in the subject's new surroundings, concentration on the part of the caster is required, as per Hallucination. If the caster *dramatically* changes the subject's perceptions, the subject may be given a new resistance roll, at the GMs option.

Example: the subject is "placed" on top of a giant pillar of stone over a lake of molten lava. By concentrating, the caster could cause the pillar to begin sinking or bucking beneath the subject's feet, or cause a flying monster to appear. If the caster suddenly decided that the lava turned into a green meadow, however, the subject would get a new Resistance roll.

This spell can be used for positive effect; if the subject is required to walk a narrow log across a thousand-foot-deep chasm, he might find it easier if the log spans only a shallow streambed . . .

Duration: 1 minute.
Cost: 6 to cast. 3 to maintain.
Time to cast: 4 seconds.
Prerequisites: Magery 2 and Hallucination.

Item

(a) Any item. Always on; only affects the wearer. When the item is created, the caster must specify the nature of the hallucination. *Energy cost to create:* 2,500. (b) Staff or wand. Usable only by mages. *Energy cost to create:* 900.

Great Geas (VH)

Regular; Resisted by Will

Give a subject one continuing command, such as "Never touch weapons" or "Slay all orcs." A Great Geas does not have to be reasonably possible; it can occupy the subject for the rest of his life unless removed. Only Remove Curse will negate a geas. A critical failure on a Great Geas costs the caster an IQ point.

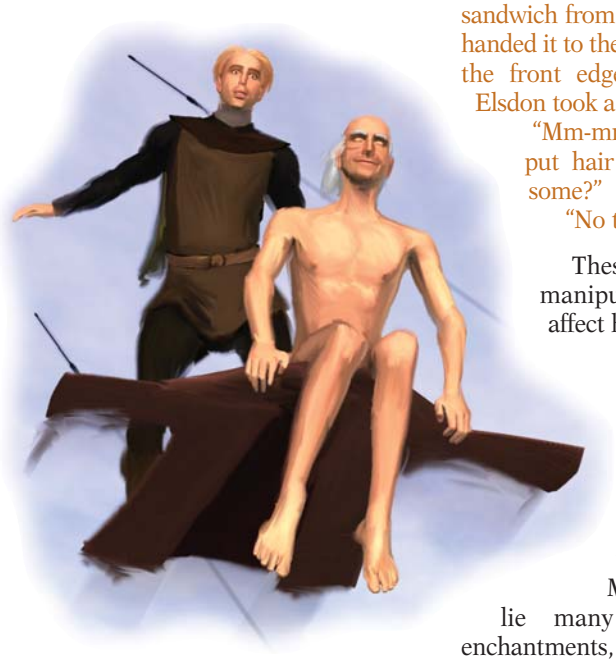
Duration: Permanent.
Cost: 30.
Time to cast: 1 minute.
Prerequisites: Magery 3 and at least 15 Mind Control spells, including Lesser Geas.

Item

Any item. Always on; the item places a Great Geas (specified at time of its creation) on its wearer. The wearer may not voluntarily remove the item; if it is removed, the geas will persist for a year unless removed by Remove Curse. *Energy cost to create:* 4,000.

Chapter Nineteen

Movement Spells



Rudolph could think of better ways to leave a city. This was precarious, unstable, and worst of all undignified.

An arrow sped by to the left. Fortunately, the city guard seemed too bemused by the means of their departure to do much about stopping them.

"Elsdon, are you sure this was the only way?" he asked.

"Assuming that you wanted to come, yes," the mage replied. "I could have flown off by myself; I still can, if you'd prefer."

"No, no, that's fine," Rudolph replied hastily. They sailed over the city walls, heading south.

"Hey, Rudolph, would you mind pulling a sandwich out of my pocket? I'm going to need a snack if I'm going to be flying this thing over the river."

Rudolph inched over to the edge of the fabric and reached around to feel around the bottom of their makeshift magic carpet. Eventually, he found the lumpy mass of Elsdon's pocket and managed to extract a slightly squashed sandwich from it. He sat back up and handed it to the mage sitting naked on the front edge of the flying robe. Elsdon took a big bite.

"Mm-mm. Liver paste! That'll put hair on your chest. Want some?"

"No thanks," said Rudolph.

These spells physically manipulate the subject or affect his movement abilities. Unless stated otherwise, Movement spells have a built-in acceleration of just under 1 G; Movement spells can change a subject's speed by up to 10 yards per second. Movement spells underlie many other spells and enchantments, including the entire Gate college.

Haste

Regular

Increases the subject's Move and Dodge scores by up to 3.

Duration: 1 minute.

Cost: 2 to cast *per point* added to the subject's Move and Dodge. Half that to maintain.

Time to cast: 2 seconds.

Item

Shoes or jewelry. Only affects the wearer. *Energy cost to create:* 250 for every point added to Move score.

Apportation

Regular; Resisted by Will

Move physical objects without touching them. This spell levitates its subject at Move 1 – not fast enough to do damage with it. Living subjects get to resist with Will.

Duration: 1 minute.

Cost: Varies with the weight of the object. Cost to maintain is the same.

Weight	*Energy Cost*
less than 1 pound	1
up to 10 pounds	2
up to 50 pounds	3
up to 200 pounds	4
every additional 100 pounds	+4

Prerequisite: Magery 1.

Item

Staff or wand. Usable only by mages; the item must touch or point at the subject. *Energy cost to create:* 900.

Glue

Area

Makes a surface extremely sticky, trapping anyone stepping onto the surface as if by a Rooted Feet spell (p. 36). If a victim successfully resists, he is free to act until he moves more than a yard from his original position, at which point he becomes stuck again if he is still in the Glue area.

Duration: 10 minutes.

Base cost: 3 to cast. Same cost to maintain.

Prerequisite: Haste.

Item

(a) Wand, staff, or jewelry. *Energy cost to create:* 900 energy. (b) An area may be made permanently sticky for 100 times the normal casting cost.

Grease

Area

Makes a surface extremely slippery. Anyone stepping onto the surface must roll against DX-2 for every yard he moves within the affected area. If he fails the roll, he falls down. Another DX-2 roll is necessary to stand up (but not to sit or kneel). All close combat,

melee attacks, and active defenses are at -3; other physical skills, including missile and thrown weapon attacks, are at -2 for bad footing. This spell can also be cast on vertical surfaces to make climbing impossible. The GM will have to use his judgment with surfaces of intermediate tilt.

Unlike Ice Slick, whose effects are nearly identical, Grease cannot be seen by normal means. Also, crampon boots are ineffectual against a Greased surface. Grease and Glue resist each other.

Duration: 10 minutes.
Base cost: 3 to cast. Same cost to maintain.
Prerequisite: Haste.

Item

(a) Wand, staff, or jewelry. *Energy cost to create:* 700. (b) An area may be made permanently slippery for 100 times the normal casting cost.

Hinder

Regular; Resisted by HT

As listed under *Body Control Spells,* p. 36.

Deflect Missile

Blocking

Deflects *one* missile about to hit the subject – including any Missile spell. Counts as a parry for combat purposes. If the caster is not the subject, apply distance modifiers as for a Regular spell. Deflected attacks may still hit a target *beyond* the subject.

This is also a Protection and Warning spell.

Cost: 1.
Prerequisite: Apportation.

Hold Fast

Blocking

This spell negates knockback from any source.

Cost: 1 for every yard of knockback nullified.
Prerequisite: Apportation.

Item

Footwear or jewelry. The item must bear a picture of an ox or an oak tree. Always on. *Energy cost to create:* 300.

Increase Burden

Regular; Special Resistance

Increases the weight of an object; the object's wearer (if such is the case) resists using Will. Useful to slow down a charging knight or to keep things from being blown away by the wind.

Duration: 10 minutes.
Cost: 1 per 25 pounds original weight (or fraction) to double, twice that to triple it and twice again to quadruple it. Half that to maintain.
Time to cast: 3 seconds.
Prerequisite: Apportation.

Jump

Regular

Improves the subject's ability to jump, increasing his Basic Move for jumping purposes only.

Duration: 1 minute.
Cost: 1 to 3 to cast. Cannot be maintained. The increase in the subject's Basic Move is equal to twice the energy put into the spell.
Prerequisite: Apportation.

Item

Staff, jewelry, or footwear. The item must bear a picture of a grasshopper, rabbit, or deer. *Energy cost to create:* 250 per point of Jumping bonus the item can give (maximum 6).

Levitation

Regular; Resisted by ST or Will

Subject must be a living being. The subject floats through the air, moving as the caster wills. Moving a levitating subject requires Concentration unless the caster is the subject. Leaving a subject suspended in midair requires no concentration. Maximum Move for a levitated being is 3, horizontally or vertically. A caster who levitates uses DX-based skills normally; other subjects use them at -3.

Duration: 1 minute.
Cost: 1 per 80 pounds (minimum 2) to cast. Half (round up) to maintain.
Time to cast: 2 seconds.
Prerequisite: Apportation.

Item

(a) Staff, wand, or jewelry; only affects the wearer. *Energy cost to create:* 800.

Lighten Burden

Regular

Reduces the weight of any equipment the subject is carrying.

Duration: 10 minutes.
Cost: 3 for 25% reduction; 5 for 50% reduction. Half that (round up) to maintain.
Time to cast: 3 seconds.
Prerequisite: Apportation.

Item

A backpack that reduces the weight of equipment held in it. *Energy cost to create:* 300 for 25% reduction; 600 for 50% reduction.

Locksmith

Regular

Allows fine manipulation of small parts – e.g., the inside of a lock. Adds 5 to the subject's Lockpicking skill by letting him move tumblers, etc., without touching them, if he has normal tools available. Lets a wizard with no tools at all attempt to open a lock at his normal Lockpicking skill. Gives a similar bonus for Mechanic and other skills where a "third hand" is useful.

Duration: 1 minute. (One minute allows one attempt at the average lock.) Once open, a lock stays open until closed.
Cost: 2 to cast. 2 to maintain.
Prerequisite: Apportation.

Item

A golden key, or a golden amulet in the shape of a key. Its intrinsic value must be at least $300. *Energy cost to create:* 1,000.

Long March

Regular; Resisted by ST

Halves the subject's long-distance travel rate (p. B351). It does not affect the combat Move rate or Basic Speed.

Duration: 1 day.
Cost: 3 to cast. Cannot be maintained.
Time to cast: 1 minute.
Prerequisites: Magery 1 and either Clumsiness or Debility.

Item

(a) Staff, wand, or jewelry. Usable only by mages. *Energy cost to create:* 400. (b) Footwear. The item must bear a picture of a snail. Always on; only affects the wearer. *Energy cost to create:* 300.

Poltergeist

Missile; Resisted by HT

Hurls the subject at caster's chosen target. The effect is as if a man with ST 15 threw the subject (see *Throwing*, p. B355). When it strikes something, it does crushing damage. A DX-4 or Throwing skill roll is necessary to hit the target, who may dodge or block normally. Note that only the subject of the spell – not the target – can resist! 1/2D 20, Max 60, Acc 1. Figure distance to the target from either the caster or the thing being thrown, whichever starts out farther away.

Cost: 1 point for an item up to 10 pounds (1d damage); 2 points for something up to 25 pounds (1d+1 damage).
Prerequisite: Apportation.

Item

Staff or wand. Usable only by mages; the item must point at the subject and then at the target. *Energy cost to create:* 1,000.

Quick March

Regular

Doubles the subject's long-distance travel speed. At the end of the day's travel, the subject loses 10 FP and must sleep. This spell has no effect on Move in combat or on Basic Speed.

Duration: 1 day's march.
Cost: 4. Cannot be maintained.
Time to cast: 1 minute.
Prerequisites: Magery 1 and Haste.

Item

Footwear or jewelry. Only affects the wearer. *Energy cost to create:* 400.

Slow Fall

Regular

Slows the velocity of a falling subject to 1 yard per second. No damage will be suffered upon landing on a normal surface (spikes, etc. would still do half damage). This spell can be cast before the subject becomes airborne. If the subject is already falling, he/it will fall another 10 feet (assuming standard gravity of 1G) in the second normally required to cast this spell.

Duration: 1 minute.
Cost: 1 per 50 pounds of weight. Half that to maintain.
Prerequisite: Apportation.

Item

Clothing or jewelry. *Energy cost to create:* 1,000.

Wallwalker

Regular

Walk on walls or ceilings as if they were level ground. The subject must keep at least one hand or foot in contact with the surface; otherwise, the spell is broken. Combat is at -2 for both the wallwalker and his foe because of weird angles.

Duration: 1 minute.
Cost: 1 per 50 pounds minimum of 2 points. Half that to maintain.
Prerequisite: Apportation.

Item

Jewelry or shoes. The item must bear a picture of a spider, fly, or lizard. Only affects the wearer. *Cost to create:* 1,000 energy.

Dancing Object

Regular

Animates a single object to do repetitive work. It can accomplish roughly the same sorts of tasks as a ST 15 man: a bucket could carry water from a stream to a barrel, a broom could sweep a building over and over again, a crossbow could cock itself, etc. The object's program cannot be changed or respond to events . . . it just does its work, mindlessly. The clever use of Link can make Dancing Objects effectively respond to situations, but this requires some careful thought.

Duration: 1 hour.
Cost: 4 to cast. 2 to maintain.
Time to cast: 10 seconds.
Prerequisites: Magery 2 and Apportation.

Item

This spell can be made permanent on any object. *Cost to create:* 400 energy, $500 magical ingredients. The object must be "walked through" its program once per day while the enchantment is going on.

Distant Blow

Regular

Attacks a subject at a distance. The caster chooses a single melee weapon that, for the duration of the spell, gains infinite reach with regard to the subject only. The weapon must be one that delivers blows – brass knuckles are all right, but a garrote is not! As long as the subject is within the caster's line of sight, the caster's weapon can strike him. The subject defends normally (dodge, block, parry), as if an invisible double of the caster was engaging him.

The caster's own body (for punching, biting, and kicking) counts as one weapon for purposes of this spell. If the subject gets *inside* the weapon's real Reach, normal rules apply.

The weapon does not actually stretch or leap from the caster's hand; the force of the blow is transmitted magically. Apply standard ranged attack modifiers (p. B548) to the caster's attacks.

Note that magical properties of the weapon (e.g., Flaming Weapon) or the caster (e.g., Melee spells) *cannot* be used through this spell!

Duration: 5 seconds.
Cost: 3. Same cost to maintain.
Time to cast: 3 seconds.
Prerequisites: Magery 2 and Apportation.

Item

Staff or other weapon. *Energy cost to create:* 1,000 per pound of the weapon's weight (minimum 1 pound).

Lockmaster

Regular; Resisted by Magelock

Opens locks magically. A Magelock spell gets a roll to resist Lockmaster. Any modifiers for the difficulty of the lock that would apply to Lockpicking skill also affect this spell.

Duration: Once opened, a lock stays open until closed.
Cost: 3. Cannot be maintained.
Time to cast: 10 seconds.
Prerequisites: Either Magery 2 *and* Apportation or Locksmith.

Item

A platinum key, or a platinum amulet in the shape of a key. Its intrinsic value must be at least $800. *Energy cost to create:* 2,000.

Manipulate

Regular

Allows manipulation of items larger than allowed by the Locksmith spell. Ropes may be untied, doorknobs turned, knives sharpened, handmill cranks turned, etc. The caster need not touch the subject. Any activity complex enough to require a DX penalty gives the same penalty to this spell.

Duration: 1 minute. (This allows untying the average knot.)
Cost: 4 to cast and 3 to maintain for each 10 pounds manipulated.
Time to cast: 3 seconds.
Prerequisite: Locksmith.

Item

Wand, staff, or glove. *Energy cost to create:* 600.

Slow

Regular; Resisted by HT

Slows down the subject a great deal; in effect, the subject has one level of Decreased Time Rate for the duration of the spell.

Duration: 10 seconds.
Cost: 5 to cast. 4 to maintain.
Time to cast: 3 seconds.
Prerequisites: Magery 1, Haste, and Hinder.

Item

(a) Staff or wand. Usable only by mages. *Energy cost to create:* 1,000. (b) Footwear or jewelry. Always on. *Energy cost to create:* 500.

Undo

Regular; Special Resistance

Unties knots and fastenings of any kind that could normally be undone by hand (but not locks). A critical success would even undo chain mail into its component links! Useful to surreptitiously rob someone of earrings, necklaces, etc. Will unstring bows, unbutton shirts, unlace bodices, unbuckle belts . . .

Cost: 3 for a single fastening, one more for each extra target within one yard; 6 will undo everything in a one-yard radius, but a person in that area resists with their Will.

Heavier items may be undone at a proportional cost. For instance, if a mage is chained, he might want to Undo a link of the chain, bending it open. The GM rules that it would take ST 20 (twice normal strength) to open a link by hand. So the cost to Undo that link is twice normal, or 6.

Prerequisite: Locksmith.

Item

(a) Wand, staff, or glove. Only affects the wearer; the item must touch the subject. *Energy cost to create:* 400. (b) Amulet granting immunity from the Undo spell. *Energy cost to create:* 40.

Winged Knife

Missile

Magically throw any weapon. The weapon is the "subject" for distance purposes when determining whether the spell succeeds. 1⁄2D 20, Max 40, Acc 1. If it hits, it does the damage it would do if hurled by a man of ST 15. Basic thrusting damage for that ST is 1d+1; basic swing damage is 2d+1.

Cost: 1 per pound of weapon's weight. Double cost for a weapon that is not normally thrown (such as a broadsword).

Prerequisite: Poltergeist.

Item

Any weapon. At holder's command, the weapon will leap from his hand, or from its scabbard, to fly at a target. This is considered an attack maneuver, carried out with DX equal to the item's power. *Energy cost to create:* 300 per pound of weapon's weight – minimum cost 300.

Flight (VH)

Regular

Fly through the air under your own control, without wings, at Move 10. Flight speed is reduced normally by encumbrance. A flying character can move and fight normally, and has a combat advantage if above his foes (p. B402).

Duration: 1 minute.
Cost: 5 to cast. 3 to maintain.
Time to cast: 2 seconds.
Prerequisites: Magery 2 and Levitation.

Item

Staff, wand, or jewelry. Usable only by mages; only affects the wearer. *Energy cost to create:* 2,500.

Light Tread

Regular

Walk on any surface (which must be able to bear his weight) without leaving any trace, making tracking impossible. If vegetation is present on the surface, some traces of the subject will remain, making tracking possible at a -8 penalty. This spell will also prevent the subject from triggering pressure-plate traps and the like.

Duration: 10 minutes.
Cost: 4 to cast. 1 to maintain. If the caster also knows Hide Path, an extra point of energy to cast and maintain will ensure that even vegetation won't bear any trace of the subject's passage.
Prerequisites: Apportation and Shape Earth.

Item

Footwear; the item must bear a picture of a doe. Only affects the wearer. *Energy cost to create:* 400.

Slide

Regular; Resisted by Will

Slide down a slope as if skiing. The subject uses the Skiing skill, at default if necessary; assess a -2 penalty for not having poles to guide oneself with. The spell works equally well on all types of surfaces (sand, grass, stone . . .), but the subject still has to avoid any obstacles!

Down a good slope, the subject can sustain a Move equal to the subject's Skiing skill can be sustained relatively safely. Peak Move, in extremely good conditions, equals twice his Skiing skill.

On level ground, the spell is a nuisance; the subject is constantly affected as if he has just entered a Greased area!

Duration: 1 minute.
Cost: 2. Same cost to maintain.
Prerequisites: Apportation and Grease.

Item

Jewelry or footwear. The item must bear a picture of an otter. Only affects the wearer. *Energy cost to create:* 350.

Flying Carpet (VH)

Regular

Transforms a carpet (or any other object one could reasonably stand on or in – cauldron, chair, towel, broom, etc.) into a flying vehicle. It is under the command of the first person to step aboard it. If there are several beings already aboard when the spell is cast, roll a Quick Contest of Will to see who gets control; the caster (if aboard) gets a +5 bonus to this roll. If the pilot leaves the carpet, roll another quick contest of Will between the remaining passengers to see who gets control.

The carpet's maximum Move is equal to the caster's effective skill, and it can handle 1 G turns without skill rolls being necessary (p. B466). Use the Piloting (Contragravity) skill (p. B214) to control the carpet.

In general, a rider cannot fall from a flying carpet unless he jumps off deliberately or is knocked off by an obstacle (such as a tree branch) or attack; the carpet keeps its riders safely on board through a combination of magic and deft maneuvering. A flying carpet does not bank sharply, fold, or bend; the spell specifically provides a stable, level platform (which makes flying through narrow gaps rather hard). Any rider engaged in strenuous activity such as fighting must make a DX roll every turn to avoid falling off (the GM may modify this roll depending on the activity). In all other respects, treat anyone fighting from a flying carpet as being on the ground (ignore the special rules for flying combatants on p. B548). Characters aiming a missile weapon from a moving carpet can only take the Acc bonus; aiming for extra turns gives no further bonus. Of course, someone fighting from a flying broom or chair would be subject to the usual penalties for being seated (p. B547)

Generous GMs may stipulate that, after the caster cancels the spell, the conveyance remains airborne for 2d+2 seconds, wobbling more with every passing moment. This *sometimes* allows a safe, if bumpy, landing.

Duration: 10 minutes.
Cost: 1 per square foot of surface. Each square foot will carry about 25 pounds (or less, of made of flimsy material). Half that to maintain.
Time to cast: 5 seconds.
Prerequisites: Either Magery 2 *and* Walk on Air or Flight.

Item

A carpet may be permanently enchanted for 200 times casting cost.

Hawk Flight (VH)

Regular

A very fast Flight spell. The subject has a Move of 40 (80 mph) without encumbrance; encumbrance reduces Move normally. The subject can move and fight normally, and has a combat advantage if above his foes (p. B402).

Duration: 1 minute.
Cost: 8 to cast. 4 to maintain.
Time to cast: 3 seconds.
Prerequisite: Flight.

Item

Staff, wand, or jewelry. Usable only by mages; only affects the wearer. *Energy cost to create:* 3,000.

Wizard Hand

Regular

As listed under *Knowledge Spells*, p. 104.

Ethereal Body (VH)

Regular

The subject becomes ethereal and can move through solid objects and creatures as if they were not there. His clothes become ethereal, but not his equipment. He cannot wield weapons or move things about, and does not need to breathe, eat, or drink while ethereal. He has, in most respects, become a ghost. He can be seen, though he has a translucent appearance, and can be heard if he speaks.

Physical attacks and most magic cannot affect someone who is ethereal. However, any spell of the Colleges of Communication and Empathy or Mind Control has normal effect on an ethereal person, and is Resisted at -2! Likewise, Necromantic spells affecting the mind or soul will have normal effect and be Resisted at -2.

Ethereal individuals can use magic, but at a -5 to skill; the ethereal plane appears to be a low-mana area. Ethereal bodies can interpenetrate, and cannot harm each other except with spells, as above.

Duration: 10 seconds.
Cost: 8 to cast. 4 to maintain.
Time to cast: 30 seconds.
Prerequisites: Magery 3 and either Body of Air or six Movement spells.

Item

(a) Staff, wand, jewelry, or cape; only affects the wearer. A severe drawback is that, with the exception of the cape, the item falls through the caster as soon as the spell is cast! *Energy cost to create:* 3,000 (8,000 for the cape). (b) Gem that glows and vibrates when any ethereal being is within 50 yards. *Cost to create:* A gem worth $500, and 100 energy.

Great Haste (VH)

Regular

Speeds the subject up *a lot*. In effect, the subject has one level of Altered Time Rate (p. B38) for the duration of the spell.

Duration: 10 seconds.
Cost: 5. Cannot be maintained; must be recast. At the spell's *end,* the *subject* also loses 5 FP (unless the caster was the subject).
Time to cast: 3 seconds.
Prerequisites: Magery 1, IQ 12 or higher, and Haste.

Item

Shoes or jewelry; only affects the wearer. *Energy cost to create:* 2,000. The item costs the wearer 5 FP for each 10 seconds of effect.

Pull

Regular

When cast on a single point, this creates a zone of "attraction." Objects (including living beings) are pulled to the center point at Move 1 by a force that increases as one gets closer to it. Living beings can "resist" with a Quick Contest of ST every second. The pull has a ST equal to twice the energy put into the spell at the center, reduced by 1 for every yard of distance. The spell does not have any effect on objects heavier than 20 times its ST. Note that, to drag an ordinary human being (weight 150 pounds) along an ordinary floor, the spell would have to have a ST of at least 8.

This spell can only be cast on a point in space or on the ground, not on objects or creatures. A small pile of loose objects, dust, dead leaves, small insects, etc, usually forms at the center.

Duration: 1 minute.
Cost: 1 for every 2 ST of "pull."
Time to cast: 5 seconds.
Prerequisites: Magery 2 and at least four Movement spells including Levitation.

Item

(a) Wand, staff, or jewelry. Usable only by mages. *Energy cost to create:* 250. (b) An area may be made permanently attracting for 100 times casting cost.

Repel

Regular

Like Pull, except that the force now *repels* objects instead of attracting them.

Duration: 1 minute.
Cost: 1 per 2 ST worth of "repulsion" at the center point.
Time to cast: 5 seconds.
Prerequisites: Magery 2 and at least four Movement spells including Levitation.

Item

(a) Wand, staff, or jewelry. Usable only by mages. *Energy cost to create:* 250. (b) An area may be made permanently repelling for 100 times casting cost.

Swim

Regular

Move through water at normal Move (reduced normally for encumbrance). The subject is in full control of his own movement, and can act and fight without the normal penalties for underwater combat. This spell does not provide for the subject's breathing needs! However, the subject automatically makes all Swimming rolls, regardless of fatigue or encumbrance, unless he is actually dragged totally under the water.

This is also a Water spell.

Duration: 1 minute.
Cost: 6 to cast. 3 to maintain.
Time to cast: 3 seconds.
Prerequisites: Shape Water and Levitation.

Item

Staff, wand, jewelry, or cape. The item must bear a picture of a sleek fish. Only affects the wearer. *Cost to create:* 1,000 energy.

Teleport (VH)

Special

Instantly moves the caster to another location. However, the farther away the target spot is, the more energy is required, and the greater is the skill penalty, as follows:

Normally, you may only teleport to a place you are looking at or one you are familiar with. *Penalties:* -2 for a place you have "seen" only through the mind or memories of another, or via television; -2 for a place you have not seen within a month (except, perhaps, your own home!); and -1 to -3 for a place seen only briefly.

This spell is dangerous, too. If you fail your roll by 1, you take 1d damage and arrive at your destination physically stunned (HT roll to recover). If you miss your roll by more than 1, you suffer no physical injury – but you go somewhere else. The location is up to the GM! A critical failure with this spell can send the caster anywhere the GM likes – make it interesting! – *and* cause physical injury, as long as it doesn't kill the caster outright.

Even a successful teleport can be confusing. A wizard must roll vs. his Body Sense skill (p. B181) in order to act on the same turn in which he teleports. A failed roll means disorientation – no actions except defense are possible on that turn. A critical failure means he falls down, physically stunned. A teleporter arrives in the same position he started in. He may be facing a different direction, but this makes it more likely that he will be disoriented on arrival: -2 to change facing, -5 to go from vertical to horizontal or vice versa!

Distance	*Cost*	*Skill Penalty*
Within 10 yards	3	0
11-20 yards	4	-1
20-100 yards	5	-2
101-500 yards	6	-3
501 yards to 1.99 miles	7	-4
2 to 9.99 miles	8	-5
10 to 99.99 miles	9	-6
100 to 999.99 miles	10	-7
×10 distance	+1	-1

Anything carried on your person, up to "heavy" encumbrance, goes with you. You can also take one person with you by holding hands, if the added weight does not exceed your "heavy" encumbrance limit. On a failed roll, they suffer the same effects you do.

This is also a Gate spell.

Prerequisites: Either IQ 13 or better *and* at least one spell from 10 different colleges, or Hawk Flight.

Item

Staff or wand; usable only by mages. *Energy cost to create:* 3,000. An item that will only take the user to one, predetermined place costs 2,000 to create; the caster must be very familiar with that place.

Teleport Other (VH)

Regular; Resisted by Will+1

Same as Teleport, except that the caster does not move, and the subject can be anything or anyone. A part of an object may not be teleported away; neither may a solid object be teleported into another solid object. Separating two connected objects carries a penalty set by the GM; taking the stopper from a jar might be at -1, while teleporting a locked door from its frame might be a -5. Jewelry or clothing being worn, or an object held tightly by another person, is at -5 to teleport away, and the holder may attempt a resistance roll.

This is also a Gate spell.

Cost: Costs and skill penalties are as for Teleport, with the following multipliers:

Weight	*Multiplier*
less than 10 pounds	×1/2
10-49 pounds	×1
50-99 pounds	×2
100-200 pounds	×3
One additional multiple for each 100 pounds thereafter.	

The consequences of a missed roll are similar, but inanimate objects are less likely to suffer physical damage. If a sapient subject resists the roll, the caster suffers no ill effects other than the expenditure of energy.

Prerequisites: Magery 3 and Teleport.

Item

Staff or wand; usable only by mages. The user must point it first at the subject and then towards the desired destination; this takes a second and cannot be hurried. *Energy cost to create:* 3,000.

Blink

Blocking

Avoid an attack by teleporting instantly out of its way and into an open spot nearby. A spot is not open if someone is standing in it; any lesser obstruction is "open" for the purpose of this spell.

The caster may Blink to any unoccupied spot within 3 yards, in any direction. The caster's facing remains unchanged. The caster must roll against his Body Sense skill to act on his next turn (p. B181). If there are no open spots within 3 yards, the spell will fail.

For combat purposes, the "blink" is treated as a dodge that succeeds automatically if the spell roll is made.

A critical failure on this spell is treated like a Teleport critical failure, except that the caster rarely goes more than a mile.

This is also a Gate spell.

Cost: 2.
Prerequisite: Teleport.

Item

Clothing or jewelry. *Energy cost to create:* 800.

Blink Other (VH)

Blocking

As Blink, but usable on others.

This is also a Gate spell.

Cost: 2.
Prerequisite: Blink.

Item

Wand, staff, or jewelry. Usable only by mages. *Energy cost to create:* 1,600.

Beacon

Area

As listed under *Gate Spells*, p. 83.

Trace Teleport

Information; Resisted by subject spell

As listed under *Gate Spells*, p. 84.

Rapid Journey (VH)

Special

As listed under *Gate Spells*, p. 82.

Divert Teleport (VH)

Blocking; Resisted by subject spell

As listed under *Gate Spells*, p. 84.

Air Vortex

Area; Resisted by HT

As listed under *Air Spells*, p. 26.

Freedom

Regular

Bestows a bonus on the subject's use of skills or attributes to maintain or regain his freedom of movement. Typical cases include: Contests of DX or ST to avoid being grappled, to break free, or to evade; using Escape or Lockpicking; jumping or climbing restraining walls; bending bars apart or forcing doors; resisting Glue, Levitation, or Paralysis spells, and so on.

The spell does *not* help with Camouflage, Disguise, or Stealth; Mind Control spells; dodging missiles; using Lockpicking, Climbing, or Jumping to get *inside* some place, and so on. The GM's judgment is final.

This is also a Protection and Warning spell.

Duration: 1 minute.
Cost: 2 per point of bonus (maximum bonus +5). Same cost to maintain.
Prerequisites: At least three spells from each of the Body Control, Movement, and Protection and Warning colleges.

Item

Jewelry or clothing. Always on. The wearer becomes very hard to hold, keep in chains, or behind bars . . . A rare item! *Energy cost to create:* 500 per point of bonus.

Cloud-Walking

Regular

Walk on clouds (including fog banks) as though they were solid. If the subject falls for any reason (e.g., injury), the spell is broken! If the spell is recast immediately, the subject will fall for only one second (about 5 yards); if he is still in the midst of the cloud, he'll have to "dig" his way out, which will take about 5 seconds. If he is already through the cloud deck, too bad!

This is also a Weather spell.

Duration: 1 hour.
Cost: 3 to cast. 2 to maintain.
Prerequisites: Walk on Air and Walk on Water.

Item

Staff, wand, jewelry, or shoes. The jewelry and shoes only affect their wearers. *Energy cost to create:* 500.

Cloud-Vaulting (VH)

Regular

Travel great distances with a few movements. The subject flips into the sky and bounces to his destination using clouds like trampolines. Cloud-Vaulting can only be cast in open air.

Each casting of this spell carries the subject up to 100 miles, plus 100 miles per skill level above DX in Acrobatics. If there are no clouds at all in the sky (a frequent occurrence over deserts), the subject cannot go farther than 100 miles. Storms will likewise block the subject's path. An Acrobatics roll is required every 100 miles, at a penalty equal to the subject's encumbrance level. On a failure, the subject falls 3d×3 yards (p. B431) and lands at a random location along the intended path – Slow Fall will save the subject from damage, but the Cloud-Vaulting spell is still broken.

This is a dizzying spell; upon arriving at his destination (or failing his Acrobatics roll), the subject will be physically stunned unless he can roll his Body Sense (p. B181) skill at -1 per 100 miles covered.

This is also a Weather spell.

Duration: 1 second per 100 miles.
Cost: 7 to cast. Cannot be maintained.
Prerequisites: Magery 2, Jump, and Walk on Air.

Item

(a) Footwear. The item must bear a cloud design. *Energy cost to create:* 4,000. (b) Jewelry, wand, or staff. Usable only by mages. *Energy cost to create:* 3,000.

Chapter Twenty

Necromantic Spells

Severin chortled at his own genius as his zombies hauled casks out of the deep cavern where they were stored. Soon they'd see who was a true necromancer. A year ago, he'd raised a crop of zombies and promptly packed the bodies in casks filled with salt. By now, he should have three dozen mummified zombies – tough and leathery, not brittle or rotting. *My minions will last decades*, he thought. *I'll have an army in no time.*

He could wait no longer. Seizing a sword from his zombie bodyguard, he smashed open a cask. Salt spilled out across the floor, revealing . . . bones.

The bones slowly rose to stand as Severin stared in horror. A skeleton? He smashed another cask, and another. A skeletal figure rose from each. Skeletons! Fragile, stupid, useless! How could this be? How could it not work?

A skittering movement caught his eye in the salt. He bent and picked a small gray insect off the pile. As he peered at it, he trembled with rage. It was a corpse-tearer beetle from the Great Salt Flats, thousands of miles from its native soil. He knew only one man who would think of such a trick, and who had the wherewithal to summon vermin across such distance.

"Felix Magister," he growled. "I *will* have your skull on my bedpost."

These spells deal with death, the dead, and spirits. They affect corpses and spirits of *all* races, unless otherwise noted in a racial description.

Necromantic magic is nearly always forbidden, aside from the very basic spells that demon hunters and healers use. Necromancers therefore tend to live in secrecy.

Death Vision

Regular

The subject sees a vivid apparition of his own death. This might be a vision of the future or a false vision from another possible future – but it is always chilling. The subject is mentally stunned until he can make his IQ roll to shake off the effects of the spell. This spell can also be *useful* to the subject, by pointing out a possibly deadly hazard.

Duration: 1 second.
Cost: 2.
Time to cast: 3 seconds.
Prerequisite: Magery 1.

Item

Staff or wand. Usable only by mages. The item must touch the subject. *Energy cost to create:* 600.

Final Rest

Regular

As listed under *Healing Spells*, p. 89.

Sense Spirit

Information; Area

Find any ghosts, spirits, undead, or similar supernatural entities within the area of effect. On a good roll, it gives a general impression of what kind of being is present. The caster may, at the time of casting, limit the spell to a specific type of entity, or exclude a given type.

Base cost: 1/2 (minimum 1).
Prerequisites: Either Magery 1 *and* Sense Life or Death Vision.

Item

(a) Staff, wand, or jewelry. *Energy cost to create:* 100. (b) Gem that glows or vibrates when spirits are within its detection radius. *Energy cost to create:* 100 for a 1-yard detection radius, 200 for a 2-yard radius, and so on.

Summon Spirit

Information; Resisted by spirit's Will

Talk to the spirit of a dead person. The subject resists at -5 if he was a friend of the caster. If the spell succeeds, the subject will answer one question, to the best of his knowledge as of the time he died, and one more per minute he remains.

If the spell fails, that caster (or ceremonial group) may not summon that spirit again for one year. A critical failure means the caster summoned a malign spirit, who lies deliberately.

Modifiers: -5 if you don't know the subject's full name. -1 if it has been more than a week since the subject's death, -2 if more than a month, -3 if more than a year, -4 if more than 10 years, -5 if more than 50 years, and -6 if more than 500 years.

Duration: 1 minute.

Cost: 20 to cast. 10 to maintain. Halve these costs if the spell is cast at the site of death *or* over the corpse of the person being contacted; quarter these costs if *both* conditions are met.

Time to cast: 5 minutes.

Prerequisites: Magery 2 and Death Vision.

Item

Staff, wand, or jewelry. Usable only by mages. The item does not give the ability to cast the spell, but gives +2 to skill. Energy cost: 1,000.

Animation (VH)

Regular

Summon a spirit (IQ 9) to animate an existing statue, painting, or other item. The object that is animated must depict or represent a human or animal. Its abilities and attributes depend on its body. This is entirely up to the GM– for instance, a painting could talk, but not move around while a statue might leave its base and move freely. Within its limitations, the animated object will follow the caster's verbal orders; it has no judgment and will carry out its orders precisely. Unlike a golem (p. 59), it cannot be instructed to follow another person's orders.

Skull-Spirits

A skull-spirit is a ghostly, vaporous form, created from the life force that lingers around a sapient being's skull. Skull-spirits obey the being who evoked them without question. They cannot be reasoned with, but can sometimes be confused.

Skull-Spirit

224 points

Attribute Modifiers: ST-10 [-100]; DX+4 [80].
Secondary Characteristic Modifiers: SM -5; HP +20 [40].
Advantages: Doesn't Breathe [20]; Doesn't Eat or Drink [10]; Doesn't Sleep [20]; Immunity to Metabolic Hazards [30]; Injury Tolerance (Diffuse) [100]; Toxic Attack 2 pts (Cannot parry, -5%; Irresistible Attack, +300%; Melee Attack, Reach C, -30%) [11]; Unaging [15].
Features: Fixed ST.
Skills: Innate Attack (E) DX+3 [8]-17.

Duration: 1 minute.

Cost: 3, multiplied by SM+1 for objects larger than human size. Half that to maintain. Double cost to animate stone; triple to animate metal.

Time to cast: 5 seconds.

Prerequisite: Summon Spirit.

Awaken Craft Spirit

Regular

As listed under *Making and Breaking Spells*, p. 115.

Steal Energy

Regular

Take FP from the subject to restore your own lost fatigue. The subject must either be willing or totally helpless (e.g., bound or unconscious). The caster must touch the subject. This works on living, sapient subjects only! The spell stops when the caster's FP is fully restored, when the caster decides to stop, or when the subject's FP reaches 0 and the subject falls unconscious.

Duration: Permanent.

Cost: None to the caster! For every 3 FP taken from the subject, the caster regains 1 FP.

Time to cast: 1 minute for every 3 FP drained from the subject.

Prerequisite: Minor Healing.

Item

Staff, wand, or jewelry. The wearer and the item must both touch the victim. *Energy cost to create:* 800.

Steal Vitality

Regular

Take HP from the subject to heal your own injuries. The subject must either be willing or totally helpless; the caster must touch the subject. This works on living, sapient subjects only! The spell stops when the caster's HP is fully restored, when the caster decides to stop, or when the subject's HP reaches -1 (which automatically kills the subject).

Duration: Permanent.

Cost: None to the caster! For every 3 HP taken from the subject, the caster regains 1 HP.

Time to cast: 1 minute for every 3 HP drained from the subject.

Prerequisite: Steal Energy.

Item

(a) Staff, wand, or jewelry. The wearer and item must both touch the victim. Usable only by a mage. *Energy cost to create:* 1,500. (b) Any item. It lowers wearer's HP by 1 to 5 while it is worn. The wearer regains lost HP when item is removed. *Energy cost to create:* 200 per lost HP.

Materialize

Special; Resisted by ST or IQ

This spell is used by ghosts and other spirits who cannot ordinarily become visible to beings in the physical world.

The spell can also be used by a mage to force a spirit to materialize; in

that case, the ghost resists with the better of its ST and IQ.

Duration: 1 minute.
Cost: 5 to cast. 5 to maintain.
Prerequisite: Summon Spirit.

Solidify

Special; Resisted by ST or IQ

This spell is used by insubstantial spirits to become tangible and affect objects and creatures in the substantial world. A tangible spirit is in all respects like a normal physical being.

The spell can also be used by a mage to force a spirit to solidify; in that case, the ghost resists with the better of its ST and IQ.

Duration: 1 minute.
Cost: 50 to cast. 10 to maintain.
Prerequisite: Materialize.

Affect Spirits

Regular

When cast on a person or object, this spell allows the subject to interact with incorporeal spirits as if they were solid. A weapon with this spell on it can harm an insubstantial spirit.

Duration: 1 minute.
Cost: 4 to cast. 2 to maintain.
Time to cast: 2 seconds.
Prerequisite: Solidify.

Item

This spell cannot be enchanted into an item, but see Ghost Weapon (p. 65).

Weaken Blood

Regular; Resisted by HT

As listed under *Body Control Spells*, p. 40.

Skull-Spirit

Regular

Summons a ghostly assassin to do the caster's bidding (see box, p. 150). Requires the skull of a sapient creature, which is destroyed in the casting.

Duration: The spirit lasts for 24 hours unless destroyed first.
Cost: 20.
Prerequisites: Four other Necromantic spells.

Item

The skull of a sapient creature. Any user can invoke the skull-spirit by saying a password (chosen by the caster when the skull is enchanted). The skull then crumbles, and the spirit appears as above. *Energy cost to create:* 40.

Turn Spirit

Regular; Resisted by Will

Causes a single subject in spirit form to retreat from the caster. The caster must be able to see the subject. The subject moves away from the caster at its current maximum Move until the spell ends or the caster loses sight of it. The subject cannot attack the caster in any way during this time; this includes the use of special powers and spells.

If the spirit possesses a living entity, Turn Spirit will not force the spirit out of its host. Instead, the spirit will flee using the host's body.

Duration: 10 seconds.
Cost: 4 to cast. 2 to maintain. Every point of extra casting energy reduces the spirit's resistance by 1.
Prerequisites: Fear and Sense Spirit.

Item

Wand, staff, or jewelry. Usable only by mages. *Energy cost to create:* 350.

Zombie

Regular

The subject of this spell must be a relatively complete dead body. The nature and condition of the corpse determines the nature of the undead creature produced. The animated corpse becomes an undead servant of the caster. Its attributes are based on those of the original body, as are its *physical* advantages and DX-based skills. It does not have the "soul," mental traits, IQ-based skills, or memories of the living person. The GM will determine its exact abilities, as appropriate to the campaign.

Duration: The zombie remains animated until destroyed.
Cost: 8.
Time to cast: 1 minute.
Prerequisites: Summon Spirit and Lend Vitality.

Control Zombie

Regular; Resisted by Zombie spell

Take control of an undead creature raised with the Zombie spell by some other wizard. If the caster wins a Quick Contest of Spells with the original Zombie spell, the undead in question will obey the caster as if he had raised it. The Zombie spell resists at +2 if the original caster is within 100 yards, and at -2 if he is dead.

Duration: Permanent.

Cost: 3.

Prerequisite: Zombie.

Item

Staff, wand, or jewelry. Usable only by a mage. It does not give the ability to cast the spell, but gives +2 skill to one who knows the spell. *Energy cost to create:* 500.

Turn Zombie

Area

Inflicts 1d of injury on anything in the area that was animated using the Zombie spell; DR does not protect. In addition, roll 1d for each zombie. On a 1, it turns and flees from the caster.

Duration: Successfully turned undead will avoid the caster for one day.

Base cost: 2. Cannot be maintained; must be recast.

Time to cast: 4 seconds.

Prerequisite: Zombie, or "holy status" (GM's discretion).

Undead Templates

The following templates demonstrate three possible types of undead created with the Zombie spell. A normal dead body produces a zombie; a corpse rotted away to bones produces a skeleton (indeed, zombies rot away to skeletons over time); and a desiccated cadaver, or a properly embalmed body, becomes a mummy.

Mummy

-107 points

Attribute Modifiers: ST+1 [10].
Secondary Characteristic Modifiers: HP+4 [8].
Advantages: Doesn't Breathe [20]; Doesn't Eat or Drink [10]; Doesn't Sleep [20]; High Pain Threshold [10]; Immunity to Metabolic Hazards [30]; Immunity (All mind control) [30]; Indomitable [15]; Injury Tolerance (No Blood, No Brains, No Vitals, Unliving) [35]; Single-Minded [5]; Temperature Tolerance 10 [10]; Unaging [15]; Unfazeable [15].
Disadvantages: Appearance (Monstrous; Universal, +25%) [-25]; Automaton [-85]; Cannot Learn [-30]; Dependency (Mana; common, constantly) [-50]; Disturbing Voice [-10]; Fragile (Combustible) [-5]; Fragile (Unnatural) [-50]; Reprogrammable [-10]; Social Stigma (Dead) [-20]; Unhealing (Total) [-30]; Wealth (Dead Broke) [-25].
Features: Affected by Control Zombie, Pentagram, and Turn Zombie; No mental skills; Sterile.

Skeleton

-162 points

Attribute Modifiers: ST-1 [-10]; DX+2 [40]; IQ-2 [-40].
Secondary Characteristic Modifiers: Basic Speed+1 [20].
Advantages: Doesn't Breathe [20]; Doesn't Eat or Drink [10]; Doesn't Sleep [20]; DR 2 [10]; High Pain Threshold [10]; Immunity to Metabolic Hazards [30]; Immunity (All mind control) [30]; Indomitable [15]; Injury Tolerance (No Blood, No Brain, No Eyes, No Vitals, Unliving) [40]; Single-Minded [5]; Temperature Tolerance 10 [10]; Unaging [15]; Unfazeable [15]; Vacuum Support [5].
Disadvantages: Appearance (Monstrous; Universal, +25%) [-25]; Automaton [-85]; Cannot Learn [-30]; Dependency (Mana; common, constantly) [-50]; Fragile (Brittle) [-15]; Fragile (Unnatural) [-50]; Mute [-25]; No Sense of Smell/Taste [-5]; Reprogrammable [-10]; Skinny [-5]; Social Stigma (Dead) [-20]; Unhealing (Total) [-30]; Vulnerability (Crushing Attacks; ×2) [-30]; Wealth (Dead Broke) [-25].
Quirks: Cannot Float; Sexless. [-2]
Features: Affected by Control Zombie, Pentagram, and Turn Zombie; No mental skills; Skull has only 2 total DR.

Zombie

-168 points

Attribute Modifiers: ST+1 [10]; IQ-2 [-40].
Secondary Characteristic Modifiers: HP+4 [8].
Advantages: Doesn't Breathe [20]; Doesn't Eat or Drink [10]; Doesn't Sleep [20]; High Pain Threshold [10]; Immunity to Metabolic Hazards [30]; Immunity (All mind control) [30]; Indomitable [15]; Injury Tolerance (No Blood, Unliving) [25]; Single-Minded [5]; Temperature Tolerance 10 [10]; Unaging [15]; Unfazeable [15].
Disadvantages: Appearance (Monstrous; Universal, +25%) [-25]; Automaton [-85]; Bad Smell [-10]; Cannot Learn [-30]; Dependency (Mana; common, constantly) [-50]; Disturbing Voice [-10]; Fragile (Unnatural) [-50]; No Sense of Smell/Taste [-5]; Reprogrammable [-10]; Social Stigma (Dead) [-20]; Unhealing (Total) [-30]; Wealth (Dead Broke) [-25].
Quirks: Sexless. [-1]
Features: Affected by Control Zombie, Pentagram, and Turn Zombie; No mental skills; Will become a Skeleton.

Item

Staff, wand, or jewelry. At the GM's option, this item may work only for a person with Blessed or Power Investiture. *Energy cost to create:* 600.

Zombie Summoning

Special

Calls the nearest zombie to the caster (for the purposes of this spell, a zombie is any undead creature created with the Zombie spell). Range is irrelevant. Upon a successful casting, the caster knows the location of the closest zombie (any known zombies may be excluded if the caster mentions them before casting) and how long it will take to reach him. The zombie moves toward the caster as fast as it can, until it can see him or the spell ends. If it can reach the caster, it stays nearby, without attacking or obeying, until the spell ends. The spell is broken by any attack on the zombie, and if the zombie fails to reach the caster before the spell duration ends, it will simply turn and go about its business, or wander off if it had none.

Zombies will not answer the summons if it conflicts with their master's orders (so you cannot Summon zombies away from whatever they were guarding, for instance).

Duration: 1 minute.
Cost: 5 to cast. 2 to maintain. To call *many* zombies, double the cost. All zombies within a 10-mile radius (more for a very successful casting) will be summoned.
Time to cast: 4 seconds.
Prerequisite: Zombie.

Mass Zombie (VH)

Area

Similar to Zombie, but reanimates *all* relatively complete dead bodies in the area of effect. As with Zombie, different sorts of corporeal undead are made from different qualities of bodies; a mix of undead types may result from a single Mass Zombie. A corpse must be lying in its tomb or at its place of death to be affected by this spell; otherwise, it won't be affected. Corpses in graves up to 4 yards deep will claw their way up to the surface to join their new master.

Undead created by this spell become the loyal servants of the caster. However, they can only be commanded as a group; individual members of the horde cannot be given separate tasks. If this spell is cast ceremonially, the leader of the circle is the master. The zombies regard the other members of the circle as his lieutenants; their orders are obeyed, but the master's orders take precedence. Optionally, the mages involved in the casting may divide the horde equally, each mage becoming master to his own segment.

In most likely casting locations, this spell will raise (R×R)/2 undead (round down), where R is the radius of the spell. It might yield fewer undead in an upper-class cemetery where the dead have lots of elbowroom in their crypts, or more at a mass grave.

Undead created with this spell are identical to those created with the Zombie spell. They use the same templates and are affected the same way by magic.

Duration: Permanent.
Base cost: 7. Minimum radius 2 yards.
Time to cast: A number of minutes equal to the radius.
Prerequisites: Zombie and Charisma 2 or better.

Astral Vision (VH)

Regular

As listed under *Knowledge Spells*, p. 105.

Slow Healing

Regular; Resisted by HT

Makes the subject less likely to heal or be healed. The spell subtracts from any natural recovery roll (p. B424) or healing skill (First Aid, Physician, Surgery, etc.), including Healing spells. Illness, FP recovery and HT-based resistance rolls are *not* affected. Only Remove Curse can break this spell.

Duration: 1 day.
Cost: 1 to 5 to cast. Same cost to maintain. The same amount is subtracted from any healing roll.
Time to cast: 30 seconds.
Prerequisites: Magery 1, Frailty, and Steal Vitality.

Item

(a) Staff, wand, or jewelry. Usable only by mages. *Energy cost to create:* 175. (b) Any weapon. The wounds it inflicts are very difficult to heal; the penalty applies until the wound is completely healed or the curse is removed. When attempting healing, one must specify whether or not the weapon's wounds are included; if they are, the penalty applies. *Energy cost to create:* 100 per point of penalty. *Double cost* if subject is a missile weapon (e.g., a bow). *Divide cost by 10* if subject is a missile (e.g., an arrow). If the weapon falls in more than one class, use the higher cost.

Stop Healing

Regular; Resists Healing

As Slow Healing, except that this spell resists the natural recovery process and healing skills and spells. Every healing attempt on the subject must be made as a Quick Contest between the healer's skill and the Stop Healing spell's Endurance (p. 10). Every failure by the spell to stop a healing attempt weakens its Endurance by one; upon reaching Endurance 0, the spell dissipates. A critical failure by the Stop Healing or a critical success by the Resisted spell, skill, or process also breaks the enchantment. Otherwise, Remove Curse is required to undo the spell.

Duration: Until dissipation of the spell.
Cost: 10.
Time to cast: 10 seconds.
Prerequisite: Slow Healing.

Item

Staff, jewelry, or wand. Usable only by mages. *Energy cost to create:* 500.

Command Spirit (type)

Regular; Resisted by spirit's Will

Like Charm (p. 139), but only affects spirits. Each class of spirits (banshees, spectres, manitous, etc.) requires its own spell. No version exists for demons or elementals; use Summon Demon or Control Elemental as appropriate. Unlike the subject of a Charm spell, the spirit may try to pervert the caster's orders, like a demon (see Summon Demon, p. 155).

Duration: 1 minute.
Cost: 1 point per 10 character points used to build the spirit. Half that (round up) to maintain. (If the GM does not have a character sheet for the spirit, 5 energy is a good baseline for minor spirits, or 10 energy for a more formidable being.)
Time to cast: 2 seconds.
Prerequisites: Summon Spirit, Turn Spirit.

Strike Barren

Regular; Resisted by HT

As listed under *Body Control Spells*, p. 41.

Age (VH)

Regular; Resisted by HT

Makes the subject older! The subject ages one year for every 10 points of energy put into the spell.

Duration: Permanent.
Cost: 10 to 50 points.
Time to cast: 1 minute.
Prerequisite: Either Youth or six other Necromantic spells.

Item

(a) Any item. Always on. If worn (not just touched), it will age the wearer by one year for every day it is worn (so two hours' wearing would age you by a month). *Energy cost to create:* 500. (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 2,000.

Pestilence

Regular

Infects the subject with a loathsome plague of the caster's selection (though the GM may veto an inappropriate selection). The disease takes its normal course; infection will not normally be apparent for some time.

Duration: Permanent until cured.
Cost: 6.
Time to cast: 30 seconds.
Prerequisite: Magery 1, Steal Vitality, and Decay.

Item

Staff or wand. Usable only by mages; the item must touch the subject. The item's creator sets the plague transmitted upon creation. *Energy cost to create:* 1,000.

Evisceration (VH)

Melee; Resisted by HT or IQ

Reach with one hand into a subject's body and withdraw a vital organ, leaving an open cavity.

Extracting the brain instantly kills the body, but the brain itself may survive for a few minutes! Roll vs. HT each second; on a success, the brain remains alive and conscious but loses 1 FP; on a failure, it dies. While it survives, it can cast any spells it knows well enough to cast without ritual. Remember that the brain has no senses of its own and is therefore casting blindly.

Extracting the heart demands a HT-6 roll each turn from the victim; on a failure he falls unconscious and dies five seconds later.

Extracting other organs requires a HT roll at a penalty from 0 to -5 to remain conscious. Most extractions kill within a minute; however, some organ losses can be survived – a lung, a kidney, etc. In this case, the victim will still bleed seriously. Restoration is required to replace a lost organ.

An extracted organ dies within a minute.

Cost: 10.
Time to cast: 5 seconds.
Prerequisites: Magery 3, Apportation, and Steal Vitality.

Animate Shadow

Regular; Resisted by HT

Summons a spirit that animates the subject's shadow and attacks him. The shadow has IQ 9, HT 10, DX equal to the caster's effective skill, and ST and Move equal to the subject's ST and Move. The shadow wields whatever weapon the subject had in hand at casting time (even if he drops it later on!), inflicting basic damage only (ignore cutting and impaling bonuses) as *fatigue*. Armor does not protect, but the shadow's attacks may be parried or blocked if the weapon or shield used to defend is one that the subject had when the spell was cast. When the subject's FP reaches zero, he falls unconscious and the spell is broken. An animated shadow may be attacked as per a Body of Shadow subject (see p. 114); if its HP reaches zero, it is "killed" and the subject regains his normal shadow.

Duration: 5 seconds.
Cost: 4. Same cost to maintain.
Time to cast: 2 seconds.
Prerequisites: Skull-Spirit and Shape Darkness.

Item

Staff, wand, or jewelry. Usable only by mages. *Energy cost to create:* 450.

Rotting Death (VH)

Melee; Resisted by HT

The victim, who *must* be touched by the caster, rots from within. Every turn, he must roll against HT; on a failure, he takes 1d-1 damage; 6 points on a critical failure. A successful roll means he takes no damage that turn; a critical success breaks the spell. DR does not protect!

For the duration of the spell, the subject feels crippling discomfort, equivalent to the effects of a Sickness spell (see p. 138).

The victim appears to be undergoing a devastatingly rapid gangrene. Hit location should be rolled each time the spell inflicts damage; once crippled, a limb is considered to have *rotted off*! Once the victim is dead, its body quickly deliquesces, until only a puddle of evil-smelling goo is left.

Undead are *not* affected. The caster must concentrate while maintaining this spell, but need not remain in physical contact.

Duration: 1 second.
Cost: 3 to cast. 2 to maintain.
Prerequisites: Magery 2, Sickness, and Pestilence.

Item

Staff, wand, or jewelry. Usable only by mages; the item must touch the subject. *Energy cost to create:* 700.

Soul Jar (VH)

Regular

Traps the subject's soul in some object (which must be present). If the subject is not the caster, then he must be present, and either willing or unconscious.

If your soul is in a "jar," you are unaffected until either your body dies, or the jar is destroyed. The death of your body does not kill you. Your consciousness shifts to the "jar," where you are able to see, hear, and even cast any spell that you know at skill 20 or above (i.e., castable without speech or gesturing). You may communicate at

a distance via telepathy-type spells, if you know any – or by direct mental contact, without a spell, with anyone who handles the jar. Your FP remain the same as when you had a body. You may not spend HP, but you may use any Powerstone currently in contact with your jar.

If a new body comes near the jar, you may try to take it by a Possession, Permanent Possession, or Exchange Bodies spell if you know such a spell. In that case, the soul of that body goes into the jar. But if your soul is in a jar, anything that destroys the jar will kill you permanently – beyond hope of resurrection – even if your body is unharmed.

The spell may be cast again to switch the soul to a different "jar."

Duration: Permanent.
Cost: 8.
Time to cast: 1 minute.
Prerequisite: Magery 1 and six Necromantic spells, including Steal Vitality.

Summon Demon

Special

This version of Planar Summons (p. 82) raises demons; see that spell description for details. If the caster fails to control the demon, it *always* attacks him! If it cannot reach the caster (if, for example, the caster is protected by a Pentagram), the demon will vanish (if trapped) or escape to wreak havoc in the outside world.

If he manages to control the demon and give it a command, the demon will carry out the *letter* of its orders, doing its best to pervert their *spirit* to the caster's disfavor. It will also work incidental mischief, unless specifically instructed not to.

At the GM's discretion, a caster may summon a flock of minor demons whose values add up to 200 character points or less (a caster summoning minor demons may never spend more than 20 energy on this spell). In this case, the caster controls the entire flock at once, contesting the highest Will in the flock. A flock of minor demons is not restrained to a single task; they always stay for the entire duration of the spell.

Duration: Until the demon's task is done, or one hour, whichever is less.
Cost: 1 point per 10 character points used to build the demon. Minimum energy cost is 20 (although this will not always summon a 200-point being). Those tempted to summon powerful demons should bear in mind that such demons tend to have high Will, with all that implies for control . . .
Time to cast: 5 minutes.
Prerequisites: Magery 1 and at least one spell from each of 10 different colleges.

Item

Certain artifacts are known to make summoning (or summoning a particular demon) easier. Those who deal with demons prize such items, but (fortunately!) the technique for making them is not commonly known.

Demon

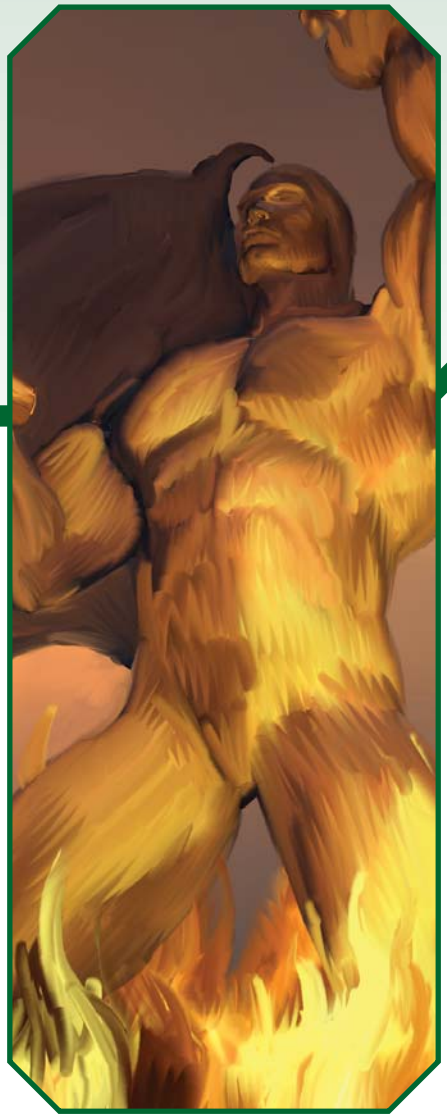
This type of demon most commonly appears on the mortal plane, a hulking brute with bat-like wings and razor-sharp claws and teeth. Demons are not especially smart, but they are strong, tough, and vicious. Their malicious sense of humor is legendary, and they leave a swath of destruction behind them no matter what task they are set to.

Demons vary widely; these stats are merely a convenient average.

Demon

200 points

Attribute Modifiers: ST+7 [70]; DX+2 [40]; HT+4 [40].
Secondary Characteristic Modifiers: HP+8 [16].
Advantages: Claws (Sharp Claws) [5]; DR 5 [25]; Flight (Winged, -25%; +5 yards per second) [40]; Immune to Metabolic Hazards [30]; Immunity to Mind-Affecting Magic [30]; Magery 0 [5]; Night Vision 5 [5]; Striking ST+2 [10]; Teeth (Sharp Teeth) [1].
Disadvantages: Appearance (Monstrous) [-20]; Bloodlust (12) [-10]; Bully (12) [-10]; Callous [-5]; Cannot Harm Innocents (Prevents direct harm of truly good or holy folks only, -50%) [-5]; Fragile (Unnatural) [-50]; Sadism (12) [-15]; Selfish (12) [-5]; Social Stigma (Monster) [-15].
Features: Affected by True Faith and Pentagram.
Skills: Acting (A) IQ-1 [1]-9; Brawling (E) DX+2 [4]-14; Broadsword (A) DX [2]-12; Fast-Talk (E) IQ+2 [4]-12; Hidden Lore (Demon Lore) (A) IQ-1 [1]-9; Intimidation (E) IQ+2 [4]-12; Stealth (A) DX [2]-12.



Demonic Contracts

Some would-be mages become frustrated at the time it takes to master advanced spells, or at the limits imposed on them by their own Magery (or lack thereof). For those wizards who cannot come to terms with their limitations, there is another, darker option. The aid of demons is ready for the asking.

Casting a spell with demonic aid begins by summoning a demon. In most settings, it takes a relatively advanced mage to summon a demon; in some worlds, however, Summon Demon may not require Magery, or even prerequisites! If demons *want* to be summoned, they may have easy ways of contacting them.

Once summoned, the caster must negotiate a contract with his chosen demonic patron, and sign it with his own blood (wise wizards usually prepare a contract ahead of time, or take one from a book; the contracts that demons draft are murder).

After the contract is signed, the contracting wizard may draw on demonic assistance to cast spells at any time without summoning the demon again. Spells cast with demonic aid receive energy and support from dark, extradimensional forces; the caster may reduce the cost of a spell by any amount up to *triple* his skill in Occultism or Thaumatology (whichever is higher), before applying cost reduction for high skill.

However, demonically assisted magic has its limitations. It can never be used to benefit others directly unless to do so would somehow further the demon's dark ends (GM's discretion). It can be used in service of the caster's comfort, however. Any attempts to bend demonic energies to positive ends may cause the demon to suspend the contract, preventing the caster from using demonic energies until it is suitably appeased. Any failure on a demonically assisted spell is treated as a critical failure; any critical failure is treated as if the caster had rolled an 18 on the Black Critical table (see p. 157).

Black Magic

Black magic also has costs. Channeling foul energies leaves a taint upon the caster's soul. At the end of any day on which the wizard casts a demonically assisted spell, he must make a Will+Magery roll at a penalty equal to the total energy "borrowed" that day from demonic helpers. On a success, nothing happens. On a failure, the wizard gains a level of the Black Penalty for every 10 points (of fraction thereof) by which he failed.

The Black Penalty is a skill penalty to any spell cast *without* demonic assistance. Its presence is obvious to the Aura spell, and anyone with Magery 3 or higher may notice the taint when first encountering a black magician if they make a Vision roll. *Any* spell cast by a wizard suffering the Black Penalty is treated like a demonic spell with regards to failures and critical failures.

A caster may only gain 10 levels of the Black Penalty. At that point, his soul has become completely blackened; any virtuous disadvantages, such as Honesty or Pacifism, are lost and often replaced by some dark perversion of the original virtue. He also gains a -10-point Addiction to demonic energies (demonic magic is cheap, highly addictive, and usually illegal). Such wizards must still make Will+Magery rolls at the end of any day when they use demonic magic, but at +10. Failure results in a loss of 5 character points – either as a reduction of attributes, loss of advantages, or acquisition of a new disadvantage – for *every* point by which he failed the roll!

A demonologer who repents may try to cleanse his spirit of the Black Penalty, but the process is difficult. Each level requires a period of reflection and abstinence from all magic use and all sensual pleasures for a period of (20-Will) days (minimum 1 day) for its removal. This is difficult enough for a tyro; a wizard who must also struggle with the Addiction has an almost impossible task ahead of him.

The Black Penalty is a disadvantage worth -3 points/level. A contract with a demon is a perk (p. B100).

Banish

Special; Resisted by Will

Sends an extradimensional visitor (e.g., a demon) back to its plane of origin. It can only be cast by a caster in his home dimension. In an alien plane, you could not "banish" yourself back home, but a native of that plane could banish you. This spell will not work on a creature that is already in its home dimension.

Resolve the Banish attempt as a Quick Contest: the caster's Banish skill vs. the subject's Will. If the caster wins, the subject immediately returns to its home plane. It cannot return for one month. Anything that it brought with it when it appeared (e.g., weapons) will vanish with it. Other things it may be carrying (e.g., screaming victims) stay behind.

Note that certain powerful creatures are resistant or even immune to this spell.

Modifiers: +4 if the caster knows the entity's "true name"; -5 if the caster does not know the subject's plane of origin . . . and an extra -1 if he *believes* he knows where the creature came from, but is wrong!

Black Critical Table

After any failure using demonically assisted magic, the GM rolls 3d on the table below. Use these results as guidelines; improvise wildly to customize the awfulness and to convey the prickly uncertainty of demonic aid. A failure should never result in the caster's intended effect, or even accomplish it accidentally.

Failure Effect
3 – Spell appears to work, but is only a useless illusion.
4 – Spell fails entirely. Somewhere else, demonic "backblast" does something awful to something the caster values; the level of awfulness varies with the power and intent of the spell.
5 – Caster loses one level of Will.
6 – Caster loses one level of Appearance in a manner appropriate to the spell attempted. A Create Fire spell might cause unsightly burn scars, while a Madness spell might subtly unhinge the caster's eye sockets for a wild, staring effect.
7 – Spell is cast on loved ones, friends, allies, innocent bystanders, or the caster (in that order) if malevolent, on foes if benevolent.
8 – Spell fails entirely; caster takes 2 points of injury and the wound immediately becomes infected (see *Infection,* p. B444).
9 – Caster must make a Fright Check at -5 as horrific visions of the hells fill his eye sockets.
10 – Spell does nothing except drench the room in a conspicuous odor of brimstone centered on the caster.
11 – Spell produces the reverse of the intended effect.
12 – Spell produced the reverse of the intended effect, on a random friendly or neutral target.
13 – Spell fails entirely; caster takes 1 point of injury as his arms erupt in boils.
14 – Spell fails entirely; room fills with buzzing insects pouring from caster's mouth.
15 – Spell creates vermin (rat, giant cockroach, immense tapeworm) inside the caster (stomach, throat, etc.). Depending on the nature and location of the vermin, this may do severe damage; an agitated rat in one's innards would do up to 2d damage directly to the vitals!
16 – Spell withers caster's hand.
17 – Spell fails entirely; caster ages 4d years.
18 – Spell fails entirely and summons a different demon who attempts to wreak havoc (attacking the caster if he gets in the way). The mage may use black magic to fight this demon; demons will happily fight each other.

Cost: 1 point per 10 character points the subject is worth. Minimum energy cost is 10. The caster will *not* know in advance how much energy the spell will require, and may fall unconscious or even wound himself in casting the Banish.

Time to cast: 5 seconds.

Prerequisites: Magery 1 and at least one spell from each of 10 different colleges.

Item

Some "holy" artifacts are of aid in banishing actual demons, and items from the home planes of extradimensional creatures may help in understanding and banishing them. Some rumored amulets worn by planar travelers help them resist banishment.

Burning Death (VH)

Regular; Resisted by HT

As listed under *Fire Spells*, p. 76.

Resurrection (VH)

Regular

As listed under *Healing Spells*, p. 94.

Entrap Spirit

Special

Enables the caster to seal a container or chamber so that a spirit within cannot get out for the duration of the spell. Getting the spirit into the trap in the first place is a separate question; usually Command Spirit is required, but trickery can be just as effective.

The container can be any size, from a small bottle up to an entire building, but it must be fully, tightly closed (watertight is good enough), and the mage must touch it while casting the spell. The spirit cannot resist the spell, but the casting cost is directly proportional to its power. The total cost is equal to the spirit's ST + IQ, divided by 5 to cast and by 10 to maintain. It takes a true effort to restrain a powerful spirit! The caster is informed of the energy cost when the spell takes effect and spends the energy then; if he cannot meet the cost, the spirit is unaffected. If the caster spends half the energy cost, the spirit takes one second to break out of the trap; this is a bad deal, but sometimes buying even a second is a worthwhile thing to do. If multiple spirits are trapped in a single container, add half the others' ST and IQ to the full ST and IQ of the most powerful spirit before calculating cost.

The spirit cannot damage the container or affect anything outside of it, nor can it use shape-shifting powers to help it escape in any way. It can communicate with anyone within a yard or so of the container in the normal fashion.

Duration: 5 minutes.

Cost: Spirit's (ST+IQ) divided by 5 to cast, by 10 to maintain.

Prerequisites: Magery 1, Soul Jar, and Turn Spirit.

Repel Spirits

Area

Repels spirits from an area. The spell resists attempts by spirits (as well as other insubstantial beings such as an Ethereal Body or Astral Trip subject) to enter it or stay in it.

Each spirit may try to enter the area once per hour, rolling a Regular Contest between its Will and the caster's effective skill (each stage of the Contest lasts a second). Once inside, the invader resists with its Will; the spirit is expelled from the area on its first failure.

Duration: 1 hour.
Base cost: 4 to cast. Half that to maintain.
Time to cast: 10 seconds.
Prerequisites: Banish and Turn Spirit.

Item

(a) Wand, staff, or jewelry. Usable only by mages. *Energy cost to create:* 100. (b) Any area or container can be made permanently repellent at 100 times casting cost.

Bind Spirit (type) (VH)

Regular; Resisted by spirit's IQ

Similar to Enslave (p. 141), but for spirits. Like Enslave, it allows mental contact with a turn of concentration. There is a separate Bind Spirit spell for each Command Spirit spell. The spirit may interpret its orders creatively, as per Command Spirit.

Duration: Permanent.
Cost: 1 per 3 character points used to build the spirit (minimum cost 30).
Time to cast: 5 minutes.
Prerequisites: Command Spirit (same type), and Soul Jar.

Item

A spirit may be bound to an item or place. Bound spirits will serve the owner of the item and will not dissipate. *Energy cost to create:* 4 times the cost above, halved if the spirit is willing.

Steal (Attribute) (VH)

Regular; Resisted by appropriate attribute

This is actually four separate spells. *Steal Might* steals the subject's ST, *Steal Grace* steals DX, *Steal Wisdom* steals IQ, and *Steal Vigor* steals HT. Each spell must be studied separately, but all four work identically.

The spell transfers basic attributes on a level-for-level basis to the caster from the subject (who must be a living, sapient being). The caster cannot lower the subject's attribute below the subject's racial average (10 for a human). Thus, a subject must have an exceptional score for this spell to work. Secondary characteristics *are* affected by the attribute loss.

The caster *must* touch the subject and hold on to him for the entire casting time; neither can do anything while the spell is being cast. The caster increases his own attribute (whichever applies) as if he had spent the character points stolen from the subject.

Example: Rolfe, with an IQ of 14, wishes to steal the wisdom of a victim with IQ 13 (this is legal; it is assumed that any character has knowledge and experiences that would expand the capabilities of another, even if the *score* is lower). If he drains the subject to IQ 10, he has stolen 3 levels of IQ, raising his IQ to 17.

Duration: 1 day; at the end of that time, both the caster and the subject regain their normal attributes.
Cost: 1 per character point stolen (minimum cost 10).
Time to cast: 1 minute.
Prerequisites: Magery 3. In addition, there are different spell prerequisites for each version of the spell:

Spell	*Prerequisites*
Steal Might	Steal Vitality and Debility
Steal Dexterity	Steal Vitality and Clumsiness
Steal Wisdom	Steal Vitality and Foolishness
Steal Vigor	Steal Energy and Frailty

Steal Skill (VH)

Regular; Resisted by Will

Transfers one skill from the subject to the caster. The caster must touch the subject and hold on to him for the entire casting time; neither character can do anything for that duration. The outcome of the struggle (i.e., the resistance roll) remains unknown until the casting is complete. The caster may abort his casting at any time; the energy is still spent.

The caster gains the skill as if he had himself spent the character points stolen from the subject. This spell can be used to steal spells.

If the victim had other skills based on the stolen one, he retains them fully, but the loss of a prerequisite causes a -2 penalty to skill use.

Example: Severin wishes to sell some ill-gotten gains, but lacks much in the way of business sense. To remedy this, he casts Steal Skill on the first bazaar merchant he passes, taking his Merchant skill. The merchant has IQ 10, Business Acumen 2, and Merchant-15, having spent 12 points on Merchant. Severin gains Merchant as if he had spent 12 points on the skill – with Severin's IQ of 14, his Merchant skill is now 17. He does not gain the benefit of the merchant's Business Acumen Talent.

Duration: 24 hours.
Cost: 1 per character point stolen (minimum cost of 10).
Time to cast: 1 minute.
Prerequisites: Magery 3, Borrow Skill, and Daze.

Steal Youth (VH)

Regular; Resisted by HT

Take another's youth. For every 10 points of energy put into this spell, the caster grows one year younger and the subject (who must be of the same race) grows two years older. The subject must either be willing or totally helpless; the caster must touch the subject. A critical failure of this spell costs the caster 1 point of IQ and ages him by 20 years instantly.

Duration: Permanent.
Cost: 10 to 30.
Time to cast: 1 hour.
Prerequisite: Youth, Age, and Steal Vitality.

Item

Staff, wand, or jewelry. The wearer and the item must both touch the victim. Usable only by mages. This item can only be used once a year, and only to steal one year at a time – so one item keeps one mage young, but no more. *Energy cost to create:* 8,000.

Steal Beauty (VH)

Regular

Transfers the subject's beauty to the caster. The caster gains one or more appearance levels (p. B21) while the subject loses an equal number.

Beauty can only be stolen from someone of better appearance than the caster, and the caster cannot gain better appearance than the subject's initial appearance level. The subject must be of the same species and sex as the caster. In addition, the subject must either be willing or totally helpless and must be touched for the entire casting time. A critical failure of this spell instantly makes the caster Hideous.

At the GM's option, this spell may also be used to steal Charisma and the Voice advantage. People with stolen Charisma simply become less scintillating; those with stolen Voices become mute. Critical failure on either of these applications results in muteness for the caster!

Duration: 24 hours; at the end of this time, both the caster and subject regain their normal appearance.

Cost: Equal to the character point difference between the subject's original and final appearances (or equal to the cost of the stolen advantage, in the case of Charisma or Voice).

Time to cast: 30 seconds.

Prerequisites: Magery 3, Alter Visage, and Steal Vitality.

Item

Staff, wand, or jewelry. The wearer and the item must both touch the victim. Usable only by mages. *Energy cost to create:* 2,500.

Astral Block

Area

No spirit or insubstantial being may cross an astral block's boundaries for the duration of the spell. In addition, insubstantial creatures within an astral block cannot become substantial, and vice versa. Thus, a sorcerer could not cast Ethereal Body within the area of a spell, while a ghost would be unable to use Solidify. A ghost *already* in a tangible state could not become insubstantial!

Duration: 10 minutes.

Cost: 4 to cast and 2 to maintain if cast as an Area spell. 15 per cubic yard if cast on a container, and half that to maintain.

Time to cast: 2 seconds.

Prerequisites: Summon Spirit and Repel Spirits.

Item

(a) Wand, staff, or jewelry. Usable only by mages. *Energy cost to create:* 600. (b) Any area or container may be permanently enchanted for 100 times casting cost. (c) A container of any size (from a stoppered bottle to a starship) may be enchanted for an energy cost of 500 per cubic yard or fraction thereof. The container must be at least airtight when fully closed. This creates a *mobile* astral block. Any spirit coaxed into the enclosure (or in it when the spell is cast) will be affected by the spell when it is closed. Opening the container *temporarily* suspends the spell.

Lich (VH)

Enchantment

This spell lets the caster become a lich, a wizard preserved into undeath with powerful magic and alchemy. He retains his personality, knowledge, IQ, skills, and spells, and all his mental advantages and disadvantages (including Magery), but gains the physical and supernatural traits of a lich, as determined by the GM. The more powerful that package, the higher the energy cost.

After the GM determines the lich template (and hence, the energy cost), the mage casts this spell as with any other enchantment, but with himself as the subject. At the end of the enchanting, he rolls against skill. *Any* failure does 6d damage to the caster. A success prepares the wizard's body for the next step.

To complete the transformation, the would-be lich must drink an alchemical elixir of Lichdom. The elixir of Lichdom is prepared like any other alchemical elixir (see p. 210); it requires $13,500 in materials and 50 weeks of brewing. It defaults to Alchemy-7. Anyone not currently under the effects of a Lich spell who imbibes an elixir of Lichdom is affected as if he had drunk an elixir of Death (p. 215). However, an elixir of Lichdom cannot be counteracted, even with an alchemical Antidote. The elixir of Lichdom is forbidden everywhere, and formularies for it are almost impossible to find; most liches are compelled to reinvent it from scratch.

When a wizard under the Lich spell drinks a potion of Lichdom, he must roll vs. HT. If he succeeds, he dies, rising as a lich in 2d days. If he fails, he just dies. Luck, as well as the Bless and Wish spells, *can* influence this HT roll.

This is also an Enchantment spell.

Energy Cost to Cast: Equal to the lich's point total in his undead form, including his personal abilities and those on the lich template. It costs more for a more powerful subject because there are more abilities to preserve. Minimum cost is 100.

Prerequisites: Magery 3, IQ 13 or higher, Enchant, Soul Jar, and Zombie.

Lich

105 points

Attribute Modifiers: ST-1 [-10]; DX+2 [40]; HT+2 [20].
Secondary Characteristic Modifiers: Basic Speed+1 [20]; HP+3 [6]; FP+3 [9].
Advantages: Doesn't Breathe [20]; Doesn't Eat or Drink [10]; Doesn't Sleep [20]; DR 2 [10]; High Pain Threshold [10]; Immunity to Metabolic Hazards [30]; Injury Tolerance (No Blood, No Brain, No Eyes, No Vitals, Unliving) [40]; Temperature Tolerance 10 [10]; Unaging [15]; Unfazeable [15]; Vacuum Support [5].
Disadvantages: Appearance (Monstrous; Universal, +25%) [-25]; Dependency (Mana; common, constantly) [-50]; Fragile (Brittle) [-15]; Fragile (Unnatural, Mitigated by potion, monthly, -70%) [-15]; No Sense of Smell/Taste [-5]; Skinny [-5]; Social Stigma (Dead) [-20]; Vulnerability (Crushing Attacks; ×2) [-30].
Quirks: Cannot Float; Sexless. [-2]
Features: Affected by Pentagram; Can be turned using True Faith; Skull has only 2 total DR.
Racial Skill Modifiers: +1 to Thanatology [2].

Wraith (VH)

Enchantment; Resisted by HT

Enchants a ring or an amulet that will turn the wearer into a wraith, an undead guardian sustained by magic. It attempts to affect the wearer every time it is put on. The spell is Resisted normally by HT. If the subject ever fails to resist (or chooses not to), he "dies" and rises as a wraith 24 hours later.

The GM determines the exact abilities of the wraith, but mental traits are preserved as per the Lich spell. The wraith always has a Dependency (p. B130) on the Wraith item (a rare item, required constantly, for -150 points), and shrivels and dies if it is removed or destroyed. This item *isn't* Hexed; the victim can remove it and die if he wishes. Only Remove Enchantment can reverse the Wraith spell without harm.

Each Wraith item can sustain one wraith at a time. Once a given item has produced a wraith, it has no effect on other wearers until its wraith has been destroyed. The Wraith spell has no effect on the undead.

At double energy cost, the enchanter can create an item that makes the wraith his undead servant. The wraith automatically gains Reprogrammable (p. B150) with the enchanter as his master in addition to his Dependency, and *cannot* remove the Wraith item himself.

At half cost, the enchanter can create an item that turns the wearer into an undead tomb guardian. This works exactly as a regular Wraith item, except that the undead gains Compulsive Behavior (Remain in tomb and guard it; kill abductors and return if forcibly removed from tomb) [-15].

This is also an Enchantment spell.

Energy Cost to Cast: 500.

Prerequisites: Magery 3, IQ 13 or higher, Enchant, Halt Aging, and Soul Jar.

Item

A ring or funerary amulet, which need not be ornate.

Wraith

233 points

Attribute Modifiers: ST+5 [50]; HT+5 [50].
Secondary Characteristic Modifiers: HP+5 [10].
Advantages: Doesn't Breathe [20]; DR 4 [20]; Immunity to Metabolic Hazards [30]; Injury Tolerance (No Blood, No Brains, No Vitals, Unliving) [10]; Magery 1 [15]; Night Vision 9 [9]; Supernatural Durability (Spells, Magic Weapons) [150]; Temperature Tolerance 10 [10]; Unaging [15]; Unfazeable [15].
Disadvantages: Appearance (Horrific) [-24]; Bloodlust (12) [-10]; Callous (12) [-5]; Dependency (Wraith item; rare, constantly) [-150]; Disturbing Voice [-10]; Social Stigma (Dead) [-20]; Supernatural Features (No Body Heat, Pallor) [-15]; Unhealing (Can heal with Steal HT) [-20].
Quirks: Loves battle; Sexless. [-2]
Racially Innate Spells: Deathtouch-15 [20]; Steal Health-15 [20]; Ethereal Body-15 [20].

Chapter Twenty-One

Plant Spells

Willem stared at the apricot he held in both hands and slowly shook his head. "I don't understand you, Stanislav. Why waste yourself in the hinterlands this way, making giant fruit? You know you could easily have a seat on the Council."

Stanislav smiled indulgently. "I prefer it here, Willem, helping good people raise better crops. I had my fill of politics years ago, and I'm not interested in building castles in the air or constructing a better fireball. Far better, I think, to spend the days I'm given plumbing the mysteries of a perfect tomato."

These spells detect, modify, control, and communicate with plants. Unless noted otherwise, the subject plants gain no special powers.

Seek Plant

Information

Obtains the direction and approximate distance of the nearest growth of plants, or of one specific plant type. Use the long-distance modifiers (p. 14). Any known plants may be excluded if the caster mentions them before casting.

Cost: 2.

Item

A carved wooden wand, staff, or figurine. *Energy cost to create:* 50.

Identify Plant

Information

Determines the type and species of any one plant. It also gives basic information about it (edible, poisonous, etc). A successful casting of this spell gives +3 to Naturalist or Physician skill for determining medicinal or other special properties of the plant.

Cost: 2.
Prerequisite: Seek Plant.

Item

Wand or staff. *Energy cost to create:* 200.

Heal Plant

Area

Heals plants within the area of disease, parasites, and damage. The plants must still be alive for the spell to work.

Duration: Permanent.
Base cost: 3. Trees larger than saplings require a radius of at least 3 yards.
Time to cast: 1 minute.
Prerequisite: Identify Plant.

Item

Staff. The item must touch the plant. *Energy cost to create:* 400.

Shape Plant

Regular

Shape and mold plants and plant material with hands. Gives +2 to Carpentry and Artist (Woodworking), or allows the caster to work without any tools at -1 to skill. Useful for building houses and furniture, repairing shields and equipment, and removing wooden obstacles. It can be used on a foe's weapon in combat, doing 2d damage to wooden weapons; see *Striking at Weapons* (p. B400) for details on damaging weapons.

Duration: 1 minute.
Cost: 3 to cast. 1 to maintain. Double cost if the material is no longer living.
Time to cast: 10 seconds.
Prerequisite: Identify Plant.

Item

Gloves of plant material. *Energy cost to create:* 500.

Bless Plants

Area

Causes the plants within the area of effect to grow faster and stronger for the rest of their growing season. The crop yield within the area of effect is doubled.

Duration: One crop or growing season.
Base cost: 1. To be affected, the plants must be entirely within the area of effect.
Time to cast: 5 minutes.
Prerequisite: Heal Plant.

Item

Staff. Usable only by a mage. *Energy cost to create:* 500.

Hide Path

Regular

Enables the caster and up to five other man-sized creatures, or one caster on horseback, to pass through grass, undergrowth, or jungle without leaving any sign. Any tracking attempt made on this hidden path is at -8!

Duration: 1 minute.
Cost: 2 to cast. 1 to maintain.
Prerequisite: Heal Plant.

Item

Cloak of plant material. *Energy cost to create:* 300.

Plant Growth

Area

Causes the equivalent of one month's growth in one minute. Trees change only slightly, while weeds grow tremendously. Useful for gardening (after removing all the weeds!), and starting seeds.

Duration: 1 minute.
Base cost: 3 to cast. 2 to maintain.
Time to cast: 10 seconds.
Prerequisite: Heal Plant.

Item

Staff or wand. *Energy cost to create:* 300.

Plant Vision

Regular

See through vegetation to find overgrown buildings, lurking enemies, etc. Natural plant growth is transparent to the spell's subject. Magical plant growth, dead wood, and wooden constructions are not.

This is also a Knowledge spell.

Duration: 30 seconds.
Cost: 1 per 10 yards of range to cast (100 yards maximum). Same cost to maintain.
Prerequisite: Shape Plant.

Item

Any. *Energy cost to create:* 300.

Pollen Cloud

Area; Resisted by HT

A cloud of pollen fills the area; anyone within it begins sneezing, weeping, and coughing. All victims suffer a -2 DX penalty for as long as they are in the cloud and for 3d turns thereafter.

The rate of dissipation depends on the area and the presence of wind; indoors, it usually lasts until the spell expires, but outdoors on a windy day it may last only 10 seconds or so.

Duration: 5 minutes or less.
Base cost: 1. Cannot be maintained.
Prerequisite: Shape Plant.

Item

Staff, wand, or jewelry. *Energy cost to create:* 100.

Blight

Area

Causes the plants within the affected area to grow more slowly and more weakly for the rest of their growing season. The crop yield within the area is halved. Immediate effects include loss of leaves, fruit, and blossoms; the affected plants recover (partially) in the following days.

Duration: One crop or growing season.
Base cost: 1. To be affected, the plants must be entirely within the area of effect.
Time to cast: 5 minutes.
Prerequisite: Plant Growth.

Item

Staff. Usable only by mages. *Energy cost to create:* 500.

Blossom

Area

Causes plants within the area of effect to bloom and bear fruit within the one-hour duration of the spell. To be affected, the entire plant must be within the area of effect. The plant remains in this condition for 24 hours, at the end of which it enters its fall phase – leaves of deciduous trees will turn color, blossoms and fruit drop off, etc. The spell may be limited to a single plant, or a single type of plant, at the time of casting.

Duration: 1 hour.
Base cost: 2. Cannot be maintained.
Time to cast: 5 minutes.
Prerequisite: Plant Growth.

Conceal

Area

Causes the local vegetation to grow quickly over any objects in the area, concealing them from casual inspection. Anyone looking into the area must make a Quick Contest (their Vision vs. the caster's skill), to notice objects hidden by the concealing growth. Large objects may be camouflaged into "hills" by growing a carpet of grass or moss over them.

Duration: 1 hour.
Base cost: In a forest or jungle setting (or underwater), 1 to cast; in plains or savanna, 2; in tundra, 3. Same cost to maintain.
Time to cast: 4 seconds.
Prerequisite: Plant Growth.

Item

Wand or staff. *Energy cost to create:* 250.

Forest Warning

Area

As Nightingale (p. 167), but only works on areas with plants.

Duration: 10 hours.
Base cost: 1/2 (minimum 2). Same cost to maintain.
Prerequisites: Sense Danger or four plant spells.

Item

Can be cast permanently on an area of plant growth. *Energy cost to create:* 100 per yard radius.

Tangle Growth

Area

Causes grass or other ground plants within the area to grow and become obstacles (movement cut to 1/2 Move, -2 to dodge), or bushes and low trees to grow into barriers that must be removed to pass. Treat such a barrier as a 3" wooden slab (p. B558) per yard of width. Anyone in the area when the spell is cast may move normally on the next turn; only if they fail to leave will they be caught.

Duration: 1 minute.
Base cost: 1 for grass, 2 for bushes and trees. Half that to maintain.
Time to cast: 2 seconds.
Prerequisite: Plant Growth.

Item

An area may be made permanently "tangled" at a cost of 20 per yard radius for grass, or 30 per yard radius of trees and bushes.

Purify Earth

Area

As listed under *Earth Spells*, p. 54.

Create Plant

Area

Brings forth vegetation where nothing grew before. Whether this vegetation survives depends on the area.

Duration: Permanent.
Base cost: 4 for grasses; 8 for bushes; 15 for trees.
Time to cast: 1 second per energy point.
Prerequisites: Magery 1 and Plant Growth.

Item

Staff. Usable only by a mage. The item must touch the area where the plants are to be created. *Energy cost to create:* 1,000.

False Tracks

Regular; Resisted by Will

The subject leaves tracks that appear to be those of some animal or other being. Unwilling subjects resist with Will. A Quick Contest between a tracker's Tracking skill and the caster's Naturalist skill (or his skill with this spell, whichever is lower) determines whether or not the tracker is fooled.

Duration: 1 minute.
Cost: 2 to cast. 1 to maintain.
Prerequisites: Shape Plant and Shape Earth.

Item

Footwear. The item must bear a picture of the animal or being whose tracks it leaves. *Energy cost to create:* 300.

Plant Sense

Regular; Resisted by Hide Path

The subject sees and hears minute details known by the plants around him – such as disturbances caused by passing or hiding creatures. This gives a +4 bonus to Tracking, a +2 bonus to all Sense rolls, and the ability to detect the presence of invisible or magically hidden creatures with a normal Sense roll. Works only in areas with thick plant growth (jungles, forests, etc.); may work at half effect (with no chance to sense invisible or magically hidden creatures) in sparser terrain.

Duration: 1 minute.
Cost: 3 to cast. 2 to maintain.
Prerequisites: Forest Warning and Hide Path.

Item

Staff or figurine. *Energy cost to create:* 500.

Rejuvenate Plant

Regular

Causes a dead, dying, or old plant to undergo a sudden burst of life. Tables (or longbows!) sprout leaves, an aging fruit tree bears fruit once more, etc. Whether the plant can sustain this new vitality depends on its immediate surroundings. A rejuvenated chair would die slowly unless its legs could grow roots into nourishing soil, for example.

Duration: Permanent.
Cost: 3.
Prerequisites: Magery 1 and Plant Growth.

Item

Staff. Usable only by mages; the item must touch the subject. *Energy cost to create:* 700.

Wither Plant

Area; Resisted by HT

Causes plants within the area to wither and die. The caster can choose to affect only one type of plant, or everything but one type of plant, if he wishes. Any large plants or animated vegetable foes should be assigned a HT score with which to resist this spell – see Animate Plant.

Duration: Permanent.
Base cost: 2.
Time to cast: 10 seconds.
Prerequisite: Blight.

Item

Staff or wand of dead wood. *Energy cost to create:* 200.

Walk Through Plants

Regular

Enables the subject to pass through grass, undergrowth, heavy forest or jungle without any hindrance from the vegetation. He can travel as if the land were open (normal movement rates); plants move aside to let him pass and then resume their previous position behind him.

The spell makes tracking difficult, giving a penalty from -1 to -8, depending on the thickness of the local vegetation. If used against Tangle Growth, a Quick Contest of spells must take place every second.

Duration: 1 minute.
Cost: 3 to cast. 1 to maintain.
Prerequisites: Hide Path and Shape Plant.

Item
Cloak of plant material. *Energy cost to create:* 400.

Walk Through Wood

Regular

Enables the subject to pass through solid wood (dead or alive) as if it were air. It does not open a passage so that others can follow, nor does it reveal what is on the other side . . . The subject should hold his breath, as the spell does not supply any air!

Should the spell end before the subject regains the open air, he is buried in wood. He is not automatically harmed, but suffocates (p. B436) if he cannot escape.

Duration: 1 second.
Cost: 3 to cast. 2 to maintain.
Prerequisite: Walk Through Plants.

Item
Cloak of plant material. *Energy cost to create:* 500.

Plant Control

Regular; Resisted by Will

Control the actions of one large vegetable (any size) or a group of small ones, up to about 100 pounds total – useful only if the plant can move spontaneously to start with. Concentration is required. This spell will not work on a sapient vegetable (IQ 6 or higher). Note that this spell makes possible the use of Rider, Rider Within, Beast Possession, and similar spells on vegetable creatures. Plant Control is Resisted by Animate Plant.

Duration: 1 minute.
Cost: 3 to cast. Half that to maintain.
Prerequisite: Plant Sense.

Item
Staff, wand, or jewelry. *Energy cost to create:* 600 (will control any type of vegetable).

Essential Wood

Regular

Transforms any intact wood into the magical essence of wood. Essential Wood is three times as strong as regular wood, with three times the HP and DR listed on p. B558, and three times the ability to support weight. It is difficult to ignite with regular flames (Highly Resistant, according to the chart on p. B433), but once lit burns three times as long. It also burns hotter, adding an extra point of damage to each die (this will even increase the heat of Essential Flame!).

Manufactured objects made of wood can be turned into objects made of Essential Wood; living plants, however, may not be transformed.

Duration: Permanent.
Cost: 8.
Time to cast: 30 seconds.
Prerequisites: Six Plant spells.

Item
Staff. Usable only by mages. *Cost to create:* 800 energy.

Animate Plant

Regular

As Animation (p. 150), except only one living plant may be animated. An animated plant gains a HT score equal to twice the energy put into the spell. Note that woody plants often have a high DR and make frightening foes.

A sapient (IQ 6 or higher) plant may not be animated.

Duration: 1 minute.
Cost: 3 to cast. Half that to maintain. Double cost if the plant is to pull itself up and walk (Move 4) on its roots!
Time to cast: 5 seconds.
Prerequisites: Seven Plant spells.

Plant Form

Special

Assume the form of any natural plant or tree between 1/2 and five times your own size. Clothing vanishes, to reappear when you regain your form; large possessions fall to the ground, while small ones (up to bracelet or wand size) may remain imbedded in your plant form.

The caster cannot move about, attack, etc., unless a plant with those abilities exists in the game world and he takes that form, or unless Animate Plant is cast on his plant form. A wizard in plant shape may cast no spells unless he knows them so well that he can cast them without speech or gesture! He may hear normally but may not see except to sense light and darkness. He may not speak.

Injuries taken in plant form carry over proportionately. This means, for instance, that an arrow wound to a tree is a pinprick to a man; some GM flexibility is required here! Time spent in plant form automatically counts as "rest" unless the plant is under attack. However, he must roll against IQ every hour that he stays in plant form. A failed roll temporarily reduces his IQ by 1. If IQ drops to 5, he is trapped in plant form, with a plant's IQ, until someone else frees him with Remove Curse.

Duration: 1 hour.
Cost: 5 to cast. 2 to maintain.
Prerequisites: Magery 1 and six Plant spells.

Item
Staff or wand. *Energy cost to create:* 1,200.

Plant Speech

Regular

"Converse" with plants in a very rudimentary fashion (semi-telepathically; the mage must speak aloud). The older the plant, the more detailed the information that can be gained. For instance, grass could only tell that it had been stepped on recently (about a day), while an ancient oak could recall details of mounts, dress, aroma . . . Sapient vegetables can hold much better conversations.

Duration: 1 minute. Each minute allows one question and answer.
Cost: 3 to cast. 2 to maintain.
Prerequisites: Magery 1 and Plant Sense.

Item
Staff. *Energy cost to create:* 750 for an item that will talk to one particular species, 2,000 for one that will talk to any plant.

Plant Meta-Traits

Body of Wood: Your body is made of wood. Basic Speed-1 [-20]; Lifting ST +5 [15]; Blunt Claws [3]; DR 2 (Semi-Ablative, -20%) [8]; Doesn't Breathe [20]; Immunity to Metabolic Hazards [30]; Injury Tolerance (Homogenous) [40]; Numb [-20]; and Affected by Plant spells [0]. *76 points.*

Body of Slime: Your body is made of an organic slime like algae or slime mold. Amphibious [10]; Doesn't Breathe [20]; Immunity to Metabolic Hazards [30]; Injury Tolerance (Homogenous) [40]; Bad Smell [-10]; Disturbing Voice [-10]; Invertebrate [-20]; Affected by Plant spells [0]. *60 points.*

Rain of Nuts

Area

Causes a rain of nuts to fall within the area, issuing from the nearby trees as if they were suddenly filled with crazed squirrels. The noisy torrent plinks on helmets, stings bare skin, and interferes with missile fire. Any characters in the area take a -1 penalty to any tasks requiring concentration or skill, including combat and spellcasting. There's an additional *visibility* penalty of -1 per 8 yards distance, applied to missile attacks and Vision rolls. The caster may elect to exclude any in the area from the effects of the spell, focusing the "ire" of the wood on enemies.

This spell may only be cast outdoors, in a forest. It won't work in the dead of winter, or in very sparse woods. Depending on the species of trees, the nuts may turn out to be edible.

Human mages rarely use this spell (most feel it is beneath their dignity), but sylvan species and nature spirits use it to drive intruders from their woods.

Duration: 1 minute.

Base cost: 1/10 to cast. Same cost to maintain. For double cost, the caster may double the effect of the spell (-2 skill penalties and visibility -1 per 4 yards), if the GM agrees that the woods are sufficiently dense and wild.

Prerequisites: Magery 1 and at least six Plant spells including Shape Plant.

Item

Staff or wand. Usable only by mages. *Energy cost to create:* 500.

Arboreal Immurement

Regular; Resisted by HT

Similar to Entombment, except that a tree, instead of the earth, confines the subject. The subject is instantly swallowed by the nearest tree large enough to contain him. He remains in suspended animation (as with the spell; see p. 94) in a tiny cylindrical chamber inside the tree, until rescued by chopping through the tree or the cancellation of the spell.

A mage who casts Arboreal Immurement on himself may elect to stay awake, but this is unwise unless he can create air!

Modifiers: Apply the long-distance modifier (p. 14) for the distance from the subject to the nearest tree large enough to hold him.

Duration: Indefinite.

Cost: 8 to cast. 5 to reverse an Arboreal Immurement.

Time to cast: 3 seconds.

Prerequisites: Magery 2 and Walk Through Wood.

Item

Wand or staff. The item must be wooden, and works only with trees of that wood. Usable only by mages; the item must touch the subject. *Energy cost to create:* 1,000.

Plant Form Other (VH)

Special; Resisted by Will

As Plant Form, but usable on others. Only the caster or a Remove Curse spell can end the spell. IQ loss will soon transform the subject into a true vegetable!

Duration: 1 hour.

Cost: 5 to cast. 2 to maintain.

Time to cast: 30 seconds.

Prerequisites: Magery 2 and Plant Form.

Item

Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 3,000.

Body of Wood

Regular; Resisted by HT

Subject becomes an animated wooden statue, temporarily granting him the Body of Wood meta-trait (see box). Clothes (up to 6 pounds) also become wood, but lose any magic powers they might have had. He may still speak, cast spells, etc.

A subject under the effects of Body of Wood may also merge into wooden objects as if he had the Permeation (Wood) advantage (p. B75).

Duration: 1 minute. The spell expires if the subject loses consciousness.

Cost: 7 to cast. 3 to maintain.

Time to cast: 5 seconds.

Prerequisites: Magery 2 and Plant Form.

Item

Staff, wand, or jewelry. Only affects the wearer. *Energy cost to create:* 1,300.

Body of Slime

Regular; Resisted by HT

The aquatic equivalent of Body of Wood. The subject becomes an animated mass of green slime – algae, pond scum, and other muck you might find in a swamp – temporarily granting him the Body of Slime meta-trait (see box). Clothes (up to 6 pounds) are also transformed, but lose any magic powers they might have had.

Duration: 1 minute. The spell expires if the subject loses consciousness.

Cost: 6 to cast. 2 to maintain.

Time to cast: 5 seconds.

Prerequisites: Magery 2, Plant Form, and Shape Water.

Item

Staff, wand, or jewelry. Only affects the wearer. *Energy cost to create:* 1,300.

Chapter Twenty-Two

Protection and Warning Spells

Patrick's eyes snapped open in the dark; the tingle of his makeshift ward buzzed in his mind. As silently as he could, he rolled into the small gap he'd made between his bed and the wall and dropped to the floor. There, under his bed, he tried to think small and quiet thoughts as three pairs of feet tiptoed ever closer.

"He's not here," Boz's voice hissed softly.

Patrick couldn't make out the whispered conversation between the three older boys, and nearly cried out in surprise when they began to beat his bed vigorously. Maybe they wanted to make sure he hadn't placed a glamour over himself before going to sleep. He curled up, listening to the drumming above his head and trying not to think about what would have happened if he hadn't learned how to place a ward on his door before Boz decided to take a dislike to him.

The College of Protection and Warning is a common second specialty for mages. It's a particularly accessible college; most of its spells have only a few prerequisites. Besides, a wise mage is a mage with a contingency plan.

Sense Danger

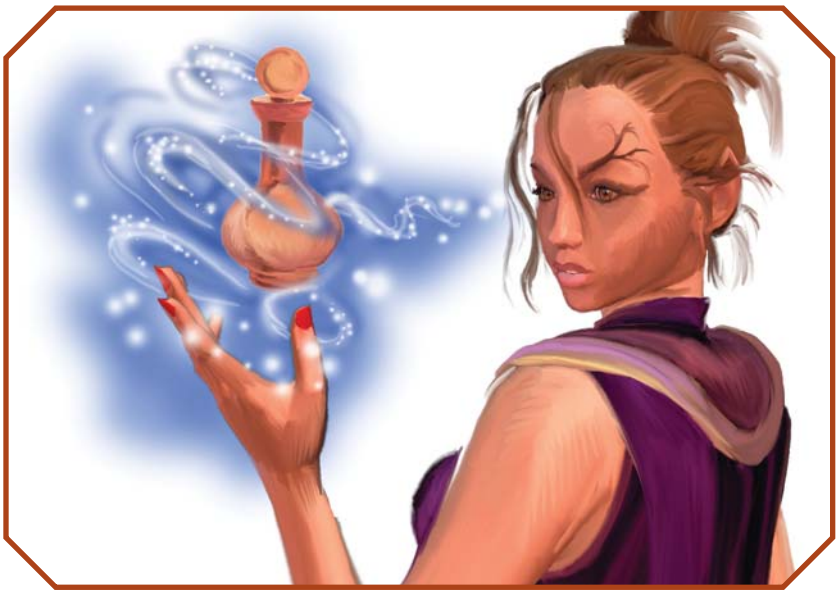
Information

Tells the caster if any immediate danger is nearby; can also detect a far-away danger if it threatens to come close and strike! Gives the nature of any danger that is only a minute or so away; if there is a danger within five minutes, the spell produces foreboding but no details (except possibly on a critical success).

Duration: Instantaneous.
Cost: 3.
Prerequisite: Sense Foes *or* the advantage of Danger Sense.

Item

Wand, staff, or jewelry. *Energy cost to create:* 400.



Detect Poison

Area; Information

Reveals the presence of toxins and gives a +2 on any subsequent Poisons roll to identify the exact agent(s). The caster may exclude any types of poisons he wishes upon casting (to specifically search for nerve agents, for instance, or to exclude "benign" poisons like alcohol).

This is also a Healing spell.

Base cost: 2.
Time to cast: 2 seconds.
Prerequisite: Sense Danger *or* Test Food.

Item

Staff, wand, or jewelry. *Energy cost to create:* 250.

Magelock

Regular; Resists Lockmaster spell

Locks a door magically. The door does not open unless the spell is removed (Counterspell and Lockmaster will both counter it) or the door itself is destroyed.

Duration: 6 hours.
Cost: 3 to cast. 2 to maintain.
Time to cast: 4 seconds.
Prerequisites: Magery 1.

Item

A golden key that must touch the door. *Energy cost to create:* 200.

Block

Blocking

An instantaneous version of the Shield spell – adds to the subject's DB for a single defense roll. This spell is not cumulative with the effects of Shield – use the highest value.

Cost: 1 per point of DB (maximum of 5).
Prerequisite: Magery 1.

Hardiness

Blocking

An instantaneous version of the Armor spell – adds to the Damage Resistance of the subject for one attack. This spell is not cumulative with Armor – only the stronger spell applies. Remember that only one Blocking spell may be cast in a turn. A mage cannot follow up a failed Iron Arm with a Hardiness spell, for instance.

Cost: 1 per point of DR (maximum of 5).
Prerequisite: Block.

Watchdog

Area

When cast around an area, this spell warns the caster of anyone or anything crossing with hostile intent. If the caster is asleep, he wakes instantly without being stunned. The spell is not destroyed if triggered; it lasts until its natural expiration.

Duration: 10 hours.
Base cost: 1 to cast. 1 to maintain.
Time to cast: 10 seconds.
Prerequisite: Sense Danger.

Item

Can be cast on an area of floor or ground, or on a rug. *Energy cost to create:* 200 per yard of radius.

Protect Animal

Area

As listed under *Animal Spells*, p. 32.

Nightingale

Area

Makes a door or section of floor "noisy." A door squeaks loudly when opened; a patch of ground becomes full of snapping sticks when someone walks over it; a floor squeaks, etc. This automatically alerts or awakes the caster if he is within hearing range, and probably alerts others nearby as well (make an IQ roll if there is other noise around).

Duration: 10 hours.
Base cost: 2 to cast. 2 to maintain.
Prerequisite: Sense Danger.

Item

Can be cast on an area of floor or ground, or on a rug. *Energy cost to create:* 100 per yard of radius.

Sense Observation

Area

Alerts the caster if someone or something spies or scries upon the subject area, by means magical or otherwise. A Quick Contest is rolled between the spy's IQ or the effective skill of the Information spell's caster (Trace, Seeker, Crystal Ball, any of the "Sense" spells . . .) and the effective skill of the Sense Observation spell's caster; if the caster wins, he becomes aware that the subject area is being observed. A critical success (on the Contest) might give the caster an idea of who or what is doing the scrying or spying.

If the caster then tries to seek out the spy, the margin of success of the Sense Observation contest can be added as a bonus to the Seeker roll, up to a maximum of +5 (effectively neutralizing the -5 penalty for having nothing associated with the person sought). Another possible course of action is to Counterspell the scrying spell; distance penalties do not apply, but the -5 penalty for absent subject does.

Sense Observation can also be cast on a being; in that case, the caster can choose to have the spell alert the subject instead when eavesdropping is detected.

Duration: 1 hour.
Base cost: 1 to cast. Half that to maintain. When cast on a being, the cost is 3.
Time to cast: 5 seconds.
Prerequisite: Sense Danger *or* Scryguard.

Item

(a) Wand, staff, or jewelry. *Energy cost to create:* 300. (b) Jewelry or clothing. Always on. Only affects the wearer. *Energy cost to create:* 1,500.

Shield

Regular

Conjures an invisible shield of magical force that moves to protect the subject from *frontal* attacks. The Defense Bonus granted by this spell is cumulative with that from an actual shield, but this spell does *not* allow a subject without a shield to block. Defense Bonus granted by Shield is not cumulative with any granted by Block (p. 166).

Duration: 1 minute.
Cost: Twice the Defense Bonus given to the subject, to a maximum DB of 4 (cost 8). Half that to maintain.
Prerequisite: Magery 2.

Item

None with this spell – but the armor enchantment called Deflect (p. 67) can increase your Defense Bonus by 1 to 5 points.

Armor

Regular

Adds to the Damage Resistance of a living subject. DR from this spell is treated for all purposes like DR from armor, and is cumulative with that from actual armor.

Duration: 1 minute.
Cost: Twice the Damage Resistance given to the subject, to a maximum DR of 5 (cost 10). Half that to maintain.
Prerequisite: Shield.

Item

None with this spell – but the armor enchantment called Fortify (p. 66) can increase the Damage Resistance of your armor by 1 to 5 points.

Turn Blade

Blocking

Makes an incoming blade turn in its wielder's hand, inflicting only crushing damage instead of cutting. This also unreadies the weapon. Only good against blade attacks – it is useless against a spear, club, or the teeth and claws of an animal. This spell does not count as an active defense itself; it may be combined with a normal Parry, Block, or Dodge.

If the caster is not the one being attacked, apply regular range modifiers between the caster and the attacker.

Cost: 1.
Prerequisite: Apportation *or* Spasm.

Item

A bracelet or other piece of arm apparel. *Energy cost to create:* 300.

Bladeturning

Regular

A continual version of Turn Blade – all blades attacking the subject are turned, doing only crushing damage and becoming unready. For each bladed attack, roll a Quick Contest between the wielder's DX and the caster's effective skill to see which wins out. Useful only against blade attacks, as per Turn Blade.

Note that, unlike Turn Blade, the spell is cast on the one being attacked, not on the attacker.

Duration: 1 minute.
Cost: 2. Same cost to maintain.
Prerequisite: Shield *or* Turn Blade.

Item

Wand, staff, jewelry, weapon, or armor. *Energy cost to create:* 300.

Umbrella

Regular

As listed under *Water Spells*, p. 185.

Deflect Missile

Blocking

As listed under *Movement Spells*, p. 143.

Missile Shield

Regular

Turns any missiles harmlessly aside by the tiniest fraction needed to ensure they miss the subject; the game effect is that the missile continues in a straight line past the subject. Works on all kinds of missiles – arrows, bullets, falling rocks, missile spells, shrapnel, cream pies – everything. The GM should conceal the existence of the spell from the caster's foes as long as possible, saying they just missed!

Duration: 1 minute.
Cost: 5 to cast. 2 to maintain.
Prerequisite: Apportation *or* Shield.

Item

Wand, staff, weapon, or armor. *Energy cost to create:* 400.

Catch Missile

Blocking

The caster catches one missile about to hit him. This spell is cast with a modifier depending on the nature of the missile caught. Considered a Parry by the caster for combat purposes. The missile is unready when caught. To catch a missile spell, use Catch Spell.

Missile Type	*Penalty*
Large thrown weapons (axes, spears, etc.)	+4
Thrown knives	+2
Arrows	0
Blowgun darts, crossbow bolts	-5
Bullets, supersonic missiles	Impossible

Cost: 2.
Prerequisite: Deflect Missile.

Item

Glove. *Energy cost to create:* 300.

Reverse Missiles

Regular

Turns any ranged attack (including Missile spells) back upon the attacker. If the attacker's "to hit" roll is successful, he hits himself – if not, he sees the missile fly back toward him and miss. The game effect is as though the missile had bounced straight back from the spell's subject to the attacker.

Duration: 1 minute.
Cost: 7 to cast. 3 to maintain.
Prerequisite: Missile Shield *or* Force Dome.

Item

Wand, staff, weapon, or armor. *Energy cost to create:* 600.

Return Missile

Blocking

Causes one missile (including spells) about to hit the subject to turn back upon the attacker. If the attacker's "to hit" was successful, he hits himself – if not, he sees the missile fly back toward him and miss. Considered a Parry (by the caster) for combat purposes. Apply Regular range modifiers if the caster is not the subject.

Cost: 2.
Prerequisite: Catch Missile.

Item

Jewelry, weapon, or shield. *Energy cost to create:* 400.

Reflect Gaze (VH)

Blocking; Resists gaze attacks

Resists one gaze attack (includes Lightning Stare, Fascinate, and any power which requires eye contact) about to hit the subject. If successful, the gaze attack is reflected away from the subject; a success by 10 or more, or a critical success, reflects the gaze back upon the attacker. If failed, the gaze attack affects the subject normally. Considered a parry by the caster for combat purposes. Apply Regular range modifiers if the caster is not the subject.

Cost: 2.
Prerequisite: Mirror.

Item

Jewelry. *Energy cost to create:* 600; must include a tiny mirror.

Mystic Mist

Area

Produces a dense, opalescent fog that confuses anyone entering it; figures more than 2 yards away cannot be seen except by Mage Sight. Those who were within it when it was cast are immune to its effects; they can sense it as a dim shimmering, but it does not affect their vision or confuse them. Others must roll vs. (IQ + Magic Resistance) every second, or use Mage Sight, to avoid losing their way and walking in randomly chosen directions, unless they have a guide. Absolute Direction avoids this problem.

A Fright Check is also required of intruders first entering the mist, and again every 5 minutes. Anyone failing the first Fright Check will be very reluctant to enter! Dangerous animals simply avoid the mist, but suffer normal effects if for some reason they must enter it.

Those "native" to the mist have a +1 to their defense rolls when attacked by interlopers, and interlopers have a -1 to their own defense rolls against "natives."

This spell is an excellent defense for a party camping in dangerous territory. The caster must cast Mystic Mist in an area centered on himself. The wider an area he can cover, the better!

Duration: 10 hours.
Base cost: 1. Cost to maintain is the same.

Time to cast: 5 minutes.
Prerequisites: Magery 1 and either Watchdog or Shield.

Item

(a) Amulet that keeps wearer immune to the effects of Mystic Mist. *Energy cost to create:* 400. (b) It is rumored that there is an object that creates a permanent Mystic Mist, controllable in some way, but nothing more is known at present.

Shade

Regular

Provides shade for the subject. This prevents sunburn and provides some relief from heat (reducing the effective temperature around the subject by 10°F, if hot light is a significant source of the heat). The effect is that of an invisible parasol.

This is also a Light and Darkness spell.

Duration: 1 hour.
Cost: 1 to cast. Half that to maintain.
Time to cast: 10 seconds.
Prerequisite: Continual Light *or* Shield.

Item

Staff or jewelry. Only affects the wearer. *Energy cost to create:* 100.

Resist Poison

Regular

As listed under *Healing Spells*, p. 91.

Resist Disease

Regular

As listed under *Healing Spells*, p. 90.

Resist Sound

Regular

As listed under *Sound Spells*, p. 173.

Resist Water

Regular

As listed under *Water Spells*, p. 186.

Resist Lightning

Regular

As listed under *Weather Spells*, p. 196.

Warmth

Regular

As listed under *Fire Spells*, p. 74.

Coolness

Regular

As listed under *Water Spells*, p. 187.

Iron Arm

Blocking

Stop a blow with only an arm. If the spell succeeds, the arm becomes harder than iron, momentarily – and automatically parries the attacking weapon without harm to the caster. If the spell fails, the wizard is simply parrying with his arm! This spell can parry no attack that a sword could not parry, and is considered a parry for purposes of combat.

Cost: 1.
Prerequisites: Resist Pain and DX 11 or higher.

Item

A bracelet or other item worn on the arm. *Energy cost to create:* 600.

Weather Dome

Area

Creates a shimmering dome that repels bad weather of all types (up to and including Windstorm spells, volcanic ash, and rains of frogs, as well as flying insects!). Floods, landslides, and similar catastrophes destroy the dome. Inside the dome, the air remains fresh and the temperature remains comfortable for the caster.

This is also a Weather spell.

Duration: 6 hours.
Base cost: 3 to cast. 2 to maintain.
Prerequisites: At least two spells from each of the four elements.

Atmosphere Dome

Area

Creates a shimmering dome that is selectively permeable to gases. It can either drive out specified gases, or draw them in. When the dome is created, the caster defines a target atmospheric composition; when the target level for each component gas is reached, the dome ceases acting on that gas until conditions inside the dome change. The composition selected by the caster specifies both proportions and total pressure; this spell can thus be used either to change the composition of the air within the dome or its pressure relative to the surrounding area, or both. An Atmosphere Dome cannot create gas where none exists; if there is no oxygen in a planet's atmosphere, a dome set to accumulate oxygen remains empty.

This is also an Air spell.

Duration: 6 hours.
Base cost: 4 to cast. Half that to maintain.
Prerequisites: Purify Air and Weather Dome.

Resist Pressure

Regular

Protects the subject from the effects of pressures higher or lower than his native pressure, providing the equivalent of Pressure Support (p. B77) or Vacuum Support (p. B96). The caster must select that advantage the spell grants and at what level at the time of casting.

This spell is most appropriate in scientific-paradigm settings; if the space between the planets is filled with ordinary air and the bottom of the ocean is much like the bottom of a river, there's not much use for this spell.

Resist Pressure does not enable the subject to breathe in the environments it renders survivable; Breathe Water or Hold Breath may be useful in these situations.

Duration: 1 minute.
Cost: Varies with the advantage conferred.

Advantage	*Energy Cost*
Pressure Support 1	2 to cast; 1 to maintain
Pressure Support 2	3 to cast; 2 to maintain
Pressure Support 3	5 to cast; 3 to maintain
Vacuum Support	3 to cast; 2 to maintain

Prerequisite: Weather Dome.

Item

Wand, staff, or jewelry. *Energy cost to create:* 900.

Resist Radiation

Regular

As listed under *Technological Spells*, p. 182.

Resist Acid

Regular

As listed under *Water Spells*, p. 190.

Freedom

Regular

As listed under *Movement Spells*, p. 148.

Teleport Shield

Area

Any attempt to Teleport (or Blink) into or out of the area of effect is at -5 to skill. Failed attempts to teleport in have the normal effects. Failed attempts to teleport out leave the caster where he started, physically stunned and having spent all the energy for the attempt! Doubling the energy cost increases the penalty to -10; tripling it increases the penalty to -15!

This spell works against Teleport, Timeport, Plane Shift, Timeslip, and all their variations.

This is also a Gate spell.

Duration: 1 hour.
Base cost: 1/3 to cast (minimum 3-yard radius). Same cost to maintain.
Time to cast: 10 seconds.
Prerequisites: Watchdog and either Spell Shield or Teleport.

Item

Can be cost on an area of floor or ground, or on a rug or similar item. *Energy cost to create:* 50 per yard radius.

Force Dome

Area

As Weather Dome, but the Force Dome repels *any* physical force or missile spell. Nothing can enter except light, and only enough light to see by (the interior is always in twilight). Likewise, nothing can leave the Force Dome except light – and not even that, if the caster wills it. However, magic, and magical creatures and items, pass through the Force Dome as though it did not exist.

Once cast, a Force Dome takes a full second to form; anyone inside the Dome's area at the time it is cast has one turn to leave.

Duration: 10 minutes.
Base cost: 3 to cast. 2 to maintain.
Prerequisites: Magery 1, Weather Dome, and Apportation.

Force Wall

Regular

Creates a shimmering barrier, which physical forces and missile spells cannot cross. Only light and non-Missile spells may pass. The Force Wall is four yards high. Higher walls are possible at a proportionately increased energy cost (double for double height, etc).

Duration: 10 minutes.
Cost: 2 per yard length to cast. Same cost to maintain.
Prerequisite: Force Dome.

Item

(a) Staff. Usable only by mages. *Energy cost to create:* 300. (b) A Force Wall may be made permanent at an energy cost of 100 times normal.

Utter Dome

Area

Protects against physical and magical attack; has the effect of a combination Force Dome and Pentagram. However, creatures cannot be summoned within it, and there is no marking to erase. Can only be removed by Dispel Magic or Counterspell. Resists any attempt to look through with magic.

Like Force Dome, an Utter Dome takes a full second to form once cast.

Duration: 1 minute.
Base cost: 6 to cast. 4 to maintain.
Prerequisites: Magery 2, Force Dome, and Spell Shield.

Utter Wall

Regular; Resists intruding spells

As Force Wall, but protects against physical and magical attack; has the effect of a combination Force Wall and Spell Wall.

Duration: 1 minute.
Cost: 4 per yard length to cast. Same cost to maintain.
Prerequisites: Utter Dome and Spell Wall.

Item

(a) Staff. Usable only by mages. *Energy cost to create:* 1,000. (b) An Utter Wall may be made permanent at an energy cost of 100 times normal.

Chapter Twenty-Three

Sound Spells

Some people find their talents early, and a toddler in green overalls seemed to be bent on making the most of an aptitude for shrieking. His piercing wails bored like a drill into Sheila's temples.

"One sec, OK?" she said to her friends, and quickly rattled off a short Bel Dampener. As she spoke the last syllable, the toddler's scream stopped like a TV being turned off. His mouth kept working for a few seconds before the absence of noise startled him out of the tantrum.

Sheila sighed with satisfaction and settled back into her seat.

For any spell that produces sound, the "subject" is the spot from which the sound comes.

Sound

Regular

Produces any sort of meaningless sound the caster wishes – the drone of an insect, the distant babble of voices, the clatter of something falling, or anything similar. The spell cannot produce *loud* noise. It requires no concentration once the spell is cast.

Duration and cost: 1 to create 5 seconds of sound; 2 to create a sound that lasts for a full minute; 1 per minute to maintain.

Item

Any. Continually produces the specified sound (though Link is often used to turn it on and off). *Energy cost to create:* 50.

Keen Hearing

As listed under *Mind Control Spells*, p. 133.

Silence

Area

Creates an area of quiet. No one within this area can hear anything, and nothing that happens in this area makes any sound. It is the area that is affected and not the people in it; anyone moving out will be able to speak. Note that an area of silence will prevent spoken spells from working!

Duration: 1 minute.
Base cost: 2 to cast. 1 to maintain.
Prerequisite: Sound.

Item

An area can be permanently silenced; the spell is on the floor or ground, and is broken if that area is torn up. Or a large rug can be enchanted for a portable silent area. *Energy cost to create:* 80 per yard radius, but only one spell is required for the whole area.

Sound Vision

Regular

The subject sees by sound, like a bat or dolphin, as if he had the Scanning Sense (Sonar) advantage (p. B81). The Silence and Wall of Silence spells are equivalent to Darkness to the subject, while someone using Hush or Mage-Stealth will be effectively invisible to Sound Vision. The subject may still see with his normal vision, if he wants to and there is light to do so.

Duration: 1 minute.
Cost: 5 to cast. 2 to maintain.
Prerequisite: Keen Hearing *or* the Acute Hearing advantage.

Item

Staff, wand, or jewelry; only affects the wearer. *Energy cost to create:* 400.

Thunderclap

Regular

Produces a single loud sound like an explosion or crash of thunder. The "subject" is the spot the caster chooses as the spell's center. Outdoors, anyone within 3 yards of this place must make a HT roll or be deafened; anyone deafened may roll vs. HT every hour to recover. In an enclosed area – less than 10 yards in any dimension – increase this distance to 6 yards! The caster makes his roll at HT+2.

Cost: 2.
Prerequisite: Sound.

Item

Gloves, staff, wand, or jewelry. *Energy cost to create:* 300.

Voices

Regular

Produces a meaningful sound – voices, music, etc. – of normal speaking volume. Requires constant concentration on the part of the caster.

Duration: 1 minute.
Cost: 3 to cast. 2 to maintain.
Prerequisite: Sound.

Item

Any. The item repeats a single saying over and over (unless limited with Link). *Energy cost to create:* 20 per word.

Garble

Regular; Resisted by Will

The subject (a living being) can no longer make meaningful sounds; it comes out completely garbled. This spell could make an opposing wizard powerless!

Duration: 1 minute.
Cost: 4 to cast. 2 to maintain.
Prerequisite: Voices.

Item

(a) Clothing or jewelry; only affects the wearer. Always on. *Energy cost to create:* 400. (b) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 1,000.

Imitate Voice

Regular; Resisted by HT

Alters the subject's voice to precisely imitate that of a single other being known to the caster (including special inflections and accent). Recreating a familiar voice from memory is a -2 penalty to skill, -3 or worse if the caster has only heard the voice a few times or a long time ago (Eidetic or Photographic Memory is helpful here). To determine whether someone familiar with the imitated being's voice is fooled or not, roll a Quick Contest between the spell and the listener's IQ when he first hears it.

Modifiers: +2 for close acquaintances of the imitated being; -2 for listeners who are not expecting trickery or aren't paying close attention.

Duration: 1 minute.
Cost: 3 to cast. 1 to maintain.
Prerequisite: Voices.

Wall of Silence

Area

Surrounds the affected area with a wall that sounds will not pass. Those within it cannot hear outside sounds, or be heard by those outside. Casting of spoken spells is unaffected.

Duration: 1 minute.
Base cost: 2 to cast. 1 to maintain.
Prerequisite: Silence.

Item

As for Silence, but the cost is 100 per yard radius.

Hush

Regular; Resisted by Will

The subject (an object or living being) can make no sounds, either accidentally or on purpose. Add 3 to the subject's Stealth skill whenever a roll is necessary, or subtract 5 from the Hearing roll of anyone listening for the subject. This spell can silence an opposing wizard in battle!

Duration: 10 seconds if subject attempted to resist, 1 minute otherwise.
Cost: 2 to cast. 1 to maintain.
Time to cast: 2 seconds.
Prerequisite: Silence.

Item

Clothing or jewelry; only affects the wearer. *Energy cost to create:* 200.

Mage-Stealth

Regular

The subject can move quietly, breathe without sound, etc., but can still talk when necessary. Other benefits are as for Hush.

Duration: 1 minute.
Cost: 3 to cast. 2 to maintain.
Time to cast: 3 seconds.
Prerequisite: Hush.

Item

Clothing or jewelry; only affects the wearer. *Energy cost to create:* 500.

Great Voice

Regular

The subject can be heard clearly and distinctly by everyone he can see, even at a great distance. The subject can choose to be heard by only a few chosen targets if he specifies before speaking (those within ordinary earshot will hear him whether he wants it or not, of course). Note that, for instance, one could not cut off the subject's voice by ducking behind a rock. This spell is widely used by ship captains, military commanders, and public speakers. The sound may become irritatingly loud if the original voice is loud, but will not deafen or cause harm.

Duration: 1 minute.
Cost: 3 to cast. 1 to maintain.
Time to cast: 2 seconds.
Prerequisites: Voices and Thunderclap.

Item

Staff, wand, helm, or jewelry; only affects the wearer. *Energy cost to create:* 200.

Noise

Area

Fills an area with meaningless, continuous, very loud noise. No one within this area can have a conversation or hear other sounds. Use of any IQ-based skill is either distracted (spells, for example), or at -3 (or both! GM's choice). A Wall of Silence surrounds the affected area. Resists (and is Resisted by) Silence.

Duration: 5 seconds.
Base cost: 4 to cast. 2 to maintain.
Prerequisite: Wall of Silence.

Item

An area can be permanently made noisy; the spell is on the floor or ground, and is broken if the area is torn up. Or a large rug could be enchanted for a portable noisy area. *Energy cost to create:* 100 per yard radius, but only one spell is required for the whole area.

Delayed Message

Area

Creates an oral message, which can be delayed to go off until a certain person, specified at casting, arrives in the area. The recipient hears it clearly, regardless of other noise, but nobody else hears it. A Detect Magic spell cast in the area reveals that it contains a delayed message, but only a critical success reveals more. A critical success reveals one of the following (roll randomly): the sender, the intended recipient, or the words (not any hidden meanings) of the message.

This does not count as a "continuing spell" – the mage casts it and forgets about it.

Duration: Until the specified person arrives.
Cost: 3 per simple sentence – one idea per sentence. Cannot be maintained.
Time to cast: 4 seconds.
Prerequisites: Magery 1, Voices, and Sense Life.

Resist Sound

Regular

The subject (person, creature or object), and anything he carries, becomes immune to the effects of sound: Thunderclaps won't deafen him, sonic weapons won't harm him, Sound Jet won't stun him, and so on. Noise may still *distract*, however. Very popular at high TLs.

This is also a Protection and Warning spell.

Duration: 1 minute.
Cost: 2 to cast. 1 to maintain.
Prerequisites: At least four Sound spells.

Item

(a) Any. Only affects the wearer. *Energy cost to create:* 800. (b) Wand, staff, or jewelry. *Energy cost to create:* 1,200.

Sound Jet

Regular

Shoot a thin beam of very shrill sound from a fingertip. Each turn, the caster rolls versus Innate Attack or DX-4 to hit. This attack may be dodged or blocked, but not parried. The spell does no actual damage, but anyone hit by the jet must roll versus their HT minus the energy cost of the spell or be stunned (see *Effects of Stun*, p. B420). DR gives a +1 bonus to the target's effective HT for every five points of DR. Every turn, a stunned person may roll vs. HT minus the energy cost of the spell to recover.

Duration: 1 second.
Cost: 1 to 4 to cast. Same cost to maintain. Range in yards is equal to energy cost.
Prerequisite: Great Voice.

Item

Staff, wand, or jewelry. Usable only by a mage. *Energy cost to create:* 400.

Concussion

Missile

As listed under *Air Spells*, p. 26.

Converse

Regular

Allows the caster and his subject to converse quietly without fear of eavesdropping, even in a noisy environment (such as a raucous party). Each one will hear the words of the other clearly regardless of the surrounding din. Other beings within earshot will hear a meaningless buzz of conversation.

Converse resists spells that block sound such as Silence or Noise.

Duration: As long as eye contact is maintained.
Cost: 2.
Prerequisites: Magery 1, Garble, and Silence.

Item

Any. Usable only by mages. *Energy cost to create:* 150.

Far-Hearing

Information

The caster can hear any conversation that he can see, even at a great distance, or hear through solid objects totaling no more than six feet of thickness. He automatically makes all Hearing rolls.

This is also a Knowledge spell.

Duration: 1 minute.
Cost: 4 to cast. 2 to maintain.
Time to cast: 3 seconds.
Prerequisite: Magery 1 and four other Sound spells. May *not* have Deafness or Hard of Hearing;.

Item

Clothing or jewelry. Only affects the wearer. *Energy cost to create:* 400.

Scribe

Regular

Animates a pen, which writes down whatever the caster dictates for the duration of the spell. If the caster fails by only 1 or 2 points, the pen is still animated, but the transcription is not perfectly accurate! Therefore, the caster should always double-check his work.

At higher TLs, this spell may also be used with typewriters, computer keyboards, and other transcription devices.

Duration: 1 minute.
Cost: 3 to cast. 1 to maintain.
Prerequisites: Voices, Dancing Object, and must have Accented or better written comprehension in at least one language.

Item

A pen may be permanently animated at an energy cost of 250. For an additional 100 points of energy (which may be a separate enchantment) the caster may attune it to someone else's words.

Musical Scribe

Regular

Animates a pen, which records *in musical notation* any tune that the caster hums, sings, or plays on an instrument. The caster may also attune the pen to the sounds created by another person (or by a radio, etc.), instead of himself. The pen records only the music; if lyrics are to be recorded simultaneously, a second pen with Scribe cast on it can follow along and do so!

Duration: 1 minute.
Cost: 3 to cast. 1 to maintain. Increase cost by 1 (both casting and maintenance) if the paper supplied is not properly ruled for musical notation (the pen has to work harder supplying the lines as well as the notes!)
Prerequisite: Scribe.

Item

A pen may be permanently animated at an energy cost of 350. The caster can command it to change which source it is "attuned to" at will.

Message

Regular; Resisted by spells that block sound

Send a spoken message to a subject. Use the long-distance modifiers (p. 14). If the caster doesn't know the subject, he is at -2. If he doesn't know the subject's whereabouts, he is also at -5 (a successful Seeker spell will eliminate this). These penalties may be cumulative. A successful Trace gives a +5 bonus.

The subject hears the message clearly and distinctly whatever his sonic surroundings, but nobody else hears it. Silence, Wall of Silence, and Noise will resist the incoming message.

This is also a Communication and Empathy spell.

Duration: The message travels to the subject at 50 mph. This speed doubles when the casting cost is doubled.
Cost: 1 per 15 seconds of message duration.
Time to cast: Equal to the message's duration, as spoken by the caster.
Prerequisites: Great Voice and Seeker.

Item

A conch one speaks into while concentrating on a mental picture of the subject and his surroundings. *Energy cost to create:* 1,000.

Wizard Mouth

Regular

As listed under *Knowledge Spells*, p. 104.

Alter Voice

Regular; Resisted by HT

As listed under *Body Control Spells*, p. 41.

Silver Tongue

Regular

Grants the subject the Voice advantage (p. B97). The spell has no effect on beings that already have the advantage.

Duration: 1 minute.
Cost: 3 to cast. 2 to maintain.
Prerequisites: Voices and Emotion Control.

Item

(a) Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 200. (b) Jewelry; must bear a picture of a nightingale. Always on, only affects the wearer. *Energy cost to create:* 600.

Echoes of the Past

Regular

As listed under *Knowledge Spells*, p. 107.

Wizard Ear

Regular

Creates a replica of the caster's physical ear, through which he can hear. The ear may move about without bumping into things (as if it had Sound Vision), though it cannot "see" more than the general size and shape of halls and rooms. This spell may be cast on an already existing Wizard Eye (regular or invisible); this does not change its shape, but allows it to hear conversation and other sounds.

Duration: 1 minute.
Cost: 4 to cast. 3 to maintain.
Time to cast: 2 seconds.
Prerequisites: Apportation, Far-Hearing, and Sound Vision.

Item

Any painting or sculpture depicting a human ear may be turned into an immobile Wizard Ear, through which the holder of an ear-shaped amulet, enchanted at the same time, may hear regardless of distance. Each such Ear links only to one amulet, and vice versa. Energy cost to cast: 450.

Invisible Wizard Ear

Regular

Creates a Wizard Ear that cannot be seen without the See Invisible spell. Anyone who guesses where it is may still attack, but the cumulative modifiers from invisibility and its small size make it nigh impossible to hit.

Duration: 1 minute.
Cost: 5 to cast. 3 to maintain.
Time to cast: 4 seconds.
Prerequisites: Wizard Ear and Invisibility.

Chapter Twenty-Four

Technological Spells

"So what is it?"

"My parents say it's really old. It detects magic and stuff like that."

"My cell phone does that."

"Well, yeah, but this doesn't have any mana chips in it or anything. It's all spells and analog enchantments."

"Oh. So?"

"I dunno. I guess that used to be a big deal."

"Whatever."

Traditionally, most magical settings are TL4 or below – pre-industrial. Introducing magic to a post-industrial setting, however, can create fascinating new developments for players and GMs to explore. In a setting where high technology and magic coexist, spells that manipulate and support the tools and features of the mechanized world must logically arise.

Unlike other spells, many Tech spells are technological skills (p. B168) and must be learned at a particular TL. When a mage is expert with magic designed to interact with TL10 technology, he is at a penalty when trying to power a TL11 blaster or trying to drain the energy from a TL7 flashlight battery.

These penalties also affect prerequisites. To use a Tech spell as a prerequisite, you must have it at the level associated with spending one character point on the spell. Thus, a mage trying to learn Reveal Function/TL9 must either know Seek Machine/TL9 at IQ-2, Seek Machine/TL10 at IQ-1 (to compensate for the -1 penalty), or Seek Machine/TL8 at IQ+3 (to compensate for the -5 penalty).

Machine Spells

For the purpose of these rules, a *machine* is a tool that in some way uses, stores, or transforms power in order to do its job. Thus, a hand drill doesn't qualify, but an electric drill does. A spring-powered pocketwatch is a machine, while a sundial is not. The GM has final say regarding any gray area.

In some cases, it may be important to assign an attribute to a machine for purposes of determining spell resistance. For most purposes, the machine's HT is appropriate for this purpose; most machines have HT 10, unless specified otherwise.

Machine spells are intended for use on machines without sapience or free will; as a rule, they should not affect any being that would ordinarily be built as a character. They should affect most machines with IQ 5 or less, and some machines with the Automaton meta-trait. AIs and other sapient machines should be controlled with Communication and Empathy or Mind Control spells (though the GM may wish to assess a -4 penalty for controlling an "alien" mind). At the GM's discretion, the more physical Machine spells, like Glitch or Malfunction, may work on sapient machines.

Seek Machine/TL

Information

Identifies the direction and approximate distance of the nearest machinery of any sort. The caster can also specify that he is looking for a specific sort of device; lasers, computers, light sources, etc. Any known examples of technology may be excluded if the mage specifies them before casting. Use long-distance modifiers (p. 14).

Cost: 3.
Time to cast: 10 seconds.

Item

Staff, wand, or jewelry. *Energy cost to create:* 100.

Reveal Function/TL

Information; Resisted by spells to conceal magic

Reveals the functions of the subject machine. If the subject has more than one function, the spell reveals them in order of complexity (simplest first), and tells the caster "there are more functions." Later castings will reveal the remaining functions, one per casting.

The spell can also be used to reveal how to activate known functions (i.e., which button to press); the caster gets *one try*, at -5! If successful, the caster can then use the machine with the appropriate skill (or IQ-6) at a penalty of only -1 for unfamiliarity.

Cost: 8.
Time to cast: 10 minutes.
Prerequisite: Seek Machine.

Item

Staff, wand, or jewelry. *Energy cost to create:* 1,500.

Machine Control/TL

Regular

Control the actions of one machine (anything under IQ 6, of any size) or a swarm of small ones, up to about 1,000 machines or 100 pounds total. The caster must be aware of the machine's functions to control it. The spell does not supply the skill to use the machine – the caster must use his own skill at Gunner, Computer Operation, Driving, and so on. Concentration is required.

The spell acts through the machine's triggers and controls, mechanical or electrical. A mage could use the spell to make a camera snap a picture, a robot strangle its evil creator, or a gun discharge all of its ammunition. He could not aim the object, or move it, unless it was self-aiming or self-propelled (at least without adding an Apportation spell).

If something else has control (an AI in a vehicle or a human operator at the driver's seat, for instance), then he/it may dispute control of the machine every second with a Quick Contest of the caster's effective skill vs. the operator's skill (or Will+TL for cybernetic control).

A mage who knows this spell may use the Rider or Rider Within spells on machines; note, however, that a machine's sensory apparatus may not be readily intelligible to a human being!

Duration: 1 minute.
Cost: 6 to cast. 3 to maintain.
Prerequisites: Reveal Function, Locksmith, and Lightning.

Item

Staff, wand, headgear, or jewelry. *Energy cost to create:* 1,000 for an item that controls a specific type of machine, 2,000 for one that will control any machine.

Machine Summoning/TL

Regular

Call one machine of a named type (anything under IQ 6). Range does not matter for this spell. If the spell is successfully cast, the caster knows the location of the closest machine of the type and how long it will take for that machine to come to him. It moves towards the caster as fast as it can, until the spell ends or the machine reaches the immediate vicinity of the caster.

Of course, the machine may not be very good at finding its way, or it may run out of fuel or power, etc. For example, a TL7 refrigerator would be unable to move at all. A TL7 car would proceed in a straight line at top speed, unaware of (and thus unable to avoid) obstacles such as pedestrians, ditches, lampposts . . .

Once the machine reaches the caster, it stays nearby, without attacking, until the spell ends. The spell is broken if the caster or one of his companions attacks the machine.

Duration: 1 minute.
Cost: 4 to cast. 2 to maintain.
Time to cast: 4 seconds.
Prerequisite: Machine Control.

Item

Staff, wand, or jewelry. *Energy cost to create:* 500 for an item that summons one particular machine type, 1,000 for an item that can summon any machine.

Machine Speech/TL

Regular

Communicate with any machine (of any IQ) in the machine's own "language." Unless the language is sound-borne, the subject has to maintain physical contact with the machine's interface port or antenna. The amount of information exchanged depends on the machine's intelligence; no machine below IQ 3 will be likely to know much of interest. Each minute of the spell allows one question and answer.

This is also a Communication and Empathy spell.

Duration: 1 minute.
Cost: 5 to cast. 3 to maintain.
Prerequisite: Machine Summoning.

Item

Staff, wand, or jewelry. *Energy cost to create:* 1,200 for an item that talks to one particular machine type, 5,000 for an item that can talk to any machine.

Glitch/TL

Regular; Resisted by HT

The machine equivalent of Spasm (p. 35). This spell causes something to

go wrong for a moment with the subject machine. It may drop whatever it was holding, eject a part, miss a cog in its drive train, or garble a data packet. Ingenious casters will find all sorts of uses. The game effects can be anything from a trivial annoyance (if cast on a flashlight, for instance), to potentially deadly (if cast on an automedic in the middle of laser surgery).

Duration: An instant.
Cost: 3. Cannot be maintained.
Prerequisite: Machine Control.

Item

Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 300.

Malfunction/TL

Melee; Resisted by HT

The mechanical equivalent of Total Paralysis. The subject machine simply ceases to function for the duration of the spell (an airplane falls, a sensor is "blind," and so on). The caster must touch the subject.

Duration: 1 minute.
Cost: 5. Cannot be maintained; must be recast.
Prerequisites: Magery 2 and Glitch.

Item

Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 2,000.

Schematic/TL (VH)

Information

Creates detailed technical "blueprints" of the machine subject in the caster's mind. The caster can browse through the mental schematic at his leisure or the same rate that he could examine actual hardcopy plans for the machine. However, this spell grants no appropriate skills; to interpret, for instance, a schematic of a starship's fusion power plant, the caster would need some skill in Engineering (Fusion). To make any use of a schematic of a weapon, either Armoury or some sort of weapons Engineering would be required. The duration is the length of time that the image stays with any useful clarity in the caster's mind. The caster must touch the subject during the casting.

The schematic can either represent the current state of the object (showing any internal damage, alterations, and wear), or the ideal state of the object, at the caster's discretion. Both can be useful. The latter use even gives plans for an object based only on a tiny fraction of it (at least 5% of the machine's total mass needs to be present). This could be used to form a complete picture from a fragmented Precursor device, for instance . . . In either case, the cost to cast the spell is based on the mass of the intact machine.

The schematic image, even when maintained by the mage, does not count as a spell "on" for penalty purposes.

This is also a Knowledge spell.

Duration: 1 minute.
Cost: 5 for a one-ton or smaller object; add 1 energy to the cost for each additional ton or fraction. Half that to maintain.
Time to cast: 5 seconds.
Prerequisites: Reveal Function and History.

Item

Blueprint or headgear. Usable only by mages; the item must touch the subject. *Energy cost to create:* 200.

Rebuild/TL (VH)

Regular

This spell is an improved version of Repair. It totally rebuilds any object, from even a fragment. The caster must first successfully cast Schematic on the subject, and, while the schematic is still in mind, begin casting Rebuild. Schematic is unnecessary for simpler objects. With enough power, you could rebuild a starship from a scrap of bulkhead!

The object re-forms at a rate of 500 pounds of missing mass per second, beginning after the casting is completed. Thus, it would take a 30-ton tank two minutes to completely rebuild itself. Exotic materials may inflict a skill penalty or slow the rebuilding process.

On objects simpler than machines, ignore the TL modifiers. Magic items cannot be rebuilt.

This is also a Making and Breaking spell.

Duration: Permanent.
Cost: 30 if the final mass will be 500 pounds or less; the object's current state of repair is not a factor. Add 1 to cost for every additional 500 pounds or fraction of final mass.
Time to cast: 1 second per point of energy required.
Prerequisites: Magery 3, Repair, Create Object, and at least three spells of each element. Schematic is required to cast the spell on machines.

Animate Machine/TL (VH)

Regular; Resisted by Will

Summons a spirit to animate a machine the mage is touching. Characters with the Machine meta-trait (p. B263) can be affected by this spell, though intelligent machines do get a chance to resist.

The summoned spirit controls the animated machine just as if it were being operated in the normal fashion. It also controls all the mechanical or electronic accessories (including weapons) built into the machine.

The spirit has DX 10 and IQ 9 with the Automaton and Spirit meta-traits (p. B263). It obeys the orders of the caster or anyone the latter designates – but the spirit takes all orders literally! "Drop me off" is a particularly unfortunate command to give to an animated helicopter. In such cases, roll against the spirit's IQ to see if it uses the colloquial or literal meaning of the phrase.

On a critical failure during casting, a demon enters the machine. It then attempts to kill its summoner and anyone else it can reach. The caster cannot dispel the demon animating the machine – it uses its own 15 FP to keep the spell going! In other respects, the demon is similar to the spirits ordinarily summoned.

Duration: One minute.
Cost: 8 for a machine of up to one ton in mass, 9 for two tons or less, 10 for four tons, 11 for eight tons, 12 for 16 tons, and so on, with each extra point of energy doubling the capable mass of the spell. Half that to maintain.
Time to cast: One second per energy point.
Prerequisites: Machine Control and either Animation or Animate Object.

Any sufficiently advanced technology is indistinguishable from magic.
– Arthur C. Clarke

Machine Possession/TL

Regular; Resisted by Will

Like Animate Machine, except that it is the caster's own spirit which animates the machine. The machine must have IQ 5 or less.

The caster animates the subject just as if he was at its controls. He has full access to the machine's memories and abilities; he may use all its skills and abilities as though they were his own. He may use his own mental abilities, but not his physical ones (so spells cannot be cast unless they are known so well that they require no speech or gesture).

The spell allows the caster to keep his own sensory apparatus in addition to the machine's; otherwise, he would be severely handicapped, since machines of TL6 or less are basically blind and deaf.

The caster's own body lies unconscious during the spell and should be safeguarded.

Duration: 1 minute.
Cost: 6 to cast. 2 to maintain.
Time to cast: 30 seconds.
Prerequisites: Machine Control and either Rider Within or Soul Rider.

Item

An pair of identical pieces of jewelry, one of silver, one of gold. The caster wears the gold one, the machine bears the silver one. The spell may then be cast at any time, regardless of distance. If a Powerstone is included, it is in the gold one. If either item is broken, the other loses its enchantment. *Energy cost to create:* 1,500 (for the pair). Each of the pair must include a synthetic gemstone worth $200.

Permanent Machine Possession/TL (VH)

Regular; Resisted by Will

Like Machine Possession – but the caster remains in the subject machine until he chooses to leave or is exorcised by an appropriate spell (Dispel Possession, Remove Curse, Counterspell, etc). The caster's body remains in suspended animation (p. 94) while the spell lasts. If the caster's body dies, the spell is broken. Whenever the subject machine takes damage, the caster must roll on his own body's HT or take the same damage. If the subject machine "dies," the caster must roll vs. HT or die also!

In addition, the caster must roll against his Will every day; a failed roll means that he loses one point of IQ. The caster does not need to roll any more once he reaches the machine's normal IQ or Will range. The lost attribute is regained when the spell is ended. Should the caster's IQ drop to 5, only Remove Curse or Dispel Possession will end the spell.

Duration: Indefinite (could be permanent).
Cost: 30.
Time to cast: 5 minutes.
Prerequisites: Magery 3 and Machine Possession.

Awaken Computer/TL (VH)

Regular

Similar to Awaken Craft Spirit, this spell awakens a computer's spirit, granting it awareness and sapience. If the computer is already inhabited by a sapient program, that program may resist this spell; if it fails to resist, it is rendered unconscious for the duration of the spell.

The spirit awakened by the spell has IQ equal to the computer's Complexity + 5. It has complete access to all its host computer's databases and peripherals, though it cannot read encrypted information in its host's databases. It can access networked computers like any other being using its host computer; it has Computer Operation and Computer Programming at its IQ. It obeys the caster's orders faithfully, but otherwise has free will (also, true to its nature, a computer spirit can be infuriatingly literal-minded).

Computer spirits often have quirky personalities all their own. They remember what happens each time they are awakened; the time in between awakenings is one of slumber, not nonexistence.

If a critical failure is rolled the first time a given computer is awakened, its spirit is malicious and evil, and seeks to do harm to the caster and anyone else it can hurt. It has Computer Hacking at a level equal to its host's Complexity; if nothing else, it erases important data just because it can.

Duration: 1 hour.
Cost: 8 to cast. 2 to maintain.
Time to cast: 10 seconds.
Prerequisites: Animation and Wisdom.

Item

A computer may be permanently awakened for 100 times casting cost.

Energy Spells

For the purpose of these rules, "power" means any energy used by a machine to do its job. At TL8, this generally means electricity. Earlier TLs might use mechanical power from a waterwheel or steam engine; later TLs might use exotic forms of beamed power. "Fuel," by contrast, means any substance that is consumed to provide power. Fuel takes many forms, from wood to coal to antimatter. The TL of a fuel or power source is determined by the TLs at which people use it to operate machines. If a fuel has more than one TL, use the TL most favorable to the caster when making calculations.

Many of the spells below require conversions between standard power sources and ***GURPS*** spell energy. The default assumption is that one kilowatt-hour (kWh) is equal to 10 energy;

thus, 360 kilowatts (kW) is equal to 1 energy/second, and 360 kilowatt-seconds (kWs) or kilojoules (kJ) is equal to 1 energy. Some settings may have different assumptions, however; energy spells can become extremely powerful in settings with antimatter reactors, and the GM may want to change the conversion rate to compensate.

Seek Power/TL

Information

Identifies the direction and approximate distance of the nearest significant source of power. Use the long-distance modifiers (p. 14). Any particular types or known sources of power may be excluded if the caster specifically mentions them before beginning.

Power sources that are not currently being drawn from (a battery not connected to a circuit, for example) are harder to locate than power sources in use; double the long-distance penalty.

Cost: 3.
Time to cast: 10 seconds.

Item

A wand that will point in the direction sought after and glow in proportion to the importance of the source detected. *Energy cost to create:* 60.

Seek Fuel/TL

Information

Identifies the direction and approximate distance of the nearest significant source of fuel. Use the long-distance modifiers (p. 14). Any particular types or known sources of fuel may be excluded if the caster specifically mentions them before beginning.

Cost: 3.
Time to cast: 10 seconds.

Item

A thin graduated metal stick, which will point in the direction sought after and give an indication of the amount detected. *Energy cost to create:* 60.

Test Fuel/TL

Information

Identifies if a substance can be used normally as fuel for a specific purpose. The spell reveals nothing about the substance's chemistry or stored energy, but it detects impurities, decay, and foreign objects that might interfere with normal use. It does not check fuel for magic.

Cost: 1 to test a single pound or gallon of fuel; 3 to check all the fuel in a 1-yard radius.

Item

Staff, wand, or jewelry. *Energy cost to create:* 100.

Preserve Fuel/TL

Regular

Prevents fuel from spoiling, decaying, or otherwise becoming unusable. Wood does not rot, gasoline does not evaporate – even the radioactive decay of nuclear fuels is suppressed!

Duration: 1 week.
Cost: 4 per pound of fuel. Half that to maintain.
Prerequisite: Test Fuel.

Item

(a) Staff, wand, or jewelry. *Energy cost to create:* 400. (b) Chest or container; always on; the contents of the chest are preserved indefinitely. *Energy cost to create:* 40 for every pound of fuel to be held (round up).

Purify Fuel/TL

Regular

Removes foreign objects and impurities from a fuel, rendering it fit to use. If the fuel has been completely corrupted by the impurities, the spell will remove them . . . leaving nothing!

Cost: 1/2 per pound of material to be purified (minimum cost of 1).
Prerequisite: Purify Water *or* Decay.

Item

Staff, wand, or jewelry. The item must touch the subject fuel. *Energy cost to create:* 200.

Create Fuel/TL

Regular

Turns any natural substance into the primary solid or liquid fuel for the spell's TL. At TL5, this will turn rocks into coal; at TL7, it would turn rocks into uranium.

Other Energy spells such as Steal Power or Draw Power cannot tap magically created fuel or a machine using created fuel for energy.

Duration: Permanent.
Cost: 1 per TL per pound; a TL5 fuel, therefore, costs 5 energy per pound to create. Minimum cost 1 per pound.
Time to cast: 30 seconds.
Prerequisites: Seek Fuel and any two transmutation spells.

Item

(a) Wand, staff, or jewelry; usable only by a mage. The item must touch the material to be turned into fuel. *Energy cost to create:* 400. (b) A pot or container that will change the contents into solid fuel. *Energy cost to create:* 100 per pound of the daily capacity of the container.

Essential Fuel/TL

Regular

Turns any regular fuel into the magical essence of fuel. Essential Fuel burns 10 times as long as regular fuel, with one-third the usual pollution (smoke, radiation, etc.). Vehicles running on Essential Fuel have 10 times the Range; in a secret-magic setting, this spell may give rise to urban legends about 200-mpg carburetors.

The increased potency of Essential Fuel only applies when the Fuel is used in a machine; hay treated with Essential Fuel does nothing if fed to a mule.

Other Energy spells such as Steal Power or Draw Power cannot tap Essential Fuel or a machine using Essential Fuel for energy.

Duration: Permanent.
Cost: 1 per pound
Time to cast: 10 seconds.
Prerequisites: Any six Energy spells.

Stop Power

Area

Stops the flow of power in the area, causing all powered devices to cease to function. This may or may not cause permanent damage to the devices, depending on their design. Barring this, any affected device works normally when it leaves the area.

Duration: 1 minute.
Base cost: 3 to cast. Half that to maintain.

Time to cast: 3 seconds.

Prerequisites: Magery 1 and Seek Power.

Item

Wand or staff, usable only by a mage. *Energy cost to create:* 800.

Lend Power/TL

Regular

The caster expends energy to magically power a device. In theory, a large enough circle of mages could use this spell to power a starship and its weapons.

The spell cannot be used to directly charge batteries or other storage devices. It could, however, power a machine designed to recharge them . . .

Duration: Indefinite.

Cost: The GM will have to convert the device's power requirement into an energy rate equivalent (see pp. 178-179). Minimum energy cost is one per hour; high skill does not reduce cost.

Prerequisites: Magery 2 and Seek Power.

Item

(a) Staff, wand, or jewelry. Usable only by mages; the item must touch the subject. *Energy cost to create:* 1,000. (b) Any device can be enchanted so that any mage willing to lend it power (possibly in addition to its normal power source) can do so. The mage need not know the spell; the enchantment supplies the magic. The enchanted device will also accept a Powerstone or Maintain Spell. *Energy cost to create:* 1 per 100 pounds of device mass (round up); the minimum cost is 250.

Propel/TL

Regular

Uses magical energy to operate any device that converts power or fuel into motion, from a lawn mower to a stardrive. In almost all cases, these devices are vehicles of some sort; see *Vehicles*, p. B462, for more details.

Duration: 10 minutes.

Cost: Multiply vehicle Lwt. (in tons) by the desired Move (up to the vehicle's Top Speed), then divide by the caster's skill. Minimum cost is 1 energy; high skill does not reduce casting cost. Same cost to maintain.

Prerequisites: Create Fuel and Dancing Object.

Example: A mage with Propel/TL7-15 wishes to move his sports car (p. B464) at its top speed of Move 75 (150 mph). The car weighs 1.8 tons. To move the car at Move 75 for the duration of the spell requires (1.8×75)/15 = 9 energy.

Item

(a) Staff, wand, or jewelry. Usable only by mages; the item must touch the subject. *Energy cost to create:* 1,000. (b) Any engine can be enchanted so that any mage willing to propel it can do so. The mage need not know the spell; the enchantment supplies the magic. The enchanted device will also accept a Powerstone or Maintain Spell. *Energy cost to create:* 20 per ton of vehicle Lwt. (round up); minimum cost is 200.

Conduct Power/TL (VH)

Special

Turns the caster into a power conduit, a link between an active power source and a device in need of it. The spell has two "subjects": the source and the sink. The range penalty is based on the total distance from source to caster plus caster to sink. If either the source or the sink is not visible to the caster, the roll is at -5; if neither is visible, the roll is at -10!

A device may draw power through one mage or circle of mages at a time; if several mages are competing to supply a device, roll a Quick Contest of Skill between casters, adjusting for range.

The maximum power a mage may safely serve as a conduit for is (HT) × (Magery squared)/4, in megawatts. Thus, a wizard with HT 10 and Magery 2 could handle a steady stream of 10×(2×2)/4, or 10 megawatts, safely. If a mage's safe level is exceeded, every second he must take 1 fatigue per excess MW (or fraction thereof) and roll vs. HT. On a failed roll, he loses HP equal to the fatigue loss for that turn. On a critical failure, he suffers a heart attack (see *Mortal Conditions*, p. B429) and collapses.

A source for this spell need not be a source of electricity or some other energetic essence; particularly in its low-TL versions, Conduct Power may tap into mechanical energy from natural sources. However, a power source must be in a form that could be directly used by a machine; thus, a water wheel would be a viable source, but a waterfall would not be.

Duration: 1 minute.

Cost: None to cast. 1 to maintain (due to the strain of the power's passage). This maintenance cost isn't reduced by high skill.

Prerequisites: Magery 1 and Seek Power.

Example: The spell could be cast on the fusion plant in a starship (the source) and a blaster pistol in the mage's hand (the sink). While the spell is maintained, the fusion plant powers the pistol. If the blaster is in the mage's hand and the plant is 3 yards beneath the catwalk he is standing on, the total distance is 3 yards, for a -3 range penalty. If the catwalk obscures the mage's view of the power plant, he is at a further -5 (note that the caster need not be looking at the power plant while firing the gun – just while casting the spell!).

Steal Power/TL (VH)

Regular

The caster steals power from a stored power source (such as a battery) to restore his FP.

Cost: The caster regains energy at a percentage efficiency equal to his skill with the spell; a caster with skill 15, draining a battery completely, would himself gain 15% of the power potential contained in the battery (or less, if less would completely restore the caster's FP). The rest of the power in the battery is wasted.

Time to cast: 5 seconds.

Prerequisites: Magery 2, Minor Healing, and Conduct Power.

Item

Wand, staff, or jewelry. Usable only by a mage. The mage and the item must both touch the source. *Energy cost to create:* 1,000.

Draw Power/TL (VH)

Special

Identical to Conduct Power, except that the subject is a spell; a wizard with HT 10 and Magery 2 could use a 10 MW fusion plant to provide him with a steady stream of 28 energy per second to power his magic! The Draw Power must be cast first and counts as a spell "on" when casting the subject spell.

Duration: 1 minute.
Cost: None to cast. 1 to maintain (due to the strain of the power's passage). This maintenance cost is not reduced by high skill.
Prerequisites: Steal Power and at least two spells from 10 different colleges.

Magnetic Vision

Regular

Reveals magnetic fields to the subject. They are brightest where densest and seem to flow from one magnetic pole to the other. If the subject has Physics/TL6 or higher at a skill of 12 or more, he can use it to estimate the strength of the magnetic field. If no magnetic object stronger than a kitchen magnet is within 1 yard of him, the subject can determine magnetic north. Combined with 1,000× Microscopic Vision (p. B68), the subject can directly read magnetic data storage media (each format is a distinct language, which must be known at Native level to read in real time).

Duration: 1 minute.
Cost: 2 to cast. 1 to maintain.
Prerequisites: Keen Vision.

Item

Jewelry or spectacles. The item must include a small magnet. Only affects the wearer. *Energy cost to create:* 150.

Radio Hearing

Regular

The subject can "tune" his hearing to the radio and microwave portions of the electromagnetic spectrum, as if he had Telecommunication (Radio) (Receive Only, -50%) (p. B91).

Duration: 1 minute.
Cost: 2 to cast. 1 to maintain.
Prerequisite: Keen Hearing.

Item

Jewelry (earrings are particularly appropriate). Only affects the wearer. *Energy cost to create:* 150. Some enchanters create items (conchs, or small radios or earplugs, typically) that turn the radio signal into an audible one; the user tunes it by concentrating.

Spectrum Vision (VH)

Regular

The subject can perceive any portion of the electromagnetic spectrum, as if he had Hyperspectral Vision with the Extended Low-Band and Extended High-Band enhancements (p. B60). The GM may require rolls against various scientific skills to allow the subject to understand what he sees.

Duration: 1 minute.
Cost: 4. Same cost to maintain.
Prerequisite: Infravision.

Item

Jewelry or spectacles. The item must include a small prism. Only affects the wearer. *Energy cost to create:* 750.

Radiation Spells

Radiation is insidious; it is odorless, invisible, and silent. Fatal exposure can be reached in a few minutes, but death can take weeks to come – an ugly, agonizingly painful death. See p. B435 for details on the effect radiation can have on a person.

Under some circumstances (particularly with spells such as Radiation Jet), a victim may have only part of his body irradiated. Such doses of radiation do not have the same effect as a dose distributed over the entire body. To assess the dose's effects, one must convert the body part's dose into an "equivalent whole-body dose": divide a dose received by the head or limbs by 15, one received by the torso by 8 and one received by the vitals by 4.

See Radiation

Regular

Makes all radioactive items visible in the subject's field of vision. Each such item glows in proportion to its activity. Items hidden under clothes, behind walls, etc, give off a glow depending on the amount of radiation getting through the shielding. Spells such as Radiation Jet also become visible.

Duration: 1 minute.
Cost: 3 to cast. 2 to maintain.

Item

Staff, wand, or jewelry. *Energy cost to create:* 400.

Seek Radiation

Information

Identifies the direction and approximate distance of the nearest significant source of radiation of any sort. The caster can also specify that he is looking for a specific sort of radiation (gamma, neutron, etc.). Any known radioactive sources may be excluded if the mage specifies them before casting. Use the long-distance modifiers (p. 14).

Cost: 3.
Time to cast: 10 seconds.
Prerequisite: See Radiation.

Item

A wand or stick that will point in the direction sought and click or ping in proportion to the strength of the source found. *Energy cost to create:* 60.

Irradiate

Area

Makes an area radioactive.

Duration: 1 hour.
Base cost: 1 per 10 rads/hour. Half that to maintain.
Prerequisites: At least two Earth spells and two Fire spells.

Item

Staff, wand, or jewelry. *Energy cost to create:* 300.

Extinguish Radiation (VH)

Regular

Removes harmful radioactivity from the subject.

Duration: Permanent.
Cost: 1 per 10 rads/hour.
Prerequisites: Magery 2, Extinguish Fire, Earth to Air, and Irradiate.

Item

Staff, wand, or jewelry. *Energy cost to create:* 1,500.

Resist Radiation

Regular

The subject (person, creature or object) and anything he carries becomes resistant to radiation. This is expressed in terms of Protection Factor (see p. B436).

This is also a Protection and Warning spell.

Duration: 1 minute.
Cost: 1 for PF 10, 2 for PF 100, 3 for PF 1,000. Half that (round up) to maintain.
Prerequisites: At least three Radiation spells.

Item

(a) Any; only affects the wearer. *Energy cost to create:* 1,000. (b) Wand, staff, or jewelry. *Energy cost to create:* 1,500.

Cure Radiation (VH)

Regular

Heals the subject of radiation damage; this spell reduces the inherent radiation dose in the subject's body, including the 10% "permanent" retained dose (the permanent dose, however, is the last to be healed). It does not restore already-lost HP or other injury, which must be healed by other means.

This is also a Healing spell.

Duration: The dose is cured permanently.
Cost: 1 per 10 rads removed from the subject's body; minimum cost 5.
Time to cast: 30 seconds.
Prerequisites: Resist Radiation and Major Healing.

Item

Wand or staff. The item must touch the subject. Usable only by a mage or a nonmage with Physician 20 or higher. *Energy cost to create:* 1,500.

Radiation Jet

Regular

Shoot an invisible beam of radiation from one finger. Each turn, the caster rolls versus DX-4 or Innate Attack skill to hit. This attack may be dodged or blocked (though only shields which are impervious to radiation will be any use), but not parried. The jet inflicts 10 rads per point of energy in the spell to a human-sized target.

The spell can also fog photographic films, scramble electronics, and so on.

Duration: 1 second.
Cost: 1 to 3. Range in yards is equal to energy cost. Same cost to maintain.
Prerequisites: Irradiate and Resist Radiation.

Item

Staff or wand. Usable only by mages. The jet issues from the item's tip. *Energy cost to create:* 600.

Breathe Radiation (VH)

Regular

Similar to Radiation Jet, except that the radiation issues from the caster's mouth and it cannot be maintained. Caster rolls to hit against DX-4 or Innate Attack skill. This counts as an action; the caster must be facing his target. No hand gestures are required to cast this spell; certain lip and tongue motions are made instead. Thus Breathe Radiation can be cast "no hands" at any level of skill.

Duration: 1 second.
Cost: 1 to 4. Cannot be maintained.
Time to cast: 2 seconds.
Prerequisites: Magery 2 and Radiation Jet.

Item

Jewelry. Usable only by mages. *Energy cost to create:* 1,200.

Metal and Plastic Spells

For the purposes of these spells, a "metal" is any conducting material. A "plastic," by contrast, is any artificial nonconducting unliving polymer material. If it isn't (a) animal, (b) stone/earth/ceramic/glass, (c) water/simple liquid, (d) air/gas, (e) plant/wood (living or dead), or (f) metal, then it's "plastic."

Seek Plastic

Information

Identifies the direction and approximate distance of the nearest significant quantity of plastic. Use the long-distance modifiers (p. 14). Any particular types or known quantities of plastic may be excluded if the caster specifically mentions them before beginning.

Cost: 3.
Time to cast: 10 seconds.

Item

Wand, staff, or jewelry. *Energy cost to create:* 60.

Identify Metal

Information

Identifies a metal's type. The caster must touch the metal to be identified.

Cost: 1.
Prerequisite: Seek Earth.

Identify Plastic

Information

Identifies a plastic's type. The caster must touch the plastic to be identified. Useful for sorting recyclables.

Cost: 1.
Prerequisite: Seek Plastic.

Shape Metal

Regular

Move solid and liquid metal about and shape it into any form. If the form is stable, it remains permanently after shaping. An unstable form lasts only while the spell continues – though no special concentration is required – and then breaks and collapses. A successful Architecture roll may be required to create a stable arch, overhang or other structure. Solid metal moved with this spell travels at Move 1/2; liquid metal flows at that speed uphill, but goes much faster horizontally (Move 4) or downhill (up to Move 10).

Duration: 1 minute.
Cost: 6 (4 for soft metals such as lead, gold or magnesium). Half that to maintain.
Prerequisites: Magery 1 and either Shape Earth or at least six Tech spells.

Shape Plastic

Regular

Similar to Shape Metal, but affects "plastic." Material moved with this spell travels at Move 1/2 or faster if ductile or liquid.

Duration: 1 minute.
Cost: 6 to cast. 3 to maintain.
Prerequisites: Magery 1 and either Shape Plant or at least six Tech spells.

Metal Vision

Regular

See through metal to gaze upon whatever lies beyond – past the door, inside the chest, etc. Certain metals (lead) resist or block this spell outright.
This is also a Knowledge spell.

Duration: 30 seconds.
Cost: 2 per 5 yards of depth (maximum 50 yards) to cast. Same cost to maintain.
Prerequisite: Shape Metal.

Item

Any. Only affects the wearer. *Energy cost to create:* 800.

Plastic Vision

Regular

See through plastic.
This is also a Knowledge spell.

Duration: 30 seconds.
Cost: 2 per 5 yards of depth (maximum 50 yards) to cast. Same cost to maintain.
Prerequisite: Shape Plastic.

Item

Any. Only affects the wearer. *Energy cost to create:* 800.

Body of Metal (VH)

Regular; Resisted by HT

The subject becomes an animated statue of metal, temporarily granting him the Body of Metal meta-trait (p. B262). Clothes (up to 6 pounds) also become metallic, but lose any magic powers they might have had.

Duration: 1 minute. The spell expires if the subject loses consciousness.
Cost: 12 to cast. 6 to maintain.
Time to cast: 5 seconds.
Prerequisites: Magery 2 and Shape Metal.

Item

Staff, wand, or jewelry. Only affects the wearer. *Energy cost to create:* 3,000.

Body of Plastic (VH)

Regular; Resisted by HT

The subject becomes an animated statue of plastic, temporarily granting him the Body of Plastic meta-trait (see box). Clothes (up to 6 pounds) also become plastic, but lose any magic powers they might have had.

Duration: 1 minute. The spell expires if the subject loses consciousness.
Cost: 10 to cast. 5 to maintain.
Time to cast: 5 seconds.
Prerequisites: Magery 2 and Shape Plastic.

Item

Staff, wand, or jewelry. Only affects the wearer. *Energy cost to create:* 2,500.

New Meta-Trait: Body of Plastic

Body of Plastic: Your body is made of ordinary plastic, like the material used to make plastic buckets or milk jugs. Doesn't Breathe [20]; DR 1 [5]; Immunity to Metabolic Hazards [30]; Injury Tolerance (Homogenous, No Blood) [45]; Pressure Support 1 [5]; Sealed [15]; Vacuum Support [5]. *125 points.*

Chapter Twenty-Five
Water Spells

Perrek poured brine from his cap through his fingers into his mouth, greedily swallowing the clear water thereby purified. Smacking his lips, he pushed the cool cap back on his head and peered out at the horizon. Somewhere out there was land, according to the augury he'd cast a few hours ago, and his little custom-made current should carry his makeshift raft there by sundown. He wasn't sure quite where he was, but he couldn't be more than a few days from port by now.

Then that weasel of a first mate would learn that there was still a trick or two up an old man's sleeve.

These spells deal with the traditional magical "element" of water. Except as noted, none of these spells affect the water in a human body or any other living creature.

Water comes in a variety of forms, and GMs may want details on the weights and densities of these forms. Liquid water weighs 8.3 pounds per gallon. Ice weighs about 7.5 pounds per gallon. Snow's density varies greatly, ranging from hard-packed snow, which is virtually ice, to new-fallen snow, which can be as fluffy as 100 parts air to one part water. There are about 8 gallons to the cubic foot.

Another substance that falls within the College of Water is acid. In nature, acids come in a variety of strengths; acid spells, however, assume a uniform potency of acid. "Acid," for magical purposes, includes highly alkaline corrosive solutions. Splashing someone with acid does 1d-3 points of corrosive damage; immersion in acid does 1d-1 points corrosive damage per turn. Each gallon of acid can cause 8 points of damage before becoming neutralized into an inoffensive salty solution. Armor does protect against acid damage, but the acid will corrode away 1 point of DR for every 5 points of damage done in a single second. Objects (including armor!) are also attacked by contact with acid. If acid splashes a victim's face, he must roll vs. HT to avoid blinding. On a failure, he takes acid damage to the eyes, and if more than 2 points are inflicted, the victim is blinded (see *Crippling Injury,* pp. B420-422). A critical failure causes permanent Blindness.

Water spells affect acid normally. In steam form, acid does the higher of its scalding and burning damage, not both. Magical acid attacks all substances but glass, most stone, and certain metals.

Seek Water

Information

Determines the direction, distance, and general nature of the nearest significant source of water. Use the long-distance modifiers (p. 14). Any known sources of water may be excluded if the caster specifically mentions them before beginning. Requires a forked stick; roll at -3 if this is not available.

Cost: 2.

Item

A forked stick (may also be carved of bone or ivory). Cost to create: 40 energy and $300 in spell materials.

Seek Coastline

Information

Tells a caster at sea the direction and approximate distance of the nearest coastline. Use long-distance modifiers (p. 14). Any known coastline, such as that of a nearby island, may be excluded if the caster specifically mentions it during casting.

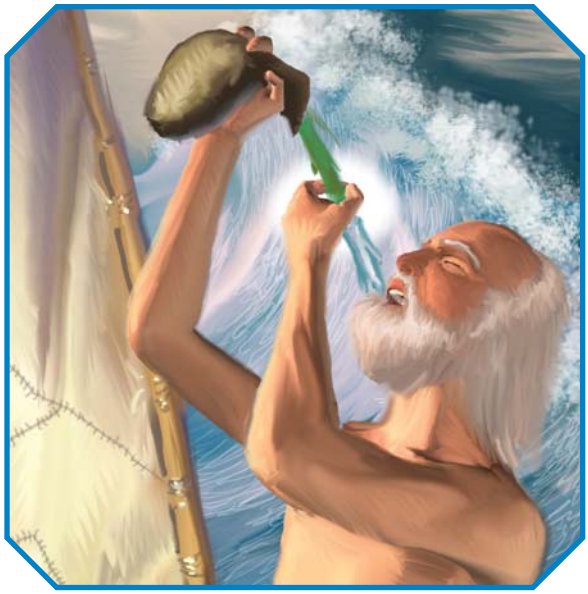
Cost: 3.
Time to cast: 10 seconds.
Prerequisite: Seek Water.

Purify Water

Special

Remove all impurities from water by pouring it through any hoop or ring (or, in a pinch, his own fingers) into a container. Only one skill roll is required, as long as the flow continues.

Duration: Purified water stays pure unless recontaminated.
Cost: 1 per gallon purified.
Time to cast: Usually 5 to 10 seconds per gallon, unless a large container and ring are used.
Prerequisite: Seek Water.



Item

A hoop of bone or ivory. *Energy cost to create:* 50.

Create Water

Regular

Creates pure water out of nothing. This water may appear in any of

several forms. It may appear within a container, or as a globe in midair (it falls immediately). Or it may appear as a dense mist of droplets; in this form, one gallon of water will extinguish all fires in a one-yard radius. Water *cannot* be created inside a foe to drown him!

Duration: The created water is permanent.
Cost: 2 per gallon created.
Prerequisite: Purify Water.

Item

Staff, wand, or jewelry. *Energy cost to create:* 200.

Destroy Water

Area

Causes water (in any form) to vanish, leaving a vacuum – or perhaps specks of dry impurities. If more water is all around, it will rush in to fill the hole. Good for drying things out, saving a drowning victim, etc. *Cannot* be used as a "dehydrating" attack on a foe.

Duration: Permanent.
Base cost: 3. In deep water, the area is only 2 yards in height (or depth). Same cost to maintain.
Prerequisite: Create Water.

Item

Wand, staff, or jewelry. *Energy cost to create:* 300.

Icy Weapon

Regular

Causes any weapon to become freezing cold. This does not harm the user or the weapon, but an attack with the weapon will do +2 damage to most foes *if it penetrates DR.* Multiply this bonus for any Vulnerability (p. B161) to ice or cold. Add this bonus to the *final* injury inflicted by the attack – for instance, an "impaling" icy attack is still only good for +2 damage, not +4.

Duration: 1 minute.
Cost: 3 to cast. 1 to maintain.
Time to cast: 3 seconds.
Prerequisite: Create Water.

Item

A weapon that becomes freezing cold whenever wielded, at no energy cost to the user. *Cost to create:* 750 energy, $2,000 spell materials.

Shape Water

Regular

Sculpt water (including ice or steam) into any form, and even move it about. Once given a shape, the water holds it without further concentration until the spell ends. Water moved with this spell travels at Move 3.

A useful shape is a wall of water to stop fiery attacks – 20 gallons make a wall 2 yards high × 1 yard wide. This stops Fireball spells and ordinary fire.

Duration: 1 minute.
Cost: 1 per 20 gallons shaped. Same cost to maintain.
Time to cast: 2 seconds.
Prerequisite: Create Water.

Item

Staff, wand, or jewelry. *Energy cost to create:* 400.

Frost

Area

As listed under *Weather Spells*, p. 193.

Umbrella

Regular

Walk in any slight precipitation without getting wet. An invisible "shield" is seen to deflect incoming raindrops. Umbrella does not work against intense (or magical) hail, rains of stones or frogs, etc.

This is also a Protection and Warning spell.

Duration: 10 minutes.
Cost: 1.
Time to cast: 2 seconds.
Prerequisite: Shape Water *or* Shield.

Item

Jewelry. Always on. Only affects the wearer. *Cost to create:* 100 energy.

Body of Water

Regular; Resisted by HT

Temporarily grants the subject the Body of Water meta-trait (p. B262). Clothes (up to 6 pounds) become liquid along with him, while other possessions drop to the ground.

Duration: 1 minute.
Cost: 5 to cast. 2 to maintain.
Time to cast: 5 seconds.
Prerequisite: Shape Water.

Item

(a) Staff, wand, or jewelry. Only affects the wearer. A severe drawback is that, as soon as it is activated, the item falls through the user's hand – thus a spell cast with this item lasts only a minute. *Energy cost to create:* 1,200. (b) Staff, wand, or jewelry. Only affects the wearer. Unlike the previous item, this item turns aqueous along with the wearer, allowing him to maintain the spell for longer than a minute. While aqueous, the item loses any magical powers it might ordinarily have. *Energy cost to create:* 2,500.

Foul Water

Area

Renders water undrinkable. Foul water is readily recognizable by its uninviting color and smell, whereas fouled beer or wine may be more difficult to detect. Anyone foolish enough to drink it must make a HT roll. On a successful roll, he merely feels sick and loses 2 HP. On a failed roll, he is seized by painful stomach cramps, losing 1d+1 HP; he is at -3 for all skills until the lost HP are restored.

Foul water also fails to satisfy thirst, and cannot support fish or other water-dwellers (a fish of any sort slowly suffocates in fouled water; a sea-mammal becomes ill from ingesting it). In a body of water, the foul water is eventually diluted to harmlessness; if cast in a mountain stream, for instance, this spell effectively lasts only a second or two.

Base cost: 3.
Prerequisites: Purify Water and Decay.

Item

Staff or wand. The item must touch the subject water. *Energy cost to create:* 100.

Freeze

Regular

Turns water into solid ice. The ice retains the shape of its container; in open water, the affected volume freezes as a sphere or cube, at the caster's option. A Shape Water spell may be cast to form the water before it is frozen, or to alter the shape of the ice after it is frozen.

Duration: The ice lasts until it melts naturally.

Cost: 2 for an object up to the size of a fist, 4 for up to a cubic foot, 6 for a cubic yard, 3 more for each additional cubic yard. If the temperature is above freezing, the caster may maintain the spell by expending the casting cost once every 10 minutes.

Time to cast: 10 seconds.

Prerequisite: Shape Water.

Item

Staff, wand, or jewelry. *Cost to create:* 200 energy, $100 blue gem.

Fog

Area

As listed under *Weather Spells*, p. 193.

Ice Slick

Area

Covers the floor or ground with a quarter-inch sheet of clear ice. Footing on this ice slick is very precarious. All close combat and melee attacks, and all active defenses, are at -3 on an ice slick. Other physical skills, including missile and thrown weapon attacks, are at -2. Even walking across an ice slick is usually difficult – in general, anyone attempting to walk or run across an ice slick must roll against DX-2 for every yard of distance he covers. If he fails this roll, he falls to the ice. He may, with another DX-2 roll, attempt to stand on his next turn. Spiked footwear negates all penalties on ice.

Ice slicks are very difficult to see. Anyone not actively watching the ground for ice must make a roll against IQ-3 to notice an ice slick before stepping onto it.

An ice slick will extinguish an area of normal fire that it overlaps, and vice versa.

Duration: An ice slick lasts until it melts naturally.

Base cost: 3.

Time to cast: 2 seconds per yard of radius.

Prerequisite: Frost.

Item

(a) Rug or mat. *Cost per 10 square feet:* 100 energy, $250 spell materials. (b) Wand, staff, or jewelry. *Cost to create:* 250 energy, $500 blue gem.

Ice Sphere

Missile

Throw a ball of ice from your hand. When it strikes, it does crushing damage and vanishes in a gout of water. A 1-die Ice Sphere can also extinguish fire in a 1-yard radius, if accurately aimed. It has 1/2D 40, Max 80, Acc 2.

Cost: Any amount up to your Magery level per second, for 3 seconds. The sphere does 1d damage per point of energy.

Time to cast: 1 to 3 seconds.

Prerequisite: Shape Water.

Item

Staff or wand – the ball is fired from the end of the item. Usable only by a mage. *Energy cost to create:* 400; the staff or wand must be tipped by a $500 sapphire.

Icy Missiles

Regular

Like Icy Weapon, but cast on a missile weapon. The weapon itself becomes cold to the touch, but won't harm the wielder. Any missile it fires becomes freezing cold, doing +2 damage to most foes; it shatters after it hits a target or after 10 seconds, whichever comes first.

Duration: 1 minute.

Cost: 4 to cast. 2 to maintain.

Time to cast: 3 seconds.

Prerequisite: Icy Weapon.

Item

A missile weapon that fires icy missiles whenever used, at no energy cost to the user. *Energy cost to create:* 1,000; a $500 sapphire must be set in the weapon.

Melt Ice

Area

Turns solid ice into water.

Duration: Permanent above freezing; 10 minutes below freezing.

Base cost: 1 (minimum 2). Below freezing, the cost to maintain is the same.

Time to cast: 10 seconds.

Prerequisite: Heat *or* Freeze.

Item

Staff, wand, or jewelry. *Cost to create:* 300 energy, $100 spell materials.

Resist Water

Regular

The subject (person, creature, or object) and anything he carries become immune to the effects of dampness, remaining dry even if completely submerged. The spell protects against the dampening effect of steam or ice, but not against the scalding or freezing itself! This also protects against water-like substances; a spilled drink does not stain, for instance. Its protection against acid is limited – the subject is granted 2 points of DR against acid spills or immersion.

This is also a Protection and Warning spell.

Duration: 1 minute.

Cost: 2 to cast. 1 to maintain.

Prerequisites: Either Shape Water *and* Destroy Water, or Umbrella.

Item

(a) Staff, wand, or jewelry. Always on. Only affects the wearer. *Cost to create:* 200 energy and a $200 emerald. (b) Staff, wand, or jewelry. *Cost to create:* 400 energy and a $200 emerald.

Snow Shoes

Regular

Cross ice or snow as though it were regular ground. Snow Shoes eliminates any movement, DX, or skill penalties normally assessed for ice or snow. The subject is still subject to penalties caused by an unstable surface, such as a rocking ice floe or an avalanche.

Duration: 1 minute.

Cost: 2 to cast. 1 to maintain.

Time to cast: 2 seconds.

Prerequisite: Shape Water.

Item

Shoes, boots, or sandals. Only affects the wearer. *Energy cost to create:* 350.

Walk on Water

Regular

Walk on water as with the Walk on Liquid advantage (p. B97).

Duration: 1 minute.
Cost: 3 to cast. 2 to maintain.
Time to cast: 4 seconds.
Prerequisite: Shape Water.

Item

Staff, wand, jewelry, or clothing. Only affects the wearer. *Energy cost to create:* 500.

Waves

Special; Area

As listed under *Weather Spells*, p. 194.

Water Jet

Regular

Shoot a thin jet of water from one finger. Each turn, the caster rolls vs. DX-4 or Innate Attack skill to hit. This attack may be dodged or blocked, but not parried. It does knockback to all targets, and damage to creatures of flame; it can kill or knock down flying swarm creatures. It can extinguish a 1-yard-radius area of normal fire. Anyone hit in the face by a Water Jet is at a -3 penalty to combat skills next turn for each point of energy put into the jet.

Duration: 1 second.
Cost: 1 to 3. Does 1d damage for each point put into it. Range is equal to the number of dice.
Prerequisite: Shape Water.

Item

Staff, wand, or jewelry. Usable only by mages. If the item is a wand or staff, it must have a blue tip (or a blue-jeweled tip); the jet comes from the tip. *Energy cost to create:* 600.

Water Vision

Information

See through water, snow, and ice – to find sunken treasure, lurking monsters, etc.

This is also a Knowledge spell.

Duration: 30 seconds.
Cost: 1 per 20 yards of depth to cast (up to 200 yards). Same cost to maintain.
Prerequisite: Shape Water.

Item

Any. *Energy cost to create:* 200.

Whirlpool

Area

Create a circular whirlpool in a body of water (lakes, rivers, seas, but also ponds and pools). By concentrating, the caster can move the Whirlpool any distance up to its own diameter per second. The caster may move at half speed while concentrating.

The whirlpool has a "funnel" in its center, the radius of which (at the surface) may be up to half that of the whirlpool. The depth of the funnel may be up to twice the radius of the whirlpool. The funnel gets progressively narrower as one nears its bottom.

The outermost yard of the whirlpool moves at Move 1, the next inner ring at Move 2 and so on. Anyone caught in the whirlpool will be dragged towards its bottom; a Swimming roll, at a penalty equal to the current ring's speed, must be made every revolution to avoid being dragged into the next inner ring (in addition to the usual consequences for failure – p. B354). A success by 3 or more means the swimmer managed to move outward one ring (if he so wills).

The whirlpool has little effect on beings and objects weighing more than 90 pounds times its radius in yards. While in the whirlpool, all DX-based skills (except aquatic ones such as Swimming or Scuba) are at -5, above and beyond any penalty for being in water in the first place.

Duration: 1 minute after reaching full strength.
Base cost: 2 to cast. Half that to maintain.
Time to cast: The Whirlpool starts immediately, but the caster must concentrate for a number of seconds equal to the Whirlpool's radius in yards to bring it to full strength. The Whirlpool takes a like time to stop once the spell lapses, although no concentration is required.
Prerequisite: Shape Water.

Item

Staff, wand, or jewelry. Usable only by mages. *Cost to create:* 200 energy and a $500 emerald.

Coolness

Regular

The subject remains comfortably cool in warm weather, avoiding the risk of dehydration or heat stroke – but not sunburn! Effectively, the subject gains Temperature Tolerance 3 (p. B93) toward heat for the duration of the spell. The spell offers no protection against actual flame or fire-based attack spells.

This is also a Protection and Warning spell.

Duration: 1 hour.
Cost: 2 to cast. 1 to maintain.
Time to cast: 10 seconds.
Prerequisite: Cold.

Item

Clothing, staff, or jewelry; only affects the wearer. *Energy cost to create:* 200.

Create Ice

Regular

Creates a quantity of ice or snow. It may appear as: a solid block of any shape; within a container (which must be large enough); hanging in mid-air (it falls immediately); as a mass of ice shavings (great for cooling drinks); or as a cloud of snow (which settles to the ground). It takes 60 gallons of ice shavings or snow to put out a one-yard radius area of fire within one second. A gallon of snow, depending on its fluffiness (p. 195), will cover a one-yard-radius area to a depth of two to 18 inches.

Duration: Permanent; the ice lasts until it melts naturally.
Cost: 2 per gallon of ice created.
Prerequisite: Freeze.

Item

Staff, wand, or jewelry. *Cost to create:* 200 energy and a $100 sapphire.

Dehydrate

Regular; Resisted by HT

Removes the water from a subject's tissues, causing damage or death. Affects the whole victim if cast from a distance; if the caster touches the subject, damage is limited to the part touched. Armor does not protect!

Duration: Damage done is permanent until healed.
Cost: 1 per 1d-1 damage done, up to 3.
Time to cast: 2 seconds.
Prerequisite:s At least five Water spells, including Destroy Water.

Item

Wand or staff. Usable only by mages; the item must touch the subject. *Cost to create:* 700 energy and $1,000 in spell materials.

Ice Dagger

Missile

Create and hurl a razor-sharp icicle. When it strikes, it does impaling damage and melts instantly. It has 1⁄2D 30, Max 60, Acc 3.

Cost: Any amount up to your Magery level per second, for 3 seconds. Does 1d-1 impaling damage for each point of energy put into it. No extra effect on creatures of fire.
Time to cast: 1 to 3 seconds.
Prerequisite: Ice Sphere *or* Water Jet.

Item

Jewelry; the item must have a dagger shape or design. Usable only by a mage. *Energy cost to create:* 400.

Icy Touch

Melee

Covers the subject with a coating of ice. The caster must touch the subject to trigger this spell; hit location is irrelevant. The subject is immobilized and may take no action until he breaks through the ice with a successful ST roll at a -1 penalty for every 1/4" of ice. The ice can be chipped off from the outside at a rate of 1/4" of ice for every point of basic damage; it has DR 1 per 1/2" of ice. If rescuers are not careful, however, they may smash through the ice to injure the subject (see *Overpenetration,* p. B408).

While encased in ice, the subject is vulnerable to thermal shock (p. B430); he must roll vs. HT immediately. On a success, he loses 1 FP; on a failure, he loses FP equal to the margin of failure. The HT roll must be repeated every minute that the subject remains encased in ice. If the situation becomes dire enough that the subject must start making death checks, a critical success means that the subject has fallen into suspended animation, as per the spell.

Duration: Permanent. If the temperature is above the freezing point, the ice coating may be maintained by spending as much energy as in the original casting every 10 minutes.
Cost: 2 per 1/4" of ice; must affect the entire subject, not just a part of it! Every 1/4" will inflict 1d-1 of damage to flame creatures.
Time to cast: 1 second per 1/4" of ice.
Prerequisites: Magery 1 and at least four Water spells.

Item

Staff or wand. Usable only by mages; the item must touch the subject. The item's tip must be white. *Energy cost to create:* 800.

Walk Through Water

Regular

Pass through water or ice as if it were air; the subject can walk through glaciers, along the bottoms of lakes, etc. Like the Swim spell, this negates combat penalties for fighting in water. In liquid water, the subject requires a surface to walk on. The spell may cost more if resistance to high pressures is necessary. The spell neither opens a passage so that others can follow, nor reveals what is on the other side . . . If the caster (or the subject) knows a spell to let him breathe, the subject will have no difficulty breathing during his journey, at no energy cost. Otherwise, he must hold his breath!

Should the spell end before the subject regains the open air, he finds himself submerged. He is not automatically harmed, but drowns (or suffocates, if in ice) if he cannot escape.

Duration: 1 second.
Cost: 4 to cast. 3 to maintain.
Time to cast: 3 seconds.
Prerequisites: Magery 1 and Shape Water.

Item

Clothing or jewelry; only affects the wearer. *Energy cost to create:* 1,100.

Dry Spring

Regular

Dries and blocks the waterflow within a spring, reducing its output.

Duration: Permanent. Note, however, that the local geology may eventually shift, restoring the spring's output to its previous level.
Cost: 3 times the reduction in the spring's output, in gallons per hour.
Time to cast: 1 minute.
Prerequisites: Destroy Water and Shape Earth.

Item

Staff. *Cost to create:* 450 energy and a $500 emerald.

Earth to Water

Regular

As listed under *Earth Spells*, p. 52.

Essential Water

Regular

Like Create Water, but the water created is the magical essence of water. It extinguishes any type of fire in the same proportion that ordinary water extinguishes ordinary fire. It is also three times as thirst-quenching as ordinary water – in other words, a mere quart of Essential Water will keep someone hydrated for a full day of exertion in hot climates (p. B426).

Duration: Permanent until used; if it is used to put out a fire, for instance, the steam created is ordinary water.
Cost: 3 per gallon created.
Prerequisite: At least 6 other Water spells.

Item

Staff, wand, or jewelry. Usable only by a mage. *Energy cost to create:* 800.

Frostbite

Regular; Resisted by HT

Lowers the temperatures in the body tissues of the subject, causing damage or death. Affects the whole victim if cast from a distance; if cast by touch, damage is limited to the part touched. Armor does not protect.

Duration: Damage is permanent until healed.
Cost: 1 per die of damage done, up to 3.
Time to cast: 3 seconds.
Prerequisites: Frost and Freeze.

Item

Wand or staff. Usable only by mages; the item must touch the subject. *Cost to create:* 700 energy, $500 spell materials, and a $500 blue gem.

Snow Jet

Regular

Shoot a thin jet of snow from one finger. Each turn, the caster rolls versus DX-4 or Innate Attack skill to hit. This attack may be dodged or blocked, but not parried. It does knockback on all targets and damage to creatures of flame; it can kill or knock down flying swarm creatures. It can extinguish normal fire within an area one yard in radius. If the spell strikes the target's face, it temporarily blinds him unless he makes a HT roll.

If the HT roll is failed, each energy point in the spell blinds the target for one second. After the target can see again, blurry vision will put him at a -3 penalty to combat skills for a further 1d seconds. On a critically failed HT roll, the target is blinded for 1d seconds per point of energy in the spell. On a successful HT roll, the victim covers his eyes and is therefore unable to see for one second. On a critical success, the victim is unaffected.

Duration: 1 second.
Cost: 1 to 3. The jet does 1d of knockback for every point put into it. Its range is equal to the number of dice. The cost to maintain is the same.
Prerequisites: Water Jet and Freeze.

Item

Staff or wand. Usable only by mages. The jet issues from the item's tip. *Energy cost to create:* 600; the staff or wand must be tipped by a $500 sapphire.

Breathe Water

Regular

Allows the subject to breathe water as though it were air, temporarily granting Doesn't Breathe (Gills) (p. B49). The subject does *not* lose the ability to breathe ordinary air! At the GM's discretion, this spell may also include the equivalent of Pressure Support 1 (p. B77), allowing the subject to venture into deep water without concern.

This is also an Air spell.

Duration: 1 minute.
Cost: 4 to cast. 2 to maintain.
Prerequisites: Create Air and Destroy Water.

Item

Clothing or jewelry. *Energy cost to create:* 400.

Breathe Air

Regular

As described under *Air Spells*, p. 26.

Swim

Regular

As described under *Movement Spells*, p. 147.

Body of Ice (VH)

Regular; Resisted by HT

Temporarily grants the subject the Body of Ice meta-trait (p. B262). Clothes (up to 6 pounds) also become ice, but lose any magic powers they might have had.

Duration: 1 minute. Expires if the subject loses consciousness.
Cost: 7 to cast. 3 to maintain.
Time to cast: 5 seconds.
Prerequisites: Magery 2, Body of Water, and Freeze.

Item

Staff, wand. or jewelry. Only affects the wearer. *Energy cost to create:* 1,300.

Boil Water

Regular

Turns water into steam. Water expands considerably in going from liquid to gas; a mere pint of water makes a lot of steam. The scalding effect of steam is such that a steam hex should be treated exactly as a fire hex, except that it cannot ignite anything.

Duration: Permanent, though the steam will recondense naturally (within about 10 minutes).
Cost: 2 for a fist-sized quantity of water (makes about a hex of steam), 4 for a cubic foot's worth (makes about 40 cubic yards of steam), 6 for a square yard of water to a foot's depth (makes about 400 cubic yards of steam), 3 for each additional third of a cubic yard.
Time to cast: 10 seconds.
Prerequisites: Shape Water and Heat.

Item

Staff, wand, or jewelry. *Cost to create:* 200 energy and a $100 carnelian.

Condense Steam

Area

Turns steam into room-temperature water.

Duration: Permanent, though the water may boil again.
Base cost: 1 (minimum 2).
Time to cast: 10 seconds.
Prerequisite: Cold *or* Boil Water.

Item

Staff, wand, or jewelry. *Cost to create:* 300 energy and a $100 emerald.

Create Acid

Regular

Creates a strong acidic solution out of nothing. It may appear in any of several forms. It may appear within a container (which should be of glass or of some special stone or metal if the acid is not to attack it), as a globe in mid-air (which falls immediately), or as a dense mist of droplets (which inflicts splashing damage).

Duration: The created acid is permanent, but is neutralized as it reacts with objects and beings.

Cost: 4 per gallon created.

Time to cast: 2 seconds.

Prerequisites: Create Water and Create Earth.

Item

Staff, wand, or jewelry. Usable only by mages. *Energy cost to create:* 300.

Create Spring

Regular

Increases a spring's output, or creates one where none exists.

Duration: Permanent. Note, however, that the local geology may eventually shift, reducing the spring's output to its previous level.

Cost: 5 times the increase in the spring's output, in gallons per hour.

Time to cast: 1 minute.

Prerequisites: Dry Spring and Shape Water.

Item

Staff. *Cost to create:* 675 energy and a $500 emerald.

Current

Special; Area

As listed under *Weather Spells*, p. 194.

Tide

Special; Area

As listed under *Weather Spells*, p. 194.

Flesh to Ice (VH)

Regular; Resisted by HT

"Petrifies" a living subject (and all his gear!) into ice. Stone to Flesh can reverse the effects of this spell, but the caster is at a -4 penalty unless he also knows Flesh to Ice. Remove Curse can also break the spell.

Duration: Permanent until reversed by another spell or substantial melting (or breakage) takes place.

Cost: 12 to cast; must affect the entire subject, not just a part of it!

Time to cast: 2 seconds.

Prerequisites: Magery 1, Frostbite, and Body of Water.

Item

Staff or wand. Usable only by mages; the item must touch the subject. *Energy cost to create:* 1,200.

Create Steam

Area

Produces a cloud of steam. Until it dissipates, anyone standing within the area of effect is at risk of scalding (treat as if surrounded by fire, pp. B443-444, except that steam cannot set anything aflame). The steam tends to rise; the rate of dissipation depends on the area, ambient temperature and the presence of wind – indoors, it usually lasts until the spell expires, but outdoors on a windy or cold day it may last only 10 seconds or so.

Duration: 5 minutes or less, as above.

Base cost: 2 to cast. Cannot be maintained.

Prerequisite: Boil Water.

Item

Staff, wand, or jewelry. *Cost to create:* 400 energy and a $100 carnelian.

Distill

Regular

As listed under *Food Spells*, p. 79.

Resist Acid

Regular

The subject (person, creature or object) and anything he carries become immune to the effects of acid.

This is also a Protection and Warning spell.

Duration: 1 minute.

Cost: 2 to cast; 6 if subject must resist Essential Acid. Half that to maintain.

Prerequisite: Create Acid.

Item

(a) Staff, wand, or jewelry; only affects the wearer. *Energy cost to create:* 800. (b) Staff, wand, or jewelry. *Energy cost to create:* 1,200.

Summon Water Elemental, Control Water Elemental, Create Water Elemental

see pp. 27-28

Rain

Area

As listed under *Weather Spells*, p. 195.

Snow

Area

As listed under *Weather Spells*, p. 195.

Hail

Area

As listed under *Weather Spells*, p. 195.

Mud Jet

Regular

As listed under *Earth Spells*, p. 52.

Geyser (VH)

Area

Causes a geyser of scalding-hot water to gush forth from the ground. It creates a hole equal to its radius, as set by the caster. All those within the geyser suffer 3d damage. They are automatically pushed out of the area of effect, and must make a DX-5 roll to stay afoot!

Two seconds after the geyser starts, the water begins to fall back as spray. Under normal conditions, it affects an area double the radius of the original geyser. All those within this new spray area suffer 1d damage per second.

Example: A geyser of 2 yards radius is created. All those in that area suffer 3d damage. Two seconds later, all those within 4 yards, but not within 2 yards, suffer 1d of damage.

Small Water Elemental

This is the basic water elemental summoned by casting Summon Water Elemental at the minimum energy cost of 4. More energy put into the spell summons a more powerful elemental. Usually, this simply means a larger elemental; one point of energy is equal to 1 additional point of ST, 5 HP, or 2 points of DR. However, the GM may choose to build a more exotic elemental, adding unusual traits to the following template, or working one up from scratch.

Small Water Elemental

40 points

Attribute Modifiers: ST-3 [-30]; DX-2 [-40]; IQ-3 [-60]; HT-2 [-20].
Secondary Characteristic Modifiers: SM -1.
Advantages: Amphibious [10]; Chameleon 1 [5]; Doesn't Breathe [20]; Doesn't Sleep [20]; Immunity to Metabolic Hazards [30]; Injury Tolerance (Diffuse) [100]; Pressure Support 3 [15]; Slippery 5 [10].
Disadvantages: Invertebrate [-10]; Vulnerability (Dehydration) [-10].

If the caster is in the geyser area, he takes normal damage, but if he is in the spray area, he is unharmed.

The geyser must always spring from the earth; it would not work on a rooftop. If cast under unusual circumstances, it can produce interesting effects, such as a continuing stream of scalding water flowing downhill at foes, but these must be controlled by the GM.

Duration: 1 second.
Base cost: 5 to cast. 2 to maintain.
Time to cast: 5 seconds.
Prerequisites: Six Water spells, including Create Spring, and either four Earth spells or four Fire spells.

Rain of Acid

Area

Droplets of acid rain from the sky onto the area, causing 1d-1 acid damage per second to all within it. Characters and creatures under the rain of acid take damage on their own turns; if less than an entire second is spent in the affected area, damage is halved (round down).

The spell can only be cast out of doors. Armor protects in the usual fashion. A shield with a DB of 2 or better can be held overhead to block the droplets, but it may take damage (p. B484). This requires two hands and a Ready action, and succeeds automatically in protecting the character once the shield is readied upwards, but this *unreadies* the shield from its normal protective functions!

In addition, acid rain eats objects away at the rate of 1 HP every 10 seconds; the object's DR protects it completely for 3 seconds per DR. This includes buildings.

Duration: 1 minute.
Base cost: 3. Same cost to maintain.
Prerequisites: Magery 2, Create Water, and Create Earth.

Item

Staff. Usable only by mages. *Energy cost to create:* 1,200.

Steam Jet

Regular

Shoot a thin jet of scalding steam from one finger. Each turn, the caster rolls versus DX-4 or Innate Attack skill to hit. This attack may be dodged or blocked, but not parried. It does knockback on all targets in addition to its regular damage; it does double damage to creatures of flame or ice. It can extinguish normal fire within an area 1 yard in radius. If the spell strikes the target's face, it temporarily blinds him unless he makes a HT roll.

If the HT roll is failed, each energy point in the spell blinds the target for one second. After the target can see again, blurry vision will put him at a -3 penalty to combat skills for a further 1d seconds. On a critically failed HT roll, the target is blinded for 1d seconds per point of energy in the spell. On a successful HT roll, the victim covers his eyes for one second and is therefore unable to see for one turn. On a critical success, the victim is unaffected.

Duration: 1 second.
Cost: 1 to 3. Does 1d-1 of scalding damage for every point put into it. Range is equal to the number of dice. Cost to maintain is the same.
Prerequisites: Water Jet and Boil Water.

Item

Staff or wand. Usable only by mages. The jet issues from the item's tip. *Energy cost to create:* 700; the staff or wand must be tipped by a $300 carnelian.

Acid Ball

Missile

Throw a ball of acid from one hand. When it strikes something, it bursts, inflicting acid damage. It has 1/2D 20, Max 40, Acc 1; use the Innate Attack skill.

Cost: Any amount up to your Magery lever per second, for three seconds. The Acid Ball does 1d damage per energy point.
Time to cast: 1 to 3 seconds.
Prerequisites: Magery 2 and Create Acid.

Item

Staff or wand – the missile is fired from the tip of the item. Usable only by mages. *Energy cost to create:* 300.

Acid Jet

Regular

Shoot a jet of acid from one hand. Each turn, the caster rolls against DX-4 or Innate Attack skill to hit. The jet may be dodged, but not parried or blocked. The jet does knockback as per Snow Jet; if the jet strikes the face, the acid may blind the victim as detailed on p. B428.

Duration: 1 second.
Cost: 1 to 3. Does 1d-1 of damage for every point used. Range is equal to the number of dice. Cost to maintain is the same.
Prerequisites: Magery 2, Water Jet, and Create Acid.

Item

Staff or wand. Usable only by mages. The jet issues from the item's tip. *Energy cost to create:* 400.

Rain of Ice Daggers

Area

Ice Daggers rain from the sky onto the area, causing 1d-2 impaling damage per second to all within it. Characters and creatures under the Rain of Ice Daggers take damage on their own turns; if less than an entire second is spent in the affected area, damage is halved (round down).

The spell can only be cast out of doors. Armor protects in the usual fashion. A shield with a DB of 2 or better can be held overhead to block the ice, but it may take damage (p. B484). This requires two hands and a Ready action, and succeeds automatically in protecting the character once the shield is readied upwards, but this *unreadies* the shield from its normal protective functions!

Inanimate objects such as buildings protect with their DR.

Duration: 1 minute.
Base cost: 1 (minimum 2). For double base cost, the Rain of Ice Daggers does 1d per second!
Prerequisites: Magery 2, Hail, and Ice Dagger.

Item

Staff. Usable only by mages. *Cost to create:* 800 energy and a $1,000 sapphire.

Storm

Area

As listed under *Weather Spells*, p. 195.

Icy Breath (VH)

Regular

The caster expels a deadly hail of ice and cold air from his mouth. The caster rolls to hit against DX-4 or Innate Attack skill. This counts as an attack; it can be dodged or blocked, but not parried. The caster must be facing his target. No hand gestures are required to cast this spell; certain lip and tongue motions are made instead. Thus, Icy Breath can be cast "no hands" at any level of skill.

Duration: 1 second.
Cost: 1 to 4. Does 1d+1 damage for every point of energy in the spell. Cannot be maintained.
Time to cast: 2 seconds.
Prerequisites: Magery 1, Snow Jet, and Resist Cold.

Item

Jewelry. Usable only by mages. Cost to create: 400 energy and a $500 sapphire.

Breathe Steam (VH)

Regular

Similar to Steam Jet, except that the steam issues from the caster's mouth, Breathe Steam cannot be maintained, and each energy point buys 1d damage instead of 1d-1. Caster rolls to hit against DX-2 or Innate Attack skill. This counts as an attack; it may be dodged or blocked, but not parried. The caster must be facing his target. No hand gestures are required to cast this spell; certain lip and tongue motions are made instead. Thus, Breathe Steam can be cast "no hands" at any level of skill.

Duration: 1 second.
Cost: 1 to 4. Cannot be maintained.
Time to cast: 2 seconds.
Prerequisites: Magery 1, Steam Jet, and Resist Fire.

Item

Jewelry. Usable only by mages. *Cost to create:* 1,000 energy and a $500 carnelian.

Spit Acid (VH)

Regular

Similar to Acid Jet, except that the acid issues from the caster's mouth, Spit Acid cannot be maintained, and each energy point buys 1d damage instead of 1d-1. Caster rolls to hit against DX-2 or Innate Attack skill (p. B201). This counts as an attack; it may be dodged or blocked, but not parried. The caster must be facing his target. No hand gestures are required to cast this spell; certain lip and tongue motions are made instead. Thus, Spit Acid can be cast "no hands" at any level of skill.

Duration: 1 second.
Cost: 1 to 4. Cannot be maintained.
Time to cast: 2 seconds.
Prerequisites: Magery 3, Acid Jet, and Resist Acid.

Item

Jewelry. Usable only by mages. *Energy cost to create:* 400.

Essential Acid (VH)

Regular

Turns regular acid into the magical *essence* of acid. No substance is immune to its bite, and it inflicts three times as much damage before being neutralized. Essential Water or Flame, in like quantity, will nullify Essential Acid. If frozen with the Freeze spell, it is harmless until thawed.

At the GM's option, this spell may produce alkahest (p. 220).

Duration: Permanent until neutralized.
Cost: 8 per gallon.
Prerequisites: Magery 3 and all six Acid spells.

Item

Staff, wand, or jewelry. Usable only by mages. *Energy cost to create:* 1,100.

Chapter Twenty-Six
Weather Spells

"You did what?!" Jenkins yelped.

"I needed some rain on the north forty, so I pulled some clouds in from the hills. What's wrong with that?"

"Jones brought in a northeasterly to pollinate his sunflowers! When it pushes your clouds over the ridge, it'll flood the Aaronson place for sure."

"Well, it serves Aaronson right," Dan Friedlander grumbled. "Dumping hail on little Susie Atkins' birthday party just because his Jenny wasn't invited – what kind of person does something like that?

"That's beside the point, Dan! I also happen to know that widow Sawyer needed that rain for her tomatoes, and you just went dumping it on Vic Aaronson!"

"Well, how am I supposed to know that? It's not like Emmeline Sawyer talks to me these days!"

Jenkins sank his head into his hands. "Everybody does something about the weather, but no one talks about it."

GMs willing to give weather mages more potential may wish to have all Weather/Area spells cast using long-distance modifiers (from the caster to the edge of the affected area).

Frost

Area

Creates a covering of frost on all surfaces in the area of effect. The frost is real, and lasts indefinitely if the temperature is below freezing. In warmer conditions, the frost quickly melts to a dew. When cast upon a real or magical fire, the frost produces a cloud of steam and causes the flames to hiss for a few seconds. Only a tiny fire – a match or candle – would actually be extinguished by a Frost spell.

A Frost spell cast upon a fire elemental or other flaming creature does one point of damage to the creature, but is more likely to anger it than drive it away.

This is also a Water spell.

Duration: The frost lasts until it melts naturally.

Base cost: 1.

Prerequisite: Create Water *or* Cold.

Item

Staff, wand, or jewelry. *Cost to create:* 200 energy, $350 blue gem.

Fog

Area

Creates an area of dense fog. Even one yard of fog blocks vision. Flaming weapons and missiles lose their extra power in fog. A Fireball loses 1 point of damage per yard of fog it must traverse (e.g., a 3d Fireball that crosses 5 yards of fog inflicts 3d-5 damage), while victims of an Explosive Fireball may count each yard of fog as *two* yards of distance from the blast. However, no amount of fog will extinguish a fire.

This is also a Water spell.

Duration: 1 minute.

Base cost: 2 to cast. Half that to maintain.

Prerequisite: Shape Water.

Item

Staff, wand, or jewelry. *Energy cost to create:* 300.

Predict Weather

Information

Forecasts the weather accurately for a given location over a given time. This forecast does *not* take magical meddling into account, or predict the actions of other wizards!

This is also an Air spell.

Cost: 2 times the length of the forecast, in days. Double the cost for a location outside the general area (say, over the horizon). Quadruple the cost for a place on another continent. This spell cannot predict weather on planets or planes other than the one where the caster currently is.

Time to cast: 5 seconds per day forecast.

Prerequisites: At least four Air spells.

The Beaufort Scale

Beaufort Degree	*Description*	*Wind Speed (mph)*	*Average Wave Height at Sea (feet)*	*Notes*
0	Calm	–	0	
1	Light Air	1-3	0	
2	Light Breeze	4-7	0-1	
3	Gentle Breeze	8-12	1-2	Breaking crests
4	Moderate Breeze	13-18	2-4	Some foam
5	Fresh Breeze	19-24	4-8	
6	Strong Breeze	25-31	8-13	Some spray
7	Moderate Gale	32-38	13-20	Some spindrift
8	Fresh Gale	39-46	13-20	
9	Strong Gale	47-54	13-20	Sea begins to roll
10	Whole Gale	55-63	20-30	Visibility affected
11	Storm	64-72	30-45	
12	Hurricane	73-82	45	
13	Hurricane	83-92		
14	Hurricane	93-103		
15	Hurricane	104-114		
16	Hurricane	115-125		
17	Hurricane	126+		

Waves

Special; Area

Changes the surface calmness of any large body of water. Each application of the spell can increase or decrease the wave height by one point on the Beaufort scale (above); to achieve multiple-point changes, multiply the spell's cost accordingly. The wind is unaffected. Note that the Beaufort scale is specific to ocean waves; waves produced on lake shores are generally much lower relative to wind speed (GM's judgment).

The spell may be cast on an area, affecting the waves moving across it. It can also be cast on an object, such as a ship, which it must then encompass in its entirety (typically, 10 to 30 yards in radius). The area of effect then moves with the object.

This is also a Water spell.

Duration: 1 hour.
Base cost: 1/60 (minimum 1). Same cost to maintain.
Time to cast: 1 minute.
Prerequisite: Shape Water.

Item

Staff, wand, or jewelry. *Energy cost to create:* 300.

Clouds

Area

Creates or dispels normal outdoor cloud cover, as the caster chooses.

This is also an Air spell.

Duration: 10 minutes, after which normal clouds leave or return unless the spell is maintained.
Base cost: 1/20 (minimum 1). Same cost to maintain.
Time to cast: 10 seconds.
Prerequisites: At least two Water spells and two Air spells.

Item

Staff, wand, or jewelry. *Energy cost to create:* 300.

Current

Special; Area

Affects the currents of any large body of water. Each application of the spell can shift the current direction by 22.5 degrees or speed by 1 mph (or knot). To achieve combined direction/speed changes, or more extreme changes in one or the other, increase cost proportionately.

The spell may be cast on an area, affecting the current moving under it for 40 yards in depth. It can also be cast on an object, such as a ship, which it must then encompass in its entirety. The area of effect then moves with the object.

This is also a Water spell.

Duration: 1 hour.
Base cost: 1/50 (minimum 1). Same cost to maintain.
Time to cast: 1 minute.
Prerequisites: At least six Water spells.

Item

Staff, wand, or jewelry. *Energy cost to create:* 300.

Tide

Special; Area

Each application of this spell can raise or lower the water level by one foot; for larger changes, increase the spell's cost proportionately.

The "hill of water" thus created spreads naturally from the area affected, dropping by one foot for each yard beyond the actual area of the spell.

The spell may be cast on an area, affecting the tide in it. It can also be cast on an object, such as a ship, which it must then encompass in its entirety. The area of effect then moves with the object.

This is also a Water spell.

Duration: 1 hour.
Base cost: 1/30 (minimum 1). Same

cost to maintain.

Time to cast: 1 minute.

Prerequisites: At least eight Water spells.

Item

Staff, wand, or jewelry. *Energy cost to create:* 225.

Wind

Special; Area

Modifies the current outdoor wind conditions. Each application of the spell can shift the wind direction by 22.5 degrees (from W to WSW, for example), or change wind speed by one level on the Beaufort Scale (see box). To achieve combined direction/speed changes, or more extreme changes in one or the other, increase cost proportionately.

The spell may be cast on an area, affecting the wind moving over it from the ground to an altitude of about 300 feet. It can also be cast on an object, such as a sailing ship, which it must then encompass in its entirety. The area of effect then moves with the object.

This is also an Air spell.

Duration: 1 hour.

Base cost: 1/50 (minimum 1). Same cost to maintain.

Time to cast: 1 minute.

Prerequisite: Windstorm.

Item

Staff, wand, or jewelry. *Energy cost to create:* 300.

Rain

Area

Creates (or prevents) 1 inch of rain in a normal outdoor setting.

This is also an Air spell and a Water spell.

Duration: 1 hour.

Base cost: 1/10 (minimum 1). Cost to make rain doubles in a desert or other area (GM's determination) where rain is unnatural. Cost to prevent rain doubles in a naturally rainy or swampy area. Same cost to maintain.

Time to cast: 1 minute.

Prerequisite: Clouds.

Item

Staff or wand. Usable only by a mage. The item must be kept in water when not in use; it loses its powers if it stays dry for more than an hour. *Energy cost to create:* 600.

Snow

Area

Creates (or prevents) 1 inch of snow, in a normal outdoor setting. To work properly, this spell must be cast when the temperature is 32°F or lower. When cast under warmer conditions, this spell simply summons a thin drizzle, dampening the ground but not leaving any significant puddles.

This is also an Air spell and a Water spell.

Duration: 1 hour.

Base cost: 1/15 (minimum 1). Each additional 1/15 energy per yard radius increases the amount of snow by 1 inch per hour. Same cost to maintain.

Prerequisites: Clouds and Frost.

Item

Staff. It must be kept cool when not in use; it loses its powers if it is exposed to temperatures over 90° for more than two hours. Usable only by a mage. *Energy cost to create:* 450.

Hail

Area

Makes hail fall. The temperature must be above freezing. The main effect is to provide intense distraction to whoever is being pelted with hail; wizards must make a Will roll each second to keep their concentration. For 5 times the cost, the GM may allow really big hailstones, doing 1d-2 crushing damage per second.

This is also a Water spell.

Duration: 1 minute.

Base cost: 1/5 (minimum 1). For damaging hailstones, base cost is 1. Same cost to maintain.

Prerequisite: Snow.

Item

Staff. Usable only by a mage. *Energy cost to create:* 500.

Warm

Area

Raises the ambient air temperature of an area. This could be used to dissipate Fog, for example. The spell cannot raise the temperature above 100°F.

This is also an Air spell.

Duration: 1 hour.

Time to cast: 1 minute per base cost application.

Base cost: 1/10 (minimum 1). Each base cost application raises the ambient temperature by 10°F. Same cost to maintain.

Prerequisites: Heat and at least four Air spells.

Item

Staff. Usable only by a mage. *Energy cost to create:* 150.

Cool

Area

Lowers the ambient air temperature of an area. This may cause fog to appear if the conditions are right. The spell cannot lower the temperature below about -40°F.

This is also an Air spell.

Duration: 1 hour.

Time to cast: 1 minute per base cost application.

Base cost: 1/10 (minimum 1). Each base cost application lowers the ambient temperature by 10°F. Same cost to maintain.

Prerequisites: Cold and at least four Air spells.

Item

Staff. Usable only by a mage. *Energy cost to create:* 150.

Storm

Area

Creates (or dispels) a storm. Depending on ambient temperature and humidity, it may be a simple windstorm or include rain, snow or hail – the odd lightning bolt, too. This is particularly effective at sea. The spell is unpredictable in its effects (which is to say the GM decides what the storm does . . .).

The spell can also be used to dispel a storm; the effectiveness of the spell depends on the relative sizes of the affected area versus the natural storm's full area.

This is also an Air spell and a Water spell.

Duration: 1 hour.

Base cost: 1/50 (minimum 1). Same cost to maintain.

Time to cast: 1 minute. An incipient storm will take about an hour to gather and reach full strength. Once the spell lapses, it may take a varying length of time to calm down – it may even keep going on its own for hours

yet! A dispelled storm will also take about an hour to calm down.

Prerequisites: Rain and Hail.

Item

Staff. Usable only by a mage. *Energy cost to create:* 1,000.

Weather Dome

Area

As listed under *Protection and Warning Spells*, p. 169.

Cloud-Walking

Regular

As listed under *Movement Spells*, p. 148.

Cloud-Vaulting

Regular

As listed under *Movement Spells*, p. 148.

Resist Lightning

Regular

The subject and anything he carries become immune to the effects of lightning and electricity. In low-tech settings, this is most often used to guard against hostile magic; in higher-tech worlds, it becomes a valuable professional tool.

This is also a Protection and Warning spell and an Air spell.

Duration: 1 minute.

Cost: 2 to cast. 1 to maintain.

Prerequisites: Any six Air spells.

Item

(a) Any. Only affects the wearer. *Cost to create:* 1,000 energy and $1,000 in platinum. (b) Wand, staff, or jewelry. *Cost to create:* 1,500 energy and $1,000 in platinum.

Lightning

Missile

Shoots a bolt of lightning from a fingertip. This bolt has 1/2D 50, Max 100, Acc 3. Treat any metal armor as DR 1 against this spell! If the target is wounded, he must make a HT roll, at -1 per 2 HP suffered, or be stunned. He may attempt a HT roll each turn thereafter to recover. Against electronic equipment, treat this attack as if it had the Surge damage modifier (see p. B105).

Lightning behaves unpredictably around conductors. A lightning bolt *cannot* be fired through a metal grid, between bars, from within a car, etc. – it jumps to the metal and is lost. However, the GM may (for instance) allow a wizard to shoot a lightning bolt into a metal floor. This would not electrocute those on it, but could shock them all, interrupting concentration and doing slight damage (no more than 1 point, and possibly none at all). The GM may encourage creative use of lightning until it becomes a nuisance.

This is also an Air spell.

Cost: Any amount up to your Magery level per second, for three seconds. The bolt does 1d-1 burning damage per energy point.

Time to cast: 1 to 3 seconds (the caster's fingers sparkle as the spell builds).

Prerequisites: Magery 1 and at least six other Air spells.

Item

Staff or wand – the bolt is fired from the end of the item. Usable only by mages. *Cost to create:* 800 energy, $1,200 for platinum decorations.

Explosive Lightning

Missile

Creates a lightning bolt that affects both its target and things nearby. This has 1/2D 50, Max 100, Acc 3. It can be thrown at a wall, floor, etc. (at +4 to hit) to catch foes in the blast. The target and anyone closer to the target than one yard takes full damage.

Those further away divide damage by three times their distance in yards from the explosion (round down). The effects of lightning damage listed under Lightning apply.

This is also an Air spell.

Cost: Any amount up to twice your Magery level per second, for three seconds. The lightning bolt does 1d-1 burning damage per full 2 points of energy.

Time to cast: 1 to 3 seconds.

Prerequisite: Lightning.

Item

Staff or wand – the bolt is fired from end of item. Usable only by a mage. *Energy cost to create:* 1,200; must include platinum decorations worth $500.

Lightning Whip

Regular

Creates a whip of lightning in the caster's hand. It is wielded like a normal whip (p. B404), except that it always takes only one second to ready, and it cannot be used to parry or entangle. The whip inflicts 1d burning damage every time it strikes. The effects of lightning damage listed under Lightning apply.

This is also an Air spell.

Duration: 10 seconds.

Cost: 1 to cast per two yards of reach (maximum of 8 yards). Same to maintain.

Time to cast: 2 seconds.

Prerequisite: Lightning.

Item

Glove, whip, or jewelry. Usable only by mages. *Energy cost to create:* 350.

Shocking Touch

Melee

Charges the caster's hands or staff with lightning. The caster must strike the subject to trigger this spell; hit location is irrelevant. The subject takes 1d+1 burning damage per point of energy in the spell. Armor does not protect.

Shocking Touch has unusual side effects on electronics and conductive materials, as per Lightning (above).

This is also an Air spell.

Cost: 1 to 3.

Prerequisite: Lightning.

Item

Staff, wand, or glove. The item must touch the subject. Energy cost to create: 1,500.

Spark Cloud

Area

Creates a ground-level cloud of electrical sparks. It does not block vision, but it inflicts burning damage to anyone standing in it. Armor protects in the usual fashion (metallic armor provides the same minimal protection that it does against Lightning).

This is also an Air spell.

Duration: 10 seconds.

Base cost: 1 to 5; the cloud inflicts 1 point of damage per second for every point of energy put into the base cost.

Time to cast: 1 to 5 seconds, depending on base cost. Cannot be maintained.

Prerequisites: Shape Air and Lightning.

Item

Staff, wand, or jewelry. Usable only by mages. *Cost to create:* 150 energy, $500 in platinum, and a $500 opal.

Spark Storm

Area

Creates a normal Windstorm, with a dangerous addition: every turn Lightning strikes one random victim in the area of effect. To resolve the bolt's attack, roll against the caster's Spark Storm skill, without any range adjustments. The victim gets an active defense, as usual.

At the GM's option, the lightning strikes may not be completely random: tall targets may be at more risk than short ones, and metal armor may tend to attract the lightning. Mages who use this spell know what the true rules are in their world.

This is also an Air spell.

Duration: 1 minute after reaching full strength.

Base cost: 2 (1d-1 Lightning), 4 (2d-2 Lightning) or 6 (3d-3 Lightning) to cast. Half that to maintain.

Time to cast: The storm starts immediately, but the caster must concentrate for a number of seconds equal to the storm's radius in yards to bring the storm to full strength.

Prerequisites: Windstorm and Lightning.

Item

Staff, wand, or jewelry. Usable only by mages. *Cost to create:* 300 energy, $500 in platinum ,and a $500 opal.

Wall of Lightning

Area

Creates a shimmering, crackling curtain of lightning around an area. The wall is four yards high, but may be made higher by scaling the cost as the height (double for 8 yards high, triple for 12 yards high and so on).

Every turn, anyone crossing or touching the wall suffers burning damage. It impedes vision and hearing through it: -1 to these Sense rolls.

This is also an Air spell.

Duration: 1 minute.

Base cost: 2 to 6 to cast. Same cost to maintain. Each turn, the Wall inflicts 1d-1 burning damage for every two points of energy put into its base cost.

Prerequisite: Lightning.

Item

(a) Staff, wand, or jewelry. Usable only by mages. *Cost to create:* 500 energy and a $500 opal. (b) A Wall of Lightning may be made permanent at an energy cost of 100 times normal.

Ball of Lightning

Missile

Creates a ball of lightning in the caster's hand. Unlike a regular Missile spell, however, a Ball of Lightning floats away in the direction the caster wills it to; it cannot be hurled in the usual fashion. The ball is utterly silent and moves in a straight line at a maximum speed equal to the caster's skill divided by 5 (round down), regardless of wind and nonmetallic obstacles – the ball floats right through windows, curtains, walls, etc. It maintains its heading and speed unless the caster concentrates to change it. The ball explodes on the mental command of the caster or upon contact with a living being or metallic object. If the spell is allowed to expire, the Ball winks out of existence without exploding.

This is also an Air spell.

Duration: 1 minute.

Cost: Any amount up to twice your Magery level per second, for three seconds; half that to maintain. The ball inflicts 1d-1 burning damage for every 2 full points of energy to anyone within 1 yard of the explosion. Those further away divide damage by three times their distance in yards (round down).

Time to cast: 1 to 3 seconds; the ball grows in the caster's hand as the casting progresses.

Prerequisites: Apportation and Lightning.

Item

Staff, wand, or jewelry. Usable only by mages. *Cost to create:* 600 energy and a $500 opal.

Lightning Stare

Regular

The caster shoots lightning from his eyes, using DX-4 or Innate Attack skill to hit. The caster must be facing the target to use this spell. The typical ritual for this spell uses facial motions rather than hand gestures; thus, Lightning Stare can be cast "no hands" at any level of skill.

This is also an Air spell.

Duration: 1 second.
Cost: 1 to 4. Cannot be maintained. Does 1d burning damage per point of energy put into the stare. Range is 2 yards per point of energy.
Time to cast: 2 seconds.
Prerequisites: Lightning, Resist Lightning.

Item

Jewelry. Usable only by mages. *Cost to create:* 1,000 energy, $500 worth of platinum, and a $500 opal.

Body of Lightning

Regular; Resisted by HT

Subject becomes an animated shape of lightning, temporarily granting him the Body of Lightning meta-trait (see box). Clothes (up to 6 pounds) also become lightning, but lose any magic powers they might have had.

Stop Power acts as Glue and Steal Power acts as Steal Strength on the subject.

This is also an Air spell.

Duration: 1 minute. The spell is broken if the subject loses consciousness.
Cost: 12 to cast. 4 to maintain.
Time to cast: 5 seconds.
Prerequisites: Magery 2 and Lightning.

Item

(a) Staff, wand, or jewelry. Only affects the wearer. A severe drawback is that, as soon as it is activated, the item falls through the user's hand – thus a spell cast with this item lasts only a minute. *Energy cost to create:* 3,000. (b) Staff, wand, or jewelry. Only affects the wearer. Unlike the previous item, this item turns to lightning along with the wearer. While in lightning form, it loses any other magical powers it might ordinarily have. *Energy cost to create:* 6,000.

Lightning Armor

Regular

The subject is sheathed in crackling lightning, without feeling any discomfort (the subject and anything he carries are under a Resist Lightning spell). The subject's melee attacks do an extra point of burning damage.

Any metallic weapon that hits the subject triggers a 1d-1 backlash of burning damage along the weapon. This attack automatically hits the hand that is holding the weapon, regardless of the weapon's length, as long as its entire length is conducting. Should the subject grapple or be grappled, the foe takes 3d-3 burning damage, but the spell will be broken.

This is also an Air spell.

Duration: 1 minute.
Cost: 7 to cast. 4 to maintain.
Prerequisites: At least six Lightning spells including Resist Lightning.

Item

(a) Staff or jewelry. Usable only by mages. *Cost to create:* 1,000 energy and $300 worth of platinum and opals. (b) Cape or armor; only affects the wearer. When activated, the cape seems like a piece of sheet lightning; it will protect against attacks from the back and sides, but not from the front, unless it is wielded as a light cloak (see *Cloak,* p. B184). *Energy cost to create:* 700 for the cape, 1,000 for armor.

Lightning Weapon

Regular

The subject melee weapon becomes charged with lightning, visibly spitting and sparking, without harming its wielder. The weapon must be at least partly metallic; weapons made entirely of wood and/or stone won't hold the spell. The weapon does an additional 2 points of injury after armor penetration and wounding modifiers have been figured. Against metallic armor, the weapon inflicts at least 1 point of damage on any hit.

This is also an Air spell.

Duration: 1 minute.
Cost: 4 to cast. 1 to maintain.
Time to cast: 2 seconds.
Prerequisites: Magery 2 and Lightning.

Item

A weapon that becomes electrified whenever used, at no energy cost to the user. *Energy cost to create:* 750; at least $300 must be spent in platinum and opal decorations.

Lightning Missiles

Regular

Like Lightning Weapon, but cast on a missile weapon. The weapon itself becomes surrounded with an electric halo. Any missile it fires becomes charged with lightning, doing 2 additional points of injury as per Lightning Weapon. The missile's wooden parts turn to ash after it hits a target or after 10 seconds, whichever comes first.

This is also an Air spell.

Duration: 1 minute.
Cost: 4 to cast. 2 to maintain. Cost doubles if the missiles to be fired are nonmetallic.
Time to cast: 3 seconds.
Prerequisite: Lightning Weapon.

Item

A missile weapon that fires lightning missiles whenever used, at no energy cost to the user. *Energy cost to create:* 1,000; at least $400 must be spent in platinum and opal decorations.

New Meta-Trait: Body of Lightning

Body of Lightning: Your body is made of lightning. ST 0 [-100]; HP +10 [20]; Burning Attack 1d (Always On, -40%; Aura, +80%; Melee Attack, Reach C, -30%) [6]; Doesn't Breathe [20]; DR 10 (Limited: Electricity, -40%) [30]; Immunity to Metabolic Hazards [30]; Injury Tolerance (Diffuse) [100]; No Manipulators [-50]; Feature (Affected by Energy Spells (p. 178) [0]; and Taboo Trait (Fixed ST) [0]. *56 points.*

Chapter Twenty-Seven
Variations

Tubbs didn't know what kind of magic the burglar was trying to do, but whatever it was, he didn't like the look of the glowing runes forming in the air. Quickly, he spat out a dispelling incantation.

Nothing happened.

"You Academy mages," the intruder sneered. "You think you know everything there is to know about magic. Understand this: there's magic outside your books, and powers in the world you don't begin to comprehend."

Some crucial act completed, the floating glyphs coalesced into a shimmering ball of light between the intruder's hands. He hurled the thing at Tubbs. Tubbs flung up a ward, despite a sinking feeling that it wouldn't do any good.

He was right.

In folklore and fiction, magic takes many forms. In some settings, the logic of magic may be difficult to simulate using the standard magic system; in others, there may be multiple coexisting types of magic. This chapter introduces a variety of ways to tweak and extend the ***GURPS Magic*** system to encompass a variety of possibilities.

If further magical possibilities are of interest, ***GURPS Fantasy*** discusses many more exotic theories of magic and how to use them in ***GURPS***.

Alternative Magic Systems

Perhaps the simplest way to expand the range of magical possibilities is to adjust the parameters of the standard system, changing how spells are used or acquired. By changing the way people learn spells, or the circumstances under which they can use them, a GM can achieve a different flavor of magic while retaining the utility of the standard spell list.

Clerical Magic

In some worlds, holy men and women receive magical abilities from the powers they serve. Such powers can be handled using the standard magic system, with a few minor alterations.

Clerical Spells

Clerical spells have no prerequisites. A priest may acquire a new spell any time he has points to spend, simply by praying for it; teachers and study are unnecessary (though GMs might permit a priest to put a point in a new spell after 200 hours of devout contemplation). However, each god's priesthood is restricted to an abbreviated list of spells that the god will grant, usually closely tied to the god's portfolio; fire gods don't grant Essential Water. Also, the patron god may decide to alter the effects of the magic he grants – or suspend a priest's magical abilities altogether – for reasons as ineffable as one comes to expect from a deity.

Clerical spellcasters often possess Clerical Investment (p. B43) and Religious Rank (p. B30); indeed, some religions require such traits before a priest may learn clerical spells. However, other faiths include individuals who wield divine powers without belonging to the formal church hierarchy. Clerical spellcasters are often required to take a Discipline of Faith (p. B132) to maintain their powers.

See *Devotional Enchantment*, p. 71, for a related form of magical practice.

Sanctity

Clerical magic does not depend upon mana, but upon a mechanically similar property called "sanctity," which represents the level of influence a deity possesses in an area. Sanctity levels range from "no sanctity" to "very high sanctity," much as mana does; however, sanctity levels are specific to a particular god, and more responsive to human alteration. Most areas are normal sanctity; duly consecrated places, however, are high-sanctity zones for the appropriate god's worshippers, and low sanctity for worshippers of an enemy god.

A fuller treatment of sanctity and holy places can be found in ***GURPS Fantasy***.

Power Investiture

Magery is irrelevant to clerical magic. Instead, Magery's role is filled by the Power Investiture (p. B77) advantage. Spells that normally require some level of Magery require Power Investiture when granted by a god.

"Holy" Spells

The regular spell system offers another alternative for priestly magic. Individuals who are good and pure of heart may buy certain spells without prerequisites. The relevant spells are ones that permit the caster to perform supernatural acts traditionally associated with the clergy. These spells include Bless, Dispel Possession, Final Rest, Monk's Banquet, Turn Zombie, and Vigil.

Since sanctity is mechanically equivalent to mana, clerical spellcasters without Power Investiture cannot cast clerical spells when outside an area with high sanctity. Priests with Power Investiture, however, can carry their patron deity's work into the larger normal-sanctity world.

Much as mages can detect changes in mana level (p. 6), clerical spellcasters with Power Investiture can detect changes in sanctity level by rolling against IQ + Power Investiture.

Ritual Magic

In some worlds, magic is not divided into hundreds of individual procedures by which a wizard can bring the dead to life but know nothing of speaking to birds. Instead, magic is a single practice, dizzying in its many applications but essentially one.

In such settings, magic use depends on a single "core skill," typically Ritual Magic (p. B218) or Thaumatology (p. B225). Each college of magic is an IQ/Very Hard "college skill" or "path" that defaults to core skill at -6. College skills have the core skill as a prerequisite and may never exceed the core skill.

Ritual wizards *can* cast spells at default! Each spell is a Hard technique with a default to the associated college skill. The default is at a penalty equal to the spell's prerequisite count (p. 6). To raise a spell past its default level, the wizard must have at least one point in the college skill, but he can ignore the spell's prerequisites under the standard system. Spells cannot exceed the associated college skill.

Magery adds to core skill, college skills, and spells. If standard and ritual magic coexist, normal Magery and Ritual Magery are separate advantages.

All other rules are the same.

Alternate Prerequisites

In most situations, the prerequisites given for spells in this book make sense. However, the cosmologies of some settings might be better supported by a different structure. Perhaps the GM wants the Technological spells to depend upon a background in Making and Breaking, or would like to remove the Necromantic taint associated with Resurrection in the normal spell list. Perhaps the group prefers wizards with a handful of powerful spells instead of a long list of spells of varying power.

Changing the prerequisites of a spell can be difficult to do without unbalancing the spell; if anyone off the street can learn Great Wish, a lot of folks with big dreams and great cosmic powers will start turning up. However, if the GM is willing to take a bit of time, it's possible to tweak a spell's prerequisites without wreaking havoc on the game world.

The Spell Table (pp. 223-237) includes a column marked "Prerequisite Count." This column represents the shortest chain of prerequisites required to learn the spell in question. A prerequisite count of five means that there are five other spells which a wizard must learn before he can learn that spell. The GM may wish to consider non-spell prerequisites (Magery, IQ, etc.) when calculating prerequisite count; if so, add one point to a spell's prerequisite count for every 10 full character points of required traits. The Spell Table does not consider non-spell prerequisites.

To alter a spell's prerequisite chain, come up with some plausible set of requirements that adds up to roughly the same prerequisite count. This isn't an exact science; changing the prerequisite count of Utter Dome from 16 to 5 might be problematic, but if the new prerequisite chain adds up to 14, the campaign is hardly going to be ruined.

Other Ritual Idioms

The core skill for ritual magic must be a Very Hard skill for the sake of game balance, but fascinating opportunities emerge when you look for alternative candidates. Some Very Hard skills are obvious choices, as they already verge in the mystic – Alchemy or Herb Lore, for example. Musical Influence, similarly, is a clear choice for bardic magic. Almost any Very Hard skill, however, can be a potential core skill for ritual magic.

In a setting where magic is the final mystery of martial arts or monastic discipline, skills like Body Control, Blind Fighting, Invisibility Art, or Zen Archery can be become the first step in ritual magic.

In a more technologically advanced setting, Computer Hacking or Weird Science become core skills. This is excellent for cyberpunk campaigns, "the world is an illusion" settings, or over-the-top technomagic shenanigans.

Ritual magic can even be based on mundane sciences. Ritual physicists exploit subtle and counterintuitive principles of natural law to accomplish their magic. Paradigms based on Biology or Surgery are left as an exercise for the reader.

Shortening Prerequisite Chains

Some worlds have fewer low-powered spells than others, and a wizard can learn powerful magic without having mastering dozens of less potent incantations. One possible way to simulate this situation is to cut all prerequisite counts in half and simultaneously double the points required for a spell to serve as a prerequisite. So, a wizard trying to learn Steam Jet might need to spend two points each on five different spells rather than one point each on 10 different spells.

Advantage-Based Magic

In other worlds, magic reflects more strongly the sort of person a spellcaster is, and less what he's studied. One way to make a prerequisite chain reflect this sort of world is to lean heavily on advantages as prerequisites. Demand that Plant wizards have Plant Empathy for certain spells, or that Communication wizards have some Charisma. Any number of Talents make good prerequisites – Artificer for Making and Breaking, Smooth Operator for Mind, and so on.

Renaming Spells

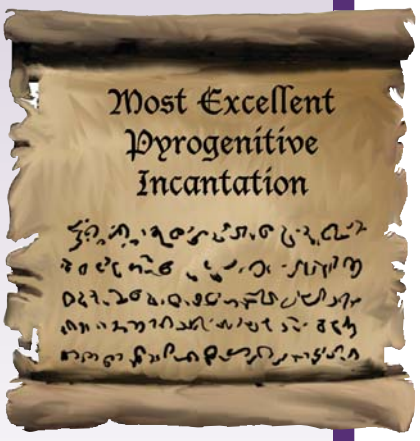
The names given in this book are generally descriptive and functional, for ease of use. There's no reason that they also have to be the names that wizards use for them in the game world. There are dozens of ways to rename spells to help them conform to your game world's flavor.

Different Phrasing: Something as simple as changing a spell's part of speech can make an important difference in flavor. Fireball becomes Ball of Fire, Seek Earth becomes Search for Earth, etc.

Named for its Creator: In worlds where spell research is an ongoing concern, wizards concerned with self-promotion will want their spells to enhance their reputations directly. Why develop Weather Dome when you can develop Malathrax's Weather Dome?

Technical Nomenclature: Sometimes wizards just like to keep the untrained guessing. The Seventeenth Chant of Air sounds very impressive, even if it's just Odor.

Florid Prose: Create Fire pales before the Most Excellent Pyrogenitive Incantation. In an appropriately baroque setting, every spell can be improved with the indiscreet use of Latin and a few superfluous adjectives.



Improvisational Magic

Improvisation is the heart of role-playing. Players improvise to react to unexpected situations that the GM throws to them, and the GM improvises to accommodate the . . . *innovative* . . . solutions the players devise. This sort of freewheeling improvisation can be the basis of a game's magic system as well.

Not every setting features wizards who spend long hours to learn and master individual spells with clearly defined effects. The systems presented in this section offer the opportunity for wizards to cast spells without years of study and memorization; in some cases, they allow wizards to invent new spells at their whim. These systems may exist alongside the regular spell system, or replace it, as appropriate for a given setting.

A word of warning: improvisational systems are only appropriate for groups where the GM enjoys thinking on his feet, and the players are happy to accept GM judgments on the fly. Some GMs don't enjoy being put on the spot, and some players prefer to know exactly what their characters are capable of doing. If that describes you, skip these systems.

Magery and Improvised Magic

Any system described in this section may or may not require Magery, depending on the world in which they exist. They may, as with spell magic, require Magery to use in a region with normal or lower mana. They may require Magery to use at all.

Wild Talents

The simplest way to handle improvising wizards is the Wild Talent advantage (p. B99). A paradigm of magic in which wizards devise new spells extemporaneously is easily simulated by some level of Wild Talent with the Focused limitation.

In combination with the Retention enhancement, Wild Talent becomes a means by which wizards learn new spells; at the GM's option, it may not even be possible to learn spells through study. Without Retention, a wizard's level of Wild Talent becomes the limiting factor for his spellcasting.

Adding the Emergencies Only limitation can be a great incentive for wizards to go adventuring; with Emergencies Only and Retention, a wizard can only learn new spells by putting himself in new and dangerous situations.

Wildcard Magic

Magic can also be treated as a wildcard skill (p. B175) to emulate settings where wizards master the full spectrum of magical endeavor instead of learning one spell at a time. Instead of buying spells, a wizard simply buys levels of Magic! With that single wildcard skill, he can cast any spell he wants, at a penalty equal to the spell's prerequisite count.

This is a cinematic option. Wizards using Magic! are extremely flexible and powerful. If the scope of Magic! seems too broad, it may be wise to treat each college as a separate wildcard skill. The GM may also want to retain Magery prerequisites for spells that usually require some level of Magery.

Spell Defaults

Another way to allow wizards to attempt spells outside their comfort zone is to allow spells to default to other spells (p. B173). In this system, each spell defaults to every other spell in the same college. An unknown spell defaults to any known spell at -4, with an additional penalty equal to its own prerequisite count. However, if the known spell is in the prerequisite chain of the unknown spell, add a bonus equal to the prerequisite count of the known spell. A wizard cannot cast a spell at default if it requires an advantage (usually Magery) that he does not possess. When defaulting to a spell at skill 20 or higher, treat the spell level as 20 for default purposes.

Spells cast at default cost twice as much energy and take twice as long to cast.

Example: Patrick wants to cast Lend Language on his friend Aidan to help him pass the Old Draconic midterm, but his only Communication and Empathy spells are Sense Foes-15 and Sense Emotion-15. He can cast Lend Language at a base penalty of -4, with an additional penalty of -3 for Lend Language's prerequisite count. Since Sense Emotion is a possible prerequisite for Lend Language, he can add Sense Emotion's prerequisite count for a +1 bonus. He could also have defaulted from Sense Foes, but since Sense Foes has no prerequisites, he would not have gotten any bonus. His final effective skill for Lend Language will be 9, and it will cost him 6 energy to cast and 2 to maintain. Aidan is definitely going to owe him one.

Allowing wizards to cast spells at default, while not as cinematic as wildcard magic, substantially increases their flexibility. If the GM is not prepared for a wizard to attempt any spell in his college of choice, he should not allow casting at default.

Improvisation is too good to leave to chance.
– Paul Simon

Syntactic Magic

Some wizardly traditions don't even use discrete spells. To them, rote and formula are anathema; magic is a creative art that responds to the needs of the moment. These wizards turn their efforts toward mastering fundamental principles of existence instead of learning individual recipes. These fundaments are called Words in the vernacular of wizards. To work magic, wizards bring together these potent principles in much the same way that words are strung together into sentences.

Every spell has two elements: what is done, and what is done to. Correspondingly, there are two types of Words. Some are described as verbs: Create, Move, Heal, and so on. Others are described as nouns: what is being created, moved, etc.

Each Word is a separate IQ/Very Hard skill; mages add their Magery to IQ when learning Words.

There are 10 verbs: Communicate, Heal, Sense, Weaken, Strengthen, Move, Protect, Create, Control, and Transform.

There are 14 nouns: Air, Animal, Body, Death, Earth, Fire, Food, Image, Light, Magic, Mind, Plant, Sound, and Water.

The GM may remove, add, or change Words as he sees fit.

Spell Parameters

Before casting a syntactic spell, the player describes what he wants the spell to do, and selects the verb and noun that he wants to use. The possible effects are limited only by the player's imagination. The GM then decides whether the intended effect is possible, whether the Words chosen by the player are appropriate, what type of spell the proposed spell is, how much energy the improvised spell should cost, and what skill penalty (if any) should apply.

If an improvisational wizard attempts to improvise a spell equivalent to an existing memorized spell, feel free to assess parameters similar to the memorized spell. If the proposed spell has no counterpart, however, or if the players and GM prefer not to crack a book in the middle of play, use the following guidelines. The guidelines listed under *Inventing New Spells* (p. 14) may also be helpful.

Appropriate Words

The Words for some spells will be obvious; a flight spell, for instance, is clearly Move Body. Some spells, however, could be achieved with multiple different combinations – a spell to fireproof a wooden cart could be Weaken Fire, or it could be Protect Plant. GMs should be flexible in allowing players to utilize their wizards' strengths, but try not to let the game get bogged down in arguments about the optimum configuration of Words.

As a rule, any attack spell directly assaulting the target uses Body – a spell to break bones would require Weaken Body, but a spell triggering a

lethal avalanche could be simply Move Earth. Spells that affect the caster directly use either Body or Mind.

Multiple Words

Some spells may require more than one verb or one noun. A laxative spell, for instance, seems to be Move Food on the face of it, but since it affects the body directly, should perhaps be Move Food through Body. Alternately, the player might suggest that it be Heal by Moving Food.

When using more than two Words, the player must roll against the lowest verb and noun skills used, with a -1 penalty for every additional Word. However, he may choose which verb and which noun will determine the energy cost and time to cast. Some casters may wind up introducing their specialties into spells where they are not otherwise necessary in order to benefit from their specialties' cost or time to cast. A Fire wizard, for example, might want to cast attack spells using Weaken Body with Fire in order to take advantage of Fire's faster time to cast.

Spell Class

Most syntactic spells are Regular or Area spells, but some Sense-type spells qualify as Information spells. Melee and Missile spells are possible if the GM chooses to allow them. Syntactic magic is too slow for Blocking, and too transient for enchantment. For enchantment using the Words, see *Symbol Magic* (p. 205).

Energy Cost

Each Word has an associated energy cost; a syntactic spell's cost is equal to the cost of its verb plus the cost of its noun. Control spells cost an amount equal to the cost for Control plus double the cost of the noun; Transform spells cost an amount equal to the cost for Transform plus the cost for both nouns.

The resulting cost is appropriate for a Regular spell cast on a SM 0 target or for the base cost of an Area spell. Syntactic spells do not get a cost reduction for high skill.

Scaling

Syntactic magic can take different roles in the campaign depending on just how much power its practitioners can bring to bear. The default power level in this section is calibrated to be roughly equivalent to regular spell magic in scope, but different scales are possible.

Cantrips

Perhaps syntactic magic creates inconsequential spells of little power. In such a scheme, syntactic spells should be substantially less powerful, on par with low-end spells like Ignite Fire and Seek Food, but should cost half as much energy as usual, rounding down. Word skills should also become IQ/Hard in such a scheme.

Words of Power

Alternately, syntactic magic may derive from mastery of the great things of the world: each Word is a numinous mystery not to be employed lightly. These Words may – indeed, must – have titanic effects, twisting reality to their speaker's whim. Under such circumstances, however, multiply energy cost by 10 and buy Word skills as wildcard skills (p. B175).

At the GM's discretion, Words of Power may generate syntactic spells with lasting or permanent duration (see *Duration Types*, p. 10).

Time to Cast

As with energy cost, each Word has an associated time to cast; a syntactic spell's time to cast is equal to the combined time to cast for each of its constituent Words. Time to cast for Control and Transform spells is figured in the same manner as energy cost.

Duration

Syntactic spells are typically instantaneous or temporary (see *Duration Types*, p. 10). Temporary syntactic spells take a standard duration of one minute, one hour, or one day, depending on the nature of the spell. A protective combat spell rarely needs to last longer than a minute, while a spell to go without sleep is pretty useless if it won't even get you through the night. The GM may increase the energy cost or assess skill penalties for spells that take a longer duration than usual.

Temporary spells can usually be maintained at half the cost to cast.

Skill Penalties

Not all syntactic spells are created equal. Move Earth can be used to move a rock out of the road or to flip a mountain like a fried egg, and sometimes more obstacles than prohibitive energy cost are called for. GMs should feel free to assess penalties to skill whenever appropriate.

Word Parameters

Time to cast and Duration are given in seconds.

Casting the Spell

Once the parameters of the spell have been agreed upon, the caster makes two rolls: one for the verb, and one for the noun. He makes each roll against his skill in the Word used, minus any penalties assessed by the GM. All usual modifiers for range, touching, concentration, and so on apply to syntactic spells. Use the Alternate Magic Rituals rule on p. 9.

Spell Results

The result of a syntactic spell attempt depends on what rolls were made or failed. If both skill rolls (verb and noun) were made, the spell

works. Energy cost is paid normally. If there was a critical success, halve energy cost; if both rolls were critical successes there is no energy cost.

If one word is successful but the other is not, there is a magical result, but it is not the result the caster has in mind. The GM should not be malicious in this – an attempt at a spell to make someone sneeze might flare their nostrils, for example, but probably shouldn't make them expel Concussions from their sinuses. Energy cost is paid as for the spell that was attempted.

If both rolls are ordinary failures, nothing happens, and the caster must spend one point of energy.

A critical failure on either spell roll has disastrous effects, of course. And critical failure on both should be spectacular!

The wizard always knows if his spell has succeeded or failed. If it has failed, he may not know exactly what the result is, but he knows it's not going to be the result he was hoping for.

Resistance to Syntactic Spells

A syntactic Resisted spell uses the worse of the two rolls to determine if the subject resists. The GM determines whether a spell should be Resisted; almost any Body or Mind spell should be, while spells that do direct physical damage generally aren't Resisted.

Transform

The verb Transform is a special case, somewhat more complicated than the other verbs. Unlike every other syntactic spell, Transform spells require *three* rolls: one for Transform, one for the noun governing the beginning material, and one for the noun governing the final material. If the same Word governs both forms, the spell still requires separate rolls for each. Thus, shapeshifting from human to animal can be considered a Transform Body to Animal spell, and the caster would roll against Transform, Body, and Animal; changing a fig to a thistle, however, would be Transform Plant to Plant, requiring one roll against Transform and two against Plant. Transform spells do not suffer the -1 penalty for using a third Word.

As long as a transformed object remains undamaged, it can (with a new spell or Remove Curse) be restored to its original form, unharmed. If it is damaged, an appropriate amount of damage manifests if its original form is recovered.

Dealing with transformed objects requires many judgment calls on the part of the GM. In general, a transformed object behaves in all ways like a natural one, except that transformations cannot be used to gain any significant increase in intelligence or knowledge. (A servant made from a dog will be faithful, but not much smarter than he was before.)

Linking Syntactic Spells

Syntactic spells may be linked, as with any of the linking Meta-Spells (pp. 130-132). If syntactic spells and memorized spells are two means of manipulating the same forces, any of the three linking spells may be attached to a syntactic spell. If syntactic magic stands alone in your game world, then linking spells must be syntactic as well. Such links require the Magic Word and one or more Words related to the triggering event. The more Words are used for the trigger, the more accurate – but the harder to cast – it is.

Verbs

Word	*Energy Cost*	*Time to Cast*
Communicate	1	0
Control	2	1
Create	2	2
Heal	1	2
Move	0	0
Protect	1	1
Sense	2	0
Strengthen	1	1
Transform	3	2
Weaken	1	1

Nouns

Word	*Energy Cost*	*Time to Cast*
Air	3	1
Animal	2	3
Body	3	2
Earth	2	3
Fire	4	1
Food	1	3
Image	2	2
Light	2	1
Magic	2	4
Mind	3	2
Plant	1	5
Sound	2	2
Spirit	2	4
Water	2	3

Keep in mind that if the linking spell works, but the syntactic spell to which it is attached fails partially, something strange will happen when the triggering event occurs.

GMing Syntactic Magic

Syntactic magic can be hard to GM. Its open-ended nature makes it possible for a syntactic wizard to wreak havoc on the campaign; it's hard for a GM to anticipate what the players may do when they have the complete gamut of magical knowledge at their disposal.

Therefore, it's essential to set limits. Just because a player can imagine it doesn't mean that their character ought to be able to do it. On the other hand, it's no fun to play a wizard if your spells never work – or worse, if they never work right.

A Syntactic Spell: Waterproofing

Morris the Mage and his friends are preparing to swim across a river. Morris himself knows how to cross without getting wet, but it's too fatiguing to cast spells on the whole party to get them across dry-shod. However, they are carrying some valuable books that Morris doesn't want to get wet. So he puts all of the books in a large pile and tries to improvise a Waterproofing spell that will protect the whole heap of material.

The GM and Morris's player talk it over and decide that there are a number of ways to construct this spell. Protect Plant is one possibility, since books are made from trees. Weaken Water is another, as is Control Water. Morris decides his best chance is with Protect Plant. The pile of books, about a yard across, has a SM of -2, so Morris opts for a Regular spell. The standard guidelines suggest that a Protect Plant spell should cost 2 energy and take 6 seconds to cast. The GM notes that this is about twice the cost of Umbrella, which seems appropriate. If he had tried to use Weaken Water, it would have been quicker to cast, but significantly more expensive. The GM also rules that this spell will only work on inanimate objects, in case a situation arises in the future where Morris claims this spell will keep him from drowning.

Morris' skill in Protect is 14 and his skill in Plant is 15. He first rolls against 14 for the verb, Protect. He makes his roll, and then rolls against 15 for the noun, Plant. He will pay the whole energy cost unless both rolls fail entirely, or one or both are critical successes.

If the spell succeeds, Morris will know, and the books are waterproofed for the next minute, at least. If one roll succeeds but the other one fails, something else will happen. Morris might not know exactly what, but he will know that it didn't go exactly as planned – he can choose to try his luck with the river or not, as he sees fit.

The GM must rule what happens if one of the rolls should fail, but only in the case of a critical failure should he be malicious. If the second roll is failed, for example, the spell might only work against oil, not water (which wouldn't do Morris any good), or only for one second, not one minute, or will protect from dust instead of water, etc. On a critical failure, the ink might start running before the books even get to the water. On a double critical failure, the books might be entirely dehydrated and fall to dust!

Striking an appropriate balance usually means accepting the principle of what a player wants to do while setting reasonable limits. The regular spell system can be a good touchstone for making these sorts of decisions. Is the proposed effect similar in scope to things that can be done with regular spells? What do similar spells cost? Could a wizard using memorized spells achieve a similar effect, having spent a similar number of character points on his magic?

It is almost always more satisfying for a player to be told "Yes, but . . ." than to be told "No." Rather than flatly refusing a proposed spell, try something like, "Sure, you can do that. Let's see, about 15 minutes to cast and 200 energy should be about right for that result. Now if you'd settle for less than totally destroying the castle, I think we can work something out."

It may take a while for players and GMs to come to a mutual understanding of what sorts of spells are appropriate – patience on all sides is critical. Try to encourage players' creativity without ruining the game – that's what it's all about. And remember to enjoy it when they come up with a particularly clever idea!

Symbol Magic

Symbol magic is one of the most ancient forms of magic; many cultures have a magical tradition that relies upon a set of signs representing mystically potent words, sounds, or concepts. The Vikings had their Futhark runes; Celtic druids had Ogham; the Hebrew Qabala places great importance on the association of the twenty-two letters of the Hebrew alphabet with mystic concepts. Chinese, Sanskrit, hieroglyphics . . . all have been used as symbolic languages of magic.

A properly trained person can use these systems to work magic. This most commonly takes the form of scrolls and items enchanted with powerful glyphs, but the power of magical symbols can be used to create magical effects directly. A symbol-caster is free to learn other forms of magic, if they are available.

Symbols

To perform any symbol magic, a wizard must learn the Symbol Drawing skill, specializing in a particular symbolic "language." In addition, he must master each individual symbol before he can use it. Each symbol is a separate IQ-based skill with Symbol Drawing as a prerequisite and no default. Magery does not add to IQ for the purpose of learning symbols.

A wizard experienced in multiple traditions of Symbol Drawing must learn the symbols separately for each symbolic language! Deep knowledge of the Futhark Body-rune avails not a bit when dealing with an Atlantean Body-sigil.

Alternatives

Whole-Language Symbol Magic: Under the normal symbol magic rules, a symbol-caster must learn Symbol Drawing to represent his general familiarity with that symbolic tradition, and then learn each symbol separately to represent his deeper study of each individual mystery. An alternate approach to symbol-casting is to treat each symbol as a Hard technique that defaults to Symbol Drawing. Easy symbols default to skill-4, Average symbols to skill-6, and Hard symbols to skill-8. This makes symbol-casters substantially more flexible; GMs running this version of symbol magic should consider being conservative with the effects possible with symbols.

Ideogram Symbols: Not all symbolic languages are short and sweet. One could run a setting in which symbol magic is not improvisational; instead, every spell in the standard spell list has its own symbol. Such a system is essentially equivalent to using the regular spell system with the particular constraints of symbol magic; spells would take much longer to cast, but enchantments would become trivial.

In most symbolic systems, the most common interpretations of the symbols correspond to the Words of the syntactic magic system (see *Syntactic Magic*, p. 202). In any given inscription, however, a related concept may be a more appropriate translation; the symbol for the verb Weaken might also represent concepts like Reduce, Damage, Harm, Undo, Rot, or Break.

Some symbols are more difficult than others.

IQ/Easy: Food, Sound.

IQ/Average: Communicate, Weaken, Strengthen, Move, Protect, Air, Fire, Image, Light, Plant, Water.

IQ/Hard: Heal, Sense, Create, Control, Transform, Animal, Body, Earth, Magic, Mind, Spirit.

In most settings, the basic meanings of symbols are common knowledge, and anyone can study them freely. The GM may, however, decide to make certain symbols secret or forbidden, requiring quests or extensive research to uncover. Anyone with Symbol Drawing skill may make a skill roll to recognize an unfamiliar symbol within his symbolic language, even if he has never seen it before. Once he has recognized it, he still has no skill in that symbol, but can study it normally.

Interpreting a symbolic inscription to determine exactly what spell it is designed to cast requires a separate Symbol Drawing roll at -3 for each symbol in the inscription. If any of the rolls are failed, the full purpose of the inscription will remain hidden, but the symbols deciphered may hint at some part of the inscription's intent.

Casting the Spell

A symbol spell usually consists of two symbols: a verb and a noun. The energy cost of a symbol spell depends on the symbols used and the discretion of the GM, as described for syntactic magic. The duration of a symbol spell depends on the nature of the spell, as with syntactic magic; symbol spells, however, may be lasting in

Example of Symbol Casting

Thorfinn, a Futhark runemaster, wants to make a sword that will destroy fire elementals. Discussing the question, he and his mentor (i.e., the player and the GM) determine that the appropriate runes are Hagalaz (Weaken), Kenaz (Fire), and Perthro (Magic).

Thorfinn is a skilled smith, so he plans to work the runes directly into the sword. Some runemasters might prefer to inscribe the runes onto a finished sword using Artist (Calligraphy), but Thorfinn feels that a runemaster who wants to enchant an item ought to make the item himself. Besides, he's not that good a calligrapher.

His Smith skill is 15. His rune skills are Hagalaz-14, Kenaz-15, and Perthro-16. For each rune, he must roll against his skill for the particular rune to formulate it correctly, and then roll against his Smith skill to inscribe it successfully.

All these attempts are successful, and Thorfinn now possesses a runic sword. The time required is determined by the nature of the desired enchantment. In this case, the sword does +2 damage (+2 Puissance – energy cost 1,000), and has +2 to hit (+2 Accuracy – energy cost 1,000). The latter two enchantments are both limited by a Bane spell (fire elementals only). This divides their cost by 3, but it costs 100. The total energy cost is 966, so it would usually take 966 days to complete. This is halved because the item will require Symbol Drawing to activate, so Thorfinn will need about 16 months to finish.

This does not consider the time required to make the sword! However, item manufacturing time and rune-scribing time is concurrent, and it will take Thorfinn less than 16 months to forge a sword, so no time is added.

When Thorfinn wishes to use the sword Flame-Cleaver, he must use Symbol Drawing. This, in itself, requires no energy. His skill at Symbol Drawing is 16. However, one of the runes on Flame-Cleaver is Weaken, which he knows only at level 14, so his effective skill to activate the runes is a 14.

There is no energy cost to use the sword because none of the spells in it require energy. Many magical items require the user to spend energy. This is treated normally. Self-powered items can be made with symbol-magic; the Magic rune must be added to let them draw mana.

duration. Typically, the duration of a lasting symbol spell is until the symbols are destroyed. The casting time for the spell depends on the chosen casting method (see below).

It is possible to make more complex or detailed spells by using more than two symbols. This always takes longer and is more difficult, if only because the wizard is rolling against more skills. If players want a very powerful effect, the GM may require them to use more than two symbols. If players voluntarily use a multi-symbol spell and succeed, the GM should make it more effective.

Symbols from different languages cannot be used together.

Symbols can be used to cast spells in several ways, including writing on parchment, tracing in the air, inscribing on an object, or using individual symbol tokens. For each symbol used, the caster rolls against the lower of his Symbol Drawing skill and his skill with the particular symbol to see if it is drawn or placed successfully. Doubling the drawing time gives a +1 bonus to skill. Or time may be halved, at a -2 to skill. Using materials that are not traditional to the symbolic alphabet in use may entail a penalty of -1 or worse.

Once symbols have been successfully created or placed, they must be activated with a successful Symbol Drawing roll. Activating a set of symbols takes 1 second for every symbol in the inscription. The caster's effective skill for this roll is equal to the lowest of his skill in Symbol Drawing and any of the symbols being activated. A critical failure on this roll has the usual critical spell failure results. A symbol-caster cannot activate an inscription if it includes a symbol he does not know. Also note that if the symbols themselves are flawed due to failures in the creation process, a successful activation roll will activate the symbols, flaws and all.

Parchment Symbol Casting

Symbols can be written on parchment or paper to create a temporary magic item. These are faster to make than scrolls (p. 57), but harder to use. Drawing the symbols correctly is important, so a successful skill roll against the lower of the creator's Artist (Calligraphy) skill level (default if necessary) or the desired symbol's skill level is needed. The time needed to draw each symbol depends on its complexity: Easy symbols take 1 hour, Average symbols take 3 hours, and Hard symbols take 6 hours.

The person who draws the parchment chooses the desired effect.

A symbol-parchment can be carried and used later. Any damage to the paper will make the symbols useless. To cast the spell, the user looks at the paper and activates the symbols with Symbol Drawing. He then pays the energy cost. The parchment turns to ashes when used. A symbol-caster is at -4 to his Symbol Drawing skill if trying to activate a parchment that he did not draw himself.

A symbol-caster can also trace symbols in earth or sand, at -2 to skill. Times are as for parchment. The symbols can be activated repeatedly while they last (GM's decision), but of course are not portable!

Symbolic Inscriptions

When two or more symbols are inscribed in a permanent fashion, a magical item is created. It can be activated with Symbol Drawing as many times as necessary. This method is good for swords, staves, doors, etc. Two successful rolls are needed to inscribe each symbol. One is against the caster's skill level with the symbol to be used. The other is against his skill in working the material – usually Smith or a specialty of Artist.

The time required depends on the desired effect. The wizard is essentially improvising a magic item. The GM decides exactly what effect the item will have, by reference to the item descriptions in Chapters 3 through 26. Carving the symbols will take as much time as it would normally take to enchant the item. If the item must be activated with Symbol Drawing, that time is cut in half. The wizard's exact intent for the item, and his understanding of the symbols, guides the way he carves, decorates, and interlaces them.

An Emergency Symbol-Casting

Fergus, an Irish bard, possesses seven true symbol tokens – short wands carved with Straif (Weaken), Ailm (Create), Getal (Move), Eadha (Mind), Onn (Animal), Fearn (Fire), Ur (Earth), and Saille (Water). While exploring a deserted holding, he is suddenly confronted by a party of hostile Fomorians (giants). As his companions begin to fight, Fergus draws a wand at random from his belt pouch; this takes his first turn. The GM rules that he gets the Move-wand.

For his second turn, he draws another wand. The GM assigns each of the remaining stones a number from 1 to 6, and lets the player roll. He draws the Fire-wand.

Fergus then concentrates on a spell to move the fire from a comrade's torch into the chief Fomorian's face. The GM decides this is essentially the same thing as the spell Shape Fire, and uses the parameters of that spell. Because Fergus is working with true symbol tokens, the time to cast is only one second per symbol, or two seconds.

Fergus rolls once against the lowest of his Symbol Drawing, Move-wand and Fire-wand skill. The roll is a success, and flame jumps from a torch into the chief's face, burning and terrifying him. It clings to his face until he flees (Fergus continues to concentrate) and then moves toward another Fomorian. At this point, the GM makes a reaction roll for the Fomorians, and they flee.

Fergus's energy cost is calculated as per syntactic magic (p. 202). The spell costs 4 energy (the battle did not last long enough for Fergus to maintain the spell) – a relatively low price to pay for deciding a battle!

Using a Symbol-Enchanted Item

To use most items, the user activates the symbols by rolling against the lower of Symbol Drawing and his lowest skill in any of the symbols inscribed on the item, and pays the appropriate energy cost for the desired effect. If the item works, the effect is that chosen by the original maker; the user cannot alter it. If the user does not know exactly what the item does, he must accept that risk! Any symbol-caster may activate a symbol-enchanted item, but only if the symbols are in a symbolic language with which he is familiar.

When a permanently inscribed item is used, a critical failure on an activation roll does 5d damage to the item. This may or may not destroy it.

Some symbol-carved items can be used by anyone. These are governed by the rules for normal enchanted items, and take as long to make as normal enchanted items.

Finger Tracing

In an emergency, a symbol-caster can trace the symbols in the air with a finger. This does not create a magic item; it simply casts the desired spell. Results are figured exactly as for syntactic magic (see *Syntactic Magic*, p. 202). A successful skill roll for each symbol used is needed, at a -3 penalty. The wizard needs two seconds to trace an Easy symbol, six seconds for an Average symbol, and 12 seconds for a Hard symbol. When the tracing is complete, the wizard must activate the symbols with Symbol Drawing.

Symbol Tokens

Permanently enchanted symbol tokens can be made as magic items. Each symbol is inscribed on a small object; this is usually a small stone or gem, but may be anything appropriate to the symbolic tradition – chips of wood, shards of bone, clam shells, etc. A symbol-caster can cast spells with them by laying out the required combination of symbols and activating them with Symbol Drawing. This is much faster than drawing the symbols on paper, more reliable than finger tracing, and more flexible than inscriptions. Treat each symbol token as a magic item with a creation cost of 100 for an Easy rune, 300 for Average, 600 for Hard.

When making symbol tokens, it is advantageous to use gemstones or other valuable materials. A symbol token with an intrinsic value of $1,000 gives the user a +1 to effective skill. A symbol token with an intrinsic value of $5,000 gives an effective +2. The drawback is that the token shatters if the enchantment roll fails.

Properly made symbol tokens will work for anyone who knows Symbol Drawing for the symbolic alphabet used and the appropriate symbols.

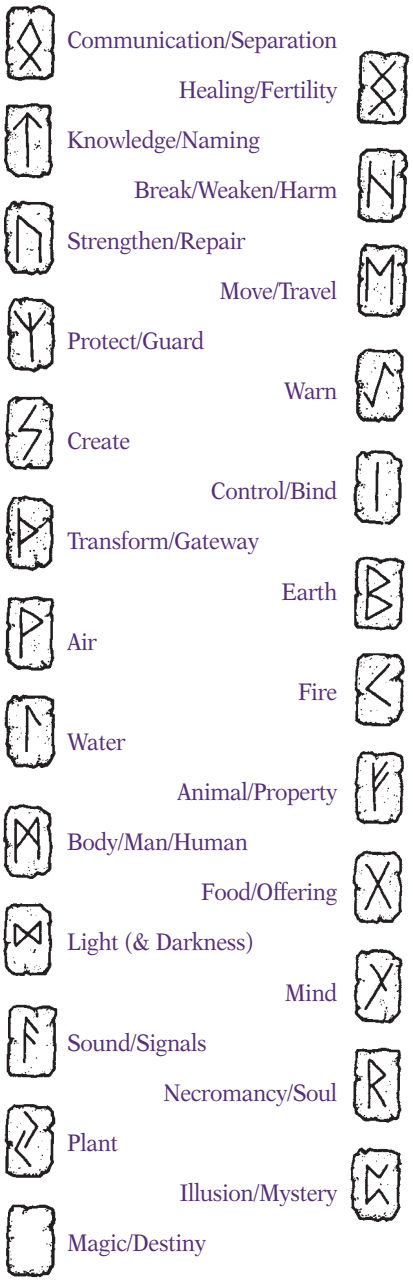
When casting a spell by symbol tokens, figure energy costs as for syntactic magic. If the stones must be readied quickly, casting time depends on what method the wizard uses to find them. GMs may impose a reality check on this! Few wizards have a complete set, but the more tokens in the bag, the harder it is to find the right one. Wizards in a

The Futhark Runes

Name	*Letter*	*Associated Word*	*Other Meanings*
Fehu	F	Animal	Property
Uruz	U	Strengthen	Repair, Make
Thurisaz	TH	Transform	Gateway, Tension
Ansuz	A	Communicate	Insight
Raidho	R	Sense	Knowledge, Name
Kenaz	K	Fire	
Gebo	G	Food	Offering, Gift
Wunjo	W	Air	
Hagalaz	H	Weaken	Break, Harm, End
Nauthiz	N	Control	Bind
Isa	I	Image	Deceit
Jera	J	Plant	
Eihwaz	EI	Earth	
Perthro	P	Magic	Mystery, Secrets
Algiz	Z	Protect	Guard
Sowilo	S	Spirit	
Tiwaz	T	Mind	Rulership
Berkano	B	Create	Growth
Ehwaz	E	Move	Travel, Progress
Mannaz	M	Body	Human, Self
Laguz	L	Water	
Ingwaz	NG	Heal	Fertility
Dagaz	D	Light	
Othala	O	Sound	Story
–	–	Destiny	Magic, Unknowable

The Futhark Runes

Note that the rune used here for Magic (Futhark 25, called "Unknowable," or "Destiny,") is always represented as an empty space! However, tracing or carving it takes as long as for any other Hard rune.



Source: *The Book of Runes,* by Ralph Blum.

hurry may grab randomly. In this case, the GM chooses the symbols in any manner desired. Many unusual and humorous spells might be tried in an extreme situation.

A wizard can also use "common" symbol tokens (as opposed to true stones). Common symbol tokens are marked with symbols but have no enchantment except the symbol's intrinsic power. Time to make these is two hours for an Easy symbol, six for an Average one, 12 for a Hard one. If any common stones are used, triple the time required to activate the symbols with Symbol Drawing. There is also a -2 penalty to the Symbol Drawing roll for each common stone used.

Symbol tokens can also be used as a method of divination (see *Symbol-Casting*, p. 109).

The Futhark Runes

Perhaps the most famous system of magical symbols is the Futhark runic alphabet, used in one form or another by most of the Germanic peoples of northern Europe. According to the legend, the god Odin discovered the runes when he sacrificed himself to himself, hanging from the branches of Yggdrasill the World-Tree. He learned to use the potent symbols for divination and magic, passing on their power to his priests.

The Ogham Alphabet

Name	*Letter*	*Associated Word*	*Associated Tree*
Beth	B	Image	Birch
Luis	L	Air, Light	Rowan, Elm
Fearn	F/V	Fire	Alder
Saille	S	Water	Willow
Nuin	N	Transform	Ash, Nettle
Uath	H	Body	Hawthorn
Duir	D	Plant	Oak
Tinne	T	Protect	Holly
Coll	C	Sense	Hazel
Ceirt	Q	Communicate	Apple [Holly, Aspen]
Muin	M	Control, Food	Vine, Bramble
Gort	G	Strengthen	Ivy
Getal	NG	Move	Reed
Straif	STR, Z	Weaken	Blackthorn
Ruis	R	Heal	Elder
Ailm	A	Create, Sound	Fir, Pine
Onn	O	Magic, Animal	Gorse
Ur	U, W	Earth	Heather
Eadha	E	Mind	Aspen
Idho	I	Spirit	Yew

The Futhark is a secular alphabet as well as a magical one; each rune corresponds to a sound, and ordinary language can be written in runic script. Indeed, the name "futhark" derives from the word spelled by the first six letters of the alphabet.

The Ogham Alphabet

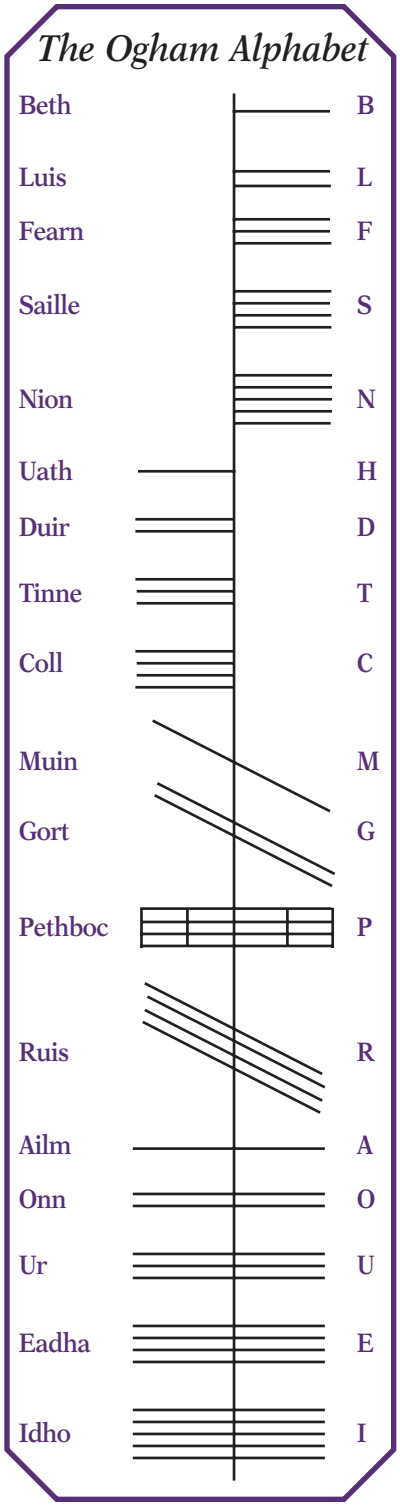
Ogham is a symbol system developed in Ireland around the 4th or 5th centuries, and used throughout the British Isles. The 20 letters of Ogham are formed with a number of horizontal or diagonal strokes across a center line. All surviving inscriptions are in stone, but some have suggested that the alphabet was designed originally for wooden rods. Others believe the alphabet is shorthand for sign language, each letter indicating the number and orientation of the fingers held up.

The historical uses of Ogham are murky; pagan Irish culture did not weather the introduction of Christianity as well as the Norse cultures did, and most of the surviving Ogham inscriptions are short and functional – funeral monuments or border markers. Allusions in ancient texts suggest variously that Ogham may have been, in addition to its uses as a secular alphabet, a secret code language for bards and druids, a tool for divination and other magic practices, and even a system of musical notation for the harp.

Regardless of its historical purpose, however, Ogham is rich with mystical flavor that makes it excellent fodder for gaming. Each Ogham letter is associated with a tree (though the exact trees vary between sources), and these connections link the alphabet to a larger corpus of druidic tree-lore.

An Ogham symbol-token carved of the wood associated with the symbol being carved grants a +1 bonus to casting that symbol.

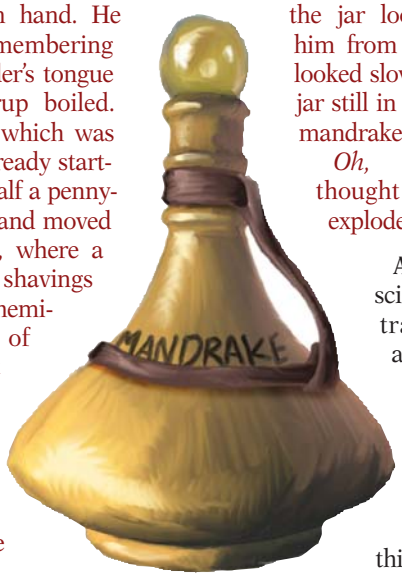
Because there are only 20 Ogham symbols, some symbols represent more than one Word. Even so, a single inscribed symbol cannot function as two Words. If an inscription needs both meanings of a symbol, the symbol must be inscribed twice.



Chapter Twenty-Eight

Alchemy

Max flipped forward in his formulary a few pages, jar in hand. He always had trouble remembering whether you add the adder's tongue before or after the syrup boiled. Apparently, it was after, which was good, as the brew had already started boiling. He shook in half a pennyweight of adder's tongue and moved over to the other retort, where a handful of orichalcum shavings melted into a pan of alchemical mercury. A lump of beeswax helped that process sometimes, so he rummaged in a shelf for his jar of beeswax. There's the antimony, the powdered alicorn, pickled eye of newt, adder's tongue . . .



He stopped and stared at the jar looking down at him from the shelf, then looked slowly down at the jar still in his hand. Dried mandrake flakes.

Oh, bother, Max thought as his lab exploded around him.

Alchemy is the science of magical transformations and transmutations. It is a mechanical process, using the mana inherent in certain things. Therefore, it can be studied and used by those without Magery – indeed, Magery confers no benefit on those studying alchemy! Alchemy is a science like any other – it just happens that its subject is magical.

The chief effort of most alchemists is the manufacture of substances having magical effects. The general name for such substances is "elixirs."

Alchemy works normally in areas of normal and high mana. In low-mana areas, elixirs take twice as long to make and work for only half as long, though those with permanent effect work normally. In areas of very high mana, elixirs take only half as long to make, but any failure is critical. In no-mana areas, elixirs cannot be made or used.

The Alchemy Skill

Alchemy is an IQ/Very Hard skill; there is no default. Like spells, alchemy can be learned at only half-speed without a teacher. It cannot be learned in a no-mana area! Much of the skill has to do with experience in watching, hearing, and *feeling* the magical reactions proceed. A lone student can do this by experimentation – but only in an area where alchemy works!

Making Alchemical Items

An alchemist can make any elixir from the list on pp. 213-219 with access to adequate formularies and other alchemical texts. Over time, an alchemist may become sufficiently practiced with certain elixirs that reference books are no longer necessary. In game terms, every elixir is a Hard technique; most default to Alchemy-1. Alchemical techniques may never exceed base skill.

To create an elixir, an alchemist must expend a certain amount of money for materials and a certain amount of time. The elixir will be brewing 24 hours a day during that time, and must be attended by an alchemist at least eight hours daily. This need not be the same alchemist throughout the process, but the lowest-skill alchemist who worked on the elixir makes the final Alchemy roll. An alchemist cannot pay attention to two different processes at one time, but he may manufacture a multiple batch of an elixir, multiplying the cost for materials by the number of doses produced. In this case, the final roll is at -1 for every extra dose of elixir produced.

At the end of the required time, the alchemist rolls against the technique for the elixir in development. There are no critical successes in alchemy; either the process works or it doesn't. A failure ruins the ingredients, wasting the money spent on them. On a critical failure, make a second technique roll at -1 for each dose of elixir in the batch. If that second roll is successful, disaster has been averted; if he fails that second roll, roll 3d to see what happens:

Roll	*Result*
3-5	Everyone within 100 yards suffers the effect of the elixir or its reverse; 50% chance of each.
6-9	Everyone within 10 yards suffers the effect of the elixir or its reverse, as above.
10-12	Explosion destroys lab; alchemist has time to flee.
13-15	Explosion destroys lab; alchemist takes 3d damage.
16-18	Explosion destroys lab; alchemist takes 6d damage!

The Herb Lore Skill

Herb Lore, like Alchemy, is an IQ/Very Hard skill without default. It represents the folk approach to concocting magical preparations – an herbalist can't tell you *why* grinding blue mallow with kingscrown makes a good healing elixir, but he knows darn well that it does.

Thus, while Herb Lore allows herbalists to compound "alchemical" elixirs, it does *not* allow them to use any other alchemist abilities, like analyzing elixirs or magic items. Further, herbalists cannot use alchemical formularies. Books of herbs and their uses – called *herbals* – exist, but they lack the depth and detail of a proper formulary. A good herbal may give a bonus to Naturalist or Herb Lore, but it isn't rigorous enough to offset the penalty for working without a formulary. As a result, herbalists mostly learn new elixirs by instruction, not study.

The advantage to working with Herb Lore is that herbalists work with . . . well, herbs. Alchemy uses exotic ingredients like dragon's blood and fossilized beetles from Far Cathay, which are expensive and rare, while herbalists can do their work with the gleanings of a day in the woods and a few Naturalist rolls. Thus, herbal preparations cost 50% less than alchemical elixirs in materials (with a maximum discount of $100). In worlds where Alchemy and Herb Lore coexist, herbalists dominate the market for cheap potions with their brews made from local foliage. Also, herbs are not as volatile as alchemical reagents; a critical Herb Lore failure may produce poison, but it won't blow up the herbalist's house!

Alchemical Laboratories

An alchemist relies upon his equipment to achieve good results. At the very least, successful alchemy demands some method for making fire and an ample supply of clean containers; under such circumstances, an alchemist suffers a -1 penalty (or worse) to his effective skill. To avoid this penalty, a sturdy table and $1,000 worth of equipment – athanors, retorts, and so forth – is required. A professional-grade lab, with at least 100 square feet of space and $5,000 worth of alchemical equipment, confers a +1 bonus to effective skill on the alchemist so blessed. A truly cutting-edge lab, sporting the best equipment the age has to offer, with at least 200 square feet of space and $20,000 worth of equipment, gives an alchemist working there a +TL/2 bonus to effective skill. This highest level of sophistication isn't really worth it until TL4, as the rise of gunpowder brings mundane chemistry to a point that it can help alchemy.

Alchemical Formulas and Secrets

If an alchemist has raised his skill with a given elixir to equal his Alchemy skill, he needs no book or other instructions to brew it. Otherwise, he must use a reference book, called a *formulary*, or work under a teacher who *has* mastered the elixir. Any attempt to brew an unmastered elixir with neither formulary nor supervision is at -6.

The availability and price of formularies depends on the setting. In some worlds, alchemy is simply another trade, and formularies are priced like other books or scrolls. In others, alchemy is an esoteric discipline and formularies are jealously guarded. Most settings will probably fall somewhere in between, with a select few formulas kept secret.

Assume that any elixir with a retail cost of more than $1,000 per dose is a secret formula, restricted to fully initiated Masters of the Alchemist's Guild (Merchant Rank 2). Only Grand Masters know formulas with a retail cost over $10,000 per dose (Merchant Rank 3).

Naturally, these restrictions need not prevent a PC alchemist from creating these elixirs, if he can find a copy of the formulary. Such disregard for Guild policy, however, may have repercussions.

Wizard Alchemists

Wizards and mages make excellent alchemists; their abilities offer many useful shortcuts for the working alchemist. Identifying magically potent materials is a snap for a mage; spells like Distill and Mature can accelerate many alchemical processes; spells like Essential Acid or Essential Earth provide high-grade reagents at a fraction of the cost. GMs may want to offer a discount on preparation time or cost to alchemists with appropriate spells at their disposal.

Gadgeteer Alchemists

An alchemist may have either version of the Gadgeteer advantage. Standard Gadgeteering allows the Gadgeteer alchemist to research elixirs using the rules on p. 212. The skill penalty is the Alchemy skill modifier for the elixir, *not* multiplied by 2. As with non-Gadgeteer elixir research, TL modifiers do not apply.

Quick Gadgeteering lets an alchemist produce any preparation he knows how to make, taking 1 minute for every two days that would normally be needed. The Alchemy skill roll is made at a penalty equal to the full default penalty for the elixir in question, *in addition to* any penalty remaining for an unmastered elixir, with an extra -1 for using improvised equipment. The cost of ingredients doesn't change, but assume that whatever the alchemist has on hand or can find in a quick search will serve. An alchemist can improve his ability with quick techniques in the usual way, but the quick techniques are different from the conventional techniques and must be learned separately. The improvised equipment penalty can never be removed.

Finally, an alchemist can apply the Gizmo advantage to alchemical preparations, whipping out a dose of any elixir that he knows at a moment's notice.

Other Alchemist Abilities

There's more to alchemy than simply churning out elixirs. In many settings, alchemy is the closest thing to physical science there is, and

alchemists have a few more tricks up their sleeve that come from that spirit of inquisitiveness.

Detection and Analysis

An alchemist gets a roll against his Alchemy skill, based on Per, to recognize an elixir as an alchemical preparation when he sees it, or smells food or drink containing it. Acute Senses assist this roll as appropriate. Similarly, a mage gets an automatic roll of (Per + Magery) to recognize an elixir as magical when he first sees it. Being magical in nature, elixirs can be detected by any spell that detects magic. However, spells to analyze magic do not work on elixirs. Only an alchemist can analyze them.

An alchemist must roll against Alchemy to analyze an elixir. Analysis takes 4 hours; a critical failure causes effects as per the table on p. 210. He can reduce this time to 10 seconds if he tastes the elixir – but if he does, any failed roll means it affects him as though he had taken it all, if the effect is a bad one. On the other hand, a critical failure while tasting an elixir does not require a roll on the critical failure table; it's hard to blow up your lab by simply tasting something.

If the elixir analyzed appears in the alchemist's formularies, any success pinpoints the nature of the elixir; if it is an unfamiliar elixir, a normal success merely gives a vague indication of the elixir's purpose, while a critical success reveals the precise effects of the elixir, though not its name. The going rate for analysis is $20 for a slow analysis, $200 for a fast one.

Inventing New Elixirs

When an alchemist runs out of formularies to study, he must head for the laboratory. Usually an alchemist's experimentation is aimed at replicating an elixir for which he lacks the formulary, but some alchemists are bold enough to develop all-new elixirs.

Alchemists invent new elixirs using the standard rules for inventing (see *New Inventions*, p. B473), with a few adjustments. The required skill for designing new elixirs is Alchemy. Elixirs have neither TL modifiers nor Complexity ratings.

For the Concept roll, use a base penalty of -6 instead of the standard modifiers, plus an additional modifier of twice the default penalty for the elixir. Thus, an alchemist trying to develop an Invulnerability elixir would suffer a penalty of -6 + (2 × -4), or -14. Apply an additional -5 penalty if the research takes place in a low-mana zone. All other modifiers are standard.

Making the first dose of a newly conceived elixir follows the Prototype rules. Equipment modifiers are -10 for the lowest grade of laboratory, -5 for a home laboratory, 0 for a professional-grade laboratory, and +TL/2 for a cutting-edge lab. Time and cost are as for the complexity level with the next greater penalty; for example, the Invulnerability elixir takes a -14 penalty, equivalent to a Complex invention, so the time required is 1d man-months and the cost is $250,000. A critical failure on the Prototype roll has the same effects as any other Alchemy critical failure.

A successful Prototype roll produces a single dose of the new elixir and a sheaf of notes that serves as a formulary for the elixir. It may now be manufactured, studied, and raised like any other elixir. If the alchemist loses his notes before mastering the elixir, however, he must repeat the research process to replace the formulary.

Identifying Magic Items

An alchemist cannot identify magic as precisely as a mage. However, an alchemist can determine whether an object is enchanted by spending an hour on analysis and $50 on materials, and making a roll against Alchemy-2. On a critical success, he gets some inkling of the enchantment's purpose. On a critical failure, the item has been splashed with acid or knocked into a flame. Whether this is disastrous depends on the item.

Simple Chemistry

Chemistry skill defaults to Alchemy-3; an alchemist is a chemist, of a very specialized variety! This default should be used only for general knowledge; an alchemist could not perform a complex chemical analysis, but would be able to recognize acids and alkali, perform distillations, prepare dyes and scents, and recognize chemical reagents by their appearance, smell, etc. Medieval alchemists did much of their analysis by taste, a practice now recognized as unwise . . .

Using Alchemical Items

All elixirs should be kept in sealed containers. They lose their power after varying times when mixed with other substances or exposed to air. Containers can be opened briefly and then closed again with no harm to the contents.

The method of use of an elixir depends on its form (see below). Multiple elixirs may be used at once, but multiple doses of the same elixir will be wasted except on very large creatures, which may require extra doses at the GM's discretion. A new dose can be taken after the previous one wears off. GMs wishing to discourage heavy use of potions may want to make it dangerous to take more than one potion at a time, or the same potion more than once per day.

When an elixir lasts for a variable amount of time, the subject doesn't know in advance how long it will last – the GM rolls secretly. The subject knows it is wearing off 5 minutes before it ends. The exception is the Elixir of Invisibility, which wears off without warning.

Forms of Elixir

There are four physical forms of elixir, each with different properties:

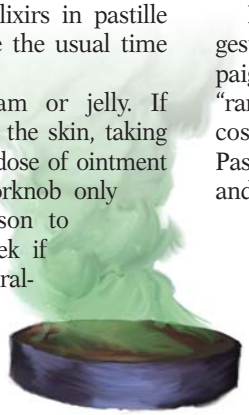
Potion: Liquid form, taken by drinking. One dose of potion affects one man-sized creature instantly. Potions lose their power in a day if left open or mixed with other things.

Powder: Solid form. A powder must be eaten in food, or dissolved in drink, to be effective; it takes effect in 2d minutes. Powders can last a long time; there is only a 50% chance per year that a given powder loses its power while exposed to air. Powders mixed with food or drink last a month.

Pastille: A thumbnail-sized tablet, kept in a sealed vial. When lit, it instantly flashes into flame and begins to fill an area 3 yards across and 8 feet high with smoke. Indoors, this smoke lingers about a minute; outdoors, it disperses within about 10 seconds. Anyone within the affected area suffers the elixir's effects in 2d seconds. To avoid the smoke's effects, hold your breath (see *Holding Your Breath,* p. B351). An unburnt pastille lasts a month if exposed to air, but is destroyed instantly upon contact with water.

The creation of elixirs in pastille form requires double the usual time and cost.

Ointment: A cream or jelly. If touched, it sinks into the skin, taking immediate effect – a dose of ointment on a weapon or doorknob only affects the first person to touch it. Lasts a week if exposed to air; neutralized by water.



Magic Resistance

Anyone with the Magic Resistance advantage gets a resistance roll of HT+MR when dosed with any elixir – even a beneficial one. If he rolls HT+MR exactly, the potion takes half effect (the GM determines the details). If he rolls less than HT+MR, the potion has no effect!

Cost and Availability

Like magic items, elixirs generally cost about $33 for each day they took to make, plus the cost of the materials. (Of course, this varies by setting; for a "rare" magic campaign, double the cost for time.) Some very common types are cheaper because they are made in batches.

Each description includes a suggested cost for "common magic" campaigns, and a second, higher cost for "rare" magic campaigns. This is retail cost, assuming PCs are buying. Pastilles take twice as long to make and therefore cost twice as much. PC alchemists (or PCs who come into possession of potions) may not always be able to sell their goods for as much as they would like. Very rare potions like Youth and Resurrection, of course, are always salable, but may attract unwelcome attention from those who would rather take them without paying!

Elixirs are not always easy to find, especially in small towns. The GM may determine exactly what elixirs, in which forms, are available as he sees fit.

Certain alchemical elixirs might be illegal, or allowed only to the ruling class. These include all poisons, other "hostile" elixirs, and all elixirs (especially elixirs of invisibility) that would be of use mainly to thieves and assassins.

A good alchemist is hard to find in most settings. The Alchemist's Guild is selective, the pursuit of alchemy is grueling, and the work is on the dangerous side. Many cities prohibit the practice of alchemy within 100 yards of a public place, lest a critical failure wipe out a bustling marketplace . . . or worse.

Types of Elixirs

The elixirs are divided here into rough categories based on the effects they have.

Each elixir description begins with the generic name for the elixir and any alternate names by which it may be known in some locales. Next, it gives the details of the elixir's effect. Finally, it gives the elixir's duration, its retail price in common-magic and rare-magic settings, and the time, cost of materials, and default penalty required to make the elixir.

Animal Control

Beast-Speech

Alternative Names: Melampus, Vociferous Beast.

The subject can speak to animals, as per the Beast Speech spell.

Duration: 2d minutes.
Form: Any but pastille.
Cost: $850/$1350.
Recipe: $300; 3 weeks; defaults to Alchemy-1.

Bird Control

Alternative Name: Ibycus.

The subject may control birds, as per the appropriate Animal Control spell (p. 30), with no energy cost or skill roll required.

Duration: 3d×5 minutes.
Form: Any but pastille.
Cost: $550/$900.
Recipe: $200; 2 weeks; defaults to Alchemy-1.

Dragonslaying

Alternative Names: Balsam of St. George, Cadmus, Fafnir.

The smoke from this elixir does 5d damage to any reptile. It can also affect dragons – but only if it is ignited by a dragon's breath.

Duration: See Pastille above.
Form: Pastille.
Cost: $1,300/$2,000.
Recipe: $100, plus one drop of blood from a dragon's heart, which costs at least $500 if it is available at all; 4 weeks; defaults to Alchemy-1.

Horsemanship

Alternative Names: Bronco Buster, Castor.

Grants the subject a +4 to any Animal Handling roll specific to horses and their relatives (mules and donkeys). In addition, it grants a +4 to any Riding, Teamster or Freight Handling skill roll made concerning horses in a noncombat situation.

Duration: 2d hours.
Form: Ointment.
Cost: $250/$500.
Recipe: $50; 2 weeks; defaults to Alchemy-1.

Combat Abilities

Battle

Alternative Names: Ares, Battlemead.

Adds 1d to DX. The subject also becomes Brave, as per Bravery spell (p. 134), for the duration.

Duration: 1 hour.
Form: Any but pastille.
Cost: $350/$700.
Recipe: $150; 2 weeks; defaults to Alchemy-2.

Endurance

Alternative Name: Antaeus.

The subject feels no fatigue for the duration of the elixir except for fatigue caused by his own spellcasting. When the elixir expires, his FP is reduced to 0 and he falls unconscious.

Duration: 1d hours.
Form: Any.
Cost: $1,400/$2,400.
Recipe: $300; 6 weeks; defaults to Alchemy-1.

Fetching and Carrying

Alternative Name: Orion.

The subject's encumbrance levels are multiplied by 4 – so, if his extra-heavy encumbrance is normally 200, it becomes 800! Encumbrance effects having to do with spells (e.g., Teleport) are not affected. It works on animals, and can be used to let a load-beast carry more.

Duration: 1d+1 hours.
Form: Any.
Cost: $300/$400.
Recipe: $200; 1 week; defaults to Alchemy-1.

Leadership

Alternative Names: King's Draught, Theseus.

Adds 4 to Leadership skill, and 2 to Strategy and Tactics skills.

Duration: 1d hours.
Form: Any.
Cost: $1,650/$2,850.
Recipe: $400; 7 weeks; defaults to Alchemy-1.

Invulnerability

Alternative Names: Achilles, Infusion of Impervious Integument, Ironskin.

Hardens the skin into DR 3 armor. This protection is cumulative with other forms of protection. Does not protect eyes. Note that this elixir is quite illegal in gladiatorial contests, legal duels and so on!

Duration: 1d+1 hours.
Form: Any but pastille.
Cost: $2,100/$3,100.
Recipe: $1,000; 6 weeks; defaults to Alchemy-4.

Speed

Alternative Name: Atalanta.

Increases Basic Speed and Move by 1. Up to three doses of this elixir may be taken at once, for increased effect, but roll separately for the time each dose lasts.

Duration: 3d×4 minutes.
Form: Any but pastille.
Cost: $550/$850.
Recipe: $200; 3 weeks; defaults to Alchemy-1.

Stealth

Alternative Names: Assassin's Brew, Hermes.

The subject's Stealth and Climbing skills are each raised by 1d points (roll separately). Illegal in many cities!

Duration: 1 hour.
Form: Any.
Cost: $500/$2,000.
Recipe: $300; 3 weeks; defaults to Alchemy-2.

Strength

Alternative Names: Heracles, Porthos.

Adds 1d to ST. This increases encumbrance, weapon damage, etc., appropriately, but does not give extra HP.

Duration: 1 hour.
Form: Any but pastille.
Cost: $250/$500.
Recipe: $100; 2 weeks; defaults to Alchemy-2.

Hostile Elixirs

Aging

Alternative Names: Death's Icy Finger, Tithonus.

The subject becomes a year older. Appropriate aging rolls must be made

immediately. Antidote must be given within 6 hours to be effective!

Duration: Permanent.
Form: Any.
Cost: $825/$1,350.
Recipe: $300; 3 weeks; defaults to Alchemy-1.

Death

Alternative Names: Reaper's Broth, Thanatos.

A poison, doing 4d damage; a successful HT roll reduces this to 2d damage. Symptoms include numbness and paralysis. A second dose will not be effective until an hour after the first. Illegal almost everywhere!

Duration: Instant.
Form: Any.
Cost: $500/$800.
Recipe: $100; 2 weeks; defaults to Alchemy-1.

Fear

Alternative Name: Phobos.

The subject is affected as per the Fear spell (p. 139), including a resistance roll against the alchemist's skill.

Duration: As Fear.
Form: Any; subject resists at -4 against all forms but pastille.
Cost: $225/$400.
Recipe: $50; 1 week; defaults to Alchemy-1.

Foolishness

Alternative Names: Stupefaction, Tantalus.

Each dose taken (up to 4) reduces IQ by 3.

Duration: 1d hours.
Form: Any, but pastille effect only lasts 1d minutes.
Cost: $500/$850.
Recipe: $150; 2 weeks; defaults to Alchemy-1.

Frustration

Alternative Names: Murphy, Sisyphus.

The subject has -2 to all die rolls. Any number of doses can affect a person simultaneously!

Duration: One day.
Form: Any.
Cost: $650/$1,150.
Recipe: $100; 3 weeks; defaults to Alchemy-1.

Hatred

Alternative Names: Antipathy, Nemesis.

The subject hates all that he normally loves.

Duration: 1 hour.
Form: Any.
Cost: $300/$500.
Recipe: $125; 1 week; defaults to Alchemy-1.

Jealousy

Alternative Names: Green-Eyed Monster, Juno.

Makes the subject violently jealous of anyone of equal or superior intelligence, wealth, beauty, and so on – whatever attainments the subject most prizes.

Duration: 1d hours.
Form: Any.
Cost: $400/$750.
Recipe: $50; 2 weeks; defaults to Alchemy-1.

Lecherousness

Alternative Name: Priapus.

The subject suffers the disadvantage of Lecherousness (p. B142).

Duration: 1d hours.
Form: Any.
Cost: $500/$700.
Recipe: $200; 10 days; defaults to Alchemy-1.

Madness

Alternative Name: Eris.

The subject suffers the effects of the Madness spell (p. 136). The maker may attempt to specify the precise form of madness the elixir will cause, but must make his Alchemy roll by 2 or better to produce the results he wants; on a success by less than 2, the madness is determined randomly.

Duration: 1d hours.
Form: Any.
Cost: $200/$400.
Recipe: $100; 1 week; defaults to Alchemy-1.

Odium

Alternative Name: Bellerophon.

The subject is perceived as untrustworthy and unattractive; everyone reacts to him at -4.

Duration: 1d+2 hours.
Form: Any.
Cost: $1,000/$1,700.
Recipe: $300; 4 weeks; defaults to Alchemy-1.

Self-Love

Alternative Name: Narcissus.

The subject cares nothing for the opinions or well-being of any but himself. He is very happy and self-satisfied during this time. The chief *legitimate* use of this elixir is to treat depression.

Duration: 1d+1 hours.
Form: Any.
Cost: $750/$1,450.
Recipe: $20; 4 weeks; defaults to Alchemy-1.

Unluckiness

Alternative Name: Hecate.

The subject has the Unluckiness disadvantage (p. B160), which comes to pass once within 24 hours and then expires.

Duration: 1 day (see above).
Form: Any but pastille.
Cost: $1,600/$3,000.
Recipe: $400; 6 weeks; defaults to Alchemy-1.

Weakness

Alternative Names: Enervation, Philoctetes.

Each dose taken (up to 4) reduces ST by 3.

Duration: 1d hours.
Form: Any, but pastille effect only lasts 1d minutes.
Cost: $400/$700.
Recipe: $50; 2 weeks; defaults to Alchemy-1.

Magical Abilities

Attractiveness

Alternative Name: Aphrodite.

Grants one level of Appearance (p. B21). The subject's looks will improve one level – from Average to Attractive, from Beautiful to Very Beautiful, or from Hideous to Ugly, for example. Subjects who are already Transcendent gain Terror (p. B93) – sometimes too much is too much.

Duration: 2d+1 hours.
Form: Any but pastille.
Cost: $600/$1,000.
Recipe: $100; 3 weeks; defaults to Alchemy-1.

Fire Resistance

Alternative Names: Agni, Salamander Unguent.

The subject is fireproof, as per the lowest level of the Resist Fire spell (p. 74).

Duration: 1d hours.
Form: Any but pastille.
Cost: $500/$700.
Recipe: $300; 1 week; defaults to Alchemy-1.

Flight

Alternative Name: Daedalus.

Gives the power of flight, as per Flight spell (p. 145).

Duration: 1 hour.
Form: Any but pastille.
Cost: $3,000/$4,700.
Recipe: $500; 10 weeks; defaults to Alchemy-3.

Gambling

Alternative Names: Baby's New Shoes, Kouon.

Gives subject a +3 on all Gambling rolls. Use of this elixir is considered cheating, and it is only available on the black market. Penalties if caught using it vary from a fine to a knife in the back, depending on the clientele of the game! This potion only affects games of chance – it will not confer a +3 to win a horse race or wrestling match just because there is a bet placed on it!

Duration: 1 hour.
Form: Potion or powder.
Cost: $900+ (whatever the market will bear).
Recipe: $200; 4 weeks; defaults to Alchemy-2.

Invisibility

Alternative Name: Odysseus.

Turns the subject invisible. This elixir wears off without warning. It is illegal in many places!

Duration: 1d×10 minutes.
Form: Potion or ointment.
Cost: $3,000/$6,000.
Recipe: $1,000; 16 weeks; defaults to Alchemy-4.

Luck

Alternative Name: Tyche.

The subject has the Luck advantage (p. B66).

Duration: 2d game-hours.
Form: Any form.
Cost: $1,300/$2,300.
Recipe: $200; 6 weeks; defaults to Alchemy-3.

Magic Resistance

Alternative Name: Moly.

Grants five levels of Magic Resistance (p. B67) to the subject. If taken by a wizard, all of his spell rolls are at -5!

Duration: 1 hour.
Form: Any.
Cost: $1,600/$3,200.
Recipe: $500; 5 weeks; defaults to Alchemy-3.

Pain Resistance

Alternative Name: Hector.

Grants the High Pain Threshold advantage (p. B59)

Duration: 1 hour.
Form: Any but pastille.
Cost: $600/$1,000.
Recipe: $200; 2 weeks; defaults to Alchemy-1.

Transformation

Alternative Name: Circe.

The subject turns into an animal, as per the Shapeshifting spell (p. 32). It is possible to become trapped in beast-form; if this happens, either an alchemical antidote or a Remove Curse spell will restore his natural shape. If the subject takes the elixir knowingly, he may transform into any creature between twice his body weight and 1/10 his body weight. If the subject takes it unknowingly, he is transformed into the creature most appropriate to his personality, at the GM's discretion.

Duration: 2d hours.
Form: Any but pastille.
Cost: $3,000/$5,000.
Recipe: $800; 12 weeks; defaults to Alchemy-1.

True Sight

Alternative Names: Delphi, Faerie Ointment.

Gives subject the power to see auras, as per the Aura spell (p. 101).

Duration: 1d minutes.
Form: Any but pastille.
Cost: $550/$1,300.
Recipe: $200; 4 weeks; defaults to Alchemy-2.

Water Breathing

Alternative Name: Poseidon.

Grants the ability to breathe water.

Duration: 1d hours.
Form: Potion only.
Cost: $600/$1,100.
Recipe: $50; 5 weeks; defaults to Alchemy-2.

Water-Walking

Alternative Name: Ephialtes.

Gives subject the ability to walk on water as though it were dry land. If the subject falls, he will not get wet. Subject may not dive or swim while under this potion's influence, any more than he could dive into the earth!

Duration: 3d×4 minutes.
Form: Any but pastille.
Cost: $700/$1,200.
Recipe: $150; 3 weeks; defaults to Alchemy-1.

Medical Elixirs

Alchemical Antidote

Alternative Name: Janus.

Counteracts the effect of any other alchemical products. A dose of antidote instantly undoes the effect of any or all other elixirs, except healing elixirs. It also gives "immunity" to further doses of elixir of any type, but only for 1d minutes after the antidote is taken!

Duration: Instant.
Form: Any but pastille.
Cost: $400/$1,000.
Recipe: $250; 2 weeks; defaults to Alchemy-3.

Awakening

Alternative Names: Aurora, Vigilance.

Acts on the subject as the Awaken spell (p. 90).

Duration: Instant.
Form: Any.
Cost: $500/$900.
Recipe: $150; 3 weeks; defaults to Alchemy-1.

Eternal Rest

Alternative Name: None.

This pale green formula smells faintly of pine and cherry blossoms. It is much favored by royal embalmers, who must take steps to assure the ruler rests in peace. If introduced into a dead body (the most common method is to pour a potion into the corpse's mouth, but some rub the body with an ointment or inject the elixir into the central cavity), this elixir prevents the body from rising as an undead creature, as per the Final Rest spell (p. 89). Further, the body's blood and flesh becomes poisonous to ghouls or any carrion-eating creature. The smell of the fluid is very obvious to such beings, who avoid treated bodies. It does not prevent the deceased's spirit from being summoned, nor does it prevent Resurrection.

This elixir is a contact poison to corporeal undead, doing 2d points of injury and reducing the undead's DX by 4 for four days.

Duration: Permanent.
Form: Potion or ointment.
Cost: $4,100/$6,200.
Recipe: $2,000; 4 weeks; defaults to Alchemy-2.

Fertility

Alternative Name: Ceres.

The subject becomes fertile and/or potent. Except for Sexless characters, offspring *will* result from any natural union made during the elixir's duration. Unusual combinations (e.g., elf and dwarf) will not necessarily result in offspring, even with the potion, but the possibility is there . . .

Duration: 1 hour.
Form: Any but pastille.
Cost: $6,000/$11,000.
Recipe: $1,500; 20 weeks; defaults to Alchemy-5.

Healing

Alternative Name: Chiron.

Heals 1d hits of injury – or, if HP is normal, restores 1d lost FP. Repeated doses have full effect.

Duration: Instant.
Form: Any but pastille.
Cost: $120/$250.
Recipe: $50; 1 week; defaults to Alchemy-1.

Health

Alternative Name: Aesculapius.

Cures the subject of any and all diseases, and heals 2 hits. Only one dose per day will be effective.

Duration: Instant.
Form: Potion only.
Cost: $750/$1,200.
Recipe: $200; 4 weeks; defaults to Alchemy-2.

Hybridization

Alternative Name: None.

Enables two living creatures of different species to produce offspring that are exotic or monstrous hybrids. Two doses must be made at the same time; one is given to each parent. If the parents are of different sizes, the offspring's size will be based on the mother's. Intelligent beings may roll vs. Will to resist the impulse to unnatural mating that results.

Duration: 1 mating.
Form: Powder or potion.
Cost: $2,250/$4,000.
Recipe: $500; 10 weeks; defaults to Alchemy-4.

Lichdom

Transforms a subject under the influence of the Lich spell into a lich. Details are available on pp. 159-160.

Long Slumber

Alternative Names: Epimenides, Van Winkle.

The subject falls into a deep sleep . . . lasting indefinitely. Roll vs. HT yearly; on a critical success, subject wakens. Otherwise, an alchemical antidote can only revive him. He requires no food, and is unaffected by age or disease, though physical attacks do normal damage. Wounds neither heal nor worsen, though bleeding must be stanched or he will bleed to death. In essence, this is "suspended animation."

Duration: Indefinite.
Form: Any.
Cost: $9,000/$14,000.
Recipe: $4,500; 25 weeks; defaults to Alchemy-1.

Reanimation

Alternative Names: Forensic Ointment, Pluto.

When this elixir is brushed onto the lips of a corpse, it will answer the next question put to it, to the limit of the knowledge it had in life. The brain must be intact; if the person has been dead for more than 2 days, roll vs. (16 – days since death). A frozen or otherwise preserved corpse might be responsive longer.

Should this ointment touch a living person, he immediately suffers the effect of the Death Vision spell (p. 149), and the ointment is lost.

Duration: One question.
Form: Ointment only.
Cost: $4,100/$6,200.
Recipe: $2,000; 12 weeks; defaults to Alchemy-3.

Popular Elixirs

Some elixirs naturally lend themselves to being made into a charm. The most popular elixirs for amulets include Health, Magic Resistance, Calm, Hardheartedness, and Antidotes. The most popular elixirs for talismans include Attractiveness, Charisma, Fertility, Gambling, Leadership, Luck, and Wisdom.

Regeneration

Alternative Names: Hydra, Regrowth.

The subject must rub the elixir into his own skin at the site of an injury. Will restore a single arm or leg (completely) or a single hand, foot, finger, etc., or a single eye or ear.

Duration: Permanent.
Form: Ointment only.
Cost: $5,000/$11,000.
Recipe: $300; 20 weeks; defaults to Alchemy-4.

Resurrection

Alternative Name: Persephone.

If administered to a subject killed within the preceding hour, restores the corpse to life and heals 2d HP; further healing proceeds normally. When the subject reaches positive hit points, he will be able to function normally. The subject returns to life with 0 FP. Cannot restore life to a decapitated corpse or one that has taken enough damage to destroy it.

Duration: Permanent.
Form: Potion only.
Cost: $25,000/$40,000.
Recipe: $12,000; 50 weeks; defaults to Alchemy-6.

Sleep

Alternative Name: Morpheus.

The subject must roll vs. HT-4 or fall instantly asleep. He sleeps for 16-HT hours, and may not be awakened by nonmagical means during that time. After that, he sleeps eight more hours, but this sleep is natural and he may be awakened normally.

Duration: As above.
Form: Any.
Cost: $120/$250.
Recipe: $50; 1 week; defaults to Alchemy-1.

Tranquility

Alternative Name: Athena.

Nullifies any extreme emotion the subject is feeling and allows rational thought. Specifically, this elixir grants a +3 to resist any spell or skill that works on the emotions, enabling the subject to reason something through rather than be swayed by passions or sentiment. In addition, it will calm any hysterical or enraged person, and grant a +3 to the IQ roll to overcome the Berserk or Bad Temper disadvantages. It has no effect on other disadvantages, however.

Duration: 2d hours.
Form: Any.
Cost: $500/$900.
Recipe: $100; 2 weeks; defaults to Alchemy-1.

Universal Antidote

Alternative Name: None

This elixir counteracts the effects of any non-alchemical poison. If taken in advance, it grants +8 to HT to resist any poison; reduce this bonus by 1 per hour. If taken after swallowing a suspected poison, it grants an immediate HT roll at +8 to throw off the effects, but does not undo any harm that has already been suffered.

Duration: 8 hours (see above).
Form: Potion or powder.
Cost: $750/$1,150.
Recipe: $350; 2 weeks; defaults to Alchemy-2.

Youth

Alternative Name: Hebe.

The subject becomes a year younger.

Duration: Permanent.
Form: Potion only.
Cost: $25,000/$60,000+.
Recipe: $6,000; 50 weeks; defaults to Alchemy-9.

Mental Abilities

Charisma

Alternative Name: Orpheus

The subject becomes charismatic. Roll 1 extra die on any reaction roll.

Duration: 1d hours.
Form: Any but pastille.
Cost: $350/$550.
Recipe: $100; 3 weeks; defaults to Alchemy-2.

Foresight

Alternative Name: Prometheus.

The subject sees a vision about the next important crisis or turning point in his life. This is entirely up to the GM; however, if there is danger ahead or an important choice about to be made, it is reasonable for the vision to help with it.

Duration: Instant.
Form: Any.
Cost: $2,000/$3,700.
Recipe: $200; 10 weeks; defaults to Alchemy-1.

Hardheartedness

Alternative Name: Artemis.

Protects against and cancels the effect of the Love elixir. This elixir will also give the subject a +5 to resist any Sex Appeal attempt, and will nullify any infatuation the subject has. Duration is 2d hours for protection purposes; the effects of a Love elixir taken within that time or earlier are canceled permanently. A natural infatuation is nullified for 2d hours, and remains nullified until the subject next sees the object of his infatuation.

Duration: As above.
Form: Potion only.
Cost: $500/$1,000.
Recipe: $100; 3 weeks; defaults to Alchemy-1.

Memory

Alternative Name: Epimetheus.

The subject gains Eidetic Memory (p. B51).

Duration: 1 hour.
Form: Any.
Cost: $1,500/$2,500.
Recipe: $400; 6 weeks; defaults to Alchemy-1.

Wisdom

Alternative Name: Apollo.

Adds 1 to IQ. The increased IQ benefits skill use, but not spellcasting.

Duration: 1 hour.
Form: Potion or powder.
Cost: $1,500/$2,400.
Recipe: $600; 5 weeks; defaults to Alchemy-2.

Mental Control

Drunkenness

Alternative Names: Bacchus, Pan, Private Reserve.

Subject becomes drunk, as per the Drunkenness spell (p. 136); -3 each to DX and IQ. He is a happy, charismatic drunk (others react at +1) and recovers without a hangover.

Duration: 1d hours.
Form: Powder only; must be taken in wine.
Cost: $130/$300.
Recipe: $100; 3 days; defaults to Alchemy-1.

Friendship

Alternative Name: Philemon.

The subject has +3 reaction to all others.

Duration: 1d hours.
Form: Any, but pastille effect lasts only 3d minutes.
Cost: $550/$1,000.
Recipe: $300; 2 weeks; defaults to Alchemy-1.

Forgetfulness

Alternative Name: Pirithous.

Produces amnesia in the subject. The subject's IQ is treated as normal for intelligence purposes, but the subject cannot remember his name or what he was doing at the time he took the elixir. Any quest or geas will be forgotten. The subject will not remember his skills, though if he is persuaded he can accomplish a task, he will perform at -2. Spellcasting is impossible while under the influence of this potion.

Duration: 1 hour.
Form: Potion only.
Cost: $700/$1,200.
Recipe: $100; 3 weeks; defaults to Alchemy-4.

Gullibility

Alternative Names: Fool's Broth, Polyphemus.

The subject acquires the Gullibility disadvantage (p. B137).

Duration: 1d hours.
Form: Any but pastille.
Cost: $500/$900.
Recipe: $150; 2 weeks; defaults to Alchemy-1.

Love

Alternative Names: Eros, Love Potion.

The subject falls in love with the next person of the appropriate sex he sees. This effect is permanent unless counteracted by a dose of alchemical antidote, another dose of love elixir (which will cause the subject to love someone else), or the Remove Curse spell.

Duration: Permanent.
Form: Any.
Cost: $900/$2,000.
Recipe: $600; 3 weeks; defaults to Alchemy-1.

Truth

Alternative Name: Phoebus.

The subject cannot tell a lie, exactly as per the Compel Truth spell (p. 47).

Duration: 1 hour.
Form: Any.
Cost: $1,100/$2,000.
Recipe: $200; 4 weeks; defaults to Alchemy-1.

Skills and Physical Abilities

Craftsmanship

Alternative Name: Vulcan.

Gives the subject 1d+1 levels of the Artificer and Gifted Artist talents (p. B90).

Duration: 1d hours.
Form: Any.
Cost: $1,100/$1,800.
Recipe: $400; 4 weeks defaults to Alchemy-2.

Hearing

Alternative Name: Syrinx.

Gives +6 to Hearing rolls.

Duration: 3d×5 minutes.
Form: Ointment only; must be applied directly to the ears.
Cost: $300/$500.
Recipe: $125; 1 week; defaults to Alchemy-1.

Keen Sight

Alternative Name: Argus.

Gives +6 to Vision rolls. If two doses are given, the subject's vision becomes no keener but he can also see invisible objects as per the See Invisible spell (p. 113).

Duration: 3d×5 minutes.
Form: Ointment only; must be applied directly to the eyes.
Cost: $400/$700.
Recipe: $250; 10 days; defaults to Alchemy-1.

Music

Alternative Name: Marsyas.

The subject gains 4 levels of Musical Ability (p. B91). Most bards consider this to be a cheat!

Duration: 1d hours.
Form: Any, but pastille effect lasts only 2d minutes.
Cost: $300/$400.
Recipe: $150; 4 days; defaults to Alchemy-1.

Alchemical Charms

In some settings, alchemists may turn their abilities to the manufacture of alchemical charms – minor magical items that confer the effects of an alchemical elixir on a more lasting basis. Most charms either protect or enhance the wearer in some fashion. For game purposes, a charm with protective powers is called an amulet, while a charm with empowering abilities is called a talisman (not to be confused with the Amulet and Talisman meta-spells).

Alchemical charms are not appropriate to every campaign. If the GM is concerned about treading on enchanters' toes, or about alchemists becoming overpowered, he should not allow alchemists to create the items that follow. However, charms can add scope and interest to alchemy, and bring more depth to a setting.

Time and Cost to Make

The cost in materials to manufacture an alchemical charm is the same as for an elixir with the same effects. The time to make such an amulet or talisman is 10 times that listed to make the elixir; making a charm is hard work, requiring long hours and correct timing of the planetary influences to capture the essences desired. The GM may vary time or cost to make charms more or less available in his world. At the end of the time period, the alchemist makes his skill roll, applying any penalties as per the equivalent elixir. A critical failure has the usual explosive results, while a normal failure merely wastes the time and materials.

The knowledge of how to make charms is a potent and difficult skill – each charm is a separate Hard technique, with its own formulary, which defaults to the corresponding elixir technique-2.

In many settings, the secrets of making charms may be restricted to Masters or Grand Masters of the Alchemists' Guild. The GM may also want to employ any or all of the suggested methods for limiting regular enchantment (p. 17).

Detection and Analysis

Treat an alchemical charm as if it were an elixir for detection purposes – see p. 212. In general, if an alchemist knows the formula for the elixir in question, he can recognize it with five minutes' examination and a successful Alchemy skill roll. If it has powers that he does not know the formula for, the GM may assign a penalty to the Alchemy roll, ranging from -1 to -10. As usual, the GM rolls for the player, and lies on any critical failures.

Using Charms

Amulets are treated as always-on magic items. There is no "time to cast," and they cost the user no energy. They protect the wearer at all times, whether the person knows what the amulet does or not.

Alchemical talismans – empowering devices – work for only a limited time. When a talisman is used, its effects last as long as the corresponding elixir would. The talisman then becomes dormant and must "recharge" for a number of days equal to the number of weeks it would take to brew the appropriate elixir. Thus, a talisman of Charisma would last 1d hours, and take three days to recharge before it can be used again. A talisman of Luck lasts 2d hours, then needs six days to recharge, and so on. Talismans only recharge while worn; a talisman stashed in a chest or backpack will lie dormant indefinitely.

There is no "cost to cast" for a talisman – no energy is spent activating one. The wearer must will the talisman to have its particular effect – simply willing it to "Do something!" won't work.

In a normal-mana area, most talismans work automatically when willed to. In a low-mana area, the user must roll against the effective skill of the alchemist who originally created the talisman. If a roll is required, apply any penalties to skill that the alchemist needed to roll to create the charm, but do not apply the -5 penalty that enchanted items suffer in a low-mana area.

Exotic Preparations

Especially brilliant alchemists push the discipline to the very limits of possibility, creating strange and wonderful things. All these preparations are very rare – their formularies are almost never seen, and they may even be regarded as mere myths.

Alkahest

The "universal solvent" of medieval alchemy really can eat through anything: laboratory glassware, pure gold, or magical materials such as adamant. Fortunately, it can only consume 3× its own volume in solid matter. After this, it has been neutralized. A single dose weighs 0.5 pounds and takes up 1/120 of a cubic foot.

A dose takes 1d minutes to eat through the mechanism of a lock or other device. Used to attack a living creature, it inflicts 1d damage if splashed onto the skin, or 2d-1 per second if the victim is immersed in it. It's not normally possible to swallow alkahest. If an alchemist manages to trick a victim into swallowing the two components in succession, they cause 9d damage at the rate of 1 HP per 5 minutes as they mix internally. An alchemist can attempt to treat this with a roll against Alchemy-5; a physician can't help. Treatment uses $50 worth of alchemical supplies.

If alkahest is splashed on someone's face, a HT roll is required to avoid eye damage. On a failed roll, if the eyes are specifically targeted, or the face is immersed in alkahest, check for *crippling injury* to the eyes

(pp. B420-422). Blindness caused by alkahest is automatically permanent.

Alkahest can't be stored for later use, for obvious reasons. The penultimate ingredients for a single dose are carried in two vials; making them requires a roll against Alchemy-5. The final step does not need a skill roll, but must be performed by an alchemist. Once combined, the ingredients become active extremely quickly. Roll vs. DX to throw the container at a target. On a failure, it dissolves and splashes in a random direction. On a critical failure, it hits the user.

The materials to make alkahest cost $250 per dose, and takes four weeks to brew; the recipe defaults to Alchemy-5. When it is available, it costs $1,650 in a common-magic setting, and $3,000 in a rare-magic setting.

The use of alkahest in combat can be made more effective with an alkahest siphon. The container has two compartments for the two penultimate ingredients and a double pump arrangement to squirt them both simultaneously at a foe. The siphon has Acc 0, Max equal to ST-6, and RoF 3~. It holds four shots with a raw materials cost of $1,000. 12 pounds; $300. Of this, $50 pays for the nozzle, which becomes increasingly pitted with each use and must be replaced after 12 shots. Making either the siphon or the nozzle requires an Alchemy skill roll at no penalty.

Homunculus

The homunculus is among the rarest alchemical achievements: a duplicate of the alchemist or another person, shaped by nurturing some of his bodily fluids in an alchemical vessel. The result is a second being with the same essence, able to serve its creator's goals. Most homunculi are tiny, but they don't have to be; the big ones just cost more.

A homunculus is an Ally with the Minion enhancement. The character sheet for the homunculus is based on that of its original, but does not include his social traits. Instead the homunculus has Social Stigma (Valuable Property) and is probably Dead Broke. If the homunculus develops properly, it will be a perfect likeness of the original's true form. (If the original has lost a body part or function through injury, the homunculus still has it.) Homunculi are Reprogrammable by their creators, but do not have Slave Mentality (unless the original did!). They also have a special variant of Reawakened that potentially grants them all their creator's skills. The creator chooses which latent skills to activate at creation. Other skills will emerge as the Ally's point value increases to keep pace with its original.

A homunculus may have any SM the creator is prepared to invest in. Creating a homunculus takes 12 months, plus or minus SM, down to a minimum of 3 months. The starting cost is $1,000. There is also a continuing outlay for nutrients, which increases as the homunculus grows larger – $1 the first month, $2 the second, and on to $5, $10, $20, $50, $100, etc. ST should be appropriate to the body size of the homunculus.

It takes two weeks for the homunculus to "remember" how to speak. After that, activating latent skills takes one week per skill point. This is effectively intensive training (p. B293), but doesn't require actual teaching.

The process to create a homunculus requires a roll against Alchemy-10. This is not a technique and cannot be bought up. On an ordinary success, the result is a fully formed creature. On an ordinary failure, the effort and materials are wasted. On a critical success, the homunculus has Passive Racial Memory (Original Only, -60%). On a critical failure, the homunculus is twisted during development, acquiring a physical deformity, a metabolic weakness, or a character flaw. The outcome affects the creature's character point value in any case.

Though cosmetically similar, this preparation is not the same as the Homunculus spell (p. 70), and their functions are very different.

Philosophers' Stone

In legend, the philosophers' stone or *lapis philosopharum* has many remarkable properties. It turns base metal into gold, makes human beings immortal, and accomplishes other wonders. However, it doesn't necessarily work for just anybody; special training may be needed to use it. In some accounts, it's an actual physical object. In others, it's a symbol of the spiritual transformation of the alchemist by the practice of his art.

In ***GURPS Magic***, the *lapis philosopharum* is an actual stone that acts as an alchemical catalyst. It gives +6 to any Alchemy roll in which it is used. Contact with it confers small benefits on the unskilled. A person who wears it as an amulet or piece of jewelry is at +2 to HT to resist disease and poison, and wearing it continuously grants the benefits of Longevity. If left in contact with a metal object for 1d days, it turns the outer surface to gold, to a depth of 1/16". Such objects gave rise to the belief that alchemists are simply plating objects with gold as a deliberate fraud.

The materials to manufacture a philosopher's stone cost $9,000, and the process takes 52 weeks; the recipe defaults to Alchemy-8. On the very unusual occasion that one comes up for sale, they cost at least $15,000.

Magically Potent Materials

Alchemy relies upon objects intrinsically charged with occult power for its raw ingredients. The sort of objects that become impregnated with magical energy varies between worlds. In some settings, herbs have mystic potency; others rely on mana organs taken from the carcasses of exotic beasts; still others attach magical significance to various minerals.

In most worlds, the magic potential of an object derives from a direct or symbolic relationship to the desired subject or effect. For example: fire is red, and rubies are red; hence, rubies have a magical affinity for fire.

More powerful elixirs may also demand more exotic forms of an ingredient. A simple Healing elixir might be brewed from regular apples and ginseng, but a Resurrection elixir might demand the Apples of the Hesperides.

Magically charged objects have applications beyond alchemy; they may be used as ingredients for spells, or as components of enchanted items. For this reason, wizards and alchemists often compete over viable sources of these ingredients.

In general, magically useful materials fall into three categories. Consumable materials, such as herbs and other organic materials, are consumed in any arcane application, whether magical or alchemical. Reusable materials, like metals and gemstones, are usually not consumed when used as spell ingredients, but are used up in the manufacture of alchemical goods. Objects are manufactured items whose magical power lies in their intended use rather than their material. These are usually used in spells and enchantments rather than in alchemy, and are not usually consumed in their use.

Some ingredients and their possible purposes follow. The purposes listed include most of the colleges and several common "verb" activities, like seeking, controlling, and transforming. Magical and alchemical processes may demand several types of ingredient, depending on the nature of the process.

A simple Healing elixir might be brewed from regular apples and ginseng, but a Resurrection elixir might demand the Apples of the Hesperides.

Purpose	*Consumable Material*	*Reusable Material*	*Objects*
Air	Aspen branches, eagle feathers, white orchids	Chalcedony, onyx, sailcloth	Fans, horns
Animal	Blood, musk	Bloodstone, pelts	Collars, reins
Body Control	Blood, bone	Elm, ivory	Dolls, clothes
Communication and Empathy	Bay leaves, vervain	ivory, coral	None
Controlling/Shaping	None	opal, platinum, gold, silver (usually associated with the subject of control)	Knots, loops
Destruction/Resistance	None	Emerald, onyx	None
Earth	Dirt, oak	Granite, quartz, silver	Anvils
Enchantment	Roses, walnut	Opal	None
Fire	Chile peppers, mustard, sulfur	Carnelian, gold, ruby	None
Food	Bread, grapes, salt	None	Cauldrons, kegs
Gate	Chalk, juniper, tobacco	Alexandrite, amber	Keys, mirrors
Healing	Apples, garlic, ginseng, lavender	Jasper, jet	Bandages, splints
Illusion and Creation	Bryony, eggs, pomegranate seeds	Pyrites, zircons	Masks
Knowledge	Fennel, honey, rue	Agate, diamond	Books, lamps
Light and Darkness	Cinnamon, marigold, owl feathers (darkness)	Gold, heliotrope, sunstone	
Making and Breaking	Clay, gunpowder, sage	Flint	Hammers
Meta-Spells	Barley, mandrake	Green moonstone, opal	Pyramids
Mind Control	Mugwort, poppy	Amethyst, garnet	Hats
Movement	Comfrey, henbane, ibis feathers	Fulgurites, poplar	Arrows, shoes
Necromancy	Acacia, cypress, yew	Bone, ebony, onyx	Knives
Plant	Cedar, holly	Copper, green jade	None
Protection and Warning	Asafoetida, raven feathers, tiger lily	Alicorn (unicorn horn), bronze, oxhide	Chains, shields
Seeking/Sensing	Mistletoe	Lodestone	Forked sticks
Sound	None	Seashells, onyx	Musical instruments
Technology	Plastic	Brass, steel	Gears
Transformation	Bats, chrysalises, yucca	Antimony, mercury	None
Water	Fish, lotus, whiskey	Emerald, pearl, sapphire (ice)	Cups and jugs
Weather	Bladderwrack, mahogany, saffron	Platinum (lightning)	Flags, lightning rods

Appendix
Spell Table

This section can be copied and used for reference, especially when creating characters. The grimoire form on p. 240 may also be photocopied for your own use; it is especially handy to copy it onto the back of a wizard's character sheet.

Notes:

An asterisk (*) after a spell name indicates that it is IQ/Very Hard. All other spells are IQ/Hard.

A "–" indicates that that column does not apply.

Under *class*, an R indicates that the spell can be resisted. Then entry after the dash shows what resists the spell.

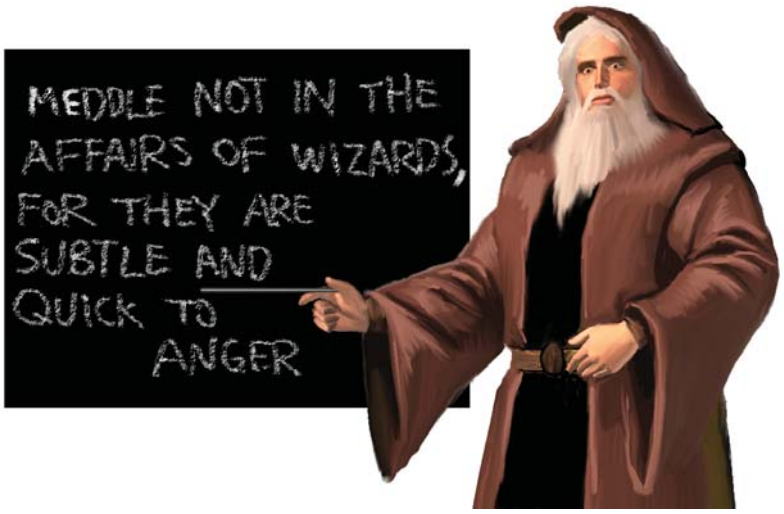
Under *energy*, if two numbers are separated by a slash, the first is the cost to cast and the second is the cost to maintain. A "/H" means cost to maintain is half the cost to cast. A "/S" means cost to maintain is the same as cost to cast.

Under *time to cast*, "Instant" means that the effect occurs as soon as the spell is finished, and is completed immediately. "Indef." means that the effect expires when some condition described in the spell description occurs.

Under *prerequisites*, Magery 1 is abbreviated "M1", Magery 2 is "M2", and so on.

"Special", in any column, means that the description is too complex to fit on a table – see the appropriate page (also shown on the table).

A # sign means that there are exceptions or special cases for the information given – see the appropriate page for full details.



Page	*Spell Name*	*Class*	*College*	*Duration*	*Energy*	*Time to cast*	*Prerequisites*	*Prerequisite Count*
86	Accelerate Time*	Area/R-Spec.	Gate	1 min.	Varies	2 sec.	M2, IQ 13+, 2 spells each from 10 colleges	20
65	Accuracy	Enchantment	Enchantment	Perm.	Varies	–	Enchant and 5 Air spells	15
191	Acid Ball	Missile	Water	Instant	1 to Magery#	1 to 3 sec.	M2, Create Acid	8
192	Acid Jet	Regular	Water	1 sec.	1 to 3	1 sec.	M2, Water Jet, Create Acid	10
58	Adjustable Clothing	Enchantment	Enchantment	Perm.	Varies	–	Enchant, Reshape	14
151	Affect Spirits	Regular	Necro.	1 min.	4/2	2 sec.	Solidify	4
154	Age*	Regular/R-HT	Necro.	Perm.	10 to 50	1 min.	Youth or 6 Necromantic spells	6
40	Agonize	Regular/R-HT	Body	1 min.	8/6	1 sec.	M2, Sensitize	5
24	Air Jet	Regular	Air	1 sec.	1 to 3/S	1 sec.	Shape Air	3
24	Air Vision	Regular	Air/Knowledge	1 min.	1 per mi./H	1 sec.	Shape Air	3
26	Air Vortex	Area/R-HT or DX	Air/Movement	10 sec.	8/3	2 sec.	M2, Body of Air, Windstorm	5
100	Alarm	Regular	Knowledge	1 week	1	1 sec.	Tell Time	1
133	Alertness*	Regular	Mind	10 min.	2 to 10/H	1 sec.	Any two Keen spells	2
41	Alter Body	Regular/R-HT	Body	1 hr.	8/6	2 min.	Alter Visage	10
55	Alter Terrain*	Area	Earth	2d days	1#	10 sec.	M3, all four elemental Shape spells	11
41	Alter Visage	Regular/R-HT	Body	1 hr.	4/3	1 min.	Shapeshifting or Perfect Illusion, and 8 Body spells	9
41	Alter Voice	Regular/R-HT	Body/Sound	1 hr.	2/2	1 min.	4 Body spells, 4 Sound spells	8
39	Ambidexterity	Regular	Body	1 min.	3/2	1 sec.	Grace	4
58	Amulet	Enchantment	Enchantment	Perm.	50/pt. MR	–	Talisman for appropriate spell	Varies
102	Analyze Magic	Inform./R-spell	Knowledge	Instant	8	1 hr.	Identify Spell	3
106	Ancient History	Information	Knowledge	Instant	Varies	min.=cost	History	5

Page	Spell Name	Class	College	Duration	Energy	Time to cast	Prerequisites	Prerequisite Count
30	Animal Control	Regular/R-Will	Animal	1 min.	Varies	1 sec.	Beast-Soother	1
177	Animate Machine/TL	Regular/R-Will	Tech	1 min.	Varies	Varies	Machine Control, Animation or Animate Object	15
117	Animate Object*	Regular/R-Spec	Mk-Brk	1 min.	Varies	3 sec.	M2, 3 Shape spells	6
164	Animate Plant	Regular	Plant	1 min.	Varies	5 sec.	7 Plant spells	7
154	Animate Shadow	Regular/R-HT	Necro.	10 sec.	4/4	2 sec.	Skull-Spirit, Shape Darkness	9
150	Animation*	Regular	Necro.	1 min.	Varies	5 sec.	Summon Spirit	2
142	Apportation	Reg./R-Will	Movement	1 min.	Varies	1 sec.	M1	0
165	Arboreal Immurement	Regular/R-HT	Plant	Indef.#	8#	3 sec.	M2, Walk Through Wood	7
167	Armor	Regular	Protection	1 min.	Varies	1 sec.	Shield	1
159	Astral Block	Area	Necro.	10 min.	4/2#	2 sec.	Summon Spirit, Repel Spirits	16
105	Astral Vision*	Regular	Knowledge/Necro.	1 min.	4/2	1 sec.	Sense Spirit, See Invisible	6
169	Atmosphere Dome	Area	Protection/Air	6 hrs.	4/H	1 sec.	Purify Air, Weather Dome	9
69	Attune	Enchantment	Enchantment	Perm.	100	-	Bane	12
101	Aura	Information	Knowledge	Instant	3	1 sec.	Detect Magic	1
140	Avoid	Area	Mind	1 hr.	3/3	1 min.	Hide, Fear, Forgetfulness	4
90	Awaken	Area	Healing	Instant	1	1 sec.	Lend Vitality	2
178	Awaken Computer/TL	Regular	Tech	1 hr.	Varies	10 sec.	Animation, Wisdom	10
115	Awaken Craft Spirit	Regular	Mk-Brk/Necro.	1 min.	3/1	5 sec.	Inspired Creation, Sense Spirit	3
39	Balance	Regular	Body	1 min.	5/3	1 sec.	Grace	4
197	Ball of Lightning	Regular	Weather/Air	1 min.	2 to 6/H	1 to 3 sec.	Apportation, Lightning	8
62	Bane	Enchantment	Enchantment	Perm.	100	–	Enchant	11
156	Banish	Spec./R-Will	Necro.	Instant	Varies	5 sec.	M1, 1 spell each from 10 colleges	10
83	Beacon	Area	Gate/Movement	24 hrs.	10/H	30 sec.	Teleport, Timeport, or Plane Shift	5
30	Beast Link	Regular	Animal	Special	3	5 sec.	Beast Summoning	2
32	Beast Possession	Regular/R-Will	Animal	1 min.	6/2	5 sec.	Rider Within or Possession	4
30	Beast-Rouser	Regular	Animal	1 hour#	1 to 3	1 sec.	Vexation or Animal Empathy	0
32	Beast Seeker	Information	Animal	Instant	3#	1 sec.	Seeker or Beast Summoning and 2 Seek spells	3
29	Beast-Soother	Regular	Animal	Perm.#	1 to 3	1 sec.	Persuasion or Animal Empathy advantage	0
31	Beast Speech	Regular	Animal	1 min.	4/2	1 sec.	Beast Summoning	2
30	Beast Summoning	Regular	Animal	1 min.	3/2#	1 sec.	Beast-Soother	1
134	Berserker	Regular/R-Will	Mind	10 min.#	3/2	4 sec.	Bravery	2
158	Bind Spirit*	Regular/R-Will	Necro.	Perm.	Varies	5 min.	Command Spirit, Soul Jar	12
112	Blackout	Area	Lt-Dk	1 min.	2/1	1 sec.	Darkness	3
168	Bladeturning	Regular/R-Spec	Protection	1 min.	2/2	1 sec.	Shield or Turn Blade	1
66	Blank Spell Arrow*	Enchantment	Enchantment	Perm.	30×capacity#	-	Spell Arrow	18
129	Bless	Regular	Meta-Spell	Special	Varies	min.=cost	M2, 2 spells ea. from 10 colleges#	20
161	Bless Plants	Area	Plant	1 crop/season	1	5 min.	Heal Plant	3
162	Blight	Area	Plant	1 crop/season	1	5 min.	Plant Growth	4
148	Blink	Blocking	Movement/Gate	Instant	2	1 sec.	Teleport	5
148	Blink Other*	Blocking	Movement/Gate	Instant	2	1 sec.	Blink	6
166	Block	Blocking	Protection	Instant	1/DB+#	1 sec.	M1	0
162	Blossom	Area	Plant	1 hour	2	5 min.	Plant Growth	4
113	Blur	Regular	Lt-Dk	1 min.	1 to 5/S	2 sec.	Darkness or Gloom	3
24	Body of Air	Regular/R-HT	Air	1 min.	4/1	5 sec.	Shape Air	3
76	Body of Flames*	Regular/R-HT	Fire	1 min.	12/4	5 sec.	Breathe Fire	8
189	Body of Ice*	Regular/R-HT	Water	1 min.	7/3	5 sec.	M2, Body of Water, Freeze	6
198	Body of Lightning*	Regular/R-HT	Weather/Air	1 min.	12/4	5 sec.	M2, Lightning	7
183	Body of Metal*	Regular/R-HT	Tech	1 min.	12/6	5 sec.	M2, Shape Metal	3
183	Body of Plastic	Regular/R-HT	Tech	1 min.	10/5	5 sec.	M2, Shape Plastic	4
114	Body of Shadow	Regular/R-HT	Lt-Dk	1 min.	6/3	5 sec.	M2, Shape Darkness	4
165	Body of Slime	Regular/R-HT	Plant	1 min.	6/2	5 sec.	M2, Plant Form, Shape Water	11
54	Body of Stone*	Regular/R-HT	Earth	1 min.	10/5	5 sec.	Stone to Flesh	6
185	Body of Water	Regular/R-HT	Water	1 min.	5/2	5 sec.	Shape Water	4
27	Body of Wind	Regular/R-HT	Air	1 min.	8/4	2 sec.	M3, Body of Air, Windstorm, 1 spell each from 5 colleges#	10
165	Body of Wood	Regular/R-HT	Plant	1 min.	7/3	5 sec.	M2, Plant Form	7
88	Body-Reading	Information/R-Will	Healing	Instant	2	30 sec.	Sense Life or Awaken	1
189	Boil Water	Regular	Water	Perm.	Varies	10 sec.	Shape Water, Heat	8
37	Boost Attribute	Regular or Blocking	Body/Mind	Instant	1 to 5	none	Varies	Varies
46	Borrow Language	Regular	Comm.	1 min.	3/1	3 sec.	Lend Language	4
47	Borrow Skill	Regular	Comm.	1 min.	4/3	3 sec.	Lend Skill	6
134	Bravery	Area/R-Will-1	Mind	1 hr.	2	1 sec.	Fear	1
26	Breathe Air	Regular	Air/Water	1 min.	4/2	1 sec.	Create Water, Destroy Air	6

Page	Spell Name	Class	College	Duration	Energy	Time to cast	Prerequisites	Prerequisite Count
76	Breathe Fire*	Regular	Fire	1 sec.	1 to 4	2 sec.	M1, Flame Jet, Resist Fire	7
182	Breathe Radiation*	Regular	Tech	1 sec.	1 to 4	2 sec.	M2, Radiation Jet	9
192	Breathe Steam*	Regular	Water	1 sec.	1 to 4	2 sec.	M1, Steam Jet, Resist Fire	14
189	Breathe Water	Regular	Water/Air	1 min.	4/2	1 sec.	Create Air, Destroy Water	6
111	Bright Vision	Regular	Lt-Dk	1 min.	2/1	1 sec.	Keen Vision or 5 Light spells; no Blindness	1
76	Burning Death*	Regular/R-HT	Fire/Necro.	1 sec.	3/2	3 sec.	M2, Heat, Sickness	10
79	Burning Touch	Melee	Fire	Instant	1 to 3	1 sec.	M2, 6 Fire spells inc. Heat	6
39	Cadence	Regular	Body	1 hr.	5/3	10 sec.	Haste, Grace	5
168	Catch Missile	Blocking	Protection	Instant	2	1 sec.	Deflect Missile	2
123	Catch Spell*	Blocking	Meta-Spell	Instant	3	1 sec.	M2, DX 12+, Return Missile	4
126	Charge Powerstone*	Regular	Meta-Spell	Perm.	3/pt	10 min.	M3, Powerstone, Lend Energy	12
139	Charm	Regular/R-Will	Mind	1 min.	6/3	3 sec.	M1, Loyalty, 7 other Mind Control spells	8
40	Choke	Regular/R-HT	Body	30 sec.	4	1 sec.	M1, 5 Body spells inc. Spasm	5
116	Clean	Area	Mk-Brk	Perm.	2	1 sec.	Restore	2
94	Cleansing	Regular/R-Spec	Healing	Perm.	Varies	3 sec.	Minor Healing, Purify Earth	12
35	Climbing	Regular	Body	1 min.	1 to 3/S	1 sec.	-	0
148	Cloud-Vaulting*	Regular	Movement/ Weather	1 sec./100 mi.#	7	1 sec.	M2, Jump, Cloud-Walking	12
148	Cloud-Walking	Regular	Movement/ Weather	1 hr.	3/2	1 sec.	Walk on Air, Walk on Water	9
194	Clouds	Area	Weather/Air	10 min.	1/20/S	10 sec.	2 Water spells, 2 Air spells	4
36	Clumsiness	Regular/R-HT	Body	1 min.	1 to 5/H	1 sec.	Spasm	2
74	Cold	Regular	Fire	1 min.	Varies	1 min.	Heat	4
110	Colors	Regular	Lt-Dk	1 min.	2/1	1 sec.	Light	1
136	Command	Blocking/R-Will	Mind	Instant	2	1 sec.	M2, Forgetfulness	2
153	Command Spirit	Regular/R-Will	Necro.	1 min.	Varies	2 sec.	Summon Spirit, Turn Spirit	5
48	Communication*	Regular	Comm.	1 min.	4/4	4 sec.	Wizard Eye, Far-Hearing, Voices, Simple Illusion	9
137	Compel Lie	Regular/R-Will	Mind/Comm.	5 min.	4/2	1 sec.	Emotion Control	4
47	Compel Truth	Inform./R-Will	Comm.	5 min.	4/2	1 sec.	M2, Truthsayer	3
96	Complex Illusion	Area	Illusion	1 min.	2/H	1 sec.	Sound, Simple Illusion	2
162	Conceal	Area	Plant	1 min.	varies#	4 sec.	Plant Growth	4
122	Conceal Magic	Regular	Meta-Spell	10 hrs.	1 to 5/S#	3 sec.	Detect Magic	1
26	Concussion	Missile	Air/Sound	Instant	2 to 2×Magery#	1 to 3 sec.	Shape Air, Thunderclap	5
189	Condense Steam	Area	Water	Perm.	2#	10 sec.	Cold or Boil Water	5
180	Conduct Power/TL*	Special	Tech	1 min.	0/1#	1 sec.	M1, Seek Power	1
110	Continual Light	Regular	Lt-Dk	Varies	Varies	1 sec.	Light	1
113	Continual Mage Light	Regular	Lt-Dk	Varies	Varies	1 sec.	Mage Light, Continual Light	5
114	Continual Sunlight	Area	Lt-Dk	Varies	3	1 sec.	Sunlight	5
120	Contract Object*	Regular	Mk-Brk	1 hour	Varies	3 sec.	M3, Transform Object	14
99	Control Creation	Regular/R-spell	Illusion	Instant	1	2 sec.	Create Animal or Create Servant	10
28	Control Elemental	Special	4 Diff.	1 min.	Special	2 sec.	Summon Elemental#	9
85	Control Gate	Regular/R-Gate	Gate	1 min.	6/3	10 sec.	M3, Seek Gate	11
97	Control Illusion	Regular/R-spell	Illusion	Perm.	1	2 sec.	Perfect Illusion	4
40	Control Limb	Regular/R-Will	Body	5 sec.	3/3#	1 sec.	M1, 5 Body spells inc. Spasm	5
49	Control Person	Regular/R-Will	Comm.	1 min.	6/3	10 sec.	Soul Rider or Telepathy	5
152	Control Zombie	Regular/R-spell	Necro.	Perm.	3	1 sec.	Zombie	5
173	Converse	Regular/R-spell	Sound	Indef.#	2	1 sec.	M1, Garble, Silence	4
78	Cook	Regular	Food	Instant	1 per meal	5 sec.	Test Food, Create Fire	3
195	Cool	Area	Weather/Air	1 hour	1/10/S	1 min.#	Cold, 4 Air spells	9
187	Coolness	Regular	Water/Protection	1 hr.	2/1	10 sec.	Cold	5
116	Copy	Regular	Mk-Brk	Perm.	2 plus 1/copy	5 sec.	Dye, 1 Accented language	5
64	Cornucopia	Enchantment	Enchantment	Perm.	50×$ value#	–	Enchant, 2 Weapon Enchantment spells	13
43	Corpulence*	Regular/R-HT	Body	10 min.	6/6	3 sec.	M2, Create Earth, Create Water, 4 Body spells inc. Alter Body	16
121	Counterspell	Regular/R-spell	Meta-Spell	Instant	Varies	5 sec.	M1	0
190	Create Acid	Regular	Water	Perm.	4/gal.	2 sec.	Create Water, Create Earth	7
23	Create Air	Area	Air	5 sec.#	1	1 sec.	Purify Air or Seek Air	1
98	Create Animal	Regular	Illusion	1 min.	Varies	sec.=cost	Create Water, Create Object, IQ 12+	12
84	Create Door	Regular	Gate	10 sec.	2/10 sq. ft.#	5 sec.	Teleport, any one Walk Through spell	10
51	Create Earth	Regular	Earth	Perm.	2/25 cu. ft.	1 sec.	Earth to Stone	3

Page	Spell Name	Class	College	Duration	Energy	Time to cast	Prerequisites	Prerequisite Count
28	Create Elemental	Special	4 Diff.	Perm.	Special	Special	M2, Control Elemental#	10
72	Create Fire	Area	Fire	1 min.	2/H	1 sec.	Ignite Fire or Seek Fire	1
79	Create Food	Regular	Food	Perm.	Varies	30 sec.	Cook, Seek Food	5
179	Create Fuel/TL	Regular	Tech	Perm.	1/lb.	30 sec.	Seek Fuel, 2 transmutation spells	5
85	Create Gate*	Regular	Gate	1 min.	Varies	Varies	Control Gate and Teleport, Timeport, or Plane Shift	16
188	Create Ice	Regular	Water	Perm.	2/gal.	1 sec.	Freeze	5
99	Create Mount	Regular	Illusion	1 hr.	Varies	3 sec.	M3, Create Animal	13
98	Create Object*	Regular	Illusion	Indef.#	2/5 lbs.	sec.=cost	M2, Create Earth, Perfect Illusion	8
163	Create Plant	Area	Plant	Perm.	Varies	sec.=cost	M1, Plant Growth	4
98	Create Servant	Regular	Illusion	1 min.	Varies	3 sec.	M3, IQ 12+, Create Object	9
190	Create Spring	Regular	Water	Perm.	Varies	1 min.	Dry Spring, Shape Water	8
190	Create Steam	Area	Water	5 min.#	2	1 sec.	Boil Water	9
98	Create Warrior	Regular	Illusion	1 min.	Varies	4 sec.	Create Servant	10
184	Create Water	Regular	Water	Perm.	2/gal.	1 sec.	Purify Water	2
71	Crystal Ball	Enchantment	Enchantment	Perm.	1,000	–	Enchant, Divination (Crystal-Gazing)	13
91	Cure Disease	Regular	Healing	Instant	4	10 min.	Major Healing, Relieve Sickness	5
182	Cure Radiation*	Regular	Tech/Healing	Perm.	1/10 rads#	30 sec.	Resist Radiation, Major Healing	12
194	Current	Special; Area	Weather/Water	1 hr.	1/50	1 min.	6 Water spells	6
129	Curse	Regular	Meta-Spell	Special	Varies	Varies	M2, 2 spells each from 10 colleges#	20
144	Dancing Object	Regular	Movement	1 hr.	4/2	10 sec.	M2, Apportation	1
67	Dancing Shield	Enchantment	Enchantment	Perm.	250/lb.#	-	Enchant, Dancing Object	12
63	Dancing Weapon	Enchantment	Enchantment	Perm.	1,000/lb.#	–	Enchant, Dancing Object	12
111	Dark Vision	Regular	Lt-Dk	1 min.	5/2	1 sec.	Night Vision or Infravision	2
111	Darkness	Area	Lt-Dk	1 min.	2/1	1 sec.	Continual Light	2
134	Daze	Regular/R-HT	Mind	1 min.	3/2	2 sec.	Foolishness	1
149	Death Vision	Regular	Necro.	1 sec.	2	3 sec.	M1	0
41	Deathtouch	Melee	Body	Instant	1 to 3	1 sec.	Wither Limb	7
36	Debility	Regular/R-HT	Body	1 min.	1 per ST-/H	1 sec.	-	0
42	Decapitation*	Regular/R-HT+2	Body	Indef.	4	2 sec.	M2, Alter Body	11
77	Decay	Regular	Food	Perm.	1/meal	1 sec.	Test Food	1
67	Defending Shield	Enchantment	Enchantment	Perm.	Varies	-	Enchant, Grace	14
64	Defending Weapon	Enchantment	Enchantment	Perm.	Varies	-	Enchant, Dancing Object	12
67	Deflect	Enchantment	Enchantment	Perm.	Varies	–	Enchant	11
73	Deflect Energy	Blocking	Fire	Instant	1	1 sec.	M1, Shape Fire	2
143	Deflect Missile	Blocking	Movement/ Protection	Instant	1	1 sec.	Apportation	1
188	Dehydrate	Regular/R-HT	Water	Perm.	1 to 3	2 sec.	5 Water spells inc. Destroy Water	5
130	Delay	Regular	Meta-Spell	2 hrs.	3/3	10 sec.	M3, 15 spells	15
173	Delayed Message	Area	Sound	Indef.#	3#	4 sec.	M1, Voices, Sense Life	3
24	Destroy Air	Area	Air	Instant	2	1 sec.	Create Air	2
185	Destroy Water	Area	Water	Perm.	3/S	1 sec.	Create Water	3
101	Detect Magic	Regular	Knowledge	Instant	2	5 sec.	M1	0
166	Detect Poison	Area/Information	Protection/ Healing	Instant	2	2 sec.	Sense Danger or Test Food	1
25	Devitalize Air	Area	Air	varies	2	1 sec.	Destroy Air	3
120	Disintegrate*	Regular	Mk-Brk	Perm.	1 to 4	1 sec.	M2, Shatter, Ruin#	10
135	Disorient	Area/R-Will	Mind	Indef.#	1	10 sec.	Foolishness	1
99	Dispel Creation	Regular/R-spell	Illusion	Instant	1 or 3#	1 sec.	Control Creation	11
97	Dispel Illusion	Regular/R-spell	Illusion	Instant	1	1 sec.	Control Illusion	5
126	Dispel Magic	Area/R-spell	Meta-Spell	Perm.	3	sec.=cost	Counterspell and 12 other spells	13
49	Dispel Possession	Regular/R-spell	Comm.	Instant	10	10 sec.	Soul Rider or Possession#	5
124	Displace Spell	Regular/R-spell	Meta-Spell	Varies	Varies	5 sec.	Suspend Magic	10
144	Distant Blow	Regular	Movement	5 sec.	3/3	3 sec.	M2, Apportation	1
46	Distill	Regular	Food/Water	Perm.	1/quart	10 sec.	Mature, Destroy Water	7
84	Divert Teleport*	Blocking/R-spell	Gate/Movement	Instant	Varies	1 sec.	M3, Trace Teleport	6
108	Divination	Information	Knowledge	Instant	10	1 hr.#	History, other spells#	Varies
62	Doppelgänger*	Enchantment	Enchantment	Perm.#	1,000	-	M3, Golem, History, Enslave	29
130	Drain Magery*	Regular/R-Will+M	Meta-Spell	Perm.	30	10 min.	M3, Suspend Magery	21
127	Drain Mana*	Area	Meta-Spell	Perm.	10	1 hr.	Dispel Magic, Suspend Mana	14
180	Draw Power/TL*	Special	Tech	1 min.	0/1#	1 sec.	Steal Power, 2 spells each from 10 colleges	22
46	Dream Projection	Regular	Comm./Mind	1 min.	3/3	1 min.	Dream Sending	4
45	Dream Sending	Regular/R-Will	Comm./Mind	1 hr.	3	1 min.	Dream Viewing or Sleep	3
45	Dream Viewing	Regular/R-Will	Comm.	1 hr.	2/1	10 sec.	Truthsayer or Sleep	3

Page	Spell Name	Class	College	Duration	Energy	Time to cast	Prerequisites	Prerequisite Count
136	Drunkenness	Regular/R-Will	Mind	1 min.	Varies	2 sec.	Foolishness, Clumsiness	4
188	Dry Spring	Regular	Water	Perm.	varies#	1 min.	Destroy Water, Shape Earth	6
133	Dull Sense	Regular/R-HT	Mind	30 min.	1 to 3/H	1 sec.	-	0
134	Dullness*	Regular/R-HT	Mind	10 min.	2 to 10/H	1 sec.	Any two Dull spells	2
98	Duplicate*	Regular	Illusion	Indef.#	3/5 lbs.	sec.=cost	Create Object, Copy	15
116	Dye	Regular	Mk-Brk	2d days	Varies	3 sec.	Restore, Colors	4
25	Earth to Air	Regular	Air/Earth	Perm.	5/25 cu. ft.#	2 sec.	Create Air, Shape Earth	4
51	Earth to Stone	Regular	Earth	Perm.	3/25 cu. ft.#	1 sec.	M1, Shape Earth	2
52	Earth to Water	Regular	Earth/Water	Perm.	1/25 cu. ft.#	1 sec.	M1, Create Water, Shape Earth	5
51	Earth Vision	Regular	Earth/Know.	30 sec.	2/10 yds.#	1 sec.	Shape Earth	2
54	Earthquake	Area	Earth	1 min.	2/S	30 sec.	M2, 6 Earth spells inc. Earth Vision	6
107	Echoes of the Past	Regular	Knowledge/ Sound	1 min.	2/2#	10 sec.	M2, History, Voices	7
139	Ecstasy*	Regular/R-Will	Mind	10 sec.	6	3 sec.	M2, Emotion Control	4
71	Effigy*	Enchantment	Enchantment	Perm.	1,000	-	Enchant, Scryfool, Ward	13
137	Emotion Control	Area/R-Will	Mind	1 hr.	2	1 sec.	Loyalty or Mental Stun	3
56	Enchant*	Enchantment	Enchantment	Perm.	Varies	Varies	M2, 1 spell each from 10 colleges	10
135	Encrypt	Regular/R-Spec.	Mind	1 week	Varies	1 sec.	Daze	2
42	Enlarge*	Regular	Body	1 hr.	2/+1 SM/S	5 sec.	M2, Alter Body	11
120	Enlarge Object*	Regular	Mk-Brk	1 hour	Varies	3 sec.	Extend Object	17
43	Enlarge Other*	Regular/R-HT	Body	1 hr.	2/+1 SM/S	10 sec.	M3, Enlarge	12
141	Enslave*	Regular/R-Will	Mind	Perm.	30	1 sec.	Charm, Telepathy	14
60	Ensorcel*	Enchantment/ R-Spec.	Enchantment	Perm.#	200×spell cost	-	Malefice	12
139	Enthrall	Special/R-Will	Mind	1 hr.	3/3	1 sec.	Forgetfulness, Daze, Slow	6
53	Entombment	Regular/R-HT	Earth	Perm.	10#	3 sec.	M2, 5 Earth spells	5
157	Entrap Spirit	Special	Necro.	5 min.	Varies	1 sec.	M1, Soul Jar, Turn Spirit	11
192	Essential Acid*	Regular	Water	Perm.	8/gal.	1 sec.	6 Acid spells	13
26	Essential Air	Area	Air	Perm.	2	3 sec.	6 Air spells	6
53	Essential Earth	Regular	Earth	Perm.	8	30 sec.	6 Earth spells	6
75	Essential Flame	Area	Fire	1 min.	3/2#	3 sec.	6 Fire spells	6
79	Essential Food*	Regular	Food	Perm.	3/meal#	30 sec.	6 Food spells inc. Create Food	8
179	Essential Fuel/TL	Regular	Tech	Perm.	8/gal.	1 sec.	6 Energy spells	6
189	Essential Water	Regular	Water	Perm.	3/gal.	1 sec.	6 Water spells	6
164	Essential Wood	Regular	Plant	Perm.	8	30 sec.	6 Plant spells	6
146	Ethereal Body*	Regular	Movement	10 sec.	8/4	30 sec.	6 Movement spells or M3 and Body of Air	4
154	Evisceration*	Regular/R-HT or IQ	Necro.	Instant	10	5 sec.	M3, Apportation, Steal Vitality	6
49	Exchange Bodies*	Regular/R-Will	Comm.	Perm.	120	1 hr.	Permanent Possession, Soul Jar	17
118	Explode*	Regular	Mk-Brk	Instant	2 to 6	1 sec.	M2, Shatter, Apportation	8
75	Explosive Fireball	Missile	Fire	Instant	2 to 2×Magery#	1 to 3 sec.	Fireball	4
196	Explosive Lightning	Missile	Weather/Air	Instant	2 to 2×Magery#	1 to 3 sec.	Lightning	7
120	Extend Object*	Regular	Mk-Brk	1 hour	Varies	3 sec.	M3, Transform Object	16
72	Extinguish Fire	Regular	Fire	Perm.	3	1 sec.	Ignite Fire	1
181	Extinguish Radiation*	Regular	Tech	Perm.	1/10 rads/hr.	1 sec.	M2, Extinguish Fire, Earth to Air, Irradiate	7
122	False Aura	Regular/Area/R-IQ#	Meta-Spell	10 hrs.	4/H	10 sec.	Conceal Magic, Aura	3
139	False Memory	Regular/R-Will	Mind	Varies	Varies	5 sec.	Forgetfulness, 6 other Mind Control spells	7
163	False Tracks	Regular/R-Will	Plant	1 min.	2/1	1 sec.	Shape Plant, Shape Earth	5
100	Far-Feeling	Regular	Knowledge	1 min.	3/1	3 sec.	M1	0
173	Far-Hearing	Information	Sound/Know.	1 min.	4/2	3 sec.	M1, 4 Sound spells, no Deafness or Hard of Hearing	4
77	Far-Tasting	Regular	Food/Knowledge	1 min.	3/1	3 sec.	M1, no anosmia, Seek Food or Seek Air	1
135	Fascinate	Regular or Blocking/R-IQ	Mind	Indef.#	4	1 sec.	Daze	2
73	Fast Fire	Regular	Fire	1 min.	Varies	1 sec.	Slow Fire	3
118	Fasten	Regular/R-DX	Mk-Brk	Perm.	3#	1 sec.	Knot	11
139	Fear	Area/R-Will	Mind	10 min.	1	1 sec.	Sense Emotion or Empathy	0
89	Final Rest	Regular	Healing/Necro.	Perm.	20	10 min.#	M1 or Spirit Empathy	0
101	Find Direction	Information	Knowledge	Instant	2	1 sec.	M1	0
116	Find Weakness	Information	Mk-Brk	Instant	1#	2 sec.	1 spell of each four elements	4
75	Fire Cloud	Area	Fire	10 sec.	1 to 5/S	1 to 5 sec.	Shape Air, Fireball	7
74	Fireball	Missile	Fire	Instant	1 to Magery#	1 to 3 sec.	M1, Create Fire, Shape Fire	3
73	Fireproof	Area	Fire	1 day	3#	5 min.	Extinguish Fire	2

Page	Spell Name	Class	College	Duration	Energy	Time to cast	Prerequisites	Prerequisite Count
73	Flame Jet	Regular	Fire	1 sec.	1 to 3/S	1 sec.	Create Fire, Shape Fire	3
75	Flaming Armor	Regular	Fire	1 min.	6/3	1 sec.	M1, Resist Fire, Flame Jet	7
75	Flaming Missiles	Regular	Fire	1 min.	4/2#	3 sec.	Flaming Weapon	5
75	Flaming Weapon	Regular	Fire	1 min.	4/1	2 sec.	M2, Heat	4
112	Flash	Regular	Lt-Dk	Instant	4	2 sec.	Continual Light	2
190	Flesh to Ice*	Regular/R-HT	Water	Perm.	12	2 sec.	M1, Frostbite, Body of Water	8
31	Flesh to Stone	Regular/R-HT	Earth	Instant	10#	2 sec.	Earth to Stone	3
145	Flight*	Regular	Movement	1 min.	5/3	2 sec.	M2, Levitation	2
146	Flying Carpet*	Regular	Movement	10 min.	1/sq. ft./H	5 sec.	Flight, or M2 and Walk on Air	3
193	Fog	Area	Weather/Water	1 min.	2/H	1 sec.	Shape Water	4
79	Fool's Banquet	Regular	Food	1 day	2 per meal	1 sec.	M1, Cook, Foolishness	5
134	Foolishness	Regular/R-Will	Mind	1 min.	1 per IQ-/H	1 sec.	IQ 12+	0
170	Force Dome	Area	Protection	10 min.	3/2	1 sec.	Weather Dome, Apportation	10
170	Force Wall	Regular	Protection	10 min.	2/yd./S	1 sec.	Force Dome	11
162	Forest Warning	Area	Plant	10 hrs.	2#/S	1 sec.	4 Plant spells	4
135	Forgetfulness	Regular/ R-Will or skill	Mind	1 hr.	3/3	10 sec.	M1, Foolishness	1
66	Fortify	Enchantment	Enchantment	Perm.	Varies	–	Enchant	11
185	Foul Water	Area	Water/Food	Perm.	3	1 sec.	Purify Water, Decay	4
37	Frailty	Regular/R-HT	Body	1 min.	2 per HT-/S#	1 sec.	Lend Energy	1
148	Freedom	Regular	Movement/Protection	1 min.	2/pt/S	1 sec.	3 Body spells, 3 Movement spells, 3 Protection spells	9
185	Freeze	Regular	Water	Perm.	Varies	10 sec.	Shape Water	4
193	Frost	Area	Weather/Water	Indef.	1	1 sec.	Create Water or Cold	3
189	Frostbite	Regular/R-HT	Water	Perm.	1 to 3	3 sec.	Frost, Freeze	5
38	Fumble	Blocking/R-DX	Body	Instant	3	none	Clumsiness	3
172	Garble	Regular/R-Will	Sound	1 min.	4/2	1 sec.	Voices	2
43	Gauntness*	Regular/R-HT	Body	10 min.	6/6	3 sec.	M2, Earth to Air, Destroy Water, 4 Body spells inc. Hunger	15
190	Geyser*	Area	Water	1 sec.	5/2	5 sec.	6 Water spells inc. Create Spring and either 4 Earth or 4 Fire spells	9
65	Ghost Weapon	Enchantment	Enchantment	Perm.	250/lb.#	-	Enchant, Solidify	14
46	Gift of Letters*	Regular	Comm.	1 min.	Varies	1 sec.	Borrow Language, 3 languages at Accented	5
46	Gift of Tongues*	Regular	Comm.	1 min.	Varies	1 sec.	Borrow Language, 3 languages at Accented	5
103	Glass Wall	Regular	Knowledge	1 min.	4/2	1 sec.	5 Knowledge spells or Earth Vision	3
141	Glib Tongue	Regular/R-Will	Mind	5 min.	2/1	1 sec.	Suggestion	6
176	Glitch/TL	Regular/R-HT	Tech	Instant	3	1 sec.	Machine Control	12
112	Gloom	Area	Lt-Dk	Varies	Varies	Varies	Continual Light	2
112	Glow	Area	Lt-Dk	Varies	Varies	Varies	Continual Light	2
142	Glue	Area	Movement	10 min.	3/S	1 sec.	Haste	1
59	Golem*	Enchantment	Enchantment	Perm.	Varies	Varies	Enchant, Shape Earth, Animation#	14
37	Grace	Regular	Body	1 min.	4 per DX+/S	1 sec.	Clumsiness	3
63	Graceful Weapon	Enchantment	Enchantment	Perm.	150/lb.	-	Enchant, Apportation	11
142	Grease	Area	Movement	10 min.	3/S	1 sec.	Haste	1
141	Great Geas*	Regular/R-Will	Mind	Perm.	30	1 min.	M3, 15 Mind Control spells inc. Lesser Geas	15
141	Great Hallucination*	Regular/R-Will	Mind	1 min.	6/3	4 sec.	M2, Hallucination	8
146	Great Haste*	Regular	Movement	10 sec.	5#	3 sec.	M1, Haste, IQ 12+	1
91	Great Healing*	Regular	Healing	Perm.	20	1 min.	M3, Major Healing	4
34	Great Shapeshift*	Special	Animal	1 min.	20/H#	5 sec.	M3, Alter Body, 4 Shapeshifting, 10 other spells	15
173	Great Voice	Regular	Sound	1 min.	3/1	2 sec.	Voices, Thunderclap	3
122	Great Ward	Block/R-spell	Meta-Spell	Instant	1 per subject#	none	M2, Ward	1
62	Great Wish*	Enchantment	Enchantment	Special	2,000	–	M3, Wish, (DX + IQ):30+	18
195	Hail	Area	Weather/Water	1 min.	1/5/S#	1 sec.	Snow	7
39	Hair Growth	Regular/R-HT	Body	5 sec.	1/1	1 sec.	5 Body spells	5
39	Haircut	Regular/R-HT	Body	Instant	2	2 sec.	Weaken, 2 Body spells	8
140	Hallucination	Regular/R-Will	Mind	1 min.	4/2	3 sec.	Madness, Suggestion	7
94	Halt Aging*	Regular	Healing	1 month	20	1 sec.	M2, 8 Healing spells	8
128	Hang Spell*	Special	Meta-Spell	1 hr.	Varies	10 sec.	Delay	16
167	Hardiness	Blocking	Protection	Instant	1/DR+#	1 sec.	Block	1
142	Haste	Regular	Movement	1 min.	2/pt./H	2 sec.	-	0
146	Hawk Flight*	Regular	Movement	1 min.	8/4	3 sec.	Flight	3

Page	Spell Name	Class	College	Duration	Energy	Time to cast	Prerequisites	Prerequisite Count
111	Hawk Vision	Regular	Lt-Dk	1 min.	2/lvl./H#	2 sec.	Keen Vision or 5 Light spells; no Blindness or Bad Sight	1
161	Heal Plant	Area	Plant	Perm.	3	1 min.	Identify Plant	2
94	Healing Slumber	Regular/R-#	Healing	8 hrs.#	6 or 10	30 sec.	M2, Sleep, Minor Healing	6
74	Heat	Regular	Fire	1 min.	Varies	1 min.	Create Fire, Shape Fire	3
57	Hex	Enchantment	Enchantment	Perm.	200	–	Enchant	11
113	Hide	Regular	Lt-Dk	1 hr.	1 to 5/S	5 sec.	Blur or Forgetfulness	2
45	Hide Emotion	Regular	Comm.	1 hour	2/2	1 sec.	Sense Emotion	2
86	Hide Object	Regular	Gate	1 hr.	1/lb./S	10 sec.	Hideaway, Teleport	20
162	Hide Path	Regular	Plant	1 min.	2/1	1 sec.	Heal Plant	3
46	Hide Thoughts	Regular	Comm.	10 min.	3/1	1 sec.	Truthsayer or Hide Emotion	3
61	Hideaway	Enchantment	Enchantment	Perm.	50#	–	Enchant, Create Object, Lighten	15
36	Hinder	Regular	Body/Movement	1 min.	1 to 4/S	1 sec.	Haste or Clumsiness	1
106	History	Information	Knowledge	Instant	Varies	sec.=cost	Trace	4
39	Hold Breath	Regular	Body	1 min.	4/2	1 sec.	M1, Vigor	3
143	Hold Fast	Blocking	Movement	Instant	1/yd.#	1 sec.	Apportation	1
70	Homunculus	Enchantment	Enchantment	Perm.	800	-	Enchant, Mind-Sending	15
38	Hunger	Regular/R-HT	Body/Food	Instant	2	5 sec.	M1, Debility, Decay	3
172	Hush	Regular/R-Will	Sound	10 sec.#	2/1	2 sec.	Silence	2
30	Hybrid Control*	Regular/R-Will	Animal	1 min.	6/3	1 sec.	2 Control spells#	3
188	Ice Dagger	Missile	Water	Instant	1 to Magery#	1 to 3 sec.	Ice Sphere or Water Jet	5
186	Ice Slick	Area	Water	Perm.	3	Varies	Frost	4
186	Ice Sphere	Missile	Water	Instant	1 to Magery#	1 to 3 sec.	Shape Water	4
192	Icy Breath*	Regular	Water	1 sec.	1 to 4	2 sec.	M1, Snow Jet, Resist Cold	12
186	Icy Missiles	Regular	Water	1 min.	4/2	3 sec.	Icy Weapon	4
188	Icy Touch	Melee	Water	Perm.	2#	1 sec.#	M1, 4 Water spells	4
185	Icy Weapon	Regular	Water	1 min.	3/1	3 sec.	Create Water	3
182	Identify Metal	Information	Tech	Instant	1	1 sec.	Seek Earth	0
161	Identify Plant	Information	Plant	Instant	2	1 sec.	Seek Plant	1
182	Identify Plastic	Information	Tech	Instant	1	1 sec.	Seek Plastic	0
102	Identify Spell	Information	Knowledge	Instant	2	1 sec.	Detect Magic	1
72	Ignite Fire	Regular	Fire	1 sec.	1 to 4/S	1 sec.	none	0
96	Illusion Disguise	Regular	Illusion	Varies	3	1 sec.	Simple Illusion	1
96	Illusion Shell	Regular	Illusion	1 min.	1 or 2/H	1 sec.	Simple Illusion	1
107	Images of the Past	Regular	Knowledge/Lt-Dk	1 min.	3/3#	10 sec.	M2, History, Simple Illusion	6
172	Imitate Voice	Regular/R-HT	Sound	1 min.	3/1	1 sec.	Voices	2
60	Impression Blocker	Enchantment	Enchantment	Perm.	20/lb.	-	Enchant, Seeker, Scrywall	12
143	Increase Burden	Regular/R-Spec	Movement	10 min.	1/25 lbs.#	3 sec.	Apportation	1
96	Independence	Area	Illusion	Varies	2	Varies	Simple Illusion	1
111	Infravision	Regular	Lt-Dk	1 min.	3/1	1 sec.	Keen Vision or 5 Light spells	1
97	Initiative	Area	Illusion	Indef.#	Varies	10 sec.	Independence, Wisdom	9
97	Inscribe	Area/R-Will	Illusion/Mk-Brk	1 min.	2/S	1 sec.	Simple Illusion, Copy	7
48	Insignificance	Regular/R-Spec.	Comm.	1 hour	4/4	10 sec.	Persuasion, Avoid	8
115	Inspired Creation*	Regular	Mk-Brk	Perm.	5/day	Varies	-	0
92	Instant Neutralize Poison	Regular	Healing	Instant	8	1 sec.	M2, Neutralize Poison	2
93	Instant Regeneration*	Regular	Healing	Perm.	80	Special	M3, Regeneration	6
93	Instant Restoration*	Regular	Healing	Perm.	50	Special	M2, Restoration	5
114	Invisibility	Regular	Lt-Dk	1 min.	5/3	3 sec.	6 Light spells inc. Blur	6
174	Invisible Wizard Ear	Regular	Sound	1 min.	5/3	4 sec.	Wizard Ear, Invisibility	12
104	Invisible Wizard Eye	Regular	Knowledge	1 min.	5/3	4 sec.	Wizard Eye, Invisibility	8
169	Iron Arm	Blocking	Protection	Instant	1	1 sec.	Resist Pain, DX 11+	4
181	Irradiate	Area	Tech	1 hr.	1/10 rads/hr./h	1 sec.	2 Earth spells, 2 Fire spells	4
35	Itch	Regular/R-HT	Body	Scratch#	2	1 sec.	-	0
143	Jump	Regular	Movement	1 min.	1 to 3	1 sec.	Apportation	1
133	Keen Sense	Regular	Mind	30 min.	1 per +/H#	1 sec.	-	0
117	Knot	Regular	Mk-Brk	Indef.#	2	3 sec.	Stiffen	10
97	Know Illusion	Information	Illusion	Instant	2	1 sec.	Simple Illusion	1
103	Know Location	Information	Knowledge	Instant	2	10 sec.	M1, Tell Position	2
78	Know Recipe	Information/R-Spec.	Food/Knowledge	1 day#	3	15 sec.	Far-Tasting, Season	4
106	Know True Shape	Information	Knowledge	Instant	2	1 sec.	M1, any one shifting spell, either Aura or Know Illusion	9
61	Leak	Enchantment	Enchantment	Perm.	100	–	Hideaway	16
89	Lend Energy	Regular	Healing	Perm.	Varies	1 sec.	M1 or Empathy advantage	0
46	Lend Language	Regular	Comm.	1 min.	3/1	3 sec.	3 Communication spells, or Beast Speech	3

Page	Spell Name	Class	College	Duration	Energy	Time to cast	Prerequisites	Prerequisite Count
180	Lend Power/TL	Regular	Tech	Indef.	Varies	1 sec.	M2, Seek Power	1
47	Lend Skill	Regular	Comm.	1 min.	3/2	3 sec.	Mind-Sending, IQ 11+	5
126	Lend Spell	Regular	Meta-Spell	Perm.	Varies	3 sec.	M1, Lend Skill, 1 spell each from 6 colleges	11
89	Lend Vitality	Regular	Healing	1 hr.	1 per HP loaned	1 sec.	Lend Energy	1
41	Lengthen Limb	Regular	Body	1 min.	2/2	5 sec.	M3, Shapeshifting	7
140	Lesser Geas*	Regular/R-Will	Mind	Perm.	12	30 sec.	M2, 10 Mind Control spells	10
58	Lesser Wish*	Enchantment	Enchantment	Special	180	–	Enchant	11
143	Levitation	Regular/ R-ST or Will	Movement	1 min.	1 per 80 lbs./H#	2 sec.	Apportation	1
159	Lich*	Enchantment	Necro./Ench.	Perm.	Varies	Varies	M3, IQ 13+, Enchant, Soul Jar, Zombie	19
110	Light	Regular	Lt-Dk	1 min.	1/1	1 sec.	-	0
112	Light Jet	Regular	Lt-Dk	1 min.	2/1	1 sec.	Continual Light or Shape Light	2
145	Light Tread	Regular	Movement	10 min.	4/1#	1 sec.	Apportation, Shape Earth	3
67	Lighten	Enchantment	Enchantment	Perm.	Varies	–	Enchant	11
143	Lighten Burden	Regular	Movement	10 min.	3 or 5/H#	3 sec.	Apportation	1
196	Lightning	Missile	Weather/Air	Instant	1 to Magery#	1 to 3 sec.	M1, 6 Air spells	6
198	Lightning Armor	Regular	Weather/Air	1 min.	7/4	1 sec.	6 Lightning spells inc. Resist Lightning	12
198	Lightning Missiles	Regular	Weather/Air	1 min.	4/2#	3 sec.	Lightning Weapon	8
198	Lightning Stare*	Regular	Weather/Air	1 sec.	1 to 4	2 sec.	Lightning, Resist Lightning	8
198	Lightning Weapon	Regular	Weather/Air	1 min.	4/1	2 sec.	M2, Lightning	7
196	Lightning Whip	Regular	Weather/Air	10 sec.	1 per 2 yards#	2 sec.	Lightning	7
68	Limit	Enchantment	Enchantment	Perm.	200	–	Enchant	11
131	Link	Area	Meta-Spell	Indef.#	8	4 hrs.	Delay	16
144	Lockmaster	Regular/ R-Magelock	Movement	Perm.	3	10 sec.	Locksmith or Apportation and M2	1
143	Locksmith	Regular	Movement	1 min.	2/2	1 sec.	Apportation	1
143	Long March	Regular/R-ST	Movement	1 day's march	3	1 min.	M1, Clumsiness or Debility	1
63	Loyal Sword	Enchantment	Enchantment	Perm.	750/lb.#	–	Enchant, Apportation	11
136	Loyalty	Regular/R-Will	Mind	1 hr.	2/2#	2 sec.	Bravery, 2 other Mind Control spells	3
137	Lure	Area/R-Will	Mind	1 hr.	1/S	10 sec.	Emotion Control	4
176	Machine Control/TL	Regular	Tech	1 min.	6/3	1 sec.	Reveal Function, Locksmith, Lightning	11
178	Machine Possession/TL	Regular/R-Will	Tech	1 min.	6/2	30 sec.	Machine Control, Rider Within or Soul Rider	16
176	Machine Speech/TL	Regular	Tech/Comm.	1 min.	5/3	1 sec.	Machine Summoning	13
176	Machine Summoning/TL	Regular	Tech	1 min.	4/2	4 sec.	Machine Control	12
136	Madness	Regular/R-Will-2	Mind	1 min.	4/2	2 sec.	Forgetfulness or Drunkenness	2
113	Mage Light	Regular	Lt-Dk	1 min.	Varies	1 sec.	Mage Sight, Light	3
102	Mage Sense	Information	Knowledge	1 min.	3/2	1 sec.	Detect Magic	1
102	Mage Sight	Regular	Knowledge	1 min.	3/2	1 sec.	Detect Magic	1
172	Mage-Stealth	Regular	Sound	1 min.	3/2	3 sec.	Hush	3
166	Magelock	Regular	Protection	6 hrs.	3/2	4 sec.	M1	0
123	Magic Resistance	Regular/R-Will+M	Meta-Spell	1 min.	1 to 5/S#	3 sec.	M1, 1 spell each from 7 colleges	7
181	Magnetic Vision	Regular	Tech	1 min.	2/1	1 sec.	Keen Vision	1
128	Maintain Spell*	Special	Meta-Spell	Indef.#	Varies	2 sec.#	Link	17
91	Major Healing*	Regular	Healing	Perm.	1 to 4	1 sec.	M1, Minor Healing	3
60	Malefice*	Enchantment	Enchantment	Indef.#	250	-	Enchant, Seeker	11
177	Malfunction/TL	Melee/R-HT	Tech	1 min.	5	1 sec.	M2, Glitch	13
70	Manastone*	Enchantment	Enchantment	Indef.	5	-	Enchant	11
145	Manipulate	Regular	Movement	1 min.	4/3#	3 sec.	Locksmith	2
118	Mapmaker	Special	Mk-Brk	1 hr.	4/2	10 sec.	Inscribe, Measurement	9
137	Mass Daze	Area/R-HT	Mind	Instant	2/1#	sec.=cost	Daze, IQ 13+	2
137	Mass Sleep	Area/R-HT	Mind	Instant	3#	sec.=cost	Sleep, IQ 13+	3
141	Mass Suggestion	Area/R-Will	Mind	10 min.	4/2#	sec.=cost	Suggestion	6
153	Mass Zombie*	Area	Necro.	Perm.	7	varies#	Zombie, Charisma 2+	5
30	Master	Reg./Block./R-IQ	Animal	Indef.	2	1 sec.	Beast-Soother	1
150	Materialize	Special	Necro.	1 min.	5/5	1 sec.	Summon Spirit	2
78	Mature	Regular	Food	Perm.	1 per pound	10 sec.	Decay or Season	2
100	Measurement	Area/Inform.	Knowledge	Instant	1	1 sec.	-	0
186	Melt Ice	Area	Water	Perm.#	2#	10 sec.	Heat or Freeze	4
105	Memorize	Regular	Knowledge/Mind	1 day#	3	2 sec.	Wisdom or 6 Knowledge spells	6

Page	Spell Name	Class	College	Duration	Energy	Time to cast	Prerequisites	Prerequisite Count
135	Mental Stun	Regular/R-Will	Mind	Instant	2	1 sec.	Daze or Stun	2
174	Message	Regular/R-spell	Sound/Comm.	Varies	1/15 sec.	Varies	Great Voice, Seeker	7
183	Metal Vision	Regular	Tech/Knowledge	30 sec.	2/5 yds./S	1 sec.	Shape Metal	3
37	Might	Regular	Body	1 min.	2 per ST+/S	1 sec.	Lend Energy	1
46	Mind-Reading	Regular/R-Will	Comm.	1 min.	4/2	10 sec.	Truthsayer or Borrow Language	3
46	Mind-Search*	Regular/R-Will	Comm.	1 min.	6/3	1 min.	Mind-Reading	4
47	Mind-Sending	Regular	Comm.	1 min.	4/4	4 sec.	Mind-Reading	4
137	Mindlessness*	Regular/R-Will	Mind	1 min.	8/4	5 sec.	M2, Forgetfulness	2
91	Minor Healing	Regular	Healing	Perm.	1 to 3	1 sec.	Lend Vitality	2
112	Mirror	Regular	Lt-Dk	1 min.	2/2	1 sec.	Colors	2
168	Missile Shield	Regular	Protection	1 min.	5/2	1 sec.	Apportation or Shield	1
79	Monk's Banquet	Regular	Food	24 hrs.	6	1 sec.	Fool's Banquet, Resist Pain	10
55	Move Terrain*	Area/R-Spec.	Earth	1 hour	10/8	1 min.	Alter Terrain, Hide Object	29
52	Mud Jet	Regular	Earth/Water	1 sec.	1 to 3	1 sec.	Sand Jet, Create Water	8
174	Musical Scribe	Regular	Sound	1 min.	3/1#	1 sec.	Scribe	5
119	Mystic Mark	Regular/R-Spec	Mk-Brk	Indef.#	3	10 sec.	Dye, Trace	9
168	Mystic Mist	Area	Protection	10 hrs.	1/S	5 min.	M1 and Watchdog or Shield	1
68	Name	Enchantment	Enchantment	Perm.	200 or 400#	–	Enchant	11
38	Nauseate	Regular/R-HT	Body	10 sec.	2/S	1 sec.	2 Body spells inc. Perfume	5
92	Neutralize Poison	Regular	Healing	Perm.	5	30 sec.	Cure Disease or M3 and Test Food	1
111	Night Vision	Regular	Lt-Dk	1 min.	3/1	1 sec.	Keen Vision or 5 Light spells	1
137	Nightingale	Area	Protection	10 hrs.	2/2	1 sec.	Sense Danger	1
140	Nightmare	Regular/R-Will	Mind	1 hr.	6	1 min.	M2, Death Vision, Fear, Sleep	5
24	No-Smell	Regular	Air	1 hr.	2/2	1 sec.	Purify Air	1
173	Noise	Area	Sound	5 sec.	4/2	1 sec.	Wall of Silence	3
138	Oath	Regular/R-Spec	Mind	Perm.	4	1 min.	M1, Emotion Control	4
24	Odor	Area	Air	1 hr.	1	1 sec.	No-Smell	2
70	One-College Powerstone	Enchantment	Enchantment	Indef.	12	-	Enchant	11
36	Pain	Regular/R-HT	Body	1 sec.	2	2 sec.	Spasm	2
134	Panic	Area/R-Will	Mind	1 min.	4/2	1 sec.	Fear	1
40	Paralyze Limb	Melee/R-HT	Body	1 min.	3	1 sec.	M1, 5 Body spells inc. Clumsiness	5
52	Partial Petrifaction*	Regular/R-HT	Earth	Perm.	12	3 sec.	M2, Flesh to Stone	4
34	Partial Shapeshifting*	Regular/R-Will	Animal	1 hour	Varies	10 sec.	M3, Shapeshift Others, Alter Body	12
68	Password	Enchantment	Enchantment	Perm.	400#	–	Enchant	11
105	Pathfinder	Information	Knowledge	Instant	4	10 sec.	M1, IQ 12+, 2 Seek spells	2
138	Peaceful Sleep	Regular/R-Spec.	Mind	8 hrs.	4	30 sec.	Sleep, Silence	5
123	Penetrating Spell	Regular	Meta-Spell	Varies	Varies	3 sec.	Delay, Find Weakness	16
63	Penetrating Weapon	Enchantment	Enchantment	Perm.	Varies	-	Enchant, Find Weakness	11
124	Pentagram	Special	Meta-Spell	Perm.	1/sq. ft.#	1/sq. ft.#	Spell Shield	9
96	Perfect Illusion	Area	Illusion	1 min.	3/H#	1 sec.	M1, Complex Illusion	3
35	Perfume	Regular/R-HT	Body	10 min.	2/1	1 sec.	Odor	3
32	Permanent Beast Possession*	Regular/R-Will	Animal	Indef.	20	1 min.	M2, Beast Possession	7
138	Permanent Forgetfulness*	Regular/ R-Will or skill	Mind	Perm.	15	1 hr.	M2, Forgetfulness, IQ 13+	2
178	Permanent Machine Possession/TL	Regular/R-Will	Tech	Indef.#	30	5 min.	M3, Machine Possession	17
139	Permanent Madness*	Regular/R-Will-2	Mind	Perm.	20	10 min.	M2, Madness, IQ 13+	3
49	Permanent Possession*	Regular/R-Will	Comm.	Indef.	30	5 min.	M3, Possession	6
33	Permanent Shapeshifting*	Regular	Animal	Indef.	Varies	1 min.	M3, Shapeshifting	7
45	Persuasion	Regular/R-Will	Comm.	1 min.	2×bonus#	1 sec.	Sense Emotion	2
154	Pestilence	Regular	Necro.	Perm.	6	30 sec.	M1, Steal Vitality, Decay	7
97	Phantom*	Area	Illusion	1 min.	5/H#	1 sec.	M2, Perfect Illusion, Hinder, Apportation	7
73	Phantom Flame	Area	Fire/Illusion	1 min.	1/S	1 sec.	Shape Fire or Simple Illusion	1
83	Phase	Blocking	Gate	Instant	3	1 sec.	M3, Plane Shift or Ethereal Body	5
83	Phase Other*	Blocking	Gate	Instant	3	1 sec.	Phase	5
82	Planar Summons	Special	Gate	1 hr.	20#	5 min.	M1, 1 spell each from 10 colleges	10
82	Planar Visit*	Special	Gate	1 min.	4/2	30 sec.	M2, Projection or Planar Summons	7
83	Plane Shift*	Special	Gate	Instant	20	5 sec.	Planar Summons	11
83	Plane Shift Other*	Regular/R-Will+1	Gate	Instant	20	5 sec.	M3, Plane Shift	12
164	Plant Control	Regular/R-Will	Plant	1 min.	3/H	1 sec.	Plant Sense	6
164	Plant Form	Special	Plant	1 hr.	5/2	1 sec.	M1, 6 Plant spells	6

Page	Spell Name	Class	College	Duration	Energy	Time to cast	Prerequisites	Prerequisite Count
165	Plant Form Other	Special/R-Will	Plant	1 hr.	5/2	30 sec.	M2, Plant Form	7
162	Plant Growth	Area	Plant	1 min.	3/2	10 sec.	Heal Plant	3
163	Plant Sense	Regular/ R-Hide Path	Plant	1 min.	3/2	1 sec.	Forest Warning, Hide Path	5
164	Plant Speech	Regular	Plant	1 min.	3/2	1 sec.	M1, Plant Sense	6
162	Plant Vision	Regular	Plant/Knowledge	30 sec.	1/10 yds.	1 sec.	Shape Plant	3
183	Plastic Vision	Regular	Tech/Knowledge	30 sec.	2/5 yds./S	1 sec.	Shape Plastic	4
78	Poison Food	Regular	Food	Perm.	3 per meal	1 sec.	Purify Food, Decay	3
162	Pollen Cloud	Area/R-HT	Plant	5 min.#	1	1 sec.	Shape Plant	3
144	Poltergeist	Missile/R-HT	Movement	Instant	1 or 2#	1 sec.	Apportation	1
49	Possession*	Regular/R-Will	Comm.	1 min.	10/4	1 min.	M1, and Control Person or Beast Possession	5
57	Power	Enchantment	Enchantment	Perm.	Varies	–	Enchant, Recover Energy	12
69	Powerstone	Enchantment	Enchantment	Perm.	20	–	Enchant	11
51	Predict Earth Movement	Information	Earth	Instant	2 per day#	Varies	4 Earth spells	4
193	Predict Weather	Information	Weather/Air	Instant	Varies	5 sec.#	4 Air spells	4
106	Prehistory	Information	Knowledge	Instant	Varies	hr.=cost	Ancient History	6
78	Prepare Game	Regular	Food	Perm.	2	10 sec.	Purify Food	3
48	Presence	Regular/R-Spec.	Comm.	1 hour	4/4	10 sec.	Persuasion, Lure	8
79	Preserve Food	Regular	Food	1 week	Special	1 sec.	Decay	2
179	Preserve Fuel/TL	Regular	Tech	1 week	4/lb./H	1 sec.	Test Fuel	1
105	Projection	Regular	Knowledge	1 min.	4/2	3 sec.	Sense Spirit, 4 Knowledge spells	6
180	Propel/TL	Regular	Tech	10 min.	Varies	1 sec.	Create Fuel, Dancing Object	8
32	Protect Animal	Area	Animal/Protection	1 min.	1/S	1 min.	Armor, Watchdog, 3 Animal spells	7
65	Puissance	Enchantment	Enchantment	Perm.	Varies	–	Enchant, 5 Earth spells	15
146	Pull	Regular	Movement	1 min.	1/2 ST/S	5 sec.	M2, 4 Movement spells inc. Levitation	4
23	Purify Air	Area	Air	Instant	1	1 sec.	-	0
54	Purify Earth	Area	Earth/Plant	Perm.	2#	30 sec.	Create Earth, Plant Growth	8
78	Purify Food	Regular	Food	Perm.	1 per lb.	1 sec.	Decay	2
179	Purify Fuel/TL	Regular	Tech	Instant	1#	1 sec.	Purify Water or Decay	2
184	Purify Water	Special	Water	Perm.	1/gal.	5-10 sec./gal.#	Seek Water	1
65	Quick-Aim	Enchantment	Enchantment	Perm.	Varies	-	Enchant, Grace	14
63	Quick-Draw	Enchantment	Enchantment	Perm.	300/lb.#	–	Enchant, Apportation	11
144	Quick March	Regular	Movement	1 day's march	4#	1 min.	M1, Haste	1
182	Radiation Jet	Regular	Tech	1 sec.	1 to 3/S	1 sec.	Irradiate, Resist Radiation	8
181	Radio Hearing	Regular	Tech	1 min.	2/1	1 sec.	Keen Hearing	1
195	Rain	Area	Weather/Air/Water	1 hr.	1/10/S#	1 min.	Clouds	5
191	Rain of Acid	Area	Water	1 min.	3/3	1 sec.	M2, Create Water, Create Earth	7
74	Rain of Fire	Area	Fire	1 min.	1/S#	1 sec.	M2, Create Fire	2
192	Rain of Ice Daggers	Area	Water	1 min.	2/2#	1 sec.	M2, Hail, Ice Dagger	12
165	Rain of Nuts	Area	Plant	1 min.	1/10/S	1 sec.	M1, 6 Plant spells inc. Shape Plant	6
53	Rain of Stones	Area	Earth	1 min.	1/S#	1 sec.	M2, Create Earth	4
82	Rapid Journey*	Special	Gate/Movement	1 min.	Varies	5 sec.	M3, Teleport or Timeport	5
134	Rear Vision	Regular	Mind	1 min.	3/1	1 sec.	Alertness	3
177	Rebuild/TL	Regular	Tech/Mk-Brk	Perm.	Varies	Varies	M3, Repair, Create Object, 3 spells of each element#	22
106	Recall	Regular	Knowledge/Mind	1 day#	4	10 sec.	M2, Memorize, Wisdom	8
106	Reconstruct Spell	Information	Knowledge	Instant	3#	10 sec.	M2, History, Identify Spell	7
89	Recover Energy	Special	Healing	Special	none	Special	M1, Lend Energy	1
122	Reflect	Block/R-spell	Meta-Spell	Instant	4 or 6#	none	Ward	1
168	Reflect Gaze*	Blocking/R-Spec	Protection	Instant	2	1 sec.	Mirror	3
132	Reflex	Special	Meta-Spell	1 hr.	Varies	10 sec.	Delay, Ward	16
39	Reflexes	Regular	Body	1 min.	5/3	1 sec.	Grace, Haste	5
93	Regeneration*	Regular	Healing	Perm.	20	Special#	M2, Restoration	5
116	Rejoin	Regular	Mk-Brk	10 min.	1 per 10 lbs./H	4 sec./10 lbs.	Weaken, Restore	8
163	Rejuvenate Plant	Regular	Plant	Perm.	3	1 sec.	M1, Plant Growth	4
92	Relieve Addiction	Regular	Healing	1 day	6	10 sec.	Neutralize Poison	2
92	Relieve Madness	Regular/R-spell	Healing/Mind	10 min.	2	10 sec.	Lend Vitality, Wisdom	9
93	Relieve Paralysis	Regular	Healing	1 min.	Varies	10 sec.	Stop Paralysis	5
90	Relieve Sickness	Regular/R-spell	Healing	10 min.	2	10 sec.	Lend Vitality	2
107	Remember Path	Regular	Knowledge	1 hr.	3/1	10 sec.	Find Direction, Memorize	8
127	Remove Aura	Regular/R-Will#	Meta-Spell	Perm.	5	10 sec.	Dispel Magic, Aura	14
90	Remove Contagion	Area	Healing	Instant	3	2 sec.	Decay, Clean, or Cure Disease	2

Page	Spell Name	Class	College	Duration	Energy	Time to cast	Prerequisites	Prerequisite Count
126	Remove Curse	Regular/R-spell	Meta-Spell	Instant	20	1 hr.	M2, Suspend Curse or 1 spell each from 15 colleges	13
58	Remove Enchantment	Enchantment	Enchantment	Perm.	100#	varies	Enchant	11
113	Remove Reflection	Regular/R-Will	Lt-Dk	1 min.	2/1	1 sec.	Remove Shadow	2
110	Remove Shadow	Regular/R-Will	Lt-Dk	1 min.	2/1	1 sec.	Light	1
118	Repair	Regular	Mk-Brk	Perm.	2/5 lbs.#	1 sec./lb.	M2, Rejoin	9
147	Repel	Regular	Movement	1 min.	1/2 ST/S	5 sec.	M2, 4 Movement spells inc. Levitation	4
31	Repel Animal	Area/R-HT	Animal	1 hour	Varies	10 sec.	1 Control spell#	2
31	Repel Hybrids*	Area/R-HT	Animal	1 hour	6/3	10 sec.	Hybrid Control	4
158	Repel Spirits	Area/R-Will	Necro.	1 hr.	4/H	10 sec.	Banish, Turn Spirit	14
117	Reshape	Regular	Mk-Brk	1 min.	6/3	10 sec.	M1, Weaken, Shape Earth or Shape Plant	8
190	Resist Acid	Regular	Water/Protection	1 min.	2/H#	1 sec.	Create Acid	8
74	Resist Cold	Regular	Fire	1 min.	2/1	1 sec.	Heat	4
90	Resist Disease	Regular	Healing/ Protection	1 hour	4/3	10 sec.	Remove Contagion or Vigor	3
58	Resist Enchantment	Enchantment	Enchantment	Perm.	Varies	-	any Limiting Enchantment	12
74	Resist Fire	Regular	Fire	1 min.	2/1#	1 sec.	Fireproof	3
196	Resist Lightning	Regular	Weather/ Air/Protection	1 min.	2/1	1 sec.	6 Air spells	6
38	Resist Pain	Regular	Body	1 min.	4/2	1 sec.	M2, Pain	3
91	Resist Poison	Regular	Healing/ Protection	1 hr.	4/3	10 sec.	Vigor	3
169	Resist Pressure	Regular	Protection	1 min.	Varies	1 sec.	Weather Dome	9
182	Resist Radiation	Regular	Tech/Protection	1 min.	Varies#	1 sec.	3 Radiation spells	7
173	Resist Sound	Regular	Sound/ Protection	1 min.	2/1	1 sec.	4 Sound spells	4
186	Resist Water	Regular	Water/Protection	1 min.	2/1	1 sec.	Umbrella, or Shape Water and Destroy Water	2
93	Restoration*	Regular	Healing	Perm.	15	1 min.#	Major Healing, or any 2 of Relieve Paralysis and the Restore spells	4
116	Restore	Regular	Mk-Brk	10 min.	2/1	3 sec.	Find Weakness or Simple Illusion	1
92	Restore Hearing	Regular	Healing	1 hr.	Varies	5 sec.	Minor Healing, Keen Hearing or Strike Deaf	4
127	Restore Mana*	Area	Meta-Spell	Perm.	10	1 hr.	Dispel Magic, Suspend Mana	14
92	Restore Memory	Regular	Healing	Perm.	3	10 sec.	Awaken, IQ 11+	3
92	Restore Sight	Regular	Healing	1 hr.	Varies	5 sec.	Minor Healing, Keen Vision or Strike Blind	4
93	Restore Speech	Regular	Healing	1 hr.	5/3	5 sec.	Minor Healing, Great Voice or Strike Dumb	6
94	Resurrection*	Regular	Heal./Necro.	Perm.	300	2 hrs.	Instant Regeneration, Summon Spirit	9
38	Retch	Regular/R-HT	Body	Instant	3	4 sec.	Nauseate, Spasm	7
47	Retrogression	Regular/R-Will	Comm.	1 sec.	5	10 sec.	Mind-Search, Mind-Sending	6
168	Return Missile	Blocking	Protection	Instant	2	1 sec.	Catch Missile	3
176	Reveal Function/TL	Information/R-spell	Tech	Instant	8	10 min.	Seek Machine	1
168	Reverse Missiles	Regular	Protection	1 min.	7/3	1 sec.	Missile Shield or Force Dome	2
31	Rider	Regular	Animal	5 min.	2/1	1 sec.	1 Control spell#	2
31	Rider Within	Regular	Animal	1 min.	4/1	3 sec.	2 Control spells#	3
117	Rive*	Regular	Mk-Brk	Instant	1 per die	1 sec.	M2, Shatter	7
36	Rooted Feet	Regular/R-ST	Body	1 min.#	3	1 sec.	Hinder	2
154	Rotting Death*	Regular/R-HT	Necro.	1 sec.	3/2	3 sec.	M2, Sickness, Pestilence	9
36	Roundabout	Regular/R-HT	Body	Instant	3	1 sec.	Tanglefoot	4
118	Ruin	Regular	Mk-Brk	1 min.#	2 per lb./S	5 sec./lb.	M1, Weaken, Decay	8
86	Sanctuary*	Special	Gate	1 hr.	5/S	10 sec.	Hide Object	21
52	Sand Jet	Regular	Earth	1 sec.	1 to 3/S	1 sec.	Create Earth	4
27	Sandstorm	Area	Air/Earth	1 minute#	3/H	Instant#	Windstorm, Create Earth	8
107	Scents of the Past	Regular	Knowledge/Food	1 min.	1/1#	10 sec.	M2, History, Odor	8
177	Schematic/TL	Information	Tech/Knowledge	1 min.	5/H#	5 sec.	Reveal Function, History	7
174	Scribe	Regular	Sound	1 min.	3/1	1 sec.	Voices, Dancing Object, 1 Accented language	4
57	Scroll	Enchantment	Enchantment	Varies	Special	days=cost	M1, 1 Accented language	0
85	Scry Gate	Regular	Gate	1 min.	4/4	10 sec.	Seek Gate	11

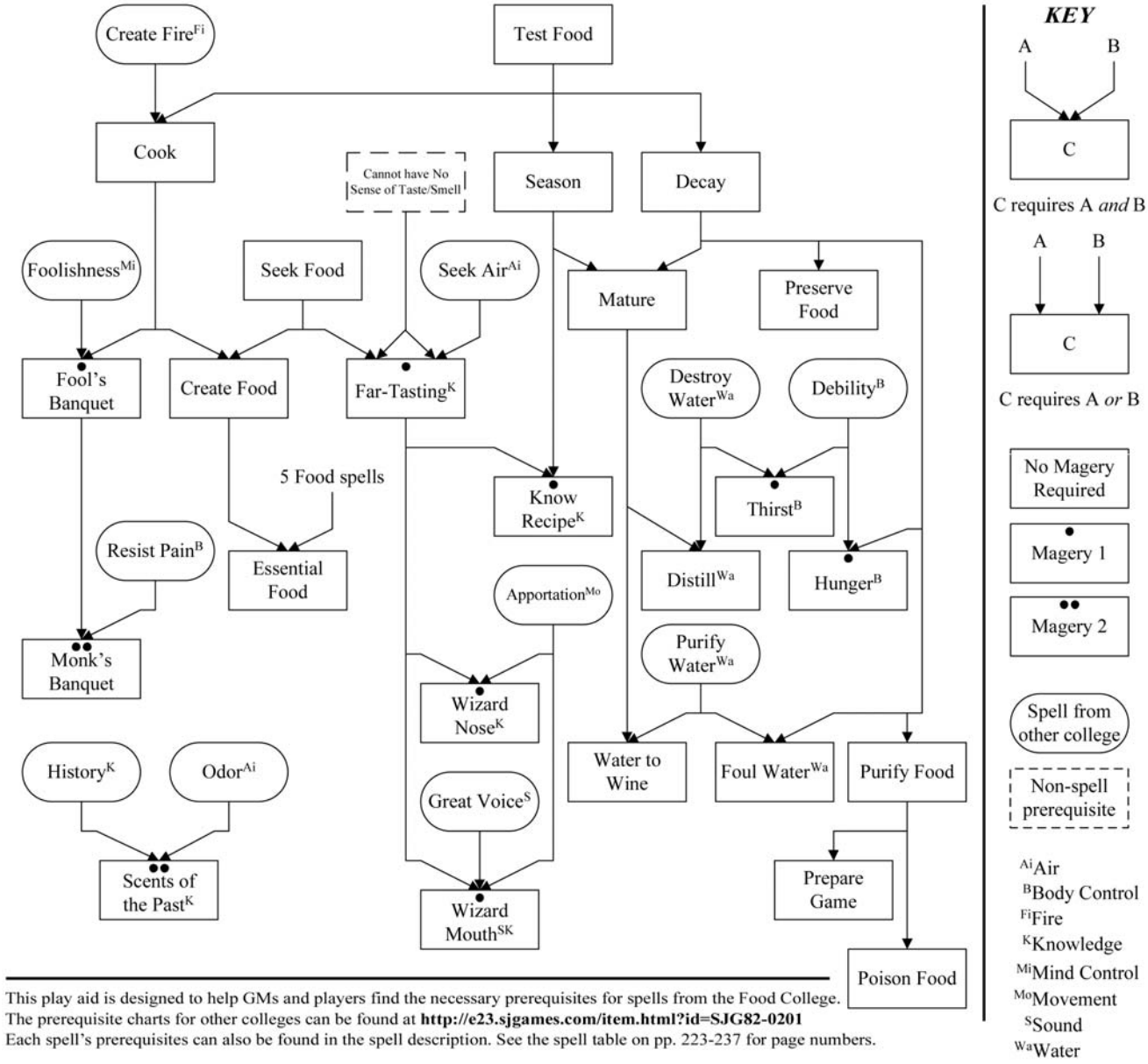
Page	Spell Name	Class	College	Duration	Energy	Time to cast	Prerequisites	Prerequisite Count
123	Scryfool	Regular/R-Spec	Meta-Spell	10 hrs.	4/2	10 sec.	M2, Sense Observation, Simple Illusion	3
121	Scryguard	Regular	Meta-Spell	10 hrs.	3/1	5 sec.	M1	0
122	Scrywall	Area	Meta-Spell	10 hrs.	3/2	sec.=cost	Scryguard	1
77	Season	Regular	Food	Perm.	2/meal	10 sec.	Test Food	1
113	See Invisible	Regular	Lt-Dk	1 min.	4/2	1 sec.	Invisibility, or Dark Vision and Infravision	3
181	See Radiation	Regular	Tech	1 min.	3/2	1 sec.	-	0
107	See Secrets	Regular	Knowledge	1 min.	5/2	5 sec.	Seeker, Aura	4
23	Seek Air	Information	Air	Instant	1	1 sec.	-	0
184	Seek Coastline	Information	Water	Instant	3	10 sec.	Seek Water	1
50	Seek Earth	Information	Earth	Instant	3	10 sec.	-	0
72	Seek Fire	Information	Fire	Instant	1	1 sec.	-	0
77	Seek Food	Information	Food	Instant	2	1 sec.	-	0
179	Seek Fuel/TL	Information	Tech	Instant	3	10 sec.	-	0
85	Seek Gate	Information	Gate	Instant	3	10 sec.	M2, Seek Magic, 1 spell each from 10 colleges	10
175	Seek Machine/TL	Information	Tech	Instant	3	10 sec.	-	0
102	Seek Magic	Information	Knowledge/ Meta-Spell	Instant	6	10 sec.	Detect Magic	1
51	Seek Pass	Information	Earth	Instant	3	10 sec.	Seek Earth	1
161	Seek Plant	Information	Plant	Instant	2	1 sec.	-	0
182	Seek Plastic	Information	Tech	Instant	3	10 sec.	-	0
179	Seek Power/TL	Information	Tech	Instant	3	10 sec.	-	0
181	Seek Radiation	Regular	Tech	Instant	3	10 sec.	See Radiation	1
184	Seek Water	Information	Water	Instant	2	1 sec.	-	0
105	Seeker	Information	Knowledge	Instant	3	1 sec.	M1, IQ 12+, 2 Seek spells	2
166	Sense Danger	Information	Protection	Instant	3	1 sec.	Sense Foes or Danger Sense	0
45	Sense Emotion	Regular	Comm.	Instant	2	1 sec.	Sense Foes	1
44	Sense Foes	Inform./Area	Comm.	Instant	2#	1 sec.	-	0
45	Sense Life	Inform./Area	Comm.	Instant	1#	1 sec.	-	0
101	Sense Mana	Information	Knowledge	Instant	3	5 sec.	Detect Magic	1
167	Sense Observation	Area	Protection	1 hr.	1/H#	5 sec.	Sense Danger or Scryguard	1
149	Sense Spirit	Inform./Area	Necro.	Instant	1#	1 sec.	Death Vision, or Sense Life and M1	1
39	Sensitize	Regular/R-HT	Body	1 min.	3/2	1 sec.	M1, Stun	4
169	Shade	Regular	Protection	1 hr.	1/H	10 sec.	Continual Light or Shield	1
24	Shape Air	Regular	Air	1 min.	1 to 10#	1 sec.	Create Air	2
113	Shape Darkness	Area	Lt-Dk	1 min.	2/S#	1 sec.	Darkness	3
50	Shape Earth	Regular	Earth	1 min.	1/25 cu. ft./h	1 sec.	Seek Earth	1
72	Shape Fire	Area	Fire	1 min.	2/H	1 sec.	Ignite Fire	1
111	Shape Light	Regular	Lt-Dk	1 min.	2/2	1 sec.	Light	1
182	Shape Metal	Regular	Tech	1 min.	6/H#	1 sec.	M1, Shape Earth or 6 Tech spells	2
161	Shape Plant	Regular	Plant	1 min.	3/1#	10 sec.	Identify Plant	2
183	Shape Plastic	Regular	Tech	1 min.	6/3	1 sec.	M1, Shape Plant or 6 Tech spells	3
185	Shape Water	Regular	Water	1 min.	1/1#	2 sec.	Create Water	3
33	Shapeshift Others*	Special/R-Will	Animal	1 hour	Varies	30 sec.	M2, Shapeshifting for that form	7
32	Shapeshifting*	Special	Animal	1 hour	Varies	3 sec.	M1, 6 other spells	6
89	Share Energy	Regular	Healing	Special	Varies	1 sec.	Lend Energy	1
90	Share Vitality	Regular	Healing	Perm.	0#	1 sec./HP	Lend Vitality	2
118	Sharpen	Regular	Mk-Brk	1 min.	Varies	4 sec.	Repair	10
116	Shatter*	Regular	Mk-Brk	Instant	1 to 3	1 sec.	M1, Weaken	6
118	Shatterproof	Regular	Mk-Brk	1 hr.	3/3	1 sec.	Repair, Shatter	10
167	Shield	Regular	Protection	1 min.	Varies	1 sec.	M2	0
196	Shocking Touch	Melee	Weather/Air	Instant	1 to 3	1 sec.	Lightning	7
42	Shrink*	Regular	Body	1 hr.	2/-1 SM/S	5 sec.	M2, Alter Body	11
120	Shrink Object*	Regular	Mk-Brk	1 hour	Varies	3 sec.	Contract Object	15
42	Shrink Other*	Regular/R-HT	Body	1 hr.	2/-1 SM/S	10 sec.	M3, Shrink	12
138	Sickness	Regular/R-HT	Mind/Body	1 min.	3/3	4 sec.	Drunkenness or Pestilence	5
171	Silence	Area	Sound	1 min.	2/1	1 sec.	Sound	1
174	Silver Tongue	Regular	Sound	1 min.	3/2	1 sec.	Voices, Emotion Control	6
95	Simple Illusion	Area	Illusion	1 min.	1/H	1 sec.	not blind, IQ 11+	0
61	Simulacrum*	Enchantment	Enchantment	Perm.#	2×golem	-	M3, Golem, Perfect Illusion, Illusion Disguise	18
151	Skull-Spirit	Regular	Necro.	24 hrs.	20	1 sec.	4 other Necromantic spells	4
135	Sleep	Regular/R-HT	Mind	Instant	4	3 sec.	Daze	2
145	Slide	Regular/R-Will	Movement	1 min.	2/2	1 sec.	Apportation, Grease	3

Page	Spell Name	Class	College	Duration	Energy	Time to cast	Prerequisites	Prerequisite Count
145	Slow	Regular/R-HT	Movement	10 sec.	5/4	3 sec.	M1, Haste, Hinder	2
144	Slow Fall	Regular	Movement	1 min.	1 per 50 lbs./H	1 sec.	Apportation	1
73	Slow Fire	Regular	Fire	1 min.	Varies	1 sec.	Extinguish Fire	2
153	Slow Healing	Regular/R-HT	Necro.	1 day	1 to 5/S	10 sec.	M1, Frailty, Steal Vitality	6
86	Slow Time*	Area/R-Spec.	Gate	1 min.	Varies	2 sec.	M2, IQ 13+, 2 spells each from 10 colleges	20
111	Small Vision	Regular	Lt-Dk/ Knowledge	1 min.	4/2#	2 sec.	Keen Vision or 5 Light spells; no Blindness or Bad Sight	1
73	Smoke	Area	Fire	5 min.#	1/H	1 sec.	Shape Fire, Extinguish Fire	3
195	Snow	Area	Weather/Air/Water	1 hr.	1/15#	1 sec.	Clouds, Frost	6
189	Snow Jet	Regular	Water	1 sec.	1 to 3	1 sec.	Water Jet, Freeze	6
186	Snow Shoes	Regular	Water	1 min.	2/1	2 sec.	Shape Water	4
116	Soilproof	Regular	Mk-Brk	10 min.	2/1	2 sec.	Clean	3
151	Solidify	Special	Necro.	1 min.	50/10	1 sec.	Materialize	3
154	Soul Jar*	Regular	Necro.	Perm.	8	1 min.	M1, 6 Necro. spells inc. Steal Vitality	9
49	Soul Rider	Regular/R-Will	Comm.	1 min.	5/2	3 sec.	Mind-Reading	4
71	Soul Stone*	Enchantment	Enchantment	Perm.	500	-	M3, Enchant, Soul Jar	19
171	Sound	Regular	Sound	Varies	Varies	1 sec.	-	0
173	Sound Jet	Regular	Sound	1 sec.	1 to 4/S	1 sec.	Great Voice	4
171	Sound Vision	Regular	Sound	1 min.	5/2	1 sec.	Keen Hearing or Acute Hearing	0
196	Spark Cloud	Area	Weather/Air	10 sec.	1 to 5/S	1 to 5 sec.	Shape Air, Lightning	7
197	Spark Storm	Area	Weather/Air	1 min.#	2, 4, or 6/H	Instant#	Windstorm, Lightning	7
35	Spasm	Regular/R-HT	Body	Instant	2	1 sec.	Itch	1
181	Spectrum Vision*	Regular	Tech	1 min.	4/4	1 sec.	Infravision	2
57	Speed	Enchantment	Enchantment	Perm.	Varies	–	Enchant, Haste	11
66	Speed Spell Arrow	Enchantment	Enchantment	Perm.	Varies	-	Speed, Spell Arrow	18
65	Spell Arrow	Enchantment	Enchantment	Perm.	30×spell cost	-	Spell Stone	17
124	Spell Shield	Area	Meta-Spell	1 min.	3/2	1 sec.	M2, Scryguard, Magic Resistance	8
60	Spell Stone	Enchantment	Enchantment	Varies	20×spell cost	–	Enchant, Delay	16
124	Spell Wall	Regular/R-spell	Meta-Spell	1 min.	2/2#	1 sec.	Spell Shield	9
127	Spellguard*	Regular/R-Spec	Meta-Spell	10 hrs.	1 to 3/S#	Varies	Dispel Magic	14
32	Spider Silk	Missile	Animal	1 min.	1/5 yds.#	1 sec.	M1, 2 Animal spells	2
192	Spit Acid*	Regular	Water	1 sec.	1 to 4	2 sec.	M3, Acid Jet, Resist Acid	12
70	Staff	Enchantment	Enchantment	Perm.	30	–	Enchant	11
158	Steal Attribute*	Regular/R-Spec	Necro.	1 day	Varies	1 min.	Varies	Varies
159	Steal Beauty*	Regular	Necro.	24 hrs.	Varies	30 sec.	M3, Alter Visage, Steal Vitality	15
150	Steal Energy	Regular	Necro.	Perm.	none#	1 min/3 FP-#	Minor Healing	3
180	Steal Power/TL*	Regular	Tech	1 min.	0#	1 sec.	M2, Minor Healing, Conduct Power	5
158	Steal Skill*	Regular/R-Will	Necro.	24 hrs.	Varies	1 min.	M3, Borrow Skill, Daze	9
127	Steal Spell*	Regular/R-spec	Meta-Spell	Perm.	Varies	5 sec.	Lend Spell, Great Ward	13
150	Steal Vitality	Regular	Necro.	Perm.	none#	1 min./3 HP-#	Steal Energy	4
158	Steal Youth*	Regular/R-HT	Necro.	Perm.	10 to 30	1 hr.	Youth, Age, Steal Vitality	13
191	Steam Jet	Regular	Water	1 sec.	1 to 3	1 sec.	Water Jet, Boil Water	10
54	Steelwraith	Regular/R-HT	Earth	1 min.	7/4	2 sec.	M2, Walk Through Earth	5
24	Stench	Area	Air	5 min.	1	1 sec.	Purify Air	1
117	Stiffen	Regular/R-Spec.	Mk-Brk	10 min.	1 per lb./H#	2 sec./lb.	Rejoin	9
52	Stone Missile	Missile	Earth	Instant	1 to Magery	1 to 3 sec.	Create Earth	4
51	Stone to Earth	Regular	Earth	Perm.	6/25 cu. ft.	1 sec.	Earth to Stone or any 4 Earth spells	3
53	Stone to Flesh	Regular	Earth	Instant	10	5 sec.	M2, Stone to Earth, Flesh to Stone	5
91	Stop Bleeding	Regular	Healing	Perm.	1 or 10	1 sec.	Lend Vitality	2
153	Stop Healing	Regular	Necro.	Indef.#	10	10 sec.	Slow Healing	7
93	Stop Paralysis	Regular	Healing	Perm.	1 or 2	1 sec.	Major Healing, or Minor Healing and Paralyze Limb	4
179	Stop Power	Area	Tech	1 min.	3/H	3 sec.	M1, Seek Power	1
35	Stop Spasm	Regular	Body/Healing	Instant	1	1 sec.	Spasm or Lend Vitality	2
195	Storm	Area	Weather/1 hour Air/Water	1/50/S	1 min.	Rain, Hail	10	
136	Strengthen Will	Regular	Mind	1 min.	1/pt/H	1 sec.	M1, 6 Mind spells	6
41	Strike Barren	Regular/R-HT	Body/Necro.	Perm.	5	30 sec.	M1, Steal Vitality, Decay	7
38	Strike Blind	Regular/R-HT	Body	10 sec.	4/2	1 sec.	2 Light spells, Spasm	4
38	Strike Deaf	Regular/R-HT	Body	10 sec.	3/1	1 sec.	2 Sound spells, Spasm	4
38	Strike Dumb	Regular/R-HT	Body	10 sec.	3/1	1 sec.	Spasm	2
40	Strike Numb	Regular/R-HT	Body	10 sec.	3/1	1 sec.	Resist Pain	4

Page	Spell Name	Class	College	Duration	Energy	Time to cast	Prerequisites	Prerequisite Count
37	Stun	Regular/R-HT	Body	Instant	2	1 sec.	Pain	3
140	Suggestion	Regular/R-Will	Mind	10 min.	4/3	10 sec.	Emotion Control, Forgetfulness	5
155	Summon Demon	Special	Necro.	1 hr.#	20#	5 min.	M1, 1 spell each from 10 colleges	10
27	Summon Elemental	Special	4 Diff.	1 hr.	4#	30 sec.	M1, #	8
102	Summon Shade*	Inform./R-Will	Knowledge	1 min.	50/20	10 min.	Summon Spirit or Divination	2
150	Summon Spirit	Inform./R-Will	Necro.	1 min.	20/10#	5 min.	Death Vision, M2	1
114	Sunbolt	Missile	Lt-Dk	Instant	1 to Magery#	1 to 3 sec.	6 Light spells inc. Sunlight	6
114	Sunlight	Area	Lt-Dk	1 min.	2/1	1 sec.	M1, Glow, Colors	4
125	Suspend Curse	Regular/R-spell	Meta-Spell	10 min.	10/10	1 min.	M1, 1 spell each from 12 colleges	12
58	Suspend Enchantment	Enchantment	Enchantment	1 hr.	25#	1 sec.	Enchant	11
130	Suspend Magery*	Regular/R-Will+M	Meta-Spell	1 hr.	12/12#	10 sec.	M2, 2 spells each from 10 colleges#	20
123	Suspend Magic	Area/R-spell	Meta-Spell	1 min.	3/2	sec.=cost	Suspend Spell, 8 other spells	9
125	Suspend Mana*	Area	Meta-Spell	Varies	5	10 min.	Suspend Magic, 1 spell each from 10 colleges	11
121	Suspend Spell	Regular/R-spell	Meta-Spell	1 min.	Varies	1 sec.	M1	0
86	Suspend Time*	Area/R-Spec.	Gate	1 day	5/5	5 min.	M3, Slow Time	21
94	Suspended Animation	Regular/R-HT	Healing	Indef.#	6	30 sec.	Sleep, 4 Healing spells	7
147	Swim	Regular	Water/Move	1 min.	6/3	3 sec.	Shape Water, Levitation	6
58	Talisman	Enchantment	Enchantment	Perm.	Varies	–	Enchant, spell to be opposed	Varies
162	Tangle Growth	Area	Plant	1 min.	1 or 2#/H	2 sec.	Plant Growth	4
36	Tanglefoot	Regular/R-DX	Body	Instant	2	1 sec.	Clumsiness	3
128	Telecast*	Special	Meta-Spell	1 min.	Varies	1 min.	M3, Teleport, Wizard Eye, 1 spell each from 10 colleges	14
47	Telepathy*	Regular	Comm.	1 min.	4/4#	4 sec.	Mind-Sending	5
147	Teleport*	Special	Movement/Gate	Instant	Varies	1 sec.	Hawk Flight or IQ 13+ and 1 spell each from 10 colleges	4
147	Teleport Other*	Regular/R-Will+1	Movement/Gate	Instant	Varies	1 sec.	M3, Teleport	5
170	Teleport Shield	Area	Protection/Gate	1 hr.	1/S#	10 sec.	Watchdog, either Spell Shield or Teleport	7
101	Tell Position	Information	Knowledge	Instant	1	1 sec.	Measurement	1
100	Tell Time	Information	Knowledge	Instant	1	1 sec.	-	0
56	Temporary Enchantment	Enchantment	Enchantment	Indef.#	Varies	-	Enchant	11
134	Terror	Area/R-Will	Mind	Instant	4	1 sec.	Fear	1
77	Test Food	Information	Food	Instant	1 to 3#	1 sec.	-	0
179	Test Fuel/TL	Information	Tech	Instant	Varies	1 sec.	-	0
101	Test Load	Area/Inform.	Knowledge	Instant	2#	1 sec.	Measurement	1
38	Thirst	Regular/R-HT	Body/Food	Instant	5	10 sec.	M1, Debility, Destroy Water	5
128	Throw Spell*	Missile/Special	Meta-Spell	Indef.#	3	1 sec.	Delay, Catch Spell	16
171	Thunderclap	Regular	Sound	Instant	2	1 sec.	Sound	1
36	Tickle	Regular/R-Will	Body	1 min.	5/5	1 sec.	Spasm	2
194	Tide	Special; Area	Weather/Water	1 hr.	1/30	1 min.	8 Water spells	8
87	Time Out*	Area	Gate	Instant#	5	5 min.	M3, Accelerate Time	21
81	Timeport*	Special	Gate	Instant	Varies	1 sec.	M3, Teleport	5
81	Timeport Other*	Regular/R-Will+1	Gate	Instant	Varies	1 sec.	Timeport	6
81	Timeslip	Blocking	Gate	Instant	1/sec.#	1 sec.	Timeport	6
81	Timeslip Other*	Blocking	Gate	Instant	1/sec.#	1 sec.	Timeslip	7
40	Total Paralysis	Melee/R-HT	Body	1 min.	5	1 sec.	Paralyze Limb	6
35	Touch	Regular	Body	Instant	1	1 sec.	-	0
119	Toughen	Regular	Mk-Brk	1 hr.	Varies	5 sec.	Shatterproof	11
106	Trace	Regular	Knowledge	1 hr.	3/1	1 min.	Seeker	3
84	Trace Teleport	Information/ R-spell	Gate/Movement	Instant	3	1 sec.	Teleport, Timeport, or Plane Shift	5
43	Transform Body	Special	Body	1 hr.	Varies	1 min.	3 forms of Shapeshifting, Alter Body	13
120	Transform Object*	Regular/R-Spec	Mk-Brk	1 hour	Varies	Varies	M2, Reshape, 4 Create spells	13
43	Transform Other	Special/R-Will	Body	1 hr.	Varies	2 min.	Shapeshift Others, Transform Body#	15

Page	Spell Name	Class	College	Duration	Energy	Time to cast	Prerequisites	Prerequisite Count
43	Transmogrification	Regular/R-Will	Body	1 hr.	20/20	2 min.	M3, Transform Other, Transform Object, Flesh to Stone	30
119	Transparency	Regular	Mk-Brk	1 min.	4/2	10 sec.	Dye, Stone to Earth	9
45	Truthsayer	Inform./R-Will	Comm.	Instant	2	1 sec.	Sense Emotion	2
167	Turn Blade	Blocking/R-DX	Protection	Instant	1	1 sec.	Apportation or Spasm	1
151	Turn Spirit	Regular/R-Will	Necro.	10 sec.	4/2#	1 sec.	Fear, Sense Spirit	3
152	Turn Zombie	Area	Necro.	1 day	2	4 sec.	Zombie#	5
185	Umbrella	Regular	Water	10 min.	1/1	2 sec.	Shape Water or Shield	1
145	Undo	Regular/R-Spec.	Movement	Instant	3 or 6#	1 sec.	Locksmith	2
170	Utter Dome	Area	Protection	1 min.	6/4	1 sec.	M2, Force Dome, Spell Shield	14
170	Utter Wall	Regular	Protection	1 min.	4/yd./S	1 sec.	Utter Dome, Spell Wall	16
45	Vexation	Regular/R-Will	Comm.	1 min.	2×penalty#	1 sec.	Sense Emotion	2
138	Vigil*	Regular	Mind	1 night	8	1 sec.	M2, Sleep, Lend Energy	4
37	Vigor	Regular	Body	1 min.	2 per HT+/S#	1 sec.	Lend Vitality or Frailty	2
172	Voices	Regular	Sound	1 min.	3/2	1 sec.	Sound	1
54	Volcano	Regular	Earth	1 day	15/10	1 hr.#	Earthquake, 6 Fire spells	13
25	Walk on Air	Regular	Air	1 min.	3/2	1 sec.	Shape Air	3
186	Walk on Water	Regular	Water	1 min.	3/2	4 sec.	Shape Water	4
52	Walk Through Earth	Regular	Earth	10 sec.	3/3#	1 sec.	4 Earth spells	4
163	Walk Through Plants	Regular	Plant	1 min.	3/1	1 sec.	Hide Path, Shape Plant	5
188	Walk Through Water	Regular	Water	1 sec.	4/3	3 sec.	M1, Shape Water	4
164	Walk Through Wood	Regular	Plant	1 sec.	3/2	1 sec.	Walk Through Plants	6
113	Wall of Light	Area	Lt-Dk	1 min.	1 to 3/S	1 sec.	Continual Light	2
197	Wall of Lightning	Regular	Weather/Air	1 min.	2 to 6/S	1 sec.	Lightning	7
172	Wall of Silence	Area	Sound	1 min.	2/1	1 sec.	Silence	2
25	Wall of Wind	Area	Air	1 min.	2/H	Instant#	Shape Air	3
144	Wallwalker	Regular	Movement	1 min.	1 per 50 lbs./H#	1 sec.	Apportation	1
122	Ward	Block/R-spell	Meta-Spell	Instant	2 or 3#	none	M1	0
195	Warm	Area	Weather/Air	1 hour	1/10/S	1 min.#	Heat, 4 Air spells	8
74	Warmth	Regular	Fire/Protection	1 hour	2/1	10 sec.	Heat	4
167	Watchdog	Area	Protection	10 hrs.	1/1	10 sec.	Sense Danger	1
187	Water Jet	Regular	Water	1 sec.	1 to 3	1 sec.	Shape Water	4
79	Water to Wine	Regular	Food	Perm.	4 per gal.#	10 sec.	Purify Water, Mature	5
187	Water Vision	Information	Water	30 sec.	1/1#	1 sec.	Shape Water	4
194	Waves	Special; Area	Weather/Water	1 hr.	1/60	1 min.	Shape Water	4
116	Weaken	Regular	Mk-Brk	Perm.	2 to 6	5 sec.	Find Weakness	5
40	Weaken Blood	Regular/R-HT	Body/Necro.	1 day	9/5	1 sec.	Sickness or Steal Vitality	5
136	Weaken Will	Regular/R-Will	Mind	1 min.	2/pt/H	1 sec.	M1, Foolishness	1
119	Weapon Self*	Regular/R-HT#	Mk-Brk	1 min.	8/4	5 sec.	M2, Apportation, 6 Mk-Brk spells inc. Reshape	12
64	Weapon Spirit*	Enchantment	Enchantment	Perm.	Varies	-	Enchant, Summon Spirit	12
169	Weather Dome	Area	Protection/ Weather	6 hrs.	3/2	1 sec.	2 spells each from 4 elements	8
187	Whirlpool	Area	Water	1 min.#	2/H	Varies	Shape Water	4
138	Will Lock	Area/R-(ST+Will)/2	Mind	1 day	3	Varies	Emotion Control	4
195	Wind	Special; Area	Weather/Air	1 hour	1/50/S	1 min.	Windstorm	4
25	Windstorm	Area	Air	1 min.#	2/H	Instant#	Shape Air	3
145	Winged Knife	Missile	Movement	Instant	1 per lb.#	1 sec.	Poltergeist	2
135	Wisdom	Regular	Mind	1 min.	4 per IQ+/S	1 sec.	6 other Mind Control spells	6
61	Wish*	Enchantment	Enchantment	Special	250	–	Lesser Wish, 1 spell each from 15 colleges	17
40	Wither Limb	Melee/R-HT	Body	Perm.	5	1 sec.	M2, Paralyze Limb	6
163	Wither Plant	Area/R-HT	Plant	Perm.	2	10 sec.	Blight	5
174	Wizard Ear	Regular	Sound	1 min.	4/3	2 sec.	Apportation, Far-Hearing, Sound Vision	6
104	Wizard Eye	Regular	Knowledge	1 min.	4/2	2 sec.	Apportation, Keen Vision	2
104	Wizard Hand	Regular	Knowledge/ Movement	1 min.	Varies	3 sec.	Manipulate, Far-Feeling	4
104	Wizard Mouth	Regular	Knowledge/ Food/Sound	1 min.	4/2	2 sec.	Apportation, Far-Tasting, Great Voice	6
104	Wizard Nose	Regular	Knowledge/Food	1 min.	3/2	2 sec.	Apportation, Far-Tasting	3
160	Wraith*	Enchantment/ R-HT	Necro./Ench.	Perm.	250 or 500#	Varies	M3, IQ 13+, Enchant, Halt Aging, Soul Jar	24
94	Youth*	Regular	Healing	Special	100	1 sec.	M3, Halt Aging	9
151	Zombie	Regular	Necro.	Perm.	8	1 min.	Summon Spirit, Lend Vitality	4
153	Zombie Summoning	Special	Necro.	1 min.	5/2#	4 sec.	Zombie	5

Spell Prerequisite Chart – Food College



This play aid is designed to help GMs and players find the necessary prerequisites for spells from the Food College. The prerequisite charts for other colleges can be found at **http://e23.sjgames.com/item.html?id=SJG82-0201**
Each spell's prerequisites can also be found in the spell description. See the spell table on pp. 223-237 for page numbers.

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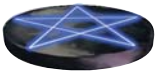

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GRIMOIRE OF _____

Spell Name and Class	Skill Level	Time to Cast	Duration	Cost to Cast	Cost to Maintain	Notes	Page No.

Magic Is Everywhere

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GURPS Fourth Edition

INFINITE WORLDS™

By Kenneth Hite, Steve Jackson, and John M. Ford

STEVE JACKSON GAMES

GURPS® Fourth Edition

INFINITE WORLDS™

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STEVE JACKSON GAMES

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About *GURPS*

Steve Jackson Games is committed to full support of the ***GURPS*** system. Our address is SJ Games, Box 18957, Austin, TX 78760. Please include a self-addressed, stamped envelope (SASE) any time you write us! We can also be reached by e-mail: **info@sjgames.com**. Resources include:

Pyramid (**www.sjgames.com/pyramid/**). Our online magazine includes new ***GURPS*** rules and articles. It also covers the ***d20*** system, ***Ars Magica, BESM, Call of Cthulhu,*** and many more top games – and other Steve Jackson Games releases like ***Illuminati, Car Wars, Transhuman Space,*** and more. *Pyramid* subscribers also get opportunities to playtest new ***GURPS*** books!

New supplements and adventures. ***GURPS*** continues to grow, and we'll be happy to let you know what's new. For a current catalog, send us a legal-sized or 9"×12" SASE – please use two stamps! – or just visit **www.warehouse23.com**.

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Errata. Everyone makes mistakes, including us – but we do our best to fix our errors. Up-to-date errata sheets for all ***GURPS*** releases, including this book, are available on our website – see below.

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GURPSnet. This e-mail list hosts much of the online discussion of ***GURPS.*** To join, point your web browser to **mail.sjgames.com/mailman/listinfo/gurpsnet-l/**.

Rules and statistics in this book are specifically for the ***GURPS Basic Set,*** *Fourth Edition.* Page references that begin with B refer to that book, not this one.

Welcome to Anywhen

This book describes the Infinite Worlds, the "standard setting" for ***GURPS*** *Fourth Edition*. Here, history varied on other Earths; the Union Jack flutters over America, Mongol ponies graze in Britain, and zeppelins float unperturbed everywhere. The heroic Infinity Patrol, licensed by the corporation that discovered parachronic travel, keeps Homeline safe and improves life where it can. Between crosstime plagues, samurai with force swords, and unpredictable storms that blow people to other worlds, its work never ends.

Any kind of campaign, on any kind of world, fits here – in fact, it's *already* here somewhere! You don't have to play the Patrol or even obey them. You can steal alternate Monets, hunt werewolves in medieval Germany, or seek the Holy Grail across the worlds. You can treat this book like your own personal alternate Spanish Main and loot it for goodies and excitement to carry back to your own game world. You can even build a game world – an infinity of them – from scratch, using this book's alternate Earth design systems and advice.

It's only a short jump (as it were) from alternate histories to time travel. Time travel stories often become alternate Earth stories, as the plucky traveler wrenches history from its appointed course to save his adopted hometown in the past. Hence, this book also contains complete guidelines for time travel games, from using time machines to how to get away with killing your grandfather in the past. This book provides two different time-travel campaign frames for people who don't want to go world-hopping . . . and allows the combination of time travel and parallel worlds for infinite possibilities, including some in the Infinite Worlds setting.

Add mutants, magicians, and world-hopping Nazis – you will need another Earth just to fit it all in.

So get to it – time's a-wasting.

– Kenneth Hite

History is not merely what happened: it is what happened in the context of what might have happened. Therefore it must incorporate, as a necessary element, the alternatives, the might-have-beens.

– Sir Hugh Trevor-Roper, "History and Imagination"

About the Authors

Kenneth Hite

On a close parallel Earth, Kenneth Hite's first RPG publication credit was ***GURPS Alternate Earths.*** In all Earths he can access, he co-wrote that book and its sequel for Steve Jackson Games, as well as writing ***GURPS Cabal*** and the third edition of ***GURPS Horror,*** and compiling and co-authoring ***GURPS WWII: Weird War Two.*** His "Suppressed Transmission" column covers high strangeness for *Pyramid* magazine; on some Earths it is called "Thirteen O'Clock High." On the most terrifying worldlines, it has been collected in two volumes to date.

He lives with his wife Sheila in Chicago, the center of all worlds worth visiting. In no Earth has his M.A. in International Relations proved at all useful, but one never knows.

Steve Jackson

Steve Jackson has been devouring time-travel and parallel-world science fiction since he was about seven years old, and jumped at the chance to inflict his own contribution on the field.

He is the founder and editor-in-chief of Steve Jackson Games, but, as shown by the present book, still gets to *write* something once in a while. He hopes to do it again someday.

Steve lives in Austin. He enjoys SF conventions, gardening, the Web, tropical fish, Lego, and – oh, yes – gaming.

John M. Ford

John M. Ford is the author of nine novels (so far), including the alternate history *The Dragon Waiting*. On the gaming front, he has done work for GDW, West End Games, and Steve Jackson Games. If he survives to finish his next novel, he'll probably write an opera. With roleplaying in it. Somebody has to be the first.

Publication History

Much of the background in this book was drawn from the Third Edition books ***GURPS Time Travel*** and the two volumes of ***GURPS Alternate Earths.***

The Origins Award-winning ***Time Travel*** was a collaboration between Steve Jackson and Mike Ford. Steve sketched out a parallel-world setting that owes a great deal to the works of H. Beam Piper. Mike fleshed it out with high-quality rubber science and added the whole "Time Corps" background, cut from whole cloth woven on the loom of Fritz Leiber. They respectfully acknowledge Those Who Went Before, and only wish they could go back and shake their hands.

David Pulver recast the material in ***Time Travel*** and other ***GURPS*** books for Fourth Edition, after which Kenneth Hite added yet more background, rearranged all the puzzle pieces, and fit the entire assemblage between two covers.

Chapter One

Infinity Unlimited

". . . to preserve and defend The Secret with my last breath."

As Angela finished the oath, she felt something – just the weight of all those histories – settle on her shoulders. Before she could absorb the feeling, it was gone, jarred loose by a man shaking her elbow. "Agent Polk," he began, Angela unconsciously looked around to see whom he was talking to, but then realized that as of 30 seconds ago, *she* was "Agent Polk," and would be until, she supposed, her "last breath."

"Agent Polk," he said again, "let's walk and talk." "But my family – they're here to see the ceremony . . ." "And they did see it, and it was lovely, and your mother cried. And now you're on Patrol time, and your first leave isn't until 2028, so let's jump." With almost no pressure on her arm, he had somehow steered her away from the crowds of new-minted Academy graduates, toward a bronze-colored, ungainly aircraft. "That's a tiltrotor – Hell, that's a Haussman-2 ornithopter! Those don't even fly in our atmosphere!" "Good thing we're not staying in our atmosphere, then," he responded. "And I'm glad to see your dossier accurately reported your aeronautical skills, since you'll be flying it for us."

Angela found herself clambering into the pilot's seat and slapping the oddly familiar slats and busbars into the Lift configuration; she felt a stab of relief when she heard the *whhrrrrm* of a concealed ducted fan engage, almost blanketed by the increasingly rapid *crump-crump-crump* of the (so far purely decorative) wings. Her hijacker emerged from the back of the vehicle, wearing the (perfectly fitted) damask cape and riding boots of an Aerocorps Imperiale officer. He settled into the copilot's bench and slotted a card into what seemed to be an ornate bomb-sight. "There's a uniform for you in the back," he said, as he tapped on a concealed keyboard that had folded out of the "bomb-sight's" eyepiece. "Go change and I'll keep her level – and when you get back, let's hope the wings work."

Pushing into the rear compartment, Angela saw four fellow cadets – no, four fellow Patrolmen – changing into their own uniforms. She knew Dave Pownall and Tranh Sui from her Variant French classes, and had met Roger Giancarlo on the aerobatics range.

"So we have two other scouts and a backup pilot," she said. 'Carlo replied, "And apparently, we're not going to Haussman-2 for the dancing, since Suleiman here was number one in our class in bladed weapons." The Turk she didn't recognize flashed her a quick smile and went back to adjusting his boots.

Nobody smiled for the next five minutes, as the ornithopter jolted and shuddered sickeningly. "Parachronic transition – the wings just caught hold," 'Carlo said. More jolts banged the craft around, and Tranh began "I don't think that's just the wings –" just as a bullet-hole appeared in the hull above Suleiman's head.

Angela and 'Carlo dove for the cockpit; even as the craft slopped into a dive, they kept their balance where the other three rolled and spun with the deck. Angela was first by a fraction and grabbed the yoke, wrestling the 'thopter back into level flight. 'Carlo was yammering something in her ear, but she was too busy keeping them from crashing to pay attention. Only after the aircraft had juddered back to something like normal did she look around and notice the dead man on the bench beside her. "I wonder what our mission was supposed to – " Angela began, but 'Carlo cut her off. "I think," he said tightly, "we're about to find out."

Three more ornithopters – these painted an ominous gray – appeared in the windscreen, and the flashes from their muzzles started the ship jolting and tilting again, spiraling down toward the parallel Lake Superior below them.

Thirty years ago, former Dartmouth physicist Paul Van Zandt changed the world. Actually, he changed hundreds of them. He invented a parachronic projector, a machine that could send matter into another dimension – another timeline. The first world he discovered was "Earth-Beta," almost identical to his own world, which he dubbed "Homeline." But as he improved his technology and his survey techniques, he began to discover worlds where Rome never fell, or where America was a feudal kingdom. Some worlds – those on the same "quantum level" as Homeline, Quantum 5 (Q5) – were easy to reach. Others, on Q4 and Q6, were slightly harder; Quantum 3 and Quantum 7 were downright difficult. However, Van Zandt persevered, and built up a small team of daring assistants who helped him map 23 more universes.

He funded further research with profits from trading between worlds, an undertaking he formalized with White Star Trading. In 1998, Van Zandt revealed his discovery of parachronic travel to the public, and revealed a secret to the U.N. Security Council. Whatever the secret was (p. B525), it halted demands for his technology to be nationalized, militarized, or destroyed. Instead, the Security Council established the United Nations Interworld Council (UNIC) from its own membership, which chartered a new corporation, Infinity Unlimited (often shortened to "Infinity" by the media). Van Zandt became CEO of Infinity, and UNIC added its own bureaucrats to the board. The Interworld Treaty, which chartered Infinity, required that Infinity work to "better the lot" of the other worlds it explored and exploited. To that end – and possibly to counter the threat Van Zandt revealed to the Security Council – Van Zandt created the Infinity Patrol.

We're jugglers . . . trying to keep our traders and sociological observers and tourists and plain idiots like the late Gavran Sarn out of trouble; trying to prevent panics and disturbances and dislocations of local economies as a result of our operations; trying to keep out of out-time politics – and, at all times, at all costs and hazards, by all means, guarding the secret of paratime transposition.

– H. Beam Piper, ***Police Operation***

Infinite Worlds Glossary

alternate: Any timeline except the original Earth. Also "alternate world."

anchor: An echo that does not experience a quantum shift when "history is changed."

Armanen Order: The secret order in Reich-5's SS that has discovered parachronics.

autochrones: Natives of a timeline, as opposed to out-time visitors or colonists; called "'chrones" and "locals" in Patrol slang.

banestorm: A natural phenomenon that moves living beings between worlds.

Cabal, the: A secret organization of magicians and monsters using magical dimension travel.

Centrum: A rival civilization with the ability to travel between worlds. A "Centran" is a native or agent of Centrum.

cliodynamics: The scientific study of historical change, especially useful for altering histories in a desired direction.

conveyor: A self-propelled device for traveling between alternate worlds.

Continued on next page . . .

Infinite Worlds Glossary (Continued)

Coventry: An alternate world maintained by the Infinity Patrol as a prison for those – both Homeliners and outtimers – who Know Too Much.

dimensional highway: A road between worlds, natural, magical, or artificial.

echo: An alternate world which is – or appears to be – identical to ours, but at an earlier point in its history.

Eraser: A memory-affecting drug used by I-Cops and others to keep The Secret of parachronic travel.

Eyes, the: Patrol slang for Internal Affairs.

hell parallel: A worldline mostly or entirely emptied of humanity by a disaster or holocaust.

homeboy: In Patrol slang, anybody from one's own world of origin.

Homeline: The original Earth of Paul Van Zandt and the Infinity Patrol.

I-Cop: An agent of the Infinity Patrol's Intervention Service.

Infinity Patrol: The paramilitary arm of Infinity Unlimited.

Infinity Unlimited: Often just "Infinity"; private corporation that controls parachronic technology as a monopoly and governs access to alternate timelines.

Interworld Service: Also I.S., or "Interworld," the Centran equivalent to the Infinity Patrol.

Kern: From the German for "kernel," a safe-house used by Armanen Order operatives. Plural: Kerne.

local: In Patrol slang, native to the timeline.

memetics: The study of ideas and their transmission and change, a back-formation from "genetics." Not yet fully accepted as a science.

Mule: Armanen Order slang for a world-jumper, especially one created artificially by Nazi science.

Nexer: A Patrol agent from the Nexus Oversight Division.

nexus portal: A "natural" path between alternate worlds.

oneliner: Someone who never leaves his home timeline, especially a Homeline "civilian."

Outstairs: Patrol slang for Homeline higher-ups. "Those dimwits Outstairs expect us to stop the Visigoths with nothing but Scotch tape and puppet shows."

outtime: A world other than the speaker's own; usually means any other world besides Homeline.

outtimer: Anyone from a different world from the speaker; hence, a Patrol agent is an "outtimer" on Caliph, but a citizen of Caliph would be an "outtimer" on Homeline.

parachronics: The study of alternate worlds. More specifically, the study of why alternate worlds exist, and how travel between them is possible.

parachronozoid: A creature with a natural world-jumping ability.

parallel: An alternate world that differs from ours only in that its history has been different (some are *very* different). A "close parallel" is different as the result of one identifiable historical change.

Pile, the: Patrol Headquarters.

portal dimension: A location that connects to many (or even all) alternate worlds or dimensions.

projector: A device that can send a conveyor across quanta.

quantum: An "energy level" in 8-dimensional space that contains many alternate timelines. Quantum levels are often abbreviated; e.g., Q7 for Quantum 7.

quantum sargasso: A worldline that cannot be left using parachronics.

reality quake: A parachronic upheaval that buries some or all of an alternate's history beneath a new one.

reality shard: A fragment of a previous past thrown up by a reality quake.

Reality Vanish: The worldline that supposedly "eats" vanished probes and missions.

Scout: An agent of the Infinity Patrol's Penetration Service.

The Secret: The fact that technological crossworld travel is possible. Outtimers are not supposed to learn this, unless recruited by Infinity. Interworld doesn't bother keeping The Secret on primitive worlds.

shiftrealm: A location that travels between worldlines, from "ghost ships" to whole forests or islands.

skerry: A collection of nearby timelines sharing a common element (i.e., an ongoing WWII, a basis in the fiction of Robert Heinlein).

swagman: A member of a loose fraternity of crosstime grifters.

timeline: Another term for an alternate world.

trod: A magical dimensional highway, usually used by faeries. Most trods run between forests.

UNIC: United Nations Interworld Council, the U.N. body officially charged with overseeing parachronics and Infinity.

vanish it: Literally, "send it to a nonexistent reality"; Patrol slang expression meaning, roughly, "to Hell with it."

weird parallel: An alternate world that has many similarities to our own, but also has differences that make these similarities seem unbelievable (such as the world where intelligent reptiles speak English).

zero point: The term for a location that has been "zeroed" – properly calibrated – for a safe conveyor jump between two specific dimensions.

The Infinity Patrol

The Infinity Patrol, like all of Infinity, is specifically chartered by the U.N. Security Council. It has a unified command with an existence independent of any given mission, and so resembles a private security force more than a multinational peacekeeping task force. In practice, the Patrol is a supranational paramilitary agency under Infinity's control, dedicated to protecting Homeline, The Secret, Infinity, and the unknowing innocents of other worlds, in roughly that order. Patrol facilities, like all Infinity property, are considered "U.N. soil," and cannot be searched or seized without violating international law. By its charter, it must "keep the peace, and preserve the smooth operation of interdimensional travel for the good of all mankind." This translates, for Infinity Unlimited and the Patrol alike, as "ride herd on everyone else with a conveyor, keep Homeline problems on Homeline, and do well by doing good in the meantime."

This was hard enough when the Patrol thought itself alone in the continuum, but nine years ago, Corporate Security captured an intruder in a secret Infinity facility on the Quantum 6 world Turkana. He turned out to be from another cross-dimensional paramilitary organization, the Interworld Service, of a crosstime civilization called Centrum. Centrum was aggressive, competent, and devoted to spreading its own hierarchical system across the worlds. Fortunately, Centrum was on Quantum 8; it could not reach Homeline and neither could Homeline reach Centrum. The quanta between became battlegrounds, especially the Q6 "echoes," worlds that mirrored Homeline history exactly. Centrum could, and did, shift many of those echoes out of Quantum 6 and into quanta inaccessible to Homeline! The infinity war had begun, and the Patrol had a new set of missions.

The Mission and the Mindset

Technically, all parachronic equipment in existence is the property of Infinity Unlimited, and the Infinity Patrol has the right (and duty) to supervise its use. In theory, every conveyor from a two-ton "tramp trader" to a stealthed CIA insertion capsule falls under the Patrol's jurisdiction, and the Patrol can ask to see its hardwired service record (giving the time and parachronic coordinates of every jump a unit makes) without cause or reason. If something doesn't smell right, it can investigate – and if the investigation warrants, Infinity can revoke a parachronic license or even confiscate and destroy equipment. With conveyor and projector traffic approaching tens or even hundreds of thousands of trips per day, and with jealous national governments, secretive corporations, and fuzzy-minded academics screaming about every imagined slight or misstep, the Patrol's job is never easy.

Dealing with Homeliners, whether aggrieved innocents or furtive diamond smugglers, requires good relations with Homeline institutions combined with an appearance of complete impartiality to Homeline conflicts. This is a difficult tightrope to walk under the best of circumstances. The Patrol does very active liaison work with Homeline government agencies and Interpol, turns a blind eye to the occasional MI6 or FSB operation, and hopes for the best. Infinity contributes vast sums to recognized global charities (and reelection campaigns) even while Patrol officers and agents stay ruthlessly apolitical. Infinity doesn't have anything quite so crude as a quota system, but it maintains an aggressive outreach program to enlist non-Americans. Although Infinity Unlimited acts like a typical American multinational corporation regardless of breezy "global" marketing campaigns, the Patrol emphasizes its multinationality – or even its transnationality – as befits a U.N. force. Many Patrolmen even renounce their own citizenship for U.N. passports as the Patrol Oath explicitly forswears all other allegiances.

That makes the Patrol's only loyalty to itself. At best, the Patrol sees itself as the "thin blue and black line" supporting all Homeline – all humanity – against the dangers from other worlds. At worst, some Patrolmen have internalized an "us vs. them" attitude, not only to outtimers (who don't get the benefit of Infinity's careful neutrality), but also to Homeline oneliners. Even innocent tourists trapped behind the lines at Alesia sometimes grate on professional dimensional police, to say nothing of nickel-dime Homeline hoods dealing heroin in a parallel Renaissance Italy. Such missions don't always help Patrolmen keep a broad perspective. And the missions never end; world after world must be surveyed, checked for plagues, searched for

With conveyor and projector traffic approaching tens or even hundreds of thousands of trips per day, and with jealous national governments, secretive corporations, and fuzzy-minded academics screaming about every imagined slight or misstep, the Patrol's job is never easy.

magic, classified, watched over, nurtured, exploited, saved, defended, sabotaged, and covertly policed.

Human Resources

These ever-expanding tasks strain Infinity's time and attention more than its pocketbook. Between off-the-books Consisting of Patrol slush funds (many kept in outtime banks), the vast scale of parachronic operations, and lucrative Homeline sublicenses, Infinity's finances are, for all practical purposes, unlimited. However, Infinity management still only has 24 hours in every day to attend to and supervise events on hundreds of worlds. Expert systems, streamlined decision making, and ruthless policy triage only go so far. Infinity has to allow Patrol agents broad discretion – they simply don't have the time to second-guess Patrolmen or make tactical decisions upstairs. The same time pressures work on the Patrol's 60,000 personnel (10,000 of whom are full-time field agents), forcing the Patrol to prize initiative, creativity, and independent problem-solving over all other factors. This irreducible fact of Infinity's parachronic operations makes Patrol service very attractive to ex-military and ex-police servicemen. From armies and police forces drowning in red tape and bureaucratic procedure, Patrol recruits enter a "sink or swim" world where one decision can save millions (even billions) of lives or dollars. Only true catastrophes result in active oversight – and disasters usually kill Patrolmen who make stupid decisions.

But even with the incentive of initiative, staffing remains an ongoing problem for the Patrol. In the rich and comfortable Homeline created by Infinity Unlimited, not a lot of people volunteer to risk their lives . . . much less spend years on end in backwater parallels without fusion power or dentistry, even for a fairly handsome paycheck. Increasingly, Infinity turns to outworld recruiting on those timelines where they can manage it without revealing The Secret. Outtimers, after all, are used to crummy working conditions, danger, and filth – they live there. In some worlds, it's as simple as placing a carefully worded classified ad in the *Gazette Californien* or the *New Amsterdam Tribune*; in others, "adoption by a remote monastery" or "assignment overseas" can cover an extraction. One old standby is disaster recruitment – a local who shows pluck, resource, and skill during a volcanic eruption or cataclysmic battle can often "disappear in the wreckage" without endangering The Secret. Clever or daring Patrolmen can manipulate prison or POW camp records, hire mercenaries, or simply buy slaves (although this remains very controversial with Infinity higher-ups) to get prime Patrol recruits out of their dangerous native worldlines and onto the Infinity payroll.

Headquarters

New recruits almost always start their service with an induction ceremony at Patrol headquarters. While Infinity Unlimited runs its corporate empire from a skyscraper in Chicago (just far enough from the New York and Washington mindsets to discourage overzealous oversight), the Patrol works from an unassuming glass-and-ferrocrete complex outside Calgary in western Canada, well off the radar of even Infinity corporate bigwigs.

That low-profile complex spreads over several hundred acres, including firing ranges, proving grounds, airstrips, projector and conveyor barns, a small but secure prison facility, the fusion plant, and rooms full of molecular-memory supercomputers devoted to Patrol archives and analysis. (A backup facility exists at the same location on Smother, an uninhabited Quantum 5 worldline where Earth's atmosphere never oxygenated.) The main headquarters building (five stories of institutional blandness) is only slightly more imposing, and informal Patrol policy considers it a defeat if "the Pile" ever shows up on the evening news. (Patrolmen traditionally make press statements from the headquarters of whatever agency or police force they worked with on a given mission, or from the Infinity Tower in Chicago.) The whole area (including several miles of underground tunnels and laboratories) rests under the most comprehensive radar, satellite, and physical surveillance possible. Ironically, the weakest spot in the coverage is, necessarily, the incoming parachronic transits, which could theoretically bring anyone, from anywhere, with any agenda or weapons. Fortunately, the Canadian prairies are fairly isolated places on most timelines, so the Patrol can keep security squads camped out on most parallel headquarters locations without endangering The Secret.

Besides guarding its own existence, Headquarters serves as command center, university, arsenal, motor pool, library, repair yard, and rear office for all Patrol divisions. Most importantly, however, it serves as a true home base for Patrolmen isolated from both the timelines they protect and the Homeline they enrich. Even more than cops or soldiers, Patrolmen can only talk meaningfully to each other and nobody else on a thousand Earths. Dormitories, recreation and sports facilities, cafeterias, and stables are all available to any Patrolman without charge. Whether it's relaxing in Harry's Crosstime Bar (run by a Patrolman who lost both legs keeping Napoleon out of a parallel Moscow) or meditating at the Patrol Cemetery on the slopes of Mt. Eisenhower, every Patrolman needs somewhere to connect to. Infinity fosters such connections by deliberately intermingling agents and rear-echelon staff from both Patrol branches, the Penetration Service (colloquially, the "Time Scouts" or just "Scouts") and the Intervention Service (the explicitly paramilitary "I-Cops"), in Headquarters assignments.

Infinity encourages a similar mix of experiences in its individual Patrolmen. Corporate policy favors Patrolmen with a broad, multi-branch background over "time-servers" and "stair-climbers" who move up the ranks in a single branch, or even a single service. Infinity's board refuses to consider candidates for Patrol Director, or any executive rank, without several years' experience in both the Scouts and the I-Cops. Although this creates discontinuities and duplication of effort, it prevents (or at least mitigates) bureaucratic empire-building and encourages well-rounded, lateral thinking at all levels of the Patrol.

Intervention Service

The "I-Cops" enforce the rules and keep out hostile strangers all over the continuum. They are the sword and shield of Homeline. The Intervention Service favors reliability over inspiration, resolution over communication, and speed over spread. Identify the task, overcome the obstacles, and accomplish the mission – don't get distracted saving other worlds before you've saved your own first. An I-Cop makes his own luck by not sticking around waiting for lightning to strike. They throw the lightning themselves, and jump before the thunder stops rolling.

The Intervention Service has 10 divisions, the first of which may be the most important in the entire Patrol.

The Academy

Located on the shores of the glacial Lake Agassiz (in the equivalent of Homeline South Dakota), in the Pleistocene parallel Mammut-1, the Infinity Academy trains every new agent accepted into the Patrol. Each year's class begins in mid-September with about 650 cadets (although the Academy has facilities for 1,000 students if necessary); the rigors of training whittle the average graduating class down to about 400. This is barely enough to stay ahead of the current death, retirement, injury, and disappearance rate of existing Patrolmen, but Commandant al-Wahid (a Special Ops veteran who lost her right arm to a dragon) refuses to ease up on the Academy regimen. The Academy trains both Intervention and Penetration Service agents, and although it is officially a division of Intervention, its faculty remains rigorously neutral in any turf wars between the services.

All cadets begin with a three-month "basic training" program emphasizing stamina, decision-making while fatigued or stressed, and basic Patrol combat and weapons drills. (These emphasize surprise, subtlety, and teamwork.) After dinner, coursework on the basics of parachronics, languages, and global history fills a cadet's time until lights out. In their scanty free time, cadets play intramural sports from a wide variety of worldlines, with winning teams getting better chow and other minor privileges. The unofficial line between "basic" and "advanced" training is Sleepout: an unannounced midnight alert that picks up four to seven cadets at a time (depending on class size) and drops them a couple of hundred miles away from the Academy to find their way back through saber-tooth country. With only what they were wearing and carrying five minutes after waking up. In December. In an Ice Age.

The Academy rewards survivors with a week around New Year's (universally called "Spring Break" despite the timing) to do what they like in Johnson's Rome or another freewheeling but primitive world – which is another test. Cadets who can't adjust to other cultural mores, who treat outtimers with contempt or condescension, who reveal high-tech devices, or who are stupid enough to fall for the badger game get weeded out of the Academy upon their return. If a cadet makes it past Sleepout and Spring Break, he is considered a Patrolman. Perhaps not an agent yet – but someone worth investing more time and money in.

The rest of the winter is more physical training – long marches across the glacier, mammoth hunts with equipment from a variety of tech levels, pressure suit training and zero-gravity combat – interspersed with applied parachronics, the care and feeding of conveyors, and still more history and language courses. Weapons drill gets more complex, and there are "practice surveys" of mostly mapped (and mostly harmless) worldlines. The work keeps piling on, and the team sports take a break.

In the spring, "aptitude training" begins; the Patrol needs too many skills from too few people to build complete generalists. (This is part of why Patrol training emphasizes teamwork so much.) Infinity can hire the foremost experts on any topic: aikijutsu, wine tasting, archery, or dance. Team sports come back with the warm (well, warm for the Ice Age) weather, too – the traditional final blowout is "Homecoming" in early September, a showdown game of *ollamalitzli* (the brutal Aztec ball game) between the best cadet teams in the Academy. The last week is "Finals," during which the graduates prepare a lengthy, specific report analyzing shortcomings in the Academy and their training. No cadet can be flunked for his report – the only failing grade is for turning in nothing. On Graduation Day, the cadets parade in formation for the last time, receive their commissions and duty assignments, and ship out into the multiverse, entitled to wear the blue and black of the Patrol. A week later, the new class comes in.

A year at the Academy makes an excellent introductory mini-campaign, abstracting as much or as little of the drills and sports as the group wants. Such an introduction probably works best if each player takes two or three cadets as characters. The GM can then wash out PC cadets without worrying about wrecking the campaign – and the leftover graduates can show up later as NPCs, or be backup characters in case a player's primary Patrolman gets vaporized by Nazi maser fire in Atlanta or crippled by toppling sarsens at Stonehenge.

Customs and Inspection

The Customs and Inspection Division officially guards every parachronic projector on Homeline, and has global authority to enter and search any location emitting detectable parachronic energies. Their thankless task is to keep things out of Homeline that don't belong there, from dangerous plagues to smuggled Tyrian pendants to fanatical terrorists. Their second priority is to keep such things from going from Homeline out into the unpoliceable void of the infinite worlds. Screens at projector bays and conveyor havens continuously scan for fissionables, toxins, viruses, nanobots, and anything else the paranoid minds at Customs can suspect. (The sign in most projector bays is as accurate as it is concise: "Rule One: Declare Everything.") Customs and Inspection tries desperately to get first priority on telepathic personnel, with sadly mixed success. Reliable telepaths can write their own ticket in the Patrol, and few of them covet boring jobs reading the minds of people coming back from vacation with "a souvenir hardly worth mentioning."

Patrolmen themselves delight in smuggling – usually low-key contraband like wine and knives, although the Patrol team that managed to smuggle an entire hover-panzer back from Reich-4 is still the topic of awed legend. This does little to endear "C & I-Cops" (or C & I duty) to other agents.

Although a team of Inspection agents tasked to investigate unlicensed parachronic emissions on Homeline probably has one of the most tense and nail-biting jobs in the Patrol, actually playing such a campaign would be a little too much like playing air traffic controllers. A roving Inspection team checking security on nearby Quantum 5 worlds might uncover plenty of exciting trouble, though, without even trying. For mixed parties, an individual Customs agent is a very plausible addition to any Patrol team heading into a world with valuables, or dangerous items, or suspicious outtime activity – which is to say, any of them.

Internal Affairs

Internal Affairs are the Patrolmen who patrol the Patrol. They hunt through currency records looking for bulging offworld accounts, check up on "friends from Bonaparte-4" with suspicious last names, and bring down the hammer on anyone, any time. This makes "the Eyes" even less popular among their fellow Patrolmen than Customs and Inspection, if such a thing is possible. IA roots out Homeline corruption and favoritism in Infinity where it can, which earns the Division no friends in the UNIC bureaucracy or Infinity's boardroom. However, Internal Affairs is always happy to look into reports about what some bureaucrat's rival is up to, which helps IA play political hardball when necessary. Every Patrolman who has ever been left twisting in the wind by a rear-echelon type taking a bribe or abetting a coverup – and then seen the malefactor dispatched to count neutrons on Taft-3 – has to admit that IA may (just barely) be justified.

Internal Affairs officers might appear as the "bad guys" in either a freewheeling game of maverick I-Cops who just don't play by the rules, or in a tense, shades-of-gray game in which Infinity higher-ups might not always be the white hats. Internal Affairs PCs might tag along on one or two missions, but are unlikely to fit well into an ongoing I-Cops campaign. Unless, of course, all the players take the role of IA officers, and play out "Infinite Ellroy" *L.A. Confidential*-style stories uncovering corruption and malfeasance inside Infinity itself.

Justice

Where Internal Affairs tracks down corruption inside the Patrol, the Justice Division solves crimes involving Infinity personnel or property. (Command of overlapping investigations goes to the team with priority on the case – initiative gets results.) By one interpretation of the Interworld Treaty, this gives the Justice Division jurisdiction over any crime on Homeline involving an outtimer or an Infinity employee, or occurring in a parachronic facility of any kind, as well as any crime involving a Homeliner on any other Earth. "Crimes," in this context, include genocide, mass slavery, environmental neglect, arms smuggling, and subversion, as well as old standbys like theft, fraud, and murder. Like the FBI or Scotland Yard, sometimes their involvement is requested, and sometimes it's resented, and sometimes both at once. Unsurprisingly, neither the FBI nor Scotland Yard particularly welcomes nosy I-Cops horning into their own problems, nor do they usually appreciate the irony of the situation. Worse, despite lavish funding for facilities and top-flight training for its agents, the Justice Division doesn't really have the institutional memory, the staff, or the footprint of a truly major criminal investigation department. Hence, Justice agents have to get by on intuition, flair, and a deep understanding of the "offworld angle," whatever it may be.

A *Crime Scene: Infinity* campaign centered on the Justice Division might be very entertaining, but over a longer term it might tax the GM's creativity (or the players' patience) to unravel mystery after mystery. However, a single mystery makes a good "prologue" adventure, and a meaty crime can draw in agents from any other division as needed, as witnesses, experts, or even suspects. Then, if the real criminal escapes to another world (or is in cahoots with some larger conspiracy), the game is afoot, and a mixed team can set off on a campaign that (every so often) gets its man. An insidious GM might run a twist on this setup – draw agents in from various divisions, set up the mystery teams, and frame the PCs for the crime! Suddenly, they have to flee Homeline, and chase down the real criminals – it's the *Infinite Fugitive,* and they're chasing the one-armed Nazi across the continuum.

Infinite Justice, Inc.

Headquartered in an obsolete steel mill in Gary, Indiana, Infinite Justice, Inc., the largest bail bond, repossession, and "personnel reacquisition" agency licensed for crosstime operations, doesn't spend a lot on office furniture or fancy wall screens. Infinite Justice, Inc., sells itself to its clients with its record (a success rate over 80%) and its personnel (95% with extensive outworld experience before joining the firm, mostly with the Infinity Patrol, Mounties, or other law enforcement agencies). Infinity Unlimited offers a minimum $500,000 reward, payable to any licensed crosstime bounty hunter, for the return of any Homeliner hiding out on an alternate Earth; every one of these burglars, runaways, mobsters, and adulterers endangers The Secret. IJI leases its conveyors from Infinity on an extremely affordable plan, letting it mount more parachronic missions than most Homeline governments.

The hunt for a single fugitive may be one adventure long, or extend across an entire campaign, with a posse of bounty hunters (along with their pilot, "face man," and so forth) involving themselves voluntarily or involuntarily in local problems from world to world along the trail of their quarry. The posse could also chase down different fugitives across the quanta from week to week and occasionally get sucked into the fringes of larger crises. Alternatively, a bounty hunter can be a recurring NPC (or a PC) who provides investigative skills, contacts, or muscle for Patrol missions "as a favor to the old outfit" while borrowing an "off-duty" I-Cop squad for his tougher jobs. (The large number of former Patrolmen in Infinite Justice helps smooth out any quibbles about regulations.)

The stereotypical bounty hunter mission is to track down a wanted fugitive, apprehend him, and turn him in to the authorities for a reward. The mission can, of course, go haywire anywhere along this path. For example, the fugitive might be falsely accused, or a Centrum agent, or hiding out on Merlin-1, or have powerful friends in UNIC. The authorities might be corrupt, brutal, mistaken, or otherwise distracted. The reward might be too small, or so big that it attracts a lot of freelance talent hunting the criminal "on spec." And, of course, the reward might not get paid at all, depending on the suspect's condition, legal status, or political protection. Fortunately, there's this slave trader with a price on his head who just happened to stumble across your path . . .

Liaison

The Liaison Division handles relationships with other Homeline law-enforcement agencies or military units, especially those with parachronic investigation responsibilities. With the Patrol's chronic shortage of time and manpower, unless an investigation truly endangers Infinity interests, the I-Cops are always happy to turn over work to outsiders. Liaison agents follow up information sharing, keep Homeliners in the loop on outtime investigations, and smooth any ruffled bureaucratic feathers. Liaison agents make likely NPCs in an I-Cop campaign, but might make interesting PCs in a campaign centered around a Homeline group such as the FBI's Parachronic Field Team or France's *Légion d'Outretemps*.

I-Cop Liaison agents have a particularly warm relationship with the Royal Canadian Mounted Police (RCMP), who technically "host" any I-Cop operations on Homeline run out of Patrol Headquarters in Calgary. The Mounties' traditions of integrity, self-sufficiency, professionalism, and determination resonate strongly with Patrolmen, and the Patrol seeks to emulate the best of the RCMP experience – bringing order without cruelty or destruction to a vast frontier – in its own work across the timelines. The Patrol actively headhunts former Mounties for responsible postings, and the RCMP is the only Homeline outfit routinely invited on "ride-alongs" to other timelines when I-Cops need backup fast. RCMP characters can add an interesting dimension to an I-Cop campaign, serving as pipelines to the wider world of Homeline or merely lending another perspective.

Logistics

The unglamorous task of keeping conveyors fueled and ammunition sorted both by caliber and by world of origin falls to the Logistics Division. These hard-working perfectionists handle repairs, vehicles, supply, and maintenance for the entire Patrol. This includes supplies, fuel, ammunition, and spare parts for any outtime equipment in storage or rotation; Logistics Division works closely with the Penetration Service's Technical Analysis Division (p. 17). One of Logistics' key tasks is to keep track of every single parachronic device in Infinity's inventory; if a conveyor (or, more subtly, a coordinate disk or spare set of field circuits) goes missing, they alert the closest Patrol team to its last known position. Often, that team is then ordered to drop whatever it was doing and chase down the missing dingus – everyone in the Patrol shares Logistics Division's concern about vanishing equipment. After all, next week it could be bringing a division of fanatical Jamahiriya secularists from Caliph or slavering berserkers from Gotha-19 down on them.

Although essential for the smooth operation of the Patrol, Logistics officers are not particularly essential for the exciting operation of a game. They serve as information dumps, and as the source of weird equipment and urgent requests. A quintessential rear-area, support-staff NPC, a Logistics agent might enter the adventure with a one-time need to recover a particularly sensitive item. Once attached to a Patrol team, of course, his skill at repair and access to restricted or strange equipment could make him so valuable that he stays on for a series of adventures. A team of Logistics personnel might be tasked to establish a

maintenance and supply base on some almost-hospitable parallel, setting up a long-term series of adventures in a continuing setting. Having the prototypical paper-pushers save the universe (perhaps in spite of the condescending "real I-Cops") could be an amusing running gag in a light (or even a silly) campaign.

Morale

Morale in the Patrol is actually better than in most police or military forces, although Infinity's staff psychologists, chaplains, and bartenders all earn their stipends. The Morale Division doesn't actually concern itself with Patrol morale very much, although that's what all the job descriptions in the unit seem to imply in faultless 21st-century buzzword-speak. Its actual duties are propaganda, memetics, and psychological warfare – both on other worlds (convincing dictators to stand down, or the citizens to vote out Centrum puppets) and on Homeline. That last job is the most sensitive of all, but Van Zandt *really* didn't want world opinion to shift and take Infinity away from him. So a goodly chunk of Infinity's money goes into conventional advertising, public relations, and political contributions handled by Infinity's corporate P.R. offices and their lobbyists. A bigger, but far more carefully concealed, amount goes into carefully conceived messages to play up the good things from Infinity (cheap fusion power, safety from Time Nazis) and dismiss the bad (toying with the lives of billions). It's an exaggeration to say that Infinity guards that secret more assiduously than they guard The Secret of parachronics – but Van Zandt and his successors on the board seem to think that the one depends on the other.

Morale works closely with the Scouts as well, helping craft messages (verbal and heraldic) of peace and friendship (or at least "enemy of your enemy") for first contact discussions and meetings, often accompanying Scouts into the field. On outworld operations, negotiation and communication is the Morale Division way, although often with the aim of more thoroughly eliminating an opponent. A Morale officer frequently acts in the role of team leader on another world, or plays "face man" for a team of Patrolmen. A Morale team assigned to bring down some horrible government or end a war could be an interesting group to play. The result might resemble either *Ocean's 11* or *A Fistful of Dollars,* depending on the tone of the game.

Nexus Oversight

Nexus Oversight, the "Highway Patrol" of the I-Cops, guards and charts known dimensional highways, nexus portals, and so forth. Relatively few such unconventional routes lead to Homeline proper, and Infinity bought up most of them (along with all the land for several miles around, where possible) long ago. However, the Patrol can't depend on Infinity's parachronic monopoly to keep the continuum safe. Moving along the back roads of the continuum, infiltrators, smugglers, or terrorists could wreak havoc in realities across the quanta, even if Homeline is (mostly) secure. And there are always tourists to gently redirect, squabbles over access to sort out, and the occasional ghastly crisis to avert. Nexus Oversight also tries to keep track of known banestorms, and its agents keep their hands in by killing anything nasty a banestorm leaves behind. In practice, Nexus Oversight sometimes serves as the I-Cops' own in-house Scout service; the "Nexers" love to find out what's over the next quantum barrier and who's been driving tanks down the ley lines.

A roving Nexus Oversight team of this sort makes an ideal player group. Even if the worlds they're patrolling are quiet now, anybody or anything could come out of the portal during the next new moon and stir things up. A single Nexer could fall in with any team anywhere in the continuum – an excellent way to bring in a new player or replacement character.

Security

Security Division monitors and prevents crosstime infiltration of Homeline. Working very closely with the Intelligence Division of the Scouts, they maintain frightening amounts of information on every single licensee of parachronic technology, and on every outtimer known to have dealt with Homeliners in any capacity. Getting this information is the job of Security's "runners," who keep strings of informers and agents in both the security agencies of many parallels (they essentially command the Vigiles on Johnson's Rome, for example) and inside every criminal or political group known to have a crossworld interest. Security Division works closely with the Penetration Service's Intelligence Division to monitor all other timelines for breaches of The Secret, or of domestic parachronic research. On paper, Intelligence does the monitoring, and Security makes any "adjustments" necessary to fix things. In practice, this means that Security agents are usually tasked with "secret improvements" on other parallels as well: ending slave trades, preventing global wars, derailing atomic research programs in dictatorships, and so forth. Security Division runs the "prison parallel" Coventry (p. B524), as well as a few even more obscure detention facilities on remote worlds. Security also works closely with Logistics, following their lead when tracking missing conveyors, and with Liasion Division, partnering up with Homeline security agencies (especially the FBI, Shin Bet, and MI5) when tracking crosstime threats against national targets. The Security Division also maintains a low-simmering irritation with Infinity Unlimited's Corporate Security Branch, which is theoretically in charge of Homeline threats to Infinity operations; with Homeliners who travel crosstime, jurisdiction gets blurry.

A Security team is another ideal player group. Every mission can be different, from smash-and-grab raids on Islamic Jihad cells on Homeline to following a string of clues to run down a plutonium smuggler across six or seven worldlines. The broad scope of Security missions means that Patrolmen from almost any other division can join up for a single operation, or help staff a full cross-divisional task force to monitor some developing (campaign-long) crisis.

Cover Stories

Given the conflicting imperatives of keeping The Secret and influencing outtime locals, much thought and effort goes into providing Infinity agents with solid cover while on operations in parallel worlds. Necessary documents, travel passes, forged currency, and so forth are the responsibility of the Document Section of the Penetration Service (a cross-divisional unit staffed by the Intelligence, Records and Research, and Technical Analysis divisions). Planting actual identities in offworld data banks, maintaining safe houses and bank accounts, and other local jobs fall to whichever Service runs the main Infinity station on the parallel (if the Scouts, usually the Intelligence Division; if the I-Cops, usually Security Division).

The actual nature of the cover varies by milieu and TL. In low-TL societies, up to TL2 or 3, agents can pass themselves off as travelers from a faraway kingdom, as magicians (this is harder on worlds where magic actually works), or as emissaries from the gods. Some of these stories also work in post-disaster milieus. In societies at TL4 or 5, Patrol personnel have to either invent secret societies to belong to, or suborn existing guilds, orders, or groups (or at least individual lodges or churches). Once nation-states have monopolized power, usually by TL5, Homeline agents have to begin the careful game of claiming to be spies or agents from different nations, hoping to avoid close cross-checking. This, however, makes getting the cooperation of a local government more difficult, and often forces Patrolmen to work through less-than-ideal local cutouts. Impersonating the home government's spies or secret police is the best possible cover, but is fraught with danger.

In *very* bureaucratic governments (which began by TL2 in China and Rome), Patrolmen can often claim to be from another government department or a far province . . . or from the capital, if they are operating in a far province. If they can present the right credentials, and use the right tone of voice, this is often sufficient for short-term operations. Over a longer term, such a cover is always in danger of collapsing. In some cases, it might be possible to claim to be time travelers, or even aliens – presenting advanced Homeline technology as "proof."

Special Operations

The mission of Special Operations Division is the counterpunch. SpecOps (or SOD, to the less-impressed Patrolmen of other divisions) exists to drop onto a Centrum (or, increasingly, SS Raven Division) operation when subtlety is no longer an option. They train in crosstime assault tactics, doing the most damage with the least equipment possible in the shortest period of time. Special Operations does not (officially, anyway) launch operations against enemy targets; it is the "cavalry" called in to end a fight, not the "marines" sent in to start one. Of course, many rescues or counterstrikes require the tactical offensive, and sometimes that creeps up to "pre-emptive defense" against an Interworld task force that looks *almost* ready to launch its own initiative. Special Operations has about 200 agents in three companies stationed on Homeline, Hideaway (a top-secret Quantum 6 "manor world" used exclusively by Infinity retirees and executives), and Habakkuk (a similarly secret Quantum 7 world where the Laurentide cooling snapped the Earth back into another Ice Age around 6000 B.C.). The company on Hideaway is double-strength, since more Centrum operations occur in Quantum 6 than the other two. Their conveyors are hardened subquantum models built into armored TL9 Icarus suborbital VTOL gunships each capable of carrying up to three squads (15-24 Patrolmen) of SpecOps anywhere on the Earths within four hours of an alert. (The Homeline company can, of course, project to Quantum 3 or 4 if need be.) Their bases (in Canada on Homeline and Hideaway; in tropical Kenya on Habakkuk) have immense fuel-cracking stations, full support facilities, massive parachronic detector nets, and backups of most Patrol records of Interworld activity. Support staff (about 2,000 per base) usually consists of disabled Patrolmen from other divisions, civilian contractors, or specialists from Intelligence, Logistics, and Security.

A Special Operations Divison campaign resembles a normal military "special ops" campaign, focusing on raids and assaults. Patrolmen from other divisions usually come along on specific missions only to lend specific knowledge or expertise; they aren't likely to join a SpecOps squad on a full-time basis. If the GM and players can come up with enough variations on the model to keep the game from getting stale, well and good. Otherwise, it may be necessary to mix things up. Players might have a "backup SpecOps PC." Every so often, if the regular PCs uncover something that really needs a smackdown, the game can switch to "SpecOps mode" and the players can bring in their backup PC squad to deliver it. Or the GM can insert a small SpecOps unit into an anchor, or a shifted echo, for a long-term campaign against Centrum on that world. Covert high-tech warfare against Centrum while keeping The Secret, rescuing other Patrolmen (who might become PCs themselves), and recruiting local forces to the side of Homeline presents enough different challenges to keep the game fresh for some time.

Penetration Service

The "Time Scouts" survey and open new timelines, and keep the flow of parachronic traffic running smoothly. The Scouts favor adaptability over discipline, openness over judgment, and breadth over depth. A modicum of knowledge and acceptance on 10 worlds is better than a doctorate on (or initiation into) one subculture – although Scouts will pump the professor (or initiate) for the three key details they need to find

a missing tourist in Nineveh or pass a message to a Patrol contact at the Reichschancellery.

The Penetration Service has eight divisions.

Communications

Whether it's riding camels across a parallel Mojave or burrowing a Trojan Horse into a Sinhalaraj submarine comm net, Communications gets the word out and the message through. Communications Division shares responsibility with Intelligence for cryptanalysis, and encodes even routine messages to the hilt. However, too many mysterious, unbreakable codes in a suspicious age themselves endanger The Secret, so often Communications has to encode the real message inside an enciphered cover message intended to be broken. It's headaches like this that make courier duty seem like a positive relief; all you have to do is get from Paris to Peking and dodge the Khaghan's All-Seeing Eyes along the way.

Communications agents can open the door to any kind of adventure – and may not even know what's in the message that causes everyone to hunt them down. A long-running game centered on the Communications Division can center on multiworld couriers, who "ride circuit" through a number of stations and parallels to pick up messages that can't be sent any other way. This provides plenty of setting variety, and each stop no doubt holds its own crisis that in some way threatens the delivery of the next message.

Contact

In many ways, Contact Division has the most difficult, delicate job in the entire Patrol. Once the Scouts discover a new timeline, a Contact field team has to learn its geopolitical, cultural, economic, and technical situation in as much detail and as little time as possible. All of this, of course, while checking for magic, psionics, or other potentially threatening anomalies in the local physics, establishing some sort of plausible cover for future Patrol missions, and keeping an eye out for Centrum or other outtime troublemakers. If the new timeline is an echo (which the Patrol can't always discern right away, especially with more primitive Earths), making too overt a contact could shift the entire timeline! To make things even dicier, The Secret is never closer to exposure than in the first few months of contact with a new timeline. Agents don't yet know what clothing, behavior, or technology marks them as not just strangers but weird outsiders, and can't find out without wandering around risking death or worse.

All this makes a Contact team a perfect PC group. Every new timeline is a new set of challenges, the GM can tailor adventures (and whole worlds) to meet (or play with) player expectations, and the flavor can vary as widely or as little as desired. A Contact team often includes Scouts from other divisions, and even I-Cops if they provide specific skills (or warm bodies to fill mission requirements *right now*). This offers an excellent mix of starting characters, and return trips to HQ between missions even let players trade out crippled or dead Scouts for brash new replacements.

Echo Surveillance

Once a parallel has been classified as an echo – an exact duplicate of Homeline history vulnerable to timeline shifting – the Patrol turns it over to Echo Surveillance Division. This division has the unenviable task of monitoring all potential crisis points in the echo's current affairs for signs of Centrum involvement, or for other changes that might shift the echo out of place. Depending on the change potential and TL of an echo, a given world might have one team (based in 1873 Liverpool, monitoring shipping news and telegraph cables for any microscopic divergence from Homeline records), a few teams (one in each major capital in 1942), or more. Most echoes really ought to have a global network of agents communicating by ultrawave – keeping tabs, for instance, on every minor kingdom and caravan stop from Chichen Itza to Chang'an and back again in 800 A.D. – but have to make do with overworked "circuit riders" who travel the Silk Road and other trade routes with a cargo of spices and an eye for the uncanny.

An Echo Surveillance team is most suitable for long-running campaigns set in a single echo. The agents can deal with local crises from wars to plagues to suspicious Inquisitors, chasing down every rumor of sorcery or angels that sounds like a Centrum cover. Eventually, of course, one of those rumors will pan out, and the game becomes one of cat-and-mouse as the two sides choose their pawns and begin the contest in earnest. On an echo with a lot of potential divergence points set close together in time or space (1453, 1789, or 1917, for example), the missions still have plenty of variety. For more variety still, the players can take the roles of a "flying squad" of Echo Surveillance agents spot-checking comfortably remote or stable echoes and solving any crises there as rapidly and silently as possible.

Intelligence

Intelligence Division monitors every known world (including a few that aren't very well known at all) for any threat to Homeline, Infinity, or The Secret. Contrary to the romantic image of Intel Scouts infiltrating Reich-5 deployment bases or stealing Centrum coordinate files, most Intelligence work involves combing the records of every other Patrol section. Intelligence Division agents have clearance to see any report from any division of Infinity, and through UNIC, can request intelligence data from most of the Homeline spy agencies as well. Although Intelligence Division gives lip service to compartmentalization of information, there are too many crises, too much data, too little time, and too few Intel personnel for that approach to be practical. Intelligence assigns field agents on "open-eyes" missions (which consist of visiting a seldom-seen world and looking for trouble) to scare up still more data, and many Intelligence Division Scouts visit 10 or 12 worlds in a single "circuit" looking for patterns that don't show up in the on-site reports.

An Intelligence Division agent can get added to any Patrol mission at the last minute, simply because someone wanted more information or thought that trouble might be brewing somewhere. Full Intelligence Division field teams go on (slightly) more organized survey, scouting, and investigation missions to various timelines as well. Intelligence Division PCs can therefore "solo" with a team of Patrolmen from other divisions, or make up an entire adventuring group. An Intelligence NPC makes an excellent "mission director" for a group of Patrolmen even outside Intel Division, or someone who can add hair-raising complications (or life-saving hints) to a seemingly conventional mission briefing. The Intelligence mission can turn out to be a red herring, an excuse for the real adventure, or one more round in a taut game of thrust and counterthrust against Centrum's Interworld Service.

Records and Research

This Division maintains every bit of data recovered or discovered on every mission, as well as the personnel jackets for the Infinity Patrol, dossiers on anyone ever encountered by the Patrol in any capacity, and the most complete historical database in the known worlds. Most of this material is fully computerized on molecular storage media, but Records and Research is always behind on transfers from more primitive sources, especially those from outtime. Thus, the Stacks (as the Division archives are called) also hold several million hardcopy books, miles upon miles of film and recording tape, and a few floors of unclassified stone tablets, cylinder seals, and oil paintings. This division also handles the administrative duties for the Intervention Service; only the most cynical I-Cops really believe that their requests always take two weeks longer to file than Scout paperwork ever seems to. Everyone knows that the best way to get a form approved is to submit it wrapped around a CD-ROM, papyrus scroll, or leatherbound folio that doesn't already appear in the Stacks.

With the best will in the world, it may be difficult to set a campaign entirely in the musty world of Records and Research, unless a somewhat outré "adventures in the Warehouse" game appeals to everyone. A Records Division NPC makes a useful supporting player, however, always available to feed a clue or plot point to the perplexed I-Cops. On some missions, however (such as those to an unburnt Library of Alexandria, or hunting an eldritch tome through the bibliophile underground of Merlin-2's London), a Records and Research agent PC can bring a glittering eye and a head full of facts to the game.

Search and Rescue

When a researcher goes missing in Tenochtitlán, or a party of skiers gets trapped by raiding Helvetii, Search and Rescue Division gets them out. Search and Rescue teams, usually mounted on special conveyors with full ambulance and paramedical modules, remain on call in a number of Infinity stations around Homeline and on major tourist parallels. They can be scrambled and outbound within 20 minutes of getting a go-code, although most dispatches are triggered by "failures to report in on time" or returning parties (or escaping survivors) bearing bad news rather than actual distress calls. Many conveyors have a subquantum "black box" drone that jumps to the closest S&R station on each quantum in an emergency, but this is hit-or-miss at best. Search and Rescue has the primary "first response" task for any conveyor or civilian missing on a "non-threat" worldline (in general, those not classed Z; see *Infinity's World Classes,* p. 83). They do not mount paramilitary or police missions – conveyors gone missing on the Reich parallels draw a response from Special Operations, for example. Unfortunately, the Search and Rescue team sometimes winds up being the first Patrolmen to discover that a mostly harmless worldline has suddenly become a deadly threat. Hence, Search and Rescue agents have to be able to take care of themselves in all kinds of situations, while saving lives and keeping an eye out for the next disaster.

A Search and Rescue team makes an excellent PC group for fast-paced adventures flickering between many different settings. Search and Rescue teams have to have a mix of specialists, ready for anything from

vampire bites to maser burns to flint arrow wounds, moving fast and staying ahead of the locals – or, worse, other dimension-travelers. A single Search and Rescue agent is unlikely to join a cross-disciplinary team, unless he has specialized knowledge (of a world, a danger, or a technique) needed for a mission. However, a tour in Search and Rescue makes an excellent background for a player character "medic" in any other division.

Survey

A Survey agent is what the average Homeliner thinks of when he thinks of the Scouts. Survey Division plans, organizes, and carries out "first in" missions to new worldlines, after as thorough a robotic reconnaissance as possible (see *Recon Procedures,* below). Drones can provide a surprising amount of hard data about a new world, but there are always strange holes and mysterious quirks that require on-site human inspection. Survey Division field agents are trained in camouflage, stealth, and covert surveillance, as well as various scientific disciplines, rather than social interaction skills (those fall under Contact Division's purview). An ideal Survey mission, from the perspective of many agents, is a long camping trip in the Appalachians spent monitoring radio broadcasts or tapping into computer cables without meeting a local. Unfortunately, as with any other Patrol division, no mission is ever ideal, and many Survey agents have to extract themselves from the clutches of local guards, double-talk their way past suspicious nomads, or personally discover monsters or magic on a seemingly normal worldline.

Since Survey Division teams are expected to stay out of the way of the locals, such a team might not seem like an ideal role for an active player group. Unless something goes wrong – a Survey team that gets lost or cut off from Homeline (perhaps because the worldline shifted), and has to make its way in the new world regardless of procedure would be an excellent PC group for a medium- or long-term adventure set in a single worldline. Also, playing the initial Survey team as "guest star PCs" who scope out the situation first-hand and then turn the mission over to the regular heroes has much more immediacy and reward going for it than another GM briefing about "what Survey Division has determined." In mixed groups, Survey agents bring useful talents to the table, and any given mission can add "the first agent to set foot on this worldline" to the team.

Technical Analysis

Technical Analysis Division exists to help Patrolmen blend in with, recognize, utilize, and if necessary counter technologies from other alternates. Their specific mission is to examine and evaluate, and ideally be able to duplicate, any and every technological artifact from any timeline, from sharpened bones to bioscanners. Tech Division works closely with Records and Research, and also prints forged currency, manufactures inconspicuous or fashionable clothing, and creates "pocket fillers" (keys, small idols, eating knives, roach clips, etc.) to help Patrolmen blend into any worldline they might have to enter. Although regulations discourage the inclusion of "secret agent" devices in costumes and personal items in case of loss, theft, or accidental discovery, Tech Division loves to add cameras, microphones, cutting saws, and similar "mission enhancers" to anything they build. They usually tell the agent who carries the item about such extras.

Like their kindred spirits in Records and Research, Technical Analysis Division agents are not ideal PCs, being quintessential rear-area personnel. A team of Tech agents would be hard-pressed to justify many outworld missions, except perhaps to worlds with a lot of very strange technology. However, adding a Technical Analysis expert to a given mission is far easier to justify, whether the worldline runs on immense analytical engines, bizarre Tesla devices, or dwarven steam boilers.

Recon Procedures

Before Survey Division teams ever enter a worldline, standard procedure calls for thorough robotic reconnaissance, using multiple drones, ideally in multiple locations around the world in question. Odd results at any stage prompt the insertion of more drones at other locations for cross-checking and correlation of the data; dangerous results prompt a reassessment by the Penetration Service as a whole.

First, Survey pops a small floating drone into the mid-Atlantic to check the atmosphere, radiation, gravity, salinity, plankton count, and other major environmental metrics on the parallel. If that survey comes back successfully (and informatively), a larger drone enters on land to monitor the electromagnetic spectrum for radio, television, or other signals, and to sniff the atmosphere and test the soil for pollutants and complex chemicals. This drone also checks the night sky, and determines the parallel's local present date from the star patterns. (This usually happens in the Chilean Andes, to maximize seeing and minimize witnesses.) From these reports, Survey Division estimates the world's TL.

On lines lower than TL7, a high-flying stealthed reconnaissance drone enters and takes aerial photos for several hundred miles around; where possible, multiple airphoto missions provide good coverage for key areas like the Mediterranean, the Chinese coastline, and eastern North America. If possible (or vital), Infinity orbits a stealthed satellite or two for surveillance and communications. On timelines TL7 or higher, submarine drones crawl up the shore in busy dockyards (disguised as wreckage or flotsam) and attempt to tap into local wireless computer networks, phone signals, or any other medium they can subtly sift for information. Any drone sent into a TL5 or higher worldline is equipped with a thermite self-destruct system that activates if it is tampered with, if it is intrusively scanned, or if it misses its recall window.

Miracle Workers

Miracle Workers, the "do-gooder" nonprofit wing of Infinity, has a simple enough mission: save and improve lives across the Infinite Worlds. This encompasses famine relief, disaster recovery and repair, sanitation and health improvements, nutrition and agricultural support, control of plagues, and (in the direst situations) refugee relocation. Often, Miracle Workers teams show up to keep civilian locals safe (and safely out of the way) in case of a Centrum attack, reality quake, or other parachronic incident. Although their tents and vehicles usually display the red cross, caduceus, pelican, or other local "neutral healer" emblem, Miracle Workers personnel (except for those in deep cover) wear the dove-and-raven flash of their organization on their clothing or as jewelry.

Miracle Workers operations vary depending on the type of worldline where they take place. On some depopulated parallels, where Infinity has openly taken over (most Hell parallels, for example), Miracle Workers also operates openly. (On some mining parallels, Miracle Workers teams are introducing urban sanitation and the germ theory of disease to parallel Sumerian cities.) On many parallels, Miracle Workers is a chartered, licensed not-for-profit agency (just like White Star Trading is a legitimate import-export group) that works under its own name with the local Red Cross, Doctors Without Borders, Knights of St. John, or whomever. On primitive worlds, they simply claim to be itinerant healers, priests of healing saints or gods, and so forth. Infinity looks the other way when Miracle Workers tries to spread medical techniques to the parallels – interference with parallels is allowed, as long as it doesn't threaten The Secret. The major controversies involve worlds where the Patrol has taken a side in a war or worked to destroy some empire – I-Cops don't appreciate seeing fellow Homeliners working to cure and stabilize the people they're trying to defeat. Miracle Workers staff isn't allowed onto echoes at all – the risk of some "humanitarian" intervention changing history is too great.

Playing a Miracle Workers team is a change from conventional Infinite Worlds gaming. Although the PCs would face their share of local warlords, outtime interference, and so on, many of the problems would not have human solutions – or any solutions! In most games, the Miracle Workers operation is just a setup that gets the PCs (Miracle Workers or otherwise) to the worldline just in time to coincidentally stop an entirely unrelated Centrum scheme.

ISWAT

Interworld Special Weapons and Tactics (ISWAT) doesn't exist, at least officially. Its agents are all on the books as Patrolmen, assigned to various out-of-the-way parallels, extended training missions, or nebulous headquarters duties. Its Director isn't even on the Infinity payroll, which is understandable – even a casual auditor would notice a name like "Otto Skorzeny." Recruited from a Hapsburg prison camp on Aeolus (see ***GURPS Alternate Earths 2*** for further details), ISWAT's Skorzeny combines his parallel selves' genius for small-unit tactics and leadership with an astonishing degree of street-fighting political guile in the service of individual rights and opportunities. He has moved mountains to lift Infinity restrictions on outtime recruitment, at least for his own teams, and they remain fiercely loyal to him and ISWAT as a result. Well over half of ISWAT's operatives (the total number is classified, but there are probably fewer than 100 five-to-seven-man squads on the active duty list) are outtimers from all walks of life.

Some of them, like Skorzeny, are "résumé recruits" picked based on their parallel selves' skills. Some are locals who come to the notice of Patrolmen in some way, usually involving meritorious service or astonishing ability. A few are outtimers who stumble onto ISWAT operations and manage to find their way to Homeline, or to one of the covert financial, military, or technical facilities ISWAT maintains across the parallels. To Skorzeny, such cleverness and drive far outweighs any possible damage to The Secret – anyone smart enough to find his people is someone to be recruited, not dumped on Coventry to waste their skills forever.

A solid cadre of ISWAT operatives are Patrolmen, of course – those with a record of toughness, creativity, flexibility, and (most importantly) luck. Skorzeny is fond of saying "I can train someone to do anything in the world – except be unlucky enough to find trouble, and lucky enough to survive it." His record speaks for itself; ISWAT operatives receive training comparable to the most rigorous special ops units on Homeline – with the equivalent of a doctorate or two in history or anthropology on top of it. As it happens, a number of special ops soldiers, and not a few history professors, also find their way to ISWAT's roster. Patrol rumor claims that ISWAT has gods, sorcerers, vampires, aliens, superheroes, and angels in its ranks . . . but that's just barracks gossip. Probably.

Missions and Training

ISWAT specializes in operations on closed worlds, weird parallels, and pocket multiverses, and routinely performs high-priority but deniable missions that can determine the fate of entire worlds. Many ISWAT operatives have magical, psionic, or other means of traveling between worlds – they don't always like to announce themselves with a burst of parachronic energy. Some of the crises it faces are urgent and overwhelming: rogue AIs trying to undermine consensus reality, amphichronous invasions from antimatter universes, kidnappers hijacking

Charon's boat and holding an entire Earth's afterlives hostage, and sentient psychoses spreading themselves through parallel worlds in dreams. Others are just plain *strange*. In the intervals between cosmos-threatening disasters, ISWAT takes on simpler tasks like overthrowing corrupt empires, stealing or destroying irreplaceable evil magic artifacts, killing immortals, and capturing invulnerable fortresses. When they're not doing that, they're training.

Training, where at all possible, happens in the field, on lower-priority "feel-good" missions. Skorzeny has a particular love of sabotaging, subverting, or otherwise hampering Nazi Germanies everywhere in the continuum. A fierce democrat and rugged individualist, the Director despises his Nazi "twins" and what he calls their "corrupt toadying cynicism," and even his "Teutonic efficiency" recoils at the inhuman waste that Nazi ideology represents. Hence, he prefers "live fire" training that just happens to take place on Reich-2 or any other world where "You five go destroy every vehicle in that Nazi airbase, and kill anyone who tries to stop you" can be a valid rule of engagement. Political corruption, social engineering, economic manipulation, and any other dirty trick Skorzeny or his brain trust can come up with gets tested to destruction against totalitarian regimes across the parallels on training mission after training mission. These lengthy and repeated exposures to fascism from the inside also have the happy side effect of inspiring ISWAT recruits into an appreciation for individual freedom that they may not have had when they left their home parallel.

This appreciation sometimes extends, a little too rowdily, into their "shore leave." ISWAT personnel officers try to select cities and timelines where a week-long melee might actually improve things locally – parallel Port Royals or Cripple Creeks, for instance – and let an entire team take their leave together. Camaraderie forged on the battlefield is annealed in the barroom or brothel, and a minimum of harm is done to the peace-loving citizens of other parallels for whom ISWAT labors. Some teams prefer slightly more elevated shore leave policies; in general, initiative in selecting leave gets rewarded.

ISWAT in the Campaign

For a conventional Patrol campaign, ISWAT should be a mysterious force in the background, always doing something vital far away. A single ISWAT operative can be an excellent story trigger, but GMs should be careful about overshadowing the regular PCs with this glamorous "guest star." Ideally, the ISWAT op gives the Patrol team their mission along with compliments about why they were chosen, and goes off to do something else impossibly dangerous off-screen. A mission to rescue a trapped (or besieged, or otherwise isolated) ISWAT operative, however, can feature the op as an on-screen NPC, and the use of his skills can be the "reward" the heroes get for defeating the opposition. In a dire emergency, of course, the GM can use ISWAT as a *deus ex machina*, dropping in from the clouds and rescuing the PCs when all looks most grim – but ISWAT should be on their way somewhere else, and leave the real protagonists of the story to tie up plenty of loose ends.

Of course, an ISWAT team makes an ideal player character group, for players with a yen for non-stop adventure with a big splash of strangeness. ISWAT operatives should begin at 200-250 points at least; teams of 1,000-point characters are totally appropriate for ISWAT campaigns. The GM should think big when designing ISWAT missions – major historical changes, the fates of empires, and immense reality quakes are all in a day's work for ISWAT. "Nazi turkey shoot" adventures should be *vacations* for an ISWAT team; thugs with machine guns are trivialities to such heroes.

Parachronic Laboratories

Parachronic Laboratories, or "Paralabs," serves as Infinity's in-house "pure research and development" arm. Paralabs is not related to the "Patent Development Department" in Infinity Tower, which sifts other parallels' scientific developments and technologies for future operations, licensing, or theft. It concentrates on the physics of the Infinite Worlds, the nature of reality and physical law, and the practical mechanics of crossworld travel.

Paralabs has research facilities all over Homeline; almost every top-flight university physics department has a Paralabs laboratory attached, sumptuously funded by Infinity grants. The main Paralabs facilities are in Geneva, Switzerland (as part of CERN); Batavia, Illinois (associated with the Argonne Labs accelerators); and Livermore, California. Paralabs shares its Geneva campus with UNIC, and its Livermore campus with the U.S. Department of Energy. Paralabs also has facilities on other worlds, which it shares with nobody. The three best-known are the "Clean Room" on Smother (where it puts really dangerous or mysterious objects and experiments), the "Farm" on Mammut-1's Madagascar (where Paralabs works on robotic conveyor design; the Reserve Conveyor Fleet's hangar is there), and the "Wheel" on Turkana, a Quantum 6 world where the Earth's magnetic poles are seriously offset from the geographic ones. Here, Paralabs has built an accelerator around the magnetic pole (in the Gobi grassland) and drilled a hole into the Earth's mantle for power. The Wheel team is universally considered the craziest team in Paralabs; their rumored triumphs include artificial reality temblors, creating a banestorm inside a wind tunnel, and briefly altering Turkana's quantum level – and number of moons.

Theory

In 1957, Dr. Hugh Everett III came up with the Many Worlds Interpretation of quantum mechanics, as a way to resolve the paradoxes of the Privileged Observer and such thought-experiments as Schrödinger's Cat. The Privileged Observer (according to the rival Copenhagen Interpretation) is the observer who causes the quantum wave function to "collapse" into particles with location and speed and other characteristics while under observation. Schrödinger's Cat is inside a box with a vial of deadly poison that will break when a given atom decays and releases an alpha particle, killing the cat. Since quantum-mechanically, the atom might or might not release a particle at the instant of decay, the cat is famously half-alive and half-dead in the Copenhagen Interpretation – until the Privileged Observer opens the box and "collapses" the cat into either the alive or dead state.

According to Everett's interpretation, every quantum "choice" creates two worlds, two timelines. In one, the observer sees a live cat. In the other, the observer sees a dead cat. There is no Privileged Observer, because both outcomes occurred – just not in the same universe. Every single decision, every single atomic flow or switch, creates another worldline. Initially, the Many Worlds Interpretation held that information (and therefore energy, and therefore, matter) could never pass between worlds. However, string theory in the 1960s, and strange experimental results showing seemingly instantaneous "dipole communication" in the next decades, made it seem theoretically possible.

Van Zandt's discoveries did not actually solve the question. Although he discovered many worlds, they weren't of the infinite "one photon displaced" variety the orthodox Many Worlds Interpretation predicts. Instead, they were like "knots" in the superstring – places where the potential fog of alternatives "collapses" into actual worlds. Further, these "knots" bunched up into different "energy levels" that Van Zandt dubbed the quantum levels, or quanta.

Thus, parachronics actually managed to combine Everett's theory with an empirical Privileged Observer – the parachronic traveler. And that, with minor mathematical fillips, is where the theory remains even now, with nobody satisfied, and with some radical theorists proposing that a kind of Observer Effect (p. 159) holds for parallel worlds, or that the expectations of the traveler have some effect on his destination.

The Physics of Infinity

Precisely how the infinite worlds vary and interrelate remains a tangle. Most of the fundamental physical constants remain the same, but some differ wildly while somehow not reducing the universe to quantum fog. It's difficult to make valid crosstime theories work, in large part because physical laws don't seem to hold constant across the continuum. Not only are there worlds where magic works, or where the luminiferous ether exists, there are innumerable subtle variations down to the level of individual electrons. Other changes don't seem to make any real sense, or exist in isolation when they should affect the entire system of physical constants. For example, there are two worlds in which the speed of light is measurably greater by some half of a percent, and one in which it is less by almost a full percent.

The only universal difference is that the second is nanofractionally slower on all known inhabited worldlines except three: Homeline, Centrum, and Shikaku-Mon. (This implies that Shikaku-Mon could, if it discovered the theory, build parachronic projectors; see p. 146. This does nothing for Security Division's peace of mind.) On Blip (p. 140), the second is much faster, but the "clock" only started ticking a few million years ago. This divergence has been true on all worldlines for approximately 3.5 billion years, roughly (and possibly randomly) coinciding with the emergence of organic life on Homeline.

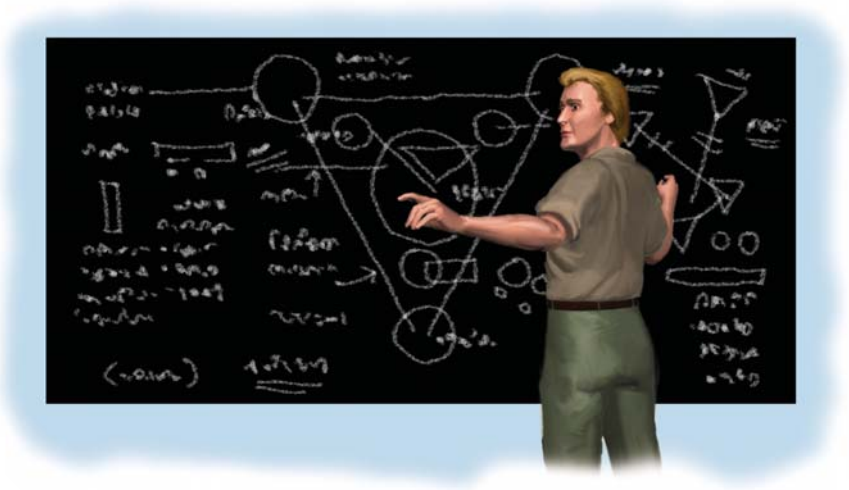
Theoretical paraphysics is split between two schools, the "gradualist" and the "catastrophist," mirroring the intellectual divisions in the early history of geology and biology. In the gradualist or "naturalist" view, the alternate worlds were inevitable, or have always existed, or are a natural outgrowth of the Big Bang, which emitted all the alternate universes along with all the matter and energy in Homeline's universe. Gradualist theory depends on the Many Worlds Interpretation of quantum mechanics, in which quantum uncertainty is explained by postulating an infinity of worlds existing simultaneously at every decision point down to the subatomic level. If this theory is true, then any seeming irregularities in the continuum must be observational. What Infinity calls "parallels," for instance, are merely clusters of historical or paraphysical probability; echoes are simply parallels with a different charge, and once their proper quantum is fully observed (in faultless Heisenbergian fashion), they "move" into it.

The catastrophist or "chaotic" viewpoint is almost obtusely Newtonian in a way. Something smashed into the universe, probably about 3.5 billion years ago, and broke it into many pieces. The quanta remain unstable, and entire physical realms can simply wink out of – or into – existence. Something (or things)

Which World Is Ours?

Homeline obviously isn't "our" present-day world – our world doesn't have crosstime travel, for one thing. But Infinity has discovered a couple of early 21st-century Earths, just a couple of decades behind Homeline, which diverged by *not* inventing parachronics. There are certainly a few more out there. Since these worlds have technology only a few years away from that of Homeline, the policy is covert observation. If the GM wishes, *any* of these close parallels could be "our world, our time" – or at least one very close to it.

occasionally tears through the continuum and disarranges it; even the word "continuum" is a misnomer. Reality quakes are an example of this process occurring right now. Worlds change places, spin off alternates in inexplicable fashion, and shift quanta. Regardless of the "steady state" universe and smooth equations beloved of the naturalists, any Patrolman can tell you that there are more changes, more exceptions, and more just plain weirdness out in the infinite worlds than are dreamt of in any philosophy. Even the laws of physics deform from world to world; the notion of a unified theory, even a quantum-mechanical one, is simply perverse.



The Williams-Khor Hypothesis

In 2019, after the discovery of Sherlock-2, Professors Rena Williams and Gregory Khor proposed a radical explanation for the nature of worldline formation. According to the Williams-Khor Hypothesis (called the Super-Copenhagen by its detractors), quanta are psychic constructs existing in the traveler's mind. Belief, hope, and fear drive the formation of the various parallels; as more and more Homeliners learned about parallel worlds, the worlds encountered went from the fairly normal (Earth-Beta) to the extremely strange (Ezcalli). The Williams-Khor Hypothesis is one of the few parachronic theories to explain myth parallels and the prevalence of "reality clumping" around events like the American Civil War, World War II, and so forth that played a major role in the cultural background of the first crosstime explorers. Exactly how this might work requires further research, but Williams and Khor suggest that myth parallels and similar phenomena are somehow "emergent properties" created by the intersection of Homeline and its echoes and close parallels (which well outnumber the other worldlines). The traveler/observer simply "steps up" into the parallel that resonates with (or is congruent with) his own psychological geometry, in a kind of "pantheistic solipsism."

Both Williams and Khor wound up at the center of massive controversies after proposing their hypothesis. Khor was actually stripped of tenure by the University of California in 2021 after a terrific fight featuring accusations of forged research, academic witch-hunting, and embezzlement of grant funds. He announced his intention to construct a "syllogismobile" that would travel to any world he envisioned from any worldline regardless of quantum level, emigrated to Lysander (p. 32), and has not been heard from since. Williams managed to stave off her inquisitors at Cambridge, and has begun to research the nature of magic, which also deals with altering reality in conformity with the human will. She eagerly assists with Patrol debriefings of Cabalists wherever possible; unkind academic gossip hints that she has accepted Cabal membership.

Further Infinities

All of Infinity's theories rest on Van Zandt's original notion of an 8-dimensional superspace containing a single quantum "axis" and many, many worlds. However, this may just be "locally true," like Newtonian physics. The topology of reality quakes (box, p. 75) presumes a 9-dimensional matrix, for example; the astral plane of the Cabalists (p. 68) also somehow exists "outside" conventional 8-space.

Rumors of completely alien travelers encountered during conveyor mishaps, the infamous "frog error" (p. B532) that seems to knot 8-space around on itself, and other weird empirical data such as the Möbius (p. 141) worldline also cast doubt on the "limited infinity" notion. Every so often, the parachronic detection antennae at Woomera pick up signals and pings from impossibly distant quanta – for four minutes in 2025, the computers all insisted that conveyors were arriving from Quantum 93!

Although Paralabs physicists have decided that echoes drift into the accessible band from other quanta, there's less than no evidence for this thesis – there are no reports of echoes "passing through" Quanta 5 or 7, for example. Some radical mathematicians believe that the echoes (and possibly many high-inertia parallels such as Ezcalli) come from other worldline axes outside or "perpendicular to" the quantum field as understood.

Such axes may also intersect the Tree of Futures spoken of by some precognitives and UFBs (Unidentified Futuristic Beings). This theory holds that after a certain period, Homeline's worldline will fracture (or "blossom," in the more upbeat reading) into a myriad of interlocking futures, possibly joined by stargates or hyperspace.

Research

Psi

Unlike most Homeline researchers, Paralabs scientists never doubted the existence of psionic powers. They fit the existing string theory math on "instantaneous communication" too well to rule out, and when other worlds' research began to pay off, Paralabs instantly moved the psi program to the front burner. Although most Homeline psi phenomena are too weak to study reliably, much less control, Paralabs has adapted some psychotronic technology from other worlds to create "amplifier chambers" that boost the psionic signal to readable levels.

Paralabs focuses on two main fields of psi research: security and psychoparachronics. Security covers all types of mind reading, ESP, clairvoyance, and anything else that might reveal The Secret to an outtimer. One early success of the Paralabs researchers was the Tenser Method, a subliminal, subvocal, subconscious system for masking the user's thoughts. (This is the Mind Block skill from p. B210.) Psychotronic devices have also proven themselves on several worlds. In the wake of the Reich-5 breakout, the investigation of psionic world-jumping, both innate and assisted, has taken center stage. Paralabs is probably farther along theoretically than Reich-5's Armanen Order, but lacks the depth of empirical experience that hands-on surgeries and human experimentation have given the Nazis.

UNIC takes a very intrusive part in Paralabs psi studies, demanding access to all labs and equipment, maintaining its own archive of Paralabs experimental data, and insisting on the maximum possible oversight. Some of the permanent undersecretariat within the Crisis Ministry (especially Moira van Deering, the Special Rapporteur for External Security) are lobbying for UNIC to take over Paralabs' psionics work itself. Until then, the Crisis Ministry funds duplicate research, headhunts promising parapsychologists, and keeps a close eye on Paralabs results. It seems that Infinity isn't the only one worried about keeping its secrets secure.

Magic

When the first Scouts returned with reports of worldlines where magic worked, the evidence was dismissed as local legend, or at best as misreported psi. Paralabs personnel visited some of these timelines to perform psionic experimentation, and accidentally wound up confirming many of the original Scout reports. Eventually, with the discovery of enough different "magical" parallels, Paralabs boffins and Infinity higher-ups alike grudgingly agreed that some "paranormal" faculty outside conventional psi existed.

Studying it, however, is a problem, and not least because using terms like "magic" still raises eyebrows at Paralabs. The current theory is a modified version of the crackpot (at least on Homeline) biochemist Rupert Sheldrake's "morphogenetic field" concept. Every living thing (even whole ecologies like rivers or forests) possesses an inherent, transdimensional energy field that interacts with the fields of, and thus influences, similar beings or objects all over the world. (And possibly on parallel worlds as well, but the theoretical work on that concept is still in its infancy.) By altering, deforming, damaging, or recharging the morphogenetic field of some person, animal, plant, or place, a trained "morphogeneticist" can cause seemingly "unexplainable" phenomena at a distance in accordance with his intentions. Not all Paralabs technicians in the "Sheldrake Section" buy the entire theory (some of them, very quietly, are beginning to believe in demons and spirits and, well, magic), but it's the best one they can come up with. But since Homeline is (as far as anyone at Paralabs can determine) a no-mana world, any Infinity experiments in magic (or morphogenetics) must occur in the field. Unfortunately, no "magical" but unpopulated world has yet been discovered, so field research involves visiting some parallel and asking the kinds of questions that can get careless morphogeneticists burned at the stake.

To add to Infinity's headaches, further research has made it clear that there are significant variations in the way that magic actually works between various timelines. At first, these seemed to be limited to the extent to which innate human talent could influence spells' energy efficiency, or the mechanics of specific spells. However, later explorers discovered several worlds in which spells didn't work well or at all, but lengthy ritual procedures could produce subtle but far-reaching supernatural effects. Paralabs generally classifies these worlds as having no or low mana, but those researchers who are prone to sloppy speculation and the use of borrowed magical jargon often speculate that they have "radically aspected" mana which responds to trained human will in completely different ways. (One curiosity is that such worlds often have especially extensive infestations of conscious immaterial "spirits.") The only silver lining is that many Cabal members seem to have almost as much trouble with the concept as does Paralabs.

Personal Equipment

The GM should feel free to provide Patrol characters with any TL8 gear imaginable from any ***GURPS*** sourcebook. TL9 gear is also available, on an experimental basis – primarily surveillance, communications, medical gear, and body armor. Costs are for TL8 Homeline; not all equipment is available outside the Patrol.

Technically, Paralabs doesn't provide personal equipment for the Patrol – that's the I-Cops' Logistics Division, with support from the Scouts' Technical Analysis Division. However, some of the equipment design does originate in Paralabs computer models, and it has become a Patrol truism that anything that breaks, or reveals your position, or interferes with a jump, is Paralabs' fault, so it goes in this section anyhow.

All high-tech outtime equipment contains fingerprint locks keyed to the Patrol team (they can be reset in the field, but only by a pre-programmed user). Attempting to open or use such devices without fingerprint access activates a self-destruct charge that implodes and slags the device. Patrol radios can also send a "slag now" signal to any or all devices; they destroy themselves automatically after 48 hours without a "keep alive" signal. Some equipment has even more stringent security, as noted in the descriptions.

Homeline TL

For game purposes, Homeline is a mature TL8 with a few TL9 pockets. (This means you can outfit Patrolmen with any TL9 gadget you'd like, but it can break or malfunction as entertainingly as possible.) AIs, for example, remain purely theoretical, although several expert research systems exist to harvest, sort, and handle data. Homeline's space program is static, devoted to mining Earth-grazing asteroids rather than terraforming Mars or settling orbital space. Cars are safer, faster, more energy-efficient and better looking than 1998 models, but only their fuel cells (adapted from Lenin-3 models) are TL9. Fusion power, microtech factories, and genetic therapy are all TL9 in effect, but a very "safetech" TL9 that hasn't bled back into the society at large outside the hospital. Whole-body cloning, artificial wombs, designer babies, and even wide-scale bionics remain controversial and undeveloped. Organ and limb cloning, healing, and general medicine and trauma care can be considered TL9.

Weapons are still mature TL8. Laser rifles have yet to reliably outperform the M-23 assault rifle in testing, balky and experimental battlesuits are less practical than tanks, and the "smart spaceplane" remains on the drawing board thanks to the trillion-dollar cost of building the factories necessary to assemble its components. No nation except the United States has the resources to refit an entire military in the theoretical equipment used on other parallels, and the United States seems happy to stand pat for now (although rumors of TL9 weapons filter out from American special-forces bases and testing grounds). In the basic sciences, with the exception of psionics and parachronics, Homeline remains comfortably TL8.

Homeline Science

Technological development on Homeline diverged sharply from our own Earth when Van Zandt invented the parachronic transfer in 1998. How sharp that divergence was, and whether there were any other previous divergences, are unsolved questions. They will have to wait either until Infinity discovers our world, or until our world reaches 2027.

What even many Homeliners don't appreciate is the change made in basic scientific progress by the accessibility of other timelines. Almost all the innovations a Homeliner thinks of as "parachronic spinoffs" – fusion plants, wrist-top weblinks, the leukemia cure, and even Mango Spredd – are actually thefts (or, in the best cases, fraudulently obtained licenses) from other worlds' scientific establishments. The brilliant cancer and AIDS researchers of the 1990s, for example, took fat Infinity consulting contracts to vet other worlds' cures, only sporadically attempting to integrate decades of parallel researches into Homeline's own publications database. Similar effects occurred in almost every science; the sheer magnitude of the task discourages many scientists from even trying to master whole libraries of new scientific data, especially when other worlds may not quite have the same quantum setup Homeline does, so their results may not be reproducible. Finally, why bother working 15 years to perfect a vaccine or algorithm when Infinity could bring it home, already licensed and commercially proven, next week?

Almost all the really innovative thinkers in the sciences, except for a few eccentrics, have followed the money to either parachronic research and quantum physics (and related fields like cosmology and paleontology), or psionics research and brain-body biology. Here, at least, Homeline cannot harvest the poisoned honey of other worlds' technology, and remains forced to pioneer its own.

Energy and Power

Infinity Patrol facilities use standardized fusion reactors for power at their permanent facilities. Some research stations use quantum nucleonic or other cutting-edge technologies.

Power

Sending large power plants with all Patrol operations is not a practical use of conveyor resources, so agents must often adapt local resources or rely on smaller "portable" generators.

Fuel Cell: These electrochemical devices convert hydrogen and oxygen into water, producing electricity and heat in the process. For practical and safety reasons most use hydrocarbon or alcohol fuels, converted into hydrogen, in a replaceable cartridge. Fuel cell cartridges take three seconds to replace. A typical micro fuel cell used by Patrol agents generates 750 watts of power for 40 minutes before requiring a new fuel cartridge ($1, 0.25 lbs.).
$75, 1 lb.

Solar Cells: The Patrol makes extensive use of TL9 flexible plastic photovoltaic cells that can be *painted* on many surfaces, including clothing and equipment. Each square foot of cells generates about 17 watts of power in full daylight, but accounting for nighttime and weather they usually generate an average of 3 watts. $15 and 0.01 lbs. per square foot.

Energy

The Patrol has adopted a commercially available nanocomposite battery technology for most of its equipment as an interim step until Homeline industry can begin mass-producing room-temperature superconductor loops. To simplify an already onerous logistical burden, only two classes of cells are in normal use, and both are rechargeable.

C cell: These batteries are used to power most Patrol gear, and a smart agent takes several backups "just in case." $2, 0.1 lb. Stores 90 kJ (25 watt-hours).

D cell: This larger battery is used in power-hungry electronics and sensors. $20, 1 lb. Stores 900 kJ (250 watt-hours).

Communications and Information Gear

All Infinity Patrol electronics have a short-range ultra-wideband microcommunicator (100-yard range) for passing information between themselves and fellow Patrolmen. This can be disabled if there are concerns about signal emissions.

Hideout Radio: A short-range encrypted radio that fits in a small earpiece, with optional microfine antenna wires. A flesh-colored throat-mike patch picks up vibrations directly from the voice box, so a low murmur or whisper is clearly transmitted even when around heavy machinery, in the middle of combat, etc. One-mile range. Can operate for 250 hours if sending and receiving voice and text messages, but sending large amounts of data (video, programs, etc.) significantly reduces battery life. $50, neg. weight.

Linguistic Prompt: The best available natural-language translation software provides three pre-programmed *spoken* languages at Broken proficiency; the Patrol does not possess "universal translators." Complexity 7, $70,000.

Mission Databases: Most Patrol agents have an extensive set of databases and expert systems tailored for their missions. This is sufficient to allow the use of most IQ-based technological skills (p. B168) that require software to function at full effectiveness. For tasks of TL7 or less, the databases provide enough information to cancel up to 3 points of TL modifiers (p. B512). The historical and linguistic databases, geological survey maps, etc. programmed for each mission add +5 to relevant skill rolls, with a successful Research roll. Complexity 3. $36.

Palmtop: A rugged portable computer with built-in digital camera, voice recognition, pull-out floppy display screen, and augmented reality compatibility. For security it incorporates a fingerprint biometric scanner and a physical lock to deny unauthorized access. The computer uses a custom architecture to reduce the possibility of infection by novel computer viruses or other electronic hazards. Opening the casing requires a Traps-6 roll to disable the anti-tamper devices; failure means all data is erased (unrecoverable without super-science technologies) and a tiny explosive charge destroys the most advanced computing and memory elements. Complexity 7, with 100 TB of usable data storage. $200, 3 lbs, D/20W (12 hours).

Storage Chip: These solid-state information storage devices are keyed to only function when connected to "approved" palmtops or the primary Infinity Patrol systems. A typical example (about the size of a finger) stores 10 TB and can survive all but the most horrible abuse. $10, 0.1 lb.

TacNet: This software helps a Patrolman by intelligently tracking and displaying his positions, firing arcs, blind spots, ammo counts, etc. The program gives a+2 bonus to Tactics if all parties are in communication. Complexity 4. $480.

Sensors and Recon Equipment

Most Patrol agents do not have the benefit of well-developed surveillance infrastructures such as orbital spy satellites or high-altitude unmanned recon drones in their missions.

Bug Detector: A specialized emissions scanner and ladar that can detect nanobugs, smart dust, and other monitoring devices. Operation requires a Quick Contest of Electronics Operation/TL8 (Security Systems) against the bug's TL. $500, 1 lb.

Chemical Microsensor: A chemical sensor the size of a thick credit card, able to identify even trace amounts of any *known* airborne (aerosol or gas) chemical agents – including many types of drugs and chemical explosives – without operator intervention beyond removing it from its protective sleeve. Microsensors issued by Homeline monitor for dangerous chemical weapons and toxic industrial gases. $100, 0.2 lb.

Homing Beacon: This small tracer (-11 to spot) can be set to activate when it receives a coded signal, or broadcast continuously. Provides a signal for one hour that can be picked up by radio emissions scanners up to 10 miles away. $40, neg. weight.

MiniHUD: This heads-up display projects full-color images directly onto the retina using lasers. The emitter clips to the frame of any glasses or goggles. Provides the user +1 to Piloting, Driving, and other skills that benefit from fast, hands-free display of information. $50, neg. weight.

MicroNav: An atomic clock and inertial navigation system the size of a small watch. It is built to operate even in the absence of global positioning signals. Provides the benefit of Absolute Timing and +2 to Navigation. $100, neg. weight.

Parachronic Detector: These devices can detect incoming jumps within their range, as per p. B532. Only barely man-portable, a detector requires a separate generator for power. They have a base range of 1,000 yards. Every doubling of range beyond that is at a cumulative -2 to skill. $560,000, 56 lbs., 560W.

Parachronic Scanner: A "personal chronoscan" has a base range of 100 yards. $56,000, 6 lbs., 4C/56W (2 hours).

Quantum Analyzer: This device can compare the local reality to its database and see if there is a match (used to verify a correct jump). Requires one day of readings to be collected and a successful Electronics Operation/TL8^ (Sensors) roll. This unit also detects major disturbances in quantum flow (reality quakes, banestorms, unshielded nexus portals) within 1,000 yards on a roll at -5 to skill. $200,000, 25 lbs., 5D/25W (50 hours).

Sidereal Chronolog: Instrumentation package that can determine the exact local time and date relative to Homeline based on specific astronomical data. The package contains a central processor and database, plus three 8-inch optical telescopes for clear nights, and 40 square yards of radio-sensitive array fabric (in sections) for cloudy ones. The scopes (or the fabric sections) can be laid out in any position in line of sight with each other; only one scope or section needs to have line of sight with the CPU. Patrolmen usually spread the fabric on rooftops, or better yet hillsides, in five or six sections. Either unit requires at least one hour of observation. $15,000; each scope weighs 25 lbs., the fabric weighs 80 lbs., and the CPU weighs 1 lb.

Tools and Supplies

Although every mission is different, the Patrol has standardized some equipment that can be easily disguised or is simply too handy to be without.

All-Purpose Treatment: A broad-spectrum series of drugs powerful enough to take on the toughest diseases in any of the hell parallels. However, the last thing that Infinity wants is even *more* drug-resistant super-diseases rampaging through its personnel and multiple timelines, so medical staff attempt to track the long-term consequences of their use. The user gains Resistant to Disease 3 for a week. Each pill is $750.

Bandage Spray: A liquid spray-on, breathable, analgesic and antiseptic bandage. This reduces the time required for bandaging (p. B424) to 10 seconds. $15, 0.1 lb.

Biomonitor: Placed near the heart, this sensor can monitor vital medical parameters such as cardiopulmonary functions, blood-oxygen and nitrogen levels, body temperature, and respiration rates. Can transmit medical information over the agent's hideout radio, allowing remote Diagnosis rolls without a penalty. $100, neg. weight.

Climbing Gear: Three dozen "smart" memory-metal pitons and a tough biphase web harness that keeps the wearer upright in the case of a fall. +1 to Climbing skill if used with rope. $350, 5 lbs.

Cracker Tools: Specialized tool kits to aid in criminal enterprise. Sets are available for Counterfeiting, Forgery, Lockpicking, and Traps. $4,000, 10 lbs.

Crash Kit: A complete kit for treating serious injuries with TL9 medicine. +2 to First Aid skill and counts as improvised gear (-5) for Surgery. $100, 10 lbs.

Crediline: A psychoactive drug used for interrogations and other nefarious purposes. The victim must roll HT-3 or suffer Gullibility (9) for (25 - HT) minutes. $240 per dose. LC2 on Homeline, restricted to psychiatric professionals.

Cufftape: Looks like duct tape, but actually constructed of a memory polymer that tightens if the prisoner struggles. To break free, the prisoner must win a Quick Contest of ST against the cufftape's ST 20, or make an Escape roll at -6. The first attempt takes one minute; further attempts require 10 minutes' struggle. Failure causes 1 point of crushing damage to each restrained limb. Cufftape has DR 1; 6 points of cutting or fire damage severs it. A 2' strip is sufficient to restrain arms or legs. $10, 0.5 lb. per 100' spool.

Diving Gear: Closed-circuit breathing system, diving jacket and programmable swim fins. Oxygen is recycled and mixed with inert gases, allowing three hours of diving independent of depth (decompression is still required). The jacket can provide 50 lbs. of flotation if the emergency inflation system is used, and the fins give the user +2 to Swimming Move. $450, 13 lbs.

Eraser: When outtimers see visitors appear or disappear, or witness some use of Homeline technology, the preferred solution is to make them forget. "Eraser" is a sedative and amnesic drug used by both Infinity and Centrum. A recipient who fails a HT-3 roll falls unconscious. On awakening, his short-term memories – everything in the last 5d+45 minutes – will be gone. Eraser comes in pill, injection, and gas form. It appears to have no untoward side effects, even in massive overdoses. Eraser is not for sale on Homeline or Centrum; it is LC2 on both worlds.

Meal-in-a-Box: These ration packs come in dozens of variations, with randomly selected main courses, side dishes, and desserts. The meal packages are sealed and have an integral heater or cooler as appropriate. Popular barter item on primitive worlds. $5, 1 lb.

Nanofiber Rope: A long ribbon or chain of nanotubes, coated with a protective polymer sheath. A 3/4" diameter rope supports 2 tons. $30, 2 lbs. per 10 yards.

Pneumospray Hypo: Hand-held pneumatic-hypodermic instrument, about the size of a penlight. The hypo must be touching the patient to inject its drug. It can penetrate DR 1 or normal clothing. A pneumocharge cartridge holds one dose of a drug. $20, 0.06 lbs.

Portable Laboratory: Basic field kits and expert systems for most TL8 science skills. Sets are available for Biology, Chemistry, Diagnosis, Forensics, Geology, Metallurgy, Meteorology, and Pharmacy. $8,000, 10 lbs.

Portacam: Many agents smuggle personal video systems into their mission gear. A Homeline pocketcam fits in the palm of the hand, with a 50× digital zoom and a low-light mode that cancels up to four points of darkness penalties. Includes a programmable effects processor for quick on-the-spot editing (treat as *inadequate tools* for complicated video production), preview screen, and microphone with human-level discrimination. Records on digital media similar to storage chips (p. 24). $100, 0.25 lbs, C/10W (2.5 hours).

Quick Shelter: A pre-fabricated shelter system that can be "snapped together" by four people in about six hours. Includes conduits for data cables and air conditioning,; simple instructions are printed right on the components. A set with enough components to build a 30-person shelter, complete with air conditioning and heating, is $2,000 and 2 tons.

Sobriety Pill: This drug reduces the intoxicating effects of alcohol without nullifying its more pleasant sensations. The user gains +2 to all HT rolls related to drinking for (25 - HT)/4 hours. Each pill is $10.

Surgical Instruments: Basic equipment for TL9 surgery when attempting to perform standard tasks: stabilizing mortal wounds (p. B423) or repairing lasting crippling injuries (p. B420). $1,250, 15 lbs., 4C/40W (2 hours).

Spy Gear

The Logistics Division keeps a large number of surveillance and counter-surveillance devices on hand, ranging from magical amulets to nanomorphic body stockings. However, Patrolmen usually make do with conventional equipment, as exotic devices rely on magical, psychotronic, or superscientific principles that do not always hold true across the worlds.

Buzzbot: A small (-5 to spot) unmanned helicopter the size of a seagull. It has two shrouded counter-rotating rotors powered by a hydrocarbon-burning turbine, a cluster of simple sensors, and one manipulator arm (ST 3). It has a Complexity 5 onboard computer and thermographic sensors with 4× zoom. Communicates using a laser (50-mile range) or radio communicator (10-mile range). Can fly at Move 10 for four hours on a few ounces of fuel. $600, 2 lbs.

Chameleon Suit: This is a bulky full-body suit (can be worn over form-fitting armor) that uses dynamic smart materials and electrochromic metals to adjust its coloration and spectral emissions to match the surrounding environment. A chameleon systems adds +4 to Stealth skill when perfectly still, or +2 if moving. Effective against normal vision, Infravision, and Ultravision (and by extension, Hyperspectral Vision). $12,800, 9 lbs., 2C/8W (6 hours).

Disguise Kit: An elaborate set of prosthetic devices, skin tinting chemicals, and hormone sprays for one person. Many components incorporate microelectromechanical systems that can mimic muscle twitches, realistic limps, and other key characteristics. Good quality equipment for the Disguise skill (+1 to skill). $200, 10 lbs.

Nanobug: A tiny (-18 to spot) recording device with human-level hearing and vision. It can record what it sees and hears (up to 40 minutes worth of video) or transmit recorded data using short "burst" transmissions up to a mile away using tiny radio communicator (transmits about a minute of recorded video every second). The bug can run constantly, be activated remotely, listen for a specific voice before recording, scan at specific times of day, or begin recording when it detects light or motion nearby. Patrol nanobugs erase themselves and self-destruct either after 48 hours (if they do not receive periodic "keep alive" signals) or when their batteries fail (about 10 hours of recording and transmission). $100, neg. weight.

Nanocleanser: Not widely available in Homeline, these TL10 bioengineered bacteria remove dirt, grime, and organic waste products. Useful as a shampoo or detergent, the Patrol uses it to clean up biological forensic evidence such as bloodstains or skin flakes. Areas treated with nanocleanser impose a -3 skill penalty on any Criminology or Forensic attempts to locate or analyze such evidence. A spray bottle can treat up to 100 square feet. $100, 1 lb.

Psi Shield: A network of charged platinum-iridium wires covering the scalp that "jams" mind-affecting psionics. Add +3 to the wearer's IQ or Will when resisting an effect with the Telepathy modifier (p. B257), or to avoid detection through psionic means. It also *penalizes* any Telepathic abilities by the wearer, including Mind Shield, by -3. The shield electronics automatically warn the defender (through a beeper or HUD) when a telepath *fails* to penetrate the shields, but provides no warning if he succeeds. If built into a helmet or other headgear, any damage that penetrates DR breaks the psi circuit and deactivates the shield. $3,000, 0.3 lb., 3W.

Armor

Patrolmen generally equip themselves with whatever they can con their respective logistics specialists into giving them, plus gear they buy on the civilian market. Generally, the GM should allow them to carry anything that would not blow The Secret right out of the water or get them shot on sight.

Armor and Uniforms

Agents rarely have the advantage of wearing the best armor available at their TL.

Armor Table

TL	Armor	Location	DR	Cost	Weight	LC	Notes
9	Armor Cuirass	torso, groin	50	$1,200	20 lbs.	2	
9	Armored Uniform	arms, torso, groin, legs	3	$240	1.6 lbs.	2	[1, 2]
9	Assault Boots	feet	12/6	$53	0.89 lbs.	4	[1]
9	Ballistic Vest	torso, groin	20*	$630	4.2 lbs.	4	[2]
9	Combat Helmet	skull, neck	20	$120	4 lbs.	1	
	+ *Visor*	eyes, face	5	+$72	+0.24 lbs.	4	
9	Mesh Cloth	full suit	4*	$375	2.5 lbs.	4	[1, 2]

Notes

[1] Concealable *as* or *under* clothing.

[2] It has a split DR: it gets full DR vs. *piercing* and *cutting* attacks, but one-third DR (round up) against other damage types.

Armor Cuirass: A heavy set of torso armor worn in high-threat environments.

Assault Boots: Armored boots worn by soldiers.

Ballistic Vest: Lighter "bulletproof" vest that can sometimes be disguised as a bulky jacket.

Combat Helmet: High-threat headgear. Includes attachments for a pull-down faceplate or optics and integral bone mike (vibrates the skull to transmit sound).

Mesh Cloth: Layers of ballistic cloth woven into normal clothes.

Projectors

A parachronic projector (p. B530) requires approximately 50 cubic yards of equipment to project one ton across the quanta. The equipment costs $50 million per ton of capacity (although Infinity almost certainly pads those costs), and weighs approximately one ton per ton of capacity. The largest modern projectors can move up to 300 tons at once, and occupy most of a city block. An "average" projector requires enough hardware to fill a small auditorium, and can move two tons. Energy comes from the public grid, but is no more than a modern industrial plant requires; parachronic shipments are quite cost-effective, assuming they're even reasonably lucrative.

Experimental Projectors

Paralabs is always working to improve, or better yet revolutionize, parachronic technology. Infinity understands all too well that parachronics is Homeline's only real advantage over the other parallels. When The Secret gets out (as it seems that it inevitably must), Infinity wants to be well ahead of the pack. So far, none of these methods has worked well enough to go into production; some of them, although disastrous in themselves, do open up avenues for further research.

Long-Distance Projectors: Infinity suspects (correctly) that Centrum projectors can recall a conveyor at range (p. 52). Paralabs believes that by modifying the circuit geometry of Infinity projectors, they can both recall and transmit conveyors at line-of-sight distance (10 miles or so). These improvements may be as little as a year from implementation, and certain design options may solve the problem sooner than that.

Wide-Field Projectors: By adjusting the geometry of the circuits as above, Paralabs also believes that it can drop conveyors across a wide field rather than lining them up at a point. This primarily has military applications, and has a lower priority at Paralabs, although rumors persist of U.S. Defense Department experiments on the same technology at Sandia Labs.

The "Snatcher": This very radical reworking of projector technology would be designed to detect and capture any parachronic emitter entering the quantum. With potentially revolutionary security implications, Infinity is accelerating research on this project.

Standard Issue

Although every mission is different, the following gear can be considered "standard issue" for Penetration Service agents:

- Leather pack and boots
- Neutral-color dark cloak and cap
- Leather waterskin (with microfiltration and decontamination in inner surface)
- Firebox (flint and steel, supplemented with safety matches)
- Palmlight
- 20 yards of manila rope with braided aramid cable inside (supports 1 ton)
- Steel knife or survival tool
- Compass
- Silver ingots, 1 oz.
- TL9 first aid kit in TL4 disguise
- Hideout radio
- Palmtop with digital camera setting
- Mini-binoculars with night vision setting
- Nanobugs (keyed to hideout radio and palmtop screen)
- 10mm pistol and spare magazine
- 30 ampoules of Eraser and a spray hypo injector

The following items are standard Intervention Service gear, although the more obvious equipment (rifles and helmets) usually has to be left in the conveyor for emergencies:

- Suitable clothing and weapons for the worldline, including gloves, lined with ballistic cloth if possible
- Helmet with night vision and zoom optics, disguised as local helmet if possible
- Flashlight
- Climbing gear and 50 yards of rope
- Survival tool
- TL9 first aid kit in local disguise
- Hideout radio
- M-23 rifle and several spare magazines (grenade launcher if mission profile allows)
- 2-4 grenades (gas, smoke, flash-bang, etc.)
- Cufftape
- 30 ampoules of Eraser and a spray hypo injector

Services and divisions swap equipment all the time, to the despair of Logistics. The GM should allow Patrol characters to carry anything reasonable without endangering The Secret unduly. All Homeline high-tech equipment contains self-destruct thermite charges.

Open-Circuit Projectors: Rather than create the jump field around a conveyor (a closed-circuit device), it should theoretically be possible to create an "open-circuit jump field" that simply rotates everything in the field across a hypercube into another worldline. This technology would require massive power (to make up for the absence of a conveyor power plant) and computer control (to modulate the energies to avoid frying the passengers). Although no recall mechanism had yet been designed, Project Hypercube was promising enough that Paralabs attempted a manned trial translation between the Kerguelen Islands of Homeline and Hideaway about six months ago. It went very badly wrong (see *In the Cube,* p. 29), but opened up two other promising research leads, the paraviewer and the artificial nexus portal.

Paraviewer: This device would allow observation of other timelines; it is essentially a projector that transmits or receives nothing but light. The first prototype could transmit only a single burst – a photograph. Later ones sent many bursts a second, allowing continuous (albeit silent) viewing. The operator can adjust the angle of view and move the point of view moved by a mile or so. Viewer connections are fickle and unreliable. Any given viewer link breaks for 1d hours at irregular intervals – but some links are better, and some are worse. Links between worlds in the same quantum are out an average of 9% of the time (when it's important, roll 3d; on a 6 or less, the link is out). Those between adjacent quanta are out 26% of the time (i.e., on an 8 or less). Those between worlds two quanta apart are out 62% of the time – on an 11 or less! Current paraviewer prototypes cannot see across more than two quanta. Banestorms, reality quakes, and other disruptions can "feed back" into the viewer itself, slagging the components and starting fires on Homeline. Paraviewers are *not* standard issue, and Infinity only sporadically uses them for scouting new worlds.

Artificial Nexus Portals: This technology remains very dubious, but in theory it should be possible to open a stable "quantum tunnel" between worlds – an artificial nexus portal, or world-gate. (Reich-5 science has developed such a thing! See p. 66.) The unpleasant part of the math indicates that unlike a true projector, any worldline with sufficiently advanced parachronic technology (TL9^) would theoretically be able to build such a portal.

Conveyors

Parachronic Field Generator

A conveyor's generator may have *subquantum, quantum,* or *two-quantum* range. No one has yet developed a conveyor with greater range.

The generator also has a *mass capacity:* the maximum mass it can transport. The mass of the conveyor (including the generator) and its payload cannot safely exceed this limit.

The capabilities of the generator largely determine the cost of the conveyor, which is usually very high. This isn't all for the circuitry – much of the cost is licensing fees!

Subquantum Conveyors: These can jump between destinations at the same quantum level. Base cost is $10 million. Each ton of capacity adds $10 million and 10 lbs. LC2.

Quantum Conveyors: These can jump between destinations at the same quantum level. With the help of a projector, they can jump to or from adjacent quantum levels as well. Base cost is $20 million. Each ton of capacity adds $150 million and 10 lbs. LC1.

Two-Quantum Conveyors: These work like quantum conveyors, but can jump up to two quantum levels with the aid of a projector. Two-quantum jumps are always tricky! Base cost is $30 million. Each ton of capacity adds $300 million and 30 lbs. LC0.

Power System

A jump requires 200 kJ of energy per ton of capacity – delivered in a single pulse. A typical pulsed power system for the field generator costs $50 and weighs 5 lbs. per kJ.

Control System

A conveyor may have one of two types of control system:

Fixed: The conveyor can only jump between two specific realities, whose coordinates are hardwired. The operator cannot change these settings. This type of conveyor is typical of those available to most corporations, private users, etc. who have proper licenses. LC2.

Programmable: The conveyor can jump to any reality within its range. To accomplish this, the operator must enter the coordinates into its guidance system manually. These units are much more tightly controlled. LC0.

Jury-Rigged Recharge

Normally, a fuel cell charges the pulsed power system in the conveyor. This fuel cell replenishes the energy banks in the system in about 30 minutes – unless something goes wrong. Without a working fuel cell, a traveler must draw power from local energy sources. The contacts on the power system are remarkably robust, and all Patrol conveyors carry a backup electric motor that can (with an Electrician roll at the lower of TL8 or the power source TL) be hooked up to almost any source of mechanical energy. An Engineer roll at the proper TL (and with the proper specialization) may be necessary to design and construct the machinery and the power transmission system (pulleys, turbines, pistons, etc.) to hook it up to the electric motor. At TL6 or higher, of course, electrical power plants exist already – hooking the motor up becomes a straight Electrician roll at either TL.

For each ton of conveyor mass, the bank needs 200 kWs of energy. The motor (a mature TL8 model) operates at 90% efficiency under most circumstances, but the power transmission system varies widely. As a rule of thumb, assume an efficiency equal to TL×5%: a TL1 rope pulley system would have 5%, a TL2 screw would have 10%, and so forth. Between the motor and the transmission, then, for each 100 kW generated by a TL2 watermill, 9 kW (10% of 90% of 100 kW) contributes to the charge, the rest being waste heat or friction. (At the GM's discretion, a critical success on the Engineer roll can increase efficiency to TL×10%.)

Typical power outputs for various pre-electrical power sources (including some atypical ones) are as follows, along with the time needed to recharge the energy banks of a 5-ton conveyor (1,000 kWs, or .28 kWh):

Treadmill (TL1): Treader's ST×20 W; a ST 10 treader will take 61.7 hours. A ST 27 ox will take 10.2 hours. Horses can turn treadmills efficiently at TL3 with the invention of the horse-collar; at TL3 efficiencies, a ST 25 horse-powered treadmill takes 4.1 hours. The 50 oarsmen of a TL2 penteconter (p. B464) produce 6,000 W at a sprint; a traveler lucky enough to have 50 trained oarsmen (and a Rube Goldberg machine capable of translating angular oar momentum into torque for the motor) could recharge his energy bank in a little under an hour!

In the Cube

This campaign frame is a quintessential "lost in infinity" game. The PCs are the unfortunate lab assistants ("the Wanderers") flung hither and yon through the worlds by Project Hypercube (p. 28). The Infinity Base Team can see the Wanderers and their immediate surroundings, and communicate with them (players might even have "backup" Team PCs), giving advice, research information, and even useful items. But the Team can only shift the Wanderers at random, hoping against hope to bring them all home alive.

All these functions require a "fix" on the Wanderers. Every time a transfer takes place, the fix is lost and must be reestablished. This requires a Electronics Operation (Parachronic)/TL9^ roll by the Team. If the roll succeeds, subtract the margin of success from 12; the result is the number of hours required to make contact (minimum one hour). If the roll fails, another may be made in 12 hours. A critical failure requires an immediate Electronics Repair (Parachronic)/TL9^ roll to avoid a burnout (see below).

Once the fix is established, the Team can see the Wanderers as through a window. They may rotate the view, but not leave the characters; essentially, they cannot see anything the Wanderers cannot see. They also have two-way voice communications, and can hear anything the Wanderers can hear. Due to a quirk of quantum flow, the Team's messages come through very softly: under normal circumstances only the Wanderers can hear them. This of course requires that the Wanderers talk to the air when they need information, which could be embarrassing if overheard; they can also write notes, which the Team can read.

If the Wanderers split up, the portal view follows any of them the Team wishes; to switch from one subgroup to another requires another Electronics Operation roll. A failure requires 1d×10 minutes before another attempt; critical failure requires an Electronics Repair roll to avoid burnout. The Hypercube has three power levels, set by the Team:

Level I: Fix and communications. Normal setting, can be maintained indefinitely.

Level II: Preparation to transfer. It requires six hours to build up from Level I to II; Level II can be maintained only for 2d×5 minutes before dropping back to Level I. Faster power buildup, or extending the maintenance time, require Engineer (Parachronic)/TL9^ rolls.

Level III: Transfer. To go from Level II to III, transferring the Wanderers to another timeline, takes only 1d minutes (which could be a long time in the middle of a battle) and a successful Electronics Operation roll. It takes a critical success, or a kindly GM, to bring the Wanderers home. At Level III, the Team can send up to 200 lbs. of matter to the Wanderers (shoving it through the Cube with a long stick) instead of trying to jump them, with a successful Electronics Operation roll. Failure means the package is lost; critical failure causes burnout and possibly drags more people into the past (though at least the package goes too).

After each successful transfer, contact is lost for 1d+1 hours.

The power system is not stable. Critical failures may cause a burnout, dropping power to zero. This breaks communication and loses the temporal fix. There is also a chance, known only to the GM, that a burnout will duplicate the original accident, yanking more members of the Team into the quanta to join the Wanderers!

Restoring power to Level I after a burnout takes 12 hours, plus or minus the result of an Electrical Repair roll. Then the Team must reestablish a fix in the usual fashion.

The other thing the Team does is look up useful information for the Wanderers, as Mission Control (p. 210).

Campaign Parameters

Scale: By default, prosaic "survival scale." Individual adventures may have any stakes.

Scope: Varies by adventure or campaign; a *Quantum Leap*-style game might deal with small groups, while a *Time Tunnel*-style game might see major crises develop around the PCs.

Boundaries: Anywhere and anywhen. Keeping the boundaries broad makes up for the narrow scope and prosaic scale.

Paraphysics: Either parallel-worlds or time travel with no paradoxes. Two-way voice communication, one-way visual communication; Linearity Principle (p. 156) applies.

Characters: 100-point (or lower) lab assistants, free to interfere but traveling uncontrollably; no magic or psi; TL variable.

Genre: Varies by adventure or campaign. Cinematic, Hollywood history, and investigative (in a *Quantum Leap*-type game) modes probably fit best.

See Chapter 7 for parameter explanations.

Water wheel (TL2): A simple Roman vertical wheel produces 1,800 W; recharge would take 1.7 hours. The cascade of 16 Roman watermills at Barbegal in Gaul produced 30 kW; recharge would take 6.2 minutes. The most powerful watermill complex ever built, at Greenock, Scotland in 1841 (TL5), produced 1,500 kW; assuming 25% efficiency for TL5 turbines, it could recharge the energy bank in about three seconds!

Windmill (TL3): A small Persian windmill produces 30 W; it could recharge the energy bank in 68.6 hours. A TL4 German post windmill produces 6,500 W and recharges the bank in 14.2 minutes; a large TL5 Dutch windmill produces 12 kW, which would recharge the bank in 6.2 minutes.

Steam Engines (TL5): The very first steam engines, in the 1690s, produced 750 W at less than 1% efficiency. Newcomen's engine in 1712 produced 3.75 kW, but still wasted 99.3% of that energy. Watt's improvements beginning in the 1760s averaged 20 kW at 4% efficiency; such a steam engine would recharge the bank in about 23 minutes. (Watt's largest steam engine, in 1800, produced 100 kW!) Once Corliss invented the regulating valve in 1849, steam efficiency could increase to the 25% of our formula; a late TL5 locomotive engine at full blast produces 850 kW, which replenishes the energy bank in 5.2 seconds!

And, of course, in an emergency, there's always the possibility of spreading out a collection antenna, tying it to a lightning rod, and waiting for a convenient thunderstorm . . .

Conveyor Loadout

Although every mission is different, and conveyors have varying cargo capacities, you can count on finding the following equipment in the back of any Patrol conveyor:

- One M-23 or electrolaser rifle for each Patrolman
- One machete, broadsword, or axe for each Patrolman
- Shotgun
- One psi shield for each Patrolman
- Camping and climbing gear, including grapnel
- 1,000 yards of rope
- Binoculars with night vision enhancement
- Digital camcorder
- Handcuffs
- Disguise kit
- Laptop
- Sidereal chronolog
- Maps
- Mixed gold and silver coins from many eras littering the floor
- Horseshoes
- Crash kit
- Small searchlight
- Grenades (2-4 flash-bang or tear gas per Patrolman)
- Tent or tents (enough for crew)
- Basic toolkit including bolt-cutters and sledgehammer
- Extra trail rations and meal packs
- Jerrycans of water
- Bottle of bourbon or brandy
- Flares, thermite, and other "sudden heat" devices, including spare self-destruct tabs
- Fire extinguisher

At the GM's discretion, a Scrounging roll may turn up small or easily missed items left over from previous missions or teams.

Variant Conveyors

Drones: Although one-way drone jumps from Homeline to the field are relatively easy, getting the drone back is another matter. The AI needed to adjust quantum settings is finicky, and even for a 100-lb. drone, the parachronic generator is 10-30 lbs. and the power system fills another 50 lbs., leaving only 20-40 lbs. for the drone, its engine (if any), and its sensors. Although drones are standard "first look" recon tools (p. 17) where possible, one in six drones doesn't return at all and is forced to slag itself to avoid exposing The Secret. At $400,000 and up per drone ($1.2 million for a two-quantum jumper), even Infinity doesn't want to use too many of them!

Quantum Stealth: This technology is intended to mask a parachronic signature, allowing covert insertions to evade Centrum's scarily efficient detectors. So far, the experimental systems available penalize skill rolls to detect the conveyor by -2, cost $500,000, and weigh 100 lbs. They also penalize the conveyor operator's skill by -2, since the "quantum hash" they kick up distorts the conveyor's path as well!

Paraconveyor: This experiment does not exist. If you have a high enough clearance in UNIC or Infinity to know that it does exist, you can read the detailed records of its total failure. If you are the CEO of Infinity, or one of the seven Paralabs scientists who built the *Alea,* you hope those forgeries hold. The *Alea* is a conveyor that can make single-quantum hops without a projector. It can go from Homeline to a parallel in Quantum 4 and from there to a worldline in Quantum 3. Upon arriving at a world, it must remain at rest for 1d days to recalibrate itself from local quantum fields. In theory, it could cross the "quantum barrier" at Q0, but nobody wants to risk the prototype on such a journey. Based on technology "borrowed" from several other timelines, with cutting-edge AI and parachronic detector systems, its design is entirely revolutionary. Hopefully nobody else is even close.

The United Nations Interworld Council

If you ask Infinity, it's a private company chartered by the U.N. Security Council, with "understandable, and welcome, levels of international government oversight." If you ask the U.N. Secretariat, Infinity Unlimited is "a valued U.N. office in the important work of peace and development." Where those two world views meet is the United Nations Interworld Council, a special body made up of five Special Representatives of the five permanent U.N. Security Council members: China, France, Great Britain, Russia, and the United States. The chairmanship of the Council rotates among the five Councilors, but the real power lies with the two Permanent Ministers of UNIC: the Commerce Minister and the Crisis Minister. Each is elected by the Councilors for a staggered seven-year term. Usually, the United States and the United Kingdom vote together, as do China and France, with Russia as the swing vote. This most often results in a Commerce Minister from an English-speaking country or strong U.S. ally, and a Crisis Minister from an Asian or African country suspicious of the United States.

Infinity Development

The Commerce Minister oversees Infinity Development (ID), which establishes economic and commercial guidelines for trade, mining, colonization, or other Homeline activity on other Earths. When the Patrol opens a new timeline for commercial exploitation, interested parties must submit bids for territories (or the whole world) to ID. Cash is just one consideration; bidders must also show how they will protect the local environment and population, keep security, and so forth. Outtime installations are always subject to inspection by ID bureaucrats, I-Cops, or both. Officially under UNIC direction, Infinity Development is almost entirely Infinity-staffed; to begin with, they have almost all the qualified or experienced personnel for the job. Infinity Unlimited also has formal representation on the ID board. This actually gives the Commerce Minister some plausible deniability when ID rejects a particularly grandiose plan (or obvious looting scheme) proposed by a U.N. member nation or other group. It means more work for Infinity Public Relations, but that's why they draw the big bonus.

For Infinity Development to approve a plan, the applicant needs to submit environmental, cultural, and population impact statements, security waivers and regulations, threat assessments, and business plans. To submit a full plan package with all required legal material, computer profiles and models, and projections can cost millions of dollars. Since bribing the Commerce Ministry also costs millions of dollars, most applicants go the legal route.

Alternate Outcomes, Inc.

For those special occasions where whole worlds need to be changed to fit UNIC plans, the Council keeps its options open in the foggiest possible double-blind deniability. Alternate Outcomes, Incorporated is a mercenary outfit based in Massawa, Eritrea, with offices in New York, Budapest, Singapore, and Panama City. Although it takes a few of the dwindling available Homeline jobs – election security in Zimbabwe, rooting out diehard Khmer Rouge from the Cambodian border – it keeps its market niche by being the only mercenary company licensed by Infinity for outtime operations. In actuality, Alternate Outcomes is a secret unit responsible only to the UNIC Crisis Minister, tasked to interfere covertly – or, sometimes, overtly – in wars on other worlds.

Crosstime Colonies

In legal theory, Infinity Unlimited holds all parallel worlds "in trust for the human race." This high-minded language means that when Infinity Development declares a world open to Homeline settlement, UNIC determines who settles there, and under what charter. Major crossworld colonies (all on Quantum 5 Earths) include:

Communité: This experimental colony, sponsored by the French government, proclaims itself a truly communist society, and has dedicated itself to using the utmost in technical progress to create a classless utopia. Its 40,000 people are currently divided into two mutually hostile camps on either side of the Loire River.

Bhuvarlok: Occupying the southeastern third of the Asian continent, Bhuvarlok is officially a territorial province of the Republic of India on Homeline. The Indian government encourages emigration to Bhuvarlok with cash bonuses; its population is in the hundreds of thousands and growing rapidly.

Lysander: A libertarian utopia sponsored by a few eccentric American and British billionaires and chartered by both governments jointly, its population is roughly 45,000 (although it loudly refuses to conduct a census) scattered along the California coastline. A slow trickle of writers, artists, and designers moves there each year for the tax advantages, gradually eroding Lysander's ideological purity.

New Colorado: This entire Earth is open to settlement by American citizens. It is theoretically administered from the territorial capital in Denver, but its 150,000 residents (who can vote in the elections of their home state by absentee ballot) generally ignore the local government or move farther away. New Colorado is the Earth most thoroughly exploited by mining companies, and many of its settlements have quite a Wild West boomtown feeling.

Sanctuary: The U.N. High Commissioner for Refugees administers this Earth, using it to house intractable refugee populations unwanted by, or unable to return to, their homelands. Established as a stopgap measure in 1999, its population has grown to over four million in the last 30 years. Rumors of corruption, mistreatment, and senseless squalor occasionally filter back to Homeline, but nobody ever seems interested enough to intervene.

Tebuguo: What Sanctuary accomplishes by neglect, this parallel accomplishes by policy. China has chartered two entire Earths for "surplus populations." One of them, Dai Zhongguo, is a thriving colony with a population just over two million. Tebuguo, however, is an exile parallel, to which the Chinese government is forcibly moving its entire Tibetan population, as well as a number of dissidents and other minorities. Although the Chinese government restricts all access to Tebuguo, rumors leak out that it has offered other dictatorships "dumping rights" there for their own troublesome minorities.

Tecumseh: Located on the same Earth as Bhuvarlok, Tecumseh is sponsored by the U.S. Bureau of Indian Affairs, and occupies the North American continent on that world. Only U.S. and Canadian citizens of provable American Indian descent may travel to Tecumseh, but they may do so absolutely free of charge. So far, only a few thousand people have settled there permanently, though tourism to "the Big Rez" is quite popular.

Uhuru: Established as a Black Nationalist colony by African-American radicals, and initially sponsored by the U.S. government, Uhuru allows anyone of "Black African" descent, who can afford the conveyor trip, to settle there. Uhuru has two main population centers, 25,000 in Ghana and 90,000 along the northern coast of the Gulf of Mexico. Uhuru's Council of Chiefs declared the colony independent of the United States in a vote in 2016; Congress ratified the decision and abjured formal American sponsorship of the timeline. Uhuru is a member state of the U.N., and the only one entirely based on an alternate Earth.

The Battalion

Its troopers never refer to themselves as "Alternate Outcomes" – that's marketing talk for civilians. They're "the Battalion," no other identifier necessary. Colonel Singh commands 479 men and women (according to the T.O.), organized in nine regular companies, each led by a captain. Under each captain are four platoons, each led by a master sergeant. (There are no lieutenants in the Battalion, which most enlisted men agree is the single best thing about the outfit.) Two squads make up each platoon. A squad nominally has six men – four privates, a corporal and a sergeant. This is flexible; some squads, at least temporarily, have as many as nine men, or as few as four or five. Generally each squad has one attached specialist such as a sniper, an engineer or heavy weapons expert, or a scout. Many troopers are TL8 Homeliners, but a surprising number are recruited from battlefields across the alternate Earths, with skills ranging from Cro-Magnon axe-throwing to orbital parachuting. Only Colonel Singh, and probably Lieutenant Colonel Stafford, his executive officer, know how many have magical or psionic talents as well as their more obvious martial skills.

Missions and Rules of Engagement

Missions can range from a single squad to the whole Battalion, dispatched in one of the Alternative Outcomes conveyors. (Through UNIC machinations, these trips never show

up in conveyor use reports to Infinity.) The conveyors are fully modular, and can be inserted into any number of "skins" from a sod hut to a C-135 cargo plane, depending on the mission requirements. However, the unit seldom has anything in the way of air cover or vehicle support, unless they steal it themselves at the destination – the risk of getting a conveyor blown out of the sky or hulled by a land mine is too great.

The Colonel selects the teams. Some missions are harder than others, of course, and green troops get easy assignments – or careful supervision – until the Colonel is sure of them. Some troopers retain loyalty, or at least a feeling of fondness, for their old nation or old unit. Any soldier in the outfit can turn down a mission assignment that he's not comfortable with. The Colonel only rarely orders a trooper to go against a parallel of his original nation, at least within a century of his own time. Usually, when this happens, it's a relatively nonviolent mission, such as a theft or a prison break.

Briefings are as full and complete as the Colonel can make them – UNIC makes sure he has access to regular military intelligence on the worldlines from the Patrol and any other recent visitors. Of course, the fog of war is even foggier on parallel Earths. Briefings also provide the rules of engagement for an operation, which vary widely depending on UNIC's competing needs for certainty, speed, subtlety, or power. Some typical sets of rules might be:

(a) Wear uniforms appropriate to the timeline; use weapons of the timeline; do nothing to reveal yourself as intruders, and remove anyone who witnesses an anachronistic act. (Using anachronistic tactics is a gray area in such cases, but the Colonel usually doesn't enforce historically accurate idiocy on troopers impersonating, say, French knights at Agincourt.)

(b) Wear whatever you want, carry any weapon or other device up to TL9 black technology, and don't worry about witnesses. This always makes the veterans nervous, because it means the job is so urgent and dangerous that everything has to be sacrificed to overwhelming success.

There are no lieutenants in the Battalion, which most enlisted men agree is the single best thing about the outfit.

(c) Use period equipment, plus sonic stunners disguised as ordinary period weapons, and don't kill anybody – but stun anyone who witnesses your arrival or otherwise detects an anachronism, and inject them with a 24-hour knockout drug and Eraser (p. 25).

Leave No Man Behind

When the mission is finished, it's not finished. The unit makes rendezvous at their stashed conveyor – emphasis on "the unit." No survivor is ever left behind on an alternate world unless urgent military necessity demands it. This can mean prisoner rescues, battlefield searches, and long stretcher hauls. (It can also mean ethical decisions about shooting badly wounded comrades, but that's a matter for the GM and players to work out among themselves.) If troops are genuinely MIA (missing in action), it's up to the ranking officer to decide when to give up and call for a pickup. Leaving MIA behind is not good for your chances of promotion, or for your reputation among your fellow troops. The Colonel's very next mission is always "Go back there and get our guys," and the unfortunate officer had better come back with them or die trying. Dead soldiers may be abandoned and security maintained with a thermite grenade or genetic liquefier, but the troopers frown on it.

As a general rule, the Battalion doesn't take prisoners, unless that's a specific mission objective. When masquerading as local troops, of course, they follow local policy. That can be pretty brutal if they're impersonating the Comanche, but it comes with the territory. Troopers are also expected not to be taken prisoner, because that means they miss pickup. A trooper taken by the enemy is expected to escape by any means possible – including giving his parole and breaking it – in order to make pickup. Mission plans always include emergency rendezvous points.

Objectives

Mission briefings emphasize specific objectives. Sometimes the instructions are very specific indeed: "Kidnap Nobunaga and bring him back for pickup here by 0800 local time," or "Enter the Wehrmacht headquarters between 1900 and 2300 Wednesday, recover all the contents of the safe, and make pickup ASAP," or even "Proceed immediately to coordinate Theta and join the Brazilian troops rendezvousing there; when you see two green flares, use your laser weapons to kill everyone not in the Battalion, and bug out when you're done." This last job doesn't make an especially challenging adventure, but there are missions like that. There are a lot more that seem like turkey shoots until something goes wrong, which it always does.

Very often the goal is simply "make sure that side X wins this battle," with the team given considerable freedom of action in making that happen. The best way to tip the scales might be a quick skirmish at a key point, or the assassination of a commander (or a messenger), or a precisely timed raid on a strongpoint. Note that the players don't have to be military geniuses to enjoy this. The GM should require them to make the best plan they can, complete with maps and contingency plans. But the leader's Strategy or Tactics roll, made by the GM, determines how good the leader's plan really is. The GM then adjusts the roll from -3 to +3 based on the excellence of the players' plan.

Limitations

The Battalion often uses advanced equipment – far more advanced than that of its foes – and they often know exactly who and what they are facing. This doesn't mean that their adventures are simple turkey shoots, where PCs with automatic weapons mow down Roman legionaries just for the heck of it. There are several other points to keep the squad thinking in the field:

Numbers: No matter how many shots you can fire compared to your enemy, he still only has to hit once to bring you down. Even in a "small" battle, the local forces vastly outnumber the troopers. While the burst from an M-60 would indeed startle Renaissance troops, and perhaps even put the fear of magic into them, a determined or panicky charge could still bring the gunner down. A brief jam, or a fumble while changing magazines, could be fatal. Should a PC forget that the local "primitives" outnumber him by potentially millions to one, the GM should deliver a painful reminder.

Allies: Sometimes it's possible to get effective assistance from the army the Battalion is supposedly helping. Sometimes the rules of engagement make that impossible. But even under the best of conditions, dealing with local allies requires a little finesse. Men in the middle of a battle tend not to be interested in crazy ideas, unless they're desperate, and sometimes not even then. It may be necessary for troopers to conceal their weapons, their knowledge of the battle, and even their objective, until the last moment. If the rules of engagement specify "don't reveal yourselves as outsiders," they have to rely on persuasiveness, intimidation, good example and an occasional discreet fragging.

Pickup: And, again: The team hasn't done its job until it makes rendezvous for pickup. Sometimes that's the biggest challenge of all.

"Eternity's Rangers"

Alternate Outcomes can serve as the basis for an independent campaign frame. Rather than UNIC and Homeline, mysterious Recruiters (Aliens? Future men? Transhumans?) deploy the Battalion for their own unguessable purposes. The Battalion, "Eternity's Rangers," is stationed at "Port Shanghai," a wooded stretch of what might be Sicily in what might be the year 3800 A.D., if the night sky is anything to go by.

Port Shanghai can regrow Rangers' limbs and organs ("if you're breathing and make pickup, you won't be on sick call tomorrow"), provide instant language training (although the Recruiters are stingy with that for some reason), and send the Rangers elsewhen to fight. The Rangers enter a large empty hangar, a golden glow fills the room, and they arrive at the drop zone. When the highest-ranking surviving Ranger (but only him) bites down on his jaw implant, the golden glow comes back and brings every Ranger (and any prisoners in physical contact) back to Port Shanghai. Sometimes, the Rangers go on Leave – which is usually hard on the locals chosen, as the rules of engagement are the same as any other mission: "Make pickup." Port Royal in 1690 is popular, as are fourth-century Rome, 1950s Las Vegas, and Renaissance Italy.

For a professional soldier, the Rangers are a dream unit. Military discipline and military honors; clear, simple orders; tough missions but not impossible ones; good troops and good officers. Travel to strange places, meet interesting people, and kill them. If you make pickup, you'll be healed to fight another day. It's Valhalla with automatic weapons.

As a result, the Rangers have high morale, and don't worry too much about their mysterious employers. They don't really fight for the Recruiters; they fight for their Regiment.

This is a frame for those who want to run commando adventures with historical (or parahistorical) backgrounds, but not worry about accuracy. The Rangers can be given any equipment the GM wishes, without fear of upsetting the balance of the past – there isn't any such balance. Or perhaps there is – whatever the Rangers do to change history is undone by other time travelers or the "blind forces of history." The point is not to worry about it; the Rangers don't.

Campaign Parameters

Scale: Usually prosaic "foxhole" level; not knowing the true stakes adds to the frisson and intended "world-weary soldier" feel.

Scope: Individual battles and missions.

Boundaries: Anywhere and anywhen. Keeping the boundaries broad makes up for the narrow scope and prosaic scale.

Paraphysics: Either parallel-worlds or time travel with no paradoxes. Limited forward communication (recall signals) and Linearity Principle (p. 156) apply.

Characters: 200- to 250-point Rangers from any historical or alternate era under military discipline. Magic or psi are rare; standard kit is TL8+.

Genre: Technothriller war stories; other modes can vary but likely center near gritty action.

See Chapter 7 for parameter explanations.

Corporate Structure

In the 30 years since Van Zandt's revelation, the sheer scope of its work has ballooned Infinity's payroll into hundreds of thousands of employees, despite a firm policy of outsourcing everything possible. This rapid growth has so far not tangled the Table of Organization too badly. In most respects except size, Infinity resembles a loose, early 21st-century multinational; if anything, its corporate structure seems more transparent than those of its peers.

CEO and Board

Tadeshi Z. Carter is only the second CEO of Infinity, after Van Zandt retired a decade ago. Like most corporate executives, he is answerable to the board of directors. Infinity's board is half elected shareholder representatives – mostly American, European, and Japanese business executives and white-shoe lawyers from other banks and corporations – and half political appointees chosen by UNIC. Like the shareholder representatives, many of these appointees hold other jobs (the U.S. representatives on the board include two U.S. senators and the president of Stanford University), and leave their day-to-day board duties to deputies and assistants. What this means, specifically, is that Infinity upper management is free to go about its day-to-day job while its theoretical overseers pad their résumés and pocketbooks and interfere only when a specific emergency or political agenda (which is to say, the GM's story line) demands it.

Upper Management

Below the CEO are the other senior officers such as the Chief Information Officer, Chief Financial Officer, and so forth. In theory, like the CEO, they serve at the pleasure of the board; in reality, they are usually picked by the CEO from within the company or from top corporations around the world. In some companies, these senior officers represent factions within the corporation that the CEO needs to placate or visibly support for internal political reasons. The strongly elitist, almost tribal, corporate culture of Infinity tends to aim upper management's political shenanigans outward, toward their theoretical overseers on the board and at UNIC. Partisan empire-builders are rare – or get sent off to build actual empires on a parallel world for the benefit of the company! The fact that Van Zandt hand-picked Carter and many of his subordinates also helps unify senior managers around their chief.

Beneath senior management, the ranks of vice presidents fill top slots in Infinity's "conventional" departments. Accounting, sales and marketing, public relations, legal, personnel and payroll, information systems, and so forth each have their own little fiefdom in the Infinity Tower's 154 stories (Infinity headquarters occupies the tallest building in Chicago, though not the world) or in the various Infinity "corporate branch offices" in smaller skyscrapers in London, Paris, Shanghai, and St. Petersburg. These branches run like their equivalents in major corporations anywhere, although with a much bigger budget and at least some attempts made at "best practices" management.

Cash Flow

Infinity owns, and has the right to police, *all* parachronic equipment. When others build such equipment, they do so by permission. Any use of projectors is under Infinity's direct supervision, and requires stiff licensing fees. Infinity has the power to confiscate or destroy any unauthorized conveyor or projector. In practice, this right is limited when the device is in the hands of major powers operating on Homeline. Nonetheless, simply licensing parachronics, specialized cartage and travel services, and charging for jump programs (from $500 for a preplotted jump from a commercial, zeroed I-Port to $20 million for a customized all-conditions departure program from specified coordinates) makes Infinity quite a lot of money. Patents and spinoffs from Paralabs research further fatten the bottom line.

Corporate Security

The only major difference between Infinity and a "regular" megacorp like BP or Daewoo is the much more stringent security screening and testing procedure Infinity employees undergo. Infinity is painfully aware that even a back-office drone in the accounting department can uncover a lot of secrets about (or even sabotage) outtime operations. Nobody, least of all Infinity upper management, believes that screening keeps out every government spook (not all of them from our world!), corporate spy, would-be thief, or fixated monkeywrencher. But the damage such infiltrators cause can be – *must* be – kept to a minimum by any means necessary.

Office-based campaigns centering on Infinity Unlimited can chase such spies through the warren of corporate politics and accounting double-blinds – or task a group of player characters with spoofing Infinity security and "liberating" a parachronic conveyor (or a few billion dollars) for their own ends. Infinity's Corporate Security Department is heavy-handed, but grimly efficient, in either scenario, even if the protagonists are CorpSec investigators themselves. No doubt CorpSec PCs are "dangerous mavericks who just don't play by the book." Infinity's Corporate Security Department should not be confused with its rivals, the Security Division of the Infinity Patrol (p. 13).

The fortunes Infinity makes from outtime technologies dwarf even that hefty sum. Deuterium-fusion plants, room-temperature superconductors, energy-efficient seawater desalinization, hybrid pest-proof grains, cures for some cancers, and many other minor technological miracles trawled from high-tech parallel worlds are only some of the higher earners. Where possible, Infinity legally licenses outtime technology through a dummy corporation. If outtime conditions prevent such actions (if licensing would endanger The Secret, or if the patent is held by an odious totalitarian government), Infinity steals the technology and reverse-engineers it on Homeline. In many nations, Infinity is required to pay royalties to the inventor's (or corporation's) Homeline "twin" or his heirs. A Trenton food chemist was startled to discover that on Gallatin her parallel self had accidentally created the most popular snack spread in history, but delighted when the first million-dollar check arrived. Similar rulings apply to art, literature, and other cultural goods imported from other worlds and sold on Homeline by Infinity or its licensors. For example, Infinity is strictly enjoined from simply pirating Francis Ford Coppola's *The Empire Strikes Back,* even though it's not available on DVD yet on any Earth. Still, it's a drop in the bucket compared to the vast sums that such imports have earned for Infinity.

But it doesn't stop there. Through UNIC and Infinity Development (p. 31), Infinity takes a share of all the resources extracted from low-tech and uninhabited Earths. Oceans of crude oil pumped from parallel Texases, mountains of chromium mined from Africas where mankind never evolved, acres of coffee harvested from Jamaicas that have never known air pollution or pesticide runoff – even given the bottlenecks of crossworld shipping, the sheer amount of *stuff* a company can reap from even one empty Earth easily reaches the trillions of dollars. Infinite worlds means infinite wealth. Trade, tourism, and research add yet more markets to the balance sheet, although Infinity can afford to take a stern line on Homeline interactions with parallel societies above the hunter-gatherer stage.

Infinite Darkness

Of course, nothing says that Infinity has to be the good guys. If power corrupts, and absolute power corrupts absolutely, infinite power breeds infinite corruption. With all that money flowing through the ultimate "offshore" account, someone's going to get greedy – and start killing to cover up his secret. With the potential to remake society to the whim of outside sociologists immune to any bad effects (but wielding unstoppable technology), Infinity can create inhuman tyrannies accidentally – or on purpose. Rather than expose and overthrow their own creations, they might sweep the victims under the rug and leave them to rot in obscurity. Simple paternalistic neglect, even by a "good" Infinity Council, can abet or create misery, starvation, and cruelty on unheard-of scales rivaling the Irish famines or the U.N.-backed suppression of Biafra.

Infinity can be a mysterious force in a conventional single-world campaign, where the PCs don't even know parachronic travel is possible. Who shuts down the heroes' schemes? Who kidnaps their patrons or steals their secrets? Who supplies their foes with advanced weaponry? As a shadowy villain, Infinity can lurk in the background of a campaign, advancing its own agenda without any concern for this world's justice or this world's defenders.

Infinity can be the enemy, or at least the Other Side, in a multi-world campaign using a different set of protagonists. A PC party of "swagmen" (p. 71) fighting for the freedom of all worlds to interact on a basis of equality would see even a "good" Infinity as the bureaucratic hand of legal repression. Recasting Centrum as an altruistic, evangelizing meritocracy (such as "Centrum Light" on p. 56) might present even the default Infinity as selfish, paranoid meddlers, and such a Centrum Light would even more sternly oppose a corrupt or incompetent "Infinity Dark." Infinity could similarly meddle in the affairs of another worthy crosstime organization.

Finally, of course, Infinity can be the bad guys in an all-Infinity campaign focusing on the massive potential for corruption, exploitation, and downright evil available to Infinity upper management. The PCs might be idealistic heroes, recruited to the Patrol to help chart the worldlines or kill alternate Hitlers, who gradually discover the true nature of their employer. Such a "hall of mirrors" campaign would combine the tricky turnabouts of a classic espionage story and the investigative thrills of a police procedural, on the infinite canvas of crossworld adventure. Do the Patrolmen defect to another, possibly equally dangerous, side in the struggle? Do they join an underground, working to subvert Infinity and destroy it? Or do they rise in Infinity's ranks, helping where they can and taking out the worst elements when they won't get caught, hoping to restore the dream of infinite possibilities that they swore to protect?

The sheer amount of stuff a company can reap from even one empty Earth easily reaches the trillions of dollars.

Our Corporate Partners

Although technically separate from Infinity Unlimited, most of the major companies doing parachronic business turn out to have overlapping boards of directors, substantial stock holdings, and even murkier financial strings tying them back to Van Zandt and his organization. Infinity finds it hard to really let go of anything, and officially independent corporations provide useful deniability and "off the books" resources. However, this remote control also lets some of Infinity's "corporate partners" develop their own agendas away from the prying eyes of the Patrol.

Cliodyne Research Group

This select firm, based in an elegant Danish Modern campus in Orange County, California, began as Infinity's in-house historical consulting team. The staff of historians, sociologists, and communications theorists developed marketing strategies for White Star with an eye toward "minimum interference" in other Earths. Gradually, the group brought cutting-edge memetics, population and game theories, and macroeconomics into their analysis (along with experts in all those fields). As crosstime travel expanded, other corporations needed the kinds of "cliodynamic" (the word combines Clio, the Greek Muse of History, with dynamics, the study of motion and change) analysis that only Infinity's team could provide. Infinity spun off the group into a separate business for murky corporate reasons some time ago, but Cliodyne clearly considers Infinity its premier client. The Patrol has begun developing its own in-house team for cliodynamics, recruiting from former psychological warfare experts and intelligence analysts.

In the corporate world, Cliodyne's major rivals are GeTS (*Geschichte-TechnikStiftung*), a German consortium of academic researchers, and Tombak & Chang, a Singapore-based international marketing firm with a strong crosstime presence.

Consolidated Mines, Unltd.

This is either the greatest idea Infinity ever had, or the worst. The constant problems with operating mines on the various parallels are security and staff. How do you run a TL8 mining camp in the fourth century B.C. Transvaal without attracting undue attention? And how do you make any money off the mines, if you have to pay three crews of Homeliners TL8 salaries plus benefits and overtime and hazard pay and outtime duty bonuses and . . . ? Robotics can only solve so many staffing problems, and it makes security even worse.

The answer came by serendipity: in 2019, a Scout team exploring Rustic (p. 141) via nexus portal wound up involved in a prison break from a Hessian concentration camp in South Africa. Among the escapees was that worldline's Cecil Rhodes, interned for illegal mining activity on Hessian claims. The Patrolmen brought him back with them, and rather than drop him in Coventry, Infinity offered him a job running outtime mining operations. (Nobody involved will discuss whose idea this was; it's not impossible that Rhodes came up with it and sold his erstwhile jailers on it during his debriefing.) Rhodes brought his substantial low-tech mining experience and intimate knowledge of South Africa to bear; within a year, he had opened nine mines on nine parallels for less than one percent of their rated cost, and with only a 50% loss in production for low-tech methods. Rhodes proved a fast study, rapidly developing methods of integrating covert high-tech mining into low-tech frameworks, as well as rotating teams of foremen and straw bosses who could drop into the high veldt with five tons of standard gear and have a platinum mine in operation within two months.

Rhodes also brought his natural gift for empire-building to bear; Consolidated Mines, Unlimited soon became a major Infinity division, and Rhodes began to make noises about running for the Infinity corporate board. Panicked at the potential reaction from the U.N.'s African members, Infinity offered him a hefty separation package and the presidency of his own firm instead. Rhodes accepted with (perhaps feigned) regret, and CMU became an independent company with a convoluted profit-sharing system in place. (Infinity has sole options and rights to CMU's mining and development techniques and consulting, as well.) Only in recent years has it dawned on Infinity upper management that they turned Cecil Rhodes loose on infinite Africas with parachronic technology and no close supervision – and continue to pay him handsomely for the privilege.

Time Tours, Ltd.

The largest and most prestigious of the crosstime tourist companies, Time Tours, Limited (TTL) is big business; Disney, Viacom, and other major entertainment conglomerates come sniffing around for mergers every couple of years. Time Tours also runs flourishing sidelines in costume design and location scouting (and surreptitious second-unit filming) for movie studios, manor worlds (p. 85) time-share and resorts, and colorful, "infotaining" docu-dramas (*This Is . . . 1492!*) for people who can't afford the trips. But the bottom line is the tourist experience. Infinity, of course, piles restrictions on Time Tours in the echoes, but trips to alternate worlds are where the big bucks are anyway. The past, for better or worse, is a specialty interest; the market for The Way Things Should Have Been is limitless.

Scheduling and Fees

Time Tours doesn't accept reservations too far in advance, and charges what the market will bear. After all, even in the infinite worlds, there are only so many times that Lincoln will deliver the Gettysburg Address, or Bugsy Siegel will dedicate the Flamingo, or *Star Wars* will premiere in the theater (starring Dirk Benedict!). Time Tours can't re-run popular events, after all; they have to build demand for Renaissance trips during the 10 years the Medicis will rule a parallel Florence (and they have been accused of committing the odd knifing to keep the Medicis in power long enough to sell all the tickets). There are always more customers than available slots; Infinity views the tourist trade as a necessary evil, and isn't always generous with the travel permissions it grants Time Tours and the other tour companies. Time Tours does have a "personal leisure consultancy" for very rich clients looking for privacy and history, and caters to almost any request, where possible – for the right customer.

If the cost of a tour ever matters in the specific campaign, the GM is free to set it as he likes – even a short tour has a price in four figures. In a continuing campaign, the PCs are likely to be Time Tours employees, rather than tourists. In a one-shot adventure, they might be tourists, but Homeline wealth doesn't really matter in a one-shot.

Rules and Regulations

All Time Tours clients sign a very strict waiver before the trip. TTL does *not* guarantee to bring them back, let alone bring them back alive, and is *not* responsible for their health, sanity, or enjoyment of the trip.

Time Tours also reserves the right to do absolutely anything required in order to prevent "cultural contamination" (i.e., telling The Secret) or to correct contamination once it has occurred . . . up to and including a complete abort of the trip.

With that out of the way, note that Time Tours bends over backward to make sure that a trip goes well. Satisfied customers are the best advertisement; unsatisfied customers are Bad Publicity. Someone who has a serious gripe can usually be bought off – often by an extra-special extended trip to one of the more sybaritic timelines.

But *during* a trip, the Guides have total authority. Time Tours will fire a Guide for a total foul-up, and (in public) back them to the hilt on anything less. Part of the Time Tours mystique is the supposed super-competence of the Guides. "Do what you have to, and let Customer Relations sort it out" is the motto.

What Can We Take On a Time Tour?

Anything you want, as long as it's not obviously alien to the timeline being visited. Time Tours does a big business in disguised cameras of all sorts, for instance.

Weapons regulations depend on the trip. Hunting parties go loaded for dinosaur. Tourists in historical parallels can carry whatever weapons are appropriate for their costumes. (If the guide doesn't trust them with weapons, they don't carry them – or they don't come on the trip.) Disguised stunners may be permitted; this is up to the guide. In general, a tourist who seems stable and competent is allowed such a weapon if the world is one where it might really be necessary for self-defense, and not otherwise. And still, a few guides get stunned from behind every year, for reasons ranging from spiteful whim to international espionage.

Gadgets and gewgaws "for trade with the natives" are permitted, but they must be native-authentic and bought from TTL's own supplies (at a slight markup). A tourist can buy all the cowrie shells he wants before visiting 17th-century Tahiti, but he can't take a cigarette lighter to impress the natives!

The rules are looser for a trip in which no interaction with the natives is expected. Time Tours does a regular (and very expensive) business in trips to actual echoes, to observe historical battles of the 16th through 19th centuries. But all these observations are made from a few thousand feet up, in stealthy sky-blue dirigibles. (If one of those dirigibles ever goes down, an immense troubleshooting mission will be needed!)

Johnson Crosstime Incorporated

The biggest of Time Tours' competitors, Johnson Crosstime began as another tourist outfit. Its founder, Alex A. Johnson, soon realized that he could never compete with TTL in the tourist business, and decided to go into the *resort* business instead. One of his tour scouts found a likely timeline in Rome-2, still cheerfully decadent and clearly "Roman" but with better food and less resin in the wine. Johnson amassed venture capital, bought gold on a downswing in the market, and moved to Rome-2 on an extremely poorly worded "business license" from Infinity. By the time the Patrol came around again, Johnson was procurator of Pannonia and Numidia, and had bribed every member of the Roman bureaucracy, introduced fluoride toothpaste and telegraphs, and single-handedly driven off a Pecheneg invasion.

Realizing the situation was already unsalvageable, the Patrol let Johnson go ahead and salvage it. Infinity confirmed his title to his Rome-2 property (in exchange for a "supervisory share" of stock in Johnson Crosstime), helped stabilize the inflation spiral he had unwittingly caused with his Homeline gold, and signed a lucrative conveyor leasing agreement with him. Johnson opened "Johnson's Rome" for business in 2016, and has drawn tens of thousands of tourists every year since. Industry gossip whispers that Johnson has been increasingly absent from his offices on Homeline and Rome-2 for the last two years – could he have another timeline under development?

What Can We Bring Back?

Unless the trip is to a historical echo (and ordinary tourist trips aren't, unless the echo becomes an anchor), a little discreet collection of mementos is perfectly all right. The Guides do not permit outright thuggery, because it attracts attention and gives Time Tours a bad name on Homeline. But tourists are given the opportunity to buy native money at the beginning of their trip (at a healthy discount), and they can spend it as they want. The I-Cops run an official "customs check" when each tour returns, but unless the outtime world is known to contain some specific danger, it's mostly a formality.

However, any souvenir that could be mistaken for a "real" Homeline antique, fossil, etc., is supposed to be photographed for reference and marked in an inconspicuous way. These precautions don't make later fraud, or scientific confusion, entirely impossible – but at least it's an attempt.

Time Tours in the Campaign

Played seriously, the dramatic conflicts are going to be of the unplanned variety: the tour group stumbles across (or inadvertently creates) a situation not described on the website. The party gets scattered, and must be rounded up or rescued before going home; the big lizards prove to be not such easy targets after all; a careless word or action threatens to reveal The Secret and the guides have to fix things; there turns out to be a crosstime war going on that the Company doesn't know about, or maybe just a bit of industrial sabotage from a competitor.

In such straight adventures, the tourists should be at least normally competent characters (with some disadvantages not usually found among heroes, such as Cowardice); they may even all be player characters.

Time Tours can also be played for laughs. In this version, the tourists are Innocents (or maybe Idiots) Abroad: bumblers who can't manage the clothes or the language, but will walk right into the Charge of the Light Brigade to get a good snapshot for the folks back home. These are likely NPCs, though a player with a talent for comedy can have a field day. The conveyors never work right, the historical figures are boobs being prompted or bribed by the Guides, and any crosstime marauders look and talk scary but couldn't conquer a prairie dog village.

Time Tours in the Time Campaign

The GM of a time-traveling campaign may be tempted to include a time-tour adventure. Go ahead . . . but if you're playing with real history, Time Tours requires special attention to the mechanics of time travel. Ordinary tour agencies take their clients to popular places, but at different times. TTL is offering a visit to an interesting moment in time. Sooner or later all those little groups of temporal visitors, plus the multiple copies of their guides, are going to add up, and perhaps outnumber the natives.

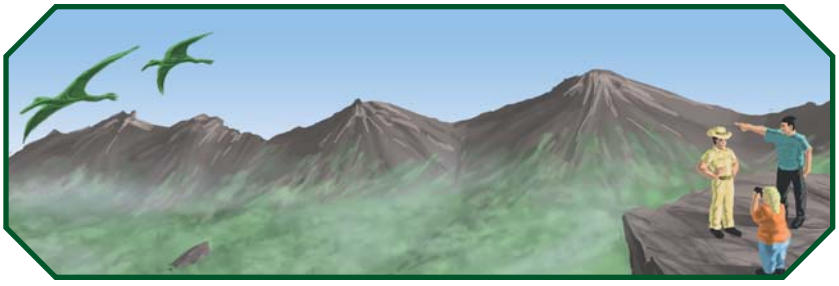
There are several ways to cope with this:

Ignore it. Tour groups just don't run into each other, unless the GM wants to do something interesting with the encounter. This lends itself best to a comedy game – imagine two groups of tourists in the marketplace at Alexandria, haggling over the same souvenir, while their guides try to decide whether to intervene or sneak away for a drink.

Ignore it, but make some excuses. The tour groups are small, the world (and the past) is big, and TTL Mission Control makes elaborate plans for traffic control. Not many people can crowd into the No. 10 Saloon in Deadwood for the shooting of Wild Bill Hickok without attracting attention; a dozen little groups, moving carefully, could probably hide out around Gettysburg; the Normandy invasion might swallow hundreds. This is stretching the point, but gamers are used to that.

The point can stretch farther if Time Tours Ltd. sends its clients to general eras rather than specific important dates. Elizabethan London or 1920s Chicago can no doubt absorb as many Time Tourists as the Company can send, meeting only when it's dramatically useful. The guides would be instructed to keep the tourists away from important moments their presence might upset; naturally, it's not possible to predict what all those moments might be, and the tourists (who would probably not be aware of the Not Too Much Excitement policy) might have to be kept away from trouble rather firmly.

Provide a mechanical solution. New Timelines (p. 156) works well here, since the main action involves running around in the historical period, not changing it. In a comedy game, this works almost too well, since the intruders may safely make any sorts of crazy changes they wish, up to and including a Marx Brothers bring-the-house-down finale (*A Night at the Fall of Rome?*). This may, of course, be exactly what the campaign needs.



Our Corporate Rivals

Yugorovsky Group: This Russian mining conglomerate has a reputation for being unscrupulous and deadly, and tied into both the Russian Mafiya and the Russian government. Reports filter back of low-level proxy wars between Yugorovsky and CMU on some primitive worlds. The Russian councilor on UNIC protects the Group from full reprisals or formal Infinity sanction.

KMP Petroleum: Founded in a series of desperate mergers after the fusion economy cratered Homeline's oil industry, KMP concentrates its efforts on filling the insatiable demand for oil on less-developed parallels. Their standard practice is to buy a "tapped out" field on such a worldline and ship oil from other timelines into it in conveyor tankers – or build a pipeline through a nexus portal, if they are lucky enough to find one in an oil patch somewhere. They also practice mature TL8 petroleum engineering (and social engineering with recalcitrant sheikhs) to genuinely open fields closed to TL6-7 exploration. The Patrol worries that KMP's wildcat, cowboy habits will endanger The Secret – and that KMP has far too cozy a relationship to the CIA.

Denarius Capital Holdings: Infinity initially founded this brokerage group to keep the economy of Johnson's Rome from collapsing under outtime stresses by subtly introducing liquidity reforms. Denarius' managers somehow wound up in control of the entire Roman gold reserve, bought out their contract, and relocated their corporate headquarters to Lysander. (They retain a Palau incorporation for Homeline tax purposes.) Denarius Capital now runs large-scale financial and market operations on many, many worlds. (Denarius also gives rather generously to some Miracle Workers operations.) On some parallels, it causes accidental runaway busts and booms – on others, it may cause them on purpose.

Duncorne Foundation: This secretive but influential academic foundation funds archaeological and historical research on a wide variety of parallels, especially those showing evidence of reality quakes or the supernatural. Its grants focus on the medieval period and earlier, with a strong emphasis on religion, history, and legendry. The Duncorne Collections in New Haven and Oxford will always handsomely reward the copying, transcribing, and (according to rumor) theft of rare and lost books (of any era) from other worlds. It may also be a major player in the gray market in crossworld art and antiquities smuggling – many major museums and universities find Duncorne's connections quite helpful in making that one crucial acquisition.

White Star Trading

White Star is the original crosstime import-export company – and still the largest. Van Zandt financed most of his original development by trading with a single parallel. Its offices now span hundreds of Earths ranging from mud-brick caravanserais in Attila's Iran, to faultlessly legitimate venture capital firms in Reich-2 America, to a movie studio in Campbell making a slowly increasing fortune by remaking Homeline fantasy movies. Some small White Star offices only transship a few hundred pounds of rarities; for example, a carton of DVDs from Gallatin, or a breeding pair of Tasmanian tigers. Others ship hundreds of tons of cocoa or chromium daily, loading the cargo onto barges that go out of sight of land and then jump between worlds. All of them have the "sign of the White Star" somewhere in the corporate logo, or hanging on a painted sign out front, as suits their environment.

Not even Infinity knows what every branch of White Star is up to; it's possible that not even the White Star corporate higher-ups in Boston do. Imposing any kind of "corporate culture" across such a system is worse than useless, but White Star headquarters enforces some standards. White Star merchants are expected to give value for value, follow all local laws (with a minimum of bribery), and support good causes in their local community. Beyond that, White Star follows general trade practices, hopes for the best, and counts its mounting profits.

General Trade Practices

White Star's trade with other timelines, whether open or covert, tends to follow broadly similar guidelines broken down by the world's degree of technical, economic, and financial development. Wherever possible, the local operations of crossworld traders such as White Star double as purely local, profitable business operations with a share of the profits earmarked to support the Infinity Patrol and other overhead. Given the distressing amount of smuggling carried on through White Star outlets (perhaps as a consequence of the Infinity rake-off), this section also addresses such informal arrangements.

Uncivilized (TL0): Because bulk resources come from uninhabited worlds, White Star trades with these parallels mainly for curios. In some worlds, White Star exchanges low-tech bulk trinkets (e.g., gold from uninhabited worlds, high-quality but local-TL weapons and tools, etc.) for unskilled labor for the mass production of goods too high above the local TL to be comprehensible. However, this practice is not widespread, as White Star is uncertain whether it is entirely safe or ethical, and it makes the Patrol jittery about endangering The Secret. Smugglers often make use of these worlds as bases and sources of slave labor.

Civilized, Pre-Scientific (TL1-4): In these worlds, traders often utilize a triangular trading method, exchanging gold and resources from uninhabited worlds for works of art and for labor-intensive or specialized agricultural products such as Falernian wine or Incan blue potatoes. Smugglers have been known to buy or steal

duplicates of valuable Homeline artworks. (One enterprising smuggler bought several Raphael works for a case of child's pastels.) One large specialty market on these worlds is books: hand-copied scrolls of Aristophanes' lost plays, or Mayan codices burnt in Homeline's inquisitorial bonfires, command substantial sums from Homeline collectors and academics alike.

Civilized, Scientific (TL5-8): The I-Cops consider such worlds potentially dangerous should they get The Secret. Permitted trade includes introducing moderate technological improvements and literary ideas, or exchanging small quantities of portable wealth (e.g., gems or gold) for artworks and curios. "Parallel works" are particularly prized: Shakespeare's *Historie of Robert the Bruce,* Edmund Burke's *Reflections on the American Uprising,* and so forth. Homeline publishers especially like the classics, because they don't have to pay royalties on them (although Infinity usually holds the copyright). Some worlds actually produce consumer goods that Homeline values, such as the stylish men's fedoras available on Gernsback.

Advanced, Scientific (TL9+): The Infinity Patrol watches, *most* carefully, all worlds with science advanced enough to reproduce parachronics, and a single unauthorized incursion is punishable by Coventry. If it is even licensed to travel to them, White Star uses every available method in these worlds to discover the principles upon which these worlds' higher technology is based, in order to patent and utilize it on Homeline. However, it is hampered by the fact that these worlds usually have sophisticated identification and surveillance technologies, so that a small misstep might imperil The Secret. Smuggling technology and artifacts from these worlds can carry lucrative rewards, but also brings danger from both the alternate's local authorities and the Patrol.

Para-Scientific (any TL): Infinity treats worlds with variant physical laws with similar care. If magic works, for instance, even a low-technology world becomes a potential danger. GMs have to decide if items from such worlds continue to function elsewhere; if enchantments continue to function in non-magical worlds, it's hard to imagine any sanctions which keep smugglers out. Psis endanger both The Secret and smugglers; everyone avoids worlds with globally available psionics. Worlds with supers pose similar problems; smugglers have enough trouble dodging ordinary police without having to deal with grim avengers of the night.

The Alternate Best Sellers List

The House of the Worm, by H.P. Lovecraft
Target: Tokyo! A History of the Invasion, by Robert A. Heinlein, Adm., USN (Ret.)
Campaigns of Alexander, by Ptolemy
Hardraada in Vinland, by Snorri Sturlasson
The Hauntings of Sherlock Holmes, by Sir Arthur Conan Doyle
Summa Astrologia, by Isaac Newton
Sanditon, by Jane Austen
Cuban Southpaw: My Life in the American League, by Fidel "Red" Castro
Fear and Loathing in Tycho Crater, by Hunter S. Thompson
The Gospel According to Peter
Hornblower at the Crisis, by C.S. Forester
The Complete Mystery of Edwin Drood, by Charles Dickens

The Public Sector

The United Nations

Outside UNIC, the U.N. has no more control over crosstime operations than any other group, and less than some. This irritates agencies like UNESCO, UNICEF, and so forth, who throw up political obstacles for UNIC, and thus contribute further to their own marginalization. Infinity refuses to take sides in such disputes, essentially passing the buck back to UNIC. (The main exception is Miracle Workers' close relationship with the World Health Organization.) Every so often, a U.N. agency gets a lead role in some crosstime development, or an entire world to administer. It seldom works any better than the UNHCR's Sanctuary colony (p. 32).

The Interworld Treaty

What ties the U.N.'s hands is, ironically, the very document that seemingly granted it sovereignty over the infinite worlds, the Interworld Treaty. The main articles of the Treaty (and their actual effects) are as follows:

1. Parallel Earths should be explored for the good of mankind: In practice, this lets Infinity Development reject any proposed crosstime venture that doesn't "improve conditions on Homeline and the parallel." The treaty does not proclaim the other Earths the property of Infinity, Homeline, or even of mankind.

2. Infinity Unlimited receives a U.N. charter, and formal supranational status: This article also sets up UNIC as Infinity's official governing agency, and restructures Infinity's board to add multinational control. In practice, this removes Infinity from any national jurisdiction or oversight, allowing it to focus its bribery, pressure, or institutional capture on just UNIC instead of many different agencies.

3. All parachronic technology remains the property of Infinity: This allows the Patrol to enter and inspect any parachronic facility in the world.

4. An Infinity (or UNIC) license is required for all parachronic travel: This is honored in the breach; Infinity grants licenses for year-long terms (or longer) to favored clients, prime subsidiaries, and Security Council veto powers. It does, however, give Infinity legal recourse to sue national governments in the World Court if they misuse the license to, say, conquer another world.

5. Infinity must bear all costs of parachronic research and crosstime security: This cleverly drafted article makes Infinity entirely independent of any Homeline control; it pays for its own army, technology, and security rather than depending on national governments. This article also forms the basis for Infinity's claim on patents derived from other Earths' technology. Japanese and American companies have both challenged it successfully in some cases, and Infinity now pays generous license fees to keep the issue from coming up.

Of the U.N.'s 197 members, all but 10 have ratified the Interworld Treaty. The holdouts are Afghanistan, Burma, Iran, Iraq, Israel (which refuses to surrender the right to crosstime operation in self-defense), Malawi, North Korea, Palau (a popular incorporation site for companies that want to dodge Infinity regulations), Palestine (which refuses to sign until Israel does), and Turkmenistan. Venezuela threatens to "de-ratify" the treaty every so often to protest "Infinity neo-colonialism," and one or two right-wing U.S. senators campaign to get the treaty junked as "infringing American sovereignty." U.N. non-member Taiwan has signed an "Agreement of Understanding" with Infinity Unlimited, basically recognizing Infinity's jurisdiction over crosstime travel and development.

National Governments

One significant downside of UNIC oversight of Infinity is that all five permanent Security Council powers can theoretically "license" any amount of Infinity's parachronic technology to themselves. Infinity tries to keep a handle on the equipment, or at least its location and licensing body, but it's very difficult to monitor an entire national government if it doesn't wish something tracked. Patrol officials assume that all five powers have one or more completely "off-the-books" conveyors buried somewhere in the maze of records, transfers, and sublicenses that is the UNIC bureaucracy. Worse yet, sufficiently wealthy or skilled nations can build (and almost certainly have built) their own parachronic equipment.

The United States

America is by far the leading nation in parachronic exploration and exploitation, both public and private. With Infinity corporate headquarters in Chicago, and a large base of experienced crosstime workers, American companies and government agencies can easily staff most "civilian" projects either with or without Infinity. With the world's largest economy and foremost university system, America can afford plenty of crosstime travel, and has plenty of ideas for it. The CIA, FBI, and even some state law-enforcement agencies have standing crosstime task forces; the FBI keeps officers on duty on Johnson's Rome and other popular parallels, and there is a U.S. Marshal's office on New Colorado.

Although official policies vary depending on the administration in power, every President since Clinton has sent U.S. forces into action on other timelines, usually to protect American citizens in danger. The most controversial such exercise was President McConnell's pre-emptive involvement on Gallatin in 2022. Ranger Force Tau overthrew that world's Algerian government before it could deploy its nuclear missiles, sending the entire Middle East on two worlds into a year of turmoil.

The Russian Federation

Russia concentrates its outtime operations on two fronts: mining, and propping up the various offworld Russias against their foes. As one of the five permanent members of the Security Council, Russia gets one-fifth of the mining permits doled out by Infinity Development. Unlike other nations, which either auction them off or use them as diplomatic chips when bargaining with other countries, the Russians simply take the maximum allowed mining license and turn it over to a domestic mining company such as the Yugorovsky Group. Thus, even in the cheap-mineral Homeline made possible by crosstime exploration, Russia is able to manipulate spot prices and keep its position as a leading mineral exporter intact.

Offworld operations usually involve Spetsnaz strikes on Nazi (or Kaiserene, or Bonapartist, or Swedish) rear areas, logistics, and communications centers. Such a live-fire "partisans from nowhere" exercise on another worldline is now a standard part of Spetsnaz training, despite Infinity's strong objections. (Evading the Patrol has, itself, become a standard part of such exercises.) A tacit understanding with the Communist Party opposition prevents the Kremlin

from using such strikes to intervene in purely Russian civil wars on other worlds, however. Although popular novels fill other timelines with SVR and GRU agents, Russia does relatively little pure espionage (aside from massive technology theft) on other parallels.

The United Kingdom

British crosstime travel is mostly academic. Infinity lavishly funds Oxford, Cambridge, and many smaller universities' history departments to the extent that American history graduate students have a better chance of crosstime research at British universities than they do their own! (Perhaps coincidentally, there is rather less academic criticism of Infinity in Britain, and the British delegates can be counted on as strong supporters of the Patrol.) However, Britain punches above its weight in crosstime military and economic interventions. The Special Conveyor Service is probably the most efficient crosstime special ops force, with a special mastery of "in and out" attacks involving parachronic attacks on Homeline targets. British companies like Universal Exports and Hari & Boyle can find markets and sources where even White Star Trading fails.

France

Although Britain is still part of the EU, it does not take any great role in the ECCCP (European Common Cross-Chronal Project), which is dominated by French planners. Germany usually follows the French lead, but digs in its heels when France gets too carried away with *la mission civilatrice*. The official policy of the French government is that the timelines are the common property of all mankind, and that Infinity has no particular rights or control over their access, which is exclusively a UNIC matter. The Patrol strongly suspects that the French government is trying to satellitize offworld governments (usually of France, but not always) and build a kind of crossworld super-France capable of independent action in any sphere without American or Infinity involvement. France makes a great show of inviting other countries, both within Europe and in the Third World, to contribute personnel to crosstime ventures; the Elysée Palace practice of plowing the profits into its crosstime network of bribes and influence-peddling somehow stays out of the coverage in *Le Monde*. The *Légion d'Outretemps* has racked up more crosstime interventions (usually to overthrow some minor African or South American government) than any other unit except the Spetsnaz. An attempt by the *Légion* to overthrow the government of South Carolina on Britannica-1 almost led to outright conflict between French and U.S. special forces.

China

China, by contrast, appears to be a model of crosstime respectability. Its 3rd Special Warfare Group exists mostly on paper, having launched only minor raids onto Reich-5 before the closing of that worldline in 2022. It leases much of its outtime exploitation rights to other companies, especially Korean, Filipino, and Thai firms, taking only reasonable kickbacks and royalties. It alternately blocks and cooperates with American policy crosstime, but aside from its two colony worlds and consular staff on popular Chinese tourist parallels, has little outtime presence. This, of course, has the more paranoid staff officers at the Pentagon and the Pile certain that China is planning some "Great Leap Outward" that will drastically rearrange the global (and crosstime) balance of power.

Non-Veto Nations

Of the non-veto nations, India and Japan have the most active crosstime programs. India's program closely resembles the American one, with substantial academic, corporate, and intelligence operations crosstime. India's "White Cats" train with the SCS for "in and out" operations against Kashmiri and Tamil rebels and terrorists. India's "Bollywood" movie studios also film on exotic outtime locations, and (according to rumor) recruit younger versions of popular movie stars from close parallels to replace stars who get too old or too independent-minded.

Israel and the Alternity Exodus

It is an open secret that Israel refuses to accept Infinity's rules about outtime immigration. Although the Israeli census ministry returns bland assurances to UNIC questioners, the standing policy of the Israeli government is to offer sanctuary on Homeline to any Jews threatened with death anywhere in the Infinite Worlds. Although they do leave echoes alone, Mossad shows little compunction about operations on any other parallel. Following a full Mossad reconnaissance, Sayeret Geburah troops drop into the parallel, kill any guards, and remove the Jewish prisoners to Homeline. These operations run from small-scale rescues of prominent physicists or engineers, to "train robberies" hijacking a deportation shipment, to full-blown liberations of whole concentration camps or gulags. The largest such operation was the Kolyar Raid in 2014, which seized control of a Silesian town on Cornwallis for six days, and removed 25,000 Jewish and Gypsy prisoners from a Prussian camp, resettling them all in Homeline's Israel and West Bank. (for more on Cornwallis, see ***GURPS Alternate Earths 2***).

Arab governments complain that Israel is "artificially Judaizing" the region with "outtime illegals." Since this accurately summarizes Israeli government policy, the Israelis simply issue bland denials and get on with rescuing more victims. Domestic opinion in America is firmly behind the "Alternity Exodus," and the United States regularly vetoes any U.N. condemnation of such rescues.

Japan's crosstime operations are more like British ones, although the IDF has only a token outtime capability. Japanese companies very successfully trade with parallel Japans, and are among the leading Homeline firms in incorporating their crosstime versions' best practices and technologies. The result is that they can wind up patenting a superior version of something Infinity stole a year ago and rapidly take the lead in global market share.

Non-Governmental Organizations

A vast panoply of other groups, from Boy Scout troops to whole religions, have outtime activities – or opinions about outtime activities – that they are seldom shy about sharing. Some groups lease their own conveyors and pursue their goals without pestering Infinity too much: the Nature Conservancy, for example, brings breeding stock for endangered species on Homeline from other worlds where the species are plentiful. Others believe that pressuring Infinity, or UNIC member governments, is the most efficient way to see their goals realized.

Amnesty Unlimited

A sister organization to Amnesty International, Amnesty Unlimited publicizes the fates of political prisoners, slaves, and other unfortunates on other timelines. They pressure Infinity (or, less often, Homeline governments) to intervene on those worldlines to improve conditions, call for White Star boycotts of odious crosstime regimes, and work tirelessly to promote anti-slavery agitation on other Earths.

Every so often, an AU field team travels to another world to try applying their own leverage, but the results have been spotty. The best result, arguably, occurred when the Patrol mounted a rescue mission that snatched an AU observer team from a prison in Earth-Beta's Iran and accidentally overthrew the theocratic government there in the process. Amnesty Unlimited usually draws the line at advocating such violent regime change, but some factions are beginning to question whether "pacifism of the word" is enough.

Greenpeace

This environmental organization indefatigably opposes crosstime mining operations, even on empty Earths, as "ecological rapes of unsuspecting worlds." Some members of Greenpeace go so far as to chain themselves to projector doors, disrupt surveys, and sabotage mining equipment (usually before it's shipped outtime). Their support comes from college campuses and (less openly) from corporations frozen out of the crosstime bonanza . . . especially Homeline oil companies.

The Vatican

The official position of the Roman Catholic Church is that God's plan applies to all Earths with human races. The devil, needless to say, is in the details: Are all the parallel Christs the same Christ, or did God have one son per Earth? Are worldlines in which there was no Jesus of Nazareth awaiting their own Messiah, and if so, will he be Christ as well? Or does the Church's evangelizing mission call upon it to teach those worldlines about Homeline's Christ? Did Homeline's Jesus die for the sins of all the Earths? The Curia has been working on definitive answers to all of the above questions since 1998, and Vatican speculation is that the next Pope will have to call a general church council on the topic.

In the interim, Jesuits and other scholarly orders have contributed greatly to the study of reality physics, and Catholic mission groups work closely with Miracle Workers, especially on worlds with an established Roman Church. The Pope calls on Infinity to "respect human dignity in all worlds," and aligns the Vatican with reformist and progressive "outtimer rights" groups such as Amnesty Unlimited. Some influential monsignors and orders have even called for Infinity to abandon The Secret, and "share the Truth with all mankind as equals." The Patrol becomes very nervous indeed when devotees of such philosophies travel to parallel Earths, even for the ostensibly saintliest purposes.

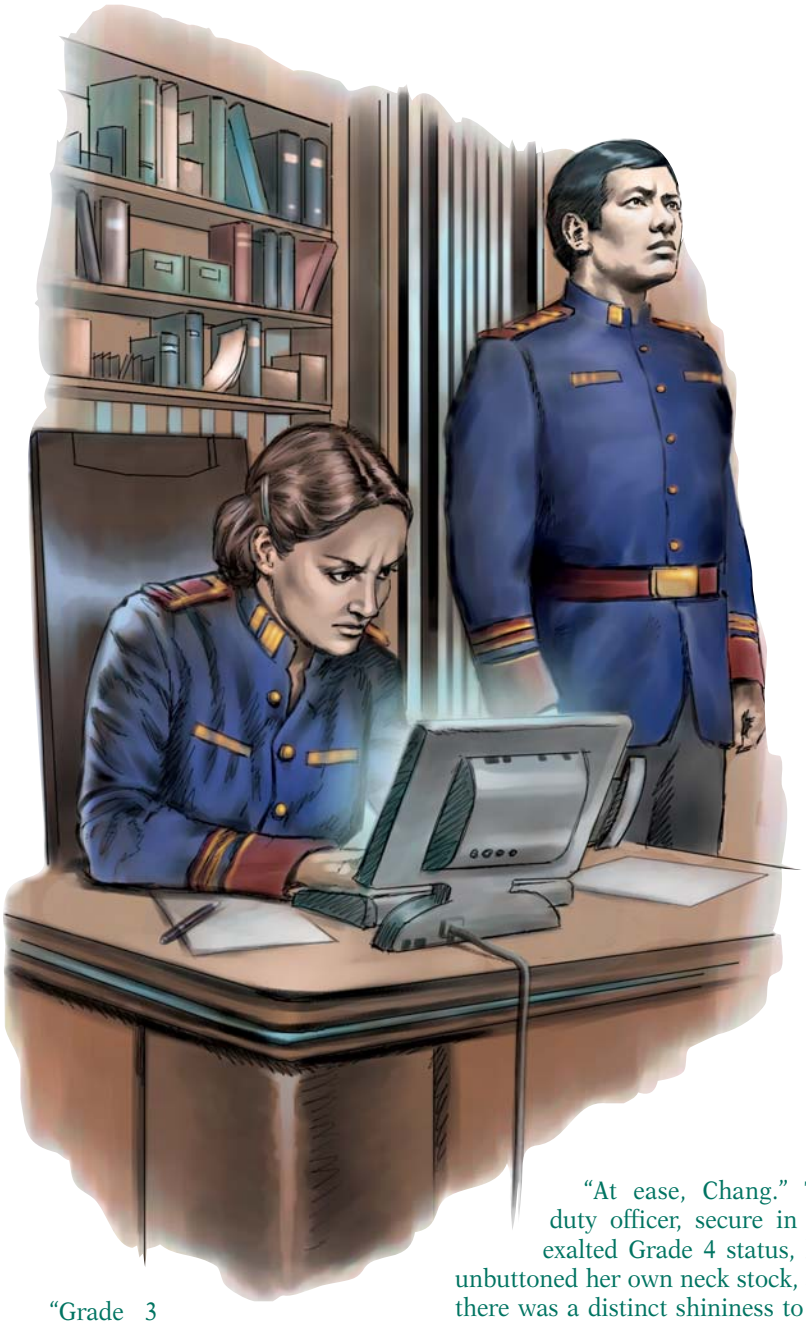
Rogue States

North Korea, Libya, Iraq, Iran, Syria, Cuba, and Burma all reject the international order to one extent or another. Such rogue nations support terrorism and international crime, foment revolution abroad, and try to develop weapons of mass destruction and domestic parachronics. They may have support from arms dealers and physicists overseas, working in parallel to build individual components that can get passed along the smugglers' routes from Marseilles to Karachi to Rangoon until whole bombs or conveyors take shape in some terror camp in Afghanistan, Sudan, or Yemen.

Infinity's great fear is that some rogue state will provide a conveyor (and possibly a nuclear weapon) to some terrorist organization. In the worst case scenario, this terror strike hits a technologically advanced parallel, which discovers parachronics in the most traumatic and horrifying way possible, and blames Homeline. In the second-worst case scenario, the terrorists do an "in and out" attack on Homeline America, killing thousands (or millions, if the nuke is big enough) and enrage the United States enough for it to pull out of UNIC, nationalize Infinity, and strike out unilaterally across the worlds. The Intelligence Branch works overtime to infiltrate terror groups, using Patrol language and cultural skills to blend into the terrorist ranks. So far, the Patrol agents have rolled up whole networks (with CIA or MI6 assistance) and beheaded such plans before they start, including an al-Qaeda plot in early 2001 – but they only have to fail once.

Chapter Two

Enemies Everywhen



"Grade 3 Chang, reporting a message intercept, Sir!" The new entry's uniform was creased and pressed until it looked like a recruiting brochure.

"At ease, Chang." The duty officer, secure in her exalted Grade 4 status, had unbuttoned her own neck stock, and there was a distinct shininess to the crimson cuffs of her midnight uniform coat. Chang strode forward the regulation four steps, came to attention again, and handed over a flimsy and a data cartridge.

Popping the cartridge into the Records computer (there were some regulations it didn't do to ignore), the duty officer scanned the flimsy for a few minutes, looking for anything out of the ordinary. Dinosaur smugglers – alchemical methods in Argentine platinum mines – assassination attempt on the King of North Carolina – here it was, "Nazis" again. "Infinity can't get panicked enough about these 'Nazis,' Chang."

"Sir." She looked up to see Chang still at attention.

"I said 'At ease,' Chang." The younger officer marginally relaxed. "I'd invite you to sit down, but there's only one chair in these confounded bridges."

"Isometric posture does not require chairs, Sir." Right out of the book again. Still, she thought, I'd better try, or this new kid is going to drive me crazy.

"Chang, what's your first name?"

"Mohammed, Sir."

"That's unusual for a Chinese, isn't it, Chang?"

"Sir, all names are Centrum names. The Centrum embraces all bloodlines."

"Chang, I'm not trying to trap you in Error, I'm trying to make conversation so that you don't hover there like a constipated goshawk."

Chang relaxed another breath. "My family is from Tajikistan, Sir. Lots of hybridity there, even before the Centrum saved us." The duty officer nodded; history wasn't her strong point, even Centrum history, but the Central Asian tribes were traditionally very grateful to the scientific elite that had saved them from famine, warlords, and plague.

"Understandable then, border vigor and all that. Use those ancestral border skills, Chang, and see what jumps out at you from this."

Chang took the flimsy and ran his eyes down it. "Secundus – er, Infinity – seems more worried about these 'Nazis' than they do three other threats on the same Wave that objectively pose a far greater danger to their operations. Sir."

"My thoughts exactly. I've been monitoring Infinity transmissions here for eight months, and despite four global wars and a Force Seven reality quake, these 'Nazis' still draw 18% of the decision band, when it ought to be more like four. And they're not even on this bloody Wave! They're way the Hell and gone out on Wave Minus Five!"

"What did the Records say, Sir?"

"Nothing useful; they were an Irrationalist sect in Bavaria in a number of timelines; on Secundus they seem to have triggered a global war, and on one world on Wave Minus Two, they won. Rum lot, but not the foaming anarchists that you'd expect from Infinity's paranoia. More orderly than bloody Infinity, that's for sure. But according to Intercept Branch, Infinity has more agents, and more ongoing operations, on this 'Reich-2' than on any comparable parallel. Again, despite greater threats, and much greater opportunities, on at least six other worldlines I could name."

"Sounds like a perfect opportunity for us, Sir. If we could somehow use them as a stalking horse, we could distract the ruddy Patrol from anything we did. We could have our run of the echoes, as long as we could get some Nazis to pop up somewhere else while we did it."

Candide, amazed, terrified, confounded, astonished, all bloody, and trembling from head to foot, said to himself, "If this is the best of all possible worlds, what are the others like?"

– Voltaire, ***Candide***

"Sadly for us, Chang, the only ones with parachronics seem to be out where we can't go."

"Unless we find a tunnel. It's been known to happen, Sir."

"Precisely. That's what I want you to start sifting these surveys for. I mean to find a tunnel to their Wave and start feeding these Nazis anything they want, as long as it will keep Infinity busy."

"That could alter the whole complexion of the War, Sir. The Forum will be handing out promotions like candy on Rebirth Day."

"Well, we're not supposed to think about our promotions, Chang. It's the good of the Service, and of Centrum, that counts."

"Of course, Sir. I'm sorry, Sir." Chang, abashed, hunched over a stack of surveys and avoided his superior's eyes.

But doctrine aside, the duty officer was thinking about promotions. She could easily make Grade 5 for something like this, or even higher, if it became a major Interworld priority. Yes, "Grade 6 Goldstein" had a nice ring to it, she told herself, and punched up her own stack of surveys to sift.

Between cometary fallout, angry Visigoths, and mutant smallpox, the infinite worlds hold enough danger to keep the Infinity Patrol infinitely busy. However, the Patrol has taken a dark comfort from the fact that you can't save every world: they do what they can, where they can. Unfortunately, some of those worlds – including Homeline – hold dangers that can spread to other worlds – also including Homeline. The Patrol can't afford to sleep, or to take any comfort, no matter how dark, in just doing what they can for those worlds. An "acceptable risk" when it's some barbarian parallel two quanta out becomes a deadly crisis when it threatens your world and the ideals you hold dear. You have to do anything to stop such a danger, or die trying.

Of course, on some of those worlds, the Patrol – and Homeline – represent just such a danger . . .

CENTRUM

Centrum is the only human timeline other than Homeline to independently develop parachronic technology. It is also Homeline's fiercest enemy. Centran agents intrigue against the Infinity Patrol across the dimensions, and will settle for nothing less than total domination of the infinite worlds. Only in unity, Centrum believes, is there safety and order.

The origin and focus of a paratemporal empire, Centrum has spent the last century sending explorers, spies, businessmen, and occasionally soldiers to dozens of parallel timelines. Having rebuilt and re-unified its home Earth after a cataclysmic war, Centrum was poised for major changes even before the recent discovery of another world of parachronic travelers. Today, in 2027, the conflict with Secundus (which calls itself "Homeline") is Centrum's primary concern.

The Language Barrier

The official language of Centrum is English, which sounds like a heavily accented version of Homeline English, with a rather larger number of French loan-words. As part of the drive to global cultural unity, the Centrum deliberately wiped out all other languages (a project which had begun, to some extent, under the old Imperial dynasty). If any families have retained fluency, they have certainly learned to hide it. The only exceptions are Latin, Greek, and Hebrew, still studied by classical scholars and theologians. Apart from such specialized cul-de-sacs, Centrum never even developed a true science of linguistics – an omission that has hampered Centrum operations almost as much as the lack of native speakers.

Centrum is working on broadening its language base . . . indeed, that's one of the main reasons for recruiting outtimers. The Education Service has been dragging its feet, but many timelines know fairly effective techniques for teaching languages swiftly (usually based on immersion). It shouldn't be too long before the Interworld Service overcomes its prejudice against outtime ideas and starts to use them. For now, however, a fluent Japanese speaker, for example, is *probably* not working for Centrum . . . at least not *directly*.

Although their society encompasses settlements on many timelines, the vast majority of Centrans still live on their home line, also called Centrum. World and government are seldom distinguished, and there is no distinction between government and society. The contemporary world-state is actually fairly recent, not much more than a century old, but its roots go deep into history.

History

Centrum perceives itself as a radical break with its past, and really cares about history only because of parachronics – for which purpose the histories of other timelines matter at least as much as its own. A typical Centran knows rather less about his own history than a typical 21st-century American (agents of the Interworld Service are somewhat better informed, but only in the context of changing other histories). If they compared textbooks, the two would eventually discover that their worlds diverged in 1120, when the heir to the throne of England was or was not drowned. Shifting royal marriages and wars rapidly changed every detail of history. The English monarchs made themselves masters of northern and western France before the Hundred Years' War could even begin.

To Unity

The Anglo-French Empire was perhaps the strongest realm in Europe, but that barely allowed it to escape conquest when the Mongols arrived, less than a century after its formation. Unable to expand into Mongol-dominated Central Europe, they turned to the reports of a far western country brought by a Norwegian princess, sending ships across the Atlantic to explore a vast New World, which they named Terranova.

The superior Asian technology brought by the Mongols, combined with the royal patronage of the early scientist Roger Bacon, enhanced the brilliant culture of the High Middle Ages. Like its age of exploration, Centrum's scientific and industrial revolutions progressed more slowly than ours, but began so early that technology remained 100-150 years ahead down to the 20th century.

Anglo-French hegemony in Europe took centuries to achieve. The Empire's French subjects joined in the power politics of Europe, the English preferred to concentrate on the sea. After the War of Lily and Rose nearly broke the Empire apart, the crown tried to bind together the Empire's disparate components using new techniques such as steam transport, mass education, and drawing all the noble families to the fabulous imperial palace at Kensington. As merchants and industrialists rose to prominence, they were encouraged to join the nobility by the crown practice of granting new titles associated with huge fiefs overseas – a practice that led to "freelance imperialism" legitimated from London after the fact. By the mid-19th century, the Empire encompassed the globe, and its literally unrivaled power and wealth disguised internal divisions growing beneath the unified façade.

To Destruction

In 1902, it all went to hell. Opinions are still split on how a bid for full independence by a few provincial magnates could have spiraled so thoroughly out of control. The atomic destruction of London and a few dozen other cities paled in comparison with the tailored bioweapons unleashed against Asiatic peoples by an imperial pretender. After ravaging China and India, the plagues mutated, turned back west, finished off the global economy, and depopulated much of Eurasia.

The only region left unscathed was the southern continent of Terraustralis (much more densely populated than our Australia), where a military-technical cabal, "the Centrum," took control. They used their isolation to withdraw from the conflict, and imposed draconian social controls to stop the spread of disease and maintain food distribution. By 1913, once their scientists had devised protections against the bioweapons, they ventured out into a shattered world. They were appalled at what they saw: two-thirds of the Earth's population was dead, and pestilence ran rampant among the survivors, killing one in every two children. Nuclear and bioweapons had shattered the ecosystem, especially in the fragile tropics; famines and desertification threatened to starve anyone who the plagues did not carry off. Technology was dropping back to pre-industrial levels everywhere, leading to filth and decay and warlord feudalism of the worst kind.

The Centrum resolved to rebuild, and to prevent future wars, by imposing a single, rational culture under a single authority. The Centrum knew that disunity caused the war, and nearly destroyed mankind. Therefore, it would bring unity: every surviving human would speak English, go to the same schools, get enough food, and become an equal part of the Centrum. Most of Earth's surviving inhabitants, starving and disease-ridden, were happy to accept the alternative the Centrum offered – just as well, since they had no choice.

To Other Worlds

Linda Minott was the first Centran scientist to investigate anomalies in exotic experiments with high energy densities (known since the previous century). Her papers were published in 1908 and languished for a time, but the potential was clear. By 1922, Centran scientists had built their first conveyor and gone exploring. Parachronics gave the Centrum access to the untapped resources of Earths where humanity had never evolved – and, in the early years, the opportunity to buy or steal goods from many parallel cultures. The Centrum became as wealthy in its own way as Infinity Unlimited – wealthier, because it had fewer scruples – but it poured its wealth back into global reconstruction.

In 1934, after a few early mishaps, the Centrum officially adopted the Lockridge Protocols, a strict hands-off policy toward inhabited timelines (almost all of which were technologically primitive, anyway), and concentrated on mining and colonizing the empty worlds. It had more than enough to do on its own Earth: curing the war plagues, halting the famines, deposing the local warlords, and generally forestalling a descent into barbarism.

After completing the reclamation of its Earth, Centrum (which dropped the "the" in 1958 after formally completing global reunification) has reconsidered its attitude toward other timelines. Some wanted to spread the benefits of their civilization, bringing superior technology and organization to less-developed timelines and saving the advanced ones from suffering their own Last War. Others believed continued expansion was needed for Centrum's own health, or were simply ambitious for new fields of action. The discovery of Secundus (which Centrum sees as a dangerously disunited near-anarchy) in 2015 awoke deep-rooted fears and silenced the objectors.

Secundus: Homeline as Centrum Sees It

From Centrum's perspective, Secundus is a chaotic, irrational mess of a world. So many groups have parachronic technology, and they barely coordinate their efforts. Centrum cannot understand why the United States and other leading nations aren't fighting for dominance.

Centrum sees democracy as a primitive form of government associated with Greek and Italian city-states. Itself intensely Spartan, it keeps trying to understand Secundus as a variation of Centrum, looking for the people who *really* run things. Infinity Unlimited was the major candidate (Centrum is run more like a corporation in some ways than a constitutional republic), until Centrum realized how small Infinity was. Now it looks like a central power too weak to control Secundus' struggling factions, and the apparent stability of the system bewilders and frightens Centrum.

Secundus seems to be a group of dangerous amateurs not prepared to confront the true implications of parachronics. Some Interworld scientists even view them as a literal threat to the universe, arguing that the echoes, reality quakes, and some of the anomalous timelines around Secundus (especially the puzzle worlds, pp. 140-142) are signs that Secundus' parachronic technology damages the local fabric of the continuum. Ironically, Centrum sees Infinity's policy on The Secret as paranoia – it understands caution on advanced worldlines, but the idea of protecting less-advanced cultures doesn't really exist in its mental universe.

Centrum Today

Modern Centrum has fulfilled the dreams of its founders. It is a self-consciously rational society that offers every citizen a decent life and a chance to fulfill a useful function. Everyone can rise as high as their talents and drive take them, regardless of race, gender, or ancestry. On the other hand, Centrum does not place a high value on notions of liberty or human rights, which it tends to consider superstitions. Society may exist for the sake of individuals, but no individual matters much in comparison with it.

Politics

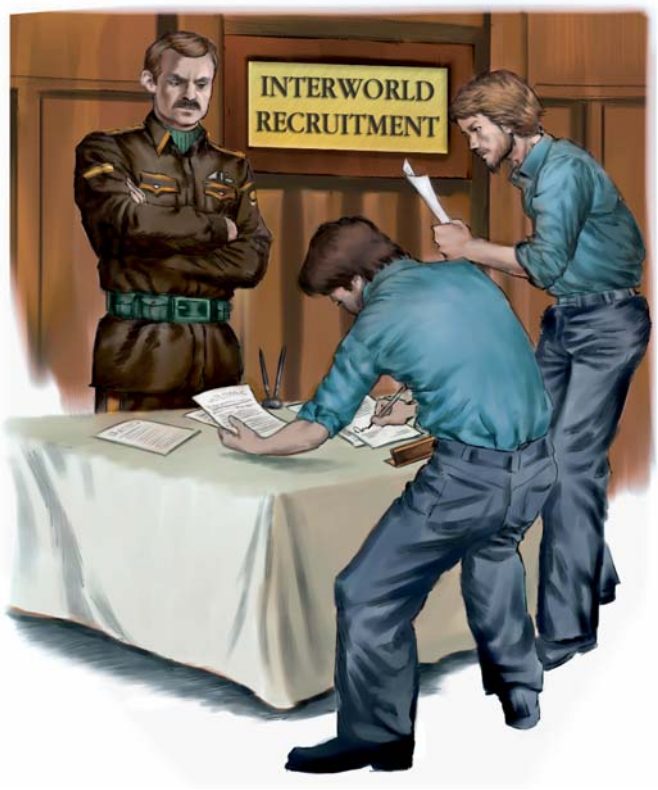
Centrum is a regimented meritocracy: all citizens enter the Service for which they have most aptitude and inclination, to be promoted strictly by talent and achievement. Each adult citizen belongs to one of seven grades, corresponding to a specific rank within his Service. Everyone starts as a Grade 1 citizen, and nepotism is discouraged by common opinion (as well as being illegal); people are supposed to rise on their own merits.

The Services have individual regulations about the meanings of the different grades: some are more overtly hierarchical than others. Command privileges never cross Service lines, but lower-grade citizens generally defer to higher ones socially. (The exception: any Grade 7 can command someone not of his Service as though he were a Grade 5 in that Service.) All citizens must display a badge giving their name, grade, Service, and personal ID number. Most Services also have a uniform their members wear while on duty; Interworld's are crimson and midnight blue.

There are hundreds of Services, some of which employ only a few hundred thousand people. The most powerful Services are Agriculture, Education, Energy, Health, Interworld, Justice, and Logistics. The Military

Service is poised to become more important with Centrum's new interventionism, as is the new Uplift Service (p. 54).

At the top, the Grade 7 coordinators compete to set policy, working through their general assembly, the Forum, which holds supreme power. Unofficial factions determine broad policy: the *Interventionists* dominate at the moment. They introduced the new policies permitting exploration of and (largely covert) interference in inhabited timelines. The discovery of Secundus vindicated them in the eyes of the *Pragmatics,* whose main goal is protecting Centrum from external threats or domestic disturbances. The main opposition group today is the *Progressives,* who want further improvements to Centrum's resource base and technology and a general increase in global wealth and living allowances before taking on large-scale projects.



Security

There is no single "Security Service." The Justice Service handles crime – and trespassing or possession of unauthorized items is a crime – but each Service handles its own building and equipment security and many don't like to call in Justice. Service complexes have the usual building security systems – ID checks, cameras, and so forth.

The Logistics Service has software that tracks purchases and compares them with grade income, so the black market has to work in kind rather than using money. There is no paper or coined money anyway: credits only exist electronically.

Citizen IDs contain encoded retinal patterns and DNA sequences; they are *extremely* difficult to forge at TL8 or below. The computer network which keeps track of authorizations, on the other hand, is not as secure as Centrum thinks it is. Hackers who have familiarity with Centran systems and an access terminal (both admittedly difficult to acquire) never experience a penalty higher than -5, and -2 is more common.

Education

Younger children are educated in a variety of schools, and older ones go to Service Colleges, but every citizen attends a Lyceum from ages 10 to 16. The keystone of the powerful Education Service, Lyceums are boarding schools (home visits are allowed bimonthly), which teach basic skills (p. 191) and inculcate correct attitudes. During their time at the Lyceums, students are repeatedly tested; the Education Service is skilled at identifying aptitudes of all sorts. Students are subtly, or sometimes blatantly, encouraged to join particular Services based on the results. Anyone showing psionic aptitude is channeled into a special program run by several Services – the Interworld Service essentially drafts world-jumpers, along with teleporters and astral projectors. Lyceums also use attention- and memory-enhancing drugs and TL8 sleep teachers, among other advanced educational protocols. The Education Service has tried outright mental conditioning, but it found that such imposed thought patterns tend to fade over a few months or years.

Indentureds

Centrum's population is small enough to have a rough time supporting its civilization, let alone making efficient use of all the other worlds within reach. One answer is automation, and Centrum does make fairly extensive use of TL8 robots – but many tasks require too much flexibility for machines.

Human workers from other timelines are an increasingly popular solution. These are not Service recruits; they are not citizens at all. Rather, Centrum offers contracts of indenture: standard terms are 30 years of labor with paid upkeep and settlement on a colony world at the end. Indentureds have few rights, and cannot become citizens (although their children can) unless a Service official buys out their contract and sponsors them. It is illegal to coerce anyone into signing a contract of indenture, but perfectly acceptable to recruit, say, political prisoners from Reich-2 (p. 142) or future sacrifices from the Tenochca Empire on Ezcalli (p. 122).

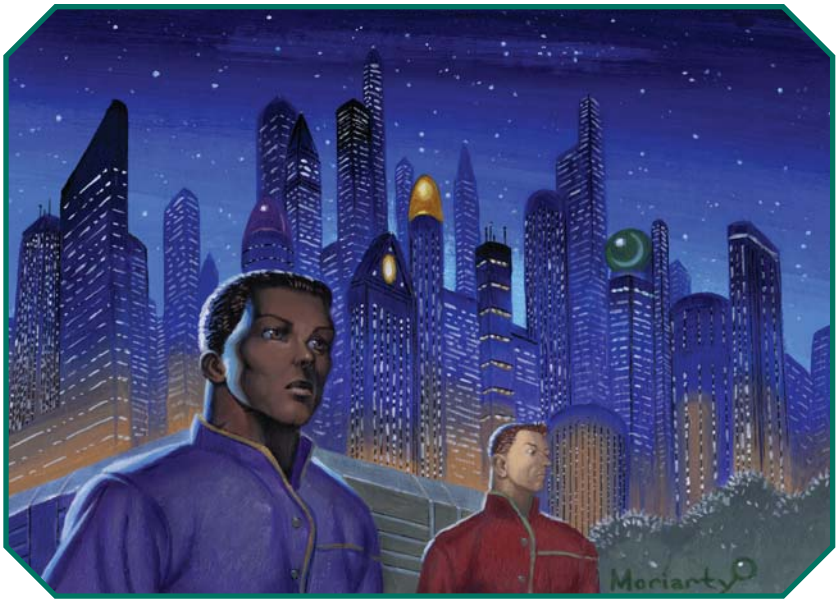
Values and Morality

Centrum's basic values are order, rationality, and success. Order is identified with the unified state, and its natural opposites are anarchy and war. Most Centrans even view technological progress with suspicion, because of its potential for social disruption. Rationality means facing reality, and is manifest in successfully accomplishing one's goals. Centrum admires unclouded vision and unflinching will, of the sort that rebuilt the world after the Last War; thus, ruthlessness is very nearly a *virtue* to them.

Centrum does ascribe value to human life, and prefers to avoid killing people. It has no patience with discrimination on any grounds except talent. The good of society is assumed to outweigh the good of any single member, and a major cause for concern is the recent growth of personal ambition, and even corruption, in the upper ranks.

Living in a culturally uniform society, Centrans are generally narrow-minded, and tend to blame disagreements on irrationality in their opponents. Even Centrans of opposing philosophies have trouble coming to grips with each other's arguments, and they all find it difficult to conceive of a viewpoint that does not share most of their assumptions.

Centrans are expansionist for different reasons: some see gaining control of other worlds as a pre-emptive strike against any possible threat, some see it as a humanitarian intervention, and some think any increase of power is its own justification. All prefer to concentrate on the more advanced worlds: those are the ones which might discover parachronics, the ones in danger of having their own Last War, and the ones that are richest if they can only be organized properly. In any case, the logic of Centran expansion has no limits: only an undivided sovereign power is adequate safeguard against a repeat of the Last War. Some coordinators despair at this – there are, in theory, an infinity of worlds, and there is no physical reason that the number of accessible ones should not keep growing without bound.



Lifestyles

Personal wealth plays little role in Centran society, and the complexities of the economy have no effect on daily life. Citizens get basic needs free, although they only become really comfortable (by 21st-century American standards) around Grade 3 – a deliberate policy to encourage aspiration to higher rank. Furthermore, many types of equipment are illegal for personal use. If you need a stun gun, an airplane, or a general-purpose computer professionally, your Service assigns it to you; if you don't, you have no business buying one. Centrum's Control Rating is 5. The Justice Service is commendably devoted, but it sees no point in legal niceties that might stop them from quick apprehension and punishment of criminals; e.g., interrogation under drugs is routine. Personal freedoms are permitted where they don't interfere with public order: for example, there is free speech, but the Services control all publishing and broadcasting. Centrans work an eight-hour day six days out of seven; they get Sunday off as a holdover from official Christianity. (Centrum does not acknowledge religion publicly; practice is free but not organized. Radical preaching against Centrum is considered treasonous disunity, just like any radical threat.) TV is monotonous, but the music, mostly imported from other timelines, is extremely varied and surprisingly high in quality. Recreational drugs of several varieties are legal and common, though frowned upon by the upper grades.

Technology

Centrum is basically TL8, with a few TL9 devices. Not valuing rapid technological progress, it has been at TL8 for almost a century, and its machines bear the marks of decades of slow improvement: they are reliable and rugged rather than flashy and "cutting-edge." Standardized power cells are used for all equipment that doesn't connect to the electricity grid. Computers are very common, but usually limited-program; there are lots of special-purpose networks, but no Internet. Aside from communications and weather satellites, Centrum has no space program worth mentioning; astrophysics is useful solely for what it reveals about parachronics or high-energy physics, and Centrum has plenty of resources on other Earths that don't require vacuum suits.

Centrum is extremely rich as a society and has access to phenomenal amounts of raw materials. It disposes of trash, and much industrial waste, on the lifeless Q8 world Omega. Nuclear fission is perhaps the most common source of electricity, since the Energy Service doesn't need to worry about waste disposal. Some heavy industry has been relocated to the colony worlds, but ecological controls are in effect in all the worlds Centrans inhabit.

Most Centrans live in the cities and use public rail systems to commute between their apartment buildings and Service complexes. Although old-style districts still exist in many towns, modern Centran architecture tends heavily toward gigantic glass-and-concrete boxes. The cities are linked by air, since the Transport Service deemed rebuilding the passenger rail network inefficient and ecologically unsound. Hydrogen fuel-cell automobiles are common in the countryside, but few are privately owned; the Services, especially Agriculture, assign them for appropriate uses. Cargo transport is by GEV truck and ship, many of them equipped with parachronic field generators programmed to travel to one other worldline.

Medicine

Centran medicine is basically TL8, with TL9 treatments against contagious diseases thanks to decades of experience against wild bioweapons. Centrans who travel to other worlds get panimmunity treatments (Resistant to Disease +8) as a matter of routine. Centrum is capable of human cloning but lacks forced-growth tanks, so clones are only created as a special privilege for sterile citizens, public heroes, or unusually successful coordinators. The Progressives support large-scale cloning to increase Centrum's demographic base, but have failed to win the necessary commitment of resources to rear so many parentless children. Bionic implants are available in Centrum, but most citizens don't have any need for them (they are, of course, legally restricted) aside from pacemakers and the like. Centrum's scientists have not yet cracked the neural interface problem, though they can manage prosthetics with simple, reflexive controls. Implanted communicators and holdout weapons are common among I.S. personnel who travel in dangerous Zones.

Centrum Parachronics

According to current Centrum theory, an uncountable number of alternate timelines are arrayed in 9-dimensional space – but parachronic travel can reach only a small number. Active parachronic technology induces a polarization effect, so that travelers from the originating world can only reach the timelines in an 8-space band. Within this band, the timelines condense into waves ("quanta" to Homeliners), becoming increasingly difficult to reach.

The timelines are configured in a mathematically predictable pattern that changes slightly over time, though parachronic travel to a timeline tends to restrict its movements. Worlds can even switch quantum, or wander into the accessible band from outside – a "new" timeline appears every few years. Events within a timeline also affect its configuration, so that timelines move fractionally closer with historical events that are "similar" (a word with a precise scientific meaning to parachronic physicists), or farther apart with events that are "dissimilar."

Centrum World Classification

Centrum classifies worlds in two fashions: by Wave and by Zone. The Wave is equivalent to Homeline's "Quantum," although Centrum calls its own level (Quantum 8) Wave Zero, and Homeline's (Quantum 5), for example, Wave Minus Three. Centrum can reach Waves Minus Two (Q6) through Two (Q10). (For the sake of clarity, even this section uses Homeline terminology.) Centrum also classifies all parallel worlds relative to themselves politically, for purposes of travel and other permitted activities.

Zone Violet: The original homeworld.

Zone Indigo: Colony worlds with no other humans. Unlimited access available to any Centrum citizen. There are three Indigo lines on Q8 and one on Q9; each has a few million people.

Zone Blue: Empty worlds, including those naturally inimical to human life. Access restricted by Interworld Service for safety reasons. One Blue worldline on Q8, Omega, is the official "waste disposal" worldline. There are also Q6, Q7, and Q10 Blue lines that could be colonies but have not yet been exploited.

Zone Green: Worlds with natives under adequate control. Travel restricted to Interworld and Uplift Service, and Grade 5s of any Service.

Zone Yellow: Worlds without established control, with natives too primitive to pose a serious threat. This category includes the five known post-holocaust worlds on Q8. Access limited to Interworld and Uplift Service agents of Grade 3 or higher, or to licensed Mining Service agents under I.S. supervision.

Zone Orange: Worlds without established control, with natives who have or could soon develop technology sufficient for parachronics (TL7+). Access restricted to I.S. agents with authorization from an I.S. Grade 5 or higher.

Zone Red: Hostile worlds, and those with capabilities (TL8+, psionics, or parachronics) which make them a potential danger. Access restricted to I.S. agents with authorization from an I.S. Grade 6 or higher.

Nomenclature

Until recently, Centrum used Greek-letter designations for the empty worlds that were its major concern: the three colony worlds in Zone Indigo are Alpha, Beta, and Gamma, for instance. The I.S. now officially uses a number/letter/number code that gives Wave, Zone, and date of first contact. For example, Homeline is Minus Three/R/2015.16.3. In practice, I.S. agents use and imitate Infinity's system of names based on the historical point of divergence or notable features in the present.

Timelines can theoretically have very different physical laws, but only fairly similar ones can ever be accessible. Most of them have *slightly* different physical laws, usually on the sub-particulate stage. Centrum can reach a few worlds with significantly different natural laws, and a few timelines with science so advanced that it's hard to tell if they have the same laws. Centrum believed parachronic physics to be a mature science until the late 1990s, when a flood of anomalous data from more sensitive detectors called everything into question. In 2015, the Interworld Service discovered the existence of Secundus, another timeline of crossworld travelers. Parachronic technology is so sensitive to minute variations in physical law that it should only function in a few timelines, and Centrum's paraphysicists were confident that these lines would repel each other: none could be closer than Q1 or Q15. So what else are they wrong about?

Centrum Parachronic Technology

Like Infinity, Centrum uses conveyors (which it calls shuttles) and projectors (which it calls stations) to transport people and goods across the worldlines. Like Infinity, Centrum can only send an unassisted conveyor between worlds in the same quantum. Like Infinity, their conveyors need a parachronic generator (also about 1/200 of the conveyor's mass) and a pulsed power system to provide energy for the jump. Infinity conveyors need 200 kJ of energy per ton, but the more efficient and mature Centrum designs require only 100 kJ per ton. Like Infinity designs, however, the power system costs $50 and weighs 5 lbs. per kJ. Centrum parachronics are more reliable than Infinity systems; add +2 to Electronics Operation (Parachronic) skill for a Centrum-built conveyor or projector.

Jumps across quanta require stations. Centrum has almost a thousand stations scattered over its surface, mostly around urban centers. It even has four seaborne stations that can be towed to any point in the oceans. In addition to serving as transport hubs, these stations monitor the timelines: from these main stations, Centrum can reliably detect parachronic jumps among all accessible quanta. (Homeline can only detect jumps within the same worldline.) After 10 minutes and a successful Physics (Parachronic) roll, an operator at such a station (or examining its data) can tell the type of jump – projector, conveyor, banestorm, etc. – and its quantum of origin. After an hour's analysis and a second successful roll, he can determine the specific worldline of origin (or its parachronic coordinates, if it's an unfamiliar line), and the physical location of the jump (within a few miles). On a critical success, he can determine the mass of the jump.

Centrum also uses parachronic detectors on other worldlines, but they can only detect jumps into the same worldline in which the detector is located, assuming the operator makes an Electronics Operation (Sensors) roll. They can only detect type and direction; to get a specific quantum, worldline, or jump location requires two or more detectors to "triangulate" on a reading. Local detectors take three times as long to determine specific information (so determining the jump's type and quantum requires half an hour of work), and determining specific worldlines and jump locations requires a Physics (Parachronic) roll at -3. A local detector can fit into a bulky backpack; it costs $600,000, weighs 45 lbs. and has a 1,000-yard range. If the operator has time to set up antennas at least 12 feet away from the detector unit in all directions, range is expanded to two miles. Larger units weigh 125 lbs. and cost $1.2 million for each extra two miles of range.

Centrum parachronic stations can retrieve shuttles within a half-mile of their relative location in space, except for two-quantum jumps, which require spatial identity within 200 yards. Two-quantum jumps are difficult at the best of times; they can only occur during a quantum "window" about an hour long. Centrum computers can predict windows about four days in advance, but are wrong about the last day about one time in six.

Parachronic Communications

To send messages between worlds, Centrum uses 10-lb. message-capsule conveyors, often equipped with radio transmitters and a ducted-fan engine to carry them to a safe height for the jump. Manned conveyors have an independent internal "mailbox" that they use when out-quantum, exchanging it regularly with a corresponding mailbox at home (as long as they are still in range of a station). Message drones are not used as often on Q6 and Q7 missions: Centrum isn't sure how good Infinity's scanning techniques are, but it's best to err on the side of caution.

The Interworld Service

All parachronic travel is technically the province of the Interworld Service, and it runs all of Centrum's parachronic stations. In practice it delegates much of the routine transport among the safe zones to the various industrial Services, but otherwise jealously guards its monopoly. Calling in the Military Service, although sometimes necessary, is a serious black mark against an I.S. agent; this can give a bad situation a chance to get far out of control.

The Interworld Service maintains its own enforcers in order to avoid such embarrassments, and trains its scouts and covert agents for combat. (That said, the main I.S. weapons are the stunner and the needler; there is a strong cultural predisposition toward subtlety within Interworld.) The I.S. values finesse as well as ordinary success, and encourages the use of local resources. Its agents are supposed to take a long view, which accounts for their preference for secrecy and infiltration over quick-and-dirty interference: they want to maintain maximum freedom of action.

Interworld has millions of personnel – it is far larger than its Secundan analog, the Infinity Patrol. However, agents considered adequately trained

to plan or complete missions on uncontrolled timelines are uncommon, and those teams make it worse by competing for the limited missions available. Harsh internal criticism does insure that every mission is thoroughly planned, with fail-safes and backups, but it also cuts down the total number of operations.

Recruiting in Other Worlds

Centrum respects talent, and Interworld is painfully aware of how narrow its skill base can be. Under a 2012 amendment to the Lockridge Protocols, the Interworld Service has the right to invite "especially worthy" outtimers to sign up as Grade 1 trainees. Candidates then endure a battery of tests for existing abilities, potential, and reliability, so the Service knows what to do with them. Testing poorly probably means being stuck in unimportant roles; failing the loyalty test brings either restricted movements and close monitoring (for those too valuable to lose) or exile – or even execution, if the candidate is viewed as a potential danger. (The agent who recruited an executed candidate can count on nuclear waste disposal duty for the rest of his career, at best.) Testing well, officially, can qualify an outtimer for probationary citizenship.

Outtimers are the only group who suffer from widespread social prejudice on Centrum. Officially, recruits have the same chance for promotion as anyone else; unofficially, the I.S. is likely to peg them to mid-level positions without much chance of advancement, especially if they were chosen in the first place because of a special talent for science, languages, or psionics.

Interworld Policies

The Interworld Service has no way of investigating timelines besides sending people in to take a look. Normally the first survey plants several teams in sites where most timelines have important cities (Jericho, Constantinople, London, Nanking, New Orleans). After that, they use aerial surveys in Zones Blue and Yellow, lots more agents in Zone Orange, and a few hand-picked agents in Zone Red.

It is important to note that Centrum has no general policy of secrecy about parachronics. In Zone Yellow, agents usually pose as "visitors from afar," and use high-tech equipment almost freely; Centrum doesn't really care what the natives think as long as they're not a threat. In at least two low-tech worlds (including Arachne, a Quantum 7 former echo in the 16th century) the Uplift Service has deliberately revealed the existence of Centrum in the process of creating puppet governments.

In Zones Orange and Red, the I.S. is much more cautious, and strictly forbids revelation of parachronic travel to anyone who might conceivably build their own conveyors. If they know enough about how the locals think, they will have a cover story planned to fit the local conspiracy mythology in case of exposure. For a late-20th-century echo, they would bring in a UFO or black helicopter. Centrum's primary goal is always to attain a level of influence sufficient to block the development of parachronics. But most I.S. personnel also want to be in a position to save any other timeline from a Last War, which strengthens their general preference for timelines with a hegemonic power over those with competing states. Centrum usually picks one side (the one they think they can infiltrate and modify most easily) and subtly builds it up while undercutting its rivals. If Infinity shows up on the other side, Interworld weighs the options – going deep underground to sabotage the Patrol, openly providing one side with high-tech weapons and advisers, or something in between.

Interworld and the Echoes

Almost 300 Quantum 6 timelines duplicate Secundus at some earlier point in its history. Parachronic physicists believe that having Secundus' parachonics operating so close to Centrum's is creating an interference effect attracting these timelines from outside the accessible band. Granted, these are the same scientists who were certain Secundus could not exist, but there is still evidence for their new theory: the echoes go through predictable periods of *paratemporal instability.* During such periods (about a third of the time), an echo can shift configuration very easily, and outtimers' interference in their histories can cause them to shift to another quantum – sometimes across several at once! (See *Timeline Shifting,* p. 104.) After a major change to local history the timeline tends to stabilize in place, whether it shifted or not.

As a result, the echoes have become the major "front" in the war with Secundus. Most scientists agree that shifting enough of the echoes into higher quanta will eventually cause Secundus itself to shift to a lower quantum via an action-reaction principle, possibly even out of the accessible band altogether. Centrum is also attracted by the idea of adding to the worlds available for eventual exploitation. Operations on many Q9 and Q10 timelines have been put on hold while the Interworld Service concentrates on the echoes: if Centrum doesn't seize them now, it may never be able to.

Interworld Thinking

Field agents of the Interworld Service are often more broad-minded than their coordinators, but they still have trouble understanding radically different viewpoints like democracy or fundamentalist religion. Secundus confuses them terribly because of Infinity's leasing parachronics to governments and corporations. Even those coordinators who might favor negotiation with Secundus see it as an anarchy – between Infinity, the U.N., and powerful national governments, there's no one to sign a treaty *with!*

Interworld Service agents are trained to take a long view, which is one reason they prefer infiltration to visible intervention. The other is that massive force means losing control of local affairs to the Military or Uplift Service.

At present, Centrum has shifted nine echoes to Q7 and six to Q8 or higher; two were sent to Q5 by mistaken calculations. Four more have accidentally been shifted to a higher quantum by Secundus, which has also moved three to lower quanta (and one back to Q6 from Q7): Infinity can rarely judge the effects of an intervention.

The Uplift Service

Split off from the Interworld Service in 2012, with some personnel from several other Services, the Uplift Service is assigned the job of civilizing the less developed timelines where Centrum has acquired control. With recent policy changes and the war against Secundus, there are many more such worlds than in the past, and Centrum is finding the task more of a strain than anticipated.

Uplift is essentially divided into private fiefs of small coordinator groups, each with its own idea of how best to modify a world for immediate exploitation and long-term absorption. They are being given an unusually free hand: the consensus is that the only rational way to proceed is to try many different systems and check back in a generation to see how successful they have been. Rather hard on the natives, but their current chaotic squalor is not very attractive either.

Centrum Campaigns

The most obvious use of Centrum is as a villain in the default Infinite Worlds campaign. The home world generally remains offstage, but Infinity Unlimited would dearly love to know more about its enemy. Patrolmen who prove exceptionally good at infiltration (or at ticking off their superiors) may find themselves assigned to visit Quantum 8 via a nexus portal or psionic world-jumper and report back. The odds of survival, let alone success, are not good unless the recon team has an edge – a rogue Centran to train or even guide them, at least, and perhaps also special resources like psionics, magic, or strange technology. Centrum seems very vulnerable to magic; it just doesn't fit *at all* in their technocratic, rational worldview. Although Centrum is a no-mana world, the Patrol could always find a mana-enhancing reality shard somewhere to help bring the fun in. The prize for success would be information: how Centrum thinks in general, how they calculate timeline shifts, or perhaps news of a major Centrum operation to stop just in the nick of time (see *Centrum Plots to Foil,* below).

The Infinity War

Generally, however, Centrans show up on other timelines. Quantum 6 is the major focus of the struggle, but the Interworld Service operates everywhere. Centrum has a lot less trouble infiltrating a relatively open society like Homeline than vice versa, so they might even show up in low-quantum worlds, although they would need a special reason to risk it. No such reason is necessary on Q7 or even Q6: Centrum gives the Interworld Service all the resources needed to operate within its natural sphere of influence.

Centrum can also appear as an adversary in other crossworld campaigns: it would probably just try to recruit any independent travelers, but it would be remorselessly opposed to any threat to its parachronic monopoly. (But make sure that it can't invade directly, to keep the campaign a war of influence instead of just a war.) Although the Military Service is small compared to Homeline armies (only half a million men), it is expert at blitzkrieg-style strikes on lower-tech foes, and with its TL9 weaponry, it would be a mouthful even for some high-tech armies.

In either case, Centrans can fit any "secret agent" character type. It is often difficult to fit continuing NPCs into a crossworld campaign, but a Centran could be the mastermind whose schemes the players cross, the shadowy contact who gives them information but has a private agenda, or the misguided professional rival (usually of the opposite sex) who tries to recruit the PCs . . . or at least the most attractive one.

Playing Centrans

Players could also participate in the infinity war from the other side. Some groups may like to play the villains now and then. Or they could play outtimers recruited from situations

Centrum Plots to Foil

Infinity Unlimited has no idea that one of Centrum's reasons for "stealing" echo timelines is to try and shift Homeline into a lower quantum. In fact, Centrum is trying to adjust timeline configurations to shift it from Quantum 5 all the way to Quantum 3. Not only would that strand all the Homeliners unlucky enough to be on Q6 and Q7, it would make Homeline easily accessible by conveyor from the dangerous Q3 lines such as Merlin-1 (p. 134), Reich-5, and Shikaku-mon (p. 146).

A group of Pragmatics and Progressives has been arguing for a different approach: build a large conveyor-equipped armada on one of the echoes shifted to Q8, then deliberately shift it through Q6 into Q5 and invade Homeline directly. The main argument against this tactic has been the expense: although the Infinity Patrol is fairly small, the collective armed forces of Homeline dwarf the Military Service. But if Centrum were to gain more advanced weaponry (say, from Caliph, p. 117) or find allies among Homeline terrorists, it might try it.

A small faction of coordinators favor offering parachonic technology to worlds in other quanta, calculating that a partnership could control the other worlds more easily than Centrum alone. This viewpoint is unlikely to gain much popularity in the Forum, but if some setback panicked Centrum badly enough they might try to create a second front for Infinity on Q3 or Q4. (Reich-5 makes a spookily tempting target for such an offer.) Centran renegades are more likely to try this, since breaking secrecy would be one way to win high position in a parallel world!

horrible enough for Centrum to seem like a savior. If they want to try fixing up their home timeline or timelines, the Interworld Service allows them to implement any plan that leaves Centrum in charge. If they are really successful, they may be transferred to the Uplift Service, and told to do it again!

Alternatively, the GM can make Centrum nicer, and perhaps get rid of the dimension war entirely. There is still a basic difference in approach: while the Infinity Patrol spends most of its time cleaning up other people's messes, the Interworld Service places more emphasis on making messes of their own.

If the players are going to try "stealing" an echo, the stereotypical Centrum mission, they need a historical change: the GM can assign one, or, if the players know their history, they can try to figure something out themselves. Anything that makes Homeline history more like Centrum is fair game (see *Putting a Little English On It,* p. 87) – but the direction of shift usually can't be calculated for nuking cities and similar gross shifts. Players should also remember to have a backup plan in case their first try doesn't work.

The most common Interworld Service mission, actually, is long-term infiltration, building up Centrum's power structure on a given timeline or acquiring knowledge as safely as they possibly can. Player groups are more likely to be assigned brief support missions, brought in to provide expertise that the infiltrators need to improve their position – often through illegal means like breaking and entering, theft, or "vanishing" some individual.

Investigation missions are another possibility: Centrum is continually on the alert for Infinity's influence, and in the process has frequently uncovered anomalies in worlds they thought they understood. There are also straightforward survey missions, either to newly appeared timelines or to worlds Centrum is only now getting around to examining in depth (usually because they now have someone who can stumble through the local languages). Some Zone Yellow worlds surely have undiscovered features – a barbarian world might turn out to be post-holocaust, with remnants of the old high culture still around, or a local superstition about magic might turn out to be rooted in some sort of fact.

Alternate Infinite Wars

The dimension war can be a very stable setting: neither side really has the resources to exclude the other completely, and they are immune to direct attack. But GMs who want to upset the applecart have several options, too. First, another timeline could get parachronics and try to carve out its own (single-quantum) sphere of influence; Reich-5 is on the cusp of being just such a threat, and if the Chronobahn (p. 79) extends outside Q3, it could be an even worse one. To alter the current balance even farther, perhaps some unexplained shift knocks Reich-5 into Quantum 6, right between Homeline and Centrum!

For a major change to the existing setting, have the echo shifts finally create the backlash Centran scientists theorize and shift Homeline to Quantum 4 or Quantum 3. Or have it work, but not quite as expected: shift Secundus to Quantum 6 and turn the game into an open war. Or shift Homeline out of the accessible band entirely – a victory! Of course, then Centrum has to deal with the Infinity personnel left behind, who suddenly have a *lot* less incentive to keep parachronics secret, and a reason for revenge on a *massive* scale. Or shift *Centrum* to Q9 or Q10 ("whoops, inverted the sign in that equation") and give it a whole new set of worlds to worry about.

A technological breakthrough is another possibility. Psionic worldjumpers can travel between quanta indefinitely far from Centrum or Secundus: that would let the "Infinite Worlds" live up to their name. If the technique (or some other that ignores quantum restrictions) gets brought from outside by another crossworld culture, the dimension war would gain a participant that might even force Centrum into alliance with Infinity.

Centrum Dark, Centrum Light

Centrans as presented in the default Infinite Worlds setting are *not* nice people. While not especially corrupt, they are faintly paranoid, often narrow-minded, and definitely ruthless. (Or, in their eyes: concerned with defense, impatient with archaic or senseless practices, and pragmatic in their determination to accomplish their goals.) It's easy enough to make them even more villainous; all they need is a suitably vicious ideology. Although that ecological niche would seem well filled by Reich-5, perhaps Centrum is an atheist, Communist technocracy full of gulags for recalcitrant Arabic-speakers. This can set up a nice "WWII, Again" scenario as Infinity has to ally with its mortal foes to defeat a different batch of mortal foes.

GMs who want a nicer Centrum, perhaps as a home base for PCs, can transform it without too much trouble. Credit it with genuine good intentions towards other timelines (of course, it may still have trouble understanding foreign viewpoints), and give Centrum Light more regard for individuals in place of their end-justifies-the-means communitarianism. Play up their genuine abhorrence of racism and sexism, and their devout concern for the ecology and for equality of opportunity. Centrum Light could even have a democratically elected Parliament in place of the Forum, although it would be fun to play with variant democracy. Perhaps everyone has votes equal to their citizenship grade, and actual candidacy for office is restricted to Grade 7s. Homeline can be replaced with a more villainous timeline, removed from the setting altogether, or even kept the same, with both sides coming to see past the nasty stereotypes each has of the other.

Perhaps this can lead to true evolution in Centrum, letting it accept partners instead of rivals or subjects. Centrum and Homeline could anchor a Federation of Worlds, spread across hundreds of parallel Earths, pooling their technology and resources, planting colonies, and sending diplomats and scholars to more primitive worlds. The Interworld Service and Infinity could become multi-world institutions handling exploration – and defense against a fully mobilized Reich-5 and its Thousand-World Dream.

Playing the Uplift Service

One possible campaign could involve a team of Uplift Service coordinators assigned to "civilize" a Zone Yellow (or possibly Orange) world. In order to absorb the worldline eventually, long-term cultural changes will likely be needed (see *Try to Change the World,* p. 105). The basic goals are political unity, meritocratic hierarchy, and technical progress (up to a stable TL5 or 6, anyway); it would be a nice bonus to make them English-speaking. The means used are completely up to the players: they have a large budget and a few hundred personnel, but are unlikely to get much more help without impressive intermediate results. The GM should be generous with equipment requested at the beginning of the campaign, but stingy with afterthoughts. ("You *do* have an entire world of your *own;* surely you can find a tank-killing robot *somewhere."*)

Such a campaign features a lot of player freedom and a more reactive GM role – but plan on some surprises, and don't forget that Infinity is likely to interfere if they can. Consult *Worldline Conquest Made (Relatively) Easy* on p. 208 for more suggestions. Centrans are likely to underestimate the natives, confusing primitive with stupid, and being confused whenever they don't act "rationally" – which is to say, like Centrans. Centrum's leaders also underestimate the danger that an Uplift team, in learning to understand the natives, might come to identify with them. This could lead to some interesting moral conflicts among the PCs themselves (or the players!) or with their superiors and subordinates.

Renegades

A campaign could also be built around a team that breaks away from Centrum. The game could start with renegades, or with an agent group that slowly becomes disillusioned with their superiors and decides to strike out on their own. If they go over to Infinity Unlimited, they might tip the balance of power. Finding a niche for themselves in some other timeline ought to be possible, but would not make for very good gaming unless they were trying to carve out an empire, ran across something unexpected, or both. Creating a new group of crossworld travelers is also a possibility, but would bring down the wrath of Centrum and Infinity together.

REICH-5

This parallel diverged from Homeline with the assassination of President-elect Franklin Roosevelt by Giuseppe Zangara in 1933, and the return of the United States to isolationism. While America sank further into depression and despair, Hitler's Germany and Imperial Japan destroyed the Western Allies. Emboldened by this victory, the fascist Union Party swept to power in the United States under William Dudley Pelley (leader of the Silver Shirts paramilitary organization he modeled on the Brownshirts) in 1944.

After German troops and atomic weapons crushed the American anti-fascist movement, the United States became a partner in the World-Axis along with Nazi Germany and Imperial Japan. America slowly crumbled, never quite able to shoulder its share of the totalitarian burden, but never quite able to throw off the fascist yoke. Germany pursued the iron dream into space, and Japan retreated ever further into its bushido fantasies, the two powers dimly aware that they only had each other to blame, to conquer, and to learn from. Corrupt governors and generals began to pursue their own ends as ideologies born in war and conquest softened and decayed in the endless peace.

Then came the *Ausbruch,* the "breakout" into other worlds. Suddenly, the Reich had new worlds to conquer – and the destiny of the Aryan race to mold on a thousand timelines. Fortunately, the Reich as a whole doesn't know it . . . yet.

HISTORY

Hitler Victorious

The Great Depression spawned demagogues in all the world's Great Powers, from pacifists in Britain to socialists in France and fascists in Germany. All three types were active in the United States. FDR's assassination left the country adrift, and it moved from the well-meaning liberalism of President John Nance Garner to the "strong hand" of Republican President Charles Lindbergh, who publicly proclaimed that fascism was the "wave of the future." America's socialists and communists opposed him, and when the Depression continued to deepen, Lindbergh was voted out in 1940 in favor of the socialist Democrat Henry Wallace.

By then, Hitler's blitzkrieg had swallowed Poland and toppled France in weeks. Had the United States sent aid, Britain might have survived, but without FDR, America remained trapped in isolationism and depression. With the fall of Britain to unrestricted submarine warfare in October, Hitler was free to turn on his ally Stalin, launching "Operation Barbarossa" in May, 1941. By September, Moscow had fallen to the panzers of the Third Reich. Operating on interior lines, the Nazis easily withstood the uncoordinated counterattacks of the primitive Red Army, and by the end of 1942, the Soviet Union had been conquered and incorporated by Germany as the Reichsostland. The Second World War was over.

As Germany swallowed Europe (and by extension, Africa), Japan conquered the East, from the invasion of Manchuria in 1931 to the fall of Australia in 1943. China ground down the Japanese Army in guerrilla warfare, and the invasion of India stalled in Bengal, but the Japanese military commanded virtually the entire Pacific rim. Its only obstacle was depression-ridden, unstable, isolationist America. On September 2, 1944, the Japanese struck the American bases in the Philippines, Guam, and Hawaii simultaneously. The Japanese attack was the deathblow to American democracy.

America Destroyed

America's fascist movements, created by the Depression and energized by Hitler's victories, had grown steadily for over a decade. Their leader was William Dudley Pelley of North Carolina, whose Silver Shirt brigade was modeled on Hitler's brownshirted SA. Pelley and other American fascists, including the anti-Semitic "radio priest" Father Charles Coughlin, Lawrence Dennis, G.S. Viereck, and Seward Collins, formed the Union Party in 1936 to bring fascism to America. Wallace's economic radicalism proved unworkable, and along with his increasing tendency to rule by the mob, he succeeded only in driving increasing numbers of Americans into the Union Party. Pelley joined Lindbergh's Republicans as the Vice-Presidential candidate in the 1944 election on a "unity ticket" that raced ahead of Wallace in the polls.

Wallace was unable to gain the support of industry or the military, which he had thoroughly alienated during his term. An unknown gunman shot and killed Lindbergh on October 22, 1944, and Pelley was swept into the Presidency amidst rioting and chaos while Japanese carrier forces bombed Los Angeles and Seattle and blocked the Panama Canal. The German invasion of Canada in 1945 only added to the chaos, and Pelley declared martial law and a state of emergency. Republicans and Democrats alike rejected Pelley's seizure of dictatorial powers, and Pelley called on Germany to help "restore order" in the United States. Senator Robert Taft of Ohio emerged as the leader of the anti-Pelley opposition, and was nominated by both the Democrats and the Republicans in 1948. Pelley's Union Party thugs, the so-called "Union Army," were more interested in battling the U.S. Army and lynching blacks and Jews than in defending the country, and only Japan's continuing meat-grinder in China and India prevented an actual Japanese invasion. When Pelley blatantly stole the election from Taft, it escalated the situation into wholesale civil warfare and the Germans sent 40 divisions into America on Pelley's side.

Even the slightest chance of success for the anti-Pelley forces evaporated when Werner Heisenberg invented the atomic bomb in 1950. After secret tests in the Reichsostland, the bomb was used on four American cities on June 27, 1950. Resistance collapsed abruptly, and Nazi Germany was the master of three continents when Adolf Hitler died on October 31, 1951.

Deutschland Über Alles

Following a brief behind-the-scenes power struggle, Reinhard Heydrich, the second-in-command of the SS, became the Nazi Führer and set about consolidating Germany's gains, formalizing the division of India with Japan, completing the pacification of America and Russia, and beginning the German conquest of space. When Japan and America signed the Washington-Tokyo Axis in 1961, Heydrich established the World-Axis to cement the three great fascist powers' alliance, increasing the role of fascist America to balance Imperial Japan. In 1965, Germany transferred Canada to American administration to compensate for the loss of Alaska, Hawaii, and the Philippines to Japan. When Heydrich died in 1975, German jackboots had walked on the moon and Mars, and America's dictators were fully integrated into the German world system.

Resistance to the World-Axis was sporadic, the most serious being the "Uprising of '76" in America, which the SS only put down after leveling five cities and decimating the population in rebel areas. Führer Viktor Alchsneiss followed that victory with the destruction of rebels in Afghanistan and Peru; saturation bombing with neutron warheads wiped them out in 1983. Since then, the rule of the Third Reich over an enslaved world has run ever more smoothly with the orbiting of global spy satellites, the invention of sophisticated computer surveillance technology, and the slow but steady expansion of Hitler's dream to the stars.

GEOPOLITIK

Although fascist Italy and Argentina still maintain some freedom of action, dominating satellite states of their own such as Turkey and Peru, they remain essentially appendages of German imperial policy and economics. Finland, Suid-Afrika, and Spain are nearly independent, with their own corporate cartels, no Gestapo presence to speak of in their cities, and no Luftwaffe or Kriegsmarine bases on their soil. (The same could be said for the Central Asian khanates, or fascist Eire, Mexico, and Brazil, but these marginal states are barely able to keep

their own populations under the heel.) However, they keep their domestic independence only by slavishly following Germany's lead in all external matters, no better than the German puppet states like Vichy France, Hungary, Rumania, Sweden, or Bulgaria. Essentially, the world has three great powers – Germany, Japan, and America – and only two superpowers.

Greater Germany and the Third Reich

Stretching from the mouth of the Rhine to the borders of the Ukraine and from the Baltic Sea to the Alps, *Grossdeutschland* (Greater Germany) adds Denmark, Holland, Switzerland, Austria, Lithuania, Poland, and parts of Belgium and Czechoslovakia to prewar Germany. Only "true Germans" are allowed to become citizens of Greater Germany, and the 140 million citizens who live in the Nazi heartland lord it over the 35 million Slavs (primarily Czechs and Poles) who perform all the menial labor and household duties in the Reich. German citizens (generally loyal and patriotic; Germany is CR4 for Germans) have the highest standard of living in the world, paid for by immense slave labor factories in the Reichsostland.

Germany's massive autobahns speed agricultural produce, coal, and iron from the General-Gouvernment-Poland in the east to the industrial furnaces of the Ruhr in the west. Germany's factories, the cleanest and most advanced in the world, turn out enormous quantities of aircraft, motor vehicles, armaments, chemicals, plastics, advanced composites, and optics. Germany resembles a gigantic industrial park, with enormous green spaces and forest belts even in the middle of industrial cities like Munich, Düsseldorf, Breslau, and Brünn. The state scrupulously maintains wildlife refuges and keeps a cradle-to-grave welfare state firmly in place. Giant stadiums, hospitals, and concert halls dominate the skylines of the clean, orderly cities of the Reich.

Behind these Albert Speer marble and granite facades, however, the Reich's internal politics have curdled to poison. Heydrich seized power so completely and effectively upon Hitler's death that he was able to purge his rivals and enforce compliance and discipline throughout the Party. He even managed to bring the SS to heel, thanks to his own network within it. Heydrich was confident enough in his own power to formally nominate a successor, the Baltic German Viktor Alchsneiss, and let him build a power base first as Ostminister, and then as Reichsführer-SS. When Führer Alchsneiss died in 2001, his own hand-picked successor,

Gunther Wallraff, had no such base, having been shuffled from job to job, winding up as Propaganda Minister. Führer Wallraff retains the loyalty of the "Balts" promoted by Alchsneiss (who realize that they will all be purged if someone else becomes Führer), but without the SS, the Wehrmacht, the Luftwaffe, or the Party machinery solidly behind him, Nazi politics have begun to seize up. Individual ministers spend more time spying on each other and jockeying for power than they do moving the Reich forward, and rumors persist of secret murders within the Reichschancellery and bodies dropped silently into the Spree River.

Reichsostland and the Colonies

It is another story in the conquered territories: the murders are no secret, and the bodies are left in piles. Although occupied Paris is almost civilized, and the French farmers have not felt a killing famine in almost 20 years, to the east and south the gloves are off the Nazi fist. (The Reichsostland and the colonies are CR6 for all non-German inhabitants.) The inhabitants of the former Soviet Union (except for the Far Eastern provinces annexed to Manchukuo by Japan) are all slave laborers, the property of the *Ostministerium* (Eastern Ministry) of the Reich. The Reichsostland is divided into five *Reichskommissariate* (Ostland, Ukraine, Caucasus, Muscovy, and Siberia), each under a *Reichskomissar.* Each Reichskomissar is a Nazi Party official, assisted by the overall military commander and the SS commander for the district. Over two million Germans have settled in the Reichsostland (especially in the Ukraine) drawn by the immense supply of free land and slave labor available to German colonists. Many large German cartels maintain immense factories in the East, where the strict environmental and worker-safety laws of Greater Germany do not apply. The cartels dump nuclear, chemical, and other wastes in Siberia, especially in areas already strip-mined of their mineral deposits.

If possible, things are even worse in Africa and India, where the *Reichskolonialamt* (RKA) maintains order with brutality and massacres, while working millions of slaves to death in uranium mines and coffee plantations. The RKA is a civilian office under the Party, and its security troops are low-class thugs and bullies unfit for either the military or the SS. India is a much-preferred posting for RKA administrators due to its better climate and more sophisticated urban life. Although Nazi rule over India is harsh, resistance to the Reich is far less common there than in Africa. Gangs of Indians work vast textile factories and plantations under native overseers, who report to the RKA. The sizable Wehrmacht garrison in India both keeps order and watches the border of Japanese-run Bengal.

Reichsprotektorate

Reichsprotektorate are nations that exercise some independence in local affairs, but are garrisoned by Wehrmacht troops and have internal order kept by the SS and local secret police. (Most of them are CR5 for good citizens, CR6 for Kurds, Irish, or other troublesome minorities.) Usually, the head of the local fascist party governs a *Reichsprotektorat,* supervised by a German Nazi Party Reichsleiter. The major Reichsprotektorate are Britain, Norway, Egypt, Persia, Arabia, and Mesopotamia. Local fascist parties (Union Fascist and Nasjonal Samling, respectively) run Britain and Norway as national socialist states, with small detachments of Gestapo and large Luftwaffe and Kriegsmarine bases. The German military and IG Farben, the chemical cartel responsible for oil production, dominate Egypt, Persia, Arabia, and Mesopotamia.

SS Burgundy

Heinrich Himmler carved the most bizarre state in Europe out of eastern France in 1944. The State of Burgundy, with its capital at Bisanz (in the original French, Besançon), is essentially a feudal fief belonging to the SS, comprising the old provinces of Burgundy and Champagne in France. Governed solely by the SS, Burgundy operates under SS law and outside German governmental jurisdiction. (Its crazy quilt of laws averages out to CR5.) Himmler dreamed of a rebirth of the medieval Teutonic Order's *Ordensstaat,* a crusading state devoted solely to the SS. Himmler intended Burgundy to provide a pure Aryan homeland for the SS to recruit from, where from cradle to grave no thought but SS orthodoxy would exist. Himmler's mystical beliefs received full play there, and slave laborers rebuilt many medieval castles of the Teutonic Order stone by stone.

Following Himmler's sudden death and the rise of his deputy Heydrich to the position of Führer, Burgundy became a dumping ground for the "occult Aryan" mystics who were preventing useful research into nuclear physics or rocketry. Heydrich promoted the head of the *Ahnenerbe* (the division of the SS concerned with "Ancestral Heritage" and racial-cultural research, including research into parapsychology and occultism) from Reichsmanager to Ordenführer and placed the Ahnenerbe in charge of administering the Ordensstaat of Burgundy, subject only to the Reichsführer-SS. By the 1980s, the SS was running Burgundy as a tourist center for propaganda purposes and using its mountains and forests as a training ground for SS cadets. Since the late 1960s, Burgundy has also held the secret bank accounts of many high officials of the Reich who avoid German taxation by paying discreet bribes to the corrupt overlords of the SS State.

The Japanese Empire

The Japanese Empire rules nearly half the world's population, either directly or through its network of satellite states and colonies. The Empire proper includes the Japanese Home Islands, the smaller islands of the Pacific from Okinawa to Tahiti, Korea, Taiwan, Hainan, Sakhalin, and Hawaii. (The Home Islands are CR4 for Japanese citizens and CR6 for Koreans and other foreigners, including Hawaiian natives.) China, Australia, New Zealand, and Alaska are the "Outer Empire," which remains considerably more militarized than the Home Islands (CR6). The Emperor Naruhito is the divine embodiment of the sun god, and rules the Empire through a network of aristocratic bureaucrats, interlinked by family and career loyalties with the *keiretsu* cartels and the military.

The Home Islands are slowly returning to a more traditional economy of small rice farms as the heavy industries move to Korea, Manchukuo, or the Outer Empire. Many Japanese have also begun commercial fish farming and whale ranching in the vast waters of the Pacific, operating from huge floating factories. Japan's increasing isolation empties its parks, gardens, and Shinto shrines (except for students and the occasional tourist) as its population ages. With the real work handled by "invisible" foreign slaves and robots, the domestic population has leisure to grow rice, read classic poetry, and (for those with the right connections) plug into increasingly violent and pornographic holographic simulations. A network of fast maglev trains and hydrofoils connects virtually all cities in Japan; private use of automobiles is severely restricted. Non-Japanese airlines (Lufthansa, Pan Am, Aerolineas, Alitalia) are restricted to Nagasaki Airport, on the western end of Kyushu.

The Kempei Tai, the Japanese military secret police, have gone over the last generation from one of the most dangerous intelligence agencies in the world to a bureaucratized homeland security service. Obsessed with counting foreigners, tracking the slaves and keeping the others out of Japan, it has allowed other operations to drift. Kempei Tai agents overseas have mostly cast their lot in with the corrupt generals and *keiretsu* bosses who really run the colonies, filing pro forma reports to a Tokyo headquarters increasingly concerned with court fashion and decreasingly engaged with anything else. With no intelligence-gathering competition, nobody at the Imperial Court has noticed.

The Outer Empire

The Japanese military runs China as a feudal empire, with various generals leasing slave labor and factories in their fiefdoms to Japan's immense *keiretsu* industrial combines. Japanese rule in China is particularly brutal, with massacres of the Chinese population a matter of routine for the slightest sign of rebellion. Famines are commonplace, as the produce from China's farms is sent to Japan or the satellite states. Japan also tests its atomic weapons in the Gansu desert in northern China, and, like the Germans in Siberia, dumps its toxic wastes in the Chinese interior.

Australia, Alaska, and New Zealand, collectively known as the *Shinryodo* (New Territories), are being turned into Japanese colonies as millions of native Japanese emigrate from their crowded cities to these wide open spaces. Following the wholesale executions of the former military, economic, and political leadership, Japan deported the white population of these areas to America or Britain, where they drifted into crime or joined the security forces. Many emigrated to Suid-Afrika, which was in great need of white settlers to police its newly acquired African territories.

Daitoa Koei Han'i

The entire Pacific Rim from Vancouver to Vladivostok and from Calcutta to Honolulu is tied into a vast economic union coordinated from Tokyo, the *Daitoa Koei Han'i* (Greater East Asia Co-Prosperity Sphere). Japanese *keiretsu* are the engine of this economy, operating freely throughout the Co-Prosperity Sphere and selling their manufactured goods to a billion-person captive market behind a maze of tariff and import regulations.

The satellite states provide raw materials and cheap labor for the *keiretsu* – rubber from Malaya, oil from Borneo and Java, minerals from Sumatra and Burma. Some of the satellites, such as Manchukuo and the Philippines, have moved into heavy manufacturing, primarily producing textiles, chemicals, and steel. Others, such as Bengal, Indochina, and Java, remain predominantly agricultural, but Calcutta, Saigon, and Batavia are as industrialized as any Chinese corporate hell-city. All of the satellite states have extensive Japanese military bases. However, as the Japanese government continues to drift into stasis, more and more of these bases have taken over local industries – first to feed themselves, and then to claim their share of the *keiretsu* profits – and cut their own deals with local crime lords or ethnic chiefs. The satellites are slowly becoming warlord states outside the sight of the Emperor.

Fascist Amerika

The United States has been on the verge of a "complete recovery" for the last 40 years. Things are better than they were in the 1950s, when President Pelley dictated spiritual channelings over the radio to a country occupied by the Wehrmacht and smoldering after atomic bombardment and civil war. Under President George Lincoln Rockwell, America grew to be one of the three Great Powers in the World-Axis. This was due not so much to Rockwell's largely indolent Presidency as to its large base of educated, skilled labor, its high level

The American Resistance

The American Resistance was badly hurt following the Uprising of '76. Carefully hoarded weapons stocks were expended, most Resistance fighters were killed, and sympathizers and moles within the government (most notably Governor John F. Kennedy of Massachusetts, son of Ambassador to Germany Joseph Kennedy) were exposed and executed. Finally, the extreme brutality with which the SS and the Union Party put down the revolt sent the American population back into a state of numbed shell-shock reminiscent of the post-War era. Most Americans simply wished to return to what could be salvaged of their lives.

By the early 21st century, after a generation's passage, the Resistance has managed to rebuild a loose network of cells across the country, strongest in the Yukon and the intermountain West, New England, and the rural South. Its activities are restricted to infiltrating the security apparatus, inserting bogus data into the national computer network, once again attempting to build up arms caches, hiding the occasional refugee, drug trafficking, and stirring up resentment against the SS "advisers" still present in the country. The Resistance has learned from long experience that any more-overt action brings massive retribution in the form of hostage-taking and blanket executions. Also, any large-scale action runs the very real risk of being betrayed by NBSS informers or ordinary people who covet the $100,000 standing reward for turning in a Resistance cell.

of industrial and technological development before the War, and substantial aid and assistance from Germany, which saw America as a white counterweight to Japanese Asia.

Rockwell was badly shaken by the Uprising of '76, and came close to losing both his nerve and his Presidency before National Bureau of State Security (NBSS) director Roy Cohn assumed control of the situation and called in the SS. Cohn supervised the final stages of the mass deportation of blacks to Africa (and RKA slave camps) and the Final Solution for America's Jews and homosexuals. Cohn was President in all but name until his death in 1988. That same year (and perhaps not coincidentally), Rockwell died and was succeeded by David Duke, the Governor of Louisiana and Grand Dragon of the KKK. Duke has actually attempted to run the country, but finds that with the SS and NBSS handling real security (the CR in the United States remains 5), and the American military riddled with Resistance cells, his only real power is to dispense government patronage to people who can't get good jobs with German or American cartels.

Beginning in the 1960s, many German cartels formed partnerships with American corporations such as BMW-Ford, Farben-DuPont, Heinkel-Boeing or Siemens-Westinghouse. American oil corporations also gained a powerful role in the German-dominated economy, and their favored American banks brimmed with German investment capital. The Eastern seaboard remains the center of German investment and influence. Domestic industries, such as oil and film, center in Houston and Los Angeles, respectively. Oklahoma City became a transportation and manufacturing hub, with a spaceplane port (Lindbergh Field) that is a center for high-tech industrial research. A steady "brain drain" of America's best and brightest to those cartels – and then to Germany – matches the flow of American services, oil, and manufactures to Europe, paid for in dollars pegged embarrassingly low to the Reichsmark.

The remaining population of roughly 220 million (including Canada) rebuilds autobahns and maglevs, and clears rubble from the bombed-out centers of Calgary, San Antonio, and Atlanta. "Cartel stores" in most cities stock a wide variety of American and European goods priced in Reichsmarks. Those without corporate connections, such as the workers in the immense Ring Cities around the radioactive ruins of Omaha, St. Louis, and Dallas, shop in "open stores" for shoddy goods often re-imported (at a fat markup) from German slave factories in the Reichsostland. Most of the brave new America seems threadbare and drab to a German (or Homeline) visitor.

Technology on Reich-5

Reich-5's technology is more advanced than that of the Homeline 2010s, well into TL8 in most areas, and early TL9 in many military applications. Reich-5's greatest advances are in those areas involving the space program: not only in aerodynamics, metallurgy, physics, radionics, and chemistry but in "spinoff" areas as well. Zero-G chemistry, medicine, computers, ecology, biochemistry, materials science, and other fields are also highly advanced. The benefits of these advances are, of course, restricted to German and Japanese cartels and citizens and to the elites of America. Most of the rest of the world remains mired in TL7 or lower.

Transportation

In Germany and America, the personal automobile is still the king, at least for middle- and upper-class citizens. Advanced computer-controlled carburetors, ceramic and polymer engine parts, and multistroke engines allow smaller, lighter cars such as Fords or Volkswagens to retain the "feel" of a V8 muscle car while drastically lowering gasoline usage and pollution. Higher-class citizens still drive pure V8 and V12 Mercedes and Cadillac sedans, and the autobahns have no speed limits in the lefthand lanes. Porsche sports cars are also quite common, as are Ferraris and Mitsubishis. Automobiles are routinely equipped with satellite location systems for navigation, cellular telephone/TV systems, and computer route-and-speed controls and mini-radar for night and all-weather driving capacity.

Over longer distances, maglev trains have almost totally replaced the old-fashioned *Kugelbahnen* (bullet trains) of the 1960s and 1970s thanks to warm-temperature superconductors developed by the German space program. The rail network covers virtually the entire Northern Hemisphere, due to close coordination between the Axis powers, although transfers on the Trans-Siberian and Great Indian Railways between Japanese- and German-dominated territories require switching onto other tracks and recalibrating electromagnetic potentials. The Berlin-to-Capetown and Pan-American Railways extend the network to the southern ends of the Earth.

In the air, giant suborbital Lufthansa scramjets cross oceans and continents in two or three hours. More conventional superjumbo jets carry less-well-heeled or well-connected tourists and business travelers, and many vacationers still ride the ZLF helium airships that make the tourist runs from Germany and the United States to Brazil and Spain. Such trips take four or five days, but the airship lines can successfully compete with the ocean liners in luxury and romance.

Space

German exploration and exploitation of outer space began in the 1920s, and continued with Wernher von Braun in the 1930s and 1940s. When the military and security applications of satellites became fully understood, Germany immediately launched a full-fledged space program. The Luftwaffe orbited the first space station, *Hitler,* in 1959; it is now the core of a permanent geosychronous orbital settlement. The Luftwaffe has maintained control over the German space program ever since, although many cartels and *keiretsu* have launched their own satellites or added research or engineering modules onto *Hitler.* Japan, Italy, Germany, Argentina, Suid-Afrika, and the United States have all launched LEO (low Earth orbit) stations. Activity at *Hitler* centers on completing the Neues Essen space factory and permanent colony constructed from the hollowed-out earth-grazer asteroid Neuruhr, moved into orbit by Heinkel-Boeing and Krupp in 1979. Mass mining has moved to Neusilesien and Neumesabi, two new asteroids drawn into slightly higher orbits.

Military transport from Earth to orbit is still handled by A-20 *Engel* spaceplanes taking off from Oklahoma City, Lublin, or Tsitsihar. Cargo transport, formerly launched in high-payload orbiters from Kamerun or Singapore, now runs along the *Bifrost* skyhook completed in 1994. *Bifrost,* named for the bridge connecting heaven to Earth in Teutonic myth, is a 31,000-mile-long cable which serves as a giant "elevator" from the Earth to an orbital station, *Asgard,* 22,000 miles along its length. The cable is tethered at its far end to Eisengard, another mining asteroid that holds the Kepler Space Telescope and a Luftwaffe base. *Bifrost* is anchored to Mt. Kirinyaga, Kenya, which has become the center of a huge Luftwaffe research station connected to the Berlin-to-Capetown maglev line. The security of Kirinyaga is so important that the SS oversees the slave laborers who maintain the facility. Bulk cargo and passengers travel up and down *Bifrost* in "elevator cars" which take five days to go between *Asgard* and Kirinyaga.

The German bases on the Moon and Mars are theoretically bases of the World-Axis as a whole, and many Italian, Japanese, Argentine, Croatian, or British scientists work at Tycho or Descartes bases on the Moon or at the Cydonia research station on Mars. However, the Luftwaffe controls all base security and access, and German scientists and cartels have priority in all research or mining activities. The German colony on Mars is currently implementing the initial stages of *Projekt Ymir,* which involves terraforming Mars into a livable world by the end of the 21st century, expanding the *lebensraum* of the Master Race to a whole new planet.

Computers and Networks

Computer technology, which began in the 1940s in England and America, has continued to be an English-speaker's field. Although many German and Japanese firms have mastered the most state-of-the-art hardware requirements for supercomputers or handheld minicomputers, software engineering remains one of the few areas where Americans hold the lead. This is probably because the German cartels consistently refused to invest in software improvements, believing in large, centralized mainframe systems modeled after the German state economy. American companies, desperate for a competitive edge against the overwhelming power of the cartels, were willing to take more risks. Also, the destruction of much of the American mainframe network in the Uprising of '76 led almost by accident to the advent of the minicomputer and the development of redundant computer networks.

Both the security forces and the cartels needed to transfer vast amounts of data to widely scattered sites, and the computer network of fiber optic cables that grew up in the late 1970s and early 1980s soon began linking universities, the space program, and research corporations. In 1984, the *Völkische Beobachter* established an informational service by computer link. The *New York Times* and *Asahi Shimbun* soon followed, as did many other news organizations. The Information Ministries of the various Axis powers strictly control access to computer systems, and secret police forces armed with increasingly sophisticated and powerful AIs monitor transmissions. Most private citizens still do not own personal computers due to their expense and to the delays in getting clearances. Even powerful cartel executives or scientific personnel usually lease their computer from the cartel or university that employs them.

Computers in Reich-5 range from the Complexity 2 personal computers of the cartel vice presidents to the Complexity 6 mainframes in the telemetry centers of Von Braun Spaceport in Kamerun and the cellars of the Gestapo in Prinz-Albrecht-Strasse.

Medicine and Genetics

Although the German space program has accelerated medical progress (like most other scientific

progress), the official ideology of "race science" has left German genetic technology peculiarly retrograde. Although German biologists have perfected the full cloning of human beings, only scientists vetted by the SS-RuSHA for Party loyalty may conduct such sensitive research, under the tightest possible security. Currently, cloning techniques are restricted to military hospitals and trauma centers for "regrowing" limbs and organs, including eyes and hearts (generally a period of weeks for major regrowth). Brain tissue can be regrown if damaged, but the patient must undergo physical therapy and re-education to "relearn" skills and memories.

The greatest advances in genetic engineering have come from the laboratories of the Japanese *keiretsu*. Japanese corporate scientists and engineers have already created petroleum-eating bacteria to clean up oil spills, disease-resistant strains of rice and corn, and new breeds of tuna, bluefin, and salmon for their fish farms. Genetic alteration of humans is becoming more common as well, although it is still too expensive for "cosmetic" purposes. Some small, elite squads are composed of "enhanced" super-soldiers called *tenshi* (literally, "heavenly warriors") trained from birth to serve their superiors and the Emperor. Japanese obstetricians routinely test for genes tied to birth defects, hemophilia, retardation, or homosexuality, and genetically alter fetuses that show any of these.

The German medical community has not yet begun genetically altering fetuses, due to a shortage of trained personnel, and prefers simply to abort "imperfect" fetuses. German obstetricians also abort fetuses showing "Jewish" genes such as the Tay-Sachs marker. The American Eugenics Board also encourages abortion of "undesirables," but has far too few trained geneticists to engage in any wholesale testing policy. All Axis nations routinely practice euthanasia on mental patients, the terminally ill, Alzheimer's victims, and elderly slave populations. In America, the Eugenics Board also sterilizes criminals (especially including Resistance members), as does the SS in Germany. In Japan, sterilization is reserved for the Chinese and Korean populations. Japanese authorities routinely sterilize women after the first child (in China) or the second (in Korea). The Germans similarly sterilize the Slav populations of Greater Germany and the Reichsostland.

(See ***GURPS Alternate Earths*** for further details of Reich-5.)

Outtime Discoveries

When the Infinity Patrol discovered Reich-5 16 years ago, in its local year 1994, they clamped a security lock on not just the worldline's coordinates, but also its very existence. Of the five known parallels at the time with a victorious Nazi Germany (see *Reich-2,* p. 142), Reich-5 was the most horrifying. The Third Reich firmly controlled their third of the world, and through their American puppet state, dominated the Western Hemisphere as well. Imperial Japan, although less stable, was no less cruel; there were no "friendly powers" to work through on this parallel.

The Patrol and UNIC actually mapped out plans for a global mobilization against Reich-5. Operation Firefall called for a full-scale invasion of Reich-5, using the armies of the Security Council nations, Germany, and Israel to conquer that worldline after a surprise decapitating parachronic atomic strike against Tokyo, Washington, and Berlin. (A second version of Firefall, Operation Dandelion, called for provoking a German-Japanese nuclear war before mounting an invasion.) NATO's planning staff, the Russian and Chinese armies, and (as a courtesy) the Japanese IDF drew up operational plans calling for simultaneous jumps into Reich-5's Urals, Appalachians, and Szechuan province by a total of half a million men with heavy equipment and cutting-edge air support.

Two main objections finally scuttled Firefall planning. First, in the chaos of an invasion, it was almost certain that some Nazi or Imperial Japanese unit would both maintain cohesion and capture a conveyor. Thus, the strategic goal of the war – preventing a Reich-5 breakout into the continuum – would be compromised fatally by the war itself. Second, the appalled general staffs wargamed the invasion and discovered not only that Homeline would suffer at least 250,000 casualties in the first year (to say nothing of the millions dead on Reich-5 in the opening bombardment), but that there was a nontrivial chance that the Wehrmacht (and possibly the Japanese military) would throw back the invaders. What was planned as a short, surgical war could become a replay of World War II, lasting years and killing tens or even hundreds of millions of people on both worlds. After costing trillions of dollars, the war would leave Homeline economically smashed, dangerously remilitarized, and possibly under threat from rogue Nazis with nuclear weapons and revenge on their minds.

For now, UNIC and Infinity have shelved Firefall (although it gets updated regularly, just in case) in favor of lower-profile operations or (better yet) none at all.

The Infinity Patrol on Reich-5

The Infinity Patrol, stretched thin as it is, concentrates on preventing other Homeliners from reaching Reich-5. With Reich-5's computer networks more centralized, detection technology more advanced, and governments more powerful, the I-Cops do not have the resources to mount a major operation here. The few I-Cops operatives that have been planted here concentrate on infiltrating German and Japanese technical laboratories to steal technical secrets for Homeline and sound the alarm should Reich-5 researchers get too close to the parachronic Secret.

Another headache for the I-Cops working Reich-5 is the occasional attempt by Homeline racists or fascists to steal a conveyor and bring it to Reich-5. The Patrol's Security and Liaison Divisions work closely with the FBI, South African CID, Japanese PSIA, and German BfV to infiltrate any fascist group that seems to be planning a parachronic theft. Most fascist groups, fortunately, have neither the resources nor the know-how to mount a conveyor theft, much less sneak into Reich-5. A more serious threat is the possibility that radical terrorists such as the Hezbollah or Hamas might steal a conveyor and attempt to elicit Nazi aid in destroying Israel on Homeline. So far, these threats have been more potential than actual, but the Patrol has had one or two close shaves. Additionally, only high-level Infinity personnel and one or two people in the major national intelligence services know the parachronic coordinates of Reich-5. However, a rogue group with a conveyor *could* find Reich-5 by random hunting – that is, after all, how Infinity found it in the first place.

Homeline National Governments on Reich-5

The United States, Russia, Israel, and China have all mounted covert operations on Reich-5. The four nations launched more and more ambitious plans, opposed by I-Cops both on Homeline and on Reich-5. UNIC pressure, and Patrol maneuvering, stopped most of those plans politically, with only the occasional recon patrol sneaking through. In 2022 (Reich-5 local year 2001) a Russian Spetsnaz special forces team got through I-Cop security and was loose in Reich-5 for four days before it was wiped out by the Waffen-SS near Vorkuta. Two scouts went to ground and evaded the German sweep; six months later they made contact with an Israeli recon mission in Poland. They reported that at least two of their comrades had been taken alive, and not all of their parachronic equipment had been destroyed.

This "near miss," and the possibility that the SS was now aware of other timelines, led to a reduction in scale of national operations. For now, a tentative arrangement has been worked out between the I-Cops and the CIA, Mossad, the GRU, and the Chinese CCI. The I-Cops allows "dead drops" of gold, personal weapons, and microelectronics to the resistance forces in the United States, China, or the Reichsostland on the condition that the source remains untraceable and unknown even to the recipients. In return, the United States, Russia, Israel, and China refrain from mounting any further operations in Reich-5.

Unfortunately, that agreement came too late.

The Ausbruch

One of the Spetsnaz team on the 2022 mission, Evgeny Karashkin, had a genetically linked psionic world-jumping ability. He had gone through early to reconnoiter the landing zone, and an Ahnenerbe psychic had detected his "anomalous vibrations" while in a drugged stupor. Brigadeführer Karl Fest, the Waffen-SS commander in the region, happened to be a believer in the occult (who had, in fact, been assigned to Siberia to keep him out of any important posting), and he actually read the Ahnenerbe code-flash warning him to look out for anything unusual in the area. Thus, the Waffen-SS was waiting when the Spetsnaz came through, and attacked the Russian team instantly, harrying it for four days until the final stand at Vorkuta. Karashkin was killed in the first exchange of fire, but one of the four survivors captured by the SS knew of his ability, and revealed it to his questioners before dying.

Brigadeführer Fest then made his second fateful decision in as many months. He offered to turn the whole case over to the Ahnenerbe in exchange for a transfer out of Siberia, and to not report anything unusual to his superiors, describing the encounter as a simple run-in with local partisans. The Ahnenerbe agreed, with the stipulation that he uncover and bring along their world's Evgeny Karashkin (who, if he existed, would be a 10-year-old boy). Fest not only found Karashkin; he arrested his entire bloodline in a major sweep of "subversive elements" across the Reichsostland. With 72 prisoners (three of them surviving Homeliners), 82 Spetsnaz corpses, and the wreckage of a troop-carrying worldline conveyor, Brigadeführer Fest transferred his command to a new division, headquartered in Bisanz.

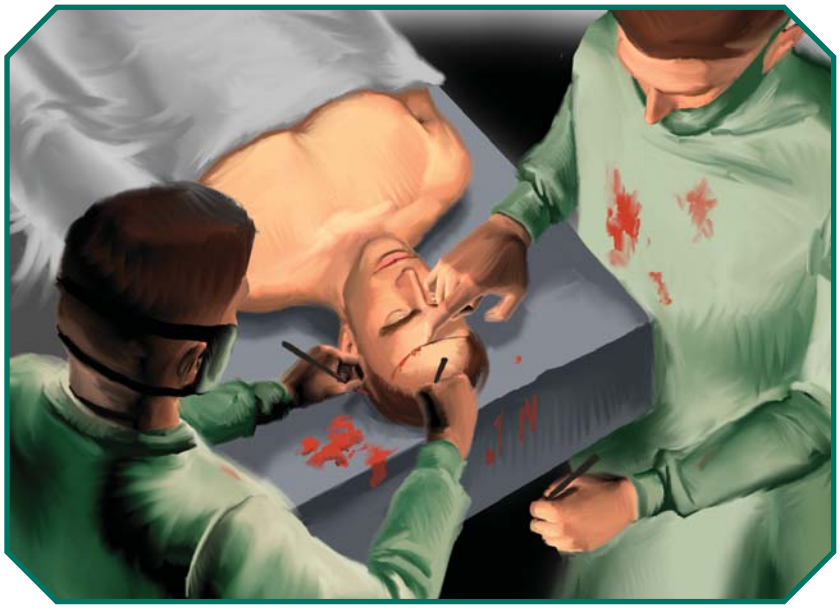
SS Raven Division

The Armanen Order

With the discovery that parallel worlds existed – and could be found by at least some psychics – the Ahnenerbe found a new role for itself. Although some wanted to bring the find to Berlin, as justification for all the hundreds of billions of Reichsmarks spent on their seemingly lunatic programs, wiser heads prevailed. Führer Alchsneiss was a Heydrich man who despised the Ahnenerbe; he would merely have taken over the parachronic program and had everyone shot to maintain security. Ordenführer Mattern realized that security had to be his priority, too. He, Fest, and Doktor Professor Emil Pauder (the head of the parapsychology program in Dijon) formed a secret society within the Ahnenerbe. They named it for the Armanen, mythical warrior-priests who served the Aesir – the gods, not the kings, of the ancient Germanic tribes. Mattern and the others likewise believed that they served the Aryan race and the Reich, not any specific agency or person, even the Führer.

This Armanen Order (which was also the name of a prominent Runic society before WWI, for extra

confusion and secrecy) reached out to other influential people with connections in the Waffen-SS, the Gestapo, and elsewhere, using the lure of secret Burgundian bank accounts as bait. Slowly it built itself operating room in the increasingly Byzantine structure of the Third Reich. Slowly, Pauder's team made progress in unlocking the parachronic secrets held in the subconscious minds of the three surviving Spetsnaz troopers, and (some said) from the dead ones as well.



Making World-Jumpers

Pauder also dissected Karashkin thoroughly, submitting him to top-of-the-line stolen Japanese genetic disassemblers and a full battery of psychometric, magical, and cultic tests and rituals. The Armanen found the genetic marker for psionic world-jumping after a year of study, and some of the other parascientific researchers also reported promising results. One of the psychics in the Dijon Research Hospital turned out to have been dreaming of other worlds; her brain chemistry was added to the study list (although she was kept alive as a lucid dreamer and scout for future invasions) and advanced other lines of inquiry.

A few of the methods Pauder and the Armanen Order use to cross the worlds or create a world-jumper (derisively called a *Maulesel,* or "Mule") follow:

Breeding: The Order was able to find a suitably pure Aryan who carried the marker for the psionic world-jumping gene: Per Havig, a fisherman from rural Denmark. He had no living relatives, so they didn't need to risk a "Karashkin sweep" inside Greater Germany itself. The Order used their contacts in the Gestapo to have his fishing boat "disappear at sea." The SS took Havig to an isolated manor in Burgundy, and put him out to stud with Karashkin's female relatives and a selection of other genetically promising mates. Of his 14 children from the program, two (one by a Karashkin and one by a Frenchwoman) bear the world-jumping gene; they have been taken from him to be raised in SS *Lebensborn* creches elsewhere in Burgundy. The Order has only told Havig that his blood contains "the future of the Reich"; Havig seems never to have unlocked his psionic powers.

Drugs: The simplest, almost routine, method is a battery of subdural drug injections into the brain, bone marrow, and spinal fluid of the subject. This stimulates brain hormone production and retrovirally implants a copy of the Havig-Karashkin world-jumping genes into the Mule. The subject spends three days running a dangerous fever (104°) and gets a HT-6 roll to resist the retroviruses; if he fails, he receives the Jumper (World) advantage and concomitant disadvantages as listed on p. 194. In most cases, the Mule still needs to take a blood-cell stimulant to trigger the ability. Recently, Armanen scientists have made progress with fetal injections into Aryan babies, although many of the mothers die giving birth to the baby Mule. The Armanen also raise baby Mules in Lebensborn creches, except for visibly deformed ones, who they raise at the hospital.

Brain Surgery: In some cases, although the brain accepts the new genetic material, the body dies during the procedure. The "waste not, want not" response: graft those brain tissues into another volunteer Mule. This is a two-week surgical process, and although the brain-blood barrier means that rejection per se is not a problem, the neurons may still fail to knit. The subject must make a HT-1 roll to avoid failure (HT+2 if using fetal brain tissue from the experiments in the previous paragraph), and takes -1 IQ per point the roll failed by. Critical failure results in brain death within 1d days.

Glandular Implantation: On further examination of various corpses, Pauder discovered that especially for some animal parachronozoids (p. 73), the world-jumping ability is glandular and sex-linked. Rather than rewrite the Mule's genetic structure, it's almost as simple to implant a cloned jumper gland into his groin and wire an electrical trigger to the relevant brain centers. (Injections of jumper hormone, sadly, seem to have no effect, although experiments continue.) This requires a week in the hospital, along with a regimen of immunosuppressant drugs. In this case, the subject must *fail* a HT roll at HT-8. Subjects with Resistant to Disease add half their bonus (round down) to HT for this roll. A *successful* roll means the gland and trigger mechanism is rejected; the subject must make a HT-2 roll every day or lose 1 point of ST and 1 HP (1d HP on a critical failure). Apply none of the modifiers above to this roll; these rolls continue until the subject dies, or the implant is removed. A *failed* roll means the subject gains the Jumper (World) advantage, becomes Susceptible to Disease (HT-3), and gains further concomitant disadvantages as indicated on p. 195.

Demonic Seeding: This method is a triumph for the Armanen occultists, who tracked down the world-jumping "demon" known as Tychiron in various crumbling tomes. A Raven Division team found it in a Transylvanian mountain pass in the Friedrich worldline (p. 124) and captured it using a thorn web woven into a many-knotted sphere. After bringing it back to Bisanz, the Order immured it in the crypt beneath a Teutonic Order castle, in a chamber lined with thorns, runes, and mirrors according to the ritual developed by Armanen researchers. When prospective Mules are brought to the chamber, Tychiron rapes them (Will-6 to resist), leaving its egg-spawn roiling in their spine and pelvic nerves. (Resisted or not, the experience causes a Fright Check, also at -6; Tychiron might try to rape a stunned character who resisted it at first.) The Mule can't technically world-jump, but the Tychiron spawn can, and brings the Mule along. Mules who undergo this treatment need to take regular herbal supplements to keep the Tychiron spawn infantile and subservient; without them, the advantage becomes essentially Uncontrollable. As long as the herbs hold out, though, the Mule has the Jumper (World) advantage with the disadvantages as set out on p. 174. He is also mindlinked with every other spawn or carrier of Tychiron across the worlds; since most of them have gone mad, this is not necessarily a bonus.

Psibernetics: Not all the Mules are sent out with the Division to the new worlds. Some of them remain behind in Bisanz and Dijon for various purposes. A few, who are reduced to immobility or idiocy by the drugs, become human gene banks and tissue tanks, doped into stupor and drained of blood every day by the doctors of Pauder's lab. Others (especially those with the Mass Jumper enhancement) are wired into psibernetic linkages that expand their powers to allow light aircraft (such as helicopter gunships) and small vehicles up to 4 tons or so to travel between the worlds. These psibernetic linkages also have a chance of rejection, as with surgery; the roll is not modified for Resistant, however, and the procedure does not convey Susceptible to Disease.

Still others (those who displease the Order, or violate procedure on other worlds, or show signs of trying to escape) are locked into stalls in the Bisanz world-gate. This doorway, powered by a fission reactor and focused using the renegade Mules' brains, cycles between Reich-5 and its duplicate on the Nostradamus parallel (p. 138) every six hours. It was completed in 2009 after four years of construction; many of the delicate parts had to be re-machined on site many times as the local quantum flow changed, and it requires almost daily maintenance. (It also requires 21 Mules, one or two of whom die every few months.) It can send 10 tons through at a time, mostly components and spare parts in trucks (all more easily fudged on inventories than self-propelled howitzers or attack drones). The Mules are fatted – and penned – like veal calves, with their brains tubed together in a psionic circuit tuning the gate.

Pauder's next project is to use hundreds of cloned fetuses from Havig's sperm as batteries in a much larger gate, one able to send panzers and perhaps even heavy transport aircraft through. This master gate is 18 months away from completion, unless Pauder has a theoretical breakthrough that allows him to develop parts capable of adjusting to quantum flow alteration, or if the Ahnenerbe occultists discover a ritual to keep the gate magically tuned.

The Raven Has Flown

While the energies of Nazi science and occultism worked to open the way to new worlds, the subtleties of Nazi politics and blackmail built an army to invade them. Ordenführer Mattern expanded the training cadre at the SS academies in Burgundy, adding more men and more facilities, spending his own administrative funds to improve and fully staff the bases. The Waffen-SS command, possibly amazed to find something actually militarily useful being done in Burgundy, put up no objections. He then began to siphon off a few men at a time into a new unit with its own training and barracks facilities, which he grandly called SS Raven Division. Believing this new division (actually closer to regimental strength) merely an overblown "headquarters guard" to feed Mattern's ego, Waffen-SS command again signed off.

In 2007, after years of test runs and reconnaissance jumps, Raven Division launched its first full-scale crossworld invasion, from the Mesopotamia *Reichsprotektorat* into Nostradamus (p. 138). Local resistance was fierce (especially from the Kurdish cavalry), but fruitless against the high-tech weapons of the SS, which rapidly took control of the Euphrates Valley. The Armanen had selected Nostradamus because of the unanimous verdict of all precognitives that victory was assured; they discovered that Nostradamus also sat at a dimensional highway junction. This "Chronobahn" (p. 79) directed the Armanen to their next target, Friedrich, where rather than mount an invasion, the Order decided to strengthen the local First Reich (the German-Roman Empire) into a pure Aryan state.

Between the Nostradamus garrison, the recon squads along the Chronobahn, and the advisers in Friedrich, the Raven Division is stretched to its limits. Brigadeführer Fest plans to recruit and train pure Aryan soldiers in Friedrich, and arm them with weapons from the factories the Armanen have been secretly building in Nostradamus for the last three years. Until these plans can come together (the first fully outtime Raven Division regiment will finish its training in a few months, but their heavy equipment has been delayed by sabotage in Nostradamus), the Division has to draw its strength from its Reich-5 base.

Training and Doctrine

The Raven Division trains as *gebirgsjägers,* mountain light infantry tailored for extended patrol operations with minimal support and a heavy

concentration on force multipliers. None of Pauder's Mules are able to transport panzers across worlds, for instance. The largest load that the Order can send outtime is a 10-ton *Spähpanzer* APC, along with its crew and passengers (six men in all), and it can't send many of those without filling out some very creative paperwork to explain how it "lost" the vehicles. Perforce, then, Raven Division has to strike fast, light, and hard. To avoid such hassles, the Division keeps a large number of light civilian vehicles (motorcycles, off-road trucks, etc.) on hand.

Training emphasizes mobility without the use of mechanized or air-mobile support, and the Division ensures that all troops receive special training in "antiquated" tasks such as handling horses and mules. In theory the Division gets by with a very light baggage train, prioritizing ammunition and foraging in the operations area (i.e., pillaging the locals) where possible. As a practical matter, the Division tends to accumulate additional animals to hold more ammo, parts, and loot as time goes on.

Compared to troops in front-line SS and Wehrmacht units, Raven Division troops are horribly under-equipped. Logistics is king, and the limited Mule capacity cannot be spent on the large amounts of consumables that are required for TL8 and TL9 military equipment (notably batteries). Transport must prioritize the troops themselves, medical supplies, small-arms ammunition and support weapons.

Weapons: A typical trooper carries a loaded StG 03 rifle (p. 200) and 10 extra clips at all times. Accuracy is at a premium, so all troops receive the best sights money can buy – these light battlesights are +2 Acc and provide both Infravision and Telescopic Vision 2 (2 lbs.). Officers carry 9mm Luger pistols; all Raven Division soldiers carry bayonets, grenades, and additional ammunition for the squad light machinegun.

Uniform: The basic *feldgrau* armored uniform includes adaptive camouflage (+2 to Stealth when motionless, +1 when moving) and a microclimate system to keep the wearer comfortable even in unusually hot or cold weather. In high-threat situations he can put on an armor cuirass (p. 27). Completing the uniform is a pair of assault jackboots and a coalscuttle combat helmet. See the *Armor Table* on p. 26 for additional information. Every trooper has the equivalent of a hideout radio (p. 24) in the helmet.

Field Pack: When moving to a new operations area each trooper carries a full pack, freeing up the animals for heavy and bulky equipment (mortar baseplates, fuel cans, ammo boxes, etc.). This includes, at a minimum, an entrenching tool, lightweight shelter, compressible sleeping bag, two mortar rounds, first-aid kit, extra uniform, personal basics (p. B288), rain gear, 3-gallon water bladder, climbing gear (p. 25), 20 yards of nanofiber rope (p. 25), and a weeks worth of rations (see *Meals-in-a-Box,* p. 25). Troopers with special missions (e.g., the radioman) carry a bit less as they must haul around the large tactical radios used in Reich-5 (they do not benefit from the software radios used in Homeline and Centrum). Troopers also tend to carry around knicknacks from home and small trinkets that caught their eye.

Glorious Goals

Where Centrum actively plans to impede the Patrol and, eventually, remove Homeline from the board entirely, the Raven Division follows its own purposes. The Armanen have no interest in going out and picking a fight with the Patrol; they are content to wait and build their strength while they pursue goals such as:

Find Hitler: Not just any Hitler will do, of course. On some worlds, he never had his wondrous insights; on others, he became a drugged-out shambling wreck; on still others, he lost the War and is obviously an unfit specimen. The Order wants to find the True Hitler, the one who bears the spirit of Reich-5's departed Führer.

Find the Ark of the Covenant: Or the Holy Grail, or the Spear of Destiny. The Spear at Wewelsburg doesn't seem to work as promised, but somewhere in the worlds there must be one that will guarantee victory to the Aryan race. Actually, the Order takes any reality shard (p. 76) it can, since some may allow their users to jump across worlds.

Find the True Aryan Homeland: Although Friedrich is an excellent start, even the Aryans there have suffered the taint of mixed breeding and seem puny and querulous compared to the mighty warriors of Himmlerian legend. Somewhere among the worlds is the original world where the original Aryan race was born. That holy place will be an impregnable fortress and a boundless source of warriors for the Reich!

Kerne

To prepare the way for future Raven Division assaults, and to steal technology and valuables from other worlds, the Armanen have established *Kerne* ("kernels"), self-sufficient bases throughout the nearby worlds and all along the Chronobahn. Each *Kern* is commanded by a Gestapo agent from *Amt Z* ("Office Z"), the secret office of the Gestapo created by the Armanen conspiracy, and staffed by a minimum of one Mule and three to five Raven Division troopers for security. It has a stand of weapons, both local and SS issue, suitable for 20 men, and supplies (food, medicine, etc.) to sustain that many men for a year, roughly eight tons of equipment all told. Ideally, the *Kern* has an encrypted radio, microcomputer, and other useful electronics. As much of this as possible is bought locally using gold stolen or counterfeited on site; transporting gold across the worlds takes up a lot of room that could go to TL8+ weapons and intrusion gear, which can bring any Gestapo agent worth his salt plenty of gold.

The Cabal

Somewhere among the quanta there is an Earth under the shadow of a vast conspiracy of monsters, sorcerers, and psionic masters. That conspiracy claims to date back to the first wars of gods and men that splintered the magical cosmos and hurled fragments of existence across the universes on plumes of magic and the blood of gods. It claims to have eyes that can see across the planes to the remotest Earth and talons that can catch the unwary between universes. It is the Cabal, those who bowed before the mad Pharaoh Khaibitu-na-Khonsu before he led them into battle against Ra, the Unconquered Sun, when the Pyramids were new.

Truth and Lies

So much for what the Cabal claims. (See ***GURPS Cabal*** for further details.) What the Patrol knows doesn't immediately contradict any of the above – in the infinite worlds, after all, stranger things have proven to be true, and the Patrol doesn't *think* it's found the Earth the Cabal originates on.

If there *is* only one such Earth: Baron Janos Telkozep (p. B320), a vampire who works for ISWAT, says he left the Cabal's home world one step ahead of the Cabal, but his description doesn't match other information available to the Patrol. The Cabal, like some other conspiracies, may be "native to" a number of worldlines at once, parallel Cabals to go with the parallel Egypts and John Dees of the alternate histories. On the other hand, the parallel Cabals may all spring from one ur-Cabal founded before a great reality quake or quantaclysm destroyed their original Earth and left shadow Cabals across a score of worlds.

Vast Conspiracies

However many Cabals there are, they all seem to have roughly the same agenda: the secret accumulation of magical power and knowledge in the name of self-defense and self-aggrandizement. Even on worlds with open magic, the Cabal operates in the shadows; on worlds without it, the Cabal takes extreme pains to keep it that way. The existence of multiple Cabals, each claiming to be the original, might also explain why so many of the magi, parachronozoids, and undead who claim to be Cabalists seem, on further examination, to be mainly bent on doing some unspecified but no doubt gory harm to some other Cabalist in an endless cycle of magical vendetta and coup-counting.

If its larger organization is a matter of theory and contested allegiance, however, on the local level the Cabal can be ferociously loyal to its own. Each Cabalist has two members whose death he is honor-bound to avenge, his *passers* (from the Latin for "sparrow," as in the Biblical verse "Not a sparrow shall fall without his sight"). He, in turn, has two *ultors* (Latin for "avengers") who are sworn to avenge his death. This strict pattern of vengeance may be why so many of the Cabalists plotting against each other seem to do so out on isolated worlds or shiftrealms on the Patrol's beat.

Cabalists organize themselves into quasi-independent Lodges of 10 to 20 Cabalists under the leadership of an Adept. If the local Lodge runs into something it can't handle, it calls in its Adept's allies in the upper ranks of the Cabal, who can be very powerful and scary indeed. At the top of the pyramid are the Grand Masters, who are vampire lords, werewolf queens, deposed gods, billionaire conspirators, psionic mandarins, and powerful magi such as John Dee or Marie Laveau. Some Lodges are organized into Grand Lodges with chapters across the world (or worlds). A few of the more commonly encountered Grand Lodges include:

Amonis Albioni: This lodge is centered on various Englands, and voraciously accumulates maps and charts of the planes and the infinite worlds. The Amonis Albioni also has a great deal of experience at infiltrating demonic cults – either to destroy them, or to add their power to the Lodge.

Blind Haroeris Lodge: This lodge is devoted to quests, seeking out the Fountain of Youth, the Golden Fleece, the Philosopher's Stone, and other wondrous items. One special interest of the Lodge is tarot decks; it will kill an impressive number of people for a unique Boccaccio Deck or a Lombardy Second. Its members seldom have a fixed base, preferring to operate out of sailing ships (especially "ghost ship" shiftrealms, see p. 79) or airships. Some of its members are swagmen (p. 71).

Golden Lodge of Asten: The Golden Lodge operates primarily "east of Suez" in Singapores, Djakartas, Angkors, Shanghais, and Amboynas on many worlds. Its golden "monkey paw" sign hangs discreetly in twisty Chinatowns and glasteel skyscrapers

Active Gods

While roaming across the Infinite Worlds, both Cabalists and harder-headed Patrolmen have encountered all manner of "gods," from sentient defense computers to immortal pranksters to crashed aliens. Every so often, they meet a god who meets the more traditional definition – a transcendent entity of immense supernatural power.

Patrol and Cabal protocol is identical in these cases: polite agreement without committing to anything, especially worship. Fortunately, only a very few gods seem to have the desire (and even fewer have the ability) to leave their home worldline or pocket universe. For some reason, such gods are seldom the kindly and benevolent sort. Even if they are, their divine paths are strewn with banestorms, reality quakes, and other signs and wonders. These rogue gods pose grave threats to the continuum; ISWAT and the Cabal both give such outbreaks their highest priority.

alike. It seems to be in the occult artifact acquisition and disposition business, and has cordial (if necessarily discreet) relations with White Star Trading representatives on many worlds.

Lodge of the Midwinter Aton: This lodge of Bavarian sorcerers exists on a few worlds, led by the fearsome werewolf-mage Léonard du Sarrazin. Its emblem is a black left-handed swastika in a white disk, and the Patrol strongly suspects it of having ties to the Nazi Parties of various worlds and possibly to the Armanen Order of Reich-5. It seeks political power bolstered by magical force; its experiments triggered the Hellstorm on Merlin-3 (p. 135).

Sons of Imhotep: These freaks scare even their fellow Cabalists. Devoted to the blackest of ancient Egypt's necromantic cults, the Sons of Imhotep build magical pyramid chambers in the worst districts of teeming cities. Clad in robes that (it is said) hide horrible animalistic deformities, the Sons of Imhotep stalk archaeologists (both local and outtime) to steal idols or papyri needed for their blasphemous ceremonies.

Wheel of Ptah: This lodge traces the fault lines and subtle craquelure of reality quakes across the infinite worlds. Occasionally, a Paralabs researcher who provides a Wheelman with fresh data or the location of a potential banestorm upwelling receives an emerald the size of a fist, or the death of a rival, in return. Every once in a while, he gets something he actually wanted, too.

The Cabal in the Campaign

As written, the Cabal plays second fiddle in an Infinite Worlds campaign. Consumed with infighting and with its own arcane and abstruse researches, it takes no sides in the great contest between Infinity and Centrum. Its goal of keeping magic and the supernatural secret keeps it from threatening Infinity's Secret. So how can the GM use it if he'd like to?

Variety: The Cabal adds a strange Hammer Films flavor to the straightforward SF of the Infinity Patrol. If the GM wants to add something magical to the game, the Cabal can let him do it without creating a full-fledged fantasy world.

Unpredictability: Even if the Cabal picked a side, not all the Lodges would go along. In a setting with two villainous villains, the Cabal makes an ambiguous one. Patrolmen are more likely to cooperate with a not obviously deranged Cabalist than with a world-hopping Nazi or a ruthless Centrum agent. Any Cabal encounter, therefore, might potentially be a social encounter, one about building the game world rather than shooting off chunks of it.

Flexibility: Anything the GM could possibly want to send the Patrol after, the Cabal might want to steal, break, or shift from world to world. The Cabal might have its own unguessable reasons for shifting echoes, summoning banestorms, kidnapping time tourists, killing Centrum agents, or any other adventure-creating action.

Ubiquity: Anyone might be a member of the Cabal, on any world. This gives the GM a "Trojan Horse" to hook some NPC into the adventure, a fun source for player paranoia, and plenty of possibilities for character drama. Between the Gates of Thoth and the astral plane, a Cabalist can show up on any world, in any era.

Power: The Cabal can be a big hammer to smash something the GM wants smashed, a barely trustworthy ally to help deal with a menace, or a source for world-jumping abilities outside the control of Infinity or Centrum. If the GM wants it brought, the Cabal can bring it.

Across the Planes

According to the Cabal's cosmology, there may be infinite worlds, but there are only four Realms that matter. The Cabal more usually uses the names shown in parentheses, which are drawn from Jewish mysticism.

Material Realm (Assiah): The Material Realm contains all the infinite Earths and Marses and so forth, like pebbles in a beach or knots in a rug. Although Cabalists spend plenty of time in the Material, they don't usually consider it the source of wisdom. The mana level of Assiah varies from world to world, and sometimes varies within a given world.

Astral Realm (Yetzirah): The Astral Realm is "above" or "inside" the Material Realm, touching all worlds equally. It holds flocks of spirits both malevolent and benevolent, and whole cities and planets of its own. Cabalists consider the shiftrealm of Faërie (p. 80) to be part of Yetzirah, even though its elves seem material enough to Patrolmen who (cautiously) visit. The Astral Realm has normal mana.

Iconic Realm (Briah): Separated from Yetzirah by an enormous spiritual ocean, Briah is the home of gods, archangels, and similarly iconic figures. Some Patrolmen claim to have seen Batman or Mao in the Iconic Realm; the boundaries to Briah may be more porous than the traditionalist Cabal would like to believe. The Iconic Realm has very high mana.

Realm of Pure Spirit (Atziluth): No Cabalists except the Grand Masters have ever visited Atziluth, the Godhead at the Center of Everything, and there is some reason to believe that the Grand Masters are lying.

Lesser Threats

Organized Crime

Although plenty of small-time grifters hang out on the fringes, real connections across the worlds require juice. That's where the Mob comes in; for a price, it can get you your old high-school girlfriend from another Earth, or sneak you into an illegal dinosaur-poaching expedition. But that's just constituent relations, small-time stuff. What the big picture is like depends on the mob in question; not all Mafias are created equal.

The Outfit

For the Chicago Outfit and its various national affiliates, going to other worlds was just business as usual. When White Star Trading needed to spin off its waste-hauling business, the trucking firm it called in was already an Outfit front. The Outfit slipped into crossworld crime by signing on the dotted line in Infinity Tower. Using Interworld Waste Transport as the licensor of record, the Outfit was able to divert a small fleet of conveyor trucks to its own use. With bribed and blackmailed programmers, the supposedly hardwired systems could get hacked (albeit with a permanent -2 penalty to all Electronics Operation (Parachronic) skill rolls on those vehicles) to allow free subquantum operation. Diverting a projector is beyond the Outfit's capacity (so far), but there's little need for one right now. Like the Patrol, the Outfit's "East Side Express" has more work than it can handle, even restricted to Quantum 5.

The biggest business is drugs. From Gallatin, an alternate Earth where the Midwest is a libertarian anarchy, the Outfit buys cheap, legal, guaranteed pure heroin and cocaine – and ships it by the ton to Homeline. The most difficult part is laundering the drug shipments on Homeline so that the FBI and the Patrol don't trace them back to the supplier. A close second is prostitution and the flesh trade; Gallatin is oddly bad at pornography (making it acceptable seems to have spoiled the thrill), and far too well-armed to run kidnap rings in, but there are other Earths with starving girls willing to go anywhere as long as it's away. One or two Outfit operators have been working to take over the Chicago mobs in parallel Earths, to rake off some of their take for the benefit of Homeline, but the technological advantage isn't as helpful when everyone is still using baseball bats and flick-knives anyway.

Finally, of course, the various blasted, frozen, hell-scarred Earths to which Interworld Waste Transport actually delivers its legitimate cargoes of spent plutonium, tetradioxin, and beryllium dust make excellent dumping grounds for inconvenient corpses – including a few from the Patrol's Justice Division.

The Russian Mafiya

Like the Chicago boys, the Russian Mafiya simply transferred its standards and practices offworld. In this case, it was their connections with the Russian government and mining industry that gained them their entrée to the parallels. With Russia jealously guarding its 20% share of offworld mining licenses, and with the Mafiya working hand in glove with all the major oligarchs and their paid governors, the result was a foregone conclusion. One State Department paper estimates that 80% of the Russian offworld mining operations are carried out by Mafiya-owned or -connected firms, and billions of rubles flow right into the gangs' bank accounts in Switzerland and Johnson's Rome. The Mafiya mostly uses these vast rakeoffs to fund its Homeline operations in computer crime, racketeering, and extortion, rather than expand to other worldlines. They do heavily "recruit" soldiers from various battlefields across the alternate Russias; there is no shortage of desperate, brave, doomed warriors willing to get high pay and modern dental care in exchange for only having to shoot unarmed civilians.

Swagmen

A crosstime extended "family" of grifters, the swagmen take their name from the Australian slang term for wandering bums. The Australian Outback sprouted boomtowns on Homeline in the early 21st, as miners came through to dig opals and gold on their own, and uranium for Infinity, on alternate Australias across the quantum. Where fast money and greed come together, so do confidence men and gamblers. One crew of such outlaws managed to coalesce with a series of grifts that wound up stranding a Consolidated Mining representative in Coventry, and leaving them on their own with a conveyor and a book of coordinates.

They had the same problem every other ambitious crosstimer faces; too many marks and not enough men. Rather than dummy up, they reached out to friends of friends and connections from every dive bar on three continents. From the Irish Travelers and the Romany, they took the codes of trust and insularity that kept con games going for decades; from the grifters and sharps they took the newest cons and the flair to reach beyond the pigeon drop and driveway game to big takedowns.

As their contacts expanded, so did their options. Swagmen often take jobs on crosstime mining operations, or simply bribe personnel clerks to put their names on the roster. As the miners go from world to world, the swagmen go with them. Con games can raise the fare for a Time Tours trip, and glib operators can hook onto an academic team as guides or translators. There are plenty of ways to get from world to world if you're good at the grift, and the swagmen are among the best.

With an infinity of marks, they can afford to hit only the richest and most deserving. They've run the Spanish Prisoner on a world where the Armada won, and the Two-Ring Gambit with the Bonaparte crown jewels. They've conned a parallel Howard Hughes before the Mob could, and accidentally-on-purpose gained Australian independence for Ned Kelly on Britannica-6 (and a fortune in gold for themselves).

Every year on April Fool's Day, all the swagmen who can make it will hook up for a big party on some rural worldline. There they swap stories and trade techniques, keeping their options open and their sense of solidarity intact.

An alarming number of Russian mafiosi decide to go "play czar" on the primitive worlds their supposedly secret mines exploit. Since many Russian mining operations are misfiled, with "accidental transpositions" in the coordinate field for example, it can be months before reports of black SUVs loaded with gunmen looting the ziggurat at Lagash filter back to the Patrol. So far, one or another wave of barbarian invasions have swallowed up the outrages, but the danger to The Secret remains ever-present.

The Triads

The various Asian crime families around the Pacific have found their way across the worlds as well. Usually, they travel on forged papers to a parallel with a large Chinese diaspora. When the "historical researcher" or "import consultant" on the passport vanishes, the Triad member surfaces and makes contact with the local Triads in the parallel. Although a certain amount of turf war is inevitable, the combination of access to crossworld travel and connections with high technology proves too tempting to the outtimers. The locals then ambush a different conveyor in a different area – the Patrol doesn't know how many "vanished surveys" are actually sitting at the bottom of the Haiphong harbor or a quarry in Guangdong on some parallel, but it's more than one or two.

The Triads concentrate on building redundant crossworld connections and allies; they heavily recruit Chinese world-jumpers, especially in overseas and outtime Chinese communities outside the reach of the Communist government on Homeline. They shift things of great rarity but low weight – pirated software and movies, industrial secrets, and powdered dinosaur penis. The Triads do a brisk business in crossworld poaching, as well – the rhinoceros is endangered on four or five more worlds, and the sabertooth has been hunted to extinction in Asia on Mammut-3. The I-Cops have begun cracking down on the crosstime Triads.

Freelance Criminals

There's plenty of room in the infinite worlds for freelancers in crime, as well. If one version of Miami gets too hot for you, try the next world over! The real bottleneck is access to a conveyor; if it's not under the watchful eye of the Patrol or some government or U.N. agency, it's probably under the watchful eye of the local mob. Even the free spirits listed below, therefore, probably need at least one "connected" street Contact to operate, unless they have some non-parachronic means of world-jumping. (These same criminal types, and most of the same assumptions, apply in a time-travel campaign as well.)

Crosstime Thieves

These criminals use their knowledge of the other world (or the past) and/or their advanced technology to steal gold, gems, and other highly negotiable goods. Time thieves are often clever but unsubtle. A Spanish treasure galleon, for instance, is an easy target for an armed hovercraft, or even a few men with body armor and submachine guns in a native sloop. When the gold is secured, the pirates burn the ship and send it to the bottom, with no survivors and nobody the wiser.

Scavengers

Many items are quite ordinary in their own time or place, but priceless in today's world. Almost any ancient weapon, for instance, becomes a valuable antique a few centuries down the line. Likewise, ordinary coins, stamps, mechanical devices, and publications can all become very valuable with the passing of time.

The scavenger acquires such items when and where they are new. He might then bury them for proper "aging," or just bring them directly to Homeline (or, in a time travel campaign, the future). The existence of scavengers can drive a collector mad. Is this Four-Penny Black stamp a "real" one from Homeline, or is it from an alternate world? And if it is an alternate, does that make it a forgery?

Of course, in some campaigns scavenging might be legal. In others, it might be illegal – not because it is wicked in itself, but because of the danger that any unauthorized time or dimension travel might pose to the continuum. On Homeline, scavenging is strictly licensed (LC2), for "museum replicas only," but in practice is almost impossible to control.

Looters

Looters are also thieves, but instead of "ordinary" valuables, they look for unique ones. They may raid art galleries, libraries, palaces, and mansions for the masterpieces of other worlds. Or they may be souvenir hunters, picking up interesting relics. Some looters are connoisseurs, treasuring their acquisitions for their own sake. Most simply sell to collectors.

Depending on the game background and the laws, some sorts of "looting" may be perfectly legal. If the goods are obtained honestly, and there is no chance of upsetting history or changing the structure of a parallel world, it may be all right to "import" valuables. (And some worlds take a more "Elgin Marbles" approach to other timelines' artifacts, tacitly condoning looting artifacts from "barbarous" timelines or cultures to bring such masterpieces into the light of "civilization.") In a time-travel game (or even on an echo), "stealing" treasures about to be destroyed, if done carefully, might be a praiseworthy rescue mission rather than a crime!

Timenappers

Timenappers visit a historical alternate world (or the past, in a time travel setting), and kidnap victims from there, bringing them to the criminals' own homeworld. The object might be ransom – just another way of getting rich in the past. But more likely, it's because someone on the timenappers' home world wants that victim.

Past times and alternate worlds could be an inexhaustible source of slaves and other victims. A crossworld trading organization might easily turn into a slave trade, taking prisoners on one obscure alternate world and moving them to another in exchange for valuable goods.

Individuals – famous people from history, or their alternate versions – might also be kidnapped for any number of reasons. People might also be timenapped for research purposes, legitimate or otherwise.

If the timenapper's "home world" has biotechnology at TL8 or better, *human genetic material* can be stolen with rather less fuss than kidnapping. There might be a thriving underground market, driven by men who want to own a clone of Cleopatra or of Marilyn Monroe and by women who want to bear a natural child of Elvis Presley or Alexander the Great. Another advantage of gene-napping is that clones can usually be further altered to the buyer's specifications – get a baby Alexander without the gene for alcoholism, or a naturally platinum-blonde Marilyn Monroe.

Where Are the Starships?

So far no one from Homeline has reported a parallel Earth with reliable, technological faster than light travel. (Although Azoth-7 (p. 112) has its own strange alchemical starships, they don't seem to operate in any normal cosmos at all, being closer to Cabalistic planar travel than anything else.) Paralabs physicists have two main theories on the subject, neither of them anything like experimentally proven:

Delay: Although seemingly unlikely, it might just be that no parallel Earth has invented FTL travel at all. Since Homeline is among the most technically advanced Earths, and FTL hasn't been invented there, maybe it just takes another century or two of progress. Caliph (p. 117) may be getting close.

Distortion: Another theory postulates that the local quantum field can only deform in one direction, either "timeward" or "spaceward." Since parachronics came first (on Earth, anyway), no Earth-based FTL is possible at all – unless the parachronic distortion can somehow be filtered out.

No, Really, Where Are They?

Like reliable, technological time travel (*Can of Infinite Worms* box, p. 153), interstellar campaign settings don't mesh well with crosstime gaming. The causality and time-dilation paradoxes alone will drive GMs crazy, and any realistic advanced, interstellar, high-tech civilization is just not going to accidentally overlook Infinity agents sneaking into its universe in parachronic conveyors, emitting all kinds of quantum radiation. The Secret would last about an hour and a half, and then your campaign would be over.

Finally, the canvas is quite simply a little too vast for this book. What about all the parallels where the divergence point happens on Tau Ceti IV? What about armadas of crosstime alien invaders? What if every one of the billions of worlds has its own quantum cloud of echoes and parallels? One of the fundamental assumptions of a crosstime game is that Earth (or one of them, anyway) is central and important. The vastness of the Galaxy mitigates against that. Add FTL to the Infinite Worlds if you wish, but – be careful out there.

Parachronozoids

Parachronozoids are creatures with natural world-jumping abilities. They range widely in form, disposition, and nature. Some look like normal animals, while some are talking, bipedal beasts. Some seem human or ghostly. A few are simply indescribable – beautiful (or horrible) beyond comprehension.

All parachronozoids possess the Jumper (World) advantage (p. 174). Most have the Tunnel enhancement, allowing them to create interdimensional paths that can be followed. Often, these paths close behind them after a time, with potentially drastic consequences for the unwary follower. Many parachronozoids also have the Warp advantage (p. B97), giving them the ability to jump across space as well as the dimensions.

Some parachronozoids seem drawn to those with latent or active psionic abilities (most often ESP or Teleportation). Others seek mana-rich areas, and there are rumors of ways to magically summon or lure them. Certainly, wizards have trapped and tamed such entities, using them as mounts or harnessing them to create world-jumping chariots.

There are almost as many different kinds of parachronozoids as there are worlds for them to hail from. This mere smattering includes two unique beings and one fairly common (and unpleasant) species.

"Aaron"

Aaron is the name most often given by a man in dark glasses who appears on lonely roads driving a black automobile. Sometimes it's a hearse, sometimes it's a coach and four, and sometimes it's the iconic black Cadillac Seville. He only appears to travelers on foot, and only at night or noon. Aaron shows up at the moment when the walker's spirits are at their lowest . . . when they have received some deadening setback that crushes what little hope they had.

Aaron begins by offering a ride and, if accepted, conversation. He talks in generalities, but they center on the importance of love and virtue. Occasionally he tells a story of something he saw on his travels, or some anecdote about his family. (He is especially fond of stories about his twin brother, who apparently has done everything from serving in the Army as a buck private to dancing with movie starlets.) At the end of the journey, Aaron has dropped his passenger or passengers wherever they were going, and left them with a gift of some sort. Sometimes it's just money or jewelry, but sometimes the story he told holds a crucial clue to the problem waiting for the traveler. And sometimes, the traveler finds a key ally waiting for him, or his true love, or both.

Aaron may be a ghost, or a tulpa created by psionic projection or mass wish-fulfillment, or he may just be a world-jumping bodhisattva with an idiosyncratic personal style. Nobody has ever tried to harm Aaron in his own car, and he has never offered harm to anyone, even the deserving.

Gargoyles

Gargoyles are either the pigeons or the rats of the parallels. Possibly both. They are slightly smarter than chimpanzees, with the aggression and trooping instincts of baboons. They have widely varying facial and body structures, but all have wings and talons.

Gargoyles have a gray, shifting complexion that blends well with old stone (rather less well with concrete). They prefer to flock in the older sections of cities, especially old churches. They can roost stock-still for hours at a time, merging with the roofline and waiting for prey.

They prefer world-jumpers, but will attack anything with a strange parachronic "smell." Failing that, they will attack anyone alone who looks like he would spray blood for a very great distance. They love to sadistically dangle foes in midair, hang them from church spires, or attack them in mid-climb, knocking them onto narrow ledges or rooflines for extra fun.

Some Cabalists are reputed to have trained gargoyles as coursing hounds or "carrier pigeons."

Gargoyles

ST 20+; **DX** 16-18; **IQ** 7; **HT** 16.
Will 10; **Per** 16; **Speed** 8; **Dodge** 11; **Move** 8 (Ground).
SM 0; 200-300 lbs.
Traits: Automaton; Body of Stone; Chameleon 5 (Stone only); Enhanced Move 1 (Air Speed 32); Flight (Winged; Air Move 16); Jumper (World); Long Talons; Magery 0; Silence 5.
Skills: Brawling-14; Stealth-18.

His voice had risen to a scream. "Frank, Frank, a terrible and unspeakable deed was done in the beginning. Before time, the deed, and from the deed –" He had risen and was hysterically pacing the room. "The deeds of the dead move through angles in the dim recesses of time. They are hungry and athirst!"

– Frank Belknap Long,
The Hounds of Tindalos

The White Stag

The White Stag has romped through the mythic history of many an Earth. It led Magor and Hunor to the steppes of Scythia to found the tribes of Hungary. It tried to warn Pwyll away from the lands of Annwn, and led Peredur to the Grail Castle. It launched quests by Sir Geraint and other Arthurian knights. And it has appeared every so often to Patrolmen on leave or otherwise not on duty.

Unfortunately, it has yet to appear to a Patrolman with any great skill at woodcraft (it requires at least Tracking-16 to follow successfully), so nobody knows where it's trying to lead him. It creates a trod (p. 79) under its hooves; anyone who can track it can follow it to another world with no other roll needed. Anemones spring up along its trail three days after it passes by.

Spoor and Stigmata

Although parachronozoids vary widely in form and feature, there are one or two ways to identify many of them, and a few reliable indicators that something has walked through worlds nearby.

Parachronozoid spoor includes:

- Odd bare patches in the shape of footprints, especially cloven hooves or canine tracks. Sometimes they appear in naked rock.
- Unusual growth of crossworld plants such as Puck's Cap mushrooms, tradescantia creeper, and Queen Marie's clover. Rings or lines of more normal mushrooms and flowers sometimes indicate a jump or running landing by a parachronozoid.
- People near the entry or exit point often have dreams of large black cats. This can happen even when the parachronozoid is small, pale, and non-feline.

Signs that a creature may be a world-walker include:

- Pure white fur, without other albino features.
- Violet or mismatched eyes.
- Unusual perception or intelligence for its species or, on worlds where it's not normal for the species, human speech.
- An unusual appetite for oats or strawberries.

Other Hazards

Not all the dangers between the worlds are human, or even sentient. Simply traveling the continuum can be a harrowing experience, especially without a handy conveyor. Even nexus portals don't always open onto the same place twice, and dimensional highways thread through some uncanny turf indeed. The continuum doesn't stay the same from place to place or time to time; banestorms and reality quakes shift even the scenery that doesn't shift by itself.

Charting these hazards and their effects remains an inexact science. Surveyors can determine deformations of the physical landscape, and map them to field strengths of various quantum energies. Paraphysicists, meteorologists, and geologists find their disciplines merging as the connections between physical and paraphysical phenomena teasingly flit through the available theories and data. Pure mathematicians offer helpful comments on catastrophe and chaos theory, and rather less helpful comments about "nonbirational mappings."

The Spaces Between

Although the worlds vary widely, they are all still worlds, and usually Earths. The spaces between the worlds, however, can be anything at all – or nothing at all.

Nothingness

The most common experience of the space between Earths, for the Infinity Patrol anyway, is nothing. (For which they are profoundly thankful.) If it's working correctly, a conveyor simply vanishes from one point and reappears instantaneously at the same point on another Earth. Whether it travels through a micro-wormhole at billions of times the speed of light, or simply transposes itself like an electron when nobody's looking, or ravels down the superstrings that knot the Earths together beneath even the quantum level, nobody knows for sure. The math explains it all three ways, depending on which figures you emphasize. If the "jump space" that conveyors transit has any characteristics, they don't show up on Infinity's instruments.

The Current

The other type of space between the Earths that the Patrol has encountered so far is "the Current," a rushing flow of charged particles that runs "back" from Homeline through all other worlds. (Centrum may also generate a Current of its own.) Paralabs calls these "oz particles," after the twister that took Dorothy Gale to another world (which, unnervingly, exists on Quantum 4) in *The Wizard of Oz*. Powerful eddies of the Current roil around Merlin-3 (p. 134) and some other worlds; travel to or from those worlds by any means is always at -1 or more to skill.

The Current mostly appears on the various Earths in the form of banestorms (p. 75), which are properties of its much more massive and dangerous flow. Although only a few especially hardened Patrol conveyors have breached the Current (entering

through larger and more stable banestorms), it may be possible for other vehicles (like the Time Sphere on p. 163) to somehow ride it between the worlds. With conveyors so much easier and less dangerous, Paralabs hasn't put too much effort into designing an "oz ship," although the threat of some barbarian crosstime culture descending onto Homeline in oz-riding pirate vessels does preoccupy a few UNIC planners.

Exposure to oz particles works like radiation exposure (see pp. B435-436), with "oz" instead of "rads." Some oz sources include:

Unprotected (no conveyor) time or dimension travel: 1 oz per trip.

Downwind from a banestorm: 1-6 oz per minute, depending on storm strength. After a banestorm, oz levels in the air and water drop to 1-6 oz per hour over the next day, and 1-6 oz per day over the next month.

Inside a banestorm: 300-1,800 oz per hour, depending on storm strength. A twin-charged banestorm (p. B534), however, delivers little or no (1-6 oz per hour) oz charge to those inside it.

Oz effects are as follows, using the Radiation Effects Table on p. B436:

–: No effect, but doses continue to accumulate.

A: Minor fortune or misfortune, at quirk-level. Roll 1d to determine good (1-3) or bad (4-6) luck. Something goes right (or wrong) for no reason. Superstitious activity (rubbing a white rabbit's foot, for example) can "positively spin" the effect.

B: Major fortune or misfortune. You gain 15-point Luck, or Unluckiness *plus* Ham-Fisted. Roll as before. Superstitious activity (as a Compulsive Behavior) can affect the random roll by +1 or -1. These effects last until the oz dosage decays.

C: Temporal decay. Make daily aging rolls (p. B154). On a critical success, you "age backward." You also have Magic Susceptibility 3 until the aging stops; your ears may also get points, your hair turn green, etc.

D: Rapid temporal decay. Roll as C, above. The charged particles begin to do actual physical damage. Even on a successful roll, you suffer 1 point of injury; on a failure, 2 points; on a critical failure, 1d points. Your features may turn monstrous or ethereally beautiful and strange.

E: Overwhelming temporal decay. Make hourly aging rolls; double above damage.

Some materials grant oz shielding. Unlike radiation shielding, the wearer does not usually need to cover all exposed areas to gain the benefit of its Protection Factor (p. B436), merely have a few ounces of the material exposed to the oz field between the field and the wearer. Silk or amber has PF 7, steel has PF 10, silver or hawthorn has PF 32, and cold iron has PF 100. Also unlike radiation shielding, not all materials grant the same protection against every banestorm; individual oz frequencies may vary tremendously.

Banestorms

A "banestorm" is a localized event that transports everyone within a certain area to another dimension or worldline. Most often circular, banestorms range in size from a few yards to a few miles across. Within an atmosphere, a banestorm tends to manifest as a thick fog bank, mysterious thundercloud, or heavy electrical storm that builds up slowly and vanishes suddenly. When the banestorm vanishes, so does everyone within its radius. These "passengers" reappear . . . elsewhere. Banestorms do not necessarily send their passengers to the equivalent spot in their world.

With the oz charge they carry, banestorms often have a major effect not only on the unfortunates caught up in them and the countryside through which they plow, but the quantum field around the Earth they strike. A banestorm interferes with quantum jump windows, giving a penalty to Electronics Operation (Projector) skill from -1 to -6! Some Patrolmen still risk it, because a banestorm also masks parachronic detection, drowning out the jump signal in an ocean of parachronic "noise." The banestorm gives the same penalty to the Electronics Operation (Sensors) skill to detect a jump and half that penalty to any Physics (Parachronic) skill roll to analyze data gathered during a banestorm.

Vortices

These daring Patrolmen seek out vortices, points on the Earth's surface which, for some reason, tend to attract or manifest banestorms more frequently. Nobody quite knows why vortices appear, or even if they actually exist outside Patrol superstition – banestorm surveying is a necessarily difficult job. Patrolmen often notice their compasses begin to spin around when a banestorm is brewing up, and other anomalous readings begin to hash delicate sensors. The best Paralabs guess is that vortices appear where the Earth's magnetic field fluctuates more than usual; such fluctuations may have a geological or tectonic component.

Commonly appearing vortices include the Bermuda Triangle, the Devil's Sea (a triangular stretch of ocean centered on Iwo Jima), the Hoggar Desert in central Algeria, Lake Erie, the mouth of the Indus River, the interior of Madagascar, the Kermadec Islands north of New Zealand, and the two magnetic poles. On mana-positive worlds, vortices tend to show up near ley line junctions or at sites such as Stonehenge or the Pyramids.

Reality Quakes

A reality quake (or, as Paralabs prefers to call it, an "ontoclysm") creates such an upheaval in the path of time or worlds that history itself is upthrust and overturned, leaving a new past in its wake. Not just history can change in a reality quake, of course. The laws of nature and physics can alter; worlds can go from high mana to no mana (or the reverse), gods can die or be born, and new stars and planets appear in the heavens. One good sign of reality quakes in progress is an anomalous eclipse, unpredicted comet, or other strange astronomical (or astrological) portent. Another effect of imminent reality quakes is to "blank out" precognitive or psychometric abilities, since history literally "doesn't exist" on the far side of the quake. Volcanism and conventional earthquakes also seem to follow or precede reality quakes; Paralabs nervously admits that on some Earths, they might *cause* reality quakes!

Much as an earthquake leaves breaks in the strata and fractures in the geology, or flings up material from deep in the earth onto the surface, a reality quake leaves breaks in civilization or fractures in the historical record. It can also and fling up anomalous fragments of other realities – "reality shards" – into the new/old past. After each shift, only the reality shards remain, and the fossilized traces of the previous reality survive only in the subconscious mind and myths of surviving cultures, and in the strange artifacts rejected by the inhabitants as oddities or forgeries. Many reality shards show up in multiple versions on more than one Earth.

Reality Shards

Patrolmen who find reality shards are supposed to bring them to Paralabs for study. However, given their weird, anomalous effects on conveyors (and Patrolmen!), they are often "accidentally" left behind in hidden caches, or (if seemingly lucky or useful) "accidentally" left off the incident report.

Reality shards tend to give anomalous readings under scientific testing, especially carbon-14 or thermoluminescence dating. Many seem to be palpable forgeries, "given away" by their anachronistic composition, construction, or artistic technique. Of the reality shards known to Paralabs, a notable percentage are made of crystal, or have some sort of glaze on them. Whether this is a function of crystal's general ruggedness or of the meta-geometry of reality tectonics remains unknown.

Sample reality shards include the following, most of which have Homeline equivalents:

Nineveh Lens: An optically ground crystal lens initially discovered in the ruins of Nineveh in 1853. The Nineveh Lens predates by millennia other known lenses; archaeologists have discovered it (or a lens very similar to it) in Nineveh in many different years on a number of Earths. Looking through it lets the viewer see invisible Akkadian demons, or reality quake stresses, or an imprinted recording of August 12, 605 B.C.

Glozel Fragments: In 1923 a farmer dug up hundreds of enigmatic artifacts in a field near Glozel, France. Mostly strange stones, brick, and bones, they bore carvings in an unknown alphabet. That same alphabet is used as a Phoenecian creole in Ezcalli, and on one or two other worlds. Some fragments show signs of sudden, intense heat; some Cabalists in the Wheel of Ptah throw Glozel fragments for divination.

Shroud of Turin: Thought to be both the winding cloth of Jesus Christ and a pious forgery from the 14th century, the Shroud of Turin remains an enigma. The presence of Palestinian pollen grains and the afterimage of Roman coins over the eyes of the figure contrast sharply with radiocarbon dating demonstrating the Shroud's creation around 1350. Although the Vatican refuses to allow further tests on the Homeline version of the Shroud, the one in Turin Cathedral on Ariane (p. 128) gives every sign of being a major reality shard. Eerie lights, the smell of incense, and frequent nexus portals to first-century Jerusalem pervade the Shroud's home on that world, which is under the care of the conservative Catholic Opus Dei.

Vinland Map: In 1957, a curator at Yale University bought a handwritten tome known as the Tartar Relation. In it, a map, dated to 1440, showed the east coast of North America, labeled "Vinland." Various analyses have revealed it as authentic, or as a mid-20th-century forgery. The original of the map is now in the Duncorne Foundation collection. Under the right wavelengths, it is rumored to show the dimensional highway to a pocket universe of Norse gods and an "eternal Vinland the Brave."

Magic Bullet: The 6.5 mm bullet that passed through John F. Kennedy and John Connally appeared, almost completely intact and unscathed, on the gurney at Parkland Hospital in Dallas. Conspiracy theorists call it the "magic bullet." Some conspiracy-minded Paralabs analysts think that Oswald (or whoever) might have triggered a reality microquake, recreating the 535 A.D. event (see below) and sending shadow bullets winging

Mathematical Bafflegab

For GMs and players who crave technobabble and jargon for the full roleplaying experience, we proudly present this excerpt from *An Introduction to Ontophysics,* by Dr. Joseph Franecki (University of Wisconsin Press, 2026, third edition, revised). The topic of the learned doctor's disquisition is the mathematics of reality quakes, but it can apply to echoes, puzzle worlds, and other paraphysical phenomena with equal facility.

Pioneered by Margaret Steed in 2004, quantum combinatoric geometry relates directly to the parachronic upheavals, which may occur when two or more realities are brought too quickly into proximity (as determined by the L_8 metric).

Steed's equations themselves are an invaluable basis for the calculation of the intersection indices of Leinster co-bundles in hemi-projective varieties, which may not seem relevant, until one appreciates that our current model of the 8-dimensional meta-space in which the known alternate worlds reside is an 8-dimensional projection of the compactification of a generally positioned smooth 9-dimensional hemi-plane, and individual vector chains in the Leinster co-bundles correspond to the conditions under which parachronically stable worlds can (and did) develop (our own included).

Intersections, then, would indicate locations in meta-space and time where the probability of nonbirational mappings between worlds or quasi-worlds is maximized, leading to a real possibility that information (in the form of history-changing events, cultures, concepts, or individuals) can be destroyed or erroneously created, that is, transported from no real antecedent in this or any world.

across the continuum. If loaded into a rifle, a magic bullet supposedly grants an instant kill (a critical hit to the brain) when fired at a king.

In game terms, reality shards almost always act as Mana Enhancers (p. B68), and may grant other advantages (with the Can Be Stolen and Unique modifiers, perhaps) such as Doesn't Eat or Drink, Doesn't Sleep, Extraordinary Luck, Omen, Jumper, Unaging, or Blessed. (They make excellent "origin items" for world-jumping supers.) Of course, they might also carry disadvantages, such as Delusions ("I am rightwise King of England!"), Flashbacks, Cursed, or Unluckiness. Any reality shard is guaranteed to be a Weirdness Magnet. The GM is free to introduce his favorite artifact or enigma as a reality shard – the Piltdown Man skull on Homeline may be a forgery, but that doesn't mean there's not a "real" shard just like it out in the continuum somewhere.

Fracture Zones

The fracture zone is the "epicenter" of the reality quake, a location in space-time usually a few square miles and around six days in extent. After the quake, it technically becomes a "reality subduction zone" where the old reality is "sucked under" the new one. In practice, everyone calls the area a fracture zone regardless, issues of chronology being what they often are around reality quakes.

A few space-time locations seem to be especially vulnerable to reality quakes, such as:

Ajalon, c. 1400 B.C.?: According to Joshua 10:12, during a battle against the Gibeonites at Ajalon in Canaan, the sun stood still for an entire day. This is either pious myth, miracle, or prima facie reality quake evidence. The battle, interestingly, has yet to be convincingly dated – or even mentioned in other local chronicles. Estimates range from 1439 to 1131 B.C.

Troy, c. 1200 B.C.: An earthquake may have caused the "fall of Troy," and the *Odyssey* reports that the Greeks ceased to honor the gods after their victory. The traditional date for the fall of Troy is 1179 B.C.; shortly thereafter, Greek history simply disappears into a Dark Age for 300 years until Homer writes the *Iliad* about the siege of Troy. Did his song "knit together" a reality fracture?

Etruria, c. 750 B.C.: The legendary founding of Rome takes place here and now, with the customary accretion of omens and signs from the gods. A "shield of Mars" fell to Earth during the reign of Rome's legendary second king Numa Pompilius – was it a reality shard? Interestingly, magnetic analysis of pottery from the region seems to indicate a reversal of the Earth's magnetic field around the time of Numa's reign.

Corfu and Jerusalem, 29 A.D.: Off the Adriatic island of Corfu, Plutarch records that passengers heard a "great howl" announcing the death of the Great God Pan. This date also roughly matches the date of Jesus' crucifixion, which was accompanied, according to the Bible, by an anomalous eclipse.

Britain or Java, 535 A.D.: The volcanic island Krakatoa may have erupted cataclysmically around the time of the death of King Arthur. The century after that date was almost a global Dark Age; the Byzantine Empire lost a third of its population in the Plague of Justinian, Rome lay in ruins, China and India descended into chaos and civil war, and even Teotihuacan and the Maya states collapsed. Famines and storms swept over the world.

Armageddon: At the natural choke point between Egypt and Asia, the plain of Megiddo in Israel sees battles in all eras in almost all Earths. (On Homeline, they range from Pharaonic campaigns in 2350 B.C. to the Yom Kippur War in 1973.) This may be enough to twist it permanently out of space-time; soldiers missing after these battles may have fallen into a "reality sinkhole" to emerge on some other field, or recruited into a cross-world brigade.

Quantaclysms

The 535 A.D. event (which may also have involved a mysterious comet) is one possible quantaclysm, a reality quake so severe that it actually obliterates the worldline on which it takes place, and flings reality shards to tens or even hundreds of other Earths in its wake. The Holy Grail, in all its myriad forms, may be such a reality shard, as might the wizard Merlin, who according to the stories lived backward from his senescence (in which he was frozen in time by Nimue) to his youth in Britain. Another such quantaclysm may have blown a world of evolved, technologically advanced dinosaurs to pieces, and sent the survivors hurtling deep into the past. Such an event might have left almost all Earths with legends of "talking snakes" or "dragons" who bring wisdom and knowledge from "under the earth," and the U.S.L. worldline (p. 148) as the only remnant.

Reality Quakes and Time Travel

Reality quakes would also be quite dangerous for time travelers. Of course, in a sense, any time traveler who changes the past causes a reality quake, but (in the commonly understood versions of temporal physics), time "pastward" of his change remains unaffected. A true reality quake, on the other hand, changes the past as well; it more often *only* changes the past, leaving history after the fracture unaltered, but historians unaware that their past is now different. Such a reality quake could change the past while a traveler was still in it, trapping him in a reality cyst with literally no future. Some eras of the past might be ontically unstable, especially in fracture zones, leading to time-slips or chronal storms.

Going Elsewhere

Nexus Portals

A "nexus portal" (see pp. B534) is a hole leading from one dimension to another. It is usually circular and less than 10 yards across, and allows light to pass through from both ends (that is, you can see its destination). Like a conveyor, a portal crosses realities without crossing space. Portals can be one-way or two-way; open all the time, or accessible only on Durin's Day or to those with the Key of Time, or summonable by the person who knows which kabbalistic sequence of elevator buttons to push. Some portals go a lot

Reality Quakes in the Game

In essence, reality quakes are a GM's tool to allow things to happen outside the normal rules of the setting. Want to massively retcon your campaign? Reality quake. Want to put the Holy Grail into a resolutely hard-SF setting? Reality quake. Want to have a world where ancient Romans fight the Confederacy? Reality quake. This also happens to be the explanation used by most "flung into the past" stories, no matter how they may gussy it up with lightning bolts or Druidic curses – it happened because it's just too neat for reality to get in the way. Providing hard and fast rules for reality quakes, therefore, would seem to be beside the point.

But, if you want to have a game centered on the quakes – their cause, their cure, their uses – here are some rules mechanics to govern their appearance, all neatly tied into the existing paraphysics of the setting.

Reality Stress Level

Compute the basic Reality Stress Level as follows: add 1 for every level of local mana above no mana (low is +1, normal is +2, etc.). Add the SL modifiers for cosmic energies, historical murk, and magic use (though not magically significant days) from the *Chronal Storms* section (p. 164), as written. If the area has been a fracture zone in other worlds, add from 1 to 5 points (from a minor slip to Armageddon). Add 1 or 2 points if the area is on a geological fault line.

Reality Quake Roll

The GM should make the Quake Roll when local conditions seem to threaten a quake, usually due to one or more of the modifiers below. Take the total RSL and divide it by 5 (round down). Apply that as a modifier on the Quake Roll; roll 3d and apply the results as follows:

6 or less – Pressure relief stabilizes zone.
7-9 – No result, but add 1 to any further roll made within a week if stimulus continues.
10-11 – No result, but add 2 to any further roll made within a week if stimulus continues.
12-13 – No immediate result, but if the zone is not stabilized, roll again in 1d×10 hours, at +2. This moifier is cumulative if rolled more than once.
14-15 – Reality temblor in 2d hours; a banestorm may blow up, 1d reality shards appear, or 3d beings from another reality emerge (possibly hostile and supernatural).
16-17 – Reality quake will occur in 2d days; reality temblor will occur as above.
18 or more – Reality quake will occur in 2d hours; reality temblor will occur immediately.

Further local modifiers to the Quake Roll are at the GM's discretion but might include: +1 or more for a cult devoted to the zone's previous (or coming) reality (+1 for 100 members, +2 for 1,000 members, etc.) in the area; +1 or more for a being from another reality becoming known to the local population (gruesome murder spree, strange lecture tour, etc.); battlefield modifiers for a battle going on during a potential quake; +1 or more for a reality shard in use; +1 to +3 for strange eclipses, astrological conjunctions, etc. visible in the area.

Stress Relief

Immediately after a Quake Roll results in a 6 or less, cut the RSL by two-thirds, and subtract 3 from any Quake Roll made in the next year. If a Quake Roll results in a 3 or less, cut the RSL to just the local mana level, and subtract 6 from any Quake Roll made in the next year. Over that year, the RSL builds back up to its normal "background" level.

Stabilizing a fracture zone may involve superscience "warp dampers," magic, or simply trying to remove potential quake stimuli (weird cults, reality shards, monsters, nexus portals) from the area. It might involve resolving the area's historical enigmas and mysteries to clear up any rubble from previous quakes. The GM should determine when an area counts as stable – a whole campaign could center on stabilizing a major fracture zone!

of different places (at random or by selection), and some are invisible until after the unwary traveler has tumbled through them into another world.

The Patrol has encountered every sort of portal mentioned above, and some even stranger than that. So far, the Patrol has found at least one potential portal on every world it has surveyed except for Coventry. Patrol doctrine allows Patrolmen to seal portals if the situation seems to demand it. Individual Patrolmen take various approaches to that question: some like having a bolthole available in case something goes wrong with the conveyor; others don't like the thought that the "back door" to the world is left open and unlocked.

Most nexus portals can be destroyed with sufficiently high energy release; dynamite does the job in many cases. (Even if it doesn't close the portal, it can effectively block access to it.) Some portals go "offline" during nuclear blasts or very intense fires or electrical storms. A few portals require charged-particle blasts, magic, or other methods to close, and even then they can reopen after a few years. If possible, locking the portal makes the best compromise between access and security; this often takes a

magical ritual, psionic attunement, or tuning a quantum flux capacitor to match the portal's signature.

Dimensional Highways

The same basic strictures apply to dimensional highways, the paths that run across the parallels. They are almost always much harder to close than mere nexus portals. They are somewhat less common, although almost all mana-positive worlds have at least one minor dimensional highway usable by anyone (or sometimes any mage or supernatural being) who knows the way. These "faerie trods" mostly run between forests, their path strewn with Puck's-cap mushrooms and Queen Marie's clover.

Less decorative are the "ghost roads," straight paths leading through misty declivities. The fog on either side of a ghost road resembles the clouds of a banestorm, and has similar effects if you step into it. In the clouds, travelers see shadows and familiar faces – possibly quantum shadows of their alternate selves – that alternately entice and mock them. Walking a ghost road usually involves a Fright Check, at -2 to -4. Ghost roads normally appear in normal-mana or higher areas, but they sometimes drift onto the path (or vice versa) of particularly bloody massacre sites, plague pits, and the like.

One subclass of dimensional highway, called the "time tunnel," is just like a nexus portal, except that the journey is not instantaneous and passes through a tunnel. The tunnel resembles a natural cavern, with walls of raw stone occasionally enlivened by graffiti, carved runes, or paintings of bulls and dinosaurs. What, if anything, is on the other side of the tunnel walls remains unknown.

Some fairly well-known or significant dimensional highways include:

The Chronobahn: Two roads, composed of fitted hexagonal basalt blocks, run through a number of worlds on Quantum 3. Each road is about 20 yards wide, and runs through each world for about 300 miles before moving into the next. The two roads cross near Carchemish, in the upper Euphrates valley on Nostradamus (p. 138). Its western end on Nostradamus leads to Friedrich (p. 124); the Raven Division has sent scouts along its length for about a thousand miles in all four directions.

Eleusis Alesia: This ley line runs through a number of worlds on a number of quanta, including Britannica-7, Johnson's Rome, and Wyvern. It can be accessed many places along its length, between la Aliseda, Spain, and Kalisz, Poland. Only women can travel it, and no vehicles past TL4.

I-776: "This psionic construct was built by the subconscious will of the United States just before the Great Awakening of July 4, 2076." That's what the Roadside Historical Marker says, anyway; all the Patrol knows is that it runs along the old Route 66 from Chicago to Los Angeles on almost every worldline with a U.S. interstate highway system. It can only be accessed through patches of fog along a rainy highway somewhere in America, although there are certain radio frequencies that draw an on-ramp closer to your automobile.

SHIFTREALMS

Shiftrealms are geographical features (and some artificial constructs) that move between the worlds. Shiftrealms usually travel on a regular schedule, although it may be a fairly impenetrable and complex one. A few shiftrealms are either entirely random, or their schedule is so abstruse that no pattern has emerged yet. Some famous "ghost ships," such as the *Flying Dutchman,* may also actually be shiftrealms.

Gates of Thoth

Mysterious triangles that appear and disappear in an indecipherable pattern, the Gates of Thoth are doorways through time. Members of the Cabal believe that Khaibitu-na-Khonsu, their first Grand Master, opened the Gates during his war with the god Ra in the third millennium B.C. Opinions differ on what he thought he was doing, and on whether the Gates were even his intended result. If a person steps through a Gate, he usually moves backward in time to another Gate appearing at the same place. Occasionally, travel occurs across space or even forward in time. Gates can span hours or millennia, but a slim majority open across one to three centuries. A Gate may also open to another world or plane entirely. No Magery is necessary to utilize a Gate.

Gates of Thoth often open in high-mana worlds and high-mana locations on normal-mana worlds, but have also been known to materialize in any world with even a trace of magic. A Gate appears as a "hole" in the air in the shape of an equilateral triangle. Their height from base to apex is usually around 10 feet, but the Gates rarely appear at ground level, often materializing dozens of feet above the ground. A Gate usually remains open for three to 18 hours, during which travel is permissible both into and out of the Gate. When used in conjunction with the Planar Summons spell (p. B247), the gate increases the skill roll by 6 and reduces the energy cost to 10.

Gates of Thoth can allow a GM to introduce time travel into a cross-world campaign on a one-shot or limited basis, strictly under his control. Gates of Thoth can also bring dinosaurs, historical villains, or even unearthly Things from beyond the stars into a game, as part of some evil Cabal scheme or simply to spice things up. GMs who like the idea of random gates opening and closing under the GM's control, but don't want to deal with time travel even a little bit, can recast the Gates as magical nexus portals (p. 77). These Gates of Psais (named for the Egyptian god of destiny) only grant passage between parallel worlds.

The Ouroborous Car

Perhaps this subway car fell through the geometry of a subway system. It now rattles between subway stations on the infinite worlds. Nobody can tell what city it originally came from; the interior is dimly lit and smells bad. All its advertisements are in English and Spanish; the outsides of the car are painted over with graffiti and unreadable. It may be an intelligent parachronozoid rather than a shiftrealm, as Patrolmen who have taken it report that it somehow "knows where you need to go" and makes the required stop.

Silenzia

The Silent City, Silenzia flickers between many Earths, but only between two locations. In June and July it appears, wreathed in fog and rainbows, on the flank of the Muir Glacier in Alaska, above Glacier Bay and below the St. Elias Mountains; Midsummer Day at noon is the best time to try entering it there. In December and January, it manifests on the slopes of Mount Etna in Sicily, above the Straits of Messina; midnight on Twelfth Night it is most accessible there. Silenzia's architecture is a strange but organic mixture of medieval Arabic and Gothic, although some of the buildings appear to have been constructed as late as the 1890s. The Silenzians claim that their city was founded by Roger II of Sicily, but stolen by Morgan Le Fay in anger at his refusal to renounce Christianity. (Less romantic theorists believe it to be a large reality shard, although it is a low-mana zone.) For at least 200 years, Silenzia has quietly prospered selling Yukon gold in Naples, Messina, and Palermo; local fishermen (both Sicilian and Inuit) do well selling their catches on Silenzia's docks, and do not speak of it to strangers. Silenzia is a popular hangout and rendezvous point for swagmen, and dimension travelers can find a surprising variety of goods from all over the multiverse for sale (for a surprising variety of currencies) in Silenzia's quaint shops and narrow bazaars.

Huy Breasil

In Homeline legend, Huy Breasil (also Hy-Brasil, among other variant spellings) was the "fortunate island" of golden palaces and wise enchanters, rich in sheep and glass, wreathed in fog to the west of Ireland. Every seven years it would appear, sending a sweet wind of spice and apples across the ocean. As it happens, this is another legend with a basis in a shiftrealm; the island actually exists, floating between various Earths on a long circuit through the quanta. Seemingly TL2 at most, the natives need only murmur or gesture to find their desires fulfilled; higher technology, meanwhile, often fails (all rolls to use devices or equipment on Huy Breasil are at -1 to skill for every TL the tool is above 3). Huy Breasil is a very-high-mana island.

The mana differential between Huy Breasil and most of the worlds it visits kicks up a cyclonic banestorm around its coastline, which further shrouds it from visiting ships (and often sends ships right through the island, none the wiser). If it drops into a low- or no-mana world, it generates a banestream, a current of higher mana flowing east out of the island that can last for years or decades, even after Huy Breasil has moved on to another Earth. The banestream usually dies down by the time it hits the European continent, although in some bad years, gales and high waves churn up ports and dockyards from Glasgow to Lisbon, sending monsters and merfolk up onto the land. Particularly strong banestreams can affect weather patterns (and mana levels) as far inland as the upper Danube valley.

Faërie

Faërie is a timeless kingdom of elves (also called fae) ruled by Queen Titania and King Oberon. Although mutable by sufficiently powerful fae, it usually resembles a rural area of medieval northwestern Europe on a perfect spring afternoon. The palace of Oberon and Titania rises in the center of the shiftrealm, with a "goblin marketplace" on the border. Many trods (p. 74) run from Faërie to various northern Europes. Other trods link Faërie to other shiftrealms such as the Forest of Arden, which moves between Englands whenever the leaves turn. Although the trods to Faërie tend to open only to magi, or to those with elven blood, even normal mortals can find themselves stumbling into Faërie from an Irish hilltop or a Tuscan grove. The relative solidity of Faërie makes it a common destination for material travelers in the Astral Plane, as well, since it touches the Astral Plane on all sides.

Wanshijieshan

Wanshijieshan, the "Ten Thousand Worlds Mountain," seems to have flowed out of some Tang Dynasty print, wreathed in the mists, clad in impossibly slender conifers, and mounting gracefully up to heaven like cloud turned to stone. Along its ridges and ravines, a thousand caverns open – some wide and yawning, some softly glowing with phosphorescent fungi, some narrow and rimed with lime and lichen. Some of them are fouled with mephitic vapors or flooded with glacial runoff; others are closed off by landslides or blocked off by curiously shaped walls. Through every passage lies a different Earth, although some of the caves end in holes in an icy river in America, or ponds in a forest in England, rather than mountainsides and canyons in the rocky west of China's Shanxi province, where dedicated or worthy travelers may find it.

The Mountain is home to a small community of monks who have retired there. Asking them about the caves is useless; they have retired to forget the Earths, not act as tour guides. It is the gravest possible discourtesy to recognize a monk, and especially to call him by a name he may have held once long ago. The abbot speculates, with respectful visitors, upon the nature of the Mountain itself, and the omens seen in its trees and skies and rivers. Perhaps the lightning that flickers around its top bears witness to some great disruption, or to the birth of some great majesty. Perhaps each new spring that bursts out of the rock is a dimensional road being cut, or a new set of minds learning to move around the continuum. Perhaps, he suggests over his tea, the mountain is not a shiftrealm at all, but the only fixed realm in all the infinite worlds, the true navel of the cosmos.

Chapter three

Present at the Creation

Angela and Suleiman – Agents Polk and Erdoglu, as their records chip read, or "Mrs. Banning and her manservant Pompey" as they were known hereabouts – were mostly concerned with the rain. Specifically, at its annoying tendency to fall through what was left of the plantation house roof, onto their very accurate, and hence not at all waterproof, clothing. "Nobody can be expected to perform cliodynamic analysis soaked to the skin like this," Angela groused. "Look on the bright side," her partner responded, hunching a little deeper into his topcoat, "Nobody's trying to kill us right now." It was true; the Union artillery had found somewhere else to obliterate for the time being, and the two Patrolmen hadn't seen hide or hair of the Centrum agents known to be swarming all over this particular stretch of Mississippi in this particular 1863. Angela sneezed. "Except maybe with pneumonia."

"That's right, though. Where the Hell are the I.S. boys, and why aren't they trying harder to save the Rebs? If Vicksburg doesn't fall to Grant, Gettysburg doesn't matter a bit, and worse yet, Grant doesn't go east next year to finally teach Bobby Lee how to lose like a gentleman." Suleiman, who had a soft spot for Lee, responded, "More to the point, the Mississippi doesn't get cut, and that opens up some troublesome developments in Missouri that could tweak the 1864 election. All the numbers show that Vicksburg is the key nexus, so why hasn't Centrum made its move by now?"

"Well, they're all medieval screwheads; maybe this is a bluff, and they're trying to save Pickett's Charge or something." Suleiman grinned, but demurred: "Look, they don't think like we do, but they understand war pretty well. Gettysburg is a sideshow. Even if Lee wins, he's still lost in the middle of Pennsylvania with no logistics and no cavalry support, and two Union armies over the next ridge." He trailed off, realizing that Angela had neatly trapped him into calling Lee's eternal genius into question, and changed the subject. "Maybe they're not even thinking about the Civil War, though – Britain is the really important country here and now, and Palmerston is still holding on to Centrum-style hierarchy by the skin of his teeth."

"Plus, they're supposed to be signing a free trade pact with Belgium and France this year – didn't Vanderlyn say that World War One really begins because Britain has too much cash tied up in Belgian ports?"

"Vanderlyn? He's crazy, and he's triple crazy about Belgium. If you want to find World War One starting in 1863, go to Denmark, where King Christian is being ass enough to give Bismarck a pretext for a war that will wind up unifying Germany."

"Is that this year?" "Yep."

"No," Angela sighed after a long thought, "that just seems too subtle somehow. Too long-term. I can't get away from the notion that Centrum is involved here and now, at Vicksburg. Otherwise, who's to say they're not murdering Henry Ford in his crib, or conniving to delete the penalty kick from soccer? No, I don't think they're in Denmark."

"Plus, it's probably raining in Copenhagen, too."

The two Patrolmen pondered that gloomy prospect, and watched more of the carpet return to the Delta mud that had no doubt produced it in the first place.

"Let's recheck the numbers again. Maybe the computer has something for us."

For miles around, the rain had turned Mississippi's roads to burgoo, bogging down the Union wagons and cannon, and pneumonia had begun carrying off more and more of the Union wounded. The besieging Union Army of the Tennessee was eroding away in the downpour, or drowning in mud. Ulysses S. Grant looked at the sky in frustration, and cursed to himself.

*It was supposed to be **sunny** today, dammit. Somehow I just **know** it was supposed to be sunny.*

Had I been present at the Creation, I would have given some useful hints for better ordering of the Universe.

– Alfonso X, called "the Wise," of Aragon

Even the most heroic I-Cops, or the most fiendish interdimensional Nazis, need a stage for their actions. In the Infinite Worlds setting, as in most crosstime campaigns, that setting is the alternate world, an Earth where history took a different turn. Many examples of such worlds appear in fiction, speculative history, and film; GMs can have their hands full with adventures set in a single world of Nazi victory or Roman survival. However, the canvas of the Infinite Worlds setting is vaster than even one world where history turned aside; it contains a myriad of parallel Earths, each one with its own potential for riches, adventure, mystery, or danger. This chapter lays out some of the basic types of alternate worlds, and some principles (based, as far as possible, on historical research) for designing or constructing them.

Throughout this chapter, various tables and metrics can help the GM to randomly or mechanically create another timeline. It should go without saying that these systems exist solely for the GM's convenience, and if he has a better idea, or wants to tweak the results to produce something that sounds interesting, he should do just that. However, just as some of the fun of "space merchant" games is randomly discovering planets, some of the fun of crosstime adventures is randomly discovering alternates. Hopefully, this chapter and these systems can add to that fun.

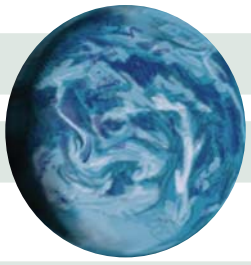
Types of Alternate Worlds

Both crossworld travelers and GMs tend to classify worlds into various types, depending on their use, nature, and inhabitants. This section primarily approaches the topic from the GM's perspective, although it uses some Infinity Patrol terminology rather than reinventing the wheel. For specific Infinity world classifications, see the box on p. 83.

A world might be a pre-existing element of the game, or one custom-designed to fit a given scenario. A lost conveyor, or a more free-form setting than the "default" Infinite Worlds campaign, might drop Patrolmen into any number of random worlds. To randomly generate an alternate world, roll 1d twice and consult the following tables:

Random Quantum Table

1	Quantum 3 (Q8 for Centrum)
2	Quantum 4 (Q9 for Centrum)
3	Quantum 5 (Q10 for Centrum)
4-5	Quantum 6
6	Quantum 7



Random World Type

1	Empty
2-5	Echo/Parallel (if on Q6, roll again: 1,2 – Echo; 3-6 – Parallel)
6	Challenge

Infinity's World Classes

The Penetration Service gives every surveyed worldline a class rating, to guide future Infinity activity. UNIC can, in theory, override a Penetration Service classification, but never has. Sometimes, newly discovered (or defeated) dangers in a timeline can shift its class rating up or (less often) down the scale.

Class O (Open): Worldlines declared safe to enter, and available for trade, colonization, or other activity.

Class P (Protectorate): Generally applied to parallels with "autochronous" populations (those native to a timeline, as opposed to Homeline colonists and their descendants). Many lower-tech Class P worlds have limited and licensed trade or tourism openings.

Class R (Research): Set aside for special study, but not immediately threatening. Such worldlines usually have strange physical laws or wildly variant cultures, dinosaurs or other exotic ecologies, or pre-Bronze Age human populations.

Class Z (Closed): Worlds that pose a danger to Homeline, or to The Secret. This class includes most hell parallels (p. 128), very high-tech worldlines, the Reich parallels (p. 143), and worlds with aliens, magic, or open psionics.

Within each class, worldlines have Access Ratings. These denote which outtimers can enter the timeline, and range from 1 (Patrol personnel with specific orders only) to 10 (free visitation by any Homeliner). Intermediate stages 2 (Patrol personnel only) and 3 (Infinity, personnel only) restrict the world to Infinity, although with enough pressure from national governments or UNIC, outsiders might be allowed access. AR4 allows only Infinity-licensed researchers; AR5 allows accredited research staffs from any major corporation or university. At AR6 through AR8, Infinity allows outtime trade in ever-larger amounts and in ever-less regulated goods; AR9 allows guided tourism. No Class Z world has a Access Rating above 4.

Empty Worlds

Empty worlds have no intelligent native life – or, at least, none that the cross-dimensional visitors have found yet! How Infinity, or other crosstimers, use such a world depends on their own procedures and on the nature of the empty Earth in question. An Earth where mankind never evolved – or hasn't yet – is very different from an Earth on which some horrible disaster cleansed the world of intelligent life or derailed hominid evolution.

Within the Infinite Worlds setting, a random empty world breaks down as follows; roll 1d and use the discussion below to refine the basic result.

1-4	Resource exploitation.
5	Homeline colony or colonies.
6	Disaster world.

Resources

Most Earths have the same geophysical history, so the same mineral resources exist in the same richness and the same locations across the parallels. (Major exceptions include the Lucifer parallels, most of which were hit by major asteroid or meteorite strikes. In the impact zones of such disasters, very rich, pure veins of many different elements occur.) The major industrial minerals, their rough value on Homeline, and their primary deposits, are as follows:

Bauxite ($20/ton): Bauxite (aluminum ore) deposits occur globally, the richest being in the Ural Mountains, the Guianas, Guinea, Ghana, and Jamaica. Although aluminum itself is dirt cheap, bauxite contains valuable gallium, widely used in computer technology and worth about $200/lb. Recovering gallium without refining the bauxite into aluminum is economically unfeasible.

Beryllium ($300/lb.): Found in the mountains of Utah, Sinkiang, and Kazakhstan.

Chromium ($500/ton): 95% of the world's chromium deposits are in southern Africa (South Africa, Zimbabwe, and the Katanga province of the Congo). Minor chromium deposits appear in Greenland, Montana, and Kazakhstan.

Cobalt ($25/lb.): Cuba, Zaire, Zambia, New Caledonia, and the northern United States (primarily Minnesota) contain most of the easily accessible cobalt in the world. It also appears in nickel mines.

Gold ($4,400/lb.): South Africa has about half the world's gold deposits; the Yukon, California, the Amazon basin, and Mexico share another 25% of the total. Major Old World gold deposits include Spain, Nubia, Bactria, and southern India. One advantage of gold is that societies at all TLs value it; it makes a near-ideal medium of crosstime exchange.

Platinum ($6,400/lb.): Over 90% of world platinum deposits occur in South Africa or Zimbabwe. The Ural Mountains, Kola Peninsula, and Montana also have viable platinum mines. Other platinum-group metals (palladium, rhodium, ruthenium, iridium, and osmium) appear in the same deposits.

Silver ($220/lb.): The richest silver mines in the world were in Potosi, Bolivia; other major silver lodes appear in Nevada, Mexico, Peru, Greece, Turkey, and Spain.

Titanium ($4/lb.): Ilmenite (titanium ore) occurs in Australia, Sri Lanka, Norway, and South Africa. Ilmenite sands in California and Florida also produce commercial-grade titanium.

Uranium ($7/lb.): Almost all of the world's uranium comes from Niger, Namibia, or Australia; other lodes include South Africa, New Mexico, and Saskatchewan.

Other minerals worth mining from settled areas near Homeline colonies, or in pre-existing mining complexes, include copper, iron, manganese, nickel, and zinc. Gems, although tempting for smugglers (especially between primitive Earths) have little or no industrial value, since artificial gems equal or exceed their hardness and purity. Iron and nickel, on Homeline, come almost exclusively from asteroid mining, and manganese comes from seabed mining; there is little export market for crosstime mining of these metals. Similarly, the wide use of fusion power makes petroleum far less valuable on Homeline than it is on most developed Earths. A large percentage of petroleum extraction on parallel Earths is "wildcat" drilling for cargoes to be shipped (legally or, more often, on the gray market) to more advanced Earths in tankers fitted with subquantum conveyors. Swagmen often work with, and sometimes work *as,* crosstime wildcatters.

The ability to mine other Earths for valuable resources contributes mightily to Homeline's high standard of living. Mineral combines, and politicians interested in keeping prices low and technology booming, steadily pressure UNIC and Infinity to open more and more worlds for exploitation and extractive development. Since areas such as the American West, Australia, and especially southern Africa were outside the "known world" of most civilizations, these pressure groups have successfully gotten Infinity licenses to open (strictly guarded) mines in those regions, even on worlds with substantial native development. Rumors about the mines spread, but usually evolve (or dissolve) into the standard legends of King Solomon's Mines, El Dorado, and other "lost cities of gold" familiar from Homeline history and folklore.

Dinosaur Hunting

Although many Homeline organizations protest the practice, one of the most lucrative and romanticized fields of crosstime tourism is big game hunting. Not only lions and elephants in empty Africas, but aurochs in the primeval European forest, tigers in India, and mammoths in prehuman America draw the rich and bored of Homeline for elaborate safaris. Most hunting worlds are Class O empty worlds; jungly Shikari and Miocene Mammut-2 (both on Quantum 5) are the most "developed," with hunting lodges, airfields, and permanent populations of guides and zoologists.

However, the biggest game of all is dinosaur hunting. This pastime is theoretically only legal on Lucifer-4, a late-Cretaceous parallel where the iridium meteor has already fallen, and the native dinosaurs are in the process of dying out. But Lucifer-4 has terrible weather, a dwindling game supply, and a serious absence of romantic flavor. Its other trouble is difficulty of access – since it is well out on Quantum 3, visiting Lucifer-4 is expensive.

Many hunters apply for "guard licenses" on research worlds with thriving saurian ecologies, such as Rex-2 and Sereno. Guards at the research stations on these worlds are allowed to kill stragglers or runts for meat. At some stations, the management looks the other way (for a consideration) if a guard takes a long "vacation" into the mountains with "visiting friends." The mother lode, however, for the would-be poacher is Crichton, a Class R world with a theoretically impossible mix of dinosaurs from all eras of their evolution. Tyrannosaurs and dimetrodons, pterodactyls and apatosaurs all share Crichton's steaming swamps and warm savannas. Crichton is on Quantum 7, and Centrum uses it to contact Homeline's criminal elements. Its coordinates are one of the worst kept secrets in Infinity records, and although dangerous and unregulated, lucrative "pirate safaris" depart for Crichton several times a year. The Patrol has its hands full there, and has broken up kidnapping plots and attempted murders (a combination of rich hunters and lawbreaking seems to draw such incidents), as well as more conventional smuggling rings feeding the substantial East Asian market for dinosaur glands.

Colonization

Given a world without any native humans, but otherwise hospitable, Infinity has the power to open it to permanent habitation from Homeline. Although most colonies also maintain some mining or research facilities, their purpose is settlement, not mere extraction or study. In general, the specifics of the colony parallel depend on the colonizing power or organization, but all crosstime colonies can fall into one or another general colony type.

Overflow colonies from nations such as India, China, Indonesia, and Nigeria allow surplus populations to settle otherwise empty alternate versions of their homeland (and usually the surrounding areas). Bhuvarlok (see p. 32) is an overflow colony.

Separatist colonies allow groups that do not wish to (or are not allowed to) remain in their Homeline nations to set up their own communities. Religious and green movements such as the Mennonites, Mormons, neo-Druids, and Sustainabilists comprise most voluntary separatists; their colonies sometimes purposely regress to TL4 in all areas save medical care. Some separatist colonies such as Lysander or Tebuguo (see p. 32) are primarily politically motivated.

Clandestine colonies are not quite colonies, in that they are usually permanent military bases, smuggling depots, or slave markets. They are not on the official maps, and some are not even on charted timelines! Clandestine military bases are usually the work of a major Homeline power, and may be secretly located on a worldline associated with it. The world of Lysander (see p. 32), for example, is widely rumored to be the site of a major clandestine parachronic base for the U.S. and British military, called "Camp No-When" in Net legend. Clandestine criminal colonies attract

large transient populations when the heat is on elsewhen, or when there are major cargoes to sell or divide; they usually have a small or medium-sized "permanent floating" population of whores, distillers, and muscle.

Manor colonies are those devoted to the privacy of the very rich. Many Homeline billionaires buy or lease million-acre (or larger) "manor estates" on empty worlds. Prime estates, such as all of Tahiti or Oahu, go for tens of billions of dollars unimproved; your own Rocky Mountain or a lesser Greek island can be a relative steal. Corporations also buy or lease manor colonies for retreats or executive country club housing. Many worlds devoted to other colonies make some money selling or leasing prime manors to rich Homeliners, with ironclad privacy and airspace agreements (going both ways in the case of some separatist colony worlds).

In many cases, several geographically disparate countries or organizations pool their resources for one common world. The resulting timeline might host an overflow colony in its India, a separatist religious retreat on the American East Coast, and a number of European-chartered manors scattered around the Pacific islands and Mediterranean.

Many colonies support themselves by leasing their world's (or region's) mineral rights to Homeline consortia. A world can thus have a seemingly utopian and pristine separatist colony in its North America, supported by dirty, miserable – but unseen – extractive labor across the continent or around the globe. Colonial governments that can use such leases to fully support themselves can wind up with very low tax rates – but often have similarly little incentive to listen to the wishes of their citizens.

Disasters

This general term encompasses not only worlds depopulated by some cosmic impact, plague, or ecological shift, but also worlds too marginal to support colonization. Most disaster worlds that result from actual disasters are functionally "challenge worlds" for the PCs (p. 94). Earths where the atmosphere never oxygenated, or has no moon and DNA never formed in tide pools, or are the wrong distance from the sun for life to exist, are also considered "disaster" worlds. They can be cleared for entry faster than plague worlds, and robot mining or dumping operations (with a few well-paid, miserable technicians in pressure domes) can continue to exploit them. Most disaster worlds are cleared only for toxic waste disposal by automated conveyor, which is about all they are usually good for. Every so often, one of the mining stations goes silent, or a waste conveyor doesn't return, and then the Patrol has to suit up and see what happened.

When we realize that the actual outcome did not have to be, that any alteration in any step along the way would have unleashed a cascade down a different channel, we grasp the causal power of individual events . . . Contingency is the affirmation of control by immediate events over destiny, the kingdom lost for want of a horseshoe nail.

– Stephen Jay Gould, ***Wonderful Life***

Echoes

An echo is an alternate Earth apparently identical to Homeline at some earlier point in its history. Although detailed records down to the individual level are not available for any era (even Homeline's civilized 21st century), no echo has been proven to deviate from "known history." In the few cases of apparent deviation, later research determined that Homeline's records or interpretations were in error. This factor alone makes echoes priceless resources for historical researchers – and since historical research is a key underpinning of Patrol success, Infinity does allow very carefully supervised research teams access to echoes wherever possible. In the final analysis, it often takes a trained historian to notice the beginning of an echo's shift!

That, of course, is why researchers on echo timelines need to be even more careful than usual. An echo can shift out of its current quantum coordinates, and into an entirely new quantum level, if history is changed on it. (Very minor changes, like the presence of Infinity researchers ordering breakfast in 1793 London, fortunately "damp out" in an indeterminate haze.) Unfortunately, since echoes are inherently unstable, it's not a matter of "if" history changes, but "when." If it shifts by itself, or through accidental Infinity interference, that's one thing, and the team's biggest worry is getting back to Homeline in time for their reprimands. If Centrum shifts a timeline out of Infinity's reach, a team can be trapped there forever, or killed in the "mopping up" process as Centrum asserts its control.

Naming Echoes

Infinity names echoes based on the number of years the echo's local present lags behind Homeline. An echo with a local present date of 1776 would be Echo 251, or 251 Minus (both names get used interchangeably), since 1776 is 251 years behind Homeline's present date of 2027. Once the echo shifts (or, if it turns out to be an anchor, once its history changes from Homeline's), it gets assigned new coordinates – and usually picks up another name based on whatever the change point was – assuming anyone in Infinity ever finds the echo again.

Echoes therefore make good settings for subtle scenarios of investigation, mystery, and indirect action. Wild, maniacal gunplay and city-shaking explosions are more than normally dangerous (except during wartime echoes, of course). Echo settings also reward lots of close integration between the heroes and the world; they have to have local allies, local sources of information, and local clout to detect and prevent Centrum interference.

It's wise, therefore, to select an echo based on a historical milieu that the GM and players know well or a milieu for which they have reliable, useful resources. However, some GMs (and players) like the seat-of-their-pants feel of random reality-hopping; for such randomness, use the following system to create a "present" between 3400 B.C. and 2001 for a random echo.

Roll 1d repeatedly on the Random Present Table, incrementing the year forward as indicated from the initial Starting Era. After the third increment, if a specific year is desired, roll a final die and add the result.

Once the GM has the year figured out, he can use a timeline or world history text to find someplace exciting for the party to arrive. In our example, the era 554-560 A.D. is suitable for post-Arthurian grit in Britain, a decadent game of intrigue behind the scenes of Justinian's Byzantium, or high-flying wuxia martial arts action against the backdrop of China's Three Kingdoms.

This system produces a lot of "ancient" echoes; this can be handy for fantasy-genre crosstime adventurers (whose swords and sorceries translate to most years before 1450 or so), but such periods aren't terribly well documented, which can run historically minded games onto the shoals. For a system weighted to produce more recent presents, add a modifier to the Starting Era die roll, or just pick the Starting Era you'd like to begin with.

Tampering

The great danger (and opportunity, from a story perspective) on an echo is historical tampering. Although minor shifts, like renting a room or hiring a maid, don't *usually* change anything, if you rent the room where Edgar Allan Poe was planning to sleep off a bender, or hire Emiliano Zapata's mother as a maid, you run a certain risk. Major changes are more likely to send things off the rails, though there have been cases of echoes where change after change mounted up before a shift occurred. (And there are echoes that just never change no matter what; see *Anchors,* p. 87.) Infinity doesn't know why some changes cascade into quantum shifts, and others seem to damp themselves out – the only thing the Patrol can do is keep a wary eye on any changes they notice.

Centrum, however, does know. Echoes go through windows of paratemporal instability, during which they are vulnerable to shifting out of their quantum. Changing history on an echo during other periods damps out; echoes outside a window have a higher degree of temporal inertia than most parallels! Centrum thus sets up their agents during high-inertia periods, and launches its tampering plots at the opening of a window. To determine if a window of instability is open for a given echo takes a week. Either a week of "background readings" with a parachronic detector and a successful Physics/TL9^ (Parachronic) roll, or a week of checking newspapers and a successful Current Affairs roll for the local culture *plus* a successful Cliodynamics roll (p. 182) works. (To randomly determine if the echo is in a window, roll 1d; on a 1 or 2, a window of instability is open. Roll 3d on the *Shift Delay Table* on p. 104 to determine the window's length.) A critical success on either roll lets the agent predict the next window opening, though not its length.

A divergence that hits during a window of instability has a chance of shifting the timeline. This chance gets greater with the degree of divergence caused by the shift.

Minor event (+1 to shift): A change of the sort encountered in most close parallels (p. 88).

Important event (+2 to shift): A change of leaders in a minor power; the career of a major artistic figure; the founding or bankruptcy of a large corporation; a seminal scientific theory.

Major event (+3 to shift): A change of leaders in a great power; a battle in a major war; a new political philosophy; scientific discovery or invention.

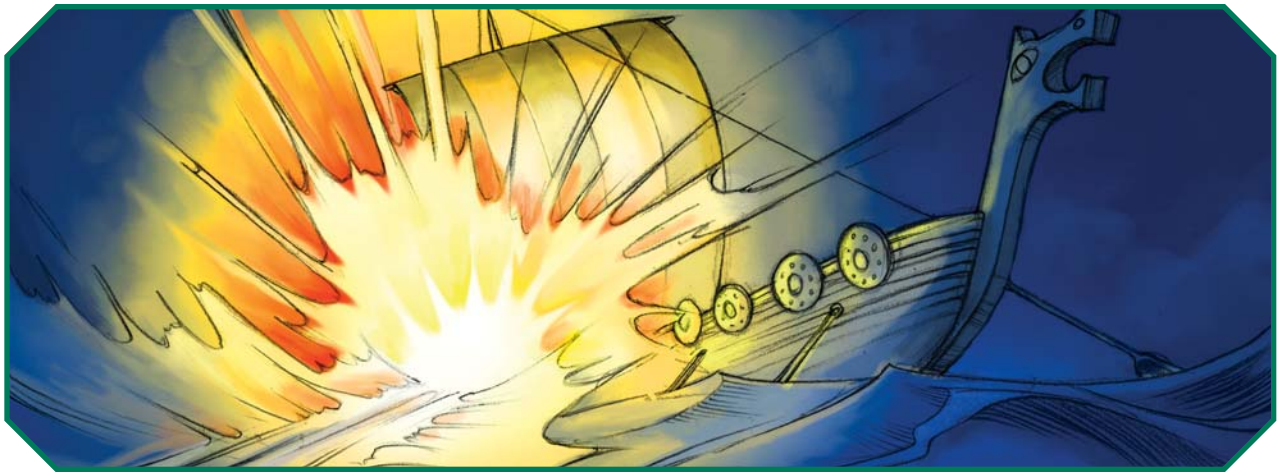
Historic event (+4 to shift): A revolution or civil war in a great power; a decisive battle; a new scientific paradigm in a given field; a new industry.

World-historic event (+5 to shift): The defeat of a great power in a major war; a TL shift; the destruction or

Random Present Table

Roll	Starting Era	1st Increment	2nd Increment	3rd Increment
1	3400 B.C.	+0 years	+0 years	+0 years
2	2500 B.C.	+150 years	+25 years	+4 years
3	1600 B.C.	+300 years	+50 years	+8 years
4	700 B.C.	+450 years	+75 years	+12 years
5	200 A.D.	+600 years	+100 years	+16 years
6	1100 A.D.	+750 years	+125 years	+20 years

Example: The first die comes up 5, so the Starting Era is 200 A.D. The next roll is a 3, so the present is incremented up by +300 years, to 500 A.D. The next roll is a 3, adding +50 years (550 A.D.); the fourth die comes up 2, adding +4 years for a present of 554 A.D. A final die roll, if desired, can add a few years, but the echo is clearly in the mid-sixth century A.D.



birth of a civilization or mass religion; the founding or aborting of a future great power.

Agents can use Cliodynamics to find something that starts small but will ripple up the scale as the shift progresses. This helps prevent their enemies from noticing it until the shift is well advanced. The GM is free to move events up or down this scale, which roughly corresponds to alternate history as presented in fiction and gaming rather than any specific (or rigorous) historical theory. For example, Shakespeare's career might well be a genuine +4 historic event.

For the results of Centrum (or accidental Homeline) tampering, see *Timeline Shifting* on p. 104.

Anchors

An anchor is an echo that, for some reason, does not shift quanta when the course of normal Homeline history is changed. The leading theories assume either that anchors are actually potential parallels with misleading quantum signatures (and were thus never really echoes at all), or that they are the "original" worlds from which the other echoes actually resonate – possibly including Homeline and Centrum! Discovering that an echo is actually an anchor usually triggers a stark escalation in the contest between Centrum and Infinity, since both sides can "change history" at will without risking a timeline shift. At its most dramatic, such a contest can trigger an international crisis, or even precipitate a major global war, as Infinity and Centrum "choose up sides" and get ready to rumble by (heavily armed) proxy.

Putting a Little English on It

Since Centrum is attempting to advance a specific ideology rather than shifting timelines randomly, Patrol doesn't have to watch every possible change point equally. Some signs of Centrum interference, with examples, follow:

Transnationalism: Centrum believes that all nations should unite; it tries to strengthen global forces such as the British Empire, Napoleon's empire, the U.N., the early Communist movement (but not Soviet Russian imperialism), environmentalism, medieval Christendom, and so forth. Genuine patriots and nationalists like Queen Elizabeth I or George Washington (who committed the extra sin of breaking up a global empire) attract Centrum assassins or intriguers.

Equality: Centrum doesn't like hierarchies, except for meritocratic ones. It helps out leveling revolutions like the French and Russian ones, and then try to steer them in the direction of technocracy. It works (in an orderly way) against ossified hierarchies like medieval China, the Incas, or Bourbon France – unless they have managed to build a unified global empire, of course.

Moderate scientific progress: Too much scientific advancement, too fast, leads to social turmoil. Centrum silences or diverts controversial, revolutionary figures like Galileo, Newton, Darwin, or Einstein while supporting technologists and pragmatists like Tycho, Hooke, Wallace, or Bohr.

Rationality: Centrum loves reason and the rational; it distrusts the religious and emotional. Centrum prefers Hegel to Nietzsche, and Frederick the Great to Hitler. The existence of a transnational Muslim caliphate frustrates Centrum immensely – it would be perfect if it weren't so religious! Attempts to secularize Islam in the ninth century – or the 20th – get wholehearted aid from Centrum agents. Centrum also knocks off poets who cause trouble as well as celebrate the emotions: Shelley, Byron, Blake, and other Romantic radicals are often Centrum targets of opportunity. The Centrum has much the same objection to the Confederacy, although its social conservatism and corrosive effect on American nationalism are both positives in Centrum's eyes.

There was inherent in the course of history a certain element of going off course.

– Robert Musil,
The Man Without Qualities

In practical game terms, the GM can make an echo into an anchor (either after the fact or in the original adventure plan) if it seems like more fun to explore the consequences of a change than to consign the echo to its new quantum and move on. (For a random method, once a timeline is determined to be an echo, roll 3d. On a 5 or less, the echo is an anchor. Post hoc, the GM can declare an echo to be an anchor if he rolls a 3 on the *Timeline Shifting Table* on p. 104, or if he makes three rolls in a row that don't wind up shifting the echo.) An anchor can also make an excellent setting for adventures involving ever-increasing cascades of technological or geopolitical change. A team of Infinity Special Operations agents tasked with uplifting Persia to TL5 and causing the fall of a Centrum-backed Roman Empire will have their hands full – especially when the Centrum agents in Rome begin to introduce their own innovations.

Parallels

Most of the worlds one thinks of when one hears the phrase "alternate Earths" are parallels. On a parallel, history turned aside from its course on Homeline at some divergence point in the past. Parallels span the gamut from client worlds such as Johnson's Rome to isolated dangers like Reich-5, and from close parallels where only Bob Dylan's discography is different to worlds with varying laws of physics and surviving Babylonian monarchies.

To randomly generate a parallel, roll 2d and consult the following table:

2-4	Close parallel
5-10	Farther parallel
11	High-inertia parallel
12	Myth parallel

Close Parallels

Close parallels have only minor differences from Homeline Earth. Further, those differences are primarily cultural or microeconomic. If political divergences exist, they are minor, creating small ripples rather than mighty waves. Although a close parallel might have a superior stapler design, it probably won't have anti-gravity, or magic. Often, the change comes about due to one person's death or life taking a slight detour from Homeline history: Pete Best stayed in the Beatles and broke them up before they hit America, or Sir Arthur Conan Doyle became a Spiritualist earlier in life, so Sherlock Holmes investigated only haunted houses. Not all small causes have small effects, however. Occasionally, a single death or career change by a seemingly minor cultural figure creates a farther parallel (see *Campbell,* p. 119). Cliodynamics is not an exact science, and the GM should feel free to let the entire world turn on a single horseshoe nail or lost Shakespeare play.

From a story perspective, close parallels basically serve as scenery – reminders that this is, indeed, a game of alternate Earths. A brief snippet of "the country stylings of Miss Britney-Lynn Spears" on the radio, or a movie based on "the best-selling romance novel by Tom Clancy" nicely conveys a frisson of difference in an alternate world. It's possible to use them as deeper settings for crimes (ripping off slightly alternate artworks), conspiracies (untangling the twisted skein of the Nixon assassination), or similar stories that likewise depend on surface detail for their interest. And certainly, any adventure you can set on Homeline you can probably add a little something to by setting it on a close parallel instead, unless Homeline-specific institutions like Infinity Unlimited need to play a role.

To generate a random close parallel, roll 1d on the table below to determine which changes are most significant (or visible). Some possible examples of each result follow.

1	Popular Culture
2	High Culture
3	Economic or Corporate
4	Technological
5	Political
6	Geopolitical

Popular Culture: Elvis Presley died at birth (instead of his twin Aaron) and rock and roll still competes with "big band" jazz for audiences; Fritz Leiber and Harry Fischer invented roleplaying games in the 1930s. Reality Holly (p. B526) is one example.

High Culture: Charles Dickens completed *Edwin Drood* before dying; Frank Lloyd Wright died in the Iroquois Theater fire of 1906 and American buildings are generally much uglier; Orson Welles' moody 1946 film *The Batman* made comics serious art to the New York critical establishment.

Economic or Corporate: Clever exploitation of the fur trade funded a golden age of art and wealth in 17th-century Norway; Coca-Cola became a moderately popular health tonic and sports drink; Studebaker replaced Chrysler as the number three U.S. carmaker. Reality Cherokee (p. B526) offers other examples.

Technological: Archimedes invented a water mill that nobody improved on until the 1300s; typewriter keyboards standardized on a different pattern than QWERTY; home videotaping never caught on because Sony introduced recordable DVDs in the early 1980s.

Political: Congress put Ronald Reagan on the nickel after he died in 1998; the Tranby Croft Scandal forced a reshuffling of the British Cabinet in 1891; Hitler made Göring his successor rather than Dönitz before committing suicide in 1945.

Geopolitical: Malta is still a British colony; the states of Tennessee and Kentucky are called Franklin and Transylvania, and have different borders; an earthquake leveled Aden in 1540, eventually moving the capital of Yemen to Mocha.

Skerries

Skerries are clusters of parallels, usually on the same quantum and sharing common historical or cultural elements.

Sometimes a skerry is created by a reality quake sliding different worlds into close contact both historically and paraphysically. Other skerries are actually joined by nexus portals, dimensional highways, or other links. These close ties disrupt the quantum flow around skerry worlds. In general, travel between two worlds in a skerry is at +4 (or higher) to skill; travel to any other outside world from a skerry is at -4 (or worse)! Banestorms, reality quakes, and other parachronic disruptions are usually more common in skerries, although some become hyperstable thanks to fortunate quantum geometry.

A thematically unified campaign can be set entirely within a skerry, or an adventure exploring different outcomes of the Battle of Antietam, for example, can chase through component Earths of a skerry.

Farther Parallels

Farther parallels diverge farther from Homeline history than close parallels. They may also have variant physical laws; if they have it, open magic often drives society and technology even farther from the Homeline historical path. Farther parallels can play any role in a game, from the sole setting to a brief mention in swagman gossip. ("You've *got* to see the matriarchy that Boadicea founded over on Britannica-7 – talk about your swinging Londons!") Design them to last, or just write a one-line description and move on; you'll never run out of things to do with farther parallels.

Randomly creating a farther parallel begins by defining its "present," rather than selecting a divergence point and branching its history forward from there. (For some discussion of "change forward" parallel design, see p. 96.) To randomly create a farther parallel, first define its leading TL by rolling 3d on the following table:

3	TL1-3 (roll 1d/2)
4-5	TL4
6	TL5
7-9	TL6
10-14	TL7
15-16	TL8
17+	TL9+

This table is designed to give results matching alternate history literature, which is overwhelmingly biased toward 19th- and 20th-century divergence points. For a more historically representative result, roll 2d: on any result but 12, the TL is 0. On a 12, roll 3d: 3-9 is TL1; 10-13 is TL2; 14-15 is TL3; 16-17 is TL4. Roll 3d again on an 18: 3-9 is TL5; 10-13 is TL6; 14 is TL7; 15 is TL8; 16+ is TL9+. It's probably more fun to go with fiction this time around. Speaking of fun, weird or variant technologies can be a pure GM call; alternately, roll 1d. On a 5 or 6, consult *Technology Variants,* below.

After defining the leading TL, determine which civilizations predominate in the parallel. A civilization, generally speaking, is a society with cities and trade. In the plural form, "civilizations" are the larger cultural groupings described by world-historians such as Spengler, Toynbee, and McNeill. Such

Technology Variants

To randomly determine variant technology, roll 2d on the following table, based vaguely on a survey of the genre:

3 or less	Magic
4-5	Divergent Technology
6-7	Split Technology
8	Psionics
9	Supers
10+	Superscience

Modifiers: -1 per TL below 5. +1 per TL above 5.

For magic, psionics, or supers, roll 1d×25 to determine the average extra point value of a mage, psi, or super in the world.

Apply the results as follows:

Magic: Roll 1d or select: 1, theoretically accepted or covert; 2-3, open but rare; 4, open and common; 5, mages rule the Earth; 6, universal magic ability. Roll 1d for mana level: 1, low; 2-4, normal; 5, high; 6, very high.

Divergent Technology: Randomly determine the technological divergence point. For example, in a TL7 world, roll 1d and subtract the result from your TL; if the die comes up a 4, the world is TL(3+4). For a TL6 world, roll 1d-1, and so forth. Re-roll a result of 0 or less.

Split Technology: Roll 1d and apply the result to the indicated field from p. B511: 1, communications; 2, transportation; 3-4, weapons; 5, power; 6, medicine. Randomly determine whether the split is "forward" or "back." Repeat as desired; if you repeat a result, add airships to your world's technology regardless of the TL.

Psionics: Roll 1d or select: 1, theoretically accepted or covert; 2-3, open but rare; 4, open and common; 5, psis rule the Earth; 6, universal psi ability.

Supers: Roll 1d and apply the *Psionics* results, reading "super" for "psi."

Superscience: Roll 1d or make something up: 1-2, antigravity, 3, force fields, 4, ray guns, 5, zero-point energy, 6, Martian canals and reactionless drives. Roll another 1d: on 1-3, aliens or ancient astronauts brought the superscience.

civilizations consist of groups of nations, city-states, or tribes that usually share at least a few of the following characteristics: ethnic descent, language or linguistic stock, religion or mythic pattern, artistic or literary style, and a coherent territory. For the purposes of timeline creation, this chapter uses a modified version of Toynbee's list of civilizations, which has the advantage of including "abortive" and "arrested" civilizations, somewhat more suitable for alternate histories. For most purposes, civilizations are the same as cultural familiarities (p. 173).

Depending on the TL of the parallel, roll 3d on the Parallel Civilizations Table to determine the dominant or leading civilization. This is the civilization with local military superiority to the others, with the highest local technology (world TL or TL+1, possibly higher in some areas) the one most emulated by other civilizations, the one with the widest trading links, or the one with the most territory occupied in other civilizations' areas.

At different TLs, the Earth can "support" (or has room for) a different number of major, independent civilizations, as given in parentheses. Other, lesser, civilizations exist, but don't affect global affairs (or even regional affairs, sometimes) unless outtimers vault them into the lead, meteors wipe out the other civilizations, or some other catastrophic change occurs. After determining the dominant civilization, pick the others by any method you like: further rolls, geographic proximity (civilizations often have civilized neighbors) or balance (if all your major civilizations are in Europe, add China or India), or desired world flavor.

Parallel Civilizations Table

TL0-1 (1d civilizations)

3	Andean
4-5	Hittite
6-8	Chinese
9-10	Egyptian
11-13	Mesopotamian
14	Indus Valley
15-16	Minoan
17	Meso-American
18	Retrogression or Dark Age; roll on TL2 table.

TL2 (1d+3 civilizations)

3	Mississippian
4	Andean and/or Meso-American
5	Celtic
6	Bactrian
7	Indic
8	Iranic
9	Hellenic
10-11	Chinese
12-13	Roman
14	Steppe
15	Mesopotamian
16	West African
17-18	Survival; roll on TL0-1 table.

TL3-4 (1d+2 civilizations)

3	Mississippian, Andean, and/or Meso-American
4	Malay
5	Japanese
6	Norse
7	Indic
8	Orthodox
9-10	Chinese
11	Islamic
12-13	Western
14	Steppe
15	Roman
16-17	Survival; roll on TL2 table.
18	West African

TL5-6 (1d civilizations)

3-4	Malay or West African
5	Japanese
6-7	Indic
8-9	Chinese
10-12	Western
13	Islamic
14-15	Orthodox
16-18	Survival; roll on TL3-4 table.

TL7+ (1d-2 civilizations)

3-4	Malay or West African
5-7	Indic
8-9	Chinese or Japanese
10-12	Western
13	Orthodox
14-17	Islamic
18	Survival; roll on TL3-4 table.

On a "retrogression" or "survival" result, leave the base TL alone, but advance (or regress) the rolled civilization to fit. For example, a result of "Hellenic survival" while rolling on the TL3-4 table might indicate a TL4 Alexandrian Empire that survived into the Renaissance – or caused it to flower early.

This table reflects an Earth similar ecologically to Homeline; altering initial global conditions (see *Empty Worlds*, p. 83, and *Ecology*, p. 103) changes these probabilities – perhaps drastically! Note that a result indicating a dominant Andean, Meso-American, or Mississippian civilization after TL0-1 indicates cross-Atlantic contact and travel.

Civilizations

Andean: A series of increasingly complex cultures in western South America from the Chavin (c. 850 B.C.) to the Inca, who fell to plague and Western conquest in 1533.

Bactrian: A polyglot, possibly multiracial, urban trading and horse-breeding civilization arose in the seventh century B.C. in Central Asia and maintained a precarious existence despite numerous conquests until it became the battleground between the Islamic and Chinese civilizations in 750 A.D.

Celtic: Celtic civilization (building hill-towns by 550 B.C.) was almost entirely assimilated by the Roman civilization by 100 A.D. Increasingly Westernized outliers survived in Ireland and northern Britain until the 13th century.

Chinese: The oldest civilization still in existence, the culture that began with Lao Tzu and Confucius in the seventh and sixth centuries B.C. still predominates in East Asia from Timor to Tibet.

Egyptian: Egyptian civilization spread along the Nile from 3100 B.C. until its absorption into the Hellenic civilization by Alexander the Great in 330 B.C.

Hellenic: The barbaric successors to Minoan civilization created their own urbanized, adventurous, quarrelsome culture after 800 B.C. that eventually spread from southern Italy to Afghanistan. It fell to the Roman civilization in the second century B.C., but strongly influenced its conquerors.

Hittite: Hittite civilization arose in Anatolia around 1800 B.C. The Hittite Empire fell around 1200 B.C., and the Iranic and Hellenic civilizations absorbed its successor states by 550 B.C.

Indic: After a lengthy period of chaos and religious ferment, a common civilization extended across all of India by 320 B.C. and the rise of the

Maurya Empire. It has withstood several invasions by the Islamic civilization, and conquest by the Steppe and Western civilizations.

Indus Valley: Very little is known about this civilization, centered on Harappa and Mohenjo-Daro between 2500 and 1500 B.C. It may have traded with Mesopotamia, and may have fallen to barbarian invasion, but neither is certain.

Iranic: The same "Arya" barbarian invaders who produced Indic civilization built Iranic civilization in Persia in the sixth century B.C. It rapidly conquered everything from the Nile to the Indus. Although its influences spread even farther, wars with the Hellenic and Roman civilizations reduced it to its core territory until it fell to the Islamic civilization in 640 A.D. Its assimilation remains imperfect to this day.

Islamic: Although it began as a puritanical, leveling culture in the seventh century A.D., its conquest of lands from Spain to Bengal produced a sophisticated, even discursive civilization that remains dominant in north Africa, central Asia, and the Middle East today despite Western influences and pressures.

Japanese: An outlier of Chinese civilization developed its own combination of aesthetics and brutality in the Heian period (794-1192). Since the mid-19th century, it has been slowly assimilating into Western civilization.

Malay: A vibrant, hybrid trading civilization grew from Chinese, Islamic, and Indic outliers in the Malay peninsula and Indonesia, starting with the kingdom of Srivijaya in 700 A.D. Since the mid-17th century, it has been assimilating into Chinese and Western civilization.

Meso-American: A number of small city-states spread from central Mexico and Yucatan into a common civilization by 200 B.C., but never unified politically. The various Meso-American cultures all fell to Western conquerors during the 16th century.

Mesopotamian: Urban civilization was born with the Sumerian culture around 3500 B.C. Its ritual and political structures continued (with the occasional dark age) through the Akkadian, Babylonian, Assyrian, and Chaldean cultures that followed until being imperfectly assimilated into the Iranic civilization in the sixth century B.C. Islamic conquest wiped out its last remnants.

Minoan: Little is known about this bull-obsessed civilization centered on Crete. It may have founded the Mycenean pirate kingdoms or been destroyed by them, or both. It flourished between 2600 and 1400 B.C.; the Myceneans themselves fell to barbarians by 1100 B.C.

Mississippian: A loose multi-tribal trading network rose along the Mississippi-Ohio Valley in North America by 800 A.D.; it may still have been too diffuse to be a true civilization by the time its main centers collapsed in ecological exhaustion around 1350. Its final outliers fell to Western settlers in the 18th century. For game purposes, the GM can add Algonquin and Siouan confederacies like Pontiac, Tecumseh, or the Iroquois to this civilization.

Norse: The last vigorous, expanding pagan civilization probably arose in the sixth century A.D., but became thoroughly Westernized and Christian by 1100.

Orthodox: The successor state to Roman civilization incubated in its eastern half (Greece, the Balkans, and the Middle East) around 330 A.D. In the 10th century A.D., it successfully spread to Russia, which became its new center after the conquest of its old core by the Islamic civilization. Survives in Russia and the Balkans today.

Roman: Began around 600 B.C. with the Etruscan League of Cities, and built a unified empire and expanded over Europe, northern Africa, and the Middle East. Religious disputes, plagues, and barbarian invasions compounded the stresses of empire, and it collapsed around 450 A.D.

Steppe: Only seldom urbanized, save for caravanserais, the steppe tribes (of many cultures and ethnicities from Scythians to Mongols) shared characteristics (especially military tactics) driven by their nomadic lifestyle and common environment. Independent steppe civilizations existed from 600 B.C. or before; by 1650 the last of them had been subdued by the Orthodox Russians or fully assimilated by their "subject" civilizations in Mogul India and Manchu China.

West African: Iron-working, gold-mining, industrious traders spread along the Niger, Volta, and Senegal Rivers during the seventh century A.D. By 1700 A.D., their urban centers (which eventually reached the Congo and Sudan) had all fallen to Islamic or Western conquest, although successors resisted assimilation until the late 1880s.

Western: Born by 550 A.D. out of the mix of German invaders and the fallen Roman civilization, Western civilization fought off a series of invasions and then began expanding out of western Europe. By 1100, it had reached the borders of Russia and invaded Asia; by 1500, it was planted in Africa, India, and the Americas. It has dominated the globe since the 19th century.

Civilization Unity Table

2	Unitary
3-4	Empire
5-6	Empire with satellite states
7	Empire with rivals
8	Bipolar
9-11	Multipolar (1d+2 powers)
12	Diffuse

Once you've determined the major, independent civilizations, roll 2d on the Civilization Unity Table to establish their internal geopolitical structure.

Modifiers: -4 for Japanese or Andean civilization, -2 for Egyptian or Orthodox civilization, -1 for Chinese or Roman civilization, +1 for Islamic civilization, +2 for Western, Bactrian, Hellenic, or Indic civilization, +4 for Celtic or Norse civilization. These modifiers are based on historical performance; obviously, in an alternate history, this performance can change! The GM should disregard them for "wilder" alternates.

Unitary: This civilization consists of one, essentially homogeneous, state. Although powerful and advanced, it has no significant colonies in other civilizations' territory. The Japanese civilization has usually been unitary, except for a brief period from 1890 to 1945.

Empire: This civilization is unified under one state, which has conquered all the other states in this civilization. An empire usually has colonies or military bases in other civilizations' territory, but not always: the Chinese empire seldom has, except for Tibet and occasional forays into the steppes of Central Asia.

Empire with satellite states: Some of the states under the empire's umbrella maintain local independence, but do not (or cannot) chart independent foreign policies. The Roman and Soviet empires both used this model.

Empire with rivals: Although the empire is by far the most powerful state within the civilization, other states retain considerable independence and might conceivably ally against it, or back other civilizations' empires against it diplomatically or militarily. Imperial states are not necessarily dictatorships; the United States, under this definition, has been a democratic empire with rivals dominating Western civilization since 1945.

Bipolar: The civilization is divided between two great powers, with lesser states unable to chart separate courses.

Multipolar: There are a number (1d+2) of great power states within this civilization with substantial capacity for independent action against other civilizations, or other lesser states in their own civilization.

Diffuse: This civilization has no central concentration of power; its individual states (if any) set their own course and run their own risks. Steppe civilizations, or collections of city-states, usually fluctuate between diffusion and empires.

Any degree of unity (except diffuse) may be "fragmenting" – the old order is collapsing, but the new order has not yet defined itself. The GM can make this call based on desired flavor, or roll 1d: on a 6, the system is fragmenting. (Add +2 for Steppe civilization rolls.)

The GM may also decide that some civilizations have been conquered, but not assimilated by others, like the Indic civilization under the Western (British) rule between 1757 and 1947. Although part of another civilization's empire, they may still be very important, and constantly simmering with rebellion and separatism. Other civilizations (or empires) may be true hybrids; the Roman civilization might have been such a hybrid with Hellenic civilization if Mark Antony had defeated Octavian and moved the imperial capital to Greek Alexandria. If Alexander the Great had lived, he might have tried to build such a hybrid Hellenic-Iranic civilization. Usually hybrids either assimilate the weaker civilization over time or become a new civilization, as Western civilization evolved from the Germanic conquest of, and hybridization with, Roman civilization.

Great Powers

Each dominant civilization (except diffuse ones) contains at least one great power. (Some multipolar civilizations may have so many local great powers that they don't actually have a true great power.) A great power is a nation capable of militarily defeating or economically dominating any other nation, except a fellow great power, with minimal effort. Usually, though not always, great powers can project war-winning military force to the farthest extent local technology allows. Deciding on the great powers within a civilization or on a parallel Earth helps add concrete detail and flavor to a game setting. It also provides a handy list of "usual suspects" for high-tech experiments, moon shots, global wars, spy plots, and so forth. Quite often, the divergence point of a parallel (or a place to influence it for your own ends) comes in a great power's political or military history, or at the contest point between two great powers.

Deciding on the great powers within a civilization or on a parallel Earth helps add concrete detail and flavor to a game setting.

Randomly determining great powers would be a massive task well outside the scope of this book, but the following list of examples (including some near-great powers) in rough chronological order for the various civilizations may help GMs create great power rosters for their world. Fictional powers are in quotes.

Andean: Chavin, Moche, Tihuanaco, Inca Empire, "Amaru Republic."

Bactrian: Ferghana, Sogdia, Bactria, Tocharia, Kushan Empire, Bokhara, Balkh, Samarkand.

Celtic: Cisalpine Gaul, Galatia, Nervii, Vercingetorix's league, Icenic confederacy, "Camelot," "Holy Eirish Empire."

Chinese: Various Chinese dynasties (Han, Tang, Sui, Song, Yuan, and Ming), Jin, Funan, Champa, Korea, Khitai, Manchu Empire, Taiping Holy Empire, Nationalist China, People's Republic of China, "Hongkong LLC."

Egyptian: Khemet (ancient Egypt), Upper and Lower Egypt, Canaan, Keftiu, Kush, "Aigyptos," "Coptic Sun Kingdom."

Hellenic: Athens, Sparta, Syracuse, Thebes, Ionia, Magna Graecia, Macedonian Empire, "Alexandrian Oikoumene," Seleucid Syria, Ptolemaic Egypt, Greco-Bactria.

Hittite: Old and New Hittite Empires, Hurrian Empire, Mitanni, Aram, Urartu.

Indic: Maurya Empire, Malwa, Gupta Empire, Maharashtra, Chola, Delhi, Bengal, Mogul Empire, Mahratta League, Punjab, "United India," India.

Indus Valley: Harappa, Mohenjo-Daro, "Dilmun."

Iranic: Elam, Persia, Media, Achaemenid Empire, Scythian Bosporus, Chorasmia, Parthia, Sassanid Empire, Safavid Empire.

Islamic: Umayyad Caliphate, Abbasid Caliphate, Buwayhid Empire, Ghaznavid Empire, Andalus, Almohade Empire, Fatimid Egypt, Khwarizm, Sultanate of Delhi, Ottoman Empire, "Nasserite Union," Iranian Republic, "Neo-Caliphate."

Japanese: Tokugawa Shogunate, Japanese Empire, "Greater East Asia Co-Prosperity Sphere," "Japan, Inc."

Malay: Srivijaya, Majapahit, Javanese Empire, Malacca, Indonesia.

Meso-American: Teotihuacan, Zapotecs, Mixtecs, Maya, Toltec Empire, Tenochca (Aztec) Empire.

Mesopotamian: Sumer, Ugarit, Akkad, Amor, Babylon, Assyria, Chaldea (Neo-Babylonia).

Minoan: Knossos, Mycenae, Troy

Mississippian: Adena, Hopewell culture, Tuskegee, Muskogea, Cahokia, Natchez.

Norse: Norway, Denmark, Sweden, Holmgard, Koenugard, Iceland, "Vinland"; England, Scotland, and Ireland (at times).

Orthodox: Byzantine Empire, Bulgarian Empire, Kievan Rus, Serbian Empire, Muscovy, Russian Empire, Soviet Union, Russian Republic, Ukraine.

Roman: Etruria, Roman Republic, "Sertorian Spain," Roman Empire, Kingdom of Syagrius, "Arthurian" Britain.

Steppe: Scythia, Saka, Sarmatia, Yueh-Chih, Hunnic Empire, Khazar Khanate, Seljuk Empire, Mongol Empire, Golden Horde, Timurid Empire.

West African: Ghana, Mali, Audoghast, Dahomey, Yoruba, Hausa, Kongo.

Western: Frankish Empire, Venetian Republic, France, Poland, Crusader states, Portugal, Hapsburg Empire, Dutch Republic, Prussia, Great Britain, United States, Mexico, Empire of Brazil, Confederate States, Australia, Nazi Germany, European Union.

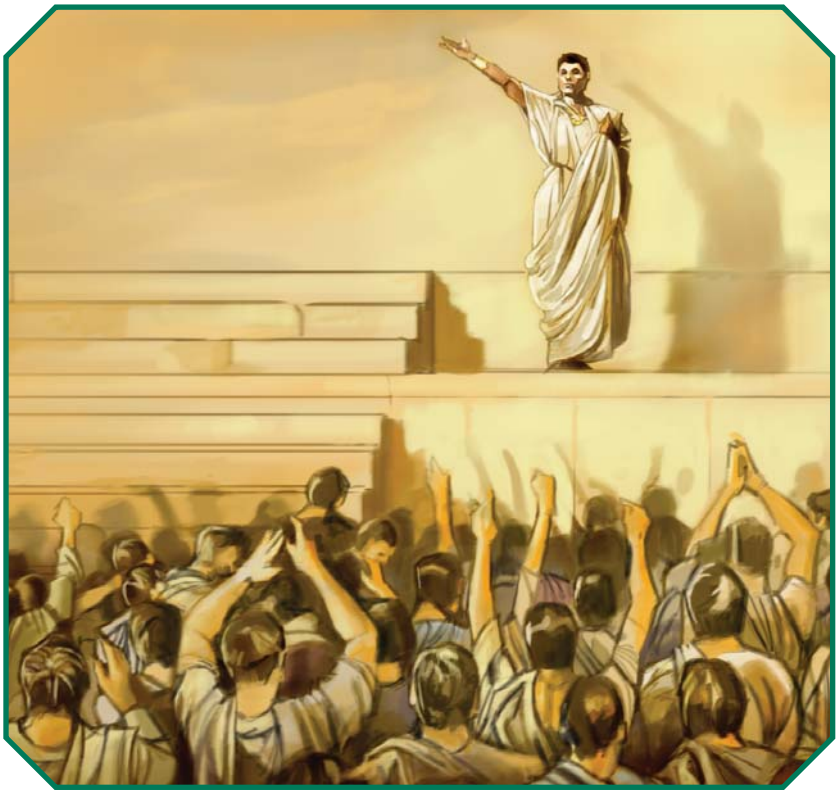
Political Structure

If desired, roll 3d to determine the political structure of any states you have created in the foregoing process.

3	Anarchy
4	Technocracy
5	Caste
6-8	Feudal
9-11	Dictatorship
12	Oligarchy
13	Representative democracy
14-15	Clan/tribal
16	Theocracy
17	Corporate state
18	Athenian democracy

This table uses the government type categories on pp. B509-510, plus Oligarchy (rule by a small group of rough equals). It maps roughly to historical frequency, modified for great powers only. Individual civilizations differ: for example, representative democracy was invented by the Roman civilization but spread via Western civilization to many others; Steppe cultures flip between dictatorship and clan/tribal structures; all Indic systems have had a strong caste flavor no matter their official form. Any structure can be "feudal," from democracies like the pre-Constitution United States to dictatorships like the Mongol Empire; roll again to determine the underlying structure. (A "feudal feudal" result is a collection of independent fiefdoms with no overlord, such as the Greek city-states before and after Alexander, or with a completely powerless one such as the German states from 1648 to 1806.) In other words, do not feel constrained by these results. It is important to remember that even a relatively restrained monarchy such as the 17th-century Swedish kingdom counts as a dictatorship for this table, as per p. B509. Use pp. B506-507 to determine CRs, if desired.

You may want to differentiate the various political systems by region or historical era; political structures do seem to change as TL does, for instance. As an applied example, see the *Western Political Structures Table,* p. 94. Entries in quotation marks indicate theoretical political structures actually developed (but not fully instituted) in Homeline history; italicized entries are purely fictional (at least on Homeline), but not inherently less plausible.



Western Political Structures Table

Political Structure	*TL3-4*	*TL5-6*	*TL7+*
Anarchy	Iceland	*Post-disaster*	*Autoduel*
Athenian democracy	"Free towns"	New England town meetings	"Cybertopia"
Representative democracy	Dutch Republic	U.S.A., U.K.	E.U.
Clan/Tribal	Scotland	Mormon Utah	"Communitarian network"
Caste	"City of God"	"Enlightened despotism"	Reichsostland
Dictatorship	Hapsburg Spain, Louis XIV	Bonaparte, WWI Germany	Nazi Germany
Technocracy	"Alchemical kingdom"	"Philosopher-kings"	Gernsback (p. 126)
Theocracy	Papal States	Puritan Massachusetts	*Fundamentalist dystopia*
Corporate state	Flemish towns	*Steampunk*	*Cyberpunk*
Feudal	Frankish kingdoms	Austria-Hungary	*Post-disaster*
Oligarchy	Italian cities	Georgian England, C.S.A.	Banana republics

Although providing a full network of randomized historical junctures is outside the scope of this (or perhaps any) book, the GM can use this table as a possible guide to the political history of a randomly generated (Western-dominated, at least) alternate. For example, suppose the tables generate a bipolar, TL6 Western-dominated parallel. Further, the two superpowers are an oligarchic power and a dictatorship. Looking at the table, one example of a TL6 oligarchy is the Confederate States of America. In this parallel, perhaps the Confederacy won the Civil War, and now leads a coalition of similarly "aristocratic" powers (Brazil, Britain, and France, say) against a dictatorial Russia or Germany that has absorbed or cowed its neighboring states. The rump United States would be a minor power, either within the Confederate sphere or vengefully supporting the dictators across the Atlantic.

High-Inertia Parallels

Some parallels remain relatively close to Homeline history despite major divergences such as magic or supers, or changepoints centuries in the past that should ordinarily have produced much greater variances in history and politics. The classic example is Ezcalli (p. 122), which somehow produced an Aztec empire culturally almost identical to that in Homeline's 15th century, despite a divergence point two millennia earlier and massive cultural contamination of Meso-America by European and Near Eastern civilizations. The so-called "United States of Lizardia" parallel (p. 148) is another – even though the inhabitants are sentient, evolved dinosaurs!

Parachronic theorists aren't sure what to make of high-inertia parallels. Some believe that some forms of magic or superpowered psi have a damping effect on temporal change rates. Others consider high-inertia worldlines proof of the "law of very big numbers" and argue that if Ezcalli, for example, exists, there must be tens of thousands more parallels than current quantum theory predicts – possibly in a "dimension" perpendicular to the standard quantum array. Still others argue that some agency, perhaps time travelers or an unknown dimension-hopping group, has meticulously *built* Ezcalli or other high-inertia parallels for an unguessable purpose.

Since high-inertia parallels are, by definition, idiosyncratic and strange, creating them randomly doesn't work. You might get a result from the Parallel Civilizations Table that requires a high-inertia parallel to explain, of course! Essentially, however, they provide excuses for otherwise unrealistic or implausible parallels that the GM nevertheless just wants to put in his universe.

Myth Parallels

These parallels mirror the settings of Homeline fiction, mythology, and folklore. Infinity paraphysicists aren't sure whether the existence of myth parallels means that famous authors are latent psionics who see other worlds in dreams or subconscious clairvoyance, or whether it provides powerful evidence for the Williams-Khor Hypothesis (p. 21). Neither explanation is particularly convincing, or particularly comforting, and some Homeline theorists believe that myth parallels are built by unknown powerful figures such as Cabalistic magicians or even "gods".

Like high-inertia parallels, myth parallels should be selected by the GM rather than randomized. The GM needs to choose the myth, the version of it the parallel follows, and the degree to which the parallel remains true to literature or folklore. The Parallel Civilizations Table can perhaps give the GM a nudge toward a random culture for the parallel's legendary source, but choosing a familiar myth is easier for the GM, and usually more fun for the players.

Challenge Worlds

In a sense, any world is potentially a challenge world; it presents a problem or an opportunity for the Infinity Patrol to solve or attain. True challenge worlds, however, are all problem and little opportunity. In dramatic terms, they exist to warn, to add flavor, or to pose obstacles.

Hell Worlds

Hell parallels are those on which humanity is dead, devastated, or dwindling to extinction. Usually, the Earth's surface, climate, and ecology also bear horrific scars. Infinity exploits a few relatively benign (or utterly dead) hell worlds as empty worlds (see *Disasters,* p. 85). If such operations go badly (or mysteriously) wrong, PCs may be chosen to investigate, which gives the GM an excuse to get out the depressing adjectives on a global scale. Adventures in a hell world can encompass disaster movie

Unusual Civilizations

None of the following civilizations appear on any of the tables or systems in this chapter. They serve as examples of curve balls the GM can throw into high-inertia parallels or puzzle worlds, or use as strange enclaves in more normal timelines.

Mysterious Civilizations

These civilizations, although real, remained "off the map" of history. Like many ancient civilizations, they have been exoticized in adventure fiction and occultism.

East African: This syncretic blend of urbanized, mercantile Islam and East African pastoral tribes created a number of small urban centers such as Zimbabwe and Zanzibar. Such centers were usually near gold mines or along trade routes. It flourished between 1100 A.D. and Western conquest in the 19th century.

Gothic: This cattle-herding culture of warriors along the Danube and Dniester valleys emerged about 100 A.D. but only urbanized after conquering Rome in the fourth century. It or its outliers may have given rise to Norse civilization; it was quickly subsumed into the nascent Western civilization.

Khmer: A Cambodian civilization descended from a blend of Indic, Chinese, and Malay influences. From its capital at Angkor, priest-engineers built temples, canals, and irrigation systems between 790 and 1400. After that date it declined relative to its outliers in Siam. Chinese and Western civilizations encroached upon it until the French conquest in the 1880s. It remains only partially assimilated.

Olmec: Considered by many to be the first emergence of Meso-American civilization, the Olmecs (who flourished between 1150 B.C. and 800 B.C.) had enough variance in art and design that others have claimed only an ancestral relationship between the two civilizations.

Punic: This outlier of Mesopotamian civilization emerged on the Phoenician coast in about 3000 B.C. Heavily influenced by Egypt, it expanded commercially over the Mediterranean coast. Iranic, then Hellenic, civilization absorbed its homeland from the sixth century B.C.; its most successful outlier, Carthage, lasted until 146 B.C. and Roman conquest. Some scholars see Hebrew, and thus much of Western, civilization as a Punic offshoot.

Sheban: A trading network of theocratic monarchies in Yemen and Ethiopia emerged beginning in the 11th century B.C. Mostly absorbed into Islamic civilization by the seventh century A.D., its last descendant, the Ethiopian kingdom, fell to Soviet Orthodoxy in 1977 and remains culturally shattered.

Tibetan: Beginning in the seventh century A.D., this Indic-Chinese border outlier (oddly influenced by Iranic civilization) became a theocratic Buddhist civilization alternating between military and religious expansion. It survives, barely, under Chinese overlordship.

Weird Civilizations

These civilizations never existed, but can sneak into sufficiently strange parallels either as mysterious ruins in the past or truly bizarre actors in present-day geopolitics.

Atlantean: Sorcerous and aggressive, the Atlanteans left pyramids and solar kingships all along the Atlantic and Mediterranean coasts. They vanished by 4000 B.C.

Megalithic: These matriarchal, earth-centered mages erected standing stones as observatories and ley transformers from the time of the Flood to about 1500 B.C., when patriarchal Aryans destroyed them.

Sirian: Seeking gold for unguessable reasons, these aliens ruled earthly civilizations as gods, building strange structures and tampering with human DNA. They arrived in 10,000 B.C. and left on their own (or after a human revolt) in 1200 B.C.

action sequences, tense investigations of toxic ruins, heartbreaking encounters with devolved savage humans, or all three.

For a random global catastrophe, roll 3d and consult the following table:

3-4	Disease
5-6	Cosmic catastrophe
7-8	Ecological disaster
9-15	Global war
16-18	Odd disaster

Disease: A disease capable of wiping out all of humanity is, evolutionarily speaking, highly unlikely. Although plague worlds such as Attila (p. 110), Ariane (p. 128), and the terrifying Gotha-parallels (p. 128) exist, humanity (if not civilization) usually begins recovery within a few generations. Such plague worlds are still very dangerous for unprotected outworld visitors, of course, and Infinity maintains strict decontamination procedures for returning conveyors, just in case. Plagues that actually eradicate humanity are usually either bioengineered war-plagues or paranormal ones.

Cosmic Catastrophe: Although Earth seems to dwell in a pretty safe neighborhood, cosmically speaking, it only takes one asteroid impact to ruin your whole species. Most of the Lucifer worlds (p. B528) suffered asteroid or comet impacts (although not all of them are hell worlds; see p. 133). A nearby gamma-ray burster or supernova sterilized Lucifer-3 (p. B528). Solar flares, dark energy, black holes, and any number of other dangers wait out there.

Ecological Disaster: Whether man-made or natural, global climate shifts or extinction events can wipe out civilization in under a century. If the atmosphere dies, it can wipe out all multicellular life. A returning Ice Age, runaway global warming, catastrophic species depletion, and catastrophic volcanism are the four most common conditions on ecological hell worlds. Asteroid strikes or uncontrolled sorcery might replicate any of these effects.

Global War: To truly endanger the human race, a global war has to be fought at TL7 or higher (or with equivalently deadly magics). Most such wars begin as (or include) nuclear wars; almost all of them kill their billions by plague and famine after the bombs have destroyed cities and crops. On some worlds, nuclear warfare produces evil mutant supermen (or submen), nuclear winter, or magical manastorms, as well as piles of corpses and charred cities.

Odd Disaster: Unclassifiable or unusual events crop up fairly often in the Infinite Worlds, and some of them doom humanity. Drexler (p. B528) and Leviathan (p. 129) are two examples of strange new hells; the GM's fiendishness and creativity are the only limits to what possible disasters the Scouts might encounter. Unleashed demons, angry gods, and powerful Things Man Was Not Meant To Know would fit in this category, although some cosmic catastrophes might be indistinguishable from the return of the Ancient Ones to near-Earth space.

Puzzle Worlds

Figuring out what doomed humanity is a specific, if unpleasant, type of puzzle. Narratively, a puzzle world is its own justification for existence; it exists to add color, drama, or weirdness to the game. Solving the puzzle is therefore often beside the point. With some worlds (such as Enigma on p. 140), a solution may be a larger goal of the campaign, perhaps to prevent a similar fate overtaking Homeline or some helpless parallel. A puzzle world should be entertaining (or creepy) enough, however, that one or two pro forma "travelogue" adventures there can still be fun and challenging for the team. Otherwise, there's little point in visiting it in the first place. The GM can simply drop its existence into Patrol gossip or a Paralabs briefing and move on with the real story. The GM needs to decide on a good puzzle (and, if desired, a solution) that fits the game's tone; again, randomized results are little help.

History, Already in Progress

The basic structure of an alternate history is simple enough: a historical event happens differently, its changes echoing down the years to a radically changed present. While a single change point is generally desirable, the specific reasons for subsequent changes might be obscure. This section discusses some principles of alternate Earth design, and some issues that the would-be worldbuilder might wish to keep in mind.

Direction

There are two basic approaches to alternate timeline construction. You can work forward from a known or postulated divergence point such as the Battle of Hastings or the invention of the microscope by Archimedes. Or, you can work backward from the world you'd like to see built, providing a (hopefully somewhat plausible) rationalization for an independent Sioux confederacy or for antigravity weapons in the Hundred Years' War.

Change Forward

To begin with the change point, you need to *pick* a change point. This can be as easy as opening a history book and pointing, but most designers begin with at least some idea of what the change is intended to accomplish. There's little point, for example, in carefully designing an alternate history in which Napoleon wins at Waterloo and is then immediately cut to pieces at Mechelen two weeks later by a regrouped Allied force. If you're beginning with Napoleon, you are presumably interested in a history in which Bonapartism lasts longer and has a greater influence over (at least) the next decade or so.

This is an example of *lost cause* design, which includes the two overwhelmingly most popular alternate history topics: a Nazi victory in World War II and a Confederate victory in the Civil War. A surviving Rome, a restored Stuart dynasty in England, a unified Catholic Christendom, or an American victory in Vietnam also fit the lost cause model.

Be careful to look past the one decisive battle; a lot of causes were lost for deep-set economic or demographic reasons. Still, with suitable hand-waving and a judicious selection of divergence points, you can make things seem retroactively plausible, at least. Don't get *too* hung up on plausibility: there are enough bizarre twists of fate in real life that *any* event can be made to seem inevitable.

Another common divergence point for change forward designs is the *outlier.* This is a small colony or offshoot of a larger civilization left alone to develop along its own path. The American colonies were outliers of England, for example; the abortive colony of Vinland would have been an outlier of Iceland, itself an outlier of Norse civilization. Often, the purpose of an outlier design is to allow some factor already present in the parent civilization to dominate the new one. English democracy, for example, flourished like a weed in New England, with no kings or landed gentry to thwart it – as did the theocratic tendencies of the Puritans, with no Anglican accomodationist model to obey. In S.M. Stirling's "Draka" novels, every unlovely factor in Western civilization, from slavery to Nietzschean morality, flourishes in the Cape Colony. The spirit of the French Revolution might have thrived in an independent French Canada, or the

spirit of the Romanov mystics in a surviving Russian Alaska.

If you don't already have a divergence point in mind, you can always use the Random Present Table (p. 86) to pick one, of course.

Destiny Backward

Even when using a change forward model, it can be very helpful to have a goal toward which you want the history to evolve. This goal may be a vision of what reality should look like in the present, or at least a few elements to be included (for instance, Irish dominance of England, Egypt the most technologically advanced nation on Earth, America divided into petty states like medieval Europe – or all of the above). It may even simply involve assuring that the beneficiaries of the initial change survive and prosper, though this works much better for short periods than histories of more than one or two centuries. In any case, having a goal in mind allows you to choose among the many plausible alternatives that shortly appear.

One such goal is enhancing the importance of any person, concept, or nation relatively marginal in our own history. Examples of such *strengthening the marginal* design goals include making Poland a world power, allowing the Celtic Christians to continue their development without interference by of Rome and the Vikings, or letting Roger Bacon continue to develop the scientific method in the 13th century. A startling number of alternative histories wind up strengthening the marginal technology of airships and zeppelins, for example. This is a matter of flavor rather than logic, but this is a game book, after all. Nikola Tesla's electrical experiments, the Maya kingdoms, and imperial Brazil or Sweden are similarly marginal figures with that combination of obscurity and flair.

Failing that, perhaps you'd like to *marginalize the strong*. Cast a great nation, religion, hero, or culture onto history's ash heap and never look back. For example, the Mongols came close to overrunning Europe in the 13th century, and might have forestalled the European age of creativity that gave birth to the Renaissance and the Great Discoveries. Or Genghis Khan might have died during his childhood, when he was enslaved by a rival, and never united the Mongols at all. Because this sort of change tends to throw the possibilities wide open, it often requires a more specific goal in addition. Removing Christianity, for example, leaves you with the question of what world religion the Romans eventually convert to. Do they bring Buddhism from India, or raise Mithraism from cult to mass church, or simply dodder along as increasingly apathetic pagans until the Muslim invasions convert them all to the True Faith of the Prophet?

This may wind up as *displacement:* changing the history of one area to mirror the history of another. If an Islamic Roman empire becomes the new caliphate, will future Muslim culture resemble Western civilization, or will future European civilization resemble the post-Abbasid sultanates? Either way, you can seek models in the historical past and apply them to your alternate history. The most common sort of displacement is moving the Scientific and Industrial Revolutions from Western Europe to ancient Greece, or Muslim Baghdad, or medieval India, or Song Dynasty China. The history of Roma Aeterna (p. 144) is essentially the displacement of the Chinese imperial model of breakup and reunification within a self-conscious imperial culture to the West. One could just as easily postulate a China that, like the West, turns into a mass of squabbling kingdoms after the fall of the Han. Like Western Europe, these successor states would gradually lose interest in their imperial past as they develop into independent nations and expand overseas. You could apply Japanese modernization in the 1880s to the Iroquois in the 1760s, Mehmet Ali's Egypt in the 1820s, or to the Sikh Punjab in the 1840s.

One trick that sometimes works, for those of an academic cast of mind anyhow, is to put on your snootiest History Channel documentary voice and say something like "In retrospect, German victory in 1918 was inevitable." Then list all the things that (if you didn't know how World War I wound up) would make German victory indeed seem inevitable – French morale disintegrating, the Russian Revolution freeing up the German Eastern Front, the new proto-blitzkrieg tactics developed by Hindenburg, submarines keeping America out of Europe – and emphasize them in your own timeline. Justify increasing all those factors, and determine what you need to change to make such increases happen, even if your change point winds up being something like "Kaiser Wilhelm II wasn't as big an idiot as he was in our history."

Even if you have a present in mind, you may wind up determining a suitable divergence point in the past, and working both forward from the divergence point and backward from your goal. It may happen that a goal turns out to be impossible to reach from a particular divergence point. Don't hesitate to find another change point, usually farther back in history, and run the tape again. If changing the outcome of the Battle of Gettysburg isn't enough to gain Confederate independence in your estimation, move back and try Antietam, or the *Trent* affair and a British-brokered peace, or have the war break out in 1857 under a weak President Buchanan instead of a determined President Lincoln.

Decision

So, what exactly makes history diverge? What is necessary and sufficient to shift history out of its tracks? If we live in Plastic Time With High Inertia (p. 154), how plastic is time, and how high is high? The GM needs to answer these questions for time-travel games. In the Infinite Worlds setting, inertia varies from world to world. In our own history, the answer has likewise varied.

Great Man

The most plastic theory is the Great Man theory, which holds that a man or woman of sufficient willpower, ability, and vision can alter history and change the course of nations. History, in this view, is biography; it's the story of Moses and Napoleon, Hitler and Lincoln, Queen Elizabeth I and Marie Curie. This theory suits games and adventures admirably – human stories and human achievements are what games are about, after all. It's also much easier to write and game a Centrum plot to kidnap Einstein than to write or game a Centrum plot to

mount a decades-long campaign to weaken German academic standards. This theory, sadly, is well and truly out of fashion among academic historians. However, historians from Plutarch to Carlyle believed in it implicitly. To many people it seems highly unlikely that the American Civil War, for instance, would have been remotely the same without Abraham Lincoln or Robert E. Lee. Of course, Lee also provides a salutary corrective to the Great Man theory – even *he* couldn't win the war for the South, after all. "But maybe," the Great Man theorists respond wistfully, "if Lee had been just a little bit *greater* at Gettysburg . . ."

Great Moment

The counter to the Great Man theory is what one might call the Great Moment theory. The times make the man; postwar chaos in Germany would have inevitably produced an anti-Semitic, warmongering demagogue. If not Hitler, perhaps Julius Streicher or Joseph Göbbels or some unknown street fighter might have become dictator and launched World War II and the Final Solution. Similarly, the forces of demographics and economics meant that Britain would have ridden out the threat with or without Churchill, and America would have gotten involved in Europe with or without Roosevelt.

This is history as sociology; societies change according to large mass movements, and those movements throw up "leaders" and "founding fathers" and "inventors of the steam engine" who just happen to fit the requirement of the times. This theory is most closely associated with Marx (and Hegel, from whom he lifted it). However, other historians from Macaulay to McNeill have presented it in one or another form and it basically dominates academic discussion today.

As a model for alternate history, it has its uses. It's very important, for plausible alternate histories, to keep mass movements and large-scale factors like economics in mind – Lee or no Lee, the Confederacy was not going to defeat the Union militarily as long as the North's industry outproduced the South's by 10 to 1. Britain was probably never going to accept a slave-holding ally, and the "peculiar institution" would have likely died out even with an independent Confederacy. However, the Great Moment theory is resolutely unromantic, *and* difficult to address in game terms. One can try to set up complexes of conditions early enough that the mass movements themselves are diverted – perhaps the cotton gin isn't invented and the South has to industrialize to make money when cotton bottoms out. Perhaps a harsher bout of Chartist radicalism strengthens English aristocratic reaction, and Palmerston can support the South without losing any votes in Parliament.

Great Motherland

The Great Moment theory looks positively carefree compared to the new macrohistorical studies that argue that even those mass movements are predestined by the regional and continental ecology where they occur. This "Great Motherland" theory is the highest of inertia. It presents history as geography; the vectors of disease, the varying disaster regimes and coastal formations of Europe and China, and the luck of the draw for domestic animals and plants meant that western Eurasia was destined to rise to global supremacy. This is the argument of Jared Diamond's *Guns, Germs, and Steel,* which has become the centerpiece of a construct that denies almost any individual human agency in history.

People everywhere adapt to their environment, and adapt their environment to themselves. If the environment contains horses, coal, iron, and barley, you get Prussia. If it contains rice, chickens, silver, and typhoons, you get China. If it contains gold but no heavy draft animals or infectious diseases, you get wiped out by Cortés when he shows up with his horses and iron and smallpox (see *Plagues,* p. 99) to take your gold.

This model is horribly depressing and unromantic, but it does have the virtue of denying any role to race, or class, or "cultural energy," or any of the other things that besmirched so much historical thought in the 19th and 20th centuries. It can also make a handy set of invisible walls for building alternates. Taking ecology and geography into account can prevent silly alternates like a Madan Empire based in New Guinea (too many mountains and typhoons to develop cultural unity) or the Maya conquest of Spain in 1492 (that pesky smallpox again, plus no accessible iron or tin for cannon).

Alternate Greats

Where do you put the Great Men in your alternate history? Near the divergence point, in particular, similar people may play roles of similar importance. Designers of alternate histories often use real historical figures in roles that somehow resemble their real lives but differ with the changed historical context. With this "repertory theater" approach, the stars – the Great Men – always get to play the lead. This helps players and readers keep the cast of characters straight, and familiar faces spark interest. The sight of the *condottiere* Napoleone Buonaparti rising to power in the decadent Florentine Republic, for example, has the twin advantages of emphasizing the changes to the world and clarifying the situation for everybody. It's hard to quarrel with a solution that both enhances strangeness *and* familiarity.

However, it becomes faintly silly after a century or so of divergence; after 350 years, it's unlikely that the Buonapartis of Corsica would have even *had* all those kids, much less that one of them just *happens* to be a brilliant soldier and dictator-in-the-making. As the timeline moves further away from real history, it's often easier to look at broader trends and assume the existence of unnamed geniuses in the background introducing monotheism or atomic theory when necessary. In this "commedia dell'arte" approach, the story always has the same roles, and it doesn't matter who fills the Great Moment.

Plagues

Not all humans suffer equally from all diseases. Mere childhood ailments in one area become deadly epidemics in another. Even whooping cough or chicken pox can kill millions in a "virgin field epidemic," if none of those millions have any resistance to them. (Whooping cough may have killed half of Japan in the late ninth century A.D.) The clearest case of this in history is the nearly 90% death rate of American Indians after lasting European contact in 1492. Although the conquistadors certainly gave it the old college try in some places, they simply could not have physically slaughtered such vast populations. Groups too small to bring Old World diseases with them settled the New World during the Ice Ages, and few new diseases appeared in the next 30,000 years. Other major plagues had a similar impact on history:

Plague of Sennacherib (708 B.C.): "The angel of death" slew the Assyrian army besieging Jerusalem, forcing Sennacherib to leave the Jews alive. May have been typhus, a killer of armies (such as Napoleon's in Russia) up to the 20th century.

Athenian Plague (430-429 B.C.): Devastated Athens, killing a third of the city, including Pericles. Athens lost the Peloponnesian War as a consequence. May have been measles.

Plague of Antoninus (166-180 A.D.): Brought back from Persia by victorious legions, this epidemic killed 25 million people in the Roman Empire. Rome never recovered from this demographic disaster, which returned in 251-266 A.D. It may also have reached China in 161-185 A.D., and returned there in 310-322 A.D., when a plague killed 25% of the population. Probably smallpox.

Plague of Justinian (542-543 A.D.): Arrived in Constantinople by ship from Egypt and killed 120,000 people; may have killed up to a third of the Byzantine Empire and southern Europe by 590 A.D., preventing the reunification of the Roman Empire. Its spread to Syria and Persia paved the way for the Arab conquest. Probably bubonic plague.

Black Death (1346-1350): Arrived in Venice from the Crimea, having already (1331-1354) killed up to half of China and disintegrated the Mongol Empire. Killed a third of Europe, and sporadically reappeared there for the next 400 years, especially in the Plague of London (1665-1666). Its last outbreak killed a million people in Manchuria in 1921. Almost certainly bubonic plague, although some historians theorize that the 1346 outbreak may have been anthrax.

"Pox Americana" (1775-1782): Smallpox epidemic ravaged American soldiers during the Revolutionary War, and spread across the plains to eradicate Indian tribes as far away as Puget Sound. May have killed 25 million people in North America.

Urban Cholera Epidemics (1826-1837): Endemic in Bengal, cholera spread via British ships to Cairo (1831), London (1832), New York (1832), Havana (1833), and Canton (1835); and via Russian soldiers to Moscow (1830), Warsaw (1831), and Berlin (1831), killing tens of thousands of people in each city. Sanitation reform ended the cholera threat in the West by the 1890s.

"Spanish Flu" (1918-1919): Killed 675,000 Americans, and up to 40 million people worldwide (more than World War I); it may have begun in U.S. Army camps in Kansas. An unknown strain of influenza 25 times deadlier than normal.

Any of these plagues might show up in an alternate history; the GM who wants to avoid the Black Death needs a clever explanation of why his Europe is immune. In the case of the Black Death, eliminating the Mongol conquests might have done it, since it may have been the Mongol unification of the steppes that allowed plague carriers to spread a Central Asian disease to both China and Europe in 20 years. Without the Mongols, it might have taken many more decades to spread, and the vector might have been through the Middle East, which was not particularly affected by the Black Death in our history.

The Disease Barrier

"Fear, fear, the Bay of Benin. One comes out for each 10 that go in." This old sailor's rhyme, about the dangers of the Benin coast of west Africa, accurately conveys the impact of malaria and other jungle fevers such as dengue and yellow fever on populations that have not evolved a resistance to them. Until the isolation of quinine from Peruvian cinchona bark in 1820, non-Africans simply could not effectively colonize tropical Africa. Once Columbus accidentally introduced the anopheles mosquito to the Americas in 1493, the Caribbean and its shores became similar death traps for Europeans; Southeast Asia and the Pacific took a less deadly, but notable, toll as well. Only the promise of vast wealth from gold and slaves could induce Europeans even to garrison the few tiny outposts along the African coast. Before you send those Roman armies south of the Sahara, explain why they're not all dead or delirious first.

Development

The way to use such depressing concepts as the Great Moment and Great Motherland theories is as guidelines for developing alternates. Just knowing that there's a plague or drought coming can spark ideas for the next decade or century of your timeline. Even if you've secretly built your whole timeline on the heroic contests of Great Men, applying these factors can give it that all-important veneer of plausibility, and help you pick which Great Man wins the next round. This section gives a brief primer on some of these macrohistorical concerns, with extreme prejudice in favor of those that make useful tools for world design.

Politics

A number of historians have postulated a natural "pendulum" in political history between action and reaction. In 1949, Arthur Schlesinger, Sr., famously cited a 16-year pendulum that sadly didn't even explain the next 16 years without a lot of special pleading. With that said, generational models (see *Generational Cycles,* below) as used by the historian Samuel Huntington (among others) present a plausible explanation for the commonly observed 20-year life of many political movements. Radical libertarianism began in America with the Stamp Act protests in 1765; by 1785 it was mired in tariff disputes and wrecking the Articles of Confederation. Kennedy's 1960 rebirth of American liberalism was convincingly buried by Reagan's landslide in 1980. The Republican Party destroyed the Whigs in 1856 over abolition and by 1876 was cutting corrupt deals with Southern whites to steal the Presidency. The young activists who drive the issue become middle-aged politicians with their own interests to protect; the middle-aged politicians they converted or frightened into agreement die or retire.

About twice that length (every 40 to 45 years) is a peak riot period for oppressed minorities. This, too, may be generationally driven; perhaps it takes two generations to forget how societies increase repression after a riot. Toynbee claimed that it takes something like five generations (100-125 years) for a new ideology to create a movement capable of changing society, but that might be an underestimate. Peter the Great's intelligentsia took 136 years before they tried to overthrow Czar Nicholas I in the Decembrist Revolt of 1825. Puritan Massachusetts took 145 years to riot against the King. The Civil Rights Act was passed 133 years after William Lloyd Garrison founded the American abolitionist movement.

It takes about eight generations (160-170 years), on average, for an empire to get strong enough to fight a civil war, and about three (60-odd years) to recover from it. (Long enough for all the war veterans to become tiresome old coots with

People make their own history, but they do not make it just as they please; they do not make it under circumstances chosen by themselves, but under circumstances directly encountered, given, and transmitted from the past.

– Karl Marx, ***The Eighteenth Brumaire***

Generational Cycles

One model for studying both historical change and historical continuity is the generational model. The social impact of the Baby Boom in America (and in other nations) is a clear example of generational history in action – and so is the "Greatest Generation" that survived the Depression, won World War II, and built the greatest economy in the world.

In *Generations,* historians William Strauss and Neil Howe break out generational types, in order, as follows:

Idealists are born into a time of conformity, and come of age during social ferment. During adulthood, they pursue individualism while urging a return to morality; they age into visionary figures. The Baby Boom generation (born from 1943 to 1960) are Idealists, as are the Transcendentalists (born from 1792 to 1821).

Reactives are born during social ferment, come of age in alienation and risk, shoulder a crisis, and age into dim respectability as society becomes more conformist. The Founding Fathers (born from 1724 to 1741) are Reactives, as is Generation X (born from 1961 to 1981).

Civics are born during a return to morality, unite and come of age dealing with a crisis, found institutions in midlife, and build the society the next ferment will question and disrupt. The Greatest Generation (born from 1901 to 1924) are Civics, as are the Millennials (born from 1982 to 2003).

Adaptives are born during a crisis, relish social conformity in adulthood, work for compromise during social ferment, and age into sensitive elders. The Progressives (born from 1843 to 1859) are Adaptives, as are the Silent Generation (born from 1925 to 1942).

This model also implies that society-threatening crises occur about once in every four generations (every 80-odd years), followed by ages of conformity, social ferment, and individualism each lasting about 20 years. Each age sows the seeds of the next. The stress of the crisis produces conformity, Idealistic rebels against stifling conformity cause ferment, and the resulting breakdown of conformity leaves risk and rampant individualism. Reacting against the alienation and atomization they see around them, the (now older and wiser) Idealists call for a return to morality, just in time for the next crisis to hit and cement those demands.

To make their model fit American history, Strauss and Howe have to postulate that the Civil War was a "crisis too soon" that "aborted" a Civic generation, and place Thomas Jefferson (an Idealist if ever there was one) in a Civic generation. However cut-and-try the model, though, using it can help give a natural-seeming rhythm to an alternate society.

stories nobody wants to hear any more.) By this reading, the American Revolution was a civil war in the British Empire established in 1607 at Jamestown, 169 years earlier. After 1776, America took until 1836 (60 years) to start its own imperial expansion into Texas and concomitant disintegration over slavery, while Britain spent almost that long watching its monarchs go mad and its population riot before the Reform Act stabilized its political system in 1832. Rome went through *three* of those cycles before finally collapsing from the outside; an average "really successful" Chinese dynasty manages two of them.

Economics

Another field ripe for cyclical patterns is economics, either within a society or on a global basis. (Controversial modern systems theorists believe that all economies have been on a global basis since about 930 A.D., when the Song Dynasty restored the trade links between China and the West.) The "boom and bust cycle" is familiar to most casual observers of the modern business scene, for instance.

In 1925, a Russian economist, Nikolai Kondratiev, discovered "waves" of roughly 50 to 54 years (27 years up to the peak, 27 years down to the crunch) in trends within the Western business cycle. The global depressions of 1816, 1873, and 1929 seemed to match the theory pretty well, and if you squint, you can fit the recession of 1978-1983 in there, too. Unfortunately, the other global depressions in 1826, 1837, and 1893 don't match the wave; nor did the crash of 2000. (Kondratiev, ironically, was sent to Siberia for making the perfectly Marxist observation that the economy drove history.) Historians still squabble over whether the Kondratiev wave even exists; others favor the "Kuznets wave" of 18-21 years, which fits the generational framework better.

If the Kondratiev wave does exist, it probably represents a two-generation lag in exploiting a new industrial development. Railroads are introduced in the 1830s and mature by the 1880s; telegraphs come in the 1860s

and are edged out by radio in the 1910s; microcomputers show up in the 1970s, and we just passed the "peak" of their productivity growth in the Internet boom of the 1990s. A similar pattern likely holds in any alternate history after TL3 and the invention of banking.

On considerably firmer ground are the Price Revolutions, which unlike Kondratiev waves are taken from the data themselves rather than statistical models of the data. General prosperity causes slow inflation, which becomes rapid inflation during the next major war or capital influx. Rapid inflation causes increasing inequality and social control of the economy until control and inequality both become excessive, leading to (or contributing to) cults, pessimism, intellectual revolt, addiction, imperial wars, and finally a vast crisis. In the aftermath of the crisis, prices stabilize in an equilibrium and prosperity returns to start the next slow inflation. Unfortunately, although the Price Revolutions have a regular structure, they don't have a nice regular cycle.

[T]here are no correct alternate histories; there are only plausible alternate histories.
– Will Shetterly, "The Captain's Story"

Civilization as Biology

From Ibn Khaldun to Malthus, historians have seen societies as essentially following biological patterns: spring growth, summer florescence, autumnal decay, and winter death. The German philosopher Oswald Spengler is probably the best-known theorist to apply the biological model to history. In *The Decline of the West* (first published in 1918), he proposed that civilizations have individual personalities (Classical civilization was Apollo, while Western civilization is Faust, for example). However, their inherently biological nature (being made up of people, after all) constrains them to follow similar "life cycles" like any other organism. Spengler postulated only eight such civilizations, which he called "cultures": Egyptian, Mesopotamian, Chinese (which he begins around 1000 B.C.), Classical (Hellenic plus Roman), "Magian" (Iranic plus Islamic, with substantial Jewish influence), Indian (which he begins with the Aryan invasions), and Meso-American. Although almost no modern historians take Spengler seriously, his model makes a great frame for alternate histories or future histories (James Blish used Spenglerian concepts for his *Cities in Flight* series). In that spirit, Spengler's "epochs" of civilization are as follows:

Pre-Cultural Period (400-500 years): This is a period of tribes and chieftains; there is no state system or literature. For Western civilization, Spengler equates this era to the Frankish conquests from 500-900 A.D.; for Classical civilization, the pre-cultural period is the Mycenaean Era.

Formation of Feudal Order (300-400 years): States and cities emerge and extend their power, as with Chou Dynasty China or Sassanid Persia. The "cultural spring" begins with the first priestly (the *Lives of the Saints*, the *Rig-Veda,* and Hesiod's *Theogony*) and military (the Arthurian tales, the *Mahabharata,* and the *Iliad*) myths. Vigorous architecture, as with the Pyramids in Egyptian civilization or the Gothic cathedrals in the West.

Interregnum (100-200 years): The feudal order breaks down in warfare, plague, and famine. The cultural spring becomes summer, and reaction begins. In the West, Aquinas perfects Catholic scholasticism, and the heresies that will lead to Luther emerge. In Classical culture, the Orphic cults question the Olympian orthodoxy. Springtime art is exhausted.

Aristocratic State Formation (150-170 years): Major aristocratic states emerge and contend; this is the era of the Tudors and the Hapsburgs in the West, and of the seven warring states in China. The passing of the cultural high summer is reflected in the Renaissance becoming Baroque, or Doric art giving way to Ionic art. New mathematics emerge: Classical Pythagorean geometry, Magian algebra, or Western calculus. At the end of this period comes a puritanical reaction: Mohammed, or Cromwell.

Absolutism (100-150 years): Aristocratic power becomes centralized, but the king and bourgeoisie seize power themselves; society approaches a crisis. In the Classical culture, this is the duel of Pericles and Themistocles; in the West, it is the rise of Louis XIV and the Stuarts and Hanoverians. Cultural autumn has set in, with summer's beliefs cast into doubt: examples include the Enlightenment in the West, the Socratics in Classical civilization, or the Mutazilites in Islamic society. Confucius is the final "Indian summer" of Chinese civilization, reaffirming order in the midst of chaos.

Revolution and Napoleonism (30-50 years): Revolt of the bourgeoisie unleashes war and military dictatorship. The "Napoleons" – Alexander, Sun Tzu, Napoleon – sweep away the old order but usually cannot create a lasting empire. In Egypt, the crisis (Hyksos invasion) destroys the nation; in Islam the "Napoleon," Al-Mansur, was able to create an empire, the Abbasid Caliphate. Art is autumnal, backward-looking, and fierce: Romanticism in the West, and the *Shah-Nameh* in Magian culture.

Transition from Napoleonism (200 years): In the clear space after the crisis, bourgeois interests and contending mass states (some of them democratic, such as the Roman Republic, the city-states of the Punjab, or the United States) dominate. The Hellenistic phase of Classical culture, the era of five warring states in China, and the imperialist phase of Western culture, are all urban, mercantile, and pragmatic. Ethics replace religion, from the Buddha in India to Sufism in Islam to Stoicism in Greece to secular humanism in the West. Art is experimental, but little of it lasts . . . final shoots as winter falls on culture.

Caesarism (200 years): The masses in the victorious state eventually rally to force-politics, suppress the bourgeois, and impose a unified empire to the limits of their civilization's reach. This is the age of Augustus Caesar, Shi Huangdi, Alp Arslan (who founds the Seljuk Sultanate), the Pharaoh Ahmose (who founds the New Kingdom), Chandragupta Maurya . . . and the "military-industrial-media complex" in the United States. Cultural winter leads to artificial, syncretic, postmodern art forms imitating earlier forms.

Final Stasis (200+ years): The imperial state gradually ossifies and decays. Classical culture enters final stasis with Domitian, Magian culture with the Ottomans, Egypt with the Ramessids, China with Han Wu Ti. On Spengler's schedule, Western culture is due for final stasis some time around 2105. Frozen and dead, the culture's only expression is gigantism.

Aftermath: The empire falls to barbarians, who plant the seeds of a new feudal order in its ruins.

Alternate histories can ignore the Price Revolutions, react to them, or include Revolutions of their own, at the designer's whim. Again, including them or something like them vastly increases a timeline's plausibility and realism – two or three centuries of prosperity without consequences have never happened in human history.

The major Price Revolutions are as follows:

Medieval (1180-1350): Begins with the invention of banking and the loot of the Fourth Crusade. Ends with the Black Death and a century of warfare and destruction. The equilibrium afterward is remembered as the golden age of the Renaissance.

Sixteenth Century (1520-1620): Begins with the discovery of American gold mines and the war against the Turks. Ends with the Thirty Years' War. The equilibrium afterward is the Enlightenment of Newton and Bach.

Eighteenth Century (1740-1800): Begins with the rise of joint-stock companies and the sugar boom. Ends with the French Revolution and Napoleonic global wars. The equilibrium afterward is the Victorian era.

Twentieth Century (1900-present): Begins with the full flowering of industrial capitalism and the age of empires. The current Malthusian diebacks in Africa, and the wars in the Middle East, may represent its end stage. If so, the mid-to-late 21st century looks pretty good.

There may also have been Price Revolutions in ancient Babylonia (1750-1680 B.C.), classical Greece (500-300 B.C.), Rome (90-220 A.D.), and early medieval Europe (850-1000 A.D.). All of those periods end in devastating war.

War

Which brings us to our next cycle, the war cycle identified by Quincy Wright. He found that, statistically, a major war breaks out between the great powers every 75 to 85 years. In other words, every four generations, just long enough for everyone who remembers how awful the last one was to die off. This great-power war usually lasts on and off for 25 to 30 years in several phases (like the two World Wars or the two Napoleonic Wars); long enough to kill a whole generation off and get society thoroughly sick of it for another four generations. George Modelski has modified Wright's theory by introducing the oceanic war, which he claims is the only kind that actually shifts power structures, with a slightly longer cycle of 90 or so years. Neither cycle actually fits the dates involved, but if your alternate history has gone 80 or 100 years without a great-power war, toss one in.

On average, great power wars result in at least one great power getting the stuffing knocked out of it and removed from great power status. The Italian Wars knocked Venice off the list; the Thirty Years' War bounced Spain; the War of the Spanish Succession made the Dutch and Swedish second-rank powers; the Napoleonic Wars knocked Spain back again and finished France demographically; the World Wars pinned Germany's ears back, and so forth. A great power can try to climb back, which takes about a generation, or settle for decline. Some great power wars introduce a new great power to the mix, as previous second-rankers mobilize to fight. The Italian Wars marked the debut of France as a contender; the Thirty Years' War made Sweden a great power; the War of the Spanish Succession put England and Prussia on the global stage; the Napoleonic Wars did the same for Russia; the World Wars introduced America. In your alternate history, keep a running tally of great powers; if they have passed their sell-by date, drop them off in the next big war.

On average, great power wars result in at least one great power getting the stuffing knocked out of it and removed from great power status.

Ecology

The final major influence on the course of history is climate. Like economics, people try to identify cycles in it such as the El Niño-Southern Oscillation cycle (ENSO), which causes floods in China and Peru, famines in India (by wrecking the monsoon), bitter cold and snow in Russia, drought in the American West and Mediterranean, and general chaos every 8 to 15 years. Strong "mega-ENSOs" may have brought the wet, cold weather that bogged down both Napoleon and Hitler in Russia. It's possible, in a Great Motherland way, that the reason northwestern Europe wound up conquering the world is that it's the temperate zone least affected by ENSO! Still little understood, ENSO may be the most important single weather pattern in history.

On a larger scale, global climate has fluctuated strongly many times in the history of civilization. Major weather shifts may be the reasons for plague outbreaks, famines, and other demographic crises – every civilization in the world went through similar crises during the third century and 17th century, for instance, which argues for global causes. Any of the following climate shifts probably still occur in a parallel Earth, unless changing the climate is the point of the alternate:

Laurentide Cooling (c. 6200-5800 B.C.): Four millennia of global warming finally melted a glacial ice sheet in North America, opening the St. Lawrence, spilling cold water into the Atlantic, and shutting off the Gulf Stream. The end of this cold drought sparked the urban revolution in Mesopotamia, India, and Palestine.

Boreal Cooling (3800-3100 B.C.): Another cold drought forces the concentration of towns into cities in Sumer; its end creates Egyptian civilization with the return of regular Nile floods.

Sub-Boreal Event (2200-1900 B.C.): A major volcanic eruption triggers another cold drought, causing the end of Egyptian Old Kingdom and Sumerian-Akkadian civic empires.

Crisis of 1200 B.C. (1200-1100 B.C.): Major drought in 1200 B.C., combined with the eruption of Mt. Hekla in Iceland in 1159 B.C., sends waves of nomadic invaders through the Hittites, Babylonians, and Egyptians. This event may have helped trigger the war for Troy, to seize grain routes in a famine.

Classical Warm Period (300 B.C.-200 A.D.): This was probably a shift in wind patterns; the warm Mediterranean air mass moved north over France and Britain, supporting Roman wine and olive culture. Eventually, the warmth led to renewed drought, which shifted the air mass back south. According to legend, the Goths invaded the Empire over the frozen Rhine and Danube.

Catastrophe of 535 (535-600 A.D.): A major volcanic event in Java (possibly an eruption of Krakatoa) causes a global "nuclear winter," wrecking Byzantium, China, Teotihuacan, and "Arthurian" Britain.

Medieval Warm Period (900-1300): Global warming lets Vikings settle Greenland, sparks the High Middle Ages in Europe (with demographic consequences such as the Crusades), and dooms the Anasazi as drought grips the American Southwest.

Little Ice Age (1316-1850): Global cooling, possibly volcanic, sets off famine and plague in Europe and China. The glaciers advance in the Alps during the coldest era (1580-1760). This may also be tied to the "Maunder Minimum," a decrease in sunspot activity from 1645-1710. This in turn may have triggered the global crisis of the 17th century, from the Thirty Years' War to the Manchu invasions of China to the first Indian Wars in America.

Altering Worlds

This section provides specific rules for shifting echo timelines, and guidelines for altering the technological, political, or cultural climate of any timeline. The GM can require players in a Centrum campaign (or a more aggressive Infinity Patrol attempting to shift echoes downward before Centrum can steal them) to develop their shift plans using these guidelines, or simply leave things up to a Cliodynamics roll.

Timeline Shifting

If outtimers, either PCs or NPCs, do something that the GM thinks might "change history" on an unstable echo, roll 3d. If the tampering was according to a Centran plan *and* occurred during a window of paratemporal instability (p. 86), add 3 to the die roll result. (Add 2 more if the Centran planner scored a critical success on his Cliodynamics roll.) The GM may also add from 1 to 5 to the result, depending on the degree of divergence of the change; the *Tampering* section on p. 86 gives some guidelines for this modifier.

Any change can cause a shift in a random direction; a Centran plan sends the timeline higher 5 out of 6 times, while a vigorous counterblow to a Centran plan still sends the echo higher 2 out of 6 times. A thoroughly random, accidental, or unplanned change sends the timeline higher 3 out of 6 times, of course.

No shift is immediate, and if the change is effectively reversed during the period of delay, it does not take place. (If the change was severe enough, however, there may be no way to negate it in time.) For the length of time before the shift, roll 3d6:

Shift Delay Table

6 or less	1d days
7, 8	2d days
9	1d weeks
10	2d weeks
11	3d weeks
12	3d×2 weeks
13	2d months
14-16	2d×3 months
17+	2 years, plus two more rolls on this table

Roll on this same table to determine how long it takes Infinity to find a "lost" timeline. If the timeline is now below Quantum 3 or above 7, it can't be found by Infinity.

Modifiers: +1 if the timeline is now in Quantum 4 or 6; +3 if it is now in Quantum 3 or 7. Centrum can find it in one quarter of the time; modify a Centrum search roll by -1 if the timeline ended up in Quantum 7 or 9, and by -3 if it is now in Quantum 8. Centrum cannot find a timeline below Quantum 6 or above 10.

The above assumes Infinity (or Centrum) is doing the searching. If Infinity is not *aware* of the lost timeline (e.g., if it was a secret development of some government or corporation) add *at least* +4 to the roll. Many clandestine operations would not have the facilities to find a lost timeline if they had 20 years to do it.

This also assumes that a faceless team of researchers is doing all the searching. If a PC scientist (or important NPC) is involved in the search, he may attempt one Physics (Parachronics) roll. For every point by which he makes his roll, *subtract* 1 from the search roll.

Timeline Shifting Table

9 or less	No result, but add 1 to any further roll made within a week.
10-11	No result, but add 2 to any further roll made within a week.
12-13	No *immediate* result – but if the change is not reversed, roll again in 1d×10 hours, at +2. This modifier is cumulative if rolled more than once.
14-15	Shift of 1 quantum, but not immediately – see below.
16-17	Shift of 2 quanta. See below.
18 or more	Shift of 1d quanta, minimum 3. See below.

Try to Change the World

This rules system lets meddlesome Infinity or Centrum agents attempt to introduce changes into a timeline, whether it is an echo or not. It can also model *Lord Kalvan of Otherwhen* type scenarios involving a stranded crosstime traveler trying to "modernize" his new home, renegade time travelers with a grudge against history, or Denarius Group brokers trying to remake a parallel's fiscal culture for order and profitability.

None of these rules should ever replace roleplaying or adventure. If the GM and players would rather poison Frederick the Great than work to refashion Prussia's culture, feel free to go ahead and do it. In general, a specific player plan should trump any of these results, as long as the GM doesn't consider it abusive or ludicrous. What these rules can do is provide a framework for long-term campaigns, or a "time limit" for countervailing action. If the culture of the Mogul Empire will shift dramatically in six months unless the program of social change is stopped, the GM can determine approximately how many attempts the bad guys (or good guys) can make to shift things back the other way or otherwise thwart the alteration.

Technological Change

GURPS already has a guideline for introducing technological change into a society, on p. B511. According to these general guidelines, uplifting a culture by one TL in one broad field of scientific or technical endeavor (transportation, weapons, power, or medicine, for example) takes two years, given favorable conditions and suitable technical know-how (12 or better in all relevant skills at *both* TLs) by the uplifter. This system is extremely abstract, and can be taken as an "outside limit" for games – few campaigns can spare two years of down time, or even spend two years in a "backstory montage sequence" before resuming the action.

The other way to change a culture's technology is at retail: inventing stuff until the locals catch on and the technical revolution becomes self-perpetuating. The *New Invention* rules on p. B473 cover this territory, and the *Reinventing the Wheel* box specifically refers to "pre-inventing" older, lower-TL inventions. Whether it's a futuristic grav-car or a geared-down watermill, a technological change must be designed, constructed, and tested for failure points. The inventor needs some degree of skill at an "invention skill" to make any of these things happen. These same principles apply to other changes.

Political Change

For political changes to a society, the agent must have some entrée into its political process. In an open democracy, this can be as simple as taking out ads in the paper, calling a Congressman, or staging a public rally. In a totalitarian theocracy, it may involve overt displays of sanctity, heavy donations to the shrines, or good old kidnapping and blackmail of the sort PCs seem to specialize in.

With access either realized or possible, the agent must come up with the change he wants to happen. The GM should determine how significant a change this is to the system: a Simple change, an Average change, a Complex change, or an Amazing change. (This parallels the Complexity of a new invention, as on p. B473.) An Average change usually has a degree of divergence of +1, a Complex one +2 or +3, and an Amazing change +4 or (if the society to be changed is a great power) possibly even +5. Definitions, and a few examples of each, follow:

Simple change: One that would likely happen anyway, but not as soon or as favorably as the agent would like. *Examples:* saber-rattling against a rival nation; promotion for a favored courtier; increasing taxes on the poor or on a rich minority; holding ceremonial games.

Average change: One that could happen anyway, but might not given existing interests and the political climate. *Examples:* war with a weak, rich neighboring country; appointment of a cabinet official; tariffs or trade agreements; building a railroad.

Complex change: One that is not likely, but possible, despite major opposition or public disfavor. *Examples:* war with a powerful country; resignation of a major figure; reform of tax structure or pension system; constitutional amendment.

Amazing change: One that could only happen through staggering shifts in opinion or major national emergency. *Examples:* disarming unilaterally; abdication of the ruler; complete change of economic system; complete change of political system.

The GM now makes a "Concept roll" in secret against the agent's relevant political skill (which depends on the political system – Politics, Administration, Savoir-Faire (High Society), Theology, etc.) to see if the agent's proposal has any chance of working. Some systems or issues may require two or more skills: a corrupt Medici city might require Savoir-Faire and Streetwise, for example, or a banking reform proposal might require both Politics and Finance. Use the *lower* of the relevant skills. Timing and failure work as the New Inventions Concept roll on p. B473.

Modifiers: -6 if the proposal is Simple, -10 if Average, -14 if Complex, or -22 if Amazing; +5 if the change is visibly working well somewhere else in the world; +1 to +5 if an established interest group absolutely supports it; -5 if the concept is entirely new to the world or civilization (representative democracy in ancient China, a national bank in ancient Rome).

The second roll against the agent's political skill is the Proposal roll. This roll lets the concept get a fair hearing in the government (or by the people, in a democracy). On a success, the proposal is made in suitable fashion (a thoughtful article in the *New York Times,* fortunate-character wall poster, or witty kenning by the court skald). On a failure, the concept is presented hamfistedly or unfairly; any future

The Cost of Social Change

Nothing is free, in politics or culture. Although the GM should adjust these figures at whim, PCs looking to get political changes passed should expect to shell out for bribes, campaign donations, catered lunches for the intelligentsia, full-page advertisements, fawning documentaries, commercial air time, and so forth. The same is often true of a social change; expenses add up, whether for marketing, feeding missionaries, or buying all those jackboots. Use the following table as a guideline for the outlay per citizen affected:

Significance	*Base Cost*
Simple	$1
Average	$2
Complex	$4
Amazing	$10

Modifiers: Double these costs for a relatively wealthy society, or one with a high degree of mercantile or corporate control. Double them for highly corrupt political systems (such as 21st-century Nigeria or 1780s France). Costs are set at TL8 levels; modify them as per *Starting Wealth by TL* (p. B27).

rolls are at -2. On a critical failure, the concept seems treasonous, sacrilegious, or cowardly; this reduces the agent's local Reputation by *at least* 4 points (from +2 to -2, for instance). There may be other legal or social penalties such as banishment from court, or danger from angry mobs. He can never present such an idea again unless he has first cleared his name (e.g., by military victory, royal marriage, or public abasement).

Modifiers: All modifiers listed for the Concept rolls; +1 per assistant with skill 20+ in one of the skills required for the proposal, to a maximum of +4; +1 for each level of Status above 3 *in the local culture* held by the agent's Allies, or +1 for each such level held by the agent's Patrons; -1 to -10 (GM's discretion) for the level of pre-existing opposition to the proposal. Double *all penalties* for cultural unfamiliarity! The GM may also add bonuses for the agent's Reputation on the subject matter; for example, a +2 Reputation (successful general) improves the odds that a military proposal will get a fair hearing.

Any proposal inspires debate and some level of opposition. Critical success on the Proposal roll means that the opposition can be ignored or steamrolled and the measure passed as soon as possible; success by 3 or more gives any opponents a chance to delay by 1d-3 weeks (minimum 1); any other success means the measure takes 2d-2 weeks to pass. During this time, the GM should set up at least one adventure seed, or a dramatic scene, between the agent and his opponent(s) requiring a skill roll (usually a social roll such as Diplomacy, Public Speaking, or Savoir-Faire). A critical success on that roll ends the opposition immediately.

Cultural Change

Most of the same rules apply to cultural changes: new religions, cuisines, pacifist or militarist movements, and so forth. The relevant cultural skill may be Propaganda (Advertising), Performance, Poetry, or Writing, for example.

Some examples and definitions for the levels of cultural change follow:

Simple change: A simple change to a small facet of daily life with obvious attractions. *Examples:* A tasty new snack; a new tune or song; a new reason to hate a despised minority; a new prayer.

Average change: A noticeable change to daily life, but one not outside cultural norms. *Examples:* A new cuisine style; a smash hit song or play; adding a negative or positive Reputation to a public figure; a new patron saint or demigod.

Complex change: A major, potentially permanent change to daily life at substantial variance with cultural expectations. *Examples:* An unusual new crop; a new art form or major change to an existing one; adding or removing a -5-point or -10-point Social Stigma for some group; a heresy or revival movement.

Amazing change: A revolutionary change in social expectations with strong opposition. *Examples:* Vegetarianism; iconoclasm; revolutionary equality or freelance genocide; a new mass religion or conversion to a foreign faith.

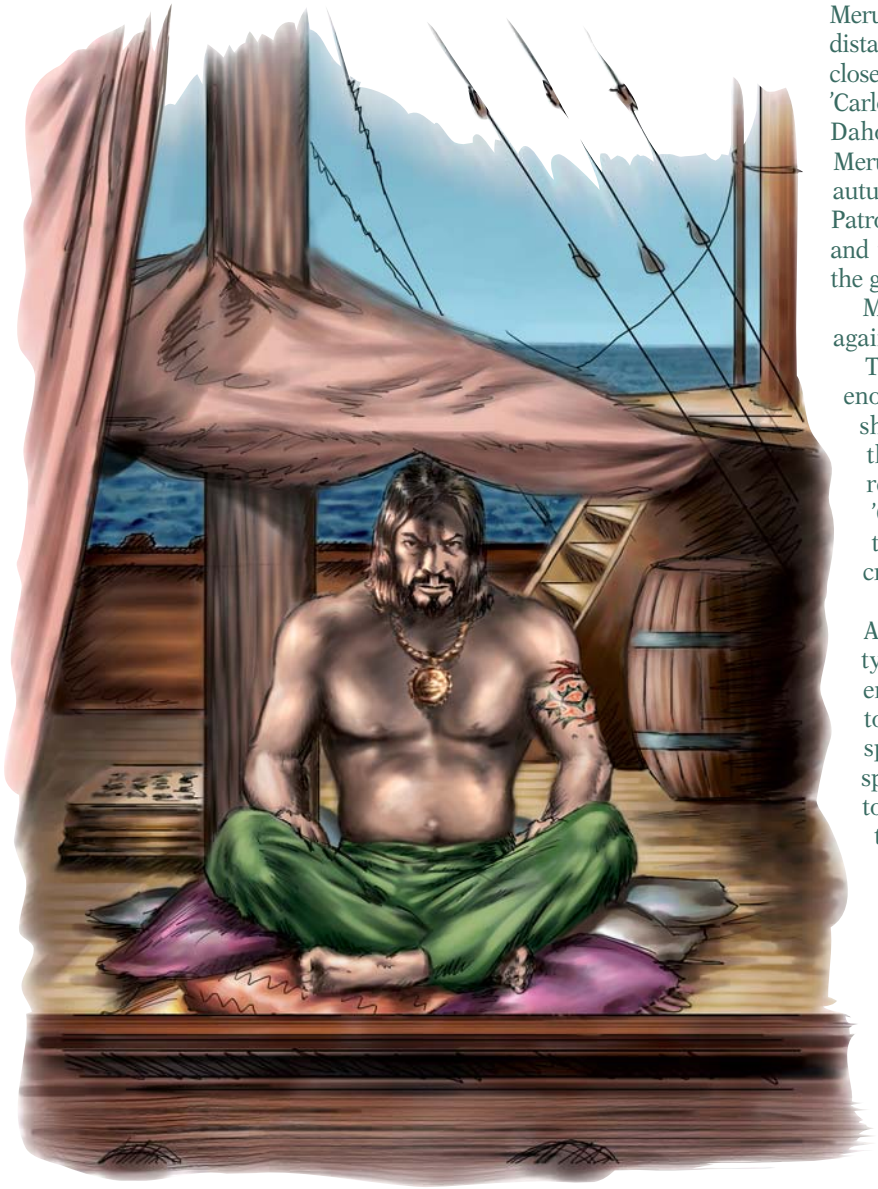
Use all the same rules and tables as above, with the exception of the result of the Proposal roll. Cultural changes tend to damp out over time unless they are reinforced. A critical success on the Proposal roll makes the change permanent (barring revolution, war, or other major cultural stress); success by 3 or more on the Proposal lets the change last 2d years; any other success lets the change last for 2d months. Further rolls may be necessary to reinforce success; each such roll is at +2 to skill.

Social Gadgeteering

As these rules parallel the New Inventions rules on p. B473, the GM may wish to allow a Gadgeteer (Social) advantage that would reflect characters from fiction who seem unusually adept at mastering political structures and altering cultures wholesale. (The hero of Harry Harrison's *Deathworld* trilogy pops to mind, as does Conrad Stargard from Leo Frankowski's *Crosstime Engineer* series.) Costing 25 points, the same as Gadgeteer, it would allow modification of the above rules as per the Gadgeteering rules on p. B475 – lower penalties to the Concept and Proposal rolls, and treat all success on the Proposal roll as a success by 3 or more. (A critical success still has the same effect.) The GM may wish to come up with his own entertaining Bugs Table, suitable for the specifics of the Social Gadgeteer's proposal.

There is no Quick Gadgeteer (Social), as that would be just silly. Buy psionics instead.

Chapter Four
Worlds Enough . . .



Although the Atlantic waves sent the deck pitching and yawing under his boots, Robert Giancarlo barely noticed, his hips and shoulders balancing subconsciously. His entire attention was on the bright purple awning spread from the mainmast, and on the stocky merchant sitting cross-legged beneath it. He had heard rumors of Merubaal's tent in every port from Mobile (although they called it Murgha on this world) to Carthage, but it had eluded him until last week. Merubaal was like a wisp of fog; visible at a distance, but dissolving into droplets up close. It was nothing but a lucky break that 'Carlo had stopped in Olispo and heard two Dahomeyan longshoremen talking of Merubaal's tent being loaded up for the autumn convoy. A quick jump back to the Patrol base, a nighttime flight to the Azores, and then back across to Melkart-2 to catch the galleass just leaving Funchal harbor.

Merubaal was not going to just vanish again, 'Carlo swore to himself.

The merchant certainly looked solid enough now, sitting on his cushions in the shadows. 'Carlo could see muscle under the layers of fat that a merchant required to advertise his prosperity. 'Carlo could also see no guards, which told him that Merubaal had the whole crew in his pocket.

"Greetings, prince of merchants." Although the phrase was just a formality, Merubaal somehow seemed to embody it, from his oiled auburn locks to his fine calf-skin sandals. Only a spiky forest of tattoos on one arm spoiled the effect of urbane luxury. "And to you, greetings, noble sir. How may this unworthy one assist your lordship?"

'Carlo knew realities where this rigmarole could go on for hours – including at least two meals – before getting down to business. Fortunately, on Melkart-2 the Carthaginians had discovered that time was money. He dropped to his haunches and produced the coin he had found in the ruins of Rome, sliding it across the silk to Merubaal. "I am interested in such coins."

Merubaal stared at his customer for some time before replying. "Surely the noble lord would prefer finer specimens. I have here hexagons of silver cash from the courts of the Dragon Empire, and a few of the gold staters of Baktria, which even the finest sculptors today swear cannot be matched." He spread them out next to 'Carlo's coin, and indeed the Patrolman's sample looked somewhat drab and flat next to their harsh splendor.

"Yes, those are wonderful pieces," 'Carlo admitted, dropping his voice to a whisper and leaning closer. "But they don't have George Washington on them, now do they?"

Merubaal was silent for another long minute, but when he replied, his tone was hearty.

"Is that the name of this king? He must have been a poor sort, to adulterate his coins with nickel and copper thusly. I would not give two snaps" – and the merchant snapped his fingers twice – "for such a king."

To Giancarlo's credit, he almost instantly recognized the signal to the nearby sailors. Also to his credit, he crippled four of them before they got the ropes around his legs. This was little comfort, chained up the stinking blackness of the bilge, but it was some.

When 'Carlo saw daylight again, it was a watery green color, shot through with lightning flashes of actinic blue, and he was standing on the deck with some very sharp spearheads inches away from his spleen. Away from the spearheads, a long plank stretched over the side of the ship and out toward the approaching banestorm.

He craned his neck around to see Merubaal – or whoever he was – standing on the quarterdeck. "Walking the plank? Are you serious?"

Merubaal answered in English, with an incongruous Tennessee lilt to it. "It's better than you deserve for blowing my operation here, Agent Giancarlo. But you're Patrol, and I don't like killing Patrolmen outright. It's bad luck." His fingers unconsciously caressed the amulet of Tanith he wore, but he continued without a trace of Melkart-2 formality. "The banestorm will take us someplace you can't follow, not without a ship or a seer. And it will take you somewhere else; I've sailed this one before, and it's funny like that. So you get the glory of discovering an unknown world for Infinity. Sounds like value for your quarter to me."

The following chapter gives a sampling of some of the Earths among the Infinite Worlds. (Reich-5 and Centrum received comprehensive writeups in Chapter 2.) Major world entries have basic data boxes providing the following:

World Name and Current Year

The colloquial name of this worldline to Infinity personnel, along with the local present year on this parallel.

Current Affairs

A brief summary of the current state of this worldline. If there is an ongoing global war or other major crisis, it appears here.

Divergence Point

The year in which this worldline's history diverges from Homeline's, and a brief discussion of the resulting change.

Major Civilizations

The major civilizations on this worldline, roughly in order of cultural-military dominance. As per p. 90, other civilizations almost certainly exist, but play only regional or local roles. The unity level (p. 91) of each listed civilization appears in parentheses.

Great Powers

The great powers on this alternate, per the definition on p. 92. Some "near great" powers appear as well, listed in italics, either because they are rising candidates for great powerhood, or because they add flavor to the world writeup. The government type (see pp. B509-510) or political structure of each power appears in parentheses, along with the general Control Rating (p. B506).

TL

The tech level of the dominant civilization on this worldline, with any divergences or split technologies noted.

Mana Level

The mana level of this Earth (p. B235).

Quantum

The quantum in which this worldline exists (p. B526).

Infinity Class

The World Class and Access Rating assigned to this worldline by the Penetration Service of the Infinity Patrol (see box, p. 83).

Centrum Zone

The Zone into which Centrum's Interworld Service classifies this worldline (see box, p. 51).

The GM should feel free to adjust the quantum, mana level, or any other factor of the worlds involved to suit his campaign. He can either create a "new" world (a variant on Campbell might be Campbell-2, on Quantum 4, for example), rule that a convenient reality quake has restructured the world to his specifications, or just decree that "this is how it always was" and go on with the game.

Unlike Newton and Schopenhauer, your ancestor did not believe in a uniform and absolute time; he believed in an infinite series of times, a growing, dizzying web of divergent, convergent, and parallel times. That fabric of times that approach one another, fork, are snipped off, or are simply unknown for centuries, contains all possibilities.

– Jorge Luis Borges, "The Garden of Forking Paths"

Armada-2

After the Victorious Armada sailed, for over 200 years Spain's naval mastery has guaranteed the dominance of Catholicism, order, and conservatism. As that mastery shreds, the nations once cowed by Spanish guns have stealthily equipped privateers and buccaneers to contest the seas. The explosive growth of steam power in Egypt and Huguenot Nouvelle-France creates new economies and new technologies outside the embrace of Madrid. Spain's great rival Sweden, meanwhile, is arming Indian princes and Turkish pashas, setting the stage for another global showdown.

The Spanish Ascendancy

When Philip II of Spain died in 1598, he ruled a Catholic empire on which the sun never set. The Netherlands were once more united under the liberal and tolerant rule of the Duke of Parma, whose policy of tax relief for Catholic merchants had brought a flood of conversions from the heretofore staunchly Protestant burghers of Amsterdam. Missionaries from Florida had converted heathens as far north as the Penobscot Valley to Catholicism, and founded missions from Roanoke to Manhattan. Gold and silver from Mexico and Peru flooded into Madrid, buying the allegiance of princes and dukes in Italy and Germany; spices from the Indies likewise.

During the next century, turmoil in Bohemia, Poland, Russia, and Germany threatened to the French and Spanish dominions, and sparked a brief Protestant rebellion in England. The far-seeing policies of Richelieu and Olivares managed to stem the tide with financial reforms, centralization, and the Canadian safety valve that allowed Huguenots,

Armada-2, 1812

Current Affairs

An overstretched Spanish realm battles pirates and corsairs all along the fringes of its empire, as the aggressive Swedes look on.

Divergence Point

1588; the Invincible Armada lands in England, deposes Elizabeth, and puts Henry Percy on the throne of England as Henry IX. A resurgent Spain puts down the Dutch Revolt (1589) and deposes Henry IV of France (1591) in favor of Charles du Mayenne, who becomes Charles XI.

Major Civilizations

Western (fragmenting empire with rivals), Orthodox (empire), Islamic (multipolar), Chinese (empire).

Great Powers

Spanish Empire (dictatorship, CR4), Swedish Empire (dictatorship, CR3), Ottoman Empire (dictatorship, CR5), Russian Empire (dictatorship, CR5), *Manchu Empire (dictatorship, CR5), Nouvelle-France (oligarchy, CR3).*

Worldline Data

TL: 5 **Mana Level:** low
Quantum: 6 **Infinity Class:** P9 **Centrum Zone:** Yellow

Other Armadas

Infinity has discovered two other worldlines where the Armada won. On **Armada-1** (Q5, current year 1833), Philip II united the Spanish, English, French, and Imperial crowns under a single Holy Roman Empire ruled from Madrid. This ramshackle contrivance exploded in revolt during the 1620s-1680s, returning Europe to a patchwork of squabbling feudal states. None of them have the economic muscle, intellectual vibrancy, or spare capital to spark the Industrial Revolution; the world remains at TL4.

On the low-mana TL4 world **Armada-3** (Q3, current year 1602), English and Dutch rebellions erupted on Philip II's death in 1598. Spanish broadsheets claim that an "invisible college" of sorcerers, witches, and Rosicrucians is behind the rebellion.

Dutch Reformers, and Puritans alike to settle that wasteland rather than stay in Europe and make trouble. Spain even felt strong enough to push the Turks out of Morocco and Algeria, although an invasion of Greece faltered in 1683. The Turks, shocked at their near escape, began to modernize in earnest under their Albanian viziers the Koprulus, seen (not incorrectly) as the saviors of Islam.

Sweden managed to unify Scandinavia and the few Lutheran states of north Germany, but wisely transferred its expansionist aims east rather than face the combined Catholic armies of France, Spain, and Austria in Germany. Although Gustavus Adolphus' conquest of Poland removed a Catholic monarchy from the stage, it forced the Swedes to tolerate Catholicism in their domains as the Swedish army rapidly absorbed and professionalized the endless supply of Polish peasants in its frontier wars with Russia and Austria. (Olivares and Richelieu may not have been too disappointed to see the Austrian emperor forced to turn his own attention to his alarmingly powerful Swedish neighbors, rather than to Franco-Spanish activities in Germany.)

Over the next century, some of the luster came off the Spanish ascendancy. Sweden began to field better, and better-equipped, armies against Austria and Russia, conquering Silesia and Novgorod. Swedish traders founded Christiania in south Africa, and began to poach on India. Swedish cannon turned up in the armies of Spain's enemies overseas, such as the Nawab of Bengal (whose Swedish artillerists broke the Spanish square in the monsoon rains at Barisal in 1763). Spain's ally France began a steep decline, punctuated by famines and unrest, forcing King Charles XIII to abdicate in favor of Charles of Lorraine in 1789. Nouvelle-France took this opportunity to declare itself an independent Republic on the former Dutch model, and to sign a treaty of alliance with Sweden. Finally, the Albanian mercenary Mehmet Ali climbed to the Ottoman throne in 1804 and dealt the Spanish fleet a crushing defeat at Navarino. Pirates from Sweden, Scotland (a disaffected former French client state), and Nouvelle-France (and corsairs from the Sultanate of Segu in Senegal) prey on the Spanish Main. As Sweden, Spain, Turkey, and Nouvelle-France begin the climb to industrialization (slower and later than on Homeline, but broader-based in more countries), it may be only a few years before the armadas sail again and the world is plunged into war.

Outworld Operations

The Patrol is keeping a weather eye on this alternate, concerned that it could slip into a global conflagration endangering the generally lucrative trade in fur and auroch meat White Star enjoys. The Patrol also suspects that some Homeline traders have been slipping the Swedes improved firearms and ship designs, and possibly even blast furnaces and other crucial war-fighting and industrial technologies. Tourists primarily visit windswept Stuart Scotland, the immense Lacota trading post near Fort-Nicholas on the upper Mississippi, or the steam-powered cotton mills rising under the Pyramids of Egypt. Centrum's activities, if any, on Armada-2, remain mysterious, although the 1809 disappearance of the Spanish colony of Bahia Teresa (on the site of Homeline's Sydney, Australia) is suspicious to say the least.

ATTILA

The horsetail standards of the Mongol khans wave across grasslands and forests where kingdoms and cities once rose. A vicious cultural cycle, and the power of Genghis Khan's precedent, keeps the horse barbarians on top of a world without cities. Only where the Mongol ponies cannot ride – Japan, tropical Africa, the New World – do men build walls and dream of progress.

Dreams of the Devil's Horsemen

According to Mongol tradition on this worldline, when Genghis Khan captured Beijing in 1215, he dreamed that a weed grew out of the city to choke his horse. The Great Khan decided then and there to raze the city to the ground and to forbid the Mongols to ever build cities; he put many more cities to the torch during his career, and his successors followed his lead. Subotai leveled Venice, Cologne, and Paris; Mangku crushed Alexandria, Constantinople, and Isfahan to powder; Kublai destroyed Canton and filled in the Chinese canals, and although the "divine wind" saved Japan, he was able to add London and Mecca to the Mongol toll of destruction.

Kublai reputedly rode from the great camp at Karakorum to the ruins of Venice and back, but upon his

death the Mongol Great Khanate fell apart; it was too big to be ruled by even the most mobile of khans. His successors warred among themselves and adopted non-Mongols such as Turks and Hungarians into their clans to add horsemen to their armies after the Black Death ravaged the Khanates. With new cities inevitably falling to plague or nomads, Europe has mostly returned to forest; the Khans of Magya and Potu hunt the primitive woodland tribes of England, France, and Germany for sport.

Japan has unified itself under the Tokugawa, raids the Chinese barbarians for slaves, and trades with the increasingly urbanized tribes from Puget Sound to Peru, most of which are falling under the sway of the sun-adoring, coca-chewing missionaries of Intipu, the theocracy that succeeded the Incas in the 1780s. In Africa, the Bantu nations have urbanized and their city-states squabble within the expansionist Great Kongo League. The Oyo (in Homeline Nigeria) have invented the first steam engines, but their growing wealth makes them a tempting target for the militaristic cities to the east and south.

Attila, 2004

Current Affairs

Descendants of the Mongols still ravage a thoroughly rural Eurasia.

Divergence Point

1215; Genghis Khan levels Beijing, and the Mongols continue to destroy cities as policy.

Major Civilizations

Steppe (diffuse empire), Japanese (unitary), West African (diffuse), Andean (unitary).

Great Powers

Mongol Khanates (clan/tribal, CR2 for Mongols, CR6 for subjects), Shogunate of Japan (dictatorship, CR5), Great Kongo League (feudal, CR2-3), Intipu (theocracy, CR6).

Worldline Data

TL: high 4 (in Japan, Peru, and Africa), 3 (in Khanates)
Mana Level: low
Quantum: 5 **Infinity Class:** P4 **Centrum Zone:** Inaccessible

Outworld Operations

Discovered in Homeline's year 2001 (local year 1978) by an early Scout mission, this worldline was named Attila due to confusion about the identity and allegiance of the Hungarian horde that nearly killed the Scout survey team charting the ruins of Rome. Most Homeline visitors to Attila are historians, and the Patrol still loses one or two civilians a year on this dangerous parallel.

Other Mongol Conquests

In 1241 on Homeline, two hordes under Batu and Subotai had just eradicated the armies of Poland and Hungary at the battles of Liegnitz and the Sajo River, bringing the Mongol frontier to the heart of Europe. Mongol scouts had ridden to the gates of Vienna and Venice, and in the next year's campaigning, Batu planned to conquer Germany, France, and Italy. That winter, however, the Great Khan Ogotai died, and by the laws of Genghis, all Mongol generals were required to return to Karakorum to choose a new Khaghan. Batu and Subotai rode back to the east, and the Mongol empire never expanded out of Russia again.

On Homeline, that is. On several other worlds, such as Attila and Ezcalli (p. 122), the Mongol invasions continued their seemingly inevitable course. On **San Tomas** (Q6, current year 1580), European refugees from the Mongols fled to the Crusader States in Palestine, perhaps hoping to be saved from this obvious apocalypse. They gave the Crusader kingdom a big demographic boost, and by allying with the Mongol Ilkhans against the Muslims, the Crusaders survived and flourished, seizing Egypt in 1380 and sacking Mecca in 1409 with Venetian ships built on the Red Sea. TL4 Crusader Egypt dominates the Indian Ocean as England reconquers Europe from the White Horde. The Patrol suspects Centrum involvement behind the Crusaders, possibly within the very influential (and English-speaking) Order of St. Thomas of India.

On **Cham** (Q4, current year 1902), the Mongols not only ravaged Europe but successfully captured Japan and, following Japanese fishing routes, discovered America in 1290. The Mongols conquered Toltec Mexico and the Incas, while some European refugees settled in Vinland. The Black Death wiped out 80% of Eurasia but left the Americas mostly alone; TL4-5 Mongol-Chinese-Siouan-European hybrid states rule from the Great Plains, and the cities along the Mississippi are developing steamboats.

On **Tengri** (Q7, current year 1588), the Mongol conquests forcibly joined Western and Chinese civilization in a global economy that traded ideas and technology at a fantastic rate. The Scientific Revolution occurred at Bokhara in the late 14th century as Italian, Greek, Arabic, Indian, and Chinese scholars all met; the World-Khanate is at TL7 and rapidly on the way to becoming a Zone Green world as the Uplift Service consolidates its control.

Azoth-7

Many worlds have Industrial Revolutions. A few have Alchemical Revolutions. Infinity uses the "Azoth" designation for them, using the alchemical name for the "philosopher's mercury," a key ingredient in the Philosopher's Stone. On Azoth-7, Isaac Newton found the keys to the Stone in the words of the angels. In 1693, he shared those keys with his world.

Ad Astra Per Angelis

Newton unlocked the crystalline harmonic code of the universe, creating a system of mathematical equations that gave man mastery over the lower orders of angels, including the material spirits of the Earth. Initially, his discovery merely meant an ever-full English treasury, as gold mines erupted in Warwickshire and fish catches set records from Aberdeen to Sheerness. The hubristic speculation that followed nearly wrecked the British economy, and Louis XIV managed to unite Spain, Austria, Prussia, and Sweden in a war against a suddenly all-powerful England. Newton was able to summon Amnitziel, the tutelary angel of Britain, who swept away the Allied invasion fleet. The war ended decisively with the Duke of Marlborough installed as Governor of France, and the French and English thrones unified for the first time since the Plantagenets.

Gottfried Leibniz had deciphered Newton's codes and allusions, and derived the Stone (and its attendant harmonies) himself in Berlin, which kept Prussia independent, as it harnessed Zuriel, the angel of Germany. The Inquisition announced that it had awakened "the holy angel of Spain," which it called Barachiel, although English broadsheets trumpeted the charge that it had merely made a pact with Samael, one of the Fallen. Before Spain could subdue all of Italy, the Doges of Venice unleashed their own spirits, having somehow obtained the services of Dobiel and Uzzael, the tutelary angels of Media and Egypt. A rough parity established itself as the four angelic powers took the "four corners of the world": England, the North, ruled North America; Spain, the West, took South America and the Indies; Venice, the South, took Africa and Turkey; Prussia, the East, took Russia and (eventually) China.

As the angelic-alchemical economy heated up, and new devices were built that depended upon Stones to work, the four powers fell to disputation over supplies of gemstones, which provided the necessary crystalline quintessence. Lesser angels could not move such stones, since the gems' quintessential power resisted such weak force – the four powers began to charter first pirates, then privateers, then mercenary bands, to seize ships on the high seas or even loot mines from each others' client states. French "sky dogs" left penniless Paris to swoop down on Spanish emerald shipments from New Granada; Dutch and Hessian homunculi clashed in Cochin-China; subtle Milanese poisoners lifted stones from Indian rajahs and Russian countesses alike. In 1752,

Azoth-7, 1780

Current Affairs

Alchemically powered Britain, Venice, Prussia, and Spain compete to harness angels and mine magical gemstones from the far reaches of the zodiac.

Divergence Point

1693; Isaac Newton achieves the Philosopher's Stone, preparing the way for the rise of angelic alchemy.

Major Civilizations

Western (multipolar).

Great Powers

British Empire (oligarchy, CR3), Venetian Republic (oligarchy, CR4), Prussian Empire (dictatorship, CR5), Spanish Empire (theocracy, CR5).

Worldline Data

TL: 4+2 (space travel and weapons are TL4^)
Mana Level: normal
Quantum: 3 **Infinity Class:** Z4 **Centrum Zone:** Inaccessible

just when the four powers seemed about to plunge the world into angelic apocalypse, the immortal but ever more reclusive and peculiar Newton revealed a new discovery.

The Ritual of Qauqabel allowed the angelist to commune with one of the Heavenly Virtues, angels who ruled (or personified, the math is not clear) the stars of heaven. Each star, Newton revealed – based on the uncredited work of Giordano Bruno – had its own worlds, and those worlds had gemstones with unique powers granted by their ruling angel. Rubies from Regulus, for example, made cannon that fired lances of holy flame; the glow of emeralds from Spica could regrow limbs white and smooth; diamonds from Rigel could erect impenetrable walls. Every nation, and every independent angelist, immediately set out for the stars; colonies grew up under other suns, and soulless aliens were brought back as curiosities and slaves. The four powers found their rivalry increased, but on a vaster scope; although the piracies and raids grew to span the stars, the threat of war with the new weapons keeps the peace of Europe intact . . . for now.

Other Azoths

On other worldlines, the Alchemical Revolution takes different paths, based on their variant magical and physical laws as well as the roll of the historical dice. (All these worlds are low mana unless otherwise noted.) On **Azoth-1** (Q3, current year 1632), the worldline is TL(4+3). Bernard of Treves isolated azoth from quicksilver in 1488; da Vinci developed the azothic flyer four years later, which the Medicis used to unite Italy. Austrian flyers and azothic cannon drove the Turks out of Europe in 1571. In 1617, Sir Walter Raleigh became the first man to land on Venus.

On **Azoth-2** (Q4, current year 1558), Nicolas Flamel discovered the Red Elixir in 1382; the French and English used it to destroy each other in the last stage of the Hundred Years' War, and the TL(3+2) Italian cities, Aragon, Norway, and Burgundy now compete for colonies in the Americas.

On **Azoth-3** (Q7, current year 1634, high mana), an unknown alchemist developed the Higher Metals in 1614; two decades later, TL4^ 50-foot armored clockworks devastate Germany in the Thirty Years' War.

On **Azoth-4** (Q6, current year 1010), a Chinese alchemist discovered the True Cinnabar some time during the Han Dynasty, which has ruled China in splendid TL2^ isolation ever since; the rest of the world remains essentially unaffected.

On **Azoth-5** (Q6, current year 854) both the Arabs and Byzantines systematized the universal solvent alkahest (which releases Elemental Fire from naphtha, among other things) in the late seventh century, leading to an alchemical arms race currently at TL(3+4).

Azoth-6 (Q4, current year 1903) is a hell parallel rimed with frozen alkahest and choked with clouds of Elemental Sulfur. Desperate Cabalists sometimes prospect there for trans-sublime elements. Researchers would like to discover if this is the aftermath of an alchemical war, an experiment gone wrong, or what passes on that timeline for a natural disaster.

Outworld Operations

Azoth-7 is one of the most extensive pocket multiverses that Infinity has ever stumbled across, including not just Earth and the Solar System but scores of other "stellar systems" somehow tangent to it. (Paralabs is adamant that wherever – and whatever – this worldline's "Polaris" and "Sirius" may be, they aren't glowing balls of hydrogen tens or hundreds of light-years away from Earth.) Infinity's great concern is that some angelist may burrow further into Giordano Bruno's research and attempt to reach a parallel Earth; most Patrol missions on Azoth-7 focus on stealing Bruno manuscripts for this reason. The rest of the Patrol's missions on this parallel usually involve attempts to balk the trickle of greedy Cabalists who pop up here and attempt to steal manuscripts or Stones of their own.

BONAPARTE-4

In Homeline history, Napoleon Bonaparte made his name with a bold, but ultimately disastrous, invasion of Egypt in 1798. Outwitting the British and outfighting the Turks, his romantic exploit fired the imagination of Europe. In this world, he sacrificed romance for results, slipping out of the Breton ports in a fog and taking his 40,000 veterans to Ireland. With one bold stroke, he had broken the British blockade forever and made himself master of the continent.

Clash of Eagles

With the Hibernian Republic bristling with French troops, Britain's strategic position was untenable. Although the Navy fought gallantly, the need to divide the Home Fleet guaranteed Bonaparte's invasion of 1802 would succeed. (An opportunistic American President Burr invaded and annexed British Canada at the same time.) Polishing off Austria, Prussia, and Russia at Austerlitz, Jena, and Friedland, Bonaparte was master of Europe by 1807. He dedicated the next two decades to reforming and realigning European laws and sciences on the Napoleonic model, and unified the French and Spanish crowns under his son Napoleon II. The Portuguese monarchs fled to Brazil, which thus became an independent Empire in 1820.

France and the United States fought three border wars over Louisiana over the next century,

Bonaparte-4, 2024

Current Affairs

The decadent Bonapartists rule a cyberpunk empire threatened by a militaristic United States and Japan, and by the slow disintegration of their own society.

Divergence Point

1798; Napoleon invades Ireland instead of Egypt, leading to British defeat in the Napoleonic Wars.

Major Civilizations

Western (empire with rivals), Japanese (empire), Islamic (empire with satellite states), Orthodox (empire).

Great Powers

French Empire (dictatorship, CR5), United States (representative democracy, CR4), Japanese Empire (military oligarchy, CR6), Ottoman Empire (dictatorship, CR5), Russian Republic (anarchic oligarchy, CR1), Brazilian Empire (oligarchy, CR4).

Worldline Data

TL: 8 (9 in some areas)
Quantum: 7
Centrum Zone: Red
Mana Level: no mana
Infinity Class: P5

always while the Empire was distracted with outside rebellions (Mexico in the 1820s, India in the 1850s, Spain in the 1880s). The United States never kept New Orleans, but did take Florida, Oregon, and Cuba as it grew stronger and more militarized after each stalemate. Meanwhile, Japan invaded China in 1894, and defeated Russia in 1905, triggering a social-democratic revolution in the latter. French attempts to destabilize the nascent Russian Republic led to the Great War with Russia, Japan, Brazil, and the United States in 1937; the war ended in the Stockholm Armistice of 1942 after both sides invented atomic weapons.

Since then, the overwhelming French military advantage has been sufficient to keep the borders stable from the Niemen to the Mississippi, and to keep the oil flowing from its Ottoman allies, but not to defeat the endless rebellions in Latin America, Africa, and India covertly supported by the Allies. Slowly drained and ossifying, the French Empire has become a globe-spanning banana republic. The secret police is in bed with the Union Corse, the computer network links to nothing but government propaganda and posturing student movements, and the maglev trains never run on time.

Outworld Operations

Infinity is hampered on this worldline by the insistence of the Homeline French government that nothing be done to destabilize the French Empire, despite clear evidence that Centrum is busily infiltrating the Bonapartist military and scientific establishments. As an end-run, the Patrol turns a blind eye to the massive White Star trade in advanced computer and other technology to the United States, Brazil, and Russia, strengthening their relatively free economies. Nobody on Homeline has any great love for Bonaparte-4's Japanese Empire, which still embraces a fanatical militarist ideology of twisted bushido.

Other Bonapartes

Other parallels with a Napoleonic victory include:

Bonaparte-1 (Q6, current year 1895), a TL6 worldline in which Nelson died in an attack on Boulogne in 1801. Without Nelson, Trafalgar ended as a Franco-Spanish victory, and Napoleon dictated peace from the Tower of London in 1806. France lost the War of 1812 trying to retake Louisiana from America, and the French Empire came apart in a series of German, Italian, and colonial rebellions in 1848-1850; Russia and America (which annexed Mexico in 1853) are dominant powers quarreling over China.

On **Bonaparte-2** (Q7, current year 1863), Napoleon managed to rout and kill Wellington at Waterloo in 1815. The British stock market and government fell, leading to a reforming Whig cabinet. Napoleon II is the grand statesman of Europe, and makes noises about intervening in the American Civil War.

Bonaparte-3 (Q4, current year 1913) saw Napoleon hang onto Minsk and Smolensk in Russia, and resume the war in 1813 for four more years against an increasingly mad Czar Alexander. Russia eventually collapsed, breaking the Coalition; a century later, the TL6 Kingdom of Poland is threatening a global war against the Anglo-Japanese Alliance.

In 1809 on **Bonaparte-5** (Q6, current year 1921), both Napoleon and Wellington were killed in battle; Metternich negotiated a peace that left the half-Hapsburg Napoleon II on the throne of France. Austria fell to Communist revolutionaries in 1919 after defeating Russia and Prussia in the Great War; Napoleon V is rallying the West to destroy the new Revolution; TL6.

And on **Bonaparte-6** (Q6, current year 1969), the Corsican revolutionary Paoli died in 1759, allowing Napoleon to be born Genoese. During the Revolutionary era, he unified Italy in the Roman Republic, and conquered Egypt and Greece. Rome allied with Britain and the United States in the War of 1914 against Germany, Turkey, and Austria. Fermi's atom bomb and Caproni's jets made Rome the first superpower in the 1940s; TL8.

BRITANNICA-3

In Homeline, the Protestant Duke James of Monmouth rebelled against the increasingly autocratic (and dangerously pro-Catholic) King James II in 1685. His followers claimed that as Charles II' bastard son, he was entitled to the crown. Monmouth's rebellion ended in disaster, and the "Bloody Assizes" swept his supporters out of England's west country and into the Caribbean and America. It was left to a later group of rebels to remove James II in 1688, in the "Glorious Revolution." On Britannica-3, though, James of Monmouth was better advised, and James II was over-hasty in his repression. When the smoke had cleared, the "bastard Duke" had become King James III of England, and the gentry had learned a salutary lesson about royal power.

The Sun Never Sets

Although James III was an amiable fathead at best, his instincts were sound. Colonies were good, radicalism was bad, and it was best to keep the one away from the other. In the American euphoria that greeted James II's deposition, James III was able to convert the colonial charters to royal grants, while officially recognizing colonial legislatures as "our American Parliaments" in his happy phrase. His successors continued his policy of tying local American elites to the fortunes of England's elites – Benjamin Franklin was knighted for his lightning rods and post offices, and George Washington was granted first a Regular Army commission in the French and Indian War, and then a peerage for conquering Louisiana in the Sugar War of 1779-1783. Lord Washington (later the Duke of Washington) became the first Governor-General of North America, and his personal example defused the Abolition Crisis of 1794 that nearly precipitated a revolt by Virginia and South Carolina against the Crown.

By the mid-19th century, the Dominion of North America exceeded the mother country in all types of production and manufacture save for steel and chemicals. General Sir Robert Lee pioneered the integration of colonial units into the British Army (transforming it into the Imperial Army) after his astonishing tactical successes in the Crimea. That defeat marked the nadir of Russian power, however; Czar Alexander II's long reign and his visionary alliance with Prussia created a continental and industrial rival capable of matching Imperial production. German and Russian backing for the Turks kept the Ottoman War bogged down in trenches for four years until the stalemate broke with the Arab revolt and Italian entry on the Imperial side. Admiral Sir William Halsey defanged the Japanese Navy with a startling surprise air attack on Formosa in 1941 that ended the threat of a Pacific War, but the Alaska War erupted in 1943 with the discovery of vast oil fields in Russian Alaska. Again fought primarily in France, Persia, and on the high seas, it ended inconclusively once Einstein and Sakharoff invented the fission bomb in 1947.

The last 40 years have seen German- and Russian-backed agitation in Ireland, Argentina, and Kwantung, and the anti-Italian "Gaulist" military coup in France, but no real change in the balance of power. A burgeoning space race, social turmoil and religious ferment, and blossoming sexual license dominate the newspapers and telescreens. The North American and Indian Dominions lead the world in all three, as well as new industry and invention, under the wisely minimal direction of His Imperial Majesty's Government in London.

Britannica-3, 1984

Current Affairs

Centrum operatives tighten their hold on a decent, well-run British Empire where the sun never set.

Divergence Point

1685; the "Protestant Duke" of Monmouth becomes King James III, overthrowing James II, and conciliating the American colonies.

Major Civilizations

Western (empire with rivals), Orthodox (empire), Islamic (multipolar).

Great Powers

British Empire (representative democracy, CR3), German Empire (dictatorship, CR5), Russian Empire (dictatorship, CR5), Kingdom of Italy (oligarchy, CR4), *Arab League (feudal, CR5).*

Worldline Data

TL: 8 **Mana Level:** low
Quantum: 7 **Infinity Class:** P9 **Centrum Zone:** Orange

The one duty we owe to history is to rewrite it.
– Oscar Wilde, ***Intentions***

Outworld Operations

Like almost all the Britannica timelines below, Britannica-3 is a tempting plum for Centrum subversion and control. Their language handicap presents no difficulties, the British Empire on this world is already increasingly meritocratic, and the Interworld Service operates with relative ease on Quantum 7. How deeply Interworld's tentacles penetrate into the London, Philadelphia, Capetown, or Delhi governments (to say nothing of lesser colonial capitals from Havana to Stanleyville) is impossible to tell from the outside – Centrum and the Imperial Government have the same goals, after all! Infinity tries to increase the power and influence of advanced, decent, neutral countries like Japan (where the military government fell after the Formosa Raid), New Granada, and Cochin-China . . . but without revealing their presence (and risking a parachronic breakthrough by their beneficiary), there are limits to what Infinity aid can accomplish. The Patrol's job is not made any easier by the immense popularity of Britannica-3 with Anglophile Homeline tourists.

Other Britannicas

On all accessible worlds with a vigorous, globe-spanning British Empire, Centrum's Interworld Service busily attempts to subvert it to Centrum direction and control, with the goal of adding that parallel to Zone Green (p. 51).

On **Britannica-1** (Q5, current year 2001), the American colonies splintered after independence to become a zone of proxy wars between the European powers. Undistracted and eventually economically predominant in America, the British Empire defeated Napoleon (1792-1809), Russia (1854-1856), Germany twice (1910-1914 and 1936-1940), and the Soviet Union (1958-1963). The Bolshevist War ended with TL7 Britain holding a near-complete monopoly on space travel and a new Pax Britannica unfolding before it; now TL8.

The TL(5+2) Empire of **Britannica-2** (Q6, current year 1936) diverges in 1824, with the death of John Quincy Adams. Prime Minister Canning easily outmaneuvered President Henry Clay, and the British obtained a full claim to Oregon, which they expanded into California in 1846 to secure their Nicaraguan Canal. (The canal was very useful in the 1862 intervention that separated the American Confederacy as a British puppet.) The Raj extends from Thibet to Persia, British capital dominates the factories of the Germanies through Hanover and Holland, and a British railway runs from the Cape to Cairo. Infinity is unsure how much of this is due to Centrum manipulation; the timeline has been part of Zone Green for over a decade. More worrisome are the hints that the Empire has developed *time* travel, which if true would explain the unbroken run of British luck since 1824.

On TL6 **Britannica-4** (Q5, current year 1901), Washington was able to bring up enough troops to capture British supply depots in New Jersey and besiege New York in 1777. France jumped in and stripped Britain of its tropical colonies; George III went mad and the Prince Regent formed a government led by Fox and his Whig cronies. England industrialized and radicalized as France ossified; by the 1860s, it was democratic and overwhelmingly prosperous. Its "freelance anti-imperials" intervened in the American Civil War against slavery, intrigued with the sepoys who overthrew French India, and ran guns to rebels against Franco-Russian-dominated China. Prime Minister Rhodes and President Roosevelt have suggested a democratic English-Speaking Union with the Canadian and Australian Republics – almost certainly a Centrum plot in some fashion, but hard to oppose for Infinity without aiding Continental despotism.

Other Britannicas diverge more strongly still: **Britannica-5** is a steampunk reality absorbed into Zone Green a decade ago.

Britannica-6 (Q6, current year 1887) diverged with the survival of the Princess Charlotte in 1817 to become Queen Charlotte in 1830 and spawn a vast new royal family, all of whom continuously intrigue against each other, exile each other to remote colonial fortresses, and sponsor senseless, grandiose TL(5+2) engineering projects such as the Channel Bridge, the Ice Dreadnought, and the Electrical Terror, while betting immense sums on dromedaries or racing aerostats.

On **Britannica-7** (Q4, local year 1141) Boadicea threw off Roman rule in 60 A.D. and established a matriarchal Celtic tribal union, Brittia, that spread into Ireland and Scotland over the next centuries. An Irish cultural-technical upsurge in the sixth through eighth centuries extended Brittia across the North Atlantic and its influence deep into Europe; it has alternated holy wars and very profitable intellectual exchange (reaching TL4) with the Saracen Caliphate in Rome for the last 200 years.

CALIPH

This timeline is almost 350 years behind Homeline, but any visitors could be forgiven for thinking it centuries in the future. In Caliph, however, the invention of the printing press in eighth-century Baghdad sparked an Islamic Renaissance when the first flush of Arabic expansion had hardly faded. Following its ninth-century Scientific Revolution, this worldline has advanced to universal prosperity and space colonies. At present, a global war threatens its achievements, and perhaps its very survival.

The Great Transformation

By the time the Abbasid Caliphate split into successor states in the 11th century, the Muslim world was well towards modernization, with personal firearms and Newtonian physics. Egypt achieved naval control of the Indian Ocean, as far as southern Africa and the island continent of Djiba, while its rival Andalus established itself in the Mediterranean and leaped across the Atlantic to the new world of Talentis (hardly noticing the Christian colony in the far north). Persia fought with the Turks for control of inner Asia, while to the north their protégés the Bulgars expanded from their Volga heartland to dominate their Khazar and Russian neighbors. The impact of Muslim culture even reached the Khitans in northern China, whose conversion revitalized their state and led to the conquest of Song Dynasty China.

Egypt and Persia led the way into the Industrial Revolution, which began with oil rather than coal. Their rivalry for control of the Muslim heartland lasted centuries, though ironically they fought together in the greatest wars. When the Global War began with revolts in their Asian colonial empires, they fought Bulgaria, Andalus and the African sultanates as well as the rebels – and, ultimately, were overmatched even with Khitan aid. This 10-year struggle introduced Caliph to industrialized warfare and was long considered to have demonstrated the folly of armed conflict between the major powers. The Peace of Zanzibar ended the last war between the great caliphates for almost 350 years, although there were occasional scares such as the fall of the Qi Dynasty in China and the suppression of the totalitarian Umarites.

The world had sufficient difficulties even without warfare, as technology continued to advance and society was repeatedly shaken and remade. Technology brought prosperity and knit the Earth together in an increasingly unified global society, even as it began to reach outward to space. Older political structures came to seem outmoded, with the decline of national governments reaching its apex early in the current century with the formal dissolution of the Egyptian Caliphate. Religious sentiment ebbed as a universal system of law and economics organized the secular world, only to come flowing back as the approach of the millennial year (1000 A.H, or 1591 A.D.) tapped into reservoirs of popular belief.

Meanwhile, as technology advanced, Caliph dealt with the side effects of success. Industrialization damaged the ecosystem, which was healed; universal prosperity brought economic dislocations, which were absorbed, and increasing longevity disrupted social assumptions in ways that have yet to be entirely resolved.

Fourteen months ago, an alliance of old-fashioned imperialists in the Caliphate of Hind and a new sort of ideological state, the radical secularist Jamahiriya in the Americas, launched a war of conquest. At first, it was hard to believe that such an inexplicable atavism could pose a serious threat to the modern world, but that illusion has been dispelled. The aggressor Alliance now controls a third of the globe, and the rest of the planet responded with a startling revival of martial enthusiasm. The Zaghawi Associates, this worldline's dominant space corporation, and the only known constructor of djinn (AIs), responded by severing its ties to Earth and declaring itself an independent caliphate – it has bigger fish to fry, building a stargate in trans-Neptunian orbit and (so they claim) carrying on communications with alien species.

(See ***GURPS Alternate Earths 2*** for further details.)

Caliph, 1684

Current Affairs

In an ultra-tech worldline, radical secularists allied with the expansionistic empire of Hind have launched a global war against the Muslim caliphates.

Divergence Point

796 A.D.; invention of the printing press in Baghdad awakens an Islamic scientific and industrial revolution.

Major Civilizations

Islamic (multipolar), Islamic-Indic (empire).

Great Powers

Umma (anarchic theocracy, CR1), Jamahiriya (technocracy, CR5), Hind (dictatorship, CR5), Zaghawi Associates (orbital corporate state, CR1), Persia (dictatorship, CR3), Andalus (dictatorship, CR3), Bulgaria (dictatorship, CR3), Sofala (dictatorship, CR3).

Worldline Data

TL: 11 (biotech, TL8)
Quantum: 6
Centrum Zone: Red
Mana Level: no mana
Infinity Class: Z2

Outworld Operations

Infinity only discovered Caliph a year ago, and it remains a top internal secret of the Patrol and UNIC, neither of which wants to see Homeline idiots gold-rushing into a deadly high-tech war zone. If it weren't for the Zaghawi Associates stargate experiments (and the threat of Centrum getting a jump on Caliph technology), Infinity would just quarantine this world and be done with it. High-tech worlds are dangerous enough, without being caught in a war of godlike energies and insane mobility.

Centrum's reaction to Caliph is panic tempered by greed – it wants the high technology, but *really* doesn't want to risk a world this powerful getting parachronics. One solution would be encouraging the conflict to turn apocalyptic and sorting through the ruins: the I.S. might try that if convinced it could work, since it seems too late to save this worldline from its Last War. Infinity has been trying to negotiate a mutual interdiction to take Caliph off both sides' agenda, but between the greed and the panic, it's unlikely that Centrum will go along.

Unfortunately for both sides, information is harder to obtain during a war than in peacetime. It is very difficult to establish a false identity under current conditions, and just about impossible to operate without one (for starters, almost all money is electronic). Law-abiding citizens across the Dar al-Islam are ready to point security forces toward any sort of odd behavior.

It may actually be easier to operate in Alliance territory – and certainly easier to recruit local help. Of course, the personal consequences of detection are heavier, but that might be an advantage. Better any captured Patrolmen should be killed on suspicion than questioned deeply enough to reveal The Secret.

Oh Mankind, surely you are the ones who have need of God; He is the All-Sufficient . . . if He but wills it, He can do away with you and make a new creation: surely that is no great matter for God.

– The Koran, 35:15-17

Other Muslim Worlds

Infinity knows of several other parallels where history diverged to vault Muslim powers into predominant roles. Caliph is the only one more advanced than Homeline, although **Jihad-2** (Q5, current year 1429), in which Constantinople fell to the Arabs in 676 and Europe followed, is well into a TL5 industrial revolution.

In **Jihad-1** (Q5, current year 1881), where the Arabs defeated the Franks at Tours in 732, Muslim Faranjistan is still stagnating with the rest of the world at TL4.

In **Ottoman-1** (Q6, current year 1766), the Turks took Vienna in 1529 and marched to Rome and the Rhine; the Anglo-Spanish alliance is gingerly pressing back into the fragmented taifa states of France and Germany; TL4.

The Turkish empire in **Ottoman-2** (Q6, current year 1766) extends over a huge part of Asia, Russia, and India as the Ottomans turned east to swallow Tamerlane's empire upon his death. The Europeans they neglected are moving into TL5, however.

Ottoman-3 (Q4, current year 1640) also diverges with Tamerlane, who conquered China in the 1390s and forcibly converted it to Islam. With Tamerlane occupied in the East, the Ottomans took Constantinople in 1405 and swallowed Europe to the Elbe. Both TL4 Muslim empires (and the remainder of Muscovy) are wracked with revolts and famine from Germany to Manchuria.

In **Ottoman-4** (Q7, current year 1871), Mehmet the Conqueror survived long enough to complete his invasion of Italy in 1481, aborting the Renaissance. The TL6 Ottomans control the Mediterranean and Caribbean both, and are racing the Moguls to African colonies.

Other Muslim timelines include:

Andalus (Q4, current year 1930), in which the Muslims of Spain threw back the Reconquista and went on to discover America in 1484, achieving TL6 in rivalry with Japan, Saxony, and Russia.

Isma'il (Q4, current year 1594) in which the Safavids defeated the Ottomans in 1512 and built a millenarian TL4 Shi'ite empire stretching from India to Algiers.

Khedive (Q6, current year 1941) in which Mehmet Ali's modernization program in Egypt achieved industrial takeoff in the 1860s, allowing Egypt to absorb most of northern Africa and the Middle East and become a TL7 great power holding the balance between Britain, Germany, and Russia.

CAMPBELL

Look both ways before you cross the intersection – the universe you save could be your own. On the worldline named for him, the science-fiction editor John W. Campbell died in a traffic accident early in his career. As a result, many science-fiction writers from Isaac Asimov to Robert Heinlein never developed their talents, or developed them in other directions. (Robert Heinlein, for instance, became a successful writer of young adult mystery fiction and, later, TV sitcoms. The beloved *Bob Anson Show* was based on this part of his career.) The field of science fiction didn't advance much past space opera. Apparently, this reduced the number of students who became interested in science and engineering, because scientific development has stagnated here since the end of WWII.

Twilight

John W. Campbell's death didn't end all science fiction, of course. Hugo Gernsback's *Amazing Stories* continued to publish wild utopian scenarios and odes to antigravity machines; Flash Gordon and Buck Rogers still appeared in the comics; the dystopic *The Shape of Things to Come* still premiered in movie theaters in 1936, with its vision of grim, devastating warfare. Unfortunately, that was the only accurate prediction of the lot. Perhaps military-technical decision trees had been slightly skewed toward the optimistic by a steady diet of Gernsback's pablum, or maybe Robert Heinlein, L. Sprague de Camp, and Isaac Asimov were working more productively without writing distracting them from their war research. (Other would-be writers with scientific training went into military black programs, too.) Either way, the Army deployed radioactive dust bombs against Germany in 1944, and responded with advanced germ warfare when the Nazis unleashed gas in retaliation.

A nuclear barrage finished off the Axis, and managed to poison not only Europe and the North Pacific, but also the American view of science. Science had let the West win the war, to be sure – but it had killed 170 million people doing it, and the "scientific materialist" Soviets were gobbling up the survivors in concentration camps of their own. Communist China emerged from the toxic wreckage of Asia and began its own "scientific" mass murders to build the World of the Future. American and British soldiers who came back from the war had been to the World of the Future, and it was a blasted wasteland. Both countries rejected all such thinking; waves of pacifism and Luddism spread through the intellectual elite and common folk alike. In the 1960s, tens of millions of young people embraced charismatic religion in massive outdoor revival meetings and folk concerts, which continued and re-emphasized the anti-technological bent of society. Environmentalism in the 1970s and 1980s, and even the newly militant anti-Communist sentiment in Britain and America during the 1980s and 1990s (which did produce a modicum of military research money), all fed into that same channel of religious technophobia.

Campbell remains a poor world without communications satellites or personal computers, without robotized factories or advanced oil-drilling technology or the agricultural revolution that allowed India to feed itself on Homeline. It grows ever poorer and more dangerous as the Communist powers begin to hit the wall of economic performance and ecological disaster. Even Russia's German and Italian satellites, and China's Japanese and Korean ones, have sunk into Marxist toxic sloth and debilitating famine. British, Indian, and American draftees face renewed Communist aggression in the Middle East, Indonesia, and Latin America, and thank their God (or gods) that at least they won't be fighting "scientifically" this time.

Outworld Operations

Most Infinity operations on Campbell fit into one of two categories: attempting to promote science (a real uphill climb in this world; White Star has seen four SF magazines go bankrupt after being banned by church leaders), and intensive sociological research. The near-total derailing of scientific progress (all over the world, not just in the United States) seems like such a dramatic result from such a tiny cause that some Patrolmen suspect there's more to it. A secret society or conspiratorial group might be deliberately retarding progress, or some transhuman entity could be trying to remove any possible competition.

Campbell, 2004

Current Affairs

A world without SF becomes a world without scientific progress; the impoverished globe girds for the final showdown between Communism and democracy.

Divergence Point

1932; SF editor John W. Campbell dies in an auto accident, leaving a dearth of positive images of scientific progress.

Major Civilizations

Western (multipolar), Orthodox (empire), Chinese (empire).

Great Powers

United States (representative democracy, CR3), Soviet Union (dictatorship, CR6), People's Republic of China (dictatorship, CR6), British Commonwealth (representative democracies, CR2-4).

Worldline Data

TL: 6 (military, TL7) **Mana Level:** no mana
Quantum: 5 **Infinity Class:** R6
Centrum Zone: Inaccessible

Centrum Beta

A newly penetrated Q7 timeline seems to be exactly like Homeline researchers *think* the world of Centrum was in the year 1895. Could it be an echo? If so, it has untold repercussions for paraphysics as Infinity understands it. Even an ordinary parallel has plenty of potential for revelation . . . or trouble. Either way, why is it the only one they've ever found? Since Quantum 7 is more accessible to Centrum than it is to Homeline, Centrum Beta swarms with Interworld agents – but for once in the Infinity War, they're playing defense.

The Plantagenet Mirror

The history and geopolitics of Centrum Beta are identical to those of Centrum up to 1895, as detailed on p. 46-56. (See ***GURPS Alternate Earths 2*** for further details about Centrum's history.)

Outworld Operations

Since the discovery of Centrum Beta earlier this year, the Penetration Service has launched several deep recon missions into this echo. The Scouts' goal is to trawl as much information as possible about the otherwise inaccessible history of Centrum before the inevitable Interworld counter-operation moves it out of Homeline's reach. One particularly bold Penetration Service op cleaned out every library in Penzance just before a tidal wave hit – the Patrol remains silent on the subject of just how the Scouts knew a tidal wave was coming. Patrol operations on this worldline are particularly reckless, since they know they face a ticking clock. And if Centrum Beta is an echo, perhaps their "interference" will actually move it closer to Homeline!

Interworld, meanwhile, finds itself in the unenviable position of playing defense. Normally, the I.S. gets to pick its battlegrounds after careful planning, and has the tactical advantage resulting from picked targets and overstretched opposition. They have not, it must be admitted, adjusted very well to the change. Disagreement at the higher levels of Interworld exacerbates this lack of flexibility: their sensors report that Centrum Beta (which Centrum calls "Speculum") is, in fact, an unprecedented Centrum echo, but its paratemporal instability index has an odd geometry to it. Interworld walks on eggshells, worried that if it disturbs this echo, it will set up a chain reaction throughout the continuum, producing a flood of new Centrum echoes and possibly ejecting their own world from 8-space altogether. In the last month or so, however, I.S. has decided to massively increase its reaction team deployments on Centrum Beta – whatever happens, Infinity's free ride here is over.

Centrum Beta, 1895

Current Affairs

Access to a possible echo of Centrum gives the Patrol a unique opportunity for research and sabotage.

Divergence Point

1120; William the Ætheling's ship doesn't sink, and he becomes King William III in 1135, eventually leading to English absorption of France under Eleanor of Aquitaine.

Major Civilizations

Western (universal empire).

Great Powers

Anglo-French Empire (semi-feudal dictatorship, CR3-5 depending on fief).

Worldline Data

TL: 7 **Mana Level:** no mana
Quantum: 7 **Infinity Class:** Z4 **Centrum Zone:** Red

Dixie-1

Homeline's United States government takes a particular interest in this Quantum 6 parallel. This worldline begins to diverge from Homeline history with the conquest of Nicaragua by the Southern adventurer William Walker in 1856. In Dixie-1, Walker's aid ultimately led to a Confederate victory in the American Civil War – or, as the Confederates of Dixie know it, the War of Southron Independence. 130 years later, the Confederate States of America remain locked in a nuclear stalemate with their old rival. Across the Atlantic, the German Empire retains the European hegemony it won early in the century. In southern Asia, the Indian Republic supplies modern weapons to the rebels in German Indochina, while the newly industrializing countries of the "Indian Rim" manufacture the cheap electronics which find their way into Confederate dirigibles and Yankee stratojets.

The Confederacy itself retains its particular charms, complete with Southern belles, riverboat gamblers and dashing cavaliers in butternut. If one is (or can act as) a "gentleman" or a "lady," Southern hospitality is all a denizen of Homeline might wish, as hundreds of well-heeled tourists discover annually. Only white tourists and those who can pass for white, of course – Southern gentility extends only to those who belong to a race eligible for citizenship. Beneath even

"white trash" factory workers and smallholders, nearly half the population of the CSA lacks the right to vote, own land, or move across a state line without permission. Indeed, in nine of the 21 states of the Confederacy, chattel slavery remains legal.

From Secession to Superpower

Both the Confederacy and the United States spent the decades after the War of Southron Independence weathering its economic shocks and expanding on the continent. The Confederacy picked up the pieces in Mexico after the French adventure there failed, as the vengeful Union dismembered British Canada during the Riel Rebellion of 1869 (the United States annexed the resulting Republic of Manitoba in 1911). Bismarck negotiated a U.S.-German Accord to counter the British alliance with the CSA, leaving the two American powers tied into European alliance politics. The Guiana War of 1895-1897 and the Great War of 1914-1921 pulled the knots tighter, as the situation in Europe came to determine the outcome in America. With Bismarck keeping Russia neutral, the first ended in a stalemate. In 1920, German armies (redeployed after the revolutionary collapse of Russia and the French army) bypassed Patton's brilliant mobile defenses in the West and smashed through the trench lines in the Shenandoah Valley, leaving the Union victorious. The Confederacy lost Oklahoma, Sonora, Maryland, Delaware, and D.C. to the Union by the Treaty of Washington.

Both the United States and the Confederacy fought new wars in the 1940s, though not against each other this time. The Union had to rescue its German ally from a mechanized Franco-Italian assault by the dictators de Gaulle and Mussolini, and the Confederacy fought a brutal naval war in the Pacific against an expansionist Japanese Empire that coveted British concessions in China and Confederate oilfields in the Dutch East Indies. (Britain, mired in U.S.-backed revolts in India, dropped out of the Pacific War early, leaving Australia a permanent Confederate ally.) The war in Europe ended with the German invention of the atomic bomb, dropped on Elba in a demonstration shot; the Pacific War ended with a bold redeployment of the Atlantic Fleet through the Nicaragua Canal and the invasion of a fire-bombed Shikoku. In the turmoil, India had become independent, and the Russian Soviet Republic had escaped the German orbit.

The years since have seen an economic struggle in North America, proxy wars in South America and Asia and a continual arms race that has impelled both powers into outer space. Both Northerners and Southerners call this conflict by a name coined by a Richmond newspaper editor: "The Long Drum Roll." A brief "Parade Rest" in the 1970s ended as the Confederacy, feeling the economic squeeze of its military programs (and inefficient apartheid economy) clamped down on domestic dissent and ramped up its military space program to develop an anti-missile defense shield. In response, U.S. President Knox deployed missiles to Puerto Rico in 1983. Ten years of tension, while the Union's Indian and German allies squabbled over territory in the booming "Indian Rim," have left the libertarian North tired of the struggle but unable to step back from the brink – and driven the "White Circle" of South Africa, Australia, Brazil, and the Confederacy ever closer to formal union or pre-emptive war.

(See ***GURPS Alternate Earths*** for further details.)

Dixie-1, 1993

Current Affairs

Nuclear stalemate keeps the peace between the increasingly strained slave-holding Confederacy and a libertarian Union wary of an apocalyptic war.

Divergence Point

1856; William Walker retains control of Nicaragua, and uses that base to break the Union blockade of the CSA, allowing the South to win at Antietam and become independent.

Major Civilizations

Western (multipolar), Indo-Western (unitary).

Great Powers

United States (representative democracy, CR2), Confederate States (oligarchy, CR4 for whites, CR6 for others), German Empire (dictatorship, CR5), United Republic of India (representative democracy, CR3).

Worldline Data

TL: 8 (aerospace, late TL8)
Quantum: 6
Centrum Zone: Orange
Mana Level: low
Infinity Class: P9

Outworld Operations

The Infinity Patrol has a relatively large presence in Dixie-1, facing an even larger variety of problems. (Note that "large," given the limited number of Patrol agents available, means a permanent staff of perhaps 20.) Naturally, their bulk of work lies in observation and aid to Homeline tourists, who flock to the Confederacy in droves. The Patrol's biggest headache is nonstop smuggling, largely based in Dixie-1's utterly corrupt Fascist Italy. For example, an information smuggling operation succeeded in introducing spreadsheet programs into the local computer industry, sparking a revolution in business productivity that has not yet entirely run its course. Legitimate traders like White Star primarily export licensed computer technology and software to Dixie, importing hovercraft designs, hypercotton, and intellectual property of all kinds back to Homeline (particularly Faulkner novels and bootleg Janis Joplin CDs).

Of Homeline's national governments, the United States, Germany, India, Russia, and South Africa maintain Dixie-1 bases known to Infinity, usually in the capitals of their Dixie-1 analogs. Homeline governments (especially the United States and South Africa) are constantly interfering in the Confederacy, despite a clear UNIC finding that racial instability in the CSA could trigger a potentially nuclear civil war. Dixie-1's popularity among illegal emigrants from Homeline is notorious. Usually romantic citizens of the southern United States, these individuals book a tour to Dixie-1, and then attempt to disappear. The Patrol's vigilant watch for "new" inventions catches most of the obvious expatriates, and keeps interference by outtimers to a minimum, although the Patrol worries constantly that one of these Confederate patriots might reveal The Secret. Both Centrum and Infinity busily divert physicists on all sides away from research that could lead to parachronics. None are really close, but the CSA is investigating some backwaters of physics that could potentially mean trouble.

Dixie-1, in both Zone Orange and the Quantum 6 battleground, gets Centrum's close attention. Interworld feels that the CSA is probably easier to transform to its kind of society than is any rival power; with India the second choice. Confederate rigidity and reaction respond well to Centrum sociodynamics, while since the revolution, India has enforced church/state separation with the express goal of maintaining egalitarian politics despite the Hindu caste system. Interworld's goal is to drive a wedge between the Union and India, tying the United States tightly to Germany's fading strength, and then to offer overwhelming strategic advantages to the CSA (in exchange for concessions that leave Centrum in the saddle in Richmond). With the Union and Germany shoved over the edge, Centrum's puppets would pick up the pieces, and their natural tensions would allow the Uplift Service to implement some of the Education Service's decades of experience at ruthlessly enforcing racial equality.

Other Dixies

Dixie-1 was the first of the "victorious, surviving Confederacy" parallels to be discovered. There are five more known to Infinity:

Dixie-2 (Q3, current year 1966) and **Dixie-3** (Q6, current year 1937) both diverge at Gettysburg. In Dixie-2 the CSA dominates the Caribbean and the United States is an appendage of French and Japanese bankers. In Dixie-3 both the CSA and the U.S. are poor, corrupt satellites of European powers. Both realities are high TL6.

In **Dixie-4** (Q4, current year 1954), the Civil War occurred in 1844, the West is still Mexican, and the United States and CSA are allied against the Mexican and German Empires. Britain is neutral; the world is TL6.

Dixie-5 (Q6, current year 1943) diverged with Early's Raid in 1864 and turned into a long British quagmire in America that left the CSA an impoverished British puppet and the United States a fanatical garrison state between British Canada and the Confederacy. The U.S. military is TL8; the rest of the world is TL7 or lower, including the Union's TL6 Soviet allies.

Dixie-6 (Q6, current year 1910) diverged at First Manassas when the CSA pushed on and took Washington; Texas and California have both declared themselves independent, and all four nations are rivals for the Indian West.

EZCALLI

The Pan-American research team that recently discovered this worldline named it *Ezcalli,* from the Náhuatl for "house of blood." Here, the Pyramid of the Sun continues to smolder with the burning hearts of human sacrifice. Here, slave ships travel from Europe to México groaning with their human cargoes. Here, the harsh tropical sun beats down on Tenochtitlán's lakes and factories, shining through the haze on the Place of the Cactus, the greatest city in the world. Here, the Aztecs rule an expanding empire of blood and glory.

The Tenochca Empire, known to Homeline historians as the Aztec Empire, dominates this world. Its divergence point from Homeline begins with the Carthaginian discovery of the New World and the Columbian Exchange of foods, diseases and ideas occurring two millennia early. Europe and Asia lie somnolent under the placid, orderly, static rule of the Mongol Khaghans. Rome lies in ruins, its legacy preserved in the West African Songhay Empire. The Tenochca navies take colonies overseas as they battle their rivals the Hotinohsavannih League (Homeline's Iroquois Confederacy) for domination of North America. Steam-powered industry is common in Africa and the Americas, and the first tremors of the scientific revolution are stirring the Tenochca elites.

Birth of the New Sun

Rome dissolved into civil wars following the assassination of the Emperor Nero. With potatoes planted in the Gallic soil, the West was no longer dependent on Egypt for food, and looked across the Atlantic rather than back to Asia. The Roman Mediterranean economy was split, and the Empire split as well. Barbarians swept over Europe; Rome maintained its rule only in North Africa, by vigorous Christian Caesars and cunning diplomacy. In the New World, the great empire of Teotihuacán, stretching from the Orinoco to the Illini, fell to its own barbarians, the Siouans and Toltecs,

and to new plagues from Asia. Only in Africa did civilization prosper, as the Empire of Mali, centered on the great Romano-Christian trading city of Timbuctu, supplanted the Christian kingdom of Ghana. Mali fell to Songhay in turn, expanding Roman-African civilization from Spain to the Congo.

The final barbarian wave brought peace and one last great plague to the warring states of Eurasia. The Mongol armies raced through Central Asia and poured into Europe, crossing into North Africa, taking Roman Carthage and ending the last Roman kingdom in 1240. Later Great Khans added Persia, China, Japan, India, Indochina and finally Java to the great Mongol Khaghanate. The Black Death swept through Eurasia, crippling the Mongols' foes, and left the Pax Mongolica supreme over two continents.

In the New World, another barbarian tribe from the fringes of civilization founded a great empire. The Tenochca entered the Valley of México and founded their capital Tenochtitlán in 1325. After the Black Death hit in 1361, the Tenochca overwhelmed their demoralized neighbors and established a powerful kingdom. The political genius and reformer Tlacaelel built the Tenochca Confederacy into an empire based on military skill, economic diversity, and religious bloodthirstiness. One after another, the rivals of the Tenochca from the Quechua in Peru to the Muskogea along the Mississippi fell to the Jaguar and Eagle Knights of the Empire. Their only obstacle is the Hotinohsavannih League, another expansionistic confederacy centered on Onondoga in the northeast stretching from the Free City of Manannán (founded by Irish traders in 200 B.C.) to the iron mines west of the Five Lakes.

The Tenochca send their *pochteca* merchants across the oceans to fortified trading posts on every coast. They bring back European slaves for the fields and mines, and gems, spices, and silks from the Mongol East. The Tenochca Empire is on the verge of its greatest wave of expansion – if it can beat back its Hotinohsavannih and Songhay rivals for the rich spoils of the senescent Mongol Khaganate and the unclaimed riches of Africa and North America.

(See ***GURPS Alternate Earths*** for further details, and ***GURPS Aztecs*** for background.)

Outworld Operations

Ezcalli was so recently discovered that Infinity and other parties on Homeline are still trying to decide on a policy toward it. Since no one is worried about anyone in Ezcalli developing parachronic technology, debate is over exactly what form covert intervention ought to take. While there is a broad consensus (even by the Homeline Mexican government) that *something* should be done to curb the Tenochca, no one can agree on exactly what to do or how to do it.

Infinity's main worry is coordinating the activities of the groups that want to "better the lot" of the natives, to avoid revealing The Secret. White Star Trading is interested in some of the unique artistic and cultural artifacts of Ezcalli cultures, but they *really* don't want to have to disguise themselves as *pochtecas* and participate in local religious practices. The Duncorne Foundation has a similar interest in Tenochca astronomical records, and even more serious qualms about worshiping Huitzilopochtli. Miracle Workers normally concentrates on relieving the effects of natural disasters. It frowns on political intervention except for the prevention of wars, but many of their employees are urging them to make an exception.

Centrum's intervention in Ezcalli is even more recent than Infinity's discovery of the timeline; the first reports of what sounds like Centran activity have only just appeared. Reports of a visitation of babbling demons at the Tenochca colony in Knasgord (Homeline La Rochelle, France) sound a lot like parachronic travelers disrupting the sacrifice . . . and Infinity is quite certain that there were no visits from Homeline. Because of the suspicious timing, Infinity suspects that some source inside Infinity itself leaked Ezcalli's parachronic coordinates to Centrum.

Ezcalli, 1848

Current Affairs

An industrial Aztec Empire expands across the world.

Divergence Point

508 B.C.; Carthaginians discover the New World and launch the Columbian Exchange of diseases and food two millennia early.

Major Civilizations

Meso-American (empire), West African (empire with satellite states), Iroquois (empire), Steppe (empire).

Great Powers

Tenocha Empire (caste-based dictatorship with strong theocratic component, CR4, CR6 for subject tribes), Songhay Empire (dictatorship, CR4), Hotinohsavannih League (representative democracy, CR2), Mongol Khaghanate (feudal dictatorship, CR4-5).

Worldline Data

TL: 5 (Tenochca agronomy, TL7; Mongols, TL4)
Mana Level: low
Quantum: 6 **Infinity Class:** R5 **Centrum Zone:** Yellow

FRIEDRICH

In Homeline history, Emperor Friedrich I Barbarossa exemplifies the horseshoe nail, the changepoint that almost happened. He almost brought the rich cities of northern Italy into a common Empire, losing one campaign thanks to malaria, and losing the Battle of Legnano in 1176 only through the defection of his vassal Henry the Lion, Duke of Saxony. He deposed Henry with the aid of many German bishops, and almost broke the power of the German nobles, which (along with the tax revenues from Italy) would have unified Germany as a nation much as his contemporary Philip II did for France. His struggle with Pope Alexander III almost ended papal control over the national churches, which might have allowed the Church to reform gradually without splintering. And he led the Third Crusade in 1190, which almost took Jerusalem, except that Barbarossa drowned in the Saleph River and the German armies dissolved.

A Ripple In The River

On this worldline, Barbarossa managed to cow Henry the Lion; with his support, he defeated the Italian cities; with their funds, he tamed the nobles and declared a Crusade; with the prestige he gained as the liberator of Jerusalem, he forced the Pope to back down. His policy of encouraging scholarship may have made the difference on this world, where a few court scholars have access to subtle and terrible magics. His good relationship with the Knights Templar (reputed to be wizards), through his court meistersinger Wolfram von Eschenbach, may also have gotten Friedrich a little magical support where it counted.

Be that as it may, when he died in bed in 1202, he left the unbreakable nexus of a German nation to his son Henry VI, who added Sicily to the imperial domain by marriage. In 1204, allied with the Venetians, Henry VI stripped the remainder of Anatolia from the Byzantines to add to the former Seljuk territories Friedrich had conquered on crusade. Henry's son Friedrich, the Crown Prince, already shows signs of genius, and the New Men from out of the East have brought new methods of war and machinery that will further strengthen and enrich the German-Roman Empire. Surely, Friedrich Barbarossa founded a Reich that will last a thousand years . . .

Friedrich, 1217

Current Affairs

A cadre of SS from Reich-5 seeks to transform the German-Roman Empire into the First Reich, a breeding ground for Aryan warriors.

Divergence Point

1176; Friedrich Barbarossa defeats the Italian cities at the Battle of Legnano, then doesn't drown during the Third Crusade in 1190 but liberates Jerusalem, returns and strengthens imperial power in Germany and Italy.

Major Civilizations

Islamic (multipolar), Chinese (empire with satellite states), Western (decreasingly multipolar).

Great Powers

Song China (dictatorship, CR4), German-Roman Empire (decreasingly feudal dictatorship, CR4), Ayyubid Egypt (dictatorship, CR3), Khwarizm (dictatorship, CR4), *Venetian Republic (oligarchy, CR4).*

Worldline Data

TL: 3 (plus some TL8 Reich-5 uplifting) **Mana Level:** normal
Quantum: 3 **Infinity Class:** Z2
Centrum Zone: Inaccessible

Outworld Operations

The Raven Division began operations on Friedrich in 1214, moving in strength along the Chronobahn (p. 79), which runs from the Cilician Gates pass in the Taurus Mountains of southern Anatolia to the high scarp above Nicomedia, almost to the Black Sea. On its southeast end, the Chronobahn enters Nostradamus (p. 138); on its northwest end, it shifts into Agamemnon (Q3, local year 1189 B.C.), which may be a myth parallel based on the Greek heroic legends, or merely a high-mana alternate Earth. Reality quakes are common on that parallel, and some aftershocks travel along the Chronobahn in Friedrich, as well.

The Nazis have recruited three regiments worth of local German troops, which they are training in modern weapons and military science as best they can with the limited resources available to them. The main Nazi training base is the castle of Lampron, an impregnable fortress overlooking the Cilician Gates and the Nostradamus end of the Chronobahn. It lies on the border between the Kingdom of Lesser Armenia and the Kingdom of Iconium ruled by Friedrich of Swabia (son of Barbarossa). The Nazis have major Raven Division outposts in Regensburg, the Imperial capital, Venice, and Messina in Sicily. Armanen agents have already assassinated Genghis Khan and bio-bombed Mongolia, which has thrown northern China into total chaos.

The Patrol has to work very discreetly here; it is imperative that the Nazis not get their hands on another, completely functioning, conveyor. Between the possible sorceries of the Empire's Templar allies and the psionic wild talents the Raven Division's Mules display, even the slightest hint of Patrol activity could bring down disaster. The Patrol also suspects that some third force operates in this worldline; the Order of the Assassins has kidnapped at least one Raven Division trooper, and may be responsible for the loss of two Patrolmen from the Ayyubid court in Cairo.

GALLATIN

"Whether we remain in one confederacy, or form into Atlantic and Mississippi confederacies, I believe not very important to the happiness of either part. Those of the western confederacy will be as much our children and descendants as those of the eastern, and I feel myself as much identified with that country, in future time, as with this."

– Thomas Jefferson to Joseph Priestley, Jan. 29, 1804

Thomas Jefferson wrote this letter in many histories (including Homeline's), but not in the worldline named for his Secretary of the Treasury, Albert Gallatin. In that worldline, Alexander Hamilton had died taking a Hessian bullet at the Battle of Trenton, like the one that nearly killed future President James Madison in Homeline history. Madison survived in both worlds to write his Constitution, but in this worldline, there was no Alexander Hamilton to defend and explain it in the *Federalist Papers,* or to knit the new nation together with a strong economic policy. The United States splintered into many "confederacies," leaving Thomas Jefferson revered by all of them, but president of only one.

E Pluribus Nullium

Without the *Federalist Papers* and Hamilton's oratory, New York refused to ratify the Constitution of 1787, dooming the pact. An open convention redrafted the Articles of Confederation the next year, but tensions over Western trade down the Mississippi drove the Ohio Valley settlers further from the weak Philadelphia government. When Napoleon acquired Louisiana in 1802, threatening to choke off Western trade, Aaron Burr and Andrew Jackson led a filibustering expedition that captured New Orleans; their Louisiana Republic made its own trade treaty with the Ohio Country, ignoring the central government entirely.

By 1860, only five states remained in the United States of America (which adopted a centralizing constitution in 1815 similar to the 1787 document): Connecticut, New York, Pennsylvania, Delaware, and New Jersey. Eight other American republics checkered the continent: New England (rapidly returning to the British sphere of influence), the Confederation (in which the states from Maryland to Georgia operate as almost independent nations), the Louisiana Republic (between the Sabine and Mobile Rivers, having split Spanish Florida with Georgia), the Ohio Association (a Jeffersonian-libertarian confederacy in the Ohio and Upper Mississippi Valleys), the Texas Republic (an expansionist slave state stretching deep into Mexico and north into Indian country), Deseret (a Mormon theocracy in the Great Basin), and the Bear Flag Republic of California (including the company forts north past Vancouver). Although border wars and skirmishes broke out from time to time, on the whole, their relations were more peaceable than those in the outside world.

After its own unification in 1871, Germany unified the European Continent in the Great War of 1914-1916, folding it into a common bureaucratic-economic union run from Berlin. The British resented this usurpation of their monopolies, but could do little but mirror it in their own Empire, creating an economic Commonwealth dominated by London. Both powers suffered setbacks in the Pacific War, when the Japanese Empire (having allied itself with Stalin's Soviet Russia) threw the Germans out of Indochina, the Philippines, and the East Indies, and the British out of China, Burma, and the Sandwich Islands. (Texas' refusal to open the Nicaragua Canal to any belligerent power made it difficult for Britain and Germany to cooperate in retaking the Pacific, even if they had wanted to.) The Japanese atomic bombing of Calcutta ended the war. Britain, Russia, Germany, and Texas all built their own bombs in the next five years, resulting in a Pax Atomica that lasts mostly unbroken to this day.

Gallatin, 2004

Current Affairs

A balkanized North America shelters under the Texan nuclear umbrella as the Germans, Japanese, and Soviets duel for global control.

Divergence Point

1776; Alexander Hamilton dies at the Battle of Trenton. The considerably more libertarian Albert Gallatin becomes the first Secretary of the Treasury, and the nascent United States disintegrates.

Major Civilizations

Western (empire with rivals), Orthodox (empire with satellites), Japanese (empire).

Great Powers

Europaverein (military oligarchy, CR4 for Germans, CR5 for other nations), Soviet Union (dictatorship, CR6), Japanese Empire (military oligarchy, CR4-5 for Japanese, CR6 for subject nations), British Commonwealth (representative democracies, CR4), Texas Republic (representative democracy, CR3 for whites, CR5 for non-whites).

Worldline Data

TL: 7 (some military hardware, low TL8) **Mana Level:** low
Quantum: 5 **Infinity Class:** P9
Centrum Zone: Inaccessible

Outworld Operations

Infinity Patrol operatives on Gallatin attempt to crack down on the massive smuggling operations from the Ohio Association (where all drugs and many heavy weapons are completely legal) to Homeline, but can barely make a dent in the traffic without overthrowing the Ohio government (such as it is). Although Ohio has no army to speak of – essentially free-riding on Texas and the United States for its international defense, and for defense against Sioux terrorism – it has a remarkably robust set of local militias. Outtime tourism is also tremendously popular on Gallatin, especially by Homeline Texans eager to see the Lone Star Republic standing tall.

GERNSBACK

This Quantum 7 world follows the same physical laws as Homeline, but with some odd variations that led technical progress into a number of very bizarre detours. For example, dirigibles plow the skies side by side with gigantic atomic-powered cargo planes. The transistor is unknown, but rayguns and aircars are common. Here, the slide-rule is king.

The first Patrolmen here saw the towering Art Deco buildings, the sleek aircars, and the omnipresent power-casting towers and named this parallel after Hugo Gernsback, utopian technophile and founder of modern science fiction. Much about the world does seem like something out of a 1930s science fiction adventure, from the personal jetpacks to the benevolent power of the World Science Council.

The history of Gernsback diverges from Homeline with the marriage of Nikola Tesla, the last of the mad scientists, to the daughter of J.P. Morgan, the last of the robber barons. In Homeline history, Tesla and Anne Morgan became good friends, but Tesla died a bankrupt bachelor, the majority of his inventions remaining in his head or sketched in his notebooks. On Gernsback, Tesla's marriage stabilized him both emotionally and financially, and he went on to revolutionize virtually every aspect of modern life.

The World of Tomorrow

In 1902, the Morgan-Tesla Radio Company began global radio broadcasts from Wardenclyffe, Long Island. The immense success of global radio freed Tesla to concentrate on his lifelong goal: broadcasting electrical power without wires. After years of arduous laboratory work by teams of technicians, Morgan-Tesla introduced Tesla's system of broadcast power. The result was global panic and a stock market crash. Morgan firms stabilized first America, then Germany; the Dawes-Morgan plan wound up rewriting the German Constitution to end its chronic political and economic instability. Prosperity restored confidence in European institutions, such as the League of Nations, and let the world weather another stock panic in 1929, and crises in China and Ethiopia in 1933 and 1935. The League forced the aggressors to back down in both cases, further stabilizing the world order.

The next crisis began deceptively, when German physicist Otto Hahn split the atom in 1938. The League

Gernsback, 1965

Current Affairs

The World Science Council puts down all threats to techno-utopia in the fantastic World of the Future!

Divergence Point

1893; Nikola Tesla marries Anne Morgan, the daughter of financier J.P. Morgan, and thus remains sane enough to invent radio and broadcast power with Morgan financing.

Major Civilizations

Western (multipolar).

Great Powers

World Science Council (technocracy, CR4), United States (representative democracy, CR3, CR5 for blacks), German Republic (representative democracy, CR4), British Empire (representative democracies, CR4), Japanese Empire (military-corporate oligarchy, CR4-5).

Worldline Data

TL: (6+2) (weapons, up to TL(6+3); broadcast power, TL6^)
Mana Level: no mana
Quantum: 7 **Infinity Class:** R9 **Centrum Zone:** Red

placed the newly founded World Science Council (WSC) in charge of a program to develop atomic power plants. By 1945, the WSC was building atomic power plants in Germany and America. When the Soviet physicist Andrei Sakharov defected and warned the world of Stalin's plan to build an atomic bomb, the League responded instantly and declared war on the Soviet Union in 1951. The war was the most massive conflict in world history, with millions of men fighting on both sides. The WSC produced an endless stream of superweapons for the League, from tanks firing particle beams to teleguided missiles. Eventually, Stalin's scientists revolted against his mad plans, destroying the bomb project and surrendering to WSC paratroopers dropped from League superwings. Stalin died on April 30, 1953 in the confused capture of Moscow, and the world was once again at peace.

The League of Nations and the World Science Council were faced with the massive job of reconstruction. The League took over the administration of Russia and the "League Taxes," which had paid for the war in the member countries, now paid for rebuilding and peacetime conversion. The League placed all atomic power research under control of the WSC to prevent any other nation from attempting to build atomic weapons. The 1957 Treaty of New York formalized League powers, made the League Taxes permanent, and mandated economic coordination of League countries with WSC guidelines and predictions. Finally, it established the League Peace Forces (LPF), a permanent standing League of Nations army.

The amazing inventions made during the war were perfected and marketed for civilians, and a huge economic boom began as war plants moved over to peacetime production. The Electronic Brains invented just before the war began to produce economic predictions, which the League used to manage the global economy. The LPF contained the few anti-League rebellions in India, Africa, and the Middle East, and the WSC stopped an attempt by the revolutionary government of Cuba to withdraw from the League. The Council did not even wait for League authorization before shutting down all electrical power on the island and forcing the overthrow of the Castro regime. The world is unified and at peace under the benevolent rule of the Great Powers, the League of Nations, and the World Science Council. Planning and technology will deal with the natural economic dislocations of the postwar era. Nothing can go wrong.

(See ***GURPS Alternate Earths*** for further details.)

The WSC produced an endless stream of superweapons for the League, from tanks firing particle beams to teleguided missiles.

Outworld Operations

The I-Cops' primary mission in Gernsback is to oppose the large-scale Centrum operations here. Centrum's obvious strategy is to rapidly evolve the WSC into a technocratic world government mirroring Centrum's own gray elite. Then Centrum could easily mount a decapitating coup and rule the worldline. Gernsback is a favorite of the Centrum radicals who argue for partnerships with other timelines. If the dimension war were quieter, they might even win their point: the WSC is close to many "correct" Centran attitudes and could be a formidable ally indeed.

Therefore, the Patrol gives covert aid to anticolonial movements around the world, while hoping to avoid the fearsomely competent (and jut-jawed) gadgeteering WSC Special Tasks Agents. Although Homeline physicists are fairly sure that Gernsback is nowhere near discovering parachronic technology, nobody wants to make any bets against the heirs of Tesla.

The I-Cops also prevent would-be Homeline inventors from surfacing in Gernsback. These troublemakers fall into two types: those who want to invent the transistor in Gernsback and make a billion dollars, and those who are sure that the WSC will fund their perpetual motion machines.

The last I-Cops task is to assist stranded tourists – even with the best backups and safeties that the WSC can devise, zeppelins do burn up and aircars do crash. Tours to Gernsback seem to attract the oddest tourists in Homeline – some Patrolmen still recall with horror the trouble they had rounding up all the stray Klingons from a Homeline SF convention held in Gernsback's New York. Other popular tourist attractions include the Skydeck of the Mile-High Building, the Cumberland Gap Aircar Steeplechase, zeppelin cruises to the Amazon Hilton, and the Orient Electrical Express (Paris to Peking in 36 hours). The biggest draw, however, are the Tesla Day (July 10) festivities at WSC headquarters in Queens (centered on the 1939 World's Fair Perisphere and Trylon), which feature parades, scientific demonstrations, and some really spectacular fireworks.

White Star Trading sells light metals in bulk, medicines, and seedlings from new crop varieties in Gernsback. They primarily buy different plant varieties, superscientific alloys, and cultural artifacts – there is a big Homeline demand for original Hitler watercolors, Frank Paul oils, and science fiction by Gernsback's versions of Poul Anderson, Robert Heinlein, and Isaac Asimov.

The U.S. and European governments are under increasing pressure from civil rights advocates, feminists, and others concerned about Gernsback's blithe acceptance of widespread race and sex discrimination. However, there are only a few tiny groups in Gernsback attempting to propose alternatives, dismissed as isolated cranks by the mass of public opinion. Thus, Homeline activists, hampered by Infinity's enforcement of The Secret, have as yet been unable to devise an effective approach.

Hell Worlds

Ariane

In 1915, a mutant influenza virus (possibly a version of the "Spanish flu" that decimated Homeline history around that time) wiped out 99.9% of the population, leaving fewer than two million people alive on this Quantum 5 Earth. Homeline medical science rapidly discovered a cure for the Ariane Flu, and after a rapid survey, Infinity opened Ariane up for full colonization as a Class O10 world in 2012 (its local year 2002). Homeline settlement is a mixture of separatist and manor colonies; most of the separatists are Western cultural conservatives, including "Reconstructionist" groups interested in settling and restoring 1915 Paris, London, New York, and other urban centers. (A splinter sect of ultraconservative Catholics has a religious colony in Rome and Florence.) Some of the manor settlers paid a substantial premium for surviving (or rebuilt) structures like the Kremlin, the White House, and the Taj Mahal. The only surviving autochronous culture is the isolationist TL4 theocracy that rules Tibet (off limits to Homeliners by Infinity Development fiat); the rest of Ariane's natives are barbarian tribes who raid Homeline colonies. Most colonies allow indenture of the natives, which seems more decent than exterminating them or leaving them out in their Stone Age cold to starve.

The Gotha Parallels

When the Scouts discovered Gotha-1 on Quantum 7, they thought they had stumbled on a particularly dark Dark Ages parallel; Visigothic berserkers had apparently burnt out every city in France. Small fortified manor communities of only a few hundred souls held out, surrounded by bands of marauding killers who slew anyone they encountered. Later, Patrolmen discovered the same pattern on another Quantum 7 parallel, in a eighth-century India ravaged by Thuggee. Civilization hadn't always broken down in the medieval era, either; ruins on some parallels showed technologies from TL1 to TL8!

After a few more surveys discovered new "Gotha" worlds, an appalled Infinity Patrol discerned the common element – on each of these parallels, the pneumonic plague had somehow mutated into (or become symbiotic with) a prion-based disease that spread through any concentrated population of over a thousand or so people. Below that threshold, the mutation usually couldn't take hold. Cities became impossible, and only manor farms and homesteads could survive and propagate themselves, ruthlessly purging their own populations to keep the plague at bay. The infected, however, became bloodthirsty cannibals (eating each other if need be) with social organization closer to baboon troops than human tribes, holding onto whatever cultural pattern fit their horrific fate in their own diseased minds. Millennial death-cults blossomed in every corner of the globe touched by the pestilence. On some of the Gotha parallels (mostly those with divergence points before 1000 A.D.), the Americas and Australia remain uninfected so far, but on most of them, civilization has collapsed on any level above the fortified township.

The 19 known Gotha parallels include eight worlds on Quantum 6, four worlds each on Quanta 7 and 5, and three alternates on Quantum 4. Infinity doesn't know if Centrum has discovered any on Quantum 8 or higher. Nor do they know what caused the crossworld outbreak. Perhaps a civilization on one of the Gotha parallels once invented parachronics, and unwittingly created a mutant disease pool across the worlds. Perhaps the mutation (although biologically inexplicable to Homeline scientists) is a natural one on worldlines where the physical laws, or evolutionary epidemiology, differ slightly from Homeline normal. Paranormal explanations, such as a Cabal attack or the death throes of a telepathic god, can't be ruled out either, as much as most Paralabs experts would like to. The Patrol has taken no risks, however; the plague virus has been completely wiped out on Homeline.

Gotha Zombies

-102 points

The Gotha virus is a super-virulent pathogen (2d minutes delay, HT-6, 1d toxic damage, 24-hour interval, 28 cycles) spread, like the pneumonic plague from which it somehow mutated, as a respiratory agent. It is very contagious, with an additional -2 to any of the contagion modifiers from p. B443. Once a sufferer has lost 2/3 of his HP to the disease, he becomes infected, and begins regaining HP at the rate of 1 per day. Those infected become "Gotha zombies," in the callous slang of the Patrolmen who have to enter a Gotha parallel for some horrible reason.

Their Night Vision is a 0-point feature, as per p. 176.

Attribute Modifiers: ST+1 [10]; DX+1 [20]; IQ-2 [-40].
Secondary Characteristic Modifiers: Per+4 [20]; Basic Move+3 [15]; Basic Speed+1 [20].
Advantages: High Pain Threshold [10]; Less Sleep 4 [8]; Night Vision 5 [0]; Temperature Tolerance (Cold) 3 [3]; Unfazeable [15].
Disadvantages: Bad Smell [-10]; Bad Temper [-10]; Berserk (Battle rage, +50%) [-15]; Bestial [-15]; Bloodlust [-10]; Cannot Learn [-30]; Dead Broke [-25]; Delusion (Chosen by Death) [-15]; Ham-Fisted (-6 to skill) [-10]; Hidebound [-5]; Innumerate [-5]; Social Stigma (Monster) [-15]; Uncontrollable Appetite (Blood and brains) [-15]; Weakness (Bright light, 1d per 30 minutes; Fatigue Only, -50%, Variable, -40%; -80%) [-3].

Lenin-2

The Chinese chronicles – nearly the only ones surviving on this Quantum 6 parallel – call the first wars after the Second American Revolution the Springtime Wars. The railroad strikes of 1876 destroyed the corrupt Grant administration and ushered in a worker's collective in Chicago; with the Barbary Coup and the Christmas March on Wall Street, the United Socialist States of America stretched from sea to shining sea. A lengthy campaign against the recalcitrant South ended just like the last one, with the stronger North winning through total war; the remaining capitalists and reactionaries fled to Canada and Australia. America's example once more fired the workers of Europe; Germany, France, Italy, and Russia all went Communist in the next 20 years. Only reactionary Britain and Japan held out, spreading the virus of capitalism to Sun-Yat Sen's Chinese Republic.

The Summer Wars of the 1950s brought down the British and Japanese monarchies, but the victorious powers quarreled over the spoils and failed to extirpate China's booming economy, which as always relied very little on overseas trade. By the late 20th century, the stresses of socialist economics had badly damaged the environment. Just as the Homeline Soviet Union poisoned whole river basins and lakes, in Lenin-2 the entire industrial world (except, oddly, China) began to choke on its own filth. The Communist powers blamed the Chinese capitalists, of course, and declared the Autumn War in 2000 as a crusade to end capitalism and defeat pollution. In fact, the Bolsheviks in Russia, the DKAP in Mitteleuropa, and the Christian Communist Congressional Party in the USSA fought each other almost as much as they fought the Chinese. The nuclear exchanges didn't do nearly as much damage as did the total ecological collapse. The Gulf Stream shut down and shifted global weather patterns. Catastrophic warming melted the ice caps and flooded the coastlines; mega-storms tore through the desertified continental interiors; mass extinctions wrecked the few surviving farms and forests.

Most of the few million poisoned, dying survivors in the current year 2021 are at TL3 at best. The Chinese remnants along the drowned coastlines and interior districts are at TL4/7 thanks to (barely) surviving industrial technology; China was probably at TL8 by the Autumn War, with desperate experiments perhaps reaching TL10. At least one Chinese Orion-drive (nuclear-explosion propelled) ship lifted off in 1999 for an unknown destination; others may have escaped during the war. A few Chinese received experimental genetic grafts, hopefully allowing them to survive ecological disaster. Although Miracle Workers and the Patrol are trying to repair Lenin-2, the chances look grim; talented locals such as Xing La (p. B322) receive priority for outtime recruiting, to save a few people before the inevitable choking doom as the last of the plankton die off.

Leviathan

In this Quantum 6 world, humanity fights a losing battle against a mysterious TL(1+8) undersea civilization. The local humans on this parallel call the 'A'Nthleioi the "Atlanteans," due to their undersea origins, and perhaps because of the likeness in names. These aliens, however, have little physically in common with the Poseidon-blooded human Atlanteans on Orichalcum (p. 139), and may be native to some other dimension or parallel Earth worlds away. The Infinity Patrol provides some weapons to the human resistance where it can, but outworld aid can do little to turn back the flood tide of defeat short of full-scale intervention by a national government on Homeline.

The War Against The Water

It all began on August 10, 1797, when the 'A'Nthleioi attacked Newburyport, Massachusetts. American militia put up a brave, but futile resistance. By that fall, the whole eastern seaboard was in nonhuman hands and 'A'Nthleioi probing raids had come ashore in both Britain and France. Savants speculated on the possible genesis of such fearsome creatures, and on their strategy, but

did not challenge their apparent self-identification as survivors of the drowned continent Atlantis. In retrospect, many disappeared ships had likely gone down to the "Atlantean" depths; many more vanished that winter, and survivors told of strange radiations playing about the rigging as sudden maelstroms sucked 74-gun warships below.

Over the next decades, the Atlanteans grew better and better at working on land, hauling water tanks into position, blasting out reservoir craters with odd-colored radiance, and putting sweating human slaves to work digging canals into the interior. By 1812 (the current year), the United States is only a few military governments under Andrew Jackson's command, pulled back into the Appalachians and the southwest. Britain and France are long gone, with the other kingdoms of river-riven Europe. Trapped in Egypt by the Atlantean menace in the Mediterranean, Napoleon Bonaparte has declared an "Empire of the Sands" deep in the Sahara; he leads an army of Zouaves, Bedouin, and Tuareg with a hard core of French veterans under Murat. The Russians are a few columns of armies, Cossacks, and monks deep in the steppes; the Chinese are warlords on the fringes of the Tien Shan and Himalayas.

'A'Nthleioi ("Atlanteans")

165 points

Amphibious humanoids with pale, shiny, hairless skin, the 'A'Nthleioi show every sign of having been genetically engineered from a mixture of human, piscine, and alien DNA. They can interbreed with humans, although some of the descendants of such matings eventually respond to their genetic triggers and revert to "pure" 'A'Nthleioi, gaining subcutaneous fat and striated muscle (eventually almost 100 lbs. worth). They have large, bulbous eyes, long arms, stubby legs, and clawed and webbed hands and feet. Their skin and eyes are a pale greenish-gray, though their bellies are white. They have scaly ridges on their backs, jaws, hips, and joints, and over their prominent gill slits. They prefer salt water to fresh, but can survive in either. Their mysterious acoustic and metallurgical sciences attain TL(1+8), but 'A'Nthleioi warriors remain most comfortable with the sword and trident, at least on Leviathan.

Attribute Modifiers: ST+3 [30]; IQ+3 [60].
Advantages: Amphibious [10]; DR 1 [5]; Doesn't Breathe (Gills) [10]; Immunity (Starvation) (Drops into torpor rather than dying, -50%) [5]; Nictitating Membrane 1 [1]; Night Vision 9 [9]; Peripheral Vision [15]; Pressure Support 2 [10]; Talons [8]; Telesend (Racial, -20%, Telepathic, -10%; -30%) [21]; Temperature Tolerance 4 (Cold) [4]; Unaging [15].
Disadvantages: Dependency (Immersion in water, daily) [-15]; Dread (Swastikas) [-5]; No Empathy [-20]; Overweight [-1].
Quirks: Prefers salt water to fresh [-1].
Racially Learned Skills: Swimming-12 (HT+2) [4].

Outworld Operations

On Leviathan, the Patrol claims to be visitors from Mars, trying to help out as best they can in the struggle. (Centrum, probably correctly, considers the world a lost cause and has seemingly washed its hands of it.) Unusually for a hell parallel, this world is only Class R5 – the Infinity Council has decided that the opportunity to learn about these aliens is greater than the (so far minimal) risk to Homeline security their invasion poses.

Madland

This truly bizarre and inhospitable Quantum 4 parallel is high-mana with very-high-mana pockets, deformed by innumerable reality quakes (which have even disrupted the star patterns; Madland's current present year is unknown) and by the actions of its malign, insane gods. These gods, which match no known human pantheon, are twisted and animalistic, capricious and predatory. The glaciated, forested, inhospitable peninsulas and islands where the few, cringing human natives live barely support agriculture or fishing at a TL0 level, although some tribes practice basic ironworking. Most of the cultures on Madland seem similar to Lapps or North American Indian or Siberian tribes, albeit made paranoid and fatalistic by the actions of their psychotic deities.

(See ***GURPS Fantasy 2*** for further details.)

Taft-7

The Patrol isn't sure what to make of this Quantum 5 parallel, and will likely never resolve the issue because Infinity has declared it completely off limits to all travelers. (All complaints are referred to the worldline's ISWAT case officer, Dr. William Headley (p. B314).) The Scouts who discovered this worldline in 2023 named it Taft-7 because its sterilizing radiation count matches that of Taft-3 (p. B528). Its local present is 1952, judging by the stars, but the human race either never evolved here or died out long ago. Nonhuman archaeological remains (dated as best Paralabs can to about 16 million years ago) dot the continental shelves and some upthrust islands in the Pacific. The continents themselves are scarred by thousand-mile stretches of basalt that make no tectonic sense but may indicate a kind of focused chain of reality quakes ripping across the Earth's surface. What animal life survives are deformed grotesques, mutated by the radiation level; the plants are mostly carnivorous or twist themselves in search of light in invisible spectra.

Johnson's Rome

The dynasty founded by Mark Antony and Cleopatra did not possess Augustus' genius, but it was in no danger of falling to an urban mob, either. Unlike Rome, Egypt could feed itself; unlike the Romans, the Egyptians knew better than to question their divine kings. The legions still watched on the Rhine, but Antony saw no point in conquering empty German forests when he could emulate Alexander and rule the East. Rome's energies drove east and south, adding Nubia and Parthia, Sarmatia and Arabia Felix, to the Empire. The emperor Marcus Ulpius granted a very promising tribe in Sarmatia, the Goths, immediate *foederati* status and transferred them wholesale to the Bactrian border to guard the exiled Jews, which solved several problems the cheerful, optimistic Antonine emperors never even knew they had.

Gaul and Britain fell eventually, but they were reconquered eventually, too. Plagues and famines tore through the remoter provinces, but the Egyptian granaries and Nubian gold mines kept the eastern core of the Empire alive, if not always healthy.

Rome on XXV Denarii a Day

When Alex A. Johnson, the founder of Johnson Crosstime Incorporated (JCI; see p. 38), arrived in Rome from Homeline in 1192, he found the second-biggest city of a cosmopolitan empire just hitting its second peak. The city of Rome compensated for its "second city" status by being very, very traditional and very, very decadent at the same time. Johnson fell in love immediately.

He introduced a number of improvements as he built up his local power base, from the telegraph to ice cream to hand-rolled cigars. (He had to bribe a Roman admiral to discover America first, but for lifelong cigar-smoker Johnson, it was more than worth it.) As governor of Pannonia, he drove off the Pechenegs with horse artillery and light infantry, and the ensuing military revolution is spreading to the more conservative generals in India and Gaetulia, stabilizing imperial defenses at a substantial cost savings.

Outworld Operations

Johnson Crosstime owns an amazing amount of the Roman Empire outright, second only to the imperial family as the biggest holders of land and gold in the realm. Much of its liquid capital goes to bribes, of course; the rest is plowed into upkeep for the luxurious villas, galleys, and baths JCI maintains for its Homeline tourists. Packages range from the "Seven Wonders In Seven Days" shuttle (stealthed hydrofoils and hovercraft whisk visitors from the Colosseum to the Pyramids to the Hanging Gardens, rebuilt after substantial JCI bribes to the Babylonian city governor) to the adults-only "Capri Month in Emperor Tiberius' legendary palace of pleasure" (in this worldline, of course, Tiberius Claudius wasn't an emperor, and didn't become a deranged degenerate, but it *was* his summer villa). Even Time Tours has given in, running its own tours of slightly higher-toned settings (for a substantial license fee to JCI, of course). Roman citizens have grown used to seeing flocks of tall, doughy barbarians with outrageous accents and lots of spare silver; "Jonsonius' guests from overseas" *usually* don't get knifed and rolled.

If they do, of course, the Vigiles come down on the offenders' patron like a ton of marble; the I-Cops' Security Division essentially runs the Vigiles (in Rome, Alexandria, and Babylon anyway) as a local branch office. The Patrol is mostly concerned with chasing down terrorist cells based here, especially the ones training the rebels in Persia, Mauretania, and Hibernia. In these provinces, the slackening brutality of the Imperial governors (part of Johnson's well-meaning reform plans) has encouraged overtaxed natives to rebel. And they have help: a spate of naphtha-bombings in Babylon, Carthage, and Rhodes has all the fingerprints of outtime planning. The FBI office in Rome provides full cooperation to the Patrol, and even assists with the occasional "sweep and capture" raid through the plebeian neighborhoods.

Johnson's Rome, 1206

Current Affairs

Crossworld terrorism endangers a tourist paradise where Rome never fell.

Divergence Point

31 B.C.; Mark Antony and Cleopatra win the Battle of Actium; Roman center of gravity removes to the east.

Major Civilizations

Roman (empire with satellite states), Steppe-Chinese (empire with satellite states), Indic (multipolar), Mississippian-Roman (empire with satellite states).

Great Powers

Roman Empire (dictatorship, CR4), Khitai (dictatorship, CR5), Chola Telugu (oligarchy, CR4), Pagan (dictatorship, CR4), *Lenapea (clan/tribal, CR2 for Lenapii, CR4 for subject tribes).*

Worldline Data

TL: 4 (medicine, TL5/8) **Mana Level:** no mana
Quantum: 5 **Infinity Class:** O9
Centrum Zone: Inaccessible

LENIN-1

President Franklin Roosevelt wasn't in the best of health during the 1944 election campaign. In fact, he was barely holding on by his fingernails. On Homeline, he was able to summon the stamina to fight the Axis. There, he even had the lucidity to drop the embarrassingly left-leaning Henry Wallace from the Democratic ticket in favor of the blunt anti-Communist machine politician Harry S Truman. On another worldline, with his health (or his judgment of vice presidents) a little worse, he left the intensely pro-Soviet Wallace a heartbeat away from the Oval Office. On both Homeline and Lenin-1, he died in office on April 12, 1945.

Lenin-1, 1989

Current Affairs

The United States is the last capitalist power in a world gone Communist.

Divergence Point

1944; Roosevelt leaves Vice-President Wallace on the ticket instead of Truman, and the dedicated pro-Soviet Wallace becomes President after FDR's death in office.

Major Civilizations

Orthodox (empire with satellite states), Western (multipolar), Chinese (empire with satellite states), Indic (empire).

Great Powers

Soviet Union (dictatorship, CR5), People's Republic of China (dictatorship, CR6), United States (representative democracy, CR4), People's Republic of India (representative democracy, CR5), Republic of Great Britain (oligarchy, CR4).

Worldline Data

TL: 7 (space, TL(7+1)) **Mana Level:** no mana
Quantum: 5 **Infinity Class:** Z4
Centrum Zone: Inaccessible

The West Is Red

Homeline's leftist historians were right, in a way; without the aggressive American stance in the 1940s, there was no Cold War. The Soviets occupied Germany and Japan, and propped up Communist governments in France, Italy, Iran, and Greece as the United States concentrated on social reform, disarmament, and economic readjustment. When China fell to Mao's Communists in 1949, Republicans squawked about "losing China," but couldn't sell a land war in Asia to the American people, even if there had been somewhere left to fight it. (Korea, Indochina, and the Philippines had all gone Communist as well.) Churchill couldn't keep the British in the containment business either: India became an independent socialist republic, Malaya, Kenya, and Aden fell to Communist rebels, and Nasser steered Egypt into the Soviet camp alongside socialist Israel. The 1952 elections dethroned the "lion in

Other Communist Worlds

Although worlds with successful Communist revolutions are not particularly rare, worlds in which Communism managed to exceed its not inconsiderable effect on Homeline's history are, with only five known including Lenin-1 and Campbell (p. 119).

Lenin-2 is an ecodisaster hell parallel (p. 129).

On **Lenin-3** (Q6, current year 2004), Mussolini stayed Communist and his government supported the Catalan workers, who were the anti-Soviet, anti-Fascist "third force" in Spain during the 1936-1939 War. Mexico's Cardénas brought his own socialist government into Mussolini's "anti-Moscow Socialist Axis" in 1938, and Mussolini's Axis stayed neutral during "the inter-fascist struggle" of World War II. The U.S.-U.K. alliance took an increasingly technocratic stance after the war, and launched a series of huge government "Manhattan Initiatives." Government scientists intended projects like the Moon shots, the fuel-cell car (caused by concern over Iran's socialist government joining the Axis in 1953), the Concord stratojet, and so forth to maintain the West's lead, even after the Soviet collapse in the 1960s. This uneven development path leaves Lenin-3 TL6 in some areas (like personal electronics and agriculture), TL7-8 in most things, and TL9 in high-profile gadgets like moon colonies, fuel cells, and supersonic aircraft.

On **Lenin-4** (Q6, current year 2027), a more severe Western recession in the 1970s forced *perestroika* a decade early, with the United States in a position of weakness. The U.S. and USSR agreed to cooperate industrially and economically to dominate the Earth and space. They are challenged by a nonaligned movement centered in Brasilia, the United Peoples of Earth, and by a newly formed aerospace megacorporation, Terradyne, Inc.

The Patrol carelessly uses the "Lenin" prefix to note other worlds with important variances from Homeline socialist history. On **Lenin-5** (Q5, current year 1965), Bukharin, not Stalin, took over the Soviet Union in 1924. Bukharin did not purge the Red Army, which easily threw back Operation Barbarossa in 1941, causing a Wehrmacht coup against Hitler that aborted the War. General Zhukov took over after Bukharin's death in 1956, denouncing him and revealing the gulags to the West. Zhukov is pursuing full rapprochement with the U.S. against Mao's China; fascist Germany remains neutral.

On **Lenin-6** (Q3, current year 1922), Bakunin won the dispute over Marx at the 1872 First International, and socialist anarchism remains the progressive wave of the future among the intelligentsia. Kropotkin's Bakuninite soviets overthrew the czars in 1918; the resulting collectives are fighting a desperate, unorganized war against British and Japanese invaders, who are allied with Marxist death squads directed by Lenin, Trotsky, and Dzerzhinsky.

winter"; Churchill retired and accepted a history professorship at Fulton College in Missouri.

The United States did respond to Communist movements in the Western Hemisphere: President Eisenhower overthrew Arbenz in Guatemala, and landed the Marines in Havana in 1959. President Nixon continued this aggressive stance in the Dominican Republic and Peru, but accelerated Eisenhower's domestic statism even further as the postwar economy slowly ran out of steam. Great Britain became a socialist republic in 1974, the same year that India formally became a People's Republic (and detonated an atomic bomb to announce its independence from both the Soviets and the Chinese). In 1981, Mexico went Communist, drawing no response from President Kennedy. America tightened its belt, accepted malaise and decline, and hunkered down to wait for the end. Either the Communist superpowers would destroy themselves (and everyone else) in a nuclear war, or the inevitable dialectic of history would sweep capitalism aside and the United States would join Russia, China, Europe, and India in grim, egalitarian poverty.

Outworld Operations

Homeline China has no great love for this parallel's Beijing government, which continues policies of mass starvation and industrial collectivism well out of favor in Homeline's Politburo. It takes an active hand in planning the few Patrol operations trying to defuse the suicidal politics of Lenin-1's Kremlin, which is reaching the end of its economic rope trying to stay in control of Europe, the Middle East, and Africa while keeping its armies at full strength to defeat China and overawe India. After all, Homeline's Chinese point out at Infinity Council meetings, who else has more experience reversing "left diversionism"? Although they suspect China of wanting to take over Lenin-1 wholesale, UNIC lacks any better alternative. The Patrol hopes for the best, and plans for Lenin-1's transition to hell parallel status.

LUCIFER-5

On June 30, 1908, a black hole fragment slammed into the Earth. On Homeline, it hit the Tunguska valley in remote Siberia. On another worldline, the planet had revolved six hours further when the bolide struck. St. Petersburg, Russia was instantly obliterated, killing the Czar and the entire royal family. Russia collapsed into chaos, and Germany moved into the wreckage to salvage what it could.

After the Skyfall

In the radioactive ruins of St. Petersburg, the scientists of the Kaiser Wilhelm Institut (assisting with the occupation of a disintegrated Russia) found something they didn't expect. They discovered the keys to the future – strange elements they dubbed "astronium" and "petrinium." Astronium could be built into super-bombs that froze the balance of power, especially after the discovery of astronium in ancient meteor craters in Mexico, the Belgian Congo, and Mesopotamia. Petrinium could be used to power cities with electric force, lighting them up for the cost of the wire. And either could fuel the core of Willy Ley's torch ships that flew to the planets, somehow defying the conventional laws of action and reaction.

The great powers moved into space, using rapid planetary colonization and exploitation as a psychological "safety valve," full-employment program, and subsidy to big businesses after the stock market panics of 1929 and 1930. The U.S., Germany, Britain, and Japan have space stations in low Earth orbit (*Jefferson, Valhalla, Victrix,* and *Yamato,* respectively); the outer system holds an Italian shipyard on Io and a German base on Ganymede, and Britain's Ceres Station is "halfway to everywhere," as the Royal Space Force (RSF) proudly says. Britain's Marsport colony dominates that dry, canal-latticed world; France explores the soda-water oceans of Venus; the Italians prospect the boiling mines of Mercury; all the powers have moonbases with lunar artillery trained on the Earth's capitals. In spaceports from Pearl Harbor to Singapore, leather-jacketed spacers with cosmic-ray tans swagger proudly, knowing that they are the inheritors of the future.

Lucifer-5, 1938

Current Affairs

Bold German, American, and British airmen explore the planets in their atomic torch ships, as Imperial Japan and the other powers scramble for space.

Divergence Point

1908; Tunguska bolide levels St. Petersburg, Russia, leaving Germany supreme in Europe by default, and introducing a superscientific element to the dawn of the air age.

Major Civilizations

Western (multipolar), Japanese (empire)

Great Powers

German Empire (dictatorship, CR5), British Empire (representative democracy, CR4), United States (representative democracy, CR3, CR5 for blacks), Japanese Empire (dictatorship, CR5), Fascist Italy (dictatorship, CR5), France (representative democracy, CR4).

Worldline Data

TL: 6 (power and aerospace, TL6^)
Mana Level: none on Earth, low on Mars, normal on Venus.
Quantum: 6 **Infinity Class:** R9 **Centrum Zone:** Orange

Outworld Operations

Centrum and Homeline duel for influence in this parallel, but rather than choose up sides and fight a proxy war, both Interworld and the Patrol are trying to infiltrate the space forces of all the powers. Centrum believes that the RSF, the Raumwaffe, the United States Space Corps, and their French, Japanese, and Italian counterparts have what it takes to form the core of a new Centrum, an aerospatial elite capable of dictating terms to the Earth below them. Infinity believes that this is pernicious nonsense, but can't deny the logic that command of the ultimate high ground carries with it command of this worldline. The two sides also compete to analyze and control the many strange artifacts, ruins, reality shards, and anomalous phenomena scattered throughout Lucifer-5's solar system.

Other Lucifers

How art thou fallen from heaven, O Lucifer, son of the morning! How art thou cut down to the ground, which did weaken the nations!

– Isaiah 14:12

Infinity initiated the "Lucifer" designation to refer to worlds that have suffered devastating cometary or meteoric impact. With the discovery of Lucifer-3, the Patrol broadened their usage to encompass other sorts of interstellar disasters.

A "dinosaur-killer" meteorite struck **Lucifer-1** (Q7, current year 1991) in 1888, obliterating human life everywhere except New Zealand. Continued volcanism in the Northern Hemisphere has rendered almost the entire atmosphere nearly unbreathable; the New Zealand survivors are reduced to TL2 savagery.

On **Lucifer-2** (Q3, current year 1492) the "Canterbury Event" (a meteorite swarm striking the Moon in 1178) missed the Moon and plowed across the Eastern Hemisphere, wiping out urban civilization and ushering in a new Ice Age. The dominant civilizations are the Aymara Empire along the Brazilian coast and a Muskogean confederation in the Ohio Valley, both TL2.

In **Lucifer-3** (Q5, current year 2004), radiation from a nearby supernova or gamma-ray burster sterilized the surface of Earth in 1979. Homeliners are systematically looting the ruins of its TL7 human civilization for surviving art treasures and refined raw materials.

Lucifer-4 (Q3, current year 64,403,225 B.C.) is a late-Cretaceous parallel where the iridium meteorite has just fallen in the Yucatan (p. 84).

On the normal-mana world **Lucifer-6** (Q3, current year 747 B.C.) an eccentric comet entered an "Earth-grazing" orbit around 2350 B.C., causing catastrophic weather shifts every 400 years. Babylonian and Egyptian wizards plan to invade and conquer the comet when it comes back around next year.

MERLIN

"Now I am become Death, destroyer of worlds."
– Robert Oppenheimer, witnessing the Trinity atomic test, July 16, 1945

Dr. Oppenheimer quoted those words from the *Bhagavad-Gita* on Homeline and elsewhen, but only on one worldline did he unknowingly complete a necromantic ritual by doing so. On the world known as Merlin, Oppenheimer ripped open the fabric of reality and a mighty banestorm blew in . . . and stayed. The "Hellstorm," a sorcerous tornado two-miles tall, blew oz particles (p. 74) across a 2,000-mile stretch of North America. The "Manafall" awoke the world's magic, especially in the 200-mile radius around Alamogordo, New Mexico. That "Manabelt" became the heartland of America's postwar growth industry: magic.

The Magic Returns

In the final analysis, the Manafall merely made the United States even more overwhelmingly powerful in Merlin's history than it was in Homeline. With almost the entire Manabelt on American soil, and with the unbridled forces of capitalism unleashed on the marvelous new toys magic brings, it wasn't even close. Teleportation spells put America's *Hermes* station in orbit in 1968. Dragon-riding "Black Berets" and the 101st Spellborne Division rolled up the Communists in Vietnam and installed a pro-American strongman in 1974; flying carpets carried U.S. special forces into Teheran in 1979; the Berlin Wall vanished into thin air in 1990; in a covert 2000 Afghanistan operation, a more supernaturally savvy CIA salted the Dead Brotherhood zombies planning to destroy the World Trade Center. Even a stronger, more prosperous Mexico redounded to America's benefit. The Chinese government has embraced traditional values and capitalism even more fervently than on Homeline; the most dangerous Communists left in the world are the warlords following a reanimated Josef Stalin in Belarus and the Caucasus, and a hive-mind of sorcerous penguins in Antarctica. Only fascist Argentina, ruled by an undying Evita Perón and supported by the Nazi sorcerers in the Condor Group, remains a threat to the

Merlin, 2004

Current Affairs

In a world of magic and technology, the United States faces the challenges of the new millennium with the best of both.

Divergence Point

1945; Trinity detonation unleashes the Hellstorm, a massive, permanent banestorm raising global mana levels. A second detonation in Antarctica unleashes an even larger one in 1949.

Major Civilizations

Western (empire with rivals), Chinese (empire), Orthodox (empire with rivals), Indic (empire).

Great Powers

United States (representative democracy, CR3), People's Republic of China (dictatorship, CR5), Russian Republic (oligarchy, CR4), Mexico (representative democracy, CR4), India (representative democracy, CR4), Argentina (dictatorship, CR5).

Worldline Data

TL: (7+1) magitech **Mana Level:** high (within 200 miles of Alamogordo, New Mexico and within 1,600 miles of Queen Maud Land, Antarctica); normal (everywhere else)

Quantum: 3 **Infinity Class:** Z2 **Centrum Zone:** Inaccessible

free world – Argentina's victory in the Falklands War gave new impetus to magical neo-fascist movements from Rumania to Egypt.

Outworld Operations

Infinity discovered Merlin in its local year 1992, when the Patrol sent a recovery mission to New Mexico in search of a stranded conveyor thrown askew by an attempted angel-summoning. Paralabs finds the magic of Merlin refreshingly technological and scientific, and is eager to learn more. Only the inherent difficulties of infiltrating a TL8 world (especially one with magical mind-reading) restrict Scout missions from gathering information on every possible topic. Even unclassified civilian magitech bought from a Merlin Wal-Mart has led to useful theoretical advances back on Homeline.

Unknown to Infinity, however, beginning in 1998 (Homeline year 2021), Merlin's CIA has sent agents of its own to investigate and infiltrate Homeline, using top-secret planar travel spells. Among their top agents in place is Georgia Bush; her cover (working toward a Ph.D. in medieval cliodynamics on a Duncorne Foundation scholarship) gives her plenty of excuses for legitimate cross-world travel – and cover for her regular trips back to Merlin to report.

Unknown to Infinity *or* to Merlin's CIA, the Condor Group in Argentina has cut a "Perón-Penguin Pact" giving them access to the Queen Maud Land Hellstorm. To their surprise, not only did they acquire some very interesting artifacts and magical insights, they made contact with the Armanen Order from Reich-5. Since early this year, Merlin's Buenos Aires has hosted a Raven Division safe house (and an Amt Z Kern: see p. 67), beginning what could be a very dangerous friendship.

(See ***GURPS Technomancer*** for further details.)

Other Merlins

Infinity has discovered two more normal-mana worlds with Hellstorms since 2015, both of which received a Merlin designation; Merlin is therefore officially Merlin-1.

On **Merlin-2** (Q3, current year 2027), a Hamas splinter group nuked Jerusalem in 2012, unleashing the "Manaclysm" and turning everything from Cairo to Damascus into a high-mana zone. Another terrorist nuke, detonated in an oil tanker in Galveston Harbor in 2016, obliterated Houston utterly in the resulting Hellstorm, but made a vast stretch of the American West high-mana as well; a third nuke might well destroy the worldline. The Patrol, as well as most local governments, is in a nonstop race against terror, while chimeras and monsters wander an America both magical and enraged.

The Patrol discovered **Merlin-3** (Q3, current year 1942) only last year; its Hellstorm swallowed Nuremberg, Germany in 1919. The high-mana zone is almost entirely German or German-occupied (Alsace-Lorraine and Bohemia), giving Germany a sorcerous edge in this worldline's ongoing Second World War. Infinity is cautiously trying to support the Western Allies without giving The Secret away to suspicious military intelligence warlocks. The Patrol is also trying to infiltrate and divert Merlin-3's atomic research programs, which it suspects could destroy the worldline if successful! (See ***GURPS WWII: Weird War II*** for further details.)

Myth Parallels

Burton

This high-mana Quantum 3 worldline parallels the Arabian Nights, with djinn and flying carpets, Muslim Chinese emirates, and islands of glass in the all-circling Ocean. Needless to say, the Abbasid Caliphate at Baghdad is by far the pre-eminent power, stretching from Marrakesh to Mongolia, TL3 in everything picturesque, and TL4 in everything comfortable or convenient. The few Frankish, Byzantine, or Zanji kingdoms in the west and south, or the pagan elephant-worshipers in India, seemingly exist solely to provide someone for the caliph's armies to vanquish, and places for exotic maidens to hail from. Burton attracts all kinds, from Cabalists looking to bottle djinn to tourists eager to soak up local color in the souk.

The strangest thing about Burton is that it exists in a 23-year time loop lasting the length of Harun al-Rashid's reign, from 786 to 809 A.D. (Some anachronisms, like the Order of Assassins, exist on the fringes of the Caliphate.) When the Caliph dies, lamentations are heard for 40 days; then, the muezzins announce that Allah has sent the people a new Caliph, Harun al-Rashid. Other major figures leave around then, also; Sindbad is always out on his last voyage in 809 A.D. and returning from his earliest apprenticeship in 786 A.D., 40 days later. Many of the locals seem to understand this, and hope to take part in a story sufficiently glorious to let them live forever young and interesting; otherwise, they will live, marry, have children, and die like background characters.

Camelot Parallels

In **Camelot-1** (Q5, current year 437 A.D.), history follows the path set out by the Arthurian Vulgate Cycle; King Arthur rules a TL3 Logres and is preparing for the Battle of Badon Hill to break the power of the Saxons. Lancelot has returned to the Round Table with Tristram, and Galahad and Percival are both three years old. The rest of Europe is under the Roman Empire, with some Saracens in Spain and Africa. The world is high-mana, but magicians are still very rare.

When the Patrol discovered the no-mana parallel **Camelot-2** (Q7, current year 469 A.D.), they thought that the question of Arthur's historical existence was settled at last. On this worldline, a general named Artorius became the Riothamus, or High King, of Romanized Britain by marrying the daughter of Vortigern, and defends civilization against Saxon invasions. A grubbily unromantic TL2 that nearly bankrupted Time Tours when bad word of mouth depressed ticket sales for the overhyped 2014 (457 A.D. local) tour, this worldline seemed to bear out the speculations of some Homeline writers such as Geoffrey Ashe in every detail. However, other equally "realistic" Arthurs awaited discovery, and the partisans of "Riothamus" have returned to obscurity.

Camelot-3 (Q4, current year 551 A.D.) is perhaps not the most "mythical" of the parallels with a known King Arthur, but it is by far the most popular with crossworld tourists. In this normal-mana worldline, the fracture zone around 535 A.D. (p. 77) churned up reality in a major fashion, leaving Arthur's knights clad in TL4 Renaissance plate mail, living in TL3 13th-century castles, and fighting a cruel TL2 Roman Empire ruled by giants. Although Arthur has begun the Grail Quest, Homeline scholars are completely at a loss about how the rest of his reign might go.

(See ***GURPS Camelot*** for further details of these three worldlines.)

Shortly after discovering Camelot-3 in 2017, Infinity abandoned the "Camelot" designation. Analyzing the 535 Event helped Paralabs to develop the theory of reality quakes, and the new parachronic physics predicted that tens, or even hundreds, of "Arthurs" waited to be found. On any parallel with a current date between 410 and 660 A.D., the Patrol by now routinely expects to discover the "real Arthur" in a North Welsh hill fort, a Scottish border wall, or a detachment of Roman cavalry, dying nobly under a nuclear winter cloud, practicing Goddess-worship in a pagan paradise, battling rude French knights, or turning into a bear during full moons in Ireland.

Just out of curiosity, however, the Echo Surveillance Division of the Penetration Service is keeping a very close eye on Echo 1502 Minus.

Mandeville

This Quantum 3 worldline matches the 14th-century traveler's tales of Sir John Mandeville, a famous liar and plagiarist who in Homeline history may never have traveled any further than Belgium. The current year appears to be 1336, although readings vary wildly in the "Empire of Prester John," a bizarre, wealthy, Christian realm stretching across a somehow wider Central Asia between Cathay and Persia. Prester John claims the allegiance of the thousand kingdoms in the Indies, as well, including Chana (where people worship the first thing they see in the morning), Natumera (an island of dog-headed folk), Pentoxere (home of the talking birds), and so forth. The Arimaspians (one-eyed men) live in the Mountains of the Moon in central Africa, and the Amazons have several matriarchies and cities on the fringes of Prester John's empire and in the myriad islands between Europe and Japan. (There are no American continents, although both California and Brazil are large islands in roughly the same place as their Homeline counterparts.)

The European nations and Cathay are normal-mana and TL3 (except for high-mana lands like Cockaigne); Prester John's very-high-mana realm is TL4. Although the dangers of this parallel keep it officially off limits (rated R4), its many nexus portals, plus the Fountain of Youth in the city of Polumbum, the Valley of Jewels, and similar enticements, draw plenty of unauthorized travelers.

Nottingham

Infinity nitpickers still argue about whether this low-mana Quantum 6

parallel is a historical anchor (or close parallel) or a myth parallel. On the side of history, the "Robin Hood" who battles the Sheriff of Nottingham (and robs the papal tax collectors who batten on the weak King Henry III) lives in Barnsdale Wood, not Sherwood, and the current year is 1244, almost 50 years after the death of the mythic Robin's liege lord Richard I. On the mythic front, he most definitely has a Maid Marian accompanying his Merry Men, and Homeline scholars are unanimous in agreeing that she is a late French addition to the legend cycle. His true identity might settle things (if he's a common poacher, he's likely historical; if he's the disinherited Earl of Locksley or Huntingdon, he's probably mythic), but given that he's under a sentence of death, Robin is reluctant to broadcast his true name to anyone. Regardless, Time Tours does a nice bit of business in Nottingham's Nottingham, keeping an annual Fair there and doing their own part to rob from the rich (on Homeline) and give to the poor (on Nottingham). Less their cut, of course.

Sherlock Parallels

In the close parallel **Sherlock-1** (Q5, current year 1910), Sherlock Holmes apparently died at Reichenbach Falls in 1891. Just to be on the safe side, Infinity takes extra precautions when visiting **Sherlock-2** (Q6, current year 1888) where both Holmes and Moriarty are still alive and awaiting their fatal contest; other Victorian characters such as Dr. Jekyll and Abraham van Helsing are also alive on this worldline.

The anchor parallel **Sherlock-3** (Q6, current year 1897) was once a major covert Infinity-Centrum battleground, which the Patrol cleared out four years ago. It is now a popular Time Tours destination in which "Sherlock Holmes" is one of several actors (one or two of whom have real criminological experience) hired by Time Tours to impersonate the Great Detective. For a well-paying outworld clientele, he "solves crimes" in an appropriately foggy Victorian London slowly coming under the financial sway of Denarius Holdings (which is also trying to stave off World War I in this timeline). Not all the crimes are bogus, however; not only does one or another "Holmes" get the occasional local client with a genuine problem, they now have an arch-enemy. Time Tours is desperately trying to keep the activities of a Centrum Unattached agent (who, having apparently done his research, goes under the name "Moran") from attracting the attention of either the Patrol (which would close the reality if it knew Centrum was attempting to penetrate it again) or Scotland Yard. Interestingly, since "Moran" doesn't want the Patrol interfering, either, he keeps his outrages to a minimum and keeps them "in genre" – thefts of submarine plans, airship piracy, conspiring with wicked female agents from the Continent, and that sort of thing.

Nergal

In a single reign, King Shalmaneser III of Assyria managed to abort monotheism and democracy on his worldline, and make a fairly savage dent in capitalism and literacy. In 854 B.C. on the shores of the Orontes River, his armies slaughtered the Hebrews and Syrians without mercy, marching across the river on the bodies of the slain. While one detachment destroyed the Hebrew capitals of Samaria and Jerusalem, the main armies wheeled west and caught Tyre and Sidon unprepared. Captured Phoenecian ships carried the Assyrian armies to the Phrygian flank and secured the empire's rear. The later obliteration of the few Greek oil-and-wine trading cities on the Aegean didn't even get a whole paragraph on the triumphant stelae of Shamshiadad V. Tyre and Sidon foolishly attempted a revolt that ended with both cities destroyed; their strange "alphabetic" script survives only in a few potsherds on the Coele-syrian coast.

Nergal, 1678

Current Affairs

The dark sorceries of the Assyrian priests draw a shadow across the world as the icy gates of hell slowly creak open.

Divergence Point

854 B.C.; Assyria defeats Aram and Israel at the Battle of Qarqar, eradicates Hebrews entirely.

Major Civilizations

Neo-Assyrian (empire with rivals), Irano-Indic (multipolar), Steppe-Chinese (multipolar), Meso-American (multipolar).

Great Powers

Sixth Assyrian Empire (dictatorship, CR5 for Assyrians, CR6 for subject peoples), Kanavashya (feudal, CR3), Tujue (dictatorship, CR5), Nerwa (oligarchy, CR4), Denehtec Empire (theocracy, CR5).

Worldline Data

TL: 2-3 (no gunpowder or paper)
Quantum: 5
Centrum Zone: Inaccessible
Mana Level: normal
Infinity Class: P7

The Terror That Was Asshur

Even the Assyrian tyranny could not last forever, although it lasted long enough to drive the Medes and Scythians back east, to pillage softer targets in India and China. (Tujue, the Turkish marcher state in China, is the latest inheritor of their barbaric empires.) But when it fell, all future empires remembered the murderous glory of Assyria and emulated it ever after. The newest Assyrian Empire (the Sixth) reigns in efficient terror from Persia to the shores of Italy. Its cruel priests trade gangs of slaves between their basalt ziggurats, and read the entrails of those slaves fortunate enough to be offered to the gods . . . a Phoenecian custom, unlike coinage, that the Assyrians did adapt. The deadly efficient war machine of the dark lords of Asshur presses against the Persian caste-lords in Kanavashya and the other Indian kingdoms, and against the human-sacrificing Nerwa in Gaul, whose tall ships scour the Atlantic looking for slaves in the New World. So far, the Denehtec in Mexico have held out against the Celtic pirate raids, but new plagues are spreading over the land, and no matter how many hearts are torn out on the altars of Kokopetl, nothing seems to bring back the sun. Winter is coming to the world, and only the cruel will survive. This is the will of all the surviving gods.

Outworld Operations

On this world, the Infinity Patrol operates almost openly; Nergal's primitive industry poses no threat to The Secret, and frankly the Patrol would like to cause as much cultural contamination here as possible. The Council has rejected simply conquering this parallel and deposing its homicidal empires by force, but the Patrol has taken over southern Africa and built a thriving TL3 Xhosa-Tamil society along its coasts protected by "the sky gods." (The interior is TL8 mining camps, a climatological research station studying the anomalous Ice Age in progress, and a large Paralabs magical research center on the site of Homeline's Great Zimbabwe.) Every so often, a Patrol "wizard" – or even a genuine wizard, usually from ISWAT – recruits a band of adventurous locals and lead them into one or another dark realm to liberate slaves, destroy arms factories, and otherwise psychologically destabilize the rulers of this nightmare parallel.

NOSTRADAMUS

The French pharmacist and astrologer Michel de Nostredame did a good business in almanacs and horoscopes, while cultivating true prophecy. In Homeline's history, he gained the patronage of Catherine de' Medici, the true ruler of France. In the worldline named for his Latin pseudonym, Nostredame's scholarship brought a further reward, the Iamblichan Words of Power used by initiates in the Egyptian Mysteries. He incorporated them into his Prophecies, and after his death in 1566 (which he predicted), Catherine had his manuscripts seized by her court magi and suppressed elsewhere. She began manipulating events to match the prophetic Words. In short order, Catherine had raised her son Charles to the throne of the Saint-Empire Romain and purged her enemies before they even knew of their own plots. In this history, France would have no civil war or Huguenot revolt.

Au Milieu de Branches

Her position secure in France, Catherine used Prophecy V:49 ("Not Spain but ancient France will be elected for the trembling ships") to supplant Spanish naval power; the French Armada crushed English Protestantism in 1578 with Prophecy V:96 ("Upon the world's center, the Rose . . . At the time of need help will come too late.") Other prophecies, and a certain amount of old-fashioned Medici power politics, raised France and its ally Venice to power in Italy (Prophecy VIII:11 "The great one of Valencia defeated, when Venice and more take up the affair") and brought the Dutch to heel (Prophecy VI:100 "Daughter of the breeze . . . You will be captive, and more than four times."). As Nostredame's elixirs kept Catherine alive, she kept France supreme in Europe.

Nostradamus, 1602

Current Affairs

Nazis from Reich-5 conquered Mesopotamia on this world where prophecy is a weapon; they use it as a base to strike deep into the continuum.

Divergence Point

1555; the seer Nostradamus somehow incorporates Words of Power into his prophecies, to the immediate benefit of Catherine de' Medici of France.

Major Civilizations

Western (multipolar), Islamic (empire with rivals), Chinese (empire).

Great Powers

Neubabalon (military dictatorship, CR5 for Nazis, CR6 for everyone else), Saint-Empire Romain (dictatorship, CR4), Ottoman Empire (dictatorship, CR5), Ming China (dictatorship, CR5), Safavid Persia (dictatorship, CR4).

Worldline Data

TL: 4 (Nazis, TL8)
Quantum: 3
Centrum Zone: Inaccessible
Mana Level: normal
Infinity Class: Z1

Outworld Operations

One whom the infernal gods of Hannibal
Cause to be reborn, terror of mankind:
The ultimate horror worse than any paper can tell,
They will come from Babylon toward the Empire.
– Michel de Nostredame, Prophecy II:30

Outside Europe, however, the ultimate horror landed in Babylon in 1599. SS Raven Division (p. 64) machine guns mowed down scimitar-waving Janissaries, helicopter gunships destroyed the Turkish artillery parks, and the Armanen Order controlled "New Babylon" from Basra to Aleppo. At the Austrian court negotiating an alliance against Turkey, the SS learned of the "mysterious quatrains" used by Catherine's sorcerous diplomats to reshape Europe. A quick Gestapo operation brought the secret back to Neubabalon. Catherine's secret weapon was no secret to invaders from a history where Nostredame's prophecies were tabloid copy. Ahnenerbe rune magicians rapidly deduced Catherine's methods, and invoked Prophecies II:30 and X:86 ("The King of Europe, accompanied by men of the North, leads the red and white against the King of Babylon") to cement their own control.

The Order seeks to keep the Turks and French off balance, and to fully secure the Chronobahn (p. 79), which on this world runs from the Taurus Mountains in southern Anatolia almost due east to Sinjar, in the Iraqi desert west of Mosul, and from the Pontic Mountains just south of Trebizond on the Black Sea to the valley of Baalbek in the Lebanon. The two roads cross at Carchemish, on the Euphrates northeast of Aleppo. Much of this roadway remains Ottoman-controlled, or under Kurdish or Armenian border lords who revolted after the SS destroyed the Ottoman armies in the region. The western end of the Chronobahn leads to the Friedrich worldline (p. 124), a crucial pawn in Raven Division strategy. Exploring the Chronobahn is possible – no local force can stop an SS recon unit. Conquering it is more difficult; the Kurds, especially, seem eager to resist the Nazis. The Patrol has noted what might be Merlin-2 U.S. Spectral Ops forces working with the local Kurds, and speculates that Nostradamus also has a possible world-gate to Merlin-2 (p. 135) somewhere in the Middle East.

ORICHALCUM

On this worldline (and perhaps a few others) Atlantis exists, and just as Homeline's Plato reported, it is indeed a great island empire out beyond the Pillars of Heracles, founded by Poseidon, god of the sea. At the height of its power, arrogance, and glory, Atlantis' rulers are bent on world conquest, with only the Republic of Athens to stop them.

A Great and Wonderful Empire

Atlantis is a roughly diamond-shaped island, lying just over 600 miles west of the Straits of Gibraltar. It is just over 1,000 miles long north to south, and about 800 miles at its widest from east to west. (The Azores and Madeira do not exist on Orichalcum, although other Atlantic islands do, most of them under Atlantean control.) Its geology is complex and irregular, with marshlands and several volcanic mountain ranges, but also some fertile lowlands, including the broad central plain where the capital city, Poseidonis, is located. The mountain ranges run right up to the coastline in many places, creating rocky, inhospitable coasts; Atlantis's few ports, especially the capital, are highly valued. The climate is broadly Mediterranean; the equinoctial rain and volcanic ash (and perhaps Poseidon's blessing) make the island amazingly fertile and thus amazingly wealthy.

Atlantis dominates western Europe up to the Italian city-states, where it competes with Athens (and to a lesser extent, Athens' rivals Knossos, Thebes, Sparta, and Argos) for influence, and Africa to the borders of Khem. This pyramid-building kingdom rules Egypt from its capital at Thebes of the Hundred Gates well up the Nile Valley. An Amazon outpost in Cyrene between Atlantean and Khemite territory is the only non-Atlantean city in

Orichalcum, 9590 B.C.

Current Affairs
Atlantis and Athens square off for the favor of the gods and the mastery of the seas.

Divergence Point
10,400 B.C.; the 10 sons of Poseidon found the kingdom of Atlantis. (The variant geography indicates another possible divergence point around 50 million years ago, but the Patrol would prefer to blame Poseidon's magic rather than anomalous continental drift in this case.)

Major Civilizations
Atlantean (empire), Hellenic (empire with rivals), Egyptian (empire), Amazon-Hittite (multipolar).

Great Powers
Atlantis (feudal dictatorship, CR4), Athens (technocracy, CR6), Khem (theocracy, CR5), Themyscira (dictatorship, CR4), Troy (dictatorship, CR4).

Worldline Data
TL: 1-2 (some Atlantean tech, TL4) **Mana Level:** normal
Quantum: 6 **Infinity Class:** R5 **Centrum Zone:** Yellow

Africa outside Egypt. The Amazon matriarchy centered on the "Black Island" of Themyscira north of Anatolia dominates the rest of the Middle East south to Canaan (which is a buffer zone between Khem and the Amazons) and west to Troy. East of the Amazons, various lesser states spread out toward the Indian kingdom of Nysa, ruled by the demigod Dionysos (see *Active Gods*, p. 68).

(See ***GURPS Atlantis*** for further details.)

Outworld Operations

Like many "high fantasy" myth parallels, Orichalcum is a pocket multiverse, complete with gods on a paradimensional Mount Olympos, the Egyptian Duat, and so forth. Generally speaking, the Patrol supports Atlantis and the Amazons; Centrum backs the proto-fascist "Platonic Republic" of Athens and the similarly orderly empire of Khem. Both sides step gingerly around the gods, who take an alarmingly active role in this worldline.

Ordinarily, both the Patrol and Centrum would leave a primitive, dangerous, god-plagued worldline like Orichalcum alone, except that it's the only known source in the infinite worlds for the wonder metal orichalcum. Lighter than bronze, strong as steel, the Atlanteans use orichalcum as a decoration (beaten with copper, it makes a gorgeous red-gold flash on the rims of Atlantean temples and palaces) and to power the occasional magical construct such as the bronze giants that guard Poseidonis' harbor. (More to Infinity's interest, it is also a warm-temperature superconductor, and if alloyed with titanium increases its tensile strength ninefold.) Although CMU prospectors have been busy looking, so far the only orichalcum mines are in Atlantis itself and Spain, far too close to the eyes of the gods for open mining operations.

Puzzle Worlds

Blip

This low-mana Quantum 4 timeline seems to have a different timeflow speed. To put it mildly. A day spent there is equal to only six minutes and 12.5 seconds elsewhere. The world is inhabited; its people are currently at TL3, but they're advancing quite rapidly! Assuming that the civilizations of Blip (which seems to be dominated by a Byzantine-Hunnic codominium between the Danube and the Jaxartes) develop at roughly the speed Homeline did, they should be splitting the atom within the next 14 months, and possibly inventing parachronics a few weeks after that . . .

Enigma

On local date July 12, 1982 – 26 years ago – the entire population of the no-mana Quantum 7 alternate Earth called Enigma . . . vanished. The Infinity Patrol discovered this timeline in 2012, 11 years after the disappearance. Up until that July, Enigma appears to have been a close parallel. The most notable difference was that the Ramones never toured England, and apparently as a consequence, the band The Clash never formed. Six months of careful study produced no evidence as to what happened – no millennial tension, no upsurge in UFO sightings, no banestorm, no Second Coming, no global dust-plague – and nothing like it has happened before or since on any other worldline in Penetration Service records. The Infinity Council closed the investigation, but has declared the world a Class Z1 alternate, just to be on the safe side.

Microworld

In this Quantum 3 parallel, something very strange happened in the year 1892. Up until that summer, this alternate had been a fairly close parallel, with a few literary and dietary differences. But it diverged rapidly over a period of a few weeks: all mankind shrank by a linear factor of about 70, to an average height of a little over an inch, and average weight of around an ounce. (Many domesticated animals shrank by the same factor.) Their scientists never managed an explanation, and as yet neither have Infinity's! (A very bright comet did appear in the skies over Microworld in May, 1892, and not over any other known alternate.) The various laws of physics that would seem to make "tiny people" impossible have somehow been bypassed, although the square-cube law and so forth still hold for inanimate objects. Microworld is low-mana, but the effect does not seem magical, at least not as Paralabs understands magic to operate.

After an initial period of panic, and global wars of extermination against the un-shrunken rats, Microworld recovered and is now in many ways very prosperous; there are far more resources to go around! Ocean and air travel are much harder, of course, since weather is now a much greater hazard. Wars between humans have resumed (beginning with a war against an expansionist Communist Microhungary in the 1920s), but there is very little nuclear threat, since the smallest possible atomic bomb is inconveniently large for inch-tall combatants. The Micro year is 1970; they are in late TL7.

Observation of Microworld has been very limited, initially on the assumption that the existence of "giants" would probably crush these peoples' spirits. Given that the tabloids in Microworld now sell off the stands with "giant sightings," that fear may have been overwrought, as was the fear that the shrinkage might somehow be contagious – it seems to be totally unique to Microworlders. More importantly, Microworld is one of the more difficult parallels to covertly infiltrate, for obvious reasons. However, a Patrolman's serendipitous discovery of an abandoned laboratory in the Q3 parallel Klaatu did produce a chemical reagent, the Carey Formula, that can allow a Microworlder to survive while shrunk even on worldlines with more conventionally consistent laws of physics. The Patrol and ISWAT have each recruited a few Microworlder agents, especially in the wake of hurricanes and other disasters, when, as all devoted Microreaders of the *Midnight Star* know, "giants" are known to roam the Earth.

Microworlders

-39 points

The inhabitants of Microworld are normal humans on their own worldline, and would use normal templates in a Microworld-based game. (Un-shrunken rats, on the other hand, would have ST scores above 40!) Elsewhere in the infinite worlds, however, they use the following template. Without bionics, magic, or other enhancements, a Microworlder's maximum ST and Basic Move are 1.

Attribute Modifiers: ST-9 [-90].
Secondary Characteristic Modifiers: Basic Move-4 [-20].
Advantages: DR 20 (only against falling damage, -60%) [40]; Hard To Kill 5 [10]; Microscopic Vision 1 [5]; Pressure Support 1 [5]; Reduced Consumption 4 (Require three meals a day, -25%) [6]; Resistant (Alcohol and environmental hazards, +8) [10]; Silence 7 [35]; Tunneling 1 (Soil only, -50%) [18].
Disadvantages: Cannot Float [-1]; Dependency (Carey Formula, monthly) [-30]; Gluttony (12) [-5]; Vulnerability (Poison gas or spray, ×3) [-30].
Skills: Riding (Birds) (DX+2) [8].
Features and Taboo Traits: Size Modifier -11; maximum ST and Basic Move 1.

Möbius

This seemingly normal parallel breaks the fundamental rules of quantum parachronics by existing in two quanta simultaneously. Conveyors from Homeline travel to Möbius by projector, as if going to Quantum 4. However, once in the parallel, an unassisted conveyor can reach Quantum 7 worlds, as if Möbius were on Quantum 7. Infinity doesn't believe that Centrum has discovered Möbius, and they don't believe that a conveyor can "reverse engineer" the process and reach Homeline, since that would (theoretically) require a projector, which can't work on either Quantum 4 or Quantum 7. Of course, in theory, the "quantum knot" in Möbius' worldline should be impossible!

Other than its bizarre topospace, Möbius seems perfectly average; it's a world where Ferdinand and Isabella died besieging Granada in 1492, Spain broke up, and Cabral discovered America for Portugal by accident in 1500. The Portuguese Empire dominates the world's sea lanes after sweeping the English and Dutch fleets from the Caribbean in 1578; the current year is 1590. It does have packs of neo-troodons (p. 149) living in the Amazon rainforest, but as best Infinity can determine, they (and the other surviving "dinosaurs" in the New World) are perfectly normal, if not at all likely. They have become a common feature in European menageries, and are roughly as intelligent as apes.

Rustic

In this Quantum 3 world, although it is a no-mana alternate, no technology higher than "simple mechanics" works. Rustic is in its current year 1882, and recovering from a global hantavirus epidemic that devastated Eurasia and the entire Pacific Rim, including the Chinese colonies in western North America, allowing Virginia and Navaju to expand to the Pacific. (The other major powers in the wake of the pestilence are Drakensberg, a Hessian corporate mining empire in South Africa, and the Jesuit states in South America.) These powers have progressed to TL4 (early TL5 in some areas) and seem unlikely to get any farther.

Essentially, it is impossible to produce an artificial electrical discharge on Rustic. This timeline was discovered by a world-jumper; if a conveyor had gone there instead, it wouldn't have been able to return, and Rustic would no doubt have been written off as a deadly setting.

Vanish

Within the Patrol, this name is a darkly humorous running joke, albeit one in questionable taste. At last count, 41 projector/conveyor settings show all the signs of validity – in other words, the math and the readings from Homeline instruments seem to correspond to real timelines. But nothing has ever returned from a trip to these worlds. The persistence of "Reality Vanish" helps explain why Infinity sends drones through to a new reality, where possible, ahead of manned Scout missions. But such reconnaissance is not always feasible, or unambiguous, and every so often an empty coffin gets buried on Mount Eisenhower for a Patrolman "posted to Reality Vanish."

Some researchers speculate that these are worlds where the physical laws are very different, killing visitors immediately and crippling their machinery. Some superstitious Patrolmen claim to believe that lost drones are "sacrificed to the god of Vanish," and "Vanish it!" has become a popular curse even among the hardest-headed Patrolmen. Of course, no such elaborate explanation is necessary; if a conveyor pops into the heart of a volcano, or an atomic explosion, perfectly normal physical laws will destroy it instantly. But Paralabs knows that some worlds have alien physical laws; it's easy to imagine that some of these might be deadly.

Wyvern

This Quantum 4 parallel (current year 1904) was originally thought to be a close parallel to Homeline's Edwardian era with an odd fixation on dragons. The Scouts classified it a P9 world, and moved on. Only after two years of perfectly ordinary tourist trips, White Star trading missions, and so forth did Infinity realize that the dragons on Wyvern were actually real – and that they could sorcerously dominate human acolytes and apparently whole nations without even leaving their caves. The Patrol clamped a Z classification on Wyvern and is frantically tracking down every Homeline visitor to this parallel to assess the possibility that The Secret might have accidentally slipped to reptilian monsters. Of course, covert Cabal trips to this worldline increased dramatically – many Cabalistic formulas call for dragon's blood, and dragons are imaginary (or worse, extinct) on *most* Earths . . .

(See Chapters 7 and 8 of ***GURPS Dragons*** for further details.)

Reich-2

A less resolute government than Churchill's might easily have decided that the military situation was hopeless in 1940, after the fall of France, and that Britain's only chance of survival was accommodation to the new order. The man who almost led Britain to such a peace was Edward Frederick Lindley Wood, Lord Halifax, who had been Neville Chamberlain's foreign secretary and was his preferred successor. On Homeline, Halifax turned down the job, fearing that leading the government in the House of Commons would be impossible for a titled peer.

On Reich-2, he put such qualms aside to save England as best he knew how. Lord Halifax was *not* a Nazi sympathizer, and his government was never a German ally. He used the armistice to build up the British military, especially the Royal Air Force. However, the military effect of peace in the west was to give Hitler a freer hand in the east. The Anglo-German Armistice ended the chances of the United States getting involved in the European war, since many Americans saw little to choose between Nazis and Soviets.

The Kalter Krieg

With Britain sidelined, the Germans and Soviets fought to a stalemate and a 1943 armistice that left Nazi tanks in the Ukraine and Baltic States, but put Moscow well out of reach. Lord Halifax detached Japan from the Axis by selling them oil and rubber, and acquiescing in their conquest of China, Indochina, and the Dutch East Indies. With the oil embargo broken, the Japanese never attacked Pearl Harbor, and the United States never went to war; the charismatic President Joseph Kennedy, Jr. is the first Democrat since Roosevelt in the White House, and the first to seek a renewed international role for America.

The possibilities of that role are simultaneously constrained and wide open. The British atomic bomb of 1949 and the German orbital rocket in 1950 left the balance of power frozen for a time; with all five great powers orbiting nuclear missile platforms, any open war would rapidly end civilization. The five powers shift alliances and interests frequently; the Anglo-Japanese alliance broke down over India and Malaya (Japan has been supporting anti-British rebels in both colonies; Britain responds by running weapons into Japanese-occupied China from Hong Kong). With Hitler gone to his Valhalla and the considerably more practical (if equally ruthless) Führer Heydrich in the Reichschancellery, the Russian armistice line has settled down almost to a formal border, complete with rail links, showy "cultural exchanges," and crossing points at Kharkov, Mogilev, and Pskov. British commandos have aided Communist partisans in Occupied Serbia, and hunted them in the German Kongo. President Kennedy's father is a famous admirer of Nazi Germany, but his party prefers Premier Gromyko's Soviet Union despite the rumors coming out of Communist Iran and Afghanistan.

Reich-2, 1961

Current Affairs

Nazi Germany, the Soviet Union, and the British Empire fight an ever-shifting cold war of espionage and sabotage as the United States and Imperial Japan jockey for position and allies.

Divergence Point

1940; Lord Halifax becomes Prime Minister of Britain instead of Churchill, and negotiates an armistice with Germany and an alliance with Japan.

Major Civilizations

Western (multipolar), Orthodox (empire), Japanese (empire).

Great Powers

German Reich (dictatorship, CR4-5 for Germans, CR6 for subject races), British Empire (representative democracy, CR4, CR5 in colonies), Soviet Union (dictatorship, CR6), United States (representative democracy, CR3, CR5 for blacks), Japanese Empire (military oligarchy, CR4-5 for Japanese, CR6 for subject nations).

Worldline Data

TL: 7 (aerospace, TL(7+1)) **Mana Level:** no mana
Quantum: 6 **Infinity Class:** Z3 **Centrum Zone:** Red

Other Reichs

On **Reich-1** (Q4, current year 1952), Germany forced an unequal peace on Britain after destroying the BEF at Dunkirk, and went on to defeat the Soviet Union while the United States ignored Europe and crushed Japan. Neither has yet developed nuclear weapons, although both have active research programs. After Hitler died in 1949, Himmler purged the Party and took sole power. He began the next war by occupying Britain, despite the warnings of his admirals that Germany was not yet ready to challenge the Americans. Sure enough, the United States is currently blockading the entire Atlantic coast of Europe, American jets proving equal to the best the Luftwaffe can field. Battles against the Wehrmacht in India and Siberia have been less successful, but America is slowly assembling a gigantic invasion force in Iceland, and as yet the Germans have no idea of its intended target.

On **Reich-3** (Q5, current year 1970), Japan struck Russian Vladivostok rather than Pearl Harbor in 1941. The isolationist United States stayed out of war and never fully funded nuclear research. Japan and Germany divided Eurasia, isolating the United States still further. Most of South America is German-aligned (though Ecuador and Venezuela are Japanese clients, and Brazil is ostentatiously neutral). Only Canada and Mexico remain closely allied with the United States (Canada, with a large voting base of U.K. refugees and their children, is in fact far more committed to resisting the Axis powers than the U.S.) But the United States still wields influence in the Caribbean that Germany covets, and its continued possession of Hawaii strikes Japan as an affront. While conflict between the two Axis empires is rising along their common borders, they have thus far determined to table those issues until the last of the Anglo-Saxon powers can be properly humbled.

On **Reich-4** (Q4, current year 1988) the Wehrmacht broke Leningrad's defenses in 1941. By 1945 only Germany and Japan succeeded in developing nuclear weapons, which they used to cement their victory. Heavy investments in anti-aircraft defenses by the United States were negated by the German ballistic missiles, whose first nuclear strike destroyed industrial centers and troop formations alike. American resistance was brave, but ultimately futile. The Japanese provided the bulk of the occupation troops from their empire, and the Axis powers split North America between them. Without a common enemy, the two superstates, each convinced of the supremacy of their ruling race, soon turned on one another. In 1979, dispute over Persian Gulf oil rapidly escalated, and triggered a German first strike that decapitated the Japanese Empire and destroyed enough of its nuclear capability to leave Germany as a functioning state. But the de facto ruler of the world, after heavy losses, is finding it difficult to find the personnel to administer its new territories. (And, on viewing the devastation, the Germans are likewise finding it difficult to summon the wherewithal to bother, Nazi doctrines regarding *lebensraum* and the racial destiny to rule notwithstanding.)

Reich-5 (Q3, current year 2010) is covered on pp. 57-67.

The Republicans backed the British, and the Anglophile Yalies in the American OSS continue to support MI6, the greatest spy agency in the world, regardless of who sits in the Oval Office. MI6, however, isn't always sure which side to support themselves.

Outworld Operations

The same is not quite true of the Infinity Patrol; they still support the Western democracies, despite their discomfort with British colonial methods in Kenya or American peacekeeping efforts in Nicaragua and the Philippines. Centrum seemingly hasn't picked a side yet; the Interworld Service has moles throughout both the British and Soviet intelligence services, and may have hopes of subverting Nazi Germany from within. With all five powers on nuclear hair triggers, the Patrol and Interworld operate almost like freelance espionage agencies or international criminal rings. (Both Patrol and Interworld use local spy agencies as cover stories, and occasionally as the source of forged local identities.) The lines get blurred during gold heists from pro-German Argentina, while running crossworld Maserati smuggling rings out of Mussolini's Palermo, or during heroin runs into Japanese-occupied Shanghai.

ROMA AETERNA

Although the dynastic name is the same, the Julio-Claudian Emperors in this parallel are entirely different from Homeline's after Augustus himself. Drusus, who did not die on campaign in Germany in this worldline, replaced his older brother Tiberius as Augustus' successor. Drusus' son Germanicus, who in Homeline history died young (apparently poisoned) survived to succeed him. These two proved to be wise rulers; Germanicus, in particular, was beloved by the people. Germanicus' eldest son Nero (not the same as the Homeline Emperor) instead of dying after imprisonment by Tiberius, received the name Britannicus after his conquest of Britain, and eventually followed his father to the purple. The line continued for two generations more before Nero Drusus, the last of the line, died without issue. Thus, Roma Aeterna was spared the reigns of the mad emperors Caligula (a younger son of Germanicus) and Nero, son of Germanicus' daughter Agrippina.

Empire Without End

Instead, the Julio-Claudian emperors gave Rome stable borders in Europe, and, with their patronage of the Heronian Academy in Alexandria, primitive industry as well. This parallel also had no chaotic "Year of Four Emperors" and no Flavian dynasty of military despots. The adoptive Antonine emperors who immediately followed the Julio-Claudians graced the Empire with three centuries of remarkably able rulers, whose brilliance masked real decline until the first succession war in 400 years finally broke the illusion of permanence. The Empire fractured in civil war and barbarian invasions. It took two centuries to reunite a shrunken Second Empire, by successive dynasties using the sea power of North Africa. New machines of war enabled the emperors – more often from their second capital at Alexandria than from Roma itself – to reconquer the East and push into India. New ships discovered the Hesperides across the Atlantic Ocean, and legions conquered, then colonized, the rich lands of the Maiae.

While the First Empire had collapsed dramatically, the Second Empire had a slower, more painful decline. Disease and invasion were met with increased centralization from the new capital at Alexandria, buying a respite at the cost of cultural petrification. Imperial control eroded from the fringes, passing to local military or barbarian immigrants. The 13th-century Mongol invasions broke the last pretensions of imperial unity.

The main exception to the darkness of the Long Night was across the ocean. The Roman colonies in the Hesperides traded among themselves and expanded into the fertile volcanic lands in central Hesperia. Their Heronian Academies rediscovered the steam engine and fueled a rebirth of nostalgic Roman glory. In the 18th century, the European provinces recovered enough to resume trade with the Hesperides, sparking rivalry and war. The Hesperians got the better

Roma Aeterna, 1893

Current Affairs

A conservative new dynasty from the Mexican provinces has restored the Roman Empire to its eternal glory. Harnessing steam and gunpowder, Rome expands once more!

Divergence Point

9 B.C.; Drusus does not die on campaign in Germany, and becomes emperor in 29 A.D. (possibly disrupting Jesus' crucifixion with a general pardon for all prisoners); his heirs are *not* insane, depraved halfwits, unlike the historical Homeline Julio-Claudians.

Major Civilizations

Roman (empire), Chinese (multipolar), Andean (empire).

Great Powers

Third Roman Empire (dictatorship, CR4 for Roman citizens, CR5-6 for subjects), Taehan (dictatorship, CR6), Huaraca (theocratic dictatorship, CR6).

Worldline Data

TL: 5 (some weapons, TL6) **Mana Level:** low
Quantum: 6 **Infinity Class:** P4 **Centrum Zone:** Yellow

of Britannia (the leading European province) and invaded Europe with a massive steam fleet. Superior Hesperian technology combined with the ideological appeal of a rebirth of Roman glories to make the conquest irresistible. By 1806, the Hesperian general Corineus Junius Selauchis had entered Roma and proclaimed the Third Empire.

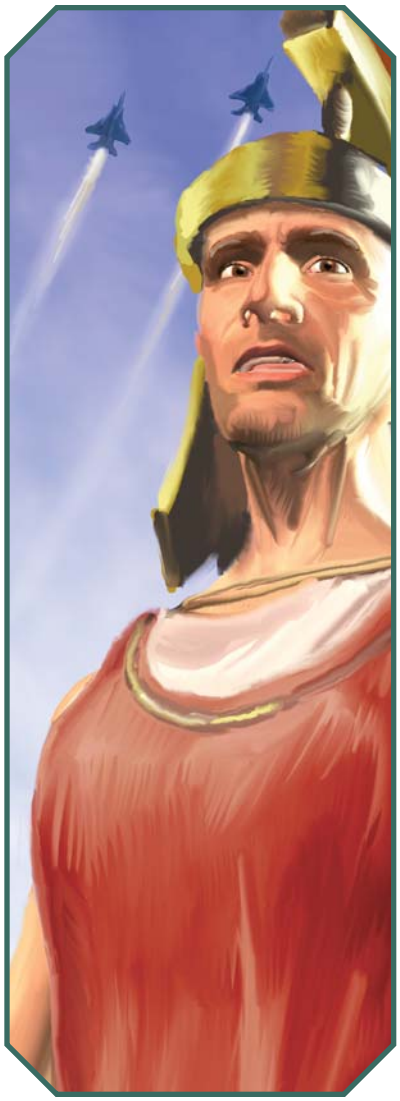
After claiming the eternal city, the new rulers often found their progress becoming as much a triumphal march as a military campaign. Egypt, whose rulers still claimed the imperial title, joined the new Empire without a fight after a Hesperian show of force in the harbor of Alexandria. Even before the reconquests in Europe and Africa had been assimilated, the third of the new emperors turned his attention to Persia, and his successor went one better by inaugurating the reconquest of India. Today, the Empire has at least duplicated or surpassed its former maximum extent on every front, and its star is still rising.

(See ***GURPS Alternate Earths*** for further details.)

Outworld Operations

Roma Aeterna was formerly the destination for several popular vacation packages offered by Time Tours, Ltd. It isn't as decadent as Johnson's Rome, but there was a clientele that preferred to see a world based more around Roman ideals than Roman decadence. All of that went by the wayside in 2022 after a group of Time Tours employees stumbled upon Centran agents in Alexandria. Before managing to get their group to safety, they found evidence that Centrum had thoroughly infiltrated the local power structure. Infinity reduced the parallel's Access Rating (p. 83) from 9 to 4, and investigated.

Infinity had assumed that Centrum would suffer its standard linguistic handicaps (see *The Language Barrier,* p. 47) when operating in a Roman worldline. Thanks to a living classical tradition, however, Centrum had fielded agents capable of working in Roma Aeterna without difficulty, and they did such an effective job that the I-Cops still aren't sure how far their control extends.



Other Romes

Roma Aeterna was the third Roman-dominated parallel discovered by Infinity, hence its official designation "Rome-3." Rome-2 is Johnson's Rome (p. 130).

On **Rome-1** (Q5, current year 954), the Emperor Justinian succeeded in reuniting the empire and his successors moved the capital back to Rome from Constantinople; the legions conquered Germany and Bohemia and hold the borders against Magyars, Vikings, and Turks. The shorter dark ages have moved Rome into high TL3, or even TL4 in some areas (but with no gunpowder as yet).

On **Rome-4** (Q6, current year 1741), the rebellions of Sertorius and Spartacus fragmented Roman civilization in 74 B.C., but the Roman successor republics still overmatched all their neighbors. Despite turns to despotism in the third and 15th centuries, most of the TL6 Roman states from Cuba to the borders of the Afghan Empire are quarrelsome, independent republics.

On **Rome-5** (Q4, current year 404 A.D.), the Chinese expedition to Parthia under Pan Ch'ao met the Romans under Trajan in 97 A.D. Roman-Chinese wars led to cultural interchange, which paid off when Galen accidentally invented inoculation while studying acupuncture. This medical revolution (now at TL5) enabled both Rome and China to survive the third-century crisis essentially intact at TL2, and spoiling for a religious war between Roman Catholicism and Chinese Nestorian Christianity.

Rome-6 (Q7, current year 248 A.D.) is a normal-mana (with uneven spots both low and high) close parallel of Homeline's TL2 Rome, except that Christianity (if it exists) is even farther underground, and magic seems to work as the Romans believed. This may make Rome-6 a myth parallel, or it might have some connection to the Cabal, who claim to have ruled in Rome right about this time. (See *Roma Arcana* in ***GURPS Fantasy*** for further details.)

Rome-7 (Q4, current year 180 A.D.) has not yet outlasted Homeline's Rome, but it has entered a full-scale Industrial Revolution triggered by Vespasian's commissioning Hero of Alexandria to build steam-powered siege machines to destroy Masada in 73 A.D. Oil-driven TL(2+3) aeolicars battle in the Colosseum, and the spoiled sons of patricians drag-race down the Appian Way as the legions drive into India.

The Infinity Patrol has identified at least a dozen powerful Roman senators and equestrians as Centran agents, mostly wealthy merchants but including an important general and the governor of Libya province. These agents do not appear to form a political faction – indeed, they publicly oppose each other on several issues. The Patrol doesn't know exactly what their plan is, except that they do seem to be attempting to place agents at court. Centrum exercises influence through secret societies as well. The mystery cults of Horus Regnans (in Aegyptus) and Angerona, goddess of silence (in Italia) appear to have fallen under their full control. They have also introduced their own secret society, the Order of the White Way (Ordo Albae Viae), a magical sect prominent in the industrial centers of Hesperia. On a few occasions, they have simulated magical powers, including "miraculous" cures through antibiotics, within these front organizations.

Having been caught flat-footed, the I-Cops are trying to recover. Infinity has limited its activities in the Empire to intelligence operations, trying to discover the scope of Centran influence and its ultimate purpose. The Patrol is building a power base of its own among the Chinese traders who sail to the Indian Ocean from the Serican petty kingdoms in east Asia, which Centrum would have extreme difficulty infiltrating. Plans to form a secret society front organization under Infinity control are under consideration.

Shikaku-Mon

The history of this Quantum 3 parallel diverged in the early 16th century, when the heir to Ferdinand and Isabella of Spain survived to ascend the throne as John III. Without the dynastic union of Spain and Austria under the Habsburgs, European history took a different shape during the crucial era of the Reformation. On the other side of the globe, the Jesuits were successful with their campaign of Christian proselytization in Japan. Under the Oda chancellors, Japan never "turned away from the gun." Instead, it began the adaptation of Western culture that was eventually to give the Chrysanthemum Throne total dominance of East Asia.

Today, the name for the parallel itself comes from the local version of Japanese: *shikaku-mon*, from the native word for "square" and their French loan-word for "world," is a common term for the quadripolar balance established in the 20th century. Japanese control of the eastern half of the globe is balanced by the economic power of Brazil, the frightening totalitarian Swedish Empire, and the technological achievements of the Kingdom of France, risen from the ashes of military defeat to seize the high ground of space. Despite technology superior to Homeline's in many areas, societies cling to archaic aristocratic forms that no longer function in the modern world. Social tensions between the haves and the have-nots have disrupted society in much of the world and increase steadily.

Shikaku-Mon, 2027

Current Affairs

The balance of a cyberpunk world shifts between four great powers: the Japanese Empire, the Swedish Empire, the Empire of Brazil, and the Kingdom of France.

Divergence Point

1497; the son of Ferdinand and Isabella of Spain survives to become King John III, weakening the Habsburgs and causing Portugal to focus its attention overseas on Brazil and missionary activities in Japan. As a consequence, Japan converts to Christianity, never turns away from the gun, and begins expanding in the 1590s.

Major Civilizations

Japanese-Western (empire), Western (multipolar).

Great Powers

Japanese Empire (oligarchy, CR4 in Home Islands, CR3 elsewhere), Swedish Empire (technocratic oligarchy, CR6), Empire of Brazil (corporate state, CR1), Kingdom of France (dictatorship, CR4).

Worldline Data

TL: 8 (aerospace and electronics, TL9)
Quantum: 3
Centrum Zone: Inaccessible
Mana Level: no mana
Infinity Class: Z3

Four Temple Gates Under One Moon

Japan began to supplant Portugal in the east in the early 17th century, just as Sweden unified northern Germany under its control and became a great power. In the next century, France allied with Sweden to defeat Britain, Spain, and the Dutch, becoming the paramount state in Europe as the Industrial Revolution took hold. The Rationalist Movement, parallel to the Enlightenment on Homeline, expressed and created a new secular outlook on the world, but failed to create an era of revolutionary politics. A Republican movement sputtered to life in Portugal (driving the royal family to Brazil to found an independent Empire there) and England's Virginia colony, but French vigilance kept aristocracy supreme.

In 1861, France lost its global dominance to a rising alliance of Sweden, Brazil, and Japan, which had defeated China for hegemony over east Asia and divided India with Britain. The

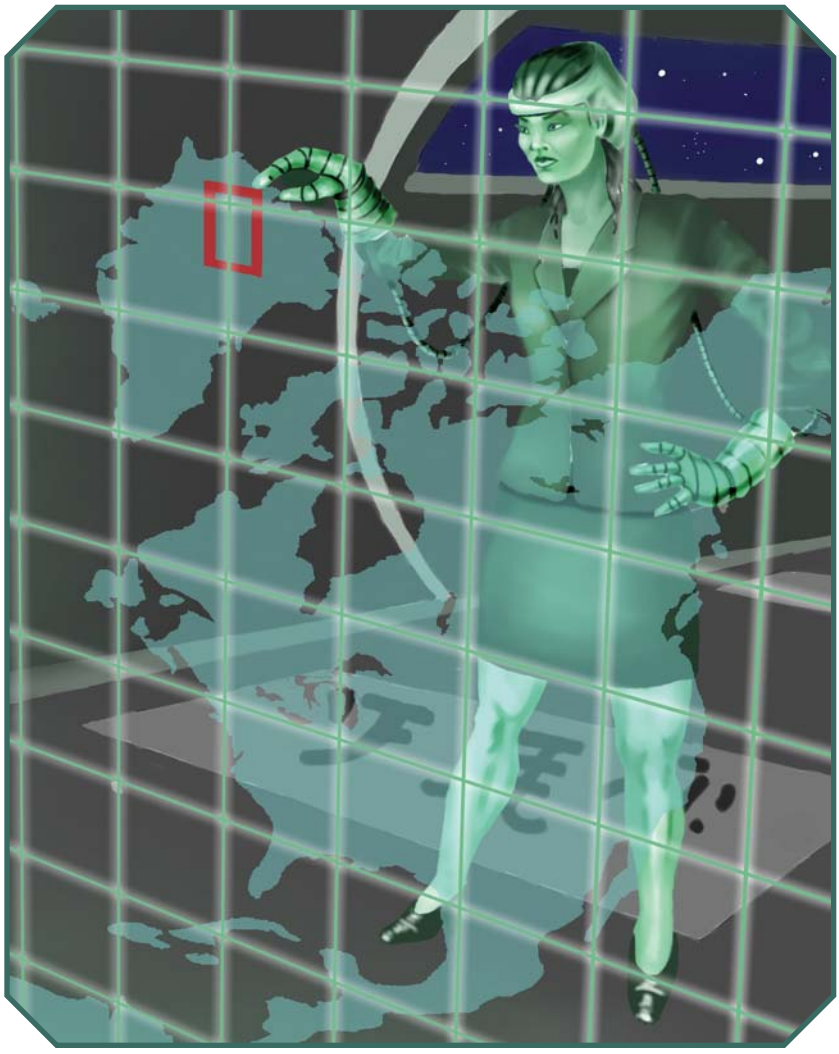
powers, now roughly equal, competed for colonies and trade, drawing each other into a complex, unstable system of secret alliances that virtually guaranteed a general war. The Pyrrhic War of 1927-1932 began over India, but expanded across the globe, killing millions but ending in stalemate. The Allies (Britain, Sweden, and Japan) discovered that victory was meaningless when they found themselves mired in colonial rebellions and economic depression while the Coalition powers (Brazil and France) recovered. Edvard Bagare's Synarchist Party (based on the strangely compelling theories of Kiyoshi Shibata) won control of the Swedish Riksdag and created the first totalitarian state the timeline had ever seen.

Sweden's attempt to create the second synarchist state, by intervening in a coup d'etat in Britain, ended in tragic farce; the Swedish atomic bombing of Britain in 1964 left the British Synarchist Party in control of a shattered, impoverished Swedish satellite state.

The use of atomic weapons inaugurated the current era of covert struggle between the four remaining powers. A case could be made that the so-called "Silent Struggle" did not actually begin until the following year, when Brazil exploded its own fission bomb. In any event, the era has seen continuous tension between the powers, with occasional flare-ups into proxy wars where spheres of influence overlap – most violently in Persia and southern Africa.

So far the quadripolar balance has been able to surmount even such crises as the Swedish defiance of the French ban on orbital travel and the collapse of Brazilian domestic authority during the "Red Tuesday" events shortly after the millennium. Sweden underwent a spasm of political purges in the early 2020s, but its "neo-Synarchist" government seems just as repressive as ever, despite officially denouncing its predecessor. Sweden now aggressively supports "Islamosynarchist" fanatics against both Mahdist Cairo and the Ottomans, Nationalist Louisiana's isolation from the global data Tapestry has begun to spawn some ugly rumors, and the environment isn't getting any better as global weather patterns start to deform, raising the ever-present specter of famine.

(See ***GURPS Alternate Earths*** for further details.)



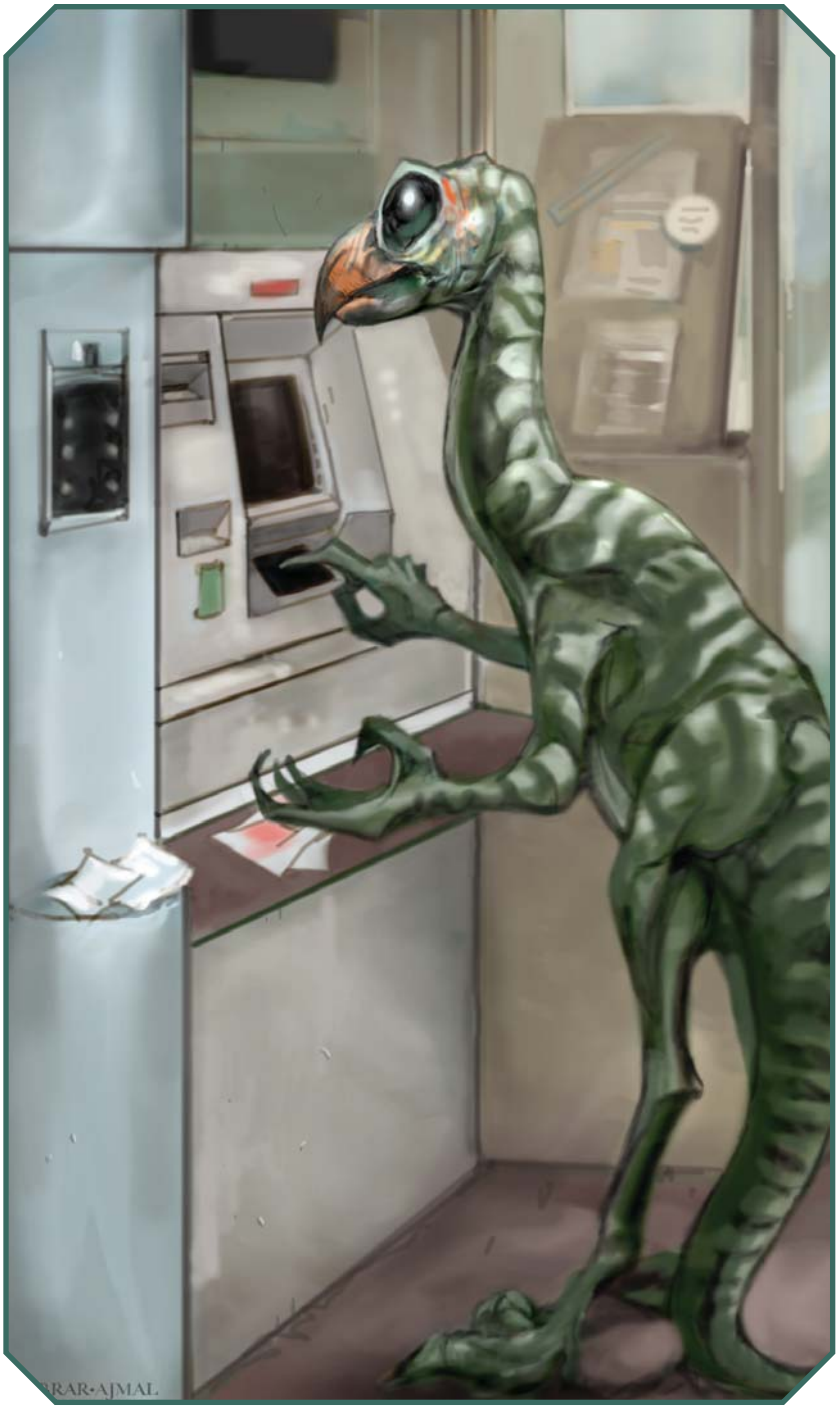
Outworld Operations

Since the first days of parachronic travel, the Infinity Council has worried about the day when a timeline capable of building projectors would be discovered within reach of Homeline. Since Shikaku-mon is at the exact same local time as Homeline and Centrum, a majority of theorists believe that it represents such a threat. It does not help matters that Shikaku-mon technology is slightly more advanced than Homeline's, nor that the parallel is dominated by corrupt, paranoid elites. The only bright aspect to the Shikaku-mon headache is that it is beyond the reach of Centrum projectors; thus, the only way Centrum might gain access to the timeline is through agents in Homeline or world-jumpers.

The Infinity Patrol is the only Homeline organization permitted to operate in Shikaku-mon, and it is being very cautious about its investigations. Overall policy toward Shikaku-mon is still being debated at the highest levels of Infinity and UNIC (there are rumors that Van Zandt himself is involved). Infinity wants to keep Shikaku-mon from developing parachronics, and secondarily prevent them from destroying themselves. One frightening possibility: could Shikaku-mon have a counterpart of Paul Van Zandt, the man who invented parachronic technology? In Homeline, his family originated in northern Germany and immigrated to New England, which would make him a Swedish citizen in Shikaku-mon. Relatively few Homeline natives have doubles in Shikaku-mon – but if Van Zandt were one of the few, the results might be disastrous.

So far, Infinity operations have only tried to set up corporate front organizations in the Americas. Infinity desperately wants to find out if a projector can function in Shikaku-mon, both to test parachronic theory and to open up further quantum levels to exploitation. However, the timeline is pervaded by spies working for the governments, secret agents working for the corporations, and even "peepers" spying as a hobby. Anything that looks interesting is sure to attract attention from some group, and even amateurs have surveillance technology equal to the best Homeline equipment. The I-Cops get ulcers imagining what the professionals must use, but they have not yet been able to get samples of classified technology. They have already had to send several too-inquisitive natives to Coventry, and the ongoing missing persons investigations are yet another focus of anxiety for Patrol operations.

Shikaku-mon strongly tempts Homeline governments and corporations, given the advantages that would accrue to any group that duplicated this worldline's superior computer or surveillance technology. More dangerous yet, such tech might be viewed as offering a possible "balance" to Infinity Unlimited's monopoly of parachronic technology. Since a Japanese university research team discovered the parallel, the Infinity Council has not been able to keep its existence secret. Travel to Shikaku-mon is very illegal; Infinity has declared unauthorized incursions punishable by revocation of access to all parachronic technology from the offending group – or nation. UNIC has quietly informed some troublesome governments that it concurs with this judgment.



United States of Lizardia

Lizardia was the first truly weird parallel discovered by the Infinity Patrol, and Homeline theorists are still wrestling with its implications. Some scientists who have been studying this world for 25 years still don't *believe* it.

In many ways, this Quantum 4 world is a very close parallel of Homeline history up to its present date of 1991. Major languages and cultures are nearly identical, and many nations have similar or identical names. The major North American nations are the United States of America, Canada, and Mexico, and they call their world Earth . . .

But the intelligent race on this world is a lizardlike creature, apparently evolved from a bipedal dinosaur. The basic stats of the race are

human-average in all ways, though they have distinct racial traits (see box). They lay eggs, but the egg normally hatches within a day.

This is not just an echo where everybody has scales and tails. That would be *easier* to understand. The USL's history is like ours in general, but it has played out with completely different actors. They had a World War II, but no Hitler, Churchill, or Roosevelt . . . they have space programs, but the first man in orbit was named Andrei Popov, and, of course, he was a giant lizard. They had no Shakespeare, no Rembrandt, but the world of the USL has produced equally great talents.

Nobody even *pretends* to explain any of this without talking about "gods with a weird sense of humor." The situation is sometimes compared to that of Goblin (p. 151), which also features a nonhuman race and a history like ours, but at least the Goblins are humanoid and their twisted version of Europe has leaders with familiar names.

Outworld Operations

Oddly, USL is one of the worlds where some members of the Infinity Council would like to reveal The Secret and make contact. The technically sophisticated but obviously spiritually minded neo-troodons the Patrol observes seem cultured, funny, playful, and almost human at times. (The violent, pack-ridden, obsequious saurians on this parallel seem no less human, but don't inspire quite the same sympathy.) Most Patrolmen who spend any time on USL come back wishing that just this once they could tear up The Secret, materialize in front of the Black Hills Longhouse, step out into a crowd of scaly, bug-eyed friends, and say "Take us to your leader. We have much to learn from each other."

United States of Lizardia, 1991

Current Affairs

On a world without the Cretaceous meteor strike, dinosaur democracy faces new challenges.

Divergence Point

65 million years ago; there is no Chicxulub meteor strike, so some dinosaurs continue to evolve and adapt to changing weather conditions rather than die out.

Major Civilizations

Saurian, unknown varieties.

Great Powers

Substantially identical to those of Homeline, circa 1991: the United States is the world's superpower, watching in apprehensive satisfaction as the Soviet Union falls apart.

Worldline Data

TL: (0+8) (odd blend of acoustics, biotech, and fluidics)
Mana Level: low
Quantum: 4 **Infinity Class:** P4 **Centrum Zone:** Inaccessible

Neo-Troodons **28 points**

Canadian paleontologist Dale Russell proposed in 1982 that the Cretaceous raptor *Troodon* might have evolved into a sapient species, based on its high brain-to-body mass ratio. He was gratified to learn, as an expert on a surveillance trip to USL in 2001, that his theory was correct in many particulars. The neo-troodons of USL do not precisely match the "dinosauroid" model he predicted, however, having (among other things) tails and a lower posture. Infinity has encountered other neo-troodons on other worlds, including Shikari and Möbius (where they are roughly as intelligent as baboons), but USL is the only worldline known where they have developed a civilization.

Neo-troodons are seven-foot bipeds, slender and somewhat birdlike in movement and posture. Their smooth skins range from pale green to almost black; they have scales (usually in a complementary color) along the backs of their limbs, spine, scalp and cheeks. Their huge eyes are black and liquid; they have three fingers and a long thumb on their hands, and three toes and a sickle-shaped claw on their tough feet. Their inability to resolve non-moving objects is a neurological effect, not an optical one, so corrective lenses do not mitigate their Bad Sight.

Attribute Modifiers: DX+1 [20]; HT+1 [10].
Secondary Characteristic Modifiers: HP-1 [-2].
Advantages: Acute Hearing 1 [2]; Acute Taste and Smell 2 [4]; Discriminatory Smell [15]; Long Talons (Heels only) [11]; Nictitating Membrane 1 [1]; Night Vision 3 [3]; Sharp Teeth [1]; Striking ST+4 (Kicks only, -20%) [16].
Disadvantages: Bad Sight (Nearsighted; Non-moving objects only, -20%) [-20]; Colorblindness [-10]; Compulsive Behavior (Siesta)(6) [-10], Curious (15) [-2]; Gregarious [-10]; Skinny (No skill penalties, -40%) [-3].
Skills: Brawling (DX) [1].
Techniques: Kicking 2 [3].
Racial Quirks: Attentive; Carnivorous [-2].

YRTH

Yrth, 2004

Current Affairs

Various sovereignties contend for power on a magical world populated by storms blowing across the dimensions.

Divergence Point

Unknown; possibly 150 million years ago, when Pangaea split differently. But the moon is different, too.

Major Civilizations

Western (empire with rivals), Islamic (bipolar), Dwarven (empire), Elvish (diffuse).

Great Powers

Megalos (feudal dictatorship, CR4), Al-Haz (theocratic dictatorship, CR4), Zarak (feudal oligarchy, CR3 for Dwarves), Al-Wazif (feudal dictatorship, CR3), Caithness (feudal dictatorship, CR3), Cardiel (feudal oligarchy, CR3).

Worldline Data

TL: 3-4 (gunpowder suppressed; some TL3/6+ elements from newcomers) **Mana Level:** normal with variations
Quantum: 5 **Infinity Class:** R2
Centrum Zone: Inaccessible

Yrth is a fantasy parallel, home to elves, dwarves, and orcs. One faction of elves attempted a mighty ritual to rid their world of the pestilential orcs. It backfired, and instead summoned an enormous banestorm that lasted a century and a half, which brought tens of thousands (eventually hundreds of thousands) of humans to Yrth from Homeline, or from a worldline with a very similar past. (It also brought other nonhuman races from other parallels, in lesser numbers.)

A Magical World

Most of these humans came from western Europe or the Middle East between the years 1050 and 1200; they established kingdoms and resumed their interrupted crusades. Banestorms continue sporadically on Yrth, bringing a few hundred new people every so often, with a major resurgence in 1551, which brought thousands of people from 16th-century France.

The largest human kingdom on the continent of Ytarria, the Empire of Megalos, has a secretive order, the Ministry of Serendipity, devoted to hunting down new arrivals and interrogating them for information about changes on Earth. Megalos restrains any new scientific or technological developments – especially gunpowder – fearing the inevitable culture shock would tear it apart. Unknown to almost all outsiders, the Ministry of Serendipity maintains a secret tome, the *Liber Terranum Primus,* which describes the current state of the original Earth as best it can – but if the banestorms bring "visitors" from more than one Earth, the Ministry may know that still more Earths exist. And if the Earth that the banestorms visit is Homeline, the Ministry of Serendipity may know all about Infinity, too . . .

(See ***GURPS Banestorm*** for many further details.)

Outworld Operations

Yrth is a quantum sargasso; worldjumpers and conveyors can enter it, but they can only leave by using magic, a nexus portal, or (of course) a banestorm. Ted Gruberman, a worldjumping Patrolman, discovered Yrth on a blind hop in 2017, and it took him 14 months to find a magical raft that could sail to another world he could actually leave. When he finally returned to Homeline in 2020, his description of the immense banestorm that struck Yrth a millennium ago caused an immense storm of its own in Infinity headquarters. A second, slightly better prepared, Scout mission took only five months to find its way back to Homeline, and only lost one man in the process, providing substantially more information about the situation on that worldline.

On Yrth, of course, The Secret is out. Everybody knows that parachronic travel is possible; it's how most of their ancestors got to Yrth, after all! Some Yrth factions may know more than that. There is some indication that the Templars (who arrived on Yrth on Halloween night, 1310, just ahead of the French

*Unknown to almost all outsiders, the Ministry of Serendipity maintains a secret tome, the **Liber Terranum Primus**, which describes the current state of the original Earth as best it can.*

inquisitors) had harnessed a banestorm for parachronic travel, or at least knew enough to hunt one down on their Earth. (Any unpleasant connection between Yrth's Templars and the Nazi-tainted Templars on Friedrich is probably just coincidental. Probably.) The Jesuits of Yrth also seem to have peculiar artifacts of mysterious origin – could they have been snatched from another worldline? The Dark Elves, of course, have likely not given up on their researches, and nobody quite knows what to make of the djinn or the dragons.

Infinity has decided that the possible connection between Yrth and Homeline (or a close Homeline echo) required the closest possible Paralabs study. A small permanent staff of "Sheldrake Section" would-be wizards, Paralabs field surveyors, and I-Cop guards set up shop in the border city of Tredroy, bringing along a White Star merchant family to provide gold and cover for their odd behavior. In the House of the White Star, the Homeliners work to understand this strange new world.

Other Fantasy Parallels

In addition to the "historical fantasy" myth parallels such as Burton and Mandeville (p. 136), or borderline cases like Orichalcum (p. 139) and Rome-6 (p. 145), some worldlines hew more to the dictates of 20th-century fantasy fiction. There are myth parallels closely resembling the works of Robert E. Howard, Robert McLees, Terry Pratchett, and Andre Norton, for example. Most such worlds likely diverged at least 150 million years ago, as few of them share Earth's continental outlines. Some of these worlds have divergent starfields, implying either severe reality quake damage to the heavens, a vastly far-past (or future) current year, or that they exist in an entirely different cosmos. Some few of them rest on flat Earths, or inside hollow ones! Hence, dating fantasy parallels is often a matter of piecemeal interpolation and wild assumption.

Agents on Yrth have identified that Banestorms from yet further worlds originally snatched some of the nonhuman races. The locations of these worlds – **Loren'dil,** a forested realm of halflings, giants, and centaurs, **Olokun,** a planet mostly covered in oceans and with very high tides, home to merfolk and other aquatic beings, and **Gabrook,** an arid world inhabited by goblins, reptile men (possibly cousins or alternate versions of USL's neo-troodons), and kobolds – remain to be found by Infinity. They are evidently *radically* divergent worldlines, and may form part of a skerry (p. 89) with Yrth – and perhaps one of the missing echoes from Q6 is the Earth from which the Banestorm took its humans!

A firmly located fantasy parallel is **Brekilien** (Q4, current year 701), one of the worlds continuously reshaped by mighty elven magics that harness banestorms for the play of the elf-lords.

Goblin (Q5, current year 1830) is inhabited exclusively by a different sort of goblins, but is otherwise a very high-inertia, close (if filthy) parallel of Homeline's late Regency era. (See ***GURPS Goblins*** for further details.)

Chapter Five
. . . and Time

Although I was used to his shabby appearance by now, the greasy cynicism of his voice still took me aback. "Don't tell me. Only I can save the world."

"That's right. How did you know?"

"You think you're the first one of you to tell me that?"

"You think I'm the first one of me to hear you say that?"

That got his attention, and he rubbed his unshaven jowls thoughtfully.

"No, you look too tired to be from the first loop. Sit down, take a load off."

"I can't. We have to go."

"It won't do any good. Trust me."

"But –"

"No good. Just sit down. What's a couple of minutes going to matter?"

A brief guilty surge took me, but I shrugged it off and sank into the armchair with a grateful sigh. "It feels like I've been on my feet forever."

"Now maybe you see why I don't hop up whenever one of you jokers comes in here."

"Yeah, my dogs are really barking. Got anything to drink around here?"

"You know I do. Help yourself and pour me one."

I got up long enough to pull the whiskey bottle out from behind the cereal, and poured a splash into two jelly jars. They didn't look clean, but I couldn't really catch anything strange from him, now, could I?

"Cheers." "Cheers."

We drank in companionable silence, and then he stretched and popped a video into the player. Charlton Heston came on, striding down the street in Tijuana as Orson Welles' camera kept pulling back and back and back.

"Hey, this is my favorite movie!"

He gave me a look. "Maybe you are from that first loop, after all."

As we watched the screen, he took another swallow, and spoke more kindly. "Mine, too."

About halfway through the movie, when Janet Leigh was in some dire peril or other, the door opened.

We looked up at the very familiar stranger on the stoop, and said as one: "Don't tell me. Only I can save the world."

Temporal Physics

A lot of stories have been written about time travel, and it seems like no two of them use the same machinery or rules of operation. Before we can go anywhen, we have to know how we're going to get there, and what we can (and can't) do once we arrive. What follow are not rules as such, but an outline of the kinds of rules a GM must decide on when he creates a new system of time travel. They combine setting questions and the mind-knotting complexities of temporal physics, with the aim of answering the first and evading the second wherever possible.

The Physical Setting

The first question: how does the time machine or crossworld railway "work," as a layman might explain it? This is not a question of rubber science (yet) but of physical description. Possibilities include:

Stage: The traveler stands on the platform of a monster machine, and technicians at a console start pushing buttons. There's a blue flash (or a low hum, or a monstrous subsonic belch) and you're there. In this case, the "time machine" does not travel at all, and the travelers have less control over their journeys. In particular, they cannot bounce around freely in time; they're at the mercy of Mission Control (p. 210). The harried GM may find this limitation very useful.

Portal: A "door" opens between two points, bridging the gap between times or worlds. Perhaps it's one-way, perhaps two-way. Perhaps anyone or anything can walk through; perhaps it accepts living flesh only, or dead matter only. The extent of the traveler's control over his return is this: if he can get back to the gate, he can come home . . . maybe. Some gates are only open at certain times; some can be opened only by the volition of an operator at the other end (making them more like a "stage" device). In the Infinite Worlds campaign, crossworld portals and roads exist with any or all of these criteria.

Devices: The time machine is a "vehicle" which may also be able to travel in space. This vehicle may be a huge temporal battleship or a one-man capsule. It may not even be a vehicle as such; it may be a belt, harness or magic amulet that the user wears on his person. This sort of travel usually implies that the traveler has a great deal of freedom to visit different times at whim. For some sample devices, see pp. 162-163.

Combination: The above effects can be combined in various ways. The Time Sphere on p. 163 combines the stage, portal, and device, for example. In the default Infinite Worlds campaign setting, both conveyors (devices) and projectors (stages) may be used, and must be combined for a really long jump.

Nothing at all: If the time or crossworld travel is psionic, magical, or super-powered in nature, there may be no gadgetry at all involved. However, there may be a need for ritual of some sort. Alternatively, the psionic energies, magical spells, or super time-traveling hyper-speed may require fuel or an apparatus to "boost" or "focus" its power or to send the traveler to a specific date in time to kill Hitler or steal the Hope Diamond.

Can of Infinite Worms

Adding time travel to an Infinite Worlds campaign isn't impossible. As it happens, there are plenty of time travel devices, such as the Gates of Thoth, already littering the quantum landscape. At the bare minimum, the possibility of time travel should stay open in case the GM or the players want to shift the Infinite Worlds PCs into a "future Earth" or SF setting with reliable human faster-than-light travel (see *Where Are the Starships?*, p. 72), or just one with a calendar date well past the mid-21st-century setting of Homeline. If the Gates of Thoth don't appeal, there's always the option of mysterious transhuman entities, such as Poul Anderson's Danellians, who recruit Patrolmen for a crisis "in a future world."

What the GM should only introduce into the Infinite Worlds if he's ready to do a lot of sweating is *reliable* time travel, under the control of the players. This rapidly sets up not only a tangle of twisting paradoxes (can you retroactively alter an echo?), and the danger of aborted mysteries or emergencies draining the game's narrative tension, but a real mare's nest of research problems. One of the key features of the Infinite Worlds is GM control – he always knows what world loyal Time Patrolmen will visit, because it's the worldline they've been assigned to visit! Even swagmen or criminals will operate in a fairly confined circle of parallels, ones that the GM can map out in some detail. Reliable time travel knocks those struts out from under the campaign, leaving it hanging high in the air with no visible means of getting back down.

Of course, some GMs enjoy the high-wire act, or have every possible alternate history alteration ready to go at the tip of their fingers. However even those GMs may find that their players become dumbfounded and tentative with all the history of every possible world to explore. They may make a few prods, to test the GM's improvisational skills, but even success there runs the risk of making the vast vistas of time seem humdrum. We can't stop you from adding time travel to the Infinite Worlds – just remember, you can't go back in time and undo your decision!

Paradoxes

Altering history may sound like good clean fun, but it sets up some famous paradoxes more philosophy than physics. These are the ones that everybody from the *Twilight Zone* to Robert Heinlein has used, and any player with any interest in time travel will at least vaguely recall them. The good news is that there are plenty of work-arounds for them, if you're willing to give up only a little freedom of action – or your meager human notions of causality.

The Grandfather Paradox

A man gets into a time machine and travels back a century or so. He finds his (as yet unmarried) grandfather, and shoots him in the head, killing him instantly. Since his grandfather can now not meet and marry his grandmother, the time traveler will never exist, and thus never shoot his grandfather in the head, and thus will have existed, and so forth.

The Free Lunch Paradox

A man gets into a time machine with a copy of Shakespeare's *Complete Plays and Poems,* and travels back to Elizabethan London, where he presents the volume to the Bard. Like all writers, Shakespeare is desperately behind on deadline and has already spent the advance, so he gladly copies out the plays from the anthology and goes out drinking all night with his cronies. Who wrote Shakespeare's plays? Not Bacon, not Oxford, not anybody. Shakespeare merely copied them from a later copy of his earlier copies. He got a free lunch, in other words, and we all know that there ain't no such thing.

Solutions

The usual answer to one or both of the above is that time simply can't be altered. This is Fixed Time. Your gun will jam, or you will miss your bus, or your research will be wrong, or your grandfather will get the drop on you and kill you instead, or he will turn out to be bulletproof, or your grandmother will marry his long-lost identical twin instead, or your grandfather will turn out to have been the mailman all along. If you try to give Shakespeare the *Plays,* you might have a series of horrible accidents trying to find Shakespeare, or the book will turn out to have been written in Esperanto, or Shakespeare's pen keeps getting clogged and he throws you and the book out in the street in a tantrum. Shakespeare, and your grandfather, still have free will – everybody has free will in the present; it's only time travelers who keep running into Fixed Time in other people's presents. It's just that they will never freely choose to alter history, or if they do, something will prevent them.

However, if the past can't be altered, it becomes a considerably less interesting place to visit. (On the other hand, perhaps only *history* can't be altered – the past can change, as long as nobody knows any different. For all we know, Shakespeare might indeed have gotten his plays from nowhere! See *The Observer Effect, p.* 159.) Any campaign background must contain a specific solution to this problem. To examine several *general* solutions:

Plastic Time

The past is freely alterable, but at the risk of "editing out" the future that you came from. Your actions change the future. There are several possible results:

Traveler at Risk: The traveler himself may be changed (or even fade out of existence). This isn't too suitable for gaming unless the players enjoy creating new characters.

World at Risk: The traveler may be unchanged, but return to a changed (perhaps extremely changed) world. This is entertaining for the players, but puts a burden on the GM.

Past or Traveler at Risk: This option combines the two above; a time traveler can change the past as long as nothing he does *significantly* (or perhaps noticeably) effects the future society he came from. Change things too much, and *you* change, or even vanish! This is an excellent constraint for games of time-traveling conspiracy – on the surface, nothing has changed, but now it was the Templars who killed Kennedy, not the Adepts of Hermes.

Return Blocked: The traveler may be unchanged, but stuck in the past, unable to return unless he can somehow undo the change. This is quite playable, because the PCs will be grossly inconvenienced, but not killed or transmuted, if they accidentally change history. And they have a chance to fix it.

In any event, there are no paradoxes. If you make a change in the past, it really happened.

Chaotic Time

An extreme version of "plastic time" draws on modern chaos theory. If you travel back in time, any change you make propagates wildly. If you go back as far as WWI, the act of buying a newspaper in London would reverberate down the timeline, and national boundaries would be different when you returned. If you go to the Permian Age, just stepping out of your time machine would make a difference in local weather . . . which would propagate globally . . . and when you return to the year 2000, the ruling species wouldn't be human.

This is hardly suitable for an ongoing campaign, but might make a very spooky one-shot adventure.

Plastic Time With High Resistance

This is the opposite of chaotic time. The past is still alterable, but it's hard to alter it. Small changes are canceled out by the background noise of history. Big changes, or small changes made with exquisite timing, can change the future.

Recall the theory of time as a river: if you drop a twig in a river, the water is momentarily disrupted, but it continues to flow around the anomaly. And the anomaly begins to flow with the stream until it is, in effect, part of the stream. So you could postulate that though you went back and killed Thomas á Becket at the base of the high altar at Canterbury (rather than the four knights doing the job just outside the Mary Chapel), the time stream could adjust so that the end result (death of Becket, martyrdom, canonization, and even the presence of four knights who were subsequently despised) would be the same. And historians looking at the incident would record it the way we are told it happened. And perhaps it didn't

Chronobabble

Players desiring a brief scientific explanation for time travel may be referred to this section. It may or may not be complete doubletalk, but it is nevertheless real doubletalk. Any student of general relativity will recognize the sources and follow the argument; some will even agree with the conclusions. Those who have not studied general relativity should not worry about it. The authors are indebted to Dale F. Reding for providing this material.

From the senior undergraduate physics text *Principles of Geometric Dynamics,* by D.F.R. Skinner, 2080:

"Like flight, the idea of travel in time has fascinated man since early days. On sound principles of physics it was 'proven' that manned flight was impossible, and indeed, man cannot fly like the birds. Yet flight was achieved by methods far different from those used by the birds. Similarly, our common sense experience with special relativity categorically disallows the possibility of travel in time. But here, though special relativity may still apply, common sense may not."

Time travel in and of itself is impossible within the physics of everyday phenomena. However, as the theories of relativity deny us the existence of a global inertial reference system, quantum mechanics deprives us of the fiction of a deterministic development of space in time. Underlying the Hamilitonian structure of local physics is the remarkably good approximation of the Poincar group to the underlying local symmetry group, exploited in canonical quantization schemes, for distances on the order of Fermi's length (10^{-15} m).

However, in the absence of associated matter, significant extraordinary local effects appear due to the fluctuations in the local 3-geometry on the order of Planck's length ($L^* = [h^{(3)}\gamma/(2\pi c^3)]^{1/2} = 1.6\times10^{-35}$ m). The fictions of space-time and time are exposed as neoclassical approximations.

Centuries of research, from Newton to Weinkoff, converge upon the simple observation that the dynamic object of study, in physics, is 3-space. $^{(3)}\gamma$, superspace, the totality of all 3-spaces, becomes the primary structure of physical theory. Simplistically, the 3-geometry is itself seen as a "carrier of information about time" (Wheeler, 1962).

In a deterministic world, we replace space-time with a *foliation.* That is, a 3-space development is tracked as a series of sharply defined, infinitely thin "leaves," or foliations, defining time development. At a quantum level, the resulting picture is replaced by a "fuzzy" view of history with leaves of finite thickness. On the order of Planck's length, the system undergoes quantum fluctuations in its 3-geometry. In a classical view, we have the development of the local physics proceeding as a series of "yes" and "no" geometries. Ordering the "yes" geometries provides a local view of the 4-geometry. However, quantum theory defines an associated probability amplitude $\psi = {}^{(3)}\gamma$ with each 3-geometry. The amplitude is greatest along the classical path, with a sharp degradation on either side of the foliation. One may say that for a small period of time the state of the 3-geometry is indeterminate. Simplistically, one may view this as fluctuations in the background 3-space, in analogy with the well-known phenomenon of vacuum fluctuations in the electromagnetic field (the so-called zero-point fluctuations).

This is the theory as applicable in a vacuum. However, in the presence of a large spinning mass, or the provision of considerable energy, the background fluctuations in 3-space may be set into resonance and a temporarily stable local deviation from the classically predicted 3-space then occurs. At each foliation, all physical 3-geometries are possible. Therefore, it is possible to generate the appearance of "time travel" by temporarily moving to an alternate 3-space. Such an arrangement is, however, unstable, and will ultimately require a "snapping back" into the proper 3-space.

The beauty of this solution is that Special Relativity is inviolate as no information is determined about the "true" 3-space, only about that in which you are currently residing. As such, the popular fears of marrying your grandmother or shooting yourself are impossible, as it is not really yourself that you are meeting, only a "fading" copy. However, some arguments have recently been presented in the *Journal of Geodynamics and Astrophysics* suggesting feedback from alternate 3-geometries is possible. Most practical physicists consider this to be unlikely.

happen the way history recorded it in the first place! This relates to the *Observer Effect,* on p. 159.

If the future is changed, the results on the time traveler are as described above. High-resistance plastic time makes even "Traveler at Risk" a more playable option, because PCs won't vanish unless they make a real blunder.

Paradox-Proof Time

This is Fixed Time, but with an interesting special effect. If you start to do something that would change history, boom – there you are, back in your own time. The universe is not at all subtle about preventing paradoxes. And if you return to a time where you have already been, you cannot communicate with your earlier self in any way, because that would create a paradox. You can't even send a friend back to warn yourself. What's done is done.

This is a playable option. Getting slammed back to their own time can frustrate some groups. Others may welcome it as a safety net, even though it means some missions can't be completed.

New Timelines

This lets travelers change history . . . but not their own history. Whenever a time traveler (or group of travelers) arrives in the past, they cause a new worldline to split off from the original, identical in every respect up until the moment of arrival. After that point, however, nothing that happened in the original line is bound to happen in the same way, or at all. The new timeline may be very similar to the old one, or chaotically different, as described above. (Perhaps there is no way to know in advance what the "rule" will be for that new timeline!)

A key point, however, is that everything is duplicated except the travelers. They have left their original line (not necessarily permanently – more on this in a moment). In other words, you can't really go "back in time" at all, or have any effect on your own history. You can only create a new world, whose future you are free to alter because it hasn't happened yet.

It may or may not be possible to return to the "original" worldline. If it is possible, you can only return to the moment you left, or possibly some later time. You can't return to any earlier point, because that would give you the possibility of making changes to your own past.

This gives a traveler absolute freedom from time paradox. You can kill your grandpa, or even your younger self; it only means that in the duplicate line you won't get born, or won't grow up to be a meddling time mechanic. You cannot, however, make infinite copies of yourself, because you leave the original line each time you time-jump. You can exist in two places at once, by going back to a point within your natural lifetime, but no more than that – because any subsequent trips take you into a new, "blank" copy of the worldline. (Unless you let the new parallel branch off from the one you just created, with two of you in it. Good luck with that.) You can leave the original line any number of times, but you can only arrive in a particular line once.

Yes, this is difficult to follow. Because our logic is causality-based, and therefore time-dependent, this sort of thing always happens when you consider the implications of time travel.

There is no privileged past . . . There is an infinitude of Pasts, all equally valid . . . At each and every instant of Time, however brief you suppose it, the line of events forks like the stem of a tree putting forth twin branches.

– André Maurois, "If Louis XVI Had Had an Atom of Firmness"

This approach owes something to the time-theory in David Gerrold's *The Man Who Folded Himself,* and a little to the "superstring theory" of modern physics. In Gerrold's book, the tripper was duplicated along with everything else. Paradoxes were ignored, because almost anything that might happen could and did happen in one of the braided worldlines; multiple versions of the hero could and did meet, and the issue of whether one could return to one's original line, or only to one indistinguishable from it, was considered but never solved.

The dramatic drawback to this system is the old problem of "If anything can happen, who cares?" The travelers can shoot Genghis Khan, shoot Shakespeare, shoot their own double; it isn't their universe, after all. This might become tiresome, but on the other hand, it can open up some very interesting questions of morality and responsibility. Interested players should read *Corrupting Dr. Nice* by John Kessel (about a society that can create new timelines at whim), or *Glimpses* by Lewis Shiner (about a single traveler who can). Either as nihilism or experiment, new timelines can be fun while they last, especially for those who know some history and want to play around with it.

Parallel Worlds

Another possibility is that what we choose to call "time travel" is actually parallel-world travel; you're not going to "our" World War II, but to an existing alternate universe in which World War II happens to be going on "now." The world may otherwise be exactly identical to Home Time, or have differences so tiny as to make no difference (President Roosevelt's middle name is Douglas), or major and important divergences (Russia is still a monarchy). It may or may not be possible to return to one's line of origin – or there might be so many almost-identical worlds that one could never tell.

In this case, nothing you do in the parallel world will affect your own timeline – unless you stumble into a dimensional war with people who can find your timeline. This is the basis of the default Infinite Worlds setting.

Other Useful Postulates

Although neither required nor contradicted by most of the metaphysical constructions above, these next three axioms appear in time travel fiction and some time travel theory. Implementing any of them limits the way time travel works, and constrain player action. (Implementing them all is fairly restrictive, compared to most gamers' assumptions about time travel, so explaining things early is helpful.) This can be good or bad, depending on the gaming group's instincts, but it does help harried GMs maintain some control over story developments.

The Linearity Principle

This law applies when time travelers must operate from a "home base," rather than jumping freely around in time. It states that time moves forward at the same speed for the agents in the field and the machine operators at home. If the team spends two weeks in the past, they return two weeks after they left. Conversely, if the agents request information or assistance from Mission Control, and it requires two days to research the data or prepare the backup team, the help arrives two days after it was requested.

The real reason for this rule is, again, to prevent the team from solving problems by "magic." Mission Control's inability to scan freely back and forth should be given some mechanical explanation, preferably one that can sometimes be bent a little to save the day. One possibility: Control must maintain a "fix" on the agents, which moves forward as they do; to scan back to some earlier moment risks breaking the fix, losing all communications with the team until they can be located again. (See *In the Cube,* p. 29, for more detail.)

Obviously, where linearity applies, agents can't make "pickups" in the field. If you have been out for five years, you can *talk* to someone who left home just a year after you did. But when you go home, it will be five years later; no way around it.

Oscillating Time

This is an interesting limitation to apply to time travel of any sort. Suppose that the energies of time – whatever they are – vary in a predictable way. You can only travel between points that have the same "chronal charge." Result: the time machine can only make jumps of a certain length. This might be a month, a year, or a century. Perhaps there are only a few points in all of history that the machine can reach – in that case, it's more like a "time gate" or a "time subway" that only makes stops with a lot of commuter traffic.

Time travelers are thus presented with some interesting problems; they can never depend on going right to the time they want to see. In particular, they can't even *think* of bopping to last week to tell themselves "Don't do that!" This can make a campaign more manageable. Note that such a system automatically conserves linearity.

The Recency Effect

This assumes that, for some reason, the travelers cannot visit their immediate past. The "Recency Barrier" can be a week ago, a year ago, within the lifetime of the time traveler, or centuries in the past. If the GM wants to avoid troublesome alterations to the campaign's recent history, this is the way to go. This may be justified by rubber physics like the Time Corps' "Arbatov Barrier" (p. 218), or by an oscillation effect that limits the availability of all past time.

While this doesn't make all paradoxes impossible, it limits the travelers to historical periods instead of bothering their last-week selves. If this is the kind of campaign the GM plans to have anyway, a Recency Effect is a good thing to introduce.

Talking to Yourself

Nothing can create a really messy (and unplayable) paradox quite as quickly as a time traveler who visits himself. He can tell himself what to do . . . or what not to do . . . or show up and argue with himself.

For gaming purposes, the question becomes "What sort of logical explanation, or rubber science, will prevent this from happening?" This prevents characters' visiting the same era again and again, either to "work on the problem till we get it right" or to multiply themselves into armies. It also means that Time Agents cannot return home "before they left" and give themselves advice on how to deal with the mission.

Paradox-Proof Time

As described above, this type of reality simply bounces a traveler back to his origin as soon as he starts to create a paradox. If he avoids paradox, he can do anything he likes.

Temporal Exclusion

In this sort of cosmos, it is simply impossible for a traveler to clock into a period he already occupies. If you try to travel to a time where you have "already" (in your own absolute past) been, several things can happen, none of them good:

You can bounce. The attempted trip fails, leaving you mentally stunned.

You can wind up in a parallel world at the same time. If it's a close parallel, it may be a very long while before you find out you've gone astray.

You can wind up at the wrong time. Usually you go farther back than you planned – sometimes a lot farther back. But you might wind up just before, or just after, the stretch of time you already occupy.

You can travel randomly through time and/or space. Use the Random Present Table on p. 86 to determine a destination year, and pick a real nasty location in space to fit the result.

You can wind up in Limbo. Limbo is just a theory . . . a term to describe the place travelers go when they vanish and are never seen again.

If an imprecise method of time travel is being used, temporal exclusion can happen by accident when somebody tries to cut things too close.

What if you clock into a period just *before* one you already occupy, and wait until the "younger you" appears? If something happens to the younger you, a paradox is created. Therefore, the older self – who is the one responsible for the problem anyway – should feel the effects. (This is the most playable answer, but if the GM can find a way to make the younger self feel the effects of a decision the player hasn't taken yet, go ahead!)

Temporal Snarls

This rule is essentially Temporal Exclusion that can be "bent" once in a while, but within strict limits. It assumes that history is resistant to change and paradox, but allows someone to be in the same time more than once . . . as long as no interaction takes place!

If you try to interact with an "earlier" version of yourself, you'll probably be frustrated; you are trying to create a "temporal snarl" in your own past. This sets up probability oscillations, and you start suffering fatigue and other effects as you exert effort in opposition to your current existence.

If someone tries to alter his own past drastically (say, by shooting himself), he should either fall unconscious or pop into another time. This takes care of the Grandfather Paradox. Note that it is the *size* of the alteration, not its subtlety, which matters. Going back 500 years and convincing your many-times-great-grandmother to become a nun would have exactly the same effect; you can't do it.

Any attempt to set up a "free lunch loop" in time is also doomed to failure – or, at least, to having no effect on the outcome of the adventure. (This is offered purely for playability. In terms of physics, there's no reason why it couldn't be done.)

If you try to meet and talk to yourself about something relatively minor, it should still be painful – say, 6 FP and -2 IQ for the duration of the meeting and the rest of the day.

But a *minor* attempt to alter your own worldline is possible. If you want to send yourself a cryptic note, the cost might be a mere 3 FP.

If the GM allows this at all, he should assess fatigue (and other) costs based on the size of the paradox or change the traveler is trying to create. A general guideline: the more headaches it causes the GM, the harder it is for the character to do!

Of course, an *accidental* meeting with yourself should be good for a Fright Check at -2 or worse. If you see yourself with injuries or changes, the penalty should be much bigger!

In campaigns involving parallel universes, the rule is not needed and should not be used. This allows parallel versions of a character (who may well not be friendly) to meet and interact.

Communication and Observation

In "Time Agent" campaigns, the GM must decide what communications are available between Mission Control and the Agents in the field. In campaigns where the travelers are free to bounce around as they wish, the question of communications must still be settled, but it is less central to the adventures.

No Communication

This is the simplest assumption, and in many ways the easiest to manage. The agents are entirely on their own, and cannot ask for help or information. They also cannot move again in time, unless the machine travels with them. They must be brought home either after a fixed amount of mission time – a useful way to keep the action moving – or through some automatic mechanism (see *The Time Corps,* pp. 217-228, for an example). No "recall signal" is permitted – if a device can send a beep, it can send Morse code.

Limited Forward Communication

The agents can send messages to Mission Control, but not freely: the messages are limited in length, or format (e.g., they must be sent in Morse), or can only be sent at specific times or from specific places (say, the team's arrival point). Control cannot send messages to the agents at all.

But note that even if there is no handy Time Radio, there are ways to get word to the future. (See the box above)

Limited Reverse Communication

The simplest reverse communication is to let Mission Control continue to send things and people back in time. There are not, however, very many messages worth sending if Control cannot receive requests for information.

Full Forward Communication

Mission Control can look over the team's shoulders constantly, either

We Will Have Warned You in the Past

How can someone in the past communicate with the presentday? Without a handy Time Radio, or a time-fax to transmit a note a few hundred years uptime, a resourceful traveler can still pass information or even call for help. The longer it will be before the message is read, of course, the harder it is to be sure it will get there.

Message Drops

A message can be left in a predetermined place if someone uptime is looking for it. For a period of a few years, a safe-deposit box could be used . . . but it is important that nobody ever look in it during the intervening years!

For longer durations, a time capsule can be buried in a safe place. With access to high technology, time capsules can be put in very remote places . . . in orbit, for instance, or at the top of the Great Pyramid. Even with "ordinary" technology, creative solutions are possible. (The recovery of a message can be an adventure for the uptime team, too!)

Active Delivery

If nobody expects your message, you just have to create a message that seeks out the person you want it to go to. This is much harder, but not impossible.

Lawyers: With an appropriate advance payment, a law firm will hold a message and deliver it in the future – even a very long time in the future. Pick a law firm in a city that you know will remain prosperous and unconquered until the day the message needs to be delivered. (Other organizations than lawyers can do this kind of task, but a good lawyer won't even blink at the request.)

Message in a Bottle: Bury the message where you hope it will be found at the appropriate time, nested inside two envelopes. The outer envelope says, "Deliver to Such-and-so for an appropriate reward." The inner one says, "If you get this message before (whatever the date is), *do not tell anybody, and don't open it before that date."* Thus, you have at least a chance that the message will arrive safely, and will not be read before it should be. (Reading it early could create a possible paradox.)

through a time-transmitting camera carried by the agents, or an "area viewer" like the screen on *Time Tunnel.* They cannot, however, send into the past. If you use this option, we suggest the "time camera" – which may be unreliable, or easily damaged; if you use the viewer, we strongly recommend that Control be able to "fix on" and see only the immediate vicinity of the agents. The reason for this is that unrestricted time-viewing simply makes Control too powerful (see *Time Viewers,* p. 160). If they could see anything at any point, it would be possible to examine every possible obstacle to a mission – worse, it would be possible to watch the mission before the agents had been sent! Time paradoxes again . . .

Full Two-Way Communication

There is the equivalent of a radio or TV link between Mission Control and the field. The agents can ask for information or assistance, and (subject to the equipment remaining undamaged, a "fix" being maintained, etc.) they receive it fairly promptly.

One interesting way to limit this is to allow full two-way communication only from one specific point. The agents have a "time phone," but it cannot be moved. If they're away from the phone, they're on their own!

Another way to limit this is to restrict Mission Control – if the present can't send anything else back to the past until the agents return, communication becomes somewhat less game-breaking. ("Control, this is Alpha Team! We're being attacked by tigers!" "We'll make a note of that for the next mission, Alpha Team. Tiger repellent all around next mission." "Control, next mission is to the Arctic Ocean." "Can't be too careful.") The Time Sphere on p. 163 has this kind of limitation.

The Observer Effect

The Observer Effect, stated most briefly, says "An observed event cannot be changed." There are no paradoxes. Known history cannot be changed.

Now, if this were entirely accurate, time travel would be much simpler and safer. But the Observer Effect says that a successful intervention can occur. History *can* be changed. But it is *very* difficult. And usually any attempt to change an established fact results in failure.

"I Don't Want To Know!"

But to a good Time Agent, the Observer Effect means that any event that was *not* observed *can* be changed. And the observations of the locals on the scene don't count. The observer from the future is the one that matters, because only he can create a paradox. (Thick volumes on physics and epistemology have been written to explain this, and they haven't done a very good job yet.)

Basically, though, all of the details of past history can be considered "in flux" until they are observed by someone from the Absolute Now. There are two possible explanations for this:

Time is fixed, but we still have free will. We don't know for sure what really happened in the past, and until we know what happened, we can try to change it. We're part of history.

Time is not fixed until it's observed. The act of observation is necessary for the event to be final. It's like Schrödinger's Cat, which is neither alive nor dead until someone opens the box to check . . . In this sense, the observer from the future *creates* the event, and makes it real, by observing it. It's not real until then.

Either way, an observed event is very hard to change. An unobserved event is subject to change.

This means that if an intervention – or a counter-intervention – is bungled, it is *very* hard to fix. Sure, another team could be sent to the same time. But they can't do anything that contradicts the first team's observations.

The exception, ironically, comes if the first team failed completely and was wiped out. If they didn't report their observations back to their successors, they didn't "determine" history. This has some interesting effects:

Agents are reluctant to report failure . . . which sometimes means they don't flee or call for help when they should.

Agents on both sides are merciful to defeated enemy agents. If they make it home to report defeat, that defeat becomes more nearly irrevocable.

Agents hate to observe the death of a friend. Sometimes an agent will walk away from a wounded "native" ally, rather than risk checking and finding out he is dead. If the death isn't reported, there is a chance that help might arrive in time. Fanatical agents might commit suicide rather than report failure. Even less fanatical agents might ask: "Would you die to give another team a chance to run the mission?"

Degrees of Observation and Loopholes

An agent can never undo anything he witnessed. The only hope – and sometimes it is a significant hope – is that he didn't witness it correctly.

Witnessing a film or photograph isn't *quite* as final. Films and photographs can be faked. Digital images can be *easily* faked. Still, unless Mission Control believes that something was faked, it's not likely to risk an agent.

An observation reported by another agent is as trustworthy as that agent is. A "real-time" report by a historical native is as trustworthy as that native is.

Published reports, memoirs, etc., are often not reliable at all. If the newspaper says the parade started at noon . . . well, maybe the paper was wrong!

Paradoxes and the Observer Effect

The Observer Effect says that there are no paradoxes. So what happens when something occurs which seems to be a paradox?

For instance, an agent is in Ford's Theater on April 14, 1865. He observes Booth's attempt to shoot Lincoln. He watches in sorrow as the assassin steps forward . . . and in horror as a beam of green light slices through Booth's gun arm. In the ensuing turmoil, Lincoln is hustled out of the theater under heavy guard. Clearly, history has just been changed in a big way. Or has it?

There is no one right answer. In fact, the "real" right answer may depend on what the PCs do.

The obvious thing would be for them to start working to kill Lincoln and to leave a historical record that showed he had been assassinated on schedule. This would be very difficult, especially since there is obviously some sort of futuristic intervention already going on.

They might decide that, whatever is really going on, it's too much for them to handle – and concentrate on riding it out without becoming a part of it. This would require an iron will and a blind faith that History Will Sort It Out.

They might also decide that this is the sort of event that shouldn't be observed, since observation makes events real. The obvious answer is that it's time to go AWOL, rather than ever reporting in. (This is really a different approach to History Will Sort It Out.)

Or they could go running home to report. If Home is still there, it tends to prove that the Observer Effect is still valid. If they can't get home, it's a sign that perhaps the rules have changed (an evil GM at work, no doubt). If they've somehow been thrown into a parallel timeline, then there is still no paradox, but they have a whole new problem.

If they *do* get home, they often report in doubletalk or opaque sentences, in an effort to beat the Observer Effect: "I would suggest sending a heavily armed team to Ford's Theatre starting at least a week before the play." The usual effect is to make it harder on the follow-up team, without beating the Effect in the least. The only time that seems to work is when the original observer isn't around to be debriefed when the shooting is finally over.

Working Around the Observer Effect

Suppose that a Time Agent has the misfortune to be accused of witchcraft in 1650. He is captured and tortured, but escapes. He reports back to base, which determines that the head witch-hunter is probably an Evil Time Agent.

Now, the one thing that Mission Control *cannot* do is send a team back to terminate the witch-hunter before 1650. He was observed in 1650. The Observer Effect says that we can't take him out before then. We know he was there. Except . . . if it matters enough, we could try to eliminate him and substitute an exact double, to do those things that the original was observed doing . . . including torturing the original agent!

What if the double tries to cheat history? He'd better not. The double has to make sure that he does everything he was observed doing. If he tries not to, something *will* happen – he will go mad and think he is the witch-hunter, or he will be secretly killed and replaced by another enemy agent . . . or something equally bad. (The GM can have a lot of fun thinking up disasters when PCs try to cheat observed fate.)

However, it is perfectly safe for Control to send someone to 1645 to keep an eye on the witch-hunter and report what he does. Sometimes it's a good idea, sometimes it's not. Knowledge is power, but every little bit of knowledge limits what you can do in your own future. The Observer Effect is a two-edged sword.

Time Viewers

The biggest problems with time viewers – devices that can see through time – are that they screw up physics, and they can screw up your game. (A time viewer without a good long Recency Effect also becomes a machine for potentially totalitarian surveillance. This may be a desired effect, of course.) Let's take the easier one first, the physics: by "seeing" something in the past, you're transmitting information to the past (at least if quantum physics is correct). Any reasonably scientific time viewer can thus become a time communicator, even if it's just a matter of "viewer on" and "viewer off" in Morse code. (Which, as a binary code, can theoretically transmit computer programs, or any other kind of data – oh, it's just too horrible to contemplate.) Once you're doing that, all the paradoxes from actual time travel come back to bite you, and as long as you have to have the paradoxes anyhow, you might as well get the fun of racing around in fur undershorts waving a sword at Romans.

The simplest way around this is to ignore quantum physics; the time viewer works by some other means than subatomic particle transfer. Magic is always good, or pseudoscientific mysticism such as reading the "Akashic Record." This psychic recording of all events, future and past, in Earth's history, is kept Somewhere (the Astral Plane, a monastery in Tibet, the DNA of the Messiah) by Someone (monks, Lemurians, energy beings, angels), and is available only to the Worthy (whoever the GM wants). However, with suitably laid-back players, the GM can simply decree that quantum physics is wrong, or doesn't apply the way physicists think it does, and the invention of the time viewer (which can't, no how, no way) communicate with the past proves it, despite its being ever so scientific.

This brings up the issue of game control and game balance. If the GM only lets the PCs' superiors (or enemies) have a time viewer, he needs to wrestle with the issues implied by an all-seeing Mission Control (some of which are addressed on p. 210). He should also decide if the Observer Effect applies, and if there is a Recency Effect for time viewing as well. Even in games without an official Observer Effect, seeing the past has consequences for the observer and his decisions about it. Players are experts at asking awkward, but eminently reasonable, questions like "Can you trace the movements of the bad guy after he thwarts us, and send us back to thwart him when he's asleep?"

All of this caution applies in spades if the *PCs* have a time viewer. They will naturally use it for complete reconnaissance of their missions, checking up on the identity of that one shadowy assassin who got away in the past, and so forth, thus destroying suspense and action in one go. A good general rule is, if you must have time viewers, they should never be superior to going and looking in person – and should ideally have weaknesses (or blank spots in coverage) that can only be addressed on the ground. Failing that, they should be balky, uncooperative, foggy, inconvenient things, or impossible to get time on for piddling details (rather like radio telescopes). Otherwise, the

GM will find himself presiding over a series of thrilling narrations of things seen on the time viewscreen, rather than an actual game.

Having said all that, here are two possible time viewers.

Pythagorean Chronovisor

TL7^

This device, according to (genuine) occultist legend, uses the Pythagorean harmony of the spheres – which postulates that no sound is ever lost, merely subsumed into the eternal music of geometrical creation – to capture images and sounds from the past. In 1952, Father Pellegrino Ernetti, a musicologist (and exorcist!) working in Venice, developed a method of "tuning in" to sounds from the past using sensitive recording equipment and an antenna constructed from a harmonious blend of three metals. With the assistance of various pious physicists (including, says the rumor, Enrico Fermi), Ernetti improved his device, adding an oscilloscope to let him focus on a specific era, and a television viewer. Although the pictures were blurry, and the sounds muddy, Ernetti was able to view speeches by Napoleon and lost plays in ancient Rome. Father Ernetti abruptly stopped his research in 1978, after the death of Pope John Paul I, for reasons unknown.

The Pythagorean Chronovisor (which may work on similar principles to an Akashic Time Camera supposedly built in the 1940s and 1950s by the spiritualist Baird T. Spalding) works on mystical principles, but constructing it requires a Physics/TL7^ (Acoustics) roll, and using it requires an Electronics Operation/TL7^ (Temporal) roll. Tuning it into a specific time period involves a lengthy period of searching (1d+2 hours), which can be cut by a third with a suitable History or Area Knowledge roll (or to one hour on a critical success) while watching the display pan back and forth. It can view any scene that took place within radio range (10 miles) of its antenna. With an Electronics Repair/TL7^ (Communications) roll, it can be modified to receive from anywhere within 1,000 miles, but takes four times as long to "home in" on a specific time period and location, and all rolls to use it are at -4 to skill. It is very balky and sensitive; add -2 to any negative modifiers for chronal storms, atmospheric disturbances, reality quakes, etc. To take usable photographs or recordings from it is a Photography or Electronics Operation/TL7 (Surveillance) test at -6!

At the GM's discretion, of course, building or using it might also, or instead, require rolls against Occultism, Philosophy (Pythagorean), or Musical Instrument (Chronovisor)! If it channels the Akashic Record, or the songs of the angels, or some other spiritual archive, the user may need to be Blessed, have a suitable Power Investiture, or at least possess Clerical Investment. (It might also merely be a psychotronic enhancer, and the user must have Psychometry to make it work.)

It cost at least $50,000 to build (and that's only because the Pope made Enrico Fermi help Ernetti for free); it weighs 30 lbs.

Timescanner

TL9^

A timescanner is a device that can be used to see into the past; it is useful for archaeologists, detectives and genealogists. When activated, it provides a holographic image of whatever is occurring within a two-yard radius centered around the scanner, at some point in the past. Nothing outside that area can be seen – it can't be used as a "window" to scan the surrounding landscape. The place being scanned is relative to the nearest mass of continental size. Thus, a timescanner can only be used to scan planetary surfaces.

Of course, the Observer Effect applies to anything seen by timescanner. But in a background where history can be changed, you might see something different the next time you scan the same period!

A timescanner must be set for an arbitrary point in time in the past – e.g., 31 years, 84 days, 11 hours and 50 minutes ago. Make a skill roll against Electronics Operation (Sensors). A successful roll means the scanner has locked onto the correct period. Failure means that the mark was missed by 10% times the amount failed by (plus or minus, roll randomly). A critical failure means that it could be seeing anywhen . . . Other than actual evidence ("Why are they wearing togas – are you *sure* this is 1945?") there is no way to tell *when* the scanner is actually focused, only *where* – the same place it is in the present.

The more distant the period to be scanned, the longer the scanner takes to reach it. It takes 90 minutes to focus on anything in the last 24 hours, three hours to focus on anything in the last six days, six hours to focus on a point three months distant, 12 hours to focus within the last 2 1/2 years, 24 hours to focus on something in 25 years, two days to focus on something in 250 years, and so on. Each tenfold increase in temporal distance doubles the amount of time that the scanner takes to reach that period.

After the scanner is ready, it projects the visual image of the area occupied by the scanner, and continue in "real time" until deactivated. This can be unhelpful if, in the time being scanned, the area presently occupied by the scanner is filled with solid material.

For example, archaeologists take a timescanner to the ruin of an ancient palace. They set it up, and choose to go back to a day exactly 3,200 years ago, the approximate date it was built. It takes four days for the scanner to reach back that far (whether it shows brief glimpses of intervening periods is up to the GM); then it starts relaying images. The scientists used astronomical data to make sure they focused in during the early morning. What they see is two halves of different rooms – a wall once bisected the area now occupied by the scanner. One is furnished, a bit of rug extends out, and the corner of a chair. In the other, they can see half a bed with the bottom half of someone sleeping under a fur cloak. If they want to see more, they would have to wait for someone to come into the timescan field, or they could try again, either resetting the time (by as little as a few hours, perhaps) or physically moving the scanner itself. Moving the scanner breaks the lock.

A timescanner costs $800,000, and weighs 5 tons.

Time Machines

Machines that actually transport things or people into the past (or future, if a future actually exists yet) will probably operate (have always operated?) on the same general principle. A large amount of energy, focused to a point or a line, opens a wormhole between two points in space-time. That wormhole, then, draws the object at its focus (usually the time machine and its pilot or crew) through itself either instantaneously or at a high years-per-second rate. Some wormholes are "open" to the outside, moving the time machine through some sort of hyperspace outside regular material existence. Others are fully self-contained, admitting nothing – not even light or air – to the machine and its crew during the passage, which must be carefully calibrated to avoid smothering the time travelers. Long trips into the past or future may need to be done in stages, or the time machine should be fitted with oxygen masks and breathing equipment like a bathysphere. Some machines (or theoretical models) "skip" the machine through a rapid series of wormholes, admitting photons and oxygen molecules every thousandth of a second (as experienced by the time traveler).

Conventional science throws up its hands at the request to design a time machine. In 1974, physicist Frank Tipler devised the closest thing to a working design; it involves a light-years-long cylinder of neutronium spinning at three-quarters of the speed of light. Not only is such a time machine inconvenient, bulky, and expensive, it can only send the user back as far as the moment of its own creation. However, the determined time traveler has options that do not rely on conventional science.

Chronic Argo

TL5^

This device, first invented in 1888 and later perfected in 1895, works on an analogous principle to an optical periscope. Rather than redirect the flow of light, it redirects the ambient time flow of the universe by means of a precise geometrical relationship among several control bars of varying materials (bronze, ivory, ebony, rock crystal, and nickel). By moving the bars forward or backward, the device travels forward or backward in time, remaining stationary relative to the Earth's surface.

It requires no power plant or energy input, but a sufficiently powerful force field or temporal distortion might prevent its rods from precisely redirecting the time flow. As built by its inventor, it rests in an open-frame chassis on two long brass rails; there is one seat for the pilot, and dials demarcated in days, thousands of days, millions of days, and billions of days provide some notion of temporal location. Its top temporal speed is 800,000 years per hour.

Time Belt

TL6^

On June 30, 1908, something struck the Siberian forest in the Tunguska River valley, emitting a flash visible hundreds of miles away. It was a piece ejected from a spinning dark star, thousands of light-years away. Most of this bolide disintegrated on impact, but tiny fragments remained. The time belt contains a submicroscopic sliver of such a fragment, suspended in a powerful magnetic field. By adjusting the field strength with a dial, the wearer can increase the resonance between this sliver and the original dark star. This imparts the dark star's "Kerr spin" to the fragment, and thus to the belt's wearer and anyone in physical contact with him. The wearer can only travel to dates before June 30, 1908, and once in the past must "snap back" to the present before traveling elsewhen.

The belt weighs 15 lbs., and is usually worn with a harness and a battery pack (good for 24 hours of continuous use) on the back to power the magnetic containment field. The belt and battery pack have DR 1 and 5 HP each. Should the field be breached or shut down, the belt becomes too heavy to lift or wear (doing 4d crushing damage to the wearer, if any), snaps back to the present (or, if critically damaged, to 1908), and cannot be used for time travel until repaired or recharged. Time travel using the belt is instantaneous, although arrival on the exact date desired requires a critical success on an Electronics Operation/TL6^ (Temporal) skill roll. A successful roll results in an arrival 2d days on either side of the target date; a failed roll results in missing the target by 2d×10 days; a critical failure misses by 2d×1,000 days. The traveler does not move in space relative to the Earth's surface. The belt cost its inventor $320,000, which included the cost of finding and extracting the dark star sliver from the gravelly Siberian countryside.

No Machines!

You can build an interesting campaign around the idea that, for whatever reason, time travel works only for living beings. (Say, inanimate objects have too strong an entropic field, or lack temporal self-identity, or whatever.)

The most obvious result is that time travelers always arrive naked, with no equipment at all. Under these circumstances, the Time Corps recruits very healthy, self-reliant sorts with little body modesty. In most periods, the first job is stealing some clothes . . .

This works especially well with psionic time travel (pp. 166-169), and also makes an interesting malfunction for a "normal" time travel system.

Time Machine Table

TL	Vehicle	ST/HP
TL5^	Chronic Argo	36
TL7^	*USS Eldridge*	460
TL7^	Time Sphere	68
TL8^	DMC-12	55

[1] The *Eldridge* has 11 feet of draft.

[2] Cost includes two plutonium slugs at $80K each.

Rainbow Effect Coils

TL7^

In 1940, the U.S. government established Project Rainbow to study the military potential of Nikola Tesla's power field theories. By July of 1943, the prototype "Rainbow Effect" device, a large series of Tesla coils nested in a complex geometrical series, attached to a complex antenna array along the ship's mast and superstructure, had been installed on the destroyer escort *USS Eldridge* in the Philadelphia Navy Yard. In theory, the device would make the *Eldridge* invisible; what it actually did (on August 12 or October 28, 1943, depending on which report one believes) was rotate it out of conventional space-time and into a hyperdimension. Witnesses saw the *Eldridge* disappear from Philadelphia – and reappear 15 minutes later in Norfolk, Virginia, a distance of 300 miles. Also during that 15 minutes, some members of the *Eldridge* crew traveled up to 50 years into the future. Others, unfortunately, "phased" into the deck and died horribly, or went mad from the stress.

The Rainbow Effect coils on the *Eldridge* weighed one ton, and required a 500 KW generator; the "Philadelphia Experiment" seems to have generated speeds of 1,200 miles, and 200 years, per hour. Further testing would no doubt improve this performance, and reduce the hazards of hyperdimensional travel. Project Rainbow scientists reportedly conducted a series of land-based tests of the Rainbow Effect at Camp Hero (later the Montauk Air Force Station) in Long Island until 1984, and the Navy may have used the *Eldridge* to project American power throughout the time stream during the secret war against Nazi time travelers. The Rainbow Effect apparatus weighs 2,000 lbs. and costs $1,300,000 independent of the vehicle size; the antenna array weighs 200 lbs., costs $16,000, and uses 50 KW per point of Size Modifier covered (minimum +1).

Time Sphere

TL7^

The Reiss-Jäger time apparatus, invented in 1959 by a former Luftwaffe weapons scientist, uses a fixed time projector to lower a converted bathysphere into the time stream. The 5' sphere is suspended from a thick cable (350' long) above the projector platform. When the zero-point energy source in the apparatus power plant is engaged, the platform opens, and a winch lowers the sphere through the yawning vortex below. The gravity fields of the Earth and sun interact with the zero-point field, and the controller (who remains in the present) homes in on the desired location in space-time using a series of handsome Bakelite dials and verniers. This homing process takes 3d×5 minutes and a successful Electronics Operation/TL7^ (Temporal) skill roll (3d minutes on a critical success). During this period, the raw energies of the time stream buffet the sphere; anyone outside the sphere is chronally disincarnated.

The sphere can only travel to locations within the inner solar system before solar gravity becomes too attenuated to power the vortex. The crew of the sphere can use a telephone hookup braided through the cable to speak with the controller or anyone else at the control station. The sphere has one very thick porthole, and a hatch set into the side next to it. While in the past, it rests on four thick, stubby legs; the cable stretches away into a twisty nothingness. The winch in the present can haul up the sphere at any time, but the sphere dangles suspended from its cable in midair in the past for 1d minutes before returning to the projector. Any number of "landings" are possible without a return to the present, as long as there is sufficient oxygen for the crew to breathe.

Flux Drive

TL8^

This device simply channels an energy discharge (1,210 MJ) into a point, opening an instantaneous time gate to a preset destination, at the same relative point on the Earth's surface. The initial version of the flux drive uses two magnetic plutonium slugs to force a subcritical reaction, which opens the gate; the plutonium instantly decays to lead during a time shift. Like the Rainbow Effect coils, the flux drive is normally mounted in a vehicle, especially since it requires a high rate of local speed (between 85 and 90 mph) to activate. A vehicle with a steel or steel-alloy construction is best, since it creates its own Faraday cage, preventing outside objects from being sucked into the vehicle's temporal wake. The flux drive weighs 15 lbs. and costs $393,000; energy generation equipment and fuel are extra.

The following table gives vehicle statistics for the Chronic Argo, the *USS Eldridge,* the Time Sphere, and a 1981 DeLorean DMC-12 equipped with a flux drive. Prices all include temporal translation equipment as well as base vehicle costs. Operating any of these time machines requires an Electronics Operation/TL (Temporal) skill roll, plus relevant Piloting or Driving rolls for their vehicle mounts.

Hnd/SR	*HT*	*Move*	*LWt.*	*Load*	*SM*	*Occ.*	*DR*	*Range*	*Cost*	*Locations*	*Notes*
–	12	–	0.5	0.1	+2	1	1	–	$5,960	E2Rs	
-3/4	11f	2.5/20	1,240	448	+10	186+14A	60	7,000	$2,100,000	gMS3t4X	[1]
–	12	–	2.8	0.3	+1	2P	400	–	$590,000	g	
+1/4	10f	4/62*	1.8	0.4	+3	1+3	5	450	$603,000	g4W	[2]

Dangers

Depending on the nature of time travel, it might be completely safe and instantaneous (except in the 1% of cases when the traveler vanishes forever), or the equivalent of a climb up Mount Everest, requiring days of effort, specialized gear, breathing equipment, and a lot of luck. Any of the dangers of jump space, hyperspace, or the continuum (see *The Spaces Between*, p. 74) might also apply to the time stream.

Chronal Storms

Time travel might also have its own dangers, from ultratemporal monsters dwelling between the microseconds to storms of pure chronal energy that batter time machines around like tin cans. Chronal storms might arise for any number of reasons; the GM should decide on his reasons, decide which ones apply to the time travelers' planned destination, and add up a total Severity Level (SL) for the storm front they will pass through. (For even more trouble, the GM might want to figure out if their route leads through any other storms on the way.) The Severity Level can be a pure game-rules abstraction, or an actual unit of measure used in the Rainbow Project labs!

Some possible chronal storm causes include:

Battlefields: The spirits of the warlike dead, or the collision of historical possibilities, churns the time field around major battlefields. Determine the order of magnitude of the battle deaths; Bunker Hill killed 1,200 men (fourth magnitude), Shiloh killed 24,000 (fifth magnitude), Passchendaele killed 570,000 (sixth magnitude). Add 2 to the SL for every order of magnitude above third. (The GM can apply the same metric to other historical cataclysms such the Great Fire of London or the Rwandan genocides.)

Cosmic Energies: Nuclear explosions, volcanic eruptions, the Tunguska impact, and other "big bangs" might have also torn up the time stream, along with the atmosphere and the climate. Add 2-4 to SL.

Historical Murk: Perhaps part of what drives temporal disturbance is the uncertainty of the events in the disturbed era. This could give PCs an actual motive to go back and solve historical mysteries – if they finally figure out who wrote Shakespeare's plays, they can more easily time travel through 1598 London! An significant controversy about the facts but little about the outcome (such as Columbus' exact route) adds 1 to the SL, vague but controversial guesses (Arthurian Britain) add 3; total historical ignorance (much of the history of central Africa) adds 5.

Magic Use: Major spells, banestorms, angelic interventions, or other supernatural manifestations might disrupt Tiplerian space-time, adding 1-5 to the SL. Time traveling on magically significant dates (Halloween, Midsummer Eve) might add another 1 or 2 to the SL.

Overlaps: Entering a time that you have already visited in person runs the risk of personal timeline tangles. It might add 1 to the SL for every such overlap.

Staying in Period Character

A time traveler (or crosstime agent) must be able to fit in with his background, down to the smallest detail of dress and speech. Depending on the circumstance, this requires a roll on IQ-5, Acting-2, or Savoir-Faire (of the appropriate specialty)-3.

The GM sets frequency of checks, based on the traveler's general level of training, his experience with the period and its difference from home-time society, and the circumstances of the mistake. A trained Time Agent who has visited the period more than once might never have to check for trivial errors, only for major social provocations. An absent-minded civilian might have to check every time he entered a crowded public place, or did anything unfamiliar.

A player who fails a minor roll should be allowed to "cover" with a little roleplayed fast talk: "Begad, sir, can't imagine why I said 'siege of Cawnpore,' I meant 'Mafeking,' of course. Funny how the port makes the memory play tricks, eh?" Be sure the cover-up is appropriate; there are social situations in which an apology fixes almost anything, and others in which it only makes matters worse. Make a Reaction Roll for the NPC involved, with modifiers for exceptionally good or poor excuses. Even if the excuse fails, a minor slip only results in the NPC thinking the character is somewhat odd.

A failed major check irreversibly gives away that the person is not who or what he claims to be. This does not mean that the NPC realizes he's dealing with an "alien"; most people have no notion that time travelers (or crossworld agents) exist. (Exceptions would include other time travelers, friendly or enemy; locals who had been recruited by the Time Corps and let in on The Secret; and the occasional genius/crackpot who believes all kinds of crazy things. This last sort, if used carefully, can be a very entertaining NPC nuisance.) Instead, the affected NPC guesses that the liar is concealing his identity for some plausible reason – is a spy, perhaps, or a commoner pretending to be a nobleman.

Someone who fails a major check may still attempt to control the damage with smooth talk. "I fear you have me, monsieur – indeed, I never served with the King's Musketeers. But I assure you I am a loyal Frenchman – and my orders come from the Cardinal Richelieu himself!" It may even be possible to turn a neutral NPC into an ally – people love the idea of conspiracies, especially if they can gain some advantage thereby.

Recent Time Shifts: Alterations to history (by rogue time travelers, say) no doubt roil the continuum. Altering a minor cultural trend adds 1 to SL; reversing a Presidential election might add 3 or so; eradicating or seriously deforming a world-historic event or (Christianity, the United States, WWII) could add 5 or more. See *Tampering,* p. 86, for one set of modifiers based on historical tampering levels.

These Severity Levels are purely arbitrary: a GM's individual campaign may evaluate the effects of temporal disturbances entirely differently. Add all the SLs from the various applicable causes together for the era's total SL potential. Roll 2d and subtract it from the potential SL to get the final SL for the chronal storm in the travelers' path (if any). If Navigation (Temporal) exists as a skill in the campaign (or Navigation (Hyperspace) applies to time travel), a successful roll might avoid a storm altogether, or at least brush past a weaker cell of it and try to avoid an accident (lower the final storm SL by 1 for each point of success).

Temporal Accidents

Temporal storm or stowaway sabotage: whatever causes it, a temporal accident means unexpected trouble – which is to say, adventure. An adventure can simply start with the accident, stranding the players in the story from the beginning. On the other end of the inevitability index, the GM can make time travel relatively risk-free, with only minor consequences for accident, such as the failure rules for the Time Belt (p. 162, above). Other possibilities include adapting the parachronic conveyor failure table from p. B531 (possibly substituting a temporal error of some magnitude for the focus error in those results), or tossing the travelers into a parallel world. The system below presents another possible group of bad results.

Traveling in time requires a skill roll, usually against Electronics Operation (Temporal). *Modifiers:* -3 or worse for damaged equipment. Chronal storms make time travel more perilous: -1 per point of final storm SL. Electrical or gravitational disturbances at the departure point might also interfere with some machines: -2 for a severe electrical storm, -6 for a nuclear blast, -10 for a black hole passage! Paradox wrecks time travel for everyone; penalize travel attempts -1 for every paradox or causality violation committed by any crewman or passenger on their last time trip (much more for major violations like killing one's grandfather or quoting *Macbeth* to Shakespeare as a boy).

Apply the operator's final modified margin of failure to the following table, adding 1 for every extra passenger above the time machine's rated capacity.

1 – Go nowhere. The time machine remains at its original point of departure. Hopefully, the travelers weren't leaving in a hurry.

2 – Temporal error. The time machine winds up off course by 2d days either earlier (1-3) or later (4-6) than its intended destination.

3 – Spatial error. The time machine winds up out of position on the Earth's surface (not up or down) by 2d miles in a random direction.

4 – Temporal and spatial error. Combine **2** and **3,** above.

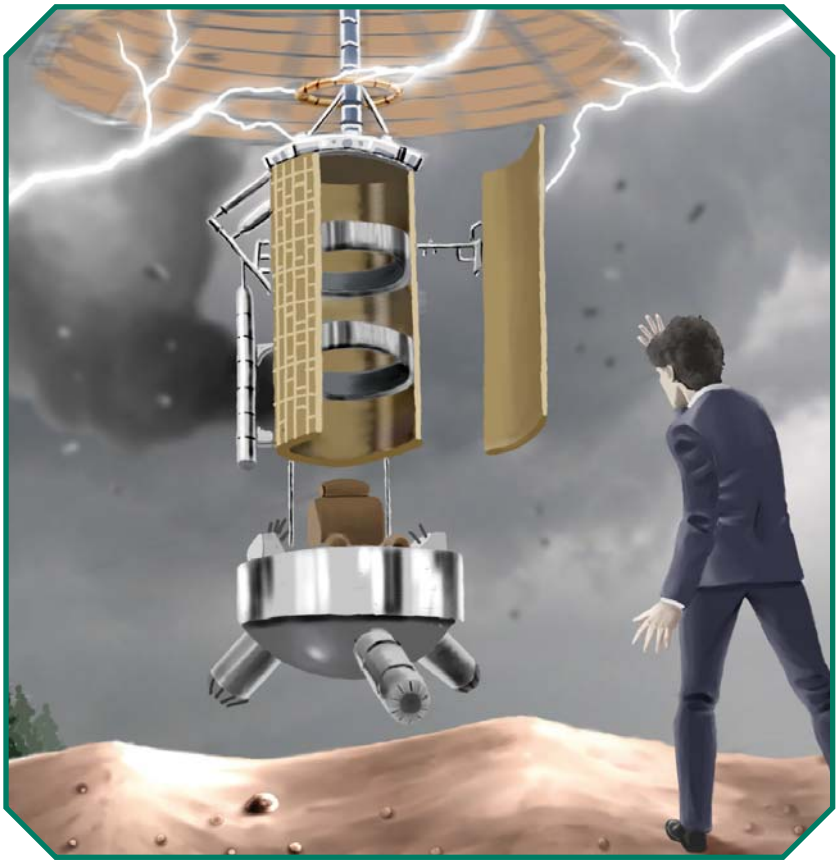
5 – Diverted by decision point. The time machine winds up drawn to just before a historical decision point near the intended destination. For example, if the travelers intended to visit Leonardo da Vinci while he paints the Mona Lisa in 1507 Paris, they might wind up just before the death of Cesare Borgia at Viana the same year instead.

6 – Serious temporal error. The time machine winds up off course by 2d×10 days earlier (1-3) or later (4-6) than its intended destination.

7 – Serious spatial error. The time machine winds up out of position on the Earth's surface (not up or down) by 2d×10 miles in a random direction.

8 – Serious temporal and spatial error. Combine **6** and **7,** above.

9 – Diverted by historical crisis. The time machine winds up drawn to just before a historical crisis point within 15 years of the intended destination. For example, if the travelers intended to visit Leonardo da Vinci while he paints the Mona Lisa in 1507 Paris, they might wind up in 1519 Tenochtitlán just before Cortés enters it.



10 – Major temporal error. The time machine winds up off course by 2d×1,000 days earlier (1-3) or later (4-6) than its intended destination.

11 – Major spatial error. The time machine winds up out of position on the Earth's surface (not up or down) by 2d×100 miles in a random direction.

12 – Major temporal and spatial error. Combine **10** and **11,** above.

13 – Diverted by major decision point. The time machine winds up drawn to just before a world-historical event within a century of the intended destination. For example, if the travelers intended to visit Leonardo da Vinci while he paints the Mona Lisa in 1507 Paris, they might wind up in 1588 on the deck of a warship in the Spanish Armada.

14 – Catastrophic temporal error. The time machine winds up off course by 2d×10,000 days earlier (1-3) or later (4-6) than its intended destination. (At the GM's discretion, this can be a "dinosaur error" that hurls the time machine back to the Cretaceous in traditional style.)

15 – Catastrophic spatial error. The time machine winds up out of position on the Earth's surface (not up or down) by 1d×1,000 miles in a random direction. (At the GM's discretion, this can be a "Mars error" that hurls the time machine to Mars – hopefully bedecked with canals – in traditional style.)

16 or more – Catastrophic temporal and spatial error. Combine **14** and **15,** above. (Dinosaurs on Venus!)

The listed consequences last until the travelers can successfully fix their craft and escape. Although campaign specifics can vary, the duration likely depends on an Electronics Repair (Temporal) skill roll, suitably modified for inadequate tools, distractions, previous damage to the machine, and jury-rigged equipment. To milk the above table for the best adventure potential, perhaps a critical success allows another Electronics Operation (Temporal) roll in 2d minutes, while a success repairs the time machine in 1d hours. A failed roll forces a delay for an additional 1d hours for each point by which the roll failed; a critical failure strands the travelers for 2d days!

Psionic Time Travel

Time travel does not always require a time machine. Many stories (and quite a few allegedly true tales) deal with travel through both time and dimensions, using only the powers of the mind . . . with or without a little help. Mental time travel abilities may be considered simply "super" in nature, rather than "psionic," if that best fits the campaign. The only real difference in game terms is that truly psionic time travel can be blocked or interfered with using antipsi or various psychotronic gadgets (which might also boost psionic time travel, of course), and is affected by psionic Talents. Physical time-jumping falls under the Teleportation Talent; mental time-jumping falls under the Telepathy Talent.

Physical Projection

This mode is essentially identical to those using machines, except that the machine is the brain. "Time Police" and "Time War" campaign types can use it, though it is stylistically more appropriate to freelance travel, especially in campaigns with a magical or occult theme.

Not everyone can time travel, although possibly everyone has the potential. Something not readily available (that is, something under the GM's control) should be required, unless the campaign milieu is a wild postmodern society where everyone can go anywhen. (That might be kind of fun, but like most games with few constraints on time travel, it runs the risks of being exhausting for the GM and eventually boring for the players.) The time travelers have some version of the Jumper (Time) advantage (p. B64). Depending on the campaign rationale, this advantage may also require an Unusual Background or the Trained By A Master advantage, although if everyone in the party is a jumper (which seems both sensible and likely), such requirements should not count against any disadvantage limit.

Psionic time-jumping can come from any combination of the four possibilities below.

The Time Draft

The idea of psionic time travel leads to an interesting campaign possibility . . . one in which the time travelers are not at all willing.

Secret government experiments have proven that mental time travel exists, and can affect history (or, alternatively, can bring back valuable information and relics). Unfortunately, only one person in hundreds of thousands has the "time gene." Time travel is considered so important to national security that, as these people are identified, they are rounded up and removed to the maximum-security Time Laboratory, where they are "encouraged" to serve their country on missions into the past. The draftees aren't sure they like the idea – but even if your mind has the freedom of time, it's hard to argue with someone who's got your body locked up . . .

The idea here is that the time travelers are entirely unwilling, and constantly looking for a way to escape. (If they're willing to cooperate with their captors, it's an ordinary Time Agent campaign.) This might be part of a broader campaign in which all psi users, not just time-travelers, are hunted by governments that wish to exploit their powers. Some government agents might be sympathetic, and help the "underground," while some psis assist with the roundup.

Inborn Talent

Time travelers are born, not made. Some bizarre genetic twist gives certain people the power to travel in time. The ability may always have existed, being kept secret by its users, as in Poul Anderson's novel *There Will Be Time.* Or it may be a recent mutation, perhaps along with other super-powers. It could be even a mutation of a post-nuclear future – although we'll say this once for the record: Mutations take place only in the generations born after the triggering event; once you're born, you can't mutate. (At least that's true of radioactivity, but a biological weapon might conceivably "mutate" victims immediately, especially under pressure of dramatic necessity.) Or it might be a latent trait in all mankind, waiting only for the global radiation count to rise enough to activate it.

An interesting short campaign could be built around the holocaust's survivors trying to gather the temporally gifted mutants and train them for a mission into the past, either to recover unobtainable supplies or possibly even to prevent the disaster (and create a whopper of a paradox, but one imagines that post-apocalypse societies have bigger fish to fry). And the mutation might be inheritable, which means that it might have been "caused" by the future disaster, but show up in plenty of human bloodlines throughout the past as mutant time travelers spread the love.

Special Training

Anybody can time-trip if they know how; the problem is getting the training, which is the closely guarded secret of a group of Tibetan monks/Cthulhu worshipers/Knights Templar/mad game designers. Our heroes learned the technique when their plane crashed in Tibet/they were inducted into the cult, which is now hunting the renegades/they met one of the last defenders of the Faith, who passed on the secret while dying/they won the SJ Games prize drawing at Origins. Tripping-through-training usually involves joining a secret elite, who are either sworn to uphold good or (as with the Cthulhoids above) are fleeing the rest of the group, which is sworn to do them in. Just try explaining *that* to the cops.

Gadget Required

Time travel requires some kind of augmenting device, either a machine (which may answer any of the descriptions of time machines, from pocket-sized to Pentagon-sized) or a special drug or chemical (which you can't get at the local Boots or Walgreen's, even with a prescription). This tends to make it the result of a government, or super-government, project – perhaps secret and highly experimental, perhaps well-established. The treatment may not work on everybody, and it may have drastic effects on those who can't make the grade. See the "Richard Blade in Dimension X" series of books, by several authors using the name Jeffrey Lord, in which only Blade is tough enough to survive being transmitted into the big X – at least, in the early books.

The past is never dead. It's not even past.
– William Faulkner, ***Requiem For a Nun***

Ritual Required

Time travel requires a ritual of some kind: a magical spell, a prayer to the Three Fates, or the achievement of perfect satori to cast oneself loose from the material world. Perhaps the ritual must be performed at a place of power: a Stonehenge or Siege Perilous or Mystery Hill. The PCs don't even have to know the ritual to trigger it; maybe an ancient coven of Druids cast most of the spell before being surprised (fatally) by a Roman legion. The PCs unwittingly hum a U2 tune while in the stone circle, completing the ritual and shooting themselves back to Whenever. If the travelers have stumbled through the doorway by such an accident, they have to find the right place, the rest of the ritual, *and* anything the ritual might have required (the Golden Fleece, or the Holy Grail, or the blood of a sphinx), to get home again.

All of the Above

You can combine any or all of the above elements to suit your individual campaign flavor. Perhaps anyone in a certain bloodline can time-jump, as long as he holds an ancestral mirror. Perhaps only those with years of training can comprehend the ritual for time-transfer. Perhaps anyone has the potential to time-jump, but has to eat a specific kind of berry that only grew in the Sahara grasslands 8,000 years ago.

Jumping With Equipment

Mental trippers usually have tighter limits on equipment than their hardware-driven counterparts. They should be limited to what they can carry on their persons. The Jumper advantage on p. B64 prescribes an absolute mass limit. This includes clothing, tooth fillings, and everything that isn't the person's own cellular material. The GM may limit this further. Perhaps the tripper arrives in the past exactly as he came into the world, without even the tooth fillings (never mind the eyeglasses, hearing aid, toupee . . .), as in *No Machines!* on p. 162.

Such mental time travel offers an ideal way to (literally) strip off the hardware and force the players to figure out solutions to their problems, rather than simply pointing a gadget (technological or magical) at them. On the other hand, if the GM feels the campaign works better if large artifacts can move through time, he can always allow stretching of the limits. One possibility involves the Extra Carrying Capacity enhancement to Jumper on p. B64. Other enhancements to, and variations on, the Jumper advantage appear on p. 174.

Mental Projection

So far, we've assumed that "time travel" means physically going whenever-it-is, with flesh, blood, bone, and whatever equipment the GM grants in

support. Another possibility is to send only the mind, the consciousness, while the body remains behind. This is the Projection limitation to the Jumper advantage (p. 174).

This does not necessarily mean adventuring as a disembodied spirit. In most mental time travel stories (such as most episodes of *Quantum Leap*), the projected consciousness can occupy the physical body of a temporal local. Usually, the local's own mind lies dormant during the possession, providing only minimal background information. If it's too minimal, this can lead to more complications, as the time travelers need to explain their sudden weird behavior. In a time when people believe in demonic possession – and a great many people do, even today – this could be rather a touchy subject.

Having the native's mind remain active could be interesting, but puts a heavy strain on the GM and players both; there would be a set of NPCs, as large as the players' group, on stage and talking constantly. One solution might be to let each player take the role of the body possessed by the player to his right. Another solution, of course, is to leave the host personality quiescent, and forget the "I *hate* peas!" "Well, *now* you *love* peas!" and "fighting your own hand" routines between host and ghost. Used once or twice, there's a good laugh in it – but the "sophisticated" time traveler repeatedly telling the terrified peasant's mind to shut up and stay out of the way can take a cruel edge that will likely not to be funny or comfortable for long.

The mechanics of the projection can take any form or use any preconditions that psionic physical time travel does: genetics, rituals, magic places, chemicals, training, and so on. The only difference is that the physical body stays in the present. The bodies are in suspended animation while their spirits are away. They need no food, but are vulnerable to physical destruction. (If this doesn't fit with the GM's chosen method of projection, of course, the bodies can lie in bed somewhere, requiring constant attention . . . and even more vulnerable.)

In most campaigns, the Linearity Effect holds true: the time that passes in the present is the same amount of time that seems to pass while the spirit is in the past. This keeps bookkeeping down, and avoids weird experiential time lag in the traveler's brain. (Although an interesting variation would be to allow weeks or months of adventure in the space of a single night; the travelers may end up wondering if it was all a dream!)

Past-Time Characters

The GM should create characters for the host bodies. This requires as much care as designing any other important NPCs, since the players are carrying around their hosts' reputations as well as their bodies – though they may have to find out the hard way just what those reputations were. ("Giacomo the Jester is also the world's deadliest and most cunning assassin." "*Now* he tells me.") The hosts may be somewhat spread out, both socially and physically, so the players' first task is to locate and identify one another – and their second is to explain why the King's Astrologer is suddenly a buddy of an illiterate Gascon cowherd. But don't overdo it; nobody needs to start an adventure with two-and-a-half strikes against them. If the GM wants to make things a little easier on the team, which is a good idea the first time or two, assume that "like minds seek like bodies," and the hosts are not vastly different from the spirit's home bodies – at least, not in ways that make the spirit's abilities completely useless.

Attunement

Some conceptions of psionic time travel depend on the traveler somehow "attuning" himself to the time in question. Traveling back to the 19th century in the Christopher Reeve tearjerker *Somewhere In Time* depends on the traveler entirely dismissing the modern world from his person! In other campaigns, it might merely be necessary to use an antique item, or the best possible equivalent, to attune a traveler to his temporal destination. (This is the Attunement Required limitation to Jumper, on p. B64.) In still other games (such as those using *No Machines!* on p. 162), perhaps time travelers can bring only suitably attuned items with them into the past. Using such metaphysics, the likelihood of such attunement depends on how "authentic" the antique or item in question is.

The following set of rules and modifiers is one possible arrangement to reflect this conception. What precisely a success indicates depends on the campaign rules and metaphysics, and on what the travelers are actually attempting to do. In theory, these same rules could apply to the most rigidly technological time travel devices: if the "chronal signature" or the "tachyonic emission rate" or the "sidereal radiation count" of the "destination object" or "wormhole anchor" isn't exact, there will be hell to pay.

Carrying Items to the Past: A successful roll brings the item in question along. A roll that misses by 1 leaves the item behind in the present when the traveler leaves. If he returns safely, he may try to use it again. A failure that misses by 2 or more simply causes the item to vanish entirely; a critical failure might send the item somewhere else in the past, either to alert the traveler's enemies to his arrival or to set up an ugly temporal paradox to hammer him with later.

Attuning for Physical or Mental Projection: A successful roll allows the relevant time travel roll (an IQ roll for a Jumper, a Electronics Operation (Temporal) for a time machine, or the spell roll for a magical ritual) to proceed unmodified. A roll that misses by 1 adds a -1 penalty to the relevant time travel skill or trait. A failure by 2 or more prevents the time travel from happening at all, either until the auras can be cleansed with a new item, or for 24 hours, or until the next new moon, or whatever the campaign cosmology indicates. On a critical failure, the item sends the travelers somewhere entirely different, either somewhere related to its real manufacture (a modern replica might send the travelers to 1993 Hong Kong instead of to 1614 Amsterdam), or a temporal accident based on the table on p. 165.

Modifying Other Travel Methods: Alternately, the GM can apply the modifiers in parentheses to the relevant time travel roll, using the *worst* applicable description of the *best* available item. These modifiers are cumulative with any other modifiers applied. Successes and failures follow the standard rules for whatever the actual time travel method may be. The GM should feel especially free to reset the "zero point" of these modifiers to fit his own notion of appropriateness and accessibility.

Item Authenticity

Roll 3d, using the worst applicable description, but using fairly generous definitions of "period" (25-100 year windows seem appropriate for most games):

Genuine antique from the targeted period: Automatic success. (+5)

Item is new but wholly natural to the targeted place (e.g., uncured tobacco; an uncarved stick): Succeeds on a 15 or less. (+3)

Item is a genuine antique that was repaired or restored, at some point, with an out-of-period material: Succeeds on a 14 or less. (+2)

Item is a painstaking modern reproduction of a period item, made using authentic methods and materials: Succeeds on a 14 or less. (+0)

Item is a good modern reproduction of a period item, made using at least one modern method or material: Succeeds on a 12 or less. (-2)

Item is a quick modern reproduction of a period item, made using mostly modern methods and materials: Succeeds on a 10 or less. (-4)

Item is out of period due to style or design, though not technology: Succeeds on a 9 or less. (-5)

Item was not yet invented at the targeted time: Automatic failure. (-8)

Modifiers

Item had been invented but was not truly of the period because it was not in common use: -2.

Item is not native to the target place or culture: -3.

Item is not native to the targeted place or culture, but items like it were often used there: -1. (For example, an 1880 Chinese lacquer box inherited from one's English aunt is "native" to both 1880 China and 1880 England, since that box was in both places. An 1880 Chinese lacquer box bought in a Shanghai junk shop is "native" to 1880 China, but would only take a -1 for trips to Victorian England, since such items were common there as well. A Chinese lacquer box from 180 A.D. would take a -3 modifier for trips to the Roman Empire, however, since the Romans used almost no Chinese handicrafts besides raw silk.)

Item was made (or, for an antique, significantly repaired) by the carrier's own hands: +1 to +3. (The +3 should apply only to heroic efforts, such as sewing a costume out of cloth you had spun and woven yourself!)

Item has been in the carrier's possession, or his family's, for more than 20 years: +1 per generation, up to +5.

The Future

Travel into the future is easier than traveling into the past; we're all doing it at the stately pace of one second per second. Except on Mondays, when we're doing it more slowly. Time travel games involving the future have roughly the same concerns with paradox as those involving the past, and essentially the same solutions.

We are all interested in the future, for that is where you and I are going to spend the rest of our lives. And remember, my friends, future events such as these will affect you in the future.
– Criswell, ***Plan 9 From Outer Space***

Getting There Faster

Although suspended animation, or cryonics, or making a braintape to be played in a millennium, or a long Rip Van Winkle nap, don't feel as slow, they're actually no faster than normal living. They also have the disadvantage that they don't work in reverse so well. This can be a boon for a GM bound and determined to leave the old campaign behind ("You wake up a million years later, and your magic sword is rusted into goo.") but kind of irritating for time travelers.

Accelerating to near the speed of light and letting time dilation do its relativistic thing can also work, if you have spaceships capable of such behavior or convenient black holes that somehow don't rip you to atoms. Unless the black hole is a "Kerr black hole" complete with Tiplerian spin, though, you're still not getting back in a timely fashion.

In short, you have the same options for traveling forward that you have for traveling backward: time machines, psionics, or magic gateways. You might also get kidnapped by a time traveler – perhaps for the same reasons present day time travelers timenap historical figures (p. 72), or perhaps just to work in the soylent fields.

Physics

Future travel not only shares a mechanism with past travel, but most of the paradoxes, possibilities, and options emergent from temporal physics. These apply both to physical travel to the future and any form of future knowledge, whether finding a time-lost diary, Precognition, Death Vision spells (p. B251), or hearing it straight from a chatty time traveler killing time in the bar until the Super Bowl starts. (That last one can be kind of fun: "Oh, are you *the* Greg Kettler? Can I get your autograph? No, I'm not supposed to say anything about your future; it's against the rules. But just between you and me, congratulations on that Nobel Prize, and don't trust any guy with an eye patch.")

Paradoxes

The traveler goes into the future to find out from his grandson that he met grandma by accident in a bookstore. He returns to the past and hangs out at the bookstore so much that grandma thinks he's a loiterer and calls the cops on him. Or he pays so much attention to recreating their destined meeting that she thinks he's a phony and has no interest in him. Who left grandpa alone and bitter? His grandson, who now doesn't exist. The Free Lunch paradox, and communication paradoxes in general, explicitly depend on future involvement and foreknowledge.

Possibilities

Fixed Time: If the future can't be altered, that's depressing, and not a lot of fun for roleplayers or GMs, except in horror games, or the kind of fantasy game with lots of prophesies.

Plastic Time: Far more comforting; you can alter your destiny even if you see it. Paradox doesn't exist, either because altering your actions creates a new worldline (as with Parallel Worlds), or because the future is still a cloud of potential (as in Chaotic Time). When you go back to the future, it's different. The options are indistinguishable, unless you can travel between worlds, too. For the Traveler at Risk option, assume that changing the future causes all memory of the future to vanish – or to change to match the new future retroactively! Return Blocked is even easier; of course you can't travel back to a future you just altered! This, of course, can become Paradox-Proof Time, retroactively.

Plastic Time With High Resistance: As with pastward travel, this is the most dramatically satisfying option. It lets GMs build a fun or scary future history, but avoids railroading players while giving them a strong incentive to involve themselves in the world.

Absolute Now: There isn't a future, yet. It just doesn't exist. This is a stark, radical version of Plastic Time, but it's undeniably final and simple. See p. 219 for further discussion of this phenomenon.

Options

The Linearity Effect and Oscillating Time are easily conserved in future travel, and carry roughly the same reasons and advantages as pastward travel.

The Farsight Effect: Essentially the Recency Effect for future travel, it prevents a lot of monkeying around with the PCs' own lifespan, jumping forward to read their own after-action reports, and so forth. Remember that cloning, immortality or anagathic treatments, and other methods may inconveniently extend PC lifespans; records may last for an annoyingly long time on DVD or molecular computer files. Putting a nice nuclear war or some other disaster between the PCs and the accessible future is one solution, although that may cause the problem of goosing right-thinking time agents into trying to avert it. More simply, it may just be against Time Corps regulations to read your future personnel file, as it tends to create chronal storms or unleash the Hounds of Tindalos.

The Observer Effect: This phenomenon can operate just as easily (if no less confusingly) in the future. Travelers cannot alter any observed future event, but can try to change its meaning or context all they like. In one sense, this is what the Greek heroes had to go through whenever they got an oracle predicting doom or death in some specific circumstance. (Akin to that, an Observer Effect can accidentally give a traveler a Destiny; see p. B131 and tread carefully.) If time travelers from the future are wandering around in the present, the GM can either rule that the more futureward observation counts, which involves a lot of bookkeeping about who from when saw what, or choose the marginally simpler rule that anyone from another time counts as an Observer. This can turn into a weird, acausal headache if the GM isn't careful, and possibly even if he is; make absolutely sure you want a bunch of future travelers Observing things into stasis before you combine future travelers with the Observer Effect.

Chapter Six
Infinite Characters

Lord Byron limped into the room, brandishing his sword-cane. "Which of you renegades has been impersonating me?" he demanded of the group standing around the fireplace. The eerily familiar men, in slightly varying degrees of theatrical posture and widely varying costume, drew themselves up and began to respond in a veritable Babel of aristocratic drawls and alcoholic sputters.

"Impersonating you? Tchah, fellow, you've been 'personating me!"

"None of you can possibly claim to be inconvenienced, compared to what poor Augusta has gone through."

"As if I'd bother impersonating someone in that ridiculous cravat."

"Begad, sirrah!"

Before matters could come to blows, one of their number fired a pistol into the ceiling. Into the silence, he said, in the clear, ringing voice they all shared (when sober, at any rate), but with more than a hint of a Scots burr: "I have no idea who you gentlemen are, but I'm fairly sure we're none of us Billingsgate fishwives. Do let us sit down and discuss this matter as befits men of quality. I am Sir George Gordon, heir presumptive to the Earldom of Urquhart. I returned to Edinburgh from a swimming jaunt to find that someone had been forging cheques in my name."

"Swimming, eh?" said a florid, but recognizably similar, gentleman in a blue broadcloth coat. "I swim meself; but I'm no laird. I was Captain Gordon of the Protector's Ship *Perilous* until two days ago, to find some impostor had resigned my commission right in the middle of our scrap with the bluidy Danes!"

"Danes? You're a drunkard as well as an impostor, 'Captain Gordon.' Everyone knows our war is with the Turk, over Greek independency!"

"It was with the French, over Pitt's investments and fear of radical revolution, and it's been over for years!" insisted another dark-haired man, dressed more shabbily than most. "And I, Citizen Byron, am proud of the part I played in it, and very much resent whichever buffoon it was who published a blatantly monarchist poem over my name in the *Saturday Review!*"

"Poem?" Three of the more lavishly dressed men perked up their ears at this, and began a storm of argument about meter and scansion and which of them had plagiarized from the other.

"Gentlemen!" A new voice interrupted them, setting their nerves a-jangle somehow. Another figure, much like themselves, only far paler than even the most artistic of the poetical disputants, stood in the doorway. "You are all George Gordon, and many of you are Lord Byron, as am I. I have taken your lives for mine. You all share a certain native skill with sword and pistol, and have a gift for words, whether political speeches, seductive whispers, lyric poems, or naval reports. I require these talents in order to redirect the very course of history on a score of worlds." The Byron speaking seemed to grow taller, the shadows around him darker, and his teeth sharper, with every sentence. "You shall be my instruments, blood of my blood, and you shall open the floodgates of time to forces far darker than anything any of you have ever dreamed, forces . . ."

The words choked off with a meaty scraping sound as a length of cherry-wood emerged from the speaker's chest.

"You have no idea of my dreams, brother," gritted a contralto voice from behind the now-desiccating corpse. The dust fell away to reveal a slender, raven-haired beauty dressed in the height of Court fashion, clutching a sharpened billiard cue. "You, my brothers, on the other hand, shall hear quite a bit of them, I expect. I am Lady Georgia Byron, and I believe you can guess why you are called here tonight."

A time travel or cross-dimension campaign allows for the widest possible variety of characters – not just NPCs, but player characters as well. Gamers can draw characters from any world – past, present, future, or wholly imaginary – all in the same campaign!

Character backgrounds depend on the campaign frame. In a campaign built around the missions of the Infinity Patrol or similar cross-universe agency, the PCs are likely to be highly trained Patrol members. Some may be technical specialists and historians, while others are "agent" types. If the adventures concern freelance time meddlers who acquired their machine by accident, the characters may be from almost any background.

The one thing all travelers need is versatility. One never knows when one will have to ride a horse, drive a Persian chariot, or fly a P-51 Mustang against the Luftwaffe – maybe in the same adventure. Interpersonal skills are also very useful . . . for instance, when trying to convince the captain of the *Titanic* to reduce speed *right now*.

Advantages, Disadvantages, and Skills

This section discusses advantages, disadvantages, and skills as they apply in a time travel or parallel-worlds campaign. As always, the GM has the last word on any interpretations, enhancements, and so forth in his campaign.

Advantages

Alternate Identity

see p. B39

Having an alternate identity on another world (or time) than the "base world" (or "local present") for the campaign, legally or illegally, is worth only 5 points per identity, unless the law enforcement agencies of that other world or era play a major role (appearing on a 12 or less as Enemies, for example) in the campaign.

Claim to Hospitality

see p. B41

Depending on the campaign, all time travelers or dimension jumpers may have a 5-point Claim to Hospitality on each other, as fellow "strangers in a strange land." Swagmen and members of the Cabal in the Infinite Worlds have this advantage, although not with each other. There aren't enough retired Patrolmen outside Homeline and the colony worlds for this advantage to apply to active Patrolmen; the Patrol either has safe houses available, or nothing.

Clerical Investment

see p. B43

The GM should decide whether there are enough worlds with similar religious hierarchies to make this advantage worth taking for cross-world adventurers. Most Earths with a Roman Empire and Jesus Christ eventually develop a Roman Catholic Church – but church privileges, vestments and uniforms, and even theology ("In the name of the Father, the Son, and the Holy Mother . . .") may differ very widely!

Contact Group

see p. B44

Time travelers may take a Contact Group across time as long as they remain within the same organization and the same city, as per the rule on p. B44. A priestly Contact Group in the Vatican might go back for millennia!

Contacts

see p. B44

These two Contact types might well occur in time travel or crosstime campaigns:

Academic. If you don't know enough history to find the Black Bird or have the anthropological know-how to track down the killers from a tattoo, you go to the university and talk to a professor. The most useful academic skill set includes Anthropology, Archaeology, History, and Research, but Paleontology (to prep for those dinosaur hunts), Occultism (to fight vampires in 17th-century Hungary), or Economics (to

find out what stocks to buy in 1920s Shanghai) might also come in handy. A busy undergraduate has skill 12; a specialized grad student or academic librarian has skill 15; a tenured professor has skill 18; a renowned authority on the subject has skill 21.

Collector. These are dealers in (or producers of) rare or collectible items, from this world or another, or from many worlds. They are the natural employers, brokers, and advisers of crosstime or time-hopping smugglers. Specific items might include antiques, art, old magical equipment, strange gadgets, weapons, books, or fine wines. They can provide information about items, other collectors and their collections, who needs cash fast, and who seems to always find the best stuff. Specific skills include Connoisseur, Current Affairs, and skills associated with certain collections. A bottom-feeder or someone in a small market has effective skill 12; a major broker has skill 15; a respected authority in the field or the main player in a large market has skill 18; the undisputed top collector has effective skill 21.

Cultural Adaptability

see p. B46

Applies across worlds at no extra cost; it's a cinematic ability, after all.

Centrum's single-culture ideology prevents Centrans from taking this advantage without a hefty Unusual Background.

Cultural Familiarity

see p. B23

No matter how familiar you may be with your own culture, you will be wrong-footed while dealing with its ancestral past. Various eras can become cultures (Modern Western, Renaissance Western, Medieval Western) for no penalty. Even without such a time-bound familiarity, cultures give smaller unfamiliarity modifiers for those familiar with their descendants (or antecedents).

Apply a -1 unfamiliarity modifier for every two TLs away from your own era's TL. A modern TL8 American with Culture Familiarity (Western) would only suffer mild "past shock" in TL7 WWII America, but someone brought forward from colonial times (TL5) is at -1 in that same setting. A modern American dropped into Shakespeare's London (TL4) is at -2; one in medieval France (TL3, but still Western culture) might as well be in a whole different culture. However, that medieval Frenchman finds things the same for centuries on end from, say, 700 A.D. to 1500 A.D. – and in some parts of France, until 1800 A.D.!

At the GM's discretion, this penalty can also apply to alternate or parallel versions of your culture even at the same TL. Although the Nazi Germany of Reich-5 and Homeline America are both TL8, an American trying to blend into Reich-5's Berlin is going to be at a -1, at least. Save a -2 for parallels that diverged at least three TLs ago; a Homeline TL8 North American is at -2 for a visit to the Tenocha Empire on Ezcalli (which diverged in 508 B.C., TL5). The GM should loosen this restriction for close parallels, myth parallels, and other familiar settings.

Detect

see p. B48

The GM should determine the rarity of dimensional highways, nexus portals, or time-gates in his campaign. In the default Infinite Worlds setting, they are Rare.

Duplication

see p. B50

In essence, the Many Worlds Interpretation (p. 20) implies that we all have this advantage, but we don't know about it and can't use it. This could be a very creepy advantage for a world-jumping "pod creature" or "viral being" to use, as it leaves duplicates of itself wherever it goes in the worlds.

Special Enhancement

Construct: Your Dupes are material projections under your mental control. When you dispel them, they vanish, leaving you with your current – not average – FP and HP. You also enjoy the benefits of No Sympathetic Injury, and need not buy this separately. Finally, the death of a Dupe isn't permanent: you can generate a replacement by taking one second and a Concentrate maneuver. This costs 10 FP. But there is only one "true you," and if you die, all of your Dupes die with you! This modifier is incompatible with Digital and Shared Resources. +60%.

Special Limitation

Sequential: You and your Dupes are chained together in a specific order. Number them from one (the original you) on up. When a Dupe dies, all higher-numbered Dupes vanish as well! This limitation lets you create a character who can summon copies of himself from one possible future, with "later" copies dependent on the survival of "earlier" ones. Add Construct, above, if you can replace dead Dupes with copies from other possible futures. -40%.

Fugue

Some time-jumpers can send themselves back in time for a few minutes in order to create a double, specifically for purposes of combat. It only works under combat stress; an attempt to fugue to (for instance) send yourself a message always comes to naught. When the immediate fight ends, the doubles, dead and alive, wink out of existence – they were closed causal loops of alternate history. Damage to the doubles, ammunition they expended, etc., does not affect the "original you" at all, since you are both the earliest and the continuing "you." (Yes, this appears to violate a number of different versions of the physics of time travel. The GM is free to prohibit it entirely – or say "It's a wild talent, and it works." Either way, don't worry about it!)

For the ability to generate up to five fugue Dupes, take Duplication (Construct, +60%, Linked, +10%; Emergencies Only, -30%, Sequential, -40%; +0%) linked to Duplication 4 (Construct +60%, Linked, +10%; Emergencies Only, -30%, Sequential, -40%, Unreliable (8 or less), -40%; -40%) for a total of 119 points. Remember, without Jumper (Time), this does not allow actual travel in time!

Jumper

see p. B64

This advantage may well play a major role in a time travel or cross-world campaign. The GM may charge an Unusual Background cost to take this advantage in a campaign (like Infinite Worlds) in which technological or otherwise assisted time- or world-jumping is the standard. In the default Infinite Worlds campaign, jumping between worlds on the same quantum costs 1 FP; jumping to a world one quantum away costs 3 FP; jumping to a world two quanta away costs 7 FP; jumping to a world three quanta away costs 15 FP, and so forth, doubling the added cost each time.

New Version: Spirit-Jumper

This is the form of Jumper that many members of the Cabal possess. In the default Infinite Worlds campaign, the astral plane has normal mana, and has openings to many different worlds (usually via battlefields, cemeteries, haunted houses, or particularly gruesome murder sites). However, to get from one world to the other usually involves a long, dangerous journey through the astral plane. You cannot interact in any way with the material plane, and are invisible to those on it, while on the astral plane; you can only perceive the material plane dimly (-7 to any Sense roll) unless something like a haunted house opens an "etheric window" from the material world. Any skill roll to use a higher-tech item in the spirit realm is at -5 per item TL above 4.

Jumper (Spirit): You can bodily move to and from "spirit worlds" such as the astral plane. In these worlds, you are a spirit – you can interact normally with other spirits, are affected by anything that would affect a spirit, and can use any ability allowed by the world's laws. To initiate the transition, use the standard rules for the Jumper advantage; each attempt costs 1 FP. On a success, you shift between realms. On a failure, you stay in your current world and are at -5 to use your ability again in the next 10 minutes. The results of a critical failure are up to the GM . . . you might attract evil spirits, end up adrift between worlds, or go to the wrong world (e.g., Hell). The special modifiers available to world-jumpers are available to you, but not all of these are meaningful in every setting. *100 points.*

A number of new enhancements and limitations can apply to various forms of the Jumper advantage, depending on the campaign metaphysics:

Special Enhancements

Mass Jump: You can work with other jumpers to move much larger masses. If several jumpers concentrate together, you can move a mass equal to the total of their individual allowances times the number of people involved. All jumpers involved must have this enhancement. +100%.

No Concentration: You can jump in one second by spending FP and making an IQ roll. +15%.

No Fatigue: You don't have to spend any FP to jump. +20%.

Reliable: Your ability is unusually stable. For each level of this enhancement, add +1 to both the IQ roll to use Jumper and the automatic failure threshold (e.g., two levels would give +2 to IQ and mean a roll of 16 or more always fails). +5% per +1, to a maximum of +10.

Uncertain Encumbrance: You can jump while encumbered, but must make the IQ roll at a penalty equal to twice your Encumbrance level. On a failed roll, you leave your cargo behind; on a critical failure, you lose 1 point of IQ for each Encumbrance level you attempted as you "burned out" that part of your brain temporarily. You recover after sleeping. +25%.

Special Limitations

Attunement Required: In order to jump, you must use an artifact made or used at your destination to attune yourself to the time or world you intend to jump to. The GM may want to use the Item Authenticity table on p. 169 to modify the IQ roll for jumping. This form of Jumper often comes with the Preparation Required limitation on p. B114 as well. This is the mandatory version of the Tracking enhancement on p. B226. -20%.

Duration: Your jump takes several minutes or hours of experiential time rather than being instantaneous. The GM must set the speed (in minutes per year or minutes per intervening world) of jumping.

You cannot recover fatigue during a jump, but depending on the campaign, you may or may not be able to eat, bind your wounds, reload a pistol, or engage in other minor personal activities. The GM sets the value of this limitation in his campaign depending on your freedom of action while jumping and the relative speed of other available means of time or dimension travel. If you have relatively free action, and the speed of jumping is similar to other methods of travel, this may be a -0% special feature, since you essentially have a "bolt hole" to hide in! If, however, air molecules cannot reach your "jump space" and you must hold your breath or use scuba equipment or Metabolism Control while jumping, this limitation is worth at least -10%.

Limited Access: Only available for Jumper (World) or (Spirit). You can only jump between two *particular* worlds – your home world and one specific parallel, the material world and Hell, etc. The size of this limitation depends on how many worlds exist in the setting. If there's only one, it's meaningless (-0%). If there are many, it might be worth -20% or more, at the GM's discretion. In the default Infinite Worlds campaign, there are thousands of Earths – and a number of spirit worlds, afterlives, and so forth clustered around many of the individual Earths, all themselves connected via the astral plane. Access to only two Earths is a -25% limitation; access to only the astral plane (from any Earth) is a -10% limitation.

Limited Quanta: This limitation applies to world-jumpers only. You cannot jump across any number of quantum levels, but have a restricted range. The value of this limitation depends on how limited your range is. A two-quantum limit is worth -5%; a one-quantum limit is worth -10%; being able to jump only between worlds in the same quantum is worth -15%.

Past Only: You cannot jump into the future. This limitation applies only to time-jumpers. -20%.

Projection: You travel not physically, but psychically (though not necessarily psionically). Your body falls unconscious and a projection of yourself appears at the destination. Your body remains in the physical

world, vulnerable to material threats – if it dies, you are trapped outside it forever. Your projected form is visible but intangible, as if you were using Insubstantiality, and subject to anything that would affect insubstantial entities. If you have Insubstantiality, you can "reverse" your ability in order to become solid; if you have Possession (Spiritual, -20%), you can possess a resident of the target world. -50% if you cannot affect your destination at all without Insubstantiality or Possession; -0% if you can affect your destination with spells, mental abilities, and Maledictions as a projection.

Psionic Teleportation: Your ability is part of the Teleportation psi power. (The GM may decide that Jumping belongs under a different power; Jumper with the Projection limitation would fit well under ESP or, if the GM has created such a thing in his campaign, an Astral Projection power.) -10%.

Recency Effect: You cannot jump to a time since the "Recency Barrier," whenever that is. This limitation applies to time-jumpers only, and *only* in campaigns where the Recency Effect (p. 157) does *not* apply to all time travel. Usually, jumpers with this limitation cannot use the Fugue enhancement to Duplication (p. 173). -10%.

Research Required: This limitation applies to time-jumpers only. You can only jump to a time that you have memorized, unless you "hitch a ride" with another jumper. This requires at least two weeks of intensive research (the GM may require rolls against History, Archaeology, Research, and so on), and spending character points building up an applicable skill such as Area Knowledge (Classical Rome), Egyptology, or History (American Civil War). At the GM's discretion, visions of the past using Psychometry, Racial Memory, or magic may reduce the research time (though not the character points) required. This may make jumping to the future difficult, if not impossible! Jumping to that era defaults to the relevant skill, rather than to the jumper's IQ. -25%.

Special Movement: You must be able to freely move to jump. The value depends on how stringent the requirements are. If you merely have to walk a few steps and be free of anything that restricts your movement (like manacles or grappling foes), that's -10%. If you need to enter orbit and accelerate past the speed of light with expensive advantages like Flight (Space Flight, +50%) with Enhanced Move 27 (Space), that's -40%.

Special Portal: You need a particular sort of "gateway" to jump through, such as a reflective surface, a natural cave opening, or a sacred stone circle on a moonlit night. The value of the limitation depends on how rare the required gateway is; a reflective surface is -20%, as is a relatively common geographic feature or any doorway. "Only in a certain sacred spot at a certain time of the year" is a -80% limitation.

Language Talent

see p. B65

This is an incredibly useful advantage for time travelers or crossworld adventurers alike, in the absence of superscience "universal translators," anyway.

Centrum's single-culture ideology prevents Centrans from taking this advantage without an Unusual Background.

Languages

see p. B23

Languages shift slightly from parallel to parallel, even at the same relative point in history, as slang, loan words, and jargon differ depending on any number of culturally specific factors. Over a century or more (or between two worlds separated by a century or more of divergence), these differences accumulate, reducing even Native speakers to Accented. The next break point comes before mass printing standardizes the language; a modern Homeline English-speaker speaks English (Broken) in the 15th century, or on a parallel Earth that diverged in the 15th century or before. At the GM's discretion, closely related ancestral tongues (such as Oscan and Italian, or Old Norse and Icelandic, or Middle English and English) can be spoken or read as Broken versions of their relatives. The GM should decide how tough to make language divergence between closely related "sister" tongues like Spanish and Italian, or English and Dutch, especially across centuries or parallel worlds. Characters with Language Talent (p. B65) should get the benefit of the doubt on such rulings. A language that is identical across non-parallel worldlines should indicate that crosstime travel (if only in dreams or visions) is happening; suitable languages for such weirdness might include Ancient Egyptian, Navajo, or Tibetan.

The Patrol practices intensive language training; all regular Patrol personnel speak English at Native level (in addition to their own language, if any) and at least three others, usually including Cantonese and Latin. (Other languages the Patrol emphasizes include Aramaic, Arabic, Armenian, French, German, Hindi, Koiné Greek, Lingua Franca, Russian, Spanish, and Swahili.) Centrum, by contrast, is still playing catch-up thanks to their single-language ideology of cultural unity; a Centrum agent rarely knows any language besides Centrum English (which acts as an Accented version of Homeline English, and vice versa), although classical scholars may know Classical Greek, Latin, and Hebrew.

Cabalists often know one or more magical or sacred languages in addition to their own, such as Ancient Egyptian, Goidelic, Homeric Greek, Hebrew, Latin, Old Norse, Sanskrit, or Tibetan. Swagmen speak Strine, a thieves' cant based on Australian slang, Romany, tinkers' argot, and Cantonese profanity. It has a weird grammar evolved to handle confusions about time and worldlines better than most normal tongues.

Legal Enforcement Powers

see p. B65

On Homeline or its colonies, Infinity Patrolmen have the 10-point version of this advantage. Since they can essentially operate outside the laws of other worlds, and (usually) escape the consequences of their actions with impunity, they retain this advantage even in campaigns set entirely outtime. ISWAT agents have the 15-point version, as do agents of the Gestapo and SD of Reich-5.

The Interworld Service has no law enforcement powers of any kind within Centrum or the colony worlds; on Zone Green worlds (those with natives under Centrum control), I.S. enforcers have the equivalent of 15-point powers against natives, and 5-point powers against Centrum citizens. Outside Zone Green, of course, Centrum laws do not apply, and Interworld Service members have free rein to bring those worlds within the Zones of Control however they see fit, constrained only by their superiors' orders. The only exceptions are Grade 7 Unattached I.S. agents, who (like all Grade 7s) can command any Service as a Grade 5 member. In a campaign centered on Centrum, Grade 7 Unattacheds have the equivalent of 10-point Legal Enforcement Powers.

Magery

see p. B66

Depending on the campaign, the "magical awareness" of Magery 0 may grant the ability to spot nexus portals and dimensional highways. In the default Infinite Worlds campaign, many but not all such gates are magical, especially the Gates of Thoth (or Psais; see p. 79) and many banestorms.

Night Vision

see p. B71

As an advantage, Night Vision is the ability to see under low-light conditions as well as under normal illumination. If you can see at night better than by day, because normal sunlight dazzles you, this is a 0-point feature, found for example in orcs and owls. Specify how many levels of Night Vision you have, as usual. At that lighting level you can see normally. You are at -1 to Vision rolls and visually guided tasks for each level by which your environment is either dimmer or brighter. You still can't see in total darkness.

Example: Morlocks have Night Vision 6 as a feature. At -6 illumination (roughly a moonlit night) they can see perfectly. At either -3 or -9 they make Vision rolls at -3; under full daylight they make them at -6. In total darkness they're blind.

Oracle

see p. B72

In some campaigns, reading the omens also reveals the opening (and perhaps the location) of a nexus portal or dimensional highway, especially a transient one: "Travelers from beyond the world approach."

Patron

see p. B72

Most time- or parallel-spanning organizations have "unusual reach in time or space," making them not so unusual as all that in a time travel or dimension-hopping campaign. In such campaigns, the GM should only apply that +50% modifier to organizations or beings with a truly astonishing reach across the worlds, such as an active god. By similar logic, organizations or figures restricted to a single worldline (or a single era in time) take at least a -50% modifier as Patrons in heavily crosstime games: King Henry II can't do much for you on any worldline except the one where he rules England, and only for a few decades in that one!

The Infinity Patrol is a very powerful organization, appearing (as a Patron, anyway) fairly often (9 or less) in an Infinite Worlds campaign, making it a 20-point Patron. Centrum's Interworld Service is larger, but less likely to appear (6 or less), making it a 13-point Patron. Neither usually serves as a Patron for its field agents – Patrolmen and Interworld agents alike know that the worlds are tough, and that they pay a price for their freedom of action and initiative. The Patrol and the Service are more likely Patrons for scientists, researchers, historians, and other, less rowdy types.

ISWAT, the Homeline CIA, the SS, and most other secret agencies have even less in the way of institutional loyalty – agents are expendable. They almost never serve as Patrons, although an individual supervisor ("The Professor never abandons a man.") might wind up as a 15-point Patron in some games. Skorzeny is such a patron for proven ISWAT team members. The same is true of the Cabal as a whole, or of Infinity Unlimited itself, both incalculably wealthy (but rarely appearing) 15-point Patrons; an individual Cabal Grand Master (base 20 points) might take a more (or less) active hand.

Corporations vary. Time Tours has a very good reputation for looking after its own. As a powerful organization it appears on a 15 or less in worlds it operates on, and on a 12 or less in general, making it a 30-point Patron in a general campaign, and a 45-point Patron in games set entirely on worlds like Johnson's Rome. Most transworld corporations are very powerful or extremely powerful but exert themselves for a normal employee only rarely (6 or less).

Possession

see p. B75

This is the advantage used by most mental time travelers in the genre, even nonpsionic ones like the hero of *Quantum Leap*. You can use the Spiritual limitation with this advantage for mental time or world travel even if you do not take the Spirit metatrait. If it is Linked (p. B381) to Jumper, it can use the Psionic Teleportation limitation (p. B257) rather than Telepathy limitation from p. B257. (If the GM has created an Astral Projection psi power, or some other psi power incorporating both Possession and Jumper, no link is required.)

Special Enhancement

Death-Snap: Normally, if a possessed body dies, you die! With this enhancement, if your host body is killed, you instantly "snap back" to your own time or world, and must make an immediate Fright Check (p. B360). After an accidental death, or a peaceful death in your sleep, roll at no penalty, providing there was nothing especially horrible about it. Roll at a -2

penalty for an ordinary combat death. A messy or lingering death requires a roll at -5. A death by torture, or involving a Phobia (a long fall for an acrophobe, say) forces a roll at -10 or even worse! Your first "death" always adds an extra -10 modifier, your second an extra -5, and your third a -2. Should you acquire a mental disadvantage as a result of the Fright Check, it should be related to the circumstances of your proxy "death."

Once you recover from the results of your Fright Check, you may immediately attempt to rejoin your companions, if you choose. Of course, they won't know who you are until you identify yourself! Thus, it's a good idea to work out passwords in advance. +25%.

Special Limitation

Bloodline Only: You can only possess your own blood relatives (or, for world-jumpers, those of your parallel self or parallel family) out to the second cousin level, or anyone that closely related to one of your lineal ancestors. -40%.

Rank

see p. B29

Ranks in Centrum's Interworld Service (and indeed, in all the Services of Centrum) replace Status, and are 10 points/level. (Centrum is a classless meritocracy; see the box on p. B28.) High Rank grants Status in Reich-5 as given on p. B28; Infinity Patrol Rank grants +1 to Status on Homeline at Rank 5-7, and +2 to Status at Rank 8. Both SS and Patrol Rank are worth 5 points/level, as is Cabal Rank, which (usually being secret) grants no Status.

Resistant

see p. B80

The value of Immunity to Timesickness is equal to the value of the default effect of Timesickness based on the rules on p. 181, assuming a campaign in which time or dimension travel is a common occurrence.

Infinity and Centrum have genetically engineered therapies that confer Resistant to Disease +8 on their agents. Centrum injects all its agents with its Aesculapius Factor (a genetically engineered antibody complex); Infinity restricts use of polymaxin (a quasi-symbiotic "kamikaze" retrovirus) to those on lengthy outtime deployments and to Miracle Workers on plague duty, since its long-term health effects are unknown.

See Invisible

see p. B83

"See quantum flows" is an example of this advantage. It not only allows you to locate nexus portals, dimensional highways, banestorms, and other disruptions to the normal quantum stream; it also allows you to detect incoming parachronic conveyors as well as a man-portable parachronic detector (p. B532).

Special Enhancement

Paralocator: You can always tell which worldline you are in, as long as you have been there before; if the worldline is entirely strange to you, you know that it's unfamiliar. This enhancement only applies to See Quantum Flows (or the equivalent version in another alternate-Earths cosmos). +30%.

Special Limitation

ESP: This is a special ability within the ESP psi power. -10%.

Serendipity

see p. B83

Even if the conveyor gets lost, the time machine crashes, or the reality quake drops Camelot out from under you, you will probably wind up somewhere pretty neat.

Temporal Inertia

see p. B93

This advantage can be very useful in some time travel games; the GM may rule that it damps out the negative effects of any paradox you cause, since reality simply "defaults" to your memory and existence. In the default Infinite Worlds campaign, it increases your likelihood of surviving a reality quake, banestorm, or other crosstime disaster. At the GM's discretion, a native of an echo with this advantage may be able to sense Centrum (or Infinity Patrol) tampering before the effects become noticeable to others.

Unaging

see p. B95

You take less damage from exposure to the raw time stream (p. 75) than a normal person. In general, any such damage or negative effect is *halved* for you, after DR or other reductions, and the GM may rule that you are totally immune to some chronal effects.

Rank Table

Rank	*Infinity Patrol*	*SS*	*Cabal*
8	Director	Oberstgruppenführer Obergruppenführer Gruppenführer	Grand Master
7	Commissioner	Brigadeführer	Master
6	Colonel	Oberführer Standartenführer	Philosopher
5	Captain	Obersturmbannführer Sturmbannführer	Practitioner
4	Lieutenant	Hauptsturmführer Obersturmführer	Theorist
3	Special Agent	Untersturmführer	Adept
2	Agent	Oberscharführer Unterscharführer	Novice
1	Patrolman	Rottenführer Sturmmann	Initiate
0	Cadet	Mann	

Interworld Service ranks are simply "Grade 1" through "Grade 7" with the grade number matching the level of Rank. The Forum Chairman, the presiding officer in Centrum's senior council of coordinators, would theoretically have Status 8 but only Rank 7.

Unusual Background

see p. B96

By definition, time travelers or crossworld visitors already have an unusual background, and daily meet others with unusual backgrounds. For this sort of campaign, the only sort of background sufficiently unusual to be worth points would be one that gave *very* special abilities, such as magic, super-abilities, or psi.

In a campaign where only a few PCs have access to time travel or alternate worlds, the GM should consider this to be a significant Unusual Background. The cost should be at least 20 points . . . more, if the time or dimension travel is easy and powerful. (In most such campaigns, all PCs are travelers from time to time, but not all can control the means of travel.)

DISADVANTAGES

Addiction

see p. B122

Both tobacco and marijuana are illegal in Reich-5's Germany (and in any Germany where the Nazis won the war), making them -10-point addictions for campaigns set primarily around such worlds. Both are legal in Centrum, along with a wide panoply of other (mostly artificial) drugs. No addict to any incapacitating drug (including alcohol) can advance above Grade 2 in the Interworld Service, however (unless they take an appropriate Secret).

The value of this disadvantage varies not only with the drug and its legality, but with the world and the era of the addiction. The same addiction to the same drug is worth a different amount as the drug's cost responds to the supply and demand generated by, for example, a drug craze.

Introducing drugs (especially drugs from other worlds) to a population with no social mechanism to incorporate them is a sure way to cause a craze, in which use of the drug seemingly spirals out of control and all society (or at least its drug-using segment) is completely disordered. The "Gin Craze" in 18th-century England and the "crack epidemic" in the 1980s share identical etiologies with other drug crazes: discovery, enthusiasm, price spike, destruction of existing drug markets, hypercompetition among sellers (often violent, and involving organized crime in the case of illegal drugs) driving the price down, government involvement (either prohibition or licensing, or sometimes both), and eventual social adjustment until the new drug becomes just another ongoing feature (good or bad) of the society. If the drug confers a social cachet (as cocaine did in the 1980s), it stays relatively expensive. Most drugs intended for mass consumption get very expensive during the "fad" phase until the market establishes itself, and then very cheap, barring government intervention to increase prices (either to control use, or to tax a new revenue source). Even some seemingly exotic drugs get priced to move to the masses once the craze shakes out: heroin, for example, is a cheap addiction in 21st-century America.

One excellent example of a fairly long-cycle drug craze is the refined sugar craze that began in northern Europe around 1550. Refined sugar, to populations living in areas too cold

Wealth, Status, and Reputation

In a campaign where much of the action takes place "at home," all these social advantages are important and may be used normally. For instance, in the Order of the Hourglass campaign frame (p. 212), wealth and social position can be very important in preparing for a trip, or in defending from enemy Time Circles at home.

However, in most campaigns Status is of no importance: whoever you may be in your home time means nothing in the past or future. (Of course, some hereditary titles are ancient – but imagine telling the second Earl of Pottleby that you're the 17th Earl, and would he mind putting you and your friends up in the family manor for a few days?)

Growing up with high Status is not useless – there still may be a bonus to Savoir-Faire skill rolls – but it is no longer "cost-effective," for those who worry about such things. The GM must determine skill modifiers for attempts to pass oneself off as historical nobility (or even one's own ancestors).

Reputations, similarly, count for little in most time campaigns; characters are not likely to meet anyone who knows them 500 years before they're born. Exceptions to this occur in games with many time travelers, and "recurring villains." In the *Dr. Who* universe, for instance, the Gallifreyan Time Lords have a Reputation, not always good, among the cultures that know of their existence. It is also possible that time travelers who do not keep a low profile become "legends" in later eras. It can be more than a little complicated to deal with people who think you are a mythic hero reborn. Some travelers likely have Reputations to other time travelers; the GM should decide how frequently such folk appear.

Wealth can be an advantage if the players must finance and equip their own time expeditions. A pocketful of gold can work wonders almost any time (though it might be a good idea to melt down those Krugerrands before trying to spend them in the Renaissance). Poverty is rarely a handicap for time travelers.

In some backgrounds, it is very easy to become rich if you can travel in time and across worlds. In particular, the Jumper and Snatcher abilities could make it easy to become rich. The GM should require jumpers and snatchers to purchase the Filthy Rich advantage if they plan on using their powers to gain wealth.

to make wine (or who do not otherwise habitually consume fruit sugars), is *highly addictive* with regular use (a sugar addict uses 10 to 40 lbs. annually). At TL2-3, refined sugar is *expensive* (10 lbs. of sugar costs about $7 at TL3 in northern countries). During TL4-5, improved transportation and refining techniques (and the discovery of new tropical growing areas) increase supplies, but the much larger pool of potential addicts increases demand, driving the price higher in a classic craze; 10 lbs. of sugar is about $100 in mid-TL5, now a *very expensive* addiction. (The Golden Age of Piracy was, to some extent, driven by competition over sugar-growing islands in the Caribbean; the pirates were the Crips and Bloods of the 1680s.) By TL6+, industrial progress ensures that refined sugar is a *cheap* addiction, even with millions more addicts creating demand, unless the government taxes its use prohibitively.

Code of Honor

see p. B127

A number of the groups in the default Infinite Worlds setting maintain codes of honor; for example:

Cabalistic Code of Honor: Do not betray the existence of the supernatural to the unknowing; expand the knowledge and power of the Cabal; avenge your *passers*. *-5 points.*

Centrum Code of Honor: Defend and expand Centrum, at the cost of your own life if necessary. Do not allow sentiment or prejudice to cloud your judgment; take the long view. Order and reason are the prime virtues; success justifies ruthlessness in their pursuit. Obedience creates order. *-5 points.*

Infinity Patrol Code of Honor: Defend the Patrol, The Secret, and Homeline to the death if necessary. Don't complain, don't play politics, don't embarrass the Patrol or your buddies. Don't fully trust anyone who isn't Patrol. Go down swinging. Leave all other allegiances aside when you put on Patrol blue and black. *-5 points.*

SS Code of Honor: Be tough to the point of ruthlessness, lead from the front, obey the Reichsführer without question. The SS, the Führer, the Reich, and the race are things to kill or die for; the only mercy is a quick death. *-10 points.*

Swagman's Code of Honor: Never betray a fellow swagman or reveal his scams; help out if he waves you in, stay out if he waves you off. Stay bought when possible. Don't go straight. Say nothing useful to outsiders. Warn your mates of trouble. *-5 points.*

Alternative Outcomes troopers maintain the Soldier's Code of Honor on p. B127, with the addition of "leave no man behind dead or alive." Time Tours staffers keep to the Professional Code of Honor on p. B127, with the addition of "try not to let the idiot customers get themselves killed."

Dependents

see p. B131

In general, PCs in a crosstime or crossworld campaign should get no points for Dependents unless the Dependents appear essentially all the time, and are part of the party. Otherwise, their usual antagonists have no idea the Dependent even exists, let alone be able to capture or threaten them.

For example, the inventor of the time machine could bring his eight-year-old son along for lack of a better place to park him. Or the inventor could be the dependent. He's brilliant but quite incompetent; the PC is his grown daughter, who leads the party.

Clients, Researchers, etc., as Dependents

In some campaigns, only agents and trained technicians go into the field. Other games may involve the agents chaperoning groups of historical researchers, or even tourists. These people are rarely as well trained as the agents, but the agents are responsible for their safety (and for keeping the amateurs from dangerous meddling). Such people also count as Dependents, though the actual individuals may be different from game to game. The actual point value depends on several factors, and is based on the usual adventures the agents have:

Competence of the persons to be protected. Are they reasonably competent and intelligent people (-1 or -2 points) or bumblers who actively cause trouble (-10 points)? If they have special trouble-causing potential (high rank, psionics, vampirism) *and* little real intention of cooperating with the team, that's the -15-point level. The GM should be fairly loose about point totals, and consider potential for trouble when assigning these point values: a brilliant psionic historian might actually be worth more points than a Patrolman, but if he's Absent-Minded, Lecherous, and Alcoholic, his potential for trouble is vast indeed!

How often the auxiliaries appear. Use the usual rules (p. B131) for frequency of appearance. Note that if non-agents are sent along only under unusual circumstances – fewer than one in three missions – taking care of them is part of the Agency Duty, not worth points separately. Thus, the "quite rarely" frequency should not apply.

How closely they must be protected. The Agency may insist that the agents put the auxiliaries' lives above their own (×2); require the agents to protect them wherever possible, but not to die for them (×1); or consider them to be traveling at their own risk, requiring only that the agents repair any damage they do to the time stream (×1/2).

Numbers. If a team of several agents only has to escort and protect one person per mission, halve the value. For two Dependents or up to half the team, use the normal value. And if the Dependents outnumber the trained members (as with a tourist group) double their value.

Examples: A Time Tours guide deals with well-meaning incompetents (-5 points) almost all the time (×3). They must be protected wherever possible (×1), and outnumber the tour guides in the party (×2). He gets -5×3×1×2, or -30 points.

A single dinosaur shikari escorts competent hunters with no dinosaur experience (-2) quite often (×2). They travel at their own risk (×1/2). Such parties have more than two members (×2). He gets -2×2×1/2×2, or -4 points.

A team of Patrolmen bodyguards an important but elderly academic researcher (-5 points) fairly often (×1). He must be protected at all costs (×2), but there is only one of him to worry about (×1/2). Each Patrolman gets -5×1×2×1/2, or -5 points.

Duty

see p. B133

Membership in crosstime military or paramilitary organizations such as the SS Raven Division, the Infinity Patrol, Centrum's Interworld Service, Alternate Outcomes, or a Homeline crossworld special forces unit such as the British SCS (the Special Conveyor Service, or the "Para Paras") or the *Légion d'Outretemps* is always Extremely Hazardous for front-line personnel. Rear-echelon staff duty, even in the Infinity Patrol, only occasionally involves mortal danger, at least after graduation from the Academy.

Enemies

see p. B135

Certain groups have time- or dimension-traveling foes who show up often enough to be taken as Enemies. The Cabal, the Infinity Patrol, ISWAT, and Centrum's Interworld Service are wide-ranging enough to be "utterly formidable" in the Infinite Worlds; the base value of any of them as an Enemy is -40 points. The SS of Reich-5, or a Homeline agency with crossworld access such as the CIA, are worth a base -30 points. Criminal groups have a harder time getting crosstime access solely for the purpose of hunting you; even the Russian Mafiya (which can piggyback on Yugorovsky Group mining and prospecting trips with relative impunity) is only worth a base -20 points, the same as a single Lodge of the Cabal.

No Enemy restricted to a single time or world is likely to be able to reach a traveler often enough to be worth any points, unless the campaign uses that world as a recurring (more than half of all adventures are set there) setting.

Evil Twin

This version of Enemy can be as common as the GM wishes. In a campaign where parallel worlds and selves are both common, the GM may reduce the normal -3 reaction penalty toward you, since people don't *necessarily* assume that it was *you* who left your fingerprints all over the dead Girl Scout's dresser.

Honesty

see p. B138

An Honest character, in a different time or place, acts as though the laws and morals of his own home were still in force. This is sure to cause interesting problems!

Intolerance

see p. B140

Many natives of Centrum, although thoroughly indoctrinated against race, class, gender, and religious discrimination, are intolerant of all outtimers – Homeliners very much included – for a disadvantage worth -5 points. Right-thinking Germans of Reich-5, especially SS members, have total intolerance of "non-Aryans," despising anyone (including the descendants of the actual Aryans in Iran and India) who is not of pure northwestern European stock. This is worth -10 points.

Mundane Background

see p. B144

Many Homeliners possess this background; it is up to the GM whether his campaign involves enough magic or weirdness to make it a valid disadvantage. Every native of a no-mana world has it, except possibly the delusional ones!

Phobia

see p. B148

Time Travel (Chronophobia): Just as some people on our own Earth are afraid of flying, some Homeliners are afraid of dimension travel. They do not voluntarily take a conveyor anywhere, and face required crosstime travel at -5 to self-control rolls without lots of calming medication (or booze). No normal Patrolman, White Star rep, etc. has this phobia, but it can be entertaining for NPC specialists whose expertise is vital for a given mission. *-15 points if time (or worldline) travel is common, -10 if it is uncommon, -5 if it is essentially unknown. Adjust the cost for the self-control number.*

Secret

see p. B152

A corrupt Patrolman (which happens more often than anyone likes to believe, but not nearly as often as one might expect given the infinite opportunities) has a -5-point Secret if the corruption is restricted to feathering an outtime nest or smuggling minor collectibles. One taking bribes from (or secretly working for) a Homeline government, a criminal organization, or the like has a Secret worth -20 points.

Sense of Duty

see p. B153

Many Patrolmen feel a Sense of Duty to fellow Homeliners on other worlds (-5 points). Almost all

Patrolmen feel a Sense of Duty toward the Patrol (-5 points).

Social Stigma

see p. B155

On both Centrum and Homeline, natives of other (non-colonized) Earths are Second-Class Citizens, even within the Interworld Service or Patrol. On Homeline, this stigma is officially discouraged, but no less real.

Timesickness

see p. B158

This is an expanded treatment of the "standard" disadvantage.

In some stories, time travel is no more stressful than walking through a door; in others, there are serious mental and physical effects. When inventing new forms of time travel, the GM may set both the frequency and severity of Timesickness (or "jump sickness" in a parallel-world campaign). A roll against either Will or HT may be required to avoid its effects, depending on whether the campaign's time travel is primarily mental or mechanical in nature.

Another option is to link Timesickness to the machine operator's skill: in this case, the Electronics Operation (Temporal) success roll determines whether the travelers are disoriented. The GM may still allow an individual roll to avoid the effects.

If Timesickness is unusual, then it counts as a disadvantage. If Timesickness is normal in the campaign, then it is not a disadvantage; instead, Resistant to Timesickness is an advantage, as described on p. 177. You can have Timesickness at a level worse than normal for the campaign. Calculate the value of "normal" Timesickness for the campaign, and of the increased level, as described below. The difference in point costs is the value of the disadvantage.

Example: Frequent, Mild Timesickness is the default in the campaign. It has a value of -5 points, but that is not a bonus to normal characters. (Immunity to Timesickness becomes a 5-point advantage, however.) However, a character with Acute, Severe Timesickness has a malady which, from the rules below, is worth -20 points. The difference, -15 points, is the actual disadvantage value to that character.

In a campaign where there are different forms of travel with different effects, use the disadvantage value for the least harmful common method of travel. A character who gains access to a form of travel without side effects should be required to buy off his Timesickness disadvantage.

To find the point value of a given level of Timesickness, multiply the severity of the effect by the frequency with which it affects you, as follows:

Severity

Nuisance: You are mentally stunned, and roll for recovery at -5 with only one attempt allowed per 10 seconds. This has little effect unless the travelers arrive in the middle of a hostile situation. *-2 points.*

Mild: You are mentally stunned and lose 2d FP. *-5 points.*

Severe: You must make a HT roll. On a success, you are mentally stunned for 1d×10 minutes. On a failure, you are stunned for 1d hours. Double this on a critical failure! *-10 points.*

Very Severe: As above, but you also take damage: 1 HP if the duration is under an hour, 2 if it is an hour or more. *-15 points.*

Nightmare: This is a mental effect, most appropriate for psionic time travel. On a missed Will roll, the victim has monstrous visions. Go to the Fright Table and roll as though he had just missed a Fright Check by twice that amount. *-15 points.*

Critical: The victim takes 1d of damage, and makes a HT roll (even if the save was on Will); if failed, he takes another 1d. Shock and Knockdown effects are exactly as normal injury (crippling is ignored, however). This *can* kill you. *-20 points.*

Frequency

Rare: Travelers are affected on a critical failure only. ×*1/2.*

Frequent: Any failure affects a traveler. ×*1.*

Very frequent: A critical success is required to avoid effects. ×*1.5.*

Acute: No saving roll allowed; all travelers are automatically affected unless they are immune. ×*2.*

Generally, the more common Timesickness is, the less severe it should be.

Unique

see p. B160

Although this disadvantage in its standard form is not recommended for time-traveling PCs, it can be modified suitably.

Special Enhancement

McFly's Syndrome: A time paradox that would ordinarily wipe you out of existence still does so – but in delayed fashion. Once the paradox has occurred (and the GM is just going to have to bite the bullet and determine what simultaneity means in these circumstances), you begin to lose HT at the rate of 1 point per hour. At 1/3 of your original HT, you begin to desolidify and "fuzz out" of view; although you are not reliably intangible or invisible enough to receive any game benefit, your DX-based skills drop by one-third, and lose a further skill point each hour. The only way to restore this HT and skill loss is to undo the time paradox that eliminated you, or to create your own paradox or a branching timeline that will restore you to existence. +0%.

Skills

In general, many skills practiced in a certain specific fashion on one worldline often differ subtly (or not so subtly) on other parallels. Natives of one worldline receive a -1 to -5 familiarity penalty on such skill rolls if interacting with the skill as used on another parallel. A Homeline-trained accountant is not at any penalty to keep his own books on Roma Aeterna, but suffers a -3 familiarity penalty to understand the financial records of a Syrian merchant from that worldline, even if he can read Aramaic. Worldlines that diverged from each other later in history generally have smaller penalties than those that diverged earlier; a -1 penalty per 300 years of divergence is a decent rule of thumb. Some worlds (especially close parallels) may have no familiarity penalty at all – driving a 1998 Studebaker and driving a 1998 Ford differ only in minor respects.

This penalty is usually subsumed in the TL penalty for TL-dependent skills, or in the unfamiliarity penalties for specific weapon, technical, and vehicle skills; the GM may rule otherwise in borderline cases.

Skills (or specific uses of skills) that may take some familiarity penalty include: Accounting, Administration, Carousing, Combat Art or Sport, Connoisseur, Crewman, Erotic Art, Finance, Forgery, Gambling, Games, Gesture, Heraldry, many Hobby Skills, Intelligence Analysis, Law, Market Analysis, Merchant, Occultism, Panhandling, Performance, Politics, Propaganda, Public Speaking, Religious Ritual, Savoir-Faire, Soldier, Sports, Streetwise, and Typing. Artistic skills such as Architecture or Cooking take no penalty to practical uses such as finding secret doors or cooking pork safely, but may take a penalty to uses that depend on knowledge of current styles and fads, such as designing a building in Confederate Neo-Bourbon or cooking in Dragon Dynasty style. Most academic, scientific, and professional skills also take such a penalty – for the purposes of discussion with others in the field at least.

Archaeology

see p. B176

At the GM's discretion, the Archaeology skill (with a suitable focus or optional specialty in a given culture) may justify taking a Cultural Familiarity for a historical culture. A specialist in Hittite archaeology should be able to justify purchasing Cultural Familiarity (Hittite), for example.

Area Knowledge

see p. B176

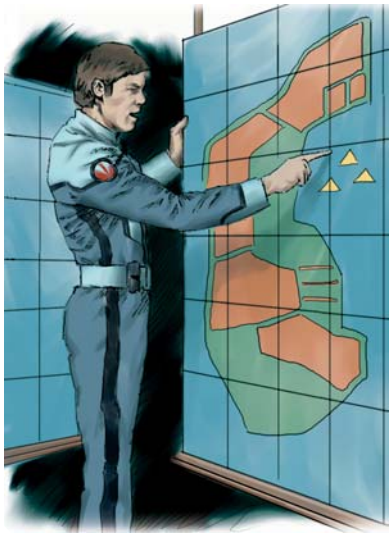
Area Knowledge can apply across parallels, especially close parallels. In general, a close parallel is -0 or -1 to skill plus any time modifiers. For an echo, use the appropriate modifier for the time differential (p. B530) between the echo and your native world. For a farther parallel, use the time differential modifier for the time since the divergence point between your Earth and the parallel world.

In some campaigns, Area Knowledge can include the location and destination of any crossworld or crosstime gates in the area; in other campaigns, such knowledge is Hidden Lore (see below).

Current Affairs

see p. B186

Current Affairs usually does not apply on parallel worlds (or takes double the normal time-and-distance penalties, at the GM's discretion) except for the very closest parallels and echoes – the details of who's sleeping with whom and which baseball team is the threat to watch can vary wildly from world to world.



Expert Skill (Cliodynamics)

see p. B193

This is the Expert Skill governing historical change, used to analyze parallels to spot divergence points, push echoes toward a desired goal, pick which Civil War general to kill so that the South can win the war, and so forth. It can stand in for Current Affairs, Economics, Geography, History, or Sociology to discover change points (historical or potential) in a worldline, determine what kinds of causes will bring about desired (or feared) effects, and detect such historical changes currently underway. It can also work as Intelligence Analysis or Market Analysis for this purpose (only). (In some schools, it is called "psychohistory" or "cliology.")

It is more commonly taught to agents of the Centrum Interworld Service than to Infinity Patrolmen. Most Cabalists consider it beneath them, and it is irrelevant to the conquests of Reich-5 . . . for now.

Gadgeteer

see p. B475

If you suspect that you might be hurled back in time by a lightning bolt or a blow on the head, or yanked into an alternate Pennsylvania by a parachronic undertow, this is the advantage to buy. Without it, your chances of bringing the telegraph, printing, the pike formation, and whiskey to the ancient Romans, or anywhere else, dwindle to almost nil. A *Connecticut Player Character in King Arthur's Sourcebook* or *Lest Darkness Fall* type campaign can be a lot of fun, either played for laughs or as a deadly serious race against time and ignorance to defeat the onrushing hordes of Tamerlane.

Geography

see p. B198

Although Geography (Political) for an area varies widely from world to world (with game effects similar to those for Area Knowledge or History), Geography (Physical) only suffers penalties on worlds with widely divergent climate, plate tectonics, and so forth.

Hidden Lore

see p. B199

Some Hidden Lore (Demons, Things Man Was Not Meant To Know) are probably quite similar on various parallels, while others (Conspiracies, Spirits) are less likely to have specifics in common. Hidden Lore (Faerie) may be in either group, depending on the cosmology of the campaign. In most campaign worlds, knowledge of gates between worlds, time portals, and so forth is a quintessential body of hidden lore – Hidden Lore (Gates). This may include their locations, how to find them, and even some knowledge of their destination ("The gate in the cemetery leads to a world where Lincoln wasn't assassinated."). It does not convey the ability to construct such gateways.

History! (IQ)

This optional wildcard skill (p. B175) replaces all specialties of Anthropology, Archaeology, History, and Paleontology, and covers the historical versions of Area Knowledge, Current Affairs, Geography, Heraldry, and Sociology, and the "academic" and historical elements of the various artistic skills. ("Why, this is a lost Leonardo masterpiece, Billy!") It also removes Cultural Familiarity penalties for all historical eras, and halves them for parallel histories. It is up to the GM whether this wildcard skill also encompasses Cliodynamics.

This is the skill possessed by such great time travel pioneers as Mr. Peabody, Professor Phineas Bogg, and Mr. Spock.

History

see p. B200

Historians suffer no penalties to skill rolls concerning parallel world histories before the divergence point with their own world. For history after a divergence point, apply the time differential penalties on p. B530 to the difference between the year being studied and the divergence point, but do not multiply for TLs that both histories crossed! For example, a Homeline military historian specializing in World War II is theorizing about the Pacific War in Dixie-1, 85 years and one TL boundary after the divergence point between Dixie and Homeline. The Long-Range Modifiers table on p. B241 gives a -6 penalty for distances up to 100 miles (years, for this purpose). Ordinarily, this would become a -12 modifier based on the rule on p. B241, but since both Homeline and Dixie-1 crossed the TL5/6 boundary, the historian can take those differences into account. The modifier remains -6.

This skill can also be used to determine whether a traveler notices something different in the past or in a parallel world from history as he learned it. He makes a History skill roll, with a bonus or penalty appropriate to the importance of the change. Realizing that Benjamin Franklin was never President is easy (for an American historian, anyway); recognizing that the *Andrea Doria* should not have made it to port is a bit harder . . . Of course, a difference may just mean that history, as taught in schools or seen in the movies, is often wrong! A roll at a further penalty, and possibly some research time, should be required to check this. (Yes, Genghis Khan really *did* have red hair and green eyes, and didn't look Oriental at all . . .)

Literature

see p. B205

Literature across parallel worlds is the same before the divergence point. Each century of divergence usually adds -2 to any modifier to Literature rolls made by students of another worldline's literary tradition. At the GM's discretion, Current Affairs or History may default to Literature-4 in a myth parallel.

Naturalist

see p. B211

On some worlds, and in some campaigns, this skill may allow characters to find gates to other worlds, by spotting outtime plants or specific parachronozoidal spoor (p. 74). The GM may rule that such knowledge counts as Hidden Lore (Gates) in his campaign.

Research

see p. B217

Research rolls take the same penalties across worlds as do Area Knowledge rolls (p. 182). To return to the example above under *History:* the Homeline historian researching Dixie-1's Pacific War in a standard Homeline library (not one specializing in parachronic history like the Patrol library system) is at -12 (-6 for the 85 years between the divergence point, doubled for the TL5/6 shift) to his Research skill to find anything useful at all. Research into eras before the divergence point is unaffected, of course – many Homeline libraries (with full computer cataloging and data storage) are much better places to research Dixie-1 medieval history than any library in that world! This is *not* a universal verity: for example, since the Hamburg and Dresden of Dixie-1 were never firebombed, there are surviving medieval documents in Dixie-1's archives that aren't available anywhere on Homeline! The GM should always take the subject matter, availability of information, and state of historical knowledge into account when adjudicating Research rolls on crosstime subjects.

Tracking

see p. B226

Like Naturalist, on some worlds and in some campaigns, this skill may allow you to find gates to other worlds – perhaps even by finding animal tracks that suddenly disappear in midstride! Again, The GM may rule that such knowledge counts as Hidden Lore (Gates) in his campaign.

TECHNIQUES

Anachronistic Training

Average

Defaults: Special (see below).

Prerequisite: Any one TL skill; cannot exceed prerequisite skill.

This technique allows you to use the prerequisite skill without suffering a TL penalty for antique or anachronistic methods. Each level of this technique removes one level of TL penalty; a TL8 Patrolman with Anachronistic Training (Artillery)-2 would take no TL penalties for Artillery/TL7 or /TL6 rolls, and would make Artillery/TL5 rolls at the -1 penalty for skills one TL lower. Anachronistic Training *cannot* be used to remove the penalty for futuristic gear or methods. The GM may still enforce a familiarity penalty for unfamiliar equipment. You must buy this technique for each skill separately.

Historical Familiarity

Average

Defaults: prerequisite skill-4.

Prerequisites: Archaeology, Egyptology, or History; cannot exceed prerequisite skill.

Your intensive training in ancient societies gives you some familiarity with the overall geography and cultural norms (such as manner of dress and certain styles) of a certain period of time. You may default to the relevant Area Knowledge (or, at the GM's discretion, Current Affairs) from Archaeology, Egyptology, or History instead of IQ, and gradually buy off the -4 default. Each historical specialty is a separate technique.

Alternate Selves

One gimmick that works especially well in a time-travel or crosstime campaign is to let the players play *themselves*. To forestall arguments about what George's IQ *really* is, all PCs are built on the same point value. Players keep their own names, their own quirks, professions, and so forth, and add skills and abilities they would like to have, or like to have at a higher level – Broadsword good enough to stake one's life on, for instance. The GM can assume that all the players are (for instance) five years older, and have had time to develop their abilities, or are themselves from the "next Earth over."

Then let them all get recruited by the Time Patrol, or find a loose time machine, and go! If the Time Patrol teaches additional skills, these can be covered by a Duty to the Patrol.

Alternate Humans

Although most of the humans on the Infinite Worlds fall well within the general bounds of *Homo sapiens sapiens,* there are worlds – and human species – outside those most familiar limits. The following variant human races appear through several different lenses, usually depending on their native TL or era. Lens point values are given as net changes to the basic racial template. Sufficiently advanced (or perverted) magic can, of course, bring about such changes without recourse to biology, and on some worlds the laws of evolution run at higher speed, or down a different road, than on Homeline. The GM is perfectly within his rights to refuse to allow any of these species as PCs in a Patrol game, or to require an Unusual Background advantage for alternate human characters.

Dark-Dwellers

-2 points

This human species has evolved living without natural light, probably in underground caves, asteroid habitats, bomb shelters, or worlds with the sky burned black by horrific experiments gone wrong – or horrific wars gone all too right.

Their Night Vision is a 0-point feature as described on p. 176.

Attribute Modifiers: HT-1 [-10].

Secondary Characteristic Modifiers: Per+2 [10].

Advantages: Absolute Direction [5]; Night Vision 4 [0]; Temperature Tolerance (Cold) 1 [1].

Disadvantages: Appearance (Unattractive) [-4]; Intolerance ("Sun people") [-5]; Phobia (Open spaces)(12) [-10]; Skinny [-5].

Skills: Climbing-12 (DX+2) [8]; Stealth-12 (DX+2) [8].

TL0-4 (-18 points): Pre-industrial dark-dwellers might be the "Hidden Race" of Arthur Machen novels or 19th-century anthropology, hiding in the hills and mounds from taller, stronger invaders. Such a race might give rise to legends of troglodytes, kobolds, or even dark elves. Such a race might survive for centuries undetected. Add IQ-1 [-20], another 4 levels of Night Vision [0], and Survival (Caves) (Per) [2].

TL5+ (+30 points): At this TL, dark-dwellers need to be able to maintain machinery. Sometimes, it is this very task that has consigned them to the depths; they might be deros, Morlocks, or dwarves from a dark steampunk world or a "mana-punk" future. Add IQ+1 [20] and Artificer 1 [10]. Urban homeless "mole people" should use the TL0-4 lens, above, but change Survival (Caves) to Urban Survival.

Outer Space (+12 points): Dark-dwellers in outer space habitats perforce get used to swings in gravity and variable air circulation. After all, if the lights won't stay on, probably the other systems aren't working too well either. Add G-Experience (All) [10] and another two levels of Temperature Tolerance (Cold) [2].

Regardless of home milieu, a noticeable percentage of dark-dwellers might have disadvantages like Dwarfism, or advantages like Flexibility, especially those living in cramped tunnels or caves. Nasty dark-dwellers always seem to wind up with the Odious Racial Habit (Eats other sapient beings).

Mutants

-40 points

After a nuclear war or some other catastrophe irradiates and poisons the Earth, at least three species will survive: cockroaches, rats, and mankind. These are the survivors.

Attribute Modifiers: IQ-1 [-20]; HT-1 [-10].

Advantages: Acute Taste and Smell 3 [6]; Breath-Holding 1 [2].

Disadvantages: Skinny [-5]; Xenophobia (12) [-15].

Racially Learned Skills: Survival (Radioactive Wasteland)-9 (Per) [2].

First Generation (-19 points): Born just after the Fall, this generation of mutants barely sustains the species. Apply another IQ-1 [-20],

but add Per+3 [15] and HP+2 [4], Reduced Consumption (1/3, Cast-Iron Stomach) [1], Low Empathy [-20], and Scrounging-12 (Per) [1].

Rebuilders (+15 points): Adapted to their surroundings, they seek to make their hell a home, but have yet to lay secure foundations for the long climb back up. Add Radiation Tolerance 5 [10] and Resistant to Poison 3 [5].

Like nasty dark-dwellers, spiky-haired mutants may develop the Odious Racial Habit (Eats other sapient beings) and file their teeth into Sharp Teeth (p. B91).

Neanderthals

0 points

On Homeline, *Homo neanderthalensis* died out around 32,000 years ago, but on some Earths, he won the competition with our Cro-Magnon ancestors. Neanderthals have large jaws and beetle brows, and are short and stocky (like weightlifters or wrestlers), but do not fit the stereotyped hunched, brutish "cave man" image. They have larger cranial capacities than *Homo sapiens sapiens*, which equates to a "weird-looking" skull shape. If they had evolved, they might well have turned out smarter than we did; genre convention (but no archaeological evidence to speak of) paints Neanderthals (both evolved and primitive) as a less individualistic, more collectively focused species.

Attribute Modifiers: ST+2 [20]; DX-1 [-20].

Secondary Characteristic Modifiers: Per+1 [5].

Advantages: DR 1 (Skull Only, -70%) [2]; Temperature Tolerance (Cold) 1 [1].

Disadvantages: Overweight [-1]; Sense of Duty (Tribe) [-5]; Short Lifespan [-10];

Skills: Armoury/TL0-11 (Melee Weapons) (IQ+1) [4]; Gesture-10 (IQ) [1]; Naturalist-8 (IQ-2) [1]; Survival (choose)-10 (Per) [2].

Taboo Traits: May not take any language at better than Broken.

Evolved (+0 points): This presumes that Neanderthals became the dominant species on Earth, evolving much as their Cro-Magnon competitors did. Substitute IQ+1 [20] for the Per bonus, add Gregarious [-10], and remove the Sense of Duty, the DR bonus, the skills, and the limitation on languages.

Homo erectus (-49 points): This lens goes the other way, and can serve as a stand-in for Peking Man, Java Man, and other pre-Neanderthal hominids. Add IQ-2 [-40], increase Short Lifespan by a level [-10], and remove Overweight.

In a primarily *Homo sapiens* milieu, Neanderthals have Unusual Features (Beetle brow and prognathous jaw) 3, and might even be downright Ugly. (This may lead to Shyness.) The GM may decide that Neanderthals have a greater chance for psionics than modern humans, or a flat limit on their Magery, or anything else not provable from the archaeological record.

Super-Soldiers

39 points

This human race has been bred, or built, to be warriors first and humans second, if at all. At TLs before TL6, it presumes a chance discovery of Mendelian genetics by some culture (or secret society) capable of molding society to fit its ideals. Such cultures – and such ideals – may well come into conflict with the Infinity Patrol and its ideals.

Attribute Modifiers: ST+3 [30]; HT+1 [10].

Secondary Characteristic Modifiers: Will+1 [5]; FP+1 [3].

Advantages: Combat Reflexes [15]; Fit [5]; High Pain Threshold [10].

Disadvantages: Bully (9) [-15]; Callous [-5]; Duty (Military; 15 or less; Extremely Hazardous) [-20]; Fanaticism (The Cause) [-15].

Skills: Brawling-12 (DX+2) [4], Hiking-11 (HT) [2], Soldier/TL-10 (IQ) [2], Spear-12 (DX+2) [8].

TL1-5 (-23 points): Historical cases of attempted super-soldier breeding include the Spartan warrior caste, the Janissary soldier-slaves of the Ottomans, and the grenadier guards in some German princely states. Add Bloodlust (12) [-10], Hidebound [-5], and Susceptible to Disease (-2 to HT) [-8].

TL6-7 (-19 points): After Mendel but before Watson and Crick, "cut and try" notions of human genetics begin to come into play, from Dr. Moreau to Dr. Mengele. This template implies some measure of success has emerged: a method in their madness, if not a super-serum per se. Add HP+1 [2] and another FP+2 [6], and add Lifting ST+1 [3] and a cocktail of mental disadvantages worth -30 points.

Example: Bad Temper (12) [-10], Nightmares (12) [-5], Paranoia [-10], and Post-Combat Shakes (12) [-5].

TL8+ (-15 points): With the DNA molecule unlocked, true bioengineering becomes possible. This is only the beginning. Add HP+3 [6] and FP+3 [9]; and add Appearance (Unattractive) [-4]; Lifting ST+3 [9]; Increased Consumption 1 [-10]; Killjoy [-15]; and Short Lifespan 1 [-10].

Tenshi (+143 points): This is the package for Japanese super-soldiers as used by various generals and *keiretsu* cartels on Reich-5 (p. 57). It should be taken as a maximum design for somewhat realistic settings. Add DX+1 [20], HP+3 [6], FP+3 [9], Basic Speed+2 [40]; Absolute Direction [5], Absolute Timing [2], Acute Hearing 5 [10], Acute Vision 5 [10], DR 2 [10], Lifting ST+3 [9], Night Vision 8 [8], Oxygen Storage (25×, -50%) [10], Peripheral Vision [15], Rapid Healing [5], Sanitized Metabolism [1], and Super Jump 1 [10]; add Increased Consumption 1 [-10], Killjoy [-15], and Short Lifespan 1 [-10]; replace Brawling with Karate-13 (DX+2) [12]. To construct a full-blown *tenshi*, apply this racial template to the Alternate Outcomes Mercenary template on p. 189 with the appropriate adjustments for Imperial Japan (use the disadvantage package from the SS Trooper on p. 193).

Some breeders may instill Slave Mentality in their subjects, or (purposely or accidentally) give their soldiers Addictions to combat stimulants, steroids, or super-drugs, or even a full-fledged Dependency. Many soldiers, super and otherwise, hold to a Code of Honor; most super-soldiers have Extremely Hazardous Duty. Programs with racial motives (such as the Nazis) or aesthetic ones (such as Prussian grenadier guardsmen, or a supervillain's female assassins) may aim for Attractive or better appearance, at the risk of Off-the-Shelf Looks (p. B21).

Character Templates

Infinity Unlimited

Intervention Service (I-Cop)

155 points

Depending on the campaign, players should add 30 or so points to this template (for I-Cops) or the one following (for Scouts) to build a Patrolman who has graduated from the Academy and served a year or so in one division of the Patrol. The Basic Skills and Background Skills sections (plus the first three advantages) model Academy training; the Division Skills section gives sample packages for each division of the Patrol. Given Infinity's preference for breadth of service rather than depth, the GM should encourage players to build experienced Patrolmen by adding other division modules to characters, as well as improving skill levels.

Attributes: ST 11 [10]; DX 12 [40]; IQ 11 [20]; HT 11 [10].

Secondary Characteristics: Damage 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 13 [10]; Per 11 [0]; FP 14 [9]; Basic Speed 6 [5]; Basic Move 6 [0].

Advantages: Combat Reflexes [15]; Fit [5]; Language Talent [10]; Legal Enforcement Powers [10]; Patrol Rank 1 [5]; and two languages at Native besides your own (one of your Native languages must be English, however) [8].

Disadvantages: Code of Honor (Patrol) [-5]; Duty (Patrol; 15 or less; Extremely Hazardous) [-20]; Sense of Duty (Patrol) [-5]; and -30 points from among Addiction (Tobacco) [-5], Bad Sight (Mitigator: Glasses, -60%) [-10], Bad Temper [-10*], Chummy [-5], Fanaticism (The Secret) [-15], Honesty [-10*], Impulsiveness [-10*], Insomniac [-10 or -15], Overconfidence [-5*], Pacifism (Cannot Harm Innocents) [-10], Post-Combat Shakes [-5*], and Stubbornness [-5].

Basic Skills: Electronics Operation/TL8^ (Parachronic)-12 (IQ+1) [4]; First Aid/TL9-13 (IQ+2) [4]; Guns/TL9 (Pistol)-13 (DX+1) [2]; History (choose specialty)-12 (IQ+1) [8]; Karate-12 (DX) [4]; Soldier-12 (IQ+1) [4]; Shortsword-13 (DX) [4]; Stealth-12 (DX) [2]; Survival (Plains)-12 (Per+1) [4].

Division Skills: Add 12 points in skills relevant to your Division. For example:

†1. Academy: Sports (choose)-11 (DX-1) [1], Teaching-12 (IQ+1) [4], and 7 points in any other skills as instructional specialties [5].

2. Customs and Inspection: Electronics Operation/TL8 (Security)-12 (IQ) [4] and Search-13 (Per+2) [8].

†3. Internal Affairs: Accounting-10 (IQ-1) [2], Detect Lies-11 (Per) [4], Interrogation-12 (IQ+1) [4], and Intimidation-13 (Will) [2].

4. Justice: Criminology-12 (IQ+1) [4], Forensics-11 (IQ) [4], and Law (Police)-11 (IQ) [4].

†5. Liaison: Diplomacy-12 (IQ+1) [8] and Savoir-Faire (Military or Police)-13 (IQ+2) [4].

†6. Logistics: Administration-12 (IQ+1) [4], Armoury/TL8 (choose)-12 (IQ+1) [4], and Electronics Repair/LT8^ (Parachronic)-12 (IQ+1) [4].

†7. Morale: Propaganda/TL8-12 (IQ+1) [4] and Psychology-12 (IQ+1) [8].

8. Nexus Oversight: Area Knowledge (Quantum 5)-13 (IQ+2) [4]; take 4 points in any Driving or Riding skill [4], and bring Electronics Operation/TL8^ (Parachronic) up to 13 [4].

9. Security: Intelligence Analysis/TL8-12 (IQ+1) [8] and Electronics Operation/TL8 (Surveillance)-12 (IQ+1) [4].

10. Special Operations: Cliodynamics-11 (IQ) [4], Guns/TL9 (Rifle)-14 (DX+2) [4], and Tactics-11 (IQ) [4].

Background Skills: Vacc Suit/TL8 (DX)-12 [2]; take 8 points in any one skill as your "aptitude skill" [8].

* Multiplied for self-control number; see p. B120.

† Duty is merely Hazardous; take another -5 points in disadvantages.

Penetration Service (Scout)

155 points

Attributes: ST 11 [10]; DX 11 [20]; IQ 12 [40]; HT 11 [10].

Secondary Characteristics: Damage 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 12 [0]; Per 14 [10]; FP 14 [9]; Basic Speed 6 [10]; Basic Move 6 [0].

Advantages: Combat Reflexes [15]; Fit [5]; Language Talent [10]; Legal Enforcement Powers [10]; Patrol Rank 1 [5]; and three languages at Native besides your own (one of your Native languages must be English, however) [12].

Disadvantages: Code of Honor (Patrol) [-5]; Duty (Patrol, 15 or less; Extremely Hazardous) [-20]; Secret (From another Earth) [-20]; Sense of Duty (Patrol) [-5]; and -25 points from among Careful [-1], Charitable [-15*], Curious [-5*], Fanaticism (The Secret) [-15], Honesty [-10*], Insomniac [-10 or -15], Intolerance (Some outtime society or custom) [-5], Loner [-5*], Overconfidence [-5*], Pacifism (Cannot Harm Innocents) [-10], and Post-Combat Shakes [-5*].

Basic Skills: Electronics Operation/TL8^ (Parachronic)-13 (IQ+1) [4]; First Aid/TL9-13 (IQ+1) [2]; Guns/TL9 (Rifle)-13 (DX+2) [4]; History (choose specialty)-12 (IQ) [4]; Karate-12 (DX+1) [8]; Knife-13 (DX+2) [4]; Soldier-12 (IQ) [2]; Stealth-13 (DX+2) [8]; Survival (Plains)-15 (Per+1) [4].

Division Skills: Add 12 points in skills relevant to your Division (note lens 8 is built on 13 points). For instance:

1. Communications: Cryptography/TL8-12 (IQ) [4]; Electronics Operation/TL8 (Comm)-13 (IQ+1) [4], and take 4 points in any Driving, Piloting, or Riding skill [2].
2. Contact: Acting-12 (IQ) [2], Anthropology-12 (IQ) [4], Diplomacy-12 (IQ) [4], and Savoir-Faire-13 (IQ+1) [2].
3. Echo Surveillance: Area Knowledge (station)-14 (IQ+2) [4], History (echo era)-12 (IQ) [4], and Shadowing-13 (IQ+1) [4].
4. Intelligence: Cliodynamics-12 (IQ) [4], Finance-11 (IQ-1) [2], Intelligence Analysis-12 (IQ) [4], Interrogation-12 (IQ) [2].

†5. Records and Research: Administration-13 (IQ+1) [4], Linguistics-12 (IQ) [4], and Research-13 (IQ+1) [4].

6. Search and Rescue: Climbing-12 (DX+1) [4], Swimming-12 (HT+1) [2], add 4 points in any Boating, Driving, Piloting, or Riding skill [4], and bring First Aid up to 14 [2].
7. Survey: Camouflage-14‡ (IQ+1) [2], Observation-15 (Per+1) [4], Photography/TL8-12 (IQ) [2], and bring Stealth up to 14 [4].

†8. Technical Analysis: Electronics Operation/TL8 (any)-13 (IQ+1) [4], Engineering/TL8 (any)-12 (IQ) [4], and Electronics Repair/TL8 (any)-13 (IQ+1) [4]. Mathematics/TL8 (applied)-10 (IQ-2) [1].

Background Skills: Vacc Suit/TL8 (DX+1)-12 [4]; take 8 points in any one skill as your "aptitude skill" [8].

* Multiplied for self-control number; see p. B120.

† Duty is merely Hazardous; select another -5 points in disadvantages. These Divisions also usually don't need to maintain a cover on another Earth, and so may not be eligible for the Secret disadvantage, either.

‡ Bought from Survival.

Homeline Agents

The above templates can also serve as the basis for capable crosstime law-enforcement and national security agents of Homeline governments, whether overt (such as the RCMP or FBI) or covert (such as Mossad or the CIA). Homeline agents have Duties, Codes of Honor, and Senses of Duty commensurate with their nationality. In lieu of Language Talent and languages, they usually have skills in Law (Police) and national law codes, along with Criminology, Guns/TL8 (Pistol), and Judo.

ISWAT Operative

There is no "standard" ISWAT operative. ISWAT's teams of pulp heroes, supers, legendary figures, faeries, undead, and so forth hew to no common template and have only two traits in common: Legal Enforcement Powers [15] and Duty (ISWAT, 15 or less; Extremely Hazardous) [-20].

If you wish to build an ISWAT "grunt," base him on the Centrum Unattached template on p. 192, with the "ISWAT package" listed above in lieu of Centrum-specific cultural traits, and Patrol Basic Skills (from the I-Cop template on p. 186) instead of the Centrum Primary Skills set. The GM should reshuffle the Centrum Background Skills as follows: leave Running and Swimming alone (as broadly useful skills that reflect intensive physical training) and replace the others with 14 points in skills that reflect the operative's world background. An ISWAT operative is seldom below 250 points.

Paralabs Field Researcher

101 points

Although wandering through alternate Earths is the Patrol's job, Paralabs needs technicians "in country" surveying banestorms, charting reality quakes, measuring quantum flux along dimensional highways, and studying the myriad other aspects of "reality geology" central to parachronic research. This template is designed with a bias to such field researchers, rather than the academic theoreticians or parachronic engineers who stay at home and determine the meaning or application of what the "glitch-hunters" have found.

Attributes: ST 10 [0]; DX 10 [0]; IQ 13 [60]; HT 11 [10].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 11 [2]; Will 13 [0]; Per 14 [5]; FP 11 [0]; Basic Speed 5.25 [0]; Basic Move 5 [0].

Advantages: Fit [5]; Mathematical Ability 1 [10]; and 15 points from among Absolute Direction [5], Absolute Timing [2 or 5], Eidetic Memory [5 or 10], Intuition [15], Lightning Calculator [5], Magery 0 [5], more Mathematical Ability [10/level]; Single-Minded [5], and Unfazeable [15].

Disadvantages: Duty (Infinity, 15 or less; mostly Nonhazardous) [-10]; Pacifism (Reluctant Killer) [-5]; and -20 points from among Absent-Mindedness [-15], Bad Sight (Mitigator: Glasses, -60%) [-10], Code of Honor (Professional) [-5], Combat Paralysis [-15], Curious [-5*], Intolerance (Some outtime culture or custom) [-5], Jealousy [-10], Loner [-5*], Oblivious [-5], Obsession (Proving a theory) [-5 or -10*], Shyness [-5 or -10], Stubbornness [-5], and Weirdness Magnet [-15].

Primary Skills: Computer Operation/TL8-13 (IQ) [1]; Electronics Operation/TL8^ (Parachronics)-14 [4]; Electronics Operation/TL8 (Scientific)-14 [4]; Mathematics/TL8 (Applied)-14† (IQ) [4]; Physics/TL8^ (Parachronic)-13† (IQ-1) [4].

Secondary Skills: Geology/TL8-12 (IQ-1) [2]; Mathematics/TL8 (Surveying)-13† (IQ-1) [2]; Meteorology/TL8-12 (IQ-1) [1]; Research/TL8-13 [2]; Survival (Desert)-14 (Per) [2].

Background Skills: Astronomy/TL8-12† (IQ-2) [1]; Cartography/TL8 (IQ-1)-12 [1]; Navigation (Land)/TL8-12 (IQ-1) [1].

* Multiplied for self-control number; see p. B120.

† +1 from Mathematical Ability.

Miracle Worker

85 points

The staff of Miracle Workers runs the gamut from do-gooding "angels of mercy" to coldly efficient triage agents who separate the salvageable from the walking dead. Some have bleeding hearts full of charity and outrage; others have only eyes with the "thousand yard stare" of a hundred worlds' plagues, genocides, and famines. None of them have given up, though, and gone back to Homeline. That says a lot more than any personal philosophy, to Patrolmen who see them in action.

Attributes: ST 10 [0]; DX 10 [0]; IQ 12 [40]; HT 11 [10].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 14 [10]; Per 12 [0]; FP 13 [6]; Basic Speed 5.25 [0]; Basic Move 5 [0].

Advantages: Resistant to Disease +8 [5]; and 25 points from among Charisma [5/level], Clerical Investment [5], Empathy [5 or 15], Fearlessness [2/level], Healer [10/level], High Pain Threshold [10], and Less Sleep [2/level].

Disadvantages: Duty (Infinity, 15 or less; Nonhazardous) [-10]; Sense of Duty (Innocent victims) [-15]; and -20 points from among Addiction (Stimulants or tobacco) [-5], Bad Sight (Mitigator: Glasses, -60%) [-10], Callous [-5], Charitable [-15*], Code of Honor (Hippocratic Oath) [-5], Compulsive Generosity [-5*], Disciplines of Faith [-5], Guilt Complex [-5], Honesty [-10*], Insomniac [-10 or -15], No Sense of Humor [-10], Odious Personal Habit (Moral posturing) [-5], Pacifism [-5 to -15], Timesickness [-10], Truthfulness [-5*], and Workaholic [-5].

Primary Skills: Driving/TL8 (choose)-11 (DX+1) [4]; First Aid/TL9-14 (IQ+2) [4]; and select three skills from among Diagnosis/TL9-12 (IQ) [4], Epidemiology-12 (IQ) [4], Farming/TL8-13 (IQ+1) [4], Hazardous Materials/TL8 (choose)-13 (IQ+1) [4], Pharmacy/TL9 (Synthetic)-12 (IQ) [4], Physician/TL9-12 (IQ) [4], or Surgery/TL9-11 (IQ-1) [4].

Secondary Skills: NBC Suit/TL8-11 (DX+1) [4]; and select two skills from among Electronics Operation/TL9 (Medical)-12 (IQ) [2], Freight Handling/TL8-12 (IQ) [2], Packing-12 (IQ) [2], or Teamster (Equines)-12 [2].

Background Skills: Diplomacy-12 (IQ) [4]; Leadership-12 (IQ) [2].

* Multiplied for self-control number; see p. B120.

UNIC

Crisis Ministry Troubleshooter

115 points

To the Patrol, there's nothing less welcome than the dapper fellow with the $200 Park Avenue haircut and the clean fingernails showing up "from the Ministry to have a look 'round." The Patrol suspects that these troubleshooters' job is to interfere with Patrolmen doing their job, and to justify their own salaries. While a certain amount of both goes on, their real task is threat assessment. If the locals on Damocles seem a little too happy with the nearby robotic mining compound, or if the U.S. government on Taft-2 is getting strangely cozy with the British Comintern, it may warrant a genteel look-see and a surreptitious report back to Homeline. Political instincts honed in Turtle Bay (the Patron advantage reflects some juice with the higher-ups in UNIC) get a workout outtime, and even if nothing looks remotely strange on the surface, "the man from the Ministry" can sniff out deep currents indeed. Whether UNIC then alerts the Patrol or calls in its own big guns depends on what the troubleshooter sees coming in on those currents.

Attributes: ST 9 [-10]; DX 10 [0]; IQ 13 [60]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d-1; BL 16 lbs.; HP 10 [2]; Will 13 [0]; Per 14 [5]; FP 10 [0]; Basic Speed 5 [0]; Basic Move 5 [0].

Advantages: Administrative Rank 3 [15]; Charisma 1 [5]; Patron (UNIC Undersecretary, 9 or less) [15]; Smooth Operator 1 [15]; two languages at Accented [8]; and 20 points from among Alcohol Tolerance [1], Appearance (Attractive) [4], more Charisma [5/level], Cultural Adaptability [10], Diplomatic Immunity [20], Empathy [5 or 15], Fashion Sense [5], Photographic Memory [10], Security Clearance [10], another level of Smooth Operator [15], Status [5/level], Unfazeable [15], and Wealth [Varies].

Disadvantages: Curious [-5*]; Duty (UNIC, 12 or less; Nonhazardous) [-5]; Pacifism (Reluctant Killer) [-5]; Reputation -2 (Rear-echelon bureaucrat) [-5]; and -30 points from among Addiction [-5 to -10], Bad Sight (Mitigator: Glasses, -60%) [-10], Cowardice [-10*], Extra Sleep [-2/level], Greed [-15*], Jealousy [-10], Odious Personal Habit (Condescension) [-5], Overconfidence [-5*], Paranoia [-10], Selfish [-5*], Sense of Duty (U.N.) [-10], and Workaholic [-5].

Primary Skills: Acting-14† (IQ) [2]; Body Language-14 (Per) [2]; Detect Lies-14† (Per-1) [2]; Diplomacy-14† (IQ) [4]; Psychology-13 (IQ) [4]; Public Speaking-15†‡ (IQ) [2]; Savoir-Faire-15† (IQ+1) [2].

Secondary Skills: Administration-13 (IQ) [2]; Computer Operation/TL8-13 (IQ) [1]; Fast-Talk-14† (IQ) [2].

Background Skills: Accounting-12 (IQ-1) [2]; Law (International)-12 (IQ-1) [2]; Politics-13† (IQ-1) [1]; Research/TL8-13 (IQ) [2].

* Multiplied for self-control number; see p. B120.

† +1 from Smooth Operator.

‡ +1 from Charisma.

Psiberocrat

Certain imaginative gossipmongers have taken it upon themselves to spread scurrilous rumors of a permanent, covert "psiberocracy" nurtured within the red-tape warrens of UNIC. If the GM decides that these laughable allegations are true, one of the following packages can be added onto the troubleshooter template above:

ESPer Package (+30 points): Clairsentience (Sight Only, -10%, ESP, -10%; -20%) [40]; Secret (Psi spy) [-10].

Precog Package (+31 points): ESP Talent 2 [10]; Precognition (ESP, -10%) [23]; Secret (Psi spy) [-10]; Fortune-Telling-15 (IQ+2) or Intelligence Analysis/TL8-14 (IQ+1), both [8].

Telepath Package (+30 points): Mind Probe (No Memory, +10%; Racial, -20% Touch-Based, -20%, Telepathic, -10%; -40%) [12]; Mind Reading (Racial, -20%, Touch-Based, -20%, Telepathic, -10%; -50%) [10]; Telepathy Talent 2 [10]; Secret (Psi spy) [-10]; two more languages at Accented [8].

Alternate Outcomes
Mercenary

190 points

This template can also serve for crosstime Homeline special forces such as the U.S. Ranger Force Tau, the French *Légion d'Outretemps,* or the Russian Spetsnaz, or for outtime special forces of similar caliber.

Attributes: ST 11 [10]; DX 13 [60]; IQ 13 [60]; HT 11 [10].

Secondary Characteristics: Damage 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 13 [0]; Per 13 [0]; FP 12 [3]; Basic Speed 6 [0]; Basic Move 6 [0].

Advantages: Combat Reflexes [15]; Fit [5]; Military Rank 1 [5]; Resistant to Disease +8 [5]; and 20 points from among Acute Senses [2/level], Breath-Holding [2/level], Danger Sense [15], Deep Sleeper [1], Fearlessness [2/level], Hard to Kill [2/level], High Pain Threshold [10], HT+1 [10], Night Vision [1/level], and ST+1 [10].

Disadvantages: Code of Honor (Soldier's) [-10]; Duty (The Battalion, 15 or less; Extremely Hazardous) [-20]; and -20 points from among Bloodlust [-10*], Callous [-5], Chummy [-5], Compulsive Gambling [-5*], Fanaticism (The Battalion) [-15], Flashbacks [-5], Intolerance (Civilians) [-5], Nightmares [-5*], Overconfidence [-5*], and Truthfulness [-5*].

Primary Skills: Artillery/TL9 (Cannon)-13 (IQ) [2]; Brawling-13 (DX) [1]; Electronics Operation/TL8 (Comm or Surveillance)-12 (IQ-1) [1]; Gunner/TL9 (Machine Gun)-13 (DX) [1]; Guns/TL8 (LMG)-13 (DX) [1]; Guns/TL9 (Rifle)-14 (DX+1) [2]; Savoir-Faire (Military)-13 (IQ) [1]; Shortsword-13 (DX) [2]; Soldier/TL9-13 (IQ) [2]; Spear-13 (DX) [2]; Tactics-12 (IQ-1) [2]; Throwing-13 (DX) [2].

Secondary Skills: Armoury/TL9 (Small Arms)-12 (IQ-1) [1]; Camouflage-13 (IQ) [1]; Explosives/TL9 (Demolition)-12 (IQ-1) [1]; First Aid/TL9-13 (IQ) [1]; Guns/TL9 (GL)-13 (DX) [1]; Guns/TL9 (LAW)-13 (DX) [1]; Guns/TL9 (Pistol)-13 (DX) [1]; Stealth-13 (DX) [2]; Survival (Mountain)-14 (Per) [4]; Traps/TL9-13 (IQ) [2].

Background Skills: Climbing-13 (DX) [2]; Hiking-12 (HT+1) [4]; History (any military)-12 (IQ-1) [2]; Jumping-13 (DX) [1]; Navigation (Land)-13 (IQ) [2]; Swimming-12 (HT+1) [2].

* Multiplied for self-control number; see p. B120.

The Private Sector

White Star Trader

111 points

This template reflects a relatively open and above-board White Star merchant factor in a TL4 city on a parallel Earth. For a more gray-market White Star employee, see the Smuggler package in the Criminal template on p. 196.

Wealth never falls below Comfortable, barring Visigothic invasion, since a White Star employee gets paid (and paid well) in Homeline and can usually flip a high TL8 salary into a quite luxurious local lifestyle. The GM is justified in requiring a White Star character to purchase extra levels of Wealth if much of the campaign is set on worlds where White Star purchasing power is similarly inflated.

White Star Trading does not have Merchant Rank; there are too few traders on any given world for any issues of precedence to arise once market boundaries are set by Infinity Development or by White Star corporate headquarters.

Attributes: ST 9 [-10]; DX 10 [0]; IQ 13 [60]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d-1; BL 16 lbs.; HP 10 [2]; Will 13 [0]; Per 13 [0]; FP 10 [0]; Basic Speed 5 [0]; Basic Move 5 [0].

Advantages: Business Acumen 1 [10]; Contact Group (local merchants, skill-18, 9 or less, usually reliable) [30]; Cultural Adaptability [10]; Wealth (Comfortable) [10]; two languages at Accented [8]; and 20 points from among Charisma [5/level], Empathy [5 or 15], Favor [Varies], Intuition [15], Language Talent [10], Lightning Calculator [2], Reputation (Honest merchant and/or Quality goods) [Varies], and more Wealth [Varies].

Disadvantages: Code of Honor (Professional) [-5]; Pacifism (Self-Defense Only) [-15]; Secret (From another Earth) [-20]; and -20 points from among Addiction [-5 to -10], Bad Sight (Mitigator: Glasses, -60%) [-10], Bad Temper [-5], Chummy or Gregarious [-5 or -10], Compulsive Behavior [-5*], Enemy (Business rival) [Varies], Greed [-15*], Honesty [-10*], Impulsiveness [-10*], Laziness [-10], Overconfidence [-5*], Overweight or Fat [-1 or -3], and Workaholic [-5].

Primary Skills: Accounting-14† (IQ) [4]; Detect Lies-13 (Per) [4]; Market Analysis-14† (IQ) [4]; Merchant-15† (IQ+1) [4]; Savoir-Faire-14 (IQ+1) [2].

Secondary Skills: Administration-14† (IQ) [2]; Fast-Talk-13 (IQ) [2]; Freight Handling/TL8-12 (IQ-1) [1]; Freight Handling/TL4-13 (IQ) [2]; Propaganda/TL4-13† (IQ-1) [1].

Background Skills: Area Knowledge (local city)-13 (IQ) [1]; Computer Operation/TL8-13 (IQ) [1]; Connoisseur (choose)-12 (IQ-1) [1];

Current Affairs/TL4 (Business)-13 (IQ) [1]; Gambling-13† (IQ-1) [1].

* Multiplied for self-control number; see p. B120.

† +1 from Business Acumen.

Denarius Group Special Banker

Adept at financial manipulation in the capital cities of parallels just getting a handle on capitalism, a Denarius Group special banker is less concerned with the nitty-gritty of buying and selling, and more concerned with consolidating control. Make the following adjustments to the White Star template above:

Denarius Group (+45 points): Change Contact Group: (Royal or imperial government, skill-21, 15 or less, usually reliable) [24]; remove Cultural Adaptability but add Cultural Familiarity (Local culture) [1]; increase Wealth to Very Wealthy [30]; replace two languages at Accented with language of local government at Native [6]; change Pacifism to Reluctant Killer [-5]; replace both Freight Handling skills with Finance-15† (IQ+1) [8]; increase Propaganda to 15† [3].

Time Tours, Inc.

Tour Guide

70 points

This is one of the young, personable, remarkably unflappable and well-informed guides employed to gently replace the dollars, yen, euros, and yuan of Homeline tourists with priceless memories of a world somehow more romantic and exciting than the one where they earned the fare. Good guides take the time to immerse themselves in local history and custom; bad guides take the opportunity to help themselves to romance and small valuables.

Attributes: ST 10 [0]; DX 10 [0]; IQ 12 [40]; HT 11 [10].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 11 [-5]; Per 13 [5]; FP 11 [0]; Basic Speed 5.25 [0]; Basic Move 5 [0].

Advantages: Cultural Adaptability [10]; Patron (Time Tours, 12 or less; less useful resources, -50%) [15]; local language at Native [6]; and 15 points from among Absolute Direction [5], Alcohol Tolerance [1], Appearance [Varies], Charisma [5/level], Common Sense [10], Contact Group (Local merchants) [Varies], Language Talent [10], Less Sleep [2/level], Luck [Varies], Unfazeable [15], and Voice [10].

Disadvantages: Broad-Minded [-1]; Code of Honor (Professional) [-5]; Dependents (Tour group) [-30]; Pacifism (Self-Defense Only) [-15]; and -20 points from among Bad Sight (Mitigator: Glasses, -60%) [-10], Chummy or Gregarious [-5 or -10], Combat Paralysis [-15], Honesty [-10*], Kleptomania (15) [-7], Lecherousness (15) [-7], Light Sleeper [-5], and Sense of Duty (Clients) [-5].

Primary Skills: Acting-13 (IQ+1) [4]; Area Knowledge (Tour site)-13 (IQ+1) [2]; Electronics Operation/TL8^ (Parachronic)-11 (IQ-1) [1]; Fast-Talk-12 (IQ) [2]; History (Tour era)-12 (IQ) [4]; Public Speaking-13 (IQ+1) [4].

Secondary Skills: Beam Weapons/TL9 (Pistol)-13 (DX+3) [8]; Electronics Operation/TL8 (Media)-11 (IQ-1) [1]; Holdout-12 (IQ) [2]; Observation-13 (Per) [2]; Search-13 (Per) [2].

Background Skills: Computer Operation/TL8-12 (IQ) [1]; First Aid/TL9-12 (IQ) [1]; Research/TL8-11 (IQ-1) [1]; Savoir-Faire (Servant)-13 (IQ+1) [2].

* Multiplied for self-control number; see p. B120.

Dinosaur Hunter

130 points

Time Tours employs not only urbane guides, but rough and ready Cretaceous shikaris. They would certainly never dream of engaging in an unlicensed expedition to a preserve timeline. It's only their dislike for excess paperwork that prevents them from reporting such an offer right away.

Attributes: ST 11 [10]; DX 12 [40]; IQ 11 [20]; HT 11 [10].

Secondary Characteristics: Damage 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 11 [0]; Per 13 [10]; FP 11 [0]; Basic Speed 6 [5]; Basic Move 6 [0].

Advantages: Patron (Time Tours, 12 or less; Less useful resources, -50%) [15]; and 15 points from among Absolute Direction [5], Acute Senses [2/level], Alcohol Tolerance [1], Combat Reflexes [15], Danger Sense [15], Fearlessness [2/level], Less Sleep [2/level], Luck [Varies], Peripheral Vision [15], and Unfazeable [15].

Disadvantages: Careful [-1]; Code of Honor (Professional) [-5]; Dependents (Hunting party) [-4]; and -30 points from among Claustrophobia [-15*], Demophobia [-15*], Guilt Complex [-5], Light Sleeper [-5], Loner [-5*], Low Empathy [-20], Odious Personal Habit (Whistling tunelessly, obsessively checking weapons, etc.) [-5], Overconfidence [-5*], Secret (Illegal dinosaur safari) [-10], Sense of Duty (Clients) [-5], and Truthfulness [-5*].

Primary Skills: Area Knowledge (Cretaceous America)-12 (IQ+1) [2]; Guns/TL9 (Rifle)-17 (DX+5) [16]; Survival (Plains)-13 (Per) [2]; Tracking-13 (Per) [2].

Secondary Skills: Camouflage-12† (IQ) [1]; Electronics Operation/TL8 (Surveillance)-11 (IQ) [2]; First Aid/TL9-13 (IQ+2) [4]; Hiking-12 (HT+1) [4]; Stealth-13 (DX+1) [4]; Traps/TL8-12 (IQ+1) [4].

Background Skills: Paleontology/TL8 (Paleozoology)-11 (IQ) [4].

* Multiplied for self-control number; see p. B120.

† Bought from Survival.

Centrum

Every mature Centran has 1 point in each of the following skills learned at his district Lyceum: Administration, Computer Operation/TL8, Mathematics/TL8 (Applied), Physics/TL9, Research/TL8, Running, Savoir-Faire (Centrum), and Swimming.

These Lyceum skills appear in the Background Skills section of the templates below. Primary skills in these templates reflect the Interworld Service College curriculum.

Interworld Service Agent

155 points

Like his Patrol counterparts above, this is an Interworld Service agent who has completed Service College and spent about a year in the field. Unlike Patrolmen (who send any and all Academy graduates – and plenty of other folk – outtime, regardless of Patrol rank), all Service agents allowed outside the Centrum and its colonies must attain Grade 3. Hence, many I.S. personnel transfer into Interworld from other Services after reaching Grade 3 in their original Service (usually Justice, Education, or Energy, with the few transfers from Military Service mostly for personal reasons). Their College term counts against their probationary time-in-grade for their new Service, and they can enter the field as new-minted Grade 3s.

Some I.S. Grade 2s (who work rear-echelon support and logistical duties until promoted) advance, of course, and there is a good-natured (but serious) rivalry between the "Saxons" (those who started out in Interworld) and the "Normans" (transfers). An agent who loudly champions one or another side may develop a Reputation good for getting beaten up in the wrong bars (or helping administer beatings in the right ones, of course).

The Radio advantage in this template is the encrypted radio implant that all Interworld Service agents have built into their jawbones. Many other bionic implants are common in I.S. agents; the GM may wish to add such devices even to seemingly low-grade Servicemen.

Attributes: ST 11 [10]; DX 11 [20]; IQ 13 [60]; HT 11 [10].

Secondary Characteristics: Damage 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 14 [5]; Per 13 [0]; FP 12 [3]; Basic Speed 5.5 [0]; Basic Move 6 [0].

Advantages: Centrum Rank 3 [30]; Combat Reflexes [15]; Fit [5]; Radio [10]; Resistant to Disease +8 [5].

Disadvantages: Code of Honor (Centrum) [-5]; Duty (The Service, 15 or less; Extremely Hazardous) [-20]; Intolerance (Non-Centrum) [-5]; Sense of Duty (Centrum) [-10]; and -20 from among Bad Temper [-10*], Callous [-5], Chummy [-5], Curious [-5*], Fanaticism (Centrum) [-15], Hidebound [-5], Honesty [-10*], Impulsiveness [-10*], Oblivious [-5], Odious Personal Habit (Narrow-mindedness) [-5], Overconfidence [-5*], Secret (From another Earth) [-20], and Stubbornness [-5].

Primary Skills: Beam Weapons/TL9 (Pistol)-13 (DX+3) [4]; Brawling-13 (DX+2) [4]; Cliodynamics-11 (IQ-2) [1]; Electronics Operation/TL8^ (Parachronic)-12 (IQ-1) [1]; Electronics Repair/TL8^ (Parachronic)-12 (IQ-1) [1]; First Aid/TL9-12 (IQ-1) [1]; Guns/TL9 (Pistol)-13 (DX+3) [4].

Billet Skills: Take 12 points in skills suitable for your billet. For instance:

1. Enforcer: Holdout-13 (IQ) [2], Interrogation-13 (IQ) [2], Knife-12 (DX+1) [2], and Stealth-12 (DX+1) [4].
2. Importer: Acting-13 (IQ) [2], Forgery/TL8-13 (IQ) [4], Merchant-13 (IQ) [2], and Streetwise-13 (IQ) [2].
3. Researcher: 12 points in personal area of specialty (IQ-based skill).
4. Surveyor: Diplomacy-12 (IQ-1) [2], Observation-14 (Per+1) [4], Urban Survival-13 (Per) [2], and 4 points in any Piloting skill.

Background Skills: Administration-12 (IQ-1) [1]; Computer Operation/TL8-13 (IQ) [1]; Mathematics/TL8 (Applied)-11 (IQ-2) [1]; Physics/TL9-10 (IQ-3) [1]; Research/TL8-12 (IQ-1) [1]; Running-12 (HT+1) [4]; Savoir-Faire (Centrum)-13 (IQ) [1]; Swimming-13 (HT+2) [4].

* Multiplied for self-control number; see p. B120.

Unattached Agent

710 points

Unattached agents are generic troubleshooters outside the Service hierarchies, appointed and assigned by Forum committees. One is typically assigned to lead a multi-Service project, or given the touchy assignment of internal investigations. A single Unattached agent is expected to be able to shift the balance of worlds, with or without Infinity opposition. Their rare failures usually cause turmoil within the Forum, since few Unattached are without a political agenda – if only something like "disgrace those Forum members whose political agendas harm Centrum."

The Reputation an Unattached agent receives usually balances out. Within the Centrum, he is honored as a valuable member of society; in Patrol circles, he is reviled as a ruthless agent of a hated foe.

Attributes: ST 11 [10]; DX 13 [60]; IQ 14 [80]; HT 13 [30].

Secondary Characteristics: Damage 1d-1/1d+1 (2d/4d-1 with right arm); BL 24 lbs.; HP 16 [10]; Will 16 [10]; Per 14 [0]; FP 16 [9]; Basic Speed 7 [10]; Basic Move 7 [0].

Advantages: Centrum Rank 7 [70]; Combat Reflexes [15]; Danger Sense [15]; Hard to Kill 2 [4]; High Pain Threshold [10]; Intuition [15]; Legal Enforcement Powers [10]; Patron (Interworld Service, 9 or less) [25]; Radio [10]; Reputation +4/-4 (Implacable agent of Centrum) [0]; Resistant to Disease +8 [5]; Unfazeable [15], Very Fit [5]; and 200 points in other advantages, usually representing bionics, for example: *Bionic Arm* (+120 points): Acute Touch 2 [4]; Arm DX 15 [24]; Arm ST 21 [30]; DR 7 (Hardened 1, Right Arm Only, -20%) [32]; Innate Attack 3 (Impaling; Armor Divisor 2, +50%; Melee Attack Reach C, -30%; +20%) [29]; Payload 1 [1]. *Bionic Eye* (+80 points): Acute Vision 5 [10]; Hyperspectral Vision (Extended Low-Band) [33]; Microscopic Vision 1 [5]; Nictitating Membrane 2 [2]; Telescopic Vision 6 [30]

Disadvantages: Code of Honor (Centrum) [-5]; Duty (The Service, 15 or less; Extremely Hazardous) [-20]; Intolerance (Non-Centrum) [-5]; Sense of Duty (Centrum) [-10]; and -20 from among Bloodlust [-10*], Callous [-5], Curious [-5*], Enemy (Rival Unattached agent, 9 or less) [-5], Fanaticism (Centrum) [-15], Loner [-5*], Low Empathy [-20], Overconfidence [-5*], Secret (From another Earth) [-20], and Workaholic [-5].

Primary Skills: Beam Weapons/TL9 (Pistol)-18† (DX+3) [8]; Brawling-16 (DX+3) [8]; Cliodynamics-17 (IQ+3) [16]; Electronics Operation/TL8^ (Parachronic)-16 (IQ+2) [8]; Electronics Repair/TL8^ (Parachronic)-14 (IQ) [2]; First Aid/TL9-13 (IQ-1) [1]; Guns/TL9 (Pistol)-18† (DX+3) [8]; Leadership-15 (IQ+1) [4].

Unattached Skills: Take 60 points in a broad variety of mission-relevant skills. For instance: Acting-14 (IQ) [2], Artillery/TL6 (Cannon)-13 (IQ-1) [1], Climbing-14 (DX+1) [4], Crewman/TL7 (Airshipman)-14 (IQ) [1], Crewman/TL5 (Seamanship)-14 (IQ) [1], Diplomacy-14 (IQ) [4], Disguise/TL8-13 (IQ-1) [1], Driving/TL6 (Automobile)-12 (DX-1) [1], Electronics Operation/TL8 (Security)-13 (IQ-1) [1], Electronics Operation/TL8 (Surveillance)-14 (IQ) [2], Forgery/TL8-12 (IQ-2) [1], Holdout-14 (IQ) [2], Intelligence Analysis/TL8-14 (IQ) [4], Interrogation-14 (IQ) [2], Intimidation-16 (Will) [2], Knife-17† (DX+2) [4], Merchant-13 (IQ-1) [1], Observation-14 (Per) [2], Piloting/TL7 (Light Airplane)-12 (DX-1) [1], Riding (Equines)-13 (DX) [2], Riding (Camels)-12 (DX-1) [1], Saber-15† (DX) [2], Search-14 (Per) [2], Stealth-15 (DX+2) [8], Streetwise-13 (IQ-1) [1], Survival (Desert)-14 (Per) [2], Tactics-14 (IQ) [4], Thrown Weapon (Spear)-15† (DX) [1].

Background Skills: Administration-14 (IQ) [2]; Computer Operation/TL8-14 (IQ+1) [1]; Mathematics/TL8 (Applied)-12 (IQ-2) [1]; Physics/TL9^ (Parachronic)-14 (IQ) [4]; Research/TL8-15 (IQ+1) [4]; Running-16 (HT+3) [12]; Savoir-Faire (Centrum)-14 (IQ) [1]; Swimming-16 (HT+3) [12].

* Multiplied for self-control number; see p. B120.

† One-handed DX skill based on bionic arm DX.

Reich-5

SS Raven Division Trooper

71 points

This template builds a standard Reich-5 Waffen-SS trooper, assigned to Raven Division by the luck of the draw. Aside from the quality of their equipment, the Waffen-SS are no more or less "elite" than any unit of the Wehrmacht. That goes double for Raven Division, which operates in the Burgundian backwater state outside the direct oversight not only of OKW, but of the main SS headquarters in Berlin. Although the Ordenführer of Burgundy desperately wants (and needs) to upgrade the quality of Raven Division, that would involve explaining in excruciating detail – to very suspicious superiors – what, exactly, a landlocked SS Ordensstaat needs with elite soldiers.

The GM can also use this template to build adequately trained, battle-blooded conscript soldiers in any industrial-era or later army.

Attributes: ST 11 [10]; DX 11 [20]; IQ 11 [20]; HT 11 [10].

Secondary Characteristics: Damage 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 11 [0]; Per 11 [0]; FP 11 [0]; Basic Speed 5.5 [0]; Basic Move 5 [0].

Advantages: Combat Reflexes [15]; Fit [5]; Military Rank 1 [10].

Disadvantages: Code of Honor (SS) [-10]; Duty (SS, 15 or less; Extremely Hazardous) [-20]; Intolerance (Total, Non-Aryans) [-10]; plus -20 points from among: Bloodlust [-10*], Bully [-10*], Callous [-5], Fanaticism (The Reich, the SS, or the Order) [-15], Gullibility [-10*], Overconfidence [-5*], Poverty (Struggling) [-10], and Sadism [-15*].

Primary Skills: Artillery/TL9 (Cannon)-10 (IQ-1) [1]; Brawling-12 (DX+1) [2]; Gunner/TL9 (Machine Gun)-11 (DX) [1]; Guns/TL9 (LMG)-12 (DX+1) [2]; Guns/TL9 (Rifle)-12 (DX+1) [2]; Knife-11 (DX) [1]; Savoir-Faire (Military)-11 (IQ) [1]; Soldier/TL9-12 (IQ+1) [4]; Spear-10 (DX-1) [1]; Tactics-10 (IQ-1) [2]; Throwing-10 (DX-1) [1].

Secondary Skills: Armoury/TL9 (Small Arms)-10 (IQ-1) [1]; Camouflage-11 (IQ) [1]; Driving/TL9 (Automobile)-10 (DX-1) [1]; Driving/TL9 (Motorcycle)-11 (DX) [2]; Engineer/TL9 (Combat)-9 (IQ-2) [1]; Explosives/TL9 (Demolition)-10 (IQ-1) [1]; First Aid/TL9-10 (IQ-1) [1]; Guns/TL9 (LAW)-11 (DX) [1]; Mathematics/TL8 (Applied)-10 (IQ-2) [1]; NBC Suit/TL9-10 (DX-1) [1]; Stealth-10 (DX-1) [1]; Survival (Mountain)-11 (Per) [2]; Traps/TL9-10 (IQ-1) [1].

Background Skills: Climbing-11 (DX) [2]; Hiking-10 (HT-1) [1]; Jumping-11 (DX) [1]; Navigation (Land)-10 (IQ-1) [1]; Riding (Equines)-10 (DX-1) [1]; Scrounging-11 (Per) [1]; Swimming-11 (HT) [1].

* Multiplied for self-control number; see p. B120.

"Nazis. I Hate These Guys."

GMs who nevertheless want "elite Nazis" for the Patrol to face off against can raise the template IQ and DX by one point each, and then bring all one-point skills up to 2 points. This adds 62 points to the template; GMs can then add 20 points of advantages from the Alternate Outcomes Mercenary template options (p. 189), and raise Rifle to 15. (Make sure that your "elite Nazis" never take an Aim maneuver with their assault rifles, though, or that high Rifle score will make hamburger out of your PCs. Or, failing that, make sure that they always take an Aim maneuver *reeeaaal slooow* while standing out in the open like big Nazi idiots.) Finally, add the "Habits and Expressions" quirk. This brings the template to 156 points and parity with the Patrol templates, and justifies all those cries of "You *vill* die now, *Infiniter schwein!*"

Gestapo Amt Z Agent

120 points

This is a Gestapo agent from "Amt Z," the Gestapo office in Burgundy that handles covert operations in the other timelines (p. 67). Amt Z has no official existence outside Burgundy, and is officially tasked with "project security" for the various SS research programs in the Ordensstaat. This slows down recruitment and leaves big holes in staffing, since new agents need to be brought in carefully to avoid blowing the Armanen's secret to the Gestapo at large. It's especially difficult to cover up the increasing number of dead agents killed in crosstime operations; at some point, Prinz-Albrecht-Strasse is inevitably going to get suspicious enough to risk embarrassing high Party bigwigs, and move into Burgundy in force. Until then, the average Amt Z crosstime operative is still fairly competent, if not necessarily the historical and linguistic polymath that the Patrol or Centrum send to infiltrate their own target worldlines.

His Secret applies on Reich-5 itself, where he keeps The Secret of Ordensstaat parachronics from his fellow Nazis (including, possibly, his own superiors), and on any other world where he might be stationed in secret as a spy or saboteur. It doesn't apply on worlds like Friedrich or Nostradamus (p. 138), where the Order operates openly as conquerors and overlords, but such worlds are unlikely to be the center of the campaign.

Attributes: ST 11 [10]; DX 11 [20]; IQ 12 [40]; HT 10 [0].

Secondary Characteristics: Damage 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 14 [10]; Per 13 [5]; FP 10 [0]; Basic Speed 5.25 [0]; Basic Move 5 [0].

Advantages: Legal Enforcement Powers [15]; Military Rank 3 [15]; and 20 points from among Charisma [5/level], Combat Reflexes [15], Danger Sense [15], Indomitable [15], Intuition [15], Hard to Kill [2/level], Language Talent [10], Less Sleep [2/level], Security Clearance [10], Voice [10], and Wealth [Varies].

Disadvantages: Code of Honor (SS) [-10]; Duty (The Order, 15 or less; Extremely Hazardous) [-20]; Intolerance (Total, Non-Aryans) [-10]; Secret (Varies) [-30]; and -15 points from among Bad Sight (Mitigator: Glasses, -60%) [-10], Bad Temper [-10*], Bully [-10*], Bloodlust [-10*], Callous [-5], Fanaticism (The Order) [-15], Lecherousness [-15*], Overconfidence [-5*], Sadism [-15*], and Sense of Duty (The Order) [-5] or (Aryan race) [-10].

Primary Skills: Electronics Operation/TL8 (Surveillance)-14 (IQ+2) [8]; Guns/TL8 (Pistol)-12 (DX+1) [2]; Interrogation-13 (IQ+1) [4]; Intimidation-14 (Will) [2]; Search-13 (Per) [2]; Shadowing-14 (IQ+2) [8]; Stealth-13 (DX+2) [8]; Streetwise-13 (IQ+1) [4].

Secondary Skills: Acting-12 (IQ) [2]; Area Knowledge (station)-13 (IQ+1) [2]; Criminology-13 (IQ+1) [4]; Guns/TL8 (LMG)-11 (DX) [1]; Holdout-12 (IQ) [2]; Intelligence Analysis/TL8-12 (IQ) [4]; Lockpicking/TL8-12 (IQ) [2]; Observation-14 (Per+1) [4].

Background Skills: Broadsword-11 (DX) [2]; Boxing-12 (DX+1) [4]; Computer Operation/TL8-11 (IQ-1) [1]; Driving/TL8 (Automobile)-11 (DX) [2]; Soldier/TL8-12 (IQ) [2].

* Multiplied for self-control number; see p. B120.

Maulesel ("Mule") Jumper

As yet, the Order is unable to reliably implant the world-jumping ability into anyone without horrible consequences. Nazi science has never been shy of horrible consequences, of course, but these consequences are perforce falling on heretofore ideal examples of the Aryan genotype rather than various squalid *Untermenschen*. (Nobody, least of all the Ordenführer, wants to accidentally create a bunch of Slavs or Gypsies with world-jumping abilities.) From the ranks of volunteers from Raven Division, the torturers

select a subject with suitable physical strength and stamina, and then sear the world-jumping code into his biochemistry. (For a sampling of their methods, see p. 65.) The result – if he survives – becomes a shattered husk, a grotesque upon whose twisted bones and sinews the armies of the Reich travel to other worlds. He becomes *ein Maulesel,* a "Mule," both pitied and scorned by his former comrades. Some Mules (those with the Mass-Jumper enhancement, usually) remain in Burgundy to power the dimensional gateways. Others accompany their fellows onto other worlds, to spread the horrors that created them.

Making a Mule

Use the conventional SS Trooper template above, but replace Rank with Courtesy Rank 4 [4], and a Social Stigma (a combination of "freak" and "valuable property") [-10]. If the GM wishes, he can add +1 or +2 ST [10 or 20] and +1 or +2 HT [10 or 20] to the template to reflect the tougher, stronger selection pool of recruits for Mules. The GM can also justify leaving attributes as is, however, on the theory that the strains of the surgery or side-effects from the injections weaken the subject back to "average" levels.

Add Jumper (World) with suitable enhancements and limitations from p. B64 or p. 174. Other possible limitations include Limited Use, Preparation Required, Takes Extra Time, Takes Recharge, Trigger (Special drug cocktails, -40%), and Unreliable. Almost all Nazi jumpers have the Limited Quanta (Within one quantum, -15%) limitation; almost none of them have the Duration limitation or the Reliable enhancement. The Armanen especially value, and try to select for, Extra Carrying Capacity, Mass Jump, and Tunnel.

Nazi science inevitably results in a slurry of disadvantages from among: Addiction (Painkillers) [-10], Appearance (Unattractive to Hideous) [-4 to -16], Bad Back [-15], Bad Smell [-10], Chronic Pain (usually migraines) [-5 to -15], Epilepsy [-30], Gigantism (+1 SM) [0], Hunchback [-10], Insomniac [-10 to -15], Killjoy [-15], Lame [-10], Neurological Disorder [-15 or -35], Paranoid [-10], Supersensitive [-15], Timesickness [-10 or worse, see p. 181], and Unusual Biochemistry [-5].

Specific forms of the advantage, and disadvantages to match, vary with the source of the Mule's ability. The GM should feel free to modify the Jumper advantage as mentioned above. The GM should feel exceptionally free to add horrible limitations and disadvantages to the following packages:

Drugs (+10 points): Jumper (World) (Limited Quanta: Single-quantum, -15%, Psionic Teleportation, -10%, Trigger, -40%; -65%) [35]; and -25 points from the disadvantage options above.

Brain Surgery (+10 points): Jumper (World) (Limited Quanta: Single-quantum, -15%, Psionic Teleportation, -10%; -25%) [75]; Appearance (Ugly) [-8], Flashbacks [-10], Nightmares [-5*], Unnatural Feature (Bulging, scarred head) [-2], and -40 points from the disadvantage options above.

Glandular Implantation (+10 points): Acute Taste and Smell 3 [6], Fur [1], Jumper (World or Spirit) (Limited Quanta: Single-quantum, -15%, Stunning (from agonizing pain in groin), -10%, Takes Recharge (1 hour), -30%; -55%) [45], Night Vision 4 [4], Temperature Tolerance 2 [2]; Appearance (Unattractive) [-4], Colorblindness [-10], Compulsive Behavior (Checking time) [-1], Lecherousness [-15*], Stress Atavism [-15*], Unnatural Feature (White fur on body) [-3].

Demonic Seeding (+10 points): Jumper (World) (Magical, -10%, Unreliable (11 or less), -20%; -30%) [70], Mindlink (Spawn of Tychiron) (Universal, +50%; Magical, -10%, Nuisance Effect (Phantom voices), -5%; +35%) [26], Penetrating Voice [1]; Disturbing Voice [-10], Dread (Thorns) [-5], Frightens Animals [-10], Low Empathy [-20], Phantom Voices [-15], Sadism [-15*], Split Personality (With demonic Tychiron spawn (6); Mitigator: Herbal formula, monthly, restricted, -60%) [-12].

Other procedures exist to enhance Mules:

Steroid Regimen (-19 points): The Order places its Mules on a regimen of anabolic steroids to increase ST (and, hence, carrying capacity to other worlds). Only Mules for whom steroids would be instantly fatal (those, for example, with Unusual Biochemistry) are exempt. To reflect the SS steroid regimen, add ST+3 [30] and HP+3 [6], and take HT-3 [-30], Bad Temper [-10*], Disturbing Voice [-10], Sterile [0], and lose one level of Appearance [-4].

Chimpanzee Muscle Grafts (+6 points): Promising Mules (those with the Enhanced Carrying Capacity or Mass Jump enhancements) also receive grafts of artificially grown chimpanzee muscle. Assuming they survive the rejection process (p. 65; attribute drain is ST not IQ with success), they add Lifting ST+6 [18]. Unlike steroids, these carry no concomitant disadvantages (except Susceptible to Disease (HT-3) [-12] from the immunosuppressants, see p. B158), and no HP bonus.

Other Opposition

Cabalist Mage

120 points

This Adept of the Cabal is a fairly formidable opponent (or ally), especially if he is able to work subtly, without his foes discovering that a mage is scheming against them. GMs or players can modify template cost and skill with spells by taking a higher or lower level of Magery, or by applying a limitation such as Dark-Aspected.

Attributes: ST 9 [-10]; DX 11 [20]; IQ 13 [60]; HT 11 [10].

Secondary Characteristics: Damage 1d-2/1d-1; BL 16 lbs.; HP 10 [2]; Will 13 [0]; Per 10 [-15]; FP 13 [6]; Basic Speed 5.50 [0]; Basic Move 5 [0].

Advantages: Allies (Two ultors, 6 or less) [5]; Cabalist Rank 3 [15]; Claim to Hospitality (Cabalists) [5]; Magery 2 [25]; Patron (Grand Master, 9 or less) [20]; appropriate language (p. 175) at Accented [4]; and one of Eidetic Memory [5]; Reputation +1 [5], Single-Minded [5], Status 1 [5], Versatile [5], or +1 to Will [5].

Disadvantages: Code of Honor (Cabalist) [-5]; Duty (The Cabal, 6 or less) [-2]; Secret (Cabalist) [-30]; and -30 points chosen from among Absent-Mindedness [-15], Bad Sight (Mitigator: Glasses, -60%) [-10], Bad Temper [-10*], Curious [-5*], Gluttony [-5*], Lecherousness [-15*], Obsession [-5* or -10*], Secret [-5 to -30], Sense of Duty [-2 to -15], and Shyness [-5, -10, or -20].

Primary Skills: *Two* Hard spells at 15† each (IQ+2) [4], or Very Hard spells at 14† (IQ+1) [4]. Nine more Hard spells at 13† each (IQ-1) [1], or Very Hard spells at 12† (IQ-2) [1]. See pp. B304-306, or ***GURPS Magic***.

Secondary Skills: Area Knowledge (Astral Realm)-14 (IQ+1) [2]; Astronomy/TL4 (Observational)-13 (IQ) [4]; Dreaming-12 (Will-1) [2]; Occultism-13 (IQ) [2]; Savoir-Faire (Spirits)-14 (IQ+1) [2]; Thaumatology-14† (IQ-1) [4].

Background Skills: Knife-11 (DX) [1]; Staff-10 (DX-1) [1].

* Multiplied for self-control number; see p. B120.

† +2 from Magery.

Across the Four Realms

These three packages, all 40 points, build three different types of Cabalistic world-crossing ability. Add them to the Cabalist template above for a magical traveler between the Infinite Worlds. Plane Shifters use Plane Shift spells (p. B248) to move from world to world. Spirit-Jumpers have discovered a magical ritual that allows them to step into limpid pools or mirrors and out into other worlds, given a minute to inscribe the correct runes and invoke Candea, goddess of hinges. World-Walkers can simply find and follow the signs from world to world, although such signs may not be as reliable as spells or rituals. Their advantage is that their abilities function even on no-mana worlds.

Plane Shifter: Plane Shift-14 (IQ+1) [4] known for the Astral Realm and for nine alternate worlds, including the Cabalist's home parallel.

Spirit-Jumper: Jumper (Spirit) (Magical, -10%, Preparation Required (1 minute), -20%, Special Movement, -10%, Special Portal (Reflective surface), -20%; -60%) [40].

World-Walker: Omen [15]; See Invisible (Quantum flows) [15]; Hidden Lore (Gates)-13 (IQ) [2], Naturalist-13 (IQ) [4], Tracking-13 (IQ) [2], Weather Sense/TL4-13 (IQ) [2].

Criminal

52 points

This is a petty criminal. For a high-class criminal mastermind who goes about stealing Mona Lisas from alternate Louvres or seducing parallel Catherine the Greats, use the Patron and Disadvantages, and the suitable Primary Skills package, with the Crisis Ministry Troubleshooter template on p. 188. Use the same approach to "criminalize" other templates as desired. For example, for a deadly crosstime assassin, mix this template with the Alternate Outcomes Mercenary.

Attributes: ST 9 [-10]; DX 11 [20]; IQ 11 [20]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d-1; BL 16 lbs.; HP 10 [2]; Will 10 [-5]; Per 12 [5]; FP 10 [0]; Basic Speed 5 [0]; Basic Move 5 [0].

Advantages: Contact Group (Street in home city, skill-18, 9 or less, somewhat reliable) [15]; Patron (Crime boss, 9 or less) [15]; and 20 points from among Alternate Identity [5 or 15], Danger Sense [15], Daredevil [15], Empathy [15], High Manual Dexterity [5/level], Luck [15], Night Vision [1/level], Reputation [Varies], and Smooth Operator [15/level].

Disadvantages: Duty (Crime boss, 9 or less, Involuntary) [-10]; Greed [-15*]; pick *either* Enemy (Patrol (Justice or Customs Division), watcher, 12 or less) [-15] and Social Stigma (Criminal Record) [-5] *or* Secret (Criminal) [-20]; and -20 points from among Callous [-5], Code of Honor (Pirate's or "stays bought") [-5], Compulsive Behavior [-5 to -15*], Cowardice [-10*], Kleptomania [-15*], Laziness [-10], Lecherousness [-15*], Obsession (The big score) [-5*], Overconfidence [-5*], Reputation [Varies], and Selfish [-5*].

Primary Skills: Add 16 points in skills relevant to your criminal pursuit. For example:

1. Looter: Archaeology-10 (IQ-1) [2], Connoisseur (choose)-13 (IQ+2) [8], Research/TL8-11 (IQ) [2], and Search-13 (Per+1) [4].
2. Mobster: Axe/Mace-12 (DX+1) [4], Knife or Guns/TL8 (Pistol) at 12 (DX+1) [2], Intimidation-12 (Will+2) [8], and Shadowing-11 (IQ) [2].
3. Smuggler: Disguise/TL8-12 (IQ+1) [4], Forgery-11 (IQ) [4], Holdout-12 (IQ+1) [4], and Smuggling-12 (IQ+1) [4].
4. Thief: Climbing-12 (DX+1) [4], Electronics Operation/TL8 (Security or Surveillance)-12 (IQ+1) [4], Lockpicking/TL8-12 (IQ+1) [4], Observation-13 (Per+1) [4].
5. Timenapper: Acting-12 (IQ+1) [4], Brawling-12 (DX+1) [2], Fast-Talk-11 (IQ) [2], Sex Appeal-12 (HT+2) [8].

Secondary Skills: Area Knowledge (Home base)-12 (IQ+1) [2]; Filch-12 (DX+1) [4]; Stealth-11 (DX) [2]; Streetwise-12 (IQ+1) [4].

Background Skills: Carousing-11 (HT+1) [2]; Gambling-10 (IQ-1) [1]; Merchant-11 (IQ) [2]; Urban Survival-12 (Per) [2].

* Multiplied for self-control number; see p. B120.

Swagman

To make a criminal a swagman, add the following lens:

Swagman (+40): Add Claim to Hospitality (Swagmen) [5], Smooth Operator 1 [15], Strine (Accented) [4]; Code of Honor (Swagman's) [-5]; Gesture-11 (IQ) [1], Hidden Lore (Confidence games)-11 (IQ) [2], Savoir-Faire (Swagman or Mafia)-12 (IQ+1) [2], and 16 points in any of the skills covered by Smooth Operator (p. B91).

Bystanders

Expatriate

55 points

An expatriate is someone who has voluntarily left his own society to live, usually secretly, in another time or dimension. Many expatriates are renegades – deserters from the Patrol, Time Tours Ltd., or similar agencies.

Expatriates choose many ways to fit in. They may sell their specialized high-tech knowledge – or use it to impress primitives with their "magical" powers. In a time-travel or historical parallel world, an Expatriate can use his knowledge of the future to play the stock markets, win bets, and so on, becoming rich . . . unless he accidentally changes history and makes his foreknowledge useless.

Some expatriates are legitimate – permanent "agents in place" for an organization that crosses time or hops between worlds. And in some campaigns, it may be perfectly legal for a traveler to settle down in a past time or parallel world, within certain restrictions. In that case, Time Corpsmen or I-Cops may be able to call on help from the local "expat" community!

An expatriate may also be a permanent agent for a *criminal* organization – possibly the local henchman of the big-time crook the PCs are chasing.

Yet another type of expatriate is the castaway. He didn't *intend* to settle down, but his means of transport broke down – or perhaps he was accidentally carried away from his home. Anyway, he's there now, and has to make the best of it. Perhaps he wants to return home; perhaps he has been there so long that he wants to stay.

In most campaigns, expatriates are NPCs rather than player characters, because the PCs are traveling, and the expatriate is someone who has chosen to settle down. An expatriate may be the target of a mission, or he may be able to give valuable help. Or he may be a "wild card" whose very presence was not known to the PCs when they started their mission.

An expatriate usually has a Reputation, positive or negative, in his new home.

Attributes: ST 10 [0]; DX 10 [0]; IQ 10 [0]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 12 [10]; Per 10 [0]; FP 10 [0]; Basic Speed 5 [0]; Basic Move 5 [0].

Advantages: Cultural Familiarity (Local culture) [1]; Wealth (Comfortable) [10]; the local language at Native [6]; plus 15 points chosen from among Ally (Local sidekick, 15 or less) [9 or 15], Contact Group (Local police or merchants) [Varies], Favor [Varies], Patron (local boss) [Varies], local Status 1 or 2 [5 or 10], and more Wealth [Varies].

Disadvantages: -15 points chosen from among Code of Honor (Professional) [-5], Compulsive Generosity [-5*], Enemy (Whoever chased him out of Homeline) [Varies], Loner [-5*], Sense of Duty (Fellow Homeliners in local area) [-5], Stubbornness [-5], and Xenophilia [-10*].

Primary Skills: Area Knowledge (local area)-12 (IQ+2) [4]; Diplomacy-10 (IQ) [4]; Savoir-Faire-12 (IQ+2) [4]; Streetwise-10 (IQ) [2]; and 10 points in professional skills (Merchant, Physician, etc.).

Secondary Skills: Computer Use/TL8-11 (IQ-1) [1]; Detect Lies-9 (Per-1) [2]; Law (local)-9 (IQ-1) [2]; and 4 points in local vehicle or Riding skills.

Background Skills: Carousing-11 (HT+1) [2]; Cooking (local cuisine)-9 (IQ-1) [1]; Games (local pastime)-11 (IQ+1) [2].

* Multiplied for self-control number; see p. B120.

Historian

80 points

Historians are specialists at finding information needed by time travelers or crosstime adventurers in the field, using libraries, maps, computer databases, et cetera. But the historian's value lies not merely in what he can look up, but what he already knows. The two generic types of historian are the adventurous type, who enjoys dressing up in period clothes and slipping into the cultures he's studied, and the academic, who has a very hard time connecting his knowledge to the practicalities of life, even in his own era.

Historians may be generalists, familiar with many periods without deep knowledge of any, or specialists, who know only one era – say, 18th-century London – but can name every street, pub, and lamppost. Or they may be cinematic historians, expert in everything from Brahms' handwriting to the details of Nero's love life, in which case they should have the History! skill from the box on p. 183.

Attributes: ST 9 [-10]; DX 10 [0]; IQ 14 [80]; HT 9 [-10].

Secondary Characteristics: Damage 1d-2/1d-1; BL 16 lbs.; HP 9 [0]; Will 12 [-10]; Per 11 [-15]; FP 11 [6]; Basic Speed 4.75 [0]; Basic Move 4 [0].

Advantages: Cultural Familiarity (Era studied) [1]; three languages at Native or four at Accented [12]; and 10 points from among Charisma [5/level], Cultural Adaptability [10], Eidetic Memory [5 or 10], Language Talent [10], Single-Minded [5], +1 Status [5], Tenure [5], Voice [5], Versatile [5], and Wealth [10].

Disadvantages: Code of Honor (Professional) [-5]; and -25 points from among Absent-Mindedness [-15], Bad Sight (Mitigator: Glasses, -60%) [-10], Clueless [-10], Combat Paralysis [-15], Curious [-5*], Duty (University, 12 or less; Nonhazardous) [-5], Hard of Hearing [-10], Indecisive [-10*], Jealousy [-10], Oblivious [-5], and Pacifism [Varies].

Primary Skills: Area Knowledge (Milieu studied)-15 (IQ+1) [2]; Current Affairs/TL8 (Era studied)-14 (IQ) [1]; History (choose)-18 (IQ+4) [20]; History (second specialty)-17 (IQ+3) [1]†; Research/TL8-15 (IQ+1) [4].

Secondary Skills: Computer Use/TL8-14 (IQ) [1]; Public Speaking-13 (IQ-1) [1]; Teaching-13 (IQ-1) [1]; Writing-13 (IQ-1) [1]; 8 points in a secondary academic specialty such as Anthropology, Archaeology, Economics, Geography, Linguistics, Political Science, or Sociology.

Background Skills: Administration-13 (IQ-1) [1]; Connoisseur (Antiques or art of era)-14 (IQ) [2]; Literature-13 (IQ-1) [2].

* Multiplied for self-control number; see p. B120.

† Default from other specialty of History.

Student

Students are usually found in the company of academic historians, and often aspire to become such eminent figures themselves. (Others, of course, merely aspire to survive the course and graduate.) If the characters have been thrown into the past as the result of a laboratory accident, one or more of them may be university students. One advantage students have, which should not be overlooked, is that they are relatively young: they may be able to blend in more easily in earlier times, when people aged and died early. A Student might also have a useful background – for instance, someone who had spent time as a Peace Corps volunteer might have an easier time in "primitive" cultures. While most students are Poor, this rarely matters in time travel, and only occasionally in crossworld adventuring (p. 178).

For simplicity's sake, this lens depicts a history major, but swapping out History for any other academic subject (or for Carousing, in some universities) should be trivial.

Student (-40 points): ST+1 and HT+1, IQ-2 [-20 net]; FP+2 [6]; only one other language at Native or three at Broken [6]; add Appearance [4 or 12], Intuition [15], Less Sleep [2/level], and Musical Ability [5/level] to possible advantages, remove Status and Tenure from possible advantages; replace Code of Honor with Pacifism (Reluctant Killer); add Alcoholism [-15], Compulsive Carousing [-5*], Laziness [-10], Lecherousness [-15*], Overweight [-1], Skinny [-5], and Stubbornness [-5] to possible disadvantages; lower primary History skill to 13 (IQ+1) [8], Research to 12 (IQ) [2], and secondary academic specialty to 4 points; replace secondary History specialty, Administration, Connoisseur, and Teaching with 3 points in any of Carousing, Gambling, Hobby Skill (any), Musical Instrument (choose), or Sports (choose).

Duncorne Foundation

Ever so slightly enigmatic, the Duncorne Foundation (p. 40) pursues rare books, compiles forgotten lore, and traces the fracture lines criss-crossing reality. Its scholars have more than their share of academic glory, but still act less professorial than inquisitorial at times. A Duncorne Scholar seems to have uncanny access to books reported missing, antiquities reported destroyed, and a few areas seldom reported at all. Depending on the campaign, Duncorne Scholars could also have access to Hidden Lore, spells, or other arcane skills.

Duncorne Scholar (+55 points): Add Contact Group (Collectors, smugglers, or gray market underworld, skill-18, 15 or less, usually reliable) [18] and Patron (Duncorne Foundation, 12 or less) [20] to advantages, and make Latin (Native) one of the three languages; add Intuition [15] and Magery 0 [5] to possible advantages; add Weirdness Magnet [-15] to possible disadvantages; the History specialties must reflect medieval or earlier eras; replace background skills with Archaeology-14 (IQ) [4], Connoisseur (Books)-14 (IQ) [2], Linguistics-14 (IQ) [4], Literature-14 (IQ) [4], Occultism-14 (IQ) [2], Research/TL4-14 (IQ) [2], and Theology (medieval or earlier specialty such as Sumerian, Roman, or Zoroastrian)-14 (IQ) [4].

The new background skills package is the sort of thing all Duncorne Scholars (or at least those who get more than one grant) seem to know . . . possibly picked up at the invitation-only Duncorne seminars. Point-conscious GMs or players can use any of them (except Connoisseur and Research) as the secondary academic specialty and soak up some of those 8 points as well.

Locals

Giving templates for every possible resident of every possible alternate world is beyond the scope of this book. Players may create new characters from any time and place in human history. These might represent "real" individuals who did not rise to prominence and had no great fame or historical impact. This kind of character allows the most flexibility for the player, and is certainly easier to research. With that said, it can be fun and interesting to play not just an outtimer, or even a very skilled outtimer, but a famous outtimer.

One of the greatest opportunities in a crossworld campaign is that of creating a historical character as a PC or important NPC. This works especially well in a parallel-world situation; a PC can be an alternate version of Lawrence of Arabia or Thomas Jefferson or Mata Hari or Socrates, recruited and trained by the world-hoppers. But it can happen in a time-travel background, too. Even if paradoxes are possible, the PC could have been the subject of a "rescue" which saved him from his historical death without leaving evidence. This can range from historical disappearances such as Amelia Earhart, to bodies "burned beyond recognition" on a battlefield, or even the substitution of a cloned corpse for the character by the time travelers!

The result is an "alternate" version of the historical character . . . someone with the same origin, but a different development. (For good fictional treatments of this idea, see the *Riverworld* series by Philip José Farmer, and "Mozart in Mirrorshades," by Bruce Sterling and Lewis Shiner, in the *Mirrorshades* anthology.)

Players should carefully choose historical PCs. They should be noteworthy enough to be interesting, but not so earthshaking as to unbalance the campaign. Players should choose individuals in whom they have a genuine interest and whose time period they want to learn about. It is the player's job to research and understand the person well enough to portray them in the game. The more thorough the work, the richer the character (and the campaign) will be because of it.

Even if the GM doesn't want to open that particular can of worms in a time-travel or crossworld game, he may want to present some "big name" NPCs in walk-on or guest-starring roles.

Building Historical Characters

Assign attributes conservatively, based on your research. Writers, artists, scientists and the like have a higher IQ; athletes and warriors, higher DX. A subject's longevity can be a clue to setting HT, but remember that longevity must be considered in relation to the time period. A score of 11-12 still stands out to contemporaries as above average over time; a score of 13-14 is noticed immediately and marks the figure as a prodigy; 15+ should be saved for "best ever" world-beating types: Newton's IQ, or George Washington's Will, for instance. Use Talents and "aptitudes" such as Charisma, High Manual Dexterity, Mathematical Ability, Versatile, and so forth rather than jacking attributes up. Remember that levels of these advantages higher than 3 also lead to world-beating reputations.

Advantages are any innate talents possessed by the character, or ones gained very early in life. In general, keep the point total for disadvantages below -40; biographers and hostile contemporaries exaggerate many character flaws. Quirks are the most fun; every great person had them, and they can be roleplayed to the hilt and help bring the character to life. Extreme advantages and disadvantages (those worth more than 10 points) are more appropriate for cinematic games than purely historical ones, although narrowly combat-focused advantages (like Combat Reflexes) are usually more realistic even at fairly high levels. Remember to apply Rank and Status, although this may not matter in a time-hopping game of famous troubleshooters.

Two or three skills are usually prominent – these should be set as high as possible. Keep in mind that a skill of 21+ is the greatest in history: Shakespeare's Poetry or Alexander the Great's Strategy, for example. Skills of 19-20 are the "best in the country": John Wesley Hardin's Fast-Draw. A skill of 16-18 is still enough for lasting fame: Mussorgsky's Musical Composition, perhaps. Then, determine secondary skills – these should be set equal to the controlling ability (DX or IQ), or perhaps a level or two higher. The remaining points can then be spent to round out the character. Remember that "period" skills that may seem useless at first may be very valuable to an agent in a primitive world.

Footnote Characters

Many of the best temporal agents are those who might be called "historical footnotes." They had interesting and distinguished careers . . . but from the vantage point of the 21st century, they are obscure. As a result, they are easier to "rescue" without distorting a world's history. Playing such a character is a good compromise between a truly famous person, and an imaginary nobody.

Simply thumbing through a biographical dictionary, or even an encyclopedia, gives literally hundreds of possibilities for this type of character – people who were prominent in their own day but not well known now. Research into this kind of character is also very educational, and a great source of ideas for adventures and subtle parallel world divergences of the sort Centrum specializes in.

"I Didn't Think You Were Real!"

With the GM's permission, the players can research and create "historical" characters who never actually lived, or whose reality is in some doubt. In many cases, the "real" version of such a character is a far cry from the legendary or fictional one. King Arthur, Robin Hood, and Hercules are all examples of characters who *might* have been based on a historical individual.

Such people are also very good NPCs, because the first reaction of those who meet them is often "I didn't think you were real!" Some "real" characters will give the same effect. The swashbucklers D'Artagnan and Cyrano de Bergerac, and the gunfighters Wild Bill Hickok and Bat Masterson, fall into this category. They all really lived, but many people know only of the stories based on their exploits, and assume that they were purely fictional. And the truth about some of these people may be surprising . . . Bat Masterson, for instance, was a New York City gentleman for much of his career, and Davy Crockett was a member of Congress!

WEAPONS

The arms and accessories potentially available to crosstime heroes run the gamut from flint knives to planet-busting explosives. This section concentrates on specific firearms encountered in the Infinite Worlds setting.

FIREARMS

All TL9+ weaponry incorporates advanced electronics (see *"Smartgun" Electronics*, p. B278).

Baker & Alvarez .591 Express Rifle: This is the standard dinosaur-hunting rifle sold in high-end sporting goods stores on Homeline. Adapted from an anti-materiel rifle design, it is illegal to own in most Homeline nations, and even some American states. Hunting agencies often rent them out to customers. All B&A weapons are *very fine* (see p. B280). Fires .591 Express Nitro.

CF/3 "Pandar" Stunner: This "stun pistol" is the standard holdout weapon of the Centrum Interworld Service. Based on a neural disruptor technology that defies Homeline attempts at technical exploitation, the Pandar delivers an affliction attack: the victim gets a HT roll to resist, at a penalty dependent on the weapon and a (2) armor divisor (that is, the victim gets +1 to HT per 2 DR on the location struck). Failure results in paralysis for a number of minutes equal to the margin of failure.

CF/4 "Porpentine" EMW: The Centrum Interworld Service uses this electromag weapon as a multi-purpose firearm that can fire a number of specialized munitions, ranging from anti-personnel diamondoid needle clusters to anti-tank warheads. The ammo chart lists a standard solid "slug" round; other rounds include: beehive (1d-1 imp, RoF ×100, Rcl 1, CPS $4.4), HEDP (9d(10) and follow-up 1d+1[1d], CPS $3.3), Baton (2d(0.5) cr dkb, Rng 52/156, CPS $1.1), and HE (7d+2(0.5) and follow-up 4d-1[1d], CPS $1.1). Fires 20mm C-Hive.

Electrozap Pistol: The "zat" is a high-powered electrolaser carried by Patrol agents and Time Tours guides. Electrozaps are often disguised, and the hapless crosstime native finding a lost zat built into a loaf of bread or walking stick has become a comedy staple.

Infantry Combat Weapon: Standard issue to the United States military in Homeline (as the M-23A3), the ICW features an "over and under" configuration mating a medium caliber assault rifle with a modular under-barrel mount for grenade launchers, vortex ring projectors, or shotguns. Grenades can be fired on four settings: airburst, delayed impact (for firing through doors to explode inside a room), "window" (a delay for firing through openings), and conventional impact. Fires 6.8mm ICW.

Infinity Service Pistol: Replacing a hodge-podge of 9mm and 10mm pistols, the ISP fires a cutting-edge cased telescoped round with electrothermal-chemical propellant. It has proven popular, but limited production rates and dodgy ammunition quality have slowed adoption. Fires 10mm Infinity Caseless.

Needler: A small-caliber air gun that usually fires a small dart using nothing more then compressed air. The darts can be tipped with any sort of poison, hallucinogen, drug, paralytic agent, tracking microdot, etc. that Centrum or Homeline ingenuity can devise. Many needles are biodegradeable, and vanish upon striking; the target may not even know he was hit (roll against Per). Fires 5mm Airdart.

StG 03: The Mauser Sturmgewehr 03 is the main infantry weapon for the Reich-5 German military, including the SS Raven Division. It is well constructed and rugged, but requires a lot of preventive maintenance and cleaning. Like the ICW, it features an under-barrel mount for a grenade launcher. Fires 7.92mm Caseless.

Ammunition Table

TL: The Tech Level of the ammunition.
WPS: Weight per shot, in pounds.
CPS: Cost per shot.

TL	*Ammo*	*WPS*	*CPS*
9	5mm Airdart	0.035	$0.70
9	6.8mm ICW	0.014	$1.30
9	7.92mm Caseless	0.032	$2.90
9	10mm Infinity Caseless	0.017	$3.00
9	.591 Express Nitro	0.39	$18.00
9	20mm C-Hive	0.054	$1.10

Weapons Table

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*ST*	*Bulk*	*Rcl*	*Cost*	*LC*	*Notes*
BEAM WEAPONS (PISTOL) (DX-4, other Beam Weapons-4, or Guns (Pistol)-4)													
9^	CF/3 Pandar, 10mm	2HT-4(2) aff	2	200/600	0.36/0.1	3	104(3)	2	-1	1	$260	4	[1]
9	Electrozap Pistol, 80mm *linked*	1d-1 burn sur HT-6(2) aff	4	80/240	3.6/1	1	87(3)	6	-3	1	$12,000	4	[2]
GUNS (PISTOL) (DX-4, or most other Guns at -2)													
9	ISP, 10mm	4d+1 pi+	3	280/3,200	3.4/0.71	10	15+1(3)	8	-2	3	$1,200	3	[3]
9	Needle Pistol, 5mm	1d-1 pi	1	100/390	2.1/1.1	3	25+1(3)	5	-3	2	$200	4	
GUNS (RIFLE) (DX-4, or most other Guns at -2)													
9	CF/4 Porpentine, 20mm	7d+2 pi++	2	260/780	22/0.78	1	9+1(3)	4†	-6	5	$4,200	1	[4]
9	ICW, 6.8mm	6d pi	5	570/3,700	4.8/0.5	15	30+1(3)	10†	-3	2	$430	1	[5]
9	Express Rifle, 15mm	6d×3 pi+	5	2,600/11,000	37/0.39	1	1(3)	13B†	-10	6	$4,800	2	
9	StG 03, 7.92mm	7d+1 pi	4	1,200/5,300	10/1.8	20	40+1(3)	8†	-4	2	$1,000	1	[5]

[1] EPS 0.86, C/104 eShots.
[2] EPS 10, D/87 eShots.
[3] EPS 2.3, C/39 eShots.
[4] EPS 19, 2C/9 eShots.
[5] Usually mounts an integral grenade launcher.

Chapter Seven
Infinite Campaigns

Evening heat shimmer obscured the bronze flashes on the shields, and the clouds of choking dust muffled the sound of 100 pairs of hobnailed boots striking the arid pan of the desert. The scarlet horsehair crests were gray with windblown Saharan sand.

Even the glint of the spearheads was tamed, although by carefully smeared black oil rather than by rust or dust.

As the soldiers crested the rise, they spread out in professional fashion, staying low and bounding over the ridge, exposing themselves against the violet sky as little as possible. They crept down the hill, their boots tearing up what little furze clung to its side.

Clodius Terentius Niger watched his men move forward, noting with approval that each man kept his mates in his eyeline but kept his eyes pinned on the next ridge. *We don't want to get surprised by another machine-gun nest.* At the thought, Niger reflexively massaged the old scar on his throat and jaw. One of the men below hissed, and his maniple dropped to the ground, mere unmoving lumps against the rocks of the Egyptian desert. The whole century followed suit, waiting as the plane buzzed overhead.

Just a recon plane, Niger decided, as the optics buried deep in his cheekbones pulled a magnified view from the sky and threw the resulting schematic against his retinas. *An Me-109 F-5, fitted with cameras instead of guns.* In some ways, of course, that would be more deadly to his men, if the cameras could find them, and if the pictures got to the right people in Rommel's command.

And Rommel would have such people, or the Last Century wouldn't have been sent after his southern flank. That was how the Rules worked. That was how the Game was played.

"Quick-time." Niger hissed to his second, who passed the word down the ranks. At the next ridge, the men leapt over and kept moving, some silence sacrificed for much speed. *We don't have to outrun the plane,* Niger thought. *We just have to outrun the news.* The implants in his thighs poured catalysts into his blood, oxygenating his muscle fibers and making his palms itch for combat. His legs pistoned and again his men leapt forward, keeping up almost effortlessly. *We'll pay for this tomorrow,* came the wry knowledge amid the euphoric rush of speed. *But Rommel will pay for it tonight.*

A crossworld or time-travel campaign is, almost by definition, the most freewheeling sort of game there is. Whatever the bounds of reality, whoever the bad guys are, however harsh the local law enforcement in any particular world, the heroes can always Go Somewhere Else.

Still, such a campaign, whatever its details, must always answer certain questions. The most basic of these are "All right, how did we get here?" – for which see *Interdimensional Travel,* on p. B529, or *Temporal Physics,* on p. 153 – and "What shall we do now that we're here?"

Roleplaying is about solving problems and taking actions inside a framework of rules. So this book has rules for dimensional and time travel, of several different flavors. It's very important to understand that the "laws of time travel" or "quantum universes" provided are designed to be (we hope) reasonable and consistent, like any good science fiction. But they're imaginary, intended to get the players to use their heads to accomplish their missions. If they don't suit your game or your group, tweak them to fit.

To me, all the past is alive with alternatives, and nobody can show, nobody has really attempted to show, that they were not real alternatives.

– G.K. Chesterton, "On Fate and a Communist"

Campaign Assumptions

The first step, then, is to decide on the rules, or at least some guidelines, for your campaign. In freewheeling genres like time travel, or even (slightly) more constrained settings like the Infinite Worlds, it's important to get your players to buy into these guidelines, too, before the first die gets thrown. Otherwise, you're setting yourself up for a game full of picky exceptions, intentional near-paradox, and generally avoidable irritation.

The Hardware Dilemma and the Software Mismatch

Or Why the Biggest Problem Isn't So Big

The future can hit the past pretty hard. Imagine the effects of a squad of modern NATO infantry, with their assault rifles, grenade launchers, Kevlar body armor, and so on, against a Roman legion. Add in some mortars or medium machine guns, never mind vehicles, and it gets even grimmer. Military analysts Trevor and Ernest Dupuy, attempting to calculate the "absolute lethality" of weapons, have concluded that a rifle is hundreds of times more deadly than a sword.

Because of this imbalance, most game approaches to time travel have tried to come up with some mechanical limitation on the firepower that time-tripping characters may carry into the past. (One rarely sees contemporary characters going into the future and being mown down by combat lasers.) Sometimes the travelers are forbidden to carry metal, or an arbitrary "energy scale" (like the Dupuys' numbers) is imposed.

But this misses the point: the difficulty is not one of controlling hardware, but matching software – making certain that the GM's intentions suit the expectations of the players.

If what the players really want to do is face off with panzers against Roman legionaries, then any arbitrary rules designed to prevent the slaughter are going to be resented and dodged. Conversely, if the players are interested in solving historical mysteries with as little violence as possible – and when it's necessary to fight, meeting the opponents on their own terms, sword to sword, rather than simply blowing them away with futuristic firepower – then a lot of restrictions aren't necessary; the Time Service (through its loyal representative, the GM) simply says "it's important that you possess or do nothing that would give you away as time travelers," and that's that.

This is not an argument that one sort of play is "better" than another (though problem-solving gets somewhat more attention in this book than gunfights). It is an argument that the GM and his players need to agree on the sorts of things they want to happen in the game, before launching into adventures.

Parameters

Scale

Scale is the level at which the characters are interacting with the world, and the results of their actions upon it. Are the heroes acting on a *prosaic scale,* living day to day, hoping to sell (or intercept) a rookie Fidel Castro baseball card on Gernsback? Or are they acting on an *epic scale,* saving the continuum and twisting histories like taffy?

Normally, scale maps to character power. Of course, the GM can create compelling, gripping adventure or light-hearted comedy by hurling underdogs into big fights. Or a very high-point game can still have a prosaic scale, such as an ISWAT version of *Hill Street Blues*.

The default Infinite Worlds setting is somewhere between prosaic scale and epic scale; a Patrol team might rescue a tourist one day, and sabotage an SS invasion next week. This is by design; playing change-up with the scale helps prevent the monotony of "another day, another world." For a

prosaic–scale game, swagmen or petty criminals, Time Tours guides, or academic historians make decent protagonists (or antagonists). A fully epic game calls for really skilled Patrolmen, ISWAT operatives, or Centrum Unattached agents.

Scope

Scope is what the PCs can see, touch, influence, and kill. Where scale refers to why they step through the time gate (To save a life? Or to save humanity?), scope deals with what, who, and (sometimes) how. A campaign that only deals with one village, one decade, or even one worldline is smaller in scope than a campaign with ramifications throughout a civilization, all of history, or the Infinite Worlds. Increased scale usually maps to increased scope, but not always. A campaign of vast scope can chase across two quanta for the prosaic stakes of one kidnapped woman's life . . . or a Paralabs researcher and his assistants can prevent a massive reality quake with a single day trip to a nexus portal in the Turkish desert.

In the default Infinite Worlds setting, the scope is fairly broad. Characters are assumed to do a lot of world-hopping, and the Patrol has wide-ranging responsibilities, with similarly wide-ranging authority. Part of the fun of the Infinite Worlds setting is its broad scope, and the key part played in it by the Patrol – which is to say, the likely PCs.

Boundaries

Boundaries are the edges – implicit or explicit – to the setting, and to the action. If scale answers why, and scope answers who and what, then boundaries are all about where (or, in a time-travel game, when). Where is the action, and where is "off-screen"? Boundaries also constrain the possibilities: how many sorts of time or dimension travel are there? Do magic and psi work, and do the PCs have access to either? This is not a bad thing – an infinity of stories can seem awfully imposing to a GM, and eventually less interesting to the players than a mere "whole lot of stories" joined by some underlying assumption or theme.

The default Infinite Worlds setting has pretty broad, fuzzy boundaries. Almost anything is somewhere, and the GM can make any of it the center for an adventure or a whole campaign. Conversely, the GM campaign can trim the boundaries down to whatever he'd like. He can essentially ignore all the "sideshows" and focus purely on the contest between Infinity and Centrum, or make the game a pulpy rumble between the crew of the *USS Eldridge* (p. 163) and the SS Raven Division, or present the Duncorne Foundation and the Cabal's contest to decipher the mysteries of reality as the only important question. The GM can even leave whole elements of the setting aside; remove the Cabal, Reich-5, or ISWAT, or magic, and it still functions. Or just never mention them, and assume that they're off on Quantum 3 doing something terribly exciting but somehow not very crucial to the business at hand.

Adding Worlds

The basic assumption of the Infinite Worlds setting is "whatever it is, it's out there, somewhere, even if nobody knows it yet, unless that would wreck your game." Introducing the Infinite Worlds into an existing game world is as easy as having the Scouts show up and ask directions from your PCs – or having the Interworld Service show up and try to kill them! Introducing an existing game world into an Infinite Worlds campaign is just as easy: any game world can exist somewhere in the Infinite Worlds as a parallel on a seldom-visited quantum, as a pocket universe created by the Cabal, or as the result of Centrum tampering with an echo! If your game world depends on some Vast Cosmic Evil That Transcends Mere Worlds, it can be tied into the reality quakes (or the Cabal) with minimal stress. If your game world has weird magic, or strange technology, rest easy; it's no weirder or stranger than Merlin, and you can always rule that such weird strangeness only works on its home world if you're worried about the Wand of Centrum-Vanishing unbalancing the campaign.

Future Earths

Most existing SF settings, and most potential ones, take place on a future Earth set well past the 2027 "present day" of the Infinite Worlds. There are three basic ways to connect such a future Earth into the Infinite Worlds setting:

Another Anomaly: This future Earth has some odd feature that makes it "safe" for the GM to break the general "no futures" rule of the setting. If the world is on an out-of-the-way quantum, it won't even affect the setting too much, as long as it doesn't get parachronics on a large scale, and as long as nobody can steal its technology very easily.

Parachronics Plus: Add parachronics to the future Earth, and an analogous organization to the Infinity Patrol. This Earth's Van Zandt discovered parachronics 30 years ago, in 2198, and the whole setting moves up a few notches. This is a huge amount of work for some aspects (Reich-5), and fairly transparent for others (the Cabal and Centrum).

Future Branch: The future Earth is the future of some echo, parallel, or other alternate. Perhaps this is the only such worldline with a defined "future," and all the others are chaotic potentials (p. 170). Perhaps all worlds have futures, but most of them are inaccessible. A Gate of Thoth, wandering timenapper, or banestorm can shift PCs into the future of any Earth with no real harm done to the setting, and similar handwaving can shift them back. A permanent, or recurring, Gate of Thoth is probably the most plausible way to handle multiple commutes if necessary.

Paraphysics

In a sense, the question of the campaign's underlying physics is a boundary question. Who can get where, and how? Examine the options under *Temporal Physics* on pp. 153-165; they shape the stories you can tell. The key is to keep the rules transparent to the players, and to get them to agree to accept them – or to make the quest to undermine them an acknowledged part of the game so that you can prepare for it. One method of setting the paraphysics can be the touchstone rule. Describe your paraphysics in terms of a setting already familiar to your players: "Time travel is like *Terminator;* one way only, and you have to arrive naked." Make sure you know your touchstone better than your players do, though – you don't want to be trapped into "*Star Trek* time travel" with players who watched *Voyager.*

The default Infinite Worlds campaign sets up some fairly ironclad rules: conveyors can only travel along the same quantum without a projector (i.e., without the GM's permission); there isn't really reliable time travel; the quantum structure keeps troublesome worlds away from your home base. It then sneaks around hinting at loopholes, should the GM wish to explore them: nexus portals, Gates of Thoth, and banestorms blowing Communist penguin mana and Argentine Nazis everywhere, for example.

Characters

Once the campaign foundations are laid, it's time to think about the characters. Here, even more than the earlier parameters, consulting with the players can pay big dividends for a GM seeking to avoid software mismatch and the ensuing "assumption clash."

Power Level

At its most basic, this is "how many points are the characters?" In company with scale and scope, this determines much of the feel of the game.

In the default Infinite Worlds campaign, Infinity Patrolmen with about a year of experience are between 180 and 200 points; an average soldier with the same is about 90 points; a special forces soldier is around 220. A skilled civilian with rather more experience varies, but hovers between 100 and 150 points. The GM can move these scores around; for example, special forces can be still more competent, or the Patrol can scrape the bottom of the barrel in its desperate quest for manpower. At the standard levels, this gives a fairly reliable result for Patrol skills; the troubles they face are mostly from the outside, not from their own incompetence. This privileges player tactics over the dice somewhat, but leaves a large dollop of chance.

Niche

This parameter might also be called "role" or "habitat." Who are the PCs, and why do they hang out together? Were they all kidnapped by time travelers, recruited by Alternate Outcomes, hired by White Star, or (un)lucky enough to be in the path of the banestorm?

The Infinite Worlds setting presumes some sort of connection to Infinity Unlimited, ideally the Patrol, but it hardly mandates it. No matter what the players' preference, there's someone in the Infinite Worlds who can suit them, or who can be retrofitted with little bother.

Freedom

What can the PCs do? Who stops them, or what? Some of the answers to this question are inherent in the campaign metaphysics: if time travel is impossible, the PCs can't travel in time. Others are inherent in the group's niche; Infinity Patrolmen can't run drug rings and slaughter outtimers without a qualm. Hopefully, players won't mind a few restrictions on their actions, but they almost always want to understand them up front unless the nature of the restriction is supposed to be a puzzle in the game.

The default Infinite Worlds campaign is prejudiced toward characters with at least some moral qualms; even Centrum has a strict code of conduct and a not entirely contemptible ideology to back it up. However, cheerful amoralists can always find a home with the swagmen; less cheerful ones might work with the Cabal. "Blow stuff up for the hell of it" types may find a socially approved outlet in Alternate Outcomes, at the cost of a tighter T.O.

Edges

Do the PCs have access to anything out of the ordinary – magic, psionics, secret TL10 equipment? In some campaigns, of course, a crossworld gate, or a Zippo lighter, may be their only edge. In others, the players can pick anything they'd like, in the name of infinite options. One key question the GM should consider, and perhaps get player input on: do their standard foes have such edges, too? Time travelers may have the only time machine in existence, but nothing else special to keep them alive. Psis may attract the attention of evil psis looking for recruits, or for competition. It can be fun to smack the locals around with an unbeatable edge once or twice, but it can get old. Make sure there's enough competition – even with different edges entirely – to keep the adventurers challenged.

The default Infinite Worlds campaign is prejudiced toward characters with at least some moral qualms; even Centrum has a strict code of conduct.

In the default Infinite Worlds campaign, like tend to fight like. Infinity battles its ideological opposite Centrum using nearly identical parachronics. The Cabal has magic, but tends to attract magical foes from the cracks in reality. This keeps tactical decision-making fairly rapid, and more importantly, lets players build focused, effective characters without having to load up on Mental Shield and Magic Resistance all the time. If magic or psi show up in the Patrol's life, they are restricted to one world as a special obstacle . . . they don't dog them across the quanta.

Genre and Mode

Genre

Essentially, genre is the general kind of story you're telling, and it indicates the broad run of story elements, scenery, and obstacles the players are likely to encounter. While the various worlds of the Infinite Worlds encompass all sorts of genres, the campaign as a whole can rest within one. An Infinity Patrol- or Centrum-centered game is likely to be an SF campaign, with details of dimension travel theory, technical whizbang equipment, and applied cliodynamics sharing roughly equal billing. A Cabal-centered game tends toward fantasy (if it emphasizes the magi) or horror (if it emphasizes the monsters). A game set entirely on Lenin-6 (p. 132) is likely to be a war story, dealing with tactical choices and psychological stress.

An alternate worlds campaign depends less on genre than most, although some GMs want the extra thematic unity a single genre supplies, to counteract the unfocusing effect of the wildly various settings. Still, boundaries between genres are fluid at best.

Conspiracy: Conspiracy games are about uncertainty and paranoia. Trust no one; nothing is what it seems. In the Infinite Worlds setting, this can be a "hall of mirrors" type espionage game with uncertain agendas in Infinity Tower, or a straightforward attempt to unravel the tangled works of the Interworld Service (or the Armanen Order) across the quanta.

Historical SF: This subgenre takes the SF emphasis on extrapolation and "What if?" questions and applies it to history. A game like this focuses on the parallels, especially those with only a minimum of magic or psi to distort things. The point of this game is to encounter strange new histories, seek out new cultures and new civilizations, and watch (or direct) their interplay. Changing history may be an objective for players of historical SF games.

Technical SF: This subgenre concentrates on the questions of physics inherent in time or crossworld travel. If the GM has a cosmic turn of mind, the large questions about the origin of the Infinite Worlds, or the nature of reality quakes, might take center stage. Players might want to set up paradoxes on purpose, or have fun outwitting the Observer Effect.

Fantasy: Fantasy games are about the unreal, about magic and things that simply can't exist. Power and wildness range widely. To a large extent, the Infinite Worlds is already a "science fantasy" setting. Don't bother with extrapolation; just ride the banestorm wave to the next parallel and marvel at it. This genre has a lot in common with supers, which is really its own topic.

Mode

The mode is how you approach the genre; if the genre is the searchlight, the mode is the filter on the lens that gives it color. You can combine them, but too many modes leave the game murky, not multi-colored.

Action: All adrenaline and big explosions, in action mode the story is just the reason to have fight scenes, chases, and escapes. Alternate Outcomes campaigns, or commando ops against the Raven Division, or jumps through alternate Second World Wars, feed the action beast.

Cinematic: In this cousin of the action mode, the fight scene always lets the villain escape until the last adventure, the bad guys always discover the hero next to a rank of speedboats, and the escape is always at the last second. Drama is sacred, well above realism. This mode implies larger-than-life heroes, because otherwise, they might lose!

Dark: There is no morality, and power corrupts. Infinity is filthy, Centrum is ruthless, and UNIC is power-mad. The only people PCs in a dark game can count on are each other . . . maybe. Doing the best you can for a world is its own reward, and stopping the power-hungry from making it a meal is a close second.

Gritty: A gritty game is cynical and "realistic." (But not realistic enough to give up parachronics, of course.) History is dirty and smelly; heroes have feet of clay, and bullets kill you in lingering agony crying for a mother on a world you'll never see again. There can be good guys, but not shiny ones.

Hollywood History: When the legend outlives the truth, roleplay the legend. Heroes are heroic and noble and good-looking. There is always a good side and a bad side, and the good side is the PCs and their allies. If Infinity isn't the good guys, beat it with the help of Joan of Arc or Robin Hood.

Investigative: The focus is on solving puzzles. What happened on Enigma? What exactly are reality quakes? Why is Centrum killing the great chefs of Europe? A variant of the investigative mode is the exploratory, or "travelogue" mode; the mystery becomes a pretext to visit new worlds and play in them.

Pulp: A blend of the Hollywood history and cinematic modes, with a dose of campy dialogue and vile, vile villains. Pulp blends Time Nazis, Confederate airships, and Martian heat rays into a game of pace, narrative thrust, and cliffhanging suspense.

Silly: This mode plays things for laughs; it probably works best with freelance heroes. Maybe they're an all-star team of History's Second-Greatest Heroes, or resolutely in-genre private eyes traveling the cosmos in an AI-piloted black 1957 Buick.

Technothriller: God is in the details. Whether it's the perfect crosstime caper thriller or a loving description of alternate submachine guns, it matches narrative thrust and suspense with tactical planning. Anything with a "mission" structure works best for technothriller, from Patrol sting operations to straight-up Nazi hunts.

Campaign Elements

A strong overlap exists between alternate-world and time-travel campaigns. Not only are parallel worlds a great way to dodge the restrictions of time travel (p. 156), but thinking about the past (or future) is very similar to thinking about a primitive (or advanced) alternate Earth. In this section, consider much of this material to be advice from both perspectives, options for both sorts of games.

Through the Rabbit Hole

Assuming you don't have a crosstime galleon, or a handy conveyor, or an Infinity Patrol to show you around, how *do* you get from world to world? One important subgenre of cross-world or crosstime adventure is that in which the heroes have access to a "gate" between two worlds – and only two. Sometimes they don't even control the gate . . . they just fall (or are pushed) into another world. That's still enough for high adventure!

Accidental Transport

The party is pulled across time or into another world by forces beyond their control. They'll probably never be able to get back, because they'll probably never understand what happened to them.

In the default Infinite Worlds setting, the easy way to do this is with a banestorm (p. 75), or a conveyor or time machine accident (p. B531 and p. 165). The PCs might wind up "oz charged" by the banestorm's ball lightning, crackling between worlds over, and over, and over . . .

Alternatively, the heroes could receive a warning that they are about to be taken to another time or world, perhaps never to return. What do they do in their last day on Earth? What should they pack? (see p. 207 for some possible answers.)

Summonings

Perhaps the party's transport was deliberate . . . but not on their part. They've been snatched from their own time, by magical or ultra-tech means, to perform some mission. Maybe it's fairly trivial (the wizard just needed hirelings with specific talents). Maybe it's apocalyptic (only they can save the universe).

This works well with a crosstime recruitment gimmick. The campaign is based in any familiar genre – fantasy, space, whatever – but the characters may be drawn from anywhere! Whoever brought them together wanted certain specific talents, and got them. A party might consist of a Roman legionary plucked from a random battlefield, a Victorian mathematician, a Roaring '20s private eye, a cop from the streets of New York in 2010, and an android artist from 2200. Or, for a game in which the recruiters are groupies or snobs, the PCs might be Cleopatra, Wyatt Earp, Merlin, Miyamoto Musashi, and the Comte de Saint-Germain! (See *Locals,* p. 198, for some notes on building such characters.) A lot of the playing time can be spent just letting the characters interact!

Gates

Gates can create a special and limited kind of cross-universe campaign. A gate is a portal to . . . somewhere else. One or both sides may be portable. A gate may work all the time, or only part of the time, or only when someone says the code-word . . . Gates may be technological, magical, natural, or just there. The nexus portals, Gates of Thoth, dimensional highways, and shiftrealms from the Infinite Worlds setting only scratch the surface of the possibilities.

Since world-spanning gates imply very high tech, very strong magic, or better, it is usually best for the campaign if the gate, or gates, simply exist, with no real explanation. The PCs stumble onto, and through, a gate, and what they do next is up to them!

This device works well with the "players as PCs" gimmick from p. 184. If you found an alternate dimension in your closet, would you go in? Who would you tell about it? What would you take?

Time Gates: A time gate exists in two times at once. Anyone who travels through one side of the gate comes out in the other time – and possibly in another place as well. A gate might come into being, say, between Chartres Cathedral in 1850 and the bathroom of a Chicago tenement in 1990. It lasts 20 years, until the tenement is torn down. During that time, anyone can step through that closet door and be in Chartres precisely 140 years, 19 days and six hours earlier, and vice versa.

World Gates: A world gate is simply a connection between two parallel (or not-so-parallel) worlds. Depending on what worlds it connects, it can be incredibly valuable, a mere curiosity, or totally worthless. Any worlds can be connected. The heroes of a pulp-era campaign could explore an ancient temple and find a gate to the prehistoric world, or the Golden Age of Piracy, or medieval Japan, or fantastic Yrth . . . or to all of them, in a portal dimension like the Horatio Club on p. 229.

A world gate can be used to make a permanent change in a campaign, or it can open once, for a single adventure, and then close again. The travelers can keep whatever items, knowledge or companions they picked up on the other side. Or, if they're on the other side when the gate closes, they're stuck in a new world.

Visiting the World Next Door

So once you've got a gate to another world, or a stolen conveyor, or whatever, now what? Parallel worlds are likely to inspire the same sorts of travelers as any strange new land: explorers, missionaries (religious or just humanitarian), and those out to make a fast buck.

The last is probably the largest group, and may be PCs or their adversaries. Large-scale business ventures might involve mining an alternate timeline for raw materials. Arabia's petroleum is too close to civilization, if there is any – even paratime corporations that don't care about revealing themselves are hesitant about "native

trouble" that involves full-fledged armies. The mines of southern Africa are a more likely target. (See p. 37 for some reasons why.) Colonization is the biggest project of all, probably focusing on uninhabited or uncivilized worlds, though the Americas and Australia may be viewed as fair game in a broader set of timelines.

Trade is another way of making a profit (pp. 37-41), and it may shade into theft and looting. Many types of interdimensional travel make stealing far too easy to be interesting – a GM has to provide complications among the victims, the law, or both. Parachronic crime might also involve stealing people (see *Timenappers,* p. 72). We can all agree that someone wanting to kidnap Marilyn Monroe, or even Nikola Tesla, is probably fooling himself if he tries to justify his crime as "providing the victim with more opportunities" than he or she would have had at home. But what to do about the person determined to kidnap all the alternate Hitlers from the streets of Vienna and stash them somewhere they can't do any harm? Obviously, a parachronic police force like the Infinity Patrol has its work cut out for it.

What to Pack for a Visit

Assuming you don't know anything about the new timeline, but have the chance to pack, treat it as exploration. Start with standard camping and survival gear: you'll probably be starting some distance from civilization. Bring a Swiss army knife; actually, as many as you can carry, if you plan to trade for a living. Bring a reliable pen and a few blank journals. Don't forget binoculars. Bring a radio: if the locals are advanced enough for broadcasting you can find out a lot about them before setting eyes on one. If not, communicators for the entire group. It shouldn't be necessary to point this out, but your cell phone won't work on another world, unless it's a *very* close parallel indeed.

Once you are ready to meet the inhabitants, you'll need to acquire local clothing, at least outer garments (hope for cloaks). Carry your goods in a "timeless" leather satchel. Silver is the most common coined metal: bring small ingots with a good sharp cutter, or artificially "worn" coins that look like they might once have had pictures on them. Failing that, a selection of plain gold rings is easy to carry (and hide) and easy to turn into cash.

The past is a foreign country: they do things differently there.

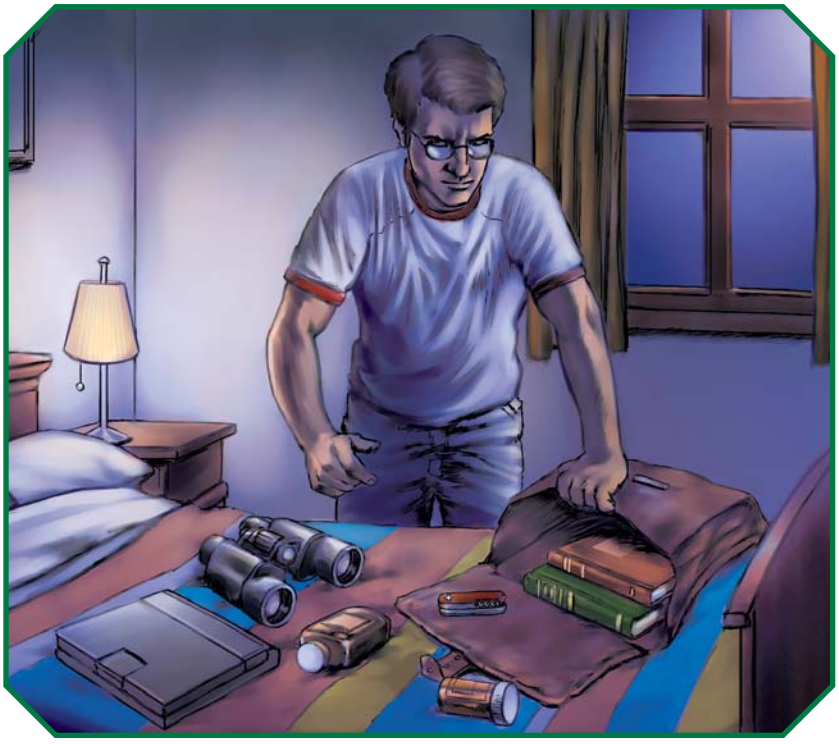
– L.P. Hartley, ***The Go-Between***

For both initial and later visits, probably the most useful modern tool you can have is a small computer, hand-held if possible, with a historical, geographic, and linguistic database. A digital camera (no film needed) is very useful for retrieving information. Don't emphasize weapons: you should be avoiding combat. The stunner is the perfect "quiet" weapon if your TL permits it; otherwise you'll have to make do with dart guns, crossbows, or silencers.

Don't neglect antibiotics: the odds are very good that a random parallel world is full of diseases your immune system has never encountered. GMs who don't want to be bothered with disease should make some sort of Immunity to Disease (p. B443) available. Add a snakebite kit, penicillin, and good old aspirin, plus quinine powder if you plan on visiting the tropics. Make sure your own shots are up to date; thinking of the past, or many parallel worlds, as a Third World country isn't a bad habit to get into. See *The Bad Old Good Old Days* on p. 210 for specific notes on squalor in the game.

What to Pack for an Extended Visit

If you're planning to emigrate and have time to prepare, get all the information your home timeline offers about your destination area. Load down that computerized database with maps, climate data, and a profile of the local ecology as well as basic science. Don't neglect guides to low-TL medicine and chemistry. *The Way Things Work, A Barefoot Doctor's Manual,* and *Henley's Formulas* can start you off. If you have data on the human inhabitants, take that too – although many alternate histories, including some in this book, have changed so much that such information may not be very useful.



In this situation you'll also want to give serious thought to achieving fame and fortune by "inventing" something the locals haven't yet devised. The options are legion for hard-headed engineer types (see *Things to Invent*, p. below). Other products you might also consider include cosmetics, recipes, and ceramics. Even without consumerism, there are possibilities. For instance, the only really color-fast dye for most of history was indigo: even one synthetic dye could make you very rich in the textile business.

It is unwise to introduce new weapons – gunpowder, atomics, whatever – to a timeline without them, unless you are prepared for the ensuing military revolution. On the other hand, it can be very comforting (and potentially lucrative) indeed to be the only person in the world who knows how to make gunpowder. (See *Black Powder,* p. 209.)

Worldline Conquest Made (Relatively) Easy

The most extreme adventure in another timeline is outright conquest, though PCs are probably more likely to fight a would-be conquistador group than to *be* one, unless they work for Centrum's Uplift Service (p. 54). Still, you never know what Alternative Outcomes (p. 31) might do, and infinite worlds mean you can't rule anything out.

Things to Invent

There are a number of simple devices, processes and compounds that can make a traveler rich at the right time in the past, or in a primitive alternate world. (Note that if temporal contamination is possible, the introduction of any of these things will do it. By definition, anything that is enough to make its inventor rich is enough to change history.)

Of course, many other things can easily be reinvented . . . by some people. An electronics technician might well be able to build a radio in the year 1400. This box lists things that could be created by anyone, or things so easy to explain that a skilled person could create them from any layman's explanation. To reinvent a specialized device using your own technical or scientific skills, use Gadgeteering (p. B475).

Simple Machines and Basic Concepts

If any of these devices aren't in use yet, you can raise the local technology in that field by a whole TL in about 20 minutes.

Fire
Wheel
Lever
Container (could be pottery, but could as easily be hollowed-out wood, or even a bag made of leaves)
Writing or written mathematics
The zero
Domestication of animals
Agriculture
The bow
The printing press, adding movable type as soon as possible
The steam engine

Office Supplies

Don't underestimate the historical impact – and the financial value – of simple inventions that make office work easier. Each of the creations below certainly seemed obvious after it was developed, and made its inventor a lot of money.

Paper clip (Test yourself. Can you draw it exactly right, from memory?)
Hole punch
Window envelopes
Adhesive tape (For this and the following items, you'd have to hire a chemist to develop the invention from your description, unless you possess Chemistry skill at 16 or better, or are a Gadgeteer.)
Carbon paper
Self-sticking note pads
Correction fluid
Pencil eraser

Simple Comforts of Home

These innovations may not change the entire society – at first – but they'll still be useful and make their creator wealthy if they are properly exploited.

Fermentation, to turn perfectly good grape juice or grain into (gasp) alcohol.
Distilling (the most obvious use is to make strong alcoholic beverages from weak ones, but there are many industrial applications).
Glass lenses. These require the existence of glass, of course. Glass itself is relatively easy to create if sand, soda, and fire are available. Lenses are valuable first for improving vision, then for telescopes and binoculars, and eventually for microscopes and other scientific applications.

Don't Waste Your Time . . .

Some devices, though, are very hard to get right. Only a very skilled mechanic or gadgeteer should attempt to build (for instance) a clock of any kind, a typewriter or typesetter, or anything else involving a great number of precisely machined moving parts.

Black Powder

At any time before its historical appearance (perhaps the 10th century in China, and the 13th century in the West), black powder is one of the most spectacular introductions a traveler can make. Superstitious natives can be overawed with nothing more than fireworks. Simple gunpowder bombs and mines could probably break most medieval armies, and even the Romans or Huns might not stand up to actual cannon. But remember that the secret of gunpowder is so *simple* that, once introduced anywhere, it spreads.

See H. Beam Piper's *Lord Kalvan of Otherwhen* and its sequels for the classic treatment of this situation.

The Formula

If you, the reader, ever expect to be dropped into a primitive time or timeline, memorize this . . .

To make black powder, combine 10% sulfur, 15% charcoal, and 75% saltpeter. Mix well and powder carefully without producing sparks. This produces "flash powder" – it primes a gun but won't explode.

Wet the flash powder to form a paste. Air-dry in kernels of the desired size for the job (you'll have to experiment, based on your desired application).

Finding the Ingredients

Sulfur is an element, a yellow powder. In nature, it occurs near hot springs and gives the water a bitter flavor.

Charcoal is produced by burning wood. Different woods and different burning methods give different results. Experiment.

Saltpeter (potassium nitrate) is a crystalline white compound. In a primitive milieu, the easiest way to find it in small amounts is to remove a well-aged pile of manure. The saltpeter is leached out of the manure by rainwater and collects on the ground.

Using Black Powder

Now that you have it, what do you do with it? Sadly, the warlike applications outnumber the peaceful ones. Fireworks and civil engineering are very nice, but the main impact of black powder is for weaponry.

Almost no skill is required to create "mines" and simple "shells" – powder kegs to be lobbed at the foe with siege engines. Mortars and cannon are more difficult, requiring skill in metalwork and advances in metallurgy; handguns are harder still. But any general who sees what black powder can do will be motivated to help your research . . . or to have you destroyed.

For guidelines on conquering a large but more primitive empire, there is no better source of advice than the real-life conquistadors. A large centralized empire (TL1 minimum, and TL2 is better) is a better target than lots of little groups, perhaps harder to take but easier to hold. Finding local allies to multiply your forces is critical: if everybody loves the local empire, seek your fortune elsewhere. In fact, work through native rulers as much as you can until you have a firm grasp of local politics.

Assuming everything goes right, a paratime conquistador could decapitate an empire in just a few decisive battles. Cortés overthrew the Aztecs in three years. Conquering an entire timeline would take far longer, depending on how long it takes to modernize the military of your new empire.

Use local talent but modern organization. You probably know more about strategy and tactics than the locals, and are almost certain to have a better grasp of logistics. If you have time to train a military force of your own, proper discipline is even more important than weaponry. Military *science* also develops. With a good grasp of military history, you have dozens of tactical innovations to offer, even with native weapons, if you can train your army to follow them.

This is not to say that weapons are unimportant: as your basic firearm, consider the Sten gun, a submachine gun that can be produced by fairly primitive workshops. You may also be able to bring a few other ideas into the local arsenal. Many weapons – fuel-air explosives, for instance – *could* have been built long before they were actually invented.

The Bad Old Good Old Days

There are many everyday details of life in many historical eras that we would find distasteful, barbaric, and horrifying. Description of such details – the crowding and smell of a city street before modern plumbing, for instance – is necessary and useful in making the players accept the environment as "the past," and not just a Hollywood imitation.

Unpleasant details are also useful plot and characterization devices. A group of travelers confronted by a bullying nobleman might follow their natural impulse to teach him a lesson – only to find themselves hip-deep in trouble for it. Someone who loves horses might gain points for demanding that a drunken coachman stop whipping his animals – and even more points if he found a way to do it that would not offend the customs of the time.

But, as with any other device, don't overdo it. A little of the griminess of medieval towns, or the horrors of the Inquisition, or the mistreatment of one class or race by another, goes a long way, no matter how historically correct it is. If the GM constantly describes cruelty and abuses that the characters cannot stop without endangering their mission, the players may quite rightly start to think that they are the ones being provoked. Just say something like, "There's a crowd gathered to cheer the public flogging – but you're professionals; you just look past and keep on walking."

Use machines that you can repair and keep running with local tools: a P-51 Mustang is about as advanced a plane as you should consider, for instance, and it's probably overkill at that. It need hardly be said that any air power, even a balloon, gives you a tremendous advantage in timelines that aren't accustomed to it. Similarly, if the other side doesn't have radios, you should pack them: instant communications can let you defeat an enemy many times your size. (Not to mention the many non-military uses, of course.) Unless you have a *lot* of backup, we don't advise invading worlds less than three tech levels below yours. How well technological "miracles" work to overawe the natives is really a GM's call – barbarians claiming to be gods, no matter how showy their trinkets, will not impress the very sophisticated and nearly agnostic Roman aristocracy.

Once well started at empire-building, shift your model from Cortés to that other Renaissance man, Machiavelli. The game of power politics focuses on understanding why people are loyal in this culture, so you can keep your allies and break up coalitions against you. If your new empire has a traditional enemy – one that you haven't already enlisted as an ally, and perhaps even if you have – crushing them is often a good way to win support and gives you a larger empire in the bargain.

Never make the mistake of underestimating the natives: if a charismatic leader and/or military genius appears among your enemies, you *must* eliminate him by any means necessary, and as soon as possible. Primitives aren't idiots, and man for man they're better suited for survival in their world than you are. The last thing you need is for some local Geronimo (or George Washington) to pull guerrilla jujitsu on your paratime mercs, capture some assault rifles, and possibly reverse-engineer them.

Mission Control

The classic Irwin Allen TV show *Time Tunnel* presented an interesting take on freedom of action and character creation: the "Mission Control" option. While our two heroes were lost in the past, trying to prevent stock-footage disasters, the Tunnel technicians were digging through their files and throwing switches on their blinking consoles, trying to help them out. (Well, it was two technicians and a General. It was a low-budget show.) Handled with some restraint, the idea of Mission Control works very well in a roleplaying campaign. In fact, it solves one major background problem: the agents no longer have to know absolutely everything about all of history. They still have to have basic Area Knowledge – especially if the communications link goes out – but Control can provide on-the-spot information.

Some suggested limits are as follows:

Only information moves, not objects. Mission Control can receive pictures, and possibly transmit them (useful for sending maps), but if the agents run out of bullets, they're out of luck.

Establish search times. However long it takes Control to find the answer to the agents' question is the amount of time that passes in the field before the answer is received. The limiting factor is then not whether the information exists, but whether it can be recovered in time to be any use.

Some information isn't available. If no one drew floor plans of a building, and the building no longer stands, the team just has to search it the hard way.

Control and Research in a Parallel-World Campaign

In a campaign in which, instead of time travel, the agents are traveling between parallel worlds, the job of Mission Control becomes different. On the one hand, nobody can be sure what happens next in the parallel world. It may seem similar to our history, but nobody really knows for sure.

On the other hand, if there are lots of similar parallel worlds, some types of research become much easier. If the agents must free a comrade held in tightly guarded Castle Wolfram, Control need only dispatch a team to a similar timeline where Castle

Wolfram lies empty. Presto . . . complete and accurate maps – they hope. (Of course, this only works when there are lots of very similar timelines. For Infinity Unlimited, this kind of trick could be used for research on the echo timelines, but very few of the others are similar enough to make it worthwhile. And the echoes have their own hazards!)

The Time Is Out of Joint

Time travel and alternate world adventures fall into four general categories. The first three may be actual "missions" in the sense that someone assigned them to the party. But the characters may also find themselves caught up in events by accident, or even tricked by NPCs into performing some sort of dangerous task.

Research Missions

Research missions are sent to find something out: Who was Jack the Ripper? Who really wrote the Zinoviev Letter? What happened to the crew of the *Mary Celeste?* Researchers are usually not supposed to change the past; they are supposed to observe, measure, photograph, perhaps even conduct interviews, and then return, without having any effect on the time stream (or revealing The Secret, or shifting an echo).

By itself, researching isn't very adventurous. Getting into a fight usually means things have gone very badly wrong. But a research mission doesn't have to be dull. The suspense and excitement come, not from a string of combat encounters, but from meeting obstacles (some expected, some by surprise) in the path of getting the data and getting back with it.

Often, the PC team isn't cast in the role of researchers, but of guards and guides to the researchers. The scientists themselves may have hidden goals or personalities that endanger the mission.

Crosstime or crossworld espionage is a special category of research which can quickly become dangerous, since the spies may be opposed, not only by "native" security troops and counterespionage, but also by opponents from their own time or world. Casing the Forbidden City to loot it before it's burned in 1860 is technically a research mission, after all!

Repair Missions

Repair missions have the specific objective of making changes to the time stream. Assuming the characters are the "good guys," this usually means that the past has already been altered, by enemy action or accident, and has to be returned to normal. There are other possibilities, however. The travelers may be present at a historical event – say, on campaign with Julius Caesar in Gaul – in which the outcome of the larger campaign is known, but individual, unrecorded skirmishes may have unknown results. Or the team may be "agents in place," guarding a historical divergence point such as the Normandy invasion against interference by enemy agents.

Or the status quo may be intolerable to the time travelers – say, a small group of researchers discovers a timegate, and hopes to use it to overthrow the oppressive regime. The travelers may even be soldiers of the regime, driven to mutiny by their unending missions of outtime atrocity.

In the Infinite Worlds campaign, a party may be sent on a "repair mission" to undo sabotage by the agents of Centrum. This is not time travel – in that background, they can't undo the past – but an attempt to redirect the events of the present into a preferred future.

Recovery Missions

Recovery missions are sent to bring something back (forward?) from the past, either for temporary study (in which case another mission may be necessary to replace it) or to save it from destruction. The agents may need to plant a copy of the item, or otherwise create a diversion from the burglary. Sometimes history itself – the eruption of Mt. Vesuvius, the Chicago Fire, the bombing of Berlin – may cover their tracks.

Time thieves, of course, are also on a "recovery" mission! They may face the additional hazard of law enforcement from their own world, especially if their thefts have the potential to change history.

A specific and challenging type of recovery is the rescue of an individual who history says is dead. Time travel organizations recruit some of their best agents this way. Rescues work equally well in an echo worldline where someone's death can be predicted accurately.

In an alternate worlds campaign, actual trade and exploration missions become possible, and the opportunities for theft expand exponentially.

A specific and challenging type of recovery is the rescue of an individual who history says is dead. Time travel organizations recruit some of their best agents this way.

Survival

A fourth type of adventure is the non-mission, in which the travelers had no intention of visiting another time or another world (at least, not the one they arrived at). Their problem is simply to survive. There may be a hope of rescue, or they may be doomed to live their lives in the past, or some inhospitable parallel dimension.

Depending on the physics of the situation and their particular resources, their best strategy might be to blend in and not make waves, or to set themselves up as teachers, magicians, or gods.

Chapter Eight
Alternate Infinities

This chapter presents some alternate campaign frames for GMs and players interested in a changeup from the Infinite Worlds setting. Each frame includes notes on character design and campaign parameters based on the discussion in Chapter 7. These frames are designed to support extended campaigns, but they can host one-shot scenarios with some sacrifice of detail.

The Order of the Hourglass

The time is the 1920s. All over the world, daring adventurers are pushing back the boundaries of the explored world: Darkest Africa, lost cities in Central America, the polar caps. But in the centers of the world's great cities, small groups of people are exploring an entirely different frontier.

These "circles" have discovered a kind of mental time travel. Many, like our heroes, are simply curious about their ability, and about the past. Others are intent on using the power for conquest . . . and that may mean eliminating all the temporal competition.

This frame combines time traveling with Roaring Twenties pulp adventure. The adventurers can get into all the usual trouble visiting the past, but their real enemies, both past and present, are other time travelers.

The Coming of Gakuji

The ritual of the Time Circle was brought to the West by explorers who did not fully believe what they had discovered. Though they breathed the herb Gakuji, joined in the chant, and saw the visions of the past, they believed – because they had to believe – that they were only visions . . . hallucinations induced by drugs and hypnosis.

Dr. Albert Wesker Finch, physician and adventurer, brought Gakuji back to America, and began to grow the herb at his Long Island estate. His reputation already damaged by his exotic research, Dr. Finch dared not experiment . . . in public. He brought a group of friends together, and, under observation, recreated the Ritual. The members of the Circle went back to the Finch estate grounds before the house was built; they found an oak sapling and carved their initials into a root, then covered it with earth.

When they returned, Finch led the party to the oak, 200 years older. They exposed the roots. The initials were there. Finch's guests believed, and with a few like-minded Circles they founded the Order of the Hourglass. At first a mere club for time tourists, it slowly evolved into a mutual aid society. Some Circles seek to turn the Hourglass into a weapon against evil Time Circles and others who would misuse the past for vile ends, but for now the Order includes the idly curious and the grimly determined alike.

The Ritual

This is physical time travel through psionic means. No machine is used, and the actual bodies of the travelers are transported. The mechanism is more like a magical ritual than a scientific experiment.

The Circle begins by discussing the time they intend to visit, and doing study to fix the goal in their minds. This includes library research and visits to museums to examine artifacts of the period. Normally the members spend one to two weeks on this research. During this time, they usually acquire relevant and useful period items.

Finally the Circle assembles at some safe place, usually a country house or lodge belonging to one of the wealthier members. A brazier containing the herb Gakuji is lit, and its fumes fill the room. The Circle begins chanting, clearing their minds of everything but the ritual and the target. After about an hour, if all goes well, the present-day images fade. Some members see only darkness and silence; others have strange dreams. When this passes, they are in another time – sometimes a few years from the target, never more.

Returning to the present does not require the herb, only that the members of the Circle concentrate together and be in reasonably close physical proximity. This takes about 15 minutes if everyone is conscious and close (in the same room, or equivalent); if the separation is wider, or some members are unconscious or dead, it takes more time.

All living Circle members must return together, conscious or not. Dead members may be abandoned, though their bodies return if they are in proximity to the living. Those with a proper Sense of Duty to their comrades must always try to bring their friends home, even though this can create legal problems in explaining the death.

The Ritual can only reach the past, not the future. This is probably due to the enormous difficulty of visualizing the future. (Think about the 1920s and 1930s images of The World of Tomorrow, as presented in pulp science fiction magazines and the New York World's Fair. On the other hand, a parallel-world science fiction adventure set in Captain Future's future, or Gernsback (p. 126) might be very entertaining.)

The travelers can bring only items appropriate to the period into the past – no Tommy guns in the Middle Ages – and anyone who can't get hold of proper clothing arrives nude. The more authentic the item, the likelier it is to make the trip successfully (p. 169). Time Circles often, given time and money, acquire a stock of period costumes and furnishings for just such purposes; They can easily claim that the outfits are for a costume party. They arrive with whatever clothing and equipment they had on when they left the present. Travelers can bring things back from the past, up to their Basic Lift.

The Ritual only moves one's body into the past; it does not enable the traveler to speak the language. Remember too that dialects and accents change, even if a language remains "the same" (see p. 175 for guidelines). There was more difference between a 1920 British accent and an Elizabethan one than between contemporary British and American dialects – and in a time when few people traveled far from their birthplaces, odd dialects stood out even more prominently.

Equipment

As is usual in Twenties adventures, money makes the world go 'round. Either one adventurer is wealthy enough to bankroll his Circle's operations, or the PCs need an eccentric millionaire Patron who can do so.

Naturally, the GM does not have to allow the eccentric millionaire to buy anything he desires. Some things cannot be acquired for any price. Others require time, and flashing money only worsens certain legal entanglements.

Gakuji is extremely rare and expensive. A quantity sufficient for one time-trip (for up to a dozen people traveling together) costs $5,000 in 1920 dollars (£1,000); this also assumes one has a source, normally an Oriental Herbalist of Mysterious Reputation. Finding such an herbalist requires a successful Streetwise roll in a city with a substantial Chinatown (New York, San Francisco, London's Limehouse; for someone actually *in* the Far East, there is a +2 bonus). Naturally, this sort of dealer takes only cash, preferably gold. This purchases the prepared herb, which can be grown from cuttings but not from seed. Cuttings might be acquired by an expedition into the wilds of Inner Tibet, or from a scientist-adventurer who had made such an expedition. (Perhaps a PC inherits the greenhouse from a relative who died under Mysterious Circumstances.) Even if the travelers can grow the herb themselves, gardening and preparation costs come to $1,000 per dose – which is used up even if the ritual fails for other reasons.

There are other social complications of handling Gakuji. Though it is not illegal, the police may take an interest because of the sort of people who sell it. Police aside, there are the usual hazards of dealing with such people. And any transaction involving the herb may attract the attention of other, savory Time Circles.

Period clothes can be made to order in two to four weeks, for about $40 and up (possibly way up, for a visit to the court of the Sun King). Period

weapons may be purchased as antiques for moderate prices (collector mania has not yet struck in the Jazz Age) – though it may take time for a suitable one to appear for sale. They may be custom-made. A wealthy man might have standing requests with an antiques dealer, or the dealer might be one of the PCs. If an aristocrat wants to claim that he has a houseful of old swords and pistols, that's fine (there really are such houses, especially in England and France), but the GM should charge the cost against His Lordship's starting Wealth.

Villains

Not everyone wants to use the power of Gakuji for harmless experimentation and historical research. Some of the Circles intend to twist the past, to make themselves wealthy and powerful . . . possibly to control the world.

These groups are not linked together in a single conspiracy. (If they were, the heroes would hardly stand a chance.) They may grudgingly cooperate, especially to ensure their supplies of the essential herb, but these alliances are for convenience only, and end as soon as someone leaves his back vulnerable to the knife.

To fulfill their ends, the Circles establish bases at key points in history, "safe houses" where they may appear and change into appropriate clothing. For example, a Circle might, using transported gold, purchase a small country villa in Renaissance Italy, where they could appear, equip, and ride into a city in perfectly normal fashion, instead of suddenly appearing from nowhere. The servants at the villa would surely believe that their employers were sorcerers (what else could they think?) but there are always people who can be trusted, or paid, to keep secrets. From such a base, the Circle could attempt to influence the whole course of politics and economics in Italy, and from it Europe.

Usually Circles will try to influence subtly through the "normal" channels of advice and money, though the more changes they make to the past, the less useful their historical knowledge will be. The occasional convenient death may be arranged. (Isn't it suspicious that Napoleon's Chief of Staff fell from a balcony?) Sometimes they may openly portray themselves as wizards; many stories have "explained" such people as Cagliostro and Saint-Germain as time travelers.

Time travel helps other villainous plans. It is much more convenient and elegant to kill an enemy in the past. If the body does not return, there is nothing for the police to investigate. Even if the victim's fellow Circle members do take him home, there will be no evidence the authorities can follow (or believe), and his friends will likely find themselves in great difficulties explaining his death.

Sometimes, however, direct action is called for. A returning Circle would be in poor condition to deal with a gang of armed killers in their Ritual room (though, on the other hand, the killers would have to be pretty hardened sorts not to be startled by their victims' appearing out of thin air). Anonymous tips to the police might result in a drug raid on the Circle's Gakuji supplier. Properly timed, some of the members might be arrested as well, leading to uncomfortable sessions explaining to Eliot Ness or Gideon of Scotland Yard why they wanted strange Oriental herbs in the first place.

The time is out of joint; O cursed spite
That ever I was born to set it right.
– William Shakespeare,
***Hamlet**, I:v:187-188*

The official authorities don't always have to be the PCs' enemy, however. Exposing drug or underworld connections is a game two can play. And if one of the enemy Circles were to involve a master criminal such as Doctor Nikola or a resurrected Professor Moriarty (or one somehow saved from his death in the past . . .), the heroic Circle might find themselves with powerful allies – as they move in ever-higher circles of international intrigue.

Besides villainous Time Circles, the heroes of the Hourglass (p. 212) have discovered two other forces at work malevolently bending the past to their own cruel will.

The Architects

This evil group plans to rebuild society on cleaner, more sensible lines – a world where everyone knows their place, and it's under the Architects' heel. The Architects claim to be descended from the Invisible College of 17th-century England, which tried to unify science, philosophy, and the occult into a single, logical world view, but they have more in common with ruthless centralizers such as Richelieu and Peter the Great. They have agents, minions, and contacts in many of the Masonic orders of 18th- and 19th-century Europe, which (along with their historical foreknowledge and great wealth) let them subtly control police departments, banks, and even royal courts.

They travel back in time using the energy of ley lines, invisible lines of force connecting places of power and mystery on the Earth's surface. Their travel ritual must be performed at a ley nexus with a building on it, and can only take them back to the laying of its cornerstone. Like the Gakuji ritual, the ley network rejects anachronistic devices and technology. However, travelers can travel along the ley network to any other ley nexus with a structure on it; a party of Architects could leave from Stonehenge and arrive at the Pyramids of Giza, although not before 1850 B.C. when Stonehenge was built. The building need not be intact; the ceremony will function in a ruin, a scrupulously maintained stately home, or an archaeological excavation. The Architects have wormed their way into any number of churches, archaeological societies, and so forth to ensure their access to cathedrals, castles, and historical sites.

The Fang Sing

The insidious Devil-Doctor, the Mad Mandarin, the most fearsome figure in the East, Fang Wu Shih leads a

Triad of devoted, fanatical followers drained from the dregs of Asia and recruited from its most elite temples and courts. Dr. Fang hates and resents the subservient role China plays in the world of the 1920s, when its corrupt Republic is nothing but a toy for rival warlords backed by greedy foreign devils who run opium and guns for their all-important profits. The Fang Sing want to destroy all Western civilization, leaving China supreme in history; nothing they can do to a Westerner is beyond the pale. (The Doctor has decreed that the Japanese are Westerners, at least after the cowardly Meiji rejected tradition in 1868.) They work primarily in the historical Far East, sabotaging and weakening Western interventions and building up their own Triad in the hills and in the twisty alleys of Nanking and Shangai; occasionally a Fang Sing agent shows up in the West's past, working to spread moral decay and corruption.

Doctor Fang has developed psionic projection to astonishing heights; he can watch anyone, anywhere in the world with his vastly superior mind. Further, he has developed a method of psionic time travel to let his acolytes possess people in the past: the Ch'i Feng Technique. This only allows them to possess people within a mile of the traveler. A Fang Sing traveler in Canton, for example, can only possess someone in Canton in the past. The Hourglass has learned to detect those possessed in such fashion by gazing into their eyes – 10 seconds of eye contact (and a Perception roll) is enough to spot the "glimmer" of another mind behind the pupils. Obviously, people unaware of time travel consider such talk ludicrous – and if the Fang Sing agent in the past has mastered the mesmeric arts, gazing into his eyes may open the traveler up to worse dangers still!

One particularly noxious goal of Dr. Fang's involves the Black Death. He is attempting to breed new diseases capable of wiping out European nations wholesale; his agents sometimes travel back to epidemics to test his new formulas on unsuspecting victims. He also shows great interest in all forms of selective breeding; some of his acolytes set up farms in the distant past to raise and breed vermin. Generations later, his agents have access to horrifying insects, monstrous serpents, and enormous arthropods of all varieties known to science – and some that science claims are impossible by the laws of God and nature!

The Great Work of Time

History can be changed, but it doesn't stay changed. If an evil Circle has replaced Lorenzo de' Medici as ruler of Renaissance Florence, their rule will last until they leave Florence to return to the present. At that point the people will rebel, or the Milanese will march in, or the Arno will flood, and after the fires and the riots the Medici will have connived their way back into power. If you kill someone's father, he probably won't be born, but if you kill his grandfather, who knows? And back more than two generations, family trees tend to re-graft themselves somehow.

Subtle changes, however, the kind that sneak under the wire or don't make it into the history books – those can propagate robustly. An Architect who sets up a secret society in Charles II's London can step ahead to George III's London and expect to find his conspiracy busily working along, and it will still recognize the passwords and secret handshakes he set up a century earlier. He may not be able to replace Pitt as Prime Minister, but he will be able to bribe and suborn Pitt's clerks. If he has managed to get an Architect agent made Pitt's history tutor as a child, he might even be able to alter Pitt's attitude toward such pesky things as Parliamentary power. With enough of these subtle changes pointing in the right direction, the Architects hope that they can build up enough momentum to suddenly alter history all at once, like a river breaking its banks and carving out a new channel. Failing that, the Architects plan to set up enough covert power in every nation that they can seize control once some crisis – a stock market crash, or a global war, for example – destabilizes all current governments. The Fang Sing, and certain of the evil Time Circles, have similar hopes and aims.

In game terms, Simple changes (p. 105) can happen with little trouble. Anything that requires a lot of research to find out about – individual casualties at the Battle of Bunker Hill, the precise royal budget for 1713, whether Napoleon marched through a given small town on his way to Waterloo – is changeable. An Average or Complex change is the GM's call; an Amazing change should be impossible.

Hollow History

Or, possibly, history can be changed, but the present just doesn't know about it. Somewhere in the past, the Fang Sing have factories in Carthage churning out repeating crossbows for the final war with Rome. The Architects rule over Elizabethan England with machine guns and steamships, preparing to launch their invasion of France. Evil Time Circles command criminal empires in the pirate Caribbean, or launch Balkan wars to exterminate their rivals' fortresses. None of it shows up in the history books, though, until these islands of "hollow history" can be connected in a great chain – the Fang Sing have to wipe out Rome four or five times, and then start taking over the Renaissance on the back of Tamerlane's invaders. Whichever side reaches the present first will rule the world.

To maintain the flavor of the game, changing history should still be difficult, onerous work. Apply a universal -5 modifier to all outtime technological, political, and cultural change rolls from pp. B505-508 or pp. 105-106. (Travelers should make use of the Extra Time rules on p. B346 to mitigate this problem for both Concept and Proposal rolls.) Opposition to political and cultural change delays things by *quintuple* the time given on p. 105 – a delay of eight weeks becomes a delay of 40 weeks, for example.

Fortunately (or unfortunately) for himself, a time traveler has an extremely privileged past, with much higher inertia even than the rest of history. His enemies can't kill him as a baby, or convince his parents to divorce, or burn down his hometown, or draft him into the Army. This has its downside, too. A traveler who puts a shilling in an interest-bearing account in 1700 will come back to find no fortune waiting in the present. Instead, the bank went under in 1749, or a different claimant withdrew the cash a decade ago, or the government confiscated that account for tax delinquency. A traveler can bury treasure in the past and hope to dig it up in the present, but making history work to change his life – in either direction – is right out. Further, he can't interfere in his own timeline; no attempt at communication with his past or future self is possible.

Campaign Assumptions

Parameters

Scale: The default scale is fairly prosaic, one of individual Time Circles competing for power, influence, and handsome Meissen dishware. However, it can escalate with the goals of the villains, especially if the Architects or the Fang Sing become major players.

Scope: Broad, intentionally so. The more exotic and wild the past, the better to lock into the "pulp Twenties" feel of the campaign world.

Boundaries: The past, essentially as depicted in a good 1920s history book, with lots of Dark Ages and Mysterious Civilizations outside the well-lit progression of Egypt, Greece, Rome, Merrie England, and Our Glorious Selves. Psionics are the default source of "magical powers," although the GM can change the flavor by adding other supernatural elements if desired.

Paraphysics

See the *Great Work of Time* discussion on p. 215; history is Plastic Time with High (or even Very High) Resistance. There is no Linearity Effect; a month of time travel still takes only one night's ritual. There is no Observer Effect in the default setting, although the GM could add one if he wants a more mechanistic flavor to the Circles' strategy. The GM will probably want to impose a Recency Effect of about 20 years or so, if only to remove the temptation to do dirt to an enemy Circle last week.

As written, this setting involves Paradox-Proof Time, although one interesting variation would be Temporal Snarls that induce heavy Fright Checks, FP costs, Will penalties, and even IQ damage for communication with yourself. Is the message worth delivering, knowing that you'll go insane? A player can then "restart" in the position of his "younger self" (with said hefty damage) and replay the crisis, or the GM and players can agree to handwave the shift and move forward from the repair.

Characters

Members of the Order of the Hourglass likely have Enemies (Evil Time Circles), Wealth, and Status.

Power Level: Any, although slightly pulpier heroes (around 175-200 points) fit the setting's feel. Characters without several languages are going to get themselves killed.

Niche: All PCs are assumed to be members of a Time Circle, friends or trusted associates of whichever PC it is that has the Gakuji source.

Freedom: One hopes that all PCs will comport themselves as ladies and gentlemen, whether in the present or the past. American heroes are expected to try their best, given the handicaps under which they labor.

Edges: The only edge the PCs have is time travel, although the GM may allow other psionic powers if he wishes. Their foes have at least the same edges the PCs possess; on average, evil Time Circles are PC-equivalent, the Architects have more wealth and power, and the Fang Sing have more psionics *and* deadly kung fu.

Time Travel Advantages

Gakuji (+40): Jumper (Time) (Warp Jump; Naked (Except for period items, -20%), -25%, Past Only, -20%, Preparation Required (1 hour), -50%, Psionic Teleportation, -10%, Research Required, -25%, Trigger (Gakuji, occasional) -30%; -80%) [20]; Warp (Warp Jump; Naked (Except for period items, -20%) -25%, Preparation Required (1 hour), -50%, Psionic Teleportation, -10%, Research Required, -25%, Trigger (Gakuji, occasional), -30%; -80%) [20].

Architect Ley Travel (+40): Jumper (Time) (Warp Jump; Attunement Required (Structure) -20%, Past Only -20%, Preparation Required (1 minute), -20%, Psionic Teleportation, -10%, Special Portal (Ley nexus structure), -30%; -80%) [20]; Warp (Warp Jump; Attunement Required (structure) -20%, Preparation Required (1 minute), -20%, Psionic Teleportation, -10%, Special Portal (ley nexus structure), -30%; -80%) [20].

Ch'i Feng Technique (+40): Jumper (Time) (Linked +10%; Astral Projection, -10%, Only in Trance, -30%, Past Only, -20%, Preparation Required (10 minutes), -30%, Projection, -50%; -80%) [20] and Possession (Linked +10%; Astral Projection, -10%, Only in Trance, -30%, Preparation Required (10 minutes), -30%, Spiritual, -20%; -80%) [20].

With any of the above methods, a critical failure throws the traveler off course by 6d months either way.

Genre and Mode

This setting is a pulp conspiracy setting; in general, members of good Time Circles are good guys and can be trusted, but the bad guys might be anywhere else. Order of the Hourglass adventures can support the investigative mode well. Historical fidelity is less important than exciting scenery; at its base, Minoan Crete is a Thrilling Location, not a fully evoked society, unless the GM wants to explore culture clash more deeply than "I say, Sir Nigel, they don't seem to be wearing any, er, you know . . . camisoles."

The Time Corps

In the late 20th century, the physicist Alexei Arbatov proved the existence of "entropic charge," an energy potential inherent in all matter. Entropic charge declines over time; presumably it was at its maximum at the time of the Big Bang, and will reach zero when the Universe reaches its maximum expansion and begins to collapse. Physicists are still arguing over what happens after that . . .

Arbatov postulated that entropic charge serves to "hold" matter stationary in time, and could be manipulated to move matter through time. But nothing was actually achieved for over 50 years, when Mariana Brill first demonstrated time displacement in the laboratory on the atomic particle level. The Arbatov-Brill Effect used huge amounts of energy, and was uncontrollable and unstable. Another 30 years went by before Nehemiah Eden used a new type of organic-plastic semiconductor to create Focal Referent devices, which made the stable displacement of objects practical – though the energy cost remains staggering.

The United Nations, by then a true world government, immediately moved to establish control over time travel. Under the general title of Project Timepiece, they constructed the first large-scale Arbatov-Brill-Eden Transmitter, and set up the Temporal Control Authority (TCA) to operate it.

Unfortunately, Timepiece is not alone in the past. Early in its existence, it encountered the operatives of an organization calling itself Stopwatch, who were attempting to alter history at key points. Stopwatch is the equivalent of the TCA from an alternate present, in which a gray bureaucracy rules humanity. (It calls itself United Mankind, but our world knows it as the Hive.)

Stopwatch agents are working throughout time to make certain that their future comes into existence. Project Timepiece has its own elite Time Corps to prevent this.

Agent Slang

Time Agents, close-knit and highly trained, have developed their own terminology. This slang adds color to a campaign. (GMs can also develop their own – or encourage their players to do so.)

The implanted Focal Referent is called the Latch, or the Jockstrap. The Mark II that non-agents wear has nicknames like Safety Belt.

Agents tend to deride non-agents, and (when the victims aren't listening) call fitting the Mark II "tucking them in" or "putting on training wheels." The Transmitter Stage may be called Home Plate, Ground Zero, or similar names; only a rookie calls it "the Transmitter" or "the Stage."

Timesickness has many colorful nicknames; among the more printable are "Wells' Revenge" and "The Crosstime Cookie Toss."

We can't print their nicknames for Stopwatch agents.

Time Corps Glossary

Absolute Now: the "real" present, from the point of view of someone at ABET headquarters.
blackout: an area of time which cannot be reached by the ABET transmitter. Some are temporary; some seem permanent.
clock out: travel in time.
crunch time: time in the Absolute Now passing at a faster rate than experienced time while on a mission.
divergence: warning of impending historical change (p. 225).
downtime: toward the past.
dropout: when all agents in a time period are thrown back to Base by a historical change.
Ear: a device for detecting items entering or leaving the local time.
Eddy Effect: the reason agents in the past may not get supplies or reinforcements exactly as expected. This has other names we can't print, but JAFEE (pronounced "jaffy") stands for Just Another (Freaking) Eddy Effect.
nak: short for "anachronism." A person, place or thing belonging in a different time or timeline.
native: anyone who belongs in the current world or time.
Observer Effect: a phenomenon limiting the type of historical event that can be changed (p. 159).
slack time: time faster than normal relative to Absolute Now.
traveler: anyone who goes between times, dimensions, planes or alternate worlds. See also "nak."
uptime: toward the future.

Who controls the past controls the future; who controls the present controls the past.

– George Orwell, ***1984***

Mechanics

The Arbatov-Brill-Eden Transmitter (ABET) is at the center of a town-sized complex in the Canadian wilderness. While the Transmitter Stage is just a plain metal disc five yards in diameter, its support consists of ranks of cryogenic supercomputers and one of the largest power-generating stations on Earth; each pound of mass sent into the past requires some $10,000 worth of electricity. The rest of the TCA complex provides housing, research, and training facilities for approximately 600 Time Agents and several thousand support personnel.

Once displaced into the past, an object has "negative temporal potential"; Arbatov's entropic energy constantly tries to return it to the present. Displaced objects must always be inside the field of a Focal Referent device, or they return to the Transmitter Stage. (There is one very important exception to this: the Divergence Effect, described on p. 225.)

The ABET can send a load of 1,200 lbs. to any period for which a window (see below) can be found – distance into the past does not matter.

The ABET can reach any physical location on Earth; agents do not only travel in time, but also in space. (It does not seem able to hit off-Earth points accurately, due to the lack of a gravitational frame of reference.) The first agents sent to a given site have a 1 in 6 chance of a small coordinate error – not fatal, but often interesting.

Target Periods and Blackouts

Because of the Arbatov Barrier, an effect analogous to the "potential barrier" around the atomic nucleus, nothing above the atomic level can be sent back less than 130 years. For an Absolute Now of 2100 – a good starting place for the campaign – this means that no time after 1970 can be reached.

Even before 1970, the ABET cannot send agents to any chosen period in time. It is limited to "windows" – periods 245 days, 496.5 seconds apart. These window periods move as the Absolute Now does. If June 7, 1832 is a "window" right now, then June 14 will be a "window" next week. These "windows" have no width at all. You can send to one specific instant in June 7, 1832 . . . or you can send to another instant, some eight months earlier or eight months later . . . and so on. If you want to get to June 14, you will have to wait a week . . . either in the present, or in the past.

Thus, agents sent into the past must usually wait several months to get to a desired historical event – but sometimes they have no choice but to land almost on top of it, and act with little preparation.

For game purposes, it is easiest to think of the present as "dragging" a string of windows through time. These are the only points to which a time traveler can go. They are about eight months apart. So if you can hit January 1700 right now, you can also hit September 1700, and May 1701, and so on – assuming no blackouts intervene. In practice, of course, the GM can put a window whenever he wants one by deciding what date the Absolute Now is at.

Certain periods, though, are blacked out and unavailable. Some of these are due to successful Stopwatch interventions (see below). Others are mysteries. The blackout from 25 B.C. to 82 A.D. is especially irritating to historians. Blackout periods have been known to move and change, too. (The GM can set blackout periods for any time he finds convenient.)

When a window moves into a blackout, nothing can be sent through it, or emerge from it . . . but the window will re-emerge from the blackout on schedule. Agents with downtime when a blackout begins cannot return home until it is over, and sometimes have odd memory lapses.

Just sending something back in time creates a temporary blackout. When something is sent to a window, that window closes for the next 3d×100 hours of past time (which is an average of a month and a half). The actual time it will remain closed cannot be predicted, but the ABET can detect the window opening again.

Since linearity is not conserved in this scenario – the Absolute Now does not necessarily move at the same "speed" as the past, with respect to an observer in the past – someone who was sent through a window will not always be "on" that window with respect to Control. Sometimes, but not always! In general, the more a visitor meddles with the past, the likelier he is to set up an "eddy" which will reduce the precision with which Control can send him reinforcements or supplies (see below).

Returning

Agents may return at any time (unless Divergence is occurring; see p. 225). They return to whatever moment the Absolute Now has reached. The Linearity Principle (p. 156) does not always hold true. The more changes the agents make, the more likely it is that time *will* be linear, as their personal duration "fills up" any accumulated slack in the timeline.

Anything which returns to the future reappears on the ABET stage. The TCA keeps the stage clear at all times except while actually transmitting something, and takes returnees off the stage immediately. (Theoretically, anything returning to a fully occupied stage would simply be displaced in a random direction, to appear in an open area, but nobody wants to take chances.)

Eddies and Uncertainty

Agents who meddle with the past, or who are in the presence of Stopwatch agents who meddle with the past, find that Control can't hit their time *exactly* with reinforcements, supply drops and so on. The "window" has become uncertain. This uncertainty is from 1d to 10d hours; the GM judges the current level of historical change on a scale from one to 10, and rolls that many dice.

The message or reinforcement usually arrives after it was expected. On any roll containing more than two 6s, the shipment arrives *before* it was expected. If the shipment was in response to a request from the past, it will *never* arrive before it was requested!

The Absolute Now

The Absolute Now – the date to which agents return when they clock back from the past – starts at the date on which they leave ABET, determined by the GM. Changes are partially determined by the PCs' actions. For instance, if they send a note to Control, requesting a machine that takes three months to build, then the Absolute Now advances by three months, even if the agents get their machine tomorrow relative to their time.

The GM can also advance the Absolute Now arbitrarily while the agents are in past time. This means that when they clock forward, they will come back later than the time they left. As a general rule, future time passes at only 10% of observed time if the agents do nothing (this allows for some great vacations). Minor variations let it flow at 30% of past time speed; major ones at 60%; huge ones at 100%. This can vary by 4d% in either direction, though never to less than 0%. The GM can always declare "A month has passed at Control with no report from you. They get nervous and send you a message."

The existence of an Absolute Now prevents one sticky sort of paradox. Agents can meet an agent from "their future" – but they cannot carry information back to the time they left from. They will return to the same Absolute Now that the later agent came from.

Example: Ng Chan clocked out on January 1, 2100. He traveled 200 years downtime to January 1900. He remains there, observing, for 100 days. Normally he'd assume that only 10 days Absolute had passed (he's not taking any actions – just observing). One evening, though, Al Morris, a fellow agent, contacts him. Al tells Ng that he clocked out in July 1, 2100. Ng now knows that the Absolute Now has advanced seven months – and he'll probably try to figure out why! No matter what the explanation, Ng will now snap back to July 1 or later – he has "lost" the intervening seven months (this is known as "crunch time"; see the box below). Biologically, Ng would have only aged three months (the length of time he spent in 1900).

The clock in San Dimas is always ticking.
– Rufus, ***Bill and Ted's Excellent Adventure***

It is possible that the "real" absolute now is 500 years from now, and that Timepiece agents are being watched by the agents of some future time corps – but that would be a different campaign, and would require some explanation of why Timepiece agents return to their own time. In this frame, our heroes are at the real Now, the farthest point that eternity has advanced. They will not see agents from the far future. If they see agents from a near future, that future becomes their present when they return.

The Focal Referent

A Focal Referent (FR) is the device that keeps a transmitted object in the past. Time Agents have a Mark III Focal Referent implanted in the chest and abdomen. It is powered by myoelectricity from the user's body, and is not detectable by surface examination. The organic plastic does not appear on an X-ray, though a careful search with ultrasonic equipment (available only after the late 1960s, and therefore not much of a risk) or surgical invasion might reveal it.

The Mark III monitors the wearer's heart and brainwaves. If he is badly wounded, the device switches off, and the agent returns to the transmitter stage, where an emergency medical team is constantly standing by. With TL10 medical care, "if he's breathing, he's cured." The only thing that Timepiece's medical staff can't deal with is severe head injury. If an agent pops back with most of his head missing, he's dead. Even so, if the player likes, a clone of the agent can be created from a braintape made before the mission!

To return voluntarily, at the conclusion of a mission or before, the agent uses his tongue to activate two switches built into his teeth (two, rather than one, to avoid accidents). Even so, there is a small chance (a roll of 5 or less on 3d) that any blow that gets past the head's DR will pop the agent back to his home time. (The GM may ignore this result if it interferes with the game, but players will usually be amused; it's better than dying.)

Non-agents sent into the past usually wear a Mark II FR as a belt or chest strap (with a heart sensor, which functions like the life sensors on the Mark III). It weighs 1 lb. and has DR 3 and HT 5.

Crunch Time and Slack Time

When the Absolute Now advances at a faster rate than the personal time of a traveler, this is known as crunch time. In the example above, Ng might complain that he was "crunched seven months, and missed the basketball playoffs."

On the other hand, if everything goes well, an Agent can spend longer downtime than the Absolute Now passes. This is known as "slack time."

Crunch time and slack time can introduce some interesting effects, especially regarding calendar age vs. biological age. For instance, someone with a lot of slack time might have a calendar age of 20 years, but a biological age of 50+. Someone who uses slack to his own benefit (meeting deadlines, rising in rank, etc.) is known as a "slackmaster."

Conversely, an Agent with a great deal of crunched time might appear to be 25 years old – but have actually been born several *hundred* years ago (if the Absolute Now had advanced that far since the campaign started)!

When an agent returns by surprise or without taking precautions after a very long visit to the past, he may take actual injury because some of his molecules stay in the past!

Both the Mark II and III Focal Referents "hold" the wearer's clothing and personal equipment to a range of about five yards. Beyond this range, the gear will snap back. Equipment can be fitted with a Mark I FR, about the size of a credit card (DR 2, HT 3). Agents usually carry a spare Mark I in case they have to temporarily store their gear. Placed in a closet or chest of drawers, for instance, the Mark I would stabilize everything within two yards. Weapons are usually not equipped with their own circuits – very effective insurance against their falling into the wrong hands.

Any "home-time" item that leaves an FR field snaps back to the ABET stage. This includes shed blood, sweat, fingernail clippings, and so forth – which is why agents take a strong laxative a few hours before leaving. The return of random trash is messy and inconvenient when the Stage is occupied, but rarely dangerous. When necessary, pressure sprayers sweep the Stage clear. (The backup system is a couple of people with mops . . .)

Exception: An item in a blacked-out period will not snap back to the future, even if it loses its Focal Referent, until the blackout ends.

Any FR field will hold a "future" object; if one agent hands a stunner to another, it the second agent's field holds it when the first agent walks away. But Stopwatch FR fields will not hold an item from the Timepiece future, and vice versa.

The Transference Effect

The food that a traveler consumes in the past, once digested and assimilated, becomes part of the traveler and returns when the traveler does; so does the air in his lungs. It appears that when atoms from the future chemically bond with atoms from the past, the Arbatov charge "leaks" via the electrons. If a future object interacts chemically with past materials inside a Focal Referent field, it gradually leaks its "future" charge. Similarly, "past" atoms can be assimilated into objects from the future, though they tend to acquire a "future" charge.

Since most of the human body is water, an agent can avoid any significant effects by drinking a great deal of future water for at least a week before returning. This replaces the system's "past" water and seems to replenish the charge on the body's other molecules.

But when an agent returns by surprise or without taking precautions after a very long visit to the past, he may take actual injury because some of his molecules stay in the past! Roll 1d-2 injury for each full year the agent stayed in the past, or 1d-3 if he lived as much as possible on rations brought from the future. (But note that since the agent returns to the ABET stage, where some of the world's best medical care is available, he's usually in little danger unless he's dead when he arrives.)

Still, there are spooky side effects. When an agent leaves some of himself behind, those who remain see a greasy, bloody mist in the shape of a man – the left-behind molecules. And there have been cases, not thoroughly explained, where long-term agents vanished from the past and did not return to the future. Were their molecules dispersed throughout history, or did they arrive, intact, partway to the future?

A much commoner painful side effect occurs when any agent returns; a major fraction of the material in the digestive tract remains in the past. This sudden vacuum in the gut is painful, and costs 1d FP.

There *are* good side effects of transference. After someone has been in the past for about a month (8d days, different for each traveler), their cut hair, fingernails, skin flakes, etc., no longer snap back to the present once removed, eliminating a telltale sign of Agent-ness. Living matter like blood cells snap back; hair and fingernails on a living body snap back when the person does (though they may get shorter).

Bringing Past Items Forward

In general, it can't be done. Past-time items carried by returning agents, placed within items set to return, etc., etc., simply stay in their own time. Agents wishing to send inanimate items "forward" must bury them in time capsules.

With patience, the transference effect can be used to bring a living being forward. A pair of *Eohippus*, captured in the prehistoric era and carefully fed on modern food and water for five years, returned to the ABET stage with no ill effects; they have already produced a colt.

Time Agents

Timepiece agent characters begin with a base of 180 points (or more, if the campaign is to be cinematic). Certain advantages and skills representing agent training are mandatory, and certain disadvantages prohibited. (The GM may want to use the Infinity Patrol templates on pp. 186-188 as a starting point for constructing Timepiece Agents.)

Timepiece recruits must all be in first-rate physical and mental health. Sending a hemophiliac into the Middle Ages would amount to murder! Time agents can have no physical disadvantages; mental disadvantages are allowed only if, in the GM's opinion, they would not directly impede the agent's work. Impulsiveness or Overconfidence would be allowable; Pyromania or Sadism would not. Pacifism could be a plus, although Total Nonviolence is likely too much of a handicap in getting the job done. Agents do not have Dependents, and

the agency does not normally send non-agents into the past. (See the disadvantage lists in the Patrol templates, or the Alternate Outcomes troopers on p. 189.)

The GM should play the role of recruiting officer when the players ask for disadvantage points. Timepiece might accept a reformed alcoholic, if he was very talented – a linguistic genius, say. Many disadvantages that wouldn't disqualify a character would also never affect him in play, and therefore wouldn't be worth any points in the first place.

Agents have a -20-point Duty to Timepiece (Constant; Extremely Hazardous). This includes an obligation not to kill if any other option is available. It is not a prohibition on killing, but the GM should reward characters who consider the options and find alternatives, and withhold points from those who kill needlessly.

Naturally, Timepiece can provide training in virtually any skill agents might need, from fencing to disarming nuclear weapons. Top Field Agents are generalists rather than specialists. But Timepiece also has many agents, including combat specialists, who are relatively one-dimensional. They are usually used either as part of teams, or for very brief missions – i.e., they're usually NPCs. These include the combat specialists, or "grunts," Timepiece uses when direct confrontations are inevitable.

Timepiece is worth no points as a Patron, because usually the time when an agent is in most need of help is the moment when Timepiece can't do anything.

Field Agents

About 600 active Field Agents work out of the Canadian base, plus another 100 retired agents (see below). Therefore, while there is a good chance that any agent will know any other active-duty agent, nobody can recognize all his fellow agents by sight. There are recognition codes . . . but nothing is foolproof.

Local Agents

Timepiece maintains a classified number of Local Agents in dozens of past times. These agents often spend years in place and develop firm identities in the past. Of course, Stopwatch does the same thing.

Local Agents can escape to Base at any time just by triggering their FR devices. But they can return to a specific time only when a "window" crosses it.

Local Agents may receive instructions from Timepiece at any time, but with rather weird constraints. At any given Absolute Now, communication is possible only with a string of points in history, eight months apart, with various gaps. So once an agent has been in place for eight months, you can almost always communicate with him – but not necessarily at the most convenient time. You can't depend on telling him "Do this now!" You may have to tell him "Do this in six months . . ."

Retired Agents

Retired agents often stay with the service as instructors and advisors, and can return to the field in a pinch. Many of them also volunteer as Local Agents in the past, becoming permanent observers for the rest of their lives. Currently, Base has about 100 retired agents on its staff.

The Enemy

The Hive occupies an "alternate present." It is impossible to travel between the Hive's present and that of Timepiece. However, both alternate presents can send agents into their common past. The Hive is a world in which everyone works for the government – or for some part of a web of overlapping governments that starts at the level of the huge, gray apartment blocks, and goes all the way to the bloated descendant of the U.N. All corporations have been nationalized (or all governments have been bought out by the corporations – it's hard to tell).

It is a polluted, overpopulated, desperately resource-poor world. But its civilized portions are very regimented and orderly. When a Hive agent visits the past, he is likely to see not freedom and wealth, but a disgustingly undisciplined display of waste. But there are exceptions; some Hive agents revel in the past and don't want to leave.

Time Agent Equipment

Agents have access to any equipment they need, without regard for budgets, at TL10 . . . within the limitations of the 1,200-pound maximum transfer. Of course, the agents' superiors (that is, the GM) may veto any request that seems unreasonable. The GM, playing the supervising agents, decides which items may have built-in FRs (so they can stay on the past on their own) and which do not have FRs (so they will snap back if dropped). See the Patrol equipment on pp. 22-27 for some similar gear.

Weapons

There are two standard weapons, which *never* have built-in FRs. Occasionally a past-timer will manage to get hold of one which is "stuck" in the past due to divergence, but it always vanishes as soon as the Divergence Effect ends.

The Stunner is a sonic stunner in the shape of a short metal wand. It can be tuned for either tight-beam or area effect. (Use the CF/3 statistics on p. 200).

The Stinger is a gas-operated pistol that fires tranquilizer darts. It may be camouflaged to look like an antique weapon (flintlock, Colt .45, etc.) and fitted with powder charges to make the appropriate flash and bang, or disguised as a cane, prayer book, or other item, in which case it operates nearly silently. The darts contain a plastic FR circuit, which is charged as they spin through the barrel rifling: a few seconds after firing (more than enough time to reach the target) the charge dissipates and the dart vanishes, leaving only a small puncture wound like an insect bite. The Super Stinger is a rifle version of the Stinger with telescopic sight; if not disguised as an antique weapon, it folds to fit in a small shoulder bag. (Use the Needler statistics on p. 200; the Super Stinger has four times the range and six times the weight.)

Costumes and Money

The Costuming division can provide copies of any period dress, with improvements such as Kevlar lining for leather armor. Some items, such as suits of plate armor, may have Focal Referents to keep them from snapping home when separated from the wearer.

Traveling money is a problem neither of the time agencies has ever fully solved. Precious metals, or even gemstones, are cheap compared to the cost of transmission, but they are difficult to stabilize. Where commerce is well developed, Research Division can provide instructions for profitable, inconspicuous investments. They have also manufactured large coins and articles of jewelry containing small FR circuits, although these lose their charge and snap back in a few days, giving rise to stories of magicians' gold that dissolves after the sorcerer departs . . .

Other Gadgets

The effects of Focal Referents are described on p. 219.

The *Notebook* is a portable audiovisual recorder/player, about the size of an average hardcover book. It is used to record the course of a mission, though if fitted with a Focal Referent it can be used as a snooping device. It records on laser discs that can be ejected and used to send messages to the present (see also next entry). Time Agents are notorious for using the recorder for all sorts of purposes *except* keeping an accurate record of their activities . . .

Notecards are small sheets of plastic with a faint radioactive tracer. Agents in the field can write messages on a card and leave it behind; once out of range of the agent's FR, it snaps back to the ABET stage, where its tracer sets off a warning to pick up the note. The special cards are rarely necessary, of course. *Anything* that appears on the stage will be examined immediately. But if a note appears on the stage at the same time that several wounded agents snap back, the special plastic cards are likelier to survive and be noticed! Notecards that do not disappear provide a warning of Divergence Effect.

The *T-Meter* is a device for measuring Arbatov energy; it can precisely identify the moment in time at which the travelers have arrived. (If the GM would rather the players not know this, the T-Meter may be made unreliable, or not used at all.)

Homemade Equipment

If the agents are going to be in place for a *long* time, they can bring tools and equipment from home and *build* some fairly high-tech equipment. If they really need an Uzi, they can have one made from local materials.

Hive agents may be from any industrialized part of the world – North America, Europe (including European Russia), eastern China and Japan, Australia, and Argentina. The poorer areas have simply collapsed in famine and disease, and have been abandoned. Where they held valuable resources, as in South Africa, enclaves from the Hive exist to strip them dry.

Why are there only two competing timelines? Neither side knows. Temporal physics seems to be governed by a strange attractor – a mathematical function that boils down almost all probabilities into two. Consider: When you spin a coin, it is random, a ball of light moving about the table. But when it stops, no matter where it falls, it will almost always end in one of two states: heads or tails. (But it *might* land on its edge, or fall off the table . . . just as agents have occasionally reported observers from potential futures other than that of the Hive.)

The timeline seems to be spinning like a coin. Whatever happens in the past seems to lead almost inevitably to

either the Timepiece world or the world of the Hive.

And here the coin analogy breaks down, because now – whatever "now" means – both the Timepiece world and that of the Hive seem to exist. They are not separate timelines . . . at least, nobody can travel between them. They are different aspects of the same timeline, with almost equal probability.

Could enemy action change history enough to extinguish one side entirely? Mathematics suggests it can't . . . but if a timeline becomes unlikely enough, it will no longer be able to travel in time. And that, by itself, is worth fighting for! Timepiece agents not only oppose Stopwatch's changes, but try to create their own, to make history favor their world.

Timepiece has only a general idea what events favor Stopwatch, and what events favor themselves. The final decision which determines which way the coin falls must lie in the 130 years which the ABET can't see or visit. Something during that period was important enough to reduce all preceding history into one simple choice.

All the maneuvering of both sides is simply directed at influencing that one decision, without knowing just what it is. But from probability readings after each known change, Timepiece knows about what to expect. In general, it seems that historical events favoring freedom and personal liberty favor its world, and those favoring control (whether dictatorship or just bureaucracy) favor the Hive. The form of government doesn't seem important: corporate control is just as bad (for Timepiece) as rule by king, president or Mafia don. Wars in themselves may be good or bad, but they're more often bad because war, or the fear of war, encourages stricter controls.

Stopwatch Agents

The agents of the alternate-world Stopwatch organization are every bit as well trained and equipped as the PCs. Most of them are motivated by a personal lust for advancement; the world of the Hive is comfortable only for those on top. Furthermore, they have been convinced that the other timeline must be extinguished if theirs is to survive, so their dedication is fanatical.

Attempts to bring Stopwatch agents back don't work. Timepiece agents have been captured by Stopwatch and taken away, but interrogation of prisoners reveals that none have ever made it back "home." Their fellow Timepiece operatives have never seen them, either – nobody knows where they went!

The GM should occasionally force the two sides to make a temporary truce and cooperate, either to save all their lives from the angry locals, or to avoid a change so massive that it might make both worlds less probable.

Stopwatch agents are generally more ruthless than Timepiece agents. They have more to gain and more to lose – though as just mentioned, truces are possible. And while Stopwatch does not specifically train its agents against killing as Timepiece does, they are just as subject to the effects of changing history, and have the same need for caution. They rarely kill someone unless they know he's from Timepiece. And even so, they can often make the Observer Effect work for them by leaving a foe alive. A favorite Stopwatch tactic – and some Timepiece agents use it, too – is to slit a bound foe's wrists. The blood loss triggers his FR and sends him back home, where he is patched up to tell his story. (If the victim wasn't really from the future, of course, he simply dies.)

Stopwatch cannot be taken as a specific Enemy, because it's built into the campaign as part of the overall risk that agents take, and does not seem to target specific Timepiece agents – or to have any way of doing so if it wanted to.

Other Realities and Doubled Agents

The only documented "alternate present" is that of the Hive and Stopwatch; however, Agents have reported contacts with individuals who seem to be Time Agents from other realities, some of them quite bizarre.

The other troublesome effect involves the people of the Hive's universe. Are they the same in both worlds? That is, do Timepiece agents have duplicates in Stopwatch's world, or are they entirely different people? If they do coexist, one would expect that at least some of the people who are recruited as Time Agents in one world would also be employed by their foe. Again, agents have reported meeting their apparent doubles – but nothing has been documented.

Visitors From the Future

Control has never been blessed (or cursed) with visitors from its own future. The explanation for this is purely theoretical.

It starts with the idea that Control exists in the true "Absolute Now." There *is* no future yet, just unformed possibilities. (There is no mathematical proof of this, though.)

Even though the current Control exists in the Absolute Now, it might be able to send agents to the Control of eight months ago. But the Arbatov Barrier prevents this by imposing a minimum time-jump distance of 130 years.

Still, it is possible that 130 years from now, the Control of that time will be able to send agents to the Control of the "present." But there are theoretical reasons to think that the existence of an ABET transmitter is one of the things that can create a "blackout" period. If this is true, then a time that is the source of time travelers can never be the *destination* of time travelers.

It *is* possible that some of the unexplained visitors to the past, occasionally reported by Timepiece agents, are really from Control's future. But if they are, they haven't admitted it . . . or anything else!

Detecting Interventions

Penetration Detection

When a penetration is made from Absolute Now in one timeline, the ABET on the other timeline can pick it up. Thus, it is meaningful to say, "Stopwatch penetrated 1850 A.D. about 20 minutes ago."

However, there are lots of false alarms. This may mean that there is time travel going on that Timepiece doesn't know about, or that they don't understand the system, or both. Over 70% of the time, a team sent back to check a penetration detection finds nothing.

Problem Reports

Whenever possible, Local Agents monitor important historical events. Sometimes they observe a problem directly (an agent in Moscow sees the Germans marching in). Sometimes they see its effects afterward (an agent in Berlin receives word that Moscow has fallen and Stalin is a prisoner). In either case, the agent's duty is to return to Control *immediately* with a full report. If several agents are present, one returns. The others wait to be contacted. Usually the contact comes within minutes after the messenger leaves . . . even if it is from agents who have been on the scene for months.

When a Local Agent becomes aware of a problem, the one thing he must *not* do is observe too much! This seems like a paradox – in most wars, information is vital. But in crosstime conflict, often the more you know the less you can do.

Object Size	*Ear Detection Range*
Fingernail, button, etc.	5 yards
Notecard, dart	10 yards
Bullet	20 yards
1/2 pound	30 yards
1 pound	40 yards
10 pounds	50 yards
100 pounds	60 yards
1,000 pounds	70 yards
1,200 pounds (maximum ABET send load)	71 yards

The Observer Effect vs. Changing History

New agents often ask, "How can history be changed at all, if the Observer Effect really works? After all, everything important about history has been recorded."

The answer – for practical purposes, anyway – has to do with *direct* vs. *indirect* action. A directly observed event has a great amount of inertia; it is not likely to change because of direct action. *Indirect* action, however, which does not itself contradict anything observed, can build up a "momentum of events" that can sweep away observed actions. But this momentum can take months or years to build!

Thus, a time traveler *can* take actions that will eventually change observed history. This can sometimes sweep away whole sections of known history, with all their observations . . . and with all the Local Agents of both sides. And if, as often happens, the change is reversed, the "old" history will be back in place, along with its agents. But observations made during that period will no longer be fully reliable; there is once again scope for free action by Time Agents.

Agents can detect enemy action in the past through the Eden-Arbatov Energy Reflector – the EAER, or "Ear." This detects the ripple of energy created when a mass enters or leaves "current" time nearby. The larger the mass, the farther away it can be spotted by the Ear. Agents wear small Ears; they are built into the skull, and translate the energy into sound to let the agent "hear" something entering or leaving. Thus, agents can often detect each other by listening! Sending a note at the wrong time, or carelessly dropping something, can be a fatal giveaway.

An agent can tell by the sound whether something is coming or going, the direction, the general size, and the approximate distance. The distance something can be "heard" depends on its mass, and increases according to a reverse power curve; the maximum theoretical distance at which any ripple can be picked up is less than 150 yards. The table above shows the range at which typical masses can be detected coming or going.

Larger Ears are available (20 lbs.). These have no more detection range, but read out the exact mass and distance of each penetration, and can log all penetrations for later examination . . . which is useful, because everybody sleeps from time to time.

Gross Changes: A Bad Idea

"Why don't we just nuke Hitler?" Every new Timepiece agent asks that question, or something like it. Why can't we just send a whole army of Time Agents, armed to the teeth, to forcibly put history on the kind of track we want?

Because it doesn't work, that's why.

Timepiece and Stopwatch don't play a subtle game because they want to. They're subtle because they have no choice. Both agencies have learned the hard way that noisy, flashy maneuvers don't benefit anyone.

In the early days of the Time War, Stopwatch tried several blatant attacks on the early days of American history, from machine-gunning Washington's troops to planting a fuel-air explosive device on Wall Street. In every case, the result was to pop all agents of both sides out of the affected time, and to reduce the Absolute Now probabilities of both sides' coming into existence.

Apparently if the past-timers realize, as a group, that they're being invaded, that tends to throw history along very different lines. Nobody knows what those lines might be, and nobody really wants to find out.

So, agents . . . be happy with your plotting and your careful maneuvers in the background of history, and forget about nuking Hitler. Unless, of course, you can make it look like an *accident* . . .

Divergence and Dropout

If scheduled reports fail to come back from a given time, it may mean that the agents have been cut off by the Divergence Effect (see below). Of course, if it is divergence, no reinforcements can be sent directly to the time in question.

Sometimes the first warning Control has of a change is when it finds out that Timepiece has lost the round . . . by the unexpected appearance of all its agents and equipment for a particular time period.

The blackout of that period remains in effect, and often spreads. History has been changed.

Changing History

History can be changed. In fact, it can be changed over and over.

Entropic energy allows an absolute sequence of events to be imposed on changes made in past time. Suppose that in 2001, Stopwatch agents launch a time-attack against Wellington at Waterloo. They are partially successful, and history changes. So in 2002, it is true that Napoleon won and the French Empire survived another 13 years. But in late 2003, Timepiece launches a counter-effort, which restores history to its original track. Thus, the history books of 2003 are very much like those of 2001.

When one side or the other changes history – accidentally or on purpose – the effect is to change the *frequency* of the entropic energy associated with each possible future. In other words, the *probability* of each future is changed.

Instruments at Control can detect these probability fluctuations. A probability change takes the form of a curve along a chart of history. Some changes seem to "damp out" immediately. Others have an avalanche effect . . . but even these seem to damp out in the 130-year period that the ABET can't reach.

The instruments at Control can measure the probability of their own existence at Absolute Now. This is used to keep overall score in the campaign; see *The Final Outcome, p.* 226.

Control cannot measure the local probability of success in some contested past time, but the agents in that time have two rough-and-ready indicators of success.

The Divergence Effect

When the local probability of Timepiece's coming into existence drops below a certain point, travel between that time and the Absolute Now is no longer possible . . . for Timepiece agents! Stopwatch agents are unaffected. The reverse is true for Stopwatch.

An agent can check this at any time by tossing a bit of future material outside his FR field. If it vanishes, things are not going too badly. (On the other hand, a Stopwatch Ear might hear it go, so even good news might be bad news.) If it fails to vanish, the mission is in jeopardy. Often, the first that an agent knows of the failure-to-vanish problem is when someone tries to return home, and fails . . . or when a hurt buddy's body doesn't vanish, but stays right there and bleeds.

When one side gains a strong advantage, the other is "stuck" in the past, with possibly deadly results for severely injured agents who can't get home to high-tech medicine. Agents call this "divergence loss." It is not final: probability can flip back and forth more than once during a mission, until one side is completely defeated – or, as occasionally happens, the probability balance is restored, and both sides agree to back off.

When this Divergence Effect occurs, the time period is blacked out from Control's point of view. Control cannot send anything to the closest "window" beforehand, and sometimes for several "windows" afterward.

Dropout

When the local probability of Timepiece's coming into existence drops below a final threshold, all Timepiece FRs in that period cease to function, and all surviving agents and equipment snap back to the Stage in failure. The reverse is true, of course, for Stopwatch. There is often no doubt when you "win" an encounter; your foes vanish! The losing side can then send no agents into that period or the time immediately following, giving the winners a chance to consolidate their gains.

In game terms, if the GM decides that Stopwatch is about to win, he cuts off communication between the Timepiece agents and their base. And if he decides that the agents have failed and Stopwatch has won that encounter, he snaps everyone and everything back home.

Long-Term Effects

Over a term of months or years, as the Absolute Now measures time, the local probabilities tend to even out. The more massive the change, the longer they take . . . but eventually most of that period, with its changed history, will be accessible once again. Usually, though, one critical area remains "blacked out" and unavailable for direct ABET transfer forever.

Visiting Changed History

When history is changed, the GM must decide how far-reaching the change was. The sooner the change damped out, the less history the GM must rewrite or avoid!

Agents visiting changed history will be familiar with the new history. After all, this is history now; they read about it in their history books. Thus, the GM should start any such visit with a briefing to the players. Often the new history will be because of a Stopwatch intervention, and the players' mission will be to make a change that – they hope – will push history back toward a favorable track. The inertia of time will help them in this. (The GM may also decree that some part of "real" history is a Stopwatch plot, and send the party back to change historical reality.)

Remembering "Original" History

Only those individuals with Temporal Inertia (p. B93) can remember events of an "original" history, including missions (their own or others') to that period. Usually, the Time Corps' first warning of a change comes from its agents or employees with Temporal Inertia. (Timepiece hires individuals with Eidetic Memory and Temporal Inertia, even if they have no other qualifications, specifically as "rememberers.")

Record-Keeping and the Observer Effect

Timepiece has two very different kinds of record-keeping. It keeps extensive records about the detailed course of history, as recorded by historians and as observed by agents in "unthreatened" periods. Timepiece has the greatest historical library in the world . . . fully computerized, of course, but many of the original materials can be examined. (+2 to any Research roll on a historical subject!)

But Timepiece does *not* keep detailed records of the observations and actions of its own agents, once a specific crisis has passed. Even the greatest success leaves only a numerical rating in the agent's record, along with a note that he has successful experience in that period. Minor failures, likewise, leave only ratings. Agents rarely survive major failures.

The reason, of course, is to attempt to outsmart the Observer Effect. The less detail is recorded about some things, the easier it is to get around them. On the other hand, if you know nothing about what either your agents or the enemy are doing, how can you proceed? It's a problem that makes the lives of Time Agents entirely too interesting.

After a change, the Time Corps immediately debriefs its rememberers and produces a file of alternate history. This can be used in an attempt to plan actions that might undo a change.

The Final Outcome

If one side loses enough successive contests, then its probability becomes low enough that it cannot travel in time reliably, if at all. It seems unlikely that any probability can be completely erased . . . but who would want to take the chance?

In game terms, the GM should start with the relative probabilities of Timepiece and Stopwatch at 49% each. (The remaining 2% is made up of a huge number of low-probability futures.) Any successful intervention by one side adds 2d% to its own probability, and subtracts 2d% (not necessarily the same number, but reroll any result that is more than 2 different) from the opposing probability. The "main" probabilities may never total more than 99%, with the last 1% going to the "wild" futures. Should the Timepiece-Stopwatch total ever be more than 99%, reduce the higher probability to make the total 99%.

The GM may also decide that a badly botched intervention has made both futures less probable, reducing each one by 1d% or even 2d%.

If Timepiece's probability is reduced below 8%, the campaign has ended in failure for the agents. If Stopwatch is reduced below 8%, the PCs have won – and can continue to travel in time as researchers or even tourists. (But if they do something to change history again, Stopwatch may reappear!)

It is also possible that repeated disasters will reduce the combined probability of Timepiece and Stopwatch to less than 70%. If that happens, the GM may create a third time-twisting agent force, with any characteristics he likes . . . another probability has reached critical level, and may be treated like the first two. Things can *really* get complicated then . . .

Campaign Assumptions

Parameters

Scale: The scale of the Time Corps is an interesting mix of prosaic, subtle adventures and the ultimate stakes – the future of the world! This is a good compromise level, and the GM should try to emphasize both elements of it where possible.

Scope: Time Agents are the best of the best, alone in the past. They have a broad operational scope, although the nature of the windows and the Observer Effect tend to constrain them.

Boundaries: One world, but all time (with variations) up to about 1970. There is only one method of time travel, and no gates or other cheats.

Paraphysics

As given in the Mechanics section, the Exclusion Rule (p. 157) applies. Travelers can't travel to a time where they already exist. If they visit a time just *before* they already exist, they must leave again before their "earlier" version appears (or is born). If they don't, the "later" version will pop back to the ABET stage.

The agents in the field can almost always communicate with Control via notecards (see *Other Gadgets,* p. 222), or by returning in person if necessary. This only becomes impossible if a mission is imperiled by divergence (p. 225). Control can communicate with agents by sending physical messages through the ABET, but each time a package is sent, that window is closed for a long time. In a pinch, Control can send a package to an earlier window and mark it "Do not open until [whenever]!" Attempts to use this trick to get around the Observer Effect fail; usually, such a message is simply blank when read. Each communication from Control advances the Absolute Now from the point of view of the agents.

History in this campaign is Plastic but very Resistant. The Observer Effect (p. 159) applies; paradoxes seem to be impossible. If a Timepiece or Stopwatch agent changes history, the change affects the Absolute Now only on a probability level.

It is possible for an agent in the past to meet someone else from "his future." That is, someone from 2100 could meet someone who had been sent from 2101. When that happens, the agent from the earlier time knows that the Absolute Now has advanced (p. 219); if he clocks back, he'll arrive in that later time. Agents in this situation are careful to exchange only information required for the mission.

Characters

See pp. 171-200 for character design notes; Timesickness (p. 181) is Common and Mild.

Genre and Mode

This is a quintessential technical SF setting, with much of the challenge focused on using the mechanics of time travel to accomplish the mission. A GM with a strong historical SF interest can, of course, run plenty of repair missions (p. 211) in both directions! Missions are likely to be investigative, with a strong dose of technothriller (to fill out those months of waiting for the Observer Effect or the window). The setting probably works best if Timepiece agents are, in fact, the good guys, but a certain amount of grittiness won't spoil anything.

Operation Archduke: A Typical Mission

Because of the high percentage of "false alarms" and missions to protect "weak spots" against *possible* incursions, the *truly* typical mission is one in which the agents clock back . . . spend several paranoid weeks downtime, possibly getting in trouble with the natives . . . and clock home, never having seen any evidence of a Stopwatch agent. Certainly the GM can throw in such a mission now and then. But players will expect to encounter enemy agents . . . and the player *characters* are *paid* to expect enemy agents.

Our typical mission, then, is one where Stopwatch is really up to something. Here's an account of the mission as it happened . . .

The Warning

The ABET operators report a possible Stopwatch transmission: to a window at May 30, 1914, in Austria. The time and place suggest that this is real. On June 28, Archduke Francis Ferdinand, heir to the Austrian throne, and his wife were assassinated, leading immediately to World War I. Obviously, this is a key historical event. But how does Stopwatch stand to gain by changing it?

Three days later Brunner, the Local Agent in Vienna, sends a further report. Just as a precaution, he had bugged the homes and meeting places of the Serbian conspirators who were to assassinate Ferdinand. Through his listening devices, he heard sounds of a disturbance. A little detective work on his part confirmed that the main conspirators had been removed and replaced by Stopwatch agents!

The Briefing

The agent team is called together and briefed on the period. In this particular case, the Austria of 1914 corresponds almost exactly to that of our "real" history. The GM mentions one non-historical detail: the American escape artist and writer, Harry Houdini, is currently living in Austria, writing, researching, and doing occasional short performance tours. (The depth of this briefing would depend on the GM and the group. If everyone enjoys research, the GM probably started by checking several books out of the library, and he might end his briefing by handing them to the players.)

The problem is that the nature of the intervention is not immediately obvious. Clearly it has something to do with the assassination. But the Archduke was, in his time, a force for stable unity and peaceful devolution of power. One would think that Stopwatch would want him dead! So the agents will have to watch carefully and think on their feet.

The Initial Penetration

The closest window to use would be the same one that Stopwatch used, now at June 2. (The fact that they used it recently does not black it out to Timepiece – just to them.) But Control is concerned that the team might not have time to prepare properly. Brunner is the only agent in that time period, and he is not well equipped.

So: Six agents (the PCs) are clocked to the *previous* window, eight months earlier. This gives them time to prepare. Immediately afterward, Control sends six combat specialists ("grunts") to the June 2 window, with orders to wait for contact from the PCs and follow their instructions.

The PCs in 1913 are under strict orders *not* to contact the Local Agent in any way, and not to interfere with the Stopwatch actions that Brunner reported. To do so would be to challenge the Observer Effect. However – armed with the information supplied by Brunner – they place the fake assassins under surveillance without being detected, and they identify a total of seven Stopwatch agents.

One of the players tries direct action anyway, just to see what the GM will do. He sets up an ambush to zap one of the female agents with a Super Stinger – no women are known to be crucial to the Stopwatch moves already observed. But the entire team is afflicted with food poisoning from a bad dinner the night before. The rifleman is doubled up with cramps five minutes before his target appears, and his FR yanks him home. Since he didn't tell the rest of the team what he was up to, they spend a lot of time being paranoid. The Stopwatch agent who was being targeted "heard" the missing agent clock out, and her team is paranoid, too.

In January 1914, the "early" team gets a time-dropped package of extra weaponry, supplies and information; the missing agent returns in this drop. (If the PCs had thought of anything in particular that they really needed, they could have requested it by notecard and gotten it in this drop.)

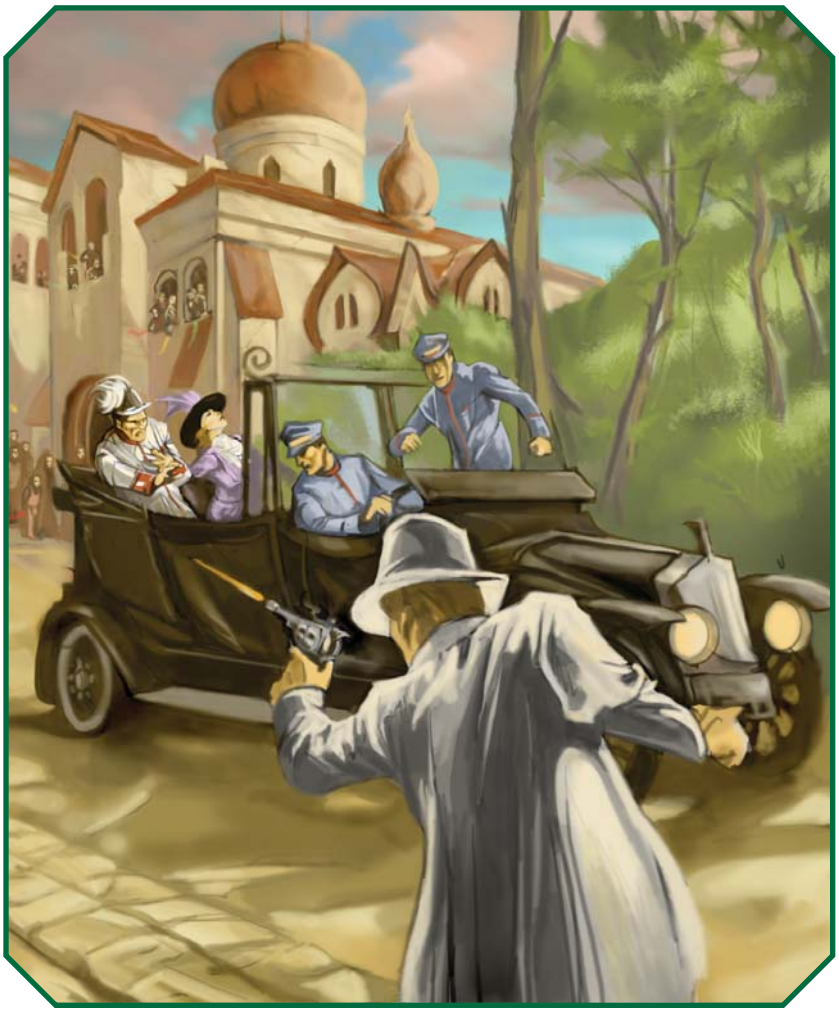
The Moment of Freedom

At the moment in 1914 at which Brunner sends his note back to Base to give the alarm, the agents are free. They are no longer constrained by the Local Agent's observations. They can contact Brunner, and they can act against Stopwatch in any way that does not contradict what is currently known of history.

However, they choose not to contact Brunner, because they know from their own surveillance that the Stopwatch agents have spotted him as a possible foe. But Stopwatch isn't sure, which is why Brunner hasn't been attacked.

The First Move

The Timepiece team decides that they don't know enough yet to try to frustrate the plot. They could try direct action against the Stopwatch team, but then who will assassinate Ferdinand?



But after six days of waiting, they become impatient and worried. When the "grunt" team (NPCs) appears, the agents decide to act. They divide their forces to track the enemy agents, hoping to clean them up in a simple firefight. A couple of combats ensue. Five Stopwatch agents are hit by darts and clock out to escape. One is captured, but nothing is learned from him before he gets away (you can stuff a rag in someone's mouth to keep him from using tongue-switches, but it's hard to interrogate him in the meantime). One escapes.

Three of the Timepiece agents are shot in the melee. Two have to clock out to save themselves. One is merely wounded in the arm. The noisy gunfire draws police; the wounded agent and one other are arrested. Ironically, the Austrians suspect them of being English spies (someone missed a Language roll) and potential assassins! Worse, all the agents must discard their weapons as they flee the police, rather than risk having future gadgets captured. (The grunts, their job done, clock out.)

Jailbreak!

Since they have little to lose, the agents contact Brunner. With his help, and via some bribery, their two jailed comrades are freed – an adventure in itself. But at this point, the agents find out the hard way, via the Divergence Effect, that they are in danger of failing their mission. (The jailbreak has gotten national attention, and war fears are raging . . . with speculation that England and America are plotting against Austria. The visiting Houdini is suspected of being a spymaster! And maybe it's true . . .)

Neither the agents nor their remaining equipment can clock home. The agents are now absolutely on their own; they can't get help from Control, and they can't escape. (But at least the surviving Stopwatch agent, and any cronies she may have, won't be able to "hear" them.)

Thinking It Through

One key to resolving this situation lies in the war scare; if none of the players are history buffs, the GM should make a few History or IQ rolls for the agents, and drop some hints.

The Austrians are now rattling their sabers, but it's out of paranoid fear . . . historically, they didn't expect the British to get involved on the Continent, let alone the *Americans*. Right now, the leaders of Austria and Germany are rethinking their plans to start a war, and *this* is what is changing history.

A Solution?

The agents should deduce that a postponed WWI works against Timepiece. Perhaps they will realize that the war is inevitable, and a later war will be worse than an early one. They may have to assassinate Ferdinand themselves to get history back on track!

One Stopwatch agent is still loose, and the agents' Ears hint that she is still active; she knows who they are, and has been snooping around. She'll probably be trying to stop the assassination.

About Houdini

Houdini, of course, is the wild card in the adventure. He might be a Local Agent for either side. Or he could be the real, original Houdini, just "out of place" as a side effect of some past historical meddling – and if he is, he might or might not be involved in espionage. Either way, he could be useful to the agents!

Houdini's birth name was Erich Weiss. He was the son of a rabbi from Budapest (the other capital of the Hapsburg dual monarchy). He spoke fluent German and had toured Germany, Austria, and Russia (he was in fact suspected of being a spy by the Russian secret police). As a Jew, a potential Hungarian nationalist, and a possible spy, he was distrusted in many quarters. He had contacts at many levels of society and a formidable array of skills. By 1913, he was an aviator, a mechanic, an expert driver, a good rifle and pistol shot, an acrobat, an illusionist, and an escape artist. He might know anything else useful that could be learned at the time; he was insatiably curious.

The Horatio Club

I've forgotten what I was looking for, when first I found the Club. I was in London, I think; but I won't tell you where in London, because the details would either send you looking for the place, or bear no relation to the London you know.

It's what used to be called a Gentleman's Club – quiet, serviced by impeccable butlers who know your name and your habits, with the best food and drink; a warm haven to the members, a closed book to everyone else. It isn't fusty and exclusively male – the nature of the membership is not fusty nor exclusively anything. There are no windows anywhere in the Horatio Club . . . but there are doors.

They do their best to hide the nature of the place. The furniture is comfortable but nondescript; the only emblems you see are the Club's own. The pictures on the walls are of nobody and no place you recognize. There are no clocks at all – but if you ask one of the butlers what time it is, you always get an answer that makes sense.

Stay long enough, of course, and the truth will out. You'll meet someone dressed oddly (maybe very oddly), or hear a reference that doesn't fit your memories. (For a true vision of what the Club is, listen carefully to the toasts offered before dinner; but if you're present for that, you're already a member.)

I said there were doors. There are many of them, upstairs, up and down long quiet carpeted halls lined with the most eccentric collection of curios outside a museum. Some of them lead to bedrooms, with the most comfortable beds you've ever slept in (or done anything else in, for that matter, but the Club is discreet as nowhere on Earth is discreet) – no television, no radio, but a shelf of books, at least one of which you've always intended to read. Most of the doors are locked. And every now and then one opens, onto places . . . different from the one you left.

Behind one of them, the sun never set on the British Empire, and King Charles III rules from the Mideastern Colonies to the Mississippi Frontier. Behind another, that same Mississippi Valley still belongs to the French, who seem to be in a prolonged global war with the Portuguese and the descendants of Chaka Zulu. Behind another, it's the same city you left, but there's a dome over it. Behind another, another dome, but you look up at a black sky and see the Earth; in its dark crescent, the craters of cities still glow.

Not all the worlds behind the doors are noisy, or imperial, or dead. There are paradises, too. I know, I know: every world is paradise to someone; every paradise is Hell to someone else. I'm being subjective. And I know that if most of those doors were not locked – if the Horatio Club were open to all comers – there would be changes.

That's why I'm convinced that, whatever it may sometimes seem like, no one ever enters the Horatio Club by accident. If you find your way here, you're a member, whether you know it yet or not.

Surely there must be some kind of rules, if there's going to be this sort of crossroads. Can you let just anybody go hopping from one universe to another? Good question. I can't say, though perhaps someone else can, whether the Club enforces the rules, or if it's simply part of the system.

I do know this: one time and one only, I met a fellow-traveler who spoke, not seriously at all, I thought, about finding a door into a world he could conquer – not just make his way in, but rule. I saw him again, not long after by my clock; he looked about 20 years older, a bit scarred and much quieter, and he didn't talk of conquest anymore.

I know that, and that all the members are human. I think.

HORATIO: O day and night, but this is wondrous strange!

HAMLET: And therefore as a stranger give it welcome.

There are more things in heaven and earth, Horatio,

Than are dreamt of in your philosophy.

– William Shakespeare, ***Hamlet,*** *I:v:175-179*

The Club is a deuces-wild alternate-worlds frame. Like Poul Anderson's Old Phoenix Inn, it is a comfortable crossroads between all the universes that are, were, or might be, both a way station and a checkpoint – because, while some of the travelers are quite lost, the staff always seem to make sure that they get somewhere that they somehow ought to reach; and conversely, the selfish and destructive of the world(s) are never admitted there.

There's no point in giving very specific rules for the Club, because it is not by its nature rule-driven; it's philosophical fantasy, not hard science fiction. Some guidelines, however:

The Club is most appropriate to small groups of adventurers, ideally the sort of people who like to explore a situation and find out its possibilities, rather than be assigned clear-cut mission objectives, or simply shake down the world for whatever wealth is in its pockets. The group members need not all have entered together, or even be from the same world. Yes, this is a version of the good old "You meet in this tavern on a dark and stormy night" gimmick to start a campaign. Encourage the players to spin tales of where they came from and how they happened to find the Club door, as if they were sitting over one of the fine Club dinners. (Doing this by candlelight, over whatever you prefer to eat and drink, won't hurt the atmosphere a bit.)

The doors of the Club do not open at random. Nobody knows (or will say) what Mysterious Power controls them, but Whoever It Is has a remarkable knowledge of the guests' skills and abilities, and of wrongs and injustices on all the myriad worlds that those people are just the ones to set right.

GM Advice

Have the players design their characters well in advance of the first play session, or if that isn't possible, hold the design session, the introduction to the Club and the dinner-table conversation, and then send everyone upstairs to the Club apartments and stop. Then spend some time working out what sort of world all these different people should have their joint adventure in, what uses they can make of their skills (not to mention the players' own personal talents). This is rather more involved than loading hostile critters into 10'×10' square dungeon rooms, but it is also rather more rewarding.

Most of the Club's guests are not casual universe-hoppers. Some may only visit once in their lives. In the classical fictional paradigm, they are traveling from a world in which they are hopeless romantic misfits to one where they can be real heroes and live Happily Ever After. In GM terms, this means a world-problem that can't be solved too easily or quickly. Perhaps much of the adventure will be spent figuring out just what the solution – or just what the *problem* – is.

By Way of Example: The Dolorous Maiden

Your Club guests have retired to their rooms, but they can't sleep. The books on the bedside table make them think odd, faraway thoughts. Independently, they get dressed (or perhaps just pull on a robe and slippers) and go out into the hallway, where one of them has found an unlocked door. There's a darkness beyond, and without really thinking why, they walk through.

Suddenly there's no more door, no more hallway, and the darkness is thinning into a blue dawn. The guests are standing in a formal garden maze, hedges twice as high as their heads. Just ahead is a stone bench, and on it sits a woman, and she's crying. They approach. She looks up. She's very beautiful (of course). Her mouth opens. And she disappears.

Now, *there's* a story hook. Who's the crying woman? Was she real, an illusion, an astral projection, a ghost? Was she one of the good guys? (Not all the beautiful maidens are, you know.) And, hey, whose garden is this, are they going to be annoyed when they find us here, how do we get out of the maze, it's kind of cold to be standing here in a bathrobe . . .

And there begins the adventure. The group is certainly going to want to find out about the Weeping Whoever-She-Was, but before that they have lots of other practical problems to solve, and they're in no position to solve them by the classical dungeon-crawler's method of armed robbery.

Next Week's Special Guest Star Is . . .

Another cliché of the field that the Club can vary a bit is the notion of the characters as wandering gunslingers, who always ride on once the local wrong is righted. Maybe some of the travelers will like this world, once it's straightened out. Maybe one of them will marry the Princess, or the Prince, and settle down. A native or two who want to see strange worlds may join the others, and the Club will have a place at the table for everyone. This can let players switch off and play all kinds of characters. If one isn't working out, the player can make up someone who seems to fit the GM's campaign a little better, or one that he might not play for a year's worth of sessions, but wouldn't mind exploring for a week or two.

Variant Clubs

Of course, the GM can leave morality right out of it, and let the guests go conquer worlds (or get chewed up trying) as they please. The multiversal nexus might be not just a passive way station, but an active clearinghouse and dispatch center for the worlds, matching up teams of adventurers with adventures: an Infinity Patrol using freelancers instead of (or in addition to) its own full-time troops. Going even further, this could be crossed with the Eternity's Rangers frame (p. 34), making the Club a kind of multiversal mercenary hiring hall and armory, where crossworld swashbucklers recruit and outfit for conquest, plunder . . . and maybe some of that righting-wrongs stuff too, just to stay in practice.

And the Club doesn't have to be a dim-stuffy-plush retreat. It can be a kind of Explorers' Club, furnished from many worlds and eras, decorated with souvenirs from as all over as it gets; it might look like an airport lounge (although one of the cool Fifties ones before they became so horribly depressing), a railroad terminal in the grand old Belle Epoque style, a medieval inn (like the Old Phoenix), or an ultra-ritzy 21st-century hotel. Maybe it looks like all those things at once.

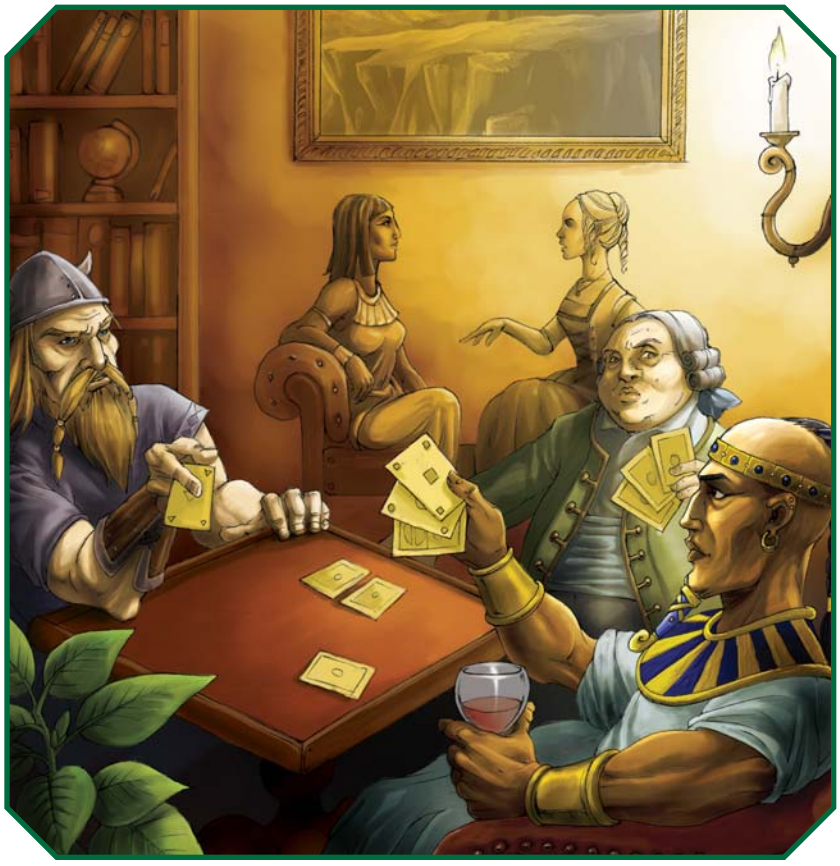
Campaign Assumptions

Parameters

Scale: Completely up to the GM, but this frame works best with personal stories and a minimum of sturm and drang. You can save the universe in every other campaign frame; let this one be about true love.

Scope: Equal to the characters, but not predictably so. The GM may want to experiment with a "hidden scope," in which the problem at hand only seems local, but has great repercussions in proper fairy tale fashion.

Boundaries: The only boundaries are at the interface between the characters and the Club, which cannot be hustled, squeezed, robbed, blackmailed, destroyed, or pestered to death by the adventurers. The GM may want to eventually develop the Club's officers and staff, and give the PCs a glimpse into its workings, but this will risk making the campaign about the Club, rather than about the worlds it opens onto.



Paraphysics

Any. Adventurers can meet themselves, travel in time or space, and whirl about free of paradox – as long as the Club allows it. If things get too awfully snarled up, well, that's one door that the staff keeps locked from now on.

Characters

Power Level: Any. Low-powered characters can shine just as brightly as superheroes and giants. It's up to the GM to craft compelling, personal stories for any type of hero.

Niche: None. You all, literally, might have met in the bar. Perhaps the adventure will reveal why the heroes are traveling together, or perhaps the players will come up with something clever and satisfying.

Freedom: Be excellent to each other. And party on, dude, but in a genteel fashion, please.

Edges: Up to the GM. Our heroes should never be able to swat the adventure's problems aside like a fly, but True Faith, bardic immunity, guest-holiness, and other intangible protections seem apropos.

Genre and Mode

This is a philosophical fantasy frame, designed to allow personal stories on a smaller scale but an infinite canvas. If it's a cinematic game, it should have a nice romantic component along with the last-minute escapes and dogfights; if it's a pulp game, it should present at least one obstacle that twin Colt automatics or fists of deadly fury can't actually overcome. The Club will not work as a dark or gritty setting; nobody wants to give something that unpleasant the control over their actions that the players are implicitly giving the Club. Any style, from Gothic horror to bright fantasy to Arabian Nights exoticism to intellectual gamesmanship, has a place in the Club, as long as it lets the players think *and feel* for a change.

BIBLIOGRAPHY

This bibliography can only skim the surface of the thousands of works on time travel, alternate histories, and so forth even on this one world. Absolute musts, the best of the best or pioneering works in the genre, are adorned with a star (*).

FICTION

Categories are fluid at best; some of the early classics, especially, slop over into more than one. For example, H. Beam Piper's *Lord Kalvan of Otherwhen* combines an in-depth AH setting (an Indo-Aryan America trapped in medievalism) with cross-dimensional politics (the Paratime Police and its concerns) with the classic time-travel trope of the resourceful castaway who brings modern technology (in this case, gunpowder) to a primitive milieu.

Alternate Histories

These stories, anthologies, and novels primarily concentrate on the nitty-gritty of the alternate history (AH) setting in question, some of them to the exclusion of plot or character. With a good enough setting, one can overlook such flaws.

Aiken, Joan. *The Wolves of Willoughby Chase* (Doubleday, 1963). First of a children's series of adventure novels set in an alternate Stuart England.

Amis, Kingsley. *The Alteration* (Jonathan Cape, 1976). Castrati politics in a world without a Reformation.

* Anderson, Poul. *A Midsummer Tempest* (Doubleday, 1974). A brilliant Shakespearean myth parallel.

Baxter, Stephen. *Anti-Ice* (HarperCollins, 1993). Victorian England gets antimatter in this serious update of the Verne adventure genre. *The Time Ships* (HarperCollins, 1995) is a sequel to Wells' *Time Machine*.

* Benford, Gregory and Greenberg, Martin H. (editors). *Hitler Victorious* (Garland, 1986). Axis-victory AH stories, including David Brin's classic "Thor Meets Captain America." The four volumes of their *What Might Have Been?* series (Bantam, 1989-1992) contain a high proportion of good, interesting stories.

Bensen, D.R. *And Having Writ . . .* (Bobbs-Merrill, 1978). Aliens survive the Tunguska crash and redirect history trying to fix their ship.

Card, Orson Scott. *Seventh Son* (Tor, 1987). First of the "Alvin Maker" series, set in an alternate 19th-century America where folk magic works.

* De Camp, L. Sprague. "The Wheels of If" (1940). One of the very first "trapped in an altered history" stories; still holds up.

* Dick, Philip K. *The Man in the High Castle* (Putnam's, 1962). Axis victory in the absolute best AH novel ever.

Dozois, Gardner and Schmidt, Stanley (editors). *Roads Not Taken* (Del Rey, 1998).

Dvorkin, David. *Budspy* (Franklin Watts, 1987). Unsettling novel of politics as usual in a world with a victorious Nazi Germany.

Ford, John M. *The Dragon Waiting* (Timescape, 1983). Intricate AH fantasy in a world with a pagan Byzantium, vampires, and Richard III.

Fry, Stephen. *Making History* (Hutchinson, 1996). Removing Hitler makes things *worse*.

Garfinkle, Richard. *Celestial Matters* (Tor, 1996). A *very* alternate history in which Classical Greek theories of astronomy, physics, and politics are all literally true.

Garrett, Randall. *Lord Darcy* (Baen, 2004). A collection of the "Lord Darcy" stories, classic AH mysteries set in the 20th-century Anglo-French Empire.

* Gentle, Mary. *Ash: A Secret History* (Gollancz, 2000). The seminal reality quake novel about an alternate Visigothic Carthage and the evil computers who must destroy Burgundy and its history to thrive.

Gibson, William and Sterling, Bruce. *The Difference Engine* (Gollancz, 1990). Steam-powered cyberpunk AH diverges with Babbage's computers.

Harlan, Thomas. *Shadow of Ararat* (Tor, 1999) and the rest of the *Oath of Empire* series are high fantasy in an alternate Rome.

Harris, Robert. *Fatherland* (Harper, 1992). A solidly written AH about the biggest murder investigation of all time.

Hogan, James P. *The Proteus Operation* (Bantam/Spectra, 1985). Time-travel WWII novel with two separate AHs.

Keyes, J. Gregory. *Age of Unreason* (Ballantine, 1998-2001). AH tetralogy of Newtonian magic, meteor strikes, and angelic math.

Laidlaw, Marc. "His Powder'd Wig, His Crown of Thornes" (1989). Possibly the best "British defeat the Revolution" AH story, and a powerful indictment of colonialism.

Leiber, Fritz. "Catch That Zeppelin!" (1975). Smarter than usual "no WWII" AH.

Linaweaver, Brad. *Moon of Ice* (Tor, 1993). A slightly more bizarre AH, expanded from the short story in *Hitler Victorious* and an excellent source for crazy Raven Division schemes.

McAuley, Paul J. *Pasquale's Angel* (Gollancz, 1994). Novel of steampunk Renaissance Italy, featuring Machiavelli as a hard-drinking reporter.

Mitchell, Kirk. *Procurator* (Ace, 1984), *New Barbarians* (Ace, 1986), *Cry Republic* (Ace, 1989). Better than average "Rome survives" AH series.

Modesitt, L.E., Jr. *Of Tangible Ghosts* (Tor, 1994) and sequels. Ghosts exist in a Dutch America caught between the superpowers.

Moorcock, Michael. *The Warlord of the Air* (New English Library, 1971), *The Land Leviathan* (Quartet, 1974), *The Steel Tsar* (Granada, 1981). AH war stories featuring Oswald Bastable and the shadowy League of Temporal Adventurers.

* Moore, Ward. *Bring the Jubilee* (Farrar, Straus, 1953). The classic "Confederate victory" AH.

Newman, Kim. *Anno Dracula* (Simon & Schuster, 1992). AH diverges with Chapter 8 of Bram Stoker's novel; sequels continue the story of a vampirized modern era.

Resnick, Mike (editor). *Alternate Presidents* (Tor, 1992). First of a series of AH themed anthologies; each book usually contains one or two gems and several interesting ideas.

Roberts, John Maddox. *King of the Wood* (Doubleday, 1983). Slam-bang alternate America with Aztecs, Arabs, Mongols, and two (count 'em!) kinds of Vikings.

Roberts, Keith. *Pavane* (Doubleday, 1968). The Armada wins and history slows to a chug.

Robinson, Kim Stanley. *Years of Rice and Salt* (Bantam, 2002). Generational novel of a world without European civilization after a deadlier Black Death. His "A Sensitive Dependence on Initial Conditions" (1991) is a thoughtful essay on chaos theory and alternate history, focusing on Hiroshima.

Silverberg, Robert. *The Gate of Worlds* (Holt, Rinehart and Winston, 1967) and *Roma Eterna* (HarperCollins, 2003). Aztec and Roman survival AHs, respectively.

Smith, L. Neil. *The Probability Broach* (Del Rey, 1980) and sequels. This series begins as well-realized AH adventure and increasingly becomes strident libertarian lecture.

Stirling, S.M. *Marching Through Georgia* (Baen, 1988). First of the dystopian "Draka" series; the novels include impressively detailed AH appendices. *The Peshawar Lancers* (Roc, 2002) is a more light-hearted AH set in the Anglo-Indian Empire a century after a comet obliterated Europe in 1878.

Sucharitkul, Somtow. *The Aquiliad* (Timescape, 1983). Rome colonizes the New World and meets the Indians; two sequels continue beating the joke to death.

Turtledove, Harry. *Agent of Byzantium* (Baen, 1994), *A Different Flesh* (Baen, 1994), *Kaleidoscope* (Ballantine, 1990), *Departures* (Ballantine, 1993), *Ruled Britannia* (Roc, 2002). His *Worldwar* (Ballantine, 1994-1996) series made alien invasion a major part of the AH genre; *How Few Remain* (Ballantine, 1997) and its sequels are rewriting the 20th century with a victorious Confederacy.

* Waldrop, Howard. *Them Bones* (Ace, 1984) is a small time travel (and AH) gem, but his short stories are true masterpieces of obsessive AH weirdness; collections include *Howard Who?* (Doubleday, 1986), *Strange Monsters of the Recent Past* (Ace, 1991), and *Going Home Again* (St. Martin's, 1998).

* Waugh, Charles G. and Greenberg, Martin H. (editors). *Alternative Histories* (Garland, 1986). Includes a number of classics and a starter bibliography, with an essay on AH construction.

Wilson, Robert Charles. *Darwinia* (Tor, 1998). One fine day in 1912, the cities and living beings of Europe vanish, replaced by a different ecology.

Womack, Jack. *Terraplane* (Weidenfeld & Nicolson, 1988) and *Elvissey* (Tor, 1993). Agents from a violent future visit the World's Fair and kidnap Elvis in parallel Earths.

Dimensional Travel

These stories and novels usually focus on the mechanics – often including, or especially, the social and political mechanics – of travel to other dimensions, rather than the AH (if any) in them. We have given short shrift to stories in which the "other dimensions" might as well be fairyland, or Australia, or other planets.

Anthony, Piers. *Ox* (SFBC, 1976). Highly trained agents from thousands of close parallel worlds battle for control.

Asimov, Isaac. *The End of Eternity* (Doubleday, 1955) and *The Gods Themselves* (Doubleday, 1972).

Barnes, John. *Patton's Spaceship* (Harper, 1997), *Washington's Dirigible* (Harper, 1997), *Caesar's Bicycle* (Harper, 1997). Fast-paced dimension war series with better than average AH settings. In *Finity* (Tor, 1999), expatriate Americans from diverse parallels meet and investigate.

Bayley, J. Barrington. *The Fall of Chronopolis* (DAW, 1974).

Bear, Greg. *Eon* (Bluejay, 1985), *Eternity* (Warner, 1988), and *Legacy* (Tor, 1995). Paradimensional weirdness trilogy.

Brunner, John. *The Infinitive of Go* (Ballantine, 1980). An experiment in teleportation turns out to be an experiment in parachronics.

Chalker, Jack. *And the Devil Will Drag You Under* (Del Rey, 1979). Aliens draft humans to steal parallel-world artifacts.

* De Camp, L. Sprague and Pratt, Fletcher. *The Complete Compleat Enchanter* (Baen, 1989). Classic 1940s-1950s short stories of mental travel between dimensions to various myth parallels.

De Chancie, John. *Castle Perilous* (Ace, 1988) and sequels. Castle serves as dimensional nexus for 144,000 different realities.

Dickson, Gordon. *Time Storm* (St. Martin's, 1977). A riff on Murray Leinster's classic "Sidewise in Time" (1934), both about Earths with different times intermingled; Dickson's is much darker.

Farmer, Philip José. *Riverworld* (Putnam, 1971-1980). The series is not precisely dimension travel, but well worth reading as an example of historical characters from many milieus interacting. His *World of Tiers* series presents bored immortals creating gate-linked universes as playthings.

Heinlein, Robert A. *The Cat Who Walks Through Walls* (Putnam, 1985) and *Number of the Beast* (Fawcett, 1980) present travel between alternate realities and lengthy discussion thereof.

Hodgson, William Hope. *The Ghost Pirates* (Stanley Paul, 1909). Dimension travel as supernatural horror.

* Kessel, John. *Corrupting Dr. Nice* (Tor, 1997). Screwball comedy of trans-temporal looting; a sequel to "Mozart in Mirrorshades."

Kilian, Crawford. *The Empire of Time* (Del Rey, 1978), *The Fall of the Republic* (Del Rey, 1987), *Rogue Emperor* (Del Rey, 1988). Kilian's Intertemporal Agency has a lot in common with Centrum's Interworld Service.

Kube-McDowell, Michael P. *Alternities* (Ace, 1988). Gritty novel of covert AH exploration by a parallel Earth.

Kurland, Michael. *Perchance* (NAL Signet, 1989), *The Whenabouts of Burr* (DAW, 1975). Light crossworld adventures; Kurland has also written two adequate Lord Darcy novels.

Laumer, Keith, *The Time Bender* (Berkley, 1966) and sequels; *Worlds of the Imperium* (Tor, 1986) and sequels. Adventurous cross-dimensional action in two series.

Meredith, Richard C. *At the Narrow Passage* (Putnam's, 1973), *No Brother, No Friend* (Doubleday, 1976), *Vestiges of Time* (Doubleday, 1978). The "Timeliner Trilogy" features a satisfyingly cosmic dimensional war and some gritty 1970s action.

* Moorcock, Michael. *The Cornelius Quartet* (Avon, 1977). This omnibus gathers Moorcock's increasingly strange stories of multi-dimensional mayhem from their original publications between 1968 and 1974.

Niven, Larry. "All the Myriad Ways" (1968). The ultimate crossworld story.

* Piper, H. Beam. *Lord Kalvan of Otherwhen* (Ace, 1965) and *Paratime* (Ace, 1986). The Paratime stories are archetypal tales of cross-world cops tasked with keeping order and The Secret. "Lord Kalvan" is part of the series but goes its own way; Pennsylvania state trooper Calvan Morrison is accidentally caught in a Paracop conveyor and dumped on a primitive parallel, where he introduces gunpowder and turns society on its ear. After Piper's death, Roland Green and John F. Carr wrote a sequel, *Great Kings' War* (Ace, 1985). Carr has produced two more sequels and continues to write.

Pullman, Philip. *The Golden Compass* (Scholastic, 1995), *The Subtle Knife* (Scholastic, 1997), *The Amber Spyglass* (Scholastic, 2000). "Young adult" fantasy trilogy involves parallel Earths, the nature of God, and talking bears.

Rohan, Michael Scott. *Chase the Morning* (Avon, 1990), *The Gates of Noon* (Gollancz, 1992), *Cloud Castles* (Gollancz, 1993). Cross-dimensional piracy, magic, and myth.

* Sterling, Bruce. "Mozart in Mirrorshades" (1985). A classic of callous crosstime exploitation, complete with freedom-fighting Masons.

Stirling, S.M. *Conquistador* (Roc, 2003). Unscrupulous moderns settle an unspoiled "America next door."

Zelazny, Roger. *Nine Princes in Amber* (Doubleday, 1970) and many, many sequels present dimensional travel as a squabbled-over family heirloom. *Roadmarks* (Ballantine, 1979) is a strange time-travel fable.

Time Travel

These stories and novels offer ideas for interesting situations, or give distinct views of paradox, causality, and time tampering. If they introduce AHs, they generally depend strongly on the time traveler.

Aldiss, Brian. *Frankenstein Unbound* (Jonathan Cape, 1973). Time traveler meets Mary Shelley *and* the Monster.

* Anderson, Poul. *There Will Be Time* (SFBC, 1972) is the best time-jumper novel ever. *Time Patrol* (Tor, 1994) is a near-perfect collection. "My Object All Sublime" (1961) is a "time travel as prison" story well worth seeking out, while "The Man Who Came Early" (1956) brilliantly explores temporal inertia.

Anthony, Piers. *Bearing an Hourglass* (Del Rey, 1984). Interesting notions of causation; don't bother with the rest of the series.

Baker, Kage. *The Garden of Iden* (Hodder & Stoughton, 1997). First of the historically detailed "The Company" series; cyborgs from the future are secretly hidden in the past to observe and exploit it.

Benford, Gregory. *Timescape* (Simon & Schuster, 1980). Communications from the future breed paradox.

* Bester, Alfred. "Hobson's Choice" (1952) and "The Men Who Murdered Mohammed" (1958) are must-reads of the genre.

* Bradbury, Ray. "A Sound of Thunder" (1952). Dinosaur hunting meets chaos theory, decades early.

Chalker, Jack. *Downtiming the Night Side* (Tor, 1985). Good time patrol book.

Cook, Glen. *A Matter of Time* (Ace, 1985). Multiple futures co-exist; the past *can* be changed without destroying the future.

* Crowley, John. *Great Work of Time* (Bantam Spectra, 1991). British conspiracy manipulates the time stream with the very best intentions.

* De Camp, L. Sprague. *Lest Darkness Fall* (Tor, 1996 reprint from 1939). Paradigmatic SF classic: a modern scholar prevents the Dark Ages.

Dick, Philip K. *Martian Time-Slip* (Ballantine, 1964); *Now Wait For Last Year* (Doubleday, 1966). Time travel through schizophrenia and drugs, respectively.

Drake, David. *Time Safari* (Tor, 1982). Ultimate dinosaur hunting novel.

Finney, Jack. *Time and Again* (Simon & Schuster, 1970). Time travel romance.

* Flint, Eric. *1632* (Baen, 2000). Modern West Virginia coal-mining town appears in the middle of Thirty Years' War Germany; adventure and sequels ensue.

Frankowski, Leo. *The Cross-Time Engineer* (Del Rey, 1986) and sequels. Much detail on advancing technology in medieval Poland, but marred by excessive outtime help and an adolescent-male sex-fantasy tale.

Gerrold, David. *The Man Who Folded Himself* (Random House, 1973). Classic "message to yourself" novel.

Grimwood, Ken. *Replay* (Arbor House, 1987). The hero has many chances to relive his own life.

Haldeman, Joe. *The Forever War* (St. Martin's, 1974), *The Hemingway Hoax* (Morrow, 1990).

Harrison, Harry. *The Technicolor Time Machine* (Doubleday, 1967). What do you use a time machine for? Cheap location shoots for Hollywood B-pictures, of course . . .

Hawke, Simon. *The Ivanhoe Gambit* (Ace, 1984) and 11 sequels form the *Time Wars* series, notable for the attempt to historicize famous adventure novels, and for the increasingly convoluted temporal physics.

* Heinlein, Robert A. "All You Zombies" (1959) and "By His Bootstraps" (1941) are the classic short stories of temporal paradox. Less essentially, *The Door Into Summer* (Doubleday, 1957) and *Time Enough For Love* (Putnam, 1973) further explore physical and social challenges of time travel.

Hogan, James. *Thrice Upon A Time* (Del Rey, 1980). Messages to the past allow the routine changing of the future.

Jeschke, Wolfgang. *The Last Day of Creation* (St. Martin's, 1984). Strange time travel novel with many unforgettable bits.

Jeter, K.W. *Morlock Night* (DAW, 1979). Excellent steampunk sequel to the Wells classic.

Koontz, Dean. *Lightning* (Putnam, 1988). Workmanlike thriller.

* Leiber, Fritz. *The Big Time* (Ace, 1961) and associated stories form the "Change War" series. Atmospheric, intelligent handling of the "two groups struggle to change history through time travel" trope, which Leiber invented in this book along with the "rescue" method of recruitment.

* L'Engle, Madeline. *A Wrinkle in Time* (Farrar, Straus, 1962). Juvenile fiction classic; the sequels deal less with time travel.

Long, Frank Belknap. "The Hounds of Tindalos" (1929).

* Lovecraft, H.P. "The Shadow Out of Time" (1936). The seminal time travel horror novella.

May, Julian. *The Many-Colored Land* (Houghton Mifflin, 1981) and sequels. One-way exiles establish a colony in the Pliocene Era.

Miller, P. Schuyler. "As Never Was" (1944). Time travel and archaeology don't mix.

Moorcock, Michael. *Behold the Man* (Allison & Busby, 1969). Unstable time traveler and the life of Jesus entangle.

Niffenegger, Audrey. *The Time-Traveler's Wife* (Macadam/Cage, 2003). Mainstream novel of true love and time travel.

Niven, Larry. *The Flight of the Horse* (Ballantine, 1973). Bizarre hunting expeditions into the past lead to wacky hijinks.

Norton, Andre. *Time Traders* (World, 1958) and sequels.

* Powers, Tim. *The Anubis Gates* (Ace, 1983). Magical time travel to 1810 London, tangled personal timelines, evil clowns, and werewolf killers are only part of the fun.

Reynolds, Mack and Ing, Dean. *The Other Time* (Baen, 1984). Time-traveling archaeologist beats Cortés to Aztec Mexico by a couple of days.

Rogers, Mark E. *Samurai Cat in the Real World* (Tor, 1989). Lavishly illustrated adventures of a samurai cat fighting Capone, Hitler, Stalin, and Nazi dinosaurs; the earlier books in the series send the cat to parody versions of famous fantasy and SF worlds.

Shiner, Lewis. *Glimpses* (Avon, 1993). Rock and roll fan tries to save great artists – and albums – from oblivion and inertia.

Silverberg, Robert. *Hawksbill Station* (Doubleday, 1968). Political criminals are marooned in the prehistoric past; *Up the Line* (Ballantine, 1969) is a slam-bang novel of time tour guides in Byzantium.

Simak, Clifford. *Mastodonia* (Del Rey, 1978).

Simmons, Dan. *Hyperion* (Doubleday, 1989) and sequels. A complex story involving "time tombs" whose contents move *backward* in time.

Smith, Clark Ashton. "The City of the Singing Flame" (1931), "The Holiness of Azedarac" (1933), "The Plutonian Drug" (1934), and "Ubbo-Sathla" (1933) are only a few of his atmospheric, weird short stories. Many of his story cycles occur in the extreme past or future, and make excellent game settings.

Stirling, S.M., *Island in the Sea of Time* (Roc, 1998). First book in a trilogy which sends modern Nantucket Island back to the Bronze Age.

* Turtledove, Harry. *Guns of the South* (Ballantine, 1992). Robert E. Lee with AK-47s. 'Nuff said.

* Twain, Mark. *A Connecticut Yankee in King Arthur's Court* (Webster, 1889). Cruel fun from the master cynic.

Varley, John. "Air Raid" (1977). This short story about rescues in the past became the novel *Millennium* (Berkley, 1983), which in turn became a film (Michael Anderson, 1989).

Vinge, Vernor. *Marooned in Realtime* (Bluejay, 1986). One-way travel into an unexpected future.

Vonnegut, Kurt. *Slaughterhouse-Five* (Laurel, 1968). Determinism as oppression, and vice versa.

* Wells, H.G. *The Time Machine* (Heinemann, 1895). Fascinating as an insight into Victorian historical modeling, as well as spawning the key imagery of the genre.

Williamson, Jack. *The Legion of Time* (Fantasy Press, 1952).

Willis, Connie. *To Say Nothing of the Dog* (Bantam Spectra, 1998). Hilarious yet moving novel of the Observer Effect and the air raid on Coventry. *Doomsday Book* (Bantam Spectra, 1992) is a grim tale of time travel and the plague years.

Non-Fiction

Alternate History

In recent years, the AH genre has spread into mainstream nonfiction, if not quite into mainstream academic history.

Comins, Neil F. *What if the Moon Didn't Exist?* (HarperCollins, 1993). Astronomical alternate Earths.

Cowley, Robert (editor). *What If?* (Putnam, 1999), *What If? 2* (Putnam, 2001), and *What Ifs? of American History* (Putnam, 2003). Collections of adequate to excellent essays by leading (mostly military) historians.

* Deutsch, Harold C. and Showalter, Dennis E. (editors). *What If?: Strategic Alternatives of WWII* (The Emperor's Press, 1997). Useful primarily as a corrective to romantic silliness, but interesting in its own right.

Ferguson, Niall (editor). *Virtual History* (Picador, 1997). Overwritten and underthought AHs in general, but the essays often give interesting insight into historical processes; Ferguson's introduction should be mandatory reading for those trying to understand the philosophy of history.

Macksey, Kenneth (editor). *The Hitler Options* (Greenhill/Stackpole, 1998).

North, Jonathan (editor). *The Napoleon Options* (Greenhill/Stackpole, 2000). Primarily details the tactical alternatives; only a few essays look at larger strategic options.

Roberts, Andrew (editor). *What Might Have Been* (Weidenfeld & Nicolson, 2004). Collection of essays; a mixed bag.

Sobel, Robert. *For Want of a Nail* (Macmillan, 1973). Straight-faced history, complete with fictional footnotes, of a happier North America after the failed Revolution.

* Squire, J.C. (editor). *If It Had Happened Otherwise: Lapses Into Imaginary History* (Longmans, Green 1931). Includes essays by Hilaire Belloc, Winston Churchill, and G.K. Chesterton! The classic AH collection.

Tally, Steve. *Almost America* (HarperCollins, 2000).

Tsouras, Peter (editor). *Rising Sun Victorious* (Greenhill/Stackpole, 2001). Articles exploring victorious Japanese AH scenarios; his *Third Reich Victorious* (Greenhill/Stackpole, 2002) compiles similar pieces on German decision points, and *Cold War Hot* (Greenhill/Stackpole, 2003) and *Dixie Victorious* (Greenhill/Stackpole, 2004) repeat the procedure for the Cold War and Civil War, respectively. He has also written a solo AH scenario, *Disaster at D-Day* (Greenhill/Stackpole, 1994).

Real History

To build a convincing alternate history, real history is a necessary foundation. The following sources highlight important aspects of real history or are just plain excellent.

Caviedes, César N. *El Niño in History* (Univ. Press of Florida, 2001).

Crosby, Alfred. *Ecological Imperialism: The Biological Expansion of Europe 900-1900* (Cambridge Univ. Press, 1986). The consequences of the spread of European ecosystems into the New World and Australia.

Diamond, Jared. *Guns, Germs, and Steel* (W.W. Norton, 1998). A well-written environmental grand history of humanity that suffers only from the flaw of fighting a war won decades ago.

Fagan, Brian. *Floods, Famines and Emperors* (Basic Books, 1999), *The Little Ice Age* (Basic Books, 2000), *The Long Summer* (Basic Books, 2004). Popular presentation of climate history.

Fischer, David Hackett. *The Great Wave* (Oxford Univ. Press, 1996). The history of the Price Revolutions.

Lamb, H.H. *Climate, History and the Modern World* (Methuen, 1982).

Landes, Daniel, *The Wealth and Poverty of Nations* (Norton 1998). An acerbic, opinionated economic history of the last half-millennium or so, focusing on impolitic questions and giving equally abrasive answers.

* McEvedy, Colin. *The New Penguin Historical Atlas of Ancient History* (Penguin, 2002). This volume and its successors in the same format combine accessibility with accuracy and tons of clear, useful maps.

* McNeill, William H. *Plagues and Peoples* (Doubleday, 1976). Groundbreaking historical study of disease and its consequences. McNeill's *Rise of the West* (Univ. of Chicago, rev. ed. 1991) is still the best one-volume world history.

Smil, Vaclav. *Energy in World History* (Westview Press, 1994). To the author, "energy" covers agricultural efficiency as well as industry, making this a good reference work for the history of basic technology.

* Stearns, Peter N. (editor). *Encyclopedia of World History* (Houghton Mifflin, 2001). The sixth edition of Walter L. Langer's absolutely indispensable reference. One volume, no waiting, all the pestiferous details you could look for in 50 other places right here at your fingertips. If you own no other historical reference book, own this one.

Temple, Robert, *The Genius of China* (Touchstone, 1989). A bare summary of Joseph Needham's magisterial *Science and Civilization in China,* which is also heartily recommended to anyone with a decade or so to kill.

Historical Modeling

These sources discuss ways to look at history as a process or as a system with its own internal logic; they may some day be the ur-texts of cliodynamics.

Barnes, John. "How to Build A Future" (1990).

Denemark, Robert A., et al. (editors). *World System History* (Routledge, 2000).

* Flynn, Michael. *In the Country of the Blind* (Tor, 2001). This reprint of Flynn's 1990 novel includes his essay "An Introduction to Cliology." The novel is a gripping tale of secret societies using historical modeling to gain power.

Frank, Andre Gunder and Gills, Barry K. (editors). *The World System: Five Hundred Years or Five Thousand?* (Routledge, 1993).

Modelski, George. *Long Cycles in World Politics* (Univ. of Washington Press, 1987).

Spengler, Oswald. *The Decline of the West* (Alfred A. Knopf, 1922). A biological look at culture, and a pessimistic look at political philosophy.

Toynbee, Arnold. *A Study of History* (Oxford Univ. Press, 1934). An increasingly religious response to Spengler; skim it for its scope, but check out the three AHs in the appendices to Volume II.

Trevor-Roper, Sir Hugh. *History and Imagination* (Clarendon, 1980). A great historian on the necessity for historical imagination.

Strauss, William and Howe, Neil. *Generations* (William Morrow & Co., 1991).

Time Travel

Blumenthal, Howard J., et al. *The Complete Time Traveler* (Ten Speed Press, 1988). A tourist's guidebook.

Hawking, Stephen. *A Brief History of Time* (Bantam, 1988). A good attempt at explaining space-time to the non-physicist.

Macvey, John W. *Time Travel – A Guide to Journeys in the Fourth Dimension* (Scarborough House, 1990). Informed speculation about time travel using black holes, tachyons, time dilation, and hyperspace in this and other universes.

Moon, Peter and Nichols, Preston. *The Montauk Project* (Sky Books, 1992). First of four volumes (so far) on this fine time travel conspiracy theory.

Moore, William L. and Berlitz, Charles. *The Philadelphia Experiment: Project Invisibility* (Fawcett Crest, 1979). All about the *USS Eldridge* and its mysterious fate from a believer's perspective.

* Niven, Larry. "The Theory and Practice of Time Travel" (1971). Short, witty, comprehensive discussion of physics, paradox, and why none of this can possibly work; included in *All The Myriad Ways* (Ballantine, 1971).

Randles, Jenny. *Time Storms* (Piatkus, 2001). Excited UFOlogist discusses time vortices, time slips, and other wonderful nonsense.

Comics

Aramaki, Yoshio. *Deep Blue Fleet* (Gentosha, 2000). Manga of a modern Japanese Navy officer timeslipped back to the Pacific War; later adapted into the anime *Azure Fleet* (Takeyuki Kanda, 2003).

Ellis, Warren. *The Ministry of Space* (Image Comics, 2000, 2004). Dark history of the triumphant British AH space programme.

Kawaguchi, Kaiji. *Zipang* (Kodansha, 2001-present). Manga series in which a modern Japanese naval task force is timeslipped back to 1942; the result is a meditation on the Japanese role in the world.

Miller, Jack. *Rip Hunter, Time Master* (DC Comics, 1961-1965). Classic "gee whiz" time travel series; a more serious Rip has shown up in DC's increasingly convoluted temporal continuity, even fighting the Illuminati in Bob Wayne's *Time Masters* (1990).

Moench, Doug. *Aztec Ace* (Eclipse Comics, 1984). Excellent pulp adventure featuring a time-traveling Aztec flying ace.

Morrison, Grant. *Animal Man* (DC/Vertigo, 1988-1990) and *The Invisibles* (DC/Vertigo, 1994-1996) both involve time travel as key plot elements.

Nomura, Ted. *Luftwaffe: 1946* (Antarctic Press, 1996-present). Alternate air adventure in quasi-anime technophiliac style.

Ostrander, John. *Grimjack* (First Comics, 1984-1991). Takes place in Cynosure, a nexus point for all the dimensions.

Shetterly, Will. *Captain Confederacy* (Steeldragon, 1986-1987; Marvel/Epic, 1991-1992). AH series set in a fragmented North America.

* Talbot, Bryan. *Adventures of Luther Arkwright* (Prout, 1982; Valkyrie, 1987; Prout, 1989). Fabulous, intricate cross-dimensional adventures; they continue in *Heart of Empire* (Dark Horse, 1999).

Wolfman, Marv. *Crisis on Infinite Earths* (DC Comics, 1985-1986). Epic ending to the multidimensional DC cosmos that had begun with "Flash of Two Worlds" in 1961.

Film and TV

Movies

Army of Darkness (Sam Raimi, 1993). Postmodern "Connecticut Yankee" story, with zombies and chainsaws.

* *Back to the Future* (Robert Zemeckis, 1985). Modern classic of the genre; the 1989 "Part II" sequel is the best AH movie so far.

Bill and Ted's Excellent Adventure (Stephen Herek, 1989). Totally awesome romp caroms off causality and history.

The Butterfly Effect (Eric Bress and J. Mackye Gruber, 2004). Ashton Kutcher keeps trying to change his past; things keep getting worse.

Donnie Darko (Richard Kelly, 2001). Ironic "indie film" take on free will and causality, with a giant evil rabbit for extra fun.

Fatherland (Christopher Menaul, 1994). HBO movie based on the better novel of the same name; Rutger Hauer does make a convincing SS officer, though.

The Final Countdown (Don Taylor, 1980). The *USS Nimitz* goes back in time to December 6, 1941.

Godzilla vs. King Ghidorah (Kazuki Omori, 1991). Convoluted time travel story is a masterpiece of retroactive continuity. Plus, Ghidorah!

* *It Happened Here* (Kevin Brownlow, 1966). Riveting, morally complex AH film set in Nazi-occupied Britain.

Jin-Rô (Hiroyuki Okiura, 1998). Grim anime love story in a German-occupied AH postwar Tokyo.

* *The Navigator* (Vincent Ward, 1988). Medieval peasants flee the Black Death through a time tunnel to modern New Zealand.

The One (James Wong, 2001). Evil Jet Li must kill all the other Jet Lis in all alternate timelines to gain their kung fu power. Good Jet Li must stop him. Discuss.

The Philadelphia Experiment (Stewart Raffill, 1984). Not a bad Michael Paré time travel thriller. *Philadelphia Experiment II* (Stephen Cornwell, 1993) is the straight-to-video "Nazis win" AH sequel.

Sliding Doors (Peter Howitt, 1998). Gwyneth Paltrow's life diverges with a chance decision; the movie shows both timelines.

Somewhere in Time (Jeannot Szwarc, 1980). Much-beloved romance of true love overcoming time; from the Richard Matheson novel.

* *Terminator* (James Cameron, 1984) and *Terminator 2: Judgment Day* (James Cameron, 1991). Ultimate time travel menace movies, complete with the occasional looping paradox.

Time After Time (Nicholas Meyer, 1979). Literate romp as H.G. Wells takes his time machine to 1979 to hunt an escaped Jack the Ripper.

* *Time Bandits* (Terry Gilliam, 1981). The "map of time" is an excuse for silliness and adventure in the Gilliam mode; wonderful imagery and overacting.

Timecop (Peter Hyams, 1994). Silly, but good-looking, Van Damme action movie goes well with popcorn.

The Time Machine (George Pal, 1960). The best film adaptation of Wells' novel.

* *Twelve Monkeys* (Terry Gilliam, 1995). The paradoxes of temporal communication, and questions of sanity and free will, hedge this intellectual thriller.

Wings of Honneamise (Hiroyuki Yamaga, 1987). Meditative and existentialist anime of the first manned space launch from an alternate 1955; the AH is never very clear, but the look of the alternate civilization is unique.

Television

Doctor Who (1963-1996). Classic BBC series about a wry Time Lord and his adventures across space and time.

Kishin Corps (1993). AH WWII anime series featuring a three-sided struggle between alien invaders and two human factions.

Quantum Leap (1989-1993). Uncontrolled time traveler helps resolve personal crises, usually on a human (rather than a historic) scale.

Sliders (1995-1999). This miserable Fox TV series was the first all-AH, all-the-time TV show; later, it struggled along on the Sci-Fi Channel fighting cavemen or something.

Star Trek (1966-present in various incarnations). Standout time travel or AH episodes include "City on the Edge of Forever" (*TOS*), "Mirror, Mirror" (*TOS*), *Star Trek IV: The Voyage Home* (Leonard Nimoy, 1986), "Yesterday's Enterprise" (*TNG*), "Time's Arrow" (*TNG*), "All Good Things . . ." (*TNG*), "Trials and Tribble-ations" (*DS9*), and "Year of Hell" (*VOY*). The current series, *Enterprise,* uses a "temporal cold war" as a story frame.

Stargate SG-1 (1997-present). "Stargates" lead to alien worlds, many with resonances to Earth history. An excellent framing device for an RPG, such as the one by Patrick Kapera, et al. (AEG, 2003).

Time Tunnel (1966-1967). Irwin Allen classic of time-lost scientists.

Twilight Zone (1959-1965). Standout time travel episodes include "The Last Flight," "Back There," "Walking Distance," and "The Odyssey of Flight 33."

Voyagers (1982-1983). Like Rip Hunter, but without the bitter cynicism.

GAMES

Adams, Chris, et al. ***Continuum*** (Aetherco, 1999). Probably the most detailed and seamless set of time travel RPG rules yet published, with an intriguing setting as well.

Cordell, Bruce. ***Tangents*** (Wizards of the Coast, 1999). An excellent sourcebook, covering parallel dimension travel for the ***Alternity*** RPG.

Garcia, Jose, et al. ***Nexus: The Infinite City*** (Daedalus Games, 1994). Sadly defunct RPG of colliding realities and the dubious characters who seek to exploit them. See also the only supplement, Robin Laws' ***Nexus Life*** (Daedalus Games, 1994), which includes several nifty new realities, discussion of inter-reality trade, and more.

Gorden, Greg. ***TORG*** (West End Games, 1990). Clashing realities duel for Earth! Intriguing and original.

Kenson, Steve, et al. ***All Our Yesterdays*** (Last Unicorn Games, 2000). The time travel supplement for LUG's ***Star Trek*** RPG line; fairly complete survey of space-operatic time travel in a series or campaign setting.

Moldvay, Tom. ***Lords of Creation*** (Avalon Hill, 1984). High-powered RPG of warring demigods in parallel dimensions. Recalled fondly by some.

Porter, Greg. ***TimeLords*** (BTRC, 2003). Revision of Porter's workmanlike 1987 RPG, this time as a supplement to his ***EABA*** system.

Tucholka, Richard. ***Fringeworthy*** (Tri-Tac Games, 1981). Now in its third edition (1990); this is the RPG of the "fringeworthy" and their adventures in parallel Earths.

Voss, H.N. and Worzel, William P. ***Time and Time Again*** (Timeline, Ltd., 1984). Nearly unplayable game system, with an interesting setting; time cannot be changed and the "voltigeurs" must protect researchers and resolve historical mysteries.

THE INTERNET

Normally, the Web is too mutable a thing for a print bibliography to cite, but we make an exception for the **soc.history.what-if** discussion group on Usenet (a rare haven of productive sanity and interest in that blasted heath) and for Robert Schmunk's magisterial AH bibliography site at **www.uchronia.net.** For other links, see this book's Web page at **www.sjgames.com/gurps/books/infiniteworlds/.**

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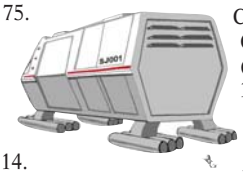

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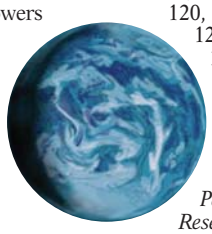

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GURPS Fourth Edition *Traveller*®

INTERSTELLAR WARS™

By Paul Drye, Loren Wiseman, and Jon F. Zeigler

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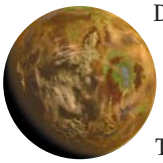

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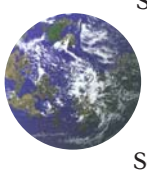


Introduction

Traveller was first published in 1977. It was one of the *first* roleplaying games, and for many years it was the standard by which all other science-fiction RPGs were measured. At first, the game was very nearly generic. It made certain broad assumptions about the far-future universe characters would travel in, but the details of back story and setting were largely left for players to define. Before long, however, a specific setting began to take shape: a vast Imperium existing over 3,000 years in the future, controlling thousands of worlds, with its own leaders, social forces, and deep history.

Yet the galactic state portrayed in ***Traveller*** was the *Third* Imperium, the successor to other empires that had existed long before. Once there had been a *First* Imperium, which laid the groundwork for everything that followed. After thousands of years of ruling the known galaxy, the First Imperium came into contact with an obscure barbarian race, backward and poor, from a world called Earth.

The Interstellar Wars followed: struggles against overwhelming odds, exploration of exotic worlds, heroism, betrayal, triumph, tragedy . . . and, in time, the fall of empire.

The Interstellar Wars era is one inspired by science fiction of the "space opera" genre. Here you will find epic battles, new worlds to explore, long trade voyages, exotic aliens, and the clash of civilizations. Fans of Poul Anderson, Isaac Asimov, James Blish, or E.E. "Doc" Smith – or of more recent "star empires" fiction, by authors like Iain M. Banks or David Weber – will find this universe to their liking.

As a concept, the Interstellar Wars actually predate ***Traveller*** itself. In 1976, before the first ***Traveller*** books were published, a subsidiary of Game Designers' Workshop published a board game titled ***Imperium***. The early versions of the game portrayed the early conflicts between Terra and a vaguely defined alien empire. In 1977 and 1978, new printings of the game were released directly by GDW. The board game was soon integrated into the ***Traveller*** back story, the "aliens" becoming the Vilani, their empire becoming the First Imperium of ancient history. By 1980 the Interstellar Wars were a well-established part of the ***Traveller*** future history, and the stars of the ***Imperium*** game map had been placed on the ***Traveller*** galactic map. Later releases of ***Imperium*** included "color" material that had originally been developed for ***Traveller***.

Imperium still exists – indeed, Avalanche Press released a new

edition of the game in 2001, which remains in print. Yet after over 25 years, the Interstellar Wars era has never made the transition to a role-playing game . . . until now.

If you're a long-time ***Traveller*** fan, here's your first chance to explore one of the most critical – but least-known – periods in the history of the Third Imperium.

On the other hand, if you're new to ***Traveller***, this book is *specifically* designed for you. Aside from the ***GURPS Basic Set***, the book you are holding provides everything you'll need to begin adventuring in the Interstellar Wars era. You won't need any other ***GURPS*** or ***Traveller*** materials to play – in particular, you won't need any of the dozens of ***Traveller*** sourcebooks that have gone out of print over the years. If you've always wanted to try ***Traveller***, here's an opportunity to do so in a setting that offers epic adventure.

About the Authors

When Paul Drye was 12 years old, his parents took him on a long plane trip. To give him something to do in-flight, they took him to a "game store" beforehand and let him buy any one item off the shelf. In the dusty corner labeled "roleplaying," he reached up and pulled down . . . ***Champions, the Superhero Roleplaying Game***. Fortunately, his brother had cut the same deal with his parents, and *he* picked ***Traveller***. This is all your fault, Stephen.

Loren Wiseman was one of the founding partners of GDW, the original publishers of ***Traveller***. He spent more than 20 years there as a game designer, developer, typesetter, and editor. After GDW closed, Loren freelanced for a while, and then came to Steve Jackson Games, where he serves as the ***GURPS Traveller*** Line Editor.

Jon F. Zeigler has been a science fiction fan since the cradle (literally). He and his wife and two children live in Maryland, where he works as a computer security consultant. He has written or contributed to over a dozen books for ***GURPS***, and served for two years as the ***GURPS Traveller*** Line Editor.

About *GURPS*

Steve Jackson Games is committed to full support of ***GURPS*** players. Our address is SJ Games, P.O. Box 18957, Austin, TX 78760. Please include a self-addressed, stamped envelope (SASE) any time you write us! We can also be reached by e-mail: **info@sjgames.com**. Resources include:

Pyramid (**www.sjgames.com/pyramid/**). Our online magazine includes new ***GURPS*** rules and articles. It also covers the ***d20*** system, ***Ars Magica, BESM, Call of Cthulhu,*** and many more top games – and other Steve Jackson Games releases like ***Illuminati, Car Wars, Transhuman Space,*** and more. *Pyramid* subscribers also get opportunities to playtest new ***GURPS*** books!

New supplements and adventures. ***GURPS*** continues to grow, and we'll be happy to let you know what's new. For a current catalog, send us a legal-sized SASE, or just visit **www.warehouse23.com**.

e23. Our e-publishing division offers ***GURPS*** adventures, play aids, and support not available anywhere else! Just head over to **e23.sjgames.com**.

Errata. Everyone makes mistakes, including us – but we do our best to fix our errors. Up-to-date errata sheets for all ***GURPS*** releases, including this book, are available on our website – see below.

Internet. Visit us on the World Wide Web at **www.sjgames.com** for errata, updates, Q&A, free webforums, and much more. The ***GURPS Traveller: Interstellar Wars*** web page can be found at **www.sjgames.com/gurps/traveller/interstellarwars/**.

Bibliographies. Many of our books have extensive bibliographies, and we're putting them online – with links to let you buy the books that interest you! Go to the book's web page and look for the "Bibliography" link.

GURPSnet. This e-mail list hosts much of the online discussion of ***GURPS.*** To join, point your web browser to **mail.sjgames.com/mailman/listinfo/gurpsnet-l/**.

Rules and statistics in this book are specifically for the ***GURPS Basic Set,*** *Fourth Edition.* Page references that begin with B refer to that book, not this one.

Journal of the Travellers' Aid Society

The long-running ***Traveller*** magazine is now online at **jtas.sjgames.com**. It supports all versions of ***Traveller*** with news, articles, discussion areas, and reviews. Subscriptions are $20 per two years, for 52 biweekly updates and full access to archives.

The *Traveller News Service* is updated weekly, chronicling the life and times of the Imperium, and is viewable *free* at **www.sjgames.com/gurps/traveller/news.html**. The SJ Games ***Traveller*** links page **(www.sjgames.com/gurps/traveller/links.html)** links to the ***Traveller*** Web Ring, which includes most of the major ***Traveller***-oriented websites. For information on subscribing to the ***Traveller*** mailing list, go to **lists.travellerrpg.com.**

Chapter One
A Dangerous Galaxy

March 12, 2170 – Nusku star system, in Terran space:

*"**Cutty Sark**, you are cleared to the Apishal jump point. Your flight plan is on file as of 0900 standard time today, 12 March 2170. Squawk 2495. Maintain heading 090 for orbital insertion lane 43. Contact Nusku Departure Control on channel 65 passing through 50,000 feet."*

*William Blake nodded to the communications officer, who adjusted controls. "Nusku Tower, this is **Cutty Sark**, squawking 2495, on the go. Frequency change to Departure Control confirmed at this time. Thank you."*

Blake surveyed the cramped bridge, watching his officers going about their duties. They were a trifle rough, he judged. Just settling into their work, not really a team yet. That would change.

"Mr. Shimannii," he ordered, "forward cameras on main viewer, please."

"Aye, sir," said the pilot, his Vilani accent cool and unruffled.

An image sprang into being, the blue-brown arc of Nusku's surface falling away below, blue and white sky above fading rapidly to black. Even with a full cargo hold, the ship's engines were able to slam through the dense lower atmosphere, bringing it to the edge of space in mere minutes from level flight.

"I never get tired of that," Blake murmured to himself.

"Altitude 50,000 feet," reported Shimannii.

*"Thank you. Nusku Departure Control, this is **Cutty Sark**, climbing through 50,000 feet, bound outsystem for Apishal."*

*"**Cutty Sark**, this is Nusku Departure Control. We have you in radar contact. Continue standard departure profile, no need to contact Orbital. Current weather shows clear. Good luck and Godspeed."*

*"Nusku Departure, this is **Cutty Sark**, thank you and good day."*

Blake looked around at his officers, then at the stars now shining clearly on the viewscreen. "Let's go."

The Default Present

Interstellar Wars covers a period of about 200 years, from the beginning of the First Interstellar War (in 2114) to the collapse of the Vilani Imperium (in 2302).

The material presented in this book will permit GMs to run adventures at any point in the Interstellar Wars era. However, in many cases the book assumes a specific point in time – 2170 A.D., late in the Empty Peace between the Third and Fourth Interstellar Wars. Any text written in the present tense will assume this "default present." Text describing how the setting changes over time will usually be written in past or future tense, and may be placed in text boxes to set it aside from the main line of description.

As of 2170, the Terran Confederation has reached its "mature" form, in which it will remain more or less stable for the rest of the era. Terrans have survived the initial Vilani onslaught, but they still risk conquest if the Imperium should ever make a concerted effort. Terran adventurers are beginning to infiltrate deep inside the Imperium, coming into contact with its many worlds and internal factions.

The ***Traveller*** future history stretches thousands of years into the future, but it has its roots almost in the present day on Terra. Long before the rise of the Third Imperium, humans from Terra struggled mightily to reach the stars – only to discover that most of them were already claimed by *other Humans*, originating under distant suns. For 200 years, Terra stood against the might of a vast interstellar empire, the *Ziru Sirka* or Vilani Imperium. The epic conflict changed both societies forever, and laid the foundation for the empires of the far future.

Interstellar Wars covers the era of that conflict, roughly the 22nd and 23rd centuries A.D. At the beginning of the period, Terra was a single world, only beginning to explore interstellar space, vastly outnumbered and outgunned by the Vilani Imperium. By the end of the era, Terrans had taken over the Empire as its new rulers.

The period was one of epic conflict and high adventure. Terrans brought down the Imperium through a combination of high heroism and crass opportunism, stout courage and treacherous cunning. There was also a great deal of sheer luck – for much of the period, the Terrans were constantly in danger of conquest and the end of their independent civilization.

The Terran Confederation

For I dipt into the future, far as human eye could see,
Saw the Vision of the world, and all the wonder that would be;
Saw the heavens fill with commerce, argosies of magic sails,
Pilots of the purple twilight dropping down with costly bales;
Heard the heavens fill with shouting, and there rain'd a ghastly dew
From the nations' airy navies grappling in the central blue;
Far along the world-wide whisper of the south-wind rushing warm,
With the standards of the peoples plunging thro' the thunder-storm;
Till the war-drum throbb'd no longer, and the battle-flags were furl'd
In the Parliament of man, the Federation of the world.

– Alfred, Lord Tennyson, ***Locksley Hall*** *(1842)*

By the end of the 21st century, the United Nations was functioning as a world government. Only the most powerful nations could pursue any form of independent policy. For the smaller states, national sovereignty was as dead as the divine right of kings.

For most of the ***Interstellar Wars*** era, Terra and those worlds under Terran control were under a single governing body – the Terran Confederation.

The Terran Confederation grew out of the old United Nations organization. The UN began its history as an almost-impotent forum for international debate; for several decades, real power remained with the nation-states of divided Terra. However, in the course of the 21st century a series of global crises proved impossible for even the strongest nations to handle without close cooperation. Imperfect and unpopular as it often was, the UN was the only global institution in a position to consistently resolve international disputes and provide the coordination necessary to keep civilization afloat.

By the end of the 21st century, the United Nations had been reformed several times and was functioning as a world government. The world's nation-states were still in existence, but the center of power had shifted upward to the UN. Only the most powerful nations could pursue any form of independent policy. For the smaller states, national sovereignty was as dead as the divine right of kings. The UN was widely resented, but few Terrans could suggest a viable alternative, and the stability of Terran civilization had come to depend on the UN's rule.

After the near-debacle of the First Interstellar War, the UN was once again reformed and restructured, admitting representatives from the offworld colonies for the first time. The new governing structure, renamed as the Terran Confederation, provided leadership for the rest of the Interstellar Wars era. By the end of the Interstellar Wars period, the Confederation holds uneasy sway over thousands of inhabited worlds.

The Terran Confederation provides a veneer of social and political unity for Terran civilization. Still, even at its height the Confederation is not perfectly unified. There are a number of significant divisions – between major and minor nation-states, between the Terran homeworld and the colonies, and between Terran-dominated worlds and those that had been conquered from the Vilani Imperium.

The Homeworld

The 21st century was a time of almost constant crisis. Wars and revolutions killed millions of people. Agricultural failures and shortages of fresh water threatened billions with famine. The planet's climate shifted. New diseases appeared and swept through the world's population. Thousands of living species became extinct outside of zoos and laboratories.

Even so, Terra survived. It was battered, but still habitable for its population of over ten billion. By the time of the Interstellar Wars, Terran society had changed dramatically in several key respects.

Decline of the Nation-State

The survival of Terran civilization was almost certainly due to the collapse of an old political ideal: the notion of national sovereignty.

At the beginning of the 21st century, Terra was divided into about 200 nation-states. In theory, every one of these states was completely autonomous, free to apply any policies it wanted within its own borders. Every nation ran its own government, maintained its own armed forces, and fiercely resisted any outside interference. Even the smallest nations were permitted the fiction of sovereign independence.

> *We must all hang together, or assuredly we shall all hang separately.*
>
> *– Benjamin Franklin (1776)*

In part, the principle of national sovereignty was a reaction against an earlier period of Terran history, in which powerful nations had built globe-spanning "colonial" empires at the expense of weaker peoples. National sovereignty was regarded as the best way to prevent any such abuses in the future. For several decades, the stability of the global political order appeared to depend on the existence of sovereign nation-states.

By the early years of the 21st century, this ideal was beginning to show its age. Some national governments engaged in terrible abuses of their own citizens – mass deportations, torture, and murder. The principle of national sovereignty was discredited when it served to protect such regimes.

Meanwhile, as the world community became increasingly interconnected, the "internal" policies of one nation often had profound effects on others. Some nations pursued selfish economic strategies, enriching their own industries at the expense of others. Some refused to take action to protect the environment, with consequences that were felt globally. Some permitted internal corruption to run wild, harming industrial development and destabilizing their neighbors. Some provided a safe haven for political revolutionaries who used terrorism against their enemies.

As the 21st century wore on and civilization several times teetered on the brink of collapse, it became obvious that even the largest nation-states could no longer be permitted complete sovereignty over their internal affairs. Policies that violated basic human rights, or those that exacerbated the rising global crises, could no longer be tolerated. Over time, this trend helped consolidate governmental power in the hands of the UN.

The Terran Confederation is backed by a loose alliance of the most powerful nation-states. The smaller nation-states remain in existence, but their ability to set their own internal policies is now strictly limited. Corruption, industrial mismanagement, ecological negligence, revolution, violations of human rights – any of these is likely to provoke the Confederation into sending in military forces to depose one regime and put another in its place. Such "peacekeeping" campaigns are much less common today than they were in the late 21st century, but they still take place every few years.

Meanwhile, the most powerful nations have kept some of their own sovereignty, but even they must bow to the consensus of their partners. The alliance of major states, acting through the Terran Confederation, is more powerful than any one of its members. On several occasions, major nations have attempted to break away from the Confederation on some point of internal or foreign policy, and have been brought to heel by economic pressure or the threat of force.

Today, the idea of "national sovereignty" has been pushed to the

margins. Most Terrans who take the idea seriously are dissidents, nationalist rebels who oppose the Confederation and would like to see it dismantled. Mainstream political theory emphasizes the survival of Terran civilization as a whole, and sees the Confederation as the best way to insure that survival and secure the basic rights of every Terran citizen.

Cosmopolitanism

As of 2170, Terrans are far more cosmopolitan than their ancestors of the early 21st century. Although the Terran population remains very culturally diverse, most Terrans are familiar with the major features of cultures other than their own. More importantly, most Terrans are better able to *appreciate* the positive aspects of foreign cultures; societies that cut themselves off from outside contact, or which react with automatic hostility to "foreign" ideas, are now very much in the minority.

History is full of ironies. We finally learn to stop shooting at each other, at least most of the time, and what happens? We meet someone much bigger and stronger, and they start shooting at us.

– Bryce Kendall, British humorist (2105)

To some extent, this is a natural consequence of technological change. Even the poorest Terrans have had access to globe-spanning voice, text, and image services for over 150 years. This doesn't guarantee that Terrans will approve of foreign ideas, but it certainly makes it easy for any citizen to come into contact with them.

Cosmopolitan attitudes are also strongly encouraged by government policy. For almost a century, the UN and the Terran Confederation have done their best to discourage cultural isolationism and xenophobia. The world information grid has been subsidized, helping it to expand into every region of the planet. Passenger travel has also been subsidized, and nation-states have been rewarded for permitting free movement across their borders. Nation-states have been actively prevented from restricting the flow of information across their borders. Xenophobic local regimes have been deposed, in favor of those more willing to remain part of the world community.

As a result, more Terrans enjoy "foreign" media and entertainment, more Terrans work in a country other than the one in which they were born, and more Terrans routinely travel abroad than at any former time in history. Most Terrans speak at least two languages. Meanwhile, the modern dialect of English (which has plenty of loan words and slang from Mandarin, Spanish, and other languages) seems likely to become the first *universal* Terran language. It is already the official common language of the Terran Confederation Navy, and it serves as a *lingua franca* throughout the Terran colony worlds and nearby Imperial space.

One potential downside of this cosmopolitanism is the marginalization of many local cultures. Of the thousands of Terran languages spoken at the beginning of the industrial era, the vast majority now have no native speakers. Today, many local cultures only persist through active policies to preserve them. Some Terrans worry that many languages and cultures will only survive until the first period of apathy causes the preservation efforts to lag. Of course, the opening of interstellar travel and colonization has provided an opportunity to establish new worlds where distinctive cultures can more easily be preserved.

Progress and Prosperity

Despite the turmoil of the 21st century, Terran civilization has made a great deal of technological and economic progress.

New technologies have given Terrans a wide range of capabilities that were unknown in the early 21st century. Fusion power plants produce cheap, clean, abundant energy. Gravitic control has reduced transportation costs significantly – especially the cost of transporting goods from the Terran surface into space. Space development has made vast mineral and other resources available. Biotechnology has improved crop yields, and has done much to preserve the planet's last remaining wilderness areas. Advances in medical science have reduced the death toll due to infectious disease, heart disease, cancer, and other historical scourges.

Technological progress drives economic productivity; the Terran economy has nearly *30 times* the output that it did at the beginning of the 21st century. The average standard of living, worldwide, is about equivalent to that of the typical Western European in 2000 Very few Terrans currently live in real poverty or lack even the basic requirements of diet, clothing, shelter, and education. The wealthiest regions offer a lifestyle that would have been unthinkable in past centuries. Disparities in wealth and income still exist – many regions still have far to go to catch up – but most citizens find life much easier and more pleasant than their ancestors once did.

One unusual feature of the modern Terran economy is the very high level of military spending. Even in peacetime, about 7% of the planet's Gross Domestic Product is devoted to the military and to paramilitary projects such as the interstellar colonization effort. In times of open war against the Vilani, the military budget has sometimes risen as high as 15% of the planet's GDP. This level of military spending, sustained over decades of time, is almost without precedent in Terran history. It has profound effects on Terran society and politics, and would probably be impossible to sustain were it not for the obvious and continuing threat of the Vilani Imperium.

Terran Colonies

Terrans have settled a number of worlds, both in the Terran star system and elsewhere. See Chapter 5 for details of some of these colonies.

Worlds and Outposts

Due to the vagaries of astrography, Terra is in the midst of a "pocket" of stars in a region of space cut off on two sides by the Vilani Imperium and on the other two sides by a jump-3 "gap" (see Chapter 8 for a discussion of the interstellar *jump drive*). This has always tended to channel Terran expansion toward Imperial space. The situation is further complicated by the fact that there aren't very many Terra-like worlds inside the "pocket." Aside from Prometheus (p. 114) and Terra itself, the worlds immediately available for colonization at the beginning of the Interstellar Wars were no more than marginally habitable.

As a result, most Terran settlement has gone to Prometheus, and the Terran Confederation spends most of its effort on pushing the Imperial border back rather than exploring across the gap into uncharted space. There are known to be many Terra-like worlds inside the Imperium, most of them already developed by the Vilani but lightly settled by Terran standards. If the Imperium can be pressed back, all that desirable real estate will fall into Terran hands.

That doesn't mean that the marginal worlds inside the "pocket" are being neglected. Some of them have valuable resources to offer, while others are in strategic locations that invite the placement of way stations or defensive pickets. Terran policy is to place at least a military outpost in almost every reachable star system – if any local resources are worth developing, an industrial colony can take shape as well.

Some of the first interstellar outposts were established by national or private interests, but by 2126 all of them were brought under direct Confederation control. Today, all outposts that are primarily of a military character are administered by the Navy, while civilian industrial settlements are governed by the Colonial Bureau. There is always a planetary Governor appointed by the appropriate Confederation ministry, and a local advisory board composed of leading citizens of the outpost.

Once a colony has a substantial population (usually at least 1 million) and is economically self-sufficient, it can apply to the Confederation for home rule. If the petition succeeds, the Terran Confederation's colonial government is withdrawn, and the colony is admitted to the Confederation as an independent nation-state. As of 2170, this has only happened four times (Luna and Prometheus in 2122, Mars in 2128, and the once-Vilani world Nusku in 2161).

Although independent colony worlds can design their own laws and forms of government, they suffer the same limitations on their national sovereignty as nation-states back on Terra. They are protected somewhat by distance; colony worlds enjoy more independence of action because it would cost the Confederation more to send in a "peacekeeping" expedition. On the other hand, the colony worlds get only token representation within the Terran Confederation government, which remains under the control of the major nation-states on Terra. The net result is that the colony worlds often feel separated from the homeworld by social as well as physical distance.

Conquered Worlds

As the Interstellar Wars progress and Terran Confederation slowly gains the upper hand over the Imperium, many long-settled Vilani worlds will pass into the Confederation's control. As of 2170, however, there is only one such world (Nusku – see p. 112). In later years there will be dozens, then hundreds, then thousands of conquered worlds.

The Process of Conquest

The conquest of a Vilani world begins when the Terran Confederation Navy secures the space above it. Once the Imperial Navy is forced to withdraw, the world it defended is cut off from the Imperium and laid open to invasion.

In many cases, an Imperial world will surrender as soon as the Terran Navy arrives. Thousands of Imperial worlds are inhabited by minor-race Humans, aliens, or Vilani from some

Being Terran

Even though Terra has come under the unified rule of the Terran Confederation, Terran society still exhibits a lot of diversity. It's difficult to define a set of features that most Terrans have in common. Of course, those few Terrans who are likely to go on interstellar adventures are likely to have unusual personal histories – the community of Terran adventurers *does* have a number of features in common.

Innovation

The last few centuries have been hard on Terra's traditionalist subcultures. Waves of social, economic, and technological change have shattered many communities that would have preferred to cling to ancient ways of life. Although a few such communities still survive, most of today's Terrans are at least able to adapt to change.

Naturally, those Terrans who are likely to leave the homeworld for interstellar adventure are the most adaptable, even creative, of their kind. Many of them are entrepreneurs, aggressively seeking out new opportunities to make a fortune. Others are social or political misfits, who wish to escape the heavy hand of Confederation rule and set up a new community on another world.

Militarism

Since the beginning of the Interstellar Wars, the Terran Confederation military has become one of the dominant institutions of Terran life. Every adult Terran is required by law to serve a short term in public service, and many serve in the military during this period. Most citizens have either served in the regular military forces, or are close to someone who has. This is particularly true of Terrans who have the opportunity to seek adventure among the stars – prior military service is almost a requirement for many starship-crew or colonial jobs.

Individual Terrans vary in their attitudes toward the military, of course. There are very few rabid Terran imperialists, out to tear down the Vilani by any means necessary. There are also very few absolute pacifists. Most Terrans, especially those with prior service, view the military as a *necessary*, but not always positive, institution.

Independence

Most of the homeworld's citizens are at least tolerant of the Terran Confederation's rule – they may not agree with all of the Confederation's policies, but they support the Confederation as the best way to ensure Terran survival. Those who disagree are among the most likely to move to the colonies, or to take a job involving travel far from Terra. As a result, members of the Terran interstellar community are likely to be much more independent and disrespectful toward authority than citizens back on the homeworld.

This independence doesn't mean that all Terran adventurers are rebels. Most colonists and starship crewmen are willing to give the Confederation their loyalty, especially when directly employed by the government. However, that loyalty isn't likely to be unquestioning or absolute. The colonist or crewman is always thinking for himself. He prefers to avoid government interference when off-duty, and may eventually put his own interests ahead of those of the Confederation.

khagarii culture (p. 15). Many of these worlds chafe under Vilani rule and would like nothing more than to break away. Even some mainstream Vilani worlds have no real loyalty to the central Imperial government. Terran policy is to encourage such dissension within the Imperium, treating the subject peoples with respect, making alliances with them rather than imposing harsh Terran rule on them. As a result, many worlds switch sides as soon as it's clear that the Imperium has no way to retaliate.

If a world resists, or if loyal Vilani troops remain behind after the Imperial Navy withdraws, then the Terrans must fight to secure the planet's surface. This is often a long process, a siege rather than a quick campaign of maneuver. A ground war for the conquest of a major Vilani world usually lasts several months; some Imperial worlds with well-prepared defenses hold out for years at a time. But eventually, the last pockets of Imperial resistance are stamped out.

Unless a world has negotiated a full alliance with the Confederation ahead of time, Terran policy is to place a military government in temporary command. A large portion of the Terran military is trained to provide competent military administration for Vilani, and even non-Human, populations. Important industrial and social centers are secured, police protection is provided, and insurgents are located and dealt with. As of 2170, the Confederation is still gathering experience in how to deal with conquered Vilani populations. The skill, number, and size of "occupation armies" will grow rapidly in the coming decades, however, as more and more Imperial worlds come under Terran control.

During the period of military occupation, Terran civilians come in large numbers to the newly conquered world. Some take up positions in charge of civil administration and major industries, usually sharing power as far as possible with local leaders. Other Terrans come simply to make their fortunes, providing services to the civil administration or setting up new businesses among the local populace. All of these newcomers bring their families, setting up permanent Terran communities on the new world.

Eventually the military occupation is withdrawn, and the world is given self-government within the Terran Confederation. Confederation policy is to make sure that local citizens are as involved as possible, consistent with the need to maintain good order and make the world's industries available to the Terran war effort. Even so, Terrans are likely to be very influential in the new world-state.

Mutual Assimilation

Vilani worlds enter the Terran Confederation through "conquest," but in the long run the process is more one of mutual assimilation. The Vilani citizens of a conquered world often begin to imitate Terran customs, political theories, and social structures. They learn Terran languages, read Terran literature, choose Terran names for themselves or their children, open businesses organized along Terran lines, hold office in the Terran-imposed political system, and so on. Already in 2170, this process is underway on Nusku; in the coming centuries, billions of Vilani on other worlds will become "imitation Terrans."

More importantly, this process works in both directions. Terran settlers on former Imperial worlds are far from the home world, and are often vastly outnumbered by their Vilani colleagues. Some of them respond by clinging to their Terran identity, isolating themselves from the Vilani population, sometimes even holding the Vilani in contempt. The more effective response, taken by most Terran settlers, is to integrate into the Vilani populace. Terrans often find Vilani culture attractive – they are likely to pick up a few Vilani folkways and bits of Vilani language. Some Vilani welcome Terran settlers into partnerships, forming business and family connections to further integrate the two communities.

Within a few decades, a "conquered" Vilani world will usually develop a distinctive culture of its own. A mixed Terran-Vilani ruling class grows, Terran in language and in most of its customs, but feeling more attachment to the local (mostly Vilani) population than to distant Terra. So long as the wars against the Vilani Imperium continue, the former Imperial worlds are likely to remain loyal to the Terran Confederation – but they will look for safe ways to assert their independence from the home world.

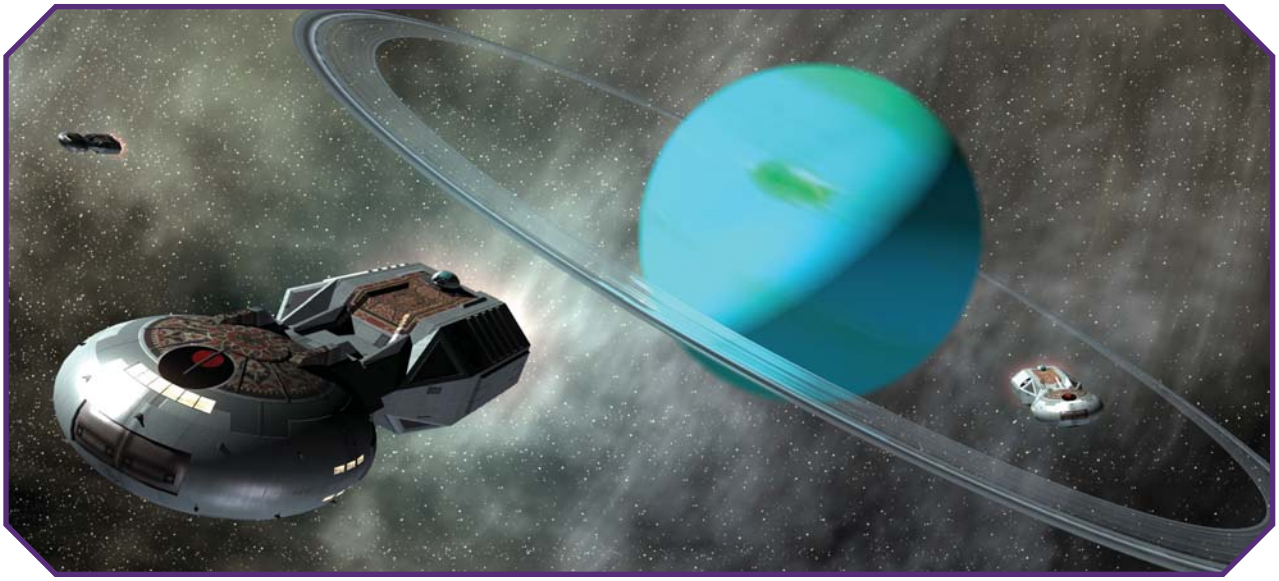
The Vilani Imperium

Is it not a noble farce, wherein kings, republics, and emperors have for so many ages played their parts, and to which the whole vast universe serves for a theater?
– *Michel de Montaigne,* ***Essays*** *(1580)*

When Humans from Terra first reached the stars, they expected to be surprised by what they found. The universe was vast and would doubtless contain wonders beyond imagination. What no one expected – what no one could have predicted – was the presence of other Humans already living among the stars, running a vast interstellar civilization that was already thousands of years old.

In 4000 BC, there was no civilization on Terra. Settled agriculture was just beginning in a few favored regions. The largest town on the planet had a population of less than a thousand souls. The mystic city-states of Sumeria, the pyramid-building dynasties of Egypt, and the half-mythical kings of Shang China, were all centuries in the future.

In 4000 BC, the Human race known as the Vilani had already developed the jump drive and was busily exploring the galaxy. While Egypt built the pyramids, the Vilani built interstellar colonies. While the Greeks refined the tactics of shield and iron-bladed spear, the Vilani launched campaigns of conquest across the galaxy. While Rome rose and fell, the Vilani established an interstellar empire that spanned ten thousand worlds. That empire – the *Ziru Sirka*, also called the "Grand Empire of



Stars" or the Vilani Imperium – still exists today. It presents the ultimate challenge to Terran civilization.

Outposts of Empire

The Vilani Imperium occupies an irregularly shaped region of space, about 220 parsecs coreward-to-rimward and 160 parsecs spinward-to-trailing. The Vilani homeworld is actually well away from the center of this volume. For a variety of historical and astrographic reasons, the Vilani expanded much further toward the galactic rim and "down" the Local Arm of the galaxy than in other directions.

The small bubble of stars currently under Terran control is nestled close to the extreme rimward frontier of Imperial space. Terra itself is only a few parsecs beyond the final edge of Vilani settlement. Indeed, it's a minor miracle that the Vilani failed to discover the existence of Humans on Terra centuries before Terrans attained spaceflight.

On Imperial maps Terra is located in the Kushuggi sector, also informally known as "the Rim Province." The region is a relatively "young" segment of the Vilani empire. Although a few Vilani scouts tentatively explored the sector as early as 1500 BC, the first permanent Vilani settlement was only established a thousand years later. Almost all of the Imperial worlds in the immediate vicinity of Terra were colonized during the first millennium A.D. (see Chapter 5).

The worlds of the Rim Province are lightly settled – even the most hospitable planets have Human populations of only 2-3 billion. They are also very distant from the Imperial core – the fastest courier service still needs more than two years to carry a message from the provincial capital to Vland, the Vilani capital world. As a result, despite over a millennium of Imperial settlement, the province retains a strong "frontier" flavor. Local Imperial administrators feel cut off from their superiors in the Imperial core. Local Vilani populations are often more stubbornly independent than their distant kin on Vland, and more inclined to pursue their own interests rather than those of the empire as a whole.

The Mystery of Human Origins

Over centuries, Terran scientists became certain that Humans evolved from non-sapient origins on Terra. Humans are well-adapted for the Terran environment. Genetic analysis shows that they are closely related to other Terran animal species, especially the nearly extinct great apes. The fossil record, incomplete though it may be, clearly indicates a line of development that gave rise to modern Humans.

Contact with the Vilani threw the Terran scientific community into chaos. The Vilani originated far from Terra and have been on their homeworld for ages. Yet they are fully Human, a first impression that has been confirmed by both medical examination and intermarriage with Terrans.

Also, the Vilani Imperium contains other Human races – dozens of them, each originating on a different world in the distant past. According to Imperial scientific data, the various Human races known to the Vilani all seem to have appeared at close to the same time, about 300,000 years ago.

Terran scientists have developed several theories to account for the presence of Humans on worlds distant from Terra.

Convergent Evolution: This theory claims that the Human shape and psychology are optimal for a tool-using sapient species, and that they have somehow been selected for on many widely separated worlds. The scientific community never took this theory very seriously, although it has some support from the religious community and from certain pseudo-scientific groups.

Lost Human Civilization: Another theory holds that there was an unknown high-technology culture in Terra's distant past, which explored the galaxy hundreds of thousands of years ago and then vanished. This civilization supposedly left behind "lost colonies" that eventually became the present-day Human homeworlds. Archaeologists have combed Terra for signs of this ancient spacefaring culture, and have found no trace. Pseudo-scientists still talk about Atlantis, or lost civilizations now buried under a mile of Antarctic ice.

Alien Interference: Some scientists suggest that aliens must have transplanted Human stock to many worlds in the distant past. This theory seems to be the most likely – aliens visiting Terra to pick up "samples" might not leave much evidence behind. The hypothetical aliens who may have transplanted Humans around the galaxy are usually called "the Ancients."

The Vilani themselves have shed very little light on the subject. Most Vilani who are interested in pre-Human history lean toward the "alien interference" theory. They point to artifacts and mysterious sites that have been found on hundreds of worlds, and which appear to predate the rise of any Human civilization. The earliest Vilani legends speak of mysterious "gods," possibly referring to the aliens (or to their robotic servants).

Of course, most Vilani are not interested in such abstract questions. Very few Vilani are willing to admit that Terra could possibly be the Human homeworld . . .

Corporate Feudalism

The Vilani govern their empire with a very light hand. They have no choice – the sheer size and dispersion of the Imperium make it impossible to govern with strict central control. Instead, local officials have a great deal of autonomy, handling most situations on their own and making occasional reports to their superiors. A vast (but loose) hierarchy covers the empire, from the few ultimate leaders on Vland down to the *billions* of local administrators who get things done.

In many ways, the Vilani hierarchy is similar to the feudal political systems once common on Terra. High office is often inherited, and political influence tends to run in important noble families. Officials live within a complex web of obligations and privileges, defining how they must behave toward their superiors and subordinates.

Unlike most of the Terran feudal systems, the Vilani aristocracy is not military or religious in nature. Vilani nobles are not primarily warriors or priests – instead, they are *managers*, leaders of business enterprises or the civil bureaucracy.

Indeed, the line between business and government is almost invisible in Vilani society. Organizations that provide civil administration are expected to produce a surplus. Business firms provide housing and consumer goods, organize military defense and police protection, administer civil justice, and perform other "government" services for their employees.

This blending of corporate and government institutions is most obvious at the highest levels of Vilani society. For example, the regions of Vilani space closest to Terra are ultimately controlled by a single organization called *Sharurshid* (roughly translating as "Direct Exchange Facilitators"). Sharurshid is a vast organization run by a network of Vilani noble families. It operates as a corporation; its primary business is interstellar trade and transportation, but it has thousands of semi-independent subsidiaries that manufacture goods and provide services on individual Vilani worlds. Meanwhile, within the Sharurshid sphere of influence, the megacorporation *is* the Imperial government. Sharurshid itself administers the Imperium at the subsector level and above, while its major subsidiaries provide government services on thousands of Vilani worlds.

The Game of Empire

Sharurshid controls a large portion of the Vilani empire. Terran observers are aware of at least two other organizations of similar size that hold sway over other parts of the Imperium. However, the Vilani appear to divide their empire among these *shangarim* (a difficult word, usually translated as "bureaus" to suggest a bureaucratic agency) so that their territories overlap very little. This means that Sharurshid faces little or no competition within its own sphere of influence.

Within Sharurshid, however, there is considerable competition. Although Vilani are more community-oriented than Terrans (see *Being Vilani*, p. 16), they don't lack all personal ambition. They compete for positions of responsibility within the Sharurshid system, for resources for their favored projects, and for influence over policy. Even the most selfless Vilani administrator can still be convinced that he would do a better job in high office than the bumbler currently in charge . . .

This kind of "hidden" competition manifests itself in many different ways. Vilani officials may openly oppose their rivals when it comes time to meet in committee and discuss policy. They may conceal or distort information in their reports in order to trap a competitor into error or to cover up their own mistakes. They may try to sabotage their rivals' projects. All the techniques of bureaucratic infighting familiar to Terran office workers are also known to the Vilani – and have been honed to a high degree of sophistication over thousands of years.

One aspect of Vilani competition has been *very* fortunate for the Terran Confederation: it has led various Vilani individuals and factions to work with Terrans *even against the Imperium*. On a small scale, this means that individual Vilani administrators are often willing to hire Terran adventurers or mercenaries. On a larger scale, certain Vilani factions seem willing to consider seceding from the empire entirely, in order to pursue an independent course with a Terran alliance. Even factions that are not interested in secession have sometimes been of great assistance to the Terran cause – for example, it seems likely that Terra would not have survived the Third Interstellar War (p. 27) had factions within Sharurshid not undermined the aggressive policy of the provincial governor.

Imperial Society

Vilani civilization is by no means monolithic. Indeed, the designers of the Vilani Imperium deliberately included cultural diversity as a permanent feature of the empire. They recognized that Imperial society needed the flexibility that a certain amount of diversity could provide. As a result, every caste has its own customs and traditions, every Vilani world follows its own path of social evolution, and many of the Imperial subject races have accepted a veneer of Vilani culture while retaining portions of their own.

The Vilani Mainstream

The core of Vilani civilization is its "High Vilani" and "Low Vilani" subcultures.

High Vilani culture is that of the interstellar elite, the aristocrats and senior *shangarim* administrators who wield Imperial power. It is characterized by routine access to interstellar travel and communication, sumptuous standards of living, elaborate artistic styles, even more elaborate codes of courtesy, and (to a Terran) extreme arrogance.

Low Vilani culture is that of the Imperial "middle class." Its members include the vast majority of the Vilani population, as well as those Imperial subject races that have fully assimilated into Vilani civilization. Members of the Low Vilani culture usually remain on the world of their birth for their entire lives, and don't participate directly in interstellar affairs. They usually live comfortably but not lavishly, and spend their lives working hard for one of the *shangarim* or a subsidiary organization. Low Vilani artistic styles are much simpler and less ornate than those of the High Vilani; Terrans often consider Low Vilani art to be dull and uninspired. Low Vilani are loyal to the Imperium, but they are much less arrogant than their High Vilani leaders. Indeed, some Low Vilani show a keen interest in foreign ideas and culture.

Dissidents

On the Imperial social hierarchy, the rung below the Low Vilani is occupied by the *khagarii,* or "dissidents." Dissident groups live and work within Vilani society, but they reject some or all of the age-old Vilani traditions. Some *khagarii* are Vilani who deliberately refuse to follow Imperial social norms. Most of them are non-Vilani Humans or non-Humans, whose ancestors were conquered by the Imperium but who have never been fully assimilated.

Dissidents are denied a variety of rights within the Imperial system. In extreme cases, a world inhabited by dissidents can be *interdicted*, forcibly cut off from all outside contact by Imperial naval forces. Other dissident communities are forced to live apart from mainstream society, in ghettos or reservations where they can follow their own customs without disturbing Imperial harmony. Dissidents who work within Vilani society must accept placement in the "caste" system (p. 73), but are restricted to low-prestige careers. In particular, dissidents are denied the right to legally own or operate starships, and must negotiate at a serious disadvantage with the *shangarim* if they wish to participate in interstellar trade.

Despite these handicaps, the Imperium is home to many *khagarii* groups; some estimates place them at over 10% of the total Imperial population. *Khagarii* are particularly common in frontier subsectors, and on low-population worlds off the main trade routes. Small dissident communities can also be found on most of the Vilani core worlds.

Not all Vilani "dissidents" are openly classified as *khagarii*. Vilani society requires its members to behave in accordance with tradition *in public*, but private thoughts and behavior are not so strictly regulated. It's possible for a Vilani to engage in quiet dissent from the social norms without being considered *khagarii*. Many such Vilani join informal clubs or secret societies, which have traditions of their own outside the caste system and in opposition to the mainstream of Imperial culture.

Barbarians

The Vilani word *lukurranii* suggests "those who come from foreign lands," but it also suggests people who come from "the underworld," a realm of chaos and uncertainty. It is usually translated into English as "barbarians," but that translation doesn't carry the full weight of repugnance indicated by the Vilani word.

Lukurranii are those sapient beings, Human or not, who live entirely outside the Imperial system. They reject Vilani traditions – in fact, they may not even be *aware* of those traditions. They threaten the order, stability, and harmony of Vilani society simply by existing. When they are capable of operating starships, the threat becomes far greater because they can spread their chaos into the heart of Vilani civilization.

In a sense, the Vilani Imperium exists solely for the purpose of conquering and assimilating *lukurranii*. Long ago, the Vilani fought a series of Consolidation Wars, during which they tracked down and conquered every *lukurranii* race they could find. After centuries of conflict, every starfaring race that the Vilani could reach was assimilated into the growing Imperium. Only after that did the Imperium – quite deliberately – cease its growth and begin the long period of stability that has continued to the present.

Today, the Imperium is once again challenged by *lukurranii* who have acquired or developed the jump drive. Terrans are clearly one such "barbarian" group, but there are rumors of more in other segments of the Imperial border.

The Vilani have clearly lost much of their ability (or their will) to put down any barbarians who might challenge them. Terra would doubtless have been conquered some time ago if the bold, warlike Vilani of the Consolidation Wars era were still in charge of the empire. As it is, even Vilani aristocrats are sometimes willing to bargain with Terran *lukurranii*. Of course, such negotiations rarely treat Terrans as equals, always involving face-saving formulae to maintain the pretense that the barbarians are subservient to the Imperium. Still, the end result is that Terrans can often win favors or concessions in return for helping Vilani officials to promote their own agendas.

Being Vilani

Across thousands of Imperial worlds, Vilani tend to share certain common traits. Even Vilani *khagarii* have the same basic psychology.

Tradition

Vilani are devoted to *tradition*. Whenever a Vilani must make a decision, his first thought is usually given to what other Vilani have done in similar situations, what the customs of his family and caste require, and so on. Vilani rarely rely on their own initiative to solve problems, and can struggle when the situation is genuinely new. On the other hand, Vilani gain confidence from the vast body of tradition they can draw upon.

Creative and innovative thinking are strongly discouraged by Vilani society. Those who insist on applying new ideas are regarded as a danger to society, attacking the traditions that hold civilization together. A Vilani who persists in being innovative is often treated as criminally insane.

Tradition covers Vilani technology, standardizing it almost everywhere in the Imperium. Tradition also freezes Vilani technological development in place; the standard Imperial toolset has seen no significant changes in over 2,000 years. Vilani art, music, and literature are also firmly grounded in tradition – a present-day Vilani artist will often produce works in a style thousands of years old.

One peculiar tradition among Vilani artists concerns the lost wax-process. While used extensively in industry and jewelry-making, the process is never applied to fine-art sculptures. As with the vast majority of Vilani customs, there is no rhyme or reason behind them, beyond the mere fact that "it is tradition."

– Lamon hault-Devereaux,
Vilani Sculpture: A History

Pragmatism

No matter their caste or subculture, the Vilani are very *pragmatic* people. They don't waste time on abstract theories or unattainable ideals – they are interested only in doing what works. To them, the real universe is much more important than the world of ideas. Vilani are administrators and engineers, not philosophers or scientists.

To some extent, Vilani pragmatism is related to their insistence on tradition. Methods, technologies, and ideas become traditional once they have been proven to work over long periods of time. Vilani innovators are regarded as dangerous because they proceed without being able to prove that their innovations will do more good than harm.

Community

Vilani are strongly *community-oriented*. Vilani are certainly capable of individualistic behavior, but their society trains them to always measure their actions by their effect on the community. A Vilani defines his self-image in the context of his family, his caste, his work team, his home city, his home world, and the Imperial system as a whole. He regards his prosperity as depending on that of the group. He expresses his ambitions by demonstrating that he is better able to advance the group's interests than anyone else.

One expression of this group thinking is the Vilani attitude to work. Vilani are diligent and efficient workers. A Terran might expect to spend a third of his day on the job; a Vilani thinks nothing of spending half of his day, and will often work longer hours than that. Vilani enjoy their recreational time, but to them life isn't about having fun – it's about working hard to make the community healthy and prosperous.

The Vilani prefer communal decision-making. The notion of the autocrat, the lone decision-maker who is subject to no other authority, is alien to Vilani thought. Even the Vilani Emperor is simply the chairman of the ruling council of the Imperium. At all levels of Vilani society, from the Imperium down to the single family, decisions are reached by groups who meet and work out consensus. The process is often slow, but once a decision is reached it has the committed support of all members of the group.

Vilani communities are held together by codes of courtesy; these codes can be extremely elaborate, especially among the "High Vilani" castes that fill out the aristocracy and the ranks of senior administration. Vilani courtesy helps maintain harmony within the community, and helps individuals to keep their expression of emotion within the bounds set by tradition. Even bitter enemies are unfailingly polite to one another when they must interact socially.

Chapter Two
The Epic Struggle

On Saturday we had no meetings to attend, so I decided to give Adkhar a treat. We took the morning suborbital to Paris, and then tubed down to Cairo for a day's visit to the Egyptian antiquities. I decided we could spend a few hours in the Cairo Museum, and then go out to Gizeh to say hello to the Sphinx.

It didn't work out quite the way I planned. Adkhar was polite but unimpressed.

"These must be very old," he remarked at one point.

"They are," I assured him.

"How old are they? To be in such a state of disrepair, they must be from the very dawn of your civilization."

"That's true," I said.

"So? 15,000 years? 20,000 years? How old are they?"

So of course I had to admit that they were only 5,000 years old. I'm afraid that after that he didn't appreciate anything he saw. Not that his veneer of urbane courtesy ever wavered, of course. Even so, it was clear that he found it all rather childish, and rather quaint, and more than a little shabby.

Vilani. No wonder you sometimes have to beat them over the head with a battleship squadron before they'll take you seriously.

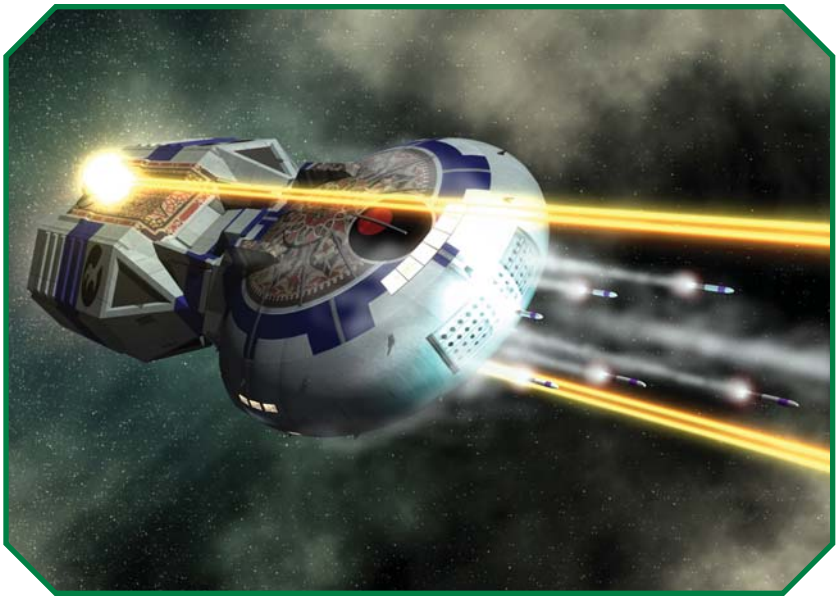
– John Billingslake, Terran Confederation administrator (2190)

Setting the Stage

Vilani civilization is quite ancient. The oldest written records still preserved on Vland are about 20,000 years old. An industrial revolution began about 6500 B.C., slowly but steadily building up to the first space exploration about 1,000 years later. For centuries the Vilani explored the nearby stars using slower-than-light ships, before developing the jump drive about 4700 B.C. (for a description of this critical technology, see *The Jump Drive*, p. 169).

Vilani Exploration (to c. 900 B.C.)

These early Vilani were quite different from their descendants, the Vilani encountered thousands of years later by the first Terran interstellar explorers. To be sure, they were already cautious about social and technological innovation – but when it came to exploration and trade, they were *bold*. For 3,000 years they poked into every nook and cranny of space, mapping star systems as far as their scouts could reach. They contacted dozens of sentient races, both Human and alien. They set up long-lasting trade relationships; their merchant ships carried exotic goods from hundreds of worlds.



These early Vilani were much more interested in trade than in conquest, and made little attempt to gain direct rule over "barbarian" worlds. Close to Vland there was a sphere dominated by various Vilani factions, but Vilani goods and technologies reached far beyond this region of space. For example, by 1500 B.C. the Vegans (p. 88) had acquired the jump drive at third hand, 100 parsecs beyond the most distant frontier of the Vilani trade empire.

The Consolidation Wars (c. 900 B.C.-c. A.D. 500)

Many barbarians used their Vilani-derived technology in ways that clashed with Vilani law and custom. They made unapproved innovations, failed to pay royalties to the *shangarim*, or built small interstellar empires that openly resisted Vilani influence. Over time, the Vilani became dissatisfied with this situation and shifted their strategy. Once they had explored the galaxy as peaceful merchants; now they marshaled war fleets and proceeded to unite all of known space under their direct rule.

Despite the dispersal of advanced technology among the barbarian races, the Vilani still had a considerable technological edge. Indeed, shortly before the Consolidation Wars began, Vilani researchers had developed the jump-2 drive (p. 170), giving Vilani ships an unprecedented advantage in strategic speed and mobility.

At the beginning of the Consolidation Wars era, the *shangarim* were already organized to provide governmental services within their respective spheres of influence. Indeed, each of them already operated an armed fleet in order to protect merchant convoys from barbarian or renegade attack. It was natural for each of the three *shangarim* to be given the responsibility for conquering and ruling a specific region of barbarian space. The Sharurshid organization was the *shangarim* responsible for expanding Vilani control to rimward – toward distant Terra.

Sharurshid's ultimate goal was the Vegan Polity, a small interstellar state that had been established using a Vilani-derived jump drive. As far as anyone knew, there were no starfaring races to rimward of the Vegan colonial sphere. Once the Vegans were part of the Vilani empire, expansion in that direction could safely be halted.

The Vilani conquered and colonized methodically to rimward, finally making direct contact with the Vegan Polity about A.D. 75. A Vilani military colony was established on Shulgiasu (p. 107), which later became the center of Vilani civilization on the Rim. A few decades later, the Vegan Consolidation Campaign was kicked off with a surprise attack on several Vegan outposts. The conquest of the Vegan Polity took only a few years to complete, and was over by A.D. 120.

After the Vegan conquest, the Vilani continued to expand to rimward and spinward, following a jump-1 "main" that trailed out into uncharted space beyond the Vegan sphere. However, the main effort of the Consolidation Wars went elsewhere, and colonization in the rimward direction was very slow. The *Kushuggi* or "Rim Worlds" province soon became a backwater of the growing empire.

The Ziru Sirka (c. A.D. 500 and later)

The Consolidation Wars ended about A.D.500, with the conquest and assimilation of the last known non-Vilani starfaring culture. The *Igsiirdi*, the ruling council dominated by the *shangarim*, recognized this accomplishment by proclaiming the foundation of a formal interstellar empire. The *Ziru Sirka* or "Grand Empire of Stars" would be a vast interstellar state, governed by the three *shangarim* for the benefit of all sapient beings.

The primary goal of the new Imperium was *stability* rather than further expansion. Exploration beyond the borders of the empire was permitted only under special circumstances, and within a few centuries had ceased entirely. New colonization was likewise slowed, and later halted. Technological innovation was even more strictly controlled. With these changes, the *Ziru Sirka* was to provide a mature, steady-state economy in which trillions of sophonts could live in safety and comfort. While greed and personal ambition were not stamped out, they were channeled into relatively "safe" pursuits, notably the quest for higher status within the elaborate Imperial hierarchy.

Not all of the new Imperium's subjects agreed with this goal. Even in the early centuries of the *Ziru Sirka*, dissident factions sometimes appeared and tried to alter the Imperial social contract. One such faction was the *kimashargur* ("Virtue of the Foremost") movement, which became very influential in the Imperium's rimward sectors beginning about A.D. 800.

The *kimashargur* were romantics. They remembered the days of technological advance and galaxy-spanning exploration, and considered the Imperium poorer for having turned its

back on such ventures. They demanded that controls on exploration and technological innovation be relaxed, so that at least a small section of Imperial society could continue to engage in such pursuits. They also pointed out that the empire's stability, while a laudable accomplishment, could be threatened if some outside force arose to challenge Vilani authority. Clearly *someone* had to be responsible for exploring uncharted space and discovering new technological tricks, so that the Vilani community as a whole could be prepared for the unknown.

Imperial authority tolerated the *kimashargur* for a time, but eventually cracked down on the movement about A.D. 950. Many thousands of *kimashargur* fled Imperial space entirely, settling beyond the rimward frontier. Thus it was a dissident population that first established Vilani worlds such as Dingir, Gashidda, Iilike, Shulimik, and Nusku – all of them within only a few parsecs of Terra. Whether any *kimashargur* scouts discovered Terra itself during this era is unknown; if they did, no records of the discovery appear to have survived.

About A.D. 1000 the *kimashargur* exiles established a Vilani pocket empire, with its capital at Dingir. For over a century the dissidents prospered, developing their new worlds, diverging from the Vilani cultural norms that had been imposed on them back in Imperial space. Unfortunately, the experiment did not last long; just after A.D. 1100 the Imperium gathered a war fleet and forcibly annexed the *kimashargur* state. The war was quite short but very bitter – even centuries later, the populations of the old *kimashargur* worlds remembered and resented the Imperial conquest.

After the reduction of the *kimashargur*, the Imperial rimward border was static for over 1,000 years. The Vilani expanded no further, hampered by a jump-3 gap to rimward and by sheer inertia. Fatefully, the Imperial advance had stopped a mere three parsecs from Terra.

The New Millennium

While the Vilani carved out their interstellar empire, Terra remained in a primitive state. An industrial revolution began about A.D. 1800, centering in Western Europe and North America. The result was a period of upheaval, as the thousands of local pre-industrial societies were gradually unified into a single world community. The process took centuries, and was not yet complete when Terra first came into contact with the Vilani.

Rise of the UN

As industrial progress spread, Terran civilization began to go through a slow historical cycle driven by social and economic change. Great crises tended to alternate with periods of peace – but each outbreak of violent disaster was stronger, harsher, and more difficult for Terran civilization to survive.

The last major outbreak of crisis struck soon after the turn of the new millennium. For many years, Terra was wracked with war, revolution, terrorism, famine, epidemic disease, radical climate shifts, and ecological disasters. The very survival of civilization often seemed in doubt.

Using the Official History

This chapter describes the *official* history of the Interstellar Wars era, a very early (and pivotal) period in the ***Traveller*** future history. GMs and players already familiar with ***Traveller*** will be aware of events that take place *thousands* of years further into the future – and, of course, they will be aware of how the Interstellar Wars themselves are "supposed" to work out.

The official history of the era is intended to give GMs and players *background* for their own adventures. The GM may choose to set his campaign at the "default present" (p. 7) assumed in most of this book. Or he may use the historical narrative here, together with the worldbuilding tools and other rules in later chapters, to design his own campaign setting at any point in the era.

However, once an ***Interstellar Wars*** campaign is under way the best approach is probably to push the official history firmly to the side. Permitting events to take their own course will maintain the element of mystery and surprise, and will let players feel that they are in charge of their characters' destinies. Indeed, the Interstellar Wars era was a time when individual actions often had a profound effect on the course of events. This is a worthwhile feature for any campaign setting, but only if PC adventurers are given the chance to change history.

It should be obvious that the "future history" described here is very unlikely to come about, even in those details that describe life on Terra in the 21st century. GMs and players shouldn't spend too much effort trying to make the future history fit with current events! Many ***Traveller*** fans assume that the game's history diverges from our own sometime in the mid-1970s . . . by no coincidence, about the time that ***Traveller*** was first published.

The Treaty of New York (c. A.D. 2000-2024)

During the early years of the crisis era, cooperation among Terra's major nation-states was infrequent and grudging. The United States was the most powerful nation at the time, and for years it tried to take on the role of single world leader. The attempt failed, as the deepening crisis era moved beyond the ability of any one state to handle on its own.

During the late 2010s, several major powers – notably France, Germany, India, Japan, Russia, the United Kingdom, and the United States – began to search for a different solution for the global crisis. Various international treaties were signed to improve cooperation among the major powers; these had some beneficial effect, but were soon found to be inadequate. Eventually, the major nations turned to the United Nations Organization (UN).

Since its foundation, the UN had functioned primarily as a forum for international debate. It had dozens of subsidiary agencies and commissions, many of which were directly concerned with aspects of the growing global crisis, but it had never been given the authority or resources to be truly effective. Now the major powers reluctantly agreed that the UN was the only institution capable of coordinating the international community.

Before the UN could take a central role in solving the world's problems, its structure and authority needed extensive revision. The necessary reforms were enacted over a period of several years, culminating in the Treaty of New York (signed in 2024). This treaty revised the UN Charter, making extensive changes to the organization's structure. In particular, the two organs that had traditionally exercised the most power lost much of their authority.

The General Assembly remained in existence, but it was stripped of its right to elect the Secretary-General. It also lost its ability to authorize military action in emergencies. The General Assembly became an effectively powerless forum. It was the only place in the reformed organization where minor states were guaranteed representation – but that representation was nearly useless except as a platform for trying to move world opinion.

The most crucial change in the UN was a drastic expansion of its military power.

Meanwhile, the Security Council was abolished entirely. This had the effect of eliminating the rule of "Great Power unanimity," which had often served to hobble the UN whenever its policies came into conflict with a major nation's desires.

To replace the powers once vested in the General Assembly and Security Council, the Treaty of New York vastly expanded the role of the Secretariat.

The Secretariat as a whole was placed under an Advisory Board, which was given primary policy-making authority. The Advisory Board's members were selected from all of Terra's nations, but it was stacked with major-power representatives and its voting rules tended to prevent minor nations from changing the outcome of any vote. Meanwhile, no *major* nation had the ability to control the Advisory Board either; the major powers were therefore forced to cooperate to accomplish anything substantive.

The Secretary-General himself was given a much wider range of executive powers, including the ability to order limited military action under his own authority. The power to appoint the Secretary-General was given to the Advisory Board; this ended several unwritten rules that had effectively prevented any major-power candidate from holding the Secretary-General's office. Indeed, the first Secretary-General appointed after the Treaty of New York was signed was a major-power candidate (Sadao Kanzaki of Japan, appointed in 2026), and many of his successors were from the major nations.

The Secretary-General and the Secretariat, each within its own sphere of authority, were granted a power that had formerly been limited to the Security Council. Each could issue orders and policies that were binding on *all* member states of the UN.

The most crucial change in the UN was a drastic expansion of its military power. Formerly, the UN had no military forces under its own command – it had to call on the member states to provide them for any specific purpose, usually by way of a Security Council resolution. Now the major nation-states agreed to place the bulk of their own armed forces under *direct* United Nations control.

Meanwhile, the UN's existing agencies for humanitarian aid and international development were placed under close major-power supervision. They were also drastically expanded, and given much greater budgetary support from the major nations.

The Quest for Stability (A.D. 2024-2050)

The Treaty of New York was widely regarded as a massive political compromise. Almost no one was pleased with it – but Terra's global crisis had grown so severe that most of the major nations could find no alternative.

Even so, the first obstacle that the reformed UN had to face was the major nations themselves. Few of them were happy with the notion of turning over so much of their own sovereignty – especially military power – to a multinational body. The United States threatened to withdraw from the UN altogether; the People's Republic of China actually did (in 2025) and remained outside the UN for over a decade. Several times these disputes threatened to break into open war among the major powers, but such a conflict was averted each time.

Meanwhile, many minor states and stateless peoples interpreted the Treaty of New York as the foundation of an *empire*, in which they were to be treated as subjects. They feared that the major industrialized nations would

begin to openly dictate policy to all others, using their combined military might to enforce their wishes.

These fears were soon confirmed. The new UN proved much more likely to send peacekeeping forces into hot spots around the world, and these "blue helmet" troops were much more aggressive than the peacekeepers of the 20th century. The new international regime was also much more willing to use military force against nation-states that tolerated high levels of corruption, habitually violated human rights, gave safe haven to international terrorists, or otherwise fell afoul of UN policy.

The result was a drastic escalation in international tensions through the 2020s and 2030s, as the reformed UN was almost constantly forced to assert its authority around the world. Yet where the "blue helmet" troops were not required to go, the new UN also demonstrated much greater ability to help solve local social, economic, or ecological problems. Even in regions of armed conflict, the UN was better able to overcome resistance and *then* provide humanitarian and development aid.

Whether the Treaty of New York actually saved Terran civilization from collapse is debatable. Certainly the UN's centralization and increased militancy created as many problems as they solved. Still, by the late 2040s there was an appreciable lightening in the global crisis. World population stabilized, economic growth increased, and standards of living improved. The worldwide level of violent conflict also declined, leading to a reduction in UN peacekeeping commitments. An era of relative peace and prosperity began.

The Conquest of Space

Even at the height of the global crisis, Terra's nation-states recognized the potential of deep space. The competing states saw space as a frontier to be explored and exploited, but they also saw space as a danger – a "high ground" that none could allow another to hold unchallenged.

Wearing the Blue Helmet

The "crisis era" of the early 21st century was a time of tremendous conflict and danger, but it was also a time in which the actions of individuals often had a profound effect on the course of history. A wide variety of campaigns could be designed around the effort to save civilization from collapse. The advantage of such a campaign is that the background is not too different from the present day; inspiration can be drawn from "techno-thriller" adventure fiction, or from the front pages of the newspaper.

Characters in such a campaign could be intelligence agents working for the UN or one of the major nation-states, soldiers in the new UN-controlled armed forces, specialists working for a humanitarian organization, or just ordinary citizens caught up in events beyond their control. Their foes could be nation-states unhappy with the UN's new authority, terrorists, or corrupt corporations. Or, to turn the situation on its head, the adventurers could be *opponents* of the UN.

For additional weirdness, add conspiracy theory. The notion of the United Nations as a world government is already prominent in a number of conspiracy theories. The Bavarian Illuminati, an alliance of computer hackers, or a cabal of psionic adepts could be behind the UN. Or all three . . .

Also consider that even if nothing is *publicly* known about space beyond the Terran system, it's possible that offworlders are already on Terra to pull strings. A near-future campaign could involve Vilani covert agents, secret jump-drive programs, Vegans held captive at Area 51 . . . In the *official* ***Traveller*** future history, Terrans definitely developed the jump drive on their own, but that doesn't preclude a great deal of alien manipulation of events years or even decades before.

Although each nation maintained its own space operations, they recognized the need for coordination between those space forces in matters such as traffic control, orbit assignment, radio frequency allocation, and so on. Eventually the spacefaring powers decided to address this need by setting up a new agency of the United Nations.

The United Nations Space Coordination Agency (UNSCA) was established under the authority of the UN Economic and Social Council in 2015. The new agency would handle all of the mundane administrative chores that would help avoid conflict among the spacefaring powers. It also soon became a clearinghouse for the information that space operations generated – scientific data, maps and charts, technical specifications, accident reports, and so on. As additional nations reached space independently, they also joined the UNSCA as participating members.

The UNSCA began as a rather minor agency of the UN, overshadowed by the massive upheavals that shook Terran society throughout the early 21st century. Even so, its role was critical in the conquest of space.

First Colonies (A.D. 2050-2088)

The first manned space expedition launched by Terrans was actually in 1961 – the *Vostok I* orbital probe, launched by the Soviet Union and crewed by the heroic Yuri Gagarin. Despite this early start, Terrans did not establish any permanent settlement in space for decades.

The first permanent offworld colony was Archimedes Station, established on Luna in 2013. Additional lunar bases were established over the following decade, culminating in the Copernicus settlement (founded in 2022). The lunar colonies were marginal ventures for a long time, but they served as valuable jumping-off points for exploration deeper into the solar system.

Terran space colonization truly got under way in the 2040s, as the homeworld's crisis era receded and various nation-states felt free to invest in space development. Orbital colonies sprang up in near-Earth orbit, and at the Lagrange points associated with Luna. The population of Luna itself grew quickly, the first settlements growing into full-fledged towns and cities. New colonies were established on Mars. Scientific and mining bases were set up on Mercury and Ceres.

During this period, the UNSCA maintained a number of research stations throughout the Terran system. These laboratories produced a number of scientific breakthroughs, which were then licensed by the UNSCA to the various national and private space forces. This helped ensure that new technologies were not monopolized by any one nation – and it also provided the UNSCA an independent source of revenue. Indeed, such licenses eventually began to provide a significant portion of the UN's overall budget, increasing its independence and improving its reputation.

In 2052, it was an UNSCA lab on Luna which produced the first practical "grav modules," offering Terrans control of gravity for the first time. A UNSCA research station on Ceres also produced the first working reactionless thrusters in 2064.

These new technologies knocked down one of the most persistent obstacles to space development – the massive gravitational pull of Terra itself. By the late 2060s, the cost of moving a pound of payload from Terra's surface into orbit had fallen by a factor of over 100. Space travel was *cheap* for the first time, encouraging a flood of migration and new commercial ventures. By 2070, the total Terran population off Terra had reached the 250,000 mark and was growing quickly. Most of these colonists were in the near-Terra orbital settlements and on Luna, but the other colonies were beginning to expand rapidly as well.

The most ambitious venture of the era was mounted by the European Space Agency, beginning in the 2050s. The ESA built a series of very large "generation ships," slow but designed for extremely long travel times; some of the ships were intended for voyages that would be *centuries* in length. The first of these ships, the *Europa*, was sent to the nearby Alpha Centauri system, where a Garden world (p. 96) was already known to exist. Others were designed to scatter through the galaxy, finding Human-compatible planets for settlement. The project was immensely expensive, but the Europeans were determined to demonstrate that the harsh years were over. A Promethean spirit had settled over Terra, and it seemed that nothing was beyond the Human grasp.

First Contact?

There are a number of strange elements in the commonly known story about Terran-Vilani contact. Throughout the Interstellar Wars era, there were persistent rumors that at least some Terrans knew a great deal more about the Vilani than is normally believed – even *before* the USSF expedition to Barnard's Star was launched.

For example, there is the whole question of why the Americans chose Barnard's Star as their target. The Alpha Centauri system was closer, and it had been known for decades that a garden world existed there. Indeed, the European Union had already launched the greatest of its generation ships toward Alpha Centauri, and in 2097 the world community expected to hear from the new colony at any time.

Against such a prospect, the American statement that "scientific reasons" justified the choice of Barnard's Star rang hollow and was widely criticized in the world media. Some European journalists observed (rather caustically) that the Americans wanted to avoid playing messenger for the new Prometheus colony. It is true that a jump-drive voyage even to Alpha Centauri would have required the location of a convenient jump point, but in fact such points were eventually proven to exist – and before 2097 the American mission planners made little attempt to find them.

In retrospect, another possible justification for the choice of Barnard's Star was that the American government *knew ahead of time* that the expedition would contact aliens there.

The source of such putative knowledge is unknown. Perhaps some renegade Vilani, or members of an Imperial subject race, had secretly been in contact with the United States government. Perhaps, indeed, the "Roswell" legend was true after all.

On the other hand, there may be no need to engage in such wild speculation. Once Terran explorers had the jump drive, it would have been natural to examine astronomical records for evidence of nearby interstellar civilizations. By the 2090s, the Sandage Deep-Space Telescope and similar instruments were extremely powerful. It was (barely) theoretically possible for such instruments to detect the emissions generated by Vilani starships at Barnard's Star, two parsecs away. The American government owned the Sandage telescope, and so could have had secret access to such results.

The Jump Drive (A.D. 2088-2098)

The UNSCA research station on Ceres had one more miracle to produce. It was at that station that Terrans first developed the jump drive, which allowed for accessible interstellar travel, in 2088. At first, the prototype jump drive was extremely fuel-hungry and limited in range. It was used only within Sol system, as a fast means of reaching the outer planets and the cometary cloud.

Even after the UNSCA produced a true jump-1 drive (in 2092), there seemed to be little practical application for the technology. No other star systems were within a parsec of Sol, and the mathematics of jump navigation seemed to imply that a jump into empty space was not possible. Most of the spacefaring powers viewed the development with interest, but made no changes to their strategy; the European Union in particular

continued with its program of slow "generation ships."

The United States was the main exception. Beginning in 2093, the US Space Force began an ambitious program to launch a manned interstellar expedition to use the jump drive. The target was Barnard's Star, about two parsecs away to coreward. The expedition was planned as an expression of American leadership in space, although it had a strongly international character. The UNSCA approved the mission plan, and the US coordinated with several other international space agencies. While the mission crew was to be commanded by an American astronaut, most of its members were from the other spacefaring powers.

The first step was to locate a "jump point," a wandering planet or brown-dwarf star located at a convenient point in interstellar space. Such bodies were known to exist, although locating them precisely was often quite difficult, and it was unlikely for one to be in a convenient location. Here the American mission planners were lucky – a candidate rogue planet was found, located so that jump-1 starships could reach it from both Sol and Barnard's Star.

Once the jump point was established, and the painstaking work of computing jump coordinates was done, the mission could proceed. Jump-drive ships operating from a base at Luna made several trips to the jump point, creating a makeshift fuel depot in orbit. Finally, in 2097 the *StarLeaper One* expedition was ready. The starship, the largest thus far built around the jump drive, departed from Luna orbit and spent a full year in interstellar space.

The US had planned for the expedition to end in a blaze of publicity, but when *StarLeaper One* returned to the solar system its crew immediately called for a news blackout. After conferring with senior US officials, the expedition's crew reported to a specially called secret session of the UNSCA governing board.

When news of the expedition's findings was finally released to the world late in 2098, it shocked the global community. The Barnard's Star expedition had contacted *intelligent life* at the target star.

The aliens were the Vilani crew of a small prospecting base, established without Imperial sanction beyond the borders of the *Ziru Sirka*. To everyone's astonishment, the "aliens" were biologically Human, but they belonged to a culture that had no Terran roots. They claimed to be citizens of an interstellar state whose border was only a few parsecs from Sol, an empire that was ancient, vast, and immensely powerful. The Vilani were polite to their Terran guests, but if anything their attitude was one of *amusement*.

Unification

News of the Vilani contact took some time to sink in, and was met by a variety of reactions – from sheer denial to stark terror to unbridled optimism. For most, however, the reaction was one of *fear and anger*.

Even the earliest contacts with the Vilani demonstrated that the Imperium was vast and incredibly powerful. The Vilani outnumbered Terra by a thousand to one, and controlled the resources of thousands of star systems. Their technology was sophisticated and advanced. Their culture was very old and had already assimilated dozens of subject races. It seemed that, should the Imperium choose to exert its power, Terran civilization would be easy to conquer and absorb.

Yet while there was clear cause for fear, there was also cause for anger. During the 21st century, Terrans had recovered much of their self-confidence. In particular, space was regarded as a naturally infinite frontier for Terran expansion. While everyone expected to meet alien civilizations someday, they expected that encounter to be on relatively even terms.

The reality was quite different, and quite disappointing. Once the extent of the Vilani Imperium became clear, there seemed to be almost nowhere left to explore. All of the valuable real estate was apparently in Vilani hands. Worse, the Imperium hemmed Terran explorers into a "pocket," from which expansion could only take place through space already claimed by the Vilani. Many Terrans had entertained hope of a glorious interstellar future – but those hopes were now dashed, and the Vilani were blamed.

The Vilani Aristocracy

The Imperium used a hierarchical system of command, from the *Ishimkarun* or "Shadow Emperor" down to the millions of *kiduunuuzi* ("holders of special privileges") who did the routine work of local administration. In the upper tiers of this hierarchy stood the extremely powerful nobles who set Imperial policy across hundreds of worlds. It was a collection of these aristocrats who managed – or *mismanaged* – the early conflicts with Terra.

For most of the Interstellar Wars era, the highest official who ever concerned himself with the Terran challenge was the *apkallu kibrat arban* ("minister of the four quarters") who supervised all Sharurshid activities across six sectors at the rimward edge of the Imperium.

Beneath the *apkallu kibrat arban* was a set of *saarpuhii,* or "underkings," officials who supervised Imperial government across as many as a hundred worlds each. The *Saarpuhii Kushuggi* ("Underking of the Rim Worlds") was the *saarpuhii* closest to the Terran frontier during the early Interstellar Wars. With his capital at Shulgiasu (p. 107) he was only a few months of travel time from Terra; his policies had a profound effect on the course of the early wars.

Envoys to the Empire

The "contact era" was the time in which Terrans first learned about the Vilani Imperium. Everything about the vast empire was new and exotic, and the first Terrans to travel in Imperial space had much to learn. (This era would be a good period for high adventure, as Terran explorers visit the worlds of the Vilani Imperium and try to figure out how the empire works.)

These first adventurers worked at a huge disadvantage: they had no jump-2 starships of their own, so unless they could somehow acquire a Vilani ship they had to rely on Imperial passenger transport in order to move around. They spent years completely cut off from Terra, forced to adapt to Vilani customs in order to operate within Imperial society.

Despite these disadvantages, many Terran explorers did quite well during peacetime. When the First and Second Interstellar Wars broke out, the situation changed for the worse. Most Terran adventurers were imprisoned as enemy aliens, some of them doomed to never return to Terra.

However, a few Terrans, lucky enough to have bought their own starships during peacetime, turned privateer and attacked Imperial merchant shipping many parsecs behind the front lines. Their life was desperate and dangerous, but it could be profitable – and these "black-flag Terrans" were often lionized as heroes if they managed to return home with battle honors.

Opening Moves

In fact, the situation was not nearly as bleak as it seemed in the first days after contact. Although the Vilani Imperium was certainly massive and powerful, it was unable to bring much of that power to bear, and was not overly motivated to conquer Terra in the first place. Meanwhile, as time passed, Terran individuals and corporations discovered ways to explore and expand despite the presence of the Imperium.

Still, in those first years many Terran leaders saw the Imperium as an intolerable challenge to their own aspirations. Although contact with the Vilani was peaceful for a long time, most Terran citizens fully expected – and even welcomed – an eventual conflict in which they could win their own place in galactic history.

The Contact Era (A.D. 2098-2114)

After the initial contact between Terrans and Vilani, the two civilizations maintained continuing communications in the Barnard's Star system. The *kimashargur* Vilani who had participated in the first contact established a permanent mining colony, which was soon overshadowed by an "official" Sharurshid base. Several Terran nations built their own outposts, both to lay claim to portions of the Barnard's Star system and to keep in contact with the Vilani. Before long, the marginal Vilani outpost had transformed itself into something quite different – a kind of frontier bazaar, a place where two civilizations could meet and explore the possibilities of trade and social contact.

It was at Barnard that the two societies began an enthusiastic trade in high-technology goods. Terran entrepreneurs did especially well offering medical and biotechnological goods in exchange for examples of Vilani engineering. The Vilani felt that they got the better end of this bargain, not realizing how quickly Terran scientists would reverse-engineer the technology they received. One critical item developed (by 2108) was a Terran version of the Vilani jump-1 drive, allowing Terran explorers their first easy access to the nearest stars.

While trade grew in the Barnard's Star system, Terran expeditions visited the more populous worlds of the Imperial Rim Province. UN and major-nation envoys were received with polite disdain by the Vilani aristocracy, and had little luck reaching formal agreements with the Imperial government. On the other hand, some Terrans began to make informal but productive contact with dissident factions within the Imperium, especially the *kimashargur* population of the worlds closest to Terra.

Back home, the UN considered the defense of Terran civilization against possible Imperial aggression. Under UNSCA oversight, space had become an almost weapon-free zone; the most powerful weapons outside the Terran atmosphere were personal sidearms used by the various UN and national police forces. Now many of the treaties and agreements that had limited the military uses of space were quietly repealed.

This led to an unusual situation, a kind of cooperative "arms race" among the major Terran states. Long-standing agreements had placed most military weapons under UN control *on the Terran surface*. Now armed spacecraft and starships were rapidly being built for the first time – but no agreements existed to place *them* under UN control. Each Terran nation built its own armed starship flotilla, and a few private organizations followed suit.

All of this activity made very little impression on the Vilani Imperium, at least at the level of official Sharurshid planning. To the Vilani ruling castes, the people of Terra were simply one more minor race on the fringes of civilization – or possibly an *alliance* of minor races; the Vilani at first failed to understand Terran ethnic diversity. As Terrans asserted themselves, Vilani officials tried to fit them into the Imperial system – but they soon grew impatient with these new and arrogant barbarians.

Tensions rose, especially after Shana Likushan (p. 42) was appointed *Saarpuhii Kushuggi* in 2112. Likushan barely noticed the existence of the Terran "savages," but her arrogance made an impression on lower Sharurshid officials who did deal directly with Terrans. Armed forces on both sides began edging toward a provocation.

Finally, in 2114 a Sharurshid merchant convoy approached too near the American base at Barnard, ignoring the base's traffic-control signals. Believing an attack to be imminent,

the Americans opened fire, destroying two ships before the rest could get out of range. The First Interstellar War had begun.

The First Interstellar War (A.D. 2114-2122)

Saarpuhii Likushan was no warrior, but even she could not permit the Terran provocations to go unanswered. In 2115 she dispatched a small punitive expedition, which engaged a mixed collection of Terran national squadrons at Barnard's Star.

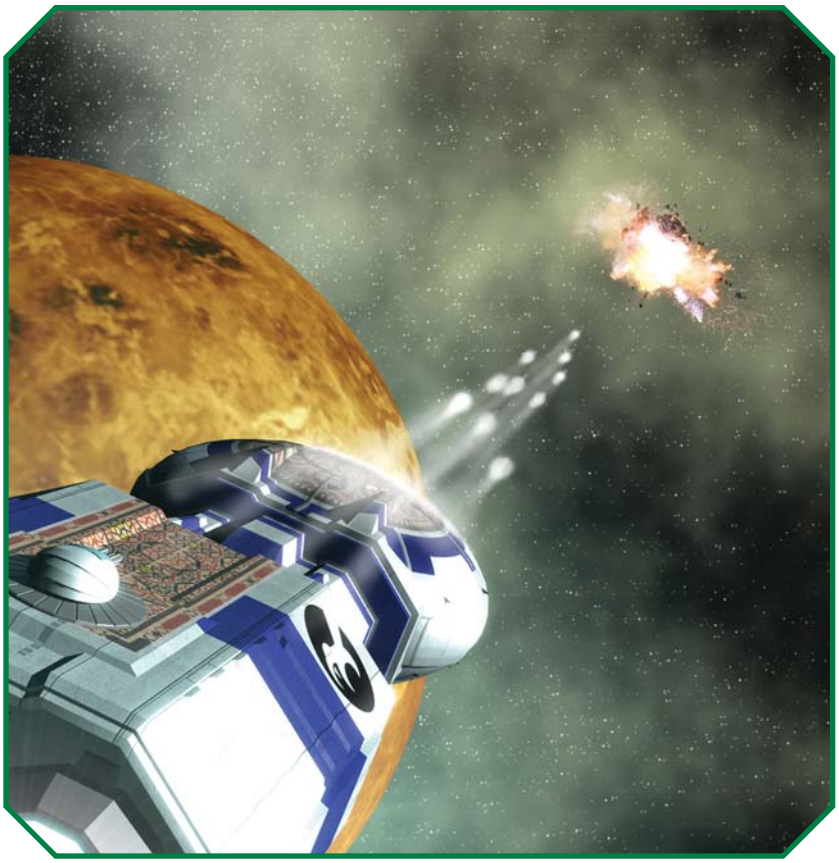
The Terrans found themselves at a severe disadvantage, even against such a minor Imperial detachment. Their ships were still technologically inferior, despite frantic attempts to upgrade to the Imperial level. Worse, the Terran command structure was inexperienced and poorly integrated. At first, some of the national squadrons refused to engage the Vilani at all, leaving the American and Chinese detachments to take the brunt of the engagement.

Once battle was joined, the experienced Vilani commanders were able to defeat the Terrans in detail. They laid down withering long-distance missile fire, first crippling the American and Chinese flotillas, and then ruthlessly smashing the rest of the Terran ships on hand. The Terran base facilities on Barnard were destroyed, with the loss of almost all personnel.

Had the Vilani pressed their advantage, they could have mounted a credible attack against Terra itself. However, the fleet commander on the scene decided that the Terran barbarians had been sufficiently punished, and withdrew his forces. This gave the Terrans critical time to assess their mistakes, rebuild their fleets, improve their technology, and prepare for the next encounter.

Meanwhile, Terrans stranded within Imperial space launched a quiet war of their own. For years, these scattered Terrans fought a desperate campaign, cut off from home and surrounded by a suddenly hostile empire. With sabotage, commerce raiding, and political provocation of dissident populations, they did all they could to harm the Vilani war effort.

In 2122, a second Imperial punitive expedition entered the frontier region. This time, the Terrans were ready, meeting the Imperials with a new fleet under unified UN command. A new class of light attack craft, or "missile boats," returned Vilani missile fire, taking heavy casualties but damaging the Imperial expedition. The battle was effectively a draw, but it proved that Terran forces could stand up to an Imperial task force and survive.



Imperial losses were high enough to appear as a line item in *saarpuhii* Likushan's provincial budget. Not wishing to be distracted from the business of advancing her own ambitions, Likushan ordered a withdrawal. Soon afterward, she offered an unofficial agreement, recognizing Terra's claim to the Barnard system in exchange for a promise to stay out of Imperial space.

The First Interstellar War set the pattern for many of the following conflicts. The Vilani could have destroyed Terran civilization – but they failed to put forth the necessary effort. Each side considered itself the victor. While the Vilani simply turned back to matters they considered more important, the Terrans were energized by their "victory" over a vastly superior force.

Pause and Regroup (A.D. 2122-2125)

During the brief peace that followed the First Interstellar War, several developments took place in Terran society that would set the tone of much of the following conflict.

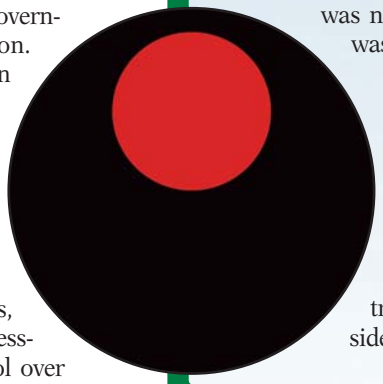
Already during the late 2110s, a new "free trade" movement had begun to grow rapidly on Terra. The new movement was originally concerned with international commerce on Terra itself, and with industrial development in the growing colonies. Die-hard free-market capitalists, its members resented UN and national regulation of business, insisting that prosperity depended on giving entrepreneurs complete freedom to develop new commercial enterprises. After contact opened with the Imperium, the movement began to press for new commercial contacts with Vilani worlds – and it agitated for the removal of both UN and Imperial barriers to such trade.

The Free Trade movement first found its political voice in 2123, when a Japanese industrialist named Yukio Hasegawa created the Free Traders Foundation (p. 66). The new foundation grew quickly, becoming politically important in several of Terra's most powerful nations. With its assistance, a number of Terran entrepreneurs built starships and began to carry Terran goods into the Imperium – "Free Traders" who often operated despite the disapproval of both Terran and Imperial governments.

Meanwhile, the UNSCA continued to operate, coordinating dozens of crash programs to improve the Terran technological base. The greatest success of this effort came in 2124, when the UNSCA released the specifications for a Terran jump-2 drive. This broke a monopoly that the Vilani had held for thousands of years, and made it possible for Terran ships to carry goods – or military offensives – directly into Imperial space.

The last major development of the short peace was political. After the first Terran defeat at Barnard's Star, it became obvious that the Imperium was too great a challenge for the various Terran nations to meet without a strong centralized command. Immediately after the armistice, the UN admitted its first delegations from the colonies (Luna and Prometheus) and changed its name to the *United Worlds Organization* (UWO). The expanded organization opened a series of negotiations among the major Terran powers, eventually drafting a set of comprehensive reforms that would transform it into a viable all-Terran government.

In 2124, the new organization's charter was completed and presented to the various national governments for ratification. Several major Terran nations signed the charter within the same year, and the new *Terran Confederation* was formally in operation. Although scattered resistance to Confederation rule continued for decades, no major nation ever successfully challenged its control over Terran affairs for the rest of the Interstellar Wars era.



The Pace of Operations

Despite its name, the Interstellar Wars era was not one of constant bloody warfare. The conflict between Terra and the Imperium had a rhythm of its own, one which permitted long periods of relative peace.

The Early Phase (A.D. 2114-2246)

During the first eight Interstellar Wars, major naval campaigns invariably ended in major naval battles, during which the Terran and Imperial fleets mutually pounded one another into scrap. Even the "winner" of such an engagement usually lost so many ships and men that it could not immediately press its advantage. The Terrans would often have to rebuild their fleet almost from scratch. The Imperial *saarpuhii* theoretically had more resources to devote to fleet construction, but the Imperial system of governance was too inflexible to permit him to divert those resources quickly.

The necessary time for rebuilding on both sides meant that major naval campaigns *could not* be fought every year. A more typical interval was three to five years. Each of the first eight wars was defined by a small number of these major naval campaigns, as few as one (the Fourth Interstellar War) or as many as four (the Third and Eighth Interstellar Wars).

Major naval campaigns never lasted for more than a few months, after which main-battle-fleet activity always halted until the next round. During these breathing spaces, both sides worked to rebuild their fleets, while commerce raiders and other detachments skirmished on the frontier. The relatively peaceful intervals were also the main time for *ground* warfare, if one side or the other had cut off a major world and was prepared to attempt its conquest.

Aside from the abortive attempt at the conquest of Terra in the Third Interstellar War, the early wars were always fought for limited political objectives. Eventually one side or the other would tire, and would offer peace terms to the enemy. Such periods of formal peace were often quite lengthy – during the 132 years of the "early phase," Terra and the Imperium were at open war for only 65 years (less than half of the time).

The Late Phase (A.D. 2246-2303)

The Ninth Interstellar War changed the entire flavor of the conflict. After 2246, Terra and the Imperium were *constantly* at war. Formal peace did not return until the Imperial surrender in 2303. The conflict was no longer a matter of limited frontier engagements – it was a battle of conquest that only one side could survive.

However, the military frontier between the two powers was now dozens of parsecs long, and it was rare for hostilities to be going on *everywhere* along that line at once. As before, any given subsector-sized region of the frontier might see a major naval campaign only every few years. The rest of the time would be taken up by border skirmishing and ground campaigning, while both sides prepared for the next confrontation. Local truces also occurred in some regions, permitting both sides to stand down and enjoy a brief period of near-peace.

The Second Interstellar War (A.D. 2125-2134)

Despite *saarpuhii* Likushan's hopes, the Terrans did not meekly avoid further provocation.

The Terrans still felt fenced in by Vilani control of nearby space, and were willing to defy the Imperium to find room for expansion. By 2125, Terran starships equipped with the new jump-2 drive were beginning to appear in Imperial space. These ships explored Vilani space, made covert contact with local dissidents, spied out defenses, and searched for some way past the Imperium. Some of the Terran explorers were Free Traders, carrying Terran goods and making their first inroads into Vilani commerce.

All of this infuriated senior Sharurshid officials, who carried their complaints to *saarpuhii* Likushan. Finally, she decided to send another punitive expedition into Terran space. The new invasion fleet arrived on the Imperial frontier late in 2125.

As it happened, the Terran Confederation received some advance warning of the new invasion. Rather than reaching Barnard without incident, the Vilani fleet was delayed by a Terran screening force at Agidda. The unified Terran fleet soon arrived and fought a main-fleet engagement – the first battle involving cruiser-class ships on both sides. The Battle of Agidda was a tactical draw, which left both fleets unable to press the attack. The Terrans can be considered the strategic victors, however, since they retained control of the Agidda system and soon established a base there.

What followed was a "false war," in which neither side made any serious attempt to take up the offensive. The Vilani made desultory attempts to keep the Terrans fenced in, while the Confederation began a strategy of mounting commerce raids across the Sirius Gap. Although individual ships fought small skirmishes, there were no more fleet engagements for several years.

By the early 2130s it became obvious to Terran planners that something was distracting the Vilani. In fact, the assassination of Usham Sharrukin (p. 41) had led to an outbreak of civil war far to coreward of Terra. *Saarpuhii* Likushan had intervened in the conflict on the side of the Sharrukin family, hoping to impress her superiors with her loyalty in order to win assignment back in the Imperial core. To this end, she played a double game, exerting the minimal effort required to keep the Terrans at bay while she sent the bulk of her forces elsewhere.

War is cruel and you cannot refine it. The crueler it is, the sooner it will be over.
– William Tecumseh Sherman (1864)

Encouraged, the Confederation mounted a raid against Nusku in 2134. Although the Terrans were driven off with heavy losses, the raid prompted Likushan to seek an armistice. After a token attack on Procyon designed to give the Imperium final battle honors, Likushan signed a treaty. The agreement made the Terrans official allies of the Imperium, with nominal control over everything between Agidda and Procyon.

Terra on the Brink

So far, the Terrans had been fortunate. Their existence had become known to the Imperial government, but not even the *Saarpuhii Kushuggi* had taken more than a passing interest in military response. The *apkallu kibrat arban* and the core Imperial government had taken no notice of the situation at all. Two conflicts had taken place, "wars" to the Terrans, insignificant border skirmishes to the Vilani.

Now a new regime would take control of the Imperial Rim Province – and Terra would barely survive the experience.

Preparations (A.D. 2134-2145)

Shana Likushan's support for the Sharrukin faction proved critical to its victory in the Imperial civil war of 2129-2135. As she had hoped, Likushan was rewarded for her loyalty by appointment to a position in the Imperial core. She ended her career on Vland, managing a substantial portion of Sharurshid's core business and writing her memoirs.

The new *Saarpuhii Kushuggi* was another non-dynastic governor, Kadur Erasharshi (p. 44). Erasharshi was convinced that a full-scale attack on Terra would one day be necessary, and he spent years preparing for it. He ordered the largest Vilani colonial effort in centuries, establishing Imperial military outposts on a number of formerly uninhabited worlds near Terra. He invested heavily in military construction, nearly doubling the size of the available war fleet. Finally, he moved his headquarters from Shulgiasu to Dingir, leaving the snake pit of court intrigue behind so that he could concentrate on communication with the front lines. All of these violations of tradition made him a more effective military leader, but at the cost of alienating most of the Rim aristocracy.

While Erasharshi laid his plans, the Terrans were not idle. Colonial development and technological improvement continued. The Terran Navy introduced several new heavy-cruiser classes to stiffen the main battle fleet. However, the Terran economy was still not large enough to match the resources of the Rim Province, or to undertake a great deal of new naval construction.

The Third Interstellar War: The Siege of Terra (A.D. 2145-2148)

The Third Interstellar War opened with a strategic *tour de force* – a two-pronged attack designed to take the Terran Confederation by surprise. Although Terran intelligence agencies had some warning of *saarpuhii* Erasharshi's intentions, the initial attack took place almost exactly as planned. Imperial forces assaulted both Agidda and Procyon within a few days of each other, smashing the Terran picket forces in each system.

Taking personal command of the forces on the scene, Kadur Erasharshi maneuvered to draw the Terrans into a main-fleet engagement. The critical battle took place at Agidda in 2146. Although the Terrans had addressed their shortfalls in training and technology, they were still unable to stand up to an experienced Vilani commander at the top of his form. The Vilani won a decisive victory, destroying almost the entire Terran fleet at very little cost to themselves. Erasharshi then mounted a methodical campaign down the Corridor, capturing the Agidda and Barnard outposts. By late 2147, Terra itself was wide open to the enemy.

Fortunately for the Terrans, the Imperials were reaching the end of their tether. Erasharshi had planned for logistical difficulties, but he was also under a great deal of unanticipated *political* pressure. His rivals were busily undermining his position back at the provincial capital, and it seemed increasingly likely that nothing but his personal attention would solve the problem. Erasharshi ordered a new offensive, hoping for a decisive and *quick* victory, followed by a triumphant return home.

A new Vilani attack on Procyon secured the system long enough for the Terran military base there to be captured. Meanwhile, Erasharshi's main fleet attacked Terra itself. The remnants of the Terran Navy mounted a desperate resistance, and Terran ground defenses fought fiercely against any Imperial ship that entered low orbit. Although Imperial forces briefly secured the immediate vicinity of Terra, they were unable to hold the space long enough to land significant ground forces. Terra suffered only a brief bombardment – but the attack involved nuclear weapons, which destroyed a dozen cities and killed millions of Terran civilians.

After several days of laying siege to Terra, Erasharshi was forced to concede that his campaign was probably futile. He could possibly *destroy* Terra, but despite the Imperial fondness for destructive raids, such destruction had never been his goal. Instead, he wanted to *conquer* Terra, integrating it into the Imperium as a major world under his rule. Unfortunately, this no longer seemed possible with the force he had available.

Meanwhile, news arrived from Shulgiasu to warn Erasharshi of an open revolt against his authority. He decided to withdraw, gathering his forces for a return to Imperial space. Many of his subordinates believed that Terra had been mortally wounded, that the Terrans would never again challenge Imperial authority. Erasharshi himself wasn't so certain of this, but he believed he had no choice but to defer the conquest for another day.

The Third Interstellar War: The Terran Counteroffensive (A.D. 2148-2156)

The Confederation *had* been badly damaged, but not irreparably so . . . and for possibly the first time in Terran history, the entire population of the planet was unified in its purpose. Nuclear bombardment of Terra had convinced even the most committed pacifists that the Imperium was a bitter enemy. Those holdout groups who still resisted Confederation authority set aside their grievances for the duration of the war. Emergency measures were passed, raising revenues to bolster the Confederation military and providing relief to the war's millions of civilian refugees.

The Terran counteroffensive got under way in 2151. While the main battle fleet was still rebuilding, a smaller detachment moved to lift the occupation of the Procyon colony. After defeating Vilani forces at the Battle of Junction, the navy secured the Procyon system and permitted Terran troops to land and retake the planet. With one front now secure, the Confederation could concentrate on taking the fight directly to the Imperium.

A second offensive moved up the Corridor, retaking Barnard and Agidda against token Vilani resistance. In 2156 the main fleets clashed at Nusku. Terran ships and crews now demonstrated that they were capable of matching Vilani performance – and

the Imperial commanders on the scene were not up to Erasharshi's standard. The Imperial Navy was handed a decisive defeat and forced to withdraw from the system.

Once Nusku system space was secure, the Terran Navy launched a brief bombardment of the planet. Once planetary defenses had been suppressed, Terran ground forces began to land.

While Terran forces invested their planet, the civilians of Nusku began their own quiet campaign against Imperial troops. Most of the population was of the *kimashargur* dissident subculture, not necessarily pro-Terran in sentiment, but strongly resentful of Imperial rule. Many local citizens moved to sabotage Imperial forces, sometimes even working with the Terran invaders to help trap and destroy Imperial troop formations.

Although the Nusku ground campaign saw several bloody battles, Imperial resistance collapsed with surprising speed. Once Nusku had fallen, the Terran Confederation sent an armistice offer to *saarpuhii* Erasharshi. Reluctantly, the governor accepted. Terran civilization had managed to survive the fiercest Vilani onslaught thus far.

The Empty Peace

A relatively long peaceful period followed the Third Interstellar War. This so-called "Empty Peace" was a time of consolidation for the Terran Confederation. The first three wars had transformed Terran society, creating the first true world state, and giving many people the sense that their destiny lay out among the stars. The threat of the Vilani was still present, but now it seemed more distant, and most Terrans were tired of war. It was time, many felt, to enjoy peace and consolidate the gains already made.

Colonial Expansion (A.D. 2156-2161)

During the Empty Peace, Terra's interstellar colonies flourished. The populations of Earthlike worlds such as Prometheus and Mirabilis rose rapidly, as millions left Terra to make a new life. Terran military outposts also grew, with some of them becoming small but healthy industrial colonies.

How Did Terra Survive?

Viewed from a distance, the Interstellar Wars era is a historical puzzle.

In 2114, Terra was a single technologically backward world on the fringes of the Vilani Imperium, with only a few tiny interstellar colonies. The Terrans had never fought a significant conflict in space. They were outnumbered *thousands to one* in manpower and in economic productivity. Yet after less than 200 years, Terran civilization had not only managed to survive every Vilani assault, it had attained a dominant position within the Imperium.

The Terran ascent to Imperial rulership is actually the lesser mystery. Terrans had a great deal of help, both from dissident Vilani factions and from the empire's subject races. Still, that help only came *after* the Terrans had demonstrated that they could hold out alone against the might of the Imperium. So how did Terra remain independent through the first three Interstellar Wars?

By the late 2200s, students of Vilani history had come to a startling conclusion: the Vilani of the Interstellar Wars era genuinely *were not the same* as their galaxy-conquering ancestors. What's more, the change was a matter of deliberate choice.

The Vilani were masters of the *social* sciences, able to build social and political institutions that were effective and stable over very long periods of time. However, Vilani methods seemed to require a "closed system," a society that was self-contained and insulated from outside contact. The unpredictable influence of outsiders made Vilani social engineering less effective, less able to produce a stable community.

Some Terrans speculated that the Consolidation Wars (p. 18) were an attempt to create such a closed system, a Vilani-controlled sphere which would include every starfaring culture in existence. Once the Consolidation Wars were over, a great change took place in the Imperium, turning every citizen's ambitions toward the eternal struggle for social status. Bold, outward-looking leaders were no longer needed, and could even be a liability to the new Imperium. Ambitious citizens were deliberately shackled, weighed down with tradition and the constant need to defend against internal rivals.

Naturally, this approach depended on the absence of any new starfaring civilizations outside the sphere of Imperial control. For many centuries, the Imperium was indeed unrivaled. However, once new starfaring "barbarians" began to appear, the transformed Imperium found itself unable to muster a decisive response.

Imperial leaders who were primarily interested in political intrigue would ignore outsiders, or would even hire foreigners to assist against their internal rivals. The occasional conquest-minded leader might still arise, but in order to make a barbarian conquest he would have to turn his back on his peers – who would then combine to bring him down. The effect was to halt each Vilani conqueror before serious harm could be done to any foreign target.

Thus the Vilani Imperium failed to bring more than a tiny fraction of its power to bear on Terra. Even that miniscule effort was *almost* enough to wreck Terran civilization – but in the end it left Terra independent, able to rebuild, and eventually able to carry the fight to the Imperium itself.

Possibly the most surprising Terran colony was Nusku. After the armistice, a trickle of Terran migration rapidly grew into a flood, bringing millions of Terran civilians to settle among the Vilani population. The adjustment was not always an easy one, but within a few years many people – both Terrans and Vilani – had learned to like and respect their counterparts from the other culture. This was especially true of Vilani from the *kimashargur* subculture, who were particularly likely to adopt Terran customs and philosophy. As a result, Nusku earned home rule and full membership in the Terran Confederation much faster than anyone had expected. In 2161 the Terran military occupation was withdrawn, and a joint Terran-Vilani civilian regime took control of the planet.

From Nusku, Terrans fanned out to explore the Vilani Imperium. Entrepreneurs, many of them Free Traders, quickly invested in the sophisticated Nusku shipyards. Free Trader ships built at Nusku ventured deep into Imperial territory, seizing a role in Imperial commerce and bringing Terran goods to new markets.

Challenges to Imperial Rule (A.D. 2161-2170)

For their part, the Imperial ruling classes were beginning to understand the long-term threat posed by the Terrans. Kadur Erasharshi had departed the Rim Province in disgrace, but his successors found the Terran presence in Imperial space to be terribly disruptive.

One challenge that the Terrans posed to Imperial society was economic. Terrans were now beginning to surpass the Imperial technological standard in a few areas, producing goods that found a ready market in parts of Imperial space. Meanwhile, the concept of open competition was rather new to the Vilani, who for millennia had managed their economic activity through traditional guilds and the centralized control of the *shangarim* system. Suddenly, Terran free traders and corporations were everywhere in the Rim Province, producing superior (or just *cheaper*) products which undercut the traditional price structure. Some Vilani rejected Terran goods out of respect for tradition – but many, especially among the *khagarii* dissidents, did not. The result was economic upheaval, the likes of which had not been seen in the Imperial province in centuries.

Another Terran challenge was on the political level. Before the Third Interstellar War, no one in the Imperium – not even the *khagarii* – had taken Terrans seriously. Yet Terra had not only survived the determined assault of a powerful Vilani leader, it had recovered in a few short years, mounting a counteroffensive that actually *took a major world from the Imperium*. Even more significant, that world had adapted very quickly to Terran rule; its Vilani citizens had been integrated into Terran society on a respectful and equal basis.

All of this had a powerful effect on *khagarii* groups on hundreds of Imperial worlds. The remaining *kimashargur* worlds of the Rim Province were soon hotbeds of anti-Imperial unrest, difficult for the Imperial ruling class to control. Even on worlds dozens of parsecs from the Imperial border, dissident groups began to seek out and work with any Terran visitors who appeared.

A final challenge, the most tragic of the three, was a matter of public health. Immediately after the end of the Third Interstellar War, a series of plagues began to spread through Vilani populations, especially on worlds close to the Imperial border. Nusku appeared to be the epicenter of these plagues, and it was soon proven that the disease outbreaks always followed contact with Terrans.

Working on Nusku and elsewhere, Terran physicians discovered that simple Terran viral diseases – especially influenza, measles, and mumps – caused the plagues. To their horror, they found that much of the Vilani population was vulnerable to these diseases and had no evolved resistance to them. As it happened, the Vilani had often dealt with "alien" diseases in their thousands of years of starfaring history – but Terran viruses seemed particularly virulent and deadly when introduced to Vilani populations.

Terran physicians fought a fierce battle against the plagues on Nusku, and also traveled deep into Imperial territory to help deal with disease outbreaks there. Vaccines and anti-viral

Playing in the Empty Peace

The "default present" assumed in this book is in 2170, late in the Empty Peace, just before *saarpuhii* Sharik Yangila finishes her preparations for war against Terra. The period is a good one for a variety of campaign types.

Merchant characters, of course, can take part in the Free Trader exploration of Imperial space. They will have some difficulty with Imperial officials, but they will be able to sell goods and make a decent profit on many Vilani worlds. This is also a period during which the Free Traders work closely with Terran intelligence services, gathering information about regions far behind the military frontier. For more suggestions, see *The Default Campaign*, p. 229.

Military characters will also have plenty to do. With the Fourth Interstellar War approaching, forces on both sides of the frontier are beginning to prepare for confrontation. Navy characters will have patrols, and may face an Imperial probe or renegade Free Traders. Meanwhile, back on Terra a surge of nationalist unrest has been going on for several years. Army troops may see significant action on the homeworld itself.

The Empty Peace is also a good period for campaigns involving espionage and political intrigue. *Saarpuhii* Sharik Yangila, more than any other Imperial leader, is willing to use covert activity and subversion against the Terrans. Naturally, the Terrans are always willing to respond in kind. As a result, from Terra to Shulgiasu, the stars are currently a playground for spies, assassins, saboteurs, and counter-intelligence agents.

therapies were mass-produced and shipped everywhere, saving millions if not billions of Vilani lives. This work was critical in winning the respect of Vilani populations – but the plagues had already presented the Vilani ruling class with yet another reason to deal decisively with the Terran challenge.

The Imperial Response (A.D. 2170-2173)

After the fall of Kadur Erasharshi, the new *Saarpuhii Kushuggi* was one Sharik Yangila (p. 45). It was during her administration that the Rim Province attempted to respond to the Terran challenge to Imperial authority.

As *saarpuhii*, Yangila showed little interest in launching great campaigns of conquest toward Terra. She was an intriguer and manipulator, not a military strategist, and had no interest in glorious – but ultimately futile – frontal assaults. She permitted the Terrans to enjoy peace for well over a decade, all the while laying meticulous plans for her own campaign against them.

Yangila collected a staff of military experts, ordering them to revive long-unused warship designs and develop methods that could counter Terran tactics. The provincial war fleet that resulted was actually smaller than the one used by Kadur Erasharshi, but it was more sophisticated and less likely to collapse under its own logistical weight.

Meanwhile, Yangila mounted an extensive intelligence campaign against Terra, using her expertise in covert operations to "soften up" the target. She carefully measured Terran weaknesses – military, economic, social, and political. She also subverted the Terran Confederation from within, trying to divide the Confederation along lines of national identity and social class. This effort met with only mixed success, but some of the Terran nationalist unrest of the 2160s can probably be traced to Vilani covert intervention.

All these efforts came to fruition in the late 2160s. In 2170 Yangila decreed an almost complete shutdown of all trade with Terra, imposing very tight border controls and steep tariffs on Terran goods. She justified these moves by pointing to the economic and social disruption that seemed to follow extensive contact with Terrans, and to the public health problem the "plague-ridden barbarians" posed to innocent Vilani populations.

The Terran Confederation government actually made an attempt to comply with the new Imperial restrictions, not wishing to set off a new conflict with the Imperium. Not all Terran individuals agreed, however. Terran smugglers, especially members of the Free Trade movement, carried goods past the border checkpoints in violation of both Imperial and Confederation policy. This placed the two civilizations on a collision course once again.

Breakout

"Horatius," quoth the Consul, "As thou sayest, so let it be."

And straight against that great array forth went the dauntless Three.

For Romans in Rome's quarrel spared neither land nor gold,

Nor son nor wife, nor limb nor life, in the brave days of old.

Then none was for a party; then all were for the state;

Then the great man helped the poor, and the poor man loved the great.

Then lands were fairly portioned; then spoils were fairly sold:

The Romans were like brothers in the brave days of old.

Now Roman is to Roman more hateful than a foe,

And the Tribunes beard the high, and the Fathers grind the low.

As we wax hot in faction, in battle we wax cold:

Wherefore men fight not as they fought in the brave days of old.

– Thomas Babington, Lord MacAulay, "Horatius" (1842)

So far, the Terrans had done little except survive against superior Imperial force. However, the Confederation was beginning to wear down the advantages once enjoyed by the Vilani. The Terran technological base was improving dramatically, the Terran economy was growing, and Terran military commanders were learning the art of interstellar warfare. The Confederation was also learning how to exploit the deep political and social divisions that existed within the Imperium.

Over the next century, the Terran Confederation would slowly learn to hold its own – and then it would *break out* of the cramped "pocket" in which Terra was contained.

Protracted Struggle

Historians eventually labeled the next stage of the Interstellar Wars (from about 2170 to the end of the Seventh Interstellar War in 2214) as "the protracted struggle." Terrans learned how to manage a sustained war effort across decades rather than years, slowly wearing down the Imperial position.

The Fourth Interstellar War (A.D. 2173-2176)

When Sharik Yangila closed the Imperial border in 2170, she doubtless knew in advance that not all Terrans would conform to the new policy. After her repeated demands that the Terran Confederation control smuggling came to nothing, she declared that the Terrans had provided *casus belli* and opened hostilities.

The Fourth Interstellar War began in 2173, with a massive raid against the Terran colony on Procyon. The Terran naval station and shipyard there were destroyed in the first assault, and a brief bombardment of the colony made a shambles of the planetary defense. The colonists prepared for a last-ditch defense, but to their surprise the Imperial forces simply withdrew to their own space once again.

Terran strategists soon realized that the raid was a very bold opening move. Procyon was the gateway to a whole cluster of Terran industrial colonies and outposts, in the so-called "Outback" region. With the naval station destroyed, this flank of Terran space was suddenly at risk, and a significant portion of the Navy had to be diverted to shoring up its defenses. At very little cost, the Terran Navy's offensive capability had been gravely reduced.

In 2174, Imperial forces began a series of probing raids in the Nusku system, at the opposite end of Terran space. The attacks, spaced several weeks apart, each did as much damage as possible with long-range missile fire, then withdrew before the Terrans could move to close range. This technique proved very effective, permitting Imperial forces to wear down the Terran defensive position at relatively low cost to themselves. The third attack was pressed home, smashing the remaining system defenders and landing troops on Nusku. By the end of 2175, the planet had been fully occupied by Imperial forces.

The Terran Confederation was not exactly idle during all of this, but its leaders discovered that the Empty Peace (and Yangila's campaign of subversion) had sapped Terra's ability to fight. Military budgets had been reduced, and military industries had been converted to civilian use. The citizens were not prepared for war, and indeed the Confederation had been snarled up in internal disputes for several years before the outbreak of hostilities. These problems were all correctable, but it took time before the Confederation could effectively mobilize for war. By then, Nusku had fallen and the Vilani were beginning to mount new probes at Procyon and into the Outback. Even if the Imperium launched no new major offensives, the Confederation faced a long and difficult war.

Faced with an impossible military situation, the Terrans tried diplomacy instead. Envoys met with *saarpuhii* Yangila at Dingir, literally begging for peace in very meek terms. Yangila was naturally delighted at this turn of events, thinking that she had done more than any other Vilani to humble the stiff-necked Terrans. She magnanimously agreed to a peace, on the condition that Terra respect the border controls and keep to its own space.

The Fifth Interstellar War (A.D. 2176-2186)

Most historians consider the armistice of 2176 to have ended the Fourth Interstellar War, but in fact the Confederation never went off a war footing. Careful internal diplomacy unified the Terran population behind the Confederation once more. Terran

economic might soon made itself felt, supporting a military buildup of unprecedented speed.

Meanwhile, the Imperial position declined with unusual speed. The renown of Sharik Yangila's provincial fleet brought it to the attention of the *apkallu kibrat arban*, Eneri Sharrukin (p. 41). In 2178 Sharrukin ordered Yangila to divert a substantial portion of her fleet to a nearby sector, in order to help put down a local rebellion.

The Terran Confederation took advantage of Yangila's sudden weakness. Three years after the armistice, a new fleet launched a surprise attack against Nusku. Another raid struck at the Imperial naval station at Shuruppak. Finally, small detachments raided Vilani commerce deep inside the Imperial zone. All of these campaigns met with some success; in particular, the new Nusku offensive of 2183 ended with a fierce ground campaign that brought the planet back into Terran hands.

After the recapture of Nusku, battle losses brought a temporary halt to the Terran offensive, and gave *saarpuhii* Yangila time to consolidate her defenses. When the next Terran offensive got underway in 2185, Yangila and her military aides were able to keep the Terrans at bay, suffering only the loss of the frontier outpost at Markhashi.

Yangila was prepared to continue the struggle, but the military reverses had eroded her position among the high nobles of the Rim Worlds. By the mid-2180s, most of her time and energy was tied up in fending off the intrigues of her rivals rather than defeating the Terrans. Finally the master manipulator was out-intrigued, and she was forced to step down after the fall of the Markhashi outpost. The Dumushirs, a noble clan based on Shulgiasu, took over the post of *Saarpuhii Kushuggi* and took command of the war against Terra.

The Dumushirs were not fond of Terrans, but they had no interest in prolonged warfare and were soon looking for a way to end the conflict. They opened peace talks with the Confederation – the first time any Vilani government had *taken the initiative* to negotiate with Terrans – and soon reached an agreement. The Confederation was confirmed in its control of the stars between Nusku and Procyon, along with its new outpost at Markhashi. The matter of Terran commercial rights in Imperial space was left unresolved, but Sharik Yangila's most restrictive border controls were abandoned.

The Initiative Shifts (A.D. 2186-2195)

Under the Dumushir regime, the Imperial Rim Province began to crumble in earnest. The Imperium had lost the initiative, and was now limited to responding to Terran actions on all fronts.

Vilani customs patrols were still under orders to enforce some border controls and tariffs against Terran trade, but many inspectors began to turn a blind eye to Terran smuggling. By 2190 Terran merchants were able to move freely through the Rim Province, even taking over some of Sharurshid's freight and passenger lines in the border region. Terran goods finally began to win an enthusiastic reception in some Vilani markets.

All this Terran intrusion into the Imperial economy actually improved the standard of living of many Vilani, as competition and rapid innovation came to many markets for the first time in centuries. On the other hand, contact with Terrans and with Terran goods had a corrosive effect on Vilani social structures, undermining the centuries-old framework of tradition and caste.

While Terran merchants took up a growing position in Imperial markets, the Terrans also found themselves to be central players in Imperial internal politics. Internal factions were growing more important in the Rim Province, as the Dumushir government proved unable to enforce the ancient structure of Vilani tradition. Even members of the Vilani mainstream, groups that had never been classified as *khagarii*, were now thinking in terms of their own survival first and the Imperium later. Not every Vilani faction was friendly to the Terrans, but each faction was beginning to choose its own strategy for responding to the challenges of the day. Some factions had been weighing the benefits of a Terran alliance ever since the Third Interstellar War. Now such alliances became frequent, as Terran influence grew and that of the Dumushir government waned.

The Sixth Interstellar War (A.D. 2195-2201)

The Sixth Interstellar War began in 2195, with a Vilani raid against the Terran outpost at Markhashi. The raid did considerable damage, but the outpost was not destroyed and was soon reinforced.

At the time, the *Saarpuhii Kushuggi* was Kidarneri Dumushir, the man who had deposed Sharik Yangila and made peace with Terra a few years before. He blamed the Markhashi raid on "renegade corsairs," former members of Yangila's provincial fleet who were operating without Imperial sanction. He was unwilling to resume hostilities, and tried to pacify the Terrans with token concessions.

So far had the Imperial provincial structure decayed that Dumushir's excuse may have been true – but the Terran Confederation was not inclined to let the Vilani off easily. Sensing that Terra finally had the advantage, the Confederation's leaders imposed a trade embargo against the Vilani Imperium, and launched a main-fleet invasion of Imperial territory.

The Terran attack was apparently aimed at the old Vilani provincial capital at Gashidda. Moving slowly, the Terrans gave their foes plenty of time to gather their forces and accept a main-fleet battle. The fleets clashed at Shuruppak in 2197, fighting a running series of engagements that ended in a decisive Imperial defeat. Securing the system, the Terrans placed a naval station on Shuruppak, isolating the ancient Vilani worlds of Iilike and Shulimik.

With the Imperial fleet in disarray and two major Vilani worlds cut off, the Terrans began a ground campaign to conquer both worlds. The campaign proved to be lengthy, difficult, and bloody. Although both worlds had substantial *kimashargur* populations that were pro-Terran in sentiment, the dissidents were not well organized and the worlds' ground defenses had been strongly reinforced before the war. Terran ground forces struggled for almost four years to stamp out resistance on both worlds, succeeding only in late 2201.

While the Iilike and Shulimik ground campaigns wore on, the Terran and Imperial fleets maneuvered across nearby space. No further main-fleet engagements were fought, but there were dozens of small raids and skirmishes. Commerce raiders struck at merchant convoys on both sides of the military frontier.

It is well that war is so terrible, else we should grow too fond of it.

– Robert E. Lee (1862)

By the time Iilike and Shulimik fell to Terran control, the Imperial Rim Province was suffering from a deep economic depression. Many Imperial worlds had become dependent on Terran goods, which had undermined traditional economic systems. With the supply cut off by the Confederation's trade embargo, local managers had considerable difficulty keeping their economies afloat. The depression hampered efforts to rebuild the provincial fleet, and made any further defense of the Rim Province impossible. Recognizing the inevitable, *saarpuhii* Dumushir sued for peace in 2201, ceding Iilike, Shulimik, and Shuruppak to the Terran Confederation.

The Seventh Interstellar War (A.D. 2201-2214)

Kidarneri Dumushir was humiliated by the Vilani defeat in the Sixth Interstellar War. Recognizing that he could not defeat the Terrans with the resources he had available, he took the unprecedented step of approaching the *apkallu kibrat arban* and asking for military and economic assistance.

The *apkallu kibrat arban* at the time was Arashir Sharrukin (p. 42). When the Dumushir request for aid came to his court, he decided that he had no time to attend to the situation personally. Instead, he placed his kinsman Khugi Sharrukin in command of a capital ship task force, placing the battleships at the disposal of the Dumushir clan in order to win a glorious victory. The Imperial battleships arrived in the Rim Province in 2205, only to find that their presence was less than helpful. The province was in poor economic condition, and could barely support the expense of maintaining several dozen capital ships.

In early 2206, Khugi Sharrukin led a hasty attack against the Terran naval station at Shuruppak, opening the Seventh Interstellar War. Although the Terran base was sacked, the naval engagement was indecisive. Terran forces soon reinforced Iilike and Shulimik, and the war settled down to a near-stalemate. At one point a "loyalist" Vilani uprising on Shulimik threatened to undermine the Terran defensive structure, but Terran ground forces and their *kimashargur* allies managed to put down the rebellion before any serious damage was done. By 2209 the Vilani offensive had been halted with no further territorial losses to the Confederation.

Once the Imperial offensive bogged down, the Vilani leaders began to feud among themselves. Kidarneri Dumushir and Khugi Sharrukin fought to avoid blame for the war's military failures, each writing reports to the *apkallu kibrat arban* that portrayed his own actions in the best light and blackened the other's reputation. By late 2210 the dispute threatened to cause a breakdown in the Rim Province government. Arashir Sharrukin intervened by ordering his kinsman to return home with his battleships. Brushing the dust of the Rim Province from his boots, Khugi Sharrukin complied, leaving the province alone to defend itself against any Terran counterattack.

The Terrans were quick to take advantage of the situation. Although the Terran main battle fleet was still being rebuilt, small Terran detachments launched a series of raids into Imperial space. Several outposts in the "wilderness" between Dingir and Gashidda were attacked. Meanwhile, commerce raiders penetrated deep into Imperial territory, further disrupting the provincial economy and wearing away at the Dumushir regime.

In 2214, a disgruntled subordinate assassinated Kidarneri Dumushir. The Sharrukin clan's representatives were soon implicated in the murder, throwing the provincial government into total disarray. After a few weeks of internal struggle, Kidarneri Dumushir's younger sister Sharikkamur took over the position of *Saarpuhii Kushuggi*.

The new governor soon sued for peace, making drastic concessions to the Terrans. Four more Imperial star systems were ceded to Terran control; none of them were densely inhabited, but the grant further widened the buffer zone protecting Terra. More importantly, the provincial government dropped all of the official border controls that had been imposed to restrict access to Vilani markets. Now Terran traders could legally travel and trade anywhere in the Rim Province, the only restriction being the reluctance of traditionalist Vilani to buy Terran goods. In return, the Confederation dropped the trade embargo against the Vilani, a move which lifted the economic depression but which also reinforced the growing dependence of many Vilani worlds on Terran imports.

The Albadawi Period

The Seventh Interstellar War was a serious blow to the Vilani Imperium. Not only were the Terran "barbarians" holding their own against Vilani authority, they were beginning to advance into Imperial territory whole worlds at a time. Freed from the border controls, Terran explorers and merchants were finding opportunities all over the rimward portion of the empire. Many of the *khagarii* and subject races were beginning to turn to the Terrans for political leadership.

Yet the Imperial cause was far from lost. The Vilani would make one more attempt to throw the Terrans back into the stellar wilderness, led by the most formidable strategist the latter-day Imperium ever produced. Fortunately for the Terrans, they were able to produce a remarkable leader of their own – Grand Admiral Manuel Albadawi (p. 45).

Preparing for the Endgame (A.D. 2214-2228)

After the Seventh Interstellar War there was a relatively long period of peace. During this pause in the long conflict, the slow retreat of Vilani power on the Rim became an apparent rout.

Several major Vilani worlds were now integrated into the Terran Confederation as allied or occupied territory, drastically expanding the Terran industrial base. Terran factories and shipyards could now outproduce the military budget available to the *Saarpuhii Kushuggi* by a factor of three or four to one. New ship designs were being placed into service, clearly superior to anything in the Vilani standard databases.

Meanwhile, the Imperial government's hold on the province was disintegrating. There was little or no effort to rebuild the provincial fleet or to shore up defenses against Terran invasion. Almost all of the military outposts between Shuruppak and Dingir were abandoned. Even the civilian population was affected by a dreary fatalism. Some wealthy Vilani packed up and fled for the Imperial core, while most of the Rim Province's population simply waited to make whatever accommodation they could with the Terrans.

The situation was well known at the court of the *apkallu kibrat arban*, who had finally taken the time to become familiar with events on the empire's rimward frontier. In the early 2220s, Arashir Sharrukin decided that Imperial security required him to give his personal attention to the Terran problem. He gathered a substantial war fleet from across his domain, and ordered logistical preparation be made so that the fleet could operate

without having to draw on only the Rim Province's resources. He moved his own court to the Rim Province, taking up residence on Shulgiasu in 2224. Finally, he sent an envoy to the Imperial core worlds, taking a full report of the situation to the *Igsiirdi* and the Emperor himself.

The Eighth Interstellar War (A.D. 2228-2238)

Arashir Sharrukin's strategic plan for the next war against Terra was brutally simple. There would be no subtlety, no war of maneuver, no long series of raids and skirmishes. The main Imperial battle fleet would simply advance into Terran space, taking worlds away from the Confederation one at a time, always bringing overwhelming force to bear in each subsequent battle. The main thrust of the attack would be from Gashidda toward Iilike and Shulimik, then toward Procyon, and then toward the Terran core worlds.

Sharrukin's plan relied heavily on *logistics* rather than on tactical planning. The battle fleet would be large enough to crush any resistance, so the main problem was ensuring that supplies and maintenance were sufficient to keep the fleet in operation. Sharrukin was no military genius, but he was the consummate Vilani *manager*, supremely suited to lead divided factions and keep vital resources flowing. He was also extremely ruthless, quite capable of eliminating any subordinate who showed signs of plotting against his authority.

The Eighth Interstellar War began early in 2228 with a Vilani attack against Karkhar. The Vilani battle fleet advanced slowly and methodically, brushing aside Terran picket forces, seizing outpost after outpost in turn. Within a year the Vilani had taken Shuruppak and Markhashi, and the major worlds of Iilike and Shulimik were under siege.

Meanwhile, the main Terran battle fleet had been gathered and was in the field opposing the Vilani. The Terrans were thoroughly outmatched in naval tonnage, and refused to engage in a main-fleet engagement. Instead, they harassed the Vilani main body, sniping from a distance and trying to slow down the Imperial advance. Terran Grand Admiral Josip Degen took personal command of the main fleet, fighting an inspired campaign to keep the Vilani off balance. Although the Vilani twice attempted to attack Procyon, Admiral Degen was able to hold them off and keep a thin line of communication open to the embattled ground forces defending Iilike and Shulimik.

It was at this point that Rear Admiral Manuel Albadawi entered the history books. He was in command of a relatively small Terran fleet stationed at Nusku, several jumps away from the main theater of the war. In late 2229 he launched an ambitious attack against the Vilani flank, sacking the Imperial outposts at Zaggisi and Shulgi. In the following year he was the first Terran commander to mount a significant attack against the Vilani provincial capital at Dingir. By virtue of clever tactics and a well-timed *kimashargur* revolt on the planet's surface, Albadawi was able to take the planet in early 2231.

The fall of Dingir threatened the entire Vilani position on the Rim. While Grand Admiral Degen pinned down the Imperial main fleet, Albadawi launched a new campaign to spinward. Late in 2231 he seized and fortified Ensulur, thus cutting off the Vilani communications line between Gashidda and Shulgiasu. He then left about half of his fleet to guard Ensulur, taking the remainder down the Rim Main in a series of lightning advances. He also used his new base to support Terran covert operations on the Vegan worlds, which prepared to launch an open revolt against Vilani authority.

Over the next two years, Albadawi secured Apishlun, Shikashu, and Duriim. Small Terran troop detachments landed on each world, facing little resistance from the surprised local garrisons (or the mostly sympathetic local populations). During these campaigns, Albadawi was many parsecs *behind* the military frontier, relying on sheer logistical improvisation to keep his fleet in operation. When supplies could not be brought in from the Terran core worlds, Albadawi bought or seized them from the Vilani – and when that also failed, his fleet somehow managed to do without.

By 2234, the Vilani main fleet had been cut off from all of its supply lines back to the Imperial core. Admiral Degen, who had managed to keep the main Terran fleet intact, launched a counteroffensive. He soon lifted the sieges of Iilike and Shulimik, and forced the Vilani to fall back on Gashidda.

The Vilani offensive had failed, and now the Imperial fleet was in serious trouble. Not even Arashir Sharrukin's logistical brilliance could keep battleships in working order while Albadawi was free to ravage the Vilani supply lines.

The Imperial position collapsed in 2236. The Vegan worlds rose up in open revolt against the Imperium, ending any hope that the Vilani lines of communication could be restored. Arashir Sharrukin engaged in a final purge of the Rim Province's leadership, and then fled ignominiously for the core worlds of his domain. The last Terran offensive reached Gashidda a few months later, at which point the remnants of the Vilani fleet surrendered almost without firing a shot. Admirals Albadawi and Degen met on Gashidda for the first time in several years, solemnly shaking hands in a blaze of press publicity.

With Arashir Sharrukin temporarily departed, the Dumushir clan was left to negotiate a peace accord with the Terrans. The resulting Treaty of Ensulur (2238) more than doubled the territory under Terran rule, turning over several major Vilani worlds and a dozen minor outposts to Terran control. Even more importantly, the treaty recognized the existence of the Vegan Polity, newly independent for the first time in over 2,000 years. The new Vegan state immediately allied itself with the Terran Confederation, further bolstering the Terran position against Imperial aggression.

Final Gambits (A.D. 2238-2245)

During the Eighth Interstellar War, Terran engineers made two critical breakthroughs in naval technology. The jump-3 drive had the potential to give Terran fleets unprecedented speed and mobility, while advances in particle-beam technology gave rise to the first meson-cannon weaponry. Neither of these technologies was even familiar to the Vilani or to any other known civilization – so the Imperium had no defense against their use on the battlefield.

The new innovations came too late to be used during the Eighth Interstellar War, so Admirals Degen and Albadawi perforce defeated the Imperium without them. After the Treaty of Ensulur was signed, Terran fleets were quickly overhauled to make use of the new systems, under the guidance of Manuel Albadawi (promoted to Grand Admiral in 2242).

As it turned out, the naval rebuilding was carried out just in time.

Arashir Sharrukin's envoy had departed for Vland in 2223. By using the fastest available transport and earnestly wielding the *apkallu kibrat arban*'s authority, the envoy had reached the Imperial core in excellent time. In 2229 he presented Sharrukin's report directly to the *Igsiirdi*, later having an audience with the Shadow Emperor himself.

The Emperor recognized the threat that the Terrans posed to Imperial authority. Unfortunately, the rimward frontier was not the only one faced with internal dissension and external invasion. Indeed, on the coreward border – much closer to Vland itself – a new race of alien barbarians was on the rise. These *urbarrani* ("pack-predator barbarians") had been a problem for over a century, raiding undefended worlds and hiring out as mercenaries in the service of renegade Imperial officials.

The Emperor deliberated, and then made a crucial decision. The Imperial Core Fleet would be dispatched to the rim, to crush the Terrans once and for all.

Given what the Emperor knew at the time, this was probably a wise decision. Although the *urbarrani* raiders were much closer to Vland, they did not pose a threat to the *legitimacy* of Imperial rule. They were simply barbarians, and non-Human barbarians at that. On the other hand, the appearance of a powerful *Human* rival state on the rim might tempt whole sectors to defect. For thousands of years, no enemy had ever been able to withstand the Imperial Core Fleet. While deploying it so far from Vland carried its own risks, no one seriously expected the Terrans to survive.

The Ninth Interstellar War (A.D. 2245-2256)

In 2245, Terran intelligence became aware that a massive Imperial fleet was working its way down the Rim Main. Not only had Arashir Sharrukin returned at the head of a new provincial fleet, but he was accompanied by a huge armada of warships from much deeper inside Imperial space. Confederation leaders correctly deduced that the Imperium was preparing to hurl overwhelming force at Terra.

While Grand Admiral Albadawi made final preparations, the Vilani armada reached its main depot at Shulgiasu. Early in 2246, an Imperial envoy delivered a formal declaration of war to the Terrans.

At first, the Imperial forces believed that they were succeeding. While the armada traversed Vegan space, it met Terran and Vegan squadrons, which made hit-and-run raids but never stayed to fight for long. The Imperials prepared to lay siege to the Vegan homeworld of Muan Gwi.

At this point, Admiral Albadawi sprang his trap. He ordered jump-3 raiding forces to move from Lagash directly onto the Rim Main, a maneuver the Vilani did not expect because they did not believe the jump to be possible. Albadawi's raiders struck at the Imperial armada's line of communications, threatening to cut it off from Shulgiasu. This caused the armada to abandon its methodical advance, turning back to deal with the raiders.

At Muan Kwoyen, Albadawi used the bulk of his "new model" battleships – capable of jump-3 and carrying spinal-mount meson weapons – to surprise the Vilani. Suddenly the Imperials faced numbers far greater than they expected. Worse, the Terran battleships poured long-range meson fire into the Imperial line of battle. The Imperials had never developed meson weapons of their own, and knew of them only from fearful ancient legends. Now the Core Fleet faced the mythical "certain death weapon" in bitter reality, as its proudest ships were destroyed by internal explosions.

The subsequent engagement was a devastating defeat for the Imperium. The Imperial grand admiral was killed in the first battle at Muan Kwoyen. Arashir Sharrukin was killed while trying to rally fragments of the armada a few weeks later. Less than 10% of the Imperial armada ever escaped from the Rim Province. The rest was captured or destroyed as the Terran fleet leapfrogged up the Rim Main in pursuit.

No formal armistice ever ended the Ninth Interstellar War. However, most historians place the war's end in 2256. In that year the retired Admiral Albadawi, widely recognized as one of Terra's greatest military leaders, died. Also in 2256, Terran forces captured the critical Vilani world of Arkiirkii, almost 30 parsecs from Terra. At this point, the fighting paused for a few years while Terran forces consolidated their territorial gains.

Triumph and Uncertainty

Alexander wept when he heard from Anaxarchus that there were an infinite number of worlds. His friends asking if any accident had befallen him, he answered: "Do you not think it a matter worthy of lamentation that when there is such a vast multitude of them, we have not yet conquered one?"

– Plutarch,
On the Tranquility of the Mind

Despite the pause in active hostilities after the Ninth Interstellar War, fighting between Terran and Imperial forces never wholly ceased. The Terrans were almost constantly on the offensive until the final collapse of the Imperium.

Unfortunately, such complete military success led to its own problems. Even while the Terran armed forces continued to advance, Terrans found it increasingly difficult to *govern* hundreds and then thousands of Imperial worlds. Meanwhile, divisions within Terran society, long papered over by the need for unity against the Imperium, became apparent once again. Even final victory over the Vilani did nothing to resolve the deepening crisis in Terran affairs.

Imperial Terra

Of course, none of the long-term problems inherent in Terra's military success were obvious at first. Grand Admiral Albadawi's successors continued to press the Vilani back. The Terran Confederation was no longer a simple "pocket state" fighting a prolonged war against a much more powerful foe. Now the Confederation was a true empire, a new Imperium taking shape on the ruins of the old.

Wars on the Frontier (A.D. 2256-2280)

In the aftermath of the Ninth Interstellar War, the Terran Confederation had to pause for several years in order to consolidate its territorial gains. Most of the Kushuggi sector was now under Terran control; over 200 formerly Imperial worlds had to be brought firmly into the Confederation before Terran forces could continue their advance.

In fact, in the late 2250s some Terran leaders called for an end to the wars. The Imperium had been so decisively defeated that any serious future threat to Terra was inconceivable. The limits to Terran expansion had been shattered; exploration and colonization could now proceed in almost every direction without needing to further disturb the Imperium. Surely there was no need for further bloodshed or involvement in Imperial affairs?

Before long, events demonstrated that this isolationist approach could not succeed. Khugi Sharrukin was still at large in Imperial space, still claiming the title of *apkallu kibrat arban*. He and other Imperial leaders continued to fight, engaging Terran forces on the military frontier, stirring up unrest on the occupied Vilani worlds. The bulk of the Imperium remained in the distance, still outnumbering the Terran Confederation, still ready to make a new attempt to regain its lost territory.

By 2260, it was obvious that Terran power had to keep expanding if any kind of stable situation was to be built. Terran leaders therefore launched several new military expeditions, striking out of the Kushuggi sector for the first time. The new offensives were designed to cut off whole subsectors of Imperial territory, isolating Imperial fleets into "pockets" where they could be destroyed in detail.

For decades, chaotic warfare raged on the frontiers. The fighting could no longer be broken into neat, understandable chunks that could be labeled as distinct "wars." Every conflict was interrupted by local armistices, cease-fires, or shaky periods of peace. Terran navies often had to stop and regroup before pressing on. Imperial forces might be defeated on the field, but would renew the fight after reinforcements arrived from the Imperial core.

During this period, there was no possibility of central control for either side. Both empires' local commanders started and ended campaigns, signed and broke treaties, and did their best to administer the worlds being fought over. Indeed, new fighting often broke out along the front lines before the news of an armistice could reach Terra or Vland.

Actually *pacifying* this vast region of space took much longer. It was already taking longer to secure new worlds and integrate them into the Confederation than it was taking to conquer them in the first place. After the end of the Sharrukin dynasty, the pace of advance was determined by the Confederation's civilian bureaucracy rather than by the military.

The Great Schism (A.D. 2280-2290)

Of course, the continued string of Terran military victories could not disguise the fact that the nature of the Interstellar Wars had changed dramatically.

The change was most clearly felt on Terra itself. The homeworld of the Confederation had spent over a century in a state of constant warfare, but now the pressure was suddenly relieved. Terra itself no longer *needed* to drive the war effort – in fact, it was more convenient to perform military shipbuilding, construction, and recruitment on worlds closer to the front lines. The clearest sign of the times came in 2276, with the abolition of compulsory military service for homeworld citizens. In the next four years, military recruitment on Terra fell by over 95%.

While the homeworld settled down to enjoy unprecedented peace and prosperity, the colony worlds took up the banner of war against the Imperium. Colonial shipyards built and supplied the Terran Navy, colonial citizens provided manpower for the Terran Army, colonial administrators took on the task of managing conquered Imperial worlds, colonial businessmen continued to build trade links into new regions of space. Indeed, even while the homeworld turned to peaceful pursuits, the colonies were able to support a massive *expansion* in the war effort.

In fact, Terra was no longer the economic center of the empire. It took time to integrate conquered Vilani worlds into the Confederation, but by the 2270s the process had been completed on over a dozen such worlds. From that point onward, most of the Confederation's industrial production – including most of its military construction – took place in what was once Imperial territory.

This redistribution of economic power was not reflected in the political structure of the Terran Confederation. The central government remained dominated by homeworld interests, especially by the major nation-states who still controlled the Secretariat 250 years after the Treaty of New York. The colonial planetary republics had only nominal representation in the powerless General Assembly, and had no direct influence in the Secretariat. This situation continued even after the colonial republics came to represent the majority of the Confederation's citizen population, the majority of its industrial production, and the bulk of its military might.

While the Interstellar Wars raged close to Terra, the potential split between homeworld and colonies remained unexpressed. However, after the Ninth Interstellar War some colonial leaders began to question why they should continue to bear the burden of war against the Imperium without adequate representation on Terra.

Once the Terrans recognized the need for a continuous offensive, their string of military victories was quite consistent. Khugi Sharrukin was eventually brought to the peace table, signing an agreement in 2266 that placed the Imperium's six rimward sectors under nominal Terran control.

Playing Out the Endgame

The late Interstellar Wars era is possibly the best setting for epic military roleplaying. While the Terran armed forces have a technological advantage, they are usually faced with stubborn Imperial resistance. Every world presents its own set of problems to Terran officers and enlisted men, who must deal with each situation with little guidance or backup from distant Terra.

The sheer pace of the Terran advance makes the situation very fluid. In every new region of Imperial space, Terran forces must move from "exploration and contact" operations, to military reconnaissance, to full-scale naval warfare, to ground campaigning, and finally to occupation and integration – all within the space of a few years.

To build this kind of backdrop, the GM can use the world-design system in Chapter 5 to set up an area of Imperial space. At the beginning of the campaign, the area is wholly under Imperial control and Terrans are only beginning to come onto the stage. During the campaign, adventurers work to push the Terran advance forward, eventually subduing Imperial resistance and keeping the peace afterward.

If the adventuring party is composed mostly of Navy characters, the campaign should use a play area of up to a subsector in size. Space battles can be interspersed with shore leave or other "dirtside" activities on various worlds. A party composed of ground-forces characters can use a similar approach – or the entire campaign can be set *on a single world*, covering the initial ground war and the subsequent occupation.

The problem became obvious to the Confederation as a whole after the publication of a book, *The Great Schism*, written by Hasan Ardakani of Iilike. Published in 2280, the book was a sober analysis of the growing cultural divergence between homeworld and colonies. Although Ardakani made no political recommendations, his book did more than any other work to raise the political awareness of the colonial population. As the 2280s wore on, the colonials became increasingly aware of their common identity, as a community with its own needs and aspirations different from those of the homeworld.

Unfortunately, *The Great Schism* also made the Confederation's leaders aware of the potential divisions between homeworld and colonies – perhaps a little *too* aware. During the 2280s, the Confederation's civilian government became concerned with the "political reliability" of colonists. Government agents began to observe the colonial population, looking for signs of disaffection or disloyalty toward the central government back on Terra. This concern focused specifically on the Terran Navy, believed to be the most serious potential threat to civilian government.

This political observation was quiet and unintrusive, for the most part. For years, no one was placed under close surveillance, and no one was arrested for sedition or disloyalty. Still, it could not be concealed that the Confederation no longer completely trusted all of its citizens. This only served to spark open resentment among the colonials toward the homeworld, exacerbating the potential problem.

The Imperial Collapse

With the Terran Confederation committed to continued war, the Imperium found itself fighting for its very survival. The last stage of the Interstellar Wars saw fierce fighting on a grand scale, as Imperial authorities desperately tried to hold their ground across a front over 100 parsecs long.

The Last Offensive (A.D. 2288-2398)

In 2288, the last man to hold the title of *Apkallu Kibrat Arban Kushamii* died, an honored guest of the Terran Confederation Navy. By that year, the Terran Confederation had conquered the *apkallu kibrat arban*'s old domain. About 1,000 inhabited worlds fell into this region; most of these had not yet been formally integrated into the Terran Confederation, but there had been no significant armed resistance for several years.

The Terran Navy had just come under the overall command of a new Grand Admiral, Arpad Kovacs (p. 46). Unlike his last three predecessors, Admiral Kovacs preferred to command from the front lines rather than from safety on Terra. After arriving in the war zone and gaining control of the situation, he devised a plan for a new offensive – one that he hoped would bring the Imperium to its knees.

In the course of the wars, the Terrans had "liberated" and allied with several former Imperial subject races. Unfortunately, only one of these (the Vegans) had been able to make a significant contribution to the Terran cause. The others were too backward, too small in number, or both.

However, within about 30 parsecs of the current military border were the home regions of *three* subject races: the Darmine (Zarushagar sector), the Geonee (Masilaa sector), and the Suerrat (Ilelish sector). All three of these races were unusually important to the structure of Imperial power – but Terran advance agents had learned that all three were restive under Imperial rule, and would be likely to rebel once the Terran Navy was in a position to support them. Admiral Kovacs was determined to give them that support.

Late in 2288, four Terran battle fleets jumped off from the current border, striking deep into Imperial territory. The main axis of the attack was spinward into the Zarushagar sector, with a secondary offensive pushing coreward into Masilaa sector. Meanwhile, a series of deep-penetration raids pushed over 40 parsecs into Imperial space in order to keep the enemy off-balance.

The offensive moved quickly at first, but within two years Imperial commanders had deduced the Terran objectives, and were mounting stiff resistance. The next few years saw some of the hardest fighting of the entire Interstellar Wars era. Imperial fleets were technologically outclassed, and were usually outgunned as well, but they fought tenaciously. Imperial ground forces did the same, forcing the Terrans to pay for every new world captured.

Imperial resistance failed to keep the Terrans back. The Geonee were slow to respond, unable or unwilling to rebel until they could be sure of Terran support, but their uprising began in 2294. The Darmine revolt began the following year, and was much more enthusiastic. Finally, after a hard-fought campaign ending in the Battle of Three Suns (2298), the Suerrat declared their independence and allied with the Terran Confederation.

After 10 years of hard fighting, Grand Admiral Kovacs could see the success of his strategic plan. With support from the new allied races, the Navy continued to press hard. Imperial resistance was appreciably crumbling, and whole subsectors were beginning to defect to the Terrans without a fight.

The Imperial Surrender (2298-2303)

The Suerrat revolt proved to be the last blow to Imperial power, although the final moves took several years to play out. When word of the revolt reached the Imperial core, the last significant Imperial fleet had just been ordered into the Masilaa sector to face the Terrans. Rather than obey, the fleet commanders mutinied, turning against Vland itself and bringing down the Imperial government. The *Ishimkarun* himself became a well-treated prisoner aboard the fleet's flagship.

After some debate, the mutinous fleet commanders and leaders of the Imperial bureaucracy formed a delegation to meet the Terrans. In 2303 the meeting took place, and the Vilani leaders offered the complete surrender of the Vilani Imperium and all of its subject worlds. On behalf of the Terran Confederation and its allies, Grand Admiral Kovacs accepted.

The Interstellar Wars were over.

The Challenge of Victory (A.D. 2303 and onward)

When word of the Imperial surrender reached Terra, it provoked a great deal of celebration, but also a great deal of soul-searching. A political cartoon of the time portrayed a Terran soldier, armed to the teeth, stepping away from a heap of corpses into a vast empty plain, peering about as if looking for someone else to fight. The caption: "Now what?"

The cartoon was apt. The Terran Confederation was now the sole effective political authority in all of Imperial space – but Terra was in no condition to *govern* that space. In 2303, three sectors (about 1,300 worlds) were under direct Terran rule, and even that territory was proving difficult for the central government to manage. The shattered Imperium was *eight times* that size, its most distant worlds over two years from Terra even for a fast jump-3 courier. Much of the Imperium was still out of reach of Terran authority; indeed, many Imperial worlds had never seen a Terran.

Meanwhile, the newly surrendered territories posed problems that had never been seen in sectors closer to Terra. The Imperial bureaucracy was largely intact, but it lacked direction now that the *Igsiirdi* had been deposed. Some of the Imperial subject races and dissident subcultures were

Terrans and Colonists

The so-called "Great Schism" was a vast social movement, driven by demographic changes on the colony worlds. Although it first received widespread notice in the 2280s, its origins were much earlier than that.

Beginning with the Third Interstellar War, Terran forces conquered and occupied many Vilani worlds. As these occupied worlds grew in number, Terran citizens began to migrate to them in droves. This migration grew rapidly, from about 1 million per year in 2220, to 15-20 million per year in the 2280s.

One result of the Terran migration was the "Terranizing" of Vilani populations. Many Vilani on the occupied worlds began to imitate Terrans. They learned to speak Terran languages, took Terran names, married into Terran families, absorbed Terran political and economic theories, and adopted Terran customs. Even the billions of "unassimilated" Vilani, people who tried to hold onto as many ancient traditions as possible, tended to adopt some Terran customs simply to get along under the new regime.

This mix produced a new society, a culture which was no longer Vilani, but which was also *no longer strictly Terran* in attitudes or ideals. The new culture was based on Terran political and economic concepts (individualism, human rights, democracy, and entrepreneurial capitalism) but it placed its own interpretation on those ideas, and it also accepted a wide variety of Vilani and other non-Terran notions.

There was one exception to the trend toward an independent colonial society. There were colony worlds to rimward and trailing of Terra, founded as wilderness settlements on worlds that were formerly uninhabited. Most of these "Terran-only" worlds played little part in the Great Schism, growing more slowly in population, remaining culturally and politically dependent on the homeworld. This was because most emigrants preferred to move to former Imperial planets. It was much more attractive to settle on a world that was already thoroughly tamed, especially since a Terran migrant could almost depend on becoming a member of the colonial upper class.

in open revolt, even without Terran support, and might prove hostile to Terran rule. The *urbarrani* and other barbarians were tearing chunks out of the Imperial frontier.

While the Confederation's central government began to debate what to do, the Terran Navy acted. Grand Admiral Kovacs sent thousands of naval officers to the worlds of the Imperium. Their task was not to set up a wholly new government, as Kovacs realized such an attempt would be futile. Instead, the military governors were charged with providing a new source of *legitimate authority* for the existing Imperial government. They were to maintain peace and order, permitting the local bureaucracies to keep the machinery of government in operation.

Even that limited task was tremendous. Kovacs stripped his fleets and support staff almost to the bone. In some cases, Terran ensigns were required to govern whole worlds. Commanders who had previously been entrusted with no more than a light cruiser were now administering whole subsectors. The situation improved as new personnel arrived from regions closer to Terra, but even so the Navy's authority was stretched almost vanishingly thin. That the Terran officers could succeed at all was due to the devotion of billions of local Vilani bureaucrats, who continued to execute their duties despite the fall of the Imperium.

Biographies

The Interstellar Wars era gave rise to many remarkable individuals, on both sides of the centuries-long conflict. Here are some of the most prominent – admirals, aristocrats, corporate executives, politicians, and others who shaped the history of the time. These historical figures might serve as background figures for an ***Interstellar Wars*** campaign, or might act as patrons for well-connected adventurers.

The Sharrukin Clan

Descended from ancient nobility of the Imperial core, the Sharrukin clan was for centuries one of the foremost families in charge of the Sharurshid organization. Late in the Consolidation Wars era, the clan established itself in the rimward provinces of the Imperium. By A.D. 1500, a Sharrukin had taken over the position of *Apkallu Kibrat Arban Kushamii* ("Minister of the Four Quarters of the Rim Marches"), the ultimate supervisor of all Sharurshid activities across six of the Imperium's rimward sectors.

During much of the Interstellar Wars era, the Sharrukin clan was a distant yet crucial authority, its actions (or inaction) setting the tone for the confrontation between Terrans and the Imperium. A provincial governor who had Sharrukin favor could ask for aid against the Terran barbarians. One who was out of favor was forced to contend with the Terrans while drawing only on his own limited resources. This situation lasted until 2266, when the last Sharrukin *apkallu kibrat arban* surrendered to Terran naval forces. Although fighting continued for over a generation, the fall of the Sharrukin clan marked the real end of Vilani authority over the Imperium – from that point on, Terran dominance was inevitable.

Usham Sharrukin

Usham Sharrukin (1954-2129) was the 11th of his line to hold the position of *apkallu kibrat arban*, beginning in 2056. His influence was profoundly conservative, concerned only with the stability and prosperity of the sectors of his domain. No Terran ever visited his court, and he took almost no notice of their existence. During his lifetime, he took no steps to intervene in the situation on the Imperium's rim frontier.

Usham Sharrukin was unusually long-lived even for a Vilani, succumbing only to assassination at the age of 175. The assassination was carried out by the detonation of a small nuclear device in his palace; his immediate heirs were also killed in the blast, leaving the succession uncertain. Since the assassins were vaporized in the same explosion, their identities and motives were never fully made clear, but it seems likely that they were backed by one of several rival noble clans. The Sharrukin clan was forced to contend for power, fighting an open civil war that went on for several years before their claim to the position of *apkallu kibrat arban* was again unchallenged.

Eneri Sharrukin

Usham Sharrukin had five children, the fifth being a daughter named Inanna. This daughter married a nobleman of *iishakku* rank from the Erasharshi clan, bearing him several children. Eneri Erasharshi (2046-2192) was the third of these, born in 2046. Eneri displayed uncommon brilliance, becoming widely respected even in his youthful 40s as an advocate of Vilani tradition, as a business manager, and as a politician. However, he never expected to inherit anything but the rule of a minor world in the Nakulakak sector.

The assassination of Usham Sharrukin changed all that. The Sharrukin clan's leadership had been almost obliterated – all of the *apkallu kibrat arban*'s clear heirs were dead, leaving only secondary descendants alive. As Usham Sharrukin's fifth child, Inanna Sharrukin was now in line to inherit the *apkallu kibrat arban*'s office. In fact she felt unprepared for the responsibility, and was unwilling to fight for the position. On the very day that she heard of her father's death, she formally abdicated her claim in favor of her son Eneri.

Eneri took the name Sharrukin and stepped forward, claiming leadership of the clan. His quick action prevented the remaining members of the clan from falling out among themselves, and unified them against their rivals. Eneri led the clan to victory in the civil war of 2129-2135, and claimed the position of *apkallu kibrat arban* after defeating his last foe.

Eneri Sharrukin took little direct role in the Interstellar Wars during his reign, although he was responsible for the appointment of his youngest brother (Kadur Erasharshi) to the position of *Saarpuhii Kushuggi* in 2136. Kadur's later fall brought that part of the family into some disrepute, and apparently encouraged Eneri to ignore events on the rimward frontier for the rest of his time in office.

Arashir Sharrukin

Arashir Sharrukin (2150-2246) was Eneri Sharrukin's third child and primary heir. He was born only after Eneri had risen to the office of *apkallu kibrat arban* – and since Eneri had delayed having children at all, Arashir was over a century younger than his father. He was raised in an indulgent manner, and had not entirely matured when he suddenly inherited his father's office in 2192.

Arashir Sharrukin was the youngest *Apkallu Kibrat Arban Kushamii* to hold office in over 1,000 years. He was undeniably competent, with a talent for business management and military logistics. On the other hand, he was autocratic and cruel, taking pleasure in "breaking" or even executing subordinates who displeased him. He was often too erratic and indecisive to provide his domain with sound leadership. Finally, he was uninterested in maintaining his family line, and failed to marry or adopt heirs. In all, he was an uncomfortable ruler for the rim sectors, and was widely hated.

Arashir intervened indirectly in the Seventh Interstellar War, sending a kinsman to the Rim in command of a detachment of battleships. The venture ended in ignominious failure. Worse, a dispute between the Sharrukin and Dumushir clans ended in the murder of the Dumushir clan head, causing the entire Kushuggi sector to lean toward open revolt. In the early 2220s, Arashir decided to intervene personally.

For the next 20 years, Arashir spent most of his time on the Rim. His leadership was crucial to Vilani fortunes in the Eighth and Ninth Interstellar Wars. Despite his unpleasant and autocratic nature, he did manage to keep the Rim Province unified, and he launched two major campaigns against Terra. Unfortunately, those two offensives both ended in crushing defeats for the Imperium.

Arashir Sharrukin died in 2246, still commanding a fragment of the Vilani armada as it tried to fight its way out of a Terran ambush. Oddly, his reputation among Vilani traditionalists improved considerably in the years after his death. Eventually he came to be seen as a Vilani patriot, committed to defending against the Terran onslaught even against hopeless odds.

Khugi Sharrukin

Khugi Sharrukin (2152-2288) was a descendant of Usham Sharrukin, by way of Usham's second child. He entered the Imperial Navy as a young man. Although he was only barely competent as a naval officer, he rose rapidly through the ranks due to his exalted family connections.

In 2204, Khugi Sharrukin commanded the Imperial battleship squadron sent to the Rim by his second cousin Arashir Sharrukin. His involvement in the Seventh Interstellar War ended in dismal failure, and he was recalled in disgrace. Although he remained in the Navy, he was never again sent near the front lines, and his career seemed to be at an end.

The disaster of the Ninth Interstellar War changed Khugi's fortunes. The *apkallu kibrat arban* was decisively defeated in battle against the Terrans, and then killed in an ambush in 2246. This left the Sharrukin clan in desperate straits. Arashir Sharrukin had no direct heir; the only legitimate heirs descended from the disgraced Kadur Erasharshi, and were extremely young at that. With the Terrans pressing close, the domain's most influential citizens looked for a Sharrukin – *any* Sharrukin – to take command. Although Khugi had no claim to the title under Vilani inheritance law, he was the only possible candidate with any military experience.

Khugi Sharrukin was named *apkallu kibrat arban* during a conclave of the regional aristocracy in 2248. To the surprise of many, he proved to be a competent ruler. He kept the domain's aristocrats from panicking, and organized defenses against the Terran advance. Twice he took the field himself against the Terrans, managing through dogged determination to avoid a decisive defeat.

Despite his efforts, Khugi Sharrukin realized that any possibility of victory over Terra was long since gone. His primary goal as *apkallu kibrat arban* was to win an honorable peace. In 2266, after two years of negotiation with Terran authorities, he surrendered to the Terran Confederation Navy. He spent the rest of his life in semi-retirement on his estates, acting as a figurehead and occasional advisor for the new Terran-Vilani government of the Nakulakak sector.

Ironically, Khugi's surrender may have assured the survival and continued prominence of the Sharrukin clan. Although the office of *Apkallu Kibrat Arban Kushamii* was abolished upon his death in 2288, several of Khugi's grandchildren married Terrans and entered the growing Terran-Vilani ruling class. A great-grandson, William Adkhar Sargon, became an officer in the Terran Navy; in 2303, he commanded a ship in the expedition that accepted the surrender of the last Vilani Emperor.

Shana Likushan

Shana Likushan (2033-2145) was originally from the Imperial core, born and raised on a world almost 200 parsecs from Terra. She was from a minor aristocratic family, but did not inherit a noble title, and entered the Sharurshid organization as a commoner. Despite this, she displayed considerable gifts for business management and intrigue. By the age of 70 she had worked her way into the upper ranks of Sharurshid management, and was ready to make her bid for a position of real power and influence.

Unfortunately, at this point Likushan's faction *lost* a power struggle within Sharurshid's upper ranks. As a result, Likushan was given aristocratic standing, but the "promotion" involved a transfer to the distant rimward frontier. There she was named *Saarpuhii Kushuggi* of the Imperial province closest to Terra – and farthest from Vland.

The position of *Saarpuhii Kushuggi* had been held for centuries by the Ereshkinar clan, which had recently become extinct. Likushan might have regarded her appointment as an opportunity to raise her own family to very exalted status. Unfortunately, she instead viewed her new position as an exile. When she arrived on Shulgiasu in 2112, she immediately demonstrated her contempt even for the Vilani of the Rim. The recent discovery of barbarians beyond the Imperial frontier was entirely beneath her notice.

Shana Likushan was an inept military commander, but this made little difference, as she never took the field against the Terrans. She did prove quite adept at negotiating in such a way as to save the appearance of Imperial power. Her usual pattern in wartime was to inflict casualties on the Terran Navy, withdraw without doing real damage to Terran interests, negotiate a settlement, and then present the result to her superiors as a decisive victory. As a result, during her tenure as *Saarpuhii Kushuggi* the Terrans were able to consolidate their position and prepare for the more serious conflicts to come.

Likushan was constantly on the lookout for an opportunity to abandon her "exile" on the Rim. In 2129 she saw her chance, with the assassination of Usham Sharrukin and the civil war that followed. She intervened in the civil war, supporting the claim of Eneri Sharrukin with ships and economic assistance. After the Sharrukin victory, Likushan was rewarded with a recommendation for a new posting back to the Imperial core. In 2136 she left the Rim, never to return.

Shana Likushan ended her days on Vland, working as one of Sharurshid's highest managers and intriguing for a seat on the *Igsiirdi*. Had she lived longer, she might well have attained that ambition – but she apparently contracted a terminal disease in the early 2140s and died prematurely. She did manage to complete her memoirs, which were widely read on Vland and elsewhere. These memoirs described the Terran "savages" in a very unflattering light, and may have played a role in preventing the Imperium as a whole from taking the Terran threat seriously.

Lorette Strider

Lorette Kathryn Strider (2053-2114) was born in Kansas City, United States. At the age of 8 she avidly followed NASA's Comet Halley Intercept Mission, forming an ambition to become an astronaut that never left her. After attending the University of Arizona, she joined the United States Space Force. She worked on the construction of the Oceanus Procellarium facility on Luna, and was the first commander of Phobos Station.

The greatest turning point in Strider's career came in 2095, when she was named the commander of *StarLeaper One*, the first Terran interstellar mission to use the new jump drive. Although the mission was international in character and was overseen by the UNSCA, it was primarily funded by the United States, so an American commander was a political necessity. Fortunately, Strider was not only politically useful but thoroughly competent.

While at Barnard's Star, Strider oversaw first contact with the Vilani. She managed to establish clear communications, set up good relations with the *kimashargur* prospectors, and laid the groundwork for future trade and political negotiations. In so doing she became the first Terran considered an ally by any Vilani faction.

Strider left the USSF in 2099, accepting a position with the United Nations as one of the first envoys into Imperial space. Her natural linguistic ability permitted her to learn aristocratic Vilani with unusual speed. On several occasions, she traveled as far as Dingir in order to establish contacts with the Vilani and learn more about them. Strider worked hard to promote understanding between the two civilizations, and was a leading advocate for peace even as the threat of war loomed.

In 2114, Strider left for the Barnard system aboard the American frigate *Thomas Jefferson*, carrying a last-ditch proposal to avoid conflict. She was too late. The *Thomas Jefferson* was attacked by a Vilani warship and destroyed, the first major Terran casualty of the First Interstellar War.

After her death, Strider's fame declined; her pacifism and unabashed appreciation of Vilani culture made her less popular as Terran attitudes hardened. Still, Strider's reputation as an explorer and diplomat was safe, and her autobiography is required reading at many of the Confederation's elite universities to this day.

Yukio Hasegawa

Yukio Hasegawa (2056-2142) was a Japanese industrialist who rose through the ranks of one of that nation's most conservative *keiretsu*. He was a quiet but canny businessman, with a deceptively gentle demeanor that often fooled business rivals into fatally underestimating him. He was also one of the first Terran industrialists to foresee the importance of the Vilani Imperium to Terran business.

Upon becoming CEO of his firm in 2117, Hasegawa began heavy investment in space industries. His corporation eventually spun off an orbital-industry subsidiary under Hasegawa's direct leadership. This subsidiary grew so quickly that it soon provided a significant share of the firm's overall profits. Hasegawa also pursued influence within the national government, eventually becoming one of the prime movers behind the Japanese interstellar program.

Hasegawa was a tireless promoter of open markets and interstellar trade. In 2123 he established the Free Traders Foundation, a non-profit organization devoted to supporting the growing free-trade movement. For the remainder of his life, Hasegawa pushed for interstellar colonization, commerce, and trade with the Vilani Imperium – often against the disfavor of both Terran and Imperial governments. Under his leadership, the Free Traders grew to sponsor dozens of commercial ventures into Vilani space.

Much of the later acceptance of Terran goods by Vilani populations can be attributed to Hasegawa's work. So can the trade disputes that eventually led to the Second and Fourth Interstellar Wars.

Kadur Erasharshi

Kadur Erasharshi (2066-2160) was the youngest child of Inanna Sharrukin and her husband Mazun Erasharshi. As the fifth child, young Kadur never expected to inherit significant wealth or status. His career was unremarkable until the outbreak of civil war in 2129, in which Kadur's elder brother Eneri Sharrukin was one of the claimants to the office of *Apkallu Kibrat Arban Kushamii*. Trying to shore up his support in the Kushuggi sector, Eneri sent Kadur to serve on the staff of *saarpuhii* Shana Likushan.

While serving on Likushan's staff, Kadur Erasharshi did much to bring the *saarpuhii* solidly into the Sharrukin faction. He also served in a critical diplomatic role – he was appointed as a leading envoy to Terra immediately after the First Interstellar War. This position taught him a great deal about the "barbarians." More than any other influential figure in the Rim Province, he came to understand the Terrans and the threat they posed to the Imperium.

After his brother's victory in the civil war, Kadur Erasharshi turned down a position in the *apkallu kibrat arban*'s court. Instead, he accepted appointment as Shana Likushan's successor, taking the office of *Saarpuhii Kushuggi* in 2136. He quickly proved himself to be that rare entity, a *bold* Vilani, a throwback to the time when the Imperium had conquered worlds by the thousands.

Erasharshi was an effective military commander, with superb tactical skills and a reasonable grasp of grand strategy. Unfortunately for him, he was not an effective diplomat. During his rapid rise to power he made many enemies, especially among some of the most influential Vilani clans of the province. These families had spent decades maneuvering for the *saarpuhii*'s position, and resented its award to yet another outsider.

The story of Kadur Erasharshi's campaign against Terra is told elsewhere (p. 27). At its end, he was a broken man, disgraced and helpless to defend himself against his political rivals. He left the Rim Worlds in 2160 and apparently vanished from history. His fate is unknown, and indeed even his date of death is often disputed.

Strangely, Erasharshi's very existence was apparently expunged from Imperial records, as sometimes happened to those judged traitors to the Imperium. As a result, he eventually became known only through Terran histories – which uniformly blackened his name as a dreadful war criminal. Only the most fair-minded of historians, either Terran or Vilani, eventually were willing to concede that Erasharshi was a competent and honorable man.

Many Terrans tend to think of the profit motive as a Western invention, or perhaps as a Western aberration, to be disdained rather than imitated. This is nonsense. Every society expresses the profit motive in some manner. This is particularly true of my own people. We have never forgotten that the Prophet, peace be upon Him, was Himself a successful merchant.

– Umar bin-Abdallah al-Ghazali, remarks to the annual meeting of the Free Traders Association, 2168

Umar bin-Abdallah al-Ghazali

After the Third Interstellar War, Terran commercial interests worked hard to penetrate Vilani markets, sensing the vast potential for profit. The Free Traders Foundation, established by Yukio Hasegawa (p. 43), was the backbone of this mercantile effort. Working with the Foundation, a number of "merchant princes" found fortunes and shaped the course of the Interstellar Wars era. One of the most prominent of these merchant princes was Umar bin-Abdallah al-Ghazali (2084-2182).

From 2157, al-Ghazali was the CEO of the High Frontier Development Consortium, a moderate-sized multinational corporation specializing in asteroid mining and orbital manufacturing. He was a devoted Muslim, but he was very cosmopolitan in outlook and superb at the game of international business.

After the Third Interstellar War, al-Ghazali caused High Frontier to join the Free Traders Foundation, quickly becoming one of the organization's major underwriters. He invested heavily in the reconstruction and expansion of shipyard facilities on Nusku, and directed the construction of a fleet of small, fast trading vessels intended for ventures into Imperial space. Before long, High Frontier was making vast profits selling Terran communications and computer equipment to certain Vilani factions.

High Frontier's trading ships were all equipped for exploration and

survey work, and did much to increase Terran knowledge about the galaxy. They were capable of turning privateer in wartime, switching from trade to commerce raiding and back again as needed. Finally, it was widely suspected (but never proved) that High Frontier's merchant fleet was acting as an espionage force in cooperation with Confederation intelligence agencies. All of these facets of High Frontier's operation were at the direct insistence of Umar al-Ghazali, who often spoke publicly about the need for Terran commerce to serve the long-term interests of Terran civilization.

After the *Saarpuhii Kushuggi* imposed border controls and trade sanctions against Terran ships, al-Ghazali ordered his fleet to continue operating, avoiding Imperial customs patrols by any means necessary. This action made him an instant celebrity, labeled "Prince of the Smugglers" by the international media because of his distant relationship to the Omani royal family. Once the Fourth Interstellar War broke out, High Frontier went on a war footing in support of the Terran Navy.

Umar al-Ghazali survived three assassination attempts, and lived to the age of 98. To the day of his death, he continued to capably lead the High Frontier commercial empire from his headquarters in the Lagrange-5 orbital settlement.

Sharik Yangila

Sharik Yangila (2112-2190) was an oddity in the Imperium, a non-Vilani who achieved high rank within the Vilani hierarchy. She was an Anakundu (p. 80), member of a Human minor race native to the Mikadira sector. The Anakundu had been subject to Vilani rule for almost 2,000 years, and had accepted many aspects of Vilani culture. Individual Anakundu sometimes reached prominent positions within Imperial society.

Sharik Yangila joined Sharurshid as a minor bureaucrat in 2129. Despite her non-Vilani birth, her talent and meticulous attention to detail were quickly recognized. In 2135 she was assigned to the *Ishimdagashii*, Sharurshid's intelligence and covert-operations service. Here, her ruthless ambition was allowed to flourish as she clawed her way from a lowly field agent's billet into positions of increasing responsibility.

In 2144 Yangila was dispatched to the Kushuggi sector as a senior agent. Assigned to the *saarpuhii*'s staff, she spent years studying the Terran problem, even visiting Terra on several occasions. She quickly came to understand the Terrans, as perhaps no Vilani ever could. With this understanding, coupled with her brutal efficiency in disposing of rivals within the *Ishimdagashii*, she soon became indispensable to Kadur Erasharshi. She became his leading retainer, the woman he trusted to protect his political position while he embarked on expeditions of conquest beyond the frontier.

In 2151 Yangila was appointed head of the *Ishimdagashii* in the Rim Province. This was an unprecedented achievement for such a young woman and for a member of her minor race – but she was far from finished. Whether Yangila actively helped to undermine Kadur Erasharshi is unknown. What is clear is that she maneuvered herself into position to be named his successor. This work paid off in 2157, when Erasharshi was deposed and Yangila was named the new *Saarpuhii Kushuggi*.

Yangila was no military genius, but she understood how to find and motivate such people. Her meticulous attention to detail was applied to preparations for a glorious war against Terra. She hoped to use such a campaign as a basis for claiming even higher position within the Imperial hierarchy. With the end of the Fourth Interstellar War in 2176, Yangila appeared to have reached her goal. She knew that the Terrans had not been crushed, but she believed that she could be gone from the Rim by the time they could present a threat once again.

Unfortunately for Yangila, the Terrans recovered more quickly from defeat than even she could anticipate. In 2179 they reopened hostilities for which she was not prepared. After the Vilani defeat in the Fifth Interstellar War, she was forced to step down as *saarpuhii*, handing the office over to her long-time adversary, Kidarneri Dumushir.

Yangila went into retirement, taking up residence in an isolated estate on Shulgiasu. Everyone who knew her wondered what new scheme she was preparing to launch – but for several years she apparently lived quietly, enjoying her retirement and rarely appearing in public.

In 2190 Yangila vanished from the capital, taking a small ship and heading for the frontier in an apparent attempt to defect to the Terran Confederation. Unfortunately, before she reached the Imperial border, her ship apparently suffered a mishap and was destroyed. A few pieces of debris were eventually recovered from the outskirts of the Zaggisi system, along with two bodies from the crew. Yangila herself was never found.

Sharik Yangila's ultimate fate remains unknown. The obvious theory – that she died in the accident that destroyed her ship – is not given much credence by those who knew her well. She may have faked her death in order to enter Terran space secretly, taking up residence as a "guest" of the Confederation or with an anonymous identity. In any case, rumors and sightings continued on the Rim for many years.

Manuel Albadawi

Manuel Albadawi (2183-2256) was born in Cairo, Egypt. His father was an Arab civil engineer from an old Palestinians family, while his mother was a Spanish biotechnician. In the 2170s and 2180s, Albadawi's parents worked as an independent consulting team, specializing in large-scale desert reclamation projects. As a result, Albadawi spent most of his formative years moving from place to place in the Middle East and North Africa, wherever his parents traveled on assignment.

In 2201, the elder Albadawis received a lucrative contract to perform environmental studies on the Vilani worlds conquered during the war. For a few months young Manuel remained behind on Earth, but once he reached the age of 18 he followed his parents and entered the new Terran University on Iilike. That once-Vilani world remained his home for the rest of his life.

Albadawi had originally intended to follow in his father's footsteps and become an engineer. However, the experience of interstellar travel and contact with the Vilani population of Iilike changed his plans. Although he liked the individual Vilani he met, he came to despise their Imperium, considering Terran civilization to be manifestly superior. At the outbreak of the Seventh Interstellar War, he accepted a commission in the Terran Confederation Navy. Intelligent, hard-working, and loyal, he was promoted quickly, reaching the rank of Lieutenant Commander by war's end.

He supervised the construction of the first line-of-battle squadrons ever to take advantage of jump-3 drives and meson weaponry. Once the Ninth Interstellar War began, it was Albadawi's strategic planning that led to a second decisive Terran victory.

After the critical battles were won, Albadawi retired in 2250. His last years were spent at home on Iilike. He turned down several offers to run for high political office, preferring instead to remain home and compose his memoirs. He remained a civilian advisor to the Navy, and continued to exercise some influence over strategic planning.

If an admiral wants to defeat the Vilani, he has to approach his campaign like a matador in the ancient sport of bullfighting. At first glance, the matador seems to have no chance; all the advantages of strength, speed, and ferocity seem to be on the side of the bull. But somehow, whenever the bull charges, his horns never touch anything but the red cape. Eventually, the matador's sword slips in on the unprotected flank.

– Manuel Albadawi, ***Campaigns*** *(2254)*

During peacetime, Albadawi remained on the promotion "fast track," reaching the rank of Rear Admiral just before the beginning of the Eighth Interstellar War. It was from that position that he first attained galactic prominence. His Dingir campaign, ending with the siege of the Vilani subsector capital, was competently executed – but it was his brilliant campaign down the Rim Main into the Apishlun subsector that secured his reputation. More than any other commander, Albadawi was responsible for the great Terran conquests of the war.

Albadawi was a natural choice to serve as Grand Admiral of the Terran Confederation Navy, a position he accepted in 2242. He applied his logistical talents to the restructuring of the Navy that took place in the mid-2240s.

Upon his death, Albadawi was given a magnificent state funeral, but in accordance with his will his body was cremated and his ashes were scattered. No grand monument was ever built to the greatest Terran military hero of the age.

Arpad Kovacs

Although later events threw him into eclipse, Arpad Kovacs (2236-2318) gained a permanent place in history during his tenure as Grand Admiral of the Terran Navy. Not only did he hold that office longer than any other officer in history, he was also the officer who presided over the final conquest of the Vilani Imperium.

Born on the colony world Lagash, Kovacs was of purely Terran descent, but his extended family included many members of Vilani or mixed ancestry. Like many colonials, young Kovacs was a fierce supporter of the war against the Imperium. He joined the Terran Navy in 2254 as a common enlisted man, and was soon assigned to a new jump-3 raiding squadron destined for the front lines in the Ninth Interstellar War. He saw considerable action over the next few years, and was twice decorated for heroism in battle.

During his time on the front lines, Kovacs was also recognized for his leadership ability and technical aptitude, traits that made him a good prospect for an officer's commission. In 2259 Kovacs was accepted into Officer Candidate School. His captain, realizing that time on the homeworld would be useful to a young colonial officer's career, arranged for him to attend OCS on Terra itself.

Kovacs did well at OCS, and earned his commission as an ensign in 2261. He spent most of the 2260s on and around Terra, holding a series of staff positions in Navy Intelligence. In private, he disliked these assignments – but they did help his later career considerably, giving him contacts in the High Command and the civilian bureaucracy that would be very useful in later years. His time on Terra also gave him considerable experience with civilian politics and with covert Intelligence operations.

Eventually Kovacs was able to win an assignment back on the military frontier, becoming first officer of the *Churchill*-class battleship *U Thant* in 2271. Once in the combat zone, Kovacs enjoyed one command assignment after another. He soon had a reputation for brisk competence, if not for brilliance – his ships and squadrons usually came home in good condition and with the mission accomplished. He also made efficient use of intelligence assets, and proved adept at dealing with local populations. All of this made him a natural candidate for admiral's rank, which he attained in 2281.

At this point, Kovacs' extensive homeworld background proved an unexpected advantage. During the 2280s, the Confederation's central

government was becoming concerned about the political reliability of senior naval officers. Most of the captains and admirals leading Terra's front-line fleets were of colonial origin, and many of them had never spent significant time on Terra. Quietly, some of Terra's civilian leaders were beginning to worry that the Navy's goals might one day diverge from those of the civilian government.

Arpad Kovacs was colonial in origin, but he had spent years on Terra. He was politically sophisticated, but was not known to hold any political ambitions of his own. He was personally known to a number of Confederation civilian leaders. All of this made him a relatively "safe" candidate for the Admiralty, at least until someone equally talented but more reliable came along. His promotion to high rank was assured, especially after Lawrence de Marco (Secretary of the Navy, 2284-2290) became his patron. In 2287 he was named Grand Admiral of the Terran Navy.

Terran officials expected Kovacs to return to Terra to take up his supreme command, as several of his immediate predecessors had done. Instead, he transferred his flag to the frontier and began to plan a great offensive against the Imperium. Communication times being what they were, the Secretariat took several years to become concerned at the new Grand Admiral's independence – but by then, news of the Navy's victories was reaching Terra and Kovacs was politically untouchable. So long as Kovacs kept winning wars, he could retain his position, and he kept winning for well over a decade.

Finally, the Imperial government collapsed and various Vilani leaders approached the Terrans with an offer of surrender. Years of communication time away from Terra, Admiral Kovacs chose to act without waiting for instructions. He supervised the negotiation of a final settlement, signed the treaty that ended the Interstellar Wars, and took the Vilani *Ishimkarun* under his personal protection. He then proceeded to send Terran naval officers out to govern the Imperium's thousands of worlds. In all of this, he hoped to stabilize the interstellar situation, giving the Terran Confederation a chance to grow into the mantle of galactic leadership.

Kovacs knew that all these actions were likely to be controversial back on Terra, but he chose to accept the risk in hope that the centuries-long conflict could be brought to an end at last. With the wars over, Kovacs was at the height of his career and could count on a place in the history books. Still, there was much work to be done, and no guarantee that the Secretariat would leave him alone to do it . . .

Hiroshi Estigarribia

One of the most flamboyant military leaders of the late Interstellar Wars period, Hiroshi Estigarribia (2262-2340) was born on Terra itself. He was native to Peru, born to a family that had no military tradition; his father was a robotics specialist of mixed Basque-Quechua ancestry, while his mother was an expert in ancient history from an old Peruvian Japanese family.

When young Hiroshi was a small child his parents moved to Ecuador, where his father had accepted a position at the Confederation Naval Research Facility at Quito. Estigarribia grew up hearing stories about battles against the Vilani and adventures under distant suns. By this time, native-born Terrans almost never joined the Navy. Estigarribia was determined, however, and rejected his family's pleas to pursue a planetbound career. He entered the Naval Academy, graduated with high honors, and won a rare assignment to the war zone – arriving there just in time to join the grand offensive of 2288.

Estigarribia proved to be a superb commander. He earned the respect of his subordinates by being an aggressive leader, willing to throw himself into the hottest part of any situation and do or die. He served with great distinction during several campaigns, earning rapid promotion to the rank of captain. If he had a weakness, it was a love for publicity. He often "played to the press" when the opportunity arose, a habit his superiors tolerated since he was very good at presenting the Navy in a positive light.

In 2298, Estigarribia was in command of the battleship *Temujin*, flagship of the 16th Fleet under Fleet Admiral Leon Gerasimov. During the Battle of Three Suns, the *Temujin* was badly damaged by Imperial missile fire, ending with a lucky hit on the flag bridge that killed the admiral and threatened to wreck the fleet's command structure. Captain Estigarribia saved the flagship, and took temporary command of the fleet until a senior officer could re-establish the chain of command. A later inquiry found that Estigarribia's actions had almost certainly saved the 16th Fleet and won the battle for the Terrans.

Estigarribia's heroic action made him a Rear Admiral, one of the youngest in the history of the Terran Navy. It also earned him widespread adulation. News media on 1,000 worlds dubbed him the "Terran Alexander," an appellation which flattered him greatly. He was an admirer of the ancient Macedonian warlord, and saw many parallels between his hero's career and the Terran conquests.

Estigarribia did not take part in the last act of the Interstellar Wars; by 2303 he was embroiled in the task of setting up Terran administration across the non-Suerrat portions of the Ilelish sector. Still, most observers believed that he was due for even higher positions of responsibility. As a famous war leader, he had the trust and admiration of most Terran colonials. As a native-born Terran, he was regarded as politically loyal to the Confederation's central government. Already he was being named as a potential future Grand Admiral, a possible successor to Arpad Kovacs when that officer chose to retire.

In fact, Estigarribia's destiny was considerably *higher* than the office of Grand Admiral – but that story no longer belongs to the Interstellar Wars era, and is beyond the scope of this book.

Chapter Three
Terra

One world. One world set against an empire of thousands. One lone world set against trillions of Human and alien beings who do not share our history, any of our cultures, or any of our values.

Victory seems impossible. Perhaps the best we can expect is survival. Yet to achieve even that, we must be . . . one world.

– Kanshi Bannerjee, first Secretary-General of the Terran Confederation (2127)

The Home Front

In many ways, the situation in which Terra finds itself in 2170 is similar to the situation the United States, Great Britain, and other countries found themselves in during the Second World War (1939-1945). During that conflict, propaganda spoke of "the Home Front" as if it was another theater of the war.

Although an uneasy peace exists at the moment, war could soon break out again. Terran independence, culture, and society are in constant danger. To survive, the Terran Confederation says, everyone must pull together and do his part to prepare for what may come. Citizens must waste no resource, however small, and they must use every talent to its fullest. This is a constant theme in state-sponsored literature, television, and education.

State of the World

The state of the world in 2170 depends on where one lives and one's position in society. Most Terran citizens are at least comfortable – but human nature being what it is, almost no one is wholly satisfied with his current status. There are still broad differences between the highest and lowest levels of Terran society, and although great strides have been made to eliminate real poverty, a good deal remains to be done.

Environment

The condition of the planetary environment has improved since the middle of the 21st century, but that isn't really saying much.

Atmospheric and environmental pollution has been brought under control, especially as the growing use of fusion power has reduced pollution from coal and fission power plants. Carbon dioxide and carbon monoxide levels have dropped in major cities the world over, and smog has become an increasingly rare occurrence. Heavy metal pollution is practically a thing of the past.

As fusion power has become more widespread, cheaper electricity has made many materials more economical to recycle. Combined with access to raw materials from the Sol system and the removal of many industries to space, this has reduced the need to mine Terra's mineral deposits and mitigated the environmental impact of industry.

On the other hand, global climate continues to undergo a definite warming trend. Ocean levels have risen steadily for over a century. Coastal cities worldwide have had to take measures, not all of them successful, to hold back the rising water. A more serious consequence is that growing seasons have changed, and the traditional grain-producing regions are now drier and warmer than in previous years.

To compensate for the shift in climate, new varieties of food crops have been increasingly "tuned" to grow in specific areas. Terra is more than capable of producing a food surplus. That there is still starvation in some places from time to time is due to inequities of transportation and inadequate planning. The Confederation is working to eliminate both.

Standards of Living

Ask almost any American, and he'll tell you that standards of living have dropped since the mid-21st century. Much of the rest of the world has never had it so good. Today almost every Terran has adequate shelter, clean running water, reliable electricity, and access to the global communication network.

Malnutrition is still a problem in some remote regions and a few urban areas, but deadly famines covering entire nation-states are very rare. Transportation difficulties sometimes prevent enough food getting to where it is needed; the Confederation sees this as a problem of infrastructure, and is working to extend its distribution networks in remote areas. This has the added benefit of increasing employment in underdeveloped regions.

Health care is more of a problem. Improved sanitation has effectively eliminated diseases like dysentery and typhus, and vaccination programs have done wonders for infant survival. Long-term preventative care is more expensive, and is not always available for the segment of the population with the lowest income. The Terran Health Administration tries to make cutting-edge medicine available everywhere, but has only mixed success.

Unemployment remains a problem, but few people are consistently out of work for very long. The Draft (p. 51) was instituted to make sure that each person is able to serve Terra to the best of his ability.

Crime continues, despite the Confederation's best efforts to eradicate it. The unification of world law enforcement has made it more difficult for criminals to flee across jurisdictional boundaries. Most public spaces are covered by surveillance cameras linked to computers with facial-recognition and other biometric systems. Even with such measures, there remain areas where the law is ineffective.

Social Unrest

Not everyone supports the Terran Confederation government. Most people have reservations, and almost no one feels that it is perfect, but the majority of people feel that the current system at least *works*.

Why "Terrans?"

One odd feature of social development during the 21st century was the rise of the word "Terra" to describe the Human homeworld.

The word itself comes from the ancient Latin language, where it meant "land" or "soil." The Latin phrase for the entire world was *orbis terrarum*. Derivatives became the name for the entire planet in a number of the Romance languages.

In English it was rarely used as a name for the whole planet, aside from a fad for the name in science fiction literature of the mid-20th century. It did have one stylistic advantage: it easily formed the adjective "Terran," whereas "Earth" could be made an adjective only with awkward constructions like "Earthman," "Earthling," "Earther," and so on. Although English became the leading language of the United Nations in the course of the 21st century, the growing number of supporters for planetary unification settled on the name "Terra" for the world.

This choice was popular among speakers of Romance languages – a very large segment of the Terran population. It also helped to downplay the prominence of English-speaking leaders in the movement, a bit of necessary linguistic camouflage. Many people feared that the progress toward unification was a new expression of American or British imperialism. The choice of a non-English name as a rallying point helped dispel such fears.

International Affairs

Laws promulgated by the Terran Confederation now govern relations among the nation states of Terra. All states in the Confederation are theoretically equal members, but in practice some are more powerful than others, and the top few nations are more powerful than all the rest combined. The external threat of the Imperium moderates tensions related to this power differential, but they are always present under the surface.

The nations in control of the Secretariat try to maintain a working relationship with each other and with the second-tier powers that dominate the ineffectual General Assembly. As Terra has become increasingly interconnected, even the larger nations have discovered that they need the support of others – no nation can "go it alone."

However, even with the Imperium presenting a common enemy, some Terrans feel that the world government is too oppressive and that personal freedoms are being sacrificed. These feelings often lead to civil strife, and in some extreme cases even violence. Violent protest is most common in the developing world, but some major nation-states (notably the United States) experience anti-Confederation unrest at times as well. Most of the Terran Confederation's armed forces are actually deployed on Terra – not only as a last-ditch defense against Imperial attack, but also to put down rioting or revolt when necessary.

There are several worldwide opposition movements on Terra; some of them have contacts with the colonies and off-world nations. The Confederation's greatest fear is that the Imperium will discover these movements and give them financial and technological support. This may already have happened to some extent – a surge of nationalist opposition during the 2160s may be attributable to external subversion coordinated by the Vilani provincial governor.

Terra and the Colonies

The Terran Confederation's relationship with its colonies is generally good. New colonies are governed by the Colonial Bureau, which provides administrative support while encouraging the growth of healthy democratic institutions. Independent colony worlds can create their own governments and laws, provided they operate within the legal framework established by the Confederation. Naturally, as confrontation with the Imperium continues, Terra is reluctant to allow its colonies too much independence.

There is a growing feeling among the colonies that Terra is simply one world among many, and should have no more rights and privileges than any other member of the Confederation. Compounding this is the fact that Terran nation-states dominate the Secretariat and the General Assembly while the off-world nations are under-represented.

Terrans see their predominant position as theirs by right, and are unwilling to make changes that might displace them from it. A few extremists are beginning to suggest that Terrans have a manifest destiny to rule the galaxy.

The Citizen's Life

In later years I discovered that there was no shortage of iridium, and the campaign for schoolchildren to collect used ballpoint pens and turn them in for recycling was nothing more than a program to let us feel we were contributing to the war effort. I felt betrayed at first, since I had been punished for taking all the pens from our home and turning them in, but now I can look back on all of that with nostalgia.

– Jerzy Kalinowski, colonial administrator on Nusku (2168)

Depending on one's cultural viewpoint, life on Terra in 2170 is either increasingly restrictive and totalitarian or better than it has ever been before. An American from the early 21st century would find it oppressive; a Western European from the same era would find nothing unusual; most Africans would consider it a paradise.

Cities in the most economically advanced areas are usually safe, comfortable, and efficient. Crime is under control, largely because unemployment is low and youths from 12-20 (the age when most crimes are committed) have little free time in which to make trouble.

The rural districts of the first world are less densely populated, but contain many suburban areas in addition to their agricultural concerns. This has been made easier by the transportation net, which was originally designed to haul produce to market but is now also used for passenger travel. It is not uncommon for people to commute hundreds of miles every day to and from their work.

In the developing world, things are improving because employment is high and wages are better than ever before. Only in the most remote districts can severe, intractable poverty still be found. The conflict with the Vilani Imperium has made *labor* one of the world's most valued resources, and improved education has made even poor nations capable of providing skilled labor to the war effort.

Birth and Childhood

The population of Terra has been stable since late in the 21st century. Far from being concerned about overpopulation, the Confederation and most of the national governments try to *encourage* citizens to marry and produce children. Even nations that were once overcrowded now have difficulty raising birthrates above the "replacement rate" – a serious problem on a world with chronic labor shortages.

Citizens who do have children can call on a variety of resources to help raise them. Good prenatal care, nutrition, and pediatric medicine are available almost everywhere on Terra. Most employers and national governments offer generous benefit packages to parents, including extended maternity leave and subsidized child-care services.

Education

The primary function of the Confederation's educational system is to prepare citizens for public service later in life. Everywhere on Terra, early education focuses on basic literacy and socialization. Later on, students are guided toward studies that will reinforce their individual talents. This may eventually mean university if the student shows ability, but it may very well mean a vocational school, or no advanced training at all.

Schools are directly funded and governed by a variety of national and private organizations. However, the Confederation has imposed an extensive body of "education law" that overrides any national or local policy. Any educational institution, from a child's first preschool to the most elite university, must be legally accredited in order to operate. Students who attend a non-accredited school will find that their credentials are not accepted by the Confederation or any other legal employer.

Accreditation governs how schools may be funded and how students may be selected. It also defines minimum standards of competence for students at each level of development. In particular, it requires students to learn a panoply of cultural information: they must learn at least one language other than their own; they must be exposed

to the truthful details of foreign cultures; and they must become familiar with the Confederation's human-rights law.

The Confederation's emphasis on education is not an accident – it has roots in United Nations policy stretching back to the 20th century. The Confederation's founders saw themselves as establishing a true "world community" for the first time, and they realized that most Terrans would have to *learn* how to be citizens of such a community. That meant instilling cosmopolitanism and Terran patriotism in addition to technical skill.

Naturally, this approach to education is a point of fierce contention between the Confederation and various national governments. Many cultural purists continue to resent the imposition of "foreign values" on their children, even after decades of living under Confederation rule. There is a thriving "black market" in unaccredited education and falsified credentials.

Public Service

After completing one's formal education, every Terran citizen is subject to a period of "public service" (i.e., government work). This can take many forms: teaching, social work, public works projects, environmental cleanup and monitoring, scientific research, and so on. The most common assignments, of course, are in the military.

There is almost no way to avoid this service – only the most profoundly disabled citizens are considered completely unfit. It is possible to *volunteer* for a government job as one approaches the end of formal education; such service counts toward the legal obligation, and may help avoid an undesirable assignment. The normal term of public service is four years, but one can choose to "go career" during the initial term, remaining in government service indefinitely.

Careers

After a Terran citizen finishes his time in public service (and possibly attends university), he is free to pursue his private interests. Most people hold a number of different jobs during the course of their lives. The standard model is much as it has been for centuries – a citizen takes an "entry-level" job with the skills he learned in school and during his time with the government, then takes on positions of increasing responsibility as he gains experience.

We all go where Terra needs us to be.
– Public service slogan (c. 2150)

Governments and large corporations employ most of the working population. Even so, private enterprise is alive and well on Terra. Many citizens go into business for themselves; most such ventures fail, but enough succeed to make the option a popular one for ambitious workers.

Another attractive area for skilled and unskilled workers alike is off-world employment. Space-based industries (asteroid mining, shipyard engineering, and colonial construction) have been growing rapidly for decades. The colony worlds also have booming economies and are always short of skilled labor. Military veterans in particular are likely to accept off-world jobs – in fact, most employers who can offer such work prefer to hire ex-military personnel.

Retirement

To most Terrans, "retirement age" is the point at which one leaves government service, and that can be anywhere from 20-90 years old. The concept of a period of life when one can kick back and take it easy – the "golden years" – has become a nostalgic dream. As people age, they take jobs that are less and less strenuous, but most citizens choose to remain employed until they are physically incapable. It is not at all uncommon to find a spry octogenarian working at a sedentary job, such as clerk or receptionist.

The Draft

Every citizen of the world must make a contribution to the common defense of humanity. We dare not depend on the promptings of individual conscience to bring citizens to volunteer. Every one of us must be assessed and placed where he can do the most good for the greatest number.
– Jiang Bangguo,
delegate to the Secretariat from the Republic of China (2116)

The single most pervasive influence in the lives of Terra's inhabitants is *The Draft*, a phrase always capitalized in the Terran news media. The Draft was instituted during the First Interstellar War, and has remained in force ever since.

The Terran Confederation tracks every citizen from birth to the end of his life. As he approaches the end of his formal education, the Public Service Bureau administers a battery of tests to determine where he can be best put to use. When he finishes his education, he is subject to the Draft, which determines where he will be assigned for his four (or more) years of government work.

Even after completing his required term of public service, every Terran citizen remains subject to the Draft until he reaches the age of 40. Should war or some other emergency break out, citizens may be "reactivated," pulled out of their private-sector jobs and placed under government orders once again.

Leisure and Entertainment

Terran artists are in the midst of what some have labeled "high post-modern cosmopolitanism." They strive to mix cultures in their work, often at the cost of real depth.

Visual Arts

Conventional "flat" photography is still very popular. In fact, the production of two-dimensional cinema has become a cottage industry; advances in computer-assisted production have made it possible for even amateurs to produce movies as rich and detailed as the best of the 20th century. Filmmakers rarely bother with actors, large numbers of extras, or on-location filming any longer – computer software can produce almost any desired effect on the screen.

Holograms and holographic projections have been a valid artistic medium for years, but full-round three-dimensional movies are still in their infancy.

Painting is still accomplished using the same materials that have been used for centuries, although modern chemistry has regularized the colors and media available. Computer-assisted painting is very popular because the finished work can be stored electronically, and the range of effects is almost unlimited.

Architecture

Materials science and gravitic support have made it possible for architects to achieve what previous generations could only dream of. Buildings can be taller, tunnels and bridges longer; undersea installations are feasible, and everything is generally safer and more durable. Designs for public buildings have come to reflect the austerity of the governments that commission them, and are devoid of "showy" features beyond the minimum decoration to make the structure pleasing to the eye. Any decorative features of a design must also be useful.

Modern architects make increasing use of prefabricated components, such as wall modules with utility connections pre-installed. This permits buildings to go up faster and more efficiently, and means that specialist construction workers find most of their employment on an assembly line rather than in the field.

Music and the Performing Arts

Live music remains popular in a variety of styles, but most people listen to satellite broadcast radio or one of the numerous digital channels. The Confederation's Ministry of Culture maintains an enormous catalog of music available to all citizens, and this is supplemented by private commercial networks.

Live theater is relatively expensive to produce, but is still popular with those who seek the possibility of a unique experience.

Literature

There is great pleasure to be had in the physical act of reading, of turning the pages, touching, feeling, smelling the paper and the ink, and communing with the spirit of the author. One could read *The Hound of the Baskervilles* on electronic paper, I suppose. One could also drink fine oolong from a plastic cup, but it loses something. The best teas deserve bone china, and the best literature deserves paper and ink.

– Alyson Graves, literary critic (2144)

Literature has been changed more by the media through which it is presented than by any stylistic factors. While there is still a considerable nostalgia market for traditional paper books, most people make use of

The Uplift Projects

Doctor Moreau would be so proud . . .

– Lynn Jackson, animal-rights activist (2155)

Genetic engineering is a controversial subject on Terra. Early in the 21st century, experiments were begun to "uplift" or improve the intelligence of certain non-Human species. The earliest of these involved simple selective breeding and special training programs, but with advances in gene-splicing technology, more fundamental changes have been undertaken.

The earliest work was governed by the United States Navy, which tried to enhance the intelligence and tractability of the porpoise for use as an underwater scout. There is evidence that some animals were tested in the detection of mines and enemy divers as early as the 1990s, but the projects were dropped when technological solutions proved cheaper.

More recent experiments with animals have concentrated on their use in off-world colonization efforts. The most extensive work has been done with chimpanzees, dolphins, and gorillas. These three have all given rise to uplifted species, nearly as intelligent and versatile as Humans, and quite able to work as junior partners in colonization projects. Another success created the "neodog," a variant canine with improved (but sub-sentient) intelligence and language ability, useful in a variety of jobs. Finally, one of the more unusual projects has created the "miniphant," a smaller but very intelligent elephant that has already seen service as a riding and draft animal on the colony worlds.

As of 2170, most of the engineered animal species are still *animals*, more intelligent and cooperative than their wild brethren, but not yet capable of acting as Terran citizens. In later decades, this situation will change. Engineered dolphins in particular will become an intelligent partner-species, with full citizenship rights on most Terran-controlled worlds.

Experiments with food crops have been less publicized, but are vastly more important to Terra. Food crops are now increasingly "tuned" for optimal growth under special conditions, to tolerate a wider variety of rainfall conditions, and to resist pests and disease.

portable readers for "ephemeral" literature that includes newspapers, magazines, short stories and light novels.

Popular magazines and newspapers proliferate, but are different for each reader. A subscriber can choose from a menu of topics and levels of detail, and get daily (or even hourly) updates customized to his interests and comprehension level.

This sort of content control extends to novels and short stories as well. Popular authors often build multiple plot threads into their creations, so that readers can follow the character of their choice through the storyline or pick alternate endings.

Athletics

Sports have changed little since the 20th century. The most popular sport on Terra is football (known to Americans as soccer). Baseball and American-rules football also have large followings. The Olympic Games continue, now overseen by the Confederation's Ministry of Culture and held in a different location every four years.

Sports fans remain obsessed with statistics, and computers have only enabled them to keep track of increasingly esoteric minutiae. They will argue over anything connected with their favorite team, and sometimes come to blows over it.

The Terran Confederation

The Terran Confederation is the name assumed by the United Nations in 2124, at the conclusion of the First Interstellar War. It has undergone several reorganizations over the years, and has expanded its control from the nations of Terra to the stars.

The Terran Confederation still occupies the old UN grounds in New York City in the United States, but the building itself was expanded in 2098. The Secretariat and General Assembly meet there, and the Secretary-General of the Terran Confederation has his offices there, but many of the subdivisions of the government are headquartered elsewhere on Terra.

Political Organization

In rough order of strength and influence, the main powers of Terra in 2170 are the United States of America, the European Union, the Republic of China, the Republic of India, and Japan. Together, these five nations provide the economic and political muscle to keep the Terran Confederation in power. No single nation is so powerful as to dominate world politics, but so long as the "Big Five" partners cooperate, they can exercise absolute control over the Confederation.

Over the years, individual members of the Big Five have sometimes tried to gain a dominant position, or to assert their independence from Confederation control. Such attempts have always failed – no nation on Terra can oppose the combined strength of the rest of the Five. For reasons of national pride and history, this is especially irritating to politicians in China and the United States, even several generations after the formation of the Confederation.

Secretary-General

The Secretary-General is the leading official of the Terran Confederation. He is appointed by the Advisory Board of the Secretariat (p. 54), serves a five-year term, and can selected for any number of subsequent terms. He can be deposed by a vote of no confidence in the Advisory Board, if the vote passes by at least a two-thirds majority; the Board must then appoint a new Secretary-General to finish out the current term.

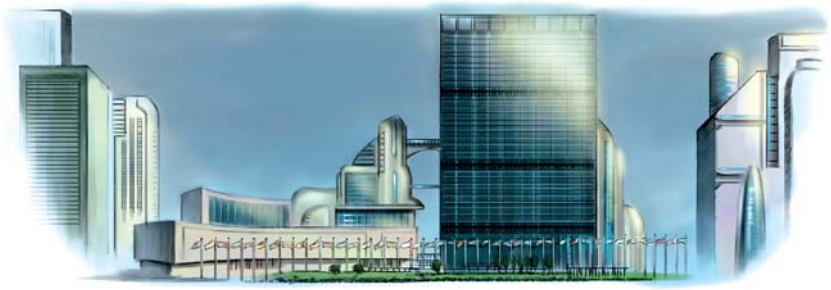
The Secretary-General has a variety of executive powers. He is the administrative head of the Confederation, and all of the government's ministers and department heads report to him. He is the Commander-in-Chief of the Confederation's armed forces during wartime. He also holds a very good "bully pulpit" position, and (if he is personally persuasive) can effectively sway world opinion. The Secretary-General is often considered a mere puppet of the Advisory Board, but in fact a capable holder of the office has tremendous power of his own.

A World Under Siege

Since the Third Interstellar War, Terrans have developed a "siege mentality" even though the world is no longer under direct military threat. Although peace has permitted the Confederation to dial back its rhetoric about the threat of enemy invasion, it continues to emphasize that all citizens must work together. "Do your part" is a common slogan.

This has led to a mild xenophobia among the Terrans who have never left the world. In many places on Terra, visitors who look "alien" are subject to suspicion, especially if they resemble the movie stereotype of a Vilani: short, dark-skinned, delicate-featured, and always wearing highly ornate and impractical garments. Vilani spies, of course, are said to carefully blend in – so *anyone* can be an Imperial agent . . .

Of course, citizens who have traveled to other worlds quickly become sophisticated enough to recognize how ludicrous all of this is – yet another way in which Terran and colonial culture are beginning to diverge.



One power that is not granted to the Secretary-General is the role of Commander-in-Chief of the Confederation's armed forces during peacetime. When no active hostilities are under way, command of the military is held by the Minister of War.

Secretariat

Together, the various agencies of the Terran Confederation government form the *Secretariat*. The original Secretariat of the United Nations was simply the Secretary-General's administrative staff. Much of the work of the UN was done by various outside offices and commissions. Some of those organizations still exist, although most have been absorbed into the Secretariat, which has grown dramatically. Today, the Secretariat is the core of the Terran Confederation, and it dwarfs the rest of the original United Nations structure in size and influence.

The Advisory Board

The Secretary-General commands the Secretariat on a day-to-day basis. However, ultimate control of it rests with the *Advisory Board*, a council of national representatives.

The Advisory Board consists of 12 voting members. Ten of these are appointed, two each by the national governments of China, the European Union, India, Japan, and the United States. A member of the Advisory Board serves until replaced; the length of his term is determined by his home government, with the only restriction being that it must be no less than two years and no more than 10. The last two members of the Advisory Board are chosen at random from among the members of the General Assembly. These two "rotating seats" are occupied for one calendar year at a time, cannot be held by the Big Five nations, and cannot be granted to the same nation twice in a row. The Secretary-General presides over meetings of the Advisory Board, but does not vote except to break ties.

The Secretariat not only implements Confederation policy, it has a leading role in making it. The Advisory Board is the body that most often writes new Confederation laws for the consideration of the General Assembly. If the Board musters a two-thirds majority, it can pass new laws without needing a General Assembly vote. The Board must also approve any new law passed by the General Assembly before it can go into effect. Of course, Confederation laws are enforced by the agencies of the Secretariat, which have considerable influence over how those laws are interpreted on a daily basis.

General Assembly

The General Assembly is the main deliberative body of the Terran Confederation. It consists of one voting delegate from each nation of Terra, and one from each independent off-world state (as of 2170 there are four of these, representing Luna, Mars, Nusku, and Prometheus). Delegates to the General Assembly are selected by their home governments – some are elected by popular vote, but most are appointed. Terms are set at the pleasure of each nation. Terran colony worlds that do not yet have home rule are represented by non-voting members appointed by the Colonial Bureau; these are sometimes appointed from the colony's population, sometimes not. Occupied Vilani worlds are not represented.

The General Assembly is not continually in session. It routinely meets for about six months out of each calendar year, and can also be called into session by the Secretary-General if an emergency requires it.

A President manages meetings of the General Assembly. This official also serves as the "head of state" for the Terran Confederation. A President is elected at the beginning of each session, and serves until the beginning of the next. If there is more than one session in a given calendar year, it is traditional for the same person to be elected President, but this has not always happened.

The General Assembly has the power to pass Confederation laws, although any such law must also be approved by the Advisory Board of the Secretariat before it can be implemented. It also has limited authority over the Secretariat's budget, and has sometimes used that power to starve Confederation programs that are unpopular in the minor Terran nations. Aside from these specific powers, the General Assembly has almost no way to influence events,

Civilian Control

Civilian control of the military has been a guiding principle of the Terran Confederation charter from the beginning. Serving members of the Confederation military are forbidden from holding civilian office, and general officers are discouraged from expressing political opinions while on active duty.

The Commander-in-Chief of the Terran armed forces during wartime is the Secretary-General of the Terran Confederation. Under him is the Minister of War, who, assisted by the Secretaries of the Navy and Army, controls the armed forces in peacetime. The Minister of War supervises the combined Chiefs of Staff of the Army and the Navy. The most senior military officers in the Confederation are therefore *third* in the chain of command for the armed services.

unless the Big Five powers are in disagreement. At most times, the General Assembly only serves as a toothless forum for international debate.

The fact that minor Terran nations have almost no representation except in the General Assembly causes some tension between them and the Big Five states. Meanwhile, the vast overrepresentation of Terra causes some bad feeling among the off-world states. The colonists feel that they are entitled to more equitable representation, since the brunt of any military action would fall on them first.

National Governments

In theory, any nation in the Terran Confederation may choose any government it pleases, provided its citizens approve. In practice, the Confederation will intervene if the local government becomes too oppressive – and the Confederation defines what it considers "too oppressive." This may take the form of political or economic sanctions, or occasionally even military action.

Republics and Democracies: The vast majority of Terran nation-states are republics or representative democracies. The Confederation explicitly prefers this form of government for its member states.

Limited Monarchies: There are very few hereditary monarchies left on Terra. The European Union nations of the United Kingdom and Spain are typical examples – each is a *constitutional* monarchy, in which the monarch is head of state but the head of government and most lesser officials are elected.

Principalities: These are small nations ruled by a prince or other minor noble, usually with some form of democratic input from the populace. Examples include the European Union nations of Monaco and Liechtenstein, or the Sultanate of Brunei.

Dictatorships: As of 2170, no Terran nation-state is ruled by an overt dictatorship. Governments of this type usually run afoul of the Confederation's human-rights laws, and are quickly deposed. Some people wrongly consider the military governments imposed on occupied Vilani worlds to be dictatorial, although such governments are only intended to be transitional in nature.

Important Terran Confederation Agencies

The major agencies of the Secretariat are listed below, along with the locations of each one's headquarters. During much of the 21st century, these agencies were located together at UN Headquarters in New York City, United States. As the Secretariat grew in numbers and influence, it was increasingly inconvenient to find office facilities in the same city. When the Interstellar Wars began, the new Terran Confederation decided to disperse the major agencies; this helped with the office-space problem and also helped ensure that no one city would be too tempting a political target for Imperial attack.

Ministry of Justice: Geneva, Switzerland
Ministry of War: New York City, United States
Ministry of Trade: Brussels, Belgium
Ministry of Production: Chicago, United States
Ministry of Education: London, United Kingdom
Ministry of Health: Beijing, China
Ministry of Culture: Kyoto, Japan
Colonial Bureau: Paris, France
Public Service Bureau: Mumbai, India
Terran Starport Authority: Phoenix, United States

Political Parties

There are hundreds of political parties on Terra, sometimes more than a dozen in a single country. In the last few decades, several parties (or alliances of parties) have become global in scope, and a few now span several worlds.

Imperialists: This party calls for an aggressive program of interstellar expansion, with new worlds to be ruled directly from Terra. Naturally, this means an even greater military commitment against the Vilani Imperium. Some members are overt racists, promoting an ideology that claims natural Terran superiority over the Vilani. Although the Imperialist Party is well organized and unified, it is rather small and has little real influence. It is most popular in the Big Five nations, notably China and the United States.

Nationalists: Nationalist parties are found everywhere on Terra. They are most common in the developing nations, but even the Big Five nations occasionally give rise to these movements. Although they have many supporters, they have difficulty cooperating and have little actual power in the Confederation government. Nationalists resent the existence of the Terran Confederation, and call for a return to the days of nation-state supremacy. Their position on interstellar politics is mixed – most call for a militant policy toward the Vilani, but a few actually regard the Imperium as a potential ally against the "tyrannical" Confederation regime.

Conservatives: The conservative bloc spans a wide but loosely organized group of national and supernational parties. Most conservative parties prefer minimal government and government spending (except for defense) and a *laissez-faire* approach to business and general economic policy. Conservatives tend to work within the Confederation system, and are often very influential.

Socialists: Dozens of socialist and liberal-democrat parties exist around the world, dominating the government of many nation-states. These parties often cooperate in a loose "socialist bloc" within the Confederation government. Socialists generally favor an activist Confederation government, controls on business, an interventionist economic policy, and a conciliatory approach toward the Vilani Imperium. As of 2170, socialists form a majority of both the Advisory Board and the General Assembly.

Major Nation-States

United States of America: The United States has a large and relatively young population, an advanced technological base, and a sound economy. As a result it remains the most powerful single nation on Terra, although it no longer holds a dominant position in world affairs. It has an extensive space program, providing the largest share of Marine and Naval personnel, as well as a substantial portion of the Navy's shipbuilding budget. American entrepreneurs are very prominent among the Free Traders, and are heavily involved in colonial development.

The United States was a stumbling block to world unification for decades. Until the First Interstellar War, it opposed any attempt to create a world government in which it would not play a leading role. Even today, the United States still has one of the most vocal nationalist movements on Terra.

European Union: Technically, the European Union is an *alliance* of nation-states, but after almost 200 years of cooperation the alliance is so close as to almost constitute unification. The three leading nations of the Union remain France, Germany, and the United Kingdom. The Union stresses "soft power" in world affairs, concentrating on economic and moral influence rather than direct political or military control. The Union is the second largest economic power on Terra, trailing the United States by the smallest of margins. It has a very extensive space program, and is the largest single contributor of ships for the Terran Navy.

Republic of China: In the course of the 21st century, the Communist government of China gradually faded into a more moderate state, still authoritarian but with trappings of Western democracy and capitalism. China has a very large population, and has done a great deal to catch up with the most advanced nations over the last century. As a result it has a powerful voice in Terran politics. China encourages its population to migrate to the colonies, by subsidizing transportation costs for families willing to relocate. China also financed and equipped one of the early Phoenix Expeditions (p. 57).

Republic of India: India is the most populous nation on the planet, a lively democracy and a major center of Terran culture. Although it is technologically backward, it can provide a great deal of manpower for projects all over the Terran Confederation. In particular, it is one of the largest sources of recruits for the Terran Army.

Japan: Japan is one of the wealthiest nations on Terra. It experiences constant severe labor shortages, and so provides relatively little manpower for the Terran armed forces and colonial ventures. Instead it provides financial backing for commercial and government projects. It is also a technological leader in several fields, notably computers, robotics, spacecraft design, and advanced physical research.

Republic of Korea: After the reunification of the Korean peninsula in the mid-21st century, Korea spent almost half a century integrating the devastated society of the north. Korea has been slowly recovering ever since. While its economy is not on a level with the United States or European Union, it is respectable and growing stronger with each passing decade. Korean entrepreneurs are very active in the Free Traders.

Russia: After the breakup of the old Soviet Union, many of its smaller republics eventually joined the European Union. Russia's nationalistic tendencies led it to chart an independent course. Its vast natural resources and enormous land area have made it a power to be reckoned with on Terra, although development has been stubbornly slow. Although Russia is not a first-tier nation, it had a space program of its own before Vilani contact, and so its presence in space is still larger than its rank on Terra would indicate.

Greens: The "Greens" form a fairly well organized bloc of local environmentalist parties, with members worldwide. They feel that the greatest threat to the continued existence of humanity is environmental rather then military or political. They favor very strict economic controls and a less belligerent policy towards the Imperium. They have little direct influence in the Confederation government, although they usually control a consistent block of votes in the General Assembly and can sometimes push their proposals to center stage.

Colonial Administration

Terran civilian colonies that have not been granted their independence are administered by the Confederation's Colonial Bureau. The Confederation Navy and Army control all military outposts and installations, as well as all occupied worlds.

Terran Colonies

Terran policy is to place at least a military outpost in every system within the Confederation's sphere of influence. Where the population of a world is composed solely of military personnel (including military dependents and civilian employees of the military), the world is under military government. Where both Navy and Army personnel are present, a joint-force command is established, with the Navy tending to dominate.

Garden worlds, and worlds that might yield useful resources, are targets for civilian colonization. The actual work of colonization is left up to national governments, corporations, and even small private organizations. The Colonial Bureau oversees the process – it declares worlds open for colonization, allocates land or resource claims, and provides the initial framework of planetary government.

A colony world is usually granted "home rule" (political independence) as soon as its stable population is around a million, and as soon as a local government is ready to take over for the Colonial Bureau administration. Once home rule is granted, the world gets its own seat in the General Assembly and begins to take part in Confederation government.

Occupied Worlds

Occupied Vilani worlds are placed under martial law, with the specifics depending on the individual situation. Joint military commands are the most common, with the Army tending to predominate since it usually has the largest number of personnel on an occupied world. Rarely, a governor from the Colonial Bureau will be placed in charge of military occupation forces.

As of 2170, the Terran Confederation's policy is to treat occupied worlds as humanely as possible, with an ultimate goal of integrating them into the Confederation as member nation-states. This policy has been tested once – on Nusku – with considerable success; it remains to be seen whether other Vilani worlds will be as easy to integrate into the Terran system.

The Phoenix Expeditions

The Phoenix Expeditions were a series of dozens of long-range colonial ventures, started even before the First Interstellar War and continuing throughout the 22nd century.

The original idea behind the Phoenix Expeditions was to send self-contained colony ships into areas far beyond Vilani space. Named after a mythical bird that was reborn from the ashes of its own destruction, each ship carried the tools and supplies to establish a new Terra, and also the records and history of the old.

The earliest Phoenix ships did not make use of jump drives, and incorporated primitive suspended animation technologies. Various systems of constant acceleration were used on many of these vessels, and the ships were targeted at systems thought likely to have habitable worlds. Later ships incorporated jump drive, which obviated the necessity for suspended animation and increased the chances of success.

Each expedition was to find a suitable world as far from Imperial influence as possible, and to start a settlement there. Some expeditions headed to rimward, searching for worlds that the Imperium would never find. Others moved *through* Imperial space, hoping to establish new colonies in the Imperial flank or rear. They were expected to be out of contact with Terra for generations, and for security reasons were ordered to be cautious about re-establishing contact with Terra.

Different theories of what constituted a viable colony startup influenced the ships' size, payload, and layout. Numerous designs and variants existed; practically every expedition had its unique features. An early Phoenix expedition was usually built into a single hollowed-out asteroid, fitted with reactionless drives and carrying tens of thousands of colonists in suspended animation. After the jump-2 drive became available, a Phoenix expedition usually consisted of four to six superfreighters (about 10,000 dtons in size), escorted by eight to 10 smaller ships equipped for exploration work and armed for self-defense.

The Terran Navy

The Terran Confederation Navy was officially established in 2125, just before the outbreak of the Second Interstellar War. The new force combined a number of national flotillas that been built by the spacefaring nations and were operating under joint UN command. In its earliest years the Navy was still dominated by China, the European Union, Russia, and the United States, with minor contributions from Australia, Canada, Japan, and Korea. Since then it has become more broadly based, with ships and manpower coming from dozens of Terran nations.

The Navy Life

The Navy is the most prestigious military organization in the Terran Confederation. It receives a substantial portion of the military budget, the best personnel from The Draft, and the public relations benefit of numerous victories in previous wars. The Navy claims, with some justification, to be the main defense between Terra and absorption by the Vilani Imperium.

Recruitment and Training

Most naval personnel are drafted, but a certain number are volunteers who hope to enlist before a less desirable service claims them. The Navy tries to "cherry pick" its candidates from among the Draft pool, and advertises to persuade the best and brightest to come in on their own.

Every recruit receives eight weeks of basic training, which includes indoctrination to the Navy life, basic military courtesy, and physical training. If the recruit does not speak or read English, he is given a crash "total-immersion" course in that language; modern teaching methods mean that a bright student can gain a working knowledge of the language in a few weeks. Basic training turns the civilian into a spacehand, and prepares him mentally, physically, and emotionally for military service. Basic training also identifies those who are constitutionally unfit for naval service, and enables them to move into other fields better suited to their personality.

After completing Basic, the recruits receive six to 12 weeks of advanced training in some technical specialty. There are dozens of specialties, each representing a specific job to be done in the Navy. Not all of these are performed on spaceships, since the Navy runs ground installations in support of their fleet elements.

Many naval officers are "mustangs," who rise from the ranks after distinguishing themselves in some way. However, the Navy also recruits new personnel directly into its officer corps. New officers sometimes join through the Naval Officer's Training Corps (NOTC), which is sponsored at various Terran universities. The Navy's elite officer-training institution is the Confederation Naval Academy, which is based on Luna.

On Duty

Life on a ship in space can be cramped, boring, and dangerous. While the Navy tries to make as much living space as possible available to sailors, every bit of a military spaceship must be used to the maximum, and this often means that crew comforts are minimal. Of course, comfort is a relative thing . . . for some spacehands, their current assignment is paradise compared to their civilian life on Terra.

Procurement

The two largest military shipyard complexes are in the Terra and Nusku systems. Civilian shipyards are also important, since the Navy can commandeer civilian vessels in time of war. The Navy's Bureau of Ships reviews all designs manufactured in the Confederation, with a view towards their possible use in wartime. Every civilian shipyard in the Confederation has a Naval Liaison detachment to carry out inspections as ships are built, and to track what vessels are being produced, so the Navy knows what's available in the event of a crisis.

A significant portion of the Terran Navy's ships are of Imperial design. Some of them are even of Imperial manufacture, adapted in Terran shipyards for Confederation service. For decades, Terrans have been deliberately capturing Imperial ships and shipyards, making use of the ships, the technology, and facilities to fill out the Navy. Terran naval architects have a tradition of adapting Imperial technology into their designs.

In addition to Imperial ships and Imperial designs, the Navy has a number of former Imperial personnel in its ranks. These are deserters from the Imperial Navy who have chosen to enlist and been accepted into the Confederation Navy because of their expertise and skills. Naturally, concerns about espionage and sabotage mean that Naval Security keeps a careful eye on them at all times.

Organization

Terran Navy organizations are normally simple *ad hoc* groupings of ships. All formations are adapted to their individual mission, and although there is a "typical" organization on the books for each type of squadrons, this is often modified for various reasons.

Unit Hierarchy

Theater of Operations: A theater of operations ("theater" for short) is a grouping of star systems in which a fleet or fleets are assigned to operate. The commander of a theater is normally the most senior admiral among the fleets of those assigned. Theaters are given unique names according to the most important star system that they contain. As of 2170, the Navy maintains three theaters: the Terran Theater, the Nusku Theater, and the Procyon Theater.

Fleet: A fleet is a grouping of several squadrons under a single admiral. Fleets are numbered, theoretically in

The Language of the Navy

When the Terran Confederation Navy was established, its leaders faced the problem of establishing a unified command over starship flotillas originally built by a dozen different nations. English was the only language that most of the new Navy's personnel had in common. It had long been the common language of international aviation, and a great many people learned it as a second tongue in civilian life. Although the imposition of a single language was not politically popular, it proved the only way to proceed in the press of events during the First and Second Interstellar Wars.

After the Second Interstellar War, the immediate threat of Vilani attack subsided, and the Terran Navy had grown considerably. The use of English had become ingrained, and was recognized as a permanent official policy in 2143. In the following years, the other Confederation armed forces began to follow suit, as did the Confederation civilian government. As of 2170, the Confederation still uses several languages for official business, but English is by far the most frequent.

the sequence in which they were created, but this convention is not always followed. In particular, some fleets are *named*, the main example being the Home Fleet based at Terra. A fleet will have support elements, such as transport and tanker squadrons, as well as combat elements.

Squadron: Squadrons are made up of similar ships when operating as part of a fleet or larger organization, but will have support and logistical elements attached when they are serving on their own. Squadrons are numbered and identified by their type: the 19th Destroyer Squadron, the 5th Tanker Squadron, the 21st Transport Squadron, and so on. The names are often abbreviated: DesRon 19, TankRon 5, TranRon 21, and so on.

Individual Ship: Ships are commanded by officers given the courtesy title of "Captain" regardless of their actual rank. Small craft, such as ship's boats or landing vessels, generally do not follow this rule. A ship of a given type will have a standard crew laid down in regulations, but will often vary from that organization due to casualties or specific mission requirements.

Departments and Sections: Below the individual ship level, crews are divided into smaller units called *departments*. A department handles a major system aboard a ship, such as engineering, gunnery, life support, electronics, communications, command, and so on. A *section* is a subdivision of a department, usually handling a specific subsidiary system. Power generation is a section under the engineering department, for example.

Ground installations consist of departments and sections, with an overall commander and a staff if necessary. Extremely large ones, such as major naval bases, will be commanded by an admiral.

Support and Logistics

Amateurs study tactics, professionals study logistics.

– Ancient military axiom

Any complex system eventually breaks down, but preventative maintenance can keep this from happening. Fleets of ships and the men aboard them need fuel, food, air, water, spare parts, and thousands of other items to keep operating. Warships consume ammunition and energy at a fantastic rate, and need repairs after almost every battle.

Keeping a fleet of fighting starships functioning requires transport ships, tankers, and other support vessels in large numbers. The Terran Navy maintains an extensive support arm, and in wartime supplements this fleet by commandeering civilian shipping. Even so, it is almost impossible to keep all needs satisfied during actual combat operations. This is one reason why open war against the Vilani tends to develop a years-long cycle of advance and consolidation (see *The Pace of Operations*, p. 26).

Naval Bases

A naval base is a facility for the repair and maintenance of naval starships. Most have yards for the construction of small, non-jump-capable craft. A few are Navy-owned shipyards, used for putting together the largest naval vessels. Some bases also contain depots – stockpiles of the myriad other things needed to keep a fleet operating.

The Terran Confederation has so few naval bases that there is no standard layout or table of organization and equipment. Some are partly land-based and partly orbital, while others are deep-space installations and completely space-based.

Operations

The Navy's overall purpose is to defend the Terran Confederation, and to project the Confederation's power into enemy territory in pursuit of Terran political goals. In pursuit of this purpose, the Navy undertakes a variety of operations.

Power Projection

One of the overriding principles of Terran Naval doctrine is the idea that a winning force must maintain the momentum, continuing to push its "center of mass" through the initial areas of resistance and into the enemy's rear areas. In this, the Confederation Navy follows one of the principles of the 18th century Prussian king Frederick the Great: "always fight your battles on someone else's territory."

Naturally, it isn't always possible for the Terran Navy to stay on the offensive. So far, the Imperium has always taken the initiative at the beginning of each conflict, and in fact Terran strategic planning assumes that war will start with an Imperial attack. Terran doctrine still calls for the Navy to carry the war to the enemy as soon as possible.

The Terran Marine Corps

Like most of the Terran Confederation's armed services, the Terran Marine Corps was first assembled out of units from several nations; in this case, not all of them were conventional marines. In general, the components were elite infantry units, chosen for their traditional high standards of training and their ability to operate independently for extended periods.

Terran Marine units tend to be battalion-sized and smaller, since interstellar transport is often at a premium. They are among the most highly trained and well-equipped of the Terran forces, although they lack heavy armor and support artillery that would take up too much scarce transport space. They are designed to be the first combatants onto the battlefield, and to hit the enemy hard enough to enable follow-up forces to land and continue the offensive. Terran Marine detachments also serve as ship's troops aboard Terran Navy vessels.

System Defense

Kill everyone they send. Eventually, they'll stop coming.

– Ancient military axiom

Protecting a world can be as complicated as the defenders care to make it. The guiding principle is to do as much damage to invading ships as possible, as far from the defended world as possible, and keep hitting them until they stop coming.

The Terran Navy often fights defensively in order to keep Imperial forces away from a critical world. Sometimes this defense is carried out by squadrons specifically designed for the purpose, including non-jump-capable fighters and "system defense boats." The Navy also operates *monitors*, large orbital stations that mount very heavy weapons. Of course, the very last-ditch defense of any world is in the hands of the Terran Army.

Marine Line Battalions

Marine combat battalions have several different tables of organization and equipment, depending on the original nationality of the unit and its mission. Despite efforts to standardize, and many decades after the first national units were converted to Terran Confederation Marines, many Marines (and the nations who supply them) resist any attempt to change their "unit traditions." For example, the American Marines insist on a squad consisting of a squad leader and two four-man fireteams, built around a man-portable ETC-GPMG (Electro-Thermal/Chemical General Purpose Machinegun), resisting the gauss GPMG in use by practically every other Marine unit. British Marines use a section organization, with a section leader and three fireteams, two built around a Gauss GPMP team and one around a sniper team.

Current Terran doctrine only labels one world as absolutely critical to the Confederation's survival – Terra itself. Any defense of Terra itself is likely to be fought to the last man and ship. Other worlds are less important, and can be sacrificed if necessary. Naval strategists must weigh the cost of any defense against the damage that can be done to the Imperial offensive.

The Navy sometimes "defends" the Confederation with a strategy of ambush and commerce raiding. It's relatively easy for a small Terran squadron to move behind the "front lines," waiting to ambush a thinly guarded Imperial convoy. This tactic is particularly useful given the arrangement of stars around Terra. Any Imperial attack has to move through the Nusku or Procyon star systems; even after an offensive moves on, any Vilani supply convoys must move through the same vulnerable choke points. Indeed, the Navy has hidden caches of supplies and spare parts on many small moons and asteroids in those systems, and in others that might prove to be useful ambush points. These caches can help commerce raiders to continue operating long after their direct supply lines back to Terra are cut.

The Terran Strategy

As of 2170, there have been three Interstellar Wars between Terra and the Imperium. Each was begun by an Imperial attack against Terra, and each ended with Terra in control of more territory than before. The Vilani didn't even attempt to conquer Terra during the first two wars; during the third, they were forced by their own internal politics to stand down before completing the conquest. Since the end of the Third Interstellar War, Terran planners have come to suspect that the Imperium is simply not structured to permit lengthy campaigns of conquest. Terra has developed a strategy that *depends* on this inherent limitation on the Imperial system.

The Terran strategy is one of *aggressive defense*. The Terran Navy is deployed to meet any Imperial attack as far from Terra as possible. If an invasion force advances toward Terra, it is to be harassed and delayed. The Terran Navy will try to inflict as much damage as possible, but will avoid being trapped into any pitched battle in which the Imperium has the advantage. Meanwhile, commerce raiders will attack Imperial support squadrons and commercial traffic.

Eventually the Vilani attack will bog down, hopefully still at a distance from Terra itself. At that point, if the Terran Navy has avoided suffering critical damage, it can go on the offensive. The counterattack will be driven by political objectives – the goal will be to win concessions from the Imperial government, whether these are territorial or simply commercial in nature. As soon as such concessions are won, the Confederation will ask for or accept a peace.

This strategy is one of limited objectives, and isn't designed to overthrow the Imperium. Terran planners recognize that the Confederation doesn't have sufficient resources for such a conquest, and won't have such resources for decades or centuries to come. Instead, the Terran strategy is designed to *buy time* – permitting the Confederation to survive and grow until it *does* have the strength to challenge the Imperium on equal terms.

Convoy Escort

Of course, the Confederation is vulnerable to a commerce-raiding strategy too. While the Vilani don't deliberately use raids to the same degree, they are not above attacking a defenseless merchant convoy if the opportunity presents itself. Thus, in wartime every civilian or military transport convoy needs an escort.

The primary problem with escorting a convoy during a jump is the difficulty of coordinating when a

group of vessels exits jump space. With preparation and care, a portion of the escorting vessels can arrange to arrive in advance of the main convoy, securing the region of emergence for the incoming vessels.

Expeditionary Forces

The marines are the point of the arrowhead – they make the opening. The Army forms the two edges of the arrowhead – it widens the hole the Marines make, and carries the rest of the arrow through to the heart of the target. The Navy is the shaft of the arrow, the part that gets the head where it's going. All the parts work together to accomplish the job. None of them can do it alone.

– Admiral Roger Marbury St. John, Terran Confederation Navy (2164)

When the Navy does go on the offensive, the goal is to convince the Vilani Imperium (or rather, the provincial government) that peace would be less disruptive than continued warfare. The fastest way to accomplish this is with a full-blown assault against a Vilani outpost or colony world. An *expeditionary force* is the organization formed to carry out such an assault.

Expeditionary forces are always joint operations, involving both the Terran Navy (along with the Marines) and the Army. The initial planetary assault is the task of the Confederation Marines, while follow-up forces normally belong to the Army. The Navy provides transportation and support for the assault and ground campaign.

An expeditionary force intended to take a world consists of four parts: the security group, the bombardment group, the assault group, and the transport group.

The security group is composed entirely of Navy ships, and opens the assault by clearing the system of enemy space forces and securing the vicinity of the world to be attacked. This includes neutralizing any satellites in orbit over the target world. The security group also protects the other groups from counterattacks, whether by raiding forces left behind in the target star system, or by Imperial task forces jumping in from elsewhere.

The bombardment group, also completely naval, conducts the preparatory bombardment of the target areas on the world, focusing on anti-starship defense installations and defenses in the landing zones. Its job is to "suppress" planetary defenses so that the Marine and Army units can land and do their work. Even after the ground forces are well established on the planet's surface, the bombardment group continues to provide fire support from orbit.

The assault group consists of the Marine assault teams, the landing craft that carry them to the world's surface, and squadrons of small attack ships that provide direct fire support. The assault group's task is to secure a safe landing zone, in which the bulk of the Army troops and support equipment can be brought to the target world's surface.

Terran Naval Tactics

No captain can go far wrong who lays his ship alongside an enemy.
– Admiral Horatio Nelson

Terran naval technology emphasizes beam weapons, which can do horrendous damage to enemy ships, but which cannot attack effectively at very long ranges. Imperial warships, on the other hand, emphasize fast, stealthy, long-range missiles that can be launched from outside the Terran "engagement envelope." As a result, Imperial warships can often hold the range open, avoiding the solid punch of Terran beam weapons, wearing down the Terran defense with wave after wave of missiles. Avoiding this situation is the primary consideration of Terran tactical doctrine.

In main-fleet engagements, the Terrans have little choice but to close with the enemy, absorbing the punishment of missile attacks until the main beam weapons can be brought to bear.

Terran ships use stealth, electronic countermeasures, and lots of point-defense fire in order to prevent missiles from locking onto or reaching their targets.

The Terran Navy has also deployed several classes of "missile boats" – small, cheap ships that are not expected to survive any major engagement, but which can fire substantial volleys in a short time. Imperial commanders who don't expect such attacks from the Terrans are often taken by surprise.

Whenever possible, the Terrans use stealth and misdirection to lure the Vilani close. If a battle is to be fought close to a planet or other body, Terran warships will lurk on the surface or in close orbit, waiting to "pop up" and fire beam weapons at any enemy that wanders too near. Terra has also experimented with "Q-ships," armed warships that mimic the shapes and energy signatures of unarmed freighters, in order to bait commerce raiders.

Terran tacticians also recognize that Imperial naval engagements proceed according to a very strict doctrine. While individual Imperial commanders might be capable of departing from the preset plan, they are strongly discouraged from doing so. Once their initial plan begins to come apart, lower-level Imperial officers become unsure what to do, and tend to fall back on a few standardized maneuvers. Terran commanders who can anticipate these can often win battles, even against superior odds, if only the Imperials can be denied the initiative.

Terran naval tactics are constantly being rewritten in the face of battle experience, training maneuvers, and technological advancement. Any flag officer with combat experience, as soon as he can be spared, is sent on a tour of the training facilities to teach others what he knows before he is returned to the front.

The transport group is usually a combination of Navy warships and civilian ships pressed into wartime service. Once a landing zone is secured, the transport group brings in the remainder of the ground forces, and it continues to land supplies as necessary until the campaign is concluded. Returning transport ships carry wounded troops to hospital ships with the transport group.

System Survey

One duty of the Navy is to perform detailed surveys of every system it can get a ship to. This is usually accomplished by fitting out ex-merchant vessels with astrographic survey gear. Such ships carry a mixture of regular and retired Navy personnel on long-term missions designed to last three to five years. Private concerns have produced several designs for purpose-built survey vessels, and the Navy has begun hiring private companies for this work on an experimental basis.

Long-Range Exploration

Survey and exploration of worlds outside of the Terran sphere of influence are performed by two groups, both of which are connected with the Confederation Navy.

Exploration outside the Imperium is the responsibility of the regular Navy, and is carried out by survey cruisers of between 400 and 1,000 dtons. Crews of these vessels number about 25-100, and are specially selected for their experience in biology, planetography, meteorology, and first-contact methodology.

Exploration within the Imperium is forbidden to the Confederation Navy, according to the treaty that ended the Third Interstellar War. Naturally, the Navy circumvents this restriction any way it can. The most frequent tactics is to officially discharge naval officers, and send them out with civilian crews (many of whom are also retired Navy personnel) in civilian vessels supplied by a cooperative Terran mercantile concern. These "merchant" ships cross the frontier and make their way as deep into the Imperium as possible, visiting worlds that the Navy doesn't expect to fight over for centuries.

In recent days there has been a tightening of restrictions on Terran traders within the Imperium. The Navy has responded by making use of "Terrani," Terran citizens of Vilani ancestry, who speak the language and know the customs. Ships carrying such crews are often given falsified Imperial registration. In particular, many Terran ships inside Imperial space have Nusku registration, issued by sympathetic Nuskan officials before the planet officially changed hands at the end of the Third Interstellar War. Some Imperial officials know about this ruse, but they cannot issue an Imperium-wide cancellation of Nuskan ships' papers without risking loss of face and removal from office.

Terran Ground Forces

The Terran Confederation Army is designed to deal with enemy forces within bombardment range of a given world – usually about 40,000 miles. Anything beyond that is the Navy's job. The Army therefore includes things not traditionally assigned to an army – "wet" naval vessels both surface and subsurface, and aircraft capable of operating both in atmospheres and (to a limited extent) in space.

The Army Life

Many Terrans view the Army as a means to an end, a way to get technical training and to see the world without spending a fortune. A lucky soldier can even earn an offworld assignment; many such soldiers end up settling in the colonies rather than returning home.

This "military emigration" is encouraged by the Terran Confederation, which provides land grants and other incentives to soldiers who want to participate. Since most habitable worlds are underpopulated by Terran standards, this is a very attractive option to citizens of a densely populated area such as China or the Indian subcontinent. The call "To the Stars!" has been sounded in Chinese, Hindi, Urdu, Malay, and a dozen other languages of the developing world.

Recruitment and Training

Army recruits are drafted, but (as with the Navy) many citizens volunteer. Soldiers go through an eight-week period of basic training, and from eight to 16 weeks of advanced training. Basic training consists of physical and mental conditioning to the military life, along with basic weapons familiarization. Advanced training adds the knowledge required by the recruit's military specialty (infantryman, grav mechanic, tanker, and so on). The Army differs from the Navy in not sharing a single common language – but most soldiers do learn English early in their careers if they didn't already speak it on enlistment.

Basic and advanced training takes place at one of more than a dozen training bases throughout Terra. The Army also maintains bases on Mars and in the asteroid belt, for low gravity and vacuum-conditions training.

As with the Navy, the Army promotes many of its officers from the ranks. The Army also maintains three military academies to train new officers coming directly from the civilian population: Fengshan (China), Hamburg (Germany), and West Point (United States).

On Duty

After training is completed, a recruit is sent to his duty station.

As of 2170, most of the Terran Army is still stationed on Terra itself. As a matter of policy, new soldiers are usually posted away from their home countries, to ensure that they remain loyal to the Confederation and avoid

Army Slang

Like most soldiers, Terran Army troops sprinkle their conversation with a level of casual profanity that is not dealt with here. The following is a sample of their tamer slang.

Basha: From the Nepalese (Ghurka), an improvised shelter in the field. Also a verb, as to "basha up" is to rig a shelter and go to sleep.

Blat: To fire small arms, from the sound made by them.

Blue Helmets: Garrison forces, especially those deployed on Terra. The term is normally derogatory.

Flying Coffin: Any grav vehicle, but especially a grav tank.

Gropo: Any infantry, contraction of "ground pounder."

Impy: Plural "Impies." Derogatory epithet for Imperials.

Lanni: Plural "Lannies." Derogatory epithet for Imperials, a shortening of "Vilani."

Oslo: Outer Space Liaison Officer. This term has replaced "Space Cadet" as a derogatory term for an incompetent officer.

POL: Verb, to refuel, from the acronym POL ("Petrol, Oil, Lubricants").

Provo: Short for Provost Marshal, a nickname for Military Police.

Redcap: Nickname for military police of British origin, who wear red caps. Sometimes applied to all military police.

Rupert: Derogatory epithet, a talentless or incompetent junior officer.

Sapper: An engineer, especially a combat engineer.

Squaddie: Any enlisted soldier.

Stonk: To hit an area with artillery fire.

Stonking: Excellent, good, large.

Tactical: To "go tactical" is to check equipment, discard unnecessary items (especially if they rattle) and generally prepare for action.

Terrani: A person of mixed Vilani and Terran ancestry, or a person born on Terra of Vilani parents.

Yomp: To march cross-country with full pack, without transport.

involvement in local politics. Some soldiers earn an assignment off world, usually to an occupation force on Nusku or some other former Imperial colony.

Conditions of deployment can vary widely. Soldiers may be quartered in comfortable barrack blocks safe in the middle of a friendly Terran population, or in portable shelters on a polar icecap. Their duty may simply be to stand ready to defend their position against Imperial attack. It may be to help a newly conquered world integrate itself into the Confederation. It may be to help keep the peace, in a restive region of Terra or on a rough-and-tumble colony world

Organization

The largest Army unit for which a standard table of organization exists is the division. Divisions can be components of larger formations (primarily corps and armies), but these do not have formal tables of organization, and are assembled on a case-by-case basis.

Individual national preferences are still reflected in many of the lower-level organizations – this is especially true of the Terran Marines. For example, units of French origin often use the binom rather than the fireteam as the smallest tactical unit.

Unit Hierarchy

Troops are classified according to several different criteria. First, there is the broad distinction between combat troops and support troops. Combat troops are those intended to directly participate in combat, such as infantry, cavalry, artillery, tanks, and so on. Support troops are intended to provide support for combat troops. Quartermaster, transport, signal, intelligence, maintenance, administration, and medical units, among others, fall under this classification. Some troops exist in a kind of twilight between these two states. Engineers perform both combat and support operations, as do military police.

Troops are also classified by arm of service, and there are dozens of these. The major service arms are infantry, cavalry, artillery, armor, aviation, and engineers.

Theater: The Confederation Army and Navy share the same theater designations (see p. 58).

Field Army: A field army (in the sense of a specific unit) consists of two to five corps and a number of supporting units. At the army level, supporting units typically outnumber the combat units: an army will have transport, signal, intelligence, military police, quartermaster, ordnance, maintenance/repair, and administrative units, plus whatever other attachments are needed to accomplish its mission.

Corps: A typical corps has from three to five divisions, along with brigade or battalion-sized artillery, recon, air defense, and other combat units, plus combat support of the same type found at army level but smaller. Units assigned to a corps are sometimes split up and assigned to individual divisions for special purposes – a division might have additional artillery attached for an assault, or engineers if demolition is required.

Heavy Division: Sometimes called a tank division or an armored division, this unit consists of two armored brigades and a mechanized infantry brigade, along with an artillery brigade and other supporting arms and assets. The assorted support units normally assigned to a division can total one or two brigades' worth of personnel and equipment. It is used where concentrated firepower is needed.

Mechanized Division: This unit consists of two mechanized infantry brigades, an armored brigade, and an artillery brigade plus other supporting arms and assets. Mechanized divisions offer a mix of troop types, and are used where flexibility and adaptability are needed.

Mobile Division: Sometimes called an airmobile division, this unit consists of two airmobile infantry brigades and a cavalry brigade, plus other supporting arms and assets. Mobile divisions are used in situations where speed and flexibility are important.

The Two Terran Armies

In practice, there are *two* Terran Confederation Armies: the *field* Army, and the *planetary defense* Army. While the distinction is not part of the official Army organization, in practice most Army units can be classified into one or the other category.

Field Army units land on a world after the Marines have opened a beachhead, defeat any Imperial troops remaining on the world, and occupy the world for the first few months after it has been secured. Planetary-defense Army units operate behind the front lines, holding key worlds and acting as their final line of defense.

Troops of the field Army are equipped and trained to a standard just beneath that of the Terran Marines. They specialize in mobile warfare – striking hard, crippling the opposition with precise application of locally overwhelming force, and neutralizing the logistical and command-and-control infrastructure of the enemy. Their officers and technical staff come from the richest nations on Terra, and their rank-and-file soldiers tend to be from nations of the second tier.

Planetary-defense Army troops are recruited primarily from the developing world. Their training and equipment, while rarely inadequate, are at a standard lower than those of the field Army. They are trained in police and constabulary duties, and place emphasis on defensive rather then offensive tactics. Their logistical requirement is larger, since many of the officers and enlisted men bring spouses and families along on deployment.

It is an open secret that planetary defense units are often deployed to areas where loyalty to the Terran Confederation is shaky. They are much more likely to see action against internal rebels than against the Imperium.

Infantry Division: An infantry division consists of two infantry brigades and a mechanized infantry brigade, plus supporting troops. They are used in rear areas where security and short-range patrols are more important than pure firepower.

Garrison Division: Garrison divisions consist of a cavalry brigade, two garrison infantry brigades, and a civil affairs brigade, plus other supporting arms and assets. Garrison divisions serve in Terran "hot spots" and on occupied worlds, and are intended to help move a region or world toward reliable self-government under the Terran Confederation. A civil affairs division is organized identically to a garrison division, but with two civil affairs brigades and one garrison infantry brigade.

Brigade: A brigade consists of three to six battalions, along with supporting units, under a headquarters. Supporting units that are smaller than battalions are often attached directly to the brigade headquarters.

Regiment: A regiment is usually three or more battalions, and is usually an administrative unit with its own military traditions rather than a unit likely to be deployed in the field.

Battalion: Battalions contain three to five companies, almost always a mixture of types, under a headquarters company. Lower-echelon units usually depend on the troops in the battalion headquarters for administrative support and preventative maintenance. Major repairs are undertaken at higher echelons.

Company/Squadron/Battery: Infantry companies contain three or more infantry platoons accompanied by a weapons platoon and a company headquarters, which contains command as well as administrative and combat support elements. Among cavalry and reconnaissance units of some nationalities, a company is called a *squadron*. In artillery units, a company is called a *battery*, and consists of several gun sections under a battery headquarters with a fire direction center.

Platoon/Troop: In Confederation service, a platoon contains about 40 soldiers, although the number varies with different types. Infantry platoons consist of three to five sections or squads, under a platoon leader (typically a junior lieutenant) and his assistant (typically an NCO). A Confederation mechanized infantry platoon contains a machinegun section and an anti-armor section as additional support. Weapons platoons contain crew-served weapons sections; armor and cavalry platoons contain three to five vehicles of the appropriate type. Among cavalry and reconnaissance units of some nationalities, a platoon is called a *troop*.

Military Police and Civil Affairs

The Terran Provost Marshal's office is in charge of training and support of the various MP (military police) units in Terran service. Military police provide area security, maneuver and mobility support, police intelligence operations, internment of prisoners of war, resettlement or relocation of displaced civilians, and law and order in the area of operations.

Military police are not the same as Civil Affairs units, although some of the duties overlap. Civil Affairs units are designed to impose military government on a region whose loyalties to the Confederation are uncertain, but where active combat is not taking place. They sometimes fight insurgents, but more often they are intended to *prevent* rebellion by guiding the civilian population into the Terran fold. Civil affairs units build infrastructure, train local civilian officials, provide security support, and perform intelligence gathering against potential rebels.

Section or Squad: Some nationalities use these terms interchangeably, but a section is usually larger than a squad. Terran Army regulations have recently settled on the section as three fireteams and a section leader, and the squad as two fireteams and a squad leader, and have also defined a weapon or vehicle crew as a section if it contains three or more soldiers. Mechanized or mobile infantry squads contain transport vehicles sufficient to carry the unit.

Fireteam: A fireteam is three to five soldiers, normally four. One is designated the team leader, usually a senior private or a corporal.

Binom: A binom is two soldiers, and is used by some nationalities (primarily the French) under the fireteam. In cases where both soldiers in a binom are the same rank, one will have seniority. Binoms seldom contain officers. When a vehicle crew is a binom, it usually consists of a driver and a vehicle commander/gunner.

Operations

Terran Army units are assigned a variety of missions, and are trained and equipped for several specific duties.

Planetary Defense

A properly conducted planetary defense requires both space and ground assets. A well-garrisoned and supplied world can hold out for months or even years, and can inflict casualties on an invading force far out of proportion to its own numbers. On the other hand, a poorly trained, inadequately equipped, and improperly led defense force can collapse within days.

Military Occupation

Forces on an occupied world will initially consist of the invasion troops. These will gradually be replaced by garrison and civil-affairs divisions as resistance to the occupation declines. Gradually, the military occupation will be lifted as local forces can be trained and equipped to take over ordinary police and constabulary tasks.

Planetary Invasion

One of the most difficult operations faced by the Army is an opposed landing on a fully defended world. Such operations require a assault force at least three times larger than the defending force, with more being preferred. Once the Navy has cleared the system of spaceborne opposition, and has dealt with the ground-based air defense forces, assault landings can begin. Speed and overwhelming force are necessary, and the invaders must retain the initiative throughout the entire operation.

Terran Ground Tactics

Terran small-unit tactics have undergone considerable change in the last few decades. In the 21st century, the most advanced Terran armies depended on satellite navigation and communications systems that were extremely vulnerable to high-tech jamming. An overdependence on "smart bombs and snake eaters" – precision-guided munitions and highly-trained advance spotters with laser designators – meant that Terran armies were at a disadvantage when operating outside their satellite network.

New equipment and new techniques had to be developed if the Terrans were to defeat the Imperials. Today, Terran units are much less dependent on the high-technology infrastructure that they once used on Terra. Of course, their techniques still benefit if the enemy can be denied the high ground of space and close orbit, even if only temporarily.

The Terran Merchant Marine

Through Terra's past, there have always been men who made history while seeking personal fortune: the Greek merchant-adventurers in Persia in the decades before the Macedonian conquest, the British East India Company on the Indian subcontinent in the 18th and 19th centuries, the fur trappers of North America during the same era, and countless others. Few of these men were consciously trying to found an empire, but that is precisely what they did.

The merchant princes of 2170 occupy a similar niche, and will make history – and their fortune – or die trying.

Merchant Types

There are almost as many merchant ship designs as there are ship owners, since each one is customized to suit the tastes and requirements of its captain. Sizes range from 100 to 800 dtons or more, and almost all are equipped with jump-2 drives. Smaller ships, owned by small corporations or even individuals, usually have crews of 8-30 men. The largest freighters, up to 10,000 dtons in size, may have crews numbering over 100.

Armed Merchant Marine

Shortly after the formation of the Terran Confederation Navy, the Confederation decided to encourage the construction of armed merchant vessels. The purpose was twofold: to enable Terran merchant shipping to defend itself against pirates and other hostiles during time of peace, and to provide a backup force that the Navy could requisition during wartime.

The program was backed by a number of Terran corporations, and accelerated dramatically after the capture of the Nusku shipyards in the Third Interstellar War. Today the Terran merchant marine includes dozens of privately owned armed freighters, many of them operating inside Imperial space.

The Free Traders

Founded in 2123, the Free Traders Foundation was a nonprofit organization intended to promote open markets and interstellar trade. The brainchild of Japanese industrial magnate Yukio Hasegawa, the Foundation helped Terran entrepreneurs acquire ships and begin carrying Terran goods into the Imperium, at first without the knowledge or approval of the Terran government or Imperial administrators.

Although it occasionally continues to act at cross-purposes with the Terran government, the Foundation is now a very powerful organization. It is particularly influential in the new Nusku Republic, where its member corporations have invested heavily.

Naturally, the Foundation is even less popular with Imperial officials than with the Confederation government. Many observers fear that Free Traders' activities within the Imperium may be provoking a new outbreak of war.

Bureau of Colonization

Established in an attempt to bring organization to extraterrestrial colonization efforts, the Terran Bureau of Colonization is responsible for regulating all new settlement efforts. The Bureau operates out of administrative offices in Paris, France, and oversees the appointment of local governments for all Terran colonies. Before its establishment, colonial government was a hodgepodge of national regulations and local groups; the Bureau brought consistency to the operation.

Although the Colonial Bureau appoints a Terran governor for each colony, the actual work of building and operating a colony is usually delegated to a corporation or other private group, under the governor's supervision and control. As a result, private companies or consortia operate most colonies. A few companies even specialize in colonial administration, providing police, infrastructure, and government services under contract.

The first such efforts involved mining or industrial firms that opened operating facilities on remote worlds. Workers do better when their families are nearby, so "company towns" soon grew up near the facilities. Later, these settlements became cities in their own right, and industrial firms found it cost-effective to "farm out" civic affairs to specialist companies under long-term contracts.

Corporate Merchant Fleets

Merchant companies find it convenient to organize themselves into regional territories, rather like the Navy's theaters of operation, although they are usually called something else. A ship will be assigned to operate out of a particular district, using a particular starport as a home base, returning there after trade missions, some of which can last years.

Merchant Organization

Merchant corporations are business ventures, not military commands (although some are run as if they were). Each is organized differently, according to the wishes of its governing body.

Each nation-state on Terra has its own law code concerning business operations – some loose, some highly restrictive, some in between. The Confederation has made some progress in coordinating and condensing the plethora of national regulations, but this is not an enormous priority. In general, however, merchant corporations are divided into departments that report to a single controlling body, usually a board of directors.

The Terran Confederation is still small enough that it is only a few weeks journey from one end to the other, so most Terran corporations are still operated from a central headquarters on or near Terra. Outlying operations have some independence of action, but they are constantly subject to orders from the home office.

Departments

Like a single vessel in the Navy, a merchant ship is divided into departments: engineering, piloting and navigation, supercargo, and so on. On larger vessels, each department has an officer in charge; on smaller ones, a department may consist of a single person.

Enlisted and Officer Ranks

Each jump-capable merchant starship is commanded by a captain, regardless of the size of the ship or its crew. If necessary, a ship will have subsidiary command staff, usually led the first officer (or executive officer) who is given the rank of lieutenant. Some companies call their division heads "commanders" and others call them "chiefs," often applying the former usage on large vessels and the latter on smaller ones.

Shipboard Operations

All ships have engineering, navigation, and command departments. On small ships, these consist of an engineer, a navigator, and a pilot/captain. On larger vessels, there will be department heads and subsidiary crewmen. Larger passenger ships have steward divisions, while smaller ones have a single steward devoted to passenger comfort.

Crewmen are always assigned to monitor certain vital ship systems, on a rotating watch system that varies with the size of the ship and crew. On smaller ships, the entire crew often rotates "bridge watch" and monitors all systems from a central location.

Life aboard a Terran merchant ship is usually quite spartan. Crew quarters are crowded and only marginally comfortable. Most merchant ships, especially the smaller ones, work their crews very hard – 16-hour shifts are not unheard of when a ship is in the midst of arrival or departure operations.

Major Corporations

As of 2170, the following Terran corporations are the most prominent ones involved in deep-space industries and interstellar trade.

Asteroidenbergwerke GmbH

Asteroidenbergwerke is, by a substantial margin, the Terran Confederation's leading operator in deep-space mining and heavy industry. The company was established in the 2030s, and was one of the first private firms to engage in mining operations in the Terran planetoid belt. It was heavily involved in the European Union's generation-ship program, helping to construct and man a number of the colony ships.

Today, Asteroidenbergwerke has operations in a dozen star systems, and is the sole owner-operator of two Terran industrial outposts. In particular, it is the Confederation's leading supplier of the rare-earth metal lanthanum, critical to the production of jump-drive equipment. Although it does not operate an interstellar transport line of its own, it is a major shipper of construction equipment, heavy industrial equipment, and refined metals.

Behmer Aktiengesellschaft

Behmer AG (nicknamed "The Bag") is a consulting firm founded in the early 21st century, working with small Terran nation-states to solve local economic and social problems. During the 2050s the company became a major contractor to the European Union's generation-ship program. Behmer personnel left Terra as some of the earliest interstellar colonists, prepared to set up new governments when the generation ships reached their destinations. The first colony to be established, at Prometheus, began with a Behmer-staffed administration that was quite successful.

Today, Behmer AG has become the Confederation's leading provider of administrative services for low-population colony worlds. Industrial firms that establish offworld colonies often call on Behmer to help set up and maintain local government. The Terran Confederation has also contracted with Behmer for civilian administration on occupied Vilani worlds; the company is given some credit for the successful integration of Nusku into the Terran Confederation.

FarStar Association

The FarStar Association is a loose organization of independent trade brokers rather than a real corporation, but its service is still valuable. If an independent merchant captain is willing to commit to a regular route, FarStar will see to it that he always has the best cargo available when he arrives. On the other hand, woe betides the captain who is consistently late, or who misses a pickup. Getting on the FarStar blacklist can be *very* bad for business . . .

Hasegawa Limited

This firm operates no starships of its own, but it builds ships in the Terran shipyards. It is an important supplier of parts and systems for other major shipbuilders in the Terran system. It is also a major military contractor. Finally, it is an important financial backer for a variety of deep-space ventures.

Named after its most famous CEO, Yukio Hasegawa (p. 43), Hasegawa Limited has gone through a number of name changes and other reorganizations since its foundation in 2092. Most recently (2168), the firm's headquarters were moved to London, and it was reincorporated under British law to take advantage of favorable European regulations concerning deep-space industry.

The current CEO is Yoshira Ehara, the grandson of Yukio Hasegawa. Although Hasegawa established the Free Traders Foundation, he always kept his firm separate so that the independence of the Foundation would not be compromised; that tradition continues to the present day.

Hellenic Industries Limited

Founded in 2134 by a consortium of Greek and British investors, Hellenic Industries specializes in the manufacture of small spacecraft. It has shipyard facilities in the Terran asteroid belt, in orbit around Luna, in the Prometheus system, and elsewhere.

High Frontier Development Consortium

Terran industrialist Umar bin-Abdallah al-Ghazali (p. 44) used his personal fortune to acquire the assets of this near-defunct trading corporation in 2157. This move made al-Ghazali the Chief Executive Officer, majority stockholder, and Chairman of the Board of Directors. With the new infusion of capital he provided, the Consortium invested heavily in shipyard facilities on Nusku, and began construction of a series of small, fast merchant ships designed to penetrate Imperial space without attracting undue attention.

It is rumored that the Consortium is in an unofficial partnership with the Terran Confederation Navy, and that al-Ghazali's ships are engaged in covert scouting and espionage missions while they travel within the Imperium.

Hill and Masterson

Hill and Masterson (often called "H&M") is a large American manufacturing concern, with installations on Terra and several of the colony worlds. The firm specializes in heavy vehicles, and is the primary supplier of gravitic vehicles under contract for the Confederation Army. It also produces one of the most popular civilian grav vehicles, the Hill and Masterson "Phoenix Air/Raft."

Kaufmann Sternenschiffbau AG

This corporation operates one of the largest private shipyards on Terra, located in the L-5 position. Kaufmann builds a variety of civilian ships, and has a long-term contract with the Navy to build warships.

Octave Kaufmann was a graduate student assistant on the UNSCA team that developed the first reactionless thruster in 2064. By the time of his death in 2104, he was the holder of 18 patents related to gravitic and thruster technologies. He retired from UNSCA in 2087 to found Kaufmann Sternenschiffbau, and headed the company's research division for the remainder of his life.

Terran Starport Authority

In 2160, the Terran Confederation created the Terran Starport Authority to regularize the operation of starports and civilian shipyards. The Authority oversees tower and traffic operations, and controls the day-to-day operations of every starport in the Confederation. The Authority is operated by a Director, who is appointed by the Secretary-General and reports directly to him. The headquarters and main offices of the Authority are located in the largest Terran "downport," near Phoenix, Arizona.

Novotny Factoring

David Novotny was a British citizen of Czech ancestry. Just before the First Interstellar War, he founded one of the earliest firms to carry on regular trade with the Prometheus colony. His firm grew rapidly after the war was over, especially once demobilization placed a large number of jump-capable ships onto the civilian market.

Today, Novotny Factoring is one of the largest firms managing trade between Terra and the colonies. It normally specializes in "there-and-back" trades rather than long trade routes – it arranges for shipping of colonists and manufactured equipment out to the colonies, followed by immediate shipping of exotic colonial goods back to Terra. The exception is the route between Terra and Nusku, where Novotny Factoring has become a major player in industrial trade between the Confederation's two major worlds. The firm operates a small merchant fleet of its own, and also leases space on other carriers.

Redwing Express, Incorporated

Redwing Express is a recent addition to the ranks of Terran space industries, established in 2158. It may be a new company, but it has a reputation as a hard worker, and has expanded very rapidly. It specializes in private courier service to every world in the Terran Confederation, carrying data, small cargoes, or important passengers. Redwing's distinctive paint jobs, guaranteed service, and "can do" attitude take the customer's mind off its high fees.

Smutny Associates

Pavel Smutny was a Croatian geological engineer who was one of the first scientists to travel to Prometheus using the newly invented jump drive. He spent several years performing resource surveys for the Prometheus colony, and was the first to discover the unusual "Prometheus amber" produced by certain woody plants on that planet. In 2108 he established a planetary-survey company, which took part in the initial surveys of several worlds in the "Outback" region to rimward and trailing of Terra.

Today, Smutny Associates remains a small but very influential firm, with unmatched expertise in planetary survey and early exploration. Although it operates no ships of its own, the firm often provides scientific teams for Terran exploratory ships traveling into uncharted space.

Topornin/Rostovtzeff

Topornin/Rostovtzeff T.O.O. (*Tovarichestvo c Ogrannichnuu Otvetstvenuu* or "limited liability partnership") is the largest Russian company engaged in offworld trade. Within the Terran Confederation itself it is a relatively minor player, but it is investing heavily in potential trade into the Vilani Imperium. It has been quite successful in opening markets on the *kimashargur* worlds closest to Terra, sometimes using innovative techniques (i.e. smuggling) to avoid Imperial restrictions on Terran trade.

Topornin/Rostovtzeff is the second-largest participant in the Free Traders Association (after the High Frontier Development Consortium, and operates several exploratory-trade ships of its own.

Chapter Four
The Imperium

Never forget that the Vilani are Human.

We aren't up against out-and-out E.T.s, with wavy tentacles and retractable eyes. The Vilani may not be exactly like us, but at bottom they have the same wants and needs. Their culture is unusual by our standards, but our ancestors from Cortez to MacArthur all managed to deal with divergent cultures.

None of this is new. We've been here before, and we've won before.

– Lt. Colonel Jing Xue, opening lecture on Vilani Psychology, Copernicus Naval College (2165)

Imperial Society

The initial thing that any Terran notices about Imperial society is its stable, monolithic nature. Like many first impressions, this one is only a partial truth. The Vilani have developed a culture that spans thousands of star systems, and they specifically discourage other folkways, but it's still Human nature to differentiate if given half a chance. As remarkable as the *Ziru Sirka* may be for its homogeneity, it only got that way, and only stays that way, thanks to numerous processes that actively work to keep it so.

Vilani Psychology

The Imperium is built on four primary psychological principles, which are drilled into Vilani from birth. All four are designed to maintain the status quo, and to keep Vilani society vibrant.

Conservatism

Not long after Terrans encountered the Vilani, one wit observed that "they make the ancient Egyptians look like wild-eyed revolutionaries." The Vilani made their last major technological innovation at about the time Terrans were figuring out how to smelt iron.

This is not due to a flaw in Vilani psychology. The Vilani once had a technologically advancing society much like that of Terra. They are not incapable of learning new things, or even of inventing them. They simply choose not to.

Terrans sometimes compare Vilani conservatism to that of ancient Egypt or the Inca. This misses a critical fact: Imperial society was developed by a rational, scientific people with a worthy goal in mind – to transform society into a tool for giving people a place, and making them *happy* with that place. A more exact Terran analogy might be to pre-industrial China, where Confucian ideology was developed along similar lines and for similar purposes.

To the Imperial viewpoint, change brings dislocation and unhappiness. It can also create new wealth and opportunities, but once one reaches a certain reasonable quality of life, is continuing forward worth the cost? More than 3,000 years ago, some Vilani came to the conclusion that it wasn't, and over time they convinced everyone else. Vilani conservatism is a conscious choice, designed to maximize happiness in Imperial society, and it was deliberately imposed a long time ago.

The average Vilani citizen may not be aware of the history of this change, but he believes whole-heartedly that his happiness – and that of others – depends on life carrying on in its unchanging way. So long as temptation can be avoided, most Vilani will stick to traditional ways even if it means minor inconvenience. Every day of their lives, they are reminded that what might be convenient or expedient could also be the start of a slippery slope to social breakdown.

Of course, in many cases the Vilani citizen doesn't have to choose inconvenience by following tradition. For example, a common Terran joke claims that there's an easy way to tell a Vilani: he's the one standing at an intersection at two in the morning, rain pouring down on him and not a car in sight, waiting for the light to change so he can cross the street. As with many jokes, there's some truth to this one. The average Vilani citizen, finding himself in such a situation, never dreams of jaywalking – although he might at least think about the idea long enough to reject it. What really prevents this humorous situation from happening is that the Vilani have already considered it. Their crosswalks go *under* the road, and have for millennia, so no pedestrian is ever forced to wait in the rain.

That's typical of the Vilani way. In every field of endeavor, *someone already thought it through thousands of years ago*. The Vilani believe that their ancestors came up with a solution to most problems, and in many cases they're right. Theirs is not a blind conservatism, but one that makes sense, given the work their ancestors did to ensure that the traditions would be worthy of respect.

Collectivism

Terrans sometimes compare Imperial society to the Communist nation-states of 20th-century Terra. This comparison is understandable, especially given the command-driven nature of the Imperial economy, but there are several major points of difference.

The most important difference is that the Vilani do *not* believe in the historical inevitability of their system. They see the *Ziru Sirka* as an achievement, the product of their race's proudest moment. They believe that it needs constant maintenance, or else things will eventually fall back into the bad, chaotic old ways.

Another difference is that the Vilani are not "utopians" – they don't assume that Human nature will change to match the requirements of their ideal civilization. Instead, they assume that people will still be people, primarily interested in their own personal welfare. Imperial society makes room for those selfish impulses, and deals with them by channeling them, not by hoping that they will cease to exist.

Within these boundaries, the Vilani have come up with their own peculiar form of collectivism. Under the Imperial system, there is a basic standard of living to which everyone is entitled; while not lavish, it is more than adequate to support life. As in Terran society, there are rewards for hard work and success. But these rewards are usually not monetary, but directly material. Housing is handed out by one's employer, as are food, clothing, entertainment devices, and other "perks." The higher one is on the social ladder, the better one's standard of living.

Of course, this concession to Human acquisitiveness has been placed within boundaries that keep it from getting out of hand. For example, the only way to get better perks or a higher standard of living is through promotion. In other words, there is no impersonal way of acquiring them – one's superiors decide when they are deserved. In Terran society, no matter how you get the money, you can buy the goods. In the Imperium, if you've produced like no one else, but at the expense of others, you're more likely to be *demoted* than promoted.

This is not to say that Imperial society has no money; it's just that money exists entirely for accounting purposes. It's associated with a person as one of several metrics used to evaluate him, but he has no control over it. Money in Vilani space has long since evolved to become a virtual representation of production, with no other social or legal role.

Another check on Vilani greed is a kind of "potlatch" custom. When a Vilani citizen is promoted to higher professional or social status, he is expected to be generous with gifts to his colleagues, subordinates, neighbors, and family members. It's considered a point of honor to give more back to the community than one takes from it. Following this tradition gives the successful citizen prestige, and also engenders good relations within the social circle.

Advertising

The Vilani have been exposed to no advertising since the founding of the *Ziru Sirka* and the creation of its command economy. There are very few competing products, and items mostly differentiate themselves according to status. For example, there are different types of shoes, but who has the right to draw each type from the store varies according to class. Since product and consumer are already matched, there is simply no point to taking up time or space in the media to tout a product; at most, a factual report will be broadcast on the news channels to inform citizens that a new item is available.

When Terrans first burst on the scene, they brought their competing products and the concept of advertising with them. At first, many Vilani believed the loud, colorful, 30-second "news programs" that promised amazing things. The common Vilani soon learned the truth of the matter and rapidly swung to the opposite view; many decided to mistrust *anything* a Terran merchant said.

Since then, Terran trade concerns have adapted their advertising to Vilani viewpoints, and won back some of the customers they alienated during the first burst of commerce. A few unscrupulous merchants still try to take advantage of Vilani gullibility, but Terran companies and government try to police this for their own future benefit.

Efficiency

In Vilani society, "perks" are assigned according to personal and group production. Greater production means more perks: more and better personal goods, more luxuries, more status. However, in their quest for increased production, Vilani citizens are constrained in two notable ways.

In places where business can move forward only on a zero-sum basis, for example by putting a competitor out of business, a Vilani has no room to maneuver. It's unacceptable to ruin someone else for your own benefit. (Naturally, there are some who do not follow this principle, especially the most powerful nobles, who are usually quite willing to destroy their rivals to get ahead.)

Technological innovation is also extremely slow, so increases in productivity aren't likely in that arena either.

Within these constraints, the best way to prove one's worth is with *efficiency*. One of the few areas in which the Imperium does permit innovation is in business processes – the question of how one gets work done. A successful innovator in this area can earn rapid promotion and lifelong respect. There is, therefore, an incentive to think of *better ways to work*.

Of course, the Vilani are extremely conservative when it comes to changing how they do things. Their industrial civilization is more than 8,000 years old, and most processes have undergone generations of refinement. A bright manager is up against the collective brainpower of millions, if not billions, of his ancestors when trying to improve the way things are done.

If a Terran dreams up a potentially more efficient way of organizing the factory floor, he will likely think to himself, "Let's give it a try and see how it works." A Vilani will assume that someone has already shown that it is not as good as the way things are done now. If his idea appears promising, he assumes it's because he hasn't seen the hidden flaws yet. He will spend a great deal of time in the historical archives researching the idea; he will only proceed if he can't find a previous example. Even then, it is assumed that the way to proceed is to bring it up with his superiors *and* his employees, and gain consensus from both. If consensus can't be reached, the innovator might publicize his idea until some other factory can be found willing to give it a try.

In theory, this means that Vilani industry is extremely efficient. However, the organizational resistance to change caused by the need to reach consensus means that radical ideas rarely find a test bed. Most changes are merely incremental tweaks to a pre-existing process. Even those are hard to implement, and many potential innovators are content to let things lie.

Note that Terran technological superiority in some fields is a two-edged sword because of this Vilani emphasis on efficiency. If Terrans have a genuinely better way of doing something – for example, in computer technology or medicine – the Vilani are nearly helpless to counter it. The necessary dip in production caused by new capital investment is not supportable, unless the investment is going towards the "tried and true."

On the other hand, when the Vilani do come to understand a Terran process or technology well enough to have confidence in its implementation, the rewards are great. Some forward-looking Vilani rapidly moves up the chain of command due to his success, and Terra loses a bit more of its advantage in flexibility.

The Vilani Hero

Vilani stories are Human stories, with protagonists and villains, action, mysteries, and all the usual things Humans find interesting. However, certain classes of hero typical of Terran mythology never appear in its Vilani counterpart. There are no "lone wolves," and no people who seek personal revenge after being failed by society. Vilani heroes are also not quixotic; there's always a point to their actions. George Leigh Mallory's excuse for adventure ("Because it's there!") is incomprehensible. The Vilani hero works within the system. For example, while many Vilani dramas hinge on crimes, they are always recognizable "police procedurals," with an emphasis on "procedure." Holovids that get into the nitty-gritty details of investigation and the hunting down of a perpetrator are endlessly popular. So is a more unusual kind of story that follows the criminal as the system brings him to justice.

"Disaster movies" are also popular. The Vilani are perfectly aware that the universe itself is not under their control, and they get a visceral thrill out of seeing their heroes fight back against what an unfeeling galaxy can hurl against them. Again, the emphasis is on how the Vilani way of life can help people through difficult times. If a hero has to deal with the consequences of, say, an asteroid strike, there is always a contrast between how desperate things are when he is by himself, and how things start to look up when society begins to piece itself together again. Unlike the conventions of Terran "post-apocalyptic" stories, other Humans are never *villains* in Vilani disaster fiction. Instead, the hero provides the seed of inspiration around which fearful or misguided Vilani can gather to rebuild a proper society.

One common Vilani hero is the protagonist who goes "from rags to riches," in the style of a Horatio Alger story. Vilani society promotes the notion that anyone can go far, if he works within the system and shows talents that the *Ziru Sirka* needs. Such social mobility is less common than it was long ago, but the ideal still holds strong, and the common Vilani citizen loves this kind of story. A weirder version of this genre is about the hero who starts humbly and *stays* poor, but who sets things up so that his descendants can gain wealth. In a way, this tale is an anodyne for the vast majority who never get to riches themselves; it assures them that their efforts are going to pay off down the line even if there's no sign of it now.

Chauvinism

As with most peoples, the Vilani believe that their civilization is the best of all possible societies. In their particular case, they have some grounds for making that judgment. Most Human cultures are as they are by historical accident. In contrast, the *Ziru Sirka* was designed quite deliberately to reflect Vilani values. Where the Vilani's legitimate pride oversteps its bounds is in its exclusivity – the need to judge other cultures as inferior.

Vilani cultural exclusivity derives from the ancient era of the Consolidation Wars, when the proto-Imperium brought every known star-faring society under its own control. In fact, the Consolidation Wars were fought in order to ensure the stability of Imperial civilization. The wars were a solution for an *economic* problem (that of unregulated innovation and competition), not a cultural one.

Thus, the imposition of Vilani traditions on non-Vilani was never their primary intention. Indeed, the early Imperial Vilani considered other cultures to have plenty of merit, at least for the non-Vilani who created them. However, in the centuries since the end of the wars, the Vilani have come to see the imposition of their traditions as an active blessing to the subjected peoples. In effect, they have moved from the rational notion that the *Ziru Sirka* is the best social form for Vilani to the irrational belief that it's the best social form for everyone.

Fortunately for Terra, the Vilani no longer have the will they once had to impose their culture on others. If they still exhibited the same sense of focus that their ancestors had, the Confederation would not last long against the might of the Imperium. However, Vilani complacency has left only a few economists aware of the threat presented to the Imperial way of life by the existence of a powerful star-faring culture – such as that of Terra – that is outside Imperial control.

At present, most of the men and women in charge of Imperial military equipment truly believe that, thanks to their non-Vilani ways, the Terrans can't present a threat. However, the notion that the existence of independent Terra strikes at one of the pillars of society is slowly starting to filter into the proper channels, with potentially explosive results.

The Vilani Way of Life

Vilani are much like Terrans in the broad outlines of their lives – they are born, they are educated, they choose a career, they grow old and die, they give way to their descendants. The details, however, are significantly different.

Human? I don't know. I mean, they look Human enough, but I've seen a bunch of Vilani three-year-olds in class. They pay attention for hours on end. That's not Human.

– Bill Rodriguez, Nusku colonist (2163)

Birth and Childhood

For most of Vilani history, it was safer to give birth than it was in a corresponding period on Terra. Vland's native disease organisms find it difficult to attack Humans, so Vilani women didn't have to worry about many of the postpartum infections and illnesses that attacked their Terran sisters until the 20th century. Similarly, children were much better off, as scourges like measles and scarlet fever simply didn't exist. Some Terran observers have suggested that Vilani collectivism grew out of the fact that they could become emotionally attached to children with less fear of their dying young. In any case, in the modern day a Terran would find the birth process quite familiar: pre-natal care, a trip to the hospital, and then a brief period of time off work for the parents.

Life diverges when the child starts socializing. Even Terrans recognize this as a critical period in life, when the child learns that other people have their own thoughts and their own needs. Children are gradually drawn into group interaction, and begin to learn how to work with others. It's at this point that Vilani society begins teaching its distinctive ways to its newest members.

Education

On Terra, the education system is geared toward the acquisition of knowledge, the socialization of children, and the development of problem-solving skills. The Imperium's schools are much the same, with the notable exception of *not* teaching their children how to solve problems themselves.

To a Vilani, "problem-solving" is equivalent to "finding out what others have done." They learn how to resolve difficulties by relying on the development of group consensus and investigation of historical databases for previously successful procedures.

To a Terran observer, Vilani classes look like throwbacks to an earlier age. Students of similar age gather physically in the same room, as opposed to using computer-aided tele-education and proceeding at their own pace. From the earliest age, children are taught to work together, the stronger students assisting the weaker ones so that the group as a whole attains its goals. Children are also exposed to a wide variety of tasks, so that everyone has the experience of being a leader as well as needing help from others.

Classes mix students from different social classes; the goal is to get children used to working with people who are not their friends or social equals. Once students have mastered the basic skills (the Vilani equivalent of elementary school), they are segregated somewhat in order to give members of each social stratum training specific to their expected position in life. However, even in the final years of school, all students, highborn and low alike, will share a few courses. After graduation, it's expected that a Vilani will be able to work with his equals, take instruction from his superiors, and give instruction to his subordinates – all smoothly and without resentment.

The Class System

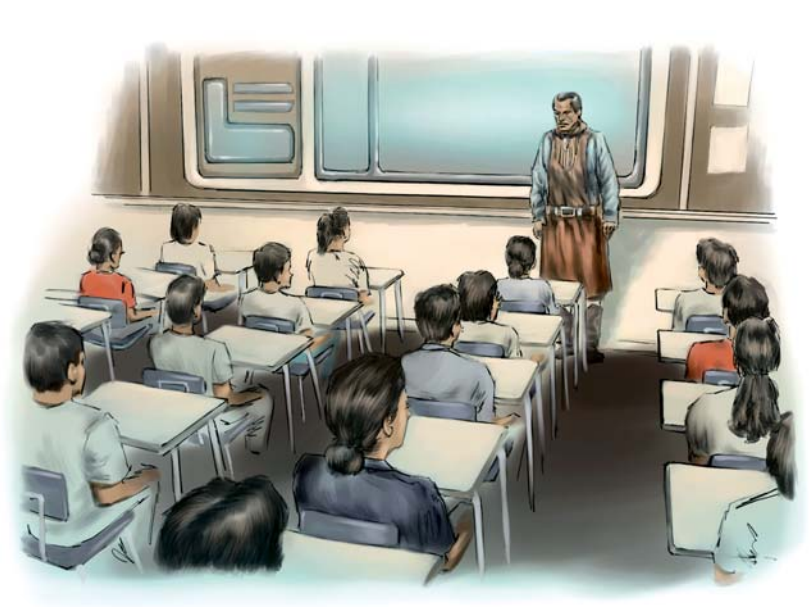
Every Vilani citizen falls into one of three social classes: *engarii*, *damgarii*, and *enshii*. These very old Vilani words are usually translated as "commoners," "merchants," and "nobles." Of course, any translation from Vilani to English is difficult, and this one is looser than most. It gives the sense of a feudal society, which the Imperium most certainly is not. Another way to translate the three names of the social groups might be "employees," "managers," and "executives." These translations, while not exact, better reflect the way Vilani interact in a technologically advanced, industrial society.

All three classes are hereditary. Children are assumed to be worthy of the same status as their parents unless they clearly show they aren't. No stigma attaches to mixed marriage, but in such cases, children are assigned the status of the lower-class parent at birth.

It's important to note that even in this late and somewhat ossified period, there is still mobility between the classes. Most Vilani start out their careers in the class to which they are born, but promotion is always a possibility, and the most promising children may be raised a class immediately after completing school. Vilani society depends on this mobility as its primary way of channeling natural Human acquisitiveness and competitiveness. It's also an important tool for preventing people from acting badly – as well as promotions, there are demotions.

Engarii, commoners, or "employees" are by far the most numerous group of Vilani. They make up the workaday people who go to their jobs, do what they're told, then go home at night with few large thoughts in their heads. *Engarii* form the bulk of the so-called "Low Vilani" culture (p. 15). Enlisted men and NCOs in the military are usually *engarii*.

Members of the *damgarii,* or "manager," class are almost entirely the industrial "petty nobility" – allied with the great industrialists of the distant past, but not as rich or successful in the present. Managers fill the positions of junior and mid-level officers in the military, and virtually all scientists are manager-class, too. *Damgarii* run the day-to-day operations of the *shangarim*.



The modern ruling class is an amalgam of three different groups. The first group is the original *enshii* class, derived from the aristocratic rulers of Vland's earliest agricultural towns.

The second group is the *shugilii*. Native life on Vland is almost incompatible with Human biochemistry; without careful preparation most foods are toxic. Beginning in prehistoric times, the *shugilii* caste developed (and hoarded) safe methods for food preparation, on which society came to depend. With advanced technology and interstellar trade the need for these secret techniques declined, but the *shugilii* retained a role as the guardians of tradition, the closest thing Vilani society had to a priestly caste.

Finally, there is a group of wealthy industrialist clans, who derive both wealth and status from times prior to the Consolidation Wars. Over the last 3,000 years, these three groups have melded, though there are still minor differences between them.

Early in Vilani history, each subgroup of the *enshii* class established one of the three great *shangarim,* or "bureaus." To this day, each portion of the ruling class tends to gravitate into certain sections of the Imperial government. Descendants of the original *enshii* tend toward the officer class of the Army and Navy, and control the *shangarim* Makhidkarun. The *shugilii* caste controls Naasirka. The industrialists run Sharurshid (p. 14).

The ruling class contributes its best members to the *Igsiirdi*, the actual ruling council of the Imperium, which provides the closest thing the Vilani have to a career in pure politics. The *Igsiirdi* in turn selects the *Ishimkarun* or "Shadow Emperor."

Careers

In Vilani society, there are few career changes. It is assumed that a person will pick a career at age 14 (18 Terran years), use the last few years of his schooling to prepare for that profession, and then stick with it until the end of his working life. This lack of movement has led to the common translation of the Vilani word *ii* as "caste." This is something of a misnomer, since there's no requirement for any citizen to have the same career as his parents. Indeed, youngsters are actively encouraged to look for work outside their parents' professions, as a check against nepotism.

Social class most often dictates career choice. Careers are assigned to each social class based on the amount of leadership required, so a young citizen needs to pick something appropriate to his class unless he is specifically chosen as promising (or hopeless) during school. Of course, any profession that is normally organized in a hierarchical manner will need the participation of people from different social classes.

Classes and Careers

In many cases, a Terran with only a vague idea of Vilani social structure can guess at an occupation's class. There are cases where historical accident or confusion with the *Terran* status of a career can be confusing. Several common professions and their associated social classes:

Artist or entertainer: Commoner
Doctor or surgeon: Executive (the medical profession derives from the ancient *shugilii* caste)
Engineer or technician: Commoner
Factory worker: Commoner
Merchant captain: Manager
Merchant deck hand: Commoner (even including highly trained technicians)
Military enlisted man: Commoner
Military junior officer: Manager
Military senior or "flag" officer: Executive
Police officer: Commoner
Scientist: Commoner

Once ready to begin work, a new adult is seconded to an older person in the same profession. He remains under this mentor's tutelage until that person dies, is promoted, or specifically resigns in favor of his charge. This last option often occurs when it becomes obvious that the apprentice is a prodigy; it normally takes no more than 20 years to discover this fact.

The Vilani have no strict concept of seniority. When it becomes necessary to reorganize a group of workers, it is the responsibility of the group's leader to design the new organization and recommend his design to his own superiors. Even sudden death is no excuse, as a leader is supposed to have instructions at the ready for this event (leading to Terran jokes about "Last Will and Departmental Restructuring" documents). It is assumed that the reorganization will take place solely on the basis of competence, not on "time in grade" or any other measure of seniority.

Retirement

A Vilani's working life starts to come to an end on his 85th birthday (about 110 Terran years). On that day he starts working three days in six rather than the usual four. The next year, this drops to two, and so on. From age 88 to 90 (about the age of 115 to 118 Terran years), he is merely an irregular consultant to his successor. After his 91st birthday (about 119 Terran years), he is out of the workforce entirely, and is supported by a basic stipend made available to all retired citizens, the luxury of which depends on his position while younger.

Of course, while they may stop working, older Vilani aren't lacking for responsibilities to fulfill. In particular, they are the caretakers of their extended family's youngest children, yet another piece of social engineering designed to instill young Vilani with trust in authority.

Vilani Culture

Trading is about value, and value (once you get past the basics of life) depends very much on culture. Terrans who intend to work in Imperial society need to understand what drives the Vilani when they're not working.

Visual Arts

Vilani art is at the same time very abstract and very literal. Their visual art and decoration bears some resemblance to the classical Muslim art of Terra, with an emphasis on repeating geometric figures. The difference is that despite the similarity in form, there is no *metaphor* in modern Vilani art. Medieval Muslims used abstraction in order to get around a religious stricture against representative images; the figures were intended to "be" something despite not literally looking like that thing. In Vilani painting and sculpture, a square is just a square.

In fact, the current style developed just before the Consolidation Wars, at a time when the symbols of Vilani art were as complex and meaningful as anything produced by a Terran culture. In the intervening 3,000 years, however, the "symbols" have become independent of their original meanings; artists keep using them because that's what is done, not because they have something to say with them.

Paradoxically, this makes art very accessible to the Vilani masses.

The Vilani are crazy for geometric figures. I remember one I had to chaperone in Paris; we spent two hours in the Louvre and she didn't like a single thing. Eventually we ended up at an old amusement park on the outskirts of the city – and she declared this rundown hedge maze we went through to be the finest piece of Terran art she'd seen.

– Vincent Royce,
Ministry of Commerce official (2150)

Museums and galleries are popular entertainments for even the lowest-class employee – there's nothing to understand, you just look and enjoy. This makes *objets d'art* a favorite trade good, though it's difficult to predict in advance what will appeal to a Vilani. For example, they don't see the point of painting real-world objects: "Why not just use a photograph or hologram?"

Conversely, Terran abstract art is considered either interesting or so horribly "wrong" that it provokes laughter. For example, most Vilani find Jackson Pollock merely amusing, while geometric artists like Piet Mondrian are accepted as fine art.

Vilani Longevity

The Vilani are much longer lived than Terran Humans. Barring illness or injury, a Vilani citizen can expect to reach an age of 130 Terran years, and some Vilani live for more than another half century past that.

This is yet one more factor that lends stability to the Imperium. Despite working for nearly 100 Terran years, a citizen will still draw goods from the economy for several more decades after that. This has the effect of slowing economic growth, as so much production is siphoned off for the elderly. Of course, as is typical for the Imperium, this is considered a point in the retirement system's favor and not a drawback.

Vilani longevity apparently breeds true. People of mixed Vilani-Terran parentage already show signs of extended vigor and health. The few people of mixed heritage who were born prior to 2070 are routinely clearing their century mark.

Athletics

Like Terrans, Vilani enjoy testing their physical limits, but a quick examination of Vilani sports shows that they choose their adversaries carefully. Competing as an individual is distasteful; while such sports existed in the past, no one plays them any more. Instead, the Vilani stick to team sports, or individual sports where the competition is impersonal.

As an example of the latter, the Vilani play *uskamsii*, a game with a remarkable resemblance to golf – one uses a club outdoors to drive a small ball towards a distant target in a minimal number of shots. Vilani view the *uskamsii* course itself as the opponent, with the odd side effect that they prefer to stick to the same course for every game rather than trying different challenges. When they play in groups, they invariably play "best ball," with the group scoring according to the best performance among the players. Construction of an *uskamsii* course is expensive, and access to one is restricted to manager-class or better. One trade item that is very popular among Vilani commoners is a dedicated handheld computer game that simulates Terran golf.

Team games are deliberately cooperative, possibly as an attempt to obscure the fact that one team is deliberately trying to defeat the other. The most popular such game in the Imperium is *duriir*, which is played on a field shaped like two wedges pointing at one another. The wedges are divided into five zones, each containing a player. The object is to make the ball (hit with rackets) fall in the opposing team's wedge – the further in, the more points. The twist is that only the player in the wedge's "point" is allowed to knock the ball into the other side. The other players defend against the lobs of the opposing team's "point man," and work to knock the ball back to their own point player. In a way, the game resembles Terran volleyball, with the distant players working the ball forward a step at a time until the player at the front can smash it towards the territory of the other team.

Vilani Architecture

Vilani architecture is much like the other Vilani art forms – oddly familiar to a Terran visitor, but different enough to seem alien.

The buildings themselves are massive, blocky, and monumental. Terrans often describe the prevalent style as a mix between Babylonian ziggurats and mid-20th century Russian concrete triumphalism. There is not much adornment or ostentation. What decoration there is serves to remind the observer of the sober ideals of the Imperium: collectivism, efficiency, and respect for the past.

Most cities are built on a radial plan, with long boulevards down which gravitic vehicles travel. The boulevards are also very wide, with grass (or at least an unused area) down the center to give vehicles a place to put down in case of an emergency. Pedestrian sidewalks (or slidewalks in richer or larger cities) run along both edges of the street.

Vilani cities are planned under the assumption that most transport traffic will be communal rather than private. Only high-ranking manager or executive-class citizens will own their own ground cars or air/rafts. Depending on the distance to be traveled, a Vilani commoner will take a "people carrier" or use the slidewalk until he gets near his destination, at which point he hops off and walks along a side road to his goal.

Vilani buildings are almost always square or rectangular, which means that when combined with a city's radial layout, there are innumerable triangular bits of land left over. This is deliberate; the leftover space is used for parks and other public facilities. From the air, Vilani cities are checkered with green or whatever other color the local flora favors, despite the massive, boxy buildings.

The Vilani Imperium

The Imperium is so vast that it's difficult to conceive just how big it really is. The very fastest Imperial courier services require about *two years* to carry a message from the rimward frontier to Vland. A more typical traveler would take over *five years* to make the same journey – and to reach the Imperium's coreward frontier, even more time would be needed.

During Terran history, empires have always been limited by the time it took for instructions to go from the center to the edge. Terran empires that were more than six months "across" have never lasted very long. The Vilani have therefore come up with something completely unfamiliar to Terran observers – a political system that can hold itself together despite huge problems with communication.

Political Organization

The Imperium is organized as a star, with the Shadow Emperor at the center. The three *shangarim* and two military services are linked to him and him alone. There is no official channel permitting the five power groups to negotiate directly with one another, and indeed any such negotiation is considered treasonable. This has peculiar effects on the day-to-day operations of the empire, as always reinforcing its stability and changelessness.

The Shadow Emperor

There are many things impeding change in the Imperium, but if one is most important it's this: the *Ishimkarun* or "Shadow Emperor" is the sole source of law.

At first sight this seems contradictory. The Terran experience indicates that a dictatorship can change more quickly than a democracy, as there's no need to "play politics" when it comes time to make a decision. However, even on Terra there have been cases of absolutism in which things were almost unmanageable, because *every* decision had to go through one person. There's a fine balance between centralization and delegating when it comes to getting things done, and as always the *Ziru Sirka* was specifically designed to slow things down.

The key to this is that the Shadow Emperor's day only has 32 hours, the same as even the poorest subject on Vland. With the events of thousands of worlds swirling around him, it is far beyond the realm of possibility that he could affect more than the tiniest fraction of them.

The Vilani solution to this problem is not delegation, but *precedent*. Every *Ishimkarun* has over 3,000 years of rulings from his predecessors to fall back on. Until he specifically authorizes a change to a previous decision, that precedent rules. Procedure is followed because, once upon a time, it was the law laid down by some near-forgotten Emperor to deal with a similar situation. Fortunately, the system of precedents is highly refined, and since the *Ziru Sirka* has been so static, it can cover almost everything. However, when something novel happens, it can take a long time for the message to get to the Imperium's "head" and for the response to return.

When a new situation arises, or if an old law needs revising, it is the duty of the *shangarim* and the military services to bring it to the Emperor's attention. More to the point, they must *try* to bring it to his attention.

Even with the vast majority of matters handled by following precedent, there are still far too many things for the Emperor to examine. The five points of the "star" surrounding him have to compete for his time, struggling to gain the minutes needed to outline the problem, advise the Emperor on the solution, possibly wait for him to consult with outside experts, and then make a change to the established procedure. Only the most critical matters are raised, and on everything else the affected persons have to make do.

Naturally, in such a system the ultimate sign of Imperial disapproval is the loss of the Emperor's attention. For example, if one of the *shangarim* begins to act up, the Emperor only has to make his displeasure known for the other four groups to have a field day. They divide the disapproved *shangarim*'s "face time" among themselves, thereby getting more of their own agendas advanced. They can

Vilani Dissidents and Secret Societies

There are no dissidents in Vilani space. Ask any Vilani – he'll tell you so, loudly and emphatically.

The primary purpose of the Imperium is to get everyone to toe the line, reducing strife and so maximizing happiness. Unfortunately this purpose contains a fundamental flaw: it assumes that everyone will be happy with the same thing. Despite the best efforts of Vilani society to instill love for the way things are, mistakes will be made, and sometimes sheer Human contrariness will leave someone dissatisfied. If only one person feels this way, he usually stays very quiet. If two of them get together, they form a secret society.

In the Imperium's core, the police are well-funded, and are very good at finding and dealing with the "socially ill." Out on the Rim, the level of control is much lower. Secret societies of all sorts have popped up and maintain a precarious existence. While they are difficult to find by definition, a Terran who can plug into one and cater to its needs can turn a tidy profit – and crack open the Imperium just a little bit more for the next trader to come along.

also start to cheat the outcast group with impunity. Shipments arrive with defective parts, if they arrive at all; prices are raised; promising recruits are poached. The only recourse is to get the Emperor to stop it, and the Emperor won't even listen to the black sheep until it comes back into line.

The only remaining danger to the Emperor's authority is the creation of *ad hoc* connections between the points of the star. For the Imperial system to work, everything must go through the Emperor. As a result, communications between the *shangarim* and the military are very restricted. It is possible for a *shangarim* official to take direct command of military units in the field, but the necessary protocols are so restrictive that only the most talented bureaucrats can accomplish much. Most *shangarim* executives content themselves with outlining strategic goals for their province, letting the military figure out how to attain those goals.

The Emperor doesn't rule the Imperium. No one does. They think the ghosts of ten trillion dead Vilani will rise up out of their graves if anyone ever has an original thought.

– Juan Santiago, ***Imperial Years*** *(2168)*

Sharurshid

Of the three bureaus, the one most likely to be encountered by Terrans on a day-to-day basis is Sharurshid, the Vilani shipping and trading concern. This is not only because it is engaged in the business likeliest to get adventurers into the Imperium – buying and selling – but also because it's in control of the space closest to Terra.

It's fortunate for the Terran Confederation that Sharurshid is its neighbor. As the *shangarim* most used to commerce and transport, it was the likeliest to accept Terran overtures to trade. While relations can be frosty at times, the potential for profitable transactions always brings Sharurshid back to the table. If Terra had been next to Makhidkarun, with its more authoritarian style, things might have been very different.

The protocols controlling communication between the various agencies are very deep – once again, the benefit of 3,000 years of refinement – but they quite specifically avoid topics that could let two or more factions conspire against the throne. Communication outside the approved protocols is high treason, and the factions are always on the lookout for signs that their competitors are engaging in it. The one item that is guaranteed to draw the Emperor's attention immediately is evidence of extra-legal communication, and coming up with such evidence invariably leads him to examine more of the loyal branch's issues for a while afterwards.

The Igsiirdi

The *Igsiirdi* is composed of representatives of the branches of Imperial government, who advise the Emperor and try to get Imperial legislation passed on their behalf. Strictly speaking, the *Igsiirdi* has 300 members, but only 15 "Speakers" are authorized to talk directly to the Emperor – one each for the Army and Navy, three for each of the *shangarim*, and four "members at large" appointed by the current Emperor. The remainder of the council is the power base on which the Speakers rely to define the agenda for their presentations to the *Ishimkarun*. Members of the *Igsiirdi* tend to fall into factions behind different Speakers, making up informal political parties that push different viewpoints within their own factions.

The other major role of the *Igsiirdi* is the selection of the new Emperor upon the death of the previous one. When the Emperor dies, all *Igsiirdi* members capable of doing so are expected to report to the Imperial Palace on Vland, where the death is announced and three days of mutual consultation begin. At the end of the three days, each segment of the *Igsiirdi* (the three *shangarim*, the Army, the Navy, and the Emperor-appointed faction) puts forward a candidate. This nomination process usually produces six names, but sometimes more than one faction will put forward the same name.

Voting then begins – openly, it should be noted, not by secret ballot – in a series of rounds. After each round of voting, the candidate receiving the least votes is dropped from the ballot. The process continues until one candidate obtains a majority of the votes. At this point, one more ritualized vote is held with only that person on the ballot, so that the new Emperor is always formally elected with 100% of the vote.

The Shangarim

The *shangarim,* or "bureaus," are three huge agencies that manage the day-to-day operations of the Imperium. Taken as a bloc, they are the single largest faction in the *Igsiirdi*, though they often vote at cross-purposes.

Each of the *shangarim* stems from a specific power group in early Vilani society aristocrats, *shugilii*, and industrialists. Not long after the Vilani began expanding into space, the power of each of these groups was threatened; their response was to reorganize the government along corporate lines. Each group established one of the *shangarim* as a overarching corporate bureaucracy. Each of the bureaus was then handed a territory to run; these spheres of influence were largely distinct, although in a few regions they overlapped in complex ways. Despite the enormous dislocations of the Consolidation Wars, the three *shangarim* have hung onto power ever since.

Makhidkarun is the aristocratic agency, specializing in services often associated with government on Terran worlds. Police, media, infrastructure, and similar services are under its control, or licensed to the other *shangarim*. Its primary territory is the area around Vland.

Sharurshid is the industrialist *shangarim*. Its areas of interest are the production and distribution of goods, and the continuing development of colonies as markets. All unarmed ships in the Imperium belong to Sharurshid, so while this agency formally owns the territories near the Terran Confederation, it can be found operating anywhere the Vilani go.

Naasirka is the bureau derived from the *shugilii* caste. At first solely concerned with food production, it has branched out into other "basics," notably energy production and distribution.

Imperial Administration

With huge travel times between Vland and the Rim (or any other frontier for that matter), the Imperium depends on its hierarchy. In many ways, it's organized like a Terran corporation, with "vice-presidents" and "upper management" and "middle management" controlling successively smaller political divisions. It's important to note, in particular, that none of them *rule* a domain – they *manage* them. They are completely answerable to the people higher up in the hierarchy, and even to the Emperor (though in practice the *Ishimkarun* rarely pays attention to anyone more than a level below). Every manager has a book to follow, and is more bureaucrat than noble.

The Imperial Hierarchy

The highest rank in the Vilani ruling class is that of *Ishimkarun,* or "Shadow Emperor." He is selected by the *Igsiirdi*, and serves for life or until he chooses to abdicate (which almost never happens). The Emperor lives in extreme seclusion; he never appears in public, and aside from his own family and household staff he almost never meets with anyone other than the 15 Speakers of the *Igsiirdi*.

Beneath the Shadow Emperor stands a set of 12 *apkallu kibrat arban* ("Great Ministers of the Four Quarters"). This title is one of extreme antiquity, and appears to be from a dialect of Vilani that is now otherwise extinct. The title denotes a position of immense power, and is reserved for the leaders of the *shangarim* and their highest assistants. Each of these nobles oversees the activities of his bureau over at least 2-4 sectors. In most cases, the power of the *apkallu kibrat arban* is limited to grand strategy – the sheer size of a noble's domain at this level prevents much control over the details of government operation. Another informal name for these nobles is *karunii* ("petty emperors").

The title of *saarpuhii* ("underking") appears to derive from the various nation-states that existed on Vland before spaceflight. Today a *saarpuhii* oversees a substantial portion of a single sector, usually 80-150 worlds in all. A *saarpuhii* on the Imperial frontier is the official most likely to hold strategic control over local wars, overseeing punitive expeditions against rebels or barbarians. The *saarpuhii* whose domain is closest to Terra is the *Saarpuhii Kushuggi* ("Underking of the Rim Worlds").

Below the *Saarpuhii Kushuggi* are 10 *sarriiu* ("supreme governors"), who oversee about a dozen worlds apiece. Each subsector's capital is usually the seat of a *sarriiu* with unusually high prestige. There are normally 2-4 lesser *sarriiu* per subsector as well.

The *sarriiu* in turn are supported by *shakkanakhu* ("provincial governors"), who appear to occupy a very flexible level in the bureaucracy. A *shakkanakhu* normally governs 3-6 worlds – but in one known case, a *shakkanakhu* in the Kushuggi province clearly manages more worlds and people than the weakest *sarriiu* of the area. It's not entirely clear why this is the case, but there's reason to believe that the political subdivision of provinces can be quite fluid if something is upsetting the situation. Apparently the Terran Confederation is doing just that, and things are being reorganized in odd ways according to needs perceived by the current *saarpuhii*.

The business end of Imperial government can be found at the lowest level of the hierarchy that is routinely a week or more away from its superiors. These *iishakku* ("governors") each get a planet to manage, or sometimes part of a particularly populous or important planet. Most citizens will deal with the local *iishakku* or his staff, if they need to interact with the Imperium at all.

All of the above titles are hereditary. Vilani noble families employ a rule of inheritance that is very unusual by Terran standards: only the *third* and later children are eligible to inherit a noble's hereditary titles, and adoption for the purpose of obtaining an heir is not permitted. A noble's first and second children are still members of the executive class, but they must earn new titles for themselves. It's routine

for a noble family to lose a hereditary position for lack of any legal heir, forcing the family's superiors to choose a new clan to hold the position. This causes a certain amount of "churn" in the Imperium's upper hierarchy, preventing any one family from monopolizing power.

Below the rank of *iishakku* comes the bulk of the Imperial ruling class, the pool of potential leaders from which the *shangarim* and the military services can draw. There is a bewildering variety of non-hereditary titles at this level, indicating the degree and kind of authority held by each individual. It can be particularly difficult for Terrans to navigate the lower Imperial hierarchy, even if the titles themselves are properly translated – is a "Third Minister for Quality Control" senior to an "Undersecretary of Employee Relations," or the other way around?

One non-hereditary title that does occur frequently is that of *kiduunuuzii* ("holder of special privileges"). This title is awarded to particularly effective leaders, including "troubleshooters" who have a history of solving problems wherever they go. The title of *kiduunuuzii* is even awarded to very talented members of the manager class, often as a preliminary to granting hereditary noble status.

Colonies vs. Outposts

There are about 10,000 star systems in the area of space controlled by the Imperium. Of these, about 4,000 include planets inhabited by substantial Vilani populations, and another 4,000 contain outposts of some kind. The rest are simply empty systems contained within the Vilani sphere, but otherwise of no note at all.

The Vilani don't colonize "difficult" or inhospitable worlds unless there is something else compelling about them. Sometimes this is a resource, but most often the attractive feature is sheer location – the system is a necessary stopping point along a route from one place to another, and the Vilani had to pick *somewhere* in the system to put their facilities. These are Imperial *outposts*, and they're different from Vilani worlds in a number of important ways.

Most obviously, they are much less densely populated, and much less diverse than a proper Imperial colony. Nearly everyone living there is, at least indirectly, connected with servicing passing traffic or performing whatever other intended function the outpost may have.

You know, if we behaved ourselves, I think the Vilani are so complacent they'd let us colonize all the empty worlds in their Imperium, from one end to the other. Good thing I have no intention of being a good boy by their standards, just so I can breathe canned air for the rest of my life.

– Bill Rodriguez, Nusku colonist (2166)

This makes an outpost more cosmopolitan than a colony, as the world's citizens are used to dealing with people from outside the community. They're often more tolerant of difference too, though this is a matter of degree as compared to their colonial brethren rather than actual toleration. If nothing else, people on outposts will be more familiar with the concept of trade than your average Vilani on a more hospitable world.

The final difference is that the population mixture is often odd. Vilani colonies are just that: *Vilani* colonies. There are many other races in the Imperium, but with the exception of the Vegans (p. 88), none of them are the majority on any world within easy reach of Terra. On outposts, however, it's not unusual to see members of the more important subject races, particularly the Suerrat (p. 86).

Vilani Settlement Patterns

For the entire, glorious period leading up to the Consolidation Wars, the Vilani had their choice of worlds. With only a few exceptions, such as Geonee and Suerrat space, no one else laid any claim to a significant number of planets.

As a result, Vilani colonists were quite choosy, and the majority of Vilani colony worlds are reasonably Terran (or, rather "Vland-like"). The Vilani started substantial colonies on less hospitable planets only when a valuable resource beckoned, or a bridge was needed between two important colony areas.

Similarly, there has never been any reason to let planetary populations get out of hand: there is always more land out there somewhere, and the benevolent Imperial government is willing to move people to new colonies in the unlikely event that they wish to. There are still empty worlds well worth living on throughout Imperial space. Even the most populous worlds, barring Vland itself, rarely have more than a few billion citizens.

Still, a merchant run down a Vilani-inhabited main is something of a hit-or-miss proposition. By sheer random chance, several "good" worlds will sometimes be lined up, with markets of hundreds of millions to tap, while a run of bad luck will turn up minor outposts and empty star systems stretching for parsecs.

Subject Races

While it's common to use the term "Vilani Imperium," it's important to remember that the Vilani are not the only intelligent species under its rule. About 10% of the Imperial population are Humans of other stock, no more Vilani than they are Terran. Another 10% are alien species, with no biological ties to Humans at all.

As far as possible, the Vilani try to integrate these races into Imperial society, but for a variety of reasons this effort isn't always successful.

First, many were brought into the Imperium by force. Thousands of years may have worn off the worst of the sting, but a few races that were once only moderately less powerful than the Vilani still remember their glory days.

In fact, the Vilani are stubborn about their crusade to bring "good government" to the rest of the galaxy. Only the really hopeless cases get blockaded or interdicted; the Imperium will keep banging its head against the wall if there's the slightest chance that a race will come around to the Vilani way of life. This means that the Imperium has to deal with uprisings every now and then – but it normally enjoys an overwhelming advantage over such rebels. Client revolts are rarely more than small hurdles in the way of the Vilani obsession with making everyone else just like them.

There are also aliens that simply can't be integrated, for reasons of psychology or physical difference. Some such aliens are actively blockaded onto their home worlds, with Imperial naval squadrons to ensure that they launch no expeditions into space. Others are still primitive, and are "interdicted" – shielded by the Navy from all outside contact.

Anakundu

The Anakundu are a minor Human race native to Nuiya, in the Mikadira sector. They were at a Neolithic level of development when the Vilani came, lifting them to modern conditions over the next 1,000 years. Since then they have been staunch allies of the Imperium, and in fact are one of the few non-Vilani races to occasionally hold high positions in the government.

History

Little is known about early Anakundu history. At some point the race was apparently reduced to a very small population, causing a genetic "bottleneck" that has left them in the throes of a serious evolutionary dead end.

The Anakundu were first contacted by the Vilani about 4,000 years ago. At that time there were only a few tens of thousands of them, living in small hunter-gatherer groups on one of their home world's continents.

Primitive and unthreatening, the Anakundu received aid from the Imperium so that they could be incorporated into galactic civilization. Among the Vilani coming to Nuiya were medical doctors, who soon noticed that the Anakundu had a short maximum lifespan, even setting aside deaths caused by their primitive state. Eventually the Vilani developed a drug that let the Anakundu live somewhat longer; out of amazement at the "magic" their benefactors possessed, they willingly became Vilani clients.

For the last 2,000 years the Anakundu have enjoyed equal status with the Vilani, though they are heavily outnumbered by their allies. They live entirely by Vilani culture, and have nothing but disdain for the primitive ways of their ancestors.

Physiology

Externally, the Anakundu look much like Vilani or Terrans. Their home continent on Nuiya was in the extreme north, so they are usually very pale. The major exception is around their eyes. Their homeworld's primary star is quite bright, and their snowy home environment made for a great deal of glare. As an adaptation, Anakundu eyes are black, surrounded by a dense spray of freckles that reduce reflection from the cheekbones.

The most unusual aspect of the Anakundu is their sleeplessness and associated short lifespan. As an

infant, an Anakundu sleeps six or seven hours per night; he will gradually lose another hour for every 10 Terran years of life. While they have adapted somewhat to this condition, there are fundamental limits reached at about two hours of sleep. Without medical intervention, at some point between 45 and 50 Terran years of age, an Anakundu will drop rapidly into mute senescence, insanity, then death.

The Imperium treats this condition with *gakinisharra*, a drug that slows the process and holds off the two-hour limit until age 75-80. While still tragically short by Vilani standards, this lifespan has been all the Anakundu could expect for thousands of years, and they do not look for more.

It is worth noting that the Anakundu sleep deficit resembles some Terran chromosome disorders. It is believed within Confederation medical circles that their condition could be cured with gene therapy. Vilani medical science has not advanced to this stage, however, and no Anakundu has ever submitted to the tests that would be needed to establish the truth.

Psychology

Fatalism and subordination are the two main prongs of Anakundu culture. They never recovered from the shock of being contacted by a vastly more advanced Human race. While they have long since caught up with the Vilani and become Imperial partners, their continuing deficit in lifespan makes them feel inferior to this day. Most Anakundu accept their "fate," and live their lives accordingly. This attitude spills over into other things, so it's virtually unheard of for an Anakundu to complain about anything. Even the normal Human desire to make things better is muted; an Anakundu must be suffering more from, say, cold or hunger before he becomes motivated to try and solve the problem.

On the other hand, Anakundu follow orders willingly. They are especially valued for their ability to stay awake for 20 consecutive hours at will, and more than twice as long with minimal difficulty. The Imperial Army is especially fond of them as ground troops, valuing their stoicism and stamina.

Anakundu in the Interstellar Wars

If it weren't for their extremely pale skin and their freckled "eye-shades," one might never realize that an Anakundu is not a Vilani. They have adopted Vilani language, and live entirely within Vilani culture. Although their short lifespans tend to limit their promotion in Vilani society, Anakundu can be found even in the Imperial executive class.

Most often, a Terran will discover the difference by bumping up against Anakundu sleeplessness. Running across a pale, black-eyed ghost in the dark of night, when everyone else is asleep, is a memorable experience. Sometimes an Anakundu will specifically use the wee hours to get away with something under the noses of dreaming Terrans.

Terran soldiers often call the Anakundu the "night-fighters" or "spooks," and hold them in considerable respect. The average Terran doesn't know about the Anakundu racial weaknesses. They just know that these slender troopers are brave, determined, and can win an engagement just by staying awake and shooting long after their Terran foes have collapsed from exhaustion.

Answerin

The Answerin are a Human race, much like Terrans or the Vilani. Unlike some Human races, they are difficult to distinguish from the two main types of Human, but they possess unusual internal changes, and a psychology to match.

History

Not much is known about the Answerin, as they live far to coreward of Terra – in fact, it is believed that they hail from near Vland itself. Most Answerin met by Terrans are soldiers, so detailed questioning is often difficult.

Still, it is known that they encountered the Vilani fairly early on, before the founding of the *Ziru Sirka*. Their civilization was primitive, so they rapidly acquired that of the Vilani at a time when that process was much less painful. When the *Ziru Sirka* began, their home world was peacefully annexed, and the Answerin have been loyal subjects ever since.

Physiology

The average Answerin is 3" taller than a Terran or Vilani, and somewhat heavier, although slimmer in proportion due to his greater height. His world's twin suns are heavy emitters of ultraviolet light, so even the lightest-skinned Answerin is dark by Terran standards, and many are black in the literal sense of the word. Their hair is invariably black too, and usually slightly wavy; a few have straight hair. Their only unusual facial feature is a pronounced epicanthic fold in the manner of Terran East Asians, an adaptation to the strong light in which they developed.

What makes the Answerin unusual among known Humans is their ability to consciously trigger adrenaline surges, which enhance their strength and speed for approximately a minute. Once the minute is over, they are debilitated for the next hour. This conscious control over an involuntary "fear" reaction has had a profound effect on their psychology and culture.

Psychology

The Answerin are very interested in self-control, particularly control of fear. They do have emotions, showing happiness, anger, love, and so on when there is no reason to suppress them. Fear, however, is viewed as a mental illness, and the Answerin have spent the last 3,000 years trying to cure it.

Answerin culture is structured around keeping fear from becoming an issue, partly through removing causes, and partly through carefully cultivating personal bravery as part of their lives. They're not insensitive to danger, but they believe that an irrational response to it is counterproductive. During their lives, they bend every effort toward learning how to stay calm and continue functioning when every other Human race would be wasting mental resources battling fear, or would have given in to the emotion entirely.

Answerin in the Interstellar Wars

Their unique psychology makes the Answerin very useful as soldiers, and many members of their race are in the Imperium's armed forces. Many Answerin are in other professions, but Terran Humans almost never encounter these members of the race.

An Answerin soldier's adrenaline surge makes him doubly dangerous. Terrans often call Answerin "berserkers," despite the fact that they are invariably quite calm while punching holes through walls, overturning cars, and otherwise doing things no Human has any right doing. They are greatly feared in wartime – although it's worth noting that this is a *respectful* fear, as most Terran soldiers also admire Answerin strengths.

Fortunately, while Answerin are grouped into their own units, they are commanded by Vilani, so they are stuck with fossilized tactics that make them vulnerable. Every time war breaks out, the Terran forces are armed with a whole new set of clever ideas for getting the Answerin to "burn off" their surges, rendering them useless for combat afterwards. It's to Answerin credit that Terrans *do* have to come up with new ideas every time; the Answerin are rarely taken in more than once by any given gambit.

Bwaps

Of all the Imperial subject races, the Bwaps (also called "Newts" by most Terrans) are the most successful. They obtained this status by having unparalleled heads for bureaucratic detail, which gives them the ability to take on fussy management jobs that even Vilani find difficult.

History

Originally hailing from the world of Marhaban, the Newts had begun their Industrial Revolution when they were first contacted by the Vilani. This was before the Consolidation Wars, and the Bwaps picked up Vilani technology with great speed, coming up to a par with their Human visitors within 100 years.

The Bwaps soon had a small interstellar state of their own, but when the *Ziru Sirka* was proclaimed they voluntarily joined the new empire. The Imperium's ideals of order and stability appealed to them greatly, and they threw themselves into the new project. Over time, they became the most useful Vilani partner in the running of the Imperium, and have spread throughout the entire state.

Physiology

The Bwaps are 4' to 5' in height and bipedal, but otherwise have a superficial resemblance to the Terran creatures that supplied their nickname. Like Terran newts, they are amphibious, and they do require high levels of humidity to protect their skins. In most Human facilities they will wear special robes and head-cloths that draw water from small attached tanks. If the humidity drops below 20%, however, even that stopgap starts to fail, and a Newt will have to wear a full environment suit in what is otherwise a perfectly hospitable place.

Bwap eyes are large and apparently pupil-less, being entirely a shiny black. Their skins, always damp, are dark green and blue. They sport complex color patterns, some of them natural, some applied with waterproof paints to act as markers of social status and position.

Females are outnumbered 10-to-1 by males, and are sequestered on Bwap colony worlds, so all Bwaps encountered by Terrans are male.

Psychology

Newts are focused on hierarchy and procedure, an attitude that sometimes makes them "more Vilani than the Vilani." The Imperium's founders acknowledged that the society that they were creating ran counter to some deep Human motivations, but that is not the case with the Newts. Of all the races ruled by the *Ziru Sirka*, they are the most psychologically suited to it.

Conceptually, the Bwaps view the world as *Wapawab*, the tree of life, with everything connected to everything else, and everyone performing a function for the good of the whole. Each tries to place himself and others in that tree and then interact in an appropriate manner. In particular, they have a fondness for being the "cogs in the machine." This means that the majority of them encountered by Terrans are bureaucrats, trying to keep things in order. Or, as some Terrans have put it: "They think the Imperium's a tree, and it's their duty to keep us saps running."

Balancing out their fetish for bureaucracy is their incorruptibility. As part of insisting that every rule be followed, they would never dream of "polluting the water" by taking a bribe or looking the other way. As the Imperium *is* designed to run smoothly if the rules are followed, a Bwap can be your best friend when dealing with the Vilani, a bulwark against the corruption that is shot through the system.

On the other hand, if you're a rule-breaker, they can make your life impossibly difficult.

Bwaps in the Interstellar Wars

As well as being common sights in the Imperial bureaucracy, Bwaps are found wherever their peculiar knack for detail can come in handy. This includes systems maintenance, from as high-profile as heading a starport traffic control system to as lowly as janitorial work. They are also common on water worlds, where not only can they help run things, they can go underwater for long periods of time to work on niggling problems.

Bwaps are also commonly encountered in criminal investigations. Despite their reputation for focusing on the small things, they are as imaginative as Humans when it comes to interpreting data, and their dogged ability to check every possibility makes them effective, if slow, forensic officers.

There are not many Bwap traders or military personnel, but the race is peripherally associated with each field. Bwaps are often the best people to approach when trying to find a particular cargo, as they can often tell you down to the last detail who has what and how much. Terrans often use Bwaps as *de facto* brokers on Vilani worlds. Similarly, while they rarely engage directly in military operations, they are excellent in support roles, or as engineers aboard starships.

Dishaan

Psychologically incapable of thinking past their own best interests, the Dishaan are in many ways the antithesis of the Vilani ideal. The Ziru Sirka has gone to heroic lengths to curb these impulses, but now that they are interacting with a non-Vilani state, the Dishaan are falling back into old habits.

History

Before the founding of the Ziru Sirka, several non-Vilani states flourished in parts of what is now Imperial space, and one of the most successful was *Ushkaq Sasutxi*, the Dishaan Hegemony.

Over the course of 1,000 years, the Dishaan built up a small empire of about 20 worlds based on Vilani technology. Moreover, they were great traders of the period, ranging far and wide across much of what is now the Imperium, looking for riches to bring home. Their fundamental dishonesty was understood, so deals were always structured to make it worth their while to stick to the contract. Give a Dishaan half a chance, though, and he'd cheat you blind.

This propensity for chaos ran against the grain of Vilani goals in the period leading up to the Consolidation Wars, so the Dishaan were one of the first races to be attacked. It took 80 years of war to finally break the Dishaan, and then the Vilani were left with the problem of what to do with their new client race. It proved virtually impossible to impose Vilani culture on the Dishaan without piling on outrageously negative consequences for straying.

For the last 4,000 years, every Dishaan has been under constant surveillance, from birth to death. The Vilani strategy is to make certain that any deviation from acceptable norms is punished to an extent far greater than the potential gain of the crime. Most Dishaan are not allowed to leave their world unless they have considerable assets under Vilani control, which can be confiscated if their owner gets out of line. Those who do travel are usually merchants, though some work for the armed forces as solitary commandos with fearsome reputations among Terrans.

I hate the Dishaan. Wrinkly, vulturous, black-hearted, love to scare you half to death. I get enough of that from my unit.

– Staff Sergeant John Sevdalian (2175)

Physiology

The Dishaan are five-foot-tall tree-dwellers with stubby legs that make them ungainly on the ground and long, powerful arms that make them masters in a forest canopy. Each arm is tipped with a large curved claw; these are intended to make grabbing the next branch easier, but they are also extremely effective in hand-to-hand combat. The claws are also used to take apart the carrion on which the Dishaan feed. Two widely set eyes on a broad, neckless head help them judge the distance to the next tree branch. Their "hands" are actually their feet – one more reason why they avoid standing on solid ground.

Psychology

The proto-Dishaan were pack animals, roaming in groups of 20 to 30 and driving predators away from their kills. Their social structure was based entirely around feeding rights, as maintained by continuous "pecking order" squabbles. Intelligence gradually developed as the Dishaan evolved ever more elaborate ways of subjugating their pack mates without resorting to physical violence.

The modern-day Dishaan is still constantly looking for angles, and has absolutely no compunction about doing anything that puts him one step ahead of someone else. He is honest exactly as long as it's to his advantage. The second he decides that cheating is better, that becomes his strategy.

Dishaan in the Interstellar Wars

Within the Imperium itself, the Dishaan are not as untrustworthy as they could be. On their home worlds they are constantly watched (by other Dishaan, in fact, as "traitors" are amply compensated). Since the Vilani harshly punish lawbreaking, the calculation to break the rules rarely works out.

In Terran space, however, anyone dealing with a Dishaan needs to watch carefully – offworld they wear portable surveillance devices, but these don't work very well outside of a Vilani infrastructure. On the other hand, this also means that once out from the ever-watching eyes of the Vilani they're willing to cheat their masters in return for Terran goods; the race has been a valuable conduit for transferring Imperial technology into Terran hands.

A few Dishaan take "cheating" to its ultimate level, and love murder and looting for their own sake. In most eras there has been no outlet for this impulse, but recently the Vilani have returned to a tactic they used in the Consolidation Wars after the Dishaan were conquered. Solitary Dishaan – even a unit as large as a platoon is hard to hold together in wartime – are introduced into the field of operations and told to run wild. In forests or cities with high buildings they can make their way around far above the heads of Terrans, wreaking havoc behind the lines. These "Wreckers" are detested by Terran troops, and few survive capture. Equally few are around to be captured in the first place, however, as the Wrecker mind-set is fortunately rare even among the Dishaan.

Geonee

The Geonee are a variant of the Human species, one encountered by the Vilani not long after they went to the stars. What was most shocking about the encounter was that the Geonee had the jump drive as well, though it eventually came out that they had reverse-engineered it from a derelict ship they discovered in their home star system.

History

The Geonee were the greatest rival of the Vilani for over 3,500 years. They were the toughest opponent during the Consolidation Wars, but they were finally defeated (about the 4th century B.C.) and have been under Vilani rule ever since. Despite the millennia of subjugation, they still live on dozens of worlds somewhere to coreward of Terra, and are sometimes encountered by travelers headed in that direction.

Physiology

Geonee are smaller than most Humans, having adapted to a hot, high-gravity world; they average about 5 feet tall and 160 pounds, both male and female. Despite their small size, they are very strong and dense, with very little fat on their bodies.

The only other notable difference between the Geonee and Terrans is in their diet. Geonee are borderline carnivores, preferring to eat meat at all times. While they can digest vegetable matter, and even use it as flavoring in some dishes, they have a hard time with more than a small amount of it in the diet.

Psychology

The Geonee possess much the same basic psychology as other Humans. Most of their psychological differences are imposed on them by their society.

Culturally, the Geonee are sexually dimorphic. Males are active and aggressive, while women are expected to be shy and retiring. In earlier times, women were actually considered chattels of their male relatives, but the Vilani ended this practice when they imposed their culture on the Geonee. Even so, to this day Geonee women are rarely encountered off a Geonee-dominated world.

Geonee men and women can only interact as relatives or, if courting, though the agency of a semi-intelligent creature called a *cerosee* that is native to the Geonee homeworld. The Geonee generally do not discuss this subject, and the *cerosee* are so shy and cautious that it is still not entirely certain that they actually exist. Some who study the Geonee believe that they may be metaphorical, a variety of "Cupid" in the Geonee courtship ritual.

The Geonee are extremely proud of their past, not only the relatively recent past when they were a space-faring power, but also a hypothetical Golden Age hundreds of thousands of years ago. During this Golden Age, the Geonee believe they had an even more advanced and widespread empire than that of the Imperium. They can be quite prickly about the subject, despite the fact that there is some evidence to suggest that they are wrong in this belief.

Anachronisms

Long-time players of ***Traveller*** probably recognize the Nugiiri as the Droyne, an enigmatic race scattered throughout Imperial space and beyond. They will know a great deal more about the Nugiiri than anyone living during the Interstellar Wars era. By the time of the Third Imperium, much of the mystery about the Nugiiri has been dispersed; GMs need to make sure that things their players might know don't leak out to the advantage of their characters. These are:

- **The Nugiiri are not native to Kilennur:** This is the one fact that Terrans have a chance to find out for themselves. If anyone with knowledge of the biological sciences can examine both the Nugiiri and Kilennur's biosphere, it will be obvious that the Nugiiri are from elsewhere.
- **The Nugiiri are part of a widely-dispersed race:** Even if they are discovered to be non-native to their "homeworld," it's still not obvious that the Nugiiri got there by colonizing the planet on their own initiative. Based on what the Terrans know, it's much likelier that the Nugiiri got their knowledge of interstellar travel from the Vilani at some forgotten point in the past. It would take a major archaeological expedition to discover evidence to the contrary (specifically, that the Nugiiri have been living on Kilennur for much longer than the Vilani have been in space).

Even the Vilani are unaware of this, despite there being multiple worlds with native Droyne colonies in the Imperium. Since the Vilani invented jump drive, the Droyne have been so secretive and unconnected with the universe as a whole that no one has realized that it's the same race on all of their worlds. In each case, they have been written off as simply another minor race, one native to the world where they were found.

In many cases, Droyne colonies are barely at the industrial level of technology. In the case of those (like Kilennur) that are more advanced, thousands of years of complete disinterest by the Droyne in the affairs of the Vilani have allayed all concerns. In the Interstellar Wars period, it's unlikely that an Imperial official will even realize that an encountered Droyne is a member of this long-neglected species; he will likely dismiss it as belonging to some minor race he's never seen before.

- **The Nugiiri are psionic:** In the Interstellar Wars period, Terrans do not know that psionic powers exist, while the Vilani have only a very limited understanding of the phenomenon. If Terrans were to make a breakthrough on this front, it would likely be from study of the Nugiiri from Kilennur. However, there is a paradox here – there's no particular reason to study the Nugiiri in the first place until it's understood that they have fantastic powers of the mind.
- **The Nugiiri are an offshoot of the Ancients:** During the 22nd and 23rd centuries, it's not even clear that there ever was an Ancient civilization, much less that the Ancients were derived from a single race, or that that race is the Droyne. While the Nugiiri of Kilennur have a high-technology society, they are somewhat behind the Vilani. Their artifacts are radically different from Vilani ones, but this can easily be explained away as the effect of alien thought processes working on technology received from the Imperium.
- **The Nugiiri and the Chirpers are related:** Between the Ancient period 300,000 years ago and 70,000 years ago, the Droyne began losing their ability to caste. As this is a critical step to their development of full intelligence and adulthood, the colonies that lost this ability completely became "Chirpers," semi-intelligent creatures apparently no more related to Droyne than chimpanzees are to Humans. Some colonies developed "coyns" – coin-like focuses for the psionic casting ritual – and recovered, but many did not. In the Imperium, only the Geonee (p. 84) are in a position to make the connection between the two, but as Chirpers are involved in the courtship rituals of this repressed race, and they have their own name for the Chirpers, the topic is never discussed.

Geonee in the Interstellar Wars

The race is particularly interesting to Terrans for two reasons. One is that there is some contradictory evidence that they are the Ancients, or at least descendants of the Ancients (p. 13). More practically, they are interesting because they are the Vilani's most restive subject race. Even before Terra appeared on the scene, they had more than once revolted unsuccessfully against the *Ziru Sirka*. Given an opportunity to ally with the Confederation, there is reason to believe that they will take the chance.

Nugiiri

One of the most unusual races known to the Terrans are the Nugiiri. Winged bipeds with an odd mixture of lizard-like and insect-like characteristics, they mostly keep to themselves and have been difficult to investigate.

History

What is known of the Nugiiri past is largely conjectural, but Terran xenologists have managed to construct the following theory.

The Nugiiri appear to be native to Kilennur, a world to spinward and trailing of the Urima subsector, about a year's travel from Terra. Their native technology varies from Vilani norms like that of no other known race; what this implies about their origins and psychology is not yet clear. They were already relatively advanced before the Vilani conquered them, and they eventually allowed themselves to be absorbed by the *Ziru Sirka* in return for a promise to be left in isolation on Kilennur's southern continent. They have kept their part of the bargain in the centuries since, and are only rarely seen off their home world.

Physiology

The Nugiiri are hexapods, with a pair each of arms, legs, and wings. Their home world has lower gravity and a higher atmospheric density than Terra, and they can fly under such circumstances. In more Terra-like conditions, they are restricted to short-distance gliding.

The average member of the species is 50% smaller than a Human, and possesses a "hunched" quality that makes them look even smaller. Their basic external appearance is scaled and leathery, with a toothless, oval-shaped head. Their eyes are multi-faceted like those of Terran insects.

The term "average member" is a bit misleading, however, as the Nugiiri possess several biologically derived castes, again similar to those of Terran insects like bees or termites. The smallest of these is barely 3' in height, while the largest averages 6'6". The exact nature of the castes is poorly understood, and it is not even known how many there are, but they seem to determine the individual's role in society. A few "pre-caste" Nugiiri have been encountered, so it is known that the caste is imposed at some point prior to adulthood, but how this occurs is also unknown.

Psychology

Each individual is shaped by its caste, and in most cases this severely limits its intellectual capabilities. Within the limits of the individual's function in society, it is quite adept, but without a community to embed itself within, it is quite helpless.

Two castes are exempt from this rule. The "leader" caste is rarely encountered away from Kilennur, but possesses Human-level intelligence and flexibility. The so-called "sport" caste is even more unusual, and even more independent. Sports appear to be the Nugiiri designed to handle the unforeseen, dealing with situations that are too quick or too distant for the leader caste to handle. As this includes trading and the rare Nugiiri diplomatic mission, sports are encountered by Humans more often than any other caste. "More often" is a relative term, though, and the Nugiiri would probably never be encountered by Terrans if their home world wasn't relatively close to Terra.

Nugiiri in the Interstellar Wars

By and large the Nugiiri keep to themselves, and actively discourage contact with outsiders. Even sports encountered away from home will avoid speaking with others, and be close-mouthed about their missions when avoidance is impossible.

Suerrat

The third of the three great Human races that inhabited the area of the Imperium prior to the Consolidation Wars, the Suerrat are now grudging subjects of the Vilani. They differ from the Human physical norm more than most, and so still retain a strong identity despite Imperial efforts to bring them to heel.

History

The ancestral Suerrat lived in their homeworld's lush equatorial forests, and were well adapted to that environment. Early Suerrat literally lived in trees, having tamed, and then moved in with, a local predator that made burrows in the largest trunks. Over time they passed through the stages of civilization recognizable to any Terran historian.

The Suerrat paralleled the Vilani in technological development, with one major exception. The two races reached space within a few hundred years of each other, but the Vilani were the only ones to go on and develop the jump drive. The Suerrat used sublight gravitic drives instead. By the time they first encountered the Vilani, they had founded a state of about two dozen worlds, knit together by vast generation ships. The two civilizations traded, and soon the Suerrat had a considerable empire comparable to that of their brethren.

Like the Geonee, Dishaan, and others, the Suerrat were conquered during the Consolidation Wars. Like some of the others, they retain strong memories of their golden age of independence. Though not as actively rebellious as the Geonee, the Suerrat are likely to take up arms against the Imperium if an opportunity presents itself.

Physiology

The Suerrat are Human, though the casual observer might be forgiven for thinking otherwise. They exhibit several genetic traits that are dormant in Terrans or Vilani, producing what many Terrans think of as "ape-like" features. They are small, averaging just over 5' for males and just under that for females. Both weigh in at 130 pounds, which is quite heavy for their size. This is because they are very broad across the chest, and quite muscular – despite the size difference, the Suerrat are about as strong as Terran Humans.

More unusually, their feet are slightly prehensile. Suerrat shoes are usually more like mittens to Terran eyes, soft and freeing the big toe/thumb from the other toes to allow its use. On the right surfaces they are likely to go barefoot.

The most remarkable superficial difference is the coat of fur the Suerrat grow over most of their bodies, missing only on their palms, soles, and from the neck up. This fur is usually red and quite long, though it's worth noting that the Suerrat don't actually have more hair than Terrans – it's just that Terran "fur" is much finer and shorter than theirs. Curiously, Suerrat cannot grow facial hair.

The race has one other adaptation of note, though it is much more subtle than the others mentioned. Their home world orbits a dim red dwarf, and so their days are much less brightly illuminated than those of Terra or Vland. As a result, their retinas are more sensitive than those of Terrans, their eyes are slightly larger, and their pupils are larger still. Some Terrans find their gaze annoying for reasons they can't place; this is probably because their eyes are subtly different from what we're used to.

Practically, this means that the Suerrat are comfortable with a much lower light level than a Terran or Vilani would be. A Suerrat room might be lit by no more than one or two bright LEDs, dim but acceptable to them, uncomfortable and dangerous to a Terran. On the other hand, Suerrat find it difficult to see in the full light of G-class or F-class stars, and have to wear sunglasses on planets orbiting them.

Psychology

The Suerrat have lived in the trees for their entire history, even in the modern period when every group of buildings is associated with a large central tree. Suerrat are more interested in nature than most Human races, but they balance this with a love of crowds and sociability. Their cities are odd mixtures of vast, empty areas needed to support the trees and their associated ecology, punctuated by densely populated "downtowns" where they can meet and interact.

Suerrat sociability extends naturally to other species; a Suerrat's first reaction on encountering a creature that isn't obviously violent is to attempt to communicate. They are very good at taming animals, and their cities are often home to an astonishing variety of domesticated creatures. While Suerrat and Terrans have not had much direct contact, there is already a growing trade in all varieties of Terran animal (and not just ones usually intended to be pets).

Suerrat in the Interstellar Wars

Outside the worlds of their former empire, the Suerrat occupy a special niche in the Imperium. Having colonized space first with sublight drives, they were in no position to be picky about the worlds they settled, and most of them were heavily flawed. Over time, they became masters of living in extreme environments.

When the Suerrat were conquered by the Vilani, their environmental technology wasn't absorbed so much as it was co-opted; to this day they are the ones best suited to run it. Vilani usually live on Vland-like worlds, but even with jump-2 drives many airless or otherwise uninhabitable planets are needed as outposts. The Suerrat make up a significant minority of the population on these worlds, helping to run the systems, and are doubly suited to work in outposts in low or zero-G environments thanks to their prehensile feet.

This puts the Suerrat in the unusual position of being able to maintain some of their own lifestyle despite the Imperial tendency for cultural assimilation. As *the* life-support technicians in Imperial space, Suerrat have managed to intermix their ecological views with Vilani technology; their outposts are considerably more pleasant than similar installations in Terran space. The adaptation of Suerrat technology in this field, and of Suerrat to run it, has been a lucrative source of technology transfer since not long after Terra invented its own jump drive.

Vegans

The first truly alien race encountered by Terrans, the Vegans occupy several worlds near the star Vega, just outside the current coreward border of the Confederation.

History

Like most other subject races, the Vegans received the jump drive from others. Vilani influence was still far away when this happened, but traders from the powerful Geonee state to coreward passed the secret on about 1500 B.C. A conservative race, the Vegans built up a small state about 10 parsecs in diameter around their home world Muan Gwi, then settled down to assimilate what they had taken.

Unfortunately for them, the Vegans were the last known spacefaring race as one headed to the Rim – in other words, they were the obvious anchor on one border of the *Ziru Sirka* when the Imperium was first proposed. For a while they were protected by having the Geonee between them and the Vilani, but after that race was conquered the days of Vegan independence were numbered. The Vilani conquered the original Vegan Polity by about 120 A.D.

Since then the Vegans have been carefully trying to find a way out of their predicament. While not aggressive, or even particularly resentful of the Imperium, they would rather be their own masters. With lives spanning several centuries from birth to death, the Vegans are cautious by Human standards, and have never brought a plan all the way to the point of rebellion. With the right spark from Terra, though, this may change.

Physiology

Vegans are roughly humanoid, but they diverge strongly from Human appearance. Muan Gwi is a small world, so they are very tall – often over 7' in height – but frail and unable to handle Terran gravity for any length of time. Their eyes are at the top of their body at the end of a long fleshy hood; strictly speaking this isn't a "head," in that it doesn't contain any other sensory organs nor can it turn independently of the rest of the body. Vegans hear through a series of ear holes around their shoulders, and a mouth pierces the chest. The mouth isn't dual purpose like a Human's, being only for eating their vegetarian diet; breathing slits flank it on either side.

Muan Gwi is quite arid, so Vegan legs bear a superficial resemblance to those of Terran camels, especially in their broad, soft feet that can easily handle sandy ground. Vegan arms split into many tentacles just below the elbow, producing an odd "hand" that makes it difficult for a Vegan to use Human equipment and vice versa.

Psychology

Terrans often characterize Vegans as stoic, but this is not true. Vegans actually have a range of emotions quite similar to ours, surprisingly for such an alien race. The difference is that their emotions are much *weaker* than those of Humans, to the point that they are rarely swept away by what they feel.

As a result, Vegans are much less ambitious and driven than Humans, and will think about things rather than act. In the Imperium this is probably a good thing, as the thoroughness with which the Vilani put down rebellion would bring disaster if the Vegans ever acted on their feelings about being subjected.

Vegan society before the Consolidation Wars was somewhat similar to that of the Vilani, with citizens divided into castes named *tuhuir*. Despite the similarity, the Vegans find it troubling to live by Vilani ways, as they miss subtleties of the *tuhuir* system that matched particular Vegan needs. There is also resentment at the Imperium's controls on innovation in art, philosophy, and mathematics; these three topics are of great interest to the thoughtful Vegans.

Vegans in the Interstellar Wars

Though other subject races are more obviously opposed to being part of the Imperium, the Vegans may have made the most progress through sheer passive resistance. They follow Vilani dictates in letter, not spirit, and only to the minimum extent necessary to keep the Imperium from cracking down. They follow orders, and back down when challenged, but constantly test the limits of what they can do. After 2,000 years of practice, they are masters of being infuriating without seeming the least bit threatening.

From a Terran standpoint, there are very few races that would make better neighbors. Vegans will follow their own interests without qualms as long as they think they can get away with it. They will gladly help Terrans whenever the help brings discomfort to the Vilani and doesn't endanger Vegan society. As a result, they have proven to be very useful trading partners and sources of intelligence. In many ways they are the Confederation's window onto the rest of the Imperium.

The Vilani Military

The doctrine of "hit it with a big hammer" is indeed crude, but the Vilani have a very large hammer, and have been pounding nails for a very long time. Of course, it has been almost as long since any of the nails have really fought back.

– Hauptmann Heinrich Guthard, Terran Confederation Marines (2166)

The Vilani Way of War

It's been many generations since the Vilani have faced a threat that couldn't be easily crushed by the combined forces of the Navy and Army. The greatest danger to the Vilani is complacency; being on top for so long makes it difficult to imagine another force capable of giving a good fight.

In the millennia that the *Ziru Sirka* has ruled the stars, the Vilani have developed an efficient military machine that is dependent on two things: strict adherence to procedures, and overwhelming force.

To the Vilani military, "The Book" is everything. The Vilani have compiled a vast collection of doctrine and tactics, some of it stretching back to before the Consolidation Wars. The natural conservatism of the Vilani mindset makes it difficult for commanders in the field to improvise, and their training doesn't even bother with realistic exercises to teach them this critical skill. A good way to look at this side of the Vilani military is to think of officers as skilled technicians, able to function within the limits of their training, but forced to refer to "The Book" when anything goes wrong. There are exceptions to this rule – officers who can improvise effectively – but these are rare.

Along with The Book, the Ziru Sirka meets threats with overwhelming force. This is an expression of the Vilani desire for short, "cost-efficient" wars. Even in pre-industrial times on Vland, actual combat was considered wasteful of lives and resources. It was considered far better form to muster a massive force and convince the opponent that resistance would be disaster for him. To this day, the Vilani are likely to open any campaign with a careful attempt at intimidation.

On the other hand, the bluff needs to be carried through if called. If a weaker force chooses to fight, it must be smashed, and collateral damage is not an issue – it's even a benefit. Wanton destruction produces terror and economic hardship, hopefully delivering a lesson that will last long into the peace that follows any war.

If an enemy manages to put up a good fight, the Vilani are likely to stand down and wait for another opportunity. Even during the Consolidation Wars, the Vilani were capable of great patience; they could wait for decades to deliver final defeat to an opponent. Today's more complacent Imperium is even more likely to back down if Terran or allied forces are able to resist the first assault, giving the Confederation a chance to rebuild and regroup.

The Vilani and Glory

The Vilani concept of military glory differs considerably from the Terran version.

The Vilani rarely award medals to *individuals* for achievement on the field of battle. Instead, entire units are recognized, even if only one or two soldiers performed heroically. Perhaps it was Private Kikiima who took out the enemy gun crew after charging 100 yards under heavy fire – but his fellow soldiers gave him covering fire, and his leaders trained him to be able to perform the feat. Hence it's the platoon as a whole that gets the "attaboy" from a commander.

The Vilani don't give medals as we think of them. Instead, the unit receives thanks or a gift from a senior commander. The further the praise originates from up the chain of command, the higher its value. Units hold these gifts and notes in high regard, and display them proudly. A gift might be as simple as a vial of soil from the battle site or a piece of debris from an enemy ship, or a family heirloom from the commander's clan. The rules governing the giving and display of these gifts are quite intricate.

While a Vilani trooper won't get medals pinned to his chest, he is still just as brave as his Terran counterparts. The base motivation for bravery ("please, don't let me be a coward and let my buddies down") is the same in both Terran and Vilani units. Vilani are already attuned to the opinions of others in their civilian society; they remain so in the military.

Of course, the Vilani expect any "barbarian" enemy to use the same tactics of terror and destruction against *them*, if given the chance. This is one reason why the Imperium tries to apply overwhelming force; the plan is to keep any enemy far too busy defending himself to play havoc with Imperial civilian populations. If an enemy *does* manage to break into the Imperial rear, the threat can unhinge an otherwise well-planned offensive as undefended worlds shout for help.

The Vilani Navy

The *Aasha Ziru Sirka* ("Fleet of the Grand Empire of Stars") has been the unquestioned master of the galaxy for thousands of years. Naval personnel *know* they cannot be beaten, and any small losses against barbarians, rebellious provinces, or other renegades are written off as bad luck.

Overall Organization

The *Aasha* doesn't have permanent fleets in the sense that Terrans think of them. Instead, the Vilani assemble fleets as needed from available units, and place senior officers in charge of them for the duration. That being said, there are some squadrons (*mashushshi*) composed of so many ships as to be fleets by Terran standards.

While this lack of consistent organization seems odd to most, it serves the Vilani well. Naval assets are found throughout the territory of a *shangarim*, and these ships can be quickly assembled into the sledgehammer so beloved in Imperial doctrine. Also, the lack of permanent fleets limits the power of commanders in the field, making it harder for one malcontent to gather enough power to be a threat.

In times of war, regional governors order their squadrons into service, and appoint senior officers to command the fleets. Occasionally a governor or other *shangarim* executive of high rank will take personal command of a task force, but this is not common practice. In many cases, commanding officers are recommended by their fellows. The non-linear nature of Vilani ranks makes it easy for a good starship captain to become the equivalent of a Fleet Admiral for the duration of a crisis, then go back to being a simple captain at the end of hostilities.

Vilani naval forces are usually organized around groups of 10: 10 ships make up a squadron, 10 squadrons make up a fleet, and so on. Groups of 10 are often broken into paired groups of five in order to cover more space during extended operations. This isn't a rule or formal regulation, but a simple habit that has become part of Vilani thinking. It is prevalent enough that Terran commanders have developed a rule of thumb: "If you see five Vilani ships, assume there are five more nearby."

Of course, the Vilani aren't unconscious of their "counting by 10s" foible. Vilani slang includes a set of metaphorical expressions that has spread beyond the Imperial Navy into Vilani society as a whole. For example, a formation or organization that's been badly damaged is said to be "counting by eights."

A leader who does the job with insufficient resources is said approvingly to be "counting by nines," whereas the same phrase is used *disapprovingly* of a leader who acts before he is ready. The Vilani say that the Terrans always count by nines, and when a Vilani refers to a "Terran 10," he means *nine*!

A leader who makes sure that every detail is taken care of, and who builds up overwhelming force before acting, is said to be "counting by 11s." This is usually a compliment.

On the other hand, a commander or leader who rarely acts, because he's too busy complaining that he doesn't have enough assets to complete the job, is said to be "counting by 12s." This is *not* a compliment.

Naval Rank

Rank in the *Aasha* is complex. Unlike navies built on the American or European model, there is no linear hierarchy of ranks. Instead, everything is based on function and position.

To this end, the names of ranks take full advantage of the tonal nature of the Vilani language. For example, *Merishmirra*^{6} means cruiser (*merishmir*) captain. *Merishmirra*^{5} means a senior staff officer on board a cruiser, usually an executive or department head. If a *Merishmirra*^{6} officer was to be transferred to a staff position on a large base, his rank would become *Gamirirem*, with the final syllable toned to indicate seniority. This system is very confusing to Terrans, as the tonal changes are subtle, and the concept of changing rank names entirely with each transfer is unfamiliar.

Because of all the different names, there are more than 50 distinct ranks in the *Aasha*, and even more if one considers tonal variations. Trying to remember that *Kurmaruushririi*^{3} means "second assistant jump technician" while the same word toned differently means "senior fleet engineer" gives most Terran intelligence officers headaches.

Battlegroups

The heart of the *Aasha Ziru Sirka*, the Vilani battlegroups (*gaashnarru*) are the force used to enforce the will of central command. The typical Vilani dreadnought or battleship displaces at least 20,000 dtons, and uses massive missile batteries for its main punch. These ships are organized into squadrons of 10, plus escorts and support vessels. The escort fleet is small, usually one or two cruisers per battleship, along with a handful of smaller vessels of 500-dton to 5,000-dton size. One of the battleships will be equipped with a specialized command-and-control center, along with stealth and heavy ECM systems, and will serve as the battlegroup's flagship.

The majority of the battlegroups are held in the Imperium's interior regions. Given the political situation at the time of the early Interstellar Wars, the *shangarim* felt a strong need to keep their strongest weapons close to the centers of power. These fleets were sent to regional governors only in times of dire need, and even then only at great political cost to the governor who called for them.

Cruisers

Displacing 4,000 to 20,000 dtons, the cruisers of the *Aasha* are the heavy ships most often seen on the frontiers. These vessels are equipped for long patrols (at jump-2, any significant patrolling takes many months) and are quite comfortable. Like battleships, they are noteworthy for their large missile magazines. Commanders of *Aasha* cruisers are the most independent-minded in the fleet, since they spend a great amount of time away from more senior commanders. On the other hand, they still have "The Book" hanging around their necks, and a duty to report on all actions while out in the field. Few take advantage of their isolation.

Smaller cruisers operate in "wolf packs" of 10 ships. They patrol together and attack targets of opportunity. Terran commanders quickly learn to be wary of such tactics. The larger ships are used as a reaction force, held at a fleet headquarters until word of an attack comes in. They are also deployed as heavy, short-legged patrollers, securing a small number of worlds (usually along a main).

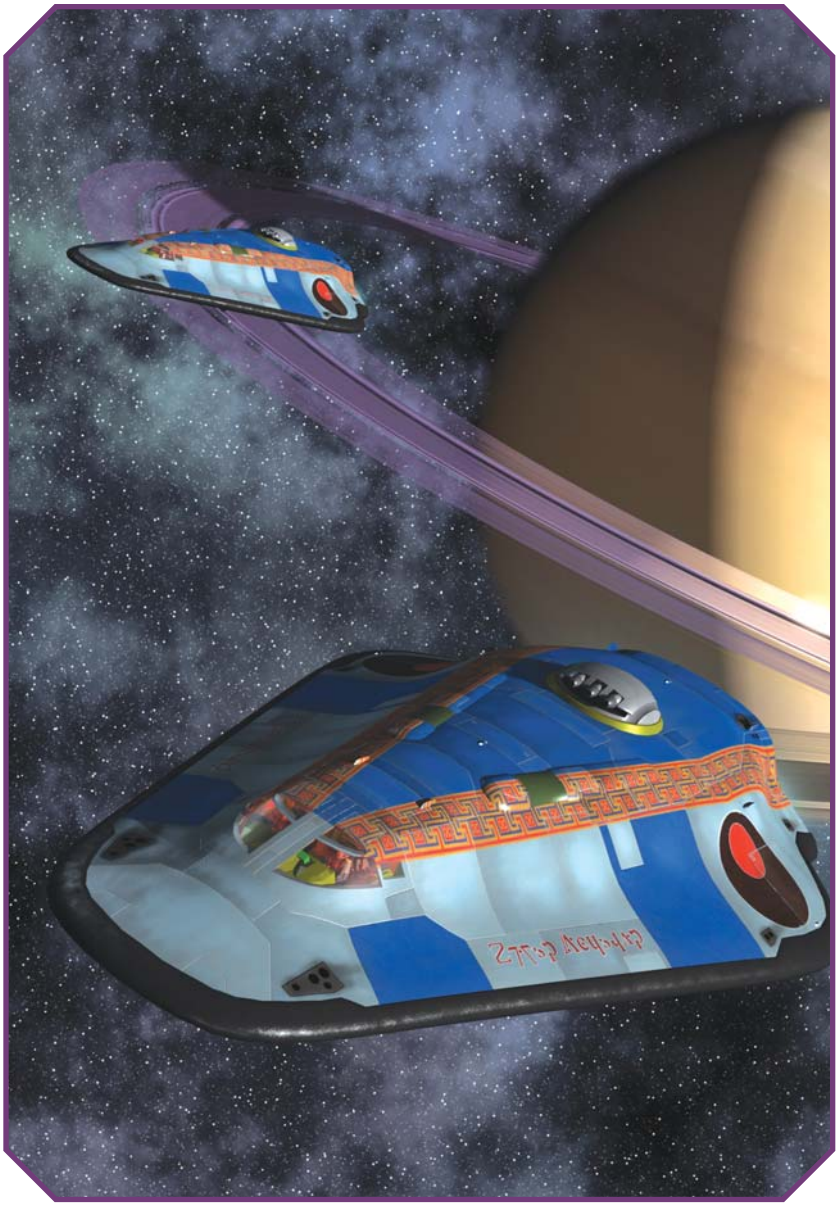
Destroyers and Escorts

The Vilani place little faith in smaller vessels. They don't fit into the "big hammer" strategy, and few of the Vilani's opponents can muster a credible space threat, making the need for a small escort minimal. The few smaller ships the Vilani do use are for escorting civilian vessels and conducting what is best described as customs duties: boarding ships and searching for contraband.

There are larger escorts, displacing 1,000 to 4,000 dtons, which accompany capital ships and cruisers to protect them from missiles and fighters. These ships and their crews carry little prestige, and are held in contempt by those serving on other ships.

Fighters

The Vilani rely heavily on their fighters, short-range ships displacing from 10 to 50 dtons that are used for everything from in-system patrols to massed assaults on battleships. Vilani fighters (*dhue*) usually carry one or two missile racks, with a few point-defense models carrying a laser weapon. In smaller fighters, weapons are in fixed mounts. The largest fighters carry turrets and crews of two or three men. There are also specialized fighters for EW, ground attack, and recon.



To transport the wings of fighters, the *Aasha* uses massive carriers. More like mobile bases than warships, the carriers displace up to 40,000 dtons. Each holds hundreds of fighters, organized into 10-ship squadrons. Fighter squadrons do not necessarily use a single type of fighter; in fact, *dhue* squadrons are organized around their pilots, not the vessels they fly.

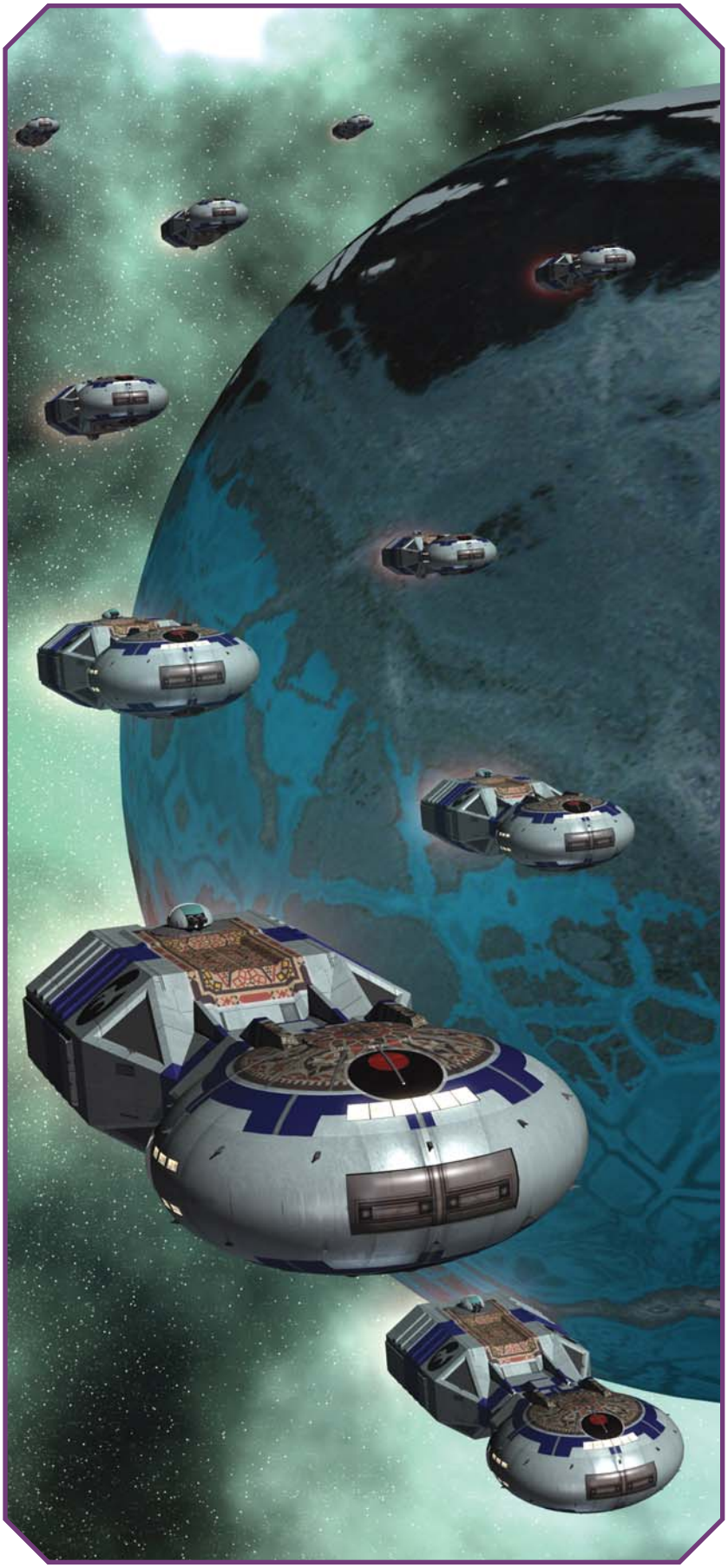
Support Ships

The *Aasha Ziru Sirka* uses hundreds of different classes of support ships. Given the nature of the Imperial government, many of them are simply "civilian" vessels given a new set of orders. Most common are freighters that have been converted to serve as troop carriers or other combat support ships.

The Vilani Marines?

There is no organization in the Vilani military comparable to the Terran Marine Corps. The line between Army and Navy is strictly drawn, and neither service can conceive of a force under the control of one that would execute some of the duties of the other. The closest thing the Imperium has to an elite Marine force is the *Shigniid Dia Ugkin*, the "Legion of the Frontier" (see p. 94).

The *Aasha* does have security troops for shipboard actions and guarding naval institutions, but these are considered naval personnel. Meanwhile, the Army has a few interface craft.



Naval Bases

The Vilani rarely settle unpleasant worlds unless they are important to transportation routes. Logically, then, the Vilani should put their naval bases in the same locations, as by definition their outposts are at chokepoints for fleet movements.

This theory, however, depends on the false assumption that the Vilani worry about stopping fleet movements. It has been almost 2,000 years since anyone fielded a large group of ships against them, and in that time the bases have shifted to protecting individual worlds of importance. Naval bases are therefore almost always placed on Garden worlds, which also solves the problem of leave for stationed personnel.

Naval Strategy

The Vilani expect to know about trouble before it brews, but placing the bases at important planets is intended to guard against times when they do not. In the first stages of a war, the fleets defend their bases and associated worlds. Individual units are detached if the opposition is sufficiently weak, or if a target of opportunity presents itself, but in general system defense is the squadron's first purpose.

While deployed units carry out system defense, other units gather at a convenient *eshiimar* ("marshaling yard") for orders. On average, there is one depot per 10 naval bases, and they are in mothballs for long periods of time, activated only when hostilities begin. The Vilani *eshiimar* closest to Terra is at Dingir; with the constant threat of warfare on the rimward frontier, the Vilani have taken the unusual step of keeping it open continually (though ships still only gather there when the shooting starts).

Once a sufficiently large number of units has gathered, they set out from the marshaling point to demonstrate that one does not challenge the Imperium. The usual tactic is to pick a main that runs from the depot to the source of the trouble, mopping up any resistance along the way with overwhelming shows of force. If this is enough to end the fighting, so much the better, but the *Aasha* is perfectly willing to blast opposing vessels into marble-sized pieces.

Army Rank

Compared to the Navy, the *Gisadia* uses a simple rank structure. There are only six enlisted ranks and eight officer grades. There are also the *amrimkhar*, the equivalent of warrant officers without command duties, who hold technical jobs that require status. See Chapter 6 for a summary of Imperial Army ranks.

Convoy Escort

The Terran Confederation has offered the first notable threat to Vilani lines of trade in over 1,000 years, so the Imperium is relearning how to protect its shipping. Unfortunately for them, the parts of "The Book" devoted to the topic assume that the enemy is limited to jump-1 ships, which is not the case for most of the Interstellar Wars. For the first time since the Consolidation Wars, The Book needs a new chapter. To date, the Vilani have been abysmal at coming up with tactics to deal with the situation; this is fortunate, as once the *Aasha* gets rolling there's not a lot for Terran units to do besides commerce raiding.

The Vilani Army

The *Ziru Sirka* has successfully held onto an empire of thousands of worlds, for thousands of years. Much of the credit can be given to the *Gisadia Ziru Sirka* – the "Army of the Grand Empire of Stars."

Over the centuries the army has gone from being little more than a mob to a highly professional force, then back again. These changes have always been dependent on the current state of security in the Empire. During times of relative peace, the Army has usually failed to maintain its funding against encroachments from the Navy or the *shangarim*. When war looms, or when (as has been the case recently) rebellions have flared, the Army gains stature.

Currently the Army is on the upswing, although in many regions the level of training remains little better than that of a heavily armed police force. Conservatism and the lack of a real foe has left many units composed of "parade ground troops" – troops who look good during drill, but perform poorly in combat.

General Doctrine

The *Gisadia* relies on large, heavy formations to establish superiority quickly, then tries to defeat the enemy in detail. This requires space superiority, which the *Ziru Sirka* has enjoyed for its entire history.

The Vilani don't make frequent use of "drop troops," forces trained to make re-entry in individual capsules, as a regular part of their force structure. A few special operations units do use this tactic on occasion, but it is rare. Instead, orbital bombardment is applied to suppress local defenses, then landing craft are used to shuttle whole battalions down at one time.

Ever wonder what goes on inside a Vilani officer's head? No? Neither does he.
– Common Terran Army joke (c. 2160)

The reason the Vilani do not make use of this tactic isn't technological, but psychological. In any sort of drop, be it from a low-flying aircraft or a ship in orbit, the forces being dropped will experience disruption of command lines due to troops being scattered. Terran troops deal with this by training such forces to act with individual initiative until command is reestablished. To the Vilani, it is inconceivable that a soldier could land and fight alone without direction.

Unlike the regulars, the *Shigniid Dia Ugkin* (p. 94) does make effective use of drop troops.

Infantry Battalions

The base formation of the *Gisadia* is the *nadshemi*, or "infantry battalion." The 1,200 or so troops in one *nadshemi* do the hard job of taking and holding ground. The Vilani infantry are vehicle-poor, with light-skinned APCs as their only means of transportation and support.

The battalion commander has a relatively large staff. Along with the "normal" staff positions such as operations, intelligence and supply, he has additional staff for public relations and security. He also has a number of officers holding the uniquely Vilani position *shugilii*, acting as a sort of chaplain's corps.

Each battalion has six companies: five infantry and one for command and support.

Tank Battalions

The Army also deploys *ishkaaim*, or "tank battalions." The Imperium still uses ground vehicles for its heavy tanks. The largest are wheeled or tracked, but the majority of them are ground effect vehicles. Vilani tanks use missiles and rapid-fire cannon to destroy the enemy. Imperial armor tactics resemble classic cavalry tactics of the pre-industrial era – probe for weakness, then get into the rear area to raise havoc.

Because of the difficulty in transporting ground vehicles, armor units make up a very small percentage of the forces used on the offensive. More often than not, they are found in the defense, where they can prepare for enemy attacks. Tanks are also used to occupy particularly restive worlds; the Vilani are not above using armored formations to literally crush civilian uprisings when necessary.

Tank battalions consist of three oversized companies along with a command and support company. The battalion commander has a smaller staff than his infantry counterpart, and is dependent on higher command for intelligence and much of his support.

Larger Formations

Gisadia forces rarely move in groups smaller than division strength. Units of this size, called *lurkugi*, are made up of six combat battalions, extra artillery (mostly missiles), and a support battalion.

The next larger unit is the *kuearda*, a corps-strength group of three to five *lurkugi*. Extra forces are added as needed. A unit of this size is only moved when a grave threat is perceived.

Beyond the *kuearda* is the *sukauuaashdug*, or "supreme army group," a collection of forces that haven't been used on the offensive in centuries. Each *sukauuaashdug* has several *kuearda* and whatever support its commander feels necessary. An Army officer commanding such a unit is one of the few who can confidently give orders to the Navy.

The Shigniid Dia Ugkin

Occupying a unique niche in the Ziru Sirka military, the *Shigniid Dia Ugkin* ("Legion of the Frontier") is the wild card in the otherwise predictable Vilani armed forces. Made up of subject-race troopers, malcontents, and outright criminals, the *Shigniid Dia Ugkin* is a cross between a penal battalion and the French Foreign Legion.

The *Shigniid Dia Ugkin* is composed solely of assault troops. In training and temperament, the force is unsuited to almost any other role. It is thrown into battle with little regard for casualties, since its members are not what the Vilani consider ideal citizens in any case. The troops of the Legion have developed a fatalistic attitude that is best summed up by its unofficial motto: *"Diduma inshaiirshurla aipgia ginagkhuuirkake kakiiinkhish khiikishela ad."* ("We have come here to die, and only the gods and officers know when that will happen.") *Shigniid Dia Ugkin* units operate their own spacecraft, and can be used as privateers in war.

> *The Frontier Legion's motto starts, "We have come here to die . . ." I think ours should be "Always happy to oblige."*
>
> *– Staff Sergeant John Sevdalian (2165)*

Recruiting for the *Shigniid Dia Ugkin* is difficult. Unlike Terrans, who find units like the Foreign Legion romantic, the typical Vilani sees the Legion as the equivalent of a prison sentence. Indeed, many of the Legion's recruits are accepted directly from prisons, or are given a choice between service and "hard time" when convicted of crimes. Others are encouraged to join by families who wish to hide a "black sheep."

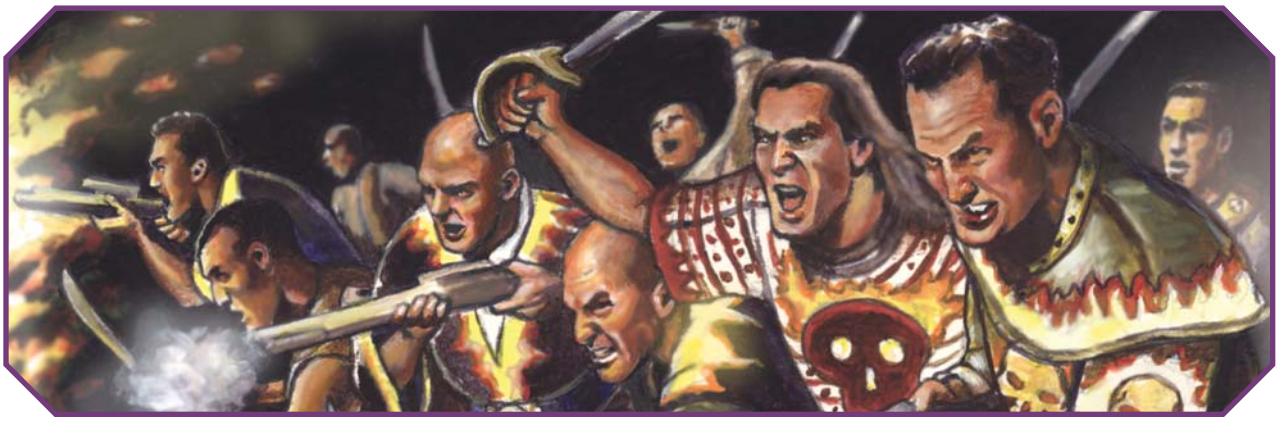
Legion officers are theoretically assigned from the regular Army, but here too the *Shigniid Dia Ugkin* is seen as a convenient dumping ground for junior officers who fail to conform to the Vilani way. This results in the *Shigniid Dia Ugkin* being, by far, the most versatile force in the Imperial Army. It is on par with a good Terran unit with regard to innovation and tactical flexibility.

One difficulty faced by the Legion is supply. *Shigniid Dia Ugkin* storehouses are always the last to get supplies, and they tend to always be under-stocked. To counter this, the Legion has developed a tradition of looting and adaptation. *Shigniid Dia Ugkin* units carry a wide variety of personal weapons, gear, and even uniforms.

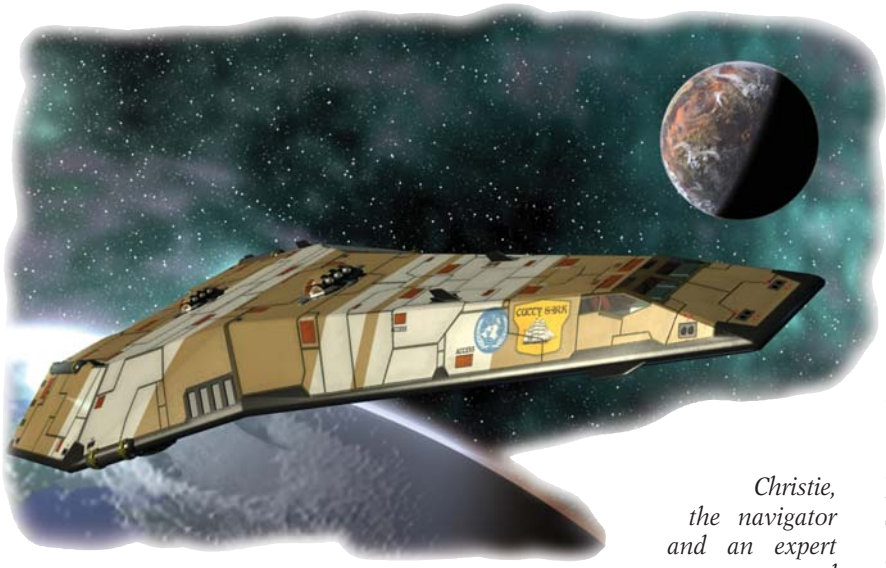
One unifying factor in the Legion is its love of bladed weapons. From the *kiikag* (a dagger with a brass knuckle-like guard) to the *khapsish* (a heavy, cutlass-like blade), no member of the *Shigniid Dia Ugkin* feels comfortable without his blade. Those who have survived assaults by the *Shigniid Dia Ugkin* describe howling mobs waving swords, even when boarding spacecraft!

Members of the *Shigniid Dia Ugkin* know their reputation, and work to enhance it. They tend to decorate any vehicles they come to possess with images of skulls and fire, wear as much ammunition as possible (along with the knives, of course), and even go to extremes in personal grooming.

Although the *Shigniid Dia Ugkin* can be found almost anywhere along the Imperial border, it is organized into units no larger than a company. There is usually one group of five Legion companies per frontier sector.



Chapter Five
The Known Universe



January 15, 2171 – Uruk star system, in Imperial space:

"Now, that's impressive."

Captain William Blake stood watching the viewscreen as ***Cutty Sark*** *made its final approach to the world called Uruk. To everyone's surprise, the screen displayed not one world, but two. The nearest sphere was blue-white, with touches of brown and green, the colors of a habitable world. The more distant was white and reddish-brown, the colors of a Mars-like desert world, but with the faint haze at its limb that denoted a significant atmosphere.*

Christie, the navigator and an expert astronomer, read figures from the panel before her. "This is a double-planet configuration, like that of Terra and Luna but with much less difference in size between the two components. Uruk has about 0.63 Terran masses, its companion Ishkar about 0.4. The distance between them is a constant 320,000 miles. The two worlds are in a state of mutual tide-lock."

"Long days, then," observed Blake.

Christie nodded, not bothering to refer to her panel as she made the necessary calculations in her head. "One day-night cycle will take about 47 standard days. The local weather patterns must be dominated by that cycle rather than by the seasons. Native life will be quite hardy, and accustomed to very long periods of darkness."

"It doesn't sound very hospitable, but the Vilani put their subsector capital here. I wonder what makes the place worth living on."

Christie shrugged. "I couldn't speculate, sir."

"Well, there's only one way to find out," Blake grinned. "Let's go see."

Interstellar Wars adventurers will spend a lot of time traveling among the stars, visiting worlds held by Terrans, Vilani, or other interstellar civilizations. The ***Traveller*** universe is a vast one, with many thousands of individual worlds to visit and explore.

This chapter covers the nature of *Charted Space*, the region of the galaxy that has been mapped by known spacefaring civilizations. It includes rules for describing worlds, and for generating new worlds on which adventures can be set. It also includes a detailed look at the region of space nearest to Terra – the primary battleground for the first half of the Interstellar Wars era, and the region most familiar to Terran explorers and Free Traders.

Describing Worlds

This book uses a specific format to give thumbnail descriptions of worlds. The terms defined in this section will be used both to describe specific worlds in the ***Interstellar Wars*** universe (for example, see *The Terran Neighborhood* on p. 101) and to help the GM design his own worlds (see *Placing Main Worlds* and *Placing Populations*, starting on p. 127).

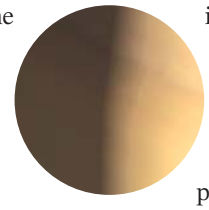
Mapping the Galaxy

Following ***Traveller*** and ***GURPS Space***, we use the *parsec* as a standard unit of measurement for interstellar distances. One parsec is equal to about 3.26 light-years, or 19 trillion miles.

Space is three-dimensional, but ***Traveller*** simplifies star-mapping by projecting the galaxy onto a two-dimensional plane. Star maps are thus oriented with the *coreward* direction at the top, toward the center of the Galaxy. The opposite direction is *rimward*. The direction of galactic rotation is toward the left edge of a standard map, designating the *spinward* direction. To the right edge of a standard map is the *trailing* direction.

The map of the known universe (p. 100) covers a region of the local arm of the galaxy, about 200 parsecs "wide" (spinward-to-trailing) and 240 parsecs "deep" (coreward-to-rimward). This region stretches roughly from Vland to Terra, and takes in the main body of the Vilani Imperium. Vilani astrographers divide space into *sectors*, rectangular regions that are exactly 32 parsecs wide and 40 deep and contain roughly 400 to 500 stars. Each sector is further subdivided into 16 subsectors, which are eight parsecs wide and 10 deep. Terran astrographers have picked up these conventions and use them in their own maps of the galaxy.

In ***Traveller***, space is mapped on a hexagonal grid, with each "hex" being one parsec across. Hence a sector is 32 by 40 hexes, and a subsector is eight hexes by 10. Each hex on the map is either empty or contains one star system. Each star system is considered to have a single "main world" that is the focus of Human or alien activity; in ***Traveller*** the details of the rest of the star system are often ignored.



Physical Details

The first few parameters given for each main world have to do with the world's physical properties: its overall type, size, surface environment, and potential value to colonists.

World Type (Type)

Terrestrial planets, the small worlds occupied by Humans and similar species, fall into several general types. A world's type depends on what *volatiles* the planet can retain over billions of years. Volatiles are chemical compounds with low melting and boiling points; they make up the bulk of a planet's atmosphere and hydrosphere. Hydrogen, nitrogen, oxygen, water, carbon dioxide, and a number of other familiar compounds are all volatiles.

Over long periods of time, heavy volatiles tend to stay in the planet's atmosphere while lighter compounds escape into space. A large, dense planet might be able to retain volatiles as light as hydrogen gas. A smaller world may be unable to hold onto compounds such as water, free oxygen, or carbon dioxide. Worlds closer to their primary star will have more difficulty retaining volatiles. All of this has a profound effect on the world's surface environment, particularly including whether or not it is capable of supporting Human life.

In ***Interstellar Wars***, the following world types are relevant.

Asteroid Belt: The "main world" of the star system is actually a settled asteroid belt. The bulk of the system's population lives in artificial habitats, floating freely in space or built inside the belt's largest asteroids. Inhabited asteroid belts are often major mining and industrial centers.

Barren (Ice): The main world of the star system too small to retain significant atmosphere, but it is far enough from the primary star that it can have rich deposits of water ice and similar frozen volatiles. Most Barren (Ice) worlds are actually large moons orbiting gas giant planets. Examples in the Terran system include Jupiter's moons Callisto and Europa.

Barren (Rock): The main world is too small to retain an atmosphere, and too warm to have much ice. The surface is almost entirely composed of naked rock, pocked with craters. Some Barren (Rock) worlds are large moons, while others are planets in their own right. Examples in the Terran system include Mercury and Luna.

Desert (Ice): The main world is large enough to hold onto an atmosphere, although that atmosphere may be very thin. It is cold enough to have a great deal of ice and other frozen volatiles. It may even have liquid "oceans," although these are very unlikely to be composed of pure water – they may be full of hydrocarbons or other odd substances instead. Most Desert (Ice) worlds are large moons orbiting gas giant planets. The sole example of a Desert (Ice) world in the Terran system is Saturn's moon Titan.

Desert (Rock): The main world is large enough to hold onto an atmosphere, but that atmosphere is probably very thin. The world is not large enough to retain water vapor. As a result, any water that the world originally had has probably escaped to space, perhaps leaving behind a few buried deposits of water ice. The foremost example in the Terran system is Mars.

Garden: The main world is very suitable for Human habitation. It has a significant atmosphere, plenty of liquid water to form oceans, and a pleasant climate. It also has extensive life, either locally evolved or imported, including photosynthetic organisms (plants) that can maintain free oxygen in the atmosphere. Terra itself is the best example of this class of world.

Glacier: The main world has a thick atmosphere and plenty of water – indeed, the world may have much *more* water than a typical "ocean world" like Terra. However, the world is so cold that most of this water is frozen, covering the rocky surface with a thick coat of ice. Photosynthetic life is rare or completely absent, so the atmosphere has little or no free oxygen. There is no example of this kind of world in the Terran system.

Greenhouse: The main world began its existence with a thick atmosphere and a good supply of water, but at some point it became too warm to support a habitable environment. As the oceans began to boil, the atmosphere experienced a "runaway greenhouse effect." Some Greenhouse worlds ("wet greenhouses") still have oceans of surface water, trapped by intense atmospheric pressure. Others ("dry greenhouses") have lost all of their original water to space. In either case, the surface environment is extremely hostile, the air unbreathable and furnace-hot. Venus (a "dry greenhouse") is the only example of this class of world in the Terran system.

Pre-Garden: The main world has a significant atmosphere, plenty of water, and a hospitable climate. However, photosynthetic life has not yet evolved or been established on the surface. As a result, the atmosphere contains little or no free oxygen. There are no examples of this class of world in the Terran system, although Terra itself fell into this category a billion years ago.

Subgiant: The main world is very large and cool, and was able to retain helium and even hydrogen gas from its era of formation. However, for

some reason it failed to undergo the process of "runaway accumulation" that would normally have given rise to a gas giant planet. The end result is a world with a very dense atmosphere of helium, hydrogen compounds, and (for the largest worlds) hydrogen gas. Unlike a gas giant planet, the subgiant world has a well-defined solid surface and may have oceans of liquid water mixed with other substances. There are no examples of this class of world in the Terran system.

Size (Dia)

A world's size is described in terms of its *diameter*. Some "worlds" are actually *asteroid belts*, composed of hundreds of small objects no more than a few hundred miles in diameter. Other worlds are planets or large moons, single solid bodies thousands of miles across.

Planets are also sometimes described according to their *density*, the average mass per unit volume in the planet's body. A Terra-like world will usually have an iron core of very high density, overlaid by a thick layer of less-dense rock and stone (the very thin layer of water and air is almost negligible on this scale). A planet with a smaller iron core would be less dense; a planet with more iron and less rock would be denser. Some large moons have bodies that contain a great deal of *ice*, which is even less dense than rock.

World density is expressed as a proportion of Terra's density – a world with a density of 1.0 is exactly as dense as Terra and probably has a very similar composition. Density normally ranges from 0.3 (a world with a great deal of ice in its body) to 1.4 (a world that is almost a ball of solid iron). Some textbooks and game sourcebooks prefer to give density in grams per cubic centimeter (g/cc); to get density in these units, multiply the density rating by 5.5.

Gravity (Grav)

Each world's *surface gravity* is measured in *Gs*, multiples of the surface gravity of Terra. A world with surface gravity of less than 1 G has a weaker "pull" than Terra, while a world with surface gravity greater than 1 G has a stronger "pull."

Atmosphere

One of the most important questions any visitor to a world will have is, "Can I breathe the air?"

Breathable atmospheres, composed primarily of nitrogen and oxygen, are defined by their *pressure*. A breathable atmosphere can be Very Thin, Thin, Standard, Dense, or Very Dense. A *Standard* atmosphere has no special effects; the other pressure categories are defined on p. B429 and have effects as described there.

A breathable atmosphere may be *Tainted*. A Tainted atmosphere contains some contaminant that makes it dangerous to breathe without a filter mask or some other simple protective device. A tainted atmosphere is mildly Toxic (p. B429), usually requiring a HT roll no more than once per hour to avoid 1 point of toxic damage. Most tainted atmospheres can be breathed safely while wearing a filter mask (p. 167). For more detail on Tainted atmospheres, see *Atmospheric Taints*, p. 125.

Unbreathable atmospheres present varying degrees of danger to unprotected Human visitors. They can be *Suffocating*, not actively poisonous but lacking in free oxygen. They can be *Toxic*, actively doing damage when breathed directly. Or they can be *Corrosive*, attacking exposed tissues and requiring full-body protective gear. All three of these categories are as described on p. B429.

Interstellar Wars defines one category of unbreathable atmosphere that does not appear in the ***Basic Set***. An *Insidious* atmosphere is considered to be Corrosive, requiring full-body protection. However, unless protective equipment is specifically designed for that particular atmosphere, the equipment will fail after 2d hours. Insidious atmospheres represent environments that are so hostile as to overwhelm "off-the-shelf" protective equipment, or that are capable of somehow getting around the protection offered by such equipment.

Hydrographic Coverage (Hyd)

Planets are also described in terms of their *hydrographic coverage*, the portion of the world's surface that is covered by "oceans" of some liquid material. On a Terra-like world, the oceans will be composed of liquid water; on more hostile planets the oceans may be composed of more exotic substances.

Many worlds that have no liquid oceans on the surface may be rich in water or other ices; they may also have extensive underground water or ice. These features do not count toward the hydrographic coverage, but may be of interest to visitors.

Surface Climate (Climate)

The fastest way to describe a world's overall climate pattern is to talk about the *average* surface temperature for the world. Local temperatures will naturally vary widely from this average. Rather than give a single precise figure, it is more useful to give a range of "most typical" temperatures, which can be understood as representative. The temperature ranges used in ***Interstellar Wars*** are given in the World Climate Table.

World Climate Table

Climate Type	*Temperature Range (F)*	*Temperature Range (K)*
Frozen	Below -20°	Below 244 K
Very Cold	-20° to 0°	244 K to 255 K
Cold	0° to 20°	255 K to 266 K
Chilly	20° to 40°	266 K to 278 K
Cool	40° to 60°	278 K to 289 K
Normal	60° to 80°	289 K to 300 K
Warm	80° to 100°	300 K to 311 K
Tropical	100° to 120°	311 K to 322 K
Hot	120° to 140°	322 K to 333 K
Very Hot	140° to 160°	333 K to 344 K
Infernal	Above 160°	Above 344 K

Climate Type is a descriptive name for the world's overall surface climate. *Temperature Range (F)* gives the associated range in degrees Fahrenheit. *Temperature Range (K)* gives the same range in *kelvins*, an absolute unit of temperature that is often used by scientists, and which can be used in certain computations in worldbuilding.

Note that Frozen and Infernal climates are considered uninhabitable for Humans; those climate ranges are typical of barren worlds outside the "life zone" of a star system. Most Humans will find Very Cold, Cold, Hot, and Very Hot climates to be uncomfortable, so worlds with those climate types will be difficult to live on.

Resources (RVM)

Every world has some value to Human or other settlers: mineral resources, native plant or animal species that generate useful products, even something as simple as arable land on which crops can be sown. ***Interstellar Wars*** uses the Resource Value Modifier (RVM), a number between -5 and +5, to describe the overall resource value of a world.

An RVM of +0 indicates a world of average resource wealth, likely to attract settlement only if it is reasonably habitable. An RVM above +0 indicates unusual resources, which may attract settlers even if the local environment is hostile. An RVM below +0 indicates a world unlikely to offer any resources worth exploiting.

Affinity (AFF)

The *Affinity* score for a given world is a summary of all the factors that might make the world attractive to Human settlement – whether the surface environment is hospitable or not, the level of local resources, and so on. The Affinity score is a number between -5 and 11, and is closely related to the Resource Value Modifier.

Social Details

Each world is also described in terms of its social environment: the allegiance and size of the local population, the size and availability of starport facilities, details of the local government, and the size of the local economy.

Allegiance (Alg)

A world will usually have an *allegiance code* that indicates who "owns" the world. Each allegiance code can have a "subcode" indicating that the world is inhabited by a specific subculture or unusual population. The most likely examples are given here; GMs designing their own regions of space for adventure are encouraged to come up with more allegiance codes and subcodes as needed.

Im (Imperial): The world is claimed and governed by the Vilani Imperium. An Imperial world without a subcode is inhabited by the mainstream "Imperial Vilani" culture.

*Im-K (Imperial-**kimashargur**):* The world is populated primarily by *kimashargur* Vilani (p. 18).

Im-Ve (Imperial-Vegan): The world is populated primarily by Vegans under Imperial rule (p. 88).

Cs-Im (Imperial Client State): The world is aligned with and subordinate to, but not officially a part of, the Vilani Imperium.

Te (Terran): The world is claimed and governed by the Terran Confederation, and is populated predominantly by Terrans.

Te-V (Terran-Vilani): The world is populated primarily by Vilani, and was conquered or annexed by the Confederation.

Cs-Te (Terran Client State): The world is aligned with and subordinate to, but not officially a part of, the Terran Confederation.

Ve (Vegan): The world belongs to the independent Vegan Polity (after 2236 in the official history; see p. 36).

Na (Non-aligned): Independent neutral world without affiliation.

Population

Each world's population will be given. A world's listed population includes both permanent residents and long-term transients; "temporary" workers at the starport or a naval base are included, but short-term visitors are not. Population is always given to two significant figures (i.e. "1.3 billion" instead of "1.265 billion").

Each world also has a Population Rating (PR). This is the "order of magnitude" of the world's population; increasing the PR by one multiplies the actual population by a factor of 10. For example, a world with a population between 1.0 million and 9.9 million has a PR of 6; a world with a population between 1.0 billion and 9.9 billion has a PR of 9.

Starport Class (Port)

Starports are graded by their ability to provide fuel, spare parts, and repairs to visiting starships. The following classification applies to the main starport on any given world; most worlds will have several ports of lower class than the main starport.

Class A (Excellent quality installation) starports are the largest and best equipped, with facilities for even the largest starships. Visiting crew and passengers will find hostels, recreation and training facilities, warehouse space, and so on. Refined fuel will be available. There will be a shipyard capable of constructing new starships, and an extensive repair facility.

Class B (Good quality installation) starports are somewhat smaller, but still well equipped. Services for visiting crew and passengers are present, but less extensive. Refined fuel will be available. There will be a shipyard capable of constructing non-starships from scratch; the shipyard will be able to provide repairs and maintenance overhaul service for starships.

Class C (Average quality installation) starports are common on low-population or backwater worlds with limited interstellar trade. Services for visiting crew and passengers will be basic, and many visitors may simply choose to live aboard ship. Only unrefined fuel will be available. Basic repair facilities will be present, but complex repairs (or a ship's annual maintenance overhaul) will have to be done elsewhere.

Class D (Poor quality installation) starports are common on worlds that see almost no starship traffic. There will be almost no services for visiting crew and passengers. Only unrefined fuel will be available, and there will be no significant repair facilities.

Class E (Frontier installation) starports are usually found on worlds that have been explored but have almost no outside contact. The starport is essentially a marked area of open ground. There are no services for visitors, and there are no refueling or repair facilities.

Class X (No installation) indicates a world with no starport at all and no provision for any ship landings. Class X "starports" are typical of uncharted worlds, or of worlds that have been "interdicted" (forcibly cut off from interstellar contact).

Some worlds will have a separate starport facility for Terran, Imperial, or other naval forces. Such a "naval base" is indicated in ***Interstellar Wars*** world data by an N added to the starport class; for example, a class A starport with a naval base will appear in world data listings as having an "A-N" starport.

Government Type (Government)

Interstellar Wars uses a subset of the government types and special conditions listed on pp. B509-510 to describe local world governments. The following government types are most common for Terran and Vilani worlds.

Anarchy: This is a rare type, found only on worlds on which local government has collapsed, or where the population density is too low to support formal government.

Athenian Democracy (AthDem): This government type is only found on a few low-population Terran worlds. The concept of mass participation in government is almost unthinkable to the Vilani.

Caste: This government type is common on medium-population Vilani worlds. Such worlds often have a "primitive" form of Vilani social organization, reminiscent of the institutions first established on Vland thousands of years ago. The population is organized into dozens or hundreds of adoptive castes, with no one caste clearly in charge. Sharurshid and the other *shangarim* usually have only limited involvement in local government, and the interstellar Imperial aristocracy is likewise not much in evidence.

Some Vilani worlds that have come under Terran rule still retain a Caste government type. On these worlds, the Terran governing class is trying to leave most Vilani customs and social structures alone. The newcomers therefore operate as a new "ruling caste" within the largely unchanged Vilani society.

Clan/Tribal: This government type is occasionally found on low-population Vilani worlds. It functions rather like the Caste type, but is even more primitive – castes are usually subordinate to family and clan relationships.

Corporate State (Corporate): This government type indicates a world run like a business by one or more allied corporations. Both Terran and Vilani worlds sometimes come under this government type. Within the Imperium, it indicates direct rule by one of the *shangarim* and its many subsidiaries, with profit-making a primary government concern. In Terran space, a Corporate State is usually a colony world established and run by one of the Terra-based industrial conglomerates.

Dictatorship: This government type is found on a few high-population Terran worlds. Terran colonies rarely *start* as dictatorships – such a government usually seizes power only after a social upheaval that undermines local democracy. Some Terran worlds with the Dictatorship government type are currently under Confederation military rule, after "peacekeeping" forces were sent in to calm an unstable social situation. Conquered Vilani worlds often go through a period of military rule as well, and are considered Dictatorships during that time. Dictatorship is a very *rare* government form in Imperial space. The Vilani prefer government by consensus, at least among the ruling class, and rarely accept rule by a single individual.

Feudal: This government type is very common on Vilani worlds, and is probably the prevalent political form within the Imperium. The name is rather misleading, as the Vilani do not practice military feudalism of the form once frequently found on Terra. Instead, they practice a kind of *corporate* feudalism in which the aristocracy is one of economic managers. These worlds have fully established caste systems that are governed by the *shangarim* by way of the interstellar Imperial aristocracy (see p. 78 for a discussion of Vilani noble titles and responsibilities). A Feudal world is intimately involved in the wider Imperium, with extensive political and trade links to nearby systems.

Representative Democracy (RepDem): The most common government type on Terran worlds, including once-Vilani worlds that have been conquered and assimilated by the Terran Confederation. Officials who are elected by the population set laws and government policy. The Confederation has a policy of encouraging representative government everywhere that local conditions make democracy practical. The constitutional details change from world to world (especially on worlds that have home rule – see p. 131).

Theocracy: This government type appears on a few high-population worlds. On Terran worlds it represents true rule by a religious elite, usually derived from one of the major Terran faiths. Vilani religious ideas are somewhat different; a Vilani "theocracy" is usually not overly concerned with deities as such, but with the rigidly careful maintenance of ancient traditions. A "theocratic" world in Imperial space is usually dominated by the *shugilii* caste (p. 73).

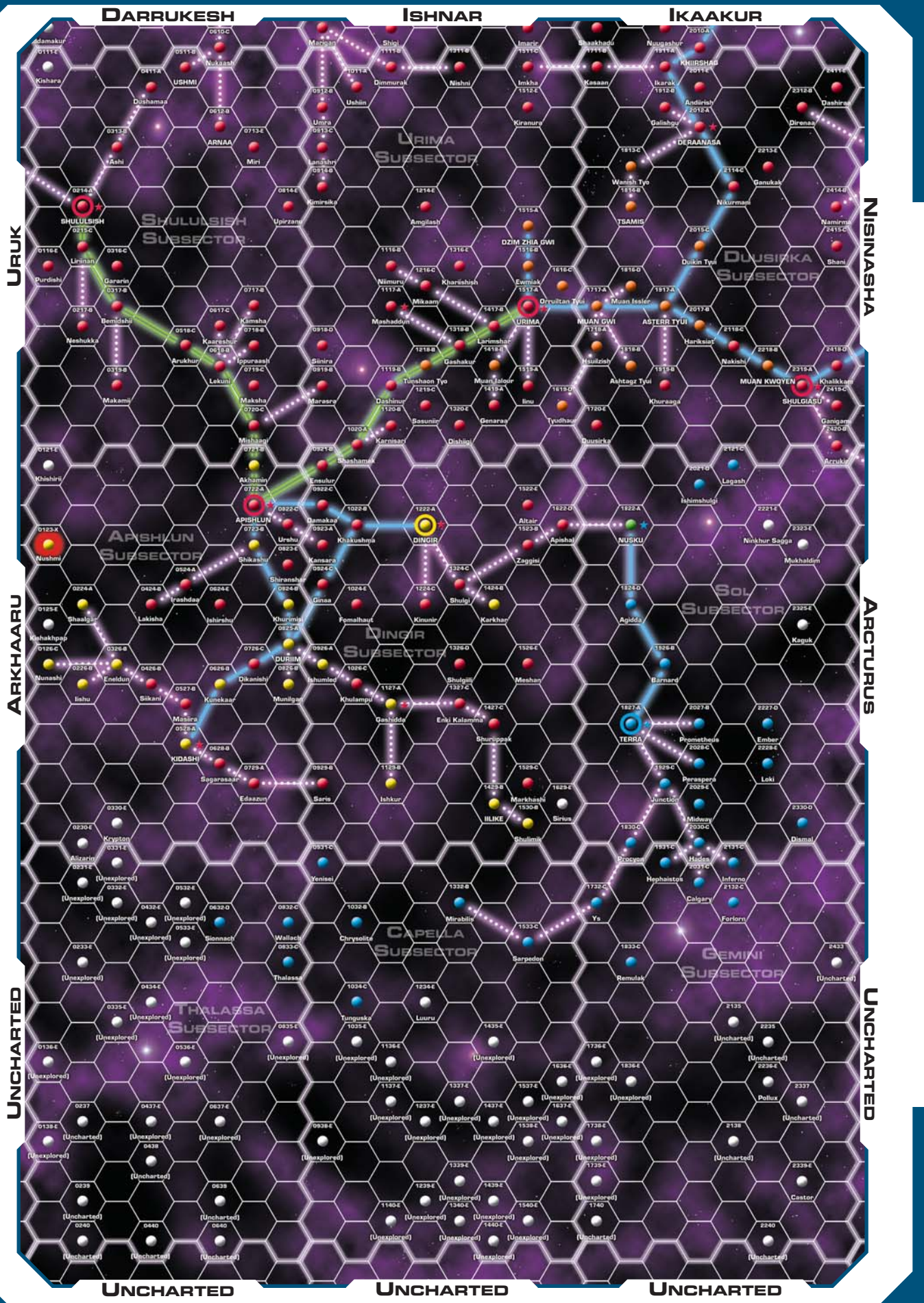
Control Rating (CR)

Interstellar Wars uses the Control Rating system (p. B506) to describe the level of local governmental control. Use the rules from the ***Basic Set*** to estimate how often local government will interfere with visitors to a given world.

Technology Level (TL)

Every world has an associated Tech Level (see p. B511). ***Interstellar Wars*** defines a number of technologies that are not standard for ***GURPS*** (see Chapters 7 and 9 for details). TL10 represents the "Imperial standard" technology, the best available to the Imperium throughout the era. The Terran Confederation progresses from TL9 to TL11 during the course of the Interstellar Wars.

Note that in ***Interstellar Wars***, the Tech Level of a world does *not* normally indicate that only goods at that Tech Level are available there. Most worlds have access to off-planet commerce, and can buy goods at any Tech Level through the interstellar trading network. Visitors to a backwater Imperial world with TL7 will still be able to buy TL10 goods (probably at a premium cost, since they must be imported).


Darrukesh
Ishnar
Ikaakur
Uruk
Nisinasha
Arkhaaru
Arcturus
Uncharted
Uncharted
Uncharted
Uncharted
Urima Subsector
Shululsish Subsector
Duusiirka Subsector
Apishlun Subsector
Dingir Subsector
Sol Subsector
Capella Subsector
Gemini Subsector
Thalassa Subsector
SHULULSISH
USHMI
ARNAA
Miri
Ashi
Nukaash
Dushamaa
Kishara
Marigar
Shigi
Dimmurak
Nishni
Ushiin
Umra
Lanashri
Kimirsika
Upirzanu
Amgilash
Imaric
Imkha
Kiranura
Shaakhadu
Kasaan
Nuugashur
KHIIRSHAG
Ikarak
Andiirish
Galishgu
DERAANASA
Dashiraa
Direnaa
Wanish Tyo
TSAMIS
Nikurrmani
Ganukak
Namirma
Shani
Duikin Tyu
DZIM ZHIA GWI
Ewmiak
Orrultan Tyui
URIMA
MUAN GWI
Muan Issior
ASTERR TYUI
Hariksiat
Nakishi
MUAN KWGYEN
SHULGIASU
Khalikkam
Ganigam
Arrukir
Lagash
Ishimshulgi
Niimuru
Khariishish
Mikaam
Mashaddun
Larimshar
Gashakur
Tunshaon Tyo
Muan Ialosir
Ashtagz Tyui
Khuraaga
Hsuilzish
Tyudhau
Duusirka
Iinu
Genaraa
Basuniir
Karnisari
Dishiigi
Dashinur
Marasra
Shashamaa
Ensulur
Damakaa
Khakushma
DINGIR
Altair
Apishal
NUSKU
Ninkhur Sagga
Mukhaldim
Zaggisi
Shulgi
Karkhar
Kinunir
Fomalhaut
Ginaa
Shiranshir
Kansara
Shikashu
Ursha
APISHLUN
Nushmi
Irashdaa
Lakisha
Ishirshu
Shaalga
Kishakhpap
Agidda
Kaguk
Barnard
Meshan
Shulgiii
Shumlea
Dikanish
DURIIM
Eneldun
Nunashi
Iishu
Siikani
Kunekaar
Munilgan
Khulampu
Gashidda
Eniki Kalamma
Shuriippak
TERRA
Promethesa
Ember
Peraspero
Loki
Junction
Midway
Dismal
Procyon
Hades
Hephaistos
Inferno
Calgary
Forlorn
Ys
Mirabilis
Markhasha
ILLIKE
Sirius
Shulimik
Masira
KIDASHI
Sagarasaar
Edaazun
Saris
Ishkur
Yenisei
Krypton
Alizarin
Sionnach
Wallach
Chrysolite
Serpedon
Remulak
Tunguska
Luuru
Thalassa
Castor
Pollux
(Unexplored)
(Uncharted)

Unless a character grew up on a world that was actually cut off from the rest of the galaxy, he will probably be familiar with equipment at the maximum TL available. On the other hand, people from a world with low TL are likely to be *poor*. The Tech Level of a world *does* indicate the technology most commonly available to local industry, which determines the *productivity* of the local economy, which in turn determines the typical wage and standard of living for the local population.

Trade Classifications (Trade)

Trade classifications note clusters of economically meaningful world characteristics. These are important natural or demographic features that can influence a world's preferred imports or exports. They can also influence the real wealth available to citizens of the world.

Ag (Agricultural): The world's economy is dominated by the production of foodstuffs and related goods.

Ex (Extreme): The world is inhospitable, requiring the use of artificial habitats. Vacc suits or other extensive protective gear is required to venture outside.

In (Industrial): The world's economy is dominated by heavy industrial production.

Na (Non-Agricultural): The world is dependent on synthetic or hydroponic food production and imported food.

Ni (Non-Industrial): The world has almost no heavy industry, and is dependent on imports for all of its heavy equipment.

Po (Poor): The world's population suffers under low-grade living conditions, and much of the world's economic production is used to simply maintain local infrastructure.

Ri (Rich): The world is very hospitable, and the population enjoys high-grade living conditions.

World Trade Number (WTN)

Every world has an associated World Trade Number (WTN). This is an abstract measure of the *economic output* of the world – essentially, the total value of all goods and services produced there, modified by the level of offworld trade that takes place through the world's starport. The World Trade Number is used in the trade rules (p. 177) to help determine where major trade routes are, and how much trade takes place between any given pair of worlds.

The Terran Neighborhood

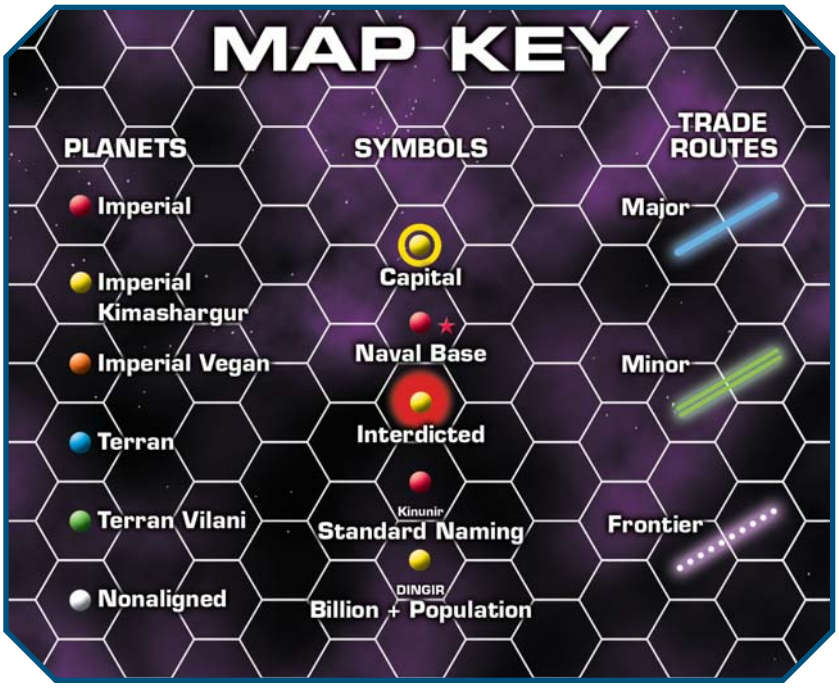
The early Interstellar Wars take place in an area three subsectors by three. Most of this region is controlled by the Imperium, while the Terran Confederation is backed up against a substantial three-parsec gap that can't easily be crossed. The Confederation itself dominates only the Sol subsector, and is just beginning to expand into the regions to rimward that have been untouched by any star-faring race.

Shululsish Subsector

Most of this subsector was settled in the last centuries of the Consolidation Wars, largely by core-sector Vilani interested in opening up new worlds in the aftermath of the Vegan campaign. Colonization was slow; a few worlds were actually settled as late as 900 by Imperial Vilani who circumvented the tightening controls on migration.

One branch of the Rim Main trails into the subsector from rimward, but even this astrographic feature has failed to bring a great deal of commerce or settlement into the region. It remains a backwater, probably the most isolated and neglected portion of the *Saarpuhii Kushuggi*'s domain. If anything, Imperial control has been weakening over the last 500 years. Local nobles have started sponsoring mercenaries, fighting little wars with each other under the noses of the higher levels of government.

By no coincidence, the Shululsish subsector is also a primary target for Terrans who wish to undermine Imperial authority in the border regions. Free Traders and other adventurers have already been present in the subsector for many years.



Shululsish Subsector Data Table

Hex	Name	Alg	Type	Dia	Grav	Atmosphere	Hyd	Climate	RVM	AFF	Population
0111	Kishara	–	Garden	8,900	1.20	Standard	98%	Warm	-1	7	–
0116	Purdishi	Im	Desert (Rock)	6,200	0.71	Trace	–	Hot	+0	0	–
0214	SHULULSISH	Im	Garden	5,400	0.80	Dense	42%	Cool	+0	9	1.6 billion
0215	Liriinan	Im	Garden	7,100	0.86	Standard	87%	Normal	+0	9	520 million
0217	Neshukka	Im	Garden	8,200	1.07	Dense	92%	Warm	+0	8	140 million
0313	Ashi	Im	Desert (Rock)	3,900	0.40	Trace	–	Cold	+1	1	8.2 million
0316	Gararin	Im	Desert (Rock)	3,400	0.43	Trace	–	Cool	+0	0	600
0317	Bemidshii	Im	Garden	5,300	0.58	Standard	69%	Normal	+0	9	770 million
0319	Makamii	Im	Barren (Rock)	900	0.11	–	–	Hot	+2	2	8.5 million
0411	Dushamaa	Im	Garden	8,000	1.08	Standard-T	71%	Warm	-1	7	100 million
0511	Ushmi	Im	Garden	6,100	0.72	Standard	32%	Normal	+0	9	2.6 billion
0518	Arukhur	Im	Barren (Rock)	1,900	0.24	–	–	Infernal	+1	1	1.3 million
0612	Arnaa	Im	Garden	7,900	0.97	Dense	60%	Warm	+0	9	1.4 billion
0617	Kaareshur	Im	Garden	9,100	0.91	Standard	72%	Cool	-2	7	130 million
0618	Lekuni	Im	Asteroid Belt	–	–	–	–	Frozen	+1	1	5.1 million
0713	Miri	Im	Desert (Rock)	4,700	0.41	Trace	–	Frozen	+0	0	–
0717	Kamsha	Im	Greenhouse	9,000	1.25	Insidious	46%	Infernal	+2	2	2.6 million
0718	Ippuraash	Im	Barren (Rock)	1,700	0.14	–	–	Infernal	+0	0	11,000
0719	Maksha	Im	Barren (Ice)	2,600	0.13	–	–	Frozen	+0	0	950
0720	Mishaagi	Im	Pre-Garden	6,700	0.86	Suffocating	72%	Cool	+0	0	7,000
0814	Upirzanu	Im	Subgiant	9,000	1.09	Corrosive	48%	Frozen	+1	1	750,000

0214 Shululsish

As the capital of the subsector, Shululsish is the home of the region's leading *sarriiu*. The position is a thankless one – every outsider who has been placed in the post has soon found the lesser nobles of the subsector united against him. The last two *sarriiu* have been weakling locals instead; the current one (Esharku Gudakhaa) is nearly feebleminded.

Instead of being a center for order, Shululsish has become a pawn in regional politics. It is home to nearly a third of the subsector's population – so if one of the region's *shakkanakhu* can get control of it, he has the upper hand as long as he can hold it. The *sarriiu*'s court is a pit of cutthroat politics – every spare noble child, talented family retainer, and foolishly brave *kiduunuuzii* in the subsector is there, fighting it out for favor. Countless careers have been made and broken here in the last few decades.

Shululsish itself is small, but heavily populated. It is quite dense, due to a large nickel-iron core. Despite being halfway between Mercury and Mars in size, it has a thick atmosphere and several large seas.

One Kaareshuri offered me 10 credits for a used tin can. The zinc in it would redeem half an acre of land. I couldn't do it; I ended up just giving it to him. They're going to take my union card away when I get back to Terra.

– Hirohisa Mori, Free Trader (2165)

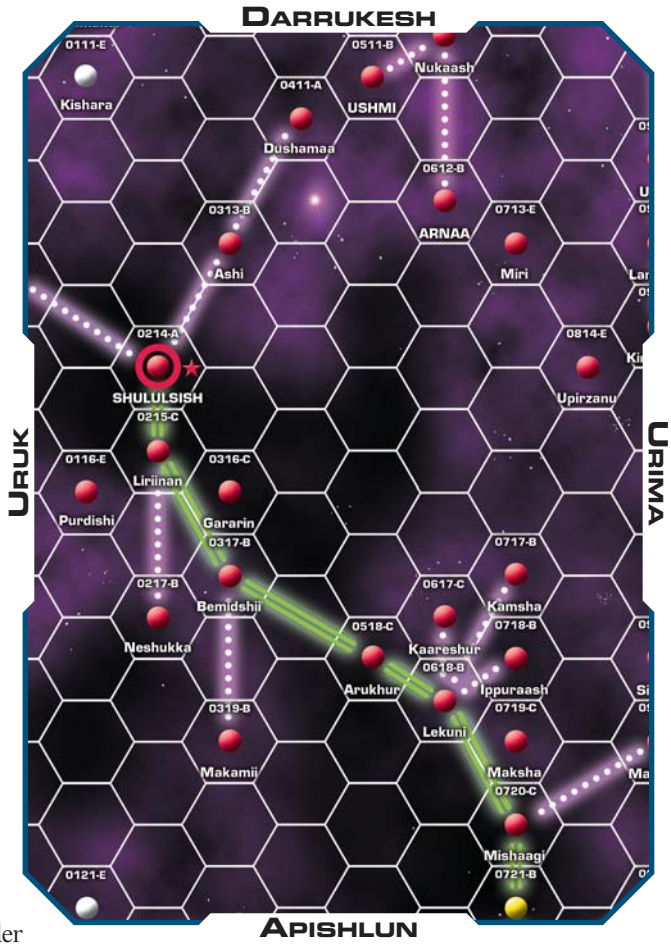
0215 Liriinan

Of all the worlds in this loosely controlled subsector, Liriinan is the most independent of all. This isn't a deliberate choice by its citizens, but an outgrowth of the fact that the planet's riches are so great that there is little need for them to engage in interstellar trade. Visiting Terran merchants are currently introducing them to the difference between "need" and "want."

Home to a half-billion people, Liriinan is a huge market for Terran merchants, despite its relative isolation. More than any other world in the subsector, it is free to do as it wishes; it is not under the direct control of Sharurshid or the Imperial aristocracy. The local population is beginning to take advantage of this freedom by engaging in "illegal" manufacturing – it is producing goods outside the fixed Sharurshid quotas, specifically intended for trade with Terran visitors.

The total amount of illicit manufacturing is quite small in comparison to Liriinan's handling of its own needs. Only a few thousand people have shown the mental flexibility to try it, though the number continues to expand as young people come of age after being exposed to the practice. The only other factor limiting trade is the planet's mediocre starport, but as Liriinan is a long run from Terra anyway, this doesn't affect most ships that call.

Port	Government	CR	TL	Trade	WTN
E	–	0	0	–	–
E	–	0	0	–	–
A-N	Feudal	6	10	–	5.5
C	Caste	4	6	Ri	4.5
B	Feudal	6	9	–	5.0
B	Feudal	1	9	Ex Na Ni	4.0
C	Corporate	0	10	Ex Ni	2.5
B	Caste	6	7	–	4.5
B	Feudal	4	9	Ex Na Ni	4.0
A	Feudal	6	10	–	4.5
B	Feudal	6	8	–	5.0
C	Caste	4	8	Ex Na Ni	3.5
B	Feudal	4	10	–	5.5
C	Caste	6	5	–	4.0
B	Feudal	4	10	Ex Na Ni	4.0
E	–	0	0	–	–
B	Caste	1	8	Ex Ni	4.0
B	Caste	4	9	Ex Ni	3.5
C	Corporate	4	10	Ex Ni	2.5
C	Corporate	1	8	Ex Ni	2.5
E	Caste	6	8	Ex Ni	2.5



The world itself is one of the most hospitable known to the Confederation, a near-paradise at the end of a long trading route. A slightly lower gravity contributes to the giddy feeling many Terrans experience while visiting here. With less land than Terra, all in the temperate and subtropical zones, there are no deserts or arctic wastelands on the whole planet. The local climate and soil are very favorable for imported food crops and fruit trees, some of which grow so easily that they might almost be considered weeds. The people have developed away from standard Vilani attitudes in their isolation, and are now more relaxed in manner and dress than Imperials on other worlds. All of this makes Liriinan a favorite port of call for Terran merchants, who half-jokingly refer to it as "Tahiti."

0617 Kaareshur

Though quite distant from Terra, Kaareshur is a major destination for Confederation traders. The system is very poor in metals, and is desperate for imports of any element heavier than iron. Historically this has not been much of a problem, as the rich Lekuni belt is only one jump away; the two systems made an excellent partnership, with metal going one way and food the other.

Unfortunately for Kaareshur, Lekuni has fallen under the sway of *iishakku* Erkiishaga of Arukhur. He's been deliberately redirecting the belt's metal production to the other worlds under his control, or to the Apishlun and Urima subsectors. If productivity were his sole interest, he'd be better off continuing the old arrangement, but he is using the lack of shipments as a way of extending his influence to Kaareshur. Local people and organizations that make concessions to him get some of the metals they need, just enough to stay afloat. Those who don't are driven under.

As a result, free traders who touch down with metals in their holds are in a position to make a killing. Two factors make the trip dangerous, though. The *iishakku* controls Kamsha as well, and the Ippuraash outpost goes out of its way to avoid antagonizing him. Erkiishaga therefore controls most of the planets inbound to Kaareshur, so *getting* there in the first place is a problem.

Once the landing gear touches down, though, the prospective trader has to deal with the desperation of the Kaareshuri. The locals are having problems even feeding themselves, as the soil is so metal-poor that some critical micronutrients are missing from the soil. Plants won't grow unless the fields are salted with zinc and molybdenum, and those, too, used to come from Lekuni. Even if a Terran is bringing in something simpler, like iron or tin, rumors will spread, and crowds will begin to gather . . .

Urima Subsector

The Urima subsector is dominated by a segment of the Rim Main that moves across the rimward half of the subsector. The worlds on the main were settled in the immediate aftermath of the Vegan Consolidation Campaign, about A.D. 200. Settlement of the more scattered worlds to coreward was slow, and was only completed about A.D. 800.

The subsector is a major hub of trade and commerce, especially around the neighbor worlds of Dzim Zhia Gwi (Vegan) and Urima (Imperial Vilani). This cluster of worlds is a major target for Terran adventurers, especially those trying to understand and win allies among the Vegan population.

Urima Subsector Data Table

Hex	Name	Alg	Type	Dia	Grav	Atmosphere	Hyd	Climate	RVM	AFF	Population
0912	Umra	Im	Garden	5,700	0.64	Very Thin-T	–	Hot	+0	0	16,000
0913	Lanashri	Im	Subgiant	10,300	1.60	Corrosive	82%	Frozen	+0	0	11,000
0914	Kimirsika	Im	Garden	9,200	1.04	Dense	78%	Normal	+0	9	520 million
0918	Siinira	Im	Desert (Rock)	3,900	0.37	Suffocating	–	Chilly	+0	0	2,200
0919	Marasra	Im	Garden	9,800	1.30	Thin	62%	Normal	-1	7	240 million
1011	Ushiin	Im	Garden	5,400	0.81	Standard	18%	Warm	+0	8	400 million
1020	Shashamak	Im	Garden	6,100	0.71	Very Thin-T	40%	Cool	+1	1	1.3 million
1111	Dimmurak	Im	Garden	6,000	0.68	Thin	71%	Normal	+0	8	830 million
1116	Niimuru	Im	Garden	4,300	0.65	Standard	82%	Warm	+0	9	140 million
1117	Mashaddun	Im	Garden	8,800	1.00	Dense-T	36%	Cold	-2	5	100 million
1119	Dashinur	Im	Garden	6,200	0.78	Standard	99%	Cool	-1	7	42 million
1120	Karnisari	Im	Garden	6,000	0.70	Thin-T	39%	Chilly	+0	7	310 million
1214	Amgilash	Im	Asteroid Belt	–	–	–	–	Infernal	-4	-4	–
1216	Mikaam	Im	Garden	4,300	0.76	Thin	62%	Cool	+0	8	130 million
1218	Tunshaon Tyo	Im-Ve	Garden	5,000	0.56	Thin	37%	Normal	+0	8	420 million
1219	Sasuniir	Im	Barren (Ice)	1,100	0.07	–	–	Frozen	+0	0	2,800
1311	Nishni	Im	Asteroid Belt	–	–	–	–	Frozen	-1	-1	10,000
1316	Khariishish	Im	Desert (Rock)	4,900	0.43	Trace	–	Cold	-1	-1	–
1318	Gashakur	Im	Desert (Rock)	5,000	0.46	Trace	–	Frozen	+0	0	4,400
1320	Dishiigi	Im	Barren (Rock)	900	0.08	–	–	Frozen	-1	-1	–
1417	Larimshar	Im	Garden	6,000	0.68	Thin-T	69%	Warm	-1	6	29 million
1418	Muan Ialour	Im-Ve	Garden	5,400	0.52	Thin	58%	Cool	-1	7	100 million
1419	Genaraa	Im	Garden	5,000	0.82	Dense-T	99%	Tropical	+0	7	220 million
1511	Imkha	Im	Garden	5,000	0.83	Standard	35%	Warm	+0	9	770 million
1512	Kiranura	Im	Pre-Garden	6,000	0.62	Suffocating	60%	Chilly	+0	0	–
1515	Dzim Zhia Gwi	Im-Ve	Garden	4,400	0.72	Thin	57%	Cool	+2	10	3.6 billion
1516	Ewmiak	Im-Ve	Garden	4,300	0.70	Thin	24%	Normal	+0	7	200 million
1517	URIMA	Im	Garden	7,000	0.83	Thin	50%	Hot	+2	9	2.5 billion
1519	Iinu	Im	Garden	8,200	1.05	Dense	99%	Warm	-1	7	390 million
1616	Orruiltan Tyui	Im-Ve	Barren (Rock)	1,300	0.10	–	–	Frozen	+0	0	2,500
1619	Tyudhaur	Im-Ve	Garden	5,200	0.83	Dense-T	94%	Very Hot	+0	5	19 million

1011 Ushiin

Ushiin is a tidally locked world with a warm climate, leading to an unusual distribution of water and ice. As usual, the hot and cold poles are desert and glacier respectively, but on Ushiin the glacier gives way to tundra several hundred miles from the terminator line. Along the line itself, the temperature rises to the point that the planet has a ring of liquid water some 200 miles wide completely surrounding the planet. The world's name means "iris" in Vilani, and from the right angle Ushiin does resemble a gigantic eye.

Despite its odd appearance, Ushiin is fairly typical of tide-locked worlds. The major exception is ecological in nature. At some point in the distant past, its oceans were apparently seeded with *Terran* life, which has by now almost displaced the native biosphere. The Vilani have noticed the oddity, but have not made much of it. Confederation scientists consider it a clue as to where the Vilani and other non-Terran Human races came from. Even aside from this, Ushiin is a magnet for paleontologists looking for species that went extinct on Terra during the late Pleistocene.

When he said we were headed to Ushiin to look for extinct life, I was all up for it. I loved dinosaurs and stuff when I was a kid. Turned out he was an expert in plankton, and we came back with 150 gallons of green water.

– Raimo Saarinen, Free Trader (2168)

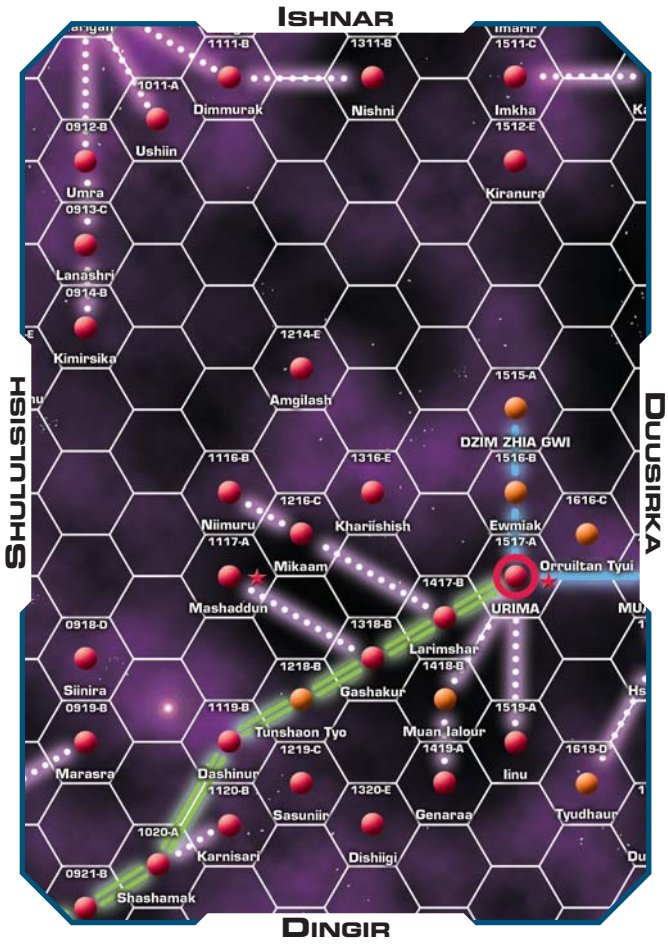
1519 Iinu

Iinu has almost no land protruding from its world-girdling ocean, so while otherwise quite pleasant it isn't as densely populated as other worlds nearby. As a result, it was a literal backwater until recently.

The primary product of Iinu is the meat of a local life form, an enormous floating creature that serves as the equivalent of a mobile coral reef in the local ecology. The Vilani of Iinu never examined this animal particularly closely, simply harvesting it for food. Its meat is so cheap locally that it has never been exported offworld.

The first person to really analyze the meat was Esmeray Uzunjarsili, a Terran Free Trader with a background

Port	Government	CR	TL	Trade	WTN
B	Corporate	4	10	Ex Ni	3.5
C	Corporate	1	8	Ex Ni	3.0
B	Feudal	6	7	–	4.5
D	Caste	0	8	Ex Ni	2.0
B	Feudal	6	8	–	4.5
A	Feudal	1	8	–	5.0
A	Clan/Tribal	6	8	Ni	4.0
B	Theocracy	6	5	–	4.0
B	Feudal	1	7	–	4.5
A-N	Feudal	4	10	–	5.0
B	Feudal	5	7	Ri	4.0
B	Feudal	2	5	–	4.0
E	–	0	0	–	–
C	Feudal	6	6	–	4.5
B	Caste	4	6	–	4.5
C	Caste	5	8	Ex Ni	2.5
B	Corporate	3	10	Ex Ni	3.5
E	–	0	0	–	–
B	Caste	4	10	Ex Ni	3.0
E	–	0	0	–	–
B	Caste	4	7	Ag	4.0
B	Caste	4	9	–	5.0
A	Theocracy	6	10	–	5.0
C	Feudal	6	7	–	4.5
E	–	0	0	–	–
A	Caste	4	10	–	5.5
B	Caste	4	9	Po	5.0
A-N	Feudal	6	10	–	5.5
A	Feudal	1	10	–	5.0
C	Caste	4	9	Ex Ni	3.0
D	Caste	4	5	–	3.5



in chemistry. Forced to stay on Iinu for more than two months while repairs were made to her ship, she started examining the local life out of sheer boredom. She hit the jackpot one day when she took a close look at what had been destined for her plate that evening.

The creature's meat and organs turned out to be a storehouse of pharmaceutical precursors. Disliking its local name, she dubbed it the *daghadasi* in her native language (Turkish). One important drug has already been isolated from the creature, an effective treatment for Alzheimer's disease, and Captain Uzunjarsili is now a multimillionaire.

Duusirka Subsector

The bright star Vega (*Duusirka* to the Vilani) is the most prominent feature of this subsector. Ironically, the Vega star system is of almost no importance in local affairs; the sentient species that Terrans call "Vegan" is not from that star system at all. Instead, the Vegan sphere is centered on the homeworld Muan Gwi, circling an unassuming red dwarf star three parsecs to coreward.

The Duusirka subsector is the heart of the Imperial Rim Province. Its capital, Shulgiasu, is home to the *Saarpuhii Kushuggi*'s court, the local center of Imperial power. The Vegan homeworld and other Vegan worlds are major industrial centers. The provincial war fleets that threaten Terra are largely built and supplied from the Duusirka subsector's shipyards. It also produces trade goods sold both in the Terran Confederation and a great distance to coreward.

Seven to eight months from Terra by usual transport, the Duusirka subsector is much too distant for casual visits. Still, thousands of Terrans travel to the region every year – adventurers, ambassadors, spies, and even the occasional tourist who wishes to experience the best that Imperial civilization has to offer.

1717 Muan Gwi

The second most populous world in the entire region (behind only Terra), Muan Gwi is the homeworld of the Vegan race. Despite its 2,000-year history of oppression, it is still an economic powerhouse, and the center of trade with other major Vegan worlds like Muan Kwoyen and Dzim Zhia Gwi. Next to Dingir, it is also the favorite target of Terran traders. Merchants who head out this way get to see the awesome Zinn Aho highport, a massive facility some two miles long . . . the largest orbital structure in the sector.

There are very few Vilani on Muan Gwi, thanks to the highly developed Vegan talent for passive resistance (p. 88). Vilani bureaucrats find postings to Muan Gwi infuriating, and so in recent centuries the Vegans have largely been left to run things themselves – just as they wanted.

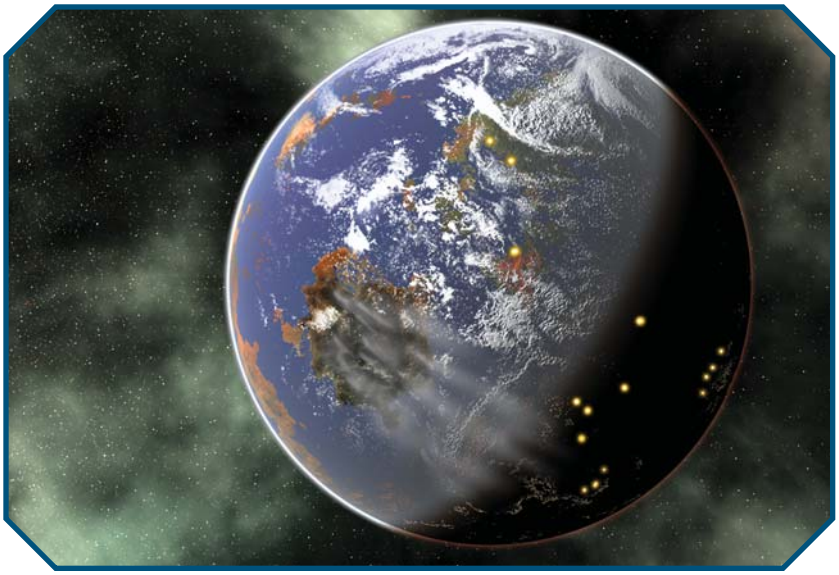
Duusirka Subsector Data Table

Hex	Name	Alg	Type	Dia	Grav	Atmosphere	Hyd	Climate	RVM	AFF	Population
1711	Kasaan	Im	Garden	7,100	0.99	Dense	49%	Normal	+0	9	780 million
1717	Muan Gwi	Im-Ve	Garden	4,300	0.65	Thin	62%	Cool	+2	10	4.3 billion
1718	Hsuilzish	Im-Ve	Garden	6,200	0.68	Standard-T	84%	Warm	+0	8	320 million
1720	Duusirka	Im	Asteroid Belt	–	–	–	–	Infernal	-1	-1	–
1813	Wanish Tyo	Im-Ve	Garden	6,000	0.62	Very Thin	–	Very Cold	+1	1	5.0 million
1814	Tsamis	Im-Ve	Garden	5,300	0.53	Thin-T	68%	Normal	+2	9	1.3 billion
1816	Muan Issler	Im-Ve	Desert (Rock)	2,800	0.37	Trace	–	Frozen	+1	1	5.2 million
1818	Ashtagz Tyui	Im-Ve	Desert (Rock)	3,000	0.38	Trace	–	Normal	+0	0	2,600
1911	Ikarak	Im	Asteroid Belt	–	–	–	–	Frozen	+2	2	3.0 million
1912	Galishgu	Im	Barren (Ice)	1,600	0.10	–	–	Frozen	+0	0	14,000
1917	Asterr Tyui	Im-Ve	Garden	6,100	0.70	Standard	61%	Cool	+0	9	1.1 billion
1919	Khuraaga	Im	Garden	8,900	1.00	Thin-T	16%	Hot	-1	5	52 million
2011	Andiirish	Im	Asteroid Belt	–	–	–	–	Frozen	-1	-1	–
2012	Deraanasa	Im	Garden	7,800	1.00	Standard	63%	Normal	+2	11	3.2 billion
2015	Duikin Tyui	Im-Ve	Desert (Rock)	3,100	0.28	Trace	–	Frozen	+0	0	15,000
2017	Hariksiat	Im-Ve	Desert (Rock)	3,200	0.31	Trace	–	Cold	+0	0	4,200
2114	Nikurmani	Im	Subgiant	7,900	1.04	Corrosive	61%	Frozen	+0	0	5,000
2118	Nakishi	Im	Garden	7,000	0.98	Dense	48%	Normal	+0	9	310 million
2213	Ganukak	Im	Asteroid Belt	–	–	–	–	Frozen	-2	-2	–
2218	Muan Kwoyen	Im-Ve	Garden	6,100	0.70	Standard	58%	Cool	+0	9	1.5 billion
2312	Direnaa	Im	Garden	8,200	1.08	Standard	51%	Normal	+1	10	490 million
2319	SHULGIASU	Im	Garden	6,800	0.81	Thin	83%	Warm	+1	9	2.4 billion
2411	Dashiraa	Im	Garden	5,000	0.86	Very Thin-T	12%	Frozen	+0	0	–
2414	Namirma	Im	Barren (Ice)	2,300	0.13	–	–	Frozen	+0	0	5,900
2415	Shani	Im	Desert (Ice)	3,700	0.25	Toxic	21%	Frozen	+0	0	6,200
2418	Khalikkam	Im	Desert (Rock)	6,400	1.09	Trace	–	Very Hot	+1	1	630,000
2419	Ganigami	Im	Garden	4,400	0.61	Very Thin	31%	Cold	+0	0	2,500
2420	Arrukir	Im	Garden	5,400	0.86	Dense-T	99%	Tropical	+0	7	200 million

1816 Muan Issler

Muan Issler was once the "second homeworld" of the Vegans, home to nearly 2 billion members of that race. When the Vegan Consolidation War came to an end, it was left as a stark example of what the Vilani were willing to do to win.

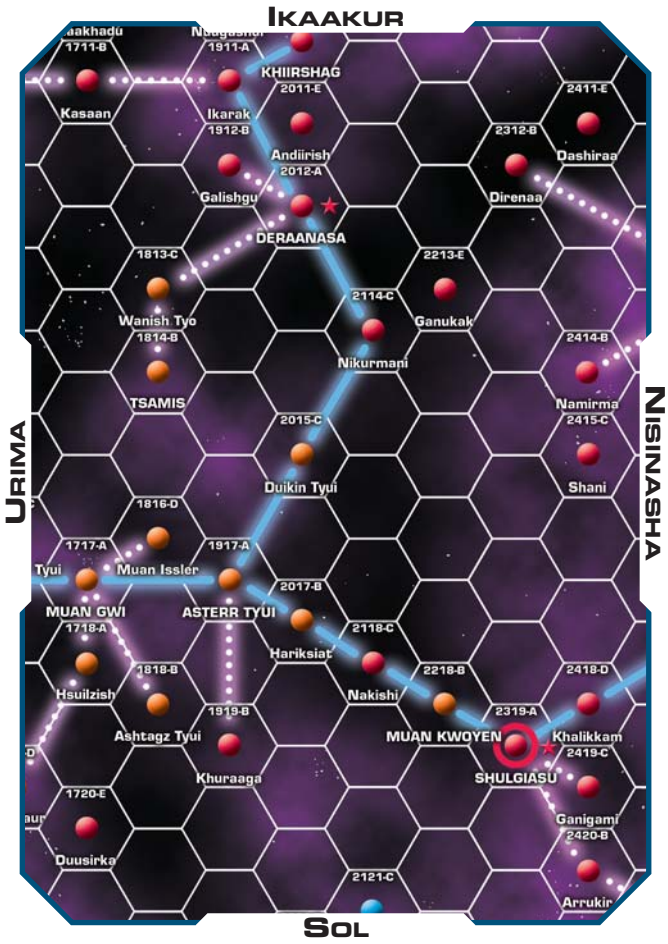
By 119, the Imperium had pushed the Vegans back to just two worlds: their homeworld and Muan Issler. After a half century of combat, the Vegans had the measure of their foe, and while the situation was still grim, they were determined to make the Vilani fight for every cubic foot of their space. Both systems were bristling with defensive arrays, and anything approaching within a billion miles of the planet without permission was vaporized.



After scouting the defenses, the Vilani realized that the final push was going to be extremely costly. More campaigns against other races loomed, so the decision was made to nuke the Vegans into submission. The Vegan civilian populations were vulnerable to nuclear attack – so standing off in the outer system, a huge Vilani fleet lobbed wave after wave of nuclear-tipped missiles toward Muan Issler. Perhaps one missile in 100 got through, but the hits shattered the planet's society over the course of a few weeks. After a time, the defenses still held but there was nothing left to defend. The razing of Muan Issler was then broadcast to the Vegans on Muan Gwi, and the last world of the Polity surrendered rather than go through a repeat of the massacre.

In the Interstellar Wars period, Muan Issler is home to less than five million Vegans and about 500,000 Vilani. Even now, the planet has slightly elevated radiation levels due to heavy-metal fallout in the soil.

Port	Government	CR	TL	Trade	WTN
B	Feudal	0	9	–	5.0
A	Caste	4	10	–	5.5
A	Caste	4	10	–	5.0
E	–	0	0	–	–
C	Caste	4	8	Ex Na Ni	3.5
B	Caste	4	8	In	5.0
D	Caste	4	8	Ex Na Ni	3.5
B	Caste	4	10	Ex Ni	3.0
A	Caste	6	10	Ex Na Ni	4.5
B	Corporate	2	10	Ex Ni	3.5
A	Caste	4	10	–	5.5
B	Feudal	4	7	Po	4.0
E	–	0	0	–	–
A-N	Feudal	4	10	–	5.5
C	Caste	4	10	Ex Ni	3.5
B	Caste	4	10	Ex Ni	3.0
C	Caste	5	10	Ex Ni	3.0
C	Feudal	6	7	–	4.5
E	–	0	0	–	–
B	Caste	4	10	–	5.5
B	Caste	1	10	–	5.0
A-N	Feudal	5	10	–	5.5
E	–	0	0	–	–
B	Corporate	5	10	Ex Ni	3.0
C	Caste	1	8	Ex Ni	2.5
D	Caste	5	8	Ex Ni	3.0
C	Caste	2	10	Ni Po	3.0
B	Feudal	6	7	–	4.5



The Vegan inhabitants of the world have never reconciled themselves to the destruction, which to them was only a few generations ago. They are disproportionately involved in efforts to throw off the Vilani yoke. Of all Vegans, the inhabitants of Muan Issler come the closest to displaying radical behavior. Some even carry small vials of ash from destroyed cities, as a reminder of their dead ancestors.

2319 Shulgiasu

Originally founded as an advance base against the Vegans during the Consolidation Wars, Shulgiasu has long moved past its humble beginnings. It is the most densely populated Vilani world in the Kushuggi province, and is the political and cultural capital for Vilani in the region.

Shulgiasu is a major destination for Terran travelers, although fewer make the trip than one might think at first. Shulgiasi are sticklers for procedure, and unscheduled traders are likely to find themselves in a sea of red tape. Most captains prefer to head for Dingir or Muan Gwi, closer to Terra and more likely to offer a hospitable reception.

On the other hand, this does mean that Shulgiasu has been relatively untouched by Terrans, and there are undoubtedly commercial opportunities here if one can only find them. Some have suggested that the planet's Vegan minority (numbering about 10 million) may be the place to start.

As the base for Vilani consolidation of the whole region, Shulgiasu is stuffed full of monuments and other examples of Vilani triumphalism. The capital city, Kankhali, has been nicknamed "The Golden City," partly for its richness and partly for a golden sheen to the buildings that was the height of architectural fashion 2,300 years ago. Given that archaism is one of the watchwords for Vilani culture, the fact that Shulgiasu still stands out is worth noting.

Apishlun Subsector

The Apishlun subsector was settled about 800-1000, almost exclusively by *kimashargur* Vilani who wished to escape the strict social controls imposed by Imperial law. Although the *kimashargur* were conquered by the Imperium soon afterward, their subculture remains dominant on several worlds of the region. Meanwhile, Imperial authority is relatively weak; most of the local aristocratic clans are uninterested in imposing the full strictness of Vilani tradition on the populace. Terran adventurers who reach the subsector often find it easy to make friends and act within the Imperial framework.

Almost all of the subsector's worlds are situated on the "tail" segment of the Rim Main, forming a closely bound community. Although Apishlun is on the extreme Imperial frontier, and the reach of Imperial authority is relatively weak here, trade remains active. Of course, the combination of rich trade and weak authority often makes the region a primary target for Terran spies and commerce raiders during wartime.

Apishlun Subsector Data Table

Hex	Name	Alg	Type	Dia	Grav	Atmosphere	Hyd	Climate	RVM	AFF	Population
0121	Khishirii	–	Barren (Ice)	1,400	0.07	–	–	Frozen	+0	0	–
0123	Nushmi	Im-K	Garden	8,100	1.11	Dense	72%	Normal	+0	9	220 million
0125	Kishakhpap	–	Desert (Rock)	3,800	0.40	Trace	–	Frozen	-2	-2	–
0126	Nunashi	Im-K	Garden	4,300	0.70	Thin	68%	Warm	-1	7	51 million
0224	Shaalgar	Im-K	Garden	6,200	0.71	Standard	60%	Cool	+0	9	260 million
0226	Iishu	Im-K	Garden	4,900	0.61	Standard-T	92%	Warm	+0	7	38 million
0230	Alizarin	–	Garden	4,300	0.73	Standard	57%	Normal	-1	8	–
0326	Eneldun	Im-K	Desert (Rock)	2,900	0.22	Trace	–	Frozen	+1	1	3.1 million
0330	Krypton	–	Pre-Garden	8,800	1.18	Suffocating	41%	Tropical	+2	2	–
0424	Lakisha	Im	Garden	7,300	0.98	Dense-T	82%	Warm	+0	8	300 million
0426	Siikani	Im	Barren (Rock)	1,400	0.13	–	–	Hot	+0	0	15,000
0524	Irashdaa	Im	Garden	5,800	0.86	Dense	89%	Warm	+0	9	160 million
0527	Masiira	Im	Garden	6,000	0.77	Standard	92%	Normal	+0	8	140 million
0528	Kidashi	Im-K	Garden	4,400	0.60	Thin	68%	Cold	+2	9	2.5 billion
0624	Ishirshu	Im	Glacier	8,100	1.02	Toxic	22%	Frozen	+0	0	–
0626	Kunekaar	Im-K	Garden	6,900	0.87	Thin-T	18%	Hot	-1	4	13 million
0628	Sagarasaar	Im	Garden	5,100	0.84	Dense	87%	Tropical	+0	9	190 million
0721	Akhamin	Im-K	Garden	5,900	0.65	Standard	21%	Warm	+0	8	290 million
0722	APISHLUN	Im	Garden	8,900	1.16	Dense	61%	Normal	+2	11	3.0 billion
0723	Shikashu	Im-K	Garden	8,000	1.13	Standard	63%	Warm	+0	9	810 million
0726	Dikanishi	Im	Asteroid Belt	–	–	–	–	Infernal	-1	-1	700
0729	Edaazun	Im	Garden	4,300	0.64	Standard	95%	Cold	+0	7	490 million
0822	Urshu	Im	Desert (Rock)	3,900	0.31	Trace	–	Frozen	+0	0	16,000
0823	Shiranshar	Im	Pre-Garden	9,900	1.25	Suffocating	52%	Normal	+0	0	–
0824	Khurimisi	Im-K	Garden	6,000	0.70	Thin-T	22%	Cool	+0	6	43 million
0825	Duriim	Im-K	Garden	4,400	0.68	Dense	79%	Cool	+1	10	2.4 billion
0826	Munilgan	Im-K	Garden	5,300	0.54	Thin	39%	Cold	+0	7	190 million

0722 Apishlun

Apishlun is one of the most remarkable planets known. It apparently developed multicellular life as much as five billion years ago. Since then, the native life has developed a planet-wide ecosystem of incredible richness and complexity.

On most living worlds, native species tend to specialize and develop symbiotic relationships with one another. Ecologies develop complex feedback mechanisms, bringing stability to the living environment. This process is usually halted by natural disaster – comet or asteroid strikes, massive volcanic eruptions, ice ages brought on by continental drift, and so on. After each mass-extinction event takes place, the surviving species are forced to start over from scratch.

Apishlun has been almost free of mass extinctions for a very long time. It circles a tame K1 V star, has no planetoid belts as neighbors, and is protected from cometary intruders by three large gas giants circling the outer regions of the star system. While there is some evidence of very old impacts on the world, the Apishlun system was effectively clean of debris more than five billion years ago. Meanwhile, the planet's internal heat has declined over the eons. Although continental drift and volcanism have not stopped entirely, they have slowed a great deal and have not threatened the stability of the ecosphere in over 500 million years.

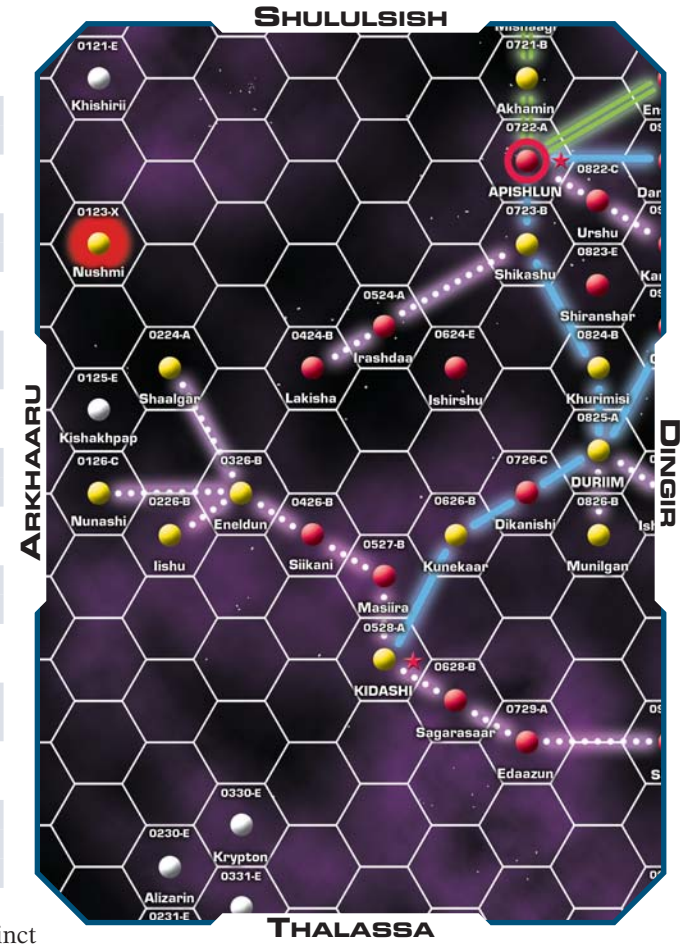
As a result, the symbiotic connections between life forms have become more and more complex, to the point that they are actually able to resist their own destruction. Apishlun has become an example of the "Gaia hypothesis."

The Vilani inhabitants of the planet don't appreciate the mechanism, as most Vilani lack sophistication in the

On Apishlun, I had a fruit that was the best thing I ever ate – sweet, juicy, with a faint tartness that went straight to the pleasure centers in my brain. I found it growing on a tree at the edge of some farmer's field. When the farmer saw me eating it, he nearly blew a blood vessel. I thought I was in trouble until he explained to me it wasn't his fruit tree, it was just something that had been growing there. And the last time he'd checked, it was poisonous.

– Sergio Alessandri, Free Trader (2165)

Port	Government	CR	TL	Trade	WTN
E	–	0	0	–	–
X	Caste	4	2	Ri	0.0
E	–	0	0	–	–
C	Caste	2	6	Ag	4.0
A	Caste	3	10	Ri	5.0
B	Clan/Tribal	3	10	–	4.5
E	–	0	0	–	–
B	Clan/Tribal	2	10	Ex Na Ni	4.0
E	–	0	0	–	–
B	Feudal	6	7	–	4.5
B	Caste	3	9	Ex Ni	3.5
A	Feudal	6	10	–	5.0
B	Feudal	6	7	–	4.5
A-N	Feudal	4	10	–	5.5
E	–	0	0	–	–
B	Feudal	2	6	Po	4.0
B	Caste	6	10	–	5.0
B	Feudal	2	7	Ri	4.5
A-N	Theocracy	6	10	–	5.5
B	Feudal	4	9	Ri	5.0
C	Caste	0	8	Ex Ni	2.0
A	Feudal	6	8	–	5.0
C	Corporate	3	8	Ex Ni	3.0
E	–	0	0	–	–
B	Feudal	3	10	Po	4.5
A	Feudal	4	9	–	5.5
B	Feudal	2	8	–	4.5



biological sciences. When they first colonized the world, they simply noticed that the biosphere was particularly hospitable. They don't realize that Apishlun is literally *accommodating* them, adapting at enormous speed to their presence and fitting them into the planet's immense web of life.

A few Terran scientists have been to Apishlun, and are trying to understand how the whole system works, and how it can work so *quickly*. One nagging problem is that any symbiotic relationship involves a trade-off. The speed with which the planet's ecology can incorporate offworlders suggests that there is some advantage to it in doing so. What the Vilani might be giving up remains mysterious.

For those not living on Apishlun, the biosphere remains interesting if only for the trade opportunities it represents. The planet is a net exporter of food, and a producer of luxury foodstuffs. Meanwhile, the extravagance of Apishlun's native life promises a vast number of biologically produced chemicals and pharmaceuticals to whoever can get in and examine them in detail first. Biologists estimate that the planet has more than 1,000 times as many distinct species as Terra has had at any point in its history, so the project is potentially huge – and so are the potential profits.

Dingir Subsector

Like the neighboring Apishlun subsector, this region was first settled by *kimashargur* dissidents between A.D. 800 and A.D. 1000. Dingir itself was the capital of a *kimashargur* "pocket empire" that defied Imperial authority for a few short decades. The region has been pacified for centuries – but with the wars against Terra ongoing, many cracks are beginning to appear in the facade of Imperial unity.

For centuries, the Dingir subsector was a backwater, almost entirely ignored by the Imperium. Aside from a small segment of the Rim Main, most of the region's worlds are scattered, divided by jump-1 gaps that cut off the largest and slowest freighters. Trade and commerce have always been relatively sparse. Today, of course, the region has suddenly become important as a primary battleground in the wars against Terra. Many of the subsector's people, accustomed to living out from under direct Imperial gaze, are resentful of their region's new prominence.

The Dingir subsector is sometime called "Smuggler's Heaven" by Terran Free Traders. Not only are many of the region's star systems thinly populated and badly patrolled, but some members of the local population enthusiastically cooperate with Terran smugglers. Many a Free Trader ship has arranged to meet with a Vilani counterpart in the outer fringes of some local star system, exchanging contraband. Of course, the Imperial Navy has become aware of this practice, and has stepped up patrols in the region.

Dingir Subsector Data Table

Hex	Name	Alg	Type	Dia	Grav	Atmosphere	Hyd	Climate	RVM	AFF	Population
0921	Ensulur	Im	Barren (Rock)	2,800	0.37	–	–	Frozen	+1	1	3.9 million
0922	Damakaa	Im	Barren (Rock)	1,900	0.19	–	–	Frozen	+0	0	50,000
0923	Kansara	Im	Garden	5,600	0.61	Standard	58%	Normal	+0	9	800 million
0924	Ginaa	Im	Garden	5,400	0.57	Very Thin	19%	Cold	+0	0	400
0926	Ishumled	Im-K	Garden	5,400	0.68	Standard-T	72%	Warm	+0	8	610 million
0929	Saris	Im	Desert (Rock)	3,400	0.43	Trace	–	Cool	+1	1	11 million
1022	Khakushma	Im	Garden	4,800	0.67	Very Thin	46%	Cool	+0	0	24,000
1024	Fomalhaut	Im	Greenhouse	7,900	1.17	Corrosive	83%	Infernal	+0	0	–
1026	Khulampu	Im	Glacier	8,700	1.15	Suffocating	19%	Frozen	+0	0	6,500
1127	Gashidda	Im-K	Garden	3,400	0.51	Standard	95%	Cold	+1	8	780 million
1129	Ishkur	Im-K	Garden	5,200	0.49	Standard	23%	Hot	+0	7	370 million
1222	DINGIR	Im-K	Garden	10,200	1.03	Dense	89%	Warm	+0	9	1.4 billion
1224	Kinunir	Im	Garden	5,000	0.48	Very Thin	16%	Warm	+0	0	15,000
1324	Shulgi	Im	Desert (Rock)	5,200	0.47	Trace	–	Frozen	+0	0	11,000
1326	Shulgiili	Im	Pre-Garden	6,200	0.71	Suffocating	100%	Cool	+0	0	2,500
1327	Enki Kalamma	Im	Barren (Rock)	1,900	0.17	–	–	Very Hot	+1	1	2.4 million
1424	Karkhar	Im-K	Garden	6,100	0.72	Standard-T	51%	Normal	-1	7	48 million
1427	Shuruppak	Im	Asteroid Belt	–	–	–	–	Frozen	+0	0	16,000
1429	Iilike	Im-K	Garden	4,300	0.76	Thin	51%	Cool	+1	9	1.0 billion
1522	Altair	Im	Asteroid Belt	–	–	–	–	Infernal	+0	0	–
1523	Zaggisi	Im	Garden	7,200	0.97	Dense-T	88%	Tropical	+0	8	100 million
1526	Meshan	Im	Desert (Rock)	4,200	0.40	Trace	–	Chilly	+0	0	–
1529	Markhashi	Im	Barren (Rock)	2,900	0.20	–	–	Frozen	-1	-1	1,000
1530	Shulimik	Im-K	Garden	7,000	1.04	Dense	32%	Normal	+0	9	630 million
1622	Apishal	Im	Garden	6,000	0.70	Very Thin	29%	Cool	+0	0	600
1629	Sirius	–	Asteroid Belt	–	–	–	–	Infernal	-2	-2	–

1222 Dingir

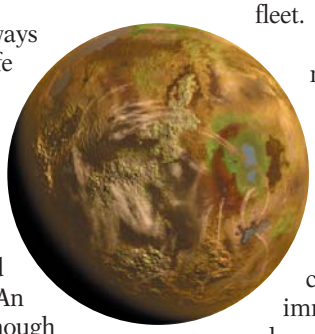
Contesting Shulgiasu for the title of most important Vilani world in the province, Dingir is a major destination for Terrans heading into the Imperium.

The planet is large, and relatively close to its primary. Its multiple continents are small and evenly distributed, which allows warm ocean water to circulate from the equator to the poles with ease. Dingir has no ice caps, despite being only marginally warmer than Terra.

With many continents, Dingir is also interesting because it is relatively decentralized for a Vilani world. Cities are dotted all over the planet, and starports serve many of them, rather than the usual "one world, one main starport" rule followed in the Imperium. As the Dingiri are also *kimashargur*, they're a little more flexible than most Vilani. Smuggling is rampant, and fortunes can be made.

Balancing this is Dingir's status as the local Imperial naval depot. There are always a large number of Vilani military ships in-system, and these are often deployed to patrol for unauthorized trade. If the Imperium were ever to start cracking down on trade from the Confederation, Dingir is likely where they'd start.

1526 Meshan



Epsilon Indi has always been a top candidate for life near Earth, and it was intensely studied even before the Terran invention of the jump drive. Life was never found there until the system was examined up close and Meshan was discovered. An inhospitable place, far enough from its sun to be cooler than Earth, it still had developed some primitive photosynthesizing life.

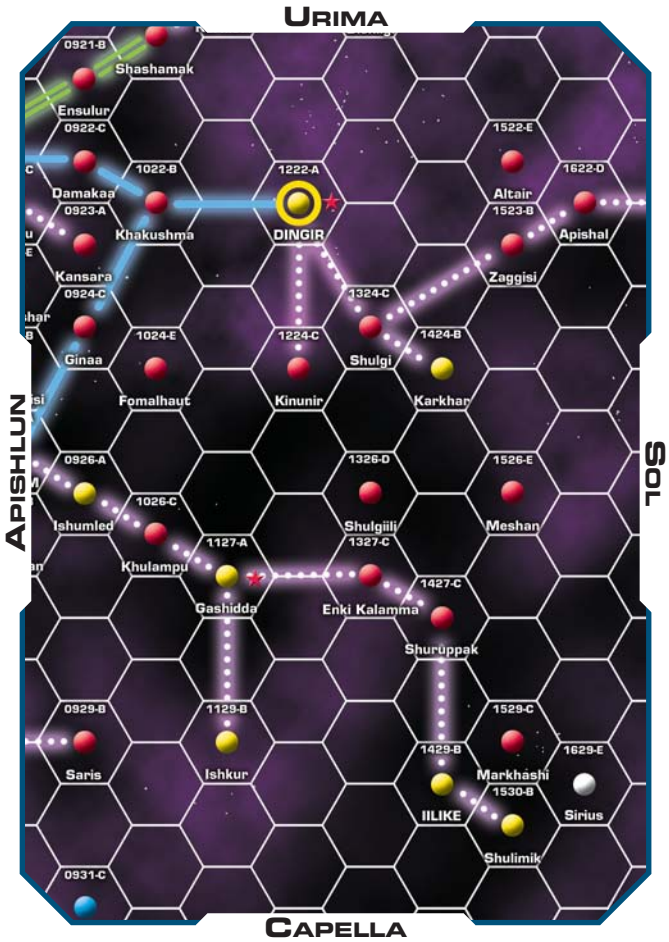
After the Second Interstellar War, the Confederation decided to place a colony on the planet. Although there was no direct access to Meshan except through Imperial space, the choosy Vilani had never settled the planet. Hence the Confederation felt free to place a colony there.

At the outbreak of the Third Interstellar War, however, the planet's isolated position proved a terrible liability. With Kadur Erasharshi's armada moving down the Corridor, there was no way to reinforce Meshan, The colony was helpless when a Vilani squadron jumped into the system looking for elements of the Terran fleet.

Of course there was nothing to find, but just to be on the safe side the Vilani commander dropped a nuclear warhead on the colony's landing field. 90% of the Terran colonists were killed immediately; with the colony's infrastructure destroyed, most of the rest followed in the next few weeks. With the Siege of Terra underway, it was three months before a relief expedition could be mounted – in fact, the Confederation didn't even know the colony had been destroyed until the siege was lifted. When the relief force finally did arrive, the last few hundred survivors were evacuated.

Since then, the system has been a no-man's land. The Confederation has considered rebuilding the colony, but until the planet's position is less strategically vulnerable those plans

Port	Government	CR	TL	Trade	WTN
B	Caste	1	10	Ex Na Ni	4.0
C	Caste	0	10	Ex Ni	3.0
A	Feudal	5	8	Ri	5.0
C	Corporate	0	8	Ni Po	2.0
A	Caste	2	9	–	5.0
B	Feudal	6	8	Ex Na	4.0
B	Corporate	1	8	Ni	3.0
E	–	0	0	–	–
C	Corporate	2	9	Ex Ni	3.0
A-N	Feudal	6	10	–	5.0
B	Theocracy	6	5	–	4.0
A-N	Feudal	6	10	–	5.5
C	Caste	1	8	Ni Po	3.0
C	Corporate	1	8	Ex Ni	3.0
D	Corporate	0	10	Ex Ni	2.5
C	Caste	6	10	Ex Na Ni	4.0
B	Feudal	5	9	–	4.5
C	Caste	3	10	Ex Ni	3.0
B	Theocracy	6	6	–	5.0
E	–	0	0	–	–
B	Feudal	6	8	–	4.5
E	–	0	0	–	–
C	Caste	2	8	Ex Ni	2.5
B	Feudal	4	9	Ri	5.0
D	Caste	2	8	Ni Po	2.0
E	–	0	0	–	–



will have to wait. The destruction of Meshan still rouses anger in many people, but it was only one of many terrible events to happen during the Third Interstellar War.

Epsilon Indi has a distant brown dwarf companion, some 1500 AU away. The dwarf is surrounded by a thick belt of gas and rock, baked by its infrared radiation. As one of the closest brown dwarfs to Terra, it is studied intensely by Confederation scientists. Given the tensions along the border, however, there is no permanent installation in orbit, and exploratory ships are always accompanied by Terran military backup.

1629 Sirius

The brightest star in Terra's sky is a lonely and desolate place up close. The system is eternally blasted by its brilliant white primary star, and was severely disrupted in the past by the white dwarf companion as it passed through the red giant stage. Little can be found except a few thousand boulder-sized chunks of refractory rock and metal close to the primary, and a once-melted cloud of icy bodies in the far outer system. It is difficult even to refuel at Sirius – traffic crossing the system must carry extra fuel to double-jump, bring tanker ships, or spend *months* searching for an icy body in the outer star system.

Sirius doesn't even qualify as the armpit of the universe. You gotta have something there to qualify for "armpit."

– Able Spacehand Martin Baker, Terran Navy (2163)

Under normal circumstances, the system would be ignored, but in the current situation Sirius is of considerable strategic value. It is one of the two "choke point" systems that stand between Imperial and Terran space (Nusku being the other). The Confederation *must* defend the Sirius-Procyon "bridge," just as it must defend the Corridor stretching from Nusku to Barnard's Star.

Sirius has no permanent habitation, as there's simply nothing there to permanently inhabit. Both sides patrol the system periodically, watching for a buildup of forces. Each of the last two wars involved strikes through this system, so any movement is viewed with suspicion. Rumor has it that the Confederation government is considering towing an Oort cloud object closer into the star, to use as a watch post and refueling depot. Naturally, any such move is likely to meet with severe Imperial disapproval.

Sol Subsector Data Table

Hex	Name	Alg	Type	Dia	Grav	Atmosphere	Hyd	Climate	RVM	AFF	Population
1822	Nusku	Te-V	Garden	5,300	0.59	Standard	86%	Warm	+1	10	1.1 billion
1824	Agidda	Te	Garden	8,800	1.08	Standard-T	20%	Normal	+0	7	42,000
1827	TERRA	Te	Garden	7,900	1.00	Standard	72%	Normal	+1	10	12 billion
1830	Procyon	Te	Desert (Rock)	3,700	0.37	Trace	–	Warm	+2	2	11,000
1926	Barnard	Te	Barren (Rock)	2,000	0.14	–	–	Infernal	+0	0	1,200
1929	Junction	Te	Garden	8,800	1.00	Standard-T	51%	Chilly	+0	8	240,000
2021	Ishimshulgi	Te	Barren (Rock)	1,700	0.15	–	–	Hot	+0	0	450
2027	Prometheus	Te	Garden	7,400	0.93	Dense	49%	Tropical	+0	9	850,000
2028	Peraspera	Te	Pre-Garden	7,400	0.84	Toxic	24%	Cold	+0	0	13,000
2029	Midway	Te	Garden	6,300	0.73	Dense-T	89%	Very Cold	+0	6	25,000
2030	Hades	Te	Garden	4,400	0.72	Very Thin	12%	Frozen	+1	1	10,000
2121	Lagash	Te	Garden	5,900	0.60	Standard	68%	Normal	+0	9	140,000
2222	Ninkhur Sagga	–	Glacier	9,700	0.98	Suffocating	24%	Frozen	+0	0	–
2227	Ember	Te	Desert (Rock)	3,600	0.33	Trace	–	Frozen	+0	0	2,500
2228	Loki	Te	Subgiant	8,700	0.95	Corrosive	100%	Frozen	+0	0	–
2323	Mukhaldim	–	Garden	4,900	0.47	Very Thin	28%	Very Cold	+1	1	–
2325	Kaguk	–	Garden	6,200	0.74	Thin-T	84%	Cool	+0	8	–
2330	Dismal	Te	Desert (Rock)	4,300	0.40	Trace	–	Cold	+1	1	10,000

Sol Subsector

Heart of the Terran Confederation, the Sol subsector includes Terra itself and most of the earliest Terran colony worlds. As such, the region has been the main battlefield for the first few wars against the Imperium. With the recent conquest of Nusku, however, the Terrans are hoping to push the battle back into Imperial territory.

Aside from Nusku, one of the last great *kimashargur* settlements, Vilani colonization of the region has always been sparse. Over the centuries a few expeditions have ventured into the subsector from time to time, the most recent of these being the venture that contacted Terrans at Barnard's Star at the beginning of the Interstellar Wars era. But these expeditions never stayed for long, nor did they establish permanent colonies.

Under *saarpuhii* Kadur Erasharshi, a series of Vilani outposts was established on the worlds of the "Lagash Trace" trailing from Nusku – but these outposts, too, were abandoned after the Third Interstellar War. Rumor has it that the Vilani established a great cache of high-technology goods and equipment on one of those worlds. Although the rumor makes little sense, this has not stopped treasure-hunters from investigating. The Confederation is hoping to use those worlds for a more practical purpose – exploring across the jump-3 gap to trailing, in order to reach the rich worlds that are believed to lie beyond.

The Terran population of the region is still almost entirely located on Terra itself. The so-called "Outback" worlds to rimward and trailing are home to small industrial outposts and colonies; many of these are growing rapidly, but none of them contribute significantly to the Terran economy as yet. The character of these colonies is widely varied, from the sophisticated European-flavored technocracy of Prometheus to the wild anarchy of the Ember outpost. Fortunes and reputations can be made – or lost – in this booming colonial community.

1822 Nusku

Nusku orbits 61 Cygni A, a slightly variable K5V star 0.29 AU away. The night sky is spectacularly lit up by 61 Cygni B (named *Anlagar* in Vilani), which is currently some 87 AU away. Anlagar is much too distant to contribute any warmth to the planet, but it is a dazzling point of orange light in the sky for much of the year, easily visible during the day as well as at night.

With more than a billion citizens, Nusku has the second-largest population in the Confederation. Its technological base is consistent throughout the planet, and is more advanced than the average on Terra itself. These are ideal conditions for industrial development; the Confederation has

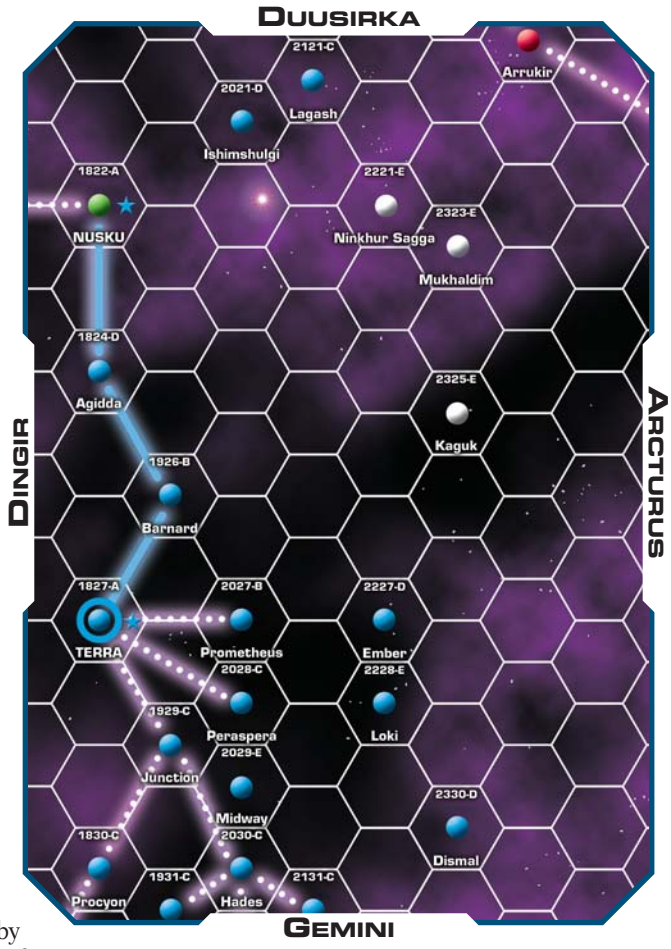
Port	Government	CR	TL	Trade	WTN
A-N	RepDem	5	10	–	5.5
D	RepDem	6	6	Ni	2.5
A-N	RepDem	6	9	–	6.0
C	RepDem	1	10	Ex Ni	3.0
B	Corporate	4	10	Ex Ni	3.0
C	RepDem	6	6	Ni	3.0
D	Corporate	0	9	Ex Ni	2.0
B	Technocracy	3	10	Ni	4.0
C	Corporate	5	9	Ex Ni	3.0
E	Technocracy	4	5	Ni	2.0
C	AthDem	2	9	Ni Po	3.0
C	AthDem	2	6	Ni	3.0
E	–	0	0	–	–
D	Anarchy	0	10	Ex Ni	2.5
E	–	0	0	–	–
E	–	0	0	–	–
E	–	0	0	–	–
D	AthDem	2	8	Ex Ni	2.5

been deliberately converting Nusku from a nondescript Vilani world into an industrial powerhouse.

The *kimashargur* Vilani who inhabit the world have taken up Terran notions of progress and science with a vengeance, and annual economic growth has been greater than 10% ever since the Confederation took over. Pre-conquest industries, including the superb local shipyards, have been restored to service and are expanding rapidly. An extensive naval base has been constructed. Major shipping lines are popping into existence on a yearly basis solely to serve Nusku, and the right cargo at the right time can make a trader's fortune.

Naturally, this white-hot economic boom has attracted Terran immigrants in huge numbers. More Terrans migrate to Nusku each year than to all of Terra's other colony worlds put together. Of course, this migration has yet to disturb the demographic balance of the planet – over 95% of the population is still pureblooded Vilani.

As important as the Terrans have been to Nusku, Nusku has had a nearly as great an effect on Terra. For the first time, Terran industry has been able to examine Vilani technology and techniques as a whole – rather than something traded for or acquired in bad condition after a battle. Important discoveries are being made every month, as legions of investigators and intelligence operators pore over Nusku's factories and databases.



1824 Agidda

Agidda will long be remembered as the first world taken from the Vilani. Barnard was only formally claimed by the Imperium *after* Terrans first visited, so its integration into the Confederation was relatively unimportant in the grand scheme of things. Agidda, on the other hand, had been colonized by *kimashargur* Vilani around A.D. 1100. While the outpost eventually became decrepit, a waypoint leading nowhere, it *was* a part of the Imperium for several hundred years. When Agidda was handed over to the Terrans at the end of the Second Interstellar War, it was the first indication that Terra could truly advance against the might of the Ziru Sirka.

The Vilani outpost was deliberately destroyed as the Imperium withdrew from the Terran advance, so the Terran Agidda colony had to start from scratch. The planet is only marginally habitable – tidally locked, it is nearly bereft of life as its primary (Ross 154) occasionally flares and does severe damage to the day face of the planet. The highest native life forms are bacterial mats in the ocean shallows, and the level of oxygen in the air is too low for Humans to breathe without artificial aid.

Nusku's a nice world. You get the best of Vilani and Terran societies working together, and it's clean, efficient, and quiet. People are friendly, the kids are well dressed. Place drives me nuts.

– Bill Rodriguez, Nusku colonist (2165)

Agidda's main importance is its strategic location – it sits on the Corridor between Terra and Nusku, and can serve as an outer picket of Terra's home defense. A great deal of transit traffic comes through the star system, and the colony is primarily designed to provide services for this traffic. As usual, the Confederation is strapped for solars (p. 142) in its continuing effort to colonize and otherwise upgrade everything in sight, so Agidda's Crimson Down starport is still quite primitive. As Nusku swells in importance, the Agidda colony will doubtless grow and modernize.

1929 Junction

Next to Prometheus (and discounting Nusku), Junction is the Terran Confederation's most populous colony. Although the planet resembles Terra in several respects, it is not a particularly hospitable world, and it is likely that many of the next wave of colonies will surpass it.

Junction's primary hazard is the atmosphere itself. It is composed of the usual mix of oxygen and nitrogen found on terrestrial worlds, and is even of approximately the same density as Terra's. However, the planet is deep within an ice age caused by a deficit of carbon dioxide in the air. This lack has varying effects on different people, but it is common to experience dizziness, disturbed breathing, and sleeping difficulties. Over time the symptoms get stronger, so people living on Junction prefer to live in enclosed habitats with the right amount of carbon dioxide introduced into the air. When he goes outside, a citizen will wear a small remixer mask that retains enough CO_2 to make up the difference.

The planet is also tidally locked to its red dwarf primary. Despite the constant mixing of the atmosphere and oceans, temperatures can get too high or low for comfort away from the twilight zone. People do venture out into the "hotback" and "coldback," but such expeditions require preparation. So far, all colonization ventures have stuck to the band of relatively pleasant territory in between.

Of course, Junction is the second-closest reasonably habitable world to Terra (again behind Prometheus). Unlike better worlds that are further out, it has been surveyed completely, and exploitation of its resources was under way even before more distant planets were discovered. As a virgin world, Junction still has easily accessible stocks of rare metal ores and petrochemicals, and arable land to help feed Terra's billions. While their world is far from perfect, Junction's inhabitants make the most of its proximity to a market of billions.

0210 Procyon

Procyon's sole inhabited world is a Mercury-sized ball of rock that would be uncolonized even by the non-discriminating Terrans if it weren't for its location. One jump from the Sirius system, Procyon is the shield between the Imperium and Terran colonies as far away as Ember and Forlorn.

Procyon is hardly a colony at all, but rather an oversized military installation. Next to Nusku, it has the largest standing fleet of any Confederation system, and patrols from there are launched towards Sirius on a weekly basis. Everyone living on Procyon is either military personnel or just passing through.

So far as anyone can tell, Procyon has no value at all except for its strategic importance. The world has been examined fairly extensively in the hopes of making it a little more self-supporting, but nothing valuable has ever turned up. On the other hand, Procyon shrunk considerably as it cooled, and the surface is very cracked and jumbled. It is difficult to say for certain that there isn't *something* worthwhile down in the many crevasses that cross the planet's surface.

Looking Home

Visitors to Alpha Centauri are often curious to find Sol in Prometheus' sky. As it happens, so are the Prometheans, and even young children will be able to point it out if asked.

The plane of the system's orbits faces Sol almost head on, so the Sun can't be seen from the European settlements. In the north, however, it is visible high in the sky for the entire year, about 15° from the celestial pole. It is the fourth brightest star in Prometheus' sky, and adds an extra "leg" to the constellation Cassiopeia (which otherwise looks much the same on Prometheus as it does on Terra).

To the naked eye, of course, there is no sign that Sol has any planets.

2027 Prometheus

The Prometheus colony was Terra's first, founded by the ESA even before the discovery of the jump drive. It is the most heavily populated of all native-Terran colonies, and is expected to pass one million citizens in the next few years. In 2122 it had the honor of being the first interstellar nation admitted to the United Nations, and the Republic of Prometheus was a founding member of the Terran Confederation. It still maintains a European character, but Humans of all types – even Vilani immigrants – can be found in the colony.

Prometheus orbits Alpha Centauri A closely enough to receive somewhat more stellar radiation than Terra does from Sol. This makes the world quite warm. The equatorial regions are nearly uninhabitable, so settlements tend to cluster around 60° north and south latitude. The southern zone is the home of the original European colony, while the northern zone is more recently settled and much more mixed. Grav transports shuttle between the two regions several times a week.

The entire Alpha Centauri star system has a high concentration of metals, as much as twice that of Sol, so Prometheus is rapidly becoming a major mining center. It's cheaper to get basic metals like iron and nickel from asteroids, but in cases where vulcanism and water can help concentrate the metals (for example, gold, copper, and palladium), Prometheus is turning up sites richer than anything ever found on Terra.

The system's most unusual feature is its companion stars. Swinging in

and out from 11 to 36 AU over the course of 80 years, Alpha Centauri B is a spectacular sight, far brighter than Luna in Terra's sky and packed into a smaller disk. Despite its impressive appearance, it is too distant to affect Prometheus' climate in a way noticeable without instruments.

Naturally, B draws a lot of attention from tourists, but a tradition has grown up that an immigrant isn't *really* a Promethean until he's seen Proxima with the naked eye. Dim and far more distant, Proxima is only just visible near the Pleiades. The newcomer's friends will take him out one night specifically to take a look, and binoculars are available if needed (though the guest of honor can expect ribbing if they have to be used).

2028 Peraspera

Arguably the oddest Terran colony, Peraspera is a gigantic laboratory, home to 13,000 personnel in one installation. All are dedicated to various projects that are made easier by the planet's odd environment.

Life has not yet evolved on Peraspera, so the atmosphere is a choking mixture of nitrogen, nitrogen oxides, carbon dioxide, and various sulfurous gases. Most people studying the planet are interested in life support under these conditions, either short term or long.

The "short-termers" are experts in the field of actual life support, mechanical systems that allow people to live in buildings plunked down in unbreathable air. The Suerrat are the current masters of this technology, but they are more focused on dealing with vacuum conditions. The Vilani have never developed the technology to deal with unbreathable atmospheres for extended periods of time without cheating – bringing in oxygen and other supplies from off world. Confederation scientists are hoping to come up with systems that will let them live on worlds like Peraspera self-sufficiently. If nothing else, it would let them tuck away military installations where the Vilani would never find them, since no supply traffic would give them away.

The other main group is composed of scientists interested in making Peraspera and many other worlds habitable in the long run through terraforming. The planet bears a resemblance to Terra more than a billion years ago, and natural processes will probably turn it into a good analog of the Terran homeworld some day. The terraforming researchers are interested in *speeding up* that process – but it's not yet clear just how quickly the transformation might be accomplished.

2227 Ember

Ember is a singularly unpromising world, inhabited by Terrans only in their desperate desire to expand away from the Imperium. Smaller than Luna, and with nearly no atmosphere, it was originally intended as a stepping-stone into space to trailing. Unfortunately neither it nor its nearby brother Loki was near another "stepping-stone." Ember is a dead end, more than two parsecs from anything further out, and was officially abandoned years ago.

Still, the economic and military buildup of the Confederation is so intense that some people see worth in Ember. Ember orbits 23 AU from its twin primaries, and most of the time its surface is completely frozen. However, the smaller of the two primaries is a flare star, and leaps to five times its normal brightness every now and then. Ember is still frozen at these times . . . but less so than usual. During flare episodes, complex molecules like ethane and acetylene can form in the nearly oxygen-free conditions. These are valuable feed stocks for several industrial processes, so something more than 1,000 independent miners and explorers can be found on the planet at any given time, scooping up the chemicals once the flare is over and they freeze solid.

Flare times can be very dangerous, not least because there's no way to predict when they will occur. Ember has multiple locations where large water ice plateaus poke up above the landscape. Prospectors rest on these safe havens while a flare is going on – despite the increased temperature, there's no chance of water ever melting on Ember. Once the flare is over, however, their crawlers must descend to the plains and begin their mining. If they're trapped out in the open when another flare hits, they risk being mired in slushy swamps, or even completely submerged in a hydrocarbon lake, to be entombed when things freeze up again.

Thalassa Subsector Data Table

Hex	Name	Alg	Type	Dia	Grav	Atmosphere	Hyd	Climate	RVM	AFF	Population
0136	(Unexplored)	–	Garden	6,800	0.70	Very Thin-T	–	Tropical	+1	1	–
0138	(Unexplored)	–	Garden	8,300	1.06	Thin-T	40%	Very Hot	+0	5	–
0231	(Unexplored)	–	Desert (Rock)	4,000	0.36	Trace	–	Cold	+0	0	–
0233	(Unexplored)	–	Garden	4,400	0.72	Standard	68%	Cool	-1	8	–
0237	(Uncharted)	–	–	–	–	–	–	–	–	–	–
0239	(Uncharted)	–	–	–	–	–	–	–	–	–	–
0240	(Uncharted)	–	–	–	–	–	–	–	–	–	–
0331	(Unexplored)	–	Barren (Rock)	800	0.04	–	–	Frozen	+2	2	–
0332	(Unexplored)	–	Desert (Rock)	4,000	0.38	Trace	–	Very Cold	+0	0	–
0335	(Unexplored)	–	Garden	6,100	0.90	Standard-T	83%	Warm	-1	7	–
0432	(Unexplored)	–	Garden	5,000	0.67	Standard-T	100%	Chilly	+0	7	–
0434	(Unexplored)	–	Desert (Rock)	6,000	0.67	Trace	–	Frozen	+0	0	–
0437	(Unexplored)	–	Barren (Rock)	2,100	0.12	–	–	Frozen	+2	2	–
0438	(Uncharted)	–	–	–	–	–	–	–	–	–	–
0440	(Uncharted)	–	–	–	–	–	–	–	–	–	–
0532	(Unexplored)	–	Garden	5,200	0.53	Very Thin	16%	Normal	+0	0	–
0533	(Unexplored)	–	Desert (Rock)	2,700	0.12	Trace	–	Frozen	+0	0	–
0536	(Unexplored)	–	Garden	6,300	0.86	Dense-T	62%	Normal	+0	8	–
0632	Sionnach	Te	Garden	4,800	0.61	Very Thin	30%	Cool	+0	0	500
0637	(Unexplored)	–	Desert (Rock)	3,800	0.36	Trace	–	Frozen	-1	-1	–
0639	(Uncharted)	–	–	–	–	–	–	–	–	–	–
0640	(Uncharted)	–	–	–	–	–	–	–	–	–	–
0832	Wallach	Te	Garden	4,300	0.70	Standard-T	83%	Tropical	-1	7	11,000
0833	Thalassa	Te	Garden	4,300	0.76	Dense	98%	Cold	+0	7	58,000
0835	(Unexplored)	–	Garden	6,100	0.68	Thin	94%	Warm	+0	7	–

Thalassa Subsector

Months from Terra by starship and cut off by the rimward edge of Imperial territory, the Thalassa subsector would be of little interest except for a quirk of astrography. The Saris-Yenisei "bridge" (p. 118) gives Terran explorers access to the region, which has never even been charted by the Vilani Imperium. The first Terran outposts have been established in the subsector, and exploration of the more distant worlds is already under way.

In fact, most of the worlds of this subsector have been explored only superficially, and many have been covered by nothing but a short orbital survey. The Confederation government is far too short-handed to mount an intensive exploration of the region, so private adventurers are being recruited to do the job. From the new colony on Thalassa itself, exploration ships are slowly fanning out across the region, making maps, performing surveys, and staking claims for various factions back on Terra. With the Confederation government so distant, a "Wild West" atmosphere has settled over the region; explorers are advised to be well armed to avoid tempting their colleagues into piracy.

0231 Unexplored

This as-yet-unnamed world has only been visited once to date, and due to its distance from Terra it will likely remain uninhabited for some time.

Reports from the crew of the *Bougainville*, the one ship to travel through the system, indicate that life here is very unusual. The planet is small, and has lost nearly all of its water and air to space. In its early days, life presumably evolved as normal, but now it is fighting a rearguard action against extinction.

On the surface, the sole life is found at cave mouths, a single species of plant that releases water to freeze and seal off the entrance while still allowing light in for photosynthesis. These plants can grow to great lengths down into the caverns, and apparently are the basis of a cave-dwelling ecology. The explorers from the *Bougainville* report that the cave systems are damp, with large lakes here and there, containing fishlike animals. The atmospheric pressure inside is also considerably higher than on the surface.

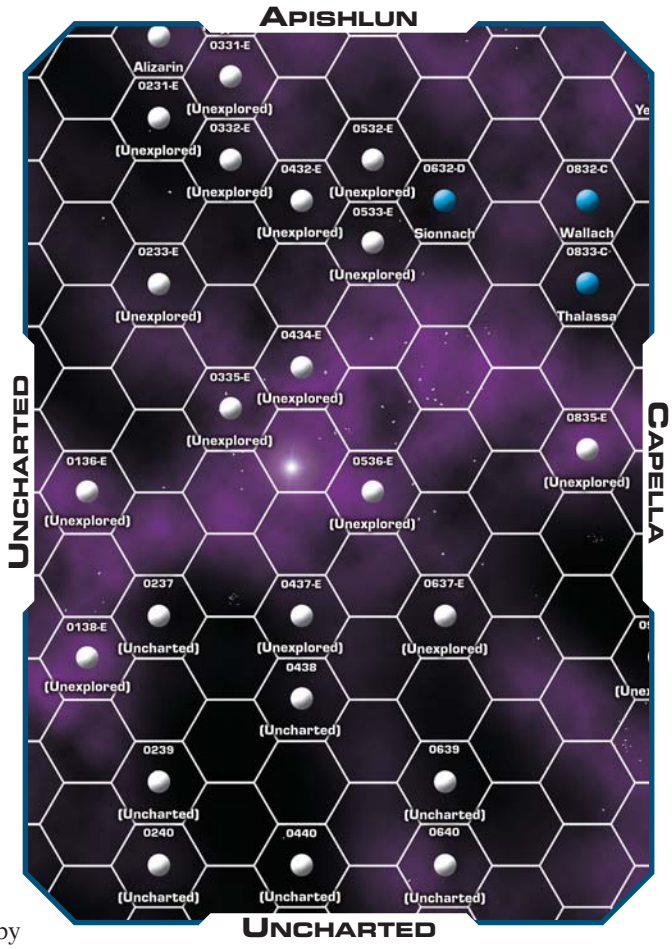
0632 Sionnach

The newest of Terra's colonies, Sionnach is the spearhead of exploration into the Thalassa subsector. Though this region is not as rich in habitable worlds as the Near Boötes Cluster, Sionnach sees a steady stream of ships passing through from Chrysolite via Wallach and Thalassa.

Sionnach itself is not much of a prize, once one gets past its location. The atmospheric pressure is less than 40% of Earth's, making it unbreathable even though the air is half oxygen. The Confederation has been deliberately recruiting colonists from the Bolivian Altiplano on Terra, as they are adapted to similar conditions, but even they are unable to stay outside more than a few hours without a pressure mask. Most visitors will likely faint within a few seconds.

Despite this failure, the Confederation continues to build up Sionnach. A scientific institute is due to open in the next year, with the intent of studying the effects of low-but-not-impossible atmospheric pressures on other kinds of Terran life. The hope is that it may be possible to engineer food crops that can handle low oxygen levels in otherwise

Port	Government	CR	TL	Trade	WTN
E	–	0	0	–	–
E	–	0	0	–	–
E	–	0	0	–	–
E	–	0	0	–	–
–	–	–	–	–	–
–	–	–	–	–	–
–	–	–	–	–	–
E	–	0	0	–	–
E	–	0	0	–	–
E	–	0	0	–	–
E	–	0	0	–	–
E	–	0	0	–	–
E	–	0	0	–	–
–	–	–	–	–	–
–	–	–	–	–	–
E	–	0	0	–	–
E	–	0	0	–	–
E	–	0	0	–	–
D	Anarchy	0	8	Ni Po	2.0
E	–	0	0	–	–
–	–	–	–	–	–
–	–	–	–	–	–
C	RepDem	4	7	Ni	3.0
C	RepDem	4	10	Ni	3.0
E	–	0	0	–	–



hospitable environments. If successful, this will open up more worlds for colonization, so the Confederation is putting forth as much effort as possible so far from Terra.

There are rumors that several Vegans have been invited to join the project, as the worlds they prefer are not that different from Sionnach.

0833 Thalassa

One of the three Terran outposts in the subsector, Thalassa is in the middle of an ecological catastrophe caused by contact with Terran lifeforms.

The planet was first surveyed in 2128 by the Terran jump-2 ship *Argo*, on one of the first exploration missions into this subsector. They found a water world, with the only significant land mass buried under ice at the south pole. Thalassa was about 700 million years old, and had recently developed basic multicellular life. The planet was noted as a potential colony world, and then the *Argo* moved on.

When the next ship arrived six years later, it was obvious that something had happened – Thalassa's formerly stable biosphere was in full collapse. A six-month investigation came to the conclusion that contamination by Terrestrial bacteria was the cause. Designed by an extra 3.5 billion years of evolution to break down tough organic tissues like cellulose and keratin, these bacteria were now quite efficiently destroying the primitive Thalassan life forms.

Over the next few decades, several attempts were made to reverse the process, but – were successful. In 2164, the planet was officially turned over to a coalition of scientific research units working on the problems of terraforming. Native Thalassan life is now found only in extremely harsh environments at the ocean bottoms, where their destroyers can't go, so the new caretakers have decided to introduce Terran lifeforms into the biosphere. With previously existing oxygen in the air and liquid water in abundance, Thalassa is considered a much easier job than Mars (the other Confederation world being terraformed), and it is hoped that what can be learned from the process here will help on the Red Planet and elsewhere.

In the six years since taking custody of the planet, the Thalassan Coalition has managed to produce a stable, if simple, ecological web consisting mostly of bacteria and plankton, with a few small fish species as well. Now that that has been established, the next step is to start introducing larger and larger animals, up to sharks and whales, all the while working endlessly to keep the system in control.

About 5,000 of the planet's population are actively involved in the process, while the rest are colonists of a more traditional stripe. The planet's few islands are rich with volcanic ash that can be turned into soil with the right "starter" mixture of Terran soil and organisms. Already, several of the largest islands have been settled, and the long process of making the planet self-supporting has begun.

Thalassa is sufficiently far off normal trade routes that few ships visit, and in any case the current colony's sole possible export is low-value bulk foodstuffs. However, the Coalition scientists are usually well paid by their offworld employers, and are desperate for consumer goods and equipment imported from elsewhere.

Capella Subsector Data Table

Hex	Name	Alg	Type	Dia	Grav	Atmosphere	Hyd	Climate	RVM	AFF	Population
0931	Yenisei	Te	Barren (Rock)	800	0.05	–	–	Frozen	+0	0	1,300
0938	(Unexplored)	–	Asteroid Belt	–	–	–	–	Infernal	+1	1	–
1032	Chrysolite	Te	Garden	5,100	0.51	Thin-T	72%	Warm	+1	8	52,000
1034	Tunguska	Te	Garden	4,700	0.65	Thin	9%	Very Cold	+0	5	10,000
1035	(Unexplored)	–	Garden	4,300	0.70	Standard	82%	Normal	+0	9	–
1136	(Unexplored)	–	Garden	6,800	0.84	Dense	50%	Normal	+1	10	–
1137	(Unexplored)	–	Desert (Rock)	3,800	0.43	Trace	–	Very Cold	+0	0	–
1140	(Unexplored)	–	Garden	9,300	1.06	Standard-T	64%	Normal	-1	7	–
1234	Luuru	–	Subgiant	9,100	1.20	Corrosive	71%	Frozen	+0	0	–
1237	(Unexplored)	–	Desert (Rock)	4,300	0.38	Trace	–	Frozen	+0	0	–
1239	(Unexplored)	–	Garden	6,200	0.68	Thin-T	71%	Hot	+0	6	–
1332	Mirabilis	Te	Garden	4,300	0.70	Thin	31%	Normal	+1	9	140,000
1337	(Unexplored)	–	Garden	4,400	0.78	Dense	72%	Warm	+0	9	–
1339	(Unexplored)	–	Garden	7,300	0.93	Standard	96%	Warm	+0	8	–
1340	(Unexplored)	–	Garden	4,900	0.50	Very Thin-T	16%	Very Cold	+0	0	–
1435	(Unexplored)	–	Garden	6,900	0.87	Thin	91%	Chilly	+0	7	–
1437	(Unexplored)	–	Garden	7,300	0.85	Standard	32%	Normal	+1	10	–
1439	(Unexplored)	–	Garden	8,100	1.07	Dense	74%	Cool	+0	9	–
1440	(Unexplored)	–	Asteroid Belt	–	–	–	–	Infernal	+2	2	–
1533	Sarpedon	Te	Desert (Rock)	3,000	0.24	Trace	–	Frozen	+1	1	10,000
1537	(Unexplored)	–	Desert (Rock)	3,400	0.38	Trace	–	Cold	+2	2	–
1538	(Unexplored)	–	Garden	8,400	1.19	Very Dense	96%	Very Hot	+1	6	–
1540	(Unexplored)	–	Garden	7,400	0.84	Thin	50%	Cool	+1	9	–
1636	(Unexplored)	–	Garden	4,400	0.75	Thin	56%	Normal	+0	8	–
1637	(Unexplored)	–	Barren (Rock)	2,000	0.11	–	–	Frozen	+0	0	–

Capella Subsector

Rimward of Terra and the Imperial border is a jump-3 gap, uncrossable by starships using current technology. The only break in that gap is between Saris (in the Dingir subsector) and Yenisei (in the Capella subsector), which are only two parsecs apart. The Vilani have never taken advantage of this "bridge" to explore or colonize to rimward – which leaves the Capella subsector open for Terran expansion.

Since the end of the Third Interstellar War, the Confederation has invested considerable resources in exploring and colonizing past the Saris-Yenisei "bridge." Several Terran colonies have been established in the region, providing a base for exploration to rimward. From here, it appears that Terran expansion can continue almost indefinitely, so the venture is regarded as a long-term investment in the future of Terran civilization. Even if the Vilani should conquer Terra, it seems unlikely that they would pursue every Terran colonist to the edge of the galaxy.

The main thrust of exploration in this area is to rimward and trailing of the "bridge," toward a rich grouping of stars called the Near Boötes Cluster. It is already known that this cluster contains a surprising number of rich garden worlds. Direct exploration of these worlds is under way, with both Confederation and private expeditions taking part. The Confederation's long-range colonial plan includes intensive settlement of the cluster over the next century or so.

It is known that several "generation ship" expeditions, sent out in the mid-21st century, headed in this direction from Terra. Reopening contact with these long-lost colonists would be a great coup, even if it had little effect on the course of the conflict with the Imperium.

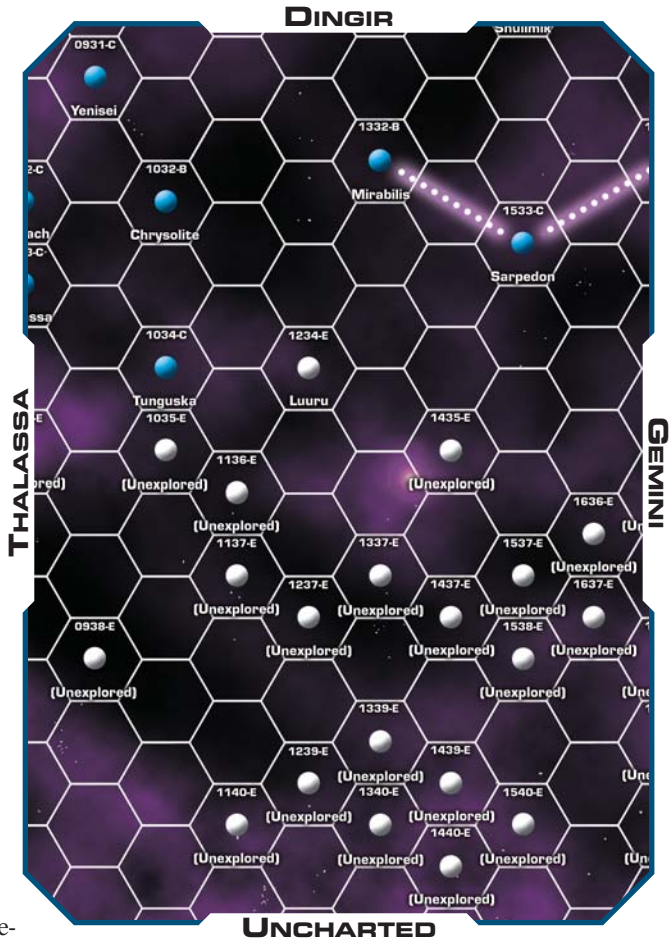
1032 Chrysolite

One of the most ancient worlds known, Chrysolite is over seven billion years old. Its sun is now at the hottest point in its history, and the planet is so warm that its oceans are evaporating. Chrysolite's "cold trap," the upper part of its atmosphere that has until now kept its oceans from disappearing into space a molecule at a time, is saturated with water.

This condition makes the planet's skies a place of astonishing beauty and violence. Thunderheads rear 50 or more miles up, ultraviolet light smashes water vapor into its component ions, and enormous lightning bolts bring them back together. The ground is often pelted with raindrops the size of a man and hail the size of a fist – only the world's warm climate keeps the latter from being even bigger. The landscape is scarred by erosion, and the oceans are brown with silt.

Naturally, all of this has put off the Terran Confederation, as Chrysolite is a necessary stopping point between the Sol subsector and the Near Boötes Cluster, or to Sionnach and the worlds of Thalassa subsector. As of 2170, 52,000 people call the planet home, and for the last 10 years it has been the informal home base for Terran explorers in the region. In particular, a bar named The Golden Stone (in Mesa, the planet's only large town) has become famous as a place where men and women rest who've been the first Humans to see some part of the universe.

Port	Government	CR	TL	Trade	WTN
C	Corporate	2	10	Ex Ni	3.0
E	–	0	0	–	–
B	RepDem	5	10	Ni	3.5
C	AthDem	4	9	Ni Po	3.0
E	–	0	0	–	–
E	–	0	0	–	–
E	–	0	0	–	–
E	–	0	0	–	–
E	–	0	0	–	–
E	–	0	0	–	–
E	–	0	0	–	–
B	RepDem	6	10	Ni Po	4.0
E	–	0	0	–	–
E	–	0	0	–	–
E	–	0	0	–	–
E	–	0	0	–	–
E	–	0	0	–	–
E	–	0	0	–	–
E	–	0	0	–	–
C	Technocracy	0	9	Ex Ni	3.0
E	–	0	0	–	–
E	–	0	0	–	–
E	–	0	0	–	–
E	–	0	0	–	–
E	–	0	0	–	–



1034 Tunguska

Anyone looking at this world from orbit understands its name when the Yin Crater rotates into view. One hundred miles in diameter, it lies on the edge of one of the planet's oceans, taking a huge bite out of the adjoining continent.

The impact occurred 100,000 years ago, and Tunguska is still recovering from the ensuing mass extinction. Life on land is impoverished; no land-animal species is larger than a domestic cat, and every species is genetically homogeneous, descended from a few survivors of the asteroid strike. The oceans are better off, but still depleted. Terran colonists are bringing plant and animal species with them in the hopes of integrating them with the local biosphere while it is already in the process of adapting. With any luck, a hybrid will develop that is very hospitable to Humans.

1337 Unexplored

Visited only twice so far by any Terran explorers, this system contains a very promising terrestrial world that is targeted for the next wave of colonization. The most unusual thing in the system, though, is in orbit around the next planet out. The planet itself is a nondescript Mercury-sized hunk of rock, but its "moon" is an artifact of some sort, named the Litchford Remnant after its discoverer.

The Remnant is a vaguely rib-shaped piece of extremely hard ceramic, 300 feet long and 20 feet thick, broken at one end. Inscribed all over its surface are lines that bear a resemblance to large-scale computer circuits, but only the lines and the slightest traces of germanium are left of whatever those might have been. The artifact hasn't been dated, mostly because without knowing its composition it is impossible to know what tests to use. It has been scratched with very high-powered lasers, and the resulting puffs of gas suggest it is an arrangement of boron, silicon, and carbon. Figuring out exactly how the atoms hold together and produce the Remnant's incredible hardness is beyond Confederation technology.

The Green Badge

Chrysolite is named for a cheap green gemstone that can be found in quantity around the shores of the small lake next to Mesa. Terran explorers based on the planet have been using the stones to distinguish themselves from "ordinary people" for several years now. On returning to Chrysolite, any person who was the first Human ever to step onto a planet receives a half-inch flat oval of the green-and-yellow-streaked stone to wear. The badge can be set in a ring, a brooch, a pin, an earring, or anything else – the exact location is left up to the explorer. Although chrysolite is only a semiprecious stone, the badges have entered Terran folklore; genuine examples are priceless. Only 27 exist, and the owners of six are missing or dead.

Gemini Subsector Data Table

Hex	Name	Alg	Type	Dia	Grav	Atmosphere	Hyd	Climate	RVM	AFF	Population
1732	Ys	Te	Garden	7,700	0.98	Thin-T	72%	Tropical	+0	7	32,000
1736	(Unexplored)	–	Desert (Rock)	3,600	0.33	Trace	–	Very Cold	-1	-1	–
1738	(Unexplored)	–	Garden	2,300	0.18	Standard	98%	Warm	+0	8	–
1739	(Unexplored)	–	Garden	7,200	0.76	Very Thin	–	Cold	+1	1	–
1740	(Uncharted)	–	–	–	–	–	–	–	–	–	–
1833	Remulak	Te	Garden	9,100	1.15	Standard-T	43%	Warm	+1	9	48,000
1836	(Unexplored)	–	Garden	9,800	0.87	Dense	50%	Normal	-1	8	–
1931	Hephaistos	Te	Pre-Garden	9,000	1.02	Suffocating	98%	Warm	+0	0	6,000
2031	Calgary	Te	Garden	10,200	0.90	Dense-T	96%	Cold	+0	6	10,000
2131	Inferno	Te	Garden	5,000	0.50	Standard-T	79%	Hot	+0	7	30,000
2132	Forlorn	Te	Garden	4,300	0.74	Dense-T	62%	Cold	+0	7	12,000
2135	(Uncharted)	–	–	–	–	–	–	–	–	–	–
2138	(Uncharted)	–	–	–	–	–	–	–	–	–	–
2235	(Uncharted)	–	–	–	–	–	–	–	–	–	–
2236	Pollux	–	Asteroid Belt	–	–	–	–	Infernal	-3	-3	–
2240	(Uncharted)	–	–	–	–	–	–	–	–	–	–
2337	(Uncharted)	–	–	–	–	–	–	–	–	–	–
2339	Castor	–	Asteroid Belt	–	–	–	–	Very Cold	+2	2	–
2433	(Uncharted)	–	–	–	–	–	–	–	–	–	–

Gemini Subsector

The Gemini subsector is divided into two sections. To coreward is a scatter of worlds that are immediately accessible from Terra, part of the "Outback" that has already been settled by a series of Terran outposts. These worlds are well explored, and several of them are inhabited by small (but fast-growing) Terran communities.

Cut off from the "Outback" by a jump-3 gap are the unexplored worlds of the subsector, some of them in the Near Boötes Cluster to spinward, others scattered and relatively inaccessible to trailing. The Cluster is accessible to Terran explorers by way of the Saris-Yenisei "bridge," but even so the Cluster worlds of the Gemini subsector are at the very limit of Terran exploration. To trailing, the remaining worlds of the subsector are isolated by another jump-3 gap, and so are almost completely unknown to Terran explorers. Only the bright stars Castor and Pollux are at all known; their star systems have been mapped only from a distance, by sensitive telescopes.

The Gemini subsector is the target of a number of strange rumors. Several explorers have reported odd non-Human artifacts, or traces of activity that can't be tied to any known Terran expedition. Verification of these rumors is very difficult, and the Confederation government dismisses them as unfounded.

0501 Inferno

One of the first colonies in this subsector, Inferno has been settled for less than 10 years. The planet is quite like Terra, but unfortunately it's most like the Terra of 300 million years ago – carbon dioxide levels in the atmosphere are 40 times as high as those on Terra. Breathing Inferno's air for more than an hour causes nausea and dizziness, and most people pass out after a few hours more. Special recirculating masks containing reserves of powdered limestone are needed for extended outdoor journeys. This extra fraction of greenhouse gas gives Inferno its name, as temperatures at the equator can exceed 160°. In the northern and southern latitudes the climate is cooler, but still very warm.

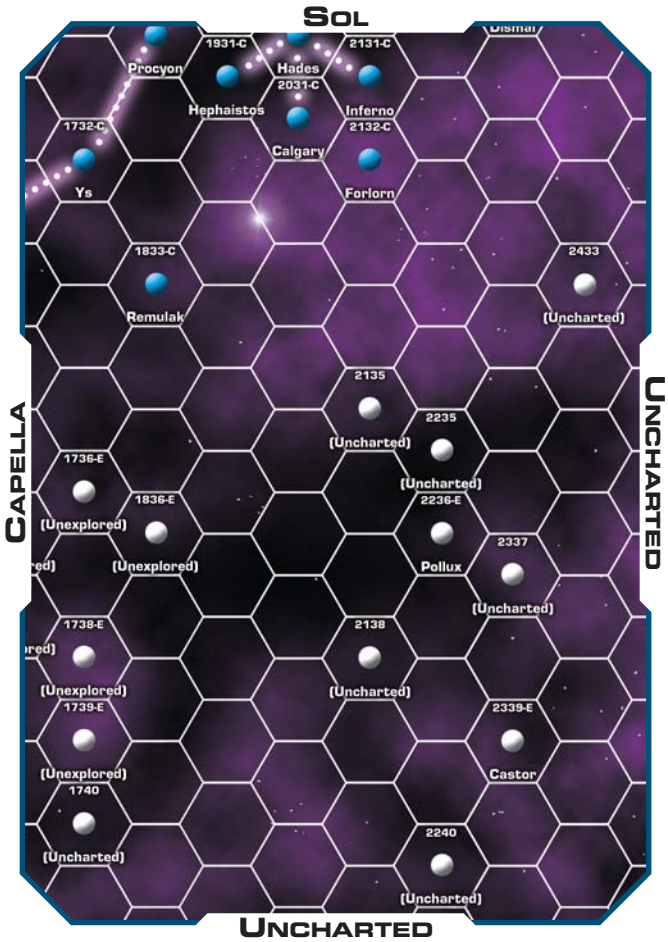
While bad for Humans, the air and heat make Inferno a paradise for plants. It is nearly impossible to get anywhere along the ground, as the greenery (which is actually a dark greenish-blue due to Inferno's red sun) is impenetrable over much of the planet. Unless staying in the cleared colony area, air travel is recommended.

Animal life usually takes a back seat to Inferno's flora, but pseudo-insects have carved a substantial niche for themselves. Like many Terran insects, they feed on plants, mostly as pollinators in symbiosis. One interesting divergence from Terran life is the manner in which the insects find their food and each other. On Terra, sight is the primary means of location, accounting for the colorful flowers that can be found in any garden. On Inferno, the forest canopy is so thick it's possible to be a few feet away from a plant and not be able to see it. The insects use sound instead, and in a manner that may be unique in the galaxy.

Both plants and insects pick up metals from the soil, using them to build long sturdy veins – in the leaves or petals of plants, and in the wings of insects. When struck, these veins chime like a tuning fork. Each pairing of insect species and associated plant has a unique frequency. If one can manage to get some distance into the forest, the visitor is treated to a random concert of notes, reminiscent of "experimental" music.

Plants on Inferno usually use iron for their veins, thinly sheathed with organic material to prevent rusting. Entomologists, on the other hand, need to be very careful with their insect specimens. With weight a consideration for flying insects, most species have settled on magnesium. In the damp, carbon-dioxide-laden air of Inferno, this presents no problems – but in a Terran-style atmosphere, they often spontaneously combust, killing the bug and surprising nearby Humans.

Port	Government	CR	TL	Trade	WTN
C	AthDem	6	8	Ni	3.0
E	–	0	0	–	–
E	–	0	0	–	–
E	–	0	0	–	–
–	–	–	–	–	–
C	AthDem	5	5	Ni	2.5
E	–	0	0	–	–
C	Corporate	2	10	Ex Ni	3.0
C	RepDem	1	8	Ni	3.0
C	Technocracy	6	6	Ni	3.0
C	AthDem	4	7	Ni	3.0
–	–	–	–	–	–
–	–	–	–	–	–
–	–	–	–	–	–
E	–	0	0	–	–
–	–	–	–	–	–
–	–	–	–	–	–
E	–	0	0	–	–
–	–	–	–	–	–



Placing Worlds

Interstellar Wars GMs running adventures far from Terra will want to design their own worlds. This section presents a simple system for designing regions of space to serve as the backdrop for adventures. The rules here assume conditions as of the ***Interstellar Wars*** era in the ***Traveller*** universe – GMs who want a system more widely applicable to other settings should refer to ***GURPS Space***.

Mapping a Subsector

Each subsector has a system density, indicating how likely it is for a world to appear in each hex (see the System Presence Table). For example, the region of space closest to Terra is of Scattered density.

When mapping a subsector for the first time, choose a system density, then roll dice as indicated in the table for each hex in the subsector map. Place a world in the hex if the target number of greater is rolled. Alternatively, the GM may simply place an appropriate number of star systems as he pleases (typical ranges of star system counts are given in the table).

System Presence Table

Subsector Density	*Throw per Hex*	*Typical Number*
Rift	12+ on 2d	2-3
Sparse	6+ on 1d	11-16
Scattered	5+ on 1d	21-32
Standard	4+ on 1d	32-48
Dense	3+ on 1d	43-64

Generating Worlds

The steps in the following sequence allow the GM to design the most important worlds of his ***Interstellar Wars*** universe. The sequence produces results similar to those of the ***Classic Traveller*** world-design rules, while retaining some degree of realism. Always remember that the rules should be considered guidelines, an indication of which options are more likely to yield the ***Traveller*** flavor while still fitting current scientific theory. No die roll should be allowed to dictate the course of the GM's campaign.

The steps below assume that the GM is planning to generate at least an entire subsector of space as a backdrop for ***Interstellar Wars*** adventures. The GM should proceed with Steps 1 through 6 of the sequence for each individual world. Once that has been done, Steps 7 through 15 will help him to determine how those worlds fit together – where the trade routes lie, which worlds play host to military bases, and so on.

The design sequence is intended to produce a description of the main world of each star system. A system may have thousands of other planets, moons, asteroids, and significant pieces of space debris. The main world is the one with the largest Human or alien population – the one that visitors are most likely to find interesting. The GM may design other worlds in the star system to suit his needs, possibly by referring to ***GURPS Space*** for additional detail.

Step 1: World Type

For each world marked on the map, roll 4d on the World Type Table and make note of the result. In some cases the result on the World Type Table includes two or more of the above classes; see the instructions following the table as needed.

World Type Table

Roll (4d)	*World Type*
4-7	Asteroid Belt
8-9	Barren
10	Desert (Rock)
11-12	Garden (Very Thin atmosphere)
13-14	Garden (Thin atmosphere)
15-16	Garden (Standard atmosphere)
17-18	Garden (Dense atmosphere)
19-21	Hostile
22-24	Garden (Very Dense atmosphere)

Asteroid Belt: The main world is of the Asteroid Belt type.

Barren: The main world is either a Barren (Ice) or Barren (Rock) world. Roll 3d; on a 12 or less the type is Barren (Rock), otherwise it is Barren (Ice).

Garden: The main world is of the Garden class. Aside from noting the world type, also make note of the atmospheric pressure (Very Thin, Thin, Standard, Dense, or Very Dense) for later reference.

Hostile: The main world falls into one of the remaining types, each characterized by a significant but unbreathable atmosphere. Roll 3d on the Hostile World Type Table, and make note of the result as the world's type.

Hostile World Type Table

Roll (3d)	*World Type*
3-4	Subgiant
5-6	Desert (Ice)
7-9	Glacier
10-15	Pre-Garden
16-18	Greenhouse

Step 2: World Size

Each world type has its own associated range of world sizes – refer to the following section that is appropriate for any given world. In each case, roll 3d on a Diameter Table specific to the world's type to get the diameter of the world. Once the diameter has been established, roll 3d on the specified Density Table to get the world's average density. The result on the Diameter Table may give a *Density Modifier* that must be added to the roll on the Density Table. Once the diameter and density of the world have been determined, the world's surface gravity can be computed.

The diameter of each world will be given in miles, rounded to the nearest 500 miles. If the GM wants finer detail, he can roll 1d immediately after his roll on the Diameter Table. On a 1, subtract 200 miles from the diameter from the table; on a 2, subtract 100 miles; on a 5, add 100 miles; on a 6, add 200 miles.

Asteroid Belts

If the main world is an asteroid belt, skip this step. The "world" is composed of dozens to thousands of asteroids, none of them more than a few hundred miles across, most of them much smaller. The surface gravity of these asteroids will be negligible.

Barren (Ice) Worlds

Roll 3d on the Barren (Ice) Diameter Table. Once the diameter of the world has been established, roll on the Icy Core Density Table (p. 123) to determine the world's average density.

Barren (Ice) Diameter Table

Roll (3d)	*Diameter*	*Density Modifier*
3-8	1,000	-4
9-12	1,500	-1
13-14	2,000	+0
15-16	2,500	-4
17-18	3,000	-8

Barren (Rock) Worlds

Roll 3d on the Barren (Rock) Diameter Table. Once the diameter of the world has been established, roll on the Small Iron Core Density Table (p. 123) to determine the world's average density.

Barren (Rock) Diameter Table

Roll (3d)	*Diameter*	*Density Modifier*
3-8	1,000	-8
9-10	1,500	-4
11-12	2,000	-1
13-14	2,500	+0
15-16	3,000	-4
17	3,500	-8
18	4,000	-12

Desert (Ice) Worlds

Roll 3d on the Desert (Ice) Diameter Table. Once the diameter of the world has been established, roll on the Icy Core Density Table (p. 123) to determine the world's average density.

Desert (Ice) Diameter Table

Roll (3d)	*Diameter*	*Density Modifier*
3-8	3,000	+8
9-12	3,500	+4
13-14	4,000	+0
15-16	5,500	+0
17-18	6,000	+0

Desert (Rock) Worlds

Roll 3d on the Desert (Rock) Diameter Table. Once the diameter of the world has been established, roll on the Small Iron Core Density Table to determine the world's average density.

Desert (Rock) Diameter Table

Roll (3d)	Diameter	Density Modifier
3-5	3,000	+12
6-8	3,500	+4
9-12	4,000	+0
13-15	4,500	-4
16-18	5,000	-8

Garden and Pre-Garden Worlds

For *both* Garden and Pre-Garden worlds, roll 3d on the Garden Diameter Table. *Modifiers:* For Garden worlds *only*, -6 if the world has a Very Thin atmosphere as indicated in Step 1, -3 if it has a Thin atmosphere, +3 if it has a Dense atmosphere, +6 if it has a Very Dense atmosphere.

Once the diameter of the world has been established, roll on the Large Iron Core Density Table (p. 124) to determine the world's average density.

Garden Diameter Table

Roll (3d)	Diameter	Density Modifier
3 or less	4,500	+15
4	5,000	+8
5-6	5,500	+0
7-8	6,000	+0
9-10	6,500	+0
11-12	7,000	+0
13-14	7,500	+0
15-16	8,000	-1
17	8,500	-4
18 or more	9,000	-8

Glacier Worlds

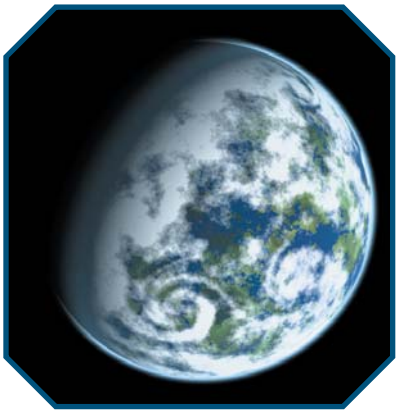
Roll 3d on the Glacier Diameter Table. Once the diameter of the world has been established, roll on the Large Iron Core Density Table (p. 124) to determine the world's average density.

Glacier Diameter Table

Roll (3d)	Diameter	Density Modifier
3	4,000	+12
4	4,500	+0
5-6	5,000	+0
7-8	5,500	+0
9-10	6,000	+0
11-12	6,500	+0
13-14	7,000	+0
15-16	7,500	+0
17	8,000	-4
18	8,500	-8

Greenhouse Worlds

Roll 3d on the Greenhouse Diameter Table. Once the diameter of the world has been established, roll on the Large Iron Core Density Table (p. 124) to determine the world's average density.



Greenhouse Diameter Table

Roll (3d)	Diameter	Density Modifier
3	4,500	+15
4	5,000	+8
5	5,500	+0
6	6,000	+0
7-8	6,500	+0
9-10	7,000	+0
11-12	7,500	+0
13-14	8,000	+0
15	8,500	+0
16	9,000	-1
17	9,500	-4
18	10,000	-8

Subgiant Worlds

Roll 3d on the Subgiant Diameter Table. Once the diameter of the world has been established, roll on the Large Iron Core Density Table (p. 124) to determine the world's average density.

Subgiant Diameter Table

Roll (3d)	Diameter	Density Modifier
3-4	8,000	+8
5-7	8,500	+4
8-10	9,000	+0
11-13	9,500	+0
14-18	10,000	+0

Planet Density

Once the diameter of a planet has been determined, roll 3d on one of the three following tables for the planet's density. For Barren (Ice) and Desert (Ice) worlds, roll on the Icy Core Density Table. For Barren (Rock) and Desert (Rock) worlds, roll on the Small Iron Core Density Table. For all other worlds, roll on the Large Iron Core Density Table. In all cases, apply any Density Modifier from the Diameter Table to the 3d roll.

Icy Core Density Table

Roll (3d)	Density
6 or less	0.3
7-10	0.4
11-14	0.5
15-17	0.6
18 or more	0.7

Small Iron Core Density Table

Roll (3d)	Density
6 or less	0.6
7-10	0.7
11-14	0.8
15-17	0.9
18 or more	1.0

Large Iron Core Density Table

Roll (3d)	Density
6 or less	0.8
7-10	0.9
11-14	1.0
15-17	1.1
18-20	1.2
21-23	1.3
24 or more	1.4

Planet Surface Gravity

To determine the surface gravity of a planet, apply the following formula:

G = (K × D)/7930

G is the world's surface gravity, in Gs. **K** is the world's density from one of the Density Tables. **D** is the world's diameter, in miles. Round off to two decimal places and make note of the result.

Step 3: Atmosphere

This step determines the composition and surface pressure of the world's atmosphere. Each world type has its own associated atmospheric properties. Refer to the following section that is appropriate for any given world.

Asteroid Belt, Barren (Ice), or Barren (Rock) Worlds

None of these worlds will have a significant atmosphere. Note "–" for the atmosphere; a visitor on the surface will be in a vacuum (see p. B437).

Desert (Ice) Worlds

A Desert (Ice) world will have an atmosphere, composed largely of carbon dioxide or nitrogen. Nitrogen oxides and ammonia are very likely to be present, presenting an immediate danger to exposed tissues. Roll 3d; on a 9 or less the atmosphere is Toxic, otherwise it is Corrosive.

Desert (Rock) Worlds

A Desert (Rock) world will have an atmosphere, very thin and composed largely of carbon dioxide and nitrogen. Roll 3d; on a 15 or less there is only a Trace atmosphere (p. B429), otherwise the atmosphere is Suffocating.

Garden Worlds

Garden worlds have significant atmospheres composed primarily of nitrogen, with a significant amount of free oxygen that can support Human respiration. The pressure of a Garden world's atmosphere is determined by the result originally obtained from the table in Step 1.

Any Garden world's atmosphere will be Tainted on a roll of 9 or less on 3d. To generate more specific detail about a given Tainted atmosphere, see the text box.

Glacier and Pre-Garden Worlds

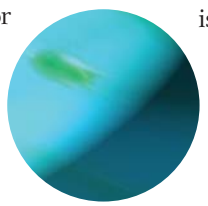
A Glacier or Pre-Garden world will have an unbreathable atmosphere rich with carbon dioxide and nitrogen. There may be other toxic substances in the atmosphere due to volcanic activity or other natural processes. Roll 3d; on a 12 or less the atmosphere is Suffocating, otherwise it is Toxic.

Greenhouse

A Greenhouse world will always have an atmosphere that is extremely dense and furnace-hot. A "dry greenhouse" world will have an atmosphere composed primarily of carbon dioxide and sulfur compounds, while a "wet greenhouse" world will have nitrogen, water vapor, and possibly even free oxygen in the mix. Roll 3d; on a 12 or less the atmosphere is Insidious, otherwise it is Corrosive.

Subgiant Worlds

A Subgiant world will have a very dense atmosphere dominated by helium, hydrogen, and hydrogen compounds such as ammonia and methane. Warmer subgiant worlds may have carbon dioxide and nitrogen gas in place of ammonia and methane. Roll 3d; on a 12 or less the atmosphere is Corrosive, otherwise it is Toxic.



Step 4: Hydrographics

This step determines the portion of the world's surface that is covered by liquid "oceans." These oceans are most likely to be composed of water, but on some worlds they may contain more exotic compounds.

Each world type has its own associated hydrographic properties. Refer to the following section appropriate for any given world. In each case, the hydrographic coverage is expressed as a multiple of 10% of the world's surface area. If the GM wants more detail, he can roll 2d-7 and multiply by 1%, adding the result (even if negative) to the basic hydrographic percentage generated below.

Asteroid Belt, Barren, and Desert (Rock) Worlds

None of these world types will have "oceans" of liquid water or other common substances. Their hydrographic coverage is always 0%.

Asteroid belt objects, Barren (Rock) worlds, and Desert (Rock) worlds that are far enough from the primary star *may* have some amount of water ice, buried under the surface or hidden in always-shadowed craters.

Barren (Ice) worlds are often covered with water ice, but will not have permanent bodies of liquid water on the surface. Beneath the surface of the ice, a Barren (Ice) world may have *considerable* liquid water, especially if the world experiences internal heating. For example, most Barren (Ice) worlds that orbit gas giant planets are heated by tidal effects, keeping the subsurface oceans warm enough to stay in a liquid state.

Desert (Ice) Worlds

Desert (Ice) worlds may have "oceans" of liquid volatiles, but these are likely to be composed of liquid hydrocarbons rather than water. Roll 2d-2 and multiply by 10%; the result is the portion of the world's surface covered by substances in a liquid state. The rest of the surface is likely to be rich with ices, possibly including water ice.

Atmospheric Taints

When the GM is running an adventure on a world with a tainted atmosphere, he may want to know more about the exact nature of the taint. Roll 3d on the Atmospheric Taint Table, or choose a primary contaminant from the sections below.

Atmospheric Taint Table

Roll (3d)	*Major Toxic Component*
3-4	Chlorine or Fluorine
5-6	Sulfur Compounds
7-8	Nitrogen Compounds
9-10	Organic Toxins
11-12	Pollutants
13-14	High Carbon Dioxide
15-16	High Oxygen
17-18	Inert Gases

Chlorine or Fluorine

In an oxygen-nitrogen atmosphere, chlorine would normally combine with other elements to form nontoxic compounds. However, it's possible for living things with an odd biochemistry to release a significant amount of chlorine into the atmosphere. This might give rise to a biosphere full of plants and animals that use a Terra-like carbon-oxygen cycle but are adapted to the presence of trace amounts of chlorine in the air. Visitors who do not have similar biochemistry would find the unfiltered air to be corrosive and very poisonous.

A world with significant amounts of chlorine in the air would be a very strange place. The air would carry a faint color, and the presence of chlorine would slightly distort images. Since chlorine gas is heavier than air, it would tend to pool in caves and depressions in the land, reaching concentrations that might kill even native animal life. On such a world, rainfall and standing water would actually be a weak hydrochloric acid solution. Living things would use odd polymers in their structure – natural plastics, which would not dissolve in the chlorine-tainted air.

On such a world, an unprotected Human would need to make a HT roll every minute, at -2 to -6 depending on the local concentration of chlorine. Failure causes 1 point of toxic damage. At its highest concentrations, the chlorine would actually be Corrosive (p. B429).

On some worlds, fluorine gas might play a role similar to chlorine, but fluorine is much less common.

Sulfur Compounds

Hydrogen sulfide, sulfur dioxide, and sulfur trioxide might be found in the air due to massive industrial pollution or volcanic activity. Visitors would find the air to be toxic and full of unpleasant odors. Rainfall and standing water would be weak solutions of sulfuric acid.

Unprotected visitors would need to make a HT roll once per hour to avoid 1 point of toxic damage. Close to a source of the sulfur compounds, the roll may be more frequent.

Nitrogen Compounds

Nitrogen oxides are very unlikely to appear in an oxygen-nitrogen atmosphere unless they are produced by a strange local biochemistry or by massive industrial pollution. As with sulfur compounds, the unfiltered air would be somewhat toxic and any open water would be tainted by acid.

Unprotected visitors would need to make a HT roll once per hour to avoid 1 point of toxic damage. Close to a source of the nitrogen compounds, the roll may be more frequent.

Organic Toxins

Living things may release dangerous substances into the air – pollen, spores, disease-causing microorganisms, complex airborne toxins, and so on. In general, an unprotected visitor would need to make a HT roll once per day to avoid 1 point of toxic damage. Unprotected exposure to the air may also count as exposure to a weak respiratory-agent poison (p. B437) or a disease (p. B442); the GM is encouraged to develop his own exotic maladies to give his alien worlds flavor.

Pollutants

Non-organic poisons may be in the air as well – heavy-metal or radioactive dust, toxic smoke from volcanism or industrial pollution, and so on. In general, an unprotected visitor will need to make a HT roll once per day to avoid 1 point of toxic damage. Heavy-metal poisoning can have lasting effects, as can radioactivity (p. B435).

High Carbon Dioxide

The Human metabolism is set to deal with a certain amount of carbon dioxide in the air. When there is too much, our breathing reflex malfunctions; the result is hyperventilation and a sense of suffocation. The result is rather like that of a Very Dense atmosphere (p. B430) and can lead to suffocation. (p. B436) It is possible to acclimate to moderate levels of carbon dioxide.

Very high levels of carbon dioxide are actively toxic and cannot be acclimated to; an exposed Human will need to make a HT roll once per hour to avoid 1 point of toxic damage.

Continued on next page . . .

Atmospheric Taints (Continued)

High Oxygen

In moderate cases, an excess of oxygen can be a mild irritant to skin and mucous membranes, and can make it much easier for people to hyperventilate when working hard. Treat this as giving the effect on HT of a Dense atmosphere (p. B430).

Very high concentrations of oxygen are actively toxic; make a HT roll once per hour to avoid 1 point of toxic damage. At such concentrations, the oxygen increases fire hazards as well – all materials are considered to be one flammability class higher (p. B430).

Inert Gases

Nitrogen and other chemically inert compounds can cause "inert gas narcosis" when their partial pressure is high enough. Symptoms include light-headedness, reduced dexterity, euphoria, and impaired judgment. This is normally a problem only in Very Dense atmospheres, although a few compounds (such as nitrous oxide, or "laughing gas") can cause these symptoms at relatively low pressures.

An unprotected Human will be at -1 to all IQ-based rolls, and will need to make an IQ roll to perform even the simplest tasks. He will lose the Common Sense advantage if he has it, and will gain Impulsiveness.

World Climate Table

Roll (3d)	*Climate Type*	*Temperature Range (F)*	*Temperature Range (K)*
–	Frozen	Below -20°	Below 244 K
3	Very Cold	-20° to 0°	244 K to 255 K
4-5	Cold	0° to 20°	255 K to 266 K
6-7	Chilly	20° to 40°	266 K to 278 K
8-9	Cool	40° to 60°	278 K to 289 K
10-11	Normal	60° to 80°	289 K to 300 K
12-13	Warm	80° to 100°	300 K to 311 K
14-15	Tropical	100° to 120°	311 K to 322 K
16-17	Hot	120° to 140°	322 K to 333 K
18	Very Hot	140° to 160°	333 K to 344 K
–	Infernal	Above 160°	Above 344 K

Garden and Pre-Garden Worlds

Garden and Pre-Garden worlds will almost always have liquid-water oceans. Roll 2d-2 and multiply by 10% (maximum 100%); the result is the portion of the world's surface covered by liquid water.

Glacier Worlds

Glacier worlds generally have no permanent bodies of liquid water on their surface, but they may have lakes or small seas that are temporarily liquid during certain seasons. Roll 2d-10 and multiply by 10% (minimum 0%); the result is the portion of the world's surface that is usually covered by liquid water.

Greenhouse Worlds

Even if a Greenhouse world still has some surface water, it is usually in the process of losing it. Roll 2d-7 and multiply by 10% (minimum 0%); the result is the portion of the world's surface that is still covered by liquid water. A Greenhouse world that still has liquid water is a "wet greenhouse" (p. 124), while a world with 0% hydrographics is a "dry greenhouse."

Subgiant Worlds

A Subgiant world is unlikely to have oceans of pure liquid water. However, if its surface temperature and atmospheric composition are right it may have vast oceans of water and ammonia or other substances, mingled in a "eutectic" solution whose freezing point is much lower than that of pure water. Roll 2d-2 and multiply by 10% (minimum 0%); the result is the portion of the world's surface that is covered by such a liquid substance.

Step 5: Surface Climate

This step determines the *average* surface temperature of the world. The average doesn't take into account daily or seasonal variations – it indicates the most typical temperature to be found on the world over long periods of time.

Interstellar Wars defines world climate in terms of a set of temperature ranges. If a world is said to have one of these climate types, its average temperature falls within that range. The ranges are defined on the World Climate Table; in many cases, the GM will be directed to roll on that table in order to determine the world's climate type.

Climate Type is a descriptive name for the world's overall surface climate. *Temperature Range (F)* gives the associated range in degrees Fahrenheit. *Temperature Range (K)* gives the same range in *kelvins*.

Each world type has its own associated climatic properties. Refer to the following section that is appropriate for any given world.

Asteroid Belt Worlds

Asteroid belts can be found at almost any distance from the primary star, and so can have almost any climate. Roll 3d; on a 6 or less the world has Infernal climate, on a 7-9 the GM should roll on the World Climate Table, otherwise the world has Frozen climate.

Barren (Ice), Desert (Ice), Glacier, and Subgiant Worlds

All of these world types are found at some distance from the primary star, and are guaranteed to be too cold for liquid water. They always have Frozen climate.

Barren (Rock) and Desert (Rock) Worlds

These worlds can be found at a variety of distances from the primary star, although they are by definition too close and too warm to permit permanently frozen water on the surface. Roll 3d; on an 8 or less the world has Infernal climate, and on a 9-12 the GM should roll on the World Climate Table. Otherwise the world has Frozen climate.

Garden and Pre-Garden Worlds

These worlds are guaranteed to be "just right" for the presence of large amounts of liquid water – warm enough that most of the water will remain unfrozen, cool enough that none of it will boil. Roll on the World Climate Table for all such worlds.

Greenhouse Worlds

These worlds are extremely hot, due to the runaway greenhouse effect that is taking place in the atmosphere. They always have Infernal climate.

Step 6: Habitability and Resources

This step determines the factors that might make a world attractive for Human or alien settlement. Colonists are likely to come to a world that is comfortable for them, where they can live without investing in expensive artificial life support. However, even if a world is very inhospitable, settlers may arrive in a quest for valuable resources.

Resources

For each world, roll on one of the following tables. For Asteroid Belt worlds, roll 3d on the Asteroid Belt Resource Value Table. For all other world types, roll 3d on the Planetary Resource Value Table. The result will be a description of the world's resource availability, along with a Resource Value Modifier (RVM) that will be used in later steps of the sequence. Make a note of the RVM for each world.

Asteroid Belt Resource Value Table

Roll (3d)	*Overall Value*	*Resource Value Modifier*
3	Worthless	-5
4	Very Scant	-4
5	Scant	-3
6-7	Very Poor	-2
8-9	Poor	-1
10-11	Average	+0
12-13	Rich	+1
14-15	Very Rich	+2
16	Abundant	+3
17	Very Abundant	+4
18	Motherlode	+5

Planetary Resource Value Table

Roll (3d)	*Overall Value*	*Resource Value Modifier*
3-4	Very Poor	-2
5-7	Poor	-1
8-13	Average	+0
14-16	Rich	+1
17-18	Very Rich	+2

Affinity

The Affinity score for each world summarizes both resource value and habitability.

If the world is of any type other than Garden, the Affinity score is equal to the Resource Value Modifier. A Garden world with a Very Thin atmosphere will also have an Affinity score equal to the RVM; it may support locally evolved life, but Humans will be unable to survive without high-technology equipment.

If the world is of the Garden type with more than a Very Thin atmosphere, the Affinity score is computed as follows. Begin with the Resource Value Modifier and add 3. Add 1 if the atmosphere is either Standard or Dense. Add 1 if the atmosphere is not Tainted. Add 1 if the hydrographic coverage is between 1% and 29%, or if it is 91% or higher; add 2 if the hydrographic coverage is between 30% and 90%, inclusive. Add 1 if the world's average climate is Hot or Cold; add 2 if it is Chilly, Cool, Normal, Warm, or Tropical.

Make a note of the Affinity score for each world.

Placing Populations

Once the GM has gone through Steps 1-6 for every world in his region of interest, he will have defined the *physical* parameters for each world. In the rest of the world design sequence, he will determine the *social* parameters for each world – how many Humans (or other sapient beings) live there, what kind of government they live under, how much trade they engage in, and so on.

Population Categories

Before placing populations, the GM should first decide where to place *borders* – which worlds are currently in Imperial space, which are in Terran space, and which are outside space claimed by either major power. The GM should consider what kind of flavor he wants adventures in the region to have. Does he prefer tense cross-border confrontations, culture clashes deep inside Imperial territory, or bold exploration into uncharted space?

Colony Population Table

Roll (3d)	Population
28 or less	10,000 (PR 4)
29	13,000
30	15,000
31	20,000
32	25,000
33	30,000
34	40,000
35	50,000
36	60,000
37	80,000
38	100,000 (PR 5)
39	130,000
40	150,000
41	200,000
42	250,000
43	300,000
44	400,000
45	500,000
46	600,000
47	800,000
48	1.0 million (PR 6)
49	1.3 million
50	1.5 million
51	2.0 million
52	2.5 million
53	3.0 million
54	4.0 million
55	5.0 million
56	6.0 million
57	8.0 million
58	10 million (PR 7)
59	13 million
60	15 million
61	20 million
62	25 million
63	30 million
64	40 million
65	50 million
66	60 million
67	80 million
68	100 million (PR 8)
69	130 million
70	150 million
71	200 million
72	250 million
73	300 million
74	400 million
75	500 million
76	600 million
77	800 million
78	1.0 billion (PR 9)
79	1.3 billion
80	1.5 billion
81	2.0 billion
82	2.5 billion
83 or more	3.0 billion

If the subsector being generated is partially or wholly under Terran control, the GM should also decide whether the Terran-controlled worlds were first settled by Terrans or by someone else. Terran-originated colonies are only likely to be found close to Terra, in space that never fell under Imperial control. Late in the Interstellar Wars era, after Terrans have already conquered dozens or hundreds of Vilani worlds, most "Terran" worlds will have been settled originally by the Vilani or by Vilani subject races.

In any case, the GM should sort the worlds of his subsector into four categories:

Imperial Vilani worlds were originally colonized by the Vilani, or by a Vilani subject race, and are still under Imperial control.

Conquered Vilani worlds were originally colonized by the Vilani, or by a Vilani subject race, but have since passed into Terran control.

Terran worlds were originally colonized by the Terrans, and are still under Terran control. (During the course of the Interstellar Wars, Imperial forces managed to *destroy* a number of Terran outposts, but no well-established Terran world was ever *conquered* by the Vilani.)

Neutral worlds are under the control of neither major power.

Step 7: Population

This step determines the current population of each world in the subsector. This step must be performed for all of the worlds together; the placement of minor settlements tends to depend on the placement of major colonies, which in turn depends on the physical parameters determined in Steps 1-6.

Colonies

A *colony* is a permanent settlement on some world, a place where a Human or other community is likely to remain for generation after generation. Most of a colony world's population is made up of long-term immigrants or permanent residents; the colony is their home. Some "colonies" are actually the *homeworlds* of sapient races, and have been inhabited since prehistory.

New colonies usually begin with a population of at least 10,000; a truly massive colonization effort will begin by planting up to 500,000 people on the target world. From there, colonies will grow indefinitely due to further immigration and natural population increase.

The Vilani believe that overcrowding and unrestricted population growth lead to social instability, so they strictly limit their own populations and force their subject races to do the same. Terrans (and other barbarians) are not so careful – but even by the end of the Interstellar Wars era there are no Terran colonies more than about 200 years old, which limits the size of their populations.

Every Imperial Vilani, Conquered Vilani, and Terran world with an Affinity score greater than 0 will be a colony world. Very few Neutral worlds will be inhabited; the GM may deliberately place an occasional Neutral colony to represent the homeworld of some "barbarian" race not yet contacted by either the Vilani or the Terrans. There should generally be no more than one or two such worlds per *sector* – most subsectors have no native sapient races.

Once the Affinity score has been determined for every world being generated in the region, roll 3d on the Colony Population Table for each world in Imperial-controlled or Terran-controlled space with an Affinity score greater than 0. Make a note of the resulting population for each world. *Modifiers:* Add +3 times the world's Affinity score. If the world is *Imperial Vilani* or *Conquered Vilani*, add +40. If the world is *Terran*, add +1 for every 10 full years since the colony was established.

The population results from the Colony Population Table are approximate. The GM should feel free to vary them by up to 10% in either direction for any given world. Always round off world populations to two significant figures.

Outposts

An *outpost* is a settlement on an unattractive world, planted only because of the world's strategic

location or other unusual properties. Unlike a colony, an outpost has relatively few *permanent* settlers – most of the inhabitants expect to migrate elsewhere once their work at the outpost is finished.

Once all colonies have been placed, go back to each world with an Affinity score of 0 or less in Terran-controlled or Imperial-controlled space to determine whether it will have an outpost.

Some outposts are military in character. Military outposts are designed to serve as a base, or to pin down the current frontier between Terran and Imperial territory. Any world within two parsecs of a foreign colony will always have an outpost. Make a note of these military outposts first.

Many outposts are placed to serve transient starship traffic. If a world is located so that starships are likely to visit while traveling from one colony or military outpost to another, there will always be an outpost. For example, worlds on the map often fall into *mains*, groups of worlds in adjacent hexes, arranged so that a jump-1 starship can easily reach each world in turn. Every world on such a main will have an outpost, so long as there is at least one colony world or military outpost in both directions. Another common situation is the world placed two parsecs from a colony world on either side, so that jump-2 starships will almost always stop at the world on the way from one colony to the other. All such worlds will have outposts as well.

Other worlds may have outposts of very diverse nature – scientific research stations, corporate mining towns, small "rogue" settlements of the independent-minded, and so on. Terrans are much more likely to place such "extra" outposts than the Vilani. If a world that fits none of the above conditions is within Terran-controlled space, it will still have an outpost on a roll of 9 or less on 3d. If the world is within Imperial-controlled space, it will have an outpost on a roll of 5 or less on 3d.

For each world that has an outpost, roll 3d on the Outpost Population Table below to determine the outpost's approximate population. The results from the Outpost Population Table are also approximate. The GM should feel free to vary them by up to 25% for any given world. Always round off outpost populations to two significant figures (i.e. "2,600" instead of "2,633").

Outpost Population Table

Roll (3d)	*Population*
3 or less	100 (PR 2)
4	150
5	250
6	400
7	600
8	1,000 (PR 3)
9	1,500
10	2,500
11	4,000
12	6,000
13	10,000 (PR 4)
14	15,000
15	25,000
16	40,000
17	60,000
18 or more	100,000 (PR 5)

Step 8: Starport Facilities

Once the population of each world has been established, this step determines the level of starport facilities available on each world.

Colonies

For each colony world, roll 2d on the Colony Starport Table. *Modifiers:* +1 for every level of PR above PR 4. Note that on a natural 2 on the dice, the colony will *always* have a Class X starport; such a world has been interdicted by either the Vilani or the Terran government.

Colony Starport Table

Roll (2d)	*Starport Class*
Natural 2	X
4 or less	E
5-6	D
7-8	C
9-12	B
13 or more	A

Outposts

If the world is an outpost, roll 1d on the Outpost Starport Table. *Modifiers:* +4 if the outpost was *not* placed as the result of a random die roll in Step 7 (that is, the GM deliberately placed it because the world is on a military border, or because it is a likely transit point for starship traffic).

Outpost Starport Table

Roll (1d)	*Starport Class*
2 or less	E
3-5	D
6-8	C
9 or more	B

Naval Bases

Once the starport class is determined for each world in the region, naval bases can be placed. Naval bases should not be placed at random.

For each subsector or similar-sized region of Imperial or Terran space, there will usually be one to three naval bases – one per subsector in areas far from any frontier, but two to three per subsector in areas close to a frontier. Naval bases will preferably be placed on worlds with Class A starports and PR of 7 or higher.

Naval bases are usually placed on worlds with the highest population in their region. However, naval bases should usually be separated by at least three parsecs; if the highest populations in the region are clustered close together, second or third naval bases will usually be placed at some distance even if this means placing one on a relatively low-population world.

Step 9: Government Type

Once the population of each world has been established, use this step to determine their government types. Vilani worlds will usually have a very different government type than Terran worlds. If a world is Neutral (i.e. it is inhabited by a population not part of either major civilization) then the GM should determine its government type in accordance with its role in his campaign; he may use types from pp. B509-510 that do not normally appear on Imperial or Terran worlds.

Roll 3d on the Vilani or Terran Government Type Table, and refer to the column that is appropriate for the world. *Modifiers:* Add the PR of the world to the die roll.

Vilani Government Type Table

Roll (3d)	Imperial Vilani Colony	Imperial Vilani Outpost
10 or less	Anarchy	Anarchy
11-13	Clan/Tribal	Corporate State
14-16	Caste	Caste
17-20	Feudal	Caste
21-23	Feudal	Feudal
24 or more	Theocracy	Theocracy

Terran Government Type Table

Roll (3d)	Terran Colony	Conquered Vilani Colony	Terran Outpost
10 or less	Anarchy	Anarchy	Anarchy
11-13	Technocracy	Technocracy	Corporate
14-16	AthDem	Technocracy	Corporate
17-20	RepDem	RepDem	Corporate
21-23	RepDem	Caste	RepDem
24 or more	Dictatorship	Dictatorship	Dictatorship

Step 10: Control Rating

Once the population of each world has been established, this step determines the Control Rating prevalent on each world.

Roll 4d on the Control Rating Table. *Modifiers:* Add the PR of the world to the die roll.

Control Rating Table

Roll (4d)	Control Rating
14 or less	0
15-16	1
17-18	2
19	3
20-21	4
22	5
23 or more	6

Step 11: Base Technology Level

Once Steps 1-10 have been completed for each world, this step determines the base Tech Level prevalent on each world.

Begin by determining the maximum possible Tech Level for the campaign situation. The maximum possible Tech Level for a given world depends on whether it is an Imperial Vilani world or not, and on the period in history. For an Imperial Vilani world, the maximum possible Tech Level is always TL10. For a Conquered Vilani or Terran world, the maximum possible level is TL9 before 2128, TL10 from 2128 to 2235, and TL11 after 2235.

Roll 1d on the Tech Level Table. *Modifiers:* +6 if a Class A starport is present, +4 for a Class B starport; +2 for a Class C starport, -4 for a Class X starport; +2 if the world's diameter is less than 1,500 miles (or the world is an asteroid belt), +1 if the world's diameter is between 1,500 miles and 4,500 miles; +1 for any atmosphere other than a Thin, Standard, or Dense one; +1 for hydrographic coverage between 85% and 94%, +2 for hydrographic coverage of 95% or higher; +1 for PR 1-5, +2 for PR 9, +4 for PR 10; +1 for a political type of Anarchy or Technocracy, -2 for a political type of Theocracy.

Regardless of the result on the Tech Level Table, the TL for a given world cannot exceed the maximum possible for its culture and the time period. If the TL from the table exceeds the maximum, reduce the world's TL to match the maximum. Meanwhile, if the world is not a Garden world, or is a Garden world with a Very Thin atmosphere, then the world must be at least TL8; raise the TL to 8 if the result from the table is less than 8.

Tech Level Table

Roll (1d)	Tech Level
1 or less	TL3 or less (GM's choice)
2	TL4
3-4	TL5
5-6	TL6
7	TL7
8	TL8
9	TL9
10-11	TL10
12 or more	TL11

Step 12: Trade Classifications

Trade classifications note clusters of economically meaningful world characteristics. These are important natural or demographic features that can influence a world's preferred imports or exports. They can also influence the real wealth available to citizens of the world.

The following trade classifications are significant. For each world being generated, note which classifications are applicable.

Agricultural (Ag): The world's atmosphere must be Thin, Standard, Dense, or Very Dense, the hydrographic coverage must be 35%-84%, and the local PR must be 5-7.

Extreme (Ex): A world is Extreme if *any* of the following conditions holds: there is no atmosphere, or the

Port Modifier Table

UWTN	Class A	Class B	Class C	Class D	Class E	Class X
5 or more	0	0	-0.5	-1	-1.5	-4
4-4.5	+0.5	0	0	-0.5	-1	-3.5
3-3.5	+0.5	+0.5	0	0	-0.5	-3
2-2.5	+1	+0.5	+0.5	0	0	-2.5
1-1.5	+1	+1	+0.5	+0.5	0	-2
0.5 or less	+1.5	+1	+1	+0.5	+0.5	-1.5

atmosphere is Trace, Very Dense, Suffocating, Toxic, Corrosive, or Insidious; the climate is Frozen or Infernal; or hydrographic coverage is less than 5%.

Industrial (In): The world must have no atmosphere, a Trace atmosphere, or a Very Thin, Thin, Standard, Dense, or Very Dense atmosphere that is Tainted (p. 125); the world's PR must be 9 or higher.

Non-Agricultural (Na): The world has no atmosphere, or has a Trace or Very Thin atmosphere, the hydrographic coverage is less than 35%, and the PR is 6 or more.

Non-Industrial (Ni): The world's PR is 6 or less.

Poor (Po): The world has a Very Thin or Thin atmosphere, and has hydrographic coverage in the range of 5%-34%.

Rich (Ri): The world has a Standard, Dense, or Very Dense atmosphere that is not Tainted; the world's PR is 6-8; and the local Control Rating is 2-5.

Step 13: World Trade Number

The World Trade Number of a world is a measure of the size and activity of its economy, as modified by the level to which its population is interested in interstellar trade. A world with no population has a WTN of 0 – otherwise, computing a world's WTN requires two steps.

Unmodified World Trade Number (UWTN)

The UWTN measures the size of the world's economy. It is dictated by the size of the world's workforce (which in turn depends on the world's population) and the productivity of that workforce (which is determined by the world's TL). Refer to the TL Modifier and PR Modifier tables; add the TL Modifier and the PR Modifier for the world together to get the world's UWTN.

TL Modifier Table

World TL	TL Modifier
2 or less	-0.5
3-5	0
6-8	0.5
9 or higher	1.0

PR Modifier Table

World PR	PR Modifier
0	0
1	0.5
2	1
3	1.5
4	2
5	2.5
6	3
7	3.5
8	4
9	4.5

Port Modifier and Final WTN

The *port modifier* measures the importance of trade to the world's economy. A better starport encourages trade by attracting merchants and visitors. Conversely, a small or run-down starport discourages trade (and may indicate that the world's population has little interest in outside contact).

Refer to the Port Modifier Table, using the world's UWTN and its Starport Class to get the port modifier. Add the Port Modifier to the UWTN to get the final WTN for the world. The minimum WTN is 0.

Step 14: Trade Routes

Once the WTN is known for each world in the region of interest, then trade routes can be mapped out.

Throughout the Interstellar Wars era, commercial traffic tends to follow a "main and branch" system of trade routes. The most populous and prosperous planets are designated as *hub worlds*. These hub worlds are connected to one another by *main routes*. Main routes are divided into *major* and *minor* routes, depending on the amount of traffic that normally follows them. Minor worlds trade only with the network of main routes, not with each other – the routes that carry goods to and from such worlds are *branch routes*. The process of drawing these routes is more art than science, but the following guidelines will help produce a rational network.

Home Rule

For each world under Terran control, the GM may wish to determine whether the world has *home rule* or not. A world with home rule has its own sovereign government, and is a full member of the Terran Confederation. A world without home rule is politically a colony of Terra, governed by the Confederation's Colonial Bureau or by the Confederation military.

Any Conquered Vilani or Terran world with a PR of 6 or more may have home rule. Roll 3d. *Modifiers:* +4 for every level of PR above 6; -4 if the world is Conquered Vilani; -4 if the world is within 6 parsecs of the current Imperial border. On a result of 15 or higher, the world has home rule.

Per-Capita Income

Although it is not relevant to later steps in the world design process, the GM may wish to determine the *per-capita income* for citizens of the world. This indicates the amount of disposable income an average citizen of that world will have on hand.

To determine per-capita income for a given world, refer to the following table. The planet's TL determines the *base* per-capita income, which is then modified by the world's trade classifications (if any).

Base Per-Capita Income

Tech Level	*Base Per-Capita Income (Solars)*
TL11	$96,000
TL10	$60,000
TL9	$38,000
TL8	$24,000
TL7	$15,000
TL6	$9,200
TL5	$5,600
TL4	$3,600
TL3	$2,200
TL2	$1,400
TL1	$880
TL0	$560

Multiply the base per-capita income by *all* of the modifiers required by the world's trade classifications, according to the Trade Classification Modifiers Table. The trade classifications indicate that planetary conditions make the population more or less productive than the world's technological base would otherwise indicate.

Trade Classification Modifiers

Trade Classification	*Modifier*
Rich	1.6
Industrial	1.4
Agricultural	1.2
Extreme	0.8
Non-Industrial	0.8
Poor	0.8

The final per-capita income for a world can indicate the most typical Wealth level (p. B517) for citizens of that world. Refer to the Typical Wealth Table.

Typical Wealth

True Per-Capita Income	*Wealth Level*
$84,000 or more	Comfortable
$44,000 to $84,000	Average
$19,000 to $44,000	Struggling
$6,000 to $19,000	Poor
Less than $6,000	Dead Broke

In general, whenever two worlds are to be connected by a trade route, use the smallest number of hops from one world to the next on the map, with no single hop stretching more than two parsecs. If there is a choice of equally short routes between a given pair of worlds, choose the route that touches at the best starports. Whenever a *distance* between two worlds is to be determined, measure it along such a jump route, not necessarily along a straight line.

First, identify hub worlds. Any world with a WTN of 5.5 or higher and an A-class starport is a hub world.

Next, connect the hub worlds with a network of main routes (major and minor). Any two hub worlds that are no more than 6 parsecs apart along a jump-2 route are connected by a major route. Draw these routes, using jump-2 hops where necessary.

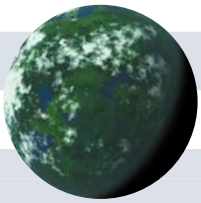
Once the major routes have been drawn, the map will have small groups of interconnected hub worlds. Such groups may themselves be connected to one another by minor routes. If a pair of hub worlds, one in one group and one in another, are no more than 10 parsecs apart, they may be connected by a minor route. Any given pair of hub-world groups will normally be connected by only one minor route, which will pass between the two hub worlds that are closest together by jump count. Draw these routes, again using jump-2 hops where necessary.

Now consider all worlds that are not yet on a major or minor route. Some of these worlds will be connected to the network of main routes by a branch route. The possible length of the branch route for any given world depends on the world's WTN, as indicated on the following table.

For each world not already on a major or minor route, determine the length of the potential branch route to the *nearest* hub world. If the length is no greater than the maximum length given on the table for the world's WTN, then a branch route will exist connecting that world to the network. For this purpose only, if the hub world being considered is Industrial and the other world is Non-Industrial, add 0.5 to the WTN of the lesser world.

Draw branch routes beginning with the minor worlds that are closest to their hub worlds. Branch routes will tend to meet existing routes, merging with the mains or with other branch routes as they approach the hub world.

Branch Route Table



Minor World WTN	*Maximum Route Length (pc)*
2.5 or less	No route possible
3	2
3.5	5
4	9
4.5	19
5 or more	29

Chapter Six
Characters

January 28, 2170 – High Frontier Consortium offices, Nusku highport:

William Blake rose from behind his desk and went to the viewport. A hundred miles below, Nusku's night face swam by, arcology-city lights sparkling in breaks between the clouds. Suddenly the limb of the planet caught fire, glowing gold and white, and 61 Cygni A rose in glory.

"I never get tired of that," Blake murmured to himself.

Then he turned back to the desk, where the pile of dossiers still stood two feet high. Somewhere in there were the crewmen he would lead a hundred light-years into Imperial space. All he had to do was find them.

Point Totals

Interstellar Wars characters can be built on a variety of power levels. A campaign centered on "ordinary people" caught up in great events can work with characters built on 50 points or less. More typical low-powered adventurers with a skilled background should be built on 100 or 150 points – most of the occupational templates later in this chapter will work well at this power level. A high-level "movers and shakers" campaign would require characters built on 200 points or more.

Gender Roles

Imperial Vilani culture imposes very little distinction between the social roles of men and women. Both sexes have the same civil and political rights, and both can rise to the highest levels of corporate or military power. In noble families, female children are just as likely as males to inherit a title. Although a few dissident subcultures within the Imperium practice gender inequality, this is far outside the Imperial norm, and such subcultures are often subject to harsh treatment from the authorities.

In theory, the Terran Confederation encourages the same kind of sexual equality. The Confederation itself makes no distinction between men and women in its civil and military institutions. Most multinational corporations follow a policy of strictly enforcing equality in the workplace. Women's rights are a cornerstone of the Confederation's human-rights policy, and serious inequities are likely to attract economic sanctions or military action. This stance is supported by most Terrans, who feel that it would be suicidal to exclude half of the population from the struggle against the Imperium.

In practice, some traditional Terran societies still practice gender inequality despite strong Confederation disapproval. Such isolated societies survive in rural areas, in the poor sections of large cities, and in the colonies.

In summary, male and female characters can be designed to fill the same roles, in either Imperial or Terran society. Adventurers who have experienced gender discrimination will be from an unusual social background, and may have other social disadvantages as well (below-average Wealth, a Social Stigma, and so on).

Advantages, Disadvantages, and Skills

A number of character traits require some special handling in the ***Interstellar Wars*** setting.

Advantages

Appearance *see p. B21*

Terran and Vilani attitudes about physical attractiveness are quite similar, aside from a few cultural quirks that will rarely come into play. The Appearance advantages (and their corresponding disadvantages) are interchangeable between Terrans and Vilani – and at the GM's option, among other Human minor races subject to Imperial rule.

Clerical Investment *see p. B43*

Priests or holy men from one of the hundreds of Terran religions may take this advantage. The most common organized Terran religions are Christianity, Islam, Hinduism, Buddhism, Sikhism, and Judaism. Many Terran ethnic groups (notably the Chinese) still maintain "traditional" forms of religion that include loosely organized priesthoods. Of course, a substantial minority of Terrans are secularists, agnostics, or atheists.

Some dissident subcultures among Imperial Vilani have organized priesthoods. Vilani also take Clerical Investment if they are members of the *shugilii* caste. This caste is not identical to a Terran religious order, but it has a number of similar features. *Shugilii* have an important role in the rituals of food preparation, and they also serve as guardians of the Imperial ethical traditions.

In either case, consider taking some level of the Religious Rank advantage as well (see p. 141).

Cultural Familiarity *see p. B23*

In most ***Interstellar Wars*** campaigns, the only two "cultures" that are likely to come into play are *Terran* and *Imperial*.

If a campaign centers on Terran society, then the GM may wish to break the Terran culture into several subcultures for the purpose of this advantage. If a given Imperial subject race is likely to come into play, the GM may likewise wish to break the Imperial culture into two or more subcultures.

Vilani and other Imperial Humans pay 1 point for familiarity with Terran culture, but a non-Human Imperial citizen will pay 2 points. Terrans pay 1 point for familiarity with Imperial culture, as do members of non-Human Imperial subject races. Non-Humans who come from outside the Imperium will pay 2 points for Cultural Familiarity (Imperial).

Gadgeteer *see p. B56*

The 25-point level of this advantage may be appropriate for Terran characters in some campaigns, especially those centering on technological advancement. Imperial characters should *never* take this advantage – at least not without taking a Secret ("tinkers with machinery in unauthorized and non-traditional ways") or an Enemy!

High TL *see p. B23*

The baseline technology available throughout the Interstellar Wars era is TL10. Late in the period, Terran characters may have access to TL11 equipment. If a Terran character with access to such equipment is spending most of his time among those who don't, he may be required to take one level of this advantage.

Languages *see p. B23*

Most Terran characters would be advised to learn English, as that is increasingly becoming the common language of the Terran Confederation. Aside from English, the most important Terran languages are Arabic, French, German, Hindi (including Urdu), Japanese, Mandarin Chinese, Portuguese, Russian, Spanish, and Turkish.

The *High Vilani* language is the official language of the Imperium, and is spoken or understood by almost every Vilani on all but the most isolated worlds. *Low Vilani* is a simplified dialect, which is spoken in spaceports and by many of the subject races, and which sometimes serves as the Imperium's "common tongue." Subject-race languages often heard in regions close to Terra include *Bawapab* (the language of the Bwaps), *Geonee*, *Oynprith* (the language of the Nugiiri), *Suerrat*, and *Vegan*.

Legal Immunity *see p. B65*

Both Terran and Imperial societies apply this advantage in certain circumstances. In particular, Terran diplomats traveling in Imperial space can use the Diplomatic Immunity form of this advantage. Imperial law recognizes even "barbarian" envoys as being in a protected class.

Social Regard *see p. B86*

Vilani who are over 120 years of age may take one level of Social Regard. Even Terran visitors to the Imperium receive similar respect; any Terran character at least 70 years of age who spends most of his time in Imperial society can take the same level of this advantage. All such characters are considered "venerated."

Talent *see p. B89*

The following talents are suggested for use in the ***Interstellar Wars*** setting.

Born Tactician: Covers Expert Skill (Military Science), History (Military), Intelligence Analysis, Leadership, Savoir-Faire (Military), Soldier, Strategy (Land), and Tactics. *Reaction bonus:* anyone you serve with (or command) in the Army or Marines. *10 points/level*.

Intuitive Admiral: Covers Crewman (Spacer), Expert Skill (Military Science), History (Military), Intelligence Analysis, Leadership, Savoir-Faire (Military), Shiphandling (Spaceship), Shiphandling (Starship), and Strategy (Space). *Reaction bonus:* anyone you serve with (or command) in the Navy. *10 points/level*.

Disadvantages

Addiction *see p. B122*

Both Terran and Imperial societies must deal with the problem of addiction.

The Terran Confederation is somewhat puritanical about the use of addictive or "recreational" drugs. Confederation law permits the use of alcohol, caffeine, *qat*, tobacco, and the imported Vilani drug *shardu* (a mildly addictive stimulant and euphoric). National or local law may impose additional restrictions on the use of these drugs. Other drugs may only be used for legitimate medical purposes. Any drug that is "highly" or "totally" addictive is carefully controlled, and usually illegal without a physician's supervision.

Imperial society is even more restrictive. Alcohol and *shardu* are the only drugs that are legal and widely used. All other drugs are carefully controlled, to be used only for legitimate medical purposes. On the other hand, a dizzying variety of substances is *available*. Many of these drugs have potential recreational applications, and some dissident or subject-race subcultures use them despite official disapproval.

Psionics

Psionic powers exist in the ***Traveller*** universe – but during the Interstellar Wars era, they are almost unknown and very poorly understood.

Most Imperial citizens know nothing about psionics, and would react with fear and suspicion if anyone demonstrated psionic talent in their presence. A few dissident subcultures, especially those with a mystical or religious basis, may cultivate mental disciplines that are conducive to psionic development. No one in the Imperium has ever made a serious scientific study of psionic phenomena.

Terran society is also unfamiliar with psionics. The prevailing opinion in the scientific community is that psionic abilities aren't real; no serious scientist would risk his reputation by trying to study them. Only a few explorers, encountering strange phenomena out among the Imperial worlds, are beginning to suspect that psionic powers might exist.

Psionic characters should be *very rare* in the Interstellar Wars setting, and should only be designed with the GM's explicit permission. Being a latent psi (having Talent, but no abilities) has an Unusual Background cost of 10 points. Being a fully capable psi (having functional powers), has an Unusual Background cost of 25 points.

The following psionic powers and Talents are available in the Interstellar Wars setting:

Awareness: This is the psi talent of mind-over-body. Awareness Talent costs 5 points/level and the Awareness power can provide the following abilities: Additional ST (Costs Fatigue -5%), Additional HT (Costs Fatigue, -5%), Metabolism Control (p. B68), and Regeneration (p. B80, Costs Fatigue -5%). Awareness abilities apply a -10% psionic power modifier.

ESP (p. B255): The following abilities are available: Clairsentience, Danger Sense, Detect (for psis and psionic activity), Para-Radar, and Penetrating Vision.

Psychokinesis (p. B256): Only the Telekinesis ability is available.

Telepathy (p. B257): The following abilities are available: Animal Empathy, Empathy, Mind Probe, Mind Reading, Mind Shield, Mindlink, Telesend, and "Mental Assault" (Affliction 1, Will; Based on Will, +20%; Malediction 2, +150%; Secondary Unconsciousness +40%; Telepathic -10%; 30 points).

Teleportation (p. B257): Only the Warp ability is available, and it must have the Modifier: Range Limit (300 miles on a planet's surface, 400 yards up or down, -25%) due to issues of conservation of momentum and potential energy.

Other psi powers and abilities are allowed only at the GM's discretion. Some races (like the Droyne) also have innate psi powers, but these are likely rare and poorly understood even by the races possessing them!

Code of Honor *see p. B127*

Code of Honor (Professional) and Code of Honor (Soldier's) are both very appropriate for the ***Interstellar Wars*** setting.

Many Imperial citizens follow an *Imperial Code of Honor*, which is defined as follows: Never break your word. Follow the traditions. Defer to your superiors in the social hierarchy, and obey their orders so long as those are within the bounds of tradition. Expect deference from Imperial citizens of lesser rank, but always work to protect and defend them. Always solve problems yourself as they arise, without depending on higher authority to help you (it is acceptable to call on your *subordinates* for aid). Code of Honor (Imperial) is worth -10 points.

Curious *see p. B129*

This disadvantage is *very* rare among Vilani, and is uncommon even among non-Vilani subject races of the Imperium. Imperial society strongly discourages curiosity.

Disciplines of Faith *see p. B132*

Some Terrans with a strong religious background carry some version of this disadvantage. Vilani of the *shugilii* caste must observe a wide variety of rituals, especially surrounding the preparation and consumption of food, and are required to take Ritualism.

Duty *see p. B133*

This disadvantage should be carried by anyone who has more than a very modest level of Rank (except for Courtesy Rank, which does not carry any obligation). People with Rank at level 6 or higher should probably have a Duty requiring their presence "quite often" (12 or less) or "all the time" (15 or less).

Honesty *see p. B138*

This disadvantage is very common, but not required, for Vilani characters living in Imperial society.

Intolerance *see p. B140*

The Interstellar Wars era is a time of grand conflict between empires, races, and political ideologies. Any character can justify taking some level of Intolerance.

Many Terran characters have Intolerance toward all non-Terrans; this is considered Total Intolerance and is worth -10 points. On the other hand, most Vilani are quite tolerant toward non-Vilani (or even non-Humans) who have accepted Imperial law and customs. The most common form of Intolerance in the Imperium is aimed at "barbarians," those who stand outside the Imperial social system; this form of Intolerance is worth only -5 points.

Low TL *see p. B22*

This disadvantage is almost never appropriate in the ***Interstellar Wars*** setting. Even worlds with a technological base below TL10 will usually have access to TL10 import goods and the corresponding skills. Late in the period, Imperial characters who spend most of their time inside Terran-controlled space may be at a disadvantage due to their unfamiliarity with TL11 goods and techniques. At the GM's option, such characters may be required to take one level of this disadvantage.

Overconfidence *see p. B148*

This advantage is fairly common among Terran adventurers, and forms part of the Imperial stereotype of Terrans . . .

Social Stigma *see p. B155*

Terran society is fairly egalitarian, and few groups within it are labeled as inferior. The *Criminal Record*, *Ignorant*, *Minor*, and *Uneducated* Social Stigmas are appropriate for some Terran characters. The *Minority Group* Stigma would only apply to a few ethnic groups that are far outside the mainstream of Terran society. The *Second-Class Citizen* and *Valuable Property* Stigmas are almost impossible to find, given the Terran concern with universal Human rights.

Within Imperial society, there is a significant ranking of citizens along racial and species lines. Vilani, and those subject races that have fully accepted Vilani culture, suffer under no Social Stigma. Subject races that resist Vilani customs, or that are restless under Imperial rule, are treated as *Second-Class Citizens*. A few subject races and dissident subcultures are known for open resistance to Imperial rule, and are considered *Minority Groups*. Meanwhile, the *Criminal Record*, *Ignorant*, *Minor*, and *Uneducated* Social Stigmas are just as applicable in the Imperium as in Terran society.

Susceptible *see p. B158*

Early in the Interstellar Wars era, many Human citizens of the Imperium found themselves to be susceptible to certain Terran viral diseases. Imperial Human characters that have not had much previous exposure to Terrans may take this disadvantage to reflect this weakness in their evolved immunity. The frequency of the noxious substance is "occasional" if exposure to Terrans is infrequent, or "common" if the character is going to be dealing with Terrans on a regular basis.

At the GM's option, an Imperial character that has associated with Terrans for a long period (and has possibly survived one or more attacks of viral disease) may buy off this disadvantage.

Workaholic *see p. B162*

This disadvantage is quite common, but is not required, among Vilani characters.

Skills

Computer Hacking *see p. B184*

This skill is not appropriate for the ***Interstellar Wars*** setting. Experts in computer intrusion should acquire the "realistic" skills mix described under this skill's entry in the ***Basic Set***.

Computer Programming *see p. B184*

Imperial characters may not take this skill unless they have become familiar with Terran computer technology. Likewise, Terran characters may not *use* this skill when working with computers of Imperial manufacture. Imperial computers are not reprogrammable – they are designed and built for a specific purpose.

Gunner *see p. B198*

Starships use several specialized onboard weapons. The Gunner specialties that apply include *Beam Weapons* (used for lasers, plasma guns, particle accelerators, or meson cannon), *Missiles* (used for shipboard missiles), *Repulsors* (used for gravitic repulsors), and *Sandcasters* (used for sandcasters).

Navigation *see p. B211*

Navigation (Space) covers navigation through normal space, between planets or between a jump point and

a nearby world. Navigation (Hyperspace) can also be called Navigation (Jumpspace), and covers use of the jump drive.

Philosophy *see p. B213*

Aside from the various Terran and minor-race philosophies that are available, characters may study Philosophy (Imperial). This covers the body of knowledge and traditions that forms the ideological basis for the *Ziru Sirka*. It includes an ethical tradition, a complete political theory, and a set of scientific theories regarding the organization of very large societies. It has been thoroughly documented, and can be studied even by outsiders who wish to better understand how Imperials behave.

Piloting *see p. B214*

The most common versions of this skill are Piloting (Aerospace) and Piloting (High-Performance Spacecraft). Most starship or spaceship pilots will learn *both* specializations, covering every situation that a normal spacecraft will encounter. Truly capable pilots also learn Piloting (High-Performance Airplane), covering atmospheric travel for ships with airframe hulls, and Pilot (Contragrav), covering common ship's vehicles, such as air/rafts and G-Carriers.

Savoir-Faire *see p. B218*

In the ***Interstellar Wars*** setting, an additional specialty exists: Savoir-Faire (Merchant). This specialty covers the customs, traditions, and regulations of interstellar mercantile society. It includes knowledge of the unwritten customs governing behavior on board ship and in a starport. Administrative Rank (for Imperial merchants) or Merchant Rank (for Terrans) determines relative standing.

Savoir-Faire (Merchant) and Savoir-Faire (Military) default to each other at -2, since many of the customs of merchant service are derived from military practice.

Shiphandling *see p. B220*

The most common versions of this skill are Shiphandling (Spaceship) and Shiphandling (Starship). In the ***Interstellar Wars*** setting these two specializations are quite similar; they default to one another at -2.

Status, Influence, and Wealth

Whether a campaign is centered on the doings of "ordinary" adventurers, or whether it focuses on the activities of their rich and powerful patrons, sooner or later the GM and players will need to know how social influence works in the ***Interstellar Wars*** setting. The following rules examine social influence in detail, to the highest levels of both Terran and Imperial society.

Status

Status works very differently in the two major societies of the Interstellar Wars era. A character should buy Status according to one or the other of the following sets of rules, depending on where he currently spends most of his time.

Terran Status

Terran society is a "classless" one. Spreading democratic ideals have discredited the notion of inherent social status almost everywhere on Terra. Terran characters follow the rule from *Classless Meritocracies*, p. B28. They may not normally buy more than two levels of Status (but see *Courtesy Rank*, p. 143). Refer to the Terran Status Table to determine what level of Status is appropriate for a character's family or personal background.

Terran characters may acquire more levels of "free" Status from various forms of Rank, or from Wealth.

Terran Status Table

Status	*Notes*
2	Extremely wealthy citizen family, famous or highly respected professional status
1	Wealthy citizen family, respected professional status
0	Ordinary citizen family
-1	Struggling citizen family, citizen of bottom-tier nation
-2	Poor citizen family, outcast, criminal, or vagrant

Terran characters that are from a social underclass can take up to two levels of negative Status as a disadvantage. Terrans with negative Status are probably from a background of poverty – urban poor from a wealthy nation, or citizens of one of the developing nations that still has an extensive class of rural poor.

Imperial Status

The role of birth is much stronger in the Imperium than in Terran society. Refer to the Imperial Status Table to determine what level of Status is appropriate for a character's family background. Characters can also be promoted to a higher class, in which case they hold higher base Status than their parents.

Imperial characters may acquire more levels of "free" Status from various forms of Rank. In fact, they must often hold a minimum level of Status to be eligible for high Rank. Imperial characters *do not* get "free" Status from Wealth.

Imperial society does not include negative Status. All Imperial characters (*and* foreigners operating within Imperial society) are considered to have at least Status 0. On the other hand, many outsiders, notably dissidents and "barbarians," carry a Social Stigma (see p. 136).

Imperial Status Table

Status	*Notes*
5	Ancient and venerated *enshii* ("noble" or executive-class) family
4	Respected *enshii* family
3	Ordinary *enshii* family Highly respected *damgarii* ("merchant" or manager-class) family
2	Respected *damgarii* family Highly respected *engarii* ("commoner" or worker-class) family
1	Ordinary *damgarii* family Respected *engarii* family
0	Ordinary *engarii* family Foreigner

Administrative Rank

Administrative Rank is available for both Terran and Imperial characters. The Terran Confederation only applies the advantage to civilian government officials, whether they work for the Confederation, or for a national or local government. In Imperial space, almost everyone has some level of Administrative Rank, since most citizens are employed in some capacity by one of the *shangarim* pseudo-governments.

PCs from either culture should generally have Administrative Rank no higher than 5. Individuals with higher levels of rank are generally too powerful (and too tied to their jobs) to make good adventurers.

In many cases, someone will work at a high level in the hierarchy without having direct command authority – for example, a member of a powerful administrator's staff, or a highly placed technical assistant. Such a character will have Administrative Rank two to three levels lower than that of his boss.

Terran Administrative Rank

Terran Administrative Rank affects Status according to the rule on p. B29. It supplements but does not replace Status, and therefore costs 5 points per level. Refer to the following table to determine what level of Administrative Rank may be appropriate.

Terran governments often include judicial or legislative officials who don't directly control large sections of the bureaucracy, but who still carry considerable influence. These officials will normally have Administrative Rank 2-3 levels below that of an executive-branch official at the same level. For example, the President of the United States has Administrative Rank 11; a senator or a member of the Supreme Court might have Rank 9, while a congressman or federal District Court justice might have Rank 8.

Imperial Administrative Rank

Imperial Administrative Rank affects Status according to the rule on p. B29. It supplements but does not replace Status, and therefore costs 5 points per level. Refer to the following table to determine what level of Administrative Rank may be appropriate.

Citizens with Administrative Rank 0-2 are drawn from the worker class. Junior managers (Rank 3-6) come from the "merchant" class, and must

Terran Administrative Rank Table

Rank	*Notes*
12	Secretary-General of the Terran Confederation
11	Member of the Advisory Board of the Secretariat Elected leader of a powerful nation-state (China, European Union, United States)
10	Head of a major Confederation government agency (about 5 million subordinates) Elected leader of a second-tier nation-state (Argentina, Nusku Republic, Russia)
9	Head of a typical Confederation government agency (about 1 million subordinates) Elected leader of a third-tier nation-state (Australia, Netherlands, Thailand)
8	Head of a very large national government agency (about 200,000 subordinates) Head of a small Confederation government agency Elected leader of a large province or a small nation-state
7	Head of a large national government agency (about 50,000 subordinates) Elected leader of a megalopolis, a medium province, or a very small nation-state Governor or elected leader of a major colony world
6	Head of a small national government agency (about 10,000 subordinates) Elected leader of a major city or a small province Governor or elected leader of a minor colony world
5	Chief of a large department (about 2,000 subordinates) Head of a large urban or provincial government agency Elected leader of a large town
4	Chief of a large office or small department (about 500 subordinates) Head of a small urban or provincial government agency Elected leader of a small town or a county-sized rural political unit
3	Chief of a small office (50-200 subordinates)
2	Branch or division leader (10-50 subordinates) Technical specialist with a large staff
1	Team leader (1-10 subordinates) Technical specialist with a small staff
0	Ordinary rank-and-file worker (no subordinates)

Imperial Administrative Rank Table

Rank	*Notes*
18	*Ishimkarun* (ruler of the entire Imperium)
17	Speaker for one of the *shangarim* on the *Igsiirdi*
16	*Apkallu kibrat arban* (overseeing several sectors)
	Minor civilian member of the *Igsiirdi*
15	*Saarpuhii* (overseeing about 100 worlds)
14	*Sarriiu* (overseeing 10-15 worlds)
13	*Shakkanakhu* (overseeing several worlds)
12	*Iishakku* (overseeing an entire minor world, or a large region on a major world)
11	Planetary *shangarim* department executive (about 20 million subordinates)
	Influential *kiduunuuzii* with great freedom of action
10	Planetary *shangarim* department executive (about 5 million subordinates)
	Typical *kiduunuuzii*
9	Planetary *shangarim* department executive (about 1 million subordinates)
	Minor *kiduunuuzii* with limited privileges
8	Major *shangarim* executive (about 200,000 subordinates)
7	Minor *shangarim* executive (about 50,000 subordinates)
6	Chief of a very large department (about 10,000 subordinates)
	Leader of a large *shangarim* subsidiary
5	Chief of a large department (about 2,000 subordinates)
	Leader of a medium *shangarim* subsidiary
4	Chief of a large office or small department (about 500 subordinates)
	Leader of a small *shangarim* subsidiary
3	Chief of a small office (50-200 subordinates)
2	Branch or division boss (10-50 subordinates)
	Technical specialist with a large staff
1	Team boss (1-10 subordinates)
	Technical specialist with a small staff
0	Ordinary rank-and-file worker (no subordinates)

have at least Status 1 *before* any "free" Status from Rank is considered. Executives (Rank 7 and higher) are drawn from the aristocracy, and must have at least Status 3 before any "free" Status is considered.

Military Rank

Military Rank is available for both Terran and Imperial characters. Terrans with Military Rank are from the Confederation's Army, Marine Corps, or Navy. Imperial characters with Military Rank are from the Imperial Army or Navy.

PCs from either culture should generally have Military Rank no higher than 5. Individuals with higher levels of rank are generally too powerful (and too tied to their jobs) to make good adventurers.

The tables below associate levels of Military Rank with actual rank titles, but this assumes someone with direct command authority. A serviceman who holds less direct authority than his title would indicate might have a lower level of Military Rank as well. For example, a Terran Army lieutenant who leads a platoon of infantrymen has a position of great responsibility, and carries the full level of Military Rank (Rank 3) appropriate for his title. On the other hand, a lieutenant who works as a junior staff officer in a rear-echelon office probably spends his day writing reports and making coffee; at the GM's discretion, he may only have Military Rank 1-2.

Terran Military Rank

Terran Military Rank affects Status according to the rule on p. B29. It supplements but does not replace Status, and therefore costs 5 points per level. When designing a character with a Terran military background, refer to the following tables to decide what level of Military Rank is most appropriate.

The Terran Army and Marine Corps both incorporate units that are raised and maintained by many Terran nations. Many of these units retain national traditions; although they tend to use English as a common language, they sometimes retain their own rank titles. The rank titles presented here are drawn from the American and British models. GMs (or players) interested in military history are encouraged to research rank titles used by other Terran cultures.

In the Army, there are a few generals who hold Military Rank 9-10. These officers normally work on the Confederation's highest military staff, and have great influence over military planning and deployment. They rarely take the field, although they are sometimes sent to command the invasion or occupation of major Imperial worlds. The highest Army officer in the Confederation is the General of the Army. He holds Military Rank 10, and reports directly to the Minister of War.

The Terran Marine Corps normally uses no flag rank higher than that of Brigadier or Brigadier General. The Corps occasionally appoints a *Marshal* to command very large Marine operations, usually involving the invasion of major Imperial worlds. A Marshal holds Military Rank 8. The highest Marine officer in the Confederation is the Commandant of the Marine Corps. He holds Military Rank 9, and reports to the Grand Admiral of the Navy.

Although the Terran Navy was first raised by multiple Terran nations, it has since been reorganized so that all naval units follow a rank hierarchy based on the original American model. The rank titles given above are used throughout the Navy.

A few admirals hold Military Rank 9-10. Admirals with Military Rank 9 are either members of the Confederation's highest military staff, or are sent to the field to take command of large fleet formations during active hostilities. The highest Navy officer in the Confederation is the Grand Admiral of the Navy. He holds Military Rank 10, and reports directly to the Minister of War. The Grand Admiral spends most of his time on Terra, but the office has a tradition of "activist" officers who take the field during wartime.

Imperial Military Rank

The Imperial Army follows a system of rank that vaguely resembles the Terran model, with "enlisted men" drawn from the worker class, "junior officers" drawn from the manager class, and "flag officers" drawn from the executive class. The Navy follows a much more convoluted scheme, with a plethora of functional titles that Terrans find very confusing. Terrans often refer to Imperial naval officers in purely descriptive terms. For a full discussion of the Imperial military, see Chapter 4.

Imperial Military Rank affects Status according to the rule on p. B29. It supplements but does not replace Status, and therefore costs 5 points per level. When designing a character with an Imperial military background, refer to the following tables to decide what level of Military Rank is most appropriate.

Imperial Army personnel with Military Rank 0-2 are always drawn from the worker class. Junior officers (Military Rank 3-6) are drawn from the manager class, and must have at least Status 1 *before* any "free" Status from Rank is considered. Flag officers (Military Rank 7 and higher) are drawn from the executive class, and must have at least Status 3 before any "free" Status is considered.

Above Military Rank 8 are officers who oversee all Army activities across wide reaches of Imperial space. Such officers are very rare, and normally play little part in battlefield command. Instead, they implement general policy and spend their time with long-range strategic planning. In general, one of these Army officers holds the title of *kueardaishi* or *sukauuaashdugishi*, possibly with an additional title indicating over what region he holds overall responsibility. Although he does not report directly to anyone in the corporate hierarchy, his region of responsibility is usually about the same size as that held by a titled nobleman whose Administrative Rank is *four levels higher*. For example, an Army officer with Military Rank 11 oversees all Army activities in several subsectors, about the same region as that ruled by a *saarpuhii* (Administrative Rank 15).

Terran Army and Marines Military Rank Table

Rank	*Titles*	*Notes*
8 +	Field Marshal General Lieutenant General	Theater, field army, or corps commander
7	Major General Brigadier General Brigadier	Division or brigade commander
6	Colonel	Regiment or brigade commander
5	Lieutenant Colonel	Battalion commander
4	Major Captain	Company commander
3	Lieutenant 1st Lieutenant 2nd Lieutenant	Platoon commander
2	Warrant Officer Sergeant Major First Sergeant Master Sergeant Staff Sergeant	Senior staff at the company or higher level
1	Sergeant Lance Corporal Corporal	Platoon senior squad leader, or team leader
0	Private First Class Private	Ordinary soldier

Terran Navy Military Rank Table

Rank	*Titles*	*Notes*
8 +	Admiral Vice Admiral	Fleet or theater commander
7	Rear Admiral Commodore	Commander of a capital-ship squadron (dreadnoughts or battleships), a division of smaller ships, or an important naval base
6	Captain	Commander of a large-ship squadron (heavy or attack cruisers, or a carrier wing), a capital warship, or a naval station
5	Commander	Commander of a medium-ship squadron (light cruisers or cruisers) or a large warship
4	Lieutenant Commander	Commander of a small-ship squadron (destroyers, corvettes, or frigates) or a medium warship
3	Lieutenant Lieutenant, Junior Grade Ensign	Commander of a small warship or a crew section
2	Master Chief Petty Officer Senior Chief Petty Officer Chief Petty Officer	Senior staff for a large ship or crew section
1	Petty Officer, 1st Class Petty Officer, 2nd Class Petty Officer, 3rd Class	Senior staff for a small ship
0	Able Spacehand Spacehand Spacehand Recruit	Ordinary spacehand

Vilani Army Military Rank Table

Rank	*Titles*	*Notes*
8 +	*Sukauuaashdugishi*	Army group or theater commander
	Kueardaishi	Corps or army group commander
7	*Lurkugiishi*	Division commander
6	*Kerkiishi*	Regiment or brigade commander
5	*Kupuishi*	Battalion commander
4	*Ishdarishi*	Company commander
3	*Pirasishi*	Full platoon commander
	Khiipishi	Section or light-platoon commander
2	*Uurshugkhir*	Battalion senior staff
	Askam	Company senior staff
1	*Sharsha*	Platoon senior staff
	Shuukishi	Team or squad leader
0	*Dakhaki*	Experienced soldier
	Khali	Ordinary soldier or raw recruit

The highest Army officer in the Imperium is the Army's single spokesman on the *Igsiirdi*. He holds Military Rank 12, and is probably the least influential member of the Imperium's ruling council.

As with the Army, Navy personnel with Military Rank 0-2 are always drawn from the worker class. Junior officers (Military Rank 3-6) are drawn from the manager class, and must have at least Status 1 *before* any "free" Status from Rank is considered. Flag officers (Military Rank 7 and higher) are drawn from the executive class, and must have at least Status 3 before any "free" Status is considered.

Naval officers with Military Rank of 8 and higher are usually lumped together under a title that translates as "great fleet commander." They spend most of their time on administration and grand strategy, but they do take the field to fight campaigns when necessary. Although such an officer does not report directly to anyone in the corporate hierarchy, his region of responsibility is usually about the same size as that held by a titled nobleman whose Administrative Rank is *two levels higher*. For example, a naval officer with Military Rank 13 oversees all naval activities in the domain of one *saarpuhii* (Administrative Rank 15).

The highest naval officer in the Imperium is the Navy's spokesman on the *Igsiirdi*. He holds Military Rank 14. He is supported by a number of senior staffers, some of whom also sit on the *Igsiirdi* and hold Military Rank 13.

Merchant Rank

Terran characters *only* may have Merchant Rank, indicating position within a corporate hierarchy. This especially includes characters who are serving aboard a Free Trader or other merchant starship. Imperial characters within one of the pseudo-corporate *shangarim* hold Administrative Rank instead.

For Terrans, Merchant Rank affects Status according to the rule on p. B29. It supplements but does not replace Status, and therefore costs 5 points per level. Refer to the following table to determine what level of Merchant Rank may be appropriate.

As with government bureaucrats, a corporate employee will sometimes work at a high level in the hierarchy without having direct command authority. Such a character will have Administrative Rank two to three levels lower than that of his boss.

Vilani Navy Military Rank Table

Rank	*Notes*
8 +	Fleet admiral or theater commander
7	Commander of a capital-ship squadron (dreadnoughts or battleships)
	Commander of a division of smaller ships
	Commander of an important naval base
6	Commander of a large-ship squadron (heavy or attack cruisers, or a carrier wing)
	Commander of a capital warship
	Commander of a naval station
5	Commander of a medium-ship squadron (light cruisers or cruisers)
	Commander of a large warship
4	Commander of a small-ship squadron (destroyers, corvettes, or frigates)
	Commander of a medium warship
3	Commander of a small warship
	Large crew section commander
2	Senior "enlisted" assistant on a medium or large warship
	Small crew section leader
1	Senior "enlisted" assistant on a small warship
	Senior "enlisted" assistant in a crew section on a medium or large warship
	Team leader
0	Ordinary spacehand

Religious Rank

Religious Rank is available for both Terran and Imperial characters. Religious Rank affects Status according to the rule on p. B29. It supplements but does not replace Status, and therefore costs 5 points per level. It would be very uncommon for an adventurer to hold high Religious Rank; PCs should probably not be permitted to hold more than Religious Rank 1-2 (the level of an ordinary priest).

Terran Religious Rank

Terrans with this advantage are priests or holy men in one of the many Terran religious organizations. Religious Rank 0 is typical of a "novice" or priest in training. Religious Rank 1-2 is normal for a low-ranking priest, one who is permitted to teach and conduct religious rituals but has no authority to change or interpret

Merchant Rank Table

Rank	*Notes*
10	CEO of a very large corporation (about 5 million employees)
9	CEO of a large corporation (about 1 million employees)
8	CEO of a medium-sized corporation (about 200,000 employees)
7	CEO of a small corporation or subsidiary (about 50,000 employees)
6	CEO of a very small corporation or subsidiary (about 10,000 employees)
5	Chief of a large department (about 2,000 employees) Line Commodore of an extensive or prosperous merchant line
4	Chief of a large office or small department (about 500 employees) Line Commodore of a typical merchant line Senior Captain (commanding a large freighter)
3	Chief of a small office (50-200 employees) Captain (commanding a small freighter)
2	Branch or division leader (10-50 employees) Technical specialist with a large staff First Officer or Second Officer on a merchant ship (navy officer equivalent)
1	Team leader (1-10 employees) Technical specialist with a small staff Third Officer or Fourth Officer on a merchant ship (navy petty officer equivalent)
0	Ordinary rank-and-file worker (no subordinates) Spacehand or Apprentice on a merchant ship (ordinary deckhand)

theological doctrine. In many religious communities, higher rank than this is not even *possible* – there is no organized hierarchy to confer greater levels of authority.

Very influential priests, who hold higher titles and have real authority over other priests, normally have Religious Rank 3-5. Leading officials of a large and well-organized religious organization might have even more Rank. In general, consider how many other ordained priests are subject to a character's authority, and compare that to the "number of subordinates" on the Administrative Rank or Merchant Rank tables to get some idea of the appropriate level of Religious Rank.

The Roman Catholic Church is the largest and most centrally organized religious body on Terra. As head of the Church, the Pope has Religious Rank 10.

Vilani Religious Rank

The Vilani *shugilii* caste operates as a kind of priesthood within Vilani society. Imperial characters with Religious Rank are usually from that caste, or are members of a dissident subculture's religious establishment.

The *shugilii* caste is not organized at any level higher than that of a single world. Vilani with Religious Rank higher than 4 are extremely rare; even on high-population worlds, there are none with Rank higher than about 8. A *shugilii* with Religious Rank that high is probably the leading *shugilii* for a very important noble family. All *shugilii* are drawn from the "noble" or executive class, and must have at least Status 3 before any "free" Status is considered.

Many dissident subcultures have a religious component, but these splinter cults have very "flat" hierarchies, lacking prominent leaders who might come into conflict with the Imperial system. Priestly characters from dissident cultures almost never have Religious Rank higher than 2. They can be from any class and hold any level of Status.

Wealth

The Terran and Imperial economies are structured quite differently from one another. As a result, personal wealth is treated slightly differently in the two major societies.

Terran Wealth

The Terran economic system of the Interstellar Wars era would be familiar to any visitor from one of the leading nation-states of the early 21st century. Free-market capitalism dominates the system, although there is a lot of government intervention and regulation. Money is regarded as a commodity, which citizens can earn and freely exchange for any goods or services they want.

Although most nation-states still issue their own currencies, the Terran Confederation issues one as well – the *solar*. In 2170, one solar is roughly equal in buying power to $2.80 in 2000-era United States dollars. All prices in this book are given in solars (abbreviated $).

The average starting wealth for a Terran character is $50,000. Note that Terran society is strongly stratified along economic lines; it is quite common for Terran citizens to have wealth below Average, especially if they come from second-tier or poverty-stricken nations. Wealth brings Terran characters Status according to the usual rules: Wealthy gives one free level of Status, while the first two levels of Multimillionaire give one free level of Status each.

Imperial Wealth

The Imperium runs on a "command" economy. Executives and senior managers make all significant economic decisions. Money exists as an abstract indicator of resources, but it is normally used only as an accounting convenience for the *shangarim*. Ordinary citizens are not normally free to purchase from or offer their labor to whomever they wish. They rarely have control over any money; instead, they earn *credit* from their employer and can use that to draw upon their employer's resources for their own use.

Despite this relatively money-free economy, Imperial characters in the ***Interstellar Wars*** game are assumed to have a Wealth level, and can measure their accumulated credit as if it were "money" in the Terran sense. Indeed, an Imperial character's wealth will be measured in Terran solars ($), but this represents a combination of *shangarim* credit, local "underground market" currencies, barter goods, and other commodities. The average starting wealth for an Imperial character is $50,000.

Wealth does not bring Imperial characters any extra Status. If an Imperial citizen has a different level of personal wealth than is expected for his social position and rank, this is considered unusual. However, to the Imperial mind wealth comes from social position, not the other way around.

Courtesy Rank

Adventurers who are "out on their own" may have prior experience in civilian administration, the military, or a corporate hierarchy. Both Terran and Imperial cultures tend to treat people who have held such office with respect, even after they retire or otherwise move on. Characters may buy Courtesy Rank (p. B29) to match the level of authority they once held, at 1 point per level of Courtesy Rank. It is possible for a character to hold more than one kind of Courtesy Rank, affecting different social situations, or to hold Courtesy Rank as well as full Rank in a different institution. Courtesy Rank does *not* provide "free" levels of Status.

In Terran society, people who achieve very high levels of Rank often retain some of the associated Status after they retire. If a Terran character has Courtesy Rank, he may buy additional Status *at full cost* up to the amount of "free" Status the Courtesy Rank would have given him if it were active Rank. If he also has active Rank at a lower level, he may only buy Status to make up the difference between that and his Courtesy Rank. This is an exception to the *Classless Meritocracies* rule (p. B28) that normally restricts Terran characters to buying two levels of Status.

For example, the retired CEO of a major corporation might have Courtesy Rank 8 to reflect his achievements as a business leader. As a Terran, he would normally be permitted to buy only two levels of Status. However, his old Merchant Rank gave him three "free" levels of Status. Therefore, because of his Courtesy Rank, he can buy three more levels of Status at full cost.

Imperial characters can also buy Courtesy Rank to indicate rank once held in the *shangarim* hierarchy or in the military. However, they do not usually retain any extra Status once they have retired. They *may not* buy additional Status (above the normal limit of five levels) because of any Courtesy Rank.

For adventurers, the most serious drawback to the Imperial economic system is that it doesn't permit someone to buy whatever he wants, whenever he wants. Whenever a member of Imperial society wishes to buy an item using his "money," the GM may rule that he has no *right* under Imperial traditions to buy the item. For example, anyone can buy most harmless items of personal equipment, but a Vilani citizen who is not from a military caste may be forbidden to own weaponry or body armor. As another example, no Vilani citizen is permitted to purchase a reprogrammable or digital computer.

Purchases that violate tradition or *shangarim* policy are considered to be illegal, even if the item itself has a fairly high Legality Class (p. B267). The GM should feel free to make a check against the local Control Rating (p. B506) to see whether officials interfere with the purchase or harass the buyer.

Cost of Living

Both Terran and Imperial characters must meet their monthly cost-of-living requirements (see *Cost of Living*, p. B265). The cost of living depends on the Status associated with one's family or personal background, along with any free Status gained from Wealth (Terrans only). Any levels of Status gained for free due to active Rank, or purchased due to Courtesy Rank, *do not count* to determine a character's cost of living. Someone with high Status due to Rank probably lives as well as anyone else with the same level of personal Status, but his employer will support the "extras" in his lifestyle.

Racial Templates

The following templates are available for characters' *racial* backgrounds, and are more or less common in regions of space close to Terra.

Anakundu

7 points

The Anakundu are a minor Human race subject to the Vilani Imperium. Although they suffer under a number of physiological handicaps, they are well-adapted to Imperial society. Since their homeworld is relatively close to Terra, they are often encountered by Terrans traveling in Imperial space.

An Anakundu normally takes the drug *gakinisharra* on a regular basis, in order to prolong his life and control his sleeplessness. This does not constitute a Dependency disadvantage, as an Anakundu without his drug does not begin to take physical damage. The *gakinisharra* drug is somewhat expensive (about $3,500 for one years' treatment regimen), but is easily available wherever Anakundu travel.

An Anakundu ages according to the standard rules, but he is unlikely to live long enough to suffer the effects of age. The template below assumes an Anakundu about 18-22 Terran years of age. For every 10 Terran years of age above that, add another level of the Less Sleep advantage. An Anakundu character with Less Sleep 6-7 will acquire some level of the Terminally Ill disadvantage unless he has carefully kept up with his *gakinisharra* treatments. An Anakundu character with Less Sleep 8+ will acquire the Terminally Ill disadvantage no matter how carefully he has taken his drug. An Anakundu with Terminally Ill may also have one or more mental disadvantages, reflecting the deterioration of his brain and mind.

For more information on the Anakundu, see p. 80.

Advantages: Less Sleep 4 [8].
Quirks: Stoic temperament. [-1]

Answerin

40 points

The Answerin are a Human minor race subject to the Vilani Imperium. Their homeworld is distant from Terra, but individual Answerin are sometimes encountered by Terrans as ground troops – a role in which they have a fearsome reputation.

Answerin are slightly taller and more slender than Terrans, but are well within the normal Human range of build. Answerin have dark brown or black skin tone, dark hair, and deep-set eyes with pronounced epicanthic folds. They age about as quickly as Terrans.

The "Adrenalin Surge" advantage is a meta-trait unique to Answerin. It consists of Basic Speed+1 (Costs Fatigue; 3 FP/minute, -15%) [17] combined with Combat Reflexes (Costs Fatigue; 3 FP/minute, -15%) [13]. The total cost of the ability is 30 points. The two abilities must always be activated *together*; the Answerin pays 6 FP to raise his Basic Speed and acquire Combat Reflexes for one minute, then 3 FP for each additional minute. Naturally, few Answerin can maintain the Adrenalin Surge for more than one or two minutes, but in a tight situation it can be very useful.

For more information on the Answerin, see p. 81.

Advantages: Adrenalin Surge [30]; Fearlessness 3 [6]; High Pain Threshold [10].
Disadvantages: Odious Racial Habit 1 (Arrogant demeanor) [-5].
Quirks: Vegetarian. [-1]

Bwap

-10 points

The Bwaps, or "Newts," are one of the most successful subject races in the Vilani Imperium. Their natural bent toward order and attention to detail makes them ideal administrators; individuals often perform quite well within the Imperial social order.

A typical Bwap stands 4' 6" in height and weighs about 120 pounds. They age about as quickly as Terrans. Bwaps are upright and bipedal in stance, but they otherwise resemble Humans very little. They have long, snouted faces, stumpy tails, and lightly scaled amphibious skin. Their skin is patterned in a variety of colors, usually greens, browns, yellows, and blues. Bwap skin must always be kept moist, so they often wear a loose hooded garment designed to carry and distribute cool water.

For more information on the Bwaps, see p. 82.

Attribute Modifiers: ST-2 [-20]; HT-1 [-10].
Secondary Characteristic Modifiers: SM -1.
Advantages: Acute Taste and Smell 1 [2]; Acute Vision 1 [2]; Amphibious [10]; Flexibility (Double-Jointed) [15]; Peripheral Vision [15].
Disadvantages: Honesty (12) [-10]; Weakness (Dry air; 1d/30 minutes) [-10].
Quirks: Attentive; Careful; Hates to hurry; Likes complex tasks. [-4]

Dishaan

-2 points

The Dishaan are an Imperial subject race, thoroughly disliked by both the Vilani and by those Terrans who have encountered them. Their racial psychology makes them viciously deceitful, not to be trusted unless the situation makes honesty clearly to their advantage.

A typical Dishaan is about 5' in length. Their forelimbs are long and claw-tipped, used for hanging and swinging from forest-canopy branches. Dishaan hind-limbs are stubby, used as manipulative organs when hanging or as clumsy legs on the ground. The head is broad and somewhat vulturine. Dishaan have lifespans somewhat shorter than the Terran norm, with aging thresholds at 40, 60, and 80 years; this is not enough of a handicap to require any levels of the Short Lifespan disadvantage.

Due to their unusual psychology, Dishaan may not normally take the Code of Honor, Honesty, or Selfless disadvantages.

For more information on the Dishaan, see p. 83.

Attribute Modifiers: ST+1 [10]; DX+1 [20].
Secondary Characteristic Modifiers: Per+2 [10]; Basic Move -1 [-5].
Advantages: Brachiator [5]; Claws (Talons) [8].
Disadvantages: Greed (9) [-22]; Reputation -2 (To all non-Dishaan, all the time, as dishonest cheats) [-6]; Selfish (12) [-5]; Social Stigma (Minority Group) [-10]; Trickster (15) [-7].

Geonee

29 points

The Geonee are a minor Human race subject to the Vilani Imperium, renowned for their ability as engineers, technicians, and merchants. They are nomadic by preference, and can be found almost anywhere in Imperial space. They have been under Imperial rule for thousands of years, but are still stubbornly independent of mind, likely to resist Vilani policy if they get the chance.

Geonee are short and very stocky, averaging about 5' tall and 160 pounds. Geonee facial features are thick and heavy, with wide lips and noses. Skin tones tend to be light, with hair color ranging from white to dark brown. They wear clothing made of tough, damage-resistant materials cut in angular shapes. Geonee men often wear a hat-helmet which features long cloth "sideburns" hanging from the temples. Geonee age about as quickly as Terrans.

Geonee society is extremely patriarchal. Although the Vilani have imposed a measure of sexual equality on the Geonee, women are still treated as inferiors wherever the men think they can get away with it. Geonee men tend to look down on the females of other Human races, treating them with disdain and preferring to deal only with males.

For more information on the Geonee, see p. 84.

Attribute Modifiers: ST+2 [20]; DX+1 [20].

Secondary Characteristic Modifiers: HP-2 [-4].

Advantages: Improved G-Tolerance (0.5 G increment) [10].

Disadvantages: Odious Racial Habit (Treat Human females as near-property) [-5]; Social Stigma (Minority Group) [-10].

Quirks: Proud; Strong sense of group and racial identity. [-2]

Nugiiri

-5 points

The Nugiiri of Kilennur are another non-Human race originating relatively close to Terra. Few of them ever venture away from their homeworld, and those that do are usually from one or two leading castes. The racial template given here describes such individuals; the race exhibits a great deal of diversity among its various castes, so a variety of atypical Nugiiri might be encountered.

Nugiiri are winged, but are unable to fly on worlds with close to Terran gravity. On worlds with surface gravity of 0.6 Gs or less, they can fly normally. On worlds with surface gravity between 0.61-0.65 Gs, they can engage in controlled gliding (see p. B56). On worlds with surface gravity between 0.66-0.7 Gs, they can glide (p. B56). If the local gravity is higher than 0.7 Gs, the wings are of little use except to help slow a fall. Denser atmospheres can give the Nugiiri a slight boost, while thin atmospheres make flying harder; the GM should decide exactly how effective Nugiiri wings are on any given world.

Nugiiri tails are capable of aimed blows, doing crushing damage. Nugiiri warriors sometimes fit mace-like projections on their tails, using them in battle.

Nugiiri have psionic abilities – a fact that is not clearly understood by any outsider, Vilani or Terran. Almost all Nugiiri have the Invisibility and Mind Reading advantages given in the template. A few Nugiiri, especially those who are sent out into the non-Nugiiri universe on missions for the community, develop more elaborate telepathic abilities.

Nugiiri are devoted to their community, or *oytrip*, and find their sole purpose in life in service to that community. A Nugiiri who is cut off from the community often falls into a life-threatening physiological syndrome similar to withdrawal from addiction. Treat this as a cheap, legal Addiction. Most Nugiiri who are likely to venture into the outside world can "recover" from this Addiction with an unmodified Will roll, making it a 0-point trait. Worker castes find the Addiction to be "highly" or "totally" addictive, and may take the disadvantage at the -5 or -10 level. Meanwhile, most Nugiiri have the Gregarious and Selfless disadvantages. For more information on the Nugiiri, see p. 85.

Attribute Modifiers: ST-3 [-30]; DX-1 [-20]; IQ-2 [-40].

Secondary Characteristic Modifiers: HP-3 [-6]; SM-1.

Advantages: Claim to Hospitality (Nugiiri communities) [5]; Flight (Winged, -25%; Gravity restrictions, -15%) [24]; Invisibility (Can Carry Objects, Medium encumbrance, +50%; Switchable, +10%; Telepathic, -10%) [60]; Mind Reading (Racial, -10%; Telepathic, -10%) [24]; Night Vision 4 [4]; Peripheral Vision [15]; Reduced Consumption 2 [4]; Striker (Crushing) [5].

Disadvantages: Hidebound [-5]; Short Lifespan 1 [-10]; Social Stigma (Second-Class Citizen) [-5]; Vulnerability (Crushing damage, ×2 damage) [-30].

Suerrat

2 points

The Suerrat are a minor Human race subject to the Imperium. They are renowned for their ability as environmental scientists and technicians, and can be found on thousands of Imperial worlds.

Suerrat are small but muscular in build, averaging about 5' tall and 130 pounds. They have retained several ape-like features unusual among Human subspecies, notably prehensile toes and long body hair. Their eyes are well adapted to dark and to long wavelengths – in fact, they are uncomfortable in the bright sunlight found on Terra, Vland, and many other Human-inhabited worlds. Suerrat age about as quickly as Terrans.

Suerrat are very sociable, with aliens and animals as well as each other. They are well known for their natural affinity for other living things. Many Suerrat have levels in the Animal Friend or Green Thumb talents (see p. B90).

For more information about the Suerrat, see p. 86.

Advantages: Animal Empathy [5]; Fur [1]; Night Vision 6 [6]; Plant Empathy [5].

Disadvantages: Bad Sight (Near-sighted; Only in full G-class sunlight, Mitigated by sunglasses or protective gear, -80%) [-5]; Chummy [-5]; Xenophilia (15) [-5].

Terran

0 Points

Terrans are "baseline" Humans, defining the norm for ***Interstellar Wars*** characters. They receive no special advantages or disadvantages. For a detailed overview of Terran society, see Chapter 3.

Vegan

28 points

Vegans are a vaguely humanoid alien species, native to a region a few parsecs coreward of Terra. As the Imperial subject race closest to the Terran Confederation, they are the most frequently encountered by Terran explorers. The Vegans are restive under Imperial rule, and many of them are likely to want to work with Terrans to gain their independence.

Vegans are tall and frail, unable to stand up to Terran-standard gravity for long periods of time. They have a sensory hood that vaguely resembles a Terran's head. They have a bundle of tentacles at the end of each arm; these appendages are sensitive manipulators, but are inferior to Human hands in gripping strength. Their voices are peculiar by Human standards, rich with rasping and buzzing sounds. Vegans live a very long time, maturing at about 70 Terran years of age and routinely living into their fourth century.

Vegans evolved in a gravity field of about 0.5 G, and are unusually sensitive to variations in gravity (see the G-Intolerance disadvantage). Because of the construction of their sensory hood, Vegans may not take the Peripheral Vision advantage.

An adult Vegan will usually have a Code of Honor or a related disadvantage, reflecting commitment to the ideals of his *tuhuir*. Anyone playing a Vegan should work out the details of this Code of Honor with the GM. A typical *tuhuir* will impose *at least* -10 points of disadvantages. While the advantage is not mandatory for Vegan characters, many Vegans have the equivalent of Common Sense.

For more information about the Vegans, see p. 88.

Attribute Modifiers: DX+1 [20].
Secondary Characteristic Modifiers: SM+1.
Advantages: Acute Hearing 1 [2]; Empathy (Sensitive) [5]; Extended Lifespan 2 [4]; Fearlessness 1 [2]; Infravision [10]; Nictitating Membrane 1 [1]; Protected Vision [5]; Reduced Consumption 2 (Water only, -50%) [2].
Disadvantages: Bad Grip 1 [-5]; G-Intolerance (0.1G increment) [-10]; Social Stigma (Second-Class Citizen) [-5].
Quirks: Congenial; Dull; Humble. [-3]

Vilani

-3 points

Vilani are the Humans who founded the *Ziru Sirka*, and who continue to rule it to the present day. They are the foremost rivals (and greatest potential partners) of Terran civilization.

Vilani tend to be slightly shorter and more muscular than Terrans, with heavy bone structure but delicate facial features. Their skin tones and hair color are always dark, although they have light-colored eyes ranging from gray to a golden hazel color. They wear a variety of clothing styles, some of them quite flamboyant. Vilani live much longer than Terrans, maturing at about the same age, but experiencing aging thresholds at 100, 140, and 180 Terran years.

For a detailed overview of Vilani society, see Chapter 4.

Advantages: Extended Lifespan 1 [2]; Less Sleep 2 [4]; Lifting ST 1 [3].
Disadvantages: Hidebound [-5]; Workaholic [-5].
Quirks: Chauvinistic; Humble. [-2]

Occupational Templates

The following templates are particularly useful for Terran characters who are prepared for a life of adventure. Some of them can be adapted for Imperial characters as well.

Academician

85 points

You are a scholar, usually a university professor or private instructor who spends more time teaching than in original research. You are not the sort of person who normally ventures into a conflict zone. Still, there's a galaxy full of interesting things to learn and interesting people to teach, and you're not going to let little things like wars stop you.

Attributes: ST 10 [0]; DX 10 [0]; IQ 13 [60]; HT 10 [0].
Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 13 [0]; Per 13 [0]; FP 10 [0]; Basic Speed 5 [0]; Basic Move 5 [0].
Advantages: A total of 20 points selected from Claim to Hospitality (Universities) [variable], Cultural Adaptability [10 or 20], Cultural Familiarity [1 or 2], Eidetic Memory [5 or 10], Favor [variable], Language Talent [10], Languages [variable], Lightning Calculator [2 or 5], Mathematical Ability [10/level], positive Reputation [variable], Single-Minded [5], Tenure [5], Versatile [5], Voice [10], or above-average Wealth [variable].
Disadvantages: A total of -20 points selected from Absent-Mindedness [-15], Clueless [-10], Code of Honor (Professional) [-5], Combat Paralysis [-15], Cowardice [-10*], Curious [-5*], Dependents [variable], Duty (Teaching) [variable], Enemy (Academic rival) [variable], Fearfulness [-2/level], Gluttony [-5*], Honesty [-10*], Indecisive [-10*], Intolerance (Uneducated people) [-5], Jealousy [-10], Laziness [-10], Low Empathy [-20], Low Pain Threshold [-10], No Sense of Humor [-10], Oblivious [-5], Obsession [-5* or -10*], Odious Personal Habits [-5, -10, or -15], Overconfidence [-5*], Pacifism [variable], Phobias [variable], Post-Combat Shakes [-5*], negative Reputation [variable], Secret [-5 to -20], Selfish [-5*], Sense of Duty [-2 to -20], Space Sickness [-10], Squeamish [-10*], Stubbornness [-5*], Truthfulness [-5*], Unfit [-5 or -15], Unluckiness [-10], Workaholic [-5], or Xenophilia [-10*].
Primary Skills: Teaching (A) IQ+1 [4]-14; plus *two* of Anthropology, Archaeology, Astronomy, Chemistry, Computer Programming, Cryptography, Economics, Expert Skill (any), Geography, Geology, History, Law (any), Linguistics, Literature, Mathematics, Paleontology, Philosophy, Physiology, Physician, Psychology, Sociology, or Theology, all (H) IQ [4]-13, or Biology, Physics, Surgery, or Weird Science, all (VH) IQ-1 [4]-12.
Secondary Skills: Computer Operation (E) IQ+1 [2]-14; Public Speaking (A) IQ [2]-13; Research (A) IQ [2]-13; and Writing (A) IQ [2]-13.
Background Skills: Savoir-Faire (High Society) (E) IQ [1]-13; Speed-Reading (A) IQ-1 [1]-12; plus three extra points in primary or secondary skills.

* Multiplied for self-control number; see p. B120.

Athlete

100 points

You are a current or retired professional athlete, trained in a sport of your choice. For some reason, you have left the competition circuit to take to a life of adventure – perhaps

you have suffered an injury, you are on the run from professional gamblers, or you have simply decided to find new challenges.

Attributes: ST 12 [20]; DX 12 [40]; IQ 10 [0]; HT 12 [20].

Secondary Characteristics: Damage 1d-1/1d+2; BL 29 lbs.; HP 12 [0]; Will 11 [5]; Per 10 [0]; FP 12 [0]; Basic Speed 6 [0]; Basic Move 6 [0].

Advantages: A total of 20 points selected from Ambidexterity [5], positive Appearance [variable], Daredevil [15], extra FP [3/level], Fit [5 or 15], Flexibility [5 or 15], High Manual Dexterity [5/level], High Pain Threshold [10], Languages [variable], Rapid Healing [5 or 15], positive Reputation [variable], above-average Wealth [variable], +1 ST or HT [10], or +1 DX [20].

Disadvantages: A total of -20 points selected from Bad Back [-15], Code of Honor (Professional) [-5], Compulsive Behavior [-5 to -15], Enemy (Athletic rival) [variable], Greed [-15*], Honesty [-10*], Impulsiveness [-10*], Incurious [-5*], Intolerance [variable], Jealousy [-10], Lecherousness [-15*], Low Empathy [-20], Obsession [-5* or -10*], Overconfidence [-5*], Phobias [variable], negative Reputation [variable], Secret [-5 to -30], Selfish [-5*], Sense of Duty [-2 to -20], Shyness [-5, -10, or -20], Space Sickness [-10], Stubbornness [-5*], Trademark [-5 to -15], Unluckiness [-10], or Xenophilia [-10*].

Primary Skills: Games (chosen sport) (E) IQ+2 [4]-12; plus any *one* of Bicycling, Brawling Sport, Guns Sport, Jumping, or Thrown Weapon (any), all (E) DX+2 [4]-14, Boating (Unpowered), Boxing, Bow Sport, Climbing, Dancing, Rapier Sport, Riding (Horse), Saber Sport, Smallsword Sport, Sports (any), Staff Sport, Sumo Wrestling, Throwing, or Wrestling, all (A) DX+1 [4]-13, Acrobatics, Judo Sport, or Karate Sport, all (H) DX [4]-12, Swimming (E) HT+2 [4]-14, Hiking, Lifting, or Running, all (A) HT+1 [4]-13, or Skating or Skiing, both (H) HT [4]-12.

Secondary Skills: Any *two* of Acting, Gambling, or Leadership, all (A) IQ [2]-10, Carousing (E) HT+1 [2]-13, Sex Appeal (A) HT [2]-12, or Intimidation (A) Will [2]-11.

Background Skills: Three extra points in primary or secondary skills.

* Multiplied for self-control number; see p. B120.

Attorney

74 points

You are an expert on some field of Terran law, often involved in commercial or political negotiations. With the rapid expansion of the Terran sphere of influence, there is always a call for legal expertise as the Confederation learns how to rule an empire. Your skills may not suit you for a life of danger, but they often command a high price nevertheless.

Attributes: ST 10 [0]; DX 10 [0]; IQ 12 [40]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 12 [0]; Per 12 [0]; FP 10 [0]; Basic Speed 5 [0]; Basic Move 5 [0].

Advantages: Comfortable Wealth [10] and a total of 20 points selected from Allies [variable], positive Appearance [variable], Charisma [5/level], Contact Group [variable], Contacts [variable], Empathy [5 or 15], Fashion Sense [5], Favor [variable], Honest Face [1], Languages [variable], positive Reputation [variable], Single-Minded [5], Smooth Operator [15/level], high Status [5/level], Voice [10], or more Wealth [variable].

Disadvantages: A total of -20 points selected from Bully [-10*], Callous [-5], Code of Honor (Professional) [-5], Combat Paralysis [-15], Cowardice [-10*], Dependents [variable], Enemy (Former clients or opponents) [variable], Fearfulness [-2/level], Gluttony [-5*], Greed [-15*], Honesty [-10*], Jealousy [-10], Low Pain Threshold [-10], Miserliness [-10*], No Sense of Humor [-10], Obsession [-5* or -10*], Overconfidence [-5*], Pacifism [variable], Phobias [variable], Post-Combat Shakes [-5*], negative Reputation [variable], Secret [-5 to -20], Selfish [-5*], Sense of Duty [-2 to -20], Space Sickness [-10], Squeamish [-10*], Stubbornness [-5*], Unfit [-5 or -15], Unluckiness [-10], Workaholic [-5], or Xenophilia [-10*].

Primary Skills: Law (any) (H) IQ [4]-12; Research (A) IQ+1 [4]-13; and either Diplomacy (H) IQ [4]-12 or Fast-Talk (A) IQ+1 [4]-13.

Secondary Skills: Administration (A) IQ [2]-12; Public Speaking (A) IQ [2]-12; and Writing (A) IQ [2]-12.

Background Skills: Any *three* of Criminology, Interrogation, or Politics, all (A) IQ-1 [1]-11, Accounting or Psychology, both (H) IQ-2 [1]-10, Intimidation (A) Will-1 [1]-11, or Detect Lies (H) Per-2 [1]-10; plus three extra points in any primary or secondary skills.

* Multiplied for self-control number; see p. B120.

Belter

95 points

You are a deep-space prospector, experienced in mining the asteroids and small airless moons that can be found in almost any star system. You may be a crude, rough-and-tumble person who has little interest in Human society . . . or simply an intellectual introvert. You continually search for the great strike that will let you retire to a life of ease.

Attributes: ST 10 [0]; DX 12 [40]; IQ 12 [40]; HT 10 [0].

Secondary Characteristics: Damage 1d-1/1d+1; BL 24 lbs.; HP 10 [0]; Will 12 [0]; Per 12 [0]; FP 10 [0]; Basic Speed 5.5 [0]; Basic Move 5 [0].

Advantages: A total of 20 points selected from 3D Spatial Sense [10], Artificer [10/level], Fit [5 or 15], G-Experience [variable], Gizmos [5/gizmo], Improved G-Tolerance [5 or 10], Languages [variable], Luck [variable], or Single-Minded [5].

Disadvantages: A total of -30 points selected from Debt [-1 to -20], Greed [-15*], Honesty [-10*], Intolerance [variable], Loner [-5*], Low Empathy [-20], Miserliness [-10*], No Sense of Humor [-10], Oblivious [-5], Odious Personal Habits [-5, -10, or -15], Overconfidence [-5*], Phobias [variable], negative Reputation [variable], Secret [-5 to -30], Shyness [-5, -10, or -20], Stubbornness [-5*], Unluckiness [-10], below-average Wealth [variable], Workaholic [-5], or Xenophilia [-10*].

Primary Skills: Piloting (High-Performance Spacecraft) (A) DX+1 [4]-13 and Prospecting (A) IQ+1 [4]-13.

Secondary Skills: Engineer (Mining) (H) IQ-1 [2]-11; Free Fall (A) DX [2]-12; Geology (Ice Worlds or Rock Worlds) (H) IQ-1 [2]-11; Navigation (Space) (A) IQ+1 [2]-12; Spacer (E) IQ+1 [2]-13; and Vacc Suit (A) DX [2]-12.

Background Skills: Brawling (E) DX [1]-12; Carousing (E) HT [1]-10; Guns (any) (E) DX [1]-12; plus two extra points in primary or secondary skills.

* Multiplied for self-control number; see p. B120.

Bureaucrat

65 points

Whether you come from a government or a corporate bureaucracy, you are an experienced administrator. You've spent much of your career doing the paperwork that gets things done. Now you're ready to take up the traveling lifestyle, applying your hard-won skills to the problems of a galaxy.

Attributes: ST 10 [0]; DX 10 [0]; IQ 12 [40]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 12 [0]; Per 12 [0]; FP 10 [0]; Basic Speed 5 [0]; Basic Move 5 [0].

Advantages: Either Administrative Rank 1 [5] or Merchant Rank 1 [5]; plus a total of 20 points selected from more Administrative Rank [5/level], Allies [variable], Common Sense [10], Contact Group [variable], Contacts [variable], Courtesy Rank [1/level], Favor [variable], Languages [variable], Mathematical Ability [10/level], more Merchant Rank [5/level], Patron (Corporation or bureaucratic agency) [variable], Security Clearance [variable], Single-Minded [5], high Status [5/level], Unfazeable [15], or above-average Wealth [variable].

Disadvantages: A total of -20 points selected from Bully [-10*], Callous [-5], Chummy [-5 or -10], Clueless [-10], Code of Honor (Professional) [-5], Combat Paralysis [-15], Cowardice [-10*], Dependents [variable], Duty [variable], Fearfulness [-2/level], Gluttony [-5*], Hidebound [-5], Honesty [-10*], Incurious [-5*], Intolerance [variable], Low Pain Threshold [-10], Miserliness [-10*], No Sense of Humor [-10], Oblivious [-5], Pacifism [variable], Phobias [variable], Post-Combat Shakes [-5*], negative Reputation [variable], Secret [-5 to -30], Selfish [-5*], Shyness [-5, -10, or -20], Space Sickness [-10], Squeamish [-10*], Stubbornness [-5*], Unfit [-5 or -15], Unluckiness [-10], Workaholic [-5], or Xenophilia [-10*].

Primary Skills: Administration (A) IQ+2 [8]-14.

Secondary Skills: Accounting (H) IQ-1 [2]-11 and any *two* of Merchant or Politics, both (A) IQ [2]-12, or Diplomacy, Economics, Finance, Law (any), or Market Analysis, all (H) IQ-1 [2]-11.

Background Skills: Computer Operation (E) IQ [1]-12; Research (A) IQ-1 [1]-11; Savoir-Faire (any) (E) IQ [1]-12; Writing (A) IQ-1 [1]-11; and two extra points in primary or secondary skills.

* Multiplied for self-control number; see p. B120.

Capitalist

80 points

You are one of Terra's businessmen, devoted to the principle of "doing good by doing well." You travel the galaxy looking for new business opportunities, and incidentally extending Terran influence deep into Imperial space.

Attributes: ST 10 [0]; DX 10 [0]; IQ 12 [40]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 13 [5]; Per 13 [0]; FP 10 [0]; Basic Speed 5 [0]; Basic Move 5 [0].

Advantages: Comfortable [10] and a total of 30 points selected from Allies [variable], Business Acumen [10/level], Charisma [5/level], Claim to Hospitality (Business allies) [variable], Contact Group [variable], Contacts [variable], Fashion Sense [5], Favor [variable], Independent Income [1 to 20], Intuition [15], Languages [variable], Luck [variable], Mathematical Ability [10/level], Merchant Rank [5/level], Patron (Corporation) [variable], positive Reputation [variable], above-average Status [5/level], or more Wealth [variable].

Disadvantages: A total of -30 points selected from Bully [-10*], Callous [-5], Code of Honor (Professional) [-5], Compulsive Behavior [variable], Dependents [variable], Enemy (Business rival) [variable], Gluttony [-5*], Greed [-15*], Jealousy [-10], Low Pain Threshold [-10], Miserliness [-10*], Obsession [-5* or -10*], Overconfidence [-5*], Phobias [variable], negative Reputation [variable], Secret [-5 to

-30], Selfish [-5*], Space Sickness [-10], Stubbornness [-5*], Unfit [-5 or -15], Unluckiness [-10], Workaholic [-5], or Xenophilia [-10*].

Primary Skills: Merchant (A) IQ+1 [4]-13.

Secondary Skills: Accounting (H) IQ-1 [2]-11; Administration (A) IQ [2]-12; Fast-Talk (A) IQ [2]-12; Leadership (A) IQ [2]-12; and any *three* of Current Affairs (any) (E) IQ+1 [2]-13, Politics (A) IQ [2]-12, or Diplomacy, Economics, Finance, Law (any), or Market Analysis, all (H) IQ-1 [2]-11.

Background Skills: Computer Operation (E) IQ [1]-12; Research (A) IQ-1 [1]-11; Savoir-Faire (High Society) (E) IQ [1]-12; and four extra points in primary or secondary skills.

* Multiplied for self-control number; see p. B120.

Colonist

40 points

You are one of the pioneers who are establishing new civilizations on the Terran Confederation's colony worlds. Few colonists play a grand part in the history of the Interstellar Wars, but there are always some who leave their fields and small towns for the interstellar stage.

Attributes: ST 11 [10]; DX 10 [0]; IQ 10 [0]; HT 11 [10].

Secondary Characteristics: Damage 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 10 [0]; Per 10 [0]; FP 11 [0]; Basic Speed 5.25 [0]; Basic Move 5 [0].

Advantages: A total of 20 points selected from Animal Empathy [5], Animal Friend [5/level], Common Sense [10], Cultural Familiarity [1 or 2], Fit [5 or 15], G-Experience [variable], Green Thumb [5/level], Honest Face [1], Improved G-Tolerance [5 or 10], Languages [variable], Less Sleep [2/level], Outdoorsman [10/level], or Serendipity [15/level].

Disadvantages: A total of -20 points selected from Charitable [-15*], Chummy [-5 or -10], Clueless [-10], Combat Paralysis [-15], Cowardice [-10*], Curious [-5*], Dependents [variable], Easy to Read [-10], Fearfulness [-2/level], Gullibility [-10*], Hidebound [-5], Honesty [-10*], Impulsiveness [-10*], Incurious [-5*], Intolerance [variable], Loner [-5*], Low Self-Image [-10], Odious Personal Habits [-5, -10, or -15], Overconfidence [-5*], Pacifism [variable], Phobias [variable], Post-Combat Shakes [-5*], Selfless [-5*], Sense of Duty [-2 to -20], Shyness [-5, -10, or -20], Space Sickness [-10], Stubbornness [-5*], Truthfulness [-5*], Unluckiness [-10], below-average Wealth [variable], Workaholic [-5], or Xenophilia [-10*].

Primary Skills: Driving (any) (A) DX+1 [4]-11 and Survival (any) (A) Per+1 [4]-11.

Secondary Skills: Guns (any) (E) DX+1 [2]-11; plus any *three* of Sewing (E) DX+1 [2]-11, Riding (any) or Stealth, both (A) DX [2]-10, Camouflage, Carpentry, Gardening, or Masonry, all (E) IQ+1 [2]-11, Animal Handling (any), Electrician, Farming, Machinist, Mechanic (any), Merchant, Meteorologist, Smith (any), or Teamster (any), all (A) IQ [2]-10, Swimming (E) HT+1 [2]-12, Hiking (A) HT [2]-11, Fishing or Scrounging, both (E) Per+1 [2]-11, or Tracking (A) Per [2]-10.

Background Skills: Computer Operation (E) IQ [1]-10; First Aid (E) IQ [1]-10; plus two extra points in primary or secondary skills.

* Multiplied for self-control number; see p. B120.

Dilettante

70 points

You are one of Terra's idle rich. You may have acquired a few useful skills almost by accident, but for the most part the only things you are good at are art, sports, and fun. Adventurers traveling with you will find you useful mainly for your wealth, although in some situations your skills may come in handy.

Attributes: ST 10 [0]; DX 10 [0]; IQ 10 [0]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 10 [0]; Per 10 [0]; FP 11 [0]; Basic Speed 5 [0]; Basic Move 5 [0].

Advantages: Wealthy [20]; Status 1 [0]*; and a total of 60 points selected from Alcohol Tolerance [1], Allies [variable], positive Appearance [variable], Charisma [5/level], Claim to Hospitality (Family friends) [variable], Contact Group [variable], Contacts [variable], Cultural Familiarity [1 or 2], Daredevil [15], Fashion Sense [5], Favor [variable], Independent Income [1 to 20], Languages [variable], Luck [variable], No Hangover [1], Patron (Family) [variable], positive Reputation [variable], Smooth Operator [15/level], more Status [5/level], Voice [10], or more Wealth [variable].

Disadvantages: A total of -30 points selected form Addiction [variable], Alcoholism [-15 or -20], Combat Paralysis [-15], Compulsive Behavior [-5 to -15], Cowardice [-10*], Curious [-5*], Enemy (Family adversary) [variable], Fearfulness [-2/level], Gluttony [-5*], Greed [-15*], Honesty [-10*], Impulsiveness [-10*], Intolerance [variable], Jealousy [-10], Laziness [-10], Lecherousness [-15*], Low Pain Threshold [-10], Miserliness [-10*], Obsession [-5* or -10*], Odious Personal Habits [-5, -10, or -15], Overconfidence [-5*], Pacifism [variable], Phobias [variable], Post-Combat Shakes [-5*], negative Reputation [variable], Secret [-5 to -30], Selfish [-5*], Short Attention Span [-10*], Slow Riser [-5], Space Sickness [-10], Squeamish [-10*], Stubbornness [-5*], Trademark [-5 to -15], Truthfulness [-5*], Unfit [-5 or -15], Unluckiness [-10], or Xenophilia [-10*].

Primary Skills: Savoir-Faire (High Society) (E) IQ+3 [8]-14.

Secondary Skills: Any *three* of Boating (any), Dancing, Driving (any), Piloting (any), Riding (any), or Sports (any), all (A) DX+1 [4]-11, Current Affairs (any) Games (any), both (E) IQ+2 [4]-12, Connoisseur (any), Cooking, Fast-Talk, Gambling, Poetry, or Writing, all (A) IQ+1 [4]-11, Artist (any) Musical Instrument (any), both (H) IQ [4]-10, Carousing, Singing, or Swimming, all (E) HT+2 [4]-12, or Sex Appeal (A) HT+1 [4]-11.

* Gets one level of free Status from Wealth.

** Multiplied for self-control number; see p. B120.

Diplomat

90 points

You are a current or retired diplomat, whose career was built around smoothing over disputes between Terran factions (or between Terra and the Imperium). Of course, even if you are retired, nobody is *quite* willing to believe that you're not still in the Great Game. You retain a variety of useful skills, and any adventuring party will likely be happy to have your help.

Attributes: ST 10 [0]; DX 10 [0]; IQ 13 [60]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 13 [0]; Per 13 [0]; FP 10 [0]; Basic Speed 5 [0]; Basic Move 5 [0].

Advantages: A total of 30 points selected from Administrative Rank [5/level], Allies [variable], positive Appearance [variable], Charisma [5/level], Claim to Hospitality (Embassies) [variable], Contact Group [variable], Contacts [variable], Cultural Adaptability [10 or 20], Cultural Familiarity [1 or 2], Empathy [5 or 15], Fashion Sense [5], Favor [variable], Honest Face [1], Language Talent [10], Languages [variable], Legal Immunity (Diplomatic) [20], Patron (Government) [variable], positive Reputation [variable], Security Clearance [variable], Social Chameleon [5], Smooth Operator [15/level], above-average Status [5/level], Voice [10], or above-average Wealth [variable].

Disadvantages: A total of -30 points selected from Charitable [-15*], Chummy [-5 or -10], Combat Paralysis [-15], Cowardice [-10*], Duty [variable], Enemy (Enemy government) [variable], Fanaticism (Patriot) [-15], Fearfulness [-2/level], Gluttony [-5*], Low Pain Threshold [-10], Overconfidence [-5*], Pacifism [variable], Phobias [variable], Post-Combat Shakes [-5*], negative Reputation [variable], Secret [-5 to -30], Selfish [-5*], Selfless [-5*], Sense of Duty [-2 to -20], Squeamish [-10*], Stubbornness [-5*], Unfit [-5 or -15], Unluckiness [-10], Workaholic [-5], or Xenophilia [-10*].

Primary Skills: Diplomacy (H) IQ [4]-13; Public Speaking (A) IQ+1 [4]-14; and Savoir-Faire (High Society) (E) IQ+2 [4]-15.

Secondary Skills: Administration (A) IQ [2]-13; Current Events (any) (A) IQ [2]-13; Politics (A) IQ [2]-13; either Acting (A) IQ [2]-13 or Fast-Talk (A) IQ [2]-13; and any *two* of Economics, Finance, History, Intelligence Analysis, Law (any), Market Analysis, or Psychology, all (H) IQ-1 [2]-12.

Background Skills: Research (A) IQ-1 [1]-12; Writing (A) IQ-1 [1]-12; and four extra points in primary and secondary skills.

* Multiplied for self-control number; see p. B120.

Doctor

95 points

You are a physician, trained to heal the sick and injured. Your skills are in high demand in wartime, as the conflict generates wounded patients by the thousands. Even in peacetime, you are a popular individual anywhere on the galactic frontier.

Attributes: ST 10 [0]; DX 11 [20]; IQ 13 [60]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 13 [0]; Per 13 [0]; FP 10 [0]; Basic Speed 5.25 [0]; Basic Move 5 [0].

Advantages: A total of 20 points selected from Cultural Familiarity [1 or 2], Eidetic Memory [5 or 10], Empathy [5 or 15], Healer [10/level], High Manual Dexterity [5/level], Higher Purpose [5], Languages [variable], Less Sleep [2/level], Resistant (Disease) [variable], Single-Minded [5], above-average Status [5/level], or above-average Wealth [variable].

Disadvantages: A total of -30 points selected from Addiction [variable], Charitable [-15*], Code of Honor (Professional) [-5], Combat Paralysis [-15], Dependents [variable], Guilt Complex [-5], Honesty [-10*], Nightmares [-5*], Pacifism [variable], Phobias [variable], Secret [-5 to -30], Selfish [-5*], Selfless [-5*], Sense of Duty [-2 to -20], Stubbornness [-5*], Unfit [-5 or -15], Unluckiness [-10], Workaholic [-5], or Xenophilia [-10*].

Primary Skills: Diagnosis (H) IQ [4]-13; Electronics Operation (Medical) (A) IQ+1 [4]-14; and Physician (H) IQ [4]-13.

Secondary Skills: Physiology (H) IQ-1 [2]-12; plus any *two* of Hypnotism, Pharmacy, Poisons, Psychology, or Veterinary, all (H) IQ-1 [2]-12, or Surgery (VH) IQ-2 [2]-11.

Background Skills: Administration (A) IQ-1 [1]-12; Computer Operation (E) IQ [1]-13; Diplomacy (H) IQ-2 [1]-11; Teaching (A) IQ-1 [1]-12; plus three extra points in primary or secondary skills.

* Multiplied for self-control number; see p. B120.

Entertainer

90 points

You work in the entertainment industry, and although you don't contribute directly to the war effort,

you certainly help out with morale. Whether you work on the stage or behind it, you make people happy and lift their spirits. As a bonus, you normally find yourself able to earn a little extra cash no matter where you go – even the most backwater colony or isolated military unit will gladly pay to see what you have to offer.

Attributes: ST 10 [0]; DX 11 [20]; IQ 12 [40]; HT 11 [10].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 12 [0]; Per 12 [0]; FP 11 [0]; Basic Speed 5.5 [0]; Basic Move 5 [0].

Advantages: A total of 20 points selected from Alcohol Tolerance [1], positive Appearance [variable], Charisma [5/level], Claim to Hospitality (Fans) [variable], Cultural Familiarity [1 or 2], Empathy [5 or 15], Fashion Sense [5], Flexibility [5 or 15], Languages [variable], Luck [variable], Musical Ability [5/level], No Hangover [1], Penetrating Voice [1], positive Reputation [variable], Smooth Operator [15/level], Versatile [5], Voice [10], or above-average Wealth [variable].

Disadvantages: A total of -20 points selected from Addiction [variable], Alcoholism [-15 or -20], Combat Paralysis [-15], Compulsive Behavior [-5 to -15], Cowardice [-10*], Fearfulness [-2/level], Greed [-15*], Honesty [-10*], Impulsiveness [-10*], Incurious [-5*], Jealousy [-10], Lecherousness [-15*], Low Pain Threshold [-10], Miserliness [-10*], Overconfidence [-5*], Pacifism [variable], Phobias [variable], Post-Combat Shakes [-5*], negative Reputation [variable], Secret [-5 to -30], Selfish [-5*], Short Attention Span [-10*], Squeamish [-10*], Stubbornness [-5*], Trademark [-5 to -15], Unfit [-5 or -15], Unluckiness [-10], Workaholic [-5], or Xenophilia [-10*].

Primary Skills: Any *two* of Dancing (A) DX+1 [4]-12, Acting, Performance, or Public Speaking, all (A) IQ+1 [4]-13, Musical Instrument (any) (H) IQ [4]-12, or Singing (E) HT+2 [4]-13.

Secondary Skills: Any *three* of Stage Combat (A) DX [2]-11, Acrobatics or Sleight of Hand, both (H) DX-1 [2]-10, Makeup or Savoir-Faire (any), both (E) IQ+1 [2]-13, Group Performance (any), Poetry, or Writing, all (A) IQ [2]-12, Artist (Scene Design) or Musical Composition, both (H) IQ-1 [2]-11, or Sex Appeal (A) HT [2]-11.

Background Skills: Carousing (E) HT [1]-11; Fast-Talk (A) IQ-1 [1]-11; plus four extra points in any primary or secondary skills.

* Multiplied for self-control number; see p. B120.

Journalist

65 points

Even in a time of war, the public has a right to know what's going on. You travel throughout the galaxy, digging up stories that keep the worlds informed (and, incidentally, boost your reputation). Traveling with a group of adventurers, you will doubtless gather more than enough material for your work – if you aren't the driving force behind the group yourself. Of course, Imperials often react *very* badly to pesky journalists . . .

Attributes: ST 10 [0]; DX 10 [0]; IQ 12 [40]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 12 [0]; Per 13 [5]; FP 10 [0]; Basic Speed 5 [0]; Basic Move 5 [0].

Advantages: A total of 20 points selected from positive Appearance [variable], Charisma [5/level], Contact Group [variable], Contacts [variable], Cultural Adaptability [10 or 20], Cultural Familiarity [1 or 2], Empathy [5 or 15], Fashion Sense [5], Favor [variable], Honest Face [1], Intuition [15], Language Talent [10], Languages [variable], Patron (News agency) [variable], positive Reputation [variable], Serendipity [15/level], Single-Minded [5], Smooth Operator [15/level], or Voice [10].

Disadvantages: A total of -20 points selected from Bully [-10*], Code of Honor (Professional) [-5], Curious [-5*], Delusion ("While I'm carrying this camera, nothing can hurt me") [-5 or -10], Impulsiveness [-10*], Jealousy [-10], Low Pain Threshold [-10], Obsession [-5* or -10*], Overconfidence [-5*], Pacifism [variable], Phobias [variable], Post-Combat Shakes [-5*], negative Reputation [variable], Secret [-5 to -30], Sense of Duty [-2 to -20], Stubbornness [-5*], Unfit [-5 or -15], Unluckiness [-10], below-average Wealth [variable], Workaholic [-5], or Xenophilia [-10*].

Primary Skills: Research (A) IQ+1 [4]-13 and Writing (A) IQ+1 [4]-13.

Secondary Skills: Electronics Operation (Media) (A) IQ [2]-12; and any *three* of Savoir-Faire (E) IQ+1 [2]-13, Electronics Operation (Communications), Fast-Talk, Interrogation, Photography, or Public Speaking, all (A) IQ [2]-12, Intimidation (A) Will [2]-12, or Detect Lies (H) Per-1 [2]-12.

Background Skills: Computer Operation (E) IQ [1]-12; Speed-Reading (A) IQ-1 [1]-11; and two extra points in primary or secondary skills.

* Multiplied for self-control number; see p. B120.

Marine

130 points

You are a serving member (or a retired veteran) of the Terran Confederation Marines. As such, you enjoy a fearsome reputation – but you also remember many a comrade lost in action. You have spent much of your career in deep space, and are very likely to remain a footloose adventurer after leaving the military.

Attributes: ST 11 [10]; DX 12 [40]; IQ 11 [20]; HT 11 [10].

Secondary Characteristics: Damage 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 11 [0]; Per 11 [0]; FP 11 [0]; Basic Speed 5.75 [0]; Basic Move 5 [0].

Advantages: A total of 30 points selected from Born Tactician [10/level], Combat Reflexes [15], Courtesy Rank [1/level], Danger Sense [15], Fearlessness [2/level], Fit [5 or 15], G-Experience [variable], High Pain Threshold [10], Improved G-Tolerance [5 or 10], Languages [variable], Military Rank [5/level], Penetrating Voice [1], positive Reputation [variable], or Security Clearance [variable].

Disadvantages: A total of -30 points selected from Bloodlust [-10*], Callous [-5], Chummy [-5 or -10], Code of Honor (Soldier's) [-10], Duty [variable], Enemy (Military rival) [variable], Fanaticism (Patriot) [-15], Flashbacks [variable], Honesty [-10*], Incurious [-5*], Intolerance [variable], Jealousy [-10], Nightmares [-5*], No Sense of Humor [-10], Overconfidence [-5*], Sense of Duty [-2 to -20], Stubbornness [-5*], Trickster [-15*], Unluckiness [-10], or Workaholic [-5].

Primary Skills: Free Fall (A) DX+1 [4]-13; Gunner (any) (E) DX+1 [4]-14; Guns (any) (E) DX+2 [4]-14; Savoir-Faire (Military) (E) IQ+2 [4]-13; Soldier (A) IQ+1 [4]-12; and Vacc Suit (A) DX+1 [4]-13.

Secondary Skills: Armoury (A) IQ [2]-11; Brawling (E) DX+1 [2]-13; either Driving (any) (A) DX [2]-12 or Piloting (any) (A) DX [2]-12; Knife (E) DX+1 [2]-13; Leadership (A) IQ [2]-11; Tactics (H) IQ-1 [2]-10; and Throwing (A) DX [2]-12.

Background Skills: Computer Operation (E) IQ [1]-11; Electronics Operation (Communications) (A) IQ-1 [1]-10; Electronics Operation (Sensors) (A) IQ-1 [1]-10; First Aid (E) IQ [1]-11; Gesture (E) IQ [1]-11; Lip Reading (A) Per-1 [1]-10; and Stealth (A) DX-1 [1]-11; plus five extra points in primary or secondary skills.

* Multiplied for self-control number; see p. B120.

Policeman

110 points

Policemen have many reasons for traveling: pursuit of fugitives, vengeance for denied justice, flight from implacable enemies, even a simple urge to bring their skills to the lawless frontier. Law enforcers who travel the stars often find their hands full – Terran colonies are often unruly places, and conquered Imperial worlds present their own social problems.

Attributes: ST 10 [0]; DX 11 [20]; IQ 12 [40]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 12 [0]; Per 13 [5]; FP 10 [0]; Basic Speed 5.25 [0]; Basic Move 5 [0].

Advantages: A total of 20 points selected from Administrative Rank [5/level], Combat Reflexes [15], Contact Group [variable], Contacts [variable], Courtesy Rank [1/level], Danger Sense [15], Favor [variable], Fearlessness [2/level], Fit [5 or 15], Higher Purpose [5], Languages [variable], greater Legal Enforcement Powers [5 to 15], Patron (Police agency) [variable], or Security Clearance [variable].

Disadvantages: A total of -20 points selected from Bully [-10*], Charitable [-15*], Chummy [-5 or -10], Code of Honor (Professional) [-5], Dependents [variable], Duty [variable], Enemy (Criminal) [variable], Honesty [-10*], Intolerance [variable], No Sense of Humor [-10], Obsession [-5* or -10*], Overconfidence [-5*], Pacifism (Cannot Harm Innocents) [-10], Secret [-5 to -20], Selfless [-5*], Sense of Duty [-2 to -20], Space Sickness [-10], Stubbornness [-5*], Unluckiness [-10], below-average Wealth [variable], or Workaholic [-5].

Primary Skills: Area Knowledge (Beat) (E) IQ+2 [4]-14; Brawling (E) DX+2 [4]-13; Guns (any) (E) DX+2 [4]-13; and Law (any) (H) IQ [4]-12.

Secondary Skills: Criminology (A) IQ [2]-12; Observation (A) Per [2]-13; Search (A) Per [2]-13; Stealth (A) DX [2]-11; Shadowing (A) IQ [2]-12; any *two* of Bicycling (E) DX+1 [2]-12, Driving (any), Piloting (any), or Riding (any), all (A) DX [2]-11, or Running (A) HT [2]-10; plus any *three* of Interrogation, Leadership, or Streetwise, all (A) IQ [2]-12, Diplomacy, Forensics, Psychology, or Tactics, all (H) IQ-1 [2]-11, Intimidation (A) Will [2]-12, or Detect Lies (H) Per-1 [2]-12.

Background Skills: Administration (A) IQ-1 [1]-11; Computer Operation (E) IQ [1]-12; Electronics Operation (Communications) (A) IQ-1 [1]-11; Electronics Operation (Sensors) (A) IQ-1 [1]-11; First Aid (E) IQ [1]-12; Research (A) IQ-1 [1]-11; plus three extra points in primary or secondary skills.

* Multiplied for self-control number; see p. B120.

Politician

70 points

You are a professional politician, using the democratic institutions of your nation-state to climb to the highest levels of national (or even Confederation) power. You spend at least as much time gathering votes as you do exercising power – but between election campaigns, you are busy making policy and passing laws. Even after you retire from active political life, you will have considerable indirect influence from the contacts and reputation you made while in office.

Attributes: ST 10 [0]; DX 10 [0]; IQ 12 [40]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 13 [5]; Per 12 [0]; FP 10 [0]; Basic Speed 5 [0]; Basic Move 5 [0].

Advantages: A total of 30 points selected from Administrative Rank [5/level], Allies [variable], Appearance [variable], Charisma [5/level], Claim to Hospitality (Political allies) [variable], Contact Group [variable], Contacts [variable], Courtesy Rank [1/level], Cultural Familiarity [1 or 2], Empathy [5 or 15], Fashion Sense [5], Favor [variable], Honest Face [1], Independent Income [1 to 20], Language Talent [10], Languages [variable], positive Reputation [variable], Security Clearance [variable], Social Chameleon [5], Smooth Operator [15/level], above-average Status [5/level], Voice [10], or above-average Wealth [variable].

Disadvantages: A total of -30 points selected from Bully [-10*], Chummy [-5 or -10], Enemy (Political rival) [variable], Fanaticism (Political ideology) [-15], Gluttony [-5*], Greed [-15*], Hidebound [-5], Incurious [-5*], Intolerance [variable], Jealousy [-10], Lecherousness [-15*], Low Pain Threshold [-10], Obsession [-5* or -10*], Overconfidence [-5*], Phobias [variable], Post-Combat Shakes [-5*], negative Reputation [variable], Secret [-5 to -30], Selfish [-5*], Sense of Duty [-2 to -20],

Space Sickness [-10], Squeamish [-10*], Stubbornness [-5*], Unfit [-5 or -15], Unluckiness [-10], Workaholic [-5], or Xenophilia [-10*].

Primary Skills: Politics (A) IQ+1 [4]-13 and Public Speaking (A) IQ+1 [4]-13.

Secondary Skills: Acting (A) IQ [2]-12; Administration (A) IQ [2]-12; Law (any) (H) IQ-1 [2]-11; Savoir-Faire (High Society) (E) IQ+1 [2]-13; and any *two* of Accounting, Economics, Expert Skill (Military Science), Expert Skill (Political Science), Finance, History, Intelligence Analysis, Market Analysis, or Psychology, all (H) IQ-1 [2]-11.

Background Skills: Research (A) IQ-1 [1]-11; Writing (A) IQ-1 [1]-11; and three extra points in primary or secondary skills.

* Multiplied for self-control number; see p. B120.

Rogue

90 points

"Rogue" is a more romantic term for "criminal." You are one of society's outcasts, either a romantic criminal-hero or a brutish criminal-thug. You survive outside the law, which may well be one of the reasons you travel among the stars – after all, the law is thinner out here.

Attributes: ST 10 [0]; DX 11 [20]; IQ 12 [40]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 12 [0]; Per 12 [0]; FP 10 [0]; Basic Speed 5.25 [0]; Basic Move 5 [0].

Advantages: A total of 30 points selected from Alcohol Tolerance [1], Alternate Identity (Illegal) [15], positive Appearance [variable], Charisma [5/level], Combat Reflexes [15], Contacts [variable], Cultural Adaptability [10 or 20], Danger Sense [15], Daredevil [15], Fashion Sense [5], Favor [variable], Fearlessness [2/level], Flexibility [5 or 15], High Manual Dexterity [5/level], Language Talent [10], Languages [variable], Luck [variable], Night Vision [1/level], No Hangover [1], Smooth Operator [15/level], Versatile [5], Voice [10], above-average Wealth [variable], or Zeroed [10].

Disadvantages: A total of -30 points selected from Addiction [variable], Alcoholism [-15 or -20], Bad Temper [-10*], Bloodlust [-10*], Bully [-10*], Callous [-5], Code of Honor (Pirate's) [-5], Compulsive Behavior [-5 to -15], Debt [-1 to 20], Enemy (Police) [variable], Fearfulness [-2/level], Gluttony [-5*], Greed [-15*], Impulsiveness [-10*], Incurious [-5*], Intolerance [variable], Jealousy [-10], Kleptomania [-15*], Laziness [-10], Lecherousness [-15*], Light Sleeper [-5], Loner [-5*], Miserliness [-10*], Obsession [-5* or -10*], Odious Personal Habits [-5, -10, or -15], Overconfidence [-5*], Paranoia [-10], Phobias [variable], negative Reputation [variable], Secret [-5 to -30], Selfish [-5*], Shyness [-5, -10, or -20], Slow Riser [-5], Social Stigma (Criminal Record) [-5], Space Sickness [-10], below-average Status [-5/level], Stubbornness [-5*], Trademark [-5 to -15], Trickster [-15*], Unfit [-5 or -15], Unluckiness [-10], below-average Wealth [variable], Workaholic [-5], or Xenophilia [-10*].

Primary Skills: Area Knowledge (any) (E) IQ+2 [4]-14 and Streetwise (A) IQ+1 [4]-13.

Secondary Skills: Carousing (E) HT+1 [2]-11; either Survival (any) *or* Urban Survival, both (A) Per [2]-12; Stealth (A) DX [2]-11; and any *six* of Beam Weapons (any), Brawling, Fast-Draw (any), Guns (any), Knife, or Thrown Weapon (Knife), all (E) DX+1 [2]-12, Erotic Art, Climbing, or Filch, all (A) DX [2]-11, Escape, Pickpocket, or Sleight of Hand, all (H) DX-1 [2]-10, Computer Operation or Panhandling, both (E) IQ+1 [2]-13, Acting, Electronics Operation (Communications), Electronics Operation (Security), Electronics Operation (Surveillance), Fast-Talk, Fortune-Telling (any), Gambling, Holdout, Lockpicking, Merchant, Shadowing, or Traps, all (A) IQ [2]-12, Forgery (H) IQ-1 [2]-11, Running or Sex Appeal, both (A) HT [2]-10, or Intimidation (A) Will [2]-12.

Background Skills: Four extra points in primary or secondary skills.

* Multiplied for self-control number; see p. B120.

Scientist

90 points

You may work at or for a university, like an academician (see p. 146), but you are more devoted to research and discovery than to teaching. Contact with the Imperium has given you thousands of new worlds to explore, and access to Imperial records has given you thousands of years' worth of data to examine. Of course, your job is to advance *beyond* anything the Imperium has managed to attain . . .

Attributes: ST 10 [0]; DX 10 [0]; IQ 13 [60]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 13 [0]; Per 13 [0]; FP 10 [0]; Basic Speed 5 [0]; Basic Move 5 [0].

Advantages: A total of 20 points selected from Allies [variable], Claim to Hospitality (Universities) [variable], Cultural Adaptability [10 or 20], Cultural Familiarity [1 or 2], Eidetic Memory [5 or 10], Favor [variable], Language Talent [10], Languages [variable], Lightning Calculator [2 or 5], Mathematical Ability [10/level], positive Reputation [variable], Single-Minded [5], above-average Status [5/level], Tenure [5], Versatile [5], or above-average Wealth [variable].

Disadvantages: A total of -20 points selected from Absent-Mindedness [-15], Clueless [-10], Code of Honor (Professional) [-5], Curious [-5*], Dependents [variable], Duty (Teaching) [variable], Enemy (Academic rival) [variable], Honesty [-10*], Intolerance (Uneducated people) [-5], Jealousy [-10], Low Empathy [-20], No Sense of Humor [-10], Oblivious [-5], Obsession [-5* or -10*], Odious Personal Habits [-5, -10, or -15], Overconfidence [-5*], Pacifism [variable], Phobias [variable], Post-Combat Shakes [-5*], negative Reputation [variable], Secret [-5 to -20], Selfish [-5*], Sense of Duty [-2 to -20], Space Sickness [-10], Stubbornness [-5*], Truthfulness [-5*], Workaholic [-5], or Xenophilia [-10*].

Primary Skills: Research (A) IQ+1 [4]-14; and any *two* of Anthropology, Archaeology, Astronomy, Chemistry, Computer Programming, Cryptography, Economics, Expert Skill (any), Geography, Geology, History, Law (any), Linguistics, Literature, Mathematics, Paleontology, Philosophy, Physiology, Physician, Psychology, Sociology, or Theology, all (H) IQ [4]-13, or Biology, Physics, Surgery, or Weird Science, all (VH) IQ-1 [4]-12.

Secondary Skills: Computer Operation (E) IQ+1 [2]-14; Electronics Operation (any) (A) IQ [2]-13; Electronics Operation (any other) (A) IQ [2]-13; Public Speaking (A) IQ [2]-13; Teaching (A) IQ [2]-13; and Writing (A) IQ [2]-13.

Background Skills: Leadership (A) IQ-1 [1]-12; Savoir-Faire (High Society) (E) IQ [1]-13; Speed-Reading (A) IQ-1 [1]-12; plus three extra points in primary or secondary skills.

* Multiplied for self-control number; see p. B120.

Soldier

130 points

You are a member of the Terran Confederation Army, either currently serving or retired. You may not have as much deep-space experience as your counterpart in the Marines, but you have probably seen more *action*, on Terra if not against the Vilani. After you retire, your skills will likely be much in demand in your home nation, in the colonies, or in one of the Terran mercenary units that are being organized in Imperial space.

Attributes: ST 11 [10]; DX 12 [40]; IQ 11 [20]; HT 11 [10].

Secondary Characteristics: Damage 1d-2/1d; BL 24 lbs.; HP 11 [0]; Will 11 [0]; Per 11 [0]; FP 11 [0]; Basic Speed 5.75 [0]; Basic Move 5 [0].

Advantages: A total of 30 points selected from Born Tactician [10/level], Combat Reflexes [15], Courtesy Rank [1/level], Danger Sense [15], Fearlessness [2/level], Fit [5 or 15], High Pain Threshold [10], Languages [variable], Military Rank [5/level], Penetrating Voice [1], positive Reputation [variable], or Security Clearance [variable].

Disadvantages: A total of -30 points selected from Bloodlust [-10*], Callous [-5], Chummy [-5 or -10], Code of Honor (Soldier's) [-10], Duty [variable], Enemy (Military rival) [variable], Fanaticism (Patriot) [-15], Flashbacks [variable], Honesty [-10*], Incurious [-5*], Intolerance [variable], Jealousy [-10], Nightmares [-5*], No Sense of Humor [-10], Overconfidence [-5*], Sense of Duty [-2 to -20], Stubbornness [-5*], Trickster [-15*], Unluckiness [-10], or Workaholic [-5].

Primary Skills: Guns (any) (E) DX+2 [4]-14; Gunner (any) (E) DX+2 [4]-14; Savoir-Faire (Military) (E) IQ+2 [4]-13; Soldier (A) IQ+1 [4]-12.

Secondary Skills: Armoury (A) IQ [2]-11; Brawling (E) DX+1 [2]-13; Camouflage (E) IQ+1 [2]-13; either Driving (any) (A) DX [2]-12 or

Piloting (any) (A) DX [2]-12; Hiking (A) HT [2]-11; Knife (E) DX+1 [2]-13; Leadership (A) IQ [2]-11; NBC Suit (A) DX [2]-12; Navigation (Land) (A) IQ [2]-12; Survival (any) (A) IQ [2]-12; Tactics (H) IQ-1 [2]-10; and Throwing (A) DX [2]-12.

Background Skills: Computer Operation (E) IQ [1]-11; Electronics Operation (Communications) (A) IQ-1 [1]-10; Electronics Operation (Sensors) (A) IQ-1 [1]-10; First Aid (E) IQ [1]-11; Gesture (E) IQ [1]-11; Scrounging (E) Per [1]-11; and Stealth (A) DX-1 [1]-11; plus three extra points in primary or secondary skills.

* Multiplied for self-control number; see p. B120.

Spy

90 points

The life of a Terran undercover agent can be very interesting, and also very short. Naturally, the job is not one from which it's possible to completely retire – even after you have returned to a "civilian" life you may find yourself caught up in world-spanning intrigues.

Attributes: ST 10 [0]; DX 11 [20]; IQ 12 [40]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 12 [0]; Per 13 [5]; FP 10 [0]; Basic Speed 5.25 [0]; Basic Move 5 [0].

Advantages: A total of 30 points selected from Alternate Identity [5 or 15], Charisma [5/level], Combat Reflexes [15], Contact Group [variable], Contacts [variable], Cultural Adaptability [10 or 20], Cultural Familiarity [1 or 2], Danger Sense [15], Eidetic Memory [5 or 10], Empathy [5 or 15], Fashion Sense [5], Favor [variable], Honest Face [1], Language Talent [10], Languages [variable], Patron (Government) [variable], Security Clearance [variable], Social Chameleon [5], Smooth Operator [15/level], Versatile [5], Voice [10], or Zeroed [10].

Disadvantages: A total of -30 points selected from Curious [-5*], Duty [variable], Enemy (Enemy government) [variable], Fanaticism (Patriot) [-15], Flashbacks [variable], Insomniac [-10 or -15], Intolerance [variable], Light Sleeper [-5], Loner [-5*], Nightmares [-5*], No Sense of Humor [-10], Overconfidence [-5*], Paranoia [-10], Secret [-5 to -30], Sense of Duty [-2 to -20], Stubbornness [-5*], Trickster [-15*], Unluckiness [-10], Workaholic [-5], or Xenophilia [-10*].

Primary Skills: Area Knowledge (any) (E) IQ+2 [4]-14.

Secondary Skills: Intelligence Analysis (H) IQ-1 [2]-11; Research (A) IQ [2]-12; plus any *six* of Climbing or Stealth, both (A) DX [2]-11, Escape (H) DX-1 [2]-10, Savoir-Faire (any) (E) IQ+1 [2]-13, Acting, Disguise, Electronics Operation (Communication), Electronics Operation (Security), Electronics Operation (Sensors), Explosives (Demolition), Fast-Talk, Holdout, Interrogation, Lock-picking, Photography, Shadowing, or Traps, all (A) IQ [2]-12, Cryptography (H) IQ-1 [2]-11, Carousing (E) HT+1 [2]-11, Sex Appeal (A) HT [2]-10, Body Language or Lip Reading, both (A) Per [2]-13, or Detect Lies (H) Per-1 [2]-12.

Background Skills: Computer Operation (E) IQ [1]-12; either Driving (any) or Piloting (any), both (A) DX-1 [1]-10; Guns (any) (E) DX [1]-11; plus two extra points in primary or secondary skills.

* Multiplied for self-control number; see p. B120.

Starship Bridge Officer

100 points

Whether you serve aboard a Terran Navy vessel or a commercial ship, you are one of the officers who manage critical ship functions from its nerve center – the bridge. You are trained in a set of highly technical skills, and will doubtless find yourself in great demand once you are ready to begin adventuring on your own behalf.

Attributes: ST 10 [0]; DX 12 [40]; IQ 12 [40]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 12 [0]; Per 12 [0]; FP 10 [0]; Basic Speed 5.5 [0]; Basic Move 5 [0].

Advantages: Either Merchant Rank 1 [5] *or* Military Rank 1 [5]; plus a total of 20 points selected from 3D Spatial Sense [10], Combat Reflexes [15], Courtesy Rank [1/level], Cultural Familiarity [1 or 2], Fit [5 or 15], G-Experience [variable], Improved G-Tolerance [5 or 10], Intuitive Admiral [10/level], Languages [variable], Mathematical Ability [10/level], more Merchant Rank [5/level] *or* Military Rank [5/level], positive Reputation [variable], above-average Status [5/level], Voice [10], or above-average Wealth [variable].

Disadvantages: A total of -30 points selected from Chummy [-5 or -10], Code of Honor (Professional) [-5], Curious [-5*], Duty [variable], Enemy (Military or commercial rival) [variable], Fanaticism (Patriot) [-15], Flashbacks [variable], Greed [-15*], Honesty [-10*], Intolerance [variable], Jealousy [-10], Lecherousness [-15*], Miserliness [-10*], Nightmares [-5*], No Sense of Humor [-10], Overconfidence [-5*], Sense of Duty [-2 to -20], Squeamish [-10*], Stubbornness [-5*], Trickster [-15*], Unluckiness [-10], Workaholic [-5], or Xenophilia [-10*].

Primary Skills: Spacer (E) IQ+2 [4]-14.

Secondary Skills: Free Fall (A) DX [2]-12; Leadership (A) IQ [2]-12; Savoir-Faire (Merchant or Military) (E) IQ+1 [2]-13; Vacc Suit (A) DX [2]-12; and any *three* of Piloting (Aerospace) or Piloting (High Performance Spacecraft), both (A) DX [2]-12, Computer Operation (E) IQ+1 [2]-13, Electronics Operation (Communications), Electronics Operation (Sensors), Navigation (Hyperspace), or Navigation (Space), all (A) IQ [2]-12.

Background Skills: Administration (A) IQ-1 [1]-11; Brawling (E) DX [1]-12; Carousing (E) HT [1]-10; Guns (A) DX-1 [1]-11; and three extra points in primary or secondary skills.

* Multiplied for self-control number; see p. B120.

Starship Commander

140 points

Whether you command a tiny scout ship or a multi-kiloton battlewagon, you are the final authority on board a starship. You are one of the freest people in the Confederation – and yet, you are also deeply bound by responsibility. It's your job to make the decisions that make or break fortunes, or that mean life and death for your crewmen.

Attributes: ST 10 [0]; DX 12 [40]; IQ 13 [60]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 13 [0]; Per 13 [0]; FP 10 [0]; Basic Speed 5.5 [0]; Basic Move 5 [0].

Advantages: Either Merchant Rank 3 [15] *or* Military Rank 3 [15]; plus a total of 25 points selected from 3D Spatial Sense [10], Combat Reflexes [15], Courtesy Rank [1/level], Cultural Familiarity [1 or 2], Fit [5 or 15], G-Experience [variable], Improved G-Tolerance [5 or 10], Intuitive Admiral [10/level], Languages [variable], Mathematical Ability [10/level], more Merchant Rank [5/level] *or* Military Rank [5/level], positive Reputation [variable], above-average Status [5/level], Voice [10], or above-average Wealth [variable].

Disadvantages: A total of -30 points selected from Chummy [-5 or -10], Code of Honor (Professional) [-5], Curious [-5*], Duty [variable], Enemy (Military or commercial rival) [variable], Fanaticism (Patriot) [-15], Flashbacks [variable], Greed [-15*], Honesty [-10*], Intolerance [variable], Jealousy [-10], Lecherousness [-15*], Miserliness [-10*], Nightmares [-5*], No Sense of Humor [-10], Overconfidence [-5*], Sense of Duty [-2 to -20], Squeamish [-10*], Stubbornness [-5*], Trickster [-15*], Unluckiness [-10], Workaholic [-5], or Xenophilia [-10*].

Primary Skills: Spacer (E) IQ+2 [4]-15.

Secondary Skills: Administration (A) IQ [2]-13; Free Fall (A) DX [2]-12; Leadership (A) IQ [2]-13; Savoir-Faire (Merchant or Military) (E) IQ+1 [2]-14; Shiphandling (H) IQ-1 [2]-12; Vacc Suit (A) DX [2]-12; and any *four* of Piloting (Aerospace) or Piloting (High Performance Spacecraft), both (A) DX [2]-12, Computer Operation or Savoir-Faire (Servant), both (E) IQ+1 [2]-14, Electronics Operation (Communications), Electronics Operation (Sensors), Freight Handling, Navigation (Hyperspace), or Navigation (Space), all (A) IQ [2]-13, or Strategy (Space) (H) IQ-1 [2]-12.

Background Skills: Brawling (E) DX [1]-12; Carousing (E) HT [1]-10; Guns (A) DX-1 [1]-11; and three extra points in primary or secondary skills.

* Multiplied for self-control number; see p. B120.

Starship Deckhand

80 points

Every starship is a technological miracle, but even so it requires plenty of skilled labor to stay in operation. You are a "deckhand," one of the general-service crewmen who keep any ship running. You perform routine maintenance, do damage control in battle, help handle freight, and assist passengers. You may not be high in the social hierarchy of merchant service, but you are still a necessary part of starship life.

Attributes: ST 10 [0]; DX 11 [20]; IQ 12 [40]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 12 [0]; Per 12 [0]; FP 10 [0]; Basic Speed 5.25 [0]; Basic Move 5 [0].

Advantages: A total of 30 points selected from 3D Spatial Sense [10], Combat Reflexes [15], Courtesy Rank [1/level], Cultural Familiarity [1 or 2], Fit [5 or 15], G-Experience [variable], Improved G-Tolerance [5 or 10], Intuitive Admiral [10/level], Languages [variable], Mathematical Ability [10/level], Merchant Rank [5/level] *or* Military Rank [5/level], positive Reputation [variable], above-average Status [5/level], Voice [10], or above-average Wealth [variable].

Disadvantages: A total of -30 points selected from Chummy [-5 or -10], Code of Honor (Professional) [-5], Curious [-5*], Duty [variable], Enemy (Military or commercial rival) [variable], Fanaticism (Patriot) [-15], Flashbacks [variable], Greed [-15*], Honesty [-10*], Intolerance [variable], Jealousy [-10], Lecherousness [-15*], Miserliness [-10*], Nightmares [-5*], No Sense of Humor [-10], Overconfidence [-5*], Sense of Duty [-2 to -20], Squeamish [-10*], Stubbornness [-5*], Trickster [-15*], Unluckiness [-10], Workaholic [-5], or Xenophilia [-10*].

Primary Skills: Spacer (E) IQ+2 [4]-14.

Secondary Skills: Free Fall (A) DX [2]-11; Savoir-Faire (Merchant or Military) (E) IQ+1 [2]-13; Vacc Suit (A) DX [2]-11; and any *three* of Brawling, Gunnery (any), or Guns (any), all (E) DX+1 [2]-12, First Aid or Housekeeping, both (E) IQ+1 [2]-13, Piloting (Aerospace) or Piloting (High Performance Spacecraft), both (A) DX [2]-11, Computer Operation or Savoir-Faire (Servant), both (E) IQ+1 [2]-13, or Cooking, Electronics Operation (Communications), Electronics Operation (Sensors), or Freight Handling, all (A) IQ [2]-12.

Background Skills: Administration (A) IQ-1 [1]-11; Carousing (E) HT [1]-10; and two extra points in primary or secondary skills.

* Multiplied for self-control number; see p. B120.

Starship Engineer

100 points

The captain and the bridge officers may run the ship, the other crewmen have their jobs and do them well, but *you* are the one who makes sure she keeps going – even after someone else blows holes in her. You may be underpaid and underappreciated, but you're the most important member of the crew, and in crisis time everyone remembers it.

Attributes: ST 10 [0]; DX 11 [20]; IQ 13 [60]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 13 [0]; Per 13 [0]; FP 10 [0]; Basic Speed 5.25 [0]; Basic Move 5 [0].

Advantages: A total of 25 points selected from 3D Spatial Sense [10], Artificer [10/level], Combat Reflexes [15], Courtesy Rank [1/level], Cultural Familiarity [1 or 2], Fit [5 or 15], G-Experience [variable], Gizmos [5/gizmo], High Manual Dexterity [5/level], Improved G-Tolerance [5 or 10], Intuitive Admiral [10/level], Languages [variable], Mathematical Ability [10/level], Merchant Rank [5/level] *or* Military Rank [5/level], positive Reputation [variable], above-average Status [5/level], Voice [10], or above-average Wealth [variable].

Disadvantages: A total of -30 points selected from Chummy [-5 or -10], Code of Honor (Professional) [-5], Curious [-5*], Duty [variable], Enemy (Military or commercial rival) [variable], Fanaticism (Patriot) [-15], Flashbacks [variable], Greed [-15*], Honesty [-10*], Intolerance [variable], Jealousy [-10], Lecherousness [-15*], Miserliness [-10*], Nightmares [-5*], No Sense of Humor [-10], Overconfidence [-5*], Sense of Duty [-2 to -20], Squeamish [-10*], Stubbornness [-5*], Trickster [-15*], Unluckiness [-10], Workaholic [-5], or Xenophilia [-10*].

Primary Skills: Spacer (E) IQ+2 [4]-15.

Secondary Skills: Computer Operation (E) IQ+1 [2]-14; Free Fall (A) DX [2]-11; Vacc Suit (A) DX [2]-11; and any *four* of Armoury (Heavy Weapons), Armoury (Vehicular Armor), Electrician, Electronics Repair (Communications), Electronics Repair (Computers), Electronics Repair (Medical), Electronics Repair (Sensors), Machinist, Mechanic (Aerospace Craft), Mechanic (High Performance Spacecraft), Mechanic (Jump Drive), all (A) IQ [2]-13, or Computer Programming or Engineer (Starships), both (H) IQ-1 [2]-12.

Background Skills: Administration (A) IQ-1 [1]-11; Carousing (E) HT [1]-10; Guns (any) (E) DX [1]-11; Savoir-Faire (Merchant or Military) (E) IQ [1]-13; and three extra points in primary or secondary skills.

* Multiplied for self-control number; see p. B120.

Jobs

The GM and players should feel free to define jobs for their own ***Interstellar Wars*** game, applying the rules found on pp. B516-518. Some suggested jobs are described here.

Corporate Official

Many business managers or executives spend at least part of their time adventuring, especially if their business takes them to the colonial frontier or into Imperial space. The *Bureaucrat* or *Capitalist* templates are most appropriate for this job.

Prerequisites: Corporate officials need Accounting, Administration, Leadership, and Merchant, all at 12+. They also need Merchant Rank 2+.

Job Roll: Roll against the *best* prerequisite skill held. A critical success will add a 10% bonus to the base pay scale described below, while a critical failure will impose a 10% penalty. Critical successes and failures do not normally cause changes in Merchant Rank.

Salary: The monthly salary paid varies from employer to employer. A typical corporation might pay $1,200 + ($1,800 × Merchant Rank) + ($600 × best prerequisite skill) for Merchant Rank 2-5, and $12,000 + ($18,000 × Merchant Rank) + ($6,000 × best prerequisite skill) for Merchant Rank 6+.

Wealth Level: Assuming typical pay scales and levels of the best prerequisite skill, a corporate official's job is Comfortable for Merchant Rank 2-3, Wealthy for Merchant Rank 4-5, Very Wealthy for Merchant Rank 6-8, and Filthy Rich for Merchant Rank 9+.

Government Official

Many government officials spend time on the colonial frontier, or otherwise involve themselves in situations where adventures might happen. The *Bureaucrat* or *Politician* templates are most appropriate for this job.

Prerequisites: Government officials need Administration, Diplomacy, Law, and Politics, all at 12+.

Job Roll: Roll against the *best* prerequisite skill held. A critical success will sometimes lead to a promotion in Administrative Rank, which in turn affects monthly salary. Likewise, a critical failure may lead to a loss of Rank.

Salary: The monthly salary paid depends on the government or agency that employs the official. The Terran Confederation bureaucracy is fairly typical, and pays $800 + ($2,000 × Administrative Rank) + ($400 × best prerequisite skill).

Wealth Level: Assuming typical pay scales and levels of the best prerequisite skill, a government official's job is Average for Administrative Rank 0, Comfortable for Administrative Rank 1-4, and Wealthy for Administrative Rank 5+.

Scientist

From humble lab assistants to Nobel-winning scholars, scientists are often at the forefront of Terran expansion. The *Academician* and *Scientist* templates are most appropriate for this job.

Prerequisites: All scientists need Computer Operation and Research at 12+.

For any given scientist, the GM and player should choose one more skill, matching the character's scientific specialty, to be a prerequisite skill for the scientist's specific job. For ideas, refer to the lists of secondary skills for the *Academician* and *Scientist* templates. This additional prerequisite skill must also be held at 12+.

A scientist must have no negative Reputation associated with his scientific work.

Job Roll: Roll against the *best* prerequisite skill held. A critical success will sometimes lead to increases in positive Reputation, which in turn affects monthly salary. Likewise, a critical failure may lead to a loss of Reputation.

Salary: The monthly salary paid varies from employer to employer. A typical employer might pay $600 + ($300 × worst prerequisite skill) + ($1,200 for every point in positive Reputations associated with the scientist's work).

Wealth Level: Assuming typical pay scales and levels of the worst prerequisite skill, a scientist's job is Average for 0-2 points in positive Reputations, Comfortable for 3-9 points in positive Reputations, and Wealthy for 10+ points in positive Reputations. It would be extremely unusual for any scientist to have such an amazing reputation as to merit a Very Wealthy or greater income . . .

Scrounger

If all else fails, anyone in an urban area or near a starport can get a "job" working as a beggar or scrounger.

Prerequisites: Panhandling and Scrounging, both at 10+.

Job Roll: Roll against the *best* prerequisite skill.

Salary: A typical income for a scrounger is about $1,000 per month, with much of the "salary" coming in kind or in the form of stolen items. Use the freelancing rules for this job, increasing or decreasing each month's pay according to the outcome of the job roll.

Wealth Level: Poor.

Soldier

The Terran Army is a major employer – *billions* of Terran citizens have spent at least a few years in uniform. Even when a Terran adventurer is out of active service, he may find a position with one of the mercenary units that are beginning to spring up on the frontier. The *Soldier* template is associated with a job with any of these employers.

Prerequisites: All soldiers need at least Guns (Rifle) and Soldier skill. Soldiers with Military Rank 2+ need Leadership and Tactics as well. All prerequisite skills must be held at 12+.

Job Roll: Roll against the *worst* prerequisite skill held. A critical success will sometimes lead to a promotion in Military Rank, which in turn affects monthly salary. Likewise, a critical failure may lead to a loss of Rank.

Salary: The monthly salary paid varies from employer to employer. A typical mercenary unit might pay $500 + ($750 × Military Rank) + ($250 × worst prerequisite skill). The Terran Army pays $400 + ($600 × Military Rank) + ($200 × worst prerequisite skill).

Wealth Level: Assuming typical pay scales and levels of the worst prerequisite skill, a mercenary's job is Average for Military Rank 0-5 and Comfortable for Military Rank 6+. The job of a soldier in the Terran Army is usually Struggling for Military Rank 0-1, Average for Military Rank 2-7, and Comfortable for Military Rank 8+.

Starship Crewman

Starships need crewmen with a wide variety of occupational specialties. The *Starship Bridge Officer*, *Starship Commander*, *Starship Deckhand*, and *Starship Engineer* templates are the most appropriate for this set of jobs.

Prerequisites: All starship crewmen need Free Fall, Spacer, and Vacc Suit skills at 12+.

For any given crewman, the GM and player should choose *three* more skills to be prerequisites for the crewman's specific job on board. For ideas, refer to the starship-related occupational templates. Good prerequisites will usually come from the lists of primary and secondary skills in the most pertinent template for the job. If a character changes jobs, a new set of prerequisite skills should be defined. These additional prerequisite skills must also be held at 12+.

A starship crewman will also need to have sufficient Merchant or Military Rank to justify his specific job position.

Job Roll: Roll against the *best* prerequisite skill held. A critical success will sometimes lead to a promotion in Merchant or Military Rank, which in turn affects monthly salary. Likewise, a critical failure may lead to a loss of Rank.

Salary: The monthly salary paid varies from employer to employer. A typical commercial firm might pay $600 + ($900 × Merchant Rank) + ($300 × best prerequisite skill). The Terran Navy pays $500 + ($750 × Military Rank) + ($250 × best prerequisite skill).

Wealth Level: Assuming typical pay scales and levels of the best prerequisite skill, a starship crewman's job is Average for Merchant Rank 0-3 or Military Rank 0-5, and Comfortable for Merchant Rank 4+ or Military Rank 6+.

Unskilled Laborer

Anyone can find work as an unskilled laborer, especially in urban areas, near starports, or on a rapidly growing colony world.

Prerequisites: ST 10+.

Job Roll: Roll against ST. A critical success will yield a permanent 10% pay raise, while a critical failure may lead to a 10% pay cut or firing.

Salary: A typical pay rate for unskilled labor is about $2,500 per month. Use the freelancing rules for this job, increasing or decreasing each month's pay according to the outcome of the job role.

Wealth Level: Struggling.

Chapter Seven
Technology

December 24, 2169 – Gukhidda downport, in Imperial space:

Gen Christie sat at the officer's lounge table, head bent over a scatter of papers and a hand computer. Across from her, Mukhad Laragii, the Vilani navigator she had befriended in the starport watering hole, frowned with concentration.

"Perhaps I am still not understanding how to use this computer," Laragii complained. "I can find no procedure for solving the equations you describe."

Christie took the computer back from him, tapped at the keyboard, and nodded. "You're right."

Laragii sighed in frustration. "I fear you must find another way to explain, then. I do not understand the purpose of this mathematics."

"Just a moment." Christie opened the program-development environment on her computer, and began to punch furiously at the keyboard. "It's just a matter of applying a Fourier transform to this other set of functions . . ."

Christie's voice faded off as she worked, oblivious to the physical universe as she entered the world of mathematical abstraction. Laragii noticed one of her Terran crewmates, casting an indulgent smile at the navigator as he obtained food from the galley. Laragii deduced that she behaved this way often, and decided to wait patiently.

"There!" Christie exclaimed a few minutes later. "Look at this."

Laragii peered at the computer's display, mentally translating the unfamiliar Terran mathematical notation. Suddenly inspiration struck. "Yes. Yes, I see now."

"Good. Then . . ."

Laragii held up a hand. "Wait. Your computer could not solve this problem a few minutes ago. Now it can? How is this accomplished?"

Christie sat back, a puzzled look on her face. "I wrote a program to solve the problem."

"Yes? And a 'program' is what, precisely?"

She thought for a moment, struggling for words for a concept she had taken for granted since childhood. "I used a special language that the computer understands, to describe the problem and how to solve it. Once I had done that, the computer could do the work much faster than I could. That's a program."

Laragii peered at the machine. "The computer . . . ***learns****?"*

"I suppose you could say that," Christie agreed.

The Vilani navigator stared at her, his eyes alight with interest. "Tell me more."

Overview

The ***Traveller*** universe makes certain assumptions about future technology. In ***GURPS*** terms, the fundamental technologies listed in the ***Basic Set*** (see *Tech Level by Field*, p. B512) never advance any further than TL9 (or in some cases TL10). However, at TL9 a number of superscience technologies appear and begin to advance. ***Interstellar Wars*** uses TL11+ to represent advanced levels of these superscience fields, layered over the stable TL9-10 situation.

Terran Technology

Terran civilization has been in a state of rapid technological advancement for centuries. The most advanced nations on Terra first reached TL9 about 2050. After contact was established with the Vilani Imperium, Terran scientists copied more sophisticated Vilani technologies and were stimulated to develop new ones of their own. This progress caused a transition to TL10, which took place during the 2120s and 2130s. The next major set of advances, breaking through into TL11, took place in the 2230s and 2240s. By the end of the Interstellar Wars era, Terra had pushed well past the Imperial technological standard and had become the leading technological center in Charted Space.

Terran Biotechnology

In Terran society, one exception to the standard ***GURPS*** TL progression is in the area of medicine and biotechnology. Terrans were late to reach TL9 in this field, attaining it only about 2100. During the Interstellar Wars era, they never reached TL10 in medicine or biotechnology – except in the area of "uplift" of animal species, in which a number of successful experiments were made in the 22nd and 23rd centuries.

Terran medical technology, as it affects aging rolls and medical care, should be considered TL9 throughout the Interstellar Wars era.

Terran Cybernetics

Terran society is also somewhat behind the ***GURPS*** TL progression in the area of artificial intelligence, cybernetic implants, and brain-to-machine interface. As with biotechnology and medical science, Terrans reached TL9 in cybertechnology about 2100, and never attained TL10 during the war era.

Self-aware artificial intelligence appears in the ***Traveller*** setting, but only at very high TL. Computers and robots at TL9-11 may be quite intelligent, but will not be self-aware or self-motivated. This is true even for Terran equipment.

Cybernetic implants are generally limited to *prosthetics* – artificial replacements for damaged or defective body parts. These may provide a small advantage in strength, durability, or capability when compared to the original organ, but prosthetics that provide a large enhancement in performance are quite rare.

Neural interfaces, which permit a Human to operate machines through a direct connection to the nervous system, are possible but rare. Direct brain-computer interfaces are not possible under current Terran technology. At most, a hideously expensive experimental interface might connect to an operator's senses and peripheral nerves, giving him a particularly vivid form of "virtual reality" experience.

Imperial Technology

In contrast to the Terrans, the Vilani were technologically stagnant throughout the Interstellar Wars era. They had attained early TL10 as early as 900 BC, they were still at TL10 when the new *Ziru Sirka* put an end to all technological innovation about 500 AD, and they remained at that level when they came into contact with Terra.

Over the centuries, Imperial technology *matured* rather than advanced. New techniques were not discovered – instead, familiar techniques were slowly honed to the highest possible level of reliability and sophistication. The result was *Imperial Standard Technology*, a vast array of well-defined techniques and manufactured items. The Imperial Standard included specifications and plans for everything, from a tenth-solar penlight up to a billion-solar warship, from the proper method for applying *merdesh* paint up to the definition of elaborate telecommunications protocols.

Poor or backward worlds could not *use* all of the Imperial Standard. Knowing how to build a given item was useless if the local infrastructure could not support the process. Besides, every item in the compilation was owned by one of the *shangarim*, which controlled its legal use and could collect licensing fees. Still, the Standard was consistent throughout Imperial space, giving every Imperial world the same potential technological base.

Imperial Biotechnology and Cybernetics

The primitive Vilani were not entirely uninterested in biological science. Most food items had to be extensively processed before they could be eaten, a requirement that encouraged the shugilii caste to carefully study the plant and animal species around them. However, since native disease organisms were almost unable to affect the Human body, the Vilani were never motivated to delve deep into the biological sciences. Even today, the Vilani have only a limited understanding of cellular biology or the germ theory of disease.

The Imperial Standard Technology is at an early TL7 level for biotechnology and most areas of medical science. Through trial and error, the Vilani have developed advanced surgical techniques, including the ability to perform safe blood transfusions and some major-organ transplants. Their understanding of biochemistry is primitive, and they have not discovered the structure or role of DNA.

The Vilani can make prosthetics, especially to replace limbs or assist the natural function of some organs (auxiliary lenses for the eyes, pacemakers for the heart, and so on). True bionic replacement organs or significant enhancements are not possible.

Biotechnology and Cybernetics

Terran society is only backward in biotechnology in terms of the standard ***GURPS*** TL progression. In fact, Terran society is quite *advanced* in biotechnology and medical science when compared to the Vilani Imperium. Terran biotech and medical equipment are among the first export items to find large markets within Imperial space.

Similarly, Terran cybernetic technology is behind its expected point on the ***GURPS*** TL progression, but is well in advance of the corresponding Vilani achievements. Terran cybertech is not as well received within Vilani space, but even it finds a ready market on a few Imperial worlds.

One of the basic assumptions of the ***Traveller*** universe is that no technology advanced enough to transform the fundamental nature of human beings will ever be widely available in the game. ***Traveller*** has its roots in science fiction of the so-called "Golden Age," before the consequences of highly advanced biotechnology or cybernetics became a common theme. Hence, societies in the ***Traveller*** universe will tend to lag behind the standard ***GURPS*** TL progression in these specific areas – exactly the technologies that do have the greatest potential for changing human nature.

One *advantage* that the Vilani enjoy in medical science is access to pharmaceuticals derived from thousands of worlds. Vilani pharmacists can provide a wide variety of naturally occurring drugs, some of which have nigh-miraculous effects on the Human body. Several of these drugs are listed on p. 166.

Imperial medical technology, as it affects aging rolls and medical care, should be considered TL7 throughout the Interstellar Wars era.

Nanotechnology

The standard TL progression in ***GURPS Fourth Edition*** includes applications of nanotechnology at TL10 and above. ***Interstellar Wars*** assumes that nanotechnology is viable at high TL, but that the results are subtle, blending into the background in such a way that most people are never aware of them.

Nanotech devices ("nanites") are assumed to be very delicate and expensive, useful in certain manufacturing processes or medical treatments, but by no means ubiquitous in daily life. Nanites are also assumed to be incapable of self-replication, so they can't exist "unsupervised" or become wildly destructive. Adventurers will almost never own or use nanites themselves, and they can be assumed to be an invisible part of the background for most adventures.

Imperial Electronics

Vilani electronic systems are efficient, reliable, and cheap. They provide capabilities similar to those designed by Terrans. However, because Vilani technological development took a significantly different path millennia ago, Imperial electronic devices seem quite strange to a Terran encountering them for the first time.

The fundamental difference is that Vilani electronic devices are designed for a specific task, and are not easily applied to any other task. Even Vilani computers are not flexible machines – each computer is "hard-wired" for a specific kind of calculation or data manipulation, and can't be reprogrammed to perform any other job. This fact makes the relationship between a Vilani and his machines quite different from that between a Terran and his.

For example, a Terran starship might have a central mainframe computer, which performs all the routine computation on board, provides entertainment media to the crew and passengers, and can be reprogrammed to handle any new tasks that might arise. Within the limits imposed by onboard security, any crewman can access any of the computer's functions through any terminal. The starship crew almost certainly includes one or more people skilled in computer programming that can easily redirect the mainframe's resources as needed.

In contrast, a Vilani starship has a computer dedicated to computing jump coordinates, another computer dedicated to processing sensor data, a third dedicated to handling on-board communications, a fourth dedicated to gunnery control, and so on. Each of these computers, by itself, is at least as effective and reliable for its task as the Terran mainframe. However, the various computers are separate devices, which might not even be networked together. A crewman who knows how to operate one computer might have no idea how to operate a different one. If any truly new task arises that requires massive computational power, the crew is out of luck; none of the existing ship's computers can be rebuilt to handle the new task without an almost complete redesign (which no one on board knows how to do).

Another example: almost every Terran owns a personal computer, which can easily be connected to the local planetary network. Using this computer, he can speak or send a text message to anyone else on the network, skim the news, download books or music, manage his finances, play games, process images or scientific data, or perform any of a thousand other tasks. Every program he runs is infinitely customizable, permitting him to fit his experience to his own individual tastes. The only limit is the programmable capacity of his computer and the availability of software.

Almost every Vilani also owns a household computer. Using this device, he can speak or send text messages to anyone else on the same planet, but the messages are always presented the same way, and they can only be sent using predefined protocols. He can skim the news, but only the news that the single planetary news service provides, and only in the format the service chooses to present. He can download entertainment from the available broadcast services, but only what those services choose to make available to him. If he wishes to play electronic games, he will have to buy additional devices to play them on – possibly one device per game. If he needs to process images or scientific data in the course of his job, his employer will provide him with yet another device on which that can be done. The Vilani can customize his interactions with the machines to a certain extent, but he is always forced to choose items from a predefined menu; he can never rebuild his tools to suit his personal taste.

In short, although the Vilani citizen has access to very sophisticated electronics, the way in which he interacts with his devices is very rigid and inflexible. Vilani who come into contact with Terran electronics are often extremely attracted to them, if they are able to appreciate their sheer flexibility. Of course, they can also get into serious trouble with the Imperial authorities for owning or using such devices!

Vilani computers, sensors, communicators, and other electronic devices are all considered to be at TL(6+4), roughly equivalent to Terran TL10 but based on completely different principles. The major exception is in the area of *robotics*, where the Imperial Standard is limited to about TL(6+1), or equivalent to Terran TL7. Vilani use crude, single-purpose industrial robots, but they do not build general-purpose robots, nor do they produce computers with any degree of self-programming ability.

Personal Gear

The following lists of gear build on the ***Basic Set***, adding items and rules specific to the ***Traveller*** universe. With certain exceptions listed below, anything in Chapter 8 of the ***Basic Set*** is available.

Armor and Protective Gear

The lists of armor and protective equipment found in the ***Basic Set*** (pp. B282-287) are adequate for the ***Interstellar Wars*** setting. The Imperium does not use "battlesuits" (powered armor), but the Terran Confederation begins to use them after reaching TL11. Use the Battlesuit from the table on p. B285, adjusting its DR for TL11 as indicated in the notes.

Communications

All communications equipment listed here uses the rules referenced under *Communicators*, p. B471.

Communicator, Short Range (TL8): A small two-way radio, often built into a helmet or worn on a belt. The standard model has a base range of 10 miles. $100, negligible weight, 15 days. Can be disguised in an earring, wristwatch, or other small accessory for +50% cost.

Communicator, Medium Range (TL8): A palm-sized radio, with a base range of 100 miles. $200, 1 lb., 15 days. A video display is available at double cost.

Communicator, Long Range (TL8): A book-sized or backpack unit, with a base range of 1,000 miles. Capable of reaching ships in low planetary orbit. $500, 10 lbs., 4 days. A video display is available for an extra $100.

Com Scrambler (TL8): Attached to any communicator, scrambles messages so that only another scrambler with the same cryptologic key can decode the transmission. An eavesdropper with access to a Terran mainframe (or better) computer *might* be able to decode the transmission with a Cryptography skill roll. $500, negligible weight, draws negligible power from the attached communicator.

Digital Camera (TL8): Takes full-color still or motion pictures, recording them on a computer disk. $500, 2 lbs., 4 days.

Computers

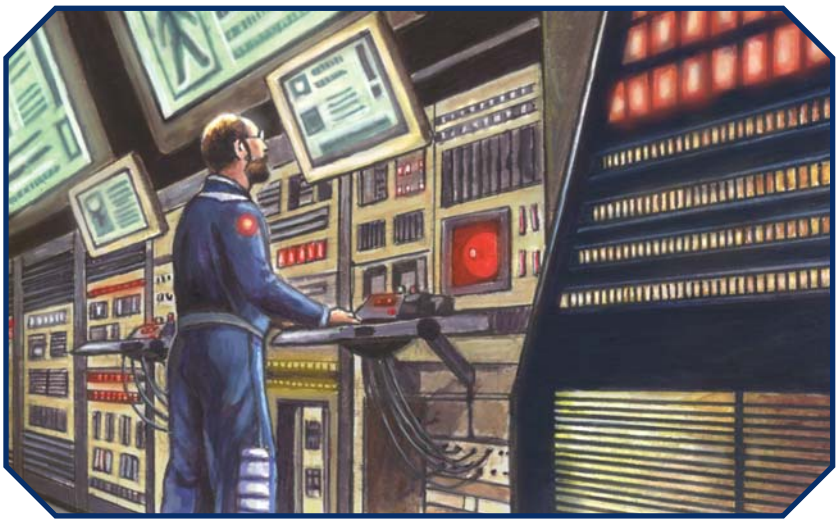
Computers come in a bewildering variety during the Interstellar Wars era, from the small hand-carried devices used by many Terrans as personal data assistants, to the powerful mainframes used to run Terran starships, to the myriad single-purpose machines produced by strange Vilani technology. Computers use the rules found on p. B472.

Cheap: The computer is less sophisticated than usual, and is therefore much cheaper. This option can be used to describe older hardware.

Compact: The computer is substantially reduced in size and weight, but is much more expensive as a result.

Dedicated (Imperial Required): A dedicated computer can only run a single software program, designated when the computer is built. The primary characteristic of Imperial computers is that they are *all* built with the Dedicated option.

Genius: The computer uses state-of-the-art processing technology. This greatly increases its price. Imperial computers may only use this option if they are designed to run an Expert System program (p. 164).



Computer Types

The available computers are listed in the table below. Each type's weight, cost, and Complexity are given. Computers are usually run on building or shipboard power, although Minicomputers and smaller devices can also be run from battery power (provided by a computer terminal; see p. 163).

Several options may be added to any computer to alter its capabilities. An option that is "Imperial Required" must *always* be built into Imperial computers; an option that is "Terran Only" may *never* be built into Imperial computers.

Hardened: The computer is built with optical systems, or with more sophisticated forms of hardening at TL10+. The effect is to make the computer more resistant to attacks such as electromagnetic pulses or power surges.

High Capacity: The computer's software and data storage capacity is increased by 50%. The computer can run *three* programs of its own Complexity, and so forth.

Robot Brain (Terran Only): The computer has a brain optimized to control a mobile robot. This option gives it a built-in operating system that permits it to move, control its

Computer Table

Type	*Weight*	*Cost*	*Complexity*
Mainframe	1,000	$250,000	TL-3
Microframe	100	$50,000	TL-4
Minicomputer	10	$10,000	TL-5
Small	1	$2,000	TL-6
Tiny	0.1	$400	TL-7
Options			
Cheap	×1	×0.05	-1
Compact	×0.5	×2	–
Dedicated	×0.5	×0.2	–
Genius	×1	×20	+1
Hardened	×3	×5	–
High Capacity	×1	×1.5	–
Robot Brain	×1	×1	–
Synaptic Processing	×1	×2	–

limbs (if any), run built-in equipment, process sensor information, understand orders to the limits of its IQ, and so on. The computer has an effective DX of (Complexity/2)+8 (rounded down), and an effective IQ of Complexity+3. It is programmed to obey its owner and will follow orders literally. The main drawback of this option is that it *halves* the number of programs the computer can run (one of its own Complexity, 10 of one Complexity lower, and so on).

Synaptic Processing (Terran Only – TL10): The computer is built to imitate the way an animal's brain structure works. This gives the computer a limited ability to "learn," altering its own programming in response to input. The computer gains an IQ of Complexity+4 for learning purposes, but no DX; the computer cannot learn DX-based skills. Combined with the robot brain option, this makes the computer semi-sentient, with limited initiative. However, it has no interest in anything beyond following its user's orders – it is not "self-aware." Treat this like a normal robot brain, but on that can *learn*; it has its normal DX but an IQ of Complexity+4.

The Computer Table gives the weight, cost, and Complexity of each computer type. If any options are applied, change the statistics by *all* of the factors given for the selected options. Options can only be selected once each.

Computer Terminals

The equipment described on the Computer Table above is only the *processing element* of the computer – the portion that manipulates data. Unless the computer is intended strictly for an unmanned vehicle, a battlesuit, or a robot, it should have at least one *terminal*.

A terminal includes a keyboard or touchpad, a "mouse" or other pointing device, one or more cameras, a holodisk reader, a screen or holodisplay, a printer – in short, a variety of equipment used to either provide the computer with data input or present data output to the user. Each terminal allows one person to use the computer at a time. A single terminal can be connected to multiple computers, possibly through an extensive network.

Adding a terminal to a computer does not increase its capacity in any way. If multiple users try to exceed its capacity by running more programs of a given Complexity than the computer can handle, then they will simply be unable to do so.

Terminals come in several different levels of size and complexity. GMs and players should feel free to mix and match terminals and computers. For example, a Palmtop terminal attached to a Tiny computer would be a useful "data assistant" for almost any Terran starship crewman; a Mainframe computer might be connected to *dozens* of Desktop terminals to form a science lab's computer network. Terminals have internal batteries and can support the power requirements of a computer as well as their own; they can also be run from building or shipboard power.

Palmtop Terminal (TL8): Includes a small screen and touchpad, plus a microphone and speaker for spoken interaction. Also includes a small radio modem for "wireless" connection to nearby computer networks (range about 10 yards). Internal batteries can support a Tiny computer's power requirements. $100, 0.5 pounds, 6 hours.

Desktop Terminal (TL8): Includes the full range of input and output devices, but lacks a printer or a high-quality holovisual display. Includes a small radio modem for wireless connection (range about 30 yards). Internal batteries can support a Small computer's power requirements. $500, 10 pounds, 6 hours. A compact version of the terminal (a "laptop") has half the weight but +50% cost.

Workstation Terminal (TL8): Includes the full range of input and output devices, at higher quality, plus a printer. At TL9+ it includes a high-quality holovisual display. Includes a radio modem (range about 100 yards). Internal batteries can support a Minicomputer's power requirements. This is the typical shipboard computer workstation. $1,000, 40 pounds, 6 hours.

Data Storage and Databases

A computer always has data storage capacity (for the basic data storage rules, see p. B472). A Complexity 1 computer has a base storage capacity of 100 MB; this capacity increases by a factor of 10 per level of Complexity (hence a Compexity 2 computer has a capacity of 1 GB, a Complexity 3 computer a capacity of 10 GB, and so on).

Portable data storage is in the form of *holodisks*. These are dime-sized disks that can easily be interfaced with any computer terminal. At TL9, a holodisk contains 100 GB of data; this capacity increases by a factor of 10 per TL (so a disk contains 1 TB at TL10, and 10 TB at TL11). A holodisk costs $5 and has negligible weight.

Databases store information on various subjects (see *Data Storage*, p. B472, for examples of how large various databases need to be). The cost of a database varies dramatically; a standard reference encyclopedia may be nearly free, while a database of military starship designs may be completely unavailable except to a licensed naval architect. Typical costs are $1 to $100 per GB, depending on supply and demand.

Although Imperial computers do not use *programs* in the same sense that Terran computers do, the Imperium does use holodisks and databases. The two civilizations use different protocols to store and transfer information, but translation is relatively easy and most Terran computers are able to read Imperial storage media.

Software

Software programs are purchased and run using the rules on p. B472. The cost of a given piece of software depends on the TL of purchase and the Complexity of the program, as given by the following table. Highly specialized programs may cost two to five times the value in the table; some such cases are noted below, but the GM should feel free to impose higher costs. A program designated as "Free" is available for negligible cost, as "shareware," or bundled into packages with other software.

Software Costs Table

Complexity	*Cost (TL9)*	*Cost (TL10)*	*Cost (TL11)*
1	Free	Free	Free
2	$50	Free	Free
3	$200	$50	Free
4	$1,000	$200	$50
5	$5,000	$1,000	$200
6	$20,000	$5,000	$1,000
7	$100,000	$20,000	$5,000
8	–	$100,000	$20,000
9	–	–	$100,000

Imperial computers do not use software, as such; each computer is "hardwired" to run a single program and cannot be reprogrammed. The program to be run is designated when the computer is purchased.

Accounting (TL8): Used to manipulate numbers, perform financial projections, and so on. The GM may consider this to be *required* for normal use of the Accounting or Finance skills. Complexity 2.

Damage Control (TL8): This program monitors system status throughout a starship, helping engineers diagnose damage and repair it. It gives a +2 bonus to rolls to repair ship damage. The program is Complexity 2 for a ship less than 100 dtons in size, Complexity 3 for a ship 100-999 dtons in size, Complexity 4 for a ship 1,000-9,999 dtons in size, and Complexity 5 for a ship 10,000 dtons or larger. The computer must also have an installed database of the ship's blueprints and technical specifications (1 GB, $1,000).

Datalink (TL8): This program enables any computer to link (through a cable or communicator) with another electronic device. The computer can now display data from the other device, and can be used to give instructions through the link. This is also the software used to communicate with other computers through a network. Complexity 1.

Entertainment (TL8): A full Entertainment program scans news channels, provides visual or musical entertainment, and presents computer games. Complexity 2. Entertainment databases must be available as well; 1 GB of database can include dozens of musical performances, a few movies, or a single computer game of moderate complexity.

Expert System (TL8): An Expert System program encodes the knowledge of an expert in a given field, and can assist untrained individuals to use the skill. They can be asked what-if questions, but they will not bring any new insights to a problem, and can't be used for original research or invention. Expert Systems are available for almost any skill that requires a lot of "book learning" or specialized technical knowledge (medicine, theoretical or applied science, engineering, starship systems operation, accounting or finance, wilderness survival, and so on). They are *not* available for most skills that require physical performance (most athletic or combat skills). The GM should determine whether an Expert System is available for any given skill. A basic Expert System has skill-12; it is Complexity 3 for an Easy skill, Complexity 4 for an Average skill, Complexity 5 for a Hard skill, and Complexity 6 for a Very Hard skill. Higher skill levels are available (+1 to skill for +1 Complexity).

Gunner (TL8): This program permits the ship's computer to work as a gunner. The computer has skill-12 with a Gunner program of Complexity 4, +1 to skill for every +1 to Complexity. The skill bonus is not cumulative with any bonus (or penalty) from a Targeting program – use the *lower* of the Gunner or Targeting program bonus. One copy of the Gunner program running on the ship's computers will replace one human gunner.

Internal Security (TL8): This program monitors and controls a building's or ship's security systems. It has an Electronics Operation (Security Systems) skill on its own, or can add a bonus to an operator's skill. If someone is attempting to fool security sensors, a Quick Contest of Skill in Electronics Operation (Security Systems) may be required. A Complexity 3 program has a skill of 14 or adds a +2 bonus to an operator's skill; +1 to skill and bonus for every +1 Complexity.

Interpreter (TL8): This program can translate from any language to any other language, so long as both of the appropriate language databases are on line. Written or nonverbal languages can be handled so long as the appropriate sensors and "speakers" are available. A program that can provide Broken-level translations is Complexity 3, a program capable of Accented-level translation is Complexity 4, and a program capable of Native-level translation is Complexity 5. Language databases are usually 1 GB, $1,000.

Jump Navigation (TL9): This program is necessary in order to use the Navigation (Hyperspace) skill. It comes in several levels, depending on the range of the jump to be performed. A Jump-0 program is Complexity 4, a Jump-1 program is Complexity 5, a Jump-2 program is Complexity 6, and a Jump-3 program is Complexity 7.

Jump Planning (TL9): This is not a program, but a database; it includes pre-computed values for many of the parameters necessary to plot a jump

Example of Computer Design: Imperial Expert Systems

Most Terrans are accustomed to carrying a flexible personal computer around, and have heard that Imperials don't enjoy such a technological amenity. When they first encounter Vilani technicians, they're often surprised to see them carrying around small devices, very similar in appearance to the Terran "perscomp."

In fact, many Vilani carry a small personal device, dedicated to running a single Expert System program (p. 164) that supports their own technical specialty. These expert systems are *very* good, if somewhat inflexible, and have been carefully refined over centuries or millennia. They embody not only the technical knowledge of Vilani civilization, but also information on who owns each piece of technology and therefore controls any further innovation affecting it.

Young Vilani, just starting out on their careers, will tend to lean on their expert systems for guidance even in the simplest technical tasks. Older, more experienced Vilani can get along without their expert systems – but they tend to continue referring to them, if only to know what "tinkering" might expose them to charges of illicit innovation. Since Imperial expert systems are so refined and extensive, they are often intelligence targets for Terran operatives, at least early in the Interstellar Wars era before Terran technology attains parity with the Imperial Standard.

Imperial expert-systems devices can support a very wide variety of skills. Two examples are described below – the GM is encouraged to design more.

Technician's Aide: This is a Small computer, designed with the Dedicated and Genius options, attached to a compact Desktop terminal. It runs a Complexity 5 Expert System program, usually providing a skill level of 13 in an Average skill such as Electrician, Electronics Repair, or Mechanic. A Technician's Aide is often issued to a new technician when he embarks on his career, and he may rely on it heavily for many years. $9,750 (including software cost), 5.5 lbs., 6 hours (when not attached to ship or building power).

Administrator's Aide: This is a Minicomputer, designed with the Dedicated and Genius options, attached to a normal Workstation terminal. It runs a Complexity 6 Expert System program, usually providing a skill level of 14 in an Average skill such as Administration or Merchant, or a skill level of 13 in a Hard skill such as Accounting or Law. Many low-level or mid-level administrators in Imperial society make use of an Administrator's Aide. $46,000 (including software cost), 45 lbs., 6 hours (when not attached to ship or building power).

between a specific pair of star systems. If an appropriate Jump Planning database is available, the Navigation (Hyperspace) skill roll to plot the jump safely is at +4. Imperial navigators *always* use Jump Planning databases. Terran navigators use them for added safety but are often willing to do without. Jump Planning databases are sometimes called "jump tapes," although they are stored on holodisks like any other database. A Jump Planning database is 100 GB in size, and normally costs $1,000. Databases for most destinations within three to four parsecs can usually be bought at any Class C or better starport.

Personality Simulation (Terran Only – TL10): This program lets the computer simulate emotions, quirks, and so on, and also permits the use of highly idiomatic speech. In a robot, it can also simulate gestures and physical mannerisms. It can be programmed with a specific personality (even duplicating a real or fictional person) or left to develop its own (generally based on those around it). A simulation good enough to seem "real" to those interacting with it for long periods is Complexity 5, while a simulation of near-Human depth of personality is Complexity 6.

Routine Vehicle Operation (TL8): This program enables the computer to control a vehicle for *routine* travel – no combat driving or dangerous maneuvers. A program with effective Driving or Piloting skill of 12 is Complexity 2; +1 skill for +1 Complexity. The vehicle must have been designed for computer control and must be fitted with the appropriate electronic sensors.

Targeting (TL8): A starship gunner may use this program to predict target positions and aim heavy weaponry. The program can be purchased at any desired Complexity, and grants a bonus (or penalty) to Gunner skill equal to Complexity-5. Firing a starship's weapons without a Targeting program imposes a -6 penalty to Gunner skill. One copy of this program must be running on ship's computers for each gunner.

Technical Reference (TL8): This program serves as a design system and diagnostic tool for a single technical skill (such as Armoury, Electrician, Electronics Repair, Engineer, Machinist, or Mechanic). It grants a +2 to any skill roll to design or repair a piece of equipment using the supported skill. Complexity 3.

Word Processing (TL8): A complete, state-of-the-art desktop publishing system, used to create and manipulate text and image files. Complexity 2.

Medical Equipment and Care

Physicians use the rules from the ***Basic Set*** to determine how effective they are (see *Recovery*, p. B423). Throughout the Interstellar Wars era, Terran physicians are considered to be working at TL9. Vilani physicians are considered to be at TL7, *but* they have access to all the unusual drugs listed below, and they know how to use them. As a result, they can often obtain more impressive results than their technical base might suggest.

Available Drugs

The following are examples of the kind of "miracle drugs" that are available in the Imperium (or, via trade, in Terran space). The GM should feel free to design more, using the rules on p. B425.

Gakinisharra: Used to treat the sleep-deprivation syndrome suffered by the Anakundu race (p. 80), this drug can also be used to counteract insomnia and other sleep disorders. It is very effective, non-habit-forming, cheap, and widely available everywhere in Imperial space. *Gakinisharra* cancels up to three levels of Less Sleep, and also gives a +2 to HT when making a roll to avoid an episode of the Insomniac disadvantage. It is taken as a pill, with a dose lasting one day; multiple doses have no added effect. LC 4, cost per dose $10.

Kash: Simply called "fast," this substance triggers a kind of hibernation state in Humans. Many Vilani use it as a short-term substitute for the risky process of suspended animation. Upon taking the drug, the patient immediately falls into a deathlike trance, during which he is considered to have Metabolism Control 5. He uses only half as much oxygen as usual, and the effects of starvation and dehydration take 32 times as long to harm him – thus, after 10 days under the drug, the patient will only feel the effects of one missed meal or about eight hours without water. The drug is administered as a contact agent, usually in the form of a patch, with each dose lasting a week. Multiple doses have no additional effect, so if a patient is to remain in hibernation someone must be present to apply a new patch on a regular basis. LC 3, cost per dose $2,000.

Kulikasu: The "physician's friend," this drug was discovered early in Vilani history and is presently used all over Imperial space. The patient must make a roll against HT-6 or fall unconscious until the drug wears off. While under the influence of the drug, the patient loses the Slow Healing disadvantage and acquires Regeneration (Regular). The drug is administered as an injection, with each dose lasting (25 – HT)/4 hours; multiple doses extend the effect but also multiply the penalty to the HT roll to retain consciousness. LC 3, cost per dose $300.

Sharaddun: This drug is often used by Vilani soldiers in combat, and has appeared on the Terran black market. While under the influence of the drug, the user acquires the Enhanced Time Sense advantage. At the end of the drug's period of effect, he must make a HT-4 roll or take 1d FP and 1d HP. The drug is administered as an injection, with each dose lasting (25 – HT) minutes; multiple doses extend the effect, but the fatigue and hit points lost must be determined for *each* dose. LC 1, cost per dose $1,000.

Urshaggim: Another "combat drug" often used by Vilani soldiers, this drug provides a +1 bonus to ST, DX, and HT for the duration of its effect. At the end of the drug's period of effect, the user must make a HT-4 roll (using his unmodified HT) or take 1d HP. The drug is administered as an injection, with each dose lasting (25 – HT) minutes; multiple doses extend the effect, but the hit points lost must be determined for *each* dose. LC 1, cost per dose $1,000.

Ushkiirga: This anti-bacterial agent is sometimes called the "ultimate antibiotic" by Terran physicians. It not only attacks bacterial infections directly, but it also bolsters the Human immune system and improves resistance even against viral diseases. It provides a +8 bonus to all HT rolls to resist infection or infectious disease. It is administered by injection, with each dose lasting (25 – HT)/4 hours; multiple doses extend the effect. LC 3, cost per dose $250.

Suspended Animation

Imperial and Terran scientists have independently developed ways to suspend Human metabolism for long periods. The process is fairly cheap, but it requires bulky equipment and the care of a skilled physician. The necessary "low berth" equipment is most often found on large-scale passenger transports, lifeboats, and Terran slower-than-light colony ships.

Entering a low berth requires five minutes, or twice as long without assistance. A low berth can be set to

revive its occupant at any fixed time, or when it receives a signal from a linked computer that is programmed to recognize certain external conditions. Revival takes 15 minutes. Success is automatic if the revival process is monitored by someone with Electronics Operation (Medical) skill at 10 or better. Otherwise, roll against HT+6; the patient dies on a failure or critical failure. One person can only monitor four revivals at a time.

Low berths become available at TL9. Throughout the Interstellar Wars era, one low berth (with space for a single passenger) takes up 250 cubic feet, weighs 2 tons, and costs $50,000. A low berth requires an uninterrupted source of power, usually from a city power grid or a ship's power plant. Internal batteries can maintain service for about one day.

Sensors and Scientific Equipment

Atmosphere Tester (TL8): A simplified chemsniffer that tests the atmosphere and displays the composition using a digital readout. A light glows red if the atmosphere is unbreathable for Humans, or green if it is safe. Exotic chemical or biological contaminants may be beyond the tester's ability to assess (use a chemsniffer for these). $400, 1 lb., 3 weeks.

Biosniffer (TL10): An advanced chemsniffer that can recognize and analyze evidence of biological organisms. The biosniffer could determine what type of life forms had previously occupied an area by picking up characteristic molecules produced by their exhalation, skin flakes, and so on. It could then compare them to a database included in the device's computer, helping the user track specific organisms or species. Range is five yards. Previously unknown life forms will impose a penalty to the Electronics Operation (Sensors) roll to successfully use the device. $2,000, 2 lbs., 2 weeks.

Chemsniffer (TL8): Analyzes chemical traces in the atmosphere. Can be used to determine atmospheric composition in greater detail than is available from a standard atmosphere tester. It can also locate contaminants, drugs, explosives, and so on. Range is 5 yards. $700, 2 lbs., 2 weeks.

Densitometer (TL11): This gadget uses gravitic-imaging technology to map the interiors of objects at a range of up to 500 yards. It can also be used to locate water, ores, or other items underground. A clear scan requires one second per 27 cubic feet of volume scanned. When an object has been scanned, the data is stored on standard computer media can be used to produce "cutaway" views of the object. $15,000, 20 lbs., 5 minutes.

Inertial Compass (TL8): Small device that indicates direction and distance traveled from any preset point on a planet, accurate to within a yard per 1,000 miles. Must be calibrated for the planet (takes one hour and a Navigation or Electronics Operation (Sensors) roll). Can be tied into a planet's geolocation satellite system for greater accuracy. $250, 1 lb., 3 weeks.

Survival Gear

Air Mask (TL7): A face mask and air hose. Used on worlds with unbreathable but otherwise harmless atmospheres. If the atmosphere lacks enough oxygen (or has too much) then air tanks are also required, while if it has enough atmosphere but is contaminated or tainted, a filter (but no tanks) is required. $100, 2 lbs. For another $50, add a mini-tank with 10 minutes of air.

Air Tank (TL7): Stores two hours' worth of air. Usable with vacc suits, air masks, sealed armor, and so on. Multiple tanks can be worn. Each tank is $100, 10 lbs. An advanced rebreather (TL8, $200, 1 lb.) added breathing gear multiplies tank duration by 10.

Filter (TL8): Used with any air mask or respirator, a filter allows contaminated air to be breathed without resorting to air tanks. The filter media require replacement every 48 hours. $200, 1 lb. for CBR-rated filter usable against chemical agents, bioweapons, or radiation fallout; $100 for a filter rated only for things like pollution, volcanic fumes, or pollen. Replacement filter media: $40 for CBR-rated, $10 otherwise, 1/4 lbs. Note that to protect against contact agents like nerve gas or bioweapons, a sealed suit will also be necessary.

Pressure Tent (TL8): An airtight tent strong enough to be inflated to one atmosphere in a vacuum. Opening it completely evacuates the air; entering or leaving through the one-man airlock takes a minute. $500, 15 lbs. for a one-man tent; $1,500, 30 lbs. for a two-man tent; $5,000 and 150 lbs. for an eight-man tent.

Respirator (TL9): Makes Thin and Very Thin atmospheres safely breathable. Includes protective goggles and a short-range communicator. $300, 3 lbs., 36 hours.

Reducing Respirator (TL9): Makes Dense and Very Dense atmospheres safely breathable. Includes a short-range communicator. $500, 5 lbs., 36 hours. Requires a chemical recharge every two weeks, costing $50.

Rescue Ball (TL8): This is a book-sized package that inflates into an airtight bubble with a self-sealing flap. It can be inflated in four seconds and holds 15 minutes of air (more if the user carries an air tank). It floats, and is flexible enough to move in (Move 1). A rescue ball is easy for even an untrained individual to use, so many merchant vessels issue them to passengers instead of vacc suits. $800, 5 lbs.

Personal Reentry Kit (TL8): A foamed ablative heat shield, chemical thruster, and parachute allows an individual in a sealed suit (such as a vacc suit or battle dress) to re-enter a planetary atmosphere from low orbit. Safe re-entry requires successful Free Fall and Parachuting skill rolls. $15,000, 30 lbs.

Weapons

The lists of melee and ranged weapons found in the ***Basic Set*** (pp. B267-281) are adequate for the ***Interstellar Wars*** setting. "Blaster" weapons are not available, even at TL11. Beam weapons in the ***Traveller*** universe are usually designed so that the power supply can be carried or worn separately from the working portion of the weapon. The power pack is normally worn on the belt or back, with a sturdy cable running to the weapon. Imperial forces tend to use "slugthrower" weapons, especially the TL9 autopistol and the TL10 Gauss rifle. Terran soldiers follow suit, although at TL10+ Terran forces often use laser weapons as well.

Vehicles

"Grav vehicles" are the main transportation of a high-technology society, replacing almost all other vehicle types except in specialized applications. All gravitic vehicles are controlled using Piloting (Contragravity) skill. There are three grav-vehicle configurations in common use: air/rafts, speeders, and G-carriers. Each of these has an "Imperial Standard" type, which is the most common model manufactured in Imperial space. Various Terran manufacturers also produce varying grav-vehicle models.

Air/Rafts

An "air/raft" is the gravitic equivalent of the personal ground car. They are slow, and can become rather difficult to handle in high or turbulent winds. They are open-topped, and can be covered with a cloth or plastic canopy, but cannot be sealed against vacuum. Air/rafts can be used for surface-to-low-orbit flights, although the trip can take several hours and requires that the passengers wear vacc suits. A standard air/raft has a capacity of one driver, three to five passengers, and four tons of cargo. Air/rafts are often carried by small starships as auxiliary craft; they take up four dtons of space in a vehicle bay or hangar.

Speeders

Speeders are large, overpowered gravitic vehicles, sacrificing passenger and cargo space for streamlining and speed. They are sealed against high winds and vacuum, and can easily be used for surface-to-orbit travel. A standard speeder can carry a driver, one passenger, and up to 200 pounds of cargo. They are sometimes carried by starships as auxiliary craft, although their lack of cargo capacity makes them unpopular in this role. They take up six dtons of space in a vehicle bay or hangar.

G-Carriers

G-Carriers are heavy cargo vehicles, with handling characteristics similar to those of a large air/raft. They are usually designed for light troop transport duties, carrying heavier armor and often mounting a light infantry-support weapon in an open gun mount. They are sealed, but are too slow for travel beyond low planetary orbit. A standard G-Carrier can carry a driver, a gunner, and up to 12 passengers, with two tons of cargo. G-Carriers are sometimes carried by military starships as auxiliary craft; they take up eight dtons of space in a vehicle bay or hangar.

Grav Vehicle Table

TL	Vehicle	ST/HP	Hnd/SR	HT	Move	LWt.	Load	SM	Occ.	DR	Range	Cost	Loc.	Stall
9	General Gravitics													
	Air/Raft	57	+3/2	10	1/25	5.9	4.9	+3	1+3	15	–	$400,000	O	0
10	Imperial													
	Standard Air/Raft	50	+3/3	12	1/30	5.4	4.4	+3	1+3	16	–	$600,000	O	0
10	Hill & Masterson													
	Phoenix Air/Raft	53	+3/3	11	1/30	5.8	4.6	+3	1+5	18	–	$560,000	O	0
10	Kaufmann													
	Diamond Air/Raft	50	+4/3	11	1/40	5.4	4.4	+3	1+3	16	–	$700,000		
11	Hill & Masterson													
	Phoenix II Air/Raft	53	+3/3	11	2/40	5.8	4.6	+3	1+5	22	–	$630,000	O	0
10	Imperial													
	Standard Speeder	57	+4/2	12	10/300	1.8	0.3	+4	1+1	12	–	$1 million	–	0
10	Hill & Masterson													
	Thunderbird Speeder	57	+4/2	11	10/300	2.0	0.5	+4	1+1	10	–	$1 million	–	0
10	Kaufmann													
	Sapphire Speeder	57	+4/3	11	12/360	1.8	0.3	+4	1+1	12	–	$1.2 million	–	0
11	Hellenic Industries													
	OTV Speeder	57	+4/2	11	16/400	1.8	0.3	+4	1+1	16	–	$1.5 million	–	0
9	General Gravitics													
	Heavy Cargo Carrier	72	+2/3	10	1/30	9.4	3.4	+5	2+12	16	–	$750,000	X	0
10	Imperial													
	Standard G-Carrier	63	+2/4	12	1/30	7.4	3.4	+5	2+12	22	–	$1 million	X	0
10	Hill & Masterson													
	Basilisk G-Carrier	67	+2/4	11	1/30	7.4	3.4	+5	2+12	24	–	$1 million	X	0
11	Hill & Masterson													
	Basilisk II G-Carrier	72	+2/4	11	2/40	7.4	3.4	+5	2+12	28	–	$1.2 million	X	0

Chapter Eight
Starships

Wherever we want to go, we go. That's what a ship is, you know. It's not just a keel and a hull and a deck and sails . . . That's what a ship ***needs****. But what a ship* ***is*** *. . . is freedom.*
– Captain Jack Sparrow, "Pirates of the Caribbean"

The fundamental feature of ***Traveller*** is *travel*. A typical ***Traveller*** campaign touches on many worlds, with adventurers voyaging from one world to the next through space.

Starship Systems

A starship is a very complex piece of technology, composed of many component systems. Some of the most important of these systems are described here.

Maneuver Drives

Maneuver drives are devices used to propel spaceships through "normal" space from world to world. They are most often used to move between an inhabited world and a nearby point where the jump drive can be used. They are also used to move between worlds in a single solar system; this is less common, since few solar systems have more than one inhabited world. Finally, maneuver drives can be used for interstellar travel, but this is extremely rare since the distances are so long and the jump drive is a much more convenient method for crossing them.

Most civilizations begin their exploration of space using *reaction* drives, "rockets" that eject mass backward in order to propel a vehicle forward. The main drawback of such drives is that they require vast quantities of reaction mass. This makes them expensive, and strictly limits the velocities they can reach.

Fortunately a better alternative is possible. At late TL8, new drives use power to generate forward thrust without needing to burn fuel or eject reaction mass. Such *reactionless thrusters* violate the laws of physics as understood in the early 21st century, but they make cheap, convenient space travel possible. Reactionless thrusters are the standard maneuver drive used by the Imperium, Terrans, and all other known spacefaring civilizations.

The performance of a maneuver drive is most often expressed in terms of *space acceleration*, which is measured in *gravities* (G). A drive that can deliver 1 G of space acceleration can cause the ship to accelerate as if under standard Terran gravity (32 feet per second per second). Typical maneuver drives deliver between 0.5 G and 6 G.

The Jump Drive

Only one form of faster-than-light travel is available: the *jump drive*.

A jump drive works by projecting the ship through an alternate universe known as *jumpspace*. Once a starship moves to a safe distance from a world, it can activate its jump drive and enter jumpspace.

While the ship is in jumpspace, it exists inside a "bubble" of normal space maintained by the jump drive. Inside that bubble, the laws of physics remain "normal," and the ship and its inhabitants can function normally. Outside the bubble, the laws of physics are very strange – machinery and Humans that are exposed directly to jumpspace tend to malfunction.

Jump space appears to exist in multiple "levels." A jump through the first level will take the starship up to about one parsec in normal space, while a jump through the second level will take the starship up to about twice as far. Each level is reached using a significantly different *kind* of jump drive – thus a starship with two-parsec range uses different machinery (and more of it) than one with only one-parsec range. There are probably more than three levels in deep jumpspace, but no one knows how many might exist, or how to reach them.

The performance of a jump drive is expressed in terms of *jump number*. A jump drive that can cause the starship to jump up to one parsec has a jump number of *one*, and is usually described as a "jump-1" drive. Imperial starships can be designed with jump-1 or jump-2 drives. Terran starships have similar capability through the first half of the Interstellar Wars era, and later become capable of jump-3.

Technical Details

Jump drives operate most reliably at a distance from large, massive objects. Any object more massive than a given starship has the potential to disrupt the ship's drives. If the drive is actuated within 100 times the diameter of such an object, it may malfunction disastrously.

The jump drive operates along a straight line, called a *jump line*, through normal space. If the jump line intersects a 100-diameter sphere around an object larger than the ship, the ship is "precipitated out" of jumpspace, appearing in normal space near the disrupting object. It is an astrogator's job to plot a course that avoids such pitfalls. Of course, the effect prevents a ship from emerging from jumpspace within another object.

Jump navigation requires some very advanced mathematics and a great deal of computer "number crunching." Every jump is different, and a great deal of careful planning and computation has to be done before the jump drive can be turned on.

Terrans and Imperials approach the problem of jump navigation differently. Terrans compute all the details of each jump as they are needed, using highly trained navigators and powerful digital computers to do the necessary work. This makes the job of planning each jump much harder, but it also means that Terran ships can *always* plan a jump, even in unexplored space or after a previous misjump.

On the other hand, Imperial ships use a computational short-cut. If an Imperial ship is following a known travel route, it uses a *jump tape* (p. 164). A jump tape is designed for one origin-destination pair of star systems. It contains some pre-computed parameters that apply to any jump from that origin system to that destination system. Even with a jump tape, some computational work must still be done for each specific jump, but the work is much easier for the navigator. The drawback to this approach is that an Imperial ship can't jump at all without a jump tape. As a result, if an Imperial ship finds itself in unexplored space, or can't get the jump tape for a given origin-destination pair, it's stranded.

Each jump requires a quantity of liquid hydrogen. Some of this hydrogen is converted into energy in the ship's reactor, while some of it is used as reactor coolant. The rest of the fuel is expelled into jumpspace while the ship is in transit, to hold open the "bubble" of normal space that protects it. Although the term is technically inaccurate, all of this expendable hydrogen is referred to as "fuel." Jump fuel is normally consumed at the rate of 10% of the ship's displacement tonnage per parsec jumped (although some jump drives are less efficient; see p. 191). An in-system microjump requires the same amount of fuel as a one-parsec interstellar jump.

Interface Operations

One of the most difficult maneuvers any ship can undertake is to land on or take off from a world with a substantial atmosphere. Maneuver drives are very powerful and can do a great deal to overcome gravity – but passage through a thick atmosphere can itself be very dangerous. The following rules apply to any ship attempting to land on or take off from any world that has more than a Trace atmosphere.

Ships are considered to have *unstreamlined*, *streamlined*, or *airframe* hulls (see *Streamlining*, p. 189). Each type has its own maneuver profile. Landing or taking off in a substantial atmosphere requires a Piloting (Aerospace) roll. Local atmospheric conditions can modify this roll; taking off under perfect conditions might give a +2 bonus, while landing in the middle of a hurricane will give *at least* a -6 penalty!

An airframe-hull ship can actually *fly* to or from orbit, its hull generating lift so that the ship's drive doesn't have to do all the work of overcoming gravity. This will work even if the ship's space acceleration rating is lower than local gravity. The process takes only a few minutes, and requires a single Piloting (Aerospace) roll. On a failure, the takeoff or landing maneuver isn't carried out successfully; either the ship misses its designated takeoff lane, or it overshoots the landing zone and must double back. Such failures sometimes earn fines or criminal penalties, especially in crowded airspace! On a *critical* failure, the ship takes damage from buffeting or collision equal to 10% of its hit points.

A streamlined-hull ship isn't really designed for atmospheric flight, but it is capable of careful takeoff or landing, with the ship's drive doing all the work of opposing gravity. In this case, takeoff or landing is only possible if the ship's space acceleration rating is higher than local gravity. To determine the time required, divide 20 minutes by the difference between the ship's space acceleration and local surface gravity (in Gs). A Piloting (Aerospace) roll is necessary every five minutes; the results of a failed roll are as for an airframe ship.

An unstreamlined ship is not designed to move in an atmosphere at all, and any such maneuvers are very hazardous. Takeoff or landing is only possible if the ship's space acceleration rating is higher than local gravity. The time required is as for a streamlined ship, with a minimum time of 10 minutes. A Piloting (Aerospace) roll is necessary every *minute* during the maneuver. On any ordinary failure, the ship will take damage equal to 10% of its hit points; on a critical failure it will take damage equal to 1d × 10% of its hit points. Most unstreamlined ships are not designed with landing gear, so any but a very gentle landing will do more damage to the hull (GM's discretion).

Jump Operations

A successful jump requires four skill rolls on the part of a ship's crew. These four skill rolls must be made in a specific order. They can be performed by four different people, or (since they must be done one after another) by fewer than four people on a ship with a very small crew.

Attempting a jump using unrefined fuel (p. 192) is -2 to all four rolls. Attempting a jump from within 51-100 diameters of a massive object is -4, within 11-50 diameters is -8, within 10 diameters is -12.

In each case, success on the skill roll means that the operation was successful and the next stage in the process can be attempted; if all four rolls succeed, the jump takes place as planned. A simple failure on a skill roll means that the operation was unsuccessful; that task must be attempted again, at a -1 penalty per subsequent attempt, or the whole process must be started over from the beginning.

A critical failure on any of the four rolls means that a *jump mishap* may take place. Roll again. On a success, the task has experienced a simple failure, as above. On a failure, the jump mishap takes place. On a second critical failure, a *jump disaster* takes place, and the starship is completely destroyed (or simply experiences crippling damage, at the Game Master's option).

If the process of planning and executing a jump is performed under routine conditions (the ship is not under fire, the ship is well-maintained, and there are no penalties to any of the rolls) then skill rolls may not be necessary. Under such circumstances, any crewman with at least 12 in one of the requisite skills can perform the associated task, assuming success without having to make the roll.

The four skill rolls, in the required order, are as follows:

Navigation (Space) is used to locate the proper point at which the ship should enter jumpspace, and plot a course through normal space that will bring the starship to that point.

Piloting is used to maneuver the ship to the proper jump point. The Piloting specialization that is necessary depends on the performance of the starship's maneuver drives; the most likely candidate is Piloting (High-Performance Spacecraft).

Navigation (Hyperspace) is used to "plot a course" through jumpspace. The ship's navigator determines the proper setting for the jump drive controls that will bring the ship out at the desired point at the destination. If the ship is Imperial and has a jump tape for the desired origin and destination systems, then this roll is at +4. If an Imperial ship doesn't have the right jump tape, then the jump drive *cannot be used*.

Mechanic (Jump Drive) is used when the ship reaches the jump point, to activate the jump drive and make sure that it operates within the parameters defined by the Navigation (Hyperspace) skill.

Jump Mishaps

Jump drives are very temperamental machines, and can malfunction spectacularly. Although they are quite reliable when used under ideal conditions, they become less so when used under stress. Many jump-drive technicians are intensely superstitious . . .

Jump drives have several "failure modes," depending on exactly *why* a given jump failed to take place as planned.

No Jump: If a Navigation (Space) or Piloting mishap takes place, the result is "no jump" – the jump drive simply fails to operate. The process of planning and executing the jump must be resumed from the beginning.

Misexit: If a Navigation (Hyperspace) mishap takes place, the ship's navigator has planned the wrong path through jumpspace and the ship fails to return to normal space at the desired location. Roll 1d. On a 1, the ship has exited near a solitary world, comet, or odd chunk of rock in the origin star system. On a 2-3, the ship exits near a world or gas giant in the destination star system, but not the *right* world or gas giant. On a 4-6, the ship exits at a random point on the destination star's 100-diameter limit. Misexit mishaps are usually not dangerous, but they can wreak havoc with the ship's schedule (and can be inconvenient when the ship is trying to make a rendezvous).

Deep Space Jumps

The mathematics of jump navigation is much simpler when there is a large mass, a star or very massive planet, in normal space close to each end of the jump. During the Interstellar Wars era, neither Terran nor Imperial navigators are able to plan a jump that starts or ends in deep interstellar space, far away from any such massive object.

This means that the vast majority of interstellar travel *must* go from one star system to the next. The empty hexes on the maps in Chapter 5 (or on subsector maps generated using the rules in that chapter) are normally off-limits to starships using the jump drive. This means that "gaps" – regions of space containing no star systems – can be so wide as to be impassable!

Of course, interstellar space is not entirely empty. An enterprising astronomer may be able to find massive objects even in the empty hexes on the maps: rogue sunless planets, large comets, "brown dwarf" stars, and so on. Such objects could easily serve as an "anchor" for one end or the other of a jump. Terran navigators call such deep-space objects "jump points," and are willing to use them as needed. On the other hand, the Imperium has not searched for new jump points in centuries, and Imperial navigators rarely use even the ones that are known.

Deep-space jump points are not marked on the maps in this book, and there are no rules for placing them on a newly designed map. The GM should place them as he decides they're needed for his campaign. However, a GM who wishes to use jump points should be aware that they are rare, and that the discovery of a new one can change the course of an entire campaign. In particular, a jump point in the right position could permit whole fleets to move directly across three-parsec gaps – an ability that could change the whole course of the early Interstellar Wars.

Misjump: If a Mechanic (Jump Drive) mishap takes place, the jump drive undergoes a serious malfunction. Roll 1d. On a 1-2, the ship undergoes no jump, as above. On a 3-4, the ship experiences a *failed jump*; it spends a week in jumpspace, and then emerges into normal space at the exact same point from which it departed. On a 5-6, the ship experiences a *misdirected jump* and emerges from jumpspace at a point very distant from its intended destination.

Bridge Systems

A spaceship's control center is usually its *bridge*, a special compartment from which the rest of the ship's systems can be managed. Several major systems are actually centered on the bridge, notably the ship's communicators and computers.

The available bridge systems are described in Chapter 9 (p. 192). Short-range craft can have a *small cockpit* or *large cockpit*. Starships will usually have a *small bridge,* a *standard bridge*, or a *command bridge*. The type of bridge installed determines the level of performance that can be expected from communications and computer systems.

Communications Systems

All ships have several different communications systems installed. These systems operate using the rules for the Telecommunication advantage (p. B91).

Radio: Shipboard radios use the standard rules for that Telecommunication type, and normally have the Video enhancement (p. B91). A cockpit has one radio, a small bridge has two, a standard bridge has five, and a command bridge has 10. A cockpit radio's range is 250,000 miles at TL9 or 500,000 miles at TL10+. A bridge radio's range is 2.5 million miles at TL9 or 5 million miles at TL10+.

Laser: Shipboard laser communicators use the standard Telecommunication rules, with the Laser and Video enhancements. A cockpit or small bridge has one laser communicator, a standard bridge has two, and a command bridge has four. A cockpit laser's range is 500,000 miles at TL9 or 1 million miles at TL10+. A bridge laser's range is 5 million miles at TL9 or 10 million miles at TL10+.

IFF-Transponder: Every ship is required by law to install an IFF-transponder system. This system sends out an automatic identification code by radio communicator. On a civilian ship this system comes factory-sealed; it can be turned on or off, but the identification code can't be altered. Military systems can be reprogrammed to give false identities to enemy ships, or to not respond at all. Cockpits install one IFF-transponder system. Bridges install two to give a backup.

Computer Systems

Every cockpit and bridge system includes *three* identical computers for redundancy. A small cockpit or bridge installs minicomputers, with Complexity equal to TL-5. A large cockpit or standard bridge installs microframes, with Complexity equal to TL-4. A command bridge installs mainframes, with Complexity equal to TL-3.

A Terran ship installs actual digital computers, which can be reprogrammed and are accessed via computer terminals distributed around the ship. Almost every compartment includes a computer terminal – even staterooms have them – that can tap into the ship's computer to run entertainment or news software.

Imperial ships don't install centralized digital computers. Instead, every ship's system has its own dedicated computer. For simplicity's sake, an Imperial ship is treated as having the same type of computer as a Terran ship with the same type of bridge. However, an Imperial ship can't change the "programs" being run by this notional computer network.

For more rules regarding computer use, see Chapter 7 (pp. 162-165) and p. B472.

Sensor Systems

Every ship needs sensor systems to ensure that the crew is aware of its surroundings and any potential threats. All ships have a mix of *active* and *passive* sensors.

An *active* sensor directs radar and other emissions at a target, then analyzes the energy that "bounces" back in order to learn about the distance, direction, size, composition, appearance, and other aspects of the target. Active sensors use the rules for Scanning Sense (p. B81). The basic type is Radar, with the Multi-Mode and Targeting enhancements.

The ship's *passive* sensors use a combination of telescopes, cameras, and similar devices to take in whatever electromagnetic radiation is already present in the environment. Passive sensors use the rules for the Hyperspectral Vision advantage (p. B60) with the Extended High-Band and Extended Low-Band enhancements. They also have Telescopic Vision (p. B92) and Protected Sense (p. B78).

A ship's sensor systems are given a *Scan* rating, which is a measure of their range and power of resolution. The Scan rating is used during space

combat or when a ship's crew simply wishes to detect or track another object. See Chapter 10 for rules governing sensor use.

Life Support Systems

Manned ships always need elaborate systems to provide crew and passengers with clean air, potable water, food, and habitable temperatures, and to deal with biological wastes. These *life-support systems* are much more complex than most non-technicians realize; maintaining and repairing them is one of the most unpopular shipboard duties.

Interstellar Wars starships don't have total-recycling life support systems. Breathable air and water are recycled with high efficiency, but biomass is not. Ships must bring on provisions on a regular basis. Meanwhile, waste matter accumulates in the ship's life support system, and must be dumped from time to time.

Capacity

A life support system is rated for its *capacity*, the number of people that can be supported by the system for long periods of time (assuming that enough provisions are on hand).

A life support system can be overloaded if necessary. Roll 3d after each day of overloading, at +1 per full 10% by which the number of people aboard exceeds system capacity. On an adjusted roll of 13 or more, the system begins to break down, losing 10% of its *current* capacity (rounded up to the nearest full person) for each point by which the roll was exceeded. A Mechanic (High Performance Spacecraft) roll can be attempted once per day; if it succeeds, it will restore 10% of *full* capacity. Note that once the life support begins to fail, the effect snowballs. If the ship remains overloaded, life support will eventually reach 0% and fail. At that point, all the oxygen in the air will be used up within 1d hours, and everyone will die. Those in low berths are unaffected if life support fails . . . as long as the power stays on.

Short-Term Life Support

Some ship components carry short-term life support, and can keep a few crewmen or passengers alive for a matter of hours. Such systems are normally only used in emergencies or on board short-term ships (fighter craft, shuttles, and so on). Refer to the ship design rules in Chapter 9 for specifics.

Starship Operations

Operating a starship requires considerable advance planning. Some of the pertinent considerations are discussed below.

Travel Times

Many travelers, especially merchants, will want to know how long it takes to reach their destination.

Interplanetary Travel

Interplanetary distances are usually measured in thousands or millions of miles (for a world and its satellites) or *astronomical units* (for whole star systems). One astronomical unit (AU) is equal to 93 million miles, the average distance between Terra and its sun.

Spaceships usually follow a nearly straight-line course through space, accelerating halfway to their destination, then "turning over" and decelerating the rest of the way in order to match velocities with the destination upon arrival. This is the most efficient way to reach any destination in normal space, using maneuver drives as powerful as reactionless thrusters.

To determine travel time for such a journey, use this formula: Time (in hours) = 68 × [Square root of (D/A)], where D is the distance in AU, and A is the acceleration of the ship in Gs (the *sAccel* statistic generated in the ship-design sequence in Chapter 9).

For approximate values, refer to the Maneuver Drive Travel Times Table. Travel times are given in hours (h) or days (d).

Maneuver Drive Travel Times Table

Distance	*0.5 G*	*1 G*	*2 G*	*3 G*	*4 G*	*5 G*	*6 G*	*Notes*
0.001	3.0 h	2.2 h	1.5 h	1.2 h	1.1 h	1.0 h	0.9 h	Habitable world to nearby moon
0.002	4.3 h	3.0 h	2.2 h	1.8 h	1.5 h	1.4 h	1.2 h	Habitable world to distant moon
0.005	6.8 h	4.8 h	3.4 h	2.8 h	2.4 h	2.2 h	2.0 h	Habitable world 100D limit
0.01	9.6 h	6.8 h	4.8 h	3.9 h	3.4 h	3.0 h	2.8 h	Gas giant to nearby moon
0.02	14 h	9.6 h	6.8 h	5.6 h	4.8 h	4.3 h	3.9 h	
0.05	22 h	15 h	11 h	8.8 h	7.6 h	6.8 h	6.2 h	Gas giant to distant moon
0.1	30 h	22 h	15 h	12 h	11 h	9.6 h	8.8 h	Gas giant 100D limit
0.2	43 h	30 h	22 h	18 h	15 h	14 h	12 h	
0.5	68 h	48 h	34 h	28 h	24 h	22 h	20 h	
1	4.0 d	68 h	48 h	39 h	34 h	30 h	28 h	Average Terra-to-Venus distance
2	5.7 d	4.0 d	68 h	56 h	48 h	43 h	39 h	Average Terra-to-Mars distance
5	9.0 d	6.3 d	4.5 d	88 h	76 h	68 h	62 h	Average Terra-to-Jupiter distance
10	13 d	9.0 d	6.3 d	5.2 d	4.5 d	4.0 d	88 h	Average Terra-to-Saturn distance
20	18 d	13 d	9.0 d	7.3 d	6.3 d	5.7 d	5.2 d	Distance to outer gas giant worlds
50	28 d	20 d	14 d	12 d	10 d	9.0 d	8.2 d	Distance to inner cometary cloud

Interstellar Travel

The geometry of jumpspace means that a voyage through it almost always takes close to a week (168 hours, plus or minus 10%). The time spent in jump has no relation to the distance traveled in normal space; a 3-AU "microjump" and a multiple-parsec interstellar jump both take about a week.

Although the exact duration of a jump cannot be predicted, a ship can usually detect the onset of emergence a few minutes in advance. Most starships set a 168-hour "jump clock" when the jump engines are turned on, and an alarm sounds when the ship is about to emerge from jumpspace. Some starship crewmen entertain themselves by placing bets on the exact length of each jump . . .

Starship Costs

Starships are expensive pieces of equipment, beyond the means of any but the wealthiest individuals. Most starships in the ***Interstellar Wars*** game are owned by large organizations – the Imperial or Terran Navy, one of the Vilani *shangarim*, or a Terran corporation.

Financing

Most small-scale Terran starship owners purchase their ships with financial backing from larger corporations or the Confederation government. Small Imperial merchant ships, held by individuals or small groups, are subsidized by the appropriate level of the *shangarim* bureaucracy. In either case, the ship's backers expect due diligence from their active partners in pursuing agreed-upon goals, and also expect significant returns on their investment. Owners who consistently fail to meet their objectives may find their ships repossessed.

The details of such a subsidy scheme vary, but a typical arrangement is as follows.

The individual or corporation purchasing the ship must have a good reputation and a well-considered business plan. The financial backer will have goals in mind that the ship is intended to fulfill: maintaining regular contacts among colonies, developing new trade routes into the Imperium, discovering new commodities or markets, conducting astrographic surveys, collecting economic intelligence, performing as naval auxiliary in wartime, and so on. The future owners and backers negotiate until they reach an agreement on how the ship will be used and what kinds of returns are expected.

The purchaser is expected to put up a substantial fraction of his own money to demonstrate his commitment. The amount of this "down payment" varies, up to 20% of the ship's purchase price. The backers will then cover the rest of the cost. The owner's share of net profits (after expenses) is determined by multiplying their down payment by a factor (typically ×4) to represent the active risks they run in operating the ship, and dividing the result by the ship's purchase price. The backers receive the remainder. After a specified period (generally 30 years), full title reverts to the owner, who then retains all of the profits for himself.

For example, a brand-new *Lightning*-class merchant ship costs $250 million out of the shipyard. If the purchaser of such a ship put up $5 million, his share of the profits would be $5 million times 4, divided by $250 million, or 8%. His backers would keep the remaining 92% of net profits.

Maintenance

Starships require constant routine maintenance. Members of the engineering, maintenance, and life support crew sections (p. 196) spend most of their time performing this maintenance. The expected size of these crew sections, as defined in Chapter 9, indicates the amount of maintenance that must normally be performed. Each member of these crew sections is assumed to provide

Sublight Interstellar Travel

Since reactionless thrusters require no fuel, they can be run for long periods of time without interruption. After several months of constant acceleration, a starship can reach a significant fraction of the speed of light – making *interstellar* travel feasible even without using the jump drive.

During the Interstellar Wars, this kind of travel is used on a number of occasions. Terran colony ships use slower-than-light (STL) travel to cross wide "rifts," in which no stars are available to serve as jump points. Other colony ships use STL simply to *hide*, fleeing for distant regions of the galaxy where the Imperium will never find them. The Vilani are not interested in colonization, but the occasional Imperial ship often has to limp home through normal space after being stranded by a misjump or by jump-drive damage.

The usual procedure for STL interstellar travel is for the ship to accelerate at maximum drive capacity until reaching about 0.8 *c* (where *c* is the speed of light, about 186,000 miles per second). This takes about two months for the fastest warships, or between 18 and 24 months for slow merchant vessels and colony ships. Although reactionless thrusters work at even higher velocities, 0.8 *c* is the highest *safe* speed – any faster, and even a heavily armored vessel faces too much risk from interstellar debris and hard radiation.

At this "interstellar cruising speed," a ship takes about four years to travel a single parsec (one hex on the standard subsector maps). The ship shuts down its drives and coasts through interstellar space, only beginning to decelerate when it approaches the target star.

A ship in such a situation usually faces some risk due to the inability to perform annual maintenance at a shipyard (p. 175). Still, a ship has a fair chance of completing an interstellar journey safely if it is in good condition and is well-maintained and well-provisioned to begin with. The most common problem is crew dissatisfaction, much of it arising from simple *boredom*. Many starship crews who are faced with unplanned interstellar STL voyage place as many men as possible in low berths.

eight man-hours per day in maintenance work. At the GM's option, crewmen from races with the Less Sleep advantage or the Workaholic disadvantage may provide more man-hours per day, while crewmen with the Laziness, Short Attention Span, or Sleepy disadvantages may provide fewer.

If a ship is short-handed in the pertinent crew sections, crew may be required to put in longer work shifts, members of other sections may have to chip in, or the ship may simply fall short on its required maintenance.

The rules for the Maintenance disadvantage (p. B143) apply, as do the rules under *Breakdowns* (p. B485). Although maintenance work is performed on a continuous basis, the maintenance period is *biweekly*. If insufficient maintenance is performed during a maintenance period, the ship loses one point of HT and must make a HT roll. If the HT roll fails, the ship loses 1d dHP (D-scale hit points, used to measure damage to spacecraft; see Chapter 9).

See *Damage Effects* (p. 223) for the effects of damage to the ship; in particular, damage due to missed maintenance may lead to Major Damage results, indicating serious breakdowns in ship's systems.

Along with routine maintenance, every starship requires a complete overhaul once a year to ensure that it remains in good working order. This *annual maintenance* restores any damage or HT loss due to missed routine maintenance, and removes any remaining faults not caused by battle damage. It costs 0.1% of the base price of the ship, and requires two full weeks at a Class B or better starport. The ship's operators should make provision for the payment of the maintenance fee when it comes due, and should prepare for the revenue lost while the ship is laid up.

Supplies

The primary expendable item used by any starship is the hydrogen fuel used by the jump drive. *Refined* fuel can only be purchased at a Class B or better starport, and normally costs $350/dton. *Unrefined* fuel can be purchased at a Class D or better starport, and costs $80/dton.

Meanwhile, starship crews must purchase provisions. Standard provisions cost $6 per man-day, and must be carried as cargo. Small ships on short journeys can ignore the cargo space needed for provisions, but large ships may need to track it. One dton of provisions has a mass of 12 tons, contains 2,000 man-days of food and other supplies, and costs $12,000.

Crew Salaries

Crew salaries must be paid on a monthly basis. Chapter 6 suggests that for merchant ships, a fair monthly salary for any given crewman is $600 + ($900 × Merchant Rank) + ($300 × best job skill). If the exact mix of skills and Merchant Rank levels among the crew is undetermined, this can be approximated as $9,000 for the Senior Captain commanding a large merchant ship (1,000+ dtons), $7,800 for the Captain commanding a smaller merchant ship, $6,600 for each officer, $5,700 for each petty officer, and $4,800 for each ordinary crewman.

If a ship makes a particularly profitable voyage, it is common for part of the profit to be distributed among the crew as a bonus. Any such division is up to the ship's commanding officer or the policy of his corporate sponsors.

Service Fees

When a starship makes berth, it must usually pay a variety of service fees. For simplicity, the GM may assume that these amount to $100 per dton of ship per week (or fraction of a week) in port. If the GM wishes to track the fees more closely, he may apply the following.

Berthing Fee: Berthing frees cover power, life support, and data hook-ups at the berth, access to facilities for maintenance, and often courtesy transportation to the main starport terminal. Once paid, berthing fees cover unlimited arrivals and departures for the entire duration, although crowded starports frown on berths that stand empty for too long. The standard berthing fee, at both Imperial and Terran starports, is $20 per dton of ship for the first six full days, plus $2 per dton of ship per day thereafter.

Customs Duties: These duties apply when any foreign party moves goods through a starport onto a world. As far as a merchant crew is concerned, customs duties never apply to *freight* (goods owned by someone else that the crew has been paid to transport) – in such cases, any duties are paid by the owner of the freight. However, whenever a merchant sells *cargo* (speculative goods that he owns himself) on a world, he must pay any duties that apply. In the Imperium, the *shangarim* always collect a duty of 4% of the sale price of the cargo. In Terran space, the duty depends on the starport and the type of cargo; the duty will be 1d%. Customs duties can be avoided through smuggling (see *Covert Operations*, p. 176).

Freight Handling: Ships that don't have enough personnel to handle cargo or freight themselves can pay starport stevedores to do the loading or unloading. The necessary number of crewmen is one per 250 dtons of cargo or freight; the needed crewmen can come from the cargo services section, or can be diverted from other crew sections that aren't busy in port (gunners or ship's troops, for example). The standard cost of hired stevedores is $20 per dton of cargo or freight, with a minimum of $500.

Lighterage Fees: Cargo, freight, and fuel can be delivered to or from a ship that's away from the starport. Cargo and freight lighterage costs $10/dton from surface to orbit, $15/dton to a ship at a planet's 100-diameter limit, or $40/dton to a ship at a star's 100-diameter limit. Fuel delivery is more expensive: $80/dton from surface to orbit (if the starport has no refueling facilities in orbit), $100/dton to a ship at a planet's 100-diameter limit, or $400/dton to a ship at a star's 100-diameter limit.

Shuttle Tickets: A one-way ticket from orbit to a planetary surface (or back) is $50 per person. Each person can bring up to 200 pounds of baggage; any extra is carried at lighterage rates.

Special Handling: Any cargo or freight that requires special handling adds 50% to all freight handling and lighterage fees.

Starport Administration Fee: This fee covers the costs of administration, maintenance, and operation of the port, as well as search and rescue services. The standard fee is $500, paid on landing.

Covert Operations

Spies, smugglers, and other adventurers may wish to land covertly on an inhabited planet. A ship coming in for a landing will be at least as visible and audible as a large meteor, due to the flare of re-entry and the sonic booms of deceleration from orbital speed.

If the planet is at TL5 or lower, the best solution is simply to come down in a secluded area, at least a few hundred miles from any known habitation. With luck, no one will be on hand to see the ship. Landing during bad weather will further reduce this chance.

If the planet is at TL6+, the process is more complex. The full details of planetary defense are beyond the scope of this book, but the following rules can be used for a quick-and-dirty approach to the problem.

First, the intruder must slip past any hostile vessels in space near the planet. The starship combat rules in Chapter 10 can be used to game out any such attempt. If the patrol vessels detect and intercept the intruder, they will alert planetary defences. In this case, the intruder may give up and try to break off, or may fight its' way through to the surface.

If the intruder evades the space patrol, it can attempt to evade ground watchers and sensors. For each individual ship attempting to land covertly, the captain must make a roll against his Shiphandling skill. Modifiers are as follows.

Alertness: +4 if the local authorities are not very alert (typical of a sleepy frontier planet or complacent inner world); +2 if the planet is somewhat alert (there is a local navy base, but local authorities have no reason to expect intruders).

Piloting Skill: +1 if the ship's pilot has Piloting skill at 15+, or +2 at 20+.

Size Modifier: Subtract the ship's Size Modifier. For example, if the ship has SM +10, the captain gets a -10 penalty.

Starport Type: If the planet has a Class A starport, -6; if it has a Class B starport, -4; if it has a Class C starport, -2; if it has a Class D or lower starport, no modifier.

Sensor TL: Subtract 2 × (TL-6) of the starport or planetary-defense sensors. If the planet is at TL5 or less, *add* +2.

Population: Add (10-PR) where PR is the planet's Population Rating (p. 98). For example, a planet with a population of 30 million (PR 7) would give a +3 bonus.

Knowledge: If the captain or any bridge crewman has details of the planet's sensor systems and any weaknesses, blind spots, or passcodes, or even holidays when the local inhabitants may be less alert, the GM may assign a +1 to +5 bonus. On the other hand, if the planet's defenders have been warned to expect intruders at a given time or place, the GM may assign a -1 to -5 penalty!

Good Planning: The basic Shiphandling roll represents good but unexceptional planning, knowledge of sensors, and the use of night, weather, and terrain to mask an approach. The GM may assign a further modifier if the players come up with a particularly good (or particularly bad) plan.

A critical success on the Shiphandling roll means that the ship can come down wherever it pleases without detection, and can fly about at will once it is in the lower atmosphere (the GM may require another roll once per hour). Success means that the ship avoids detection in the upper atmosphere, but will be detected at low altitude unless it chooses to come down somewhere far from habitation. Failure by 1 or 2 is treated as a success, but the ship's trajectory was tracked briefly and someone has a rough idea of where to find it (within a few hundred miles). Failure by 3+ means that the ship was detected in orbit or at high altitude. Depending on local attitudes, authorities may ignore it, challenge it over the radio, send ships to intercept it, or simply blow it out of the sky with ground-based defenses.

Ships attempting to take off without being detected can simply reverse the above procedure.

Waste Dumping Fee: ***Interstellar Wars*** starships do not have total-recycling life support systems. Over time, a ship's life support system accumulates wastes, which must be disposed of. These can be ejected into space for free (although this is usually illegal in crowded shipping lanes or in low-orbit space). They can also be dumped at any starport, for $1/man-day since the ship last cleared the life-support system.

Wharf Fees: If cargo or freight is to be stored on the berth, the wharf fee covers the use of port facilities, warehouse space, and transfer space on the berth itself. The owner of freight usually pays this fee, but merchant crews carrying speculative cargo must pay for their own space. The standard cost is $20/dton for up to 30 days, and $2/dton per day thereafter.

Fines

Fines are the *personal* responsibility of the ship's captain, unless the fine is the direct result of misconduct by a crew member. Even then, the captain usually pays the fine out of the ship's cash reserve and collects it from the crew member later (perhaps by reducing his pay).

Failure to Vacate: If a ship is ordered to vacate its berth at a starport and fails to do so on time, the starport authority will levy a fine. The standard fine is $1,000/hour.

Violation of Regulations: Any other violation of local, Confederation, or Imperial regulations will likely lead to a fine. The amount varies, but typical fines are $500 or more per incident.

Interstellar Trade

Then a health (we must drink it in whispers)
To our wholly unauthorised horde –
To the line of our dusty foreloopers,
The Gentlemen Rovers abroad –
– Rudyard Kipling, "The Lost Legion"

Trade in the Interstellar Wars

During the Interstellar Wars era, interstellar commerce is shaped by a clash between two wildly different economic models. The *Ziru Sirka* manages a vast economic system, based on a mature network of trade routes that has been stable for centuries. On the other hand, the Terran Confederation is a new economic sphere, full of energy but very unstable due to its explosive growth. Adventuring merchants who wish to make a profit in this environment need to understand how it works.

Trade Routes

Throughout the Interstellar Wars era, commercial traffic tends to follow a "main and branch" system of trade routes. The most populous and prosperous planets are designated as *hub worlds*. These hub worlds are connected to one another by *main* shipping routes.

Minor worlds rarely trade directly with one another – instead, their exports are sent to the nearest main route or hub world, and their imports are drawn from the same place. Some minor worlds generate enough off-world trade that they are worth providing with regular shipping service. The routes that carry goods to and from such worlds are called *branch* routes.

This system of organizing trade routes is inefficient; it often causes traffic to make more jumps than are really necessary to get a given consignment of goods from its source to its destination. In a free-market system, every pair of worlds would be free to trade directly, and traffic would always follow the most efficient routes. Trade routes would simply appear where the merchant traffic freely chose to follow certain paths.

However, the Imperium doesn't use free-market economics. Truly free trade is unstable and hard to control, even if it is often more efficient. The *shangarim* therefore insist on a main-and-branch system, with almost all trade passing through the hub worlds as choke points. Such a system is relatively easy to control, and helps the *shangarim* executives to retain their privileged position in a stable social structure.

Terran civilization is much more devoted to free and open trade. Even so, during the Interstellar Wars era the growing Terran trade network tends to follow the same main-and-branch model, despite its inefficiency. This is largely due to historical accident.

Early in the interstellar period, the Terran economy is almost entirely dominated by Terra itself. The various colony worlds have no more than a few million inhabitants each, and very little heavy industry. Terra exports manufactured goods and a steady flow of emigrants to the colonies; the colonies export raw materials and a few exotic luxury items back to Terra. The colonies carry on almost no direct trade with each other. Thus the early Terran trade system resembles the Imperial model, with a single "hub world" (Terra) and a cluster of colonies strung out along a few branch routes.

Later, populous Imperial worlds begin to fall into the Terran economic sphere, first by ones and twos and then by whole clusters at a time. The Terran advance is so rapid that Terran merchants are almost *forced* to work within the existing main-and-branch system. Some Free Traders and entrepreneurs get rich by short-circuiting the Imperial routes, bringing worlds into direct commercial contact for the first time. Major shipping lines, however, stay with the ancient – and *proven* – Imperial trade routes. Only after the Interstellar Wars are over will many Terran shippers begin to set up their own, more efficient, routes.

Trade Route Types

In the ***Interstellar Wars*** setting, trade routes are classified into three major types. If the campaign is taking place in the standard ***Interstellar Wars*** setting (near Terra, about 2170) then the maps in Chapter 5 indicate where these trade routes lie. Otherwise, the GM must draw trade routes on his own star maps while going through the world-design sequence found in that chapter.

Major routes are the larger "mains," tying together hub worlds that are located in "clusters" relatively close to each other. They carry tens or even hundreds of thousands of dtons of cargo per week. Any given world on a major route will usually see several super-freighters of 10,000+ dtons, and many freighters of 1,000+ dtons, each week. Free Traders and other small merchant ships will find little work along such routes, unless they can find small consignments of freight which have not been consolidated into large lots by the major shipping lines.

Minor routes are lesser "mains," making up longer links that connect the hub-world clusters. A minor route carries freight in the high thousands or low tens of thousands of dtons per week. A world on a minor route will be visited by six to 10 freighters of 1,000+ dtons, along with a dozen or more small ships of 100-400 dtons, each week.

Branch routes are small tributaries, connecting the most prosperous minor worlds into the trade network. A branch route carries freight in the high hundreds or low thousands of dtons per week. A world on a branch route will see up to about a dozen small merchant ships per week, all of them well under 1,000 dtons in size.

Frontier worlds are those inhabited worlds that are not on the established trade network at all (that is, they are not even on a branch route). The most populous frontier worlds may be visited by one to two small merchant ships per week. Others are served only by infrequent "packet" transports and tramp merchant ships, sometimes going for months without an interstellar visit. Free Traders sometimes find the greatest opportunities (and the greatest risks) by visiting worlds off the established trade routes.

Speculative Trade

Cautious merchants will tend to stay on the main and branch trade routes, earning money by carrying freight and passengers at fixed rates. This enables them to minimize risk, because it's easy to predict how much freight and how many passengers will be available. On the other hand, this approach is unlikely to yield great profit.

Ambitious merchants will accept greater risk for the chance of greater profit, by engaging in *speculative trade*. Rather than signing contracts to carry someone else's goods, a merchant captain will buy goods using his own money, and then try to sell the goods elsewhere for a profit. If everything works well, he can make a real killing – if they don't, he may have to sell at a loss simply to keep operating.

Speculative trade is a very common practice in Terran space, where free markets are common, local economies are booming, and a merchant captain only needs cash to invest. Many Terrans are surprised to learn that the practice is also known inside the Vilani Imperium.

In theory, the three *shangarim* have a monopoly on all trade within the Imperium. The Sharurshid organization claims to control all trade in the rimward sectors, with a specific monopoly on trade with the barbarian Terrans. In practice, the situation is quite different. Many parties work to undermine the *shangarim* monopoly: dissident subcultures like the *kimashargur* Vilani, restless subject races like the Vegans, ambitious managers, and even the occasional frustrated *shangarim* executive.

These subversive elements conspire to create an institution known as *duraag*. In High Vilani, the word *duraag* simply means "marketplace," and is applied to a variety of public spaces in Vilani cities, including some that have nothing to do with commerce. In Low Vilani slang, the word *duraag* is applied to a kind of backroom bazaar that exists on every world with a significant economy. In this context, the word is always emphasized by its position in the sentence – so when translated into English, it is usually capitalized: "The Market."

Eventually, Terran Free Traders will overturn centuries-old trading patterns, revolutionizing commerce within the Imperium.

The Market meets in a different place on every Vilani world. On some worlds it is a secretive institution, while on others it meets openly near the main starport. In any case, The Market is a place where managers and executives can meet to arrange trades outside official channels. Managers that have excesses they can't easily dispose of meet with others that have shortfalls they can't fill and attempt to make deals to mutual benefit. Various quasi-legal means are used to avoid official attention: cash-only transactions, unwritten agreements, barter, or carefully arranged reciprocal "theft."

Such shady commerce naturally attracts smugglers and a few real criminals, making The Market subject to intermittent sweeps by *shangarim* police. Still, it is firmly enshrined in Imperial tradition. Most Vilani consider participation in The Market to be illegal and mildly dangerous, but not particularly shameful. Getting caught means having your goods confiscated, paying the fine, and trying harder not to get caught the next time.

Terran Free Traders, largely shut out of legitimate trade within the Imperium, often find The Market custom-tailored to their needs. It can be hard for inexperienced Terran merchants to navigate, but its commercial potential is large. Terrans can use The Market to find surpluses where no Vilani has looked for them, and create markets that Vilani have never thought to exploit.

Eventually, Terran Free Traders (and their Vilani imitators) will overturn centuries-old trading patterns, revolutionizing commerce within the Imperium. Along the way, they will contribute to the collapse of the Imperial government and ultimately pave the way for Terran victory in the Interstellar Wars.

Basic Trade System

The following system helps the GM and players quickly determine how much a small merchant ship will make by carrying freight and passengers. It assumes that the ship is going to stay on established trade routes – it will not be able to find significant freight or passengers otherwise. So long as that condition is met, however, the basic trade system is ideal for campaigns that feature trade only as a backdrop for other adventures.

Bilateral Trade Number (BTN)

The total amount of trade that takes place along a given trade route is reflected in the route's "size" (major, minor, or branch). When a merchant ship needs to find freight or passengers for a specific destination, the GM must determine how much trade is taking place specifically between the current and destination ports. This can be done by computing the *Bilateral Trade Number* (BTN) for the two worlds.

To determine the BTN, begin by adding the World Trade Numbers (WTNs) for the two worlds, as determined during the world-design sequence in Chapter 5. This gives the amount of trade that can be expected between them, based solely on the size of the world economies.

Next, examine the *trade classifications* of the two worlds as generated in the world-design sequence. If one world is Agricultural (Ag) and the other is Extreme (Ex) or

Non-Agricultural (Na), then increase the BTN by 0.5. Likewise, if one world is Industrial (In) and the other is Non-Industrial (Ni), then increase the BTN by 0.5. This adjustment accounts for the fact that worlds in this situation complement each other – they have more to gain from trade than a more typical pair of worlds.

If the two worlds are under the control of two different political entities (normally, the Imperium and the Terran Confederation), then *decrease* the BTN by 1. Trade that must cross a political border is usually hindered.

Next, determine the distance between the two worlds *along the trade network* and refer to the Distance Modifier Table below. *Decrease* the BTN by the amount indicated for the distance between the two worlds. Worlds that are further apart undertake less direct trade. *No Available Trade* indicates not that there will be no freight or passenger traffic between the two worlds, but that there will be no such traffic available for small merchant ships to handle. Long-haul freight and passenger service is almost entirely monopolized by the *shangarim* shipping lines or their Terran megacorporate successors.

Distance Modifier Table

Distance (pc)	*Distance Modifier*
0	0
1-2	-0.5
3-5	-1
6-9	-1.5
10-19	-2
20 or more	No Available Trade

Finally, if one world of the pair has a *much* smaller economy than its partner, the economic model behind the WTNs and BTN breaks down somewhat. To correct for this, the final BTN may not be greater than twice the smaller WTN+1.

Once the BTN has been computed, the GM and players can determine how much freight and how many passengers are available for transport to the declared destination.

Basic Procedure

Once a merchant ship reaches port, it may declare its destination and begin searching for freight and passengers to carry there. The current port and the declared destination must be connected along the established trade routes, but they do not need to be a single jump apart. The BTN between the current and destination worlds must be at least 6.0, otherwise any traffic that may be available will be monopolized by large shipping lines.

Freight

Beginning on the first full day *after* the ship lands, it may try to find freight that is intended for the destination port. Once per day, refer to the Trade Volumes Table below and make the roll for freight volume that is indicated for the BTN of the current and destination worlds. *Halve* the result (rounded down) if the ship is Terran-registered and the port is under Imperial control, or vice versa. The final result gives the number of dtons of freight that are available that day.

Each lot of freight must be delivered within one week, plus 10 days for every two parsecs of distance *along the trade network* between departure and destination ports. Unloading at the destination starport is usually sufficient for delivery (but see *Special Handling*, p. 175). Late delivery incurs a 10% penalty per day late.

The standard rate for freight shipping is $700 per dton per parsec along major or minor routes, or $800 per dton per parsec along branch routes.

Trade Volumes Table

BTN	*Freight Volume Roll*	*Passenger Volume Roll*
6	2d-10	None
6.5	2d-7	None
7	2d-2	1d-4
7.5	(2d-2) × 5	1d-2
8	(2d-2) × 5	1d-1
8.5 +	(2d-2) × 10	2d-2

Passengers

Beginning on the first full day *after* the ship lands, it may solicit passengers who wish to travel to the destination port. Once per day, refer to the Trade Volumes Table below and make the roll for passenger volume that is indicated for the BTN of the current and destination worlds. *Halve* the result (rounded down) if the ship is Terran-registered and the port is under Imperial control, or vice versa. The final result gives the number of number of potential passengers who present themselves that day.

To determine what level of service each potential passenger wants, begin by rolling 1d with a maximum of the total number of potential passengers. This indicates the number of *low and standard* tickets that the ship can sell that day. At an Imperial port, all of these tickets will be for standard passage. In a Terran port, half (rounded up) of these tickets will be for low passage and the rest will be for standard passage. If any potential passengers are left, roll 1d again with a maximum of the remaining number of potential passengers. This indicates the number of *first-class* tickets that the ship can sell that day. Any potential passengers that remain will want *luxury* tickets. If the ship can't provide the level of service that a given potential passenger wants, he will go elsewhere rather than settle for a different kind of ticket.

A passenger is expected to pay for his ticket in advance, either when making his travel reservations or when boarding the ship. On the other hand, once a passenger has made reservations to travel on a given ship, he will expect the ship to depart for his destination within one week (seven days). He will also expect to arrive at his destination within one week, plus 10 days for every two parsecs of distance *along the trade network* between departure and destination ports.

A ship that fails to meet passengers' expectations about timeliness and quality of service may be able to get away with it, at least for a while. At the GM's option, the ship's crew may acquire a negative Reputation, or angry passengers may lodge complaints with Terran or Imperial authorities.

The standard rates for passenger transport are $400 for a low ticket, $2,500 for a standard ticket, $3,500 for a first-class ticket, and $6,000 for a luxury ticket. Ticket prices are *per jump* rather than per parsec traveled.

Speculative Trade System

The following system can be used when a small merchant ship is trying to turn a profit through speculative trade – the art of buying cargo at a low price, in the hopes of selling it later for a high price. This system can be used whether the ship stays on established trade routes or not, and it can be used in conjunction with the basic trade system (p. 178). The speculative trade system is useful for campaigns in which the GM and players are interested in following trade in some detail.

In outline, the speculative trade system is very basic: buy low and sell high. Merchants seek goods for sale (possibly on The Market, in Imperial space) and buy them with whatever resources are available. They carry these goods in their holds to subsequent destinations, seeking interested buyers. A Free Trader normally carries a number of different speculative cargoes, never knowing which will sell first, and fills his hold with freight as necessary. When a given lot of speculative cargo seems to have found a profitable market, it is sold. Ideally, the merchants bring in enough to pay for landing expenses, operating costs, a new load of goods, and a little profit. Unfortunately, they are sometimes forced to accept whatever they can to prevent a total loss.

A canny trader can maximize his profits by matching likely goods with receptive markets. This makes advance information about the region of space where he is trading a particularly valuable commodity.

Generally only one merchant or team of merchants per crew may search for goods or buyers – any more is counter-productive.

Finding Goods for Sale

Beginning on the first full day after the ship lands, a merchant crew may begin searching for speculative cargoes to buy. Each attempt takes five days, and is made using the best skills from among the merchant team. If an attempt fails, repeated attempts may be made at no penalty (unless a critical failure occurs; see below). Attempts to find goods to buy can be done at the same time as any attempts to find buyers for goods already in the hold (p. 181).

Roll versus Merchant or Streetwise, whichever is lower. Any penalty for lacking an appropriate Cultural Familiarity advantage applies, as does any penalty for not being a native speaker of the local language. Any applicable Reputation (good or bad) also modifies the effective skill. Modifiers: +1 if anyone on the team has Area Knowledge for the local planet at 12+, or +2 at 20+; -1 if the world is on a branch route, or -3 if on a main (major or minor) route.

A successful roll indicates that a lot of cargo has been located for purchase; critical success indicates one to three lots.

A critical failure results in the crew being *shunned*; no one from this ship will ever be able to contact the speculative cargo markets on this world again, until they make amends. On a Terran world, this may mean simply paying a fine for insider trading or other violations of local law. On an Imperial world, a critical failure means that the local

Speculative Goods Table

Dice Roll	Commodity	Price ($/dton)	Sale Price Modifiers	Lot Size (dtons)	Density (tons/dton)
11	Heavy Metals	20,000,000	Ex-3	1d	25
12	Industrial Crystals	2,000,000	In+3, Na-3	1d	10
13	Radioactives	100,000	In+4, Na-3	1d	10
14	Petrochemicals	15,000	In+3, Na-4	2d×5	7
15	Artwork, Handicrafts	10,000		2d	5
16	Wood, Wood Products	2,000	Ag-4, In+1, Ex+4	5d×10	5
21	Industrial Metals	75,000	Ex-2	2d	25
22	Ceramics, Glass	15,000		2d	10
23	Gemstones	10,000,000	In+4, Ni-2	1d	0.5
24	Spices	6,000	Ag-2, Ex+1, Na+2	1d×5	7
25	Alcoholic Beverages	7,500	Ag-3, In+1, Ni-1	2d	7
26	Fruits, Vegetables, Nuts	2,400	Ag-2, In+3, Ex+2, Na+2	4d×10	5
31	Special Minerals	750,000	In+1, Na-3	1d	10
32	Lanthanum	5,000,000	In+2, Na-3	1d	10
33	Polymers	12,000	In-2	3d×5	5
34	Light Metals	10,000		2d×5	25
35	Textiles	30,000	Ag-2, Ex+2, In-1	3d×5	4
36	Livestock	1,000	Ex+4, Ni-2	3d×5	1
41	Shelters	12,000	Ex+1, In-1, Na+2	3d	8
42	Computers	250,000	In-2	2d	5
43	Firearms, Ammunition	120,000		1d	7
44	Pre-recorded Media	50,000	Ni+2	1d	2
45	Pharmaceuticals	120,000	Ag-1, In+3, Ni-3	1d	6
46	Grain, Flour, Baked Goods	5,000	Ag-2, Ex+2, Na+2	2d×5	10
51	Protective Suits	400,000	Ag-4, Ex+4, In-2, Ni+1	1d	2
52	Tools	20,000	In-1	1d×5	10
53	Manufactured Goods	50,000	In-1, Ni+1	3d	8
54	Toys, Games, Sporting Gear	50,000	Ni+3	2d	5
55	Entertainment Devices	50,000	Ni+3	1d×5	4
56	Meat, Fish	20,000	Ag-2, In+2, Ex+2, Na+2	1d×5	8
61	Precision Instruments	400,000	In-3, Ni+3	2d	7
62	Electronics, Electronic Parts	50,000	In-1, Ni+1	1d×5	2
63	Ground Vehicles	40,000	In-2, Ni+2	3d×5	3
64	Grav Vehicles	250,000	In-2, Ni+2	1d×5	3
65	Grav Units, Gravitic Parts	160,000	In-2, Ni+2	1d×5	4
66	Machinery, Mechanical Parts	50,000	In-1, Ni+1	4d×10	8

leaders of The Market have decided the crew cannot be trusted; such trust can probably be regained only through a difficult adventure . . .

Determine Available Goods

Once a lot of speculative cargo has been located, roll two dice, one at a time. Modifiers: on the first die, -1 if the world is Non-Industrial; +1 if Industrial. On the second die, -1 if the world is Non-Agricultural; +1 if Agricultural. Treat results less than 1 as 1, and greater than 6 as 6. Read the two numbers consecutively, as a two-digit number from 11 to 66, and consult the Speculative Goods Table.

For each lot of cargo, roll the indicated number of dice to determine lot size in dtons. Multiply the lot size by the price per dton ($/dton) to determine base price. If needed, multiply lot size by density (tons/dton) to determine total mass; multiply again by local gravity to determine weight.

Determine Purchase Price

Once the nature of each lot of speculative goods is known, roll on the Actual Price Table to determine the actual purchase price. Subtract 2 if the world is Poor; add 4 if the world is Rich. Add or subtract the Sale Price Modifiers that apply to the world where the goods are being purchased, as indicated for the specific commodity on the Speculative Goods Table. The result on the Actual Price Table gives the actual purchase price as a percentage of the base price as given on the Speculative Goods Table.

One member of the merchant team may use Merchant skill to try to lower the actual purchase price, using a Quick Contest according to the rule on p. B209. The result of the Quick Contest will add or subtract 10% from the *base price* of the goods. For example, if the initial roll on the Actual Price Table gives a result of 150%, a victory in the Quick Contest will lower the purchase price to 140% of base, while a defeat raises it to 160% of base. Groups desiring more options may consult pp. B560-562.

If the lot is larger than desired, breaking it up and buying only a portion requires a positive Reaction roll from the seller. One member of the merchant team may attempt an Influence roll (p. 359) instead; modifiers for Cultural Familiarity and language skill still apply.

Once goods are purchased, they are delivered at the ramp or docking bay outside the ship's cargo hatch. It is the crew's responsibility to load each lot into the hold, though at Class C or better starports they can hire stevedores. If desired, the crew may offer to come and pick up a cargo in return for a favorable Reaction modifier, but then they are responsible for paying (or evading) any outbound customs and duties.

Finding Buyers

Beginning on the first full day after the ship lands, a merchant crew may begin searching for buyers for any speculative cargoes that are in the hold. Each attempt to find a buyer for any one lot takes five days, and is made using the best skills from among the merchant team. If an attempt fails, repeated attempts may usually be made at no penalty. If the ship has more than one lot of speculative cargo in the hold, the crew may search for buyers for each of them at the same time, and can also search for a lot of goods to purchase.

Attempts to find a buyer use the same skill roll as finding goods for sale; add an additional modifier equal to WTN-6 (round down). On a success, a buyer is found. On a critical failure, the crew will be shunned on that planet, with the same effects as a critical failure when searching for goods.

Determine Selling Price

Once a potential buyer has been found for a given lot of goods, the sale price must be determined. Use the same process as that used to determine purchase price. The Sale Price Modifiers that apply are the ones associated with the world where the goods are being *sold*. If a Quick Contest of Merchant skill is used to try to improve the same price, a victory will *raise* the price by 10%, while a defeat *lowers* it by 10%.

The sale price offered by a potential buyer doesn't have to be accepted, but refusal to sell counts as a failure to find a buyer. Another attempt must be made, taking five more days. Furthermore, the merchant team must make a Reaction roll; on a Poor or worse reaction, the result is equivalent to a *critical* failure on the roll to find a buyer, and the crew is shunned.

The crew is responsible for unloading the goods, clearing them through inbound customs, and paying (or evading again) any duties owed on them. Goods are considered delivered when turned over to the buyer at his place of business or other specified destination.

Actual Price Table

Roll	*Actual Price (% of Base Price)*
3 or less	30%
4	40%
5	50%
6	60%
7	70%
8	80%
9	90%
10	100%
11	100%
12	110%
13	120%
14	130%
15	140%
16	150%
17	160%
18 or more	170%

Interstellar Exploration

The long day wanes: the slow moon climbs: the deep
Moans round with many voices. Come, my friends,
'Tis not too late to seek a newer world.
Push off, and sitting well in order smite
The sounding furrows; for my purpose holds
To sail beyond the sunset, and the baths
Of all the western stars, until I die.
It may be that the gulfs will wash us down:
It may be we shall touch the Happy Isles,
And see the great Achilles, whom we knew.

– Alfred, Lord Tennyson, "Ulysses" (1842)

During the Interstellar Wars era, most of "known space" is not known to Terrans, who are constantly visiting worlds and regions of space for the first time. In any case, the Vilani can only tell Terrans about space toward the galactic core. Out toward the rim are thousands of worlds that no Human has ever seen, worlds where Terrans might build a civilization entirely independent of the Imperium. Before that can happen, Terrans must go out to explore and survey those worlds, breaking ground for the colonies to come.

Survey Operations

Survey operations involve a general evaluation and mapping of the worlds in a target star system. Many of the tasks involved in survey work require a shipboard survey module; standard ship's sensors will not do because they aren't properly configured for survey work.

Survey tasks normally involve using the Electronics Operation (Sensors) skill, followed by a scientific skill to interpret the collected data. Make the Electronics Operation roll first. On a critical success, the follow-up scientific skill roll is made with a +3 bonus. On a success, the follow-up roll is made unmodified. On a failure, some of the collected data are incorrect, but a correct interpretation can be made with more difficulty; make the follow-up roll at a penalty equal to the amount by which the sensor roll was missed. On a critical failure, the data are obviously bad and the follow-up roll may not be made at all. The GM may wish to make either or both rolls for the players, to keep them in the dark as to whether they are succeeding or not.

System Detection

Survey operations in a new star system begin long before the survey ship first jumps into the system. The first step is to get an impression of the contents of the target star system. This is normally done from one or two parsecs' distance.

First, the survey ship attempts to locate planets in the target star system. This takes a day of observation from a survey module. Roll against Electronics Operation (Sensors). Modifiers: +1 if at a one-parsec distance, -1 at two parsecs, -2 at three parsecs, -3 at four to five parsecs, or -4 at six parsecs.

If the sensors roll succeeds, any large gas giants (Saturn- or Jupiter-sized) will be detected. Success by 2 or more will detect small (Uranus- or Neptune-sized) gas giants. On a critical success, large terrestrial planets (6,000+ miles in diameter) will be detected. Even on a successful skill roll, some planets may be concealed at the GM's discretion; perhaps they are behind the primary star or are presenting an unlighted face to the observer.

If any planets were detected, roll against Astronomy to produce a rough system map, at +4 if more than one planet was detected (GM's discretion). On a success, the astronomer can locate the ecliptic plane of the target system (i.e., the plane most of the planets will orbit in). He will also have a rough estimate of the orbit for each planet sighted.

Another task that is undertaken at this stage is to "listen" for signs of intelligent life. Detecting a civilization will take one day of observation; this can be done at the same time as the search for planets, but a different scientist must do the work. At interstellar ranges, only civilizations at TL7 and above can be detected using shipboard instruments.

Roll against Electronics Operation (Sensors) to detect civilizations, using the same modifiers for range as for detecting planets. On a success, the scientist will detect any population of at least 10 billion living at TL7, one billion at TL8, 100 million at TL9-10, or 30 million at TL11+. If the sensor roll is made by a significant margin, the scientist may detect smaller populations, down to one-tenth the size on a critical success. Also on a critical success, the process will gather 2d hours of language samples (see *Linguistic Assessment*, p. 184). Even if no detectable civilization is present, the GM should roll in case of a critical failure – in which case he may mislead the scientist into believing a civilization is present even if it isn't.

System Mapping

When the survey ship jumps into the target system, the crew may have only a rough idea of what planets are present and where they are. They must immediately make a map of the star system and establish their own location. Once that's done, a more detailed study of the system's worlds can be done.

First, the ship's exact location must be established. This task is usually undertaken by the ship's navigator, using the standard ship's sensors. Roll against Navigation (Space), with a +2 if a rough system map is already available (either from library data or from astronomical observations at

interstellar range). On a success, the ship's position has been established with enough accuracy to allow further survey operations to proceed normally. On a failure, the navigator was inaccurate and all subsequent system-mapping skill rolls will be at -1. On a critical failure, the inaccuracy is greater (penalty is -3). Any penalty will last until the first success in a system-mapping task (the error was noticed and corrected).

Next, any planets in the system must be located precisely. This is actually more time-consuming once the ship is inside the target system; from a few parsecs away, it's easy to know which way to point the telescope. From inside the target system, the whole sky needs to be searched.

To produce a workable system map requires *10 days* of observations. Up to four astronomers per system module can work together and reduce this time. Roll against Electronics Operation (Sensors) to locate system objects, at +2 if a rough system map is already available. This mapping process will *automatically* detect all the gas giant planets present in the system. On anything but a critical failure, all the terrestrial planets will also be detected. On a success, all of the larger moons in the system will appear. On a critical success, smaller moons and planetoids will also be detected.

Once planets and other bodies have been detected, a follow-up Astronomy roll will produce a working map of the star system. On a success, gas giants and terrestrial planets will be immediately identifiable, and the GM may reveal the main world's specific planet type (see p. 96 for a discussion of planet types). Any unusual features of planetary orbits will also be known at this point. Finally, success will permit the ship's navigator to prepare jump parameters for return visits to the star system. So long as jump masking is not a factor, future jumps into the star system can be made directly to the 100-diameter limit of any desired body.

Finally, the ship will again search for evidence of intelligent life. Civilizations at TL5 and up can be detected at interplanetary ranges. Detection again requires one day of observations by a scientist who is not involved with the search for planets. Roll against Electronics Operation (Sensors). On a success, the scientist will detect any population of at least 10 billion living at TL5, one million at TL6, 100,000 at TL7, 10,000 at TL8, 1,000 at TL9-10, or 300 at TL11+. Again, if the sensor roll is made by a significant margin, the scientist may detect smaller populations, down to 1/10 the size on a critical success. Also on a critical success, the process will gather 2d hours of language samples. The GM should always make this roll, even if no detectable civilization is present or detection is automatic.

Planetary Survey

Terran explorers don't usually examine every world in a target system closely. Any nearly-habitable planet is likely to get considerable attention. Standard procedure is to do an initial evaluation of the planet while still at some distance (four to five million miles), then move in to close orbit for a detailed survey and mapping sweeps.

It takes very little time to discover a planet's general parameters: diameter, atmosphere, hydrographic coverage, and climate. A rough idea of the planet's density and surface gravity will also be possible. An hour's observation with a survey module will suffice. Make a roll against Electronic Operations (Sensors) to gather data, then against Geography (Physical) with the appropriate specialty (see p. B180) to interpret the results.

To map the surface of a terrestrial world and determine its density and composition, a survey ship takes up a close orbit and begins using its planetary-survey instruments. Multiple telescopes and other instruments are used in concert, with each survey specialist supporting the work of other members of the team.

The best orbit for surface mapping is some variation of the "ball-of-yarn" orbit. The survey ship orbits at a very high inclination to the planet's equator, actually passing over the north and south polar regions on each circuit. As the planet rotates, the ship finds itself always passing over new terrain, eventually scanning every portion of the planet's surface. If the planet is too small or its rotation is too slow, the ship may alter its trajectory slightly on each pass to get the same effect. Taking up an effective ball-of-yarn orbit requires a successful Piloting roll. The entire mapping process takes a number of hours equal to the diameter of the planet in thousands of miles, *squared* (minimum 2 hours).

To gather data for the survey, each specialist (up to four per survey module) must make an Electronics Operation (Sensors) roll. If at least one surveyor succeeds, a Cartography roll is needed to assemble the survey data into a working planetary map. Modifiers: +2 for each surveyor after the first who succeeded in his sensors roll.

The completed survey map will display visual and thermal features of the surface, resolving features down to about 100 feet across. If there is no reason to avoid using active sensors, the survey will also yield a synthetic-aperture radar map of the planet, including nearly exact elevations. Densitometer scans will give some idea of what lies under any oceans, giving a rough map of the seafloor. The GM may wish to simply share any planetary map he has drawn with the players at this point.

The orbital mapping survey is the last chance the exploration team has to detect intelligent life, short of actually landing on the planet and looking for citizens. Once the mapping sensor results are in, make another Cartography roll, at +2 for every surveyor after the first who succeeded. Success in this roll will detect any population of at least 10 million at TL0, one million at TL1-4, or 100,000 at TL5. Again, if the sensors roll is made by a significant margin, smaller populations can be detected, down to 1/10 the size for a critical success. Any TL6+ civilization that has thus far eluded detection is automatically located once close-orbit mapping results are available.

If intelligent life has been detected now or at any earlier point, a successful Cartography roll will locate any major population centers. Even cultures that lack cities will have regions of unusually dense population (hunting ranges or good agricultural land), and these can be placed on the map.

Exploration Operations

Once the initial survey of a new world has been completed, explorers can get down to business. Real understanding of any new world requires that explorers go down and get their hands dirty. After all, every new planet is a *world*, the end product of billions of years of isolated evolution, full of traits unique to itself.

Geological Survey

General information about planetary geological formations will be available due to the orbital mapping pass. More detailed maps of local terrain can be generated by low-altitude mapping flights. During these, a ship's small craft or grav vehicles pass over the terrain at a height of about one mile, using visible-light cameras, IR sensors, radar, and densitometer readings to build an extremely detailed map. Assume that one team (two to four explorers) can cover about 5,000 square miles in a day. The task requires a lot of routine Piloting and Electronic Operation (Sensors) use, but the GM may not want to bother with skill rolls unless unusual circumstances present themselves. To assemble the final detailed map of any given area, a Cartography roll is required.

The detailed terrain map will give some information about subsurface geological formations and ore deposits, but getting a complete picture will require on-site inspection. In a given region, a geologist will drill core samples in carefully chosen locations, and will also use seismometers and a portable densitometer. This process requires 1d days for an area of about 500 square miles. The geologist must succeed in skill rolls against Electronics Operation (Sensors) and Geology. On a success, the geologist will understand the broad outlines of local geological history, and will know whether there are any valuable mineral deposits in the area. Actually locating these deposits may take months or years of work, and may not be a task for the initial exploration team.

If the planet being explored has no significant local life, then geological surveys may be sufficient to determine the planet's Resource Value Modifier (p. 98). This will require the successful completion of 2d local area surveys (GM rolls).

Biological Survey

Meanwhile, if the planet is a Garden world, biologists will fan out to gather information about native life forms. Such a biological survey takes about 1d days per region and terrain type covered.

During the biological survey, the explorers will collect samples of plant life and soil for later analysis. They will also try to study at least 10-12 different animal species in each terrain type. Small animals can be captured for intensive study. Large creatures will be anesthetized or killed, so that gross anatomic studies can be done and tissue samples can be taken. The explorers will also try to make holographic records of as many species as possible, exhibiting normal behavior in their natural environment.

The biological survey will require a number of Biology rolls, possibly with various specialties (Botany to study plant samples, Zoology to study captured animals, Biochemistry or Microbiology to study soil samples, and so on). Photography skill will also be useful in taking holographs of creatures in their natural setting. Capturing or hunting animal specimens should be played out as a set of mini-adventures, using as much detail as GM and players are comfortable with.

On a world with significant local life, both geological and biological surveys are needed to determine the planet's Resource Value Modifier (p. 98). This will require the successful completion of 2d local geological surveys *and* 2d local biological surveys.

Ecological Survey

The biological survey will yield enough information to get a broad view of a world's natural history. Major plant and animal orders will be understood, and the most prevalent large species will be identified. To get a real understanding of how local ecosystems work, however, a full ecological survey is necessary.

An ecological survey takes 2d *years* to complete, and is usually done after a full scientific colony is placed on the world. The surveyors must painstakingly identify local species down to the smallest animal and plant forms. Further, the team must observe how all of these species interact over several local years, to make sure that any seasonal changes are noticed and understood. The survey will involve many rolls against various Biology specialties.

Contact Procedures

Once explorers have determined that intelligent life is present, the question of contact arises. As of 2170, the only new intelligent races that Terrans have come into contact with have been members of the Vilani Imperium. However, the Terran Confederation has already developed contact protocols that all official expeditions are ready to implement. Unofficial expeditions may have to develop their own procedures on the fly . . .

In general, explorers will avoid going in to contact a new society "cold." If possible, the exploration team will study the natives for weeks or even months from hiding.

Linguistic Assessment

The most important precontact task is a study of the local languages. If the native society is at a low level of development (TL0-TL5), then samples of the language must be gathered via direct monitoring of conversations. This would most likely be done using stealth reconnaissance drones placed in inhabited areas. At TL6 and up, it becomes possible to gather samples by monitoring radio communications from orbit.

Stealth drones are almost impossible for a low-tech society to detect in flight, but at higher tech levels the local sensor network begins to have a chance at detection. It can be difficult to deploy drones where they will have a good vantage point and yet will not

be discovered accidentally. Use the appropriate Piloting skill to deliver a stealth drone undetected, at a -1 penalty for each native TL above 6. A failure indicates that the flight had to be aborted, while a critical failure indicates that the probe was lost or shot down. Once the drone has reached the target area, the pilot can use his Camouflage skill to find a good place from which it can eavesdrop.

Radio monitoring can be done without risk of detection. Use Electronics Operation (Communications) to tap into the local radio net using a ship's communicators. At higher tech levels the signals themselves may become difficult to interpret. As analog signals give way to digital (late TL7), the eavesdroppers must first break the protocols that encode voice, video, or text data. This requires several hours' worth of samples and a Cryptography roll, at -2 for every native TL above 8.

Each flight of a stealth drone can gather 1d-2 hours of useful language samples (minimum 0). Ship's communicators can gather one hour of useful samples for every two hours of monitoring. The GM should determine how many hours of samples will be needed before a working model of the language can be derived. If the language is related to a known language (as for a lost colony of some kind) then 2d × 10 hours may be enough to "break" the new dialect. If the language is completely unknown, then at least (2d+8) × 10 hours of samples will be needed, possibly more if the language has unusual syntax or is communicated in an unusual manner.

In any case, Linguistics rolls will be needed to analyze the samples properly, and to create a database for the new language. At this point, the database is still incomplete, and will not permit anyone to learn the language at better than a Broken comprehension level.

Sociological Assessment

Once the local language has been "broken," explorers must make an initial estimate of local social, cultural, and political parameters. Again, this is based on information gathered through stealth reconnaissance and radio monitoring. However, even if the language is beginning to be known, it will take considerably more work to get insight into the local culture. The rules below assume that at least 200 hours of language samples have been gathered. If less than this is available when the explorers try to make a sociological assessment, apply a -1 penalty to each skill roll for every 10 full hours of deficit. Extra samples give a +1 bonus for every 100 hours of surplus. Video samples or stealth-drone photography count double if they show natives interacting socially.

Technology Level: The easiest parameter to assess from a distance is the level of technological development. The overall TL of a society should be obvious by the time the initial language database is complete, without any need for skill rolls.

Population: The native population is also fairly easy to estimate by the time the initial language database has been completed. Make a roll against Geography (Political) to estimate the world's native population, and again to estimate the population of any specific area.

Political Structure: During this phase, the team can determine the world's government type. Intercepted communications can give some idea as to who makes decisions, and how political power is implemented. Roll against Sociology to determine the local government type.

Specific Political Institutions: The *details* of local politics and customs are not always as obvious as the overall structure. At this point, the explorers will be most interested in the specifics of local law. Soon they will be preparing for actual contact – and they will want to know what might get them arrested! Roll against Anthropology to make a rough assessment of local political structures and laws.

Instead of resolving the sociological assessment purely with skill rolls, the GM may wish to game out the process in more detail. In this case, once the initial language database has been built, or even before, the GM may begin to provide clues to social parameters by describing the exploration team's observations.

For example, rather than calling for an Anthropology skill roll and telling the players "the society accepts dissent," the GM may describe a crowded city square, observed by a stealth drone. Dress and appearance are diverse. Some of the natives are apparently putting on a political demonstration, with signs and chanted slogans, but although there are angry expressions no one is moving to stop it. Indeed, some natives in uniform are apparently protecting rather than arresting the dissidents. Of course, some of the explorers' observations can be misleading . . .

This treatment can give the players more latitude to direct the investigation, perhaps using other skills to ferret out bits of evidence. Once the players have drawn and stated their conclusions, the GM can make skill rolls, granting bonuses if the players have been perceptive, or penalties if not.

Covert Contact

Once the linguistic and sociological assessments are finished, the commander of the exploration team may authorize covert contact. This is not intended to open communications between the Terran Confederation and the new culture. Instead, the explorers will be sent to gather more information *without* revealing themselves to the natives.

Of course, the whole concept of covert contact implies that Terran explorers *can* be covert when they move among the natives. Surgical alteration and disguise can only go so far when dealing with a non-Human civilization. The Terran Navy is experimenting with custom-built robots that are operated remotely by contact specialists, but this technique has not yet been tried in earnest. Current protocols call for Terran explorers to move directly to an overt contact mode.

Members of the "Alpha Team" assembled for a covert contact mission must be as familiar as possible with the native language and customs. At this point, they will speak the native language at a Broken level, but their understanding of local culture will be too incomplete to permit any level of Cultural Familiarity. This implies the expenditure of one character point or 200 hours of study per explorer.

If possible Alpha Team members are provided with clothing and personal equipment that will fit local styles. Money is often a problem, especially if the local technology can produce elaborate currency that is hard to counterfeit without close examination. Instead, the Alpha Team is provided with compact items that might be of value in trade. Precious metals are a common choice. High-technology goods may be carried, but only if they can be concealed very easily; covert-contact specialists often have high levels of the Holdout skill. The Alpha Team may carry concealable weapons for self-defense.

An inhabited area is chosen for the mission, preferably a frontier or rural region that allows for an unobserved landing. Once the Alpha Team lands, it makes its way into contact with the local population. Naturally, the course of each covert contact mission should be played out as an adventure!

The goal of each covert-contact mission is to gather more detailed information about local language, culture, political structures, laws, and customs. The Alpha Team must decide what items or information later teams will need to better interact with the natives. They should obtain examples of local currency, identity documents, clothing, personal equipment, and so on. They can also obtain scrolls, books, newspapers, downloads from library computers – any kind of documentation that will improve the expedition's grasp of the local language and social situation. Naturally, all this will mean interacting with the local population, unless the team resorts to stealth and theft. Apply all penalties to social skills for lack of language skill or Cultural Familiarity!

The GM should decide in advance how many successful covert-contact missions will be required before this stage of the contact operation can be concluded. For a Human culture that isn't too alien to Terran experience, 1d+1 missions may suffice. For a non-Human culture, 2d or even 3d missions might be needed.

Once the requisite number of covert-contact missions has been completed, the exploration team may improve the language database so that members can buy up to an Accented comprehension level. Cultural Familiarity for the local culture may also be purchased at this time.

Overt Contact

Once covert contact is finished, or once the decision has been made to skip the covert contact step entirely, in the case of a truly alien culture, the exploration team can move to overt contact. The Terran Confederation has no "non-interference" principle, and permits its explorers to make open contact even with low-technology societies. After all, Terra needs allies wherever it can find them . . .

The "Beta Team" that engages in first overt contact is outfitted in a manner similar to the covert-contact Alpha Teams, although if higher levels of language skill and Cultural Familiarity are available, the Beta Team members must have invested in them. The exact procedure for overt contact is left up to the mission commander, since the circumstances are likely to vary widely (and since Terrans don't have much experience with such missions to draw upon).

Established protocols call for the first overt-contact mission to open communication with local political authorities. The existence of off-worlders or Terran civilization is not to be revealed to the general populace until local authorities agree that this can be done. Even then, the announcement is left up to the local officials, with the contact team operating only in support.

The Beta Team should not discuss the details of Terran scientific or technological knowledge. High-technology items may be *demonstrated* as part of the process of proving the team's claims, but *how* devices work should be left to later discussions.

Similarly, the team should not discuss Terran politics or institutions. Beta Teams may admit to being from a starfaring civilization that is interested in continuing contact with the local society, but the details should be left vague if possible. The team may promise that more information will be made available once a good working relationship seems likely.

Once local authorities are coping well with the implications of contact, the Beta Team should conclude an agreement with them, laying out how further contacts may proceed. This may require considerable negotiation. The explorers should gain free access to the local population, enough to complete in-depth linguistic and sociological surveys. This normally requires that the authorities cooperate and that the population be made aware of the explorers' presence. The relationship should be set up so that the existing social and political situation is left as intact as possible. In particular, the Beta Team must be careful not to become part of any local power struggle, withdrawing entirely if that appears necessary.

Once friendly overt contact has been made, other Terran agencies will step in, especially from the Ministry of Trade and the Ministry of Culture. The exploration team's job is complete, and it will doubtless be assigned to other work . . .

Chapter Nine
Starship Design

January 18, 2237 – Kaufmann Sternenschiffbau R&D offices, L5 habitat, Terra-Luna space:

Alexa Karlsen shook her head. "I've told you, David. The Navy just won't pay for the design studies."

David Sandoval made a fist and thumped his desk in frustration, scowling at the stars beyond the viewport. "You made your arguments?"

"The best ones I could," Karlsen answered. "They told me exactly what I said they would. You're trying to use too many new technologies at once. They're not willing to risk so much on an untried concept."

"That's stupid," Sandoval growled. "None of these technologies are really untried. They've all been thoroughly tested, and some of them even saw action in the last war. But as long as we keep using them in bits and pieces, we'll never get the kind of synergistic effect we need."

"I know that. You know that. But the Bureau of Ships isn't buying."

Sandoval sighed. He could imagine it, flying between the stars, a warship like none the galaxy had ever seen. It was a shining hammer that the Navy could use to shatter the Imperium once and for all. It seemed he would just have to go on imagining.

But Karlsen wasn't finished. "Now, I did have one interesting encounter after I left the meeting . . ."

"With whom?" Sandoval asked, not really listening.

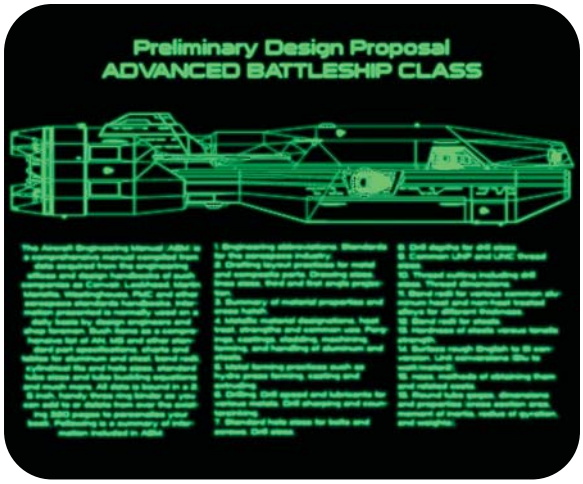
"Admiral Albadawi."

Sandoval blinked. "Really?"

"Really. Now, I don't want you to get your hopes up . . ."

"Right." Sandoval thought hard. Manuel Albadawi was the Navy's rising star. Rumor had it that he was likely to be named Grand Admiral very soon. "Was he interested?"

"Yes, he was." Karlsen leaned forward, holding Sandoval's gaze. "Now, he doesn't have any discretionary funds to back a design study. But he is willing to consider supporting any proposal we can come up with. The only problem is that he's leaving in six weeks for a tour of the Occupation Zone. He'll be gone for months



If we want to give him something to look at, we'll have to put it together ourselves, and we'll have to work very fast."

"I see."

"Do you think you can do it?"

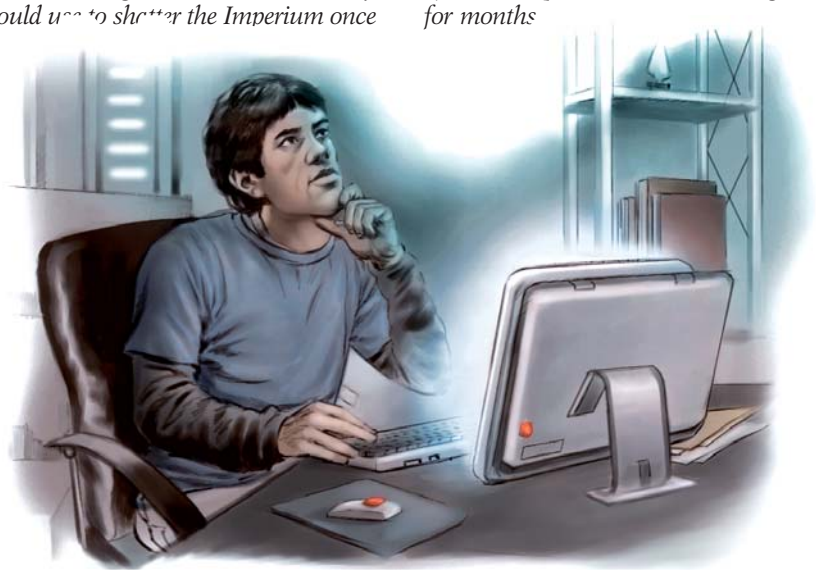
Sandoval frowned. "I don't know. I'll try."

"Good enough," said Karlsen. "I'll keep R&D off your back for the next few weeks. Drink a lot of coffee, David. This is the big one."

After Karlsen left, Sandoval watched the stars spin past his viewport for a few more minutes. Then he opened his desktop, cleared away all the files for his other projects, and began with a blank template. First, he entered a new title.

"Preliminary Design Proposal, Advanced Battleship Class," he murmured to himself. "Tentative name . . . ***Indomitable****."*

Six hours later, he was still hard at work. The stars wheeled outside the viewport, unwatched.



The ship-design system presented here gives the GM and players all the tools necessary to create ships for the ***Interstellar Wars*** setting. The system is modular, permitting ships to be assembled from standard-sized hulls and modules.

Designing a Ship

The design system involves a step-by-step procedure. Calculations are simple and can easily be done on scrap paper. A calculator is useful but not essential. Before beginning, refer to *Units and Abbreviations* (see box) for a list of terms and abbreviations used in this design system.

Step 1: Determine the design concept.

Step 2: Design the ship's hull.

Step 3: Choose armor and surface features.

Step 4: Evaluate the hull design.

Step 5: Install maneuver and jump drives.

Step 6: Install fuel tanks and fuel processing equipment.

Step 7: Install bridge systems.

Step 8: Install sensors.

Step 9: Install weapon systems.

Step 10: Select small craft.

Step 11: Install power plant.

Step 12: Determine the size and makeup of the crew.

Step 13: Install quarters and miscellaneous systems.

Step 14: Determine ship performance.

Step 15: Finalize the design.

As design choices are made, keep track of the number of internal spaces taken up by ship's systems, the ship's mass (in tons), its cost (in M$), and the power required by ship's systems (in MW).

Units and Abbreviations

The following units and abbreviations will be used throughout the starship design process.

dDR: A measure of spaceship Damage Resistance. One point of dDR equals DR 10.

dHP: A measure of hull hit points. One point of dHP equals 10 hit points.

dton: A "displacement ton," a measure of hull volume. One dton is equal to 500 cubic feet.

Gravity (G): A measure of acceleration equivalent to that produced by the surface gravity of Terra. One G is equal to 32 feet per second per second.

ksf: A measure of hull or turret surface area, equal to 1,000 square feet.

M$: A "megasolar," or one million Terran Confederation solars.

MW: A megawatt, a unit of power production or consumption. Equal to 1,000 kilowatts (kW).

Space: A unit of 500 cubic feet, a convenient measure of the internal volume of a hull, or of the size of a ship's systems. Often used interchangeably with *dton* (see above).

Ton: A measure of mass or weight, equal to 2,000 pounds.

Step 1 – Determine Design Concept

First, decide on the general concept and mission for the ship. Who is building it and for what purpose? Is it a starship, or a craft intended only for in-system travel? Is it a merchantman or a warship? Does it have specialized functions that most ships do not have?

Next, decide at what TL the ship is being designed and built. During the Interstellar Wars era, Vilani starships are always built at TL10 (the "Imperial standard" technology, see p. 160). During the same era, Terran shipbuilding technology progresses from TL9 to TL11; Terran ships can be built at a variety of technology levels, depending on the year of construction.

Step 2 – Hull

A ship's *hull* is its frame, and also provides its basic infrastructure (decks, cables, stress bracing, and so on). The size of a hull is measured in *dtons*. To design the ship's hull, choose its size, shape, and degree of streamlining.

Hull Size

Begin by selecting a hull size from those listed on the Hull Table. Note that the largest hulls are only available at higher TL. Based on the hull's size, record the hull's base surface area (in *ksf*), base cost (in M$), and Size Modifier (SM).

The base surface area of each hull is the area of a sphere with the appropriate volume (assuming 500 cubic feet per dton of hull volume). Areas have been rounded off to two significant figures. Hull shapes that vary from a sphere will have more surface area to cover the same volume; this is implemented in later steps.

The base cost of any hull is equal to $50,000 per dton. This covers not only the cost of the hull itself, but also the cost of internal bracing, partitions, airlocks, power transmission infrastructure, artificial gravity, and other systems not explicitly described in the rest of the ship-design rules.

The Size Modifier for each hull size is assumed to incorporate the modifiers for hull shape from p. B550, regardless of the actual shape of the hull. A spherical hull has the same cross-section from every direction, but gets the full +2 bonus to Size Modifier. A long, narrow hull will be larger in its longest dimension, but will have no bonus to Size Modifier. In any case, the total SM will be the same.

Configuration and Shape

Hulls come in different *configurations* as well as sizes. Each configuration defines the hull's shape and affects the layout of internal and external features. The available configurations are *needle/wedge*, *flattened sphere*, *cylinder*, *close structure*, *sphere*, and *dispersed structure*. Some configurations have more surface area than others, and

Hull Table

Hull Size (dtons)	TL Required	Base Area (ksf)	Base Cost (M$)	SM
10	–	1.4	0.5	+6
20	–	2.2	1.0	+6
30	–	2.9	1.5	+7
40	–	3.6	2.0	+7
50	–	4.1	2.5	+7
60	–	4.7	3.0	+7
80	–	5.7	4.0	+7
100	–	6.6	5.0	+8
200	–	10	10	+8
300	–	14	15	+9
400	–	17	20	+9
500	–	19	25	+9
600	–	22	30	+9
700	–	24	35	+9
800	–	26	40	+10
900	–	28	45	+10
1,000	9	30	50	+10
2,000	9	48	100	+10
3,000	9	63	150	+10
4,000	9	77	200	+11
5,000	10	89	250	+11
6,000	10	100	300	+11
7,000	10	110	350	+11
8,000	10	120	400	+11
9,000	10	130	450	+11
10,000	10	140	500	+12
20,000	10	220	1,000	+12
30,000	10	290	1,500	+13
40,000	10	360	2,000	+13
50,000	10	410	2,500	+13
75,000	11	540	3,750	+13
100,000	11	660	5,000	+14

some configurations are more likely to be sleek and streamlined.

Needle/Wedge: A long, sleek shape with very clean lines. "Needle" hulls are very long and narrow, while "wedge" hulls are somewhat shorter and wider. Most Terran warships and small craft are built on this shape.

Flattened Sphere: A round, flat shape, reminiscent of the classic "flying saucer" configuration. Imperial small craft are usually built with this shape, especially if they need good atmospheric performance.

Cylinder: A long, rounded shape, suitable for ships that don't need the best atmospheric performance. Most Imperial cruiser-class warships are built with this shape.

Close Structure: A generic shape, generally cylindrical in structure but with various pods, nacelles, and other substructures attached. Many civilian ships, both Imperial and Terran, are built with this shape.

Sphere: A standardized spherical shape, with few or no attached substructures. Some very large "monitors" (armed, nearly-stationary space stations) are built with this shape, as are a few smaller ship classes that are intended exclusively for deep-space operations.

Dispersed Structure: A generic classification for ships built as open frameworks rather than compact hulls. Very few ship classes are built with this shape, although the Terran Navy has experimented with it for some support vessels.

Select a hull configuration. Make a note of the Area Modifier, Cost Modifier, Turrets Modifier, and best streamlining available for that configuration.

Streamlining

Every hull has one of three levels of streamlining: *unstreamlined*, *streamlined*, or *airframe*.

Unstreamlined vessels may have dispersed structures, or they may have more standard hull shapes but with no concessions to airflow. An unstreamlined vessel must remain below supersonic speeds in any atmosphere denser than Trace or it risks destruction. This makes atmospheric landings and takeoffs very difficult and dangerous for such vessels. Meanwhile, unstreamlined vessels typically have no landing gear or other facilities to relieve the stresses on the hull when set on the ground. An unstreamlined ship *may* be able to land on a world once – but it is likely to be unable to ever lift off again.

Streamlined vessels are generally cylindrical, spherical, or block-shaped. Sharp edges may have been rounded off, but the hull does not generate lift and there are no aerodynamic control surfaces. A streamlined ship may skim gas-giant atmospheres for hydrogen fuel (p. 192), but they must exercise caution when landing on or taking off from worlds with substantial atmospheres. However, they normally have retractable landing gear and are unlikely to be damaged by simply landing on a planetary surface.

Airframe vessels are sleek, usually needle-, wedge-, or disk-shaped. An airframe ship is designed for atmospheric performance and smooth airflow over the hull. It has full atmospheric maneuverability, and generates lift in any substantial atmosphere. Airframe ships may skim for fuel and can safely re-enter any atmosphere. An airframe hull is assumed to include retractable landing gear.

Select a streamlining level, and make a note of the Area Modifier and Cost Modifier from the following table. The best level of streamlining that is available depends on the hull configuration, as given on the Hull Configuration Table.

Hull Streamlining Table

Streamlining	Area Modifier	Cost Modifier
Unstreamlined	0.0	0.0
Streamlined	0.2	0.2
Airframe	0.3	0.4

Finalizing Hull Design

Once the hull size, configuration, and degree of streamlining are determined, several attributes of the hull can be computed in turn.

Hull Configuration Table

Configuration	Area Modifier	Cost Modifier	Turrets Modifier	Best Streamlining
Needle/Wedge	2.5	2.0	0.3	Airframe
Flattened Sphere	2.0	1.6	0.25	Airframe
Cylinder	1.5	1.2	0.3	Streamlined
Close Structure	1.2	1.0	0.25	Streamlined
Sphere	1.0	1.0	0.2	Streamlined
Dispersed Structure	2.0	1.0	0.2	Unstreamlined

Suggested Hull Sizes

A ship's classification depends on its function, not its size. Even so, naval experts usually classify spaceships according to hull size. Here are some suggested hull size ranges for various ship classes during the Interstellar Wars era.

A ship with a hull size of less than 100 dtons cannot mount a working jump drive. Starship hulls must therefore be at least 100 dtons in size.

Common Hull Size Table

Ship Class	*Hull Size Range (dtons)*
Fighter or Lifeboat	10-20
Launch, Gig, or Ship's Boat	20-30
Pinnace or Cutter	30-50
Shuttle	50-100
Scout or Courier	100-400
Tramp Merchant	100-200
Small Free Trader	200-400
Patrol Cruiser or Corvette	400-1,000
Large Free Trader	400-1,000
Destroyer or Frigate	1,000-2,000
Freighter	1,000-2,000
Light Cruiser	2,000-3,000
Cruiser	3,000-5,000
Heavy Cruiser or Attack Cruiser	5,000-10,000
Carrier	10,000-20,000
Large Freighter	10,000-20,000
Dreadnought	20,000+
Battleship	30,000+

Surface Area: To determine the total surface area of the hull (in ksf), multiply the base surface area from the Hull Table by the *sum* of the Area Modifiers from the Hull Configuration Table and the Hull Streamlining Table.

Mass: The hull's mass is computed by multiplying the total surface area (in ksf) by 1.5 tons at TL9, 1 ton at TL10, and 0.75 tons at TL11.

Cost: To determine the total cost of the hull (in M$), multiply the base cost from the Hull Table by the *sum* of the Cost Modifiers from the Hull Configurations Table and the Hull Streamlining Table.

Maximum Number of Turrets: The maximum number of turrets that can be placed on the ship's hull is based on the hull's base surface area from the Hull Table. Multiply the base area by the Turrets Modifier from the Hull Configurations Table. Round the result *down* to the nearest integer. The degree of streamlining *does not* affect the number of turrets that can be mounted on the hull.

Step 3 – Armor and Surface Features

Ships are armored to protect against micrometeors, cosmic radiation, and enemy weapons. Adding armor will make a ship more massive and therefore slower, but it will also make the ship more durable. Other surface features may make the ship harder to spot using active or passive sensors. These features do not take up internal hull volume, but do add mass and cost.

The mass and cost of these surface features depends on the total surface area of the hull (in ksf), as derived in Step 2.

Choose Armor dDR

Spaceship armor is rated in *dDR* (multiples of DR 10). An airframe or streamlined ship must have at least dDR 10. An unstreamlined ship with a configuration other than Dispersed Structure may have any dDR. A ship with a Dispersed Structure hull must have dDR 0. Most civilian ships will have at least dDR 10 – but ships likely to face enemy fire (warships, Terran privateers, renegade Vilani ships) are likely to be *much* better armored.

To determine how much armor a ship needs, review the weapon tables starting on p. 226. As a rule of thumb, a light military vessel will be able to withstand a hit from turret lasers at its TL, if the hit does average damage. A cruiser-sized warship will be completely impervious to turret laser weapons, and will be able to withstand average hits from bay-mounted beam weapons. Battleships and dreadnoughts will be impervious to bay-mounted beam weapons, and will be able to withstand average hits from spinal-mount particle cannon.

Armor Mass and Cost

Armor Mass: Multiply the ship's hull area (in ksf) by the chosen dDR. Multiply the result by 0.75 tons at TL9, 0.5 tons at TL10, and 0.3 tons at TL11.

Armor Cost: Multiply the armor's total mass (in tons) by M$0.012 to get armor cost.

Stealth

A vessel can optionally be given *stealth* to make it harder to detect with active sensors (like radar). Stealth subtracts (TL-4) from the effective skill level of active sensor scans.

Stealth Mass: Multiply the ship's hull area (in ksf) by 0.25 tons. Stealth mass does not vary by TL.

Stealth Cost: Multiply the stealth feature's total mass (in tons) by M$0.3 to get stealth cost. Stealth cost does not vary by TL.

Step 4 – Evaluate Hull Design

So far, the design process has focused on the hull. Now the hull has been completely described, and the process is about to move to the task of allocating ship's systems to take up space within the hull. At this point, the hull should be evaluated to set the parameters for later stages in the process.

Hull Spaces

Hull spaces are a measure of usable internal hull volume. A ship, no matter what its degree of streamlining, begins with hull spaces equal to its hull size in dtons.

Record the number of available hull spaces. Beginning with the next step in the design process, ship's systems will be installed inside the hull. Each system will take up some number of hull spaces – if the total number of hull spaces occupied by systems is no greater than the number of available spaces, the design will be legal.

Hull Mass and Estimated Mass

Compute the mass of the empty hull, and use this figure to estimate the final loaded mass of the completed ship. This estimate is useful when choosing drives and other equipment for the ship.

Hull Mass: Add together *hull mass*, *armor mass*, and *stealth mass*, as determined in earlier steps. Record the total as the *Hull Mass*.

Estimated Mass: Record a working approximation of the ship's final loaded mass, useful when deciding what components (especially what maneuver drives) are to be placed in the hull. Estimated Mass can be ignored once the ship design is completed. The density of internal components and payload can vary widely, but for most ships a reasonable estimate is Hull Mass + (2 × hull spaces).

Step 5 – Drives

Every mobile ship needs a *maneuver drive,* or "M-drive," to propel it through space. Every starship needs a *jump drive,* or "J-drive," to permit it to make jumpspace transitions from one star system to the next.

Maneuver Drive

A maneuver drive is a reactionless system that produces thrust without needing to consume fuel or reaction mass. Maneuver drive systems are rated for *thrust*, measured in tons; the total thrust delivered by all M-drive systems on board is used later to determine the ship's maneuvering performance.

Maneuver drive systems are installed by the space. No matter what the TL, one space of maneuver drive machinery has a mass of 4 tons, costs M$1.0, uses 20 MW of power, and provides 200 tons of thrust. Half-space maneuver drive systems can be installed, taking up half the mass, requiring half the cost and power, and delivering half the thrust of a single space.

Jump Drive

The jump drive enables faster-than-light interstellar travel, as well as an alternative method of interplanetary travel that is sometimes convenient. Only ships with hull size of 100 dtons or more can install a working jump drive.

Jump drive systems are installed by the space. No matter what the TL, one space of jump drive machinery has a mass of 4 tons, costs M$4.0, and uses 20 MW of power. The jump drive's power requirement applies only while the ship is in jump space, so the designer can assume that the maneuver drives will be shut down while the jump drive is drawing power.

To determine how many spaces of jump drive systems are required, refer to the Jump Drives Table below. Each available jump range has a specific requirement in spaces of jump drive systems – install *exactly* that many spaces per 100 dtons of ship hull size. A jump drive of a given range will only be available at certain TL.

Note that a "Jump-0" drive is available. This represents the earliest Terran jump drives, which were highly experimental and only capable of reaching the solar cometary cloud (maximum range about 0.25 parsecs). Very few ships would have mounted such drives by the beginning of the Interstellar Wars era, but the option is presented here for the sake of campaigns set in the earliest days of Terran space exploration.

Jump Drives Table

Jump Range	*Spaces (per 100 dtons)*	*Ship TL Required*
Jump-0	4	Early TL9
Jump-1	2	Late TL9
Jump-2	3	TL10
Jump-3	4	TL11

Step 6 – Fuel

Starships with the jump drive use large quantities of hydrogen fuel during each jump. Much of a starship's volume will be devoted to the storage and processing of this fuel.

Fuel Tanks

Starships need fuel tanks to store hydrogen fuel, which is used to actuate the jump drive and to maintain the ship's presence in jumpspace during travel. Ships without a jump drive do not need fuel tanks for their own operation, although "tankers" that provide fuel to other ships are possible.

Fuel tanks are installed by the space. No matter what the TL, one space of fuel tanks has an empty mass of 0.025 tons, costs M$0.02, and uses no power. Half-space fuel tank systems can be installed, with half the mass and cost, and storing half as much hydrogen fuel.

At TL10 and above, a ship uses exactly 10 spaces of hydrogen fuel per parsec of jump for every 100 dtons of ship hull size. For example, a 100-dton ship making a two-parsec jump will use 20 spaces of hydrogen fuel; a 1,000-dton ship making a one-parsec jump will use 100 spaces of hydrogen fuel. A jump of less than interstellar range always uses the same fuel as a one-parsec jump.

The earliest Terran jump drives (notably those used aboard the *Starleaper* exploratory ships) were very fuel-inefficient. *Double* the above fuel consumption for any Terran jump drive built at TL9. Ships built by non-Terran TL9 civilizations may or may not use inefficient jump drives – if they don't, their fuel consumption is as for TL10+.

A ship usually has at least enough fuel tanks to store the fuel necessary for one jump at its maximum range. Ships may have extra fuel tanks, in order to perform more than one jump without having to refuel.

Fuel Processors

Starships sometimes perform "wilderness refueling," refilling their fuel tanks from materials found on backwater worlds or out-of-the-way moons. The most common method is for a starship to skim the outer atmosphere of a gas giant planet, scooping up hydrogen gas. If a gas giant is not available, fuel can be "cracked" from water or other ices that can be found in many places in almost every star system. Hydrogen that is skimmed or cracked must be processed and purified before it can safely be used as fuel.

Fuel processor systems are rated for the amount of unrefined fuel that they can process in one hour, measured in dtons.

Fuel processors are installed by the hull space. The statistics for each space of fuel processors depend on TL and are given in the following table. Half-space fuel processor systems can be installed, taking up half the mass, requiring half the cost and power, and processing half of the unrefined fuel of a single space.

Fuel Processors Table

Ship TL	Mass (tons)	Cost (M$)	Power (MW)	Fuel Processed/ Hour (dtons)
9	4	0.2	20	2.5
10	4	0.2	18	3.2
11	4	0.2	16	4.0

Step 7 – Bridge

Every manned ship needs at least one *bridge* to serve as a command center for the ship. In this compartment, the ship's leading officers and crew work and manage ship's systems. Many ships have secondary control rooms as well. In particular, warships often have an emergency bridge in case the main bridge is damaged, or a "flag bridge" for the use of flag officers in command of whole squadrons.

Select at least one bridge system for the ship. A bridge is assumed to include the ship's main computers, workstations for the bridge crew, mechanical and electronic controls for other ship's systems, communications equipment, image processing equipment for the ship's sensors, and so on.

Bridge Systems Table

System	Spaces	Mass (tons)	Cost (M$)	Power (MW)	Computer	Complexity
Small Cockpit	0.5	3	0.25	neg.	Minicomputer	TL-5
Large Cockpit	1	4	1	neg.	Microframe	TL-4
Small Bridge	1.5	8	0.5	neg.	Minicomputer	TL-5
Standard Bridge	2.5	12	1	neg.	Microframe	TL-4
Command Bridge	5	24	4	neg.	Mainframe	TL-3

A *small cockpit* is a single-seat cockpit, typical of short-range, unarmed craft. It includes limited life support (three man-days at TL9, six man-days at TL10+).

A *large cockpit* is a twin-seat cockpit, typical of fighters and long-range small craft. It includes limited life support (six man-days at TL9, 12 man-days at TL10+). There is a single bunk in the back of the cockpit, permitting one crewman to stretch out for rest periods.

A *small bridge* is typical of large but non-jump-capable ships, such as interplanetary shuttles. It also appears on a few small starships that have less than the maximum available jump range; the onboard computer does not have the capacity to plot maximum jumps. It has three crew stations and enough room for the crew to get up and walk around. It includes limited life support (24 man-days at TL9, 48 man-days at TL10+).

A *standard bridge* is typical of small warships and most civilian starships. Its onboard computer is capable of navigating even the maximum jump range available at its TL. It has five crew stations and plenty of walking-around room. It includes limited life support (40 man-days at TL9, 80 man-days at TL10+).

A *command bridge* is usually found on large warships. Its onboard mainframe can compute maximum-range jumps with ease, with plenty of processing power left over for a variety of other operations. It has 10 crew stations and plenty of walking-around room. It includes limited life support (80 man-days at TL9, 160 man-days at TL10+).

For each bridge system type, the size of the ship's computer is given. Every ship is assumed to have three hardened computer systems of the same size, with two of them serving as backups (see *Computers*, p. 162). The Complexity of the ship's computers is also noted. Note that a jump-0 ship needs an onboard computer of Complexity 4+, a jump-1 ship needs a computer of Complexity 5+, a jump-2 ship needs a computer of Complexity 6+, and a jump-3 ship needs a computer of Complexity 7+.

Step 8 – Sensors

Every ship needs sensor equipment in order to remain aware of its environment. Install at least one sensor system in each ship; multiple sensor systems can be installed as backups in case of battle damage. Most small civilian ships can get by with no more than a Model-1 sensor array; warships and large freighters will have heavier sensor systems.

Sensor systems have a *Scan* rating, a general measurement of sophistication and power. For detailed rules on sensor use, see *Sensors*, p. 172. The spaces, mass, and cost of a sensor system do not vary with TL. However, sensors built at higher TL have greater power requirements and longer range. Apply the tech level adjustments given in the table for each sensor system.

Note that early ***Traveller*** material used the "Model-X" notation to describe the ship's *computer*, and made no provision for sensor systems. "Realistic" computer systems are likely to be small and light, but realistic *sensors* are bulky even at very high TL. ***Interstellar Wars*** assumes that the massive "computer" systems in early ***Traveller*** designs actually represent sensors and other electronics.

Step 9 – Weapons and Defenses

The universe is a dangerous place, and most ships mount some sort of armament.

Sensor Systems Table

System	Spaces	Mass (tons)	Cost (M$)	Power (MW)	Scan
Model-0	0.5	6	2	1	12
Model-1	1	12	4	2	14
Model-2	1.5	18	6	3	15
Model-3	2	24	8	4	16
Model-4	3	36	12	6	17
Model-5	4	48	16	8	18
Model-6	6	72	24	12	19
Model-7	9	110	36	18	20
Model-8	14	170	56	28	21
Model-9	20	240	80	40	22
Tech Level Adjustments					
TL9	–	–	–	–	–
TL10	–	–	–	×2	+2
TL11	–	–	–	×4	+4

Turret Weapons

Turrets are rotating superstructures mounted on the hull, used to hold weapons. They have considerable flexibility in arc of fire, since they can rotate on the hull to aim in any direction. As long as the ship's hull or appendages aren't in the way, the turret can fire in any target, regardless of the ship's current attitude. Turret weapons are the universal tools of space combat. Even on large vessels, they still fulfill valuable point defense and close-defense roles (against missiles and small vessels).

Lasers are coherent-light weapons. Most ships mount them as a missile defense; they are the most common weapons on civilian ships due to their long range and high penetration. At TL9, these weapons are "rainbow" lasers, capable of being tuned to perform well in various conditions such as planetary atmospheres, dense fog, smoke, and even underwater. At TL10 and above, X-ray lasers become the standard ship's laser cannon, offering greater penetration against armor. The standard military laser is a *beam laser*, which projects a continuous beam on each firing. Civilian ships are more likely to use a *pulse laser*, which projects shorter pulses before needing to recharge.

Plasma guns and *fusion guns* are high-energy weapons that shoot bolts of superheated gas, contained in a magnetodynamic "bottle." They suffer from short range when compared to lasers, because the magnetic containment of the plasma decays in a short time. Still, they are superb defensive weapons – the powerful bolts are strong enough to melt any missile, drone, or foolhardy small craft into slag.

Missile racks are launchers for ship-to-ship missiles. Each turn, a vessel may launch one missile per turret missile rank, 24 missiles per light missile array, and 36 missiles per heavy missile array. Missile racks are inconvenient for small civilian craft to use – the missiles are very long and are a chore to load except when the ship is grounded or docked at an orbital facility. Still, the racks are also useful for launching non-weapon drones (communication relays, electronic-warfare drones, survey probes, and so on) and so many civilian ships will mount at least one. Warships often mount missile racks, taking advantage of the missiles' long range and standoff capability. Indeed, the Imperial Navy almost *specializes* in missile combat at the expense of directed-energy weapons.

Sandcasters are a defensive system used for protection against laser fire. They launch canisters full of tiny reflective/ablative crystals, commonly called "sand." These crystals scatter incoming laser light, reflecting part of it in all directions, absorbing the rest. The standard tactic is to shoot "sand" canisters so that a cloud of sand is placed between the ship and any enemy vessels that might fire on it. For more details of the use of sandcasters in combat, see p. 223.

The maximum number of turrets that can be installed depends on the *area* of the ship's hull, and is determined in Step 2. Turrets need not be installed when the ship is built. Instead, "hardpoints" up to the maximum number of allowed turrets can be designated as places for turrets to be installed later.

Fixed Mounts: Any small craft (100 dtons or less) may install up to three *fixed mounts* in the hull. Fixed mounts permit the installation of turret weapons without the ability to rotate them to cover different fields of fire. In order to aim a weapon in a fixed mount, the whole ship must be turned. If a small craft includes fixed mounts, they displace one turret on the hull. However, a small craft that is too small to mount any turrets at all can still install up to three fixed mounts.

If the ship is not going to carry turrets at first, stop after allocating hardpoints. Otherwise, assign fixed mounts or light or heavy turrets as needed. Plasma or fusion guns can only be installed in a heavy turret, while all other turret weapons can be installed in a fixed mount or light turret. Refer to the *Turrets Table* for turret requirements.

Turrets Table

System	Spaces	Mass (tons)	Cost (M$)	Power (MW)
Fixed Mount	1	0	0	0
Light Turret	1	1	0.1	neg.
Heavy Turret	2	1.5	0.2	neg.

Turret weapons take up no hull space beyond that used by the fixed mount or turret. Plasma and fusion guns may be mounted two per heavy turret, while all other turret weapons may be mounted one per fixed mount, or three per light turret. If multiple weapons are mounted in one turret, they are usually identical – but some small Terran ships use a triple mount with one laser, one missile rack, and one sandcaster for maximum flexibility.

Turret armament need not be specified when a vessel is designed, as shipyards can leave turrets empty for the owner to customize. Merchant ships in safe regions may have empty turrets, or may mount only one or two rather than the full complement of weapons. Although empty or partially filled turrets cannot be used to store cargo, crews often find creative uses for the extra space – like illicit stills.

Turret Weapons Table

System	Mass (tons)	Cost (M$)	Power (MW)
Beam Laser/9	3	1	5
Beam Laser/10	3	1	20
Beam Laser/11	3	0.5	20
Pulse Laser/9	3	0.5	2.5
Pulse Laser/10	3	0.5	10
Pulse Laser/11	3	0.25	10
Plasma Gun/10	5	1.5	20
Plasma Gun/11	5	0.75	20
Fusion Gun/11	5	2.0	30
Missile Rack	1	0.75	neg.
Sandcaster	1	0.25	neg.

Bay Weapons

Weapon bays are large spaces allocated for heavy weapons on the skin of the ship's hull. They are rarely found on even very large civilian craft, but they are quite common on medium-sized warships. Bay weapons have limited arc of fire, requiring the ship to maneuver to face them toward the enemy. Some bay weapons are larger versions of turret weapons systems, but there are also weapons that can only be mounted in bays.

Particle Cannon weapons are the most typical beam weapons given bay mounts. They accelerate hydrogen nuclei to relativistic velocities, strip them of their charge, and fire them at a target. "P-beams" have less range than lasers, but are considerably more powerful and are harder to defend against. They deal heat and explosive damage, and metal "spalling" exposes the target's crew and unshielded electronics to hard radiation.

Spinal Mount Weapons Table

System	Spaces	Mass (tons)	Cost (M$)	Power (MW)	Turrets Displaced
Light Spinal Particle Cannon/10	4,000	20,000	4,000	60,000	35
Light Spinal Particle Cannon/11	3,500	18,000	3,500	55,000	35
Heavy Spinal Particle Cannon/10	4,500	23,000	4,500	70,000	40
Heavy Spinal Particle Cannon/11	4,000	20,000	2,000	60,000	35
Light Spinal Meson Cannon/11	2,000	10,000	2,000	30,000	25
Heavy Spinal Meson Cannon/11	5,000	25,000	5,000	75,000	40

Repulsors are not, strictly speaking, a weapon system – they are a defense against enemy missile weapons. They project gravitic fields toward incoming missile volleys, twisting the missiles' trajectories so that they fail to close to striking distance.

As with turrets, bay weapons need not be installed when the ship is built. Empty bays can be set aside at construction and filled later. Warships may use empty bays to store "deadfall ordnance" (i.e. missiles and bombs for planetary bombardment, which are delivered by simply being dropped from the weaponless bay). Empty bays can also be used to store cargo or small craft.

Empty weapon bays take up space in the hull (50 or 100 spaces, as appropriate) but have no mass, cost, or power requirement. Weapon bays take up hull *area* and displace turrets; a 50-dton bay displaces eight turrets, while a 100-dton bay displaces 10 turrets.

Spinal Mount Weapons

A *spinal mount* is a large weapon mount used only for massive beam weapons. In effect, the ship is built around the weapon, which is fixed inside the ship's hull and is considered its main structural member. Spinal mounts have a limited arc of fire, so in order to aim a spinal mount weapon the whole ship must be turned.

Spinal mount weapons are almost never found in ships built at TL9 or smaller than 5,000 dtons, and are never found in civilian ships. Most ship designs will not need to consider them. A ship may only include one spinal-mount weapon.

The Terran Confederation often uses spinal mount weapons in its largest warships; the Imperium uses similar technology in a few warship classes, but tends to rely on massive missile volleys instead. Most spinal mount weapons at TL10 are massive particle-accelerator cannon, but a new variation of the technology appears at TL11 and is used by most large Terran warships after that point.

Meson cannon are an advanced weapon type that is only available to Terran warships, and only after the Confederation advances to TL11. A meson cannon takes advantage of a specific class of subatomic particles that does not interact with normal matter – but which releases radiation when it decays, a few microseconds after creation. The meson cannon fires energetic beams of these particles at speeds very close to that of light. If the beam's velocity is properly calibrated, then the particles decay *inside* the target ship, bypassing any armor, causing internal explosions and radiation.

Only one spinal mount weapon can be installed in any ship. The weapon must be specified and installed at the design stage; a spinal mount forms an integral part of the ship's structure, and the ship cannot operate without the weapon in place. Like other weapons systems, spinal mounts take up hull area and displace turrets. Refer to the *Spinal Mount Weapons Table*, which gives *turrets displaced* for each weapon along with the other usual attributes.

Bay Weapons Table

System	Spaces	Mass (tons)	Cost (M$)	Power (MW)
Heavy Particle Cannon/9	100	500	100	500
Heavy Particle Cannon/10	100	500	100	1,500
Heavy Particle Cannon/11	100	500	50	1,500
Light Particle Cannon/10	50	250	50	750
Light Particle Cannon/11	50	250	25	750
Bay Plasma Gun/10	50	250	75	1,000
Bay Plasma Gun/11	50	250	40	1,000
Bay Fusion Gun/11	50	250	100	1,500
Repulsor Array/10	100	400	100	250
Repulsor Array/11	100	400	100	250
Heavy Missile Array	100	100	75	neg.
Light Missile Array	50	50	40	neg.

Step 10 – Small Craft

Ships often carry various vehicles and small craft – air/rafts or orbital shuttles for the crew's use, lighters to permit cargo offloading from unstreamlined ships, fighter squadrons, and so on. Any such vehicles or small craft should be selected at this point.

Small craft can be carried in several different ways.

Vehicle Bays

A *vehicle bay* is a small space recessed into the larger ship's hull, custom-designed to snugly hold a single, specific small craft. It cannot be used for any other type of vehicle. To access the small craft, crewmen use a hatch that directly connects the larger and smaller vehicles. Any maintenance to be performed on the small craft must be done from inside unless the two vehicles are in spacedock.

The total size of all small craft carried in vehicle bays cannot exceed 20% of the larger ship's hull size. For example, a 100-dton scout ship could carry two 10-dton lifeboats or a single 20-dton gig in vehicle bays, but no more.

Regardless of the size of the small craft, the equipment for a vehicle bay takes up one space, has a mass of 0.5 tons, has negligible cost, and uses no power. The vehicle bay must also be allocated one space for every dton of the small craft's size; this extra space has no mass, cost, or power requirement.

Hangar Bay

A *hangar bay* is a large space inside the ship in which a variety of smaller craft can be stored for use. Unlike a vehicle bay, a hangar bay is not specific to one class of small craft. Any small craft that does not exceed a specified size may use it – indeed, large hangar bays may provide sufficient space to store many small craft. Such large hangar bays have bay doors, and may include elevators or ramps to move the small craft into launch position.

There is no limit to the size of hangar bays within a larger ship. When hangar bays are being designed, the *capacity* (in dtons) of the bay must be specified; the exact nature of the small craft to be carried need not be. Decide whether the systems form one large hangar or several smaller ones.

Regardless of the size of any small craft to be stored within a hangar bay, the necessary equipment takes up 1.5 spaces, has a mass of one ton, has negligible cost, and uses negligible power. The hangar bay must then be allocated two spaces for every dton of capacity; this extra space has no mass, cost, or power requirement.

Hangar bays are normally sealed against vacuum, and can be provided with air pressure and life support while the ship is not engaged in launch or retrieval operations.

Launch Tubes

Ships that carry many similar small craft (such as carriers or "mother ships," which carry fighter squadrons) sometimes install *launch tubes* in order to launch the small craft as efficiently as possible. A launch tube is a low-powered mass driver, which uses electromagnetic induction to propel the launched craft quickly away from the larger ship's hull. There is usually a "reloading" mechanism, a set of elevators used to bring new craft into the launch tube very quickly.

If a ship is to launch small craft with a launch tube, begin by installing a hangar bay in which all of the carried small craft can be stored when not on flight operations. Then install a separate hangar bay just large enough to contain the largest craft to be accommodated by the launch facility. Finally, add one module of launch tube systems for every five dtons (or fraction thereof) of the largest craft to be accommodated. Regardless of TL, one module of launch tube systems takes up two spaces, has a mass of 20 tons, costs M$0.2, and uses 0.5 MW of power.

Step 11 – Power Plant

During the Interstellar Wars era, almost all starships use a fusion power plant design first developed by the Vilani over 7,000 years earlier. Although Terrans had developed fusion power independently, they quickly borrowed features of the much more efficient Imperial design. A few early Terran ships used *fission* power plants, trading long-range endurance and safety for cost effectiveness.

A ship may have more than one separate power plant, to provide redundancy in case of systems failure or battle damage.

Total up all of the power (in MW) required to run all systems installed so far. For most ships, any remaining power requirements are trivial. The total power requirement must normally be met in full by installing power plant systems. The GM may choose to permit "underpowered" ships, but this adds extra complication as the crew must choose which systems to keep fully powered at any given time.

Since a ship's maneuver drive and weapons are very unlikely to be running in jumpspace, the jump drive's power requirement can be ignored unless it is greater than the sum of maneuver drive and weapon power requirements.

Select a power plant system from the following table. Power plants are also rated for *output*, giving the MW of power required for other ship's systems that can be satisfied by the power plant. They are also rated for *endurance*, giving the time (in years) that the power plant can operate without needing to refuel.

Output, mass, and cost are *per space* of power plant. Power plants may be taken in half-space increments, with half the listed output, mass, and cost.

Power Plant Table

System	*Mass*	*Cost*	*Output*	*Endurance*
Fission Power/9	4	2.5	8	2
Fission Power/10+	4	1.5	8	2
Fusion Power/9	4	12	8	200
Fusion Power/10	4	3	20	200
Fusion Power/11	4	1.5	20	200

Step 12 – Crew

Now that almost all of the ship's systems have been installed, consider how many crewmen will be needed to man them.

Typical crew requirements are given below, but these are *averages*; actual requirements can vary a great deal, and every individual ship may have a different crew roster. Military ships will have larger crews to allow for multiple shifts and to replace losses in combat. Transports often run with a bare minimum of crew to save money. A civilian yacht might not have *any* permanent crew, but when the yacht is in operation somebody needs to do each job. Ships with minimal crews call for talented people, since several jobs are doubled up.

In general, crew should have a skill level of at least 12 in the skill(s) appropriate for their positions. If the GM feels that a ship is under-crewed, he should assess penalties to appropriate skill rolls, especially in stressful situations when one crewman has to be in three places at once.

Crews, especially on large ships, are divided into *sections*; each section has a specific function and is usually commanded as a unit. For the purpose of these rules, we divide the various sections into *core crew* (the crewmen required to operate the ship's functions) and the *support crew* (the crewmen whose primary job is to support the core crew). The core crew includes the command section, the engineering section, the gunnery section, the flight section, the passenger service section, the cargo service section, the ship's troops, and the specialists. The support crew includes the maintenance section, the life support section, the medical section, and the general services section.

Before allocating the crew, decide how many *passengers* the ship can expect to carry; the size of several crew sections depends on the passenger capacity of the ship. Passengers can travel by *low passage*, *standard passage*, *first-class passage*, or *luxury passage* (p. 179); although passenger accommodations can be shuffled from one trip to the next, the expected number of passengers in each class should be determined.

Aside from dividing crew into sections, the crew allocations listed here also classify crew into *officers*, *petty officers*, and *crewmen*. These terms are very specific to the Terran Navy – but every starship service tends to divide its crew in some fashion into "commanders," "experienced crewmen," and "ordinary crewmen." In services other than the Terran Navy, feel free to apply different labels to each level of the crew as appropriate.

Command Section

The *command section* includes "bridge crew," the officers and support staff who coordinate all of the ship's activities.

Small craft usually run with only one or two crewmen in the cockpit. All of these crewmen are considered to be part of the small craft's "command section."

Very small starships (100-200 dtons) often get by with as few as three crewmen in the command section: a commanding officer, a pilot who also serves as navigator, and an officer who runs sensors and communications systems.

Slightly larger vessels will usually split the available work among more officers. A five-man command section, typical for ships of 200-1,000 dtons size, would include: commanding officer, executive officer (who also serves as command pilot), navigator, sensor officer, and communications officer.

Ships approaching 10,000 dtons in size will often have a 10-man command section: a commanding officer, an executive officer (command pilot), an additional pilot, two navigators, two sensor officers, two communications officers, and a computer officer.

On ships of 10,000 dtons or greater hull size, the command section often expands beyond the bridge, including more officers and a support staff that works elsewhere on the ship. The total number of personnel in the command section should amount to at least five per 10,000 dtons of ship.

On any starship, up to the first 10 members of the command section will all be officers. After that, about 50% of the section will be officers, 25% will be petty officers, and 25% will be ordinary crewmen.

Engineering Section

The *engineering section* includes technicians who operate the ship's drives and power plant. It also includes technicians who perform routine maintenance and repairs on the drives.

The engineering section requires one engineer for every five spaces of jump drive, maneuver drive, or power plant systems at TL9, or one engineer for every 20 spaces at TL10+. The number of engineers is rounded down, although ships of 200 dtons or more almost always have at least one engineer. Small craft don't normally carry an engineering section, relying instead on maintenance technicians carried by the parent ship.

The first two crewmen in the engineering section are always officers, the chief engineer and the second engineer, or "chief engineer's mate." After these two, the engineering section will have about 10% officers, 20% petty officers, and 70% ordinary crewmen.

Gunnery Section

The *gunnery section* includes not only the "gunners" who operate ship's weapons in combat, but also the fire-control and tactical specialists who coordinate weapon fire in accordance with orders from the ship's captain.

Spinal mount weapons need one gunnery crewman per 100 spaces taken up by the weapon (round to the nearest whole number). Bay weapons need at least two crewmen, and turret weapons need at least one crewman per turret.

The gunnery section will usually have about 10% officers, 30% petty officers, and 60% ordinary crewmen. On warships, there is usually at least one officer or petty officer to serve as a chief gunnery officer; if the gunnery section is large, there will be at least one petty officer per *type* of weapon on board.

Flight Section

The *flight section* includes pilots and crew for the ship's attached small craft, including personal vehicles, gigs, interface shuttles, fighters, and even subsidiary spaceships of 100 dtons or more. It also includes "flight

control" officers, who coordinate the traffic of such smaller vehicles.

Each small craft needs its own pilot, as well as any other crew that is needed when the craft is in operation. Each craft also needs at least one technician to provide regular maintenance. If the ship has at least four small craft on board, then the launch facilities themselves (hangar bays, launch tubes, and so on) will need at least one crewman for every four small craft. Finally, if the ship has at least 10 small craft on board, then it needs at least one flight control crewman for every 10 small craft.

The pilot for each small craft of 10 dtons or more will be an officer, as will any flight control crewmen. After that, the flight section usually includes 10% officers, 30% petty officers, and 60% ordinary crewmen.

Passenger Service Section

The *passenger service section* includes crewmen whose primary job is to tend to the comfort and entertainment of passengers. Crewmen in the passenger service section are also called *stewards*.

Ships designed to carry passengers always require at least one crewman dedicated to passenger care. A ship needs one extra steward for every 50 low passengers, one for every 20 standard passengers, one for every 10 first-class passengers, and one for every two luxury passengers.

The passenger service section's first crewman is usually an officer called the *chief steward*; this officer often acts as the ship's *purser* as well, handling the ship's day-to-day accounts and running the ship's store. After the chief steward, the passenger service section usually consists of 10% officers, 20% petty officers, and 70% ordinary crewmen.

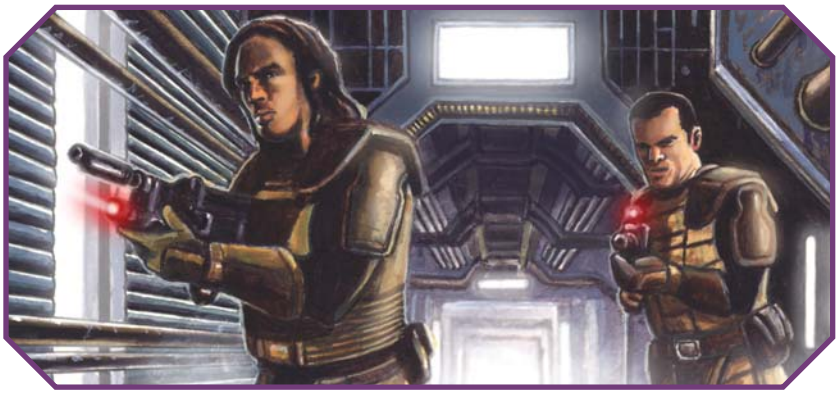
Cargo Service Section

The *cargo service section* includes crewmen whose primary job is to handle cargo loading and unloading operations, and to monitor and care for cargo when a ship is in transit. Cargo handlers are also called *stevedores*.

Even many ships that make a living carrying freight have no specific cargo service section. Such ships press other crew into service to help with cargo handling, or they rely on cargo handlers working at each port of call. The major exception is Terran merchant vessels working inside Imperial territory; such ships cannot usually call on port stevedores, so they carry their own cargo-handling crew instead.

Any starship that carries cargo for pay must have at least one crewman dedicated to cargo handling. Small merchant ships will usually press other crewmen into service during cargo loading or unloading. Large merchant ships with at least 1,000 spaces of cargo storage are likely to have dedicated teams of stevedores; on such ships, assume one stevedore (and appropriate cargo-handling equipment) for every 250 spaces of cargo.

The cargo service section is led by a crewman called the *cargomaster*. This individual supervises loading and unloading operations, and double-checks the cargo manifest. If the cargomaster is the only stevedore on board, he is usually a petty officer reporting to the ship's purser; on some ships he *is* the ship's purser. If there are multiple stevedores on board, then the cargo service section usually consists of 10% officers, 20% petty officers, and 70% ordinary crewmen.



Ship's Troops

Most ships of at least 1,000 dtons size have an armed contingent on board, the *ship's troops*. On a warship, these are marines; on a civilian ship, they are usually security forces organized in a paramilitary fashion. The ship's troops contingent varies in size from a single fire team up to a whole regiment. They often fill the role of security forces aboard their ship and take part in military exercises when required by the ship's commanding officer. They are also used for damage-control parties, for manning some ship's weapons, and for boarding actions.

Ship's troop contingents vary in size from about three per 1,000 dtons to three per 100 dtons. They are armed and organized according to the standards of the service from which they are drawn.

Specialists

Large ships, especially military vessels, will carry full-time officers and specialists for a variety of tasks: communications, sensors, landing teams, security staff, science crew, and so on. Allocate as many specialists as appear to be needed to fit the ship's functions, considering all the crew that were assigned to other core-crew sections.

Total up all of the crewmen allocated thus far; these are the core crew.

Maintenance Section

The *maintenance section* includes technicians who perform generalized maintenance and damage control on all of the ship's systems (the drives, power plants, life support, and other systems as well).

The maintenance section includes one full-time mechanic if there are at least eight core crewmen on board; one more for every full 40 core crewmen or 400 dtons of ship, whichever is *greater*. Maintenance crewmen usually report to the chief engineer. The section normally consists of 10% officers, 20% petty officers, and 70% ordinary crewmen.

Life Support Section

The *life support section* includes technicians who specialize in performing maintenance and damage control on the ship's life support systems.

The life support section includes one full-time technician if there are at least 15 core crewmen *and* passengers on board; one more for every full 80 core crewmen and passengers. Life support technicians usually report to the chief engineer. The section normally consists of 10% officers, 20% petty officers, and 70% ordinary crewmen.

Medical Section

The *medical section* includes fully certified medical doctors, nurses, and medical technicians to care for crew and passengers.

The medical section includes one full-time medic if there are at least 15 core crewmen *and* passengers on board; one more for every full 40 core crewmen and passengers. A ship should have at least one medic per sickbay system.

On a small ship, the first medic is usually a petty officer reporting to the ship's chief steward or directly to the captain. On a ship of 1,000 dtons size or larger, the first medic is usually an officer. A large medical section usually consists of about 20% officers, 30% petty officers, and 50% ordinary crewmen.

General Service Section

The *general service section* includes a number of different specialties, all of whom provide basic services to crew and passengers. These run shops and storage, provide ship's security (especially if there are no ship's troops aboard), provide food service, handle cargo, and perform other operations.

All ships require service crewmen to take care of the crew's general needs, as well as to provide services that both crew and passengers share. Allow one such crewman if there are at least 15 core crewmen *and* passengers on board; one more for every full 40 core crewmen and passengers. Increase the size of the general service section by 50% if there are no ship's troops on board, both to perform security duties and to reflect the fact that ship's troops often act as supplementary service crew when not on combat duty.

The general service crew usually consists of about 10% officers, 20% petty officers, and 70% ordinary crewmen.

Step 13 – Quarters and Miscellaneous

Once the crew size has been determined, quarters and other working spaces can be installed.

Quarters

Crew and passengers need quarters to live in during travel. Several classes of accomodation are available. The space taken up by these systems is only about 50% allocated to living space; the rest is taken up by common areas (corridors, galleys, lounges, and so on) and life support equipment.

Bunkrooms: A bunkroom is a room with 10 bunk beds (each with a small locker), intercom, controls for light and temperature, and shared sanitary facilities. Bunkrooms are generally used only on Terran warships, where space is at a premium. One bunkroom can accommodate up to 10 crewmen.

Stateroom: A stateroom is a cabin capable of housing one or two people. It contains beds, chairs, desks, closets, and sanitary facilities. There is an intercom and controls for heat and temperature.

Luxury Stateroom: A luxury stateroom is a spacious cabin capable of housing one or two people in great comfort. Its fittings are similar to those of a standard stateroom, but are much more expensive and attractive.

Low Berth: A low berth is a suspended-animation system, capable of housing up to two passengers for long periods of time without drawing on ship's supplies or life support. So long as the ship's power plant continues to operate, the low berth will maintain its occupant in good health. A low berth can be designated as an *emergency low berth* with the same volume, mass, and cost; an emergency low berth will carry four passengers, but it is too dangerous for routine passenger transport. See *Suspended Animation* (p. 166) for rules.

Small Craft Seating: A unit of small craft seating provides moderately comfortable seating for 12 passengers for a short period of time (up to 12 hours). It is normally installed only on small craft intended for short-term operations (orbital or interplanetary shuttles, for example).

A flag officer will normally have his own luxury stateroom. A ship's commanding officer normally has his own stateroom, as does any officer commanding the engineering, gunnery, or flight sections, or the ship's troops. Other officers and petty officers live two to the stateroom. Ordinary crewmen and ship's troops may share staterooms, although on Terran ships (especially warships) they are often housed in bunkrooms. Each luxury passenger should have his own luxury stateroom, while standard and first-class passengers should have their own staterooms; couples or groups traveling together may share staterooms, but this should not be assumed when installing quarters.

Half-space versions of low berths or small craft seating may be installed, with half the mass, cost, power requirement, and capacity.

Workshops

Many ships need built-in workshops to support the engineering and maintenance staff. Machine parts often need to be repaired or replaced, and if a needed component isn't immediately available it may need to be fabricated by hand.

Quarters Table

System	*Spaces*	*Mass (tons)*	*Cost (M$)*	*Power (MW)*
Bunkroom	2	0.5	0.01	neg.
Stateroom	4	1	0.05	neg.
Luxury Stateroom	8	2	0.15	neg.
Low Berth	1	4	0.05	neg.
Small Craft Seating	1	1.5	0.01	neg.

Regardless of TL, one workshop system takes up 2.5 spaces, has a mass of 15 tons, costs M$0.06, and uses negligible power. Workshops at higher TL will have better equipment. Up to three personnel at a time can work in each workshop.

One workshop should be installed for every 60 full personnel in the engineering, maintenance, and life support sections. On Terran ships, especially those likely to be in Imperial or unexplored space for long periods, this requirement is often exceeded.

If a workshop is available, any penalty for not having one is negated. A workshop also provides a +2 bonus to the user's skill on any task involving the diagnosis or repair of ship's systems.

Laboratories

Ships intended for exploration, survey, or other scientific work need laboratory space for the science specialists on board. Each laboratory system is dedicated to a single scientific skill and cannot be used to support other skills.

Regardless of TL, one laboratory system takes up two spaces, has a mass of 10 tons, and costs M$1. Laboratories devoted to certain physical sciences (GM's discretion) use 0.3 MW of power each; other laboratories use negligible power. One scientist at a time can work in each laboratory. One laboratory should be installed for every science specialist in the crew, unless some of the scientists are working in a survey module (see below).

A laboratory gives a +2 skill bonus in any situation where the associated scientific skill is being used and lab equipment would be a benefit.

Survey Modules

Exploration and survey ships often carry specialized astronomical instruments and sensor arrays. These sensors are not useful for ship-combat situations and can't be used to target ship's weapons. Instead, they are used to detect astronomical objects at multi-parsec distances, and to survey planetary surfaces in detail from orbit.

Regardless of TL, one survey module takes up four spaces, has a mass of 12 tons, and uses negligible power. A survey module costs M$60 at TL9, M$30 at TL10, and M$15 at TL11+. At the GM's discretion, a survey module can count as laboratory space for skills like Astronomy, Cartography or Geology. It provides space for four scientists. A ship will rarely need more than one survey module, unless it is likely to have many survey specialists working at the same time.

For rules regarding the use of a survey module, see *Interstellar Exploration*, p. 182.

Sickbays

Any ship carrying medical personnel may have *sickbays* where the sick and injured can be treated under controlled conditions. A sickbay includes medical beds with special instruments and storage for drugs and surgical equipment. A large sickbay can include a motion-controlled theater for surgical procedures.

Regardless of TL, a sickbay system takes up one space, has a mass of one ton, costs M$0.2, and uses negligible power. One medical specialist at a time can work in each sickbay, and there is room for two patients per sickbay. Multiple sickbay systems can be combined into one larger medical facility. One sickbay should be installed for every two people in the medical section. If there is only one medic on board, but that medic is an officer, he is usually given a sickbay to work in.

Cargo Space

Any leftover space in the ship may either be left as "empty space" or designated as a cargo hold. Each space of cargo hold has room for 500 cubic feet of cargo. Necessary cargo doors, ramps, tie-downs, and other equipment are included. Multiple spaces of cargo can either represent a single large hold or a number of smaller holds. Holds may be installed in half-space increments.

An empty cargo hold has no mass or cost.

Starship Operating Condition

Starships don't all operate to the same standard. Some are built by skilled craftsmen applying the best tools and resources, while others are built in ramshackle civilian shipyards by contractors who are engaging in wholesale fraud and embezzlement. Even a well-constructed ship will tend to decay over time as wear and tear accumulates.

A vessel's general condition is indicated by its HT attribute (see p. B483). In the Interstellar Wars era, a vessel just out of the shipyard will have a HT of 8-12. The vast majority of new ships will have a HT of 10, while only the most exceptional ships will have HT as low as 8 or as high as 12 (indicating truly atrocious or remarkably sound workmanship, respectively).

A vessel's HT attribute declines by one level every 50 years. Once a ship's HT drops below 8, it is too unreliable for use and is normally scrapped. Thus a typical starship can expect to have a 150-year operating lifespan. Many Imperial ships are *at least* this old – on the other hand, Terrans have been operating starships for so short a time that very few Terran ships have had the chance to lose any HT.

A spacecraft's purchase cost is naturally related to its workmanship and state of repair. The GM may choose to tie a ship's purchase cost to its HT attribute, permitting adventurers to buy old or ramshackle ships for a bargain price, or superbly built ships for a premium. A suggested scheme is as follows. Multiply the base cost for the ship (as given by the ship design sequence) by the Price Multiplier for its current HT score.

Ship HT and Cost Table

Vessel HT	*Price Multiplier*
12	5.0
11	2.0
10	1.0
9	0.5
8	0.1

Step 14 – Performance

At this point, the ship design is complete and a number of important attributes can be determined.

Ship Mass

Total Empty Mass (EMass): Add together the Hull Mass (from Step 5) and the mass of all installed systems. *Do not* include the mass of ammunition, fuel, or payload. The result is the ship's *empty mass*. Round the EMass to two significant figures.

Total Loaded Mass (LMass): This is equal to the empty mass, plus these additions:

- The mass of cargo carried. Assume five tons per space of cargo hold; this figure allows for holds that are not fully packed, for container mass, and so on. A dense, heavy load may be as much as 25 tons per space.
- The mass of crew and passengers. Assume 0.1 ton per person. As a rule of thumb, this can be simplified to one ton per bunkroom, 0.2 tons per stateroom or luxury stateroom, 0.2 tons per space of low berths, 0.4 tons per space of emergency low berths, or 1.2 tons per space of small craft seating.
- The mass of hydrogen fuel. This can be simplified to one ton per space of fuel tanks.
- The mass of ammunition. This can be simplified to 1.8 tons per turret missile rack or sandcaster, 90 tons per light missile array, and 180 tons per heavy missile array.
- The *empty* mass of any small craft or vehicles carried in vehicle bays or hangar bays.

Round the LMass to two significant figures.

Hit Points

The ship's hit points depend on its *empty mass*. Refer to the following table and record the ship's hit points.

Ship Hit Points Table

Empty Mass	*Hit Points (dHP)*
15 tons or less	10
16-42 tons	15
43-91 tons	20
92-160 tons	25
170-270 tons	30
280-420 tons	35
430-610 tons	40
620-850 tons	45
860-1,300 tons	50
1,400-2,100 tons	60
2,200-3,300 tons	70
3,400-4,900 tons	80
5,000-6,800 tons	90
6,900-10,000 tons	100
11,000-17,000 tons	120
18,000-27,000 tons	140
28,000-39,000 tons	160
40,000-54,000 tons	180
55,000-91,000 tons	200
92,000-160,000 tons	250
170,000-270,000 tons	300
280,000-420,000 tons	350
430,000-610,000 tons	400

The actual formula for dHP is taken from p. B558, and the GM may choose to use that formula to get more exact Hit Point totals for his own designs. Remember to divide HP by 10 to get dHP.

Other Attributes

Total Cost: Add together the cost of all components to get the ship's final cost. Round off to two significant figures.

Size Modifier (SM): As determined in Step 2 (p. 00).

ASig: This is the ship's active sensor signature. It is equal to SM, minus (TL-4) if the ship has stealth.

Life Support Capacity: This measures how many people can be supported by the ship's life support systems for long periods (assuming enough provisions are on hand). Capacity is equal to (2 × Luxury Staterooms) + (2 × Staterooms) + (10 × Bunkrooms). Low berths yield no life support capacity. Bridge systems and small craft seating modules also

Consumables and Extras

The ship design sequence maps out the more or less permanent components of a ship class. Every individual ship needs a variety of "extras," which should be purchased before the ship becomes fully operational. These include:

Consumables: Food and other supplies (p. 175). Most ships maintain at least a month's worth of consumables for the crew and any expected passengers.

Computer Software: Example programs are described on pp. 164-165. Every starship should run at least one Damage Control program, a Jump Navigation program complex enough to support the ship's jump range, and one Targeting program per gunner. Other programs and databases can be installed as needed, up to the capacity of the ship's computer (p. 163).

Ammunition: Missiles mass 0.15 tons each, and cost $30,000 apiece. Sandcaster loads mass 0.06 tons each, and cost $400 apiece. A turret missile rack has a capacity of 12 missiles, a light missile array has a capacity of 600 missiles, and a heavy missile array has a capacity of 1,200 missiles. A sandcaster has a capacity of 12 canisters.

Missiles can also be stored in cargo space, at 30 missiles or sand canisters per space of cargo. Missiles launched must be tracked, and once they are gone no more can be launched until the racks and bays are reloaded (usually between battles).

yield no life support capacity, although they can provide life support for strictly limited periods.

Space Acceleration (sAccel): This measures how rapidly the ship can accelerate (including its ability to decelerate and maneuver). A ship's sAccel in Gs is equal to the tons of thrust provided by its maneuver drive, divided by the ship's total loaded mass in tons. Round off to two significant figures.

GMs may wish to calculate multiple sAccel for ships whose mass can change dramatically (e.g., with empty vs. full fuel tanks, or with empty vs. full cargo holds).

Jump Performance (Jump): This is the ship's jump range, and is determined by the size of its jump drive (see p. 170). A ship may have jump-0, jump-1, jump-2, or jump-3 capability.

Top Air Speed: To compute a ship's top cruising speed in a substantial atmosphere, begin by calculating the ship's drag as equal to her surface area (measured in ksf) multiplied by the appropriate factor from the Drag Table.

Drag Table

Streamlining	*Drag Factor*
Airframe Hull	100
Streamlined Hull	200
Unstreamlined Hull	1,000

The top air speed in a Standard atmosphere (p. 97) is equal to the square root of [15,000,000 × (Total thrust/Drag)]. A streamlined hull is restricted to 740 mph, while an unstreamlined hull is restricted to 600 mph. This represents the ship's top speed for *normal cruising*, not when it is accelerating into or out of orbit. Round off to two significant figures.

Step 15 – Finalize Design

The ship design is now complete. A new ship is usually categorized by size and function ("heavy cruiser" or "tramp freighter"). The first ship of a new class usually gives its name to the class, and subsequent ships built under the same design will have names which are thematically similar. For example, all battleships in the *Ares* class are named after Terran (or alien) war deities.

Common Ships

The following small craft and starship designs are typical of those encountered during the Interstellar Wars era.

Imperial 10-dton Missile Fighter

The Imperial Navy used fighter craft, but Vilani fighter doctrine was not very aggressive. A fighter squadron's function was to emerge from its mother ship, remain at a distance from the enemy, add to the weight of the fleet's missile volleys, and then return for reloading. As a result, Vilani fighter pilots tended to be more lightly trained and to have less *esprit de corps* than their Terran counterparts – a fatal flaw once the Terrans built their own fighter wings and their own (much more aggressive) fighter doctrine.

Tech Level: 10.

Hull: 10-dton Flattened Sphere Airframe hull, dDR 33 armor, Stealth.

Systems: 3 Maneuver Drive, Large Cockpit, Model-0 Sensors (Scan 14), 2 Fixed Mount, 2 Missile Racks, 3-1/2 Fusion Power.

Statistics: EMass 95 tons, LMass 100 tons, Cost M$20, SM +6, ASig +0, Hull dHP 25, no life support capacity, sAccel 6.0 G, no jump capacity, Top Air Speed 5,300 mph.

Crew: Command Section (1 officer), Gunnery Section (1 crewman). Total 1 officer, 1 crewman.

Terran 10-dton Light Fighter

Throughout the early Interstellar Wars era, the Terrans used light fighters for a variety of purposes. They were a critical part of planetary defense. They could be very useful in a fleet escort role, multiplying point defense against Imperial missile storms. Finally, they helped project power against Imperial formations, using speed and stealth to get into beam-weapon range. Many variant fighters were produced – the one described here was a typical laser-heavy model of the early Interstellar Wars.

Tech Level: 10.
Hull: 10-dton Needle/Wedge Airframe hull, dDR 16 armor, Stealth.
Systems: 2-1/2 Maneuver Drive, Small Cockpit, Model-1 Sensors (Scan 16), 2 Fixed Mount, 2 Pulse Lasers, 4 Fusion Power.
Statistics: EMass 83 tons, LMass 83 tons, Cost M$22, SM +6, ASig +0, Hull dHP 20, no life support capacity, sAccel 6.0 G, no jump capacity, Top Air Speed 4,400 mph.
Crew: Command Section (1 officer). Total 1 officer.

Standard 10-dton Lifeboat

Small starships rely on rescue balls or conventional small craft in emergencies. Larger starships are often equipped with specialized long-term lifeboats. This example can carry 24 passengers in low berths. When the low berths are full, and power consumption has been set to minimum (a distress beacon broadcasting on a timer; minimal power to the low berths and computer; no life support), lifeboats can and do keep passengers alive for centuries. The standard lifeboat has no airlock, and so cannot take on more passengers in vacuum or a hostile atmosphere unless everyone is in protective gear.

Tech Level: 10.
Hull: 10-dton Flattened Sphere Airframe hull, dDR 10 armor.
Systems: 1/2 Maneuver Drive, Large Cockpit, Model-0 Sensors (Scan 14), Fusion Power, 6 Emergency Low Berths, 1 Cargo.
Statistics: EMass 59 tons, LMass 67 tons, Cost M$8.2, SM +6, ASig +6, Hull dHP 20, no life support capacity, sAccel 1.5 G, no jump capacity, Top Air Speed 2,200 mph.
Crew: Command Section (2 crewmen). Total 2 crewmen. If the lifeboat is left in space for more than a few days, the crew must take the last two low berths.

Standard 20-dton Assault Craft

This small craft was used by both Imperial and Terran forces for a particular mission: the "opposed boarding" of potentially hostile vessels. Patrol cruisers often used the assault craft to support customs inspections, while other vessels used them to deliver Marines to capture enemy ships in battle.

Tech Level: 10.
Hull: 20-dton Needle/Wedge Airframe hull, dDR 13 armor.
Systems: 3 Maneuver Drive, Small Cockpit, Model-2 Sensors (Scan 17), Light Turret, Beam Laser, Missile Rack, Sandcaster, 4-1/2 Fusion Power, 2 Small Craft Seating, 7-1/2 Cargo.
Statistics: EMass 110 tons, LMass 150 tons, Cost M$28, SM +6, ASig +6, Hull dHP 25, no life support capacity, sAccel 4.0 G, no jump capacity, Top Air Speed 3,800 mph.
Crew: Command Section (1 officer), Gunnery Section (1 crewman). Total 1 officer, 1 crewman.

Standard 30-dton Ship's Boat

Larger merchant ships that need extra cargo or passenger transport service use a "ship's boat" as their all-around auxiliary craft. The standard ship's boat exists in a variety of variant forms, five of which are listed here.

Standard Ship's Boat

This variant is normally used for a balanced mix of passenger and cargo service. It is a typical small craft used by small and medium-sized merchant ships.

Tech Level: 10.
Hull: 30-dton Needle/Wedge Airframe hull, dDR 10 armor.
Systems: 2 Maneuver Drive, Large Cockpit, Model-0 Sensors (Scan 14), 2-1/2 Fusion Power, 4 Small Craft Seating, 20 Cargo.
Statistics: EMass 83 tons, LMass 190 tons, Cost M$17, SM +7, ASig +7, Hull dHP 20, no life support capacity, sAccel 2.1 G, no jump capacity, Top Air Speed 2,700 mph.
Crew: Command Section (1 officer, 1 crewman). Total 1 officer, 1 crewman. If passengers are carried, one or two stewards must accompany the crew to take care of the passengers during the flight.

Cargo Shuttle Variant

This variant is often used by large merchant vessels that specialize in cargo transport.

Tech Level: 10.
Hull: 30-dton Needle/Wedge Airframe hull, dDR 10 armor.
Systems: 2 Maneuver Drive, Large Cockpit, Model-0 Sensors (Scan 14), 2-1/2 Fusion Power, 24 Cargo.
Statistics: EMass 77 tons, LMass 200 tons, Cost M$17, SM +7, ASig +7, Hull dHP 20, no life support capacity, sAccel 2.0 G, no jump capacity, Top Air Speed 2,700 mph.
Crew: Command Section (1 officer, 1 crewman). Total 1 officer, 1 crewman.

Passenger Shuttle Variant

The passenger shuttle variant is used by large passenger liners, and can transfer large numbers of passengers to or from a planetary surface in a short time. Another variant, with more powerful engines and some armor, is sometimes used by Terran mercenary units as an assault lander.

Tech Level: 10.
Hull: 30-dton Needle/Wedge Airframe hull, dDR 10 armor.
Systems: 2 Maneuver Drive, Large Cockpit, Model-0 Sensors (Scan 14), 2-1/2 Fusion Power, 20 Small Craft Seating, 4 Cargo.
Statistics: EMass 110 tons, LMass 150 tons, Cost M$17, SM +7, ASig +7, Hull dHP 25, no life support capacity, sAccel 2.7 G, no jump capacity, Top Air Speed 2,700 mph.
Crew: Command Section (1 officer, 1 crewman). Total 1 officer, 1 crewman. If passengers are carried, several stewards must accompany the crew to take care of the passengers during the flight.

Fuel Skimmer Variant

This variant is often used by unstreamlined civilian ships to skim fuel for the jump drive. Military ships use their own (much larger) fuel skimmers to perform refueling operations.

Tech Level: 10.
Hull: 30-dton Needle/Wedge Airframe hull, dDR 10 armor.
Systems: 2 Maneuver Drive, 24 Fuel Tanks, Large Cockpit, Model-0 Sensors (Scan 14), 2-1/2 Fusion Power.
Statistics: EMass 77 tons, LMass 100 tons, Cost M$17, SM +7, ASig +7, Hull dHP 20, no life support capacity, sAccel 4.0 G, no jump capacity, Top Air Speed 2,700 mph.
Crew: Command Section (1 officer, 1 crewman). Total 1 officer, 1 crewman.

Mobile Base

This variant is designed for placement on a planetary surface, usually by an exploration team that intends to spend days or weeks working away from the parent ship. It includes a bunkroom for long-term life support, laboratory space, and cargo storage for secondary vehicles, pre-fabricated shelters, or equipment.

Tech Level: 10.
Hull: 30-dton Needle/Wedge Airframe hull, dDR 10 armor.
Systems: 1-1/2 Maneuver Drive, Large Cockpit, Model-0 Sensors (Scan 14), 2 Fusion Power, Small Craft Seating, Bunkroom, 2 Laboratory, 8 Cargo.
Statistics: EMass 95 tons, LMass 140 tons, Cost M$17, SM +7, ASig +7, Hull dHP 25, Life Support 10, sAccel 2.2 G, no jump capacity, Top Air Speed 2,400 mph.
Crew: Command Section (1 officer, 1 crewman). Total 1 officer, 1 crewman. Scientists and other specialists may travel with the vessel as temporary crew.

Standard 100-dton Interplanetary Shuttle

In star systems with widely separated settlements, there is always a need for interplanetary transportation for passengers and small cargoes. Variants on the standard 100-dton shuttle can be found in large numbers in almost any densely inhabited star system. It is designed for short-hop trips of up to a few days' length, and can provide reasonable comfort for passengers and crew.

Tech Level: 10.
Hull: 100-dton Close Structure Streamlined hull, dDR 10 armor.
Systems: 2 Maneuver Drive, Small Bridge, Model-1 Sensors (Scan 16), 2 Hardpoints, 2-1/2 Fusion Power, 13 Staterooms, 41 Cargo.
Statistics: EMass 110 tons, LMass 310 tons, Cost M$21, SM +8, ASig +8, Hull dHP 25, Life Support 26, sAccel 1.3 G, no jump capacity, Top Air Speed 740 mph.
Crew: Command Section (3 officers), Passenger Service Section (1 officer), Cargo Service Section (1 petty officer), Medical Section (1 petty officer). Total 4 officers, 2 petty officers.
Passengers: 3 First-Class, 6 Standard.

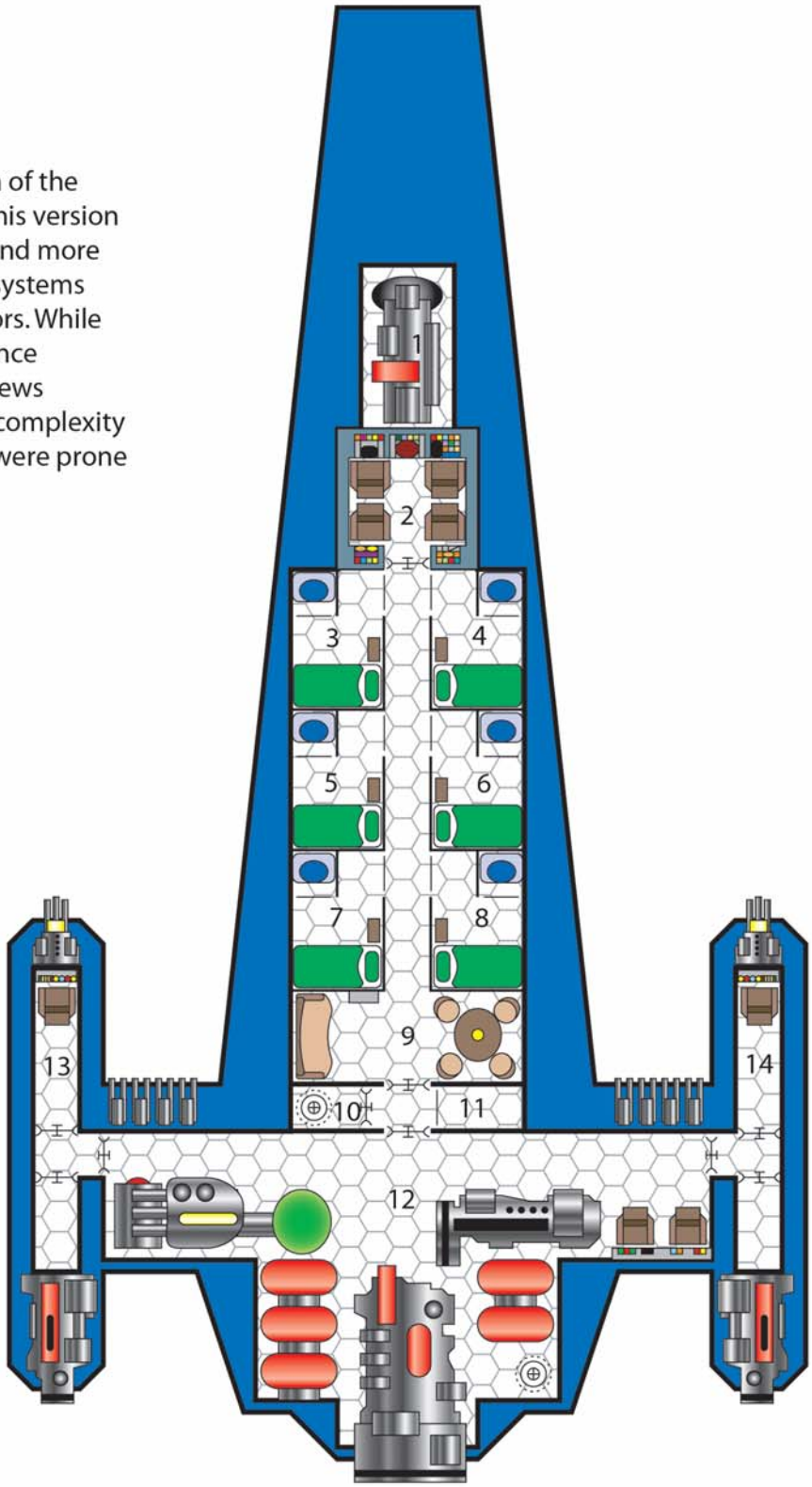
Crockett-Class 100-dton Picket Ship

As early as the Second Interstellar War, the Terran Confederation realized that the Imperium had a major advantage in its strategic "depth." Imperial expeditions could be organized many parsecs behind the front lines, leaving Terran admirals unaware of the danger until it was almost too late to respond. Something needed to be done to give Terra more warning of new Imperial offensives.

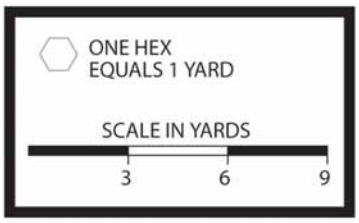
One response was the *Crockett*-class picket ship. Designed to operate up to several parsecs behind the military front, the *Crockett* was small, fast, extremely stealthy, and equipped with a much larger warship's sensor suite. It could lurk in the vast empty spaces to be found even in an important star system, watch enemy fleet movements, and then sprint for home to give warning of anything out of the ordinary.

Best of all, the *Crockett* was relatively inexpensive. Thousands of *Crockett*-class ships were built during the course of the Interstellar Wars. Sometimes teams of several *Crocketts* each were operating in 25-50 star systems at a time. Many of the picket ships were captured or destroyed by Imperial forces, but many more escaped to bring vital intelligence home.

Shown is the Block 16 version of the *Crockett*-class picket vessel. This version contains upgraded avionics and more efficient power-distribution systems necessary for the larger sensors. While well-received by the intelligence communities, engineering crews often complained about the complexity of the newer systems, which were prone to power fluctuations.



1. Avionics
2. Bridge
3-8. Staterooms
9. Common area
10. Airlock
11. Storage
12. Engine Room
13. Port Weapon Array
14. Starboard Weapon Array



The *Crockett* was designed to operate away from fleet support, possibly for months at a time. Unlike many small Terran warships, its crew accommodations used no low berths or bunkrooms to save space. Instead, even ordinary crewmen were given a relatively large "ration" of stateroom space to help alleviate the tension of long deployments. The main weakness of the class was a lack of cargo space; this forced crews to be very creative when finding places to store consumables and other small necessities.

Members of the *Crockett* class were usually named after famous soldiers and frontiersmen of the pre-spaceflight era.

Tech Level: 10.

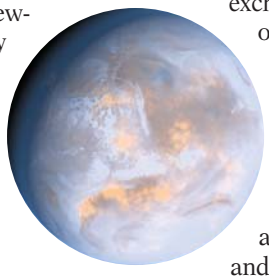
Hull: 100-dton Needle/Wedge Airframe hull, dDR 70 armor, Stealth.

Systems: 19-1/2 Maneuver Drive, 3 Jump Drive, 20 Fuel Tanks, 2 Fuel Processor (6.4 dtons/hour), Standard Bridge, Model-5 Sensors (Scan 20), 2 Light Turret, 2 Beam Laser, 2 Missile Rack, 2 Sandcaster, 22-1/2 Fusion Power, 6 Staterooms, 1/2 Cargo.

Statistics: EMass 940 tons, LMass 970 tons, Cost M$140, SM +8, ASig +2, Hull dHP 50, Life Support 12, sAccel 4.0 G, Jump-2 (2-parsec range), Top Air Speed 5,600 mph.

Crew: Command Section (3 officers), Engineering Section (2 officers), Gunnery Section (2 crewmen), Specialists (1 petty officer, 1 crewmen – sensor and SIGINT specialists), Maintenance Section (1 crewman). Total 5 officers, 1 petty officer, 4 crewmen.

Passengers: None.



Iiken-Class 100-dton Scout/Courier

The Imperium mixes the functions of picket vessel and naval courier in the *Iiken*-class scout/courier ship. This is one of the oldest ship designs in Imperial service; it was first manufactured over 2,000 years ago, during the Consolidation Wars.

Hundreds of *Iiken*-class ships can be found in any Imperial subsector, even on the rimward frontier. Most are in Imperial Navy service, but some are actually in private hands.

As a matter of long-standing tradition, a mid-level Imperial naval officer with an exemplary record will sometimes be issued a surplus *Iiken* when he leaves active service. Naval pensions being what they are, this is often the only way that a retired officer from the manager classes can afford personal interstellar transportation. The "detached duty" *Iiken* ships receive limited maintenance support from the Navy, making private operation even easier. In exchange, the retired officer operating the ship must report regularly to Navy intelligence officials on anything "interesting" he may encounter. Meanwhile, if war breaks out in the region, a detached-duty officer and his *Iiken* are subject to being recalled for active service.

Meanwhile, a number of *Iiken*-class ships have been captured or otherwise acquired by Terrans over the years. Just as in the Imperium, some of these have been "excessed" into civilian hands.

An *Iiken*-class ship normally operates with a full crew of four when in active Imperial service. A highly skilled individual can (barely) operate the ship alone.

Tech Level: 10.

Hull: 100-dton Needle/Wedge Airframe hull, dDR 50 armor, Stealth.

Systems: 11 Maneuver Drive, 3 Jump Drive, 40 Fuel Tanks, Fuel Processor (3.2 dtons/hour), Standard Bridge, Model-6 Sensors (Scan 21), 2 Hardpoints, Vehicle Bay (4-ton capacity, carries one air/raft), 12-1/2 Fusion Power, 4 Staterooms, 3 Cargo.

Statistics: EMass 680 tons, LMass 740 tons, Cost M$110, SM +8, ASig +2, Hull dHP 45, Life Support 8, sAccel 3.0 G, Jump-2 (4-parsec range), Top Air Speed 4,200 mph.

Crew: Command Section (3 officers), Engineering Section (1 officer). Total 4 officers.

Passengers: None.

Phidippides-Class 200-dton Fast Courier

After the Third Interstellar War, the Terran Confederation found itself maintaining significant military forces in star systems as far apart as Nusku and Mirabilis. The Terran Navy in particular saw the need to quickly move messages, critical personnel, and small cargoes among its various stations. The response was the *Phidippides*-class fast courier, the leading military courier ship of the early Interstellar Wars era.

The *Phidippides* had no advantage over other ship classes in jump capacity, but it gained an edge in *efficiency*. Oversized fuel tanks meant that it could make two maximum-range jumps in a row without stopping to refuel. Extra fuel processors meant that it could perform wilderness refueling very rapidly. Powerful maneuver drives gave it the ability to quickly cross normal space between jump points when necessary. Meanwhile, the Navy usually provided courier ships with its best personnel, including promising junior officers who were being earmarked for the command of larger ships. With all these items in play, the *Phidippides* was often able to make interstellar journeys – especially those involving multiple jumps – significantly more quickly than any other ship in the Navy.

Many examples of the *Phidippides* class found their way into private service, to be used as commercial courier ships or even refitted as private yachts. The class was retired from active naval service after the Eighth Interstellar War, to be replaced by a variety of jump-3 courier types. However, a few *Phidippides*-class ships could still be found in operation years after the Interstellar Wars were over.

Ships in the *Phidippides* class were named after famous message-carriers from Terran history and legend.

Tech Level: 10.

Hull: 200-dton Needle/Wedge Airframe hull, dDR 10 armor, Stealth.

Systems: 19 Maneuver Drive, 6 Jump Drive, 80 Fuel Tanks, 4 Fuel Processor (12.8 dtons/hour), Standard Bridge, Model-3 Sensors (Scan 18), 3 Hardpoints, 24 Fusion Power, 10 Staterooms, 22-1/2 Cargo.

Statistics: EMass 430 tons, LMass 630 tons, Cost M$150, SM +8, ASig +2, Hull dHP 40, Life Support 20, sAccel 6.0 G, Jump-2 (4-parsec range), Top Air Speed 4,500 mph.

Crew: Command Section (3 officers), Engineering Section (2 officers), Passenger Service Section (1 officer), Specialists (1 petty officer, 1 crewman – communications specialists), Maintenance Section (1 crewman). Total 6 officers, 1 petty officer, 2 crewmen.

Passengers: 4 First-Class.

Hero-Class 200-dton Private Merchant

Perhaps the most widely-known ship in Terran or Imperial space, the *Hero*-class private merchant has become the stuff of legends despite its humble beginnings.

The Imperial shipping network is based on a rigid, but very effective, main-and-branch system. Major worlds are connected by branches to nearby hub worlds. Trade flows from its origin world to a hub world, along high-capacity main lines to a hub world at the far end, and then along the final branch to the destination. Many minor worlds are located along one of these lines, and are served in passing.

Meanwhile, a few backwater or frontier worlds are off the Imperial trade network, not directly served by the system. For these, it is necessary to provide occasional shipping service to the nearest world on the trade network. For centuries, Sharurshid has employed an unremarkable 200-dton lifting-body design, cheap and easily manufactured, to provide this service.

The English name of this ship class is a classic example of the pitfalls of automatic language translation. As with most Imperial merchant vessels, the 200-dton packet vessels had no official names, just registry numbers. The original Confederation Navy designation for the ship class was simply "Type A." When Terrans asked what the ships were called, their crews often responded *disigshar*, which means "sandwich filled with a variety of sliced meats and vegetables." This is an example of Low Vilani slang, commenting on the ships' less-than-elegant appearance and pedestrian mission. However, the most popular early Vilani-to-English translation program rendered the word as "hero," and the name stuck. Examples that fell into Terran hands were soon named after famous figures from folklore, mythology, and popular fiction.

When the Terran Navy advanced into Imperial territory during the Second and Third Interstellar Wars, it captured many small, innocuous *Hero*-class vessels. Their crews were low-ranking *shangarim* employees, without any personal reason to resist capture – and usually no weaponry to resist with, even if they were so inclined. The little ships surrendered in droves; still more were captured on the ground while laid up "in ordinary" on Nusku.

During peace negotiations, Imperial officials didn't consider the *Hero*-class ships to be valuable enough to demand their return. As a result, dozens of these ships have been sold to private Terran bidders at scrapyard prices, to be converted into independent trading and exploration vessels. They have proven so successful in that role – a combination of the right size and versatility – that Imperial shipyards in the rim provinces have not been able to keep up with demand for new ones. Indeed, some Terran corporations have produced their own versions of the existing Imperial design. As of 2170, the little *Hero* merchant ships are among the most common starships seen in the Terran Confederation and far beyond.

Ironically, even the Imperial Navy has adopted *Siigiizuni* ("heroic person") as a designation for *Hero*-class ships operating under Terran command.

Tech Level: 10.

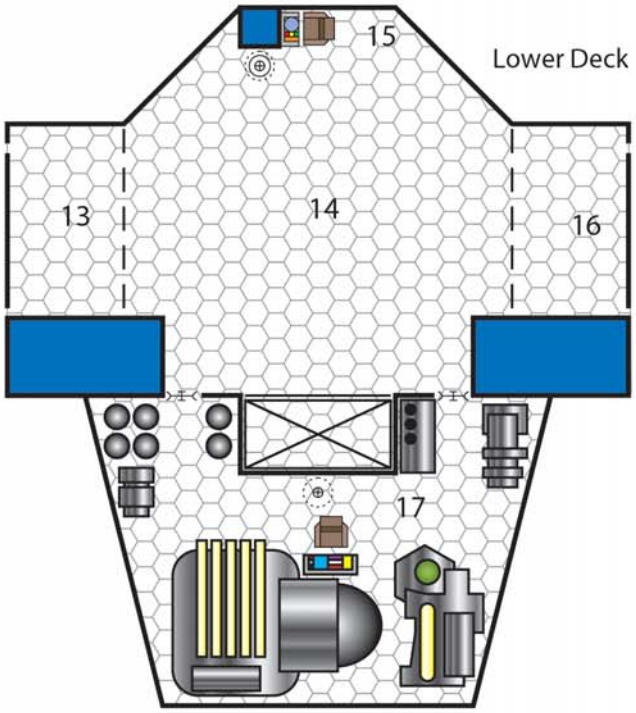
Hull: 200-dton Close Structure Streamlined hull, dDR 10 armor.

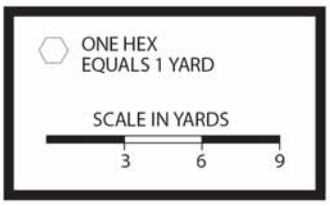
Systems: 5-1/2 Maneuver Drive, 6 Jump Drive, 40 Fuel Tanks, Fuel Processor (3.2 dtons/hour), Standard Bridge, Model-1 Sensors (Scan 16), 2 Hardpoints, 6 Fusion Power, 10 Staterooms, 7 Low Berths, Workshop, Sickbay, 87-1/2 Cargo.

Statistics: EMass 240 tons, LMass 720 tons, Cost M$68, SM +8, ASig +8, Hull dHP 30, Life Support 20, sAccel 1.5 G, Jump-2 (2-parsec range), Top Air Speed 740 mph.

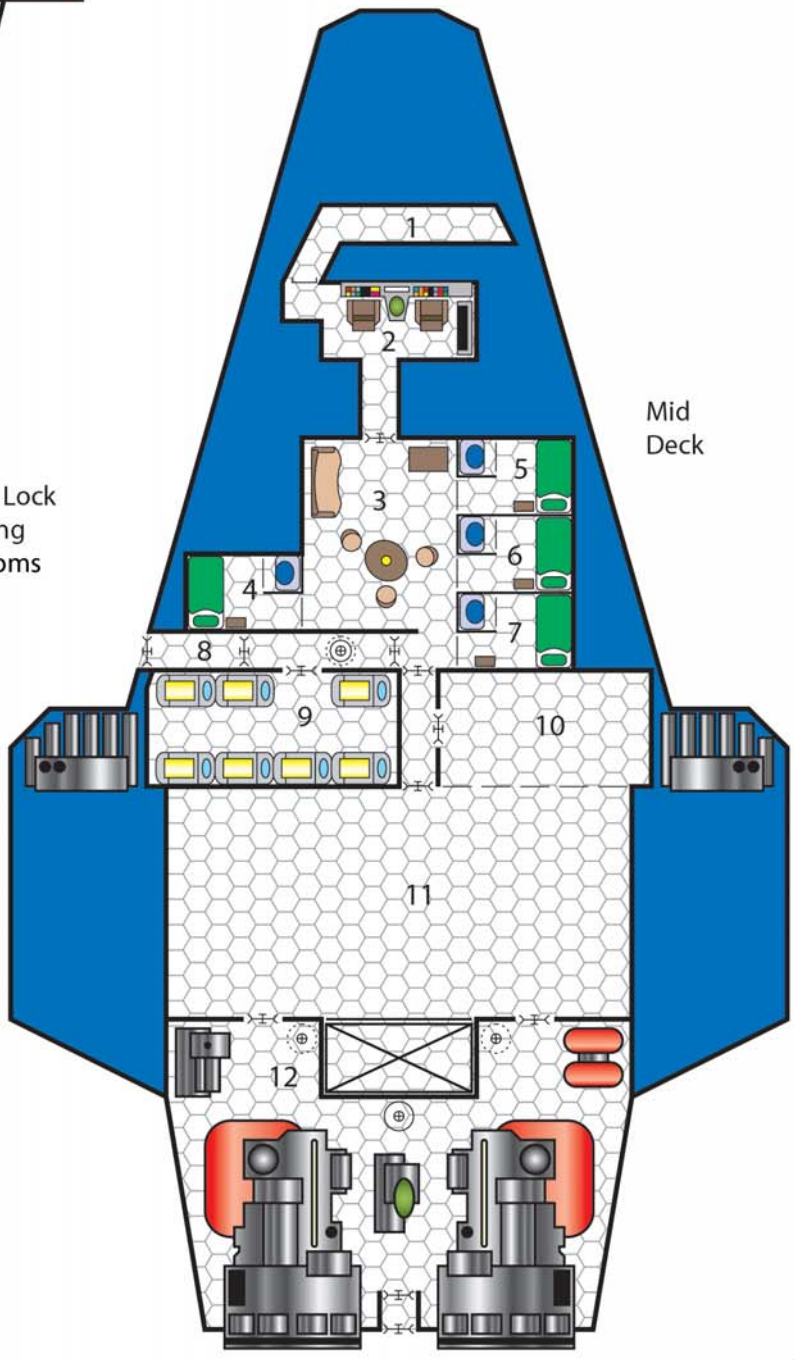
Crew: Command Section (3 officers), Engineering Section (1 officer), Specialists (1 petty officer – usually a Vilani interpreter or guide), Passenger Service Section (1 officer), Cargo Service Section (1 petty officer), Medical Section (1 petty officer). Total 5 officers, 3 petty officers.

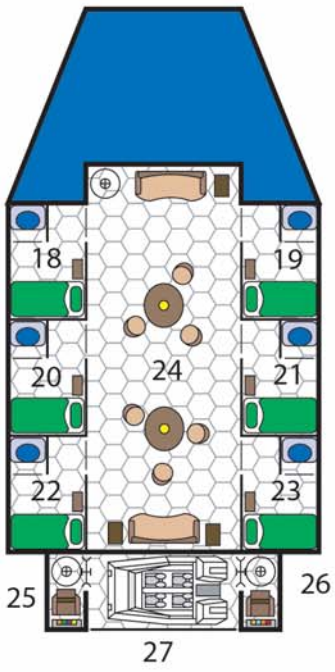
Passengers: 1 First-Class, 4 Standard, 14 Low.





1. Avionics
2. Bridge
3. Crew area
4-7. Crew rooms
8. Airlock
9. Low berths
10. Special Cargo
11. Upper Cargo
12. Upper Engineering
13. Port Cargo Lock
14. Lower Cargo
15. Cargo Office
16. Starboard Cargo Lock
17. Lower Engineering
18-23. Passenger rooms
24. Passenger area
25-26. Gunnery
27. Air/Raft





Upper
Deck

Harmonious Repose-Class 200-dton Yacht

Terra's wealthiest citizens took to interstellar travel quite early, pursuing everything from colonial investment opportunities to simple tourism. At first, wealthy travelers took ship on corporate or even military transport, "roughing it" on Terra's crude early starships. After the Second Interstellar War, there was enough surplus shipyard capacity to permit a few wholly private (and rather frivolous) designs.

In 2136, Kaufmann Sternenschiffbau AG (p. 68) built the first *Harmonious Repose* yachts. For their time they were quite advanced, incorporating a great deal of Vilani-derived technology, and they quickly gained a reputation for mechanical reliability. They were also very luxurious, and sported the finest interior comforts yet built into any Terran starship. The model quickly became popular. Many major corporations with offworld interests purchased yachts for traveling executives. A few very wealthy citizens bought them simply to visit the colonies or Imperial space.

The origins of the name *Harmonious Repose* are obscure; the name appears to have been assigned on a whim of Britte Kaufmann, dilettante heiress of the Kaufmann industrial empire. Other examples of the class are named by their owners according to personal preference.

Tech Level: 10.

Hull: 200-dton Flattened Sphere Airframe hull, dDR 12 armor.

Systems: 4-1/2 Maneuver Drive, 6 Jump Drive, 40 Fuel Tanks, Standard Bridge, Model-2 Sensors (Scan 17), 2 Hardpoints, 2 Vehicle Bays (4-ton capacity, each carries one air/raft), 6 Fusion Power, 8 Luxury Staterooms, 10 Staterooms, Workshop, Sickbay, 22 Cargo.

Statistics: EMass 300 tons, LMass 460 tons, Cost M$78, SM +8, ASig +8, Hull dHP 35, Life Support 36, sAccel 2.0 G, Jump-2 (2-parsec range), Top Air Speed 2,400 mph.

Crew: Command Section (3 officers), Engineering Section (1 officer), Flight Section (1 petty officer, 3 crewmen), Passenger Service Section (1 officer, 1 petty officer, 3 crewmen), Maintenance Section (1 crewman), Life Support Section (1 crewman), Medical Section (1 officer), General Service Section (1 crewman). Total 6 officers, 2 petty officers, 9 crewmen.

Passengers: 8 Luxury.

Lightning-Class 400-dton Frontier Merchant

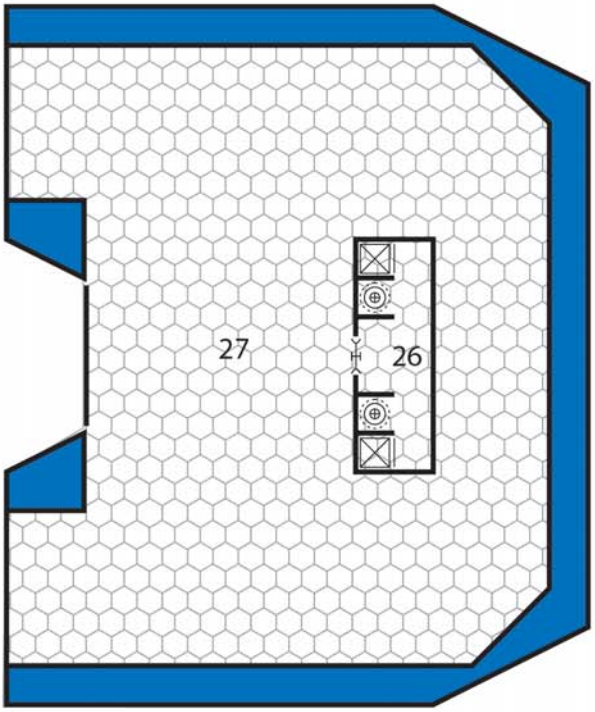
Beginning in 2159, the High Frontier Consortium (p. 68) constructed a special line of fast merchant ships at the newly-rebuilt Nusku shipyards. The *Lightning*-class "frontier merchant" was intended to explore deep into the Vilani Imperium. It would carry cargo and passengers along Imperial trade routes, but it would also "spy out the land," building a better understanding of the Imperium for Terran merchants – and for the Terran government.

Lightning-class ships were only marginal as merchant vessels, carrying a number of features that weren't useful from a strictly commercial standpoint. It was one of the fastest small merchant vessels of its day, its power plant was unusually large, and it carried advanced sensor and sensor-masking systems. Most ships of the class operated with extra crew as well; for example, carrying gunners even before ship's weapons were installed. The cost associated with these items often made it very difficult for the ships to turn a profit. On the other hand, they were all quite useful in a *conflict* situation. The *Lightning*-class ships could run, hide, and fight far better than any other merchant vessel of their size, which made them natural exploratory or privateer craft.

The High Frontier Consortium regarded the *Lightning* class as an investment in its long-term commercial success. By the end of the 22nd century, the Consortium had commercial and political contacts many parsecs into Imperial space, and more conventional merchant ships were working a network of trade routes. Other parties also used the *Lightning* design for their own exploratory traders – or for commerce raiding during wartime.

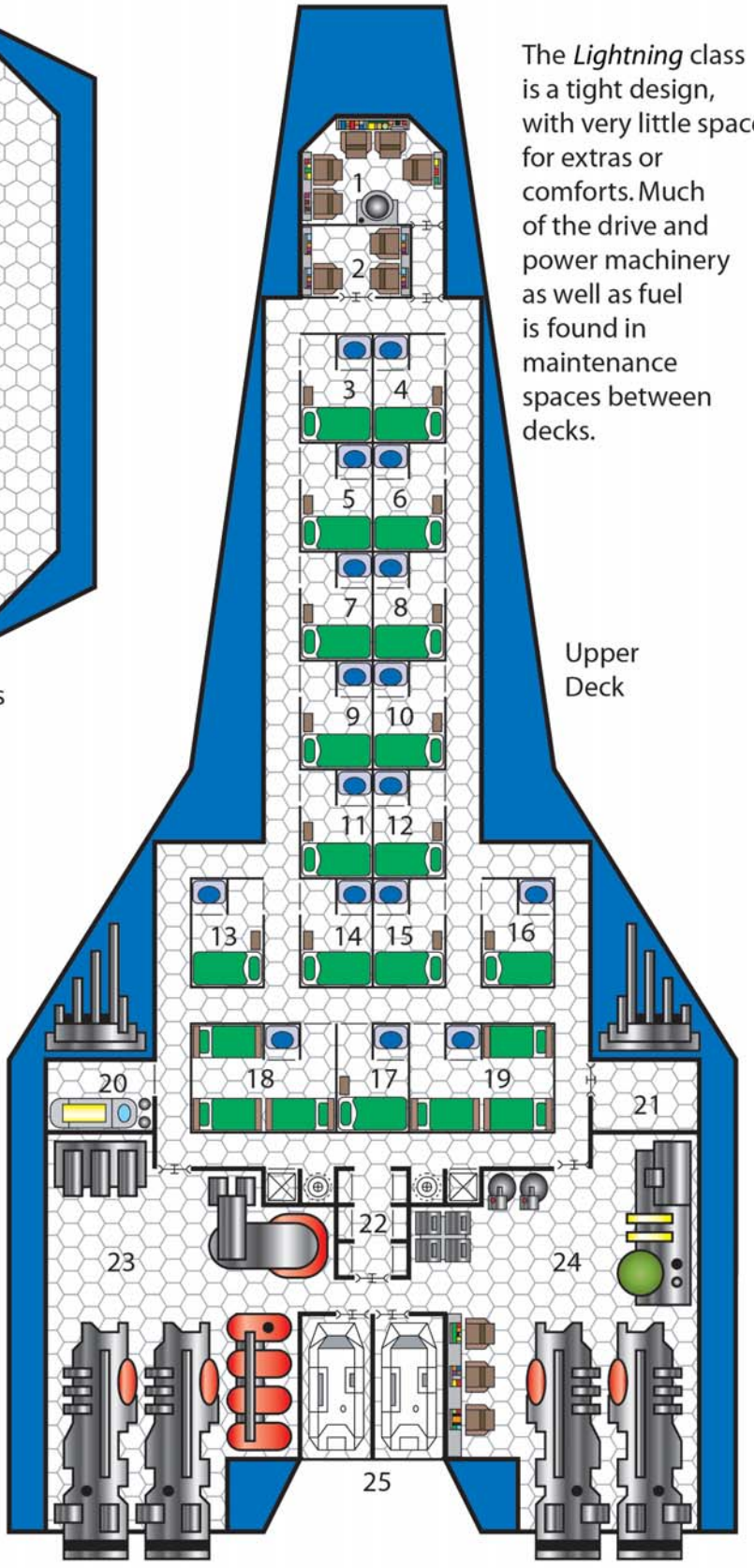
Lightning-class ships usually came unarmed from the shipyard, since Terran ships were not permitted to enter Imperial space armed during the Empty Peace. Naturally, enterprising crews usually acquired weaponry at the earliest opportunity. The ship's fusion power plants were oversized, permitting the installation of a full complement of laser weapons.

Ships in the *Lightning* class were usually named after famous merchant vessels from Terran history. Names taken from age-of-sail "clipper ships" were quite popular.



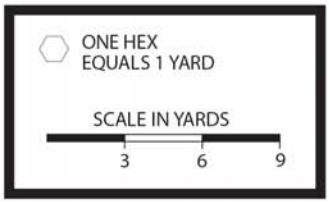
Lower Cargo Deck. Note: fuel spaces continue forward.

The *Lightning* class is a tight design, with very little space for extras or comforts. Much of the drive and power machinery as well as fuel is found in maintenance spaces between decks.



Upper Deck

1. Bridge
2. Gunnery stations
3-17. Staterooms
18-19. Bunkrooms
20. Sickbay
21. Workshop
22. Ship stores
23. Port engine room
24. Starboard engine room
25. Air/Raft bays
26. Greeting area
27. Cargo bay



Tech Level: 10.

Hull: 400-dton Needle/Wedge Airframe hull, dDR 10 armor, Stealth.

Systems: 24 Maneuver Drive, 12 Jump Drive, 80 Fuel Tanks, 2 Fuel Processors (6.4 dtons/hour), Standard Bridge, Model-4 Sensors (Scan 19), 4 Hardpoints, 2 Vehicle Bays (4-ton capacity, each carries one air/raft), 37 Fusion Power, 15 Staterooms, 2 Bunkrooms, Workshop, Sickbay, 162 Cargo.

Statistics: EMass 680 tons, LMass 1,600 tons, Cost M$250, SM +9, ASig +3, Hull dHP 45, Life Support 50, sAccel 3.0 G, Jump-2 (2-parsec range), Top Air Speed 3,900 mph.

Crew: Command Section (5 officers), Engineering Section (2 officers, 1 crewman), Gunnery Section (1 petty officer, 3 crewmen), Flight Section (1 petty officer, 3 crewmen), Passenger Service Section (1 officer), Cargo Service Section (1 petty officer), Ship's Troops (1 petty officer, 3 crewmen), Maintenance Section (1 petty officer, 1 crewman), Life Support Section (1 crewman), Medical Section (1 officer), General Service Section (1 crewman). Total 9 officers, 5 petty officers, 13 crewmen.

Passengers: 3 First-Class, 6 Standard.

Richthofen-Class 400-dton Missile Corvette

In the first engagements of the Interstellar Wars, Terran forces were soundly defeated whenever they went up against Imperial missile frigates. They soon began experimenting with mobile missile platforms of their own. One of the most successful developments of this design strategy was the *Richthofen*-class missile corvette, which first appeared soon before the Third Interstellar War and played an important part in blunting the first Imperial offensives of that conflict.

The *Richthofen* class is often called a "missile boat" (a misnomer, since "boat" implies a non-jump-capable ship). It is very heavily armored for a ship of its size, can shrug off most turret beam weapons, and is even somewhat survivable in the midst of an Imperial missile storm. Its massive maneuver drives and power plant make it quite expensive, but also give it great maneuverability despite its mass of armor. Its main weakness is its lack of defensive weaponry; point-defense lasers and sandcasters have been slighted in favor of greater missile throw-weight. Despite their toughness, *Richthofen* corvettes can still be overwhelmed by Imperial attack.

Terran Navy crewmen dislike being assigned to the *Richthofen* class; the ships are very crowded due to their massive drives and large engineering crews. Members of the class are named after famous military aviators from Terran history.

Tech Level: 10.

Hull: 400-dton Close Structure Streamlined hull, dDR 140 armor, Stealth.

Systems: 84 Maneuver Drive, 12 Jump Drive, 160 Fuel Tanks, 2 Fuel Processors (6.4 dtons/hour), Standard Bridge, Model-6 Sensors (Scan 21), 4 Light Turrets, 12 Missile Racks, 85-1/2 Fusion Power, 5 Staterooms, 2 Bunkrooms, Workshop, Sickbay, 16-1/2 Cargo.

Statistics: EMass 2,600 tons, LMass 2,800 tons, Cost M$470, SM +9, ASig +3, Hull dHP 70, Life Support 30, sAccel 6.0 G, Jump-2 (4-parsec range), Top Air Speed 740 mph.

Crew: Command Section (5 officers), Engineering Section (2 officers, 1 petty officer, 6 crewmen), Gunnery Section (1 petty officer, 3 crewmen), Ship's Troops (1 NCO, 3 enlisted men), Maintenance Section (2 crewmen), Life Support Section (1 crewman), Medical Section (1 petty officer), General Service Section (1 crewman). Total 7 officers, 4 Navy petty officers and Marine NCOs, 16 Navy crewmen and Marine enlisted men.

Passengers: None.

Bannerjee-Class 400-dton System Defense Boat

The Third Interstellar War was a terrible lesson for the Terran Navy. Imperial forces had advanced so far as to lay siege to Terra itself, and the Navy's mobile forces had been unable to mount a decisive response. During the naval buildup after the Imperial forces abandoned the siege, the Navy solicited proposals for a new ship class – the *system defense boat*.

System defense boats (or SDBs) would be non-starships, posted in squadrons to any star system that the Navy wished to defend to the bitter end. They would be fast, stealthy, and tough, able to both survive major engagements and flee into hiding. During the initial invasion of a star system, the SDBs would operate in conjunction with the Navy's main fleet – but if the Navy was forced to withdraw, the SDBs could remain behind to make life difficult for the victorious Imperials. SDB squadrons could hide in deep space, in the thick atmosphere of a gas giant, or in the depths of a planet's ocean. They could stay in hiding for weeks or months, emerging when an opportunity to strike against Imperial forces presented itself.

As it happened, the SDB squadrons deployed in the Terra system were never called to action. However, system defense boats played an important role elsewhere in the later wars. They helped to slow Imperial offensives, and kept tenuous lines of communication open to Terran worlds that had been overrun.

Members of the *Bannerjee* class of SDBs were named after Terran politicians and statesmen. The Terran Navy sometimes succumbed to the temptation to name SDBs after *living* politicians, in order to curry favor with the civilian administration.

Tech Level: 10.

Hull: 400-dton Needle/Wedge Airframe hull, dDR 150 armor, Stealth.

Systems: 159 Maneuver Drive, Standard Bridge, Model-6 Sensors (Scan 21), 5 Light Turrets, 6 Beam Lasers, 6 Missile Racks, 3 Sandcasters, 166-1/2 Fusion Power, 5 Staterooms, 3 Bunkrooms, 2 Workshop, Sickbay, 29 Cargo.

Statistics: EMass 5,100 tons, LMass 5,300 tons, Cost M$790, SM +9, ASig +3, Hull dHP 90, Life Support 40, sAccel 6.0 G, no jump capacity, Top Air Speed 10,000 mph.

Crew: Command Section (5 officers), Engineering Section (3 officers, 2 petty officers, 11 crewmen), Gunnery Section (1 petty officer, 4 crewmen), Ship's Troops (1 NCO, 3 enlisted men), Maintenance Section (2 crewmen), Life Support Section (1 crewman), Medical Section (1 petty officer), General Service Section (1 crewman). Total 8 officers, 5 Navy petty officers and Marine NCOs, 22 Navy crewmen and Marine enlisted men.

Passengers: None.

Gashidda-Class Imperial 400-dton Patrol Cruiser

The Imperium uses the *Gashidda*-class patrol cruiser to "show the flag" in Imperial star systems, especially those that are off the main trade network. They have been deployed in large numbers to systems along the rimward border, where they pay particular attention to the movements of Terran ships. Many a Terran merchant captain has had to endure being "pulled over" by one of these small cruisers – a particularly annoying experience, since many of their commanders are junior officers with an overdeveloped sense of superiority to all "barbarians."

The *Gashidda*-class cruiser is designed to carry a single standard 20-dton assault craft (p. 202) to support customs inspections and boarding actions. Members of the class are named after famous soldiers from Vilani history.

Tech Level: 10.

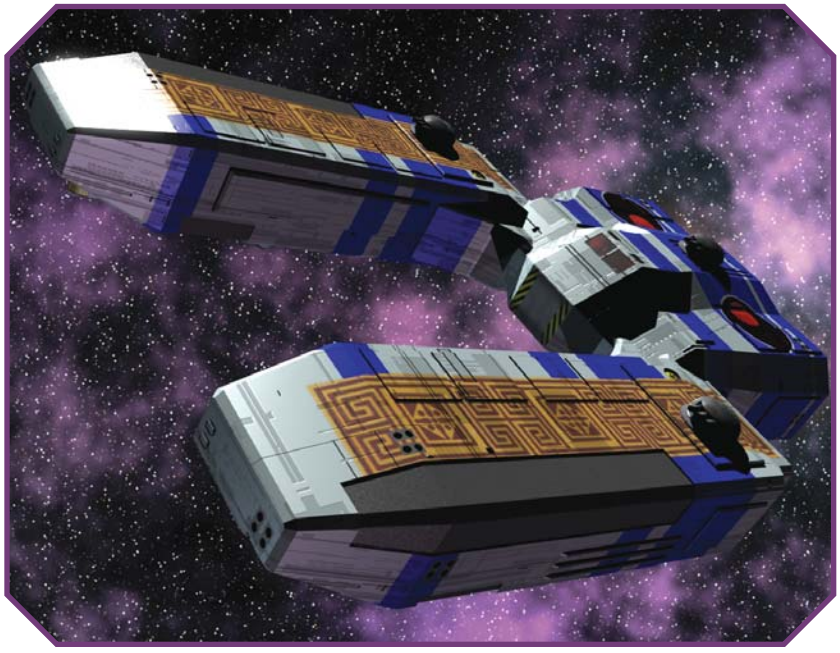
Hull: 400-dton Needle/Wedge Airframe hull, dDR 90 armor, Stealth.

Systems: 68 Maneuver Drive, 12 Jump Drive, 80 Fuel Tanks, 2 Fuel Processors (6.4 dtons/hour), Standard Bridge, Model-6 Sensors (Scan 21), 5 Light Turrets, 3 Pulse Lasers, 9 Missile Racks, 3 Sandcasters, Vehicle Bay (20-dton capacity, carries one 20-dton assault craft), 71 Fusion Power, 20 Staterooms, Sickbay, 51-1/2 Cargo.

Statistics: EMass 2,900 tons, LMass 3,400 tons, Cost M$440, SM +9, ASig +3, Hull dHP 70, Life Support 40, sAccel 4.0 G, Jump-2 (2-parsec range), Top Air Speed 6,500 mph.

Crew: Command Section (5 officers), Engineering Section (2 officers, 1 petty officer, 4 crewmen), Gunnery Section (1 petty officer, 4 crewmen), Flight Section (1 officer, 2 crewmen), Ship's Troops (1 officer, 2 petty officers, 7 crewmen), Specialists (1 petty officer – expert inspector), Maintenance Section (2 crewmen), Life Support Section (1 crewman), Medical Section (1 officer), General Service Section (1 crewman). Total 10 officers, 5 petty officers, 21 crewmen.

Passengers: None.



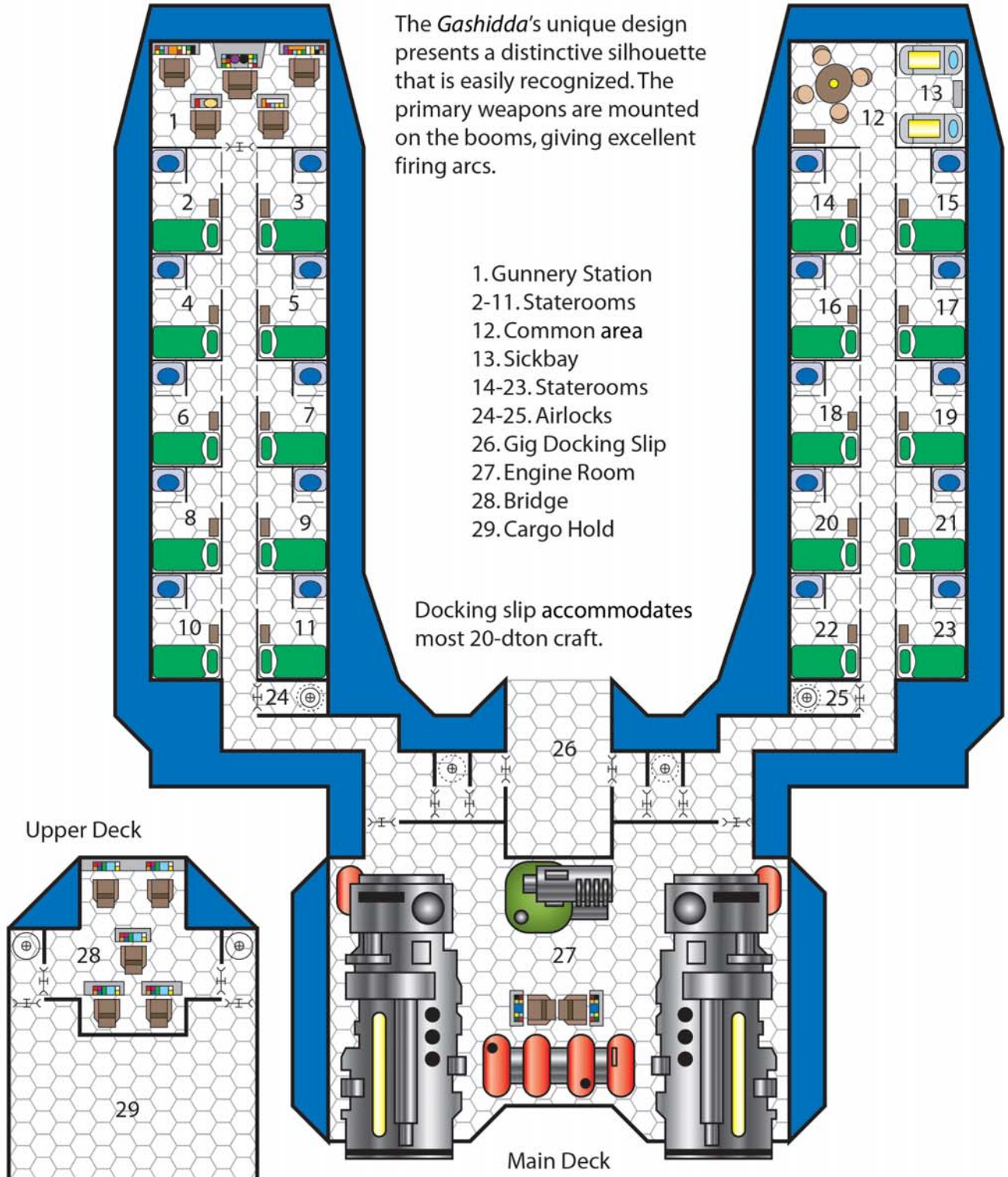
Zheng He-Class 800-dton Survey Vessel

After the Third Interstellar War, the Terran Confederation Navy was given a new mission – long-range exploration. Navy vessels were to explore widely, searching out places for Terrans to settle beyond Imperial control (and routes to reach these new worlds, even if they had to cross Imperial space).

The Navy was not well-organized for exploration, and had no ships specifically built for such work. After evaluating many proposals, the Admiralty settled on a class designed by Kaufmann Sternenschiffbau AG (p. 68). The new class would be specifically designed to operate in uncharted space for long periods, mapping and exploring star systems for the first time. The first examples left the shipyard in 2160, and were soon committed to long-term exploratory ventures to spinward and rimward of Terra.

Only about a dozen ships in the *Zheng He* class were ever built. Although members of the class brought incredible quantities of information back to Terra, they often seemed to be laboring under a curse. The *Zheng He* itself was lost to an unknown disaster on its third voyage, apparently with no survivors. The *Jacques Cartier* was caught in Vilani space at the outbreak of the Fourth Interstellar War, and was destroyed by an Imperial patrol. The *Pytheas* was critically damaged while investigating a derelict starship in an unexplored star system; its crew was forced to settle on the system's sole habitable planet until rescue arrived over 20 years later. Other members of the class suffered less critical mishaps, often having to limp home to Terra. Even so, the *Zheng He* and its successors were among the most successful exploratory ships of the Interstellar Wars era.

Gashidda-Class Imperial 400-dton Patrol Cruiser



The *Zheng He* class was unstreamlined, and was incapable of gas-giant refueling or landing on a target world. It usually carried two mobile bases (p. 203) to land exploration teams on the surface of interesting worlds and two fuel skimmers (p. 203) to help it perform wilderness refueling. It had extensive cargo capacity, and could place temporary camps or bases on target worlds to facilitate months-long exploratory ventures.

Ships in the *Zheng He* class were named after famous Terran seagoing explorers of the pre-industrial era. Most of the ships were named after ancient or non-European explorers, due to public-relations considerations.

Tech Level: 10.

Hull: 800-dton Sphere Unstreamlined hull, dDR 10 armor.

Systems: 20 Maneuver Drive, 24 Jump Drive, 160 Fuel Tanks, 2 Fuel Processors (6.4 dtons/hour), Command Bridge, 2 Model-5 Sensors (Scan 20), 5 Hardpoints, Hangar Bay (120-dton capacity, normally carries four ship's boats), 24 Fusion Power, 28 Staterooms, 2 Workshop, 16 Laboratory, Survey, 2 Sickbay, 160-1/2 Cargo.

Statistics: EMass 790 tons, LMass 2,100 tons, Cost M$320, SM +10, ASig +10, Hull dHP 45, Life Support 56, sAccel 1.9 G, Jump-2 (2-parsec range), Top Air Speed 600 mph.

Crew: Command Section (5 officers), Engineering Section (2 officer, 1 crewman), Flight Section (4 officers, 1 petty officer, 4 crewmen), Ship's Troops (1 petty officer, 4 crewmen), Specialists (4 officers, 4 petty officers, 12 crewmen – computer, sensor, and scientific specialists), Maintenance Section (1 petty officer, 2 crewmen), Life Support Section (1 crewman), Medical Section (1 officer, 1 crewman), General Service Section (2 crewmen). Total 16 officers, 7 pe officers, 27 crewmen.

Passengers: None.

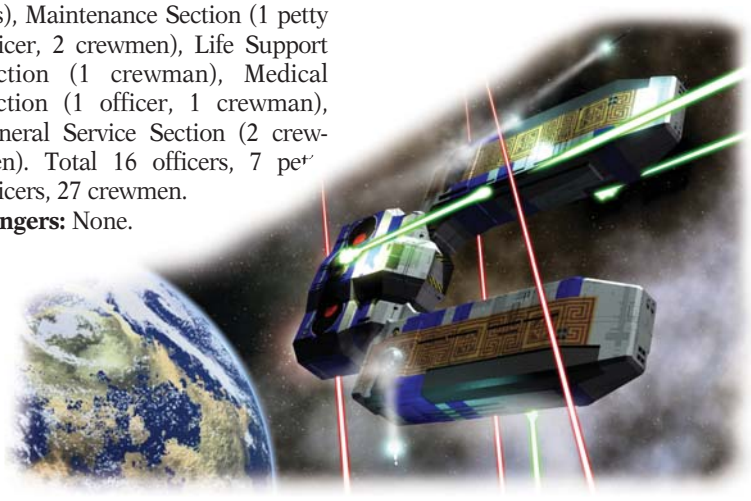
Hardrada-Class 800-dton Commerce Raider

Terrans used commerce raiding from the earliest years of conflict with the Imperium, but no ships were deliberately built for the strategy until the Third Interstellar War. The *Hardrada* class was one of several built in the early Interstellar Wars era, while the Terran Navy experimented to find the best way to strike into the Imperium's rear areas.

The *Hardrada* class was a typical small Terran warship, relying heavily on laser weapons for striking power (and for point defense against Imperial missiles). Its most unusual feature was the extensive provision for ship's troops. A *Hardrada* could carry a light platoon of Marines, trained and equipped for rapid-deployment raids. While the ship could be quite effective in deep-space attacks on Imperial merchant shipping, the Marine contingent made it capable of effective raids against critical facilities on minor Imperial worlds. Of course, the presence of so many Marines made the *Hardrada* class one of the most *crowded* small warships in the Terran order of battle.

Hardrada-class ships were designed to carry two passenger-variant ship's boats (p. 203) as Marine assault landers.

The *Hardrada* class saw limited use for over 20 years before it truly came into its own during the Fifth Interstellar War. Commerce raiding was particularly successful among the lightly-populated worlds of the Dingir subsector, especially when combined with the kind of small Marine raids in which this class specialized. In later wars, similar ships played a small but critical part in keeping the Imperium off balance, preventing any coordinated response to the Terran advance.



Members of the *Hardrada* class were named after famous pirates, privateers, and military adventurers of Terran history. The class ship itself was named after Harold Hardrada, a Viking king of Denmark who was another contender for the throne of England in the year that Duke William of Normandy won the Battle of Hastings. Ironically, the most famous ship of the class was probably the *Duke William*, which carried out an audacious raid against the Imperial naval depot at Dingir in 2228.

Tech Level: 10.

Hull: 800-dton Needle/Wedge Airframe hull, dDR 75 armor, Stealth.

Systems: 96 Maneuver Drive, 24 Jump Drive, 320 Fuel Tanks, 4 Fuel Processors (12.8 dtons/hour), Standard Bridge, Model-5 Sensors (Scan 20), 8 Light Turrets, 12 Beam Lasers, 6 Missile Racks, 6 Sandcasters, 2 Vehicle Bays (30-dton capacity, each carries one ship's boat), 109 Fusion Power, 23 Staterooms, 10 Bunkrooms, 3 Workshop, 3 Sickbay, 48 Cargo.

Statistics: EMass 4,000 tons, LMass 4,700 tons, Cost M$700, SM +10, ASig +4, Hull dHP 80, Life Support 146, sAccel 4.0 G, Jump-2 (4-parsec range), Top Air Speed 6,300 mph.

Crew: Command Section (5 officers), Engineering Section (2 officers, 2 petty officers, 7 crewmen), Gunnery Section (2 petty officers, 6 crewmen), Flight Section (2 officers, 2 crewmen), Ship's Troops (3 officers, 22 NCOs, 54 enlisted men), Specialists (1 officer, 2 petty officers, 4 crewmen – computer and intelligence specialists), Maintenance Section (1 petty officer, 2 crewmen), Life Support Section (2 crewmen), Medical Section (1 officer, 2 crewmen), General Service Section (3 crewmen). Total 14 Navy and Marine officers, 29 Navy petty officers and Marine NCOs, 82 Navy crewmen and enlisted Marines.

Passengers: None.

Karl Marx-Class 1,000-dton Heavy Free Trader

As the Empty Peace dragged on, Terran merchants ranged further and further afield in the Imperium, searching for new goods, fresh markets, and deeper toe-holds. In the early 2160s, the FarStar Association (p. 67) proposed a more aggressive stance, centered around a vessel even larger than the *Lightning* class. In 2166, Hasegawa Limited launched the so-called "heavy trader" *Karl Marx*.

The heavy traders were naval escorts in all but name, not as fast in normal space as the smaller *Lightnings*, but capable of mounting a respectable array of laser and missile batteries. The single standard ship's boat provided an extra platform for exploring unfamiliar star systems; holds and passenger space could carry paying cargo in peacetime and captured goods in wartime.

Peace ultimately spelled the demise of the heavy traders. They were simply too big to maintain by "living off the land" – trading small but lucrative cargoes in exchange for port fees and the next load of goods. Few worlds could supply the appetite of their enormous holds with chance-found wares; fewer still could find markets enough for all that they needed to sell to stay afloat. They might have survived if they had access to the steady flow of regular trade, but by the time reliable markets began to open up to Terran merchants, they were obsolete – too expensive and overbuilt to compete. While they lasted, however, the *Karl Marx* heavy merchants were the undisputed Kings of the Free Traders, and they long remained so in popular imagination and fiction.

Ships in the *Karl Marx* class were named for famous or influential economic thinkers of previous centuries. In the end, only a few dozen members of the class were ever built. Other ships in the class included *Irving Fisher, Milton Friedman, Friedrich August von Hayek, John Maynard Keynes, John Locke, Alfred Marshall, James McLean, John Stuart Mill, David Ricardo, Jean-Baptiste Say, Joseph Schumpeter,* and *Adam Smith.*

Tech Level: 10.

Hull: 1,000-dton Cylinder Streamlined hull, dDR 12 armor, Stealth.

Systems: 30 Maneuver Drive, 30 Jump Drive, 200 Fuel Tanks, 4 Fuel Processors (12.8 dtons/hour), Standard Bridge, Model-5 Sensors (Scan 20), 9 Hardpoints, Vehicle Bay (30-dton capacity, carries one ship's boat), 40 Fusion Power, 28 Staterooms, 3 Bunkrooms, 15 Emergency Low Berths, Workshop, Sickbay, 522 Cargo.

Statistics: EMass 960 tons, LMass 3,900 tons, Cost M$370, SM +10, ASig +4, Hull dHP 50, Life Support 86, sAccel 1.6 G, Jump-2 (2-parsec range), Top Air Speed 740 mph.

Crew: Command Section (5 officers), Engineering Section (2 officers, 3 crewmen), Gunnery Section (1 officer, 2 petty officers, 6 crewmen), Flight Section (1 officer, 1 crewman), Ship's Troops (1 petty officer, 5 crewmen), Passenger Service Section (1 officer, 1 crewman), Cargo Service Section (1 petty officer), Maintenance Section (1 petty officer, 2 crewmen), Life Support Section (1 crewman), Medical Section (1 officer, 1 crewman), General Service Section (2 crewmen). Total 11 officers, 5 petty officers, 22 crewmen.

Passengers: 6 First Class, 12 Standard.

StarLeaper-Class 1,000-dton Exploration Vessel

The *StarLeaper* ships were notable as the first true interstellar vessels ever built by Terrans. Earlier jump-drive ships had explored the outer solar system, but it was the *StarLeaper* ships that first visited other stars.

The *StarLeaper* ships were built and manned by an international consortium, although most of the funding and personnel support came from the United States. Only four of the class were ever built; they were given no names as such, but only the numbers *Zero* through *Three*. Each of the four had a substantially different design and was applied for different purposes.

StarLeaper Zero was the experimental prototype, and was used primarily as transportation for a deep-space fuel depot in 2095-2096. *StarLeaper One* was the ship used during the historic Barnard's Star expedition of 2097-2098, and later made a number of round-trip voyages between Terra and Barnard. *StarLeaper Two* was the first jump-drive ship to reach Prometheus in 2101, and was later lost with all hands while searching for a deep-space jump point beyond Prometheus. *StarLeaper Three* was abandoned in mid-construction in 2103, but in 2125 it was brought out of "mothballs," completed with a jump-2 drive, and sent out on several voyages of exploration. *Three* was the most long-lived and far-traveled member of the group, eventually carrying a diplomatic expedition as far as Dingir in 2135.

The ship design given here is that used during the *StarLeaper One* expedition to Barnard's Star. The ship carried several small landing vehicles and early grav cars for ground exploration (not included in the performance listed below). During the expedition it had no provision for wilderness refueling; instead, it carried enough fuel for a double jump so that it could return to the deep-space fuel depot on the way back to Terra.

Tech Level: 9.

Hull: 1,000-dton Cylinder Unstreamlined hull, dDR 10 armor.

Systems: 10 Maneuver Drive, 20 Jump Drive, 400 Fuel Tanks, 2 Fuel Processors (5 dtons/hour), Command Bridge, Model-5 Sensors (Scan 18), Hangar Bay (100-dton capacity), 50 Fission Power, 17 Staterooms, 4 Bunkrooms, 2 Workshop, 15 Laboratory, 2 Sickbay, 194.5 Cargo.

Statistics: EMass 1,000 tons, LMass 2,400 tons, Cost M$320, SM +10, ASig +10, Hull dHP 50, Life Support 74, sAccel 0.83 G, Jump-1 (2-parsec range), Top Air Speed 600 mph.

Crew: Command Section (5 officers), Engineering Section (3 officers, 2 petty officers, 11 crewmen), Flight Section (4 officers, 4 petty officers, 5 crewmen), Ship's Troops (1 petty

officer, 5 crewmen), Specialists (3 officers, 6 petty officers, 6 crewmen – sensor and scientific specialists), Maintenance Section (1 petty officer, 2 crewmen), Life Support Section (1 crewman), Medical Section (1 officer, 1 crewman), General Service Section (2 crewmen). Total 16 officers, 14 petty officers, 33 crewmen.

Passengers: None.

Agrippa-Class 1,000-dton Corvette

The *Agrippa*-class corvette was first designed after the Third Interstellar War, in response to growing saber-rattling activity along the Imperial rim. Capable of extremely high acceleration, it is able to get to a trouble spot in minimal time. Its heavy emphasis on beam weapons permits it to deal out harsh damage at close range, or to act as a missile shield for convoys.

Typical missions for the *Agrippa* class include convoy escort and perimeter patrol. Its jump capacity and high acceleration qualify it as a true escort, often deployed to run alongside destroyer squadrons.

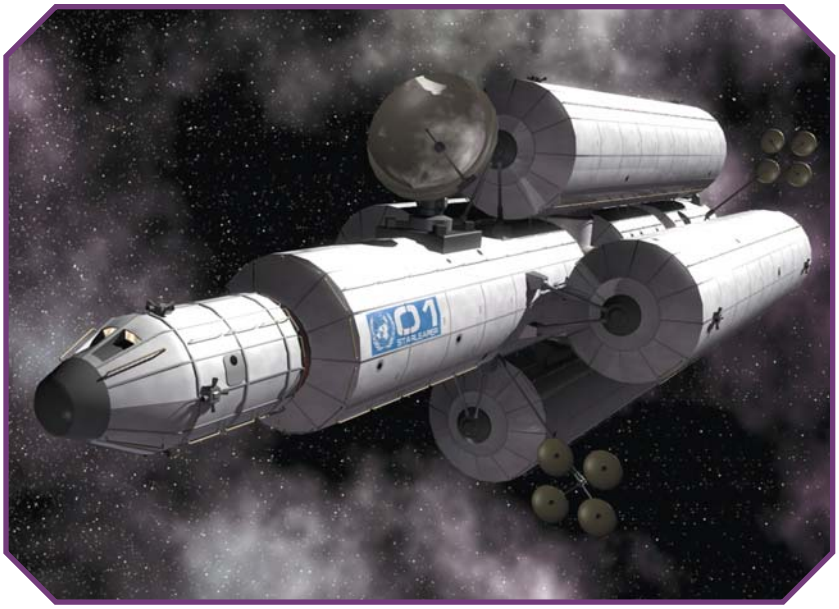
Ships of the *Agrippa* class are named after famous "wet-navy" officers of the pre-spaceflight era on Terra. The class ship itself is named after Marcus Vipsanius Agrippa, possibly the greatest naval commander of the late Roman Republic.

Tech Level: 10.

Hull: 1,000-dton Needle/Wedge Airframe hull, dDR 138 armor, Stealth.

Systems: 270 Maneuver Drive, 30 Jump Drive, 200 Fuel Tanks, 10 Fuel Processors (32 dtons/hour), Command Bridge, Standard Bridge, Model-7 Sensors (Scan 22), Model-2 Sensors (Scan 17), 4 Light Turrets, 5 Heavy Turrets, 6 Pulse Lasers, 6 Beam Lasers, 10 Plasma Guns, 291-1/2 Fusion Power, 33 Staterooms, Workshop, 2 Sickbay, 30 Cargo.

Statistics: EMass 8,600 tons, LMass 9,000 tons, Cost M$1,500, SM +10, ASig +4, Hull dHP 100, Life Support 66, sAccel 6.0 G, Jump-2 (2-parsec range), Top Air Speed 9,800 mph.



Crew: Command Section (10 officers), Engineering Section (4 officers, 5 petty officers, 20 crewmen), Gunnery Section (2 petty officers, 7 crewmen), Ship's Troops (1 NCO, 5 enlisted men), Maintenance Section (1 petty officer, 2 crewmen), Life Support Section (1 crewman), Medical Section (1 officer, 1 crewman), General Service Section (2 crewmen). Total 15 officers, 9 Navy petty officers and Marine NCOs, 38 crewmen and Marine enlisted men.

Passengers: None.

Shamshir-Class Imperial 1,000-dton Destroyer Escort

The *Shamshir* is a typical Vilani destroyer escort. It relies on its size and speed to protect its charges, running alongside while looking for hostiles that might be trying to make flanking attacks. Its lack of capital-ship weaponry is not a drawback in this role, as it is able to shoot at many targets at once.

Terran forces have often managed to lure a *Shamshir* into an unequal engagement, drawing one away from the main fleet. Without any support from the main guns of other ships, this vessel is easily destroyed.

The *Shamshir* typically carries three standard 30-dton ship's boats as support craft.

Tech Level: 10.

Hull: 1,000-dton Flattened Sphere Streamlined hull, dDR 160 armor, Stealth.

Systems: 200 Maneuver Drive, 30 Jump Drive, 200 Fuel Tanks, 10 Fuel Processors (32 dtons/hour), 2 Command Bridge, Model-7 Sensors (Scan 22), 7 Light Turrets, 6 Pulse Lasers, 15 Missile Racks, Hangar Bay (90-dton capacity, carries three ship's boats), 205 Fusion Power, 30 Staterooms, Sickbay, 26-1/2 Cargo.

Statistics: EMass 7,400 tons, LMass 8,000 tons, Cost M$1,200, SM +10, ASig +4, Hull dHP 100, Life Support 60, sAccel 5.0 G, Jump-2 (2-parsec range), Top Air Speed 740 mph.

Crew: Command Section (10 officers), Engineering Section (4 officers, 4 petty officers, 13 crewmen), Gunnery Section (2 petty officers, 5 crewmen), Flight Section (3 officers, 3 crewmen), Ship's Troops (1 petty officer, 3 crewmen), Maintenance Section (1 petty officer, 2 crewmen), Life Support Section (1 crewman), Medical Section (1 officer, 1 crewman), General Service Section (2 crewmen). Total 18 officers, 8 petty officers, 30 crewmen.

Passengers: None.

Sharurshid Standard 2,000-dton Passenger Liner

These vessels were employed by Sharurshid wherever passenger numbers justified their expense, on both main lines and branches of their sprawling network. Since many branch terminals did not fill the liner's passenger capacity each week, departures were often infrequent (though still rigidly regular).

Imperial regulations insisted that enough seats be provided on auxiliary craft to evacuate all crew and passengers in an emergency. To fulfill this requirement, the liner carried four 30-dton passenger shuttles (p. 203).

Tech Level: 10.

Hull: 2,000-dton Close Structure Unstreamlined hull, dDR 10 armor.

Systems: 20 Maneuver Drive, 60 Jump Drive, 400 Fuel Tanks, Standard Bridge, Model-3 Sensors (Scan 18), 4 Vehicle Bays (30-dton capacity, carries one passenger shuttle each), 60 Fusion Power, 6 Luxury Staterooms, 250 Staterooms, 140 Low Berths, 7 Sickbays, 136-1/2 Cargo.

Statistics: EMass 1,800 tons, LMass 3,400 tons, Cost M$580, SM +10, ASig +10, Hull dHP 60, Life Support 512, sAccel 1.2 G, Jump-2, Top Air Speed 600 mph.

Crew: Command Section (10 officers), Engineering Section (2 officers, 1 petty officer, 4 crewmen), Flight Section (4 officers, 1 petty officer, 4 crewmen), Passenger Service Section (3 officers, 4 petty officers, 15 crewmen), Cargo Service Section (1 petty officer), Maintenance Section (1 petty officer, 5 crewman), Life Support Section (1 petty officer, 6 crewmen), Medical Section (2 officers, 4 petty officers, 8 crewmen), General Service Section (2 officers, 4 petty officers, 15 crewmen). Total 23 officers, 17 petty officers, 57 crewmen.

Passengers: 6 Luxury, 50 First Class, 150 Standard, 280 Low.

Sharurshid Standard 2,000-dton Branch Freighter

Designed to carry cargo from major world to main line hub along the branches of the Sharurshid trade network, the standard freighter was the workhorse of Imperial shipping in the rimward territories. In keeping with Vilani practice, individual merchant vessels were not given names, but nicknames were common in addition to the official registry numbers. Most often, an Imperial would refer to one of these ships as *damgar* ("merchant") and not give it another thought.

The "branch freighter" was an unstreamlined vessel, carried no small craft, and thus was forced to rely on transport based at each port of call in order to load and unload cargo. As a result, the freighter rarely stopped at frontier ports, even when these were located on a trade route.

Although not intended as a passenger vessel, the branch freighter included six staterooms for passengers. The accommodations were simple, but frequent departures made "tramping" an attractive option for some.

Tech Level: 10.

Hull: 2,000-dton Close Structure Unstreamlined hull, dDR 10 armor.

Systems: 40 Maneuver Drive, 60 Jump Drive, 400 Fuel Tanks, Standard Bridge, Model-3 Sensors (Scan 18), 60 Fusion Power, 24 Staterooms, Sickbay, 1,338-1/2 Cargo.

Statistics: EMass 1,100 tons, LMass 8,200 tons, Cost M$580, SM +10, ASig +10, Hull dHP 50, Life Support 48, sAccel 1.0 G, Jump-2 (2-parsec range), Top Air Speed 600 mph.

Crew: Command Section (10 officers), Engineering Section (2 officers, 1 petty officer, 5 crewmen), Passenger Service Section (1 officer), Cargo Service Section (1 petty officer, 4 crewmen), Maintenance Section (1 petty officer, 5 crewmen), Life Support Section (1 crewman), Medical Section (1 officer), General Service Section (1 crewman). Total 14 officers, 3 petty officers, 16 crewmen.

Passengers: 2 First Class, 4 Standard.

Kargash-Class Imperial 2,000-dton Light Cruiser

The *Kargash* light cruiser forms the backbone of the Imperial fleet's raiding squadrons. Imperial light cruisers are typically found in groups of 10, with numerous destroyers and destroyer escorts running alongside.

Alone, a single *Kargash* can deliver devastating blows to an enemy's vessel. When light cruisers are used in concert with all of their escorts, they are a sight to be feared.

As is typical with Vilani warships, these vessels are designed primarily to serve as missile platforms. The small-craft loadout varies (and is not included in the performance listed below), but the most typical configuration includes three standard 30-dton ship's boats.

Tech Level: 10.

Hull: 2,000-dton Cylinder Streamlined hull, dDR 240 armor, Stealth.

Systems: 460 Maneuver Drive, 60 Jump Drive, 400 Fuel Tanks, 20 Fuel Processors (64 dtons/hour), 2 Command Bridge, Model-6 Sensors (Scan 21), Model-4 Sensors (Scan 19), 2 Light Missile Arrays, 2 Heavy Turrets, 4 Plasma Guns, Hangar Bay (100-dton capacity), 466 Fusion Power, 60 Staterooms, Workshop, 2 Sickbay, 31 Cargo.

Statistics: EMass 14,000 tons, LMass 15,000 tons, Cost M$2,500, SM +10, ASig +4, Hull dHP 120, Life Support 120, sAccel 6.0 G, Jump-2 (2-parsec range), Top Air Speed 740 mph.

Crew: Command Section (10 officers), Engineering Section (7 officers, 9 petty officers, 33 crewmen), Gunnery Section (2 petty officers, 4 crewmen), Ship's Troops (1 officer, 6 petty officers, 16 crewmen), Maintenance Section (1 petty officer, 5 crewmen), Life Support Section (2 crewmen), Medical Section (1 officer, 2 crewmen), General Service Section (3 crewmen). Total 19 officers, 18 petty officers, 65 crewmen.

Passengers: None.

Sharurshid Standard 10,000-dton Line Freighter

Known generically as *kaanukir* ("freighter"), these behemoths carried the bulk of Imperial trade along the main "backbone" lines of the Sharurshid network in the rimward provinces. Economies of scale made them among the cheapest vessels to operate per ton of freight, allowing low-value bulk goods to ship at a profit, or more expensive wares to ship across greater distances. They were rarely encountered away from the main trade routes, although they would venture wherever demand was sufficient to fill their holds.

Tech Level: 10.

Hull: 10,000-dton Close Structure Unstreamlined hull, dDR 10 armor.

Systems: 200 Maneuver Drive, 300 Jump Drive, 2,000 Fuel Tanks, Command Bridge, Standard Bridge, Model-3 Sensors (Scan 18), Model-0 Sensors (Scan 14), 4 Hardpoints, 300 Fusion Power, 73 Staterooms, 10 Low Berths, 2 Workshop, 2 Sickbay, 6,881 Cargo.

Statistics: EMass 4,500 tons, LMass 41,000 tons, Cost M$2,900, SM +12, ASig +12, Hull dHP 80, Life Support 146, sAccel 1.0 G, Jump-2 (2-parsec range), Top Air Speed 600 mph.

Crew: Command Section (10 officers), Engineering Section (5 officers, 7 petty officers, 28 crewmen), Passenger Service Section (1 officer, 1 crewman), Cargo Service Section (3 officers, 6 petty officers, 18 crewmen), Maintenance Section (2 officers, 5 petty officers, 19 crewmen), Life Support Section (2 crewmen), Medical Section (1 officer, 2 crewmen), General Service Section (1 petty officer, 3 crewmen). Total 22 officers, 19 petty officers, 73 crewmen.

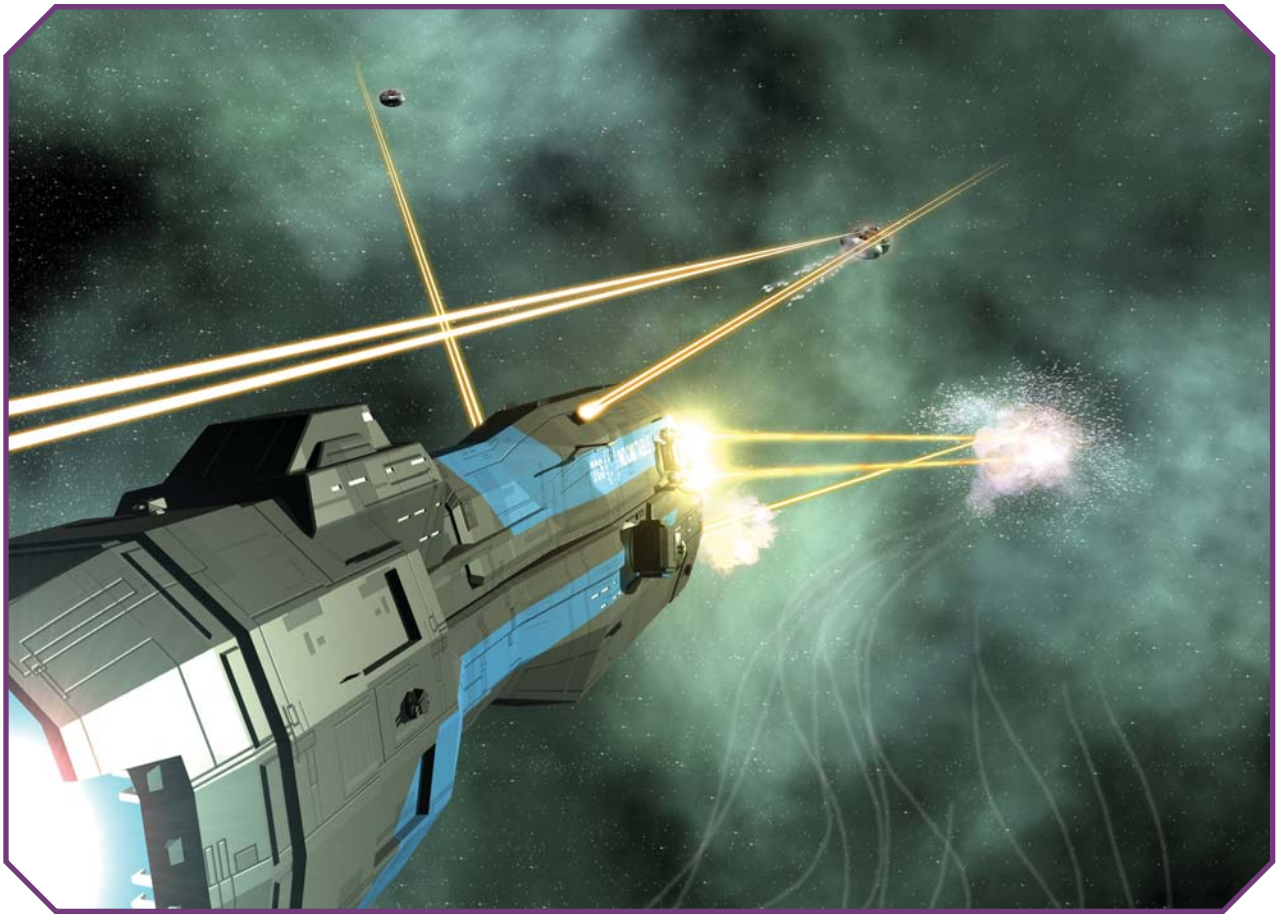
Passengers: 5 First Class, 10 Standard, 20 Low.

Indomitable-Class 30,000-dton Battleship

More than any other ship class, the *Indomitable* and its sister ships were responsible for breaking the back of the Imperial Navy.

The keel of *Indomitable* was laid in 2239, in the heady days immediately following the Eighth Interstellar War. She was the first capital ship to be constructed purely from TL11 technology. As such, she had capabilities that had never been seen before, in any Terran *or Imperial* warship. The *Indomitable* class of battleships soon became the cornerstone of Grand Admiral Albadawi's strategy for the defeat of the Imperium.

The design was eminently successful. *Indomitable* and her sister ships took part in every major naval offensive mounted by the Terran Navy, from the early battles of the Ninth Interstellar War to the final surrender of the Imperium. *Indomitable* herself served as Grand Admiral Albadawi's flagship during the Ninth Interstellar War. *Unstoppable* laid down history's first meson-cannon barrage during the Battle of Muan Kwoyen, destroying numerous Imperial ships.



Although Imperial news dispatches claimed six times that one of these ships had been destroyed, not one was actually lost to enemy fire. They did survive many close calls and near-misses – such as the incident in which *Terrible* was rammed by a Vilani destroyer during intense fighting over Sylea. Still, their sheer size, toughness, and firepower made them queens of the battlefield for over a century.

The *Indomitable* carried a double-strength squadron of 20 laser-armed fighters. These small craft were primarily used for close-in defense, freeing up the battleship's weapon mounts for ship-killing systems. On occasion, they were hurled forward for deep-penetration raids or other audacious maneuvers.

The primary weakness of the *Indomitable* class was logistic rather than tactical. The ship's hull was so tightly packed that there was almost no room for cargo, including spare parts and consumables. As a result, the battleships were unable to mount raids away from the main body of the Terran fleet. Crews sometimes packed needed goods into spare staterooms and bunkrooms, but this led to severe crowding on board.

Ships in the *Indomitable* class were usually named after martial virtues, in the style of ships of the line in the ancient Age of Sail.

Tech Level: 11.

Hull: 30,000-dton Needle/Wedge Streamlined hull, dDR 400 armor, Stealth.

Systems: 4,260 Maneuver Drive, 1,200 Jump Drive, 9,000 Fuel Tanks, 180 Fuel Processor (720 dtons/hour), 2 Command Bridge, 2 Model-9 Sensors (Scan 26), Heavy Spinal Meson Cannon, Repulsor Array, 2 Bay Fusion Guns, 2 Light Missile Arrays, 5 Heavy Turrets, 10 Fusion Guns, Hangar Bay (200-dton capacity), 8,182 Fusion Power, 75 Bunkrooms, 230 Staterooms, 2 Luxury Staterooms, 17 Workshops, 12 Sickbays, 276 Cargo.

Statistics: EMass 180,000 tons, LMass 190,000 tons, Cost M$32,000, SM +13, ASig +6, Hull dHP 300, Life Support 1,214, sAccel 4.5 G, Jump-3 (3-parsec range), Top Air Speed 740 mph.

Crew: Command Section (12 officers, 1 petty officer, 2 crewmen), Engineering Section (70 officers, 136 petty officers, 476 crewmen), Gunnery Section (6 officers, 19 petty officers, 40 crewmen), Flight Section (24 officers, 7 petty officers, 16 crewmen), Passenger Service Section (1 officer, 3 crewmen), Ship's Troops (3 officers, 22 NCOs, 54 enlisted men), Specialists (2 officers, 4 petty officers, 14 crewmen – intelligence and staff specialists), Maintenance Section (7 officers, 15 petty officers, 54 crewmen), Life Support Section (1 officer, 1 petty officer, 10 crewmen), Medical Section (5 officers, 7 petty officers, 12 crewmen), General Service Section (2 officers, 5 petty officers, 17 crewmen). Total 133 Navy and Marine officers, 217 petty officers and Marine NCOs, 698 crewmen and enlisted Marines.

Passengers: 2 Luxury, 16 First-Class, 30 Standard.

Chapter Ten
Starship Combat

June 21, 2172 – Somewhere in Imperial space:

***Cutty Sark** continued, apparently oblivious, while the Imperial patrol cruiser moved smoothly to match courses. A burst of Vilani speech came across the intership channel.*

"As before, sir. 'Terran ship, cut your engines and prepare to be boarded,' " the communications officer translated.

Captain Blake smiled. "Use the running lights, Mr. Shimanni. Sharurshid standard protocols. Signal 'Communications array malfunctioning, request escort.' "

"Aye, sir."

The patrol cruiser appeared on the unmagnified main viewer, a chip of silver against the stars, only a few dozen miles away.

"Wait for it," said the captain.

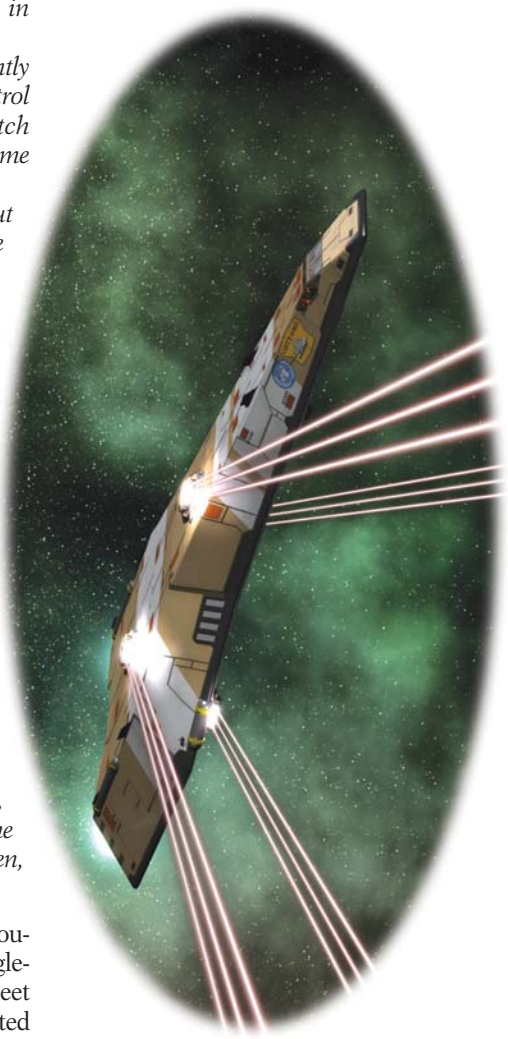
The communications officer cleared his throat. "Once again, and they're starting to sound impatient. 'Cut your engines and prepare to be boarded.' "

Blake waited one more moment, then leaned forward and opened the intercom to the gunners. "Gentlemen, let fly!"

The Interstellar Wars era saw thousands of battles in space, from single-ship skirmishes to massive main-fleet engagements. The system presented here is intended to resolve space actions on a hexagonal grid, using counters or miniatures. It is intended for vessels created with the ***Interstellar Wars*** ship design system.

Scale and Definitions

Space battles are fought in 20-minute combat rounds. One map hex is equal to 10,000 miles of distance. Each spacecraft counter represents a single vessel or a salvo of missiles. A velocity of one hex per round is equal to a speed of 30,000 mph.



Acceleration is measured in Gs. Vessels with less than 1 G acceleration use special rules for movement (p. 222).

Any unqualified use of the term "spacecraft" can be assumed to cover ships, small craft, and missiles.

Preparation

In addition to a hexagonal grid map, each spacecraft requires *two* counters. One is a *spacecraft counter* to indicate the vessel's current location, while the other is a *vector counter* to mark its future position. Both should be marked similarly so that they can be distinguished from each other and from other counters on the map, but so that the two counters for one spacecraft can easily be associated with each other.

As with character counters in the Tactical Combat System (p. B348), spacecraft and vector counters must be placed on the map so that they are fully inside a hex. Each of the two counters must always face a specific hex side, and the two counters must always face in the same direction.

Setting Up

The GM should only set up a map and counters if space combat is a possibility (or if he wants players to think that it is). While deep-space encounters are possible, most action occurs within a few hundred hexes of a world.

If space combat seems imminent, the GM should first place any planets, moons, or other large bodies on the map (see *Celestial Bodies*, p. 225). Different planets will be tens of thousands of hexes apart, but a planet/moon system is likely to fit on the map. For example, the average Earth-Moon distance is 24 hexes – and many planetary satellites will be much closer to their primaries.

The GM secretly decides on the location and course of NPC spacecraft. Before revealing the location of these vessels, he asks players to provide him with the same information for their spacecraft. Based on this, the GM should place friendly, neutral, and hostile spacecraft (except any carried aboard ships) on the map. The GM may wish to keep some unspotted craft "off the map" to surprise players, possibly stationary vessels hidden on or behind worlds.

Facing

The direction that a spacecraft or vector counter faces is important in several specific rules. A counter's facing defines its *front arc*, *side arcs*, and *rear arc* as follows.

From the center of a counter's hex, draw two lines along the closest sides of the hex immediately in front of the counter, and extend these lines as far as needed. These lines should define a 60° arc in front of the counter. Any hex that is partially or entirely between these two lines is considered to be in the counter's *front arc*.

Similarly, from the center of the counter's hex, draw two lines along the closest sides of the hex immediately *behind* the counter, and extend these lines as far as needed. Any hex that is partially or entirely between these two lines is considered to be in the counter's *rear arc*.

Any hex that is not in a counter's front or rear arcs is in one of its *side arcs*.

If two spacecraft A and B are in the same hex, and spacecraft A has declared that it is attempting to ram spacecraft B, then B is in A's front arc. Otherwise, B is in A's side arc.

You can download all the counters required for starship combat at http://e23.sjgames.com/.

Place each spacecraft's counter where the spacecraft is at the start of the engagement, and place its vector counter where the spacecraft will be next round if it doesn't maneuver. The position of the vector counter relative to the spacecraft counter indicates the spacecraft's heading, while the distance between the two counters indicates its velocity. Thus, a stationary spacecraft has its two counters in the same hex, one moving at about 30,000 mph (one hex per round) toward a planet would have its vector marker in the adjacent hex closest to the planet, and so on. Relatively low velocities (one to five hexes per round) are most playable, as faster-moving vessels will take a long time to turn around.

The distance between opposing spacecraft depends on the situation.

In a system with a busy starport (Class C or better), there is usually a great deal of traffic passing by, and captains won't begin to grow concerned until a vessel passes within half a light-second or so (seven to nine hexes). Likewise, if a PC crew is planning some sort of nefarious activity, an enemy won't usually pay much attention to them until they get within a similar distance.

In a frontier star system or an actual war zone, ship captains will be more cautious. The GM may want to start checking for detection within a light-second or two (18-36 hexes) On the other hand, if an enemy was hiding behind a planet, moon, or large asteroid, the combat could begin at much shorter ranges as it suddenly appeared within line of sight.

If the battle is a set-piece engagement or a random encounter, the GM should be careful to place ships with converging vectors. If the engagement is the climax of a chase, place the quarry in the center of the map and the pursuers at one edge, bearing in mind that the pursuer will be unable to catch up unless he possesses a faster ship or missiles. Care should also be taken when placing things that can't maneuver (or can't maneuver much) in the context of the game – i.e., space stations, satellites, or low-acceleration ships.

Sequence of Action

Play proceeds through the following sequence each round. There are no individual turns as such – detection is checked for all spacecraft, then maneuvers are made for all spacecraft, and so on.

1. *Detection and Communication Phase*
2. *Maneuver Phase*
3. *Movement Phase*
4. *Direct Fire Phase*
5. *Point Defense and Collision Phase*
6. *Launch and Docking Phase*
7. *Damage Control Phase*

Detection and Communication Phase

Each space combat round, check to see if spacecraft detect previously unnoticed objects. Large objects like moons, planets, or stars are automatically detected. The GM may require sensor rolls to detect smaller objects like asteroids if they aren't on charts.

Sensor Stance

For each spacecraft, determine its *sensor stance* at the beginning of this phase. Each spacecraft is always in one of three stances: *silent running*, *active*, or *broadcasting*.

Silent running means that the spacecraft is using only passive sensors, and is not making any deliberate radio or other transmissions. The spacecraft's transponder, if any, must be turned off. A spacecraft in this stance can still be seen at a considerable distance, either through a telescope or through the detection of the waste heat from its power plant and drives. Missiles are *always* in silent running, but manned spacecraft need not be.

Active means that the spacecraft is using its active sensors, but not making deliberate radio or other communication transmissions. The spacecraft's transponder, if any, must be turned off. The emissions from the spacecraft's active sensors may be easily detected by other ships; this is one reason why warships should carefully consider when to "go active."

Broadcasting means that the spacecraft is making deliberate radio transmissions using its standard communications gear, or that it has an activated transponder. Spacecraft in this stance are very easy to detect from a distance. Civilian starships are almost always in this stance – indeed, it is *illegal* for a civilian ship to turn off its transponder when in an inhabited star system's traffic lanes. Note that radio communicators and transponders are designed to be easy to detect, and are usually detectable at longer ranges than a ship's active sensors. If a ship is in broadcasting stance, there is no logical reason to not be using active sensors as well.

Note that missiles are controlled with laser or "tight-beam" radio communications, which are very hard to detect from a distance. A ship may control missiles from any sensor stance, including silent running.

The GM should secretly decide which stance each NPC spacecraft is in, and then ask players to reveal the stances of their own spacecraft.

Detection Procedure

For each sensing ship and potential target, roll against the sensor operator's Electronics Operation (Sensors) skill, adding appropriate modifiers found in *Sensor Modifiers* later in this chapter (p. 227). If the ship is in silent running, the roll must use the Passive Sensors modifiers. If the ship is in active or broadcasting stance, then the roll may use either Passive Sensors or Active Sensors modifiers, whichever gives the better chance of detecting a given object.

Failure means that the object is not detected, but another try may be made next round.

Success by 0-2 means *detection*. The object's existence has been discovered, and its location and course are known. The object's spacecraft and vector counters can be placed on the map.

Success by 3-4 means *detection and recognition*. The object is detected, and its general shape resolves as a fuzzy image.

Success by 5+ means *detection and identification*. The object appears "on screen" as an actual image, and its identity can be determined if it exists in available databases.

Once detection is achieved, it is retained unless something occurs that would interrupt a direct line of sight between the vessels, such as a ship moving behind a planet. Further attempts can be made to detect the same object, in order to improve the quality of the context; in this case, ignore any results that would lower the degree of detection achieved.

Any objects launched by a spaceship after it has been detected are spotted automatically. In particular, if a spacecraft that has been identified fires missiles, they are identified as they launch.

Maneuver Phase

In this phase, every spacecraft with a working maneuver drive may maneuver. Spacecraft maneuver in order of lowest to highest sAccel rating. Spacecraft with equal sAccel maneuver in order of highest to lowest Size Modifier. Break ties with a Quick Contest of Tactics skill between the respective captains, with the winner maneuvering *last*. Each spacecraft's pilot (or the controlling gunner, for a missile) determines how the spacecraft will maneuver.

On its turn, a spacecraft maneuvers by changing facing and/or accelerating. To carry out a spacecraft's maneuver, using the following procedure:

1. Turn the *spacecraft counter* to face any hexside.

2. Turn the *vector counter* to face in the same direction as the spacecraft counter.

3. If desired, move the vector counter to a new hex. The distance that the vector counter may be moved depends on the *direction* in which it is moved. If the vector counter's new position will be in the *front arc* of its old position, it may move a number of hexes up to the spacecraft's sAccel rating (rounded down). Otherwise, it may move a number of hexes up to *half* of the sAccel rating (rounded down).

Slow Maneuvering

If a spacecraft has sAccel less than 1 G, it will not be able to maneuver every round. It requires (1/sAccel) rounds to maneuver (rounded down). Each time it maneuvers, it may move its vector counter one hex, but this movement *must* be into the vector counter's closest front hex.

For example, a spacecraft capable of 0.3 G acceleration can maneuver once every 1/0.3 = 3.33 rounds, rounded down to every three rounds. Between these rounds, it may not change facing or accelerate.

Missiles and Maneuvering

A missile can only maneuver if it is currently under the direct control of a gunner. It must be within communications range of the ship on which the gunner is working (50 hexes at TL9, or 100 hexes at TL10+). Gunners on board a given ship can only control one missile per installed missile rack, 24 missiles per light missile array, and 36 missiles per heavy missile array.

Control of a missile can be "handed off" from one ship to another, so long as the two ships are within communications range of each other. If a missile is dropped because there is no gunner is available to control it, it can be "reacquired" on the next turn. In fact, it *must* be reacquired on the next turn, otherwise it will automatically self-destruct during the Maneuver Phase.

Any one missile may only maneuver three times before running out of on-board power. GMs may wish to use a small die or another marker next to each missile counter to keep track of remaining power. Once a missile runs out of power, it will automatically self-destruct after the Point Defense and Collision Phase of that turn.

Movement Phase

Spacecraft move in any order – since there are no decisions to be made in this phase, it doesn't matter what order movement takes place in. For each spacecraft, the GM or a player should use the following procedure:

1. Pick up the spacecraft counter and put a placeholder (a small coin or die) in the hex the spacecraft counter was taken from.

2. Pick up the vector counter and put the spacecraft counter in the hex the vector counter was taken from. The spacecraft counter must face in the same direction that the vector counter did before movement.

3. Trace a line from the center of the placeholder's hex through the center of the spacecraft counter's hex and on in the same direction. Move the vector counter along that line, a number of hexes equal to the distance between the placeholder and the spacecraft counter. The vector counter must face in the same direction as the spacecraft counter. Once this is done, the placeholder can be removed from the map (but see *Gravity Fields*, below).

In effect, the spacecraft moves into the place held by its vector counter from the previous round, and the vector counter is moved to a new location along the same projected course. A spacecraft that does not maneuver will continue to move each round in the same direction.

4. Examine the line traced from the placeholder to the spacecraft counter's current position. Each gravity hex that this line enters, ignoring the placeholder's hex but including the spacecraft counter's hex, will cause the vector counter to move. If the line passes along a hexside between a gravity hex and a non-gravity hex, this doesn't count.

5. For each gravity hex in turn, visualize an arrow from that gravity hex pointing to the planet, and move the vector counter one hex in that direction. Remember to maintain the vector counter's facing.

6. Once the vector counter has been moved for each gravity hex, the placeholder can be picked up and the next ship's movement can be performed.

Collisions

If a spacecraft's course (the line between its placeholder and its new spacecraft counter position) intersects a planet-sized celestial body, it must either crash into the planet or land on it (see *Celestial Bodies*, p. 225).

Any number of spacecraft may share the same hex with each other, or with small bodies like asteroids, without risking accidental collision.

Gravity Fields

Each world with a surface gravity of at least 0.25 G will be surrounded by *gravity hexes* (see p. 225). A spacecraft that passes through a gravity hex will be accelerated, its velocity vector altered, by the world's gravity. Once the spacecraft's vector counter has been placed in Step 3 above, but *before* the placeholder is removed, add the following two steps.

Ramming

After *all* spacecraft have completed their movement, a spacecraft that is in the same hex as any other spacecraft (or other object) may attempt to ram. Ramming must be declared at the end of the movement phase by the spacecraft's pilot. The target of a ramming attempt may cooperate, attempt to evade the ram, or even announce that it is ramming a different vessel. The actual results of ramming are

resolved in the Point Defense and Missile Phase, but the decision must be made now, as a spacecraft closing to ram becomes easier to hit. A spacecraft may attempt to ram only one target per round.

Direct Fire Phase

Direct fire is fire performed using directed-energy weapons: lasers, plasma guns, particle cannon, or meson cannon. Spacecraft perform direct fire one at a time. All fire is considered simultaneous. Attacks should be resolved sequentially and can take place in any order, but any damage should not be applied until the end of the phase.

When it is a spacecraft's turn to fire, resolve fire one gunner at a time. Each gunner decides for himself whether to shoot and what to shoot at. A single gunner can fire all of the weapons in his turret or bay, if he is at the turret or bay's crew station. Fixed-mount and spinal mount weapons are fired from bridge crew stations. A Gunner program running on the ship's computer can replace a single gunner.

One gunner can only fire at one target per round; he may not "split" the fire of multiple directed-energy weapons under his control. Each weapon may only fire once per Direct Fire Phase – this represents a number of carefully aimed tracking shots fired over the entire 20-minute period of a combat round.

Procedure

Use the following procedure for each weapon that is being fired:

1. Choose a target. A weapon can fire on any target that the gunner's spacecraft has detected, is within his weapon's maximum range, and is within his arc of fire. Weapons in turrets or bays may fire in any direction. Weapons in fixed mounts or spinal mounts may only fire into the spacecraft's front arc.

2. Determine the modified Gunner skill for the firing gunner (or program) using the *Gunnery Modifiers Table* (p. 227). Roll against modified skill to determine if the hit occurred. During the 20-minute combat round, a successful attack roll may indicate multiple hits. For the purposes of space combat *only*, treat all directed-energy weapons as having RoF 20 and Recoil 2 (p. B373); one extra hit is achieved for every full multiple of two by which the attack roll is made.

3. If the target is hit, has a pilot, and has sAccel of at least 0.1 G, it may attempt a vehicular dodge against each attack that hits (p. B375). Roll against half of the pilot's Piloting (High Performance Spacecraft) skill, rounded down. A spacecraft may attempt to dodge multiple times in the same round, but may only attempt to dodge once against any given attack. A successful roll avoids one hit, plus additional hits from the same attack equal to the margin of success. A critical success dodges *all* the hits from that attack.

4. For each hit that is not dodged, roll the weapon's damage dice (see *Space Weapons Table* on p. 226). Damage is halved beyond the half-damage range. Subtract target dDR, modified by armor divisor, as usual. Sandcasters may offer extra dDR against lasers (see *Sandcasters*, p. 193). If damage penetrates armor, see *Damage Effects* below. On a critical hit, the attacker may choose to do double damage, or to have defenses protect at one-tenth of normal DR.

Pinpoint Fire

A gunner using a directed-energy weapon other than a meson cannon can attempt to use "pinpoint marksmanship" against a weak spot in the target's armor (e.g., hatches, weapon tubes, turret rings, and so on). This is difficult: when computing the gunner's effective skill, ignore the target's Size Modifier. On a hit, the target's DR protects at half normal, cumulative with other armor divisors.

Pinpoint fire may be used to knock out specific systems on the target spacecraft. In this case, the gunner making the attack must declare the specific target before firing; in effect, he may choose any one entry on the Major Damage Table (p. 227). The attack will not get any extra hits no matter how well the gunner makes his skill roll. On a hit, the target's dDR is halved, as is usual with pinpoint fire. The attack must do at least 10 dDR of damage (after armor and other defenses) to inflict the desired Major Damage result.

Sandcasters

In the Direct Fire Phase, a turret's sandcasters can be targeted toward a single enemy vessel. A single sandcaster adds dDR 40 to its ship's armor dDR against all *laser* fire originating from the targeted vessel. Multiple sandcasters can combine to protect against fire from a single spacecraft, but each extra sandcaster only adds another +5 dDR.

Damage Effects

Damage effects are calculated immediately, but do not take effect until the end of the Direct Fire Phase. Thus, everyone has a chance to fire before being crippled or destroyed.

All damage to a spacecraft is considered to be to the body. The following damage results are possible.

Major Damage: Each time the spacecraft takes 50% of its original dHP in damage from a single attack, or when the spacecraft is reduced to less than 1/3 of its original dHP, it takes Major Damage. Roll 3d on the *Major Damage Table* (p. 227) and apply the result.

Disabled: When the spacecraft is reduced to 0 dHP, it is crippled, out of power, and leaking air. It continues to move in the Movement Phase, but may not maneuver, dodge incoming fire, jump, fire weapons, use sensors or communicators, or apply any other shipboard systems that require power. Piloted small craft (such as lifeboats or fighters) can still be launched and recovered.

Destroyed: When the spacecraft is reduced to -1×dHP, it must make a HT roll. On a failure, it is destroyed. The effects are as for *disabled*, above, but the ship can no longer launch or recover small craft. Another HT roll must be made each time the spacecraft is reduced to another multiple of -1×dHP. At -5×dHP, the spacecraft is automatically destroyed.

Crew and Passenger Damage: Use the *Occupants and Vehicle Damage* rule (p. B555) to determine whether any occupant of a spacecraft is hit when damage penetrates the hull and armor. Remember that damage is in D-scale – multiply by 10 to determine hit points of damage to a crewman or passenger. Crewmen are rarely just *wounded* in space combat . . .

Point Defense and Missile Phase

If a spacecraft attempted to ram its target and was not destroyed by enemy fire during the Direct Fire Phase, the ram attempt is resolved in this phase. If multiple spacecraft are ramming each other in the same hex, resolve them in order of highest to lowest sAccel, then lowest to highest Size Modifier, breaking ties with a Quick Contest of Tactics. (This is the *reverse* of the order established in the Maneuver Phase.)

Although missiles do not attack by physically colliding with their targets, they do run very close before setting off proximity-fused explosives. For the purpose of the following rules, this is considered "ramming."

Point Defense

Before any spacecraft is rammed, it may attempt to use directed-energy weapons and sandcaster fire for point defense. Fire is allowed even if the weapon also fired during the Direct Fire Phase. Point-defense fire is resolved like normal fire against a target, except that no range modifier is applied to the skill roll.

A spacecraft may only use point-defense fire against other spacecraft that are attempting to ram it in the current phase. Point-defense fire may be performed even against incoming spacecraft that have not yet been detected; it's assumed that the incoming spacecraft appears on proximity sensors less than a minute before impact, giving enough time for an attempt to shoot it down.

Each directed-energy weapon may only fire *once* during this phase. If its gunner scores multiple hits (see p. 223), he may divide those hits among different targets rather than hitting the same target more than once. This requires that subsequent targets be no harder to hit than the first. This technique is most often used against groups of incoming missiles; on average, a single directed-energy weapon will take out two or three missiles.

When sandcasters are used as point-defense weapons, treat them as standard TL10 beam lasers for this purpose. A sandcaster used for point defense cannot hit more than one target, no matter how well the gunner does on his skill roll.

Ramming

If both spacecraft cooperate in ramming each other, the attempt automatically succeeds. Otherwise the attempt is resolved as a Quick Contest of Skill between the rammer and the target. Manned craft use their pilot's Piloting skill. Missiles use their controlling gunner's Gunnery skill. Refer to *Ramming Modifiers* (p. 227) for the modifiers to each side's skill level. If a very large salvo of missiles attempts to ram the same spacecraft, the GM may wish to break the salvo into groups of 3, 5, or 10 missiles and make a contest of skill for each, rather than rolling for each individual missile.

If the rammer loses or ties, it fails to hit the target. If this occurs, nothing happens, and the ramming spacecraft remains in the target's hex. If the rammer wins, both spacecraft collide.

Space-combat missiles do damage by proximity explosion, delivering a shaped-charge explosive warhead just before actual collision with the target. A hit from a missile always does 12d(10) burn explosion damage.

Collision damage depends on the relative velocity between the two spacecraft. This can be determined by counting the distance between their two vector counters in hexes. Collision inflicts crushing damage on *both* spacecraft equal to the relative velocity in hexes, times the dHP of the *smaller* spacecraft, times 150 *dice* of damage. Any collision between two warships is likely to destroy both!

Ramming an asteroid, planet, or moon won't do damage on a planetary scale, but it can devastate an area. Aside from any warhead effects, assume that anything nearby takes crushing explosion damage equal to one-tenth the collision damage.

Launch and Docking Phase

In this phase, spacecraft may launch missiles and small craft, and may also recover small craft. Spacecraft perform these tasks in the same order in which they maneuvered during the Maneuver Phase.

Missile Launch

A spacecraft may launch one missile per missile rack, 24 missiles per light missile array, and 36 missiles per heavy missile array each round. Note that a spacecraft can only *control* about this many missiles at one time (see *Maneuver Phase*, p. 221). One salvo will usually not be launched until the previous salvo has reached its targets.

Newly launched missiles are placed in the same hex as the launching spacecraft, with any desired facing. The missile's *vector* counter is placed in the same hex as that of the launching spacecraft, facing the same direction as missile's spacecraft counter.

For convenience, salvos of missiles that are intended to maneuver together and strike the same target can be represented by a single pair of counters. A small die or some other marker can be used to indicate how many missiles are in the salvo, and to register losses to enemy fire.

Small Craft Launch

A spacecraft may launch one small craft per vehicle bay or hangar bay per turn. A launch tube can launch up to 40 small craft per turn. A spacecraft with a dispersed structure may launch *all* of its small craft in one turn.

Newly launched small craft are placed in the same hex as the launching spacecraft, with any desired facing. The vector counter of a small craft must be placed in the same hex as the launching ship's vector counter, with the same facing as the small craft's spacecraft counter.

Docking

Two spacecraft that occupy the same hex, and whose vector counters are also together in a single hex, are said to have "matched courses." They may dock during the Launch and Docking Phase. One of the spacecraft must be capable of maneuver; the other must either cooperate, or must be crippled and unable to maneuver.

Safe docking requires careful piloting and takes an entire combat round. Neither spacecraft may maneuver in the *next* combat round's Maneuver Phase. The docking maneuver is not complete until the beginning of the next Launch and Docking Phase. Once docked, spacecraft can maneuver provided that they continue to match courses and don't exceed 1 G of acceleration (i.e. their vector counters are never moved more than one hex during the Maneuver Phase). Undocking is faster; it takes a single phase and doesn't restrict maneuver.

Small Craft Recovery

A spacecraft can *recover* small craft, storing them on board, if all the requirements for docking are met and the smaller craft can fit aboard. One small craft may be recovered per vehicle bay (assuming the small craft is designed to fit the bay), hanger bay, or launch tube on the larger spacecraft. If a bay or launch tube is used for small craft launch, it cannot also be used for small craft recovery in the same Launch and Docking Phase.

Emergency Docking or Recovery

A docking or recovery operation can be performed more quickly. The pilot of the maneuvering craft makes a Piloting skill roll. On a success, the operation takes a single Launch and Docking Phase, and there is no restriction on maneuvers next round. If the roll fails, the two spacecraft collide at relatively low speed. Both take dice of crushing damage equal to 1/10 of the smaller spacecraft's dHP.

Damage Control Phase

In this phase, engineers can attempt to repair damage to their vessel. The rules under *Repairs* (p. B484) apply.

Minor Repairs: Hit points lost due to missed maintenance, battle damage, or any other cause can be repaired by crewmen with the appropriate skills. All repair rolls during combat are at -7. This penalty is a combination of rushing the repair roll by 40% in order to make it in a 20-minute combat round (see *Time Spent*, p. B346) and of working on a very expensive item (p. B484). Outside combat, engineers can take as much time as they need, although the -3 penalty for repairing an object costing over $1,000,000 still applies. Each successful skill roll restores one normal-scale HP times the margin of success. Every 10 normal-scale HP restored will repair one dHP.

Major Repairs: Each Major Damage result, or point of lost HT due to missed maintenance, must be considered a Major Repair. If a Major Damage result is being repaired, use the cost of the individual ship's system in order to determine the cost of spare parts. If a point of lost HT is being repaired, the cost of the spare parts is equal to 1d% of the ship's base price.

Celestial Bodies

While most of space is empty, the valuable parts aren't. Many engagements will take place around planets and other strategic objectives.

Worlds

These are planets and moons whose diameter is 1,000 miles or greater. Typical inhabited worlds are less than 10,000 miles in diameter, and so comfortably fit in a single hex. Worlds should be represented on the map either by drawing a circle or by placing an appropriate counter in a hex.

Line of Sight: A world blocks line of sight past it. A spacecraft may use sensors, communicators, and directed-energy weapons other than meson cannon into (but not through) a world hex. Meson cannon may be fired through a world hex.

Gravity Hexes: Any world with a surface gravity of 0.25 G or more will generate gravity hexes. The world's hex itself is *not* a gravity hex. See *Gravity Fields* (p. 222) for the effect of these hexes on movement.

High Orbit: A spacecraft that moves one hex directly from a gravity hex to an adjacent gravity hex during the Movement Phase is in orbit. The spacecraft's movement should carry it completely around the planet without requiring any further acceleration.

Low Orbit: A stationary spacecraft in a world hex (i.e. a vessel whose spacecraft and vector counters are both in the world hex) is assumed to be in low orbit.

Landing and Takeoff: A spacecraft in low orbit can *land* on the world's surface during the Maneuver Phase, leaving the map. A spacecraft on a world's surface may leave the world by being placed on the map in low orbit (i.e. stationary in the world hex).

Large Bodies

Large bodies such as gas giants and stars will take up multiple hexes. Represent such bodies as a circle (Diameter/10,000) hexes across. A large body's gravity hexes are represented by a larger circle with a diameter of 4 × *Square root*(Mass). Don't worry about aligning a large object on the hex grid; it won't fit. Just draw a circle for the given diameter, and if the 1-G gravity well is larger, a second circle for it.

Large bodies will block line of sight as worlds do. Realistic gravity and orbital mechanics for large bodies are beyond the scope of this system. GMs can apply gravity effects as in the standard rules, except that the gravity zone may be a number of hexes deep.

A ship that enters a gas giant or star hex is immediately destroyed. Ships that perform wilderness refueling (p. 192) skim the very thin outer fringes of the gas giant's atmosphere, just outside the planet's radius as drawn on the map.

Small Bodies

Small bodies include asteroids (a few yards to several miles across) and small moons or planets up to 1,000 miles in diameter. In the space combat system, such bodies do not affect detection or fire unless a ship is in the same hex and is deliberately keeping the small body between itself and another spacecraft.

Ships may pass freely through hexes containing small bodies. They do not generate gravity hexes.

Special Rules

The following rules elaborate on various aspects of space combat.

Crew Positions and Skill Rolls

Smaller vessels often have the same crewman performing multiple roles. If a crew member is undertaking multiple tasks during a single space combat round, he suffers a -2 penalty to *all* skill rolls for each extra task he is performing.

Actions counted as tasks are: piloting; firing one weapon or one set of identical weapons at the same target (sandcasters may not be fired in groups); controlling any number of missiles; acting as a sensor operator; damage control; complex communications (GM's option; e.g., coordinating a squadron or tracking a signal).

A ship with more than two crew engaged in the above tasks should also have a captain, who does nothing but give orders. If no captain is on hand, the GM should apply an extra -1 penalty to everyone's skill rolls!

Fighters and similar small craft are often designed to make it easier for a single crewman to manage multiple tasks. The GM should permit fighter pilots (and other small-craft commanders, at his discretion) to perform piloting, gunnery, and sensor operations all at the same time without penalty.

Jump

A starship with a working jump drive and enough fuel may prepare for a jump in any Maneuver Phase. The ship may not maneuver in that phase, and jumps at the beginning of the next Maneuver Phase.

A safe jump entry (or exit) requires a distance from any large body of at least 100 diameters. Thus, starships may jump in or out safely from (planetary diameter in miles/100) hexes. See p. 171 for jump procedures.

Ships jumping *in* appear at the beginning of a Maneuver Phase, retaining whatever vector they had when they went into jump.

Missile Statistics

Both Imperial and Terran ships use very similar ship-to-ship missiles throughout the Interstellar Wars era. The statistics, using the same abbreviations as for spaceships, are as follows.

Note that almost any hit from a space combat weapon will disable a missile, preventing it from finishing its attack run. The GM may rule that one hit from any weapon will destroy a missile without needing to roll for damage.

Tech Level: 10.
Hull: Cylinder Streamlined hull, dDR 4 armor, Stealth.
Statistics: EMass 0.15 tons, LMass 0.15 tons, Cost $30,000, SM +0, ASig -6, Hull dHP 2, no life support capacity, sAccel 8.0 G, no jump capacity, Top Air Speed 740 mph.
Crew: None (remotely controlled).

Transponders

In both Imperial and Terran space, civilian ships are required to carry active transponders that constantly broadcast their location and identity. This means that they are normally in the broadcasting sensor stance. Transponders can be turned off, but naval patrols reserve the right to fire on any detected ship that is running without a transponder.

Charts and Tables

Space Weapons Table

Weapon/TL	*Damage*	*sAcc*	*Range*
Beam Laser/9	6d(5) burn	0	1/3
Beam Laser/10	7d(5) burn	2	2/6
Beam Laser/11	8d(5) burn	2	2/6
Pulse Laser/9	3d(5) burn	0	1/3
Pulse Laser/10	4d(5) burn	2	2/6
Pulse Laser/11	5d(5) burn	2	2/6
Plasma Gun/10	12d(3) burn	-1	0/2
Plasma Gun/11	14d(3) burn	-1	0/2
Fusion Gun/11	16d(3) burn	-1	0/2
Heavy Particle Cannon/9	6d(10) burn	2	2/6
Heavy Particle Cannon/10	8d(10) burn	3	3/9
Heavy Particle Cannon/11	10d(10) burn	3	3/9
Light Particle Cannon/10	6d(10) burn	3	3/9
Light Particle Cannon/11	8d(10) burn	3	3/9
Bay Plasma Gun/10	6d×4(3) burn	0	1/3
Bay Plasma Gun/11	6d×5(3) burn	0	1/3
Bay Fusion Gun/11	6d×6(3) burn	0	1/3
Heavy Spinal Particle Cannon/10	16d(10) burn	4	4/12
Heavy Spinal Particle Cannon/11	20d(10) burn	4	4/12
Light Spinal Particle Cannon/10	12d(10) burn	4	4/12
Light Spinal Particle Cannon/11	16d(10) burn	4	4/12
Heavy Spinal Meson Cannon/11	20d(*) burn ex	3	3/9
Light Spinal Meson Cannon/11	16d(*) burn ex	3	3/9

* Meson cannon *ignore* all DR, from armor or any other source.

Damage is given in D-scale dice. Multiply by 10 to get normal scale damage.

sAcc is the weapon's *space accuracy*. Add 30 to get its normal Acc score.

Range is the half-damage and maximum range, in space combat hexes.

Space Range Table

Hexes	*Modifier*
Point Defense	+0
0	-10
1	-12
2	-14
3	-15
4-5	-16
6-8	-17
9-11	-18
12-17	-19
18-28	-20
29-39	-21
40-56	-22
57-85	-23
86-113	-24
114-170	-25

Sensor Modifiers

In the following modifiers, "being within a planetary atmosphere" assumes that the spacecraft is surrounded by an atmosphere denser than Trace. This can be the atmosphere of a terrestrial planet or of a gas giant.

Basic Modifiers

Skill: Add the sensor operator's Electronics Operation (Sensors) skill level.

Sensors: Add the Scan rating of the sensor systems, based on the model number of the sensor and TL of the ship (p. 193).

Range: Count the distance in hexes between the sensing spacecraft and its target, and get the appropriate modifier for that distance from the *Space Range Table* (p. 226).

Prior Detection: If the object has been detected on a prior round by the same ship, or by an ally sharing information, +4.

Passive Sensors

If the sensing ship is using passive sensors, apply the following modifiers to see if it can detect a given target.

Passive Sensors: -6 for all detection attempts using passive sensors.

Passive Signature: Add the target's Size Modifier (SM). If the target has a *needle/wedge* or *cylinder* shape, and the sensing ship is in the target's front or rear arc, -2; if the target has a *flattened sphere* or *close structure* shape, and the sensing ship is in the target's front or rear arc, -1.

Target Sensor Stance: If the target is in the active stance, +20; if it is in the broadcasting stance, +30.

Target Location: -2 if the target is in the same hex as or in a hex adjacent to a planet or moon, but not within a planetary atmosphere; -6 if the target *or the sensing ship* is within a planetary atmosphere.

Active Sensors

If the sensing ship is using active sensors, apply the following modifiers to see if it can detect a given target.

Active Signature: Add the target's active signature (ASig). If the target is not a spacecraft and doesn't have an ASig score, use its Size Modifier instead.

Target Location: -4 if the target is in the same hex as or in a hex adjacent to a planet or moon, but not within a planetary atmosphere; -6 if the target *or the sensing ship* is within a planetary atmosphere.

Gunnery Modifiers

The following modifiers apply for any attempt to hit a target with directed-energy weapons.

Skill: Add the gunner's Gunner (Beams) skill.

Accuracy: Add the weapon's sAcc rating, as taken from the *Space Weapons Table* (p. 226).

Range: Count the distance in hexes between the sensing spacecraft and its target, and get the appropriate modifier for that distance from the *Space Range Table* (p. 226).

Target Size: Add the target's Size Modifier (SM). If the target has *needle/wedge* or *cylinder* shape, and the firing ship is in the target's front or rear arc, -2; if the target has *flattened sphere* or *close structure* shape, and the firing ship is in the target's front or rear arc, -1.

Sensor Stance: If the firing ship is currently using active sensors, +2.

Meson Targeting: If the target has *dispersed structure* shape, and the firing weapon is a meson cannon, -4.

Ramming Modifiers

The following modifiers apply to *both* sides in any ramming attempt.

Faster Spacecraft: The spacecraft with the higher sAccel rating adds half of the difference between the two sAccel ratings (rounded down).

Target Size: The ramming spacecraft adds the target's Size Modifier (SM). The target's shape does not affect ramming.

Missile Control Range: If the ramming spacecraft is a missile, -1 for every three full hexes range from the controlling spacecraft to the target.

Missiles and Repulsors: If the ramming spacecraft is a missile and the target has at least one repulsor array, the target adds +15. A single repulsor array can be used against only 100 incoming missiles in one round.

Major Damage Table

3-4: One bridge or cockpit is knocked out. If all bridge or cockpit systems are disabled, the ship can still be controlled, but all skill rolls are at -4.

5-6: Communications disabled. Ship cannot communicate with other vessels or maintain control of missiles.

7: Sensors damaged. Scan rating is reduced by four.

8: Cargo holds damaged. Cargo or freight is destroyed equal to one-quarter of the ship's original cargo capacity.

9: Power plant damaged. Ship loses half of its original sAccel and jump capacity.

10: Weapon(s) knocked out. Choose one fixed mount, turret, bay, or spinal mount. All weapons in that mount are disabled.

11: Fuel tank shattered. Half of the ship's original fuel capacity is lost.

12: Maneuver drive damaged. Ship loses half of its original sAccel.

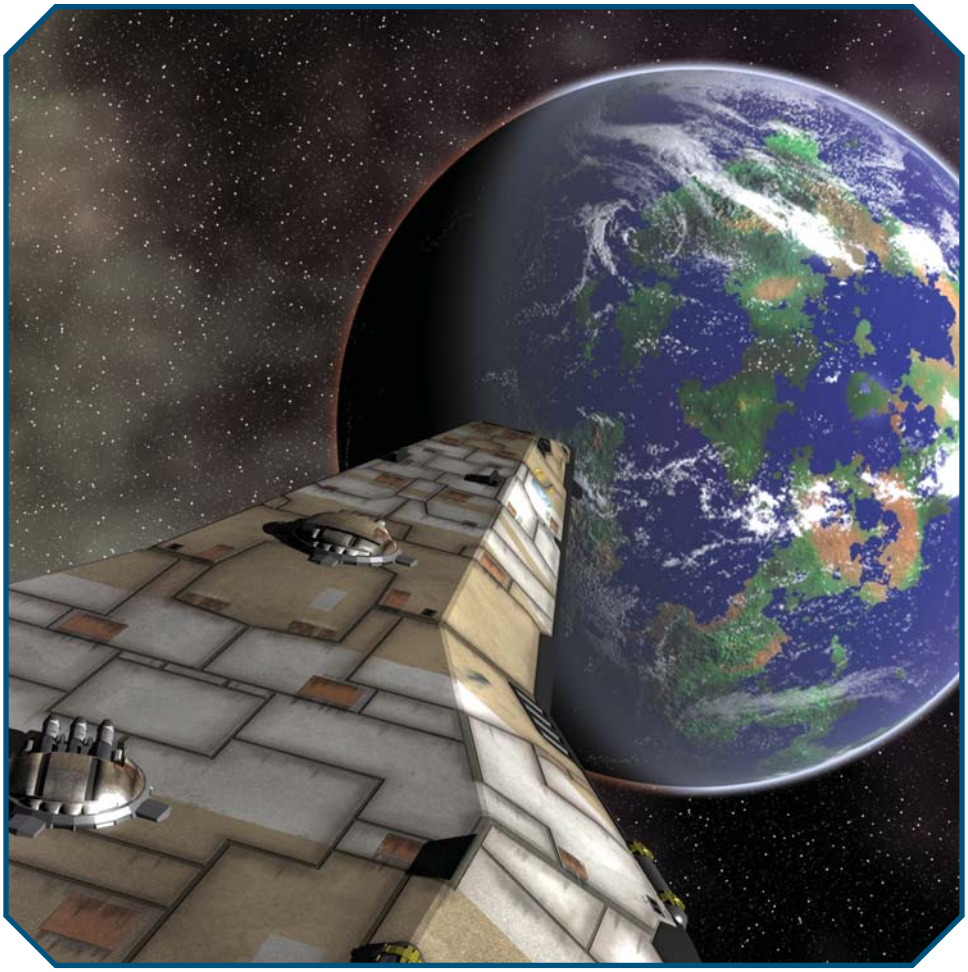
13: Jump drive disabled. Ship cannot jump.

14: One vehicle bay, hangar bay, or launch tube is disabled. The facility cannot be used to launch or recover small craft. At the GM's discretion, small craft being carried may also take damage.

15-16: Life support damaged. 20% of the ship's original life support capacity is lost (see *Life Support Systems* for details, p. 200).

17-18: Fuel processors (if any) are disabled.

Chapter Eleven
Campaigns



April 15, 2174 – Nusku star system, in the war zone:

Shimannii reached the bridge in time to see the jump-emergence tumble begin. A flash of blue-white light washed the hull cameras, and then stars wheeled all around ***Cutty Sark****.*

"Emergence confirmed," said the navigator, watching her instruments. "We are in Nusku space, on the 100-diameter stellar limit as expected."

"Well done," Shimannii replied. "Comms, find Orbital Control for me, please."

"Done," reported the little alien at the communications console.

"Nusku Orbital Control, this is ***Cutty Sark****, Nusku registry, arriving from the Apishal jump point at 1935 standard time, 15 April 2174. Request transponder code assignment and flight plan to Nusku Down starport along minimum-time trajectory."*

Almost four minutes before Nusku starport would reply. Shimannii used the time to review the voyage. Four years away from Terran space. The Captain and a third of the crew lost. The ship nearly crippled, then repaired, then damaged once more. Trade links forged, and then most likely lost with the renewed outbreak of war. No freight in the hold, no passengers in the staterooms, the ship frankly running for home through the war zone. On the other hand, the ship carried a priceless cargo of experience – friends won, contacts made, knowledge gathered from dozens of Imperial worlds.

Shimannii and ***Cutty Sark*** *were coming home, to Nusku rather than to the Terran homeworld that neither had ever seen.*

*"****Cutty Sark****, this is Nusku Orbital Control. Your arrival recorded and accepted. You are cleared for a minimum-time trajectory for Nusku, squawk 2771, maintain contact on channel 5. Welcome home."*

Shimannii nodded. "Thank you, Control. Transponder set to 2771, contact on channel 5. See you soon." He tapped at his controls, setting the ship moving along the course that the navigator had already plotted.

"Sir?" It was young Alexia Dergan, a technician promoted to Sensor Officer after the position's former occupant had been killed.

"Yes, Officer Dergan?" Shimannii prompted.

"Do you think we'll go out again?"

Shimannii stifled a smile. Terrans! Drag them through fire and death, and the ones who survived still continued to think ahead to the next venture. They were nothing like Vilani, and Shimannii realized that was just how he liked them. "That's up to the Consortium, Officer Dergan," he said, and turned to look at the stars. "Still, I imagine we will."

This chapter provides the GM with some suggestions as to how to get started with the ***Interstellar Wars*** setting.

The Default Campaign: Terran Free Traders

Interstellar Wars was designed under the assumption that a campaign will most often focus on Terran Free Traders operating within the Vilani Imperium. Free Traders travel through Imperial space, buying and selling goods in order to make a profit. They must deal with varying situations on many different Imperial worlds. They will be faced with Imperial disapproval, but they may also make friends in surprising places in Vilani society.

Setup

To set up a working Free Traders campaign, the GM should consider designing some or all of the following materials ahead of time.

Timeframe

The GM should decide the date of the beginning of the campaign. Refer to Chapter 2 and settle on a period that seems likely to give the best "flavor."

Most of the material in this book assumes a "default present" of 2170. At this time, Terra has survived several Imperial attacks and has attained rough parity with Imperial technology. However, Free Traders are only beginning to explore deep into Imperial space, with the limits of well-known space less than 20 parsecs from Terra. Adventurers will have plenty of opportunity to visit worlds that are completely new to Terran experience. Meanwhile, storm clouds of renewed conflict are gathering on the horizon. Within a few years the Imperium will launch another war against Terra, and the outcome is by no means certain.

In earlier eras, the Free Trade movement does not yet exist or is just getting under way. Terran entrepreneurs will be at a technological disadvantage, and will be limited to operating in space very close to Terra. They may spend as much time helping to start the first Terran colonies as they spend opening markets in Imperial territory. The Imperium is a much more present and overwhelming threat.

In later eras, Free Traders are very active, penetrating dozens and even hundreds of parsecs into Imperial space. They become very self-confident, conscious of their position in the vanguard of Terran power. They know that wherever they go, Terran battle fleets and Terran government will one day follow. Of course, the era is also one of more frequent (and more chaotic) warfare – Terran merchants are very likely to get caught up in a flare-up of violence along the military frontier.

In general, the more the GM wishes to challenge the players with strange worlds and powerful Imperial adversaries, the earlier he should place his campaign. If the players are more interested in doing as they please against the backdrop of a decaying Imperium, the campaign should be set later in the era.

The Field of Play

Unless the campaign is only going to last for a few sessions, it will need at least a dozen interesting worlds to serve as a backdrop (where "interesting" can be defined as "worth visiting repeatedly"). This implies that at least half a subsector will be needed, with about 20 worlds in all. A full subsector will provide plenty of extra space, and will be useful if the campaign needs to shift its focus on the map for any reason.

If the campaign is to take place close to Terra, one of the subsectors already mapped out in Chapter 5 may be a good choice. The Dingir subsector (p. 109) is quite close to Terra; the PC merchants will probably face a great deal of competition from other Terrans, and they will find themselves right on the front line if a new war breaks out. The Apishlun (p. 107), Urima (p. 103), and Duusirka (p. 105) subsectors are more distant without being entirely cut off from Terran space. The Urima and Duusirka subsectors are particularly interesting because they are the core of the Imperial rim province, as well as the home territory of the enigmatic Vegan species.

Free Traders who truly strike out for new frontiers will pass beyond the Chapter 5 maps. For such a campaign, the GM should generate a field of play using the world-design rules in Chapter 5. The GM should also decide about where the generated region falls on the map of known space (p. 100) and how far it is from Terra in terms of travel time. The campaign can begin with the adventurers entering the generated region for the first time, with several weeks or months of previous travel assumed to be in the back story.

The GM should use the rules in Chapter 5 not as a set of dictates, but as a springboard for his own creative ideas. If he wishes to generate a region of space that is somehow atypical, he should feel free to change the world-design procedure to suit himself.

Once the field of play has been designed in broad details, the GM should at least consider how to expand on the bare-bones description of the most important worlds. Are the worlds of the region settled by traditional Vilani, or has local culture diverged from the Imperial norm? Do any Imperial subject races have significant settlements in the region? Are there any local races not well known to Terrans? Where are the hub worlds located, and which of them is likely to be the local political center? Are there any minor worlds that nevertheless sit at the junction of several trade routes? Which worlds have very repressive governments (Control Rating 6), and which are unusually free or anarchic (Control Rating 1 or less)? Are any worlds technologically backward, possibly indicating isolated societies?

The Ship

The adventurers will need a ship in which to travel, carry cargo and freight, and meet interesting passengers.

Several of the ship classes in Chapter 9 are appropriate for a Free Traders campaign. The *Hero*-class private merchant would be good for a relatively small crew, possibly operating on a shoestring budget without the sponsorship of a major corporation. Larger crews could use the *Lightning*-class frontier merchant or the *Karl Marx*-class heavy merchant. These are all designed to be good "adventurer's ships," capable of working as privateers if the crew decides to go over to the wrong side of Imperial law. On the other hand, these ships are harder to operate at a profit as legitimate traders. If the GM doesn't wish to make the mercantile life difficult for his players, he should provide them with corporate sponsorship to relieve some of the profit-making burden.

Most of the merchant ships in Chapter 9 are not listed with installed weapons. If the GM wishes, he can revise the design to include a weapons loadout. Alternatively, he can force the crew to enter Imperial space unarmed, hoping to acquire ship's weapons later on (doubtless after a series of adventures).

Characters

Once a region of play and a ship have been selected, the players can begin to think about character design.

This process should be driven by the selected ship class. Each ship design includes a listing of the most typical crew roster. The GM and players should work out the complete department organization and chain of command on board the adventurers' ship; these do not have to exactly follow the roster given for the ship design.

The ship should have a Senior Captain (Merchant Rank 4) or Captain (Merchant Rank 3) in command. Other "officers" noted under the ship's design should hold the rank of First or Second Officer, with Merchant Rank 2. "Petty officers" should actually hold the rank of Third or Fourth Officer, with Merchant Rank 1. "Crewmen" will be Spacehands or Apprentices, with Merchant Rank 0.

The bridge crew should include at least a command pilot and a navigator, and may include communications, computer, or sensor officers as well. The engineering section should include a chief engineer, and possibly an engineer's mate and a senior maintenance technician. If there is a gunnery section or a section of ship's troops, each should have a leading crewman. The senior "enlisted" crewman on board (Merchant Rank 1 or less) may be designated the "bosun," and given special responsibilities in managing the crew. The leading crewman in either the passenger service or the cargo service sections should be designated the ship's purser, the officer most responsible for record keeping while the ship engages in commerce.

Assign players to the available shipboard roles *before* starting character design, then design PCs to fit the assigned roles. For all but the smallest ships, most of the crew will be NPCs. The GM can simply keep track of what positions are filled by NPCs, naming them and generating their character traits only as needed. Of course, a large crew can serve as a pool of replacements for any PCs that are killed or lost.

One approach to handling a large crew is a "troupe play" technique, permitting each player to generate two or more characters in different positions. For example, each player might have one senior officer and one lower-ranking crewman. The player would then choose which character to play in a given adventure; if the other character is needed, the GM can handle him briefly as an NPC. This style of play provides variety, and reduces the chance that a player will find himself without a character who could reasonably be involved in a given adventure.

Another point to consider is whether to permit a player to take on the role of the ship's captain. Some play groups will find a player-run commander to be uncomfortable, as other players resist taking orders. One approach to this situation is to permit the players to briefly drop out of character when a critical decision point arrives, so that they can discuss the matter and make decisions cooperatively. Once the players have reached a decision in a manner they're comfortable with, they can return to character and the commander can give the appropriate orders. Alternatively, the ship's captain can be an NPC, used by the GM to provide guidance and direction to the crew.

Initial Conditions

Once the field of play, the ship, and the characters are ready, the campaign can begin. Place the ship and crew on a world on the edge of the field of play, and assume that the ship has just arrived there after some period of traveling from Terran space.

The GM should determine how much cash is currently in the ship's operating fund. An amount equal to about one month's expenses is appropriate. The hold should initially be nearly full of speculative cargo at the start of the campaign (the GM can allow the players to select cargos from the table on p. 180, or roll randomly) and the port fees for this world unpaid, as if the ship is newly arrived. The passenger staterooms, however, should be empty. The crew will doubtless make acquiring new cargo, freight, and passengers an early priority.

Goals

By definition, Terran Free Traders will have several closely linked goals.

Trade

First, Free Traders need to *trade*. They must turn at least enough profit to pay operating expenses and crew salaries, while keeping the banks or the corporate sponsors happy. To make a profit, the crew will have to continually search out commercial opportunities. More basically, the ship will have to keep moving from world to world – if the adventurers linger too long in one place, they will find themselves falling behind on their expenses.

Exploration

Second, Free Traders are *explorers*. Even if they fail to make much profit through trade, they can still earn rewards by recording what they observe on new worlds, and returning those observations to Terra. On each

world they visit, they should inquire into the basic facts of local society. Who lives on the world? What are the quirks of local culture? Who are the political decision-makers, and what factions exist among them? Is the population loyal to the Imperium, are there dissident splinter groups, or is the world just waiting for a chance to rebel? Can the crew make any local friends or allies, to be called on later? Answering these questions may well involve the Terrans in short-term adventures on each world they visit.

Survival

Third, a Free Trader crew working deep inside Imperial space will need to see to its own *survival*. If hostilities break out again between the Imperium and Terra, Free Traders may find themselves surrounded by foes. Meanwhile, the Imperium itself is no longer stable. Local civil wars and rebellions can break out at any time, catching Free Traders in the crossfire.

Long-Range Goals

Aside from these general goals, the GM should come up with one or two long-term plot arcs to give his campaign its own shape.

A Free Trader ship may have a *mission* other than its obvious purpose of trade and exploration. Many Free Trader ships are owned by a large Terran corporation, which can assign long-range tasks: finding trade goods of a certain description, setting up trade agreements with leading figures on specific worlds, and so on. Other Free Traders cultivate a relationship with Confederation military intelligence, acting as couriers or operatives for special missions. Still others may ally with an Imperial leader or faction, carrying out tasks that their allies can't handle through normal channels. All of these connections can serve as a source of extra income, making it easier for a Free Trader crew to meet its expenses.

An *enigma* is often a good way to give a campaign long-term interest. Every new world the adventurers visit is going to be a mystery of sorts, but in the normal course of events that mystery will be "solved" by the time the ship lifts. A true enigma is a far-reaching mystery with clues scattered across several worlds, a mystery that will take many play sessions to unravel. Typical enigmas for the ***Traveller*** universe include wide-ranging political conspiracies, mysterious alien or minor-Human races, or high-technology artifacts that date to before Human history.

Campaign Character Packages

When designing characters to fill out a Free Trader crew, several character traits may be best considered as being shared among all the PCs. The GM should design a "campaign package" of character traits, to be taken by every PC in order to fit the campaign. It may be possible to set the total character-point cost of the package at zero – in any case, the traits in the package should not count against the campaign's limit on disadvantages. A similar package may be set up for group-design situations in other campaign types.

Character traits that can go into the campaign package include Contacts or Contact Groups (representing known contacts that anyone in the crew can use), Duties (representing the obligations imposed by a corporate, military, or Imperial sponsor), Enemies (persistent villains faced by the full crew), or Patrons (the ship's organizational sponsors).

Every PC should take a frequency of appearance of "quite rarely" (6 or less) for each of these traits; very small play groups (two to three players) might use "quite often" (9 or less) instead. The GM should roll for Duties, Enemies, or Patrons for each player once per adventure; the level to which the shared trait comes into play depends on how many players make their appearance roll.

For example, suppose that every member of an adventuring party composed of six PCs takes an Enemy, who appears on a 6 or less for any one crewman. The Enemy will appear in about 45% of adventures. In about 10% of adventures, more than one player will succeed in the appearance roll; the GM can make the Enemy a leading factor in those adventures.

Sample Package

The GM plans a campaign package for the PC crewmen of a Free Trader starship. The ship is associated with Terran Navy Intelligence, which will occasionally send money or other resources, but will also require the crew to perform hazardous missions. Meanwhile, an Imperial Navy captain opposes the Terrans, and directs patrol vessels and law-enforcement officials to harass them.

Terran Navy Intelligence counts as a Patron. In Terran space it would count as an "extremely powerful organization," but deep inside Imperial space its resources are much more limited; it counts only as a "very powerful organization" worth a base cost of 20 points. It appears "quite rarely," and so is worth only 10 points to each PC. The GM decides that aside from providing information and "pull," the Patron will sometimes make up the shortfall if the Free Trader's ship fails to meet its expenses.

The missions assigned by Navy Intelligence count as a Duty, which applies to the crew as a whole. The Duty comes up "quite rarely" for each player, and the missions are not overly hazardous. The Duty is worth -2 points for each PC.

The Imperial officer who pursues the crew is the leader of a medium-sized group, which includes several formidable individuals (including the officer himself). He counts as a Rival-level Enemy, since he only wishes to harass and inconvenience the crew rather than destroy it. He or his minions appear on a 6 or less for each PC. This Enemy is worth -30 × 1/2 × 1/2 = -7-1/2 points, rounded down to -8 points.

The total cost of the campaign package is 0 points.

Obstacles

Every planetside visit will likely carry its own obstacles. Starport officials, *shangarim* representatives, Imperial military officers, and ordinary citizens, will all tend to look at Terrans with suspicion. Of course, even friendly Imperials are alien to Terran experience. Misunderstandings of language or culture can complicate the simplest of adventures. Meanwhile, both the mission and the enigma will carry their own obstacles.

Aside from these continuous low-level hindrances, the campaign should have at least one recurring villain, a *personal* opponent who will make life difficult for the adventurers. Possibilities include a *shangarim* official who regards the Free Traders as dangerous competitors, a Navy officer who directs patrol ships to follow and harass the Free Trader vessel, or an aristocrat who despises "barbarians" and does his best to oppose the crew's actions.

Resolution

In theory, a Free Trader campaign can go on indefinitely. The GM may wish to have a final series of adventures in mind, in which the mission, enigma, recurring villain, and any other plot arcs can all be resolved. Once the resolution is complete, a new campaign can be set up using different premises. Perhaps the characters are sent to a new region of space with a new mission, or perhaps they have accumulated enough money that they can go into business for themselves.

Alternative Campaigns

Aside from the "Terran Free Traders" premise, the ***Interstellar Wars*** setting can support a wide variety of other campaign frames.

Main Fleets

Although the Interstellar Wars era is best known for massive naval campaigns and space battles, setting up a campaign centered on such events can be very challenging. Serving naval officers and crewmen have little freedom to move about and adventure, especially in wartime or when assigned to a major battle fleet. There is also the problem of the campaign's *scale*. It is difficult to set up a campaign involving large-scale fleet maneuvers and battles while still leaving PC adventurers with anything significant to do.

Possibly the best compromise is to permit the players to take on the roles of senior officers aboard a large warship, possibly even a capital ship (like the *Indomitable*-class battleship described in Chapter 9). Such a ship can be a base for wide-ranging adventures, especially late in the Interstellar Wars era when Terran fleets are advancing across whole sectors. Adventures involving maneuver and battle can be interspersed with adventures about intelligence gathering, interaction with Imperial populations, or even shore leave in exotic ports. The adventurers' ship will be very significant even in the largest battles, and will serve as a safe home base for other adventures. Players can also generate more than one character each, permitting a mix of high-level "command" adventures and low-level "ordinary crew" adventures.

Commerce Raiding

A campaign can still focus on naval adventure, while avoiding many of the scale problems of a main-fleet situation. Terran commerce raiders often operate independently, well behind the military frontier where they can't rely on orders or support from their superiors. They have wide discretion as to where to operate and which targets to attack. They often operate at a disadvantage in technology or numbers, and must be clever if they are to succeed.

Of course, successful commerce raiders rarely operate entirely alone. Some find allies among subject-race or dissident populations on Imperial worlds, giving them a place to go for repairs and to unload captured goods. This often draws them into factional conflicts within the Imperium – and even encourages them to *start* such conflicts where they can.

A commerce-raiding campaign shares many features with a merchant campaign, and in fact many Terran Free Traders turn to commerce raiding in wartime. Commerce raiders will engage in space battles with freighters and small escort craft, but they also carry ship's troops in order to carry out raids on undefended groundside targets.

Ground Warfare

The Interstellar Wars era saw hundreds of major ground campaigns and thousands of minor battles. Although this book doesn't include extensive detail about the organization and tactics of ground forces, the GM may wish to design a campaign around such operations.

Terran Malcontents

No matter what the campaign frame, the GM should bear in mind that the Interstellar Wars are not a campaign of Good against Evil. Terran propaganda is reminiscent of that used by the Allies during the World Wars – casting the war as a noble crusade, exhorting the populace to be unified in purpose, demonizing the enemy as inhumane and un-Human. Even so, many Terrans find it easy to be cynical about this portrayal, seeing the Terran Confederation as an institution designed mostly to protect the privileges of a small minority of Terrans.

Terran travelers can easily be from backgrounds that are likely to make them skeptical about the Terran social structure: citizens of poor nations, poor citizens of major nations, citizens of colony worlds that are shut out of meaningful participation in Confederation government. How much any one adventurer may resent or resist the Terran establishment is up to the player.

Meanwhile, the GM should make a conscious choice about just how much skepticism about the Confederation is warranted! A "good" Confederation may be very much as the propaganda portrays it: honest, competent, and devoted to the survival and growth of Terran civilization. An "evil" Confederation may be far more corrupt than even the average Terran citizen believes.

A campaign centered on a major ground war would probably involve no more than one world, usually a Garden world with a large Imperial population. The GM should develop this world in considerable detail: regional and local maps, the structure of pre-invasion government, the size and composition of Imperial forces, and information about local populations and factions. Terran troops will take part in combat missions of various sizes. Between battles, they will gather intelligence, borrow from the local economy, and otherwise interact with the civilian population.

Ground-warfare campaigns rarely involve months of all-out combat. Once Terran forces secure space around a given world, Imperial forces will quickly be reduced to guerrilla and small-unit resistance. A campaign will involve lots of foot or vehicle patrols, occasional skirmishes with Imperial troops, and rare major confrontations with plenty of artillery or aerospace support.

An alternative way to approach this kind of campaign is to center the game on the adventures of a Terran mercenary unit. Terran mercenaries do travel from world to world frequently, and face a wide variety of opponents. They are usually hired for very specific objectives, so their mission is usually clear and short-term (although there is always the possibility of treachery by an employer). Mercenaries will usually operate far from support, so if things go badly there may be nothing to prevent a disaster.

Occupation

Once a world has been secured, Terran forces may remain stationed there for many years. During this occupation period, Terran colonists and administrators will arrive, beginning to integrate the world into the Terran Confederation. The period can be one of considerable social change, conflict, and opportunity.

An entire campaign can be centered on the transition of an Imperial world to full membership in Terran society. Adventurers can come from the Terran Army, serving in the garrison, possibly accepting discharge locally in order to settle permanently on the occupied world. Others will be administrators, merchants, and colonists, come to build a Terran enclave among the Vilani or subject-race population. The goal is to build a thriving hybrid society, and possibly to win independence within the Terran Confederation.

Armed civilian resistance was rare on Imperial worlds; once Imperial troops were forced to surrender, the local population usually tried to accommodate itself to the Terran presence. There were exceptions, of course – and even on a "pacified" world, some formerly Imperial citizens may be willing to conspire against the Terran regime. Meanwhile, not all of the Terran immigrants were honorable people. Many adventures can revolve around the effort to prevent unscrupulous Terrans from exploiting the populace or trying to carve out an empire independent of Terran control.

Exploration

Plenty of worlds within a year's travel of Terra are unknown. Even in Imperial space, there are worlds that remain uninhabited and have almost never been visited. To rimward and trailing of Terra is a vast expanse of unexplored territory, never colonized by either Terrans or the Imperium. Many Terrans of the Interstellar Wars era regard this region as the best hope for their future, a place to establish whole civilizations out of the military (and cultural) reach of the Imperium.

An exploration campaign can be organized much like a naval or Free Trader campaign, in that the PC group fills out the crew of a survey vessel. Most of the same techniques for character design apply here as well. The *Zheng He*-class survey vessel is ideal for this kind of campaign, and is typical of the exploratory ships operated by the Terran Navy throughout the Interstellar Wars era.

The design of an exploration campaign can provide a serious challenge for the GM. Explorers don't have the constant pressure of making a profit to drive their efforts, so the GM will have to come up with some other ongoing challenge to maintain suspense. Meanwhile, explorers by definition won't be dealing with the Imperium very often, so there will be a shortage of interesting NPCs (including villains) and character-driven tasks. The GM may want to consider introducing an alien civilization, renegade Terrans, or some other party to provide both an ongoing challenge and a source of NPC interactions.

Colonization

During the Interstellar Wars era and afterward, most Terran migration is to the worlds of the Vilani Imperium. However, Terrans also settled dozens of worlds that were previously uninhabited, carving new civilizations out of the wilderness. A complete campaign can be set up around the events on a single colony world.

The GM will need to design the colony world in considerable detail, mapping existing settlements, placing sites of interest to explorers, deciding what local flora and fauna may exist, and so on. Important colonists will need to be drawn up as NPCs.

A Terran colony, especially in its earliest days, will have a "Wild West" flavor about it. Aside from the dangers inherent in settling a new world, the colonists themselves will often be in conflict. Culture-groups that were antagonistic back on Terra will be thrown together on the new world. Political factions will struggle to control the rising colonial government. Groups will disagree about how to use the new territory, and may try to steal land or force others to abandon their claims. Criminals will set up shop in the growing settlements, and will use force to maintain their control. Colonial law enforcement authorities may be thinly spread across whole continents, unable to maintain control on their own. Even law-abiding citizens will be forced to defend their own lives and property.

One advantage of a colony-based campaign is that the situation evolves very rapidly. PCs can easily find themselves to be important people, making decisions that will affect an entire world's future history.

Diplomacy and Espionage

This campaign frame is unlikely to require frequent starship travel or the development of new worlds. Diplomacy and espionage are most likely to take place near a center of power, such as Terra or an Imperial hub world. The GM may wish to set up one such world in considerable detail, and have most of the campaign take place there.

Diplomats spend their time representing their home government in negotiations, acting as an advocate for their fellow citizens in foreign territory, and generally trying to make friends and influence people. They rarely see violent action and are not trained for it; they are forced to think their way out of difficult situations.

Spies gather information on behalf of their home government. Very few spies are James Bond-style superagents who engage in combat-heavy missions. Most are trained in "fieldcraft," a set of techniques that enables them to recruit local allies, stay in contact with them, and gather information from them – all without attracting the attention of local authorities.

These two genres of adventure are linked because they are likely to occur together. Both Terra and the Imperium have similar diplomatic traditions. In peacetime, diplomats are relatively untouchable unless they are caught spying, and even then they can only be expelled. This makes an embassy – a Terran legation on an Imperial world, or the Imperial embassy on Terra – the most common place from which to run a spy ring. In any case, diplomats are among the most avid consumers of intelligence . . .

Campaign Seeds

Aside from the general campaign frames described above, the following special campaigns may be of interest in an ***Interstellar Wars*** setting.

Exiles to Glory

To add a bit of grittiness, have all of the Terran characters come from poor or outcast backgrounds. Terra is dominated by the most influential citizens of its wealthiest nation-states; this leaves most of the world's population shut out of political and commercial opportunities. This gives many citizens a rather cynical attitude toward unified Terra. They often regard service to the Terran government or military as a way to gain personal advancement, not as an honorable obligation. Once they are out of service, they look for a way – *any way* – to avoid returning to the poverty-stricken and powerless communities they left behind.

The best way to set up this kind of campaign is to find a common background for the PC adventurers. Perhaps they are all from the same poor nation, or they all come from the same unprivileged segment of a major nation-state's population. A common history in Terran government or military service will help as well. In any case, the adventurers begin the campaign together and familiar with each other, but with no connections, not much money, and no easy way to get more.

An "exiles to glory" campaign can use many of the campaign frames described above. Ambitious ex-Army or ex-Marine troopers may be

The Vilani Campaign

For a change of pace, an ***Interstellar Wars*** campaign can be set up on the other side of the epic conflict – with most or all of the PC adventurers being Imperial citizens.

An Imperium-centered campaign should likely still be set close to the interface with Terran civilization. In regions of Imperial space far from the war zone, conflicts tend to be quietly Byzantine, involving behind-the-scenes maneuvering and elaborate intrigue rather than direct action. Close to Terran space, Imperial society may be fragmenting, permitting Imperial characters to engage in more recognizable adventures. Meanwhile, Terrans provide a tough adversary, especially later in the era.

discharged on an occupied Vilani world, where they can seek out opportunities. People with starship experience may (somehow) come into possession of a cast-off merchant ship, hoping to make a killing in interstellar trade. Settlers on a colony world may strike out for new territory, hoping to seize valuable land or mining rights. Or they may stay in a colony's boomtowns, trying to carve out a fortune in the streets.

The main difference in a campaign of this type is that there is no assumption that "following the rules" is the right thing to do. From the poor man's standpoint, the Terran establishment is *designed* to keep him penniless and powerless. In any case, adventurers from a poor background are likely to be viewed with suspicion by Terran authorities. To get ahead, adventurers will have to be grasping, ruthless, and not very respectful of authority. Much like most PCs in any roleplaying game, in fact . . .

Grand Tour

Throughout the Interstellar Wars era, a number of Terrans made the long journey to the Imperial capital. Some went out of curiosity, others in search of business opportunities, and others as spies. Most who attempted the journey never returned to Terra, dying or finding a new home somewhere along the way. Those few that succeeded brought home fantastic tales and, sometimes, great fortunes.

A voyage from Terra to Vland and back using jump-2 transport takes 160-200 jumps, depending on the exact route taken. The trip is not likely to take less than six and eight years, and may take a good deal longer if the travelers linger anywhere along the way.

The GM shouldn't try to draw up every world along the way. Instead, the "grand tour" can be organized as a series of mini-campaigns, each involving only a few worlds. The adventurers arrive, become entangled in whatever local problem or mystery exists, and move on after the problem has been resolved. There may be as much as a year or two of "off-camera" time between mini-campaigns; the GM may hand out character points to reflect experience earned during the routine activity of these periods (see *Improvement Through Study*, p. B292, for guidelines).

Once the travelers reach Vland, the GM should have a complex and interesting series of adventures prepared for them – they are at the capital of the entire Imperium, where the wealth and intrigue of 10,000 worlds converge! Perhaps they have made friendly contact with one of the leading Imperial nobles of the outer provinces, and can use that connection to get involved in the highest levels of Imperial politics. If they have assimilated enough into Vilani society, perhaps they can win appointment to important positions in the Imperial bureaucracy. Or they may find themselves, as always, *barbarians* – shut out of any legitimate advancement, able to progress only through a high-stakes gamble.

If the Terrans win a place in Imperial society, they may wish to *stay* on Vland or somewhere else along the voyage, and the campaign can be resolved at that point. Otherwise they will return to Terra. To avoid ending the overall campaign in anticlimax, the return voyage should be significantly more challenging. Perhaps the voyagers return to find that war has broken out, and they must avoid capture if they are to return home. Or perhaps the connections they made at the Imperial capital will permit them to intervene in affairs on the provincial frontier . . .

Terra Conquered

For a real challenge, ignore the "official" historical timeline and have the Imperium conquer Terra!

Terra could have fallen under Imperial control at many different points in history. Had the United Nations and Terran Confederation not managed to keep Terra unified, some of Terra's nation-states might have been tempted to come to a separate arrangement with the Imperium. Even with Terra unified, any of the first four Interstellar Wars might have ended in a decisive Terran defeat, had the Imperium been willing to expend more effort on the task.

Yet the Interstellar Wars era was not the time of maximum danger. For about 1,000 years (from 200 to 1200) Terra was ripe for Imperial conquest. Only a few more parsecs of expansion at the end of the Consolidation Wars or during the conquest of the *kimashargur* (p. 18) would have brought Imperial armadas to Terra. Even the mightiest Terran states of the time (the Roman Empire, the Arab caliphates, or the T'ang or Sung dynasties in China) would have been unable to resist an invasion.

Alternate Interstellar Wars

If the *Terra Conquered* setting isn't exotic enough, try one of the following campaign seeds for truly over-the-top adventure.

Legacy of War

In this ambitious set-up, the campaign spans the *entire* Interstellar Wars era. The goal is to produce an episodic campaign, mimicking a historical novel in which successive members of the same families interact with major events.

The campaign is set up as a series of short story arcs, starting with First Contact with the Vilani (or even earlier) and ending with the Terran victory over the *Ziru Sirka*. Each story arc lasts for about 4-6 sessions, after which a number of years pass "off-camera." Existing characters can become much more experienced, or they may retire (or die) and give way to their descendants.

For example, one hero might be a crewman on board the *StarLeaper One*, involved in first contact with the Vilani. By the start of the First Interstellar War, he is a seasoned veteran. By the start of the Second, he may have retired from active adventuring, but perhaps his son or daughter has entered the service. Players can swap family lines over time, cross them, and introduce entirely new lines of descent – perhaps introducing a Vilani or other non-Terran Human into the cast of characters.

Past Tense

This campaign frame permits experienced ***Traveller*** players to bring their existing characters into the Interstellar Wars era. After a jump accident, an encounter with a spatial anomaly, or tinkering with some Ancient device, a group of travelers from the Third Imperium find themselves in the time of the Interstellar Wars!

Can the visitors from the future change history as they know it? *Should they*? This could be a short campaign in which the stranded travelers look for a way back home, while avoiding changing the past and dodging everyone who might wants to grab their technology or their knowledge of the future. A longer campaign can strand the adventurers in the past permanently, starting an ***Interstellar Wars*** campaign that doesn't have to stick with the "official" history . . . because the presence of the time travelers has already created an alternate universe!

Masterminds of Terra

As described on p. 135, psionics are virtually unknown during the Interstellar Wars period . . . or so *They* would have you believe. In fact, the Terran exploration of space, the Interstellar Wars, and the eventual victory over the *Ziru Sirka* are all machinations of a secret cabal of Terran psis!

After all, how else could a backwater world on the edge of the vast Imperium win such a conflict? Pundits claim the Vilani underestimated the Terrans, and were too caught up in provincial and traditional thinking – but who forged those chains of thought? Who planted the idea that the Terrans were no real threat? Who foresaw the right opportunities, and made sure the Confederation seized them?

The Terran heroes in this campaign may uncover a dark conspiracy at the heart of their homeworld. They might be unwitting pawns, or even latent psis targeted for recruitment . . . or termination, if they refuse.

The Infinite Wars

The Centrum (see p. B523 or ***GURPS Infinite Worlds***) has undertaken its most ambitious plan yet: to influence the outcome of the Interstellar Wars in favor of the Vilani Imperium! In many ways, Vilani culture is similar to Centrum's, and there is much to be gained by influencing so vast an empire. Infinity, naturally, favors the scrappy Terrans and opposes Centrum on principle. Both sides try to influence the outcome of the Interstellar Wars, without tipping their hand and revealing the Secret to the technologically advanced civilizations of this alternate. The heroes might be members of an I-SWAT team, or locals who discover the cross-temporal meddlers and their plans.

After an Imperial conquest, Terra would have been ruled by Sharurshid as a commercial colony. Vilani colonists would have arrived by the millions, setting up industries, searching out local resources for exploitation, teaching Imperial laws and customs to the Terran population. Terrans who accepted Vilani ways would have been rewarded with wealth and a position in the Sharurshid government. Terrans who refused, and disrupted the Imperial regime, would have been stamped out.

Over time, Terrans would have settled on many of the worlds of the Imperial rimward province – apparently assimilated into Vilani society, but nursing deep-seated resentment against the Imperium. There they would have met the *kimashargur*, who felt similarly . . .

A "Terra Conquered" campaign will be much like the Vilani-only campaign (p. 234), with the exception that most of the adventurers will be of Terran origin at least partially assimilated into Imperial culture. If the point at which Terra was conquered is placed early enough, the GM may want to work out an "alternate history" of events taking place after the Imperial arrival. The natural course of the campaign would be to work out how Terrans might adjust to their conquered state; this may involve violent rebellion or a long effort to win higher status within the Imperial system.

Adventure Seeds

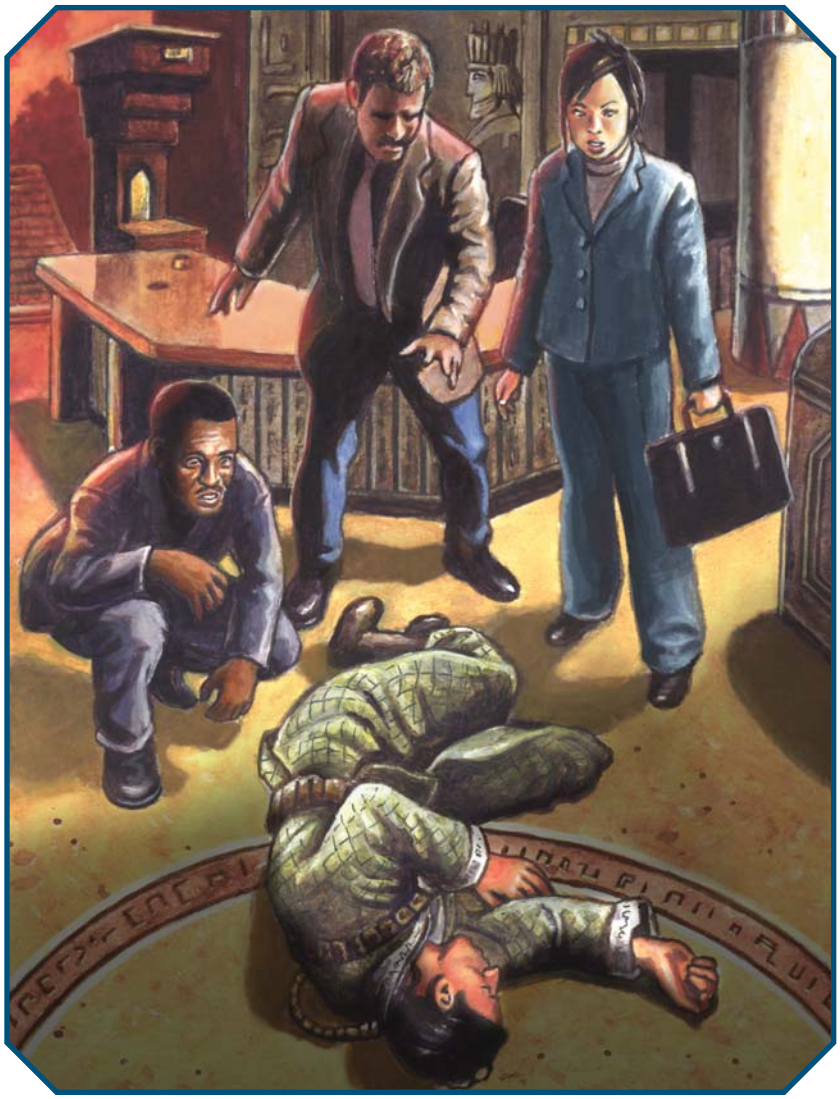
The following adventure seeds are typical of the ones most likely to be useful in the ***Interstellar Wars*** setting.

Cash on Delivery

The Terrans are assigned to sell a large cargo of electronic equipment on a Vilani world some distance behind the military frontier. Unfortunately, the Imperium has placed import controls on such goods, and the nobles governing the world in question are particularly hostile to Terrans. On the other hand, the local population would be very receptive to the goods, if properly approached. Can the merchants persuade or get around Imperial authorities, and get the cargo to its intended audience?

Heart of Darkness

Late in the Interstellar Wars era, a Terran renegade has gone to ground on a world inside Imperial space. He was once a very senior military officer, and he presently commands a mixed bag of Vilani renegades and Terran mercenaries. His troops have deposed the Vilani governor and taken over the planet, which they now run as a private fief. This is not the only world that has fallen under Terran control in a similar way, but in this case the renegade refuses to submit to Confederation authority. He's also a certifiable lunatic: paranoid, megalomaniac, and utterly ruthless toward the Vilani population of "his" world.



The Imperial authorities in the region are effectively helpless due to their own internal power struggles, and possibly because of the Terran advance. It is therefore up to a Terran team to go in and deal with the renegade, before his activities cause a subsector full of Vilani to conclude that the Terrans must be resisted to the death. Of course, the Imperium may send an observer along, a rare instance of cooperation between the two great powers.

Like a Desolating Pestilence

Terran merchants are given a cargo of vaccines and anti-viral medicines to be carried to a team of Terran physicians posted on a remote Imperial planet. When the ship arrives, they find that the Terran physicians are nowhere to be found, apparently abducted by persons unknown. Without them, the crew can't be paid for delivery, nor can the cargo be used to save millions of lives from the Terran-derived viral diseases already appearing there. The local population is already somewhat anti-Terran, aside from a few friendly dissidents, and the local government is not at all helpful. Can the physicians be found in time to prevent a disaster?

Locked-Room Mystery

While visiting an Imperial world, the Terran adventurers are invited to an audience with an important local figure – perhaps a *shangarim* aristocrat or a local dissident leader. They attend the audience, taking part in the socializing and entertainment that come before a private meeting. Then, while they are meeting privately with the Imperial leader, he suddenly collapses and dies.

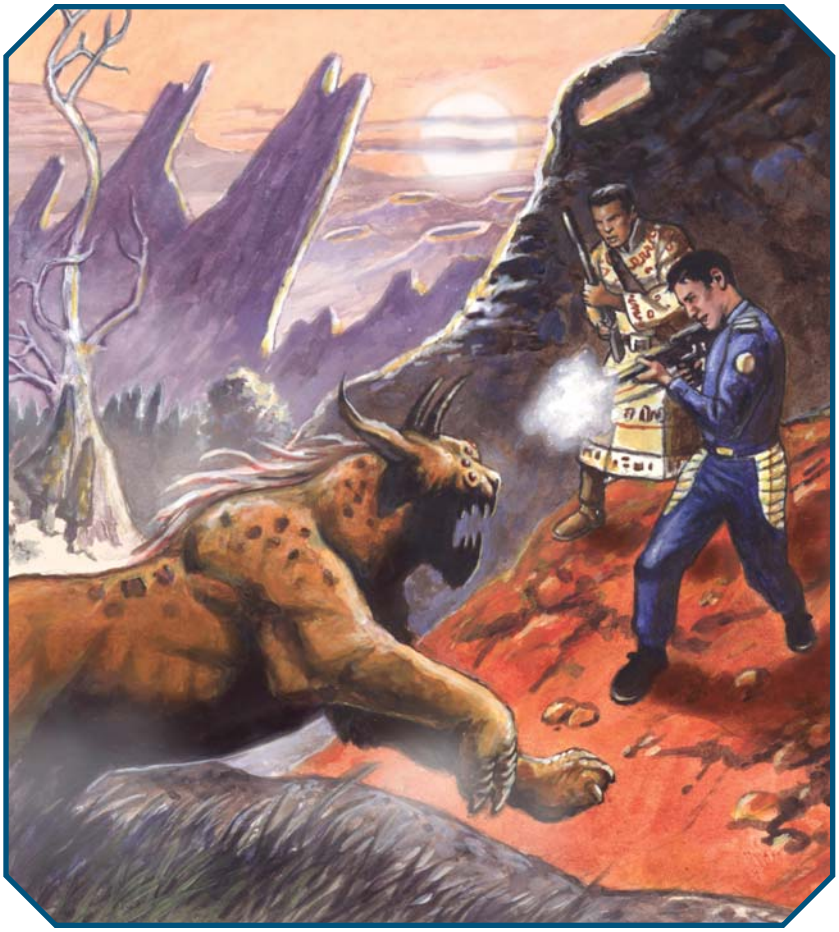
The cause of death is not obvious even to a Terran physician, much less an Imperial one. Nevertheless, the Terrans are accused of murder! Can they determine what actually happened, and clear their names?

Most Dangerous Game

Terran merchants carry an unusual group of passengers – a party of Vilani aristocrats on their way to a nearby world to hunt a particularly dangerous game-beast that can be found there. The nobles enjoy their trip on the "barbarian" ship, and end by inviting some of the crew to accompany them on the expedition. More eyes (and more guns) are always welcome, and the animal's carcasses contain certain glands and organs that are quite valuable.

The natural preserve in which the game animals are found is quite rugged. Local regulations place strict limits on the amount of high-technology equipment that can be taken into the preserve, or how many animals can be taken. Naturally, the game animals are *very* dangerous, willing and able to attack Humans.

Soon, however, the party sees signs that they are not alone in the wilderness. Then one of the Vilani noblemen vanishes from their camp with signs of a struggle. Has a family rival struck in the darkness? Or is someone else lurking in the rough country, watching and waiting to strike again?



Return of the Native

While deep inside Imperial space, the adventurers are contacted by another Terran, the representative of an extremely wealthy family back home. The representative is far out of his depth, and is effectively stranded in the Imperium with no idea how to proceed. He needs the adventurers and their experience with Imperial laws and customs.

Apparently the representative's employers have a serious problem. The head of the family is feeling his age, and wishes to hand over the family holdings to his only son. Unfortunately, the young man disappeared about two years ago while traveling in Imperial space on business. The representative has been sent to track the heir down and return him to Terra. He can pay the adventurers handsomely (on the order of $2-3 million) to guide him through the Imperium, help him find the heir, and help them return together to Terran space.

Finding the heir doesn't take very long; he is living on a world only three to four jumps away, and he isn't hiding from anyone. Unfortunately, he has "gone native" with a vengeance. He has accepted Vilani customs, taken a Vilani name, married into a Vilani aristocratic family, and accepted a position in the *shangarim* hierarchy. In short, he doesn't *want* to go home to Terra.

What follows is up to the GM. Perhaps the heir can be persuaded to come home, although he will probably want to bring his wife and a few associates with him. Or perhaps he will have to be kidnapped – after which his adopted family will doubtless send its own agents out to retrieve him.

The Man Who Would Be Saarpuhii

When the adventurers visit a remote Vilani world, one of them is sought out by a local dissident faction. The dissident leaders seem to know a great deal about him: his name, his personal history, past events that no one should know about, the names and histories of his companions, and so on. The dissidents invite him to visit their homes, where they will "reveal his destiny."

It turns out that the adventurer is *expected* here. In fact, the dissidents claim that they have expected his arrival for centuries. He is the fulfillment of an ancient prophecy, which claims that the Imperium will be overthrown and the dissidents will establish an independent state of their own under his benevolent rule. The dissidents are ready to be led to victory. What are their leader's orders?

Naturally, the adventurer and his friends will be suspicious. Still, the evidence seems overwhelming: a dissident leader of centuries past really seems to have prophesied the adventurer's arrival and his leadership against the Imperium. If the dissidents are mounting a deception, it's an uncommonly good one. Meanwhile, the local Imperial authorities are weak, so a coup might even be successful . . .

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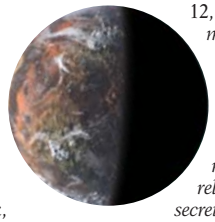
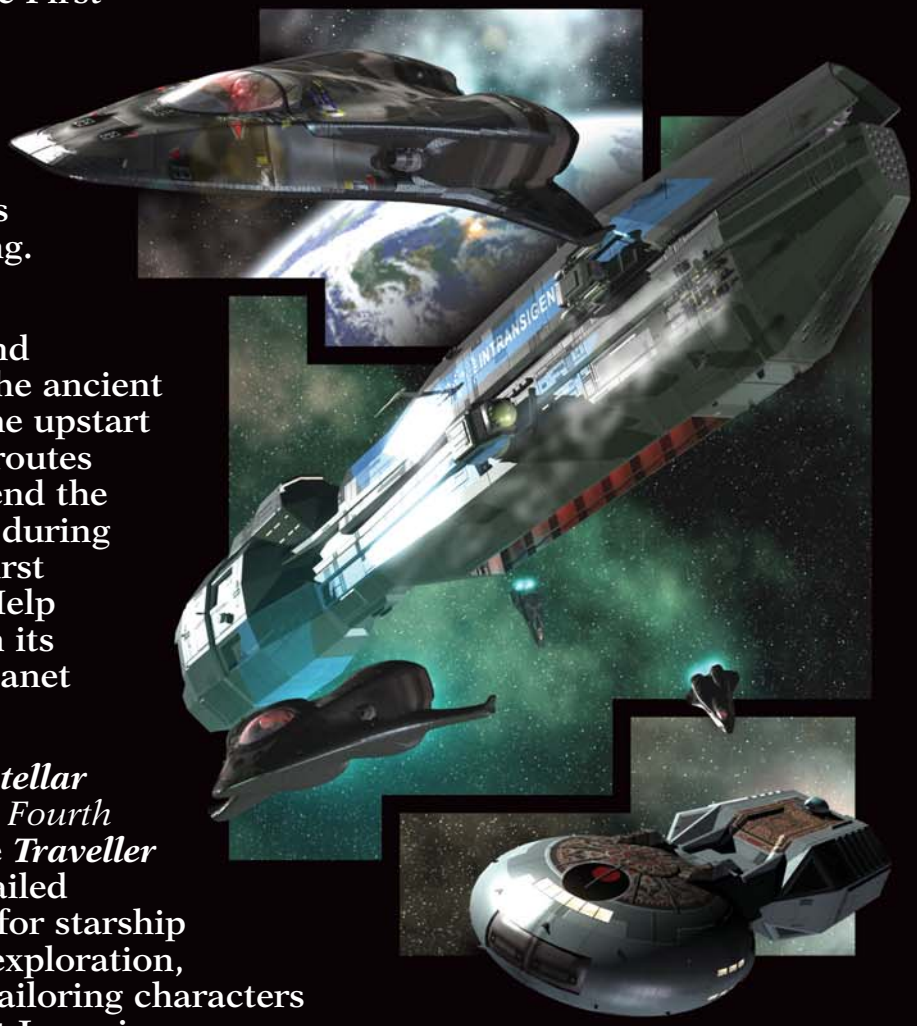


One World Against Thousands

The struggle between the First Imperium and the Terran Confederation has always been a pivotal era in Marc Miller's ***Traveller*** universe. Now, for the first time, ***Traveller*** players can explore this rich setting.



Interstellar Wars covers 200 years of war, peace, and overwhelming change as the ancient Vilani Imperium falls to the upstart Terrans. Forge new trade routes within the Imperium. Defend the homeworld from invaders during the Siege of Terra. Make first contact with alien races. Help guide the Confederation in its expansion from a single planet to a star-spanning empire.

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GURPS® Fourth Edition

MARTIAL ARTS

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About *GURPS*

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Bibliographies. Many of our books have extensive bibliographies, and we're putting them online – with links to let you buy the books that interest you! Go to the book's web page and look for the "Bibliography" link.

Rules and statistics in this book are specifically for the ***GURPS Basic Set,*** *Fourth Edition.* Page references that begin with B refer to that book, not this one.

Introduction

Say "martial arts" and most people start talking about karate, katanas, and ninja . . . or kung fu (or the old *Kung Fu* TV series) . . . or Bruce Lee. Non-Asiaphiles will share their views on such sports as boxing and fencing . . . or no-holds-barred fighting . . . or good old rasslin' ("Pro wrestling is real!"). And Europhiles will bring up *pankration* in ancient Greece, English "Masters of Defence," and the deadly truth about the rapier, pausing only to lament that Europe gets short shrift with martial-arts fans – or to recruit you as a live-steel reenactor.

Chain Whip

Sport vs. combat, unarmed vs. armed, movies vs. reality, Asia vs. everywhere else – the truth about the martial arts can be confusing. Who's right? The answer is "All of the above."

GURPS Martial Arts examines the fighting arts of the world, or at least a good-sized sample chosen from the past three millennia. It doesn't let fiction color reality or realism stand in the way of a good story – such decisions are left to the GM. Of course, because many martial arts originated with the warriors who carved out the world's great empires, and the best-kept records are those of the Asian and European powers, there *is* an almost inevitable bias toward the fighting styles of those regions. But ***Martial Arts*** does its best to venture outside that territory; to balance the historical with the modern; to give equal time to combat, sport, and art; and, especially, to dispel myths.

The biggest myth laid to rest is that the martial arts aren't appropriate for every genre and setting – that they only belong in historical games and those based on action movies. ***Martial Arts*** definitely supports cinematic games – of the Hollywood, Hong Kong, *and* Tokyo varieties – while also presenting historically accurate styles, but it doesn't assume a genre or a setting. You can use it to give fantasy warriors the depth of knowledge and ability that spells give wizards . . . or for hand-to-hand combat in a gritty modern technothriller . . . or for futuristic swashbuckling with force swords.

Longsword

So grab your katana, rapier, or *iklwa* – or just bandage your knuckles. Say a prayer to Allah, scream a *kiai,* or psyche yourself up with a little shadowboxing. You won't know who's out there until the arena door opens – but with ***Martial Arts,*** you'll be ready!

Publication History

This is the third edition of ***GURPS Martial Arts.*** It was inspired by ***GURPS Martial Arts,*** *Second Edition* (1996), which itself combined ***GURPS Martial Arts,*** *First Edition* (1990) with ***GURPS Martial Arts Adventures*** (1993). Other important ***GURPS*** *Third Edition* supplements were ***GURPS Japan,*** *Second Edition* (1999) for Japanese fighting styles and equipment; ***GURPS Low-Tech*** (2001) for weapons in general; and ***GURPS Swashbucklers,*** *Third Edition* (1999) for European swords and swordplay. The authors also wish to thank Volker Bach for access to two articles originally published in *Pyramid* magazine: "The Western Way of War" and "Vechten Unde Schirmen: European Martial Arts Before The Rapier."

The current volume is a new work, not a revision of *any* of the above – they served primarily as sources of concepts, references, and terminology, not text.

About the Authors

Peter V. Dell'Orto started roleplaying in 1981, with ***Dungeons & Dragons,*** and has played ***GURPS*** since ***Man to Man.*** He has been active as a ***GURPS*** playtester, editor, and contributing author since 1996, and has written many ***GURPS*** articles for *Pyramid* magazine. Peter is an enthusiastic martial artist who has trained in places as varied as a McDojo, a private instructor's garage, and a hardcore gym. He has practiced Goju-ryu and Shorin-ryu Karate, T'ai Chi, Kali Silat, and Wing Chun, and has trained in at least a dozen other styles. His most recent studies have been in Kachin Bando and Kendo, and fighting amateur in Shooto. His other hobbies include fitness, reading, painting miniatures, and music. Born and raised in New Jersey, he presently lives and trains in Niigata, Japan.

Sean "Dr. Kromm" Punch set out to become a particle physicist and ended up as the ***GURPS*** Line Editor. Since 1995, he has compiled the two ***GURPS Compendium*** volumes, written ***GURPS Wizards*** and ***GURPS Undead,*** edited or revised over 20 other ***GURPS*** books, and masterminded rules for dozens more. Most recently, he created the ***GURPS Basic Set,*** *Fourth Edition* with coauthor David Pulver and wrote ***GURPS Powers*** with coauthor Phil Masters. Sean has been a fanatical gamer since 1979. His non-gaming interests include cinema, computers, and wine. He lives in Montréal, Québec with his wife, Bonnie. They have two cats, Banshee and Zephyra, and a noisy parrot, Circe.

Chapter One
History

"The Temple is ancient, Kai Lian," the Grandmaster lectured. "Things remain much as they were during the Wei Dynasty."

Kai nodded. "Yes, sifu."

"The theft of the Five Tigers Jade Buddha dishonors every monk who has lived and trained here over the past 14 centuries."

"It does, sifu."

"Go to America and find the thieves."

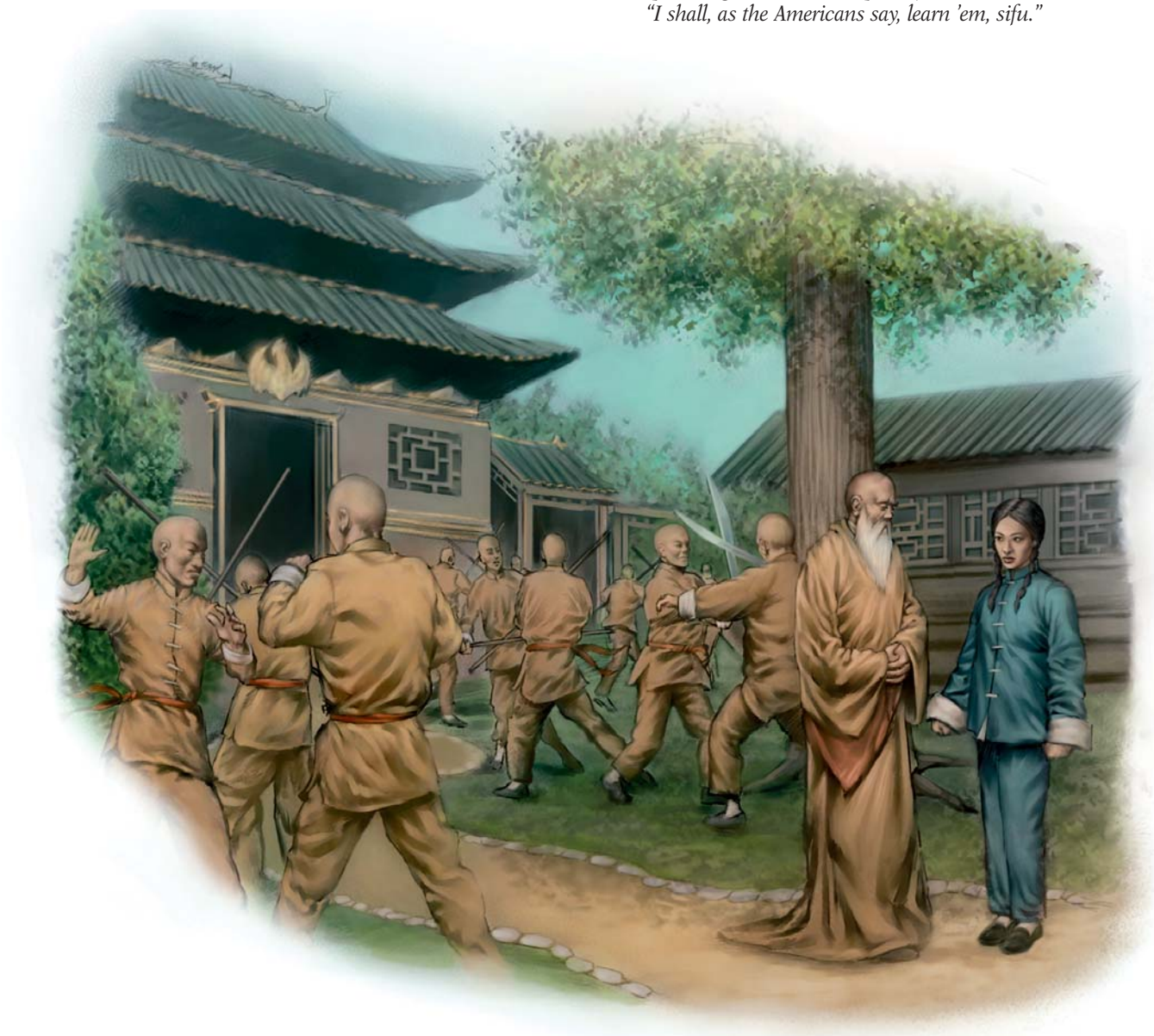
"As sifu wishes."

"These devils do not respect our history because they have none of their own."

"Your wisdom illuminates their weakness, sifu."

"When you find them, deal them a blow for each dynasty that the Temple has seen fall. Even a fool should respect the Temple's long and honorable past after such a lesson."

"I shall, as the Americans say, learn 'em, sifu."



The martial arts are as old as history. Ancient tomb carvings show men fighting with sticks and shields, and wrestling with holds still used in modern fighting arts. The oldest texts tell of warriors with great skill at arms, demonstrating their strength and technique.

There's no one "origin" of the martial arts – no single founding culture or style from which all systematic combat training sprung. The martial-arts world is nevertheless full of claims of antiquity, each style maintaining that it's older than the next. ***Martial Arts*** makes no attempt to settle such debates. It takes the stance that *all* cultures have their own martial-arts styles and that although they've often influenced each other, no one culture or style can truly claim to be the wellspring of all martial arts. There are only so many ways to use hands, feet, and weapons to defeat a rival, after all. (In a cinematic or mythic game, of course, all martial arts might truly have a common genesis; see *Ultimate Styles,* p. 144.)

Still, the world's many cultures have trained and continue to train in ways fascinating as much for their similarities as for their differences.

What Is a Martial Art?

Broadly, a "martial art" is *any* system of physical, mental, and sometimes philosophical and spiritual training intended as preparation for combat or a combative sport, or a related form of self-improvement. The details vary widely. All such systems are "martial" in that their core physical training is at least modeled on man-to-man combat. Some go further, focusing on actual combat skills to the exclusion of sport, religion, and aesthetics. Others emphasize the "art," perhaps going so far as to be strictly noncompetitive and noncombative.

Martial Arts defines a "martial art" as any systematically taught fighting style used for any purpose – combative or otherwise. Geography and ethnicity don't enter into it. Boxers, knights, samurai, African stickfighters . . . they're all martial artists. This book covers all kinds of martial arts, but emphasizes combat styles over sportive ones and sports over artistic systems. This isn't because combat styles are "real" martial arts and others aren't, but because the heroes in RPGs are more likely to be steely eyed warriors than pacifistic monks!

Timeline

To help put everything in perspective, we'll start with a brief timeline of the martial arts and related history. Items marked with an asterisk (*) are mythical or legendary. Some contain elements of truth while some verifiable entries are colored by legend – read the entry! For more on the individual styles mentioned, see Chapter 5.

***2697 B.C. –** According to later documents, Yellow Emperor Huang Di ruled China and invented wrestling, swordsmanship, archery, and Taoism. Huang Di probably existed, but claims of his inventions are of early 20th-century origin.

***c. 2000 B.C. –** According to legend, the now *700-year-old* Yellow Emperor of China defeats a fabulous monster in a head-butting contest. Similar head-butting games continue into the modern era.

c. 1950 B.C. – Tomb friezes in Beni Hasan, Egypt depict the first wrestling manual, showing over 400 holds and counters.

c. 1520 B.C. – Wall frescos in Thera show boys boxing.

***c. 1500 B.C. –** According to the Bible, the Hebrew Jacob wrestles a spirit at the ford of Jabbok and defeats it.

***c. 1250 B.C. –** According to the legend of the Argonauts, Polydeukes (a Spartan) defeats the foreign boxer Amykos. Amykos uses brute strength while Polydeukes uses his skill to avoid Amykos' blows and pound him into submission.

***c. 1200 B.C. –** Fall of Troy. Later accounts of Greek funeral games mention boxing, wrestling, and *pankration.*

1160 B.C. – Egyptian tomb friezes depict wrestling and stick-fighting matches for the pharaoh's coronation.

***1123 B.C. –** Traditional date for the writing of the *I Ching.* Its three-line trigrams form the basis of Pa Kua Chuan (pp. 187-188), developed much later.

***776 B.C. –** Traditional date of the first Panhellenic games at Olympia, Greece.

722-481 B.C. – Spring and Autumn Period in China. According to chronicles attributed to Confucius, this period was the heyday of the *xia* (p. 8).

628 B.C. – First statue of an Olympic wrestling champion erected.

544 B.C. – First statue of an Olympic boxing champion erected.

***544 B.C. –** Buddha, himself a champion wrestler and archer, achieves enlightenment. Buddhism goes on to inform many martial-arts styles.

536 B.C. – First statue of an Olympic pankration champion erected.

c. 440 B.C. – Spartans practice the *pyrrhiche,* a war-dance involving shields and swords. The dancers executed blocks and strikes, and learned to fight in rhythm with their companions.

348 B.C. – Plato's *Laws* describes boxers and pankrationists wrapping their hands with padded gloves and thongs in order to strike at full force "without injury" (presumably to their hands) during practice – and using shadow-boxing and punching bags when no partner was available.

264 B.C. – First recorded Roman gladiatorial matches: three pairs of slaves fight to the death at a funeral.

209 B.C. – Emperor Qin Shi Huang of China is buried in a massive underground tomb filled with terra-cotta statues of warriors, horses, chariots, and more. Some warriors are depicted in unarmed-combat poses that match traditional kung fu postures.

22 B.C. – Emperor Augustus of Rome bans the use of gladiators as private bodyguards.

***141 –** Birth of Hua Duo, a Chinese physician later credited with inventing Wu Chin Hsi or "Five Animals Play," exercises based on animals' movements. Performing them supposedly strengthened the body and improved health, giving long life.

c. 400 – *Kama Sutra* is written. Among other things, it advises women to practice stickfighting, staff, archery, and sword in order to win the affections of men.

***530 –** The monk Bodhidharma comes to China from India and teaches the Shaolin monks exercises to strengthen them for their long meditation. This is said to be the basis of all kung fu. (Realistically, even if Bodhidharma *did* introduce these skills, combative martial arts predated his arrival by more than a millennium!)

747 – Traditional date of the first *sumo* match. Early matches permitted striking and many holds not used in later matches.

778 – Frankish knight Roland and his companions are defeated by the Moors, according to a 12th-century manuscript. This battle played an important role in the development of romantic chivalric ideals.

780 – Charlemagne, king of the Franks and later the first Holy Roman Emperor, grants lands to his subjects in return for oaths of loyalty, marking a crucial development in European chivalry.

792 – Government of Japan begins to rely more on feudal cavalry armed with bows than on conscript infantry. This leads to the rise of feudal lords – and the samurai.

960 – Chinese emperor T'ai Tsu sponsors a martial art known as "long boxing." The details are long lost, but it's often claimed as the origin of modern kung fu forms.

10th century – Japanese *kyuba no michi* or "bow and horse path" takes form. This would later become the code of *bushido*.

Late 10th century – Normans adopt high-backed saddles that allow the use of couched lances, as well as kite-shaped shields to protect their legs during mounted fighting.

1066 – Battle of Hastings. Saxon King Harold Godwinson is killed, perhaps by an arrow in the eye. The Normans conquer England, bringing with them their feudal system and martial styles.

c. 1300 – An unknown German author pens the manuscript later known as the "Tower Fechtbuch" (after the Tower of London, where it was kept) – the earliest surviving manual of European swordsmanship.

1346 – Battle of Crécy. The English slaughter the French, a victory attributed to the power and distance of the English longbow.

1443 – Hans Talhoffer produces his *Fechtbuch* ("Book of Fighting"), which depicts a variety of armed and unarmed fighting techniques. Its name is eventually applied to all earlier and later books of its type.

1478 – According to tradition, King Sho Shin of Okinawa bans the possession and use of weapons by civilians. Unarmed combat forms flourish and techniques for fighting with household tools appear. Modern historical research points to the decree being not a ban on weapons but an order to *stockpile* them.

1521 – An overwhelming force of Filipinos attacks Magellan's expedition on the island of Cebu. After a fierce fight, they drive off the Spaniards and kill Magellan. Modern Filipino martial artists often credit this victory to the strength of local *escrimadors*, but arrows, spears, and machetes were the weapons of the day.

1540 – Former soldier Ignatius of Loyola founds the Jesuits, whose exercises include fencing and meditation. Henry VIII of England incorporates the Masters of Defence of England, giving them royal patronage.

1543 – Portuguese merchant adventurers introduce guns into Japan. They're soon in mass production.

1559 – King Henry II of France dies of a lance wound received in a tournament joust, simultaneously reducing the popularity of the sport and showing that even the King took his chances with potentially lethal matches.

***1560s –** Selected Chinese soldiers are sent to the Shaolin Temple to learn unarmed and staff-fighting arts. Some scholars suggest that certain troops received training in other Chinese martial arts and even in Japanese swordsmanship.

1568 – Camillo Agrippa of Milan publishes his fencing manual, *Trattato di scientia d'arme* ("Treatise on the Science of Arms"). This work advocates the thrust over the slash, the use of the sword as the primary defense, and a more side-facing stance with one hand held back and high.

1576 – Rocco Bonetti opens a rapier school in Oxford, sparking both an immediate rivalry with local Masters of Defence and a fashionable trend toward rapier fencing.

1578 – Japanese warlord Oda Nobunaga organizes a major sumo tournament, or *basho*. First use of the tatami-edged clay ring (*dohyo*) and the beginning of modern sumo.

1609 – Japan conquers Okinawa, disarms the population, and bans unarmed fighting techniques. This drives training underground. Teachers instruct selected pupils in secret.

1721 – James Figg starts holding fighting exhibitions in England. Brawling, weapon play, and wrestling were already popular entertainment; Figg added women's boxing, arranged international bouts, and vigorously promoted the fights.

1728 – Donald McBane – soldier, pimp, gambler, and fencing master – publishes *The Expert Sword-man's Companion; or the True Art of Self-Defence*. This smallsword manual gives advice on how to use and counter dirty tricks, and deal with treacherous duelists.

1735 – A government army crushes the Shaolin Temple.

***1767 –** According to legend, Thai prisoner Nai Khanom Tom earns his freedom by beating several Burmese kick-boxers in succession. (Modern Thailand marks March 17 as Nai Khanom Tom Day.)

1777 – In China, White Lotus rebels – relying on martial arts, breathing techniques, and magical incantations to protect them from bullets – fight Manchu soldiers. The troops use guns to crush the rebels, but many kung fu practitioners continue to believe that their art can make them invulnerable to bullets.

1827 – Jim Bowie uses his eponymous knife to kill Norris Wright at Sandbar, Mississippi. Newspapers widely report the fight, making the bowie knife famous.

1835 – New Jersey outlaws prizefighting. Other states follow. Arranging prizefights becomes an exercise in bribery, secret locations, and last-minute publicity.

1859 – Sir Richard Francis Burton publishes his booklet on bayonet fighting. Aided by his combat experience and language skills, Burton recorded details about the many weapons and fighting arts he encountered, making him one of the first hoplologists.

1900 – Uyenishi Sadakazu arrives in England and begins teaching Jujutsu (pp. 166-168). One of his students, Hans Köck, goes on to introduce the art to Vienna in 1905.

1904 – Greco-Roman Wrestling (p. 205) becomes a modern Olympic sport.

1920s – Chinese immigrants open Chinese-only kung fu schools in Hawaii.

1930s – Judo (p. 166) clubs exist all over Europe, America, and Australia – including U.S. Army Air Force teams. Kendo (p. 175) spreads from Japan to the U.S. and Europe. Japanese students routinely receive training in both sports to "build character" and encourage physical development.

1940s – Allied commandos learn a stripped-down fighting style based on Eastern martial arts, taught by W.E. Fairbairn. German commandos learn an equivalent style.

1946 – First Karate (pp. 169-172) school on the U.S. mainland is established in Phoenix, Arizona.

1961 – Korean government orders the unification of all Tae Kwon Do (p. 200) schools. Three years later, TKD becomes an official Korean national sport.

1972 – Judo becomes an official Olympic sport.

1990 – Tae Kwon Do becomes an official Olympic sport.

1993 – In the U.S., the first Ultimate Fighting Championship pits different martial-arts stylists against one another with minimal rules, triggering the rise of modern "mixed martial arts" in the U.S. Jiu-jitsu practitioners from Brazil's Gracie family dominate.

2005 – City of Mostar, Bosnia unveils a statue of Bruce Lee as a symbol of peace.

Asia

For many people, Asia and the martial arts are inseparable. Asian martial arts have a storied history stretching from antiquity to the present. Today, many if not most martial-arts schools teach styles with origins in China, Japan, Thailand, and more exotic Asian locales.

China

Chinese martial arts have a rich history that extends back to a legendary origin almost 5,000 years ago. Tradition has it that the Yellow Emperor, Huang Di, invented the first martial arts in 2697 B.C. In 209 B.C., Emperor Qin Shi Huang was buried in grand style with a life-sized terra-cotta army, and some of the warriors were posed in stances seen in Chinese martial arts even today. A continuous lineage is difficult to trace, but it's clear that China's fighting styles have a heritage dating back at least to Qin's reign.

Most of the armed and unarmed arts of China don't seem to originate with one man, though – be he emperor or commoner. Traditions of wrestling, primitive head-butting games, and (later) systematic training in combative arts existed across China. Several periods of Chinese history are especially interesting from a martial-arts perspective.

Spring and Autumn Period

The "Spring and Autumn Period" lasted from 722 to 481 B.C. During this time, China was blessed – some say plagued – with martial artists known as the *xia* (see box). The period was one of central rule, but most areas were the jurisdiction of local governors appointed by a distant bureaucracy. Some governors were just and fair; others, corrupt or cruel. Overall, the period was one of stability, and China faced no major menace from abroad. Bandits, local injustice, and corruption thrived, however, and the xia felt they must intervene.

Xia

The *xia* were essentially Chinese knights-errant. Unlike the knights of feudal Europe, though, they were neither members of the aristocracy nor required to uphold the social order. Instead, they were wanderers who used their martial skills to maintain justice and right wrongs according to their personal philosophy.

Xia were as much like Robin Hood as like Lancelot . . . in fact, the Chinese regard Robin Hood as a xia! They weren't always popular with the bureaucracy. They could be useful, but the powerful typically saw them as one of society's plagues. The xia were often as dangerous, scruffy, and poor as the bandits and evildoers they battled, but regardless of their conduct – which at times included gambling, womanizing, and drinking – they fought for the common good. Tales of their exploits formed the basis of the *wuxia* genre of films.

In a historical game, xia PCs should take Code of Honor (Xia) (p. 53). Without it, they aren't xia – they're the ruffians and bandits the xia oppose!

The Shaolin Temple

Few places are the subject of as many myths and legends as the Shaolin Temple. It's credited with being the wellspring of all martial arts. Its monks are reputed to be masters of mystical powers, yet free of worldly desires and ambitions.

The Shaolin Temple was built at the end of the 5th century A.D. There was more than one Buddhist temple in the same geographical area; legends of the Temple likely borrow from tales about all of these to some degree. All were occupied and abandoned several times.

The most famous Shaolin monk was Bodhidharma, who journeyed to the Temple from India. Tradition has it that he noticed the monks lacked the fitness needed to meditate for long periods, so he introduced martial arts to strengthen them. While these events are the legendary origin of Chinese martial arts, they actually would have post-dated many documented combative styles.

The military prowess of the Shaolin monks was first noted in 728, when a small handful of them helped win a war. A stele was erected to memorialize the staff-fighting monks. Legends spread of their ability. The Temple became a place to go and train, but spiritual development – not schooling warriors – remained its focus.

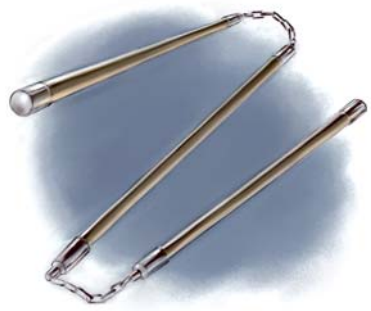
After the rise of the Manchu, the Shaolin Temple became famous as a symbol of resistance to government rule. It gave sanctuary to rebels and revolutionaries, and the Temple as a whole occasionally meddled in outside political events. This involvement was sometimes pro-government: the Temple was credited with aiding Manchu soldiers in several campaigns. In the end, playing politics led to the Temple's downfall. An army was dispatched to besiege the Temple. It fell in 1735, scattering the few survivors across China.

Legend claims that five masters survived the suppression of the Shaolin Temple. They went their separate ways, training select students met during their travels in the secrets of the Temple's martial arts. Along the way, they also founded cells of resistance to the Manchu Dynasty – the first Triads.

Monks reoccupied the Temple – and abandoned it or were driven out – several times. In 1928, it was burned. Later, the Communists came to regard it as reactionary and shut it down. The People's Republic of China eventually realized its potential as a historical attraction and rebuilt it. The modern Temple still offers training in the martial arts, and is a popular destination for tourists and martial artists alike.

Secret Societies

China has a long history of secret societies. Some of these were fairly innocuous, even benign. Others were dedicated to overthrowing the Manchu and restoring the earlier dynasty. Many were also martial-arts schools (and vice-versa), and students of the school would be recruited into the secret society.



Three-Part Staff

In some areas, these secret societies amounted to bandits or organized criminals. In others, they became a de facto part of the local government, providing police forces, charity centers, and social gatherings. In yet others, they *were* the government!

Ironically, secret societies eventually became an ally and tool of the ruling Manchu. During the 18th and 19th centuries, the world's colonial powers – primarily European nations, but also Japan and America – were steadily carving up and trampling down China. The secret societies came to oppose the foreigners and to regard the Manchu as the lesser of two evils, if not the legitimate government.

The most famous of these societies was the I Ho Chu'an, or Righteous and Harmonious Fist, dubbed the "Boxers" by the colonial powers. They claimed that kung fu could defeat guns – that through special rituals and unblinking faith, practitioners would be immune to bullets. This wasn't a new idea; the White Lotus and the Native American Ghost Dancers also believed this. The Boxers rose up and murdered Europeans and Christian Chinese. On June 17, 1900, they besieged the hastily fortified foreign consulates in Beijing. Despite their kung fu skills and magical rituals, the boxers were unable to crack the consulates before a relief force fought its way to Beijing. Modern firepower quickly dispersed the Boxers. Shortly thereafter, the Imperial government fell.

In the chaotic post-Imperial period, secret societies such as the Triads largely degenerated into criminal gangs. Drug smuggling, gambling, extortion, and prostitution became their main sources of income. Feuds between societies over criminal territory were common. The societies' martial-arts skills became the weapons of gang warfare . . . alongside modern firearms.

Monks and Martial Arts

Japan's warrior-monks and the monks of the Shaolin Temple are at least as famous for their fighting arts as for their faith. European monks are commonly remembered as pacifistic, but early medieval monasteries only admitted members of the nobility – many of whom took their vows after receiving martial training. By the 12th century, some dispensed altogether with the veneer of pacifism and created military orders, such as the Knights Templar. Later monks penned several *fechtbücher* and appeared in the illustrations of many more, demonstrating sword-and-shield play and wrestling moves. The Far East hardly had a monopoly on the fighting monk.

A monk might practice the martial arts for several reasons. One is that many traditions deem physical exercise vital to spiritual health: a fit body helps a monk spend hours meditating without discomfort. As well, monks sometimes had to fight to protect their monasteries from bandits, raiders, and unhappy governments that saw them as targets. And as previously noted, not every monk chose the monastic life as a youth. Former members of the warrior class often kept their martial skills sharp after taking their vows – whether due to a desire to defend the monastery, out of devotion to their art, or in anticipation of a return to the world of politics.

Eventually, the links between secret societies, martial-arts schools, and the Shaolin Temple led to all three being tied to revolutionary and antigovernment activities. The stigma remains to this day, and helps explain some of the policies of the People's Republic of China toward the martial arts.

Northern vs. Southern Kung Fu

The Chinese often claim that Northern martial arts are "long" while Southern ones are "short" – a stereotype that isn't entirely unjustified. Many Northern styles *do* feature deep stances, lunging punches, and high kicks. Southern arts often favor narrow stances, close-in punches, and low-line kicks. Explanations offered for this include the greater height of Northerners and the cramped quarters aboard Southern houseboats.

Weapons constitute another division. Northern stylists frequently encountered military and aristocratic arms – spears, polearms, and swords – thanks to their proximity to the capital (Beijing) and the Mongolian border. Southern fighters, generally commoners, favored everyday tools: staff, knife, cleaver ("butterfly sword"), etc.

As with most style splits, adaptations to specific needs and cross-pollination between styles make the divisions more traditional than actual. Nevertheless, "North vs. South" might generate the dramatic tension that drives a cinematic or mythic campaign!

Communism

The Communists were eminently aware of the historical link between the martial arts and revolutionaries – or in this case, "reactionaries." They denounced any martial art that claimed mystical powers or an ancient lineage as being "contrary to Communist ideals." Such thinking reached its peak during the Cultural Revolution, when many styles were labeled anti-Communist and their instructors deemed "counterrevolutionaries" and ruthlessly marginalized or purged.

At the same time, the Communists saw the martial arts as a source of physical fitness for the people and as a repository of cultural heritage. They adopted the term *wushu* for "acceptable" martial arts. The sports commission of the People's Republic of China went on to develop a unified style known by the same name; see *Wushu* (pp. 206-207).

Modern China downplays the internal, chi-oriented aspects of the martial arts, but these things haven't disappeared. The whole world now enjoys Chinese *wuxia* films, which feature acrobatic martial arts, improbable displays of skill, and chi abilities that defy reality. Ironically, many of these movies celebrate rugged individualists who use their mystical martial-arts skills to right wrongs or root out corruption – ideas not terribly popular with the Communist Party.

India

Like China, India has had martial arts since antiquity, along with many myths tied to receiving and teaching them. Some historians trace Indian martial arts back to the invasion of northwestern India by Alexander the Great. This is unlikely; Alexander might have brought Pankration (pp. 188-189), but the warriors of the local princes already had a strong tradition of armed fighting and unarmed wrestling. According to myth, the *gods* handed down these arts to humans so that heroes could defeat their demonic foes!

On the teaching side, Bodhidharma supposedly passed along Indian martial arts to China; see *The Shaolin Temple* (pp. 8-9). Prior evidence of the martial arts undermines this theory, too. However, Indian religious beliefs probably contributed the concept of *prana,* which is more commonly known by its Chinese name, *chi* (see *Religion, Philosophy, and Fists,* p. 11).

Whatever the truth, the Indian martial arts are ancient. Kalaripayit (pp. 168-169) dates to the 9th century A.D. and similar arts predate that. These early styles certainly covered both unarmed combat (striking *and* grappling) and armed combat (especially bow, sword, and two-handed mace). Modern nationalists in India – like those in most places with a martial tradition – espouse the idea that practicing these historical arts makes one a better person, and push for their continued study. Hinduism continues to play a strong role, too; even today, Kalaripayit and Indian Wrestling (pp. 205-206) expect students to be good Hindus.

Wrestlers

The most visible Indian martial art is wrestling (see *Indian Wrestling,* pp. 205-206), which has been a revered or at least royally patronized activity in India since ancient times. Great wrestlers were sought after for the fame they brought their patrons. In the 19th and early 20th centuries, Indian wrestlers dominated the world's grappling scene, their remarkable size, skill, and endurance allowing them to defeat all comers. The greatest of these was Gama (p. 23). Their reign ended only after Greco-Roman Wrestling (p. 205) and Professional Wrestling (p. 206) eclipsed traditional freestyle wrestling.

Today, traditional Indian wrestlers train much as they did at the opening of the 20th century and in the centuries before. The training isn't based on Hinduism, but wrestlers are expected to be paragons of the faith.

Other Indian Martial Arts

Martial arts of the Indian subcontinent also include the Sikh sport of *gatka* (see *Victorian Singlestick,* p. 157) and a brutal form of bare-knuckle boxing. India long regarded archery as a sport of kings and warriors; the specifics vary, but it's game-mechanically similar to Kyujutsu (pp. 179-180), although more commonly performed from a chariot than from horseback. Many arts are lost to modern knowledge, leaving behind only names and brief descriptions.

Religion, Philosophy, and Fists

A traditional fighting art often has a philosophy that augments its martial base or even constitutes the foundation upon which it's built. For instance, the strikes, footwork, and forms of Pa Kua Chuan (pp. 187-188) are all founded on an interpretation of the *I Ching*. Stylists walk circles to stay in harmony with the Tao and practice utilizing *chi* (see below) to protect themselves and defeat foes.

Many traditional styles have strong religious content, too. The religion might be external to the art (like Christianity for European knights or Islam for those who practice Pentjak Silat, pp. 189-191); taught in conjunction with the martial art; or form its underpinning, informing how students are taught and which moves are considered "proper" even if the fighter doesn't practice the religion (e.g., Sumo, pp. 198-199, has close ties to the Shinto faith). Rarely, the style *is* the religion: Shorinjikempo is officially a religion in Japan (see *Kempo*, p. 172-173).

Only a purely combative or sportive *modern* style is likely to lack such traits. Mixed martial arts (p. 189) and Greco-Roman Wrestling (pp. 205-206) are examples of entirely sportive arts; Krav Maga (p. 183) is a wholly combative one. Styles like this don't try to make you a better person through a philosophy or set of beliefs.

Rondel Dagger

Yin and Yang

Traditional Chinese beliefs describe the universe in terms of two fundamental principles: *yin* and *yang*. Yin signifies the feminine, yielding, and soft while yang represents the masculine, forceful, and hard. Together they form a harmonious, balanced state. A person who has too much yin or yang isn't in harmony with the universe and is consequently limited in potential.

The ubiquitous yin/yang symbol is a visual representation of this concept. The swirling drops of yin and yang form a circle, implying a perpetual cycle. Each color contains a spot of the other, showing that yin isn't complete without yang, and vice versa. Only the two together form a balanced whole.

Chi, Ki, and Prana

Chi (also *qi*) is the Chinese character for "breath." The Japanese and Koreans use this character, too, but pronounce it *ki*. In traditional belief, chi is much more than just breath: it's an invisible force that pervades all living things. Disciplined individuals can – with proper knowledge and practice – control and manipulate it. Someone with balanced, strong chi will live long and be capable of great acts. One's chi can become unbalanced, however. Those with unbalanced chi must rebalance it or suffer ill health (in game terms, adjusting chi is a form of Esoteric Medicine, p. B192).

Proponents of traditional Chinese martial arts often claim that masters can project their chi to control students' actions, move objects . . . even kill. Such masters can also direct their chi internally to perform superhuman feats: mighty leaps, impossible lifts, running up walls, shattering objects, and so forth. In modern China, though, the concept of chi runs contrary to the state's atheistic Communist philosophy. Chi is seen as nothing more than the vitality of a body in perfect health; it's a matter of fitness, not mystical forces.

Historical Japanese styles make fewer claims about supernatural powers but still regard ki as something to cultivate and project. Ki development and the power of breathing meditation became popular in Japanese swordsmanship during the 18th century. A Japanese warrior with strong ki should have great skill and high Will – not use superhuman powers to attack foes at a distance. Modern Japanese anime hews more closely to the Chinese approach, however.

The Indian term for chi is *prana*. Prana – like chi or ki – is an invisible, subtle, yet all-pervasive force that provides life to the body. It causes respiration, keeps the heart beating, allows speech, digests food, and equalizes bodily functions. It's possible to regulate prana through breathing, using a skill called *pranayama*. Some believe that this allows superhuman feats of endurance, strength, and willpower.

The concept of "breath as life" and the importance of deep breathing aren't exclusively Asian. For instance, the great Greek physician Galen held that something could only be considered exercise if it increased respiration, and that respiration was important to health and to success in physical activities. ***Martial Arts*** refers to *any* such view of life force and the powers that derive from it as "chi," regardless of its cultural origin.

Folk Beliefs

Many martial arts have an associated body of folk beliefs. Pentjak Silat holds that the *kris* (p. 219) can kill merely by pointing. Masters of Kalaripayit (pp. 168-169) learn magical phrases to use in emergencies. Capoeira (pp. 153-154) is sometimes linked with *Candomblé*, an African-derived folk religion. Some adherents of Chinese martial arts believed that incantations, willpower, and proper kung fu would make them invulnerable to blades and guns. The latter idea isn't uniquely Chinese – *corpo fechado* (Portuguese for "closed body") is a magic ritual, known to some Capoeira players, to become impervious to knives and bullets . . .

Indonesian Archipelago

The Indonesian Archipelago is a chain of hundreds of islands – most of them tiny – over an area that includes Borneo, Java, Sumatra, the Malay Peninsula, and the Philippines. It has a diverse mix of cultures: the native Malay (once feared for headhunting and ritual cannibalism), plus Arab, Chinese, Dutch, English, Indian, Portuguese, and Spanish, and their many religions. Countless martial arts have emerged from this jumble – most famously Pentjak Silat (pp. 189-191) and Kuntao (pp. 178-179). It's said that at least one form of Silat exists for each island!

Indonesia

During the 1940s and 1950s, Pentjak Silat grew even more prominent in Indonesia. The islands were Dutch possessions when they fell to the Japanese in World War II. Many Indonesians resisted and fought alongside the Dutch against the Japanese. After defeating the Japanese, the Indonesians turned to their fight for independence. The locals widely credited Pentjak Silat with giving them an edge over their opponents. Its role in the fighting is debatable – driving out the Japanese and the Dutch (and later defeating the Communists) depended more on the gun than on the *kris* (p. 219). Even the common claim that martial-arts training gave the fighters warrior spirit is arguable – but it's a theory to which armies worldwide subscribe, and probably the real reason why unarmed combat is taught in the age of automatic weapons and grenades!

Ryu

Ryu (plural: *ryuha*) is a Japanese term for a school's collected martial-arts teachings. A ryu might be broad or extremely narrow. For example, Musashi Miyamoto's *Niten Ichi Ryu* contained one fighting style – see *Nito Ryu* (pp. 174-175). By comparison, the still-extant *Toda-ha Buko Ryu* teaches several arts: Bojutsu (p. 192), Kenjutsu (p. 173-175), Kusarigamajutsu (p. 180), Naginatajutsu (p. 186), and Sojutsu (pp. 197-198).

Ryuha have a "public" and a "private" curriculum. Outsiders are shown strictly the public techniques; only the school's students receive demonstrations of the full style. Hidden techniques, called *urawaza,* are a way to keep enemies from learning the ryu's full potential. They often deal with unusual weapons or those that work better by surprise (e.g., *shuriken* or improvised weapons). Some masters reserve urawaza for a select few students or even a single chosen successor!

In game terms, a ryu usually contains more than one style. In a Japan-based campaign, the GM might wish to assess Style Familiarity (p. 49) by ryu rather than by style. For instance, familiarity with *Toda-ha Buko Ryu* gives familiarity with its version of Kenjutsu and all of its other component styles, but not with the Kenjutsu of *Katori Shinto Ryu.* Knowledge of slight differences between your ryu and your opponent's could spell the difference between victory and death. The urawaza might be as narrow as a single skill, technique, or Style Perk . . . or as broad as an entire style. See the skills, techniques, and perks under each style's "Optional Traits" for ideas. The PCs won't necessarily have free access to these abilities!

Philippines

Foreign powers have invaded the Philippines many times. The most significant of these invaders were the Spanish, who brought their language and fighting styles. The extent to which this influenced indigenous martial arts is the subject of vigorous debate. While Filipino styles use largely Spanish terminology, their techniques little resemble those of European fighting arts. The best-known local style is Escrima (pp. 155-156), a system of armed and unarmed fighting.

Filipino martial arts saw regular use in combat until relatively recent times. During the American occupation, after the Spanish-American War, the local resistance fought back using martial-arts skills. The ferocious Moros inspired the American military to beef up the service pistol from .38 to .45 caliber in order to better stop fanatical warriors. During World War II, resistance fighters against the Japanese used Escrima and Pentjak Silat alongside firearms and explosives to attack the Japanese garrison.

The Philippines have been relatively peaceful since WWII, but some regions are still infested with pirates and religious or political resistance groups. Escrima remains popular, both for settling scores and in stickfighting sporting events.

Japan

In the popular mind, Japan is the wellspring of the martial arts. The oldest verifiable Japanese martial art is a form of combative wrestling that evolved into the sport of Sumo (pp. 198-199). This and other early arts developed locally but were influenced by the Chinese and later the Koreans. Japanese martial arts would, in turn, go on to influence the styles of both of these cultures – and the world at large.

The Samurai

The samurai, or *bushi,* were Japan's warrior class. They rose to prominence during the Yamato period (c. 300-710), when the use of levied infantry gave way to warlords providing full-time mounted archers. This evolution weakened central control, leading to long periods of internecine warfare.

The appearance of the samurai marked the birth of martial-arts schools, or *ryuha.* Each *ryu* taught both armed and unarmed combat, often alongside such skills as horsemanship and strategy. A samurai was expected to learn to fight both mounted and dismounted with bow (*yumi*), sword (*tachi* and later the *katana*), spear (*yari*), polearms (*naginata* and *nagamaki*), and knife (*tanto*), and to wrestle armored and unarmored. Different schools added other weapons, including the *shuriken* (p. 223), *kusarigama* (p. 219), axe, hammer, and flail.

Initial emphasis was on mounted archery, but the samurai evolved into swordsmen as infantry tactics became more important. Armor changed to match: boxy *o-yoroi,* suitable when using and facing the yumi, gave way to suits that freed the arms for swordplay. On foot, samurai wielded spears, swords, and to a lesser extent hammers, staves, polearms, and other weapons. Firearms entered the arsenal with the arrival of the Portuguese, but like Europe's knights, the samurai absorbed the gun into their fighting methods. To bulk out their armies, they raised conscript light infantry called *ashigaru.* These troops had sparse armor (typically a helmet and inferior torso armor) and lower-grade weaponry.

With the unification of Japan and the ensuing Tokugawa Shogunate (1603-1868), Japan entered a prolonged peace. Only the Shogunate was allowed firearms. Martial-arts schools became more widespread but often more specialized – those that taught only a subset of weapons or skills (or *one* weapon) grew more common. Weapons suited to piercing armor, such as the bow and spear, were overshadowed by the sword, which was ideal for fighting unarmored foes.

With potential masters no longer becoming battlefield casualties (or indeed, needing to *prove* their skill in duels), the number of ryuha boomed. Duels were forbidden and matches between schools were discouraged. Use of *kata* as the core of skill transmission became common. This status quo inspired a backlash in favor of contact training and led to the eventual development of Kendo (p. 175).

Ninja: Legend vs. History

Folklore portrays ninja as peasants and outcasts, scorned by the samurai. History doesn't support this. It's hard to uncover facts about such a deliberately secretive group, but reliable evidence suggests that several samurai clans were verifiably ninja or had members with ninja-like skills. Historical ninja seem to have been spies more often than assassins, secret police rather than outcasts.

The Chinese Connection?

Some sources claim that the ninja learned their arts from renegade Chinese monks called the Lin Kuei, but there's little evidence of this group outside of folk tales. There's no documentation of their supposed connection to the ninja, either. However, such a link *might* exist in a cinematic campaign, in which case the Lin Kuei could be a source of opponents for PC ninja – or of masters who can train non-ninja PCs to counter the nefarious skills of NPC *shinobi.*

Other Ninja

Japan's ninja – and possibly China's Lin Kuei – weren't the only ones in Asia with training in disguise, stealth, and espionage. Many other groups mixed these tactics with the martial arts to help deal with enemies.

The 7th-century Korean kingdom of Silla had a group known as the *sulsa:* commando-like warriors trained in irregular operations. Unlike ninja, it appears that the sulsa were deployed alongside other forces and used as an integrated part of the army. They were held in high esteem – much like modern special-ops troops. Like the ninja, colorful and equally unverifiable legends about their skills and prowess abound. In a cinematic campaign, any claim that's true for the ninja should also be true for the sulsa.

In Thailand, groups of monks were trained in the art of stealth, subterfuge, and survival, as well as in the martial arts. Their role is unknown, but their potential to the Siamese kings as spies, irregular troops, and scouts is obvious.

The Ninja

Historically, ninja were the spies, assassins, and special agents of the warrior clans – and later the Shogunate – of Japan. They were famous for their pragmatism, using whatever methods could most efficiently accomplish the task at hand. Given the nature of *bushido* (the Japanese warrior code) and its embrace of victory at all costs, this made them quite ruthless. They were noted for their disregard of social norms, disguising themselves as monks, the opposite sex, low-caste Japanese, and so on. They studied *Ninjutsu,* the art of stealth and disguise. Included in this was the martial art Taijutsu (pp. 202-203): an unarmed combat style used to disable opponents.

The ninja probably originated with the use of specialist spying troops (called *shinobi*) by an empress in 6th-century Japan. Several clans of ninja existed, especially in the Iga-Ueno region. A modern "Ninja Festival" is held in this area – although it focuses on ninja more as depicted in folklore than as they actually were.

Like China's Shaolin monks, the ninja are awash in myth and legend. Almost every improbable martial-arts feat appears in ninja lore! They're famous as masters of disguise, weapon use, unarmed combat, acting, and technology. Modern authors have expanded on the legend; many so-called ninja tools, garments, and gadgets are actually 20th-century inventions. Notable among these is the ninja sword, or *ninja-to* (p. 221). The same authors have also wrongly designated weapons often used by samurai – such as the *shuriken* and *kusarigama* – "ninja weapons," sometimes going so far as to invent myths about samurai rejecting such armaments as dishonorable.

The ubiquitous "ninja uniform" is another modern-day creation. It looks as if it was inspired by the clothing that puppeteers and stagehands wore to blend into the darkness of a theatre. Historical ninja almost certainly disguised themselves to fit in wherever they might be. They might not have donned *any* disguise! Many were samurai in public and agents of the Emperor in private, trained to spy on subjects and root out conspiracy, or dispatched to solve special problems.

Okinawa

Okinawa has always had strong ties with China, its close neighbor. Okinawan nobles sent their children to Fushin province to study literature, writing, culture, and the martial arts. Some believe that Okinawan martial arts originated in China and were brought back by returning nobles. Others claim that Okinawa had indigenous fighting systems which were influenced by Chinese styles.

In local legend, weapons were banned at several points in Okinawan history. One such instance, in the 15th century, wasn't so much a ban as a shortage. The native rulers, fearing rebellion, monopolized weapons production in order to stock their own armories. Depriving the population of weapons was a side effect – albeit one that favored those in power! The 17th-century Japanese conquerors imposed a genuine ban. The net result in both cases was that the martial arts flourished.

The Okinawans turned their tools and farm implements into weapons and developed fighting styles for using them effectively. They also honed their unarmed martial arts, or Te (pp. 169-170). The Japanese banned the practice of Te, but instructors and students survived, even thrived in secrecy. They trained to fight armed and unarmed opponents, parrying the attack and then launching a devastating counterattack with lethal intent.

In the late 19th and early 20th centuries, Japan recognized the potential of Te as a form of military and fitness training. Japan imported instructors from Okinawa – starting with Funakoshi Gichin (p. 23) – and created the sport of *karate-do*. Karate's inventors soon changed the characters used to spell its name from "China" and "hand" to "empty" and "hand" (both pronounced "karate"), added a belt system based on the sport of Judo (p. 166), and established a formal body of instructors.

After World War II, the large U.S. military presence in Okinawa helped spread Karate in the West. Many servicemen studied karate-do in Okinawa and brought their skills home with them. Today, a wide range of martial-arts schools exist in Okinawa and many American servicemen still train while stationed there.

Korea

Korea has a rich martial-arts history tied inextricably to that of nearby China and Japan. Many martial arts passed from China to Japan, and vice versa, by way of Korea. Prior to the 20th century, China's influence was dominant by virtue of proximity, shared history, and the regular exchange of ideas. In the 20th century, the Japanese conquest of Korea lent Korean martial arts a strong Japanese flavor that's still evident today.

The Hwarang

Around 550 A.D., nobles known as the *Hwarang* ("Flowering Knights") rose to prominence as rulers, warriors, and officials in the Korean kingdom of Silla. These knights adhered to *Hwarang O Kae,* or "the Five Ethics," which stressed loyalty, filial piety, trustworthiness, valor, and justice – much like *bushido* or chivalry. They studied fighting arts, literature, administration, and philosophy. In 668, Hwarang general Kim Yu-shin completed the conquest of the region's other two significant kingdoms, Koguryo and Paekche, thereby unifying Korea.

Elite among the Hwarang were the *sulsa* ("technicians"). These warriors practiced *am ja* ("the art of shadows") and *un ship bop* ("invisibility methods"), and were used for special missions. For details, see *Other Ninja* (p. 13).

Modern Korea

From 1910 to 1945, Japan occupied Korea and Japanese martial arts displaced Korean ones. When World War II ended, though, Korea asserted its proud martial heritage. Traditional styles were resurrected or came out of hiding, and new styles were formed with ancient names. Japanese influence was still great, as many Korean martial artists had training in Karate (pp. 169-172) or Jujutsu (p. 166-168).

Today, Korea is best known for Tae Kwon Do (p. 200), a sport form cobbled together from numerous punching and kicking styles. It takes its name from a much older combat art. Tae Kwon Do has become popular worldwide and is now an Olympic sport.

Other Nations

Many other Asian countries have martial-arts traditions that extend from the distant past to the present day. Possibly the best-known of these are Burma and Thailand.

Burma

Burma – now called Myanmar – is surrounded by India, China, and Thailand. Like its neighbors, Burma is home to many martial arts. The collective term for Burmese martial arts is *Thaing*. This encompasses four major subgroups: unarmed combat (*Bando*), armed combat (*Banshay*), boxing (*Lethwei*), and wrestling (*Naban*). These arts date to around the 11th century, when they played a role in local warfare.

Bando is a comprehensive system of unarmed combat. It has deep historical roots, but the Japanese invasion in 1942 helped shape its modern form – Japanese unarmed-combat systems influenced it, and guerrillas used it against the Japanese occupiers. Two major schools have emerged since then; these are quite similar in their training. For more information, see *Bando* (p. 151-152), *Banshay* (p. 176), and *Lethwei* (p. 186).

Thailand

Thailand, formerly known as Siam, also has a rich martial-arts history. Unfortunately, a terrible fire during the 17th century destroyed most of its historical records, obliterating reliable accounts of the origins of Thai martial arts. The modern arts of Muay Thai (pp. 185-186) and Krabi Krabong (p. 176) can trace their origins *at least* as far back as the loss of those records; they likely go back much farther. Another style – now lost – emphasized stealth, subterfuge, and survival techniques. It was taught to a sect of monks who might have filled a ninja-like role for the Siamese kings.

Today, Muay Thai and Krabi Krabong are the most prominent Thai martial arts. Muay Thai is a form of kickboxing, world-renowned for its tough training and tougher competition. Krabi Krabong is an armed style. Originally a combat form, it's now primarily a sport.

Europe and the Middle East

Europe and the Middle East have a martial-arts history as long and as colorful as that of Asia, although it hasn't featured as prominently in dreadful action movies. Highlights include the fighting arts of Classical Greece and Rome, the martial arts on both sides of the Crusades, the swordsmanship of the Middle Ages and Renaissance, and of course the sport wrestling and mixed martial arts so popular across Europe today.

As in Asia, fighting skills also figured prominently in legend and folklore. Ancient Celtic tales – collected in the Middle Ages – told of such heroes as Cu Chulainn receiving training at swordsmanship, spear-dodging, charioteering, wrestling, breath control, and chess, and performing superhuman combat feats. Likewise, Norse myths pitted heroes and gods against supernatural foes in wrestling matches.

Ancient Greece and Rome

Ancient Greece was home to a number of the world's earliest *verifiable* martial arts; in fact, these predate the legendary origins of many Asian styles. In the Greek city-states of the Classical age, every citizen was a soldier. Even after Greece abandoned the citizen armies of the *polis,* Greek society long held that martial skills were essential to a well-rounded upbringing for every male Hellene. For most, this meant little more than physical conditioning at the public *gymnasium* and the basics of handling the shield and spear. Dedicated practitioners went much further, however, and teachers of *hoplomachia* ("armed combat"), boxing, wrestling, and *pankration* (literally, "all powers") found no shortage of eager youths willing to take advantage of their services.

The Games

The Olympic Games of ancient Greece featured three different martial-arts contests: wrestling, *pankration,* and boxing. None of the three concerned themselves with weight classes, rounds, or time limits. All were brutal contests of skill, strength, and endurance. The Romans were also fond of games and held similar contests.

Wrestling was much like modern freestyle wrestling. Victory was by submission and striking was forbidden. A match consisted of a single, untimed round. Endurance was as important as strength, since defensive tactics and stalling to exhaust one's opponent were legal. The lack of weight classes meant that heavyweights dominated the sport.

Pankration (p. 188-189) was full-contact, no-holds-barred fighting. Only eye-gouging and biting were forbidden – and the Spartans allowed even this. Many strikes common to modern Asian martial arts – chops with the hand's edge, punches with protruding knuckles, leg sweeps, etc. – saw use. One famous bout ended when a fighter aimed a stiffened finger strike (what Asian martial arts call a "spear hand") at his opponent's armpit, piercing his vital organs and killing him. Pankration matches lasted until one contestant submitted or was incapacitated. Most bouts ended with a submission from a lock or wrestling hold, although one pankrationist famously won his bouts by breaking his adversaries' fingers, and death in the ring wasn't uncommon. At least one contender won *posthumously:* he forced his rival to submit even as he was dying from a fatal blow!

Gladiators

Through much of Roman history, gladiators provided public entertainment by fighting animals, prisoners, and each other in the arena. Most were slaves, but their ranks could include almost anyone – from the impoverished, looking to earn a living, to wealthy thrill-seekers. Because gladiators risked their lives in the arena, Roman society saw them as being above such "petty" concerns as morality and responsibility. Thus, a successful gladiator was often rich and pampered, able to indulge in his most cherished (or debauched) pleasures. It was said that all men wished to be gladiators and all women wished to be with them.

During the era of professional fighters, they or their promoters would pick their opponents from the ranks of slaves, prisoners, or (occasionally) volunteers. Most match-ups were calculated to guarantee the professional fighter a victory and the audience a good spectacle. Fights weren't to the death as a rule – at least, not between professionals. Still, some Romans found entertainment in massacres and lopsided contests where untrained fighters had to defend themselves against merciless pros.

Gladiators enjoyed treatment that would be familiar to modern professional athletes. Top schools kept a physician on staff, and masseurs, bonesetters, and coaches – all likely to be former gladiators – helped keep the fighters fit and healthy. The school's head (*lanista*) was typically politically and socially connected, and took care of the school's financial, religious, and gladiatorial affairs. The top trainer was responsible for hiring other instructors (generally former soldiers or gladiators), who might be broadly skilled or very specialized. These teachers tutored the gladiators in armed and unarmed combat, and even monitored the fighters' diet. They led their charges in daily weapons drills and exercises designed to improve strength and fitness. Legion officers sometimes regarded gladiators as useful trainers for their soldiers and had them show the troops the dirty tricks of arena combat.

The celebrated doctor Galen, whose views on medicine were long seen as infallible in later eras, was a physician to gladiators for five years early in his career. He prescribed a program of walking to improve breathing, rhythmic movements to settle the soul, and progressive weight training to build muscle.

Boxing in ancient Greece and Rome consisted solely of strikes to the head and upper body. Protective headgear existed but wasn't used in competitive bouts. Contestants wrapped their hands and wrists with leather. The original purpose of this seems to have been to protect the hand, but later wraps were twisted – some sources claim *edged* – to increase the injury from punches, and the Romans sometimes boxed wearing the *cestus* (p. 214), a studded or spiked glove. Bouts lasted until one of the fighters submitted or was incapacitated. Disfigurement was common: legendary Greek boxers withstood enormous punishment, and period texts depict cauliflower ears, broken noses, and marred faces.

Men competing in both boxing and pankration would occasionally request that the pankration events be held first – a reversal of the usual order. Boxing was held to be so brutal that competitors worried about being too injured to compete in pankration, even if they won! A pankration bout could end with a submission hold or choke, but a boxing match ended only when one boxer was too injured to continue.

Medieval Europe

Medieval knights fought with a pragmatic ruthlessness that seems quite at odds with modern beliefs about chivalry. Period accounts tell of knights killing each other's horses, grappling foes and bearing them down to be stabbed to death, and dealing vicious shield bashes, chokes with sword blades, and "murder strokes" using the handle of a reversed sword. Knights *did* have a concept of honor . . . but in duels and warfare, victory mattered at least as much as how one fought.

Modern myth also tends to portray knights as brutal sluggers with little technique. A perusal of written manuals of period martial arts – collectively known as *fechtbücher* – puts the lie to this. The design of knightly weapons was rugged in order to overcome heavy armor, but the techniques for using them were quite refined. These martial arts weren't restricted by borders or culture. Germanic and French knights bowed to different kings but shared nearly identical weapons and fighting styles.

On the unarmed front, complex striking arts such as *pankration* and boxing fell out of use when the infrastructure for martial sports disintegrated with the Roman Empire. The prevalence of heavy armor made wrestling *much* more useful, though, and every warrior learned at least basic grappling. The heavier the armor, the more important this became – penetrating metal armor is difficult, but sliding a knife through your foe's visor is easy once you have him prone and pinned.

As the Middle Ages wore on, both armor and the weapons needed to defeat it became heavier. Early knights wore mail, relied on shields to block, and fought from horseback with spears. With the development of high-backed saddles, it became possible to charge with the lance "couched," or held under the arm. Armor improved, making it possible to discard the shield and fight with two-handed weapons better able to overcome the armor. The period saw a steady development of weapons, armor, and techniques for using them.

Warfare wasn't the only forum for the martial arts. Mock battles and tournaments – melees and jousts – kept knights' skills sharp. They also served as a way for a knight to spread his reputation and display his expertise. Trial by combat was another fixture of the era. An accused criminal could claim this right and battle his accuser (either could use a willing champion), with the "court" finding in favor of the victor.

Noblemen weren't the only warriors of the Dark Ages and Middle Ages. Commoners such as England's yeomen and Masters of Defence, Asiatic horsemen such as the Mongols, and the feared Vikings of Scandinavia all practiced martial arts. For much of the period, though, the premier armed martial-arts styles in Europe were those of the knights.

Yeomen Archers

Across most of medieval Europe, farmers were serfs. In England, though, some farmers – called *yeomen* – actually owned small pieces of land. While still peasants, yeomen were free by the standards of their time. In return for their freedom, the law required them to train from youth with the longbow and other weapons. The government encouraged archery with contests, tournaments, and laws. It sometimes went so far as to ban cockfighting, dice, football, and other distractions in order to encourage archery practice!

The finest longbows were made of a single piece of yew, carved with both core and edge wood to give a natural composite effect. Yeomen armed with such weapons were credited with hitting massed troops at nearly 400 yards. The usual length of a shot against an *individual* target would have been markedly shorter.

The legend of Robin Hood owes much to the real accomplishments of English longbowmen. Robin Hood was reputed to be the greatest archer in a company of seasoned archers. His most famous feat of skill was splitting a rival's arrow in an archery tournament. (Even ***GURPS*** is colored by his exploits: its rules let archers make individual shots at distances that would have challenged massed bowmen shooting at an entire army!)

Robin Hood was also a master of another celebrated English weapon: the quarterstaff. He used his staff to spar with and defeat his eventual companion, Little John – a giant of a man. Like the longbow, the staff was inexpensive and available while swords were costly and spears were inconvenient for daily use. The iron-shod staff was as much a walking aid as a weapon, and the English masters praised its value in self-defense against all foes.

Robin Hood's legend curiously parallels that of Japanese hero Yoshitsune. Both were rebels against authority, skilled archers, and leaders of men, and both had a huge, polearm-using companion. In a mythical campaign, they could be rivals – or allies against an even greater foe.

Masters of Defence

In England at the end of the Middle Ages and beginning of the Renaissance, certain influential masters of personal combat became famous as the "Masters of Defence." Of common birth, they apprenticed themselves to skilled martial artists and studied all of the period's military and civilian weapons, truly earning the title "master." At times they even had a royal charter for their activities. They acted as fight instructors for noble and commoner alike, and were occasionally stand-ins during legal duels – a practice sometimes legal, often not.

During the Elizabethan period, instructors from overseas began to challenge the Masters indirectly. In particular, Italian rapier masters taught their skills to the wealthy and noble. Masters of Defence such as George Silver issued challenges to these newcomers and wrote pamphlets and even books denigrating their teachings, but their rivals dismissed them as social inferiors – the Masters weren't nobility. The fencing masters likely saw no *reason* to accept: defeating a commoner in a no-holds-barred competition would do little to impress patrons and students, and failure (or less than total success) could mean ignominy or even death.

Regardless of the relative efficacy of the competing styles, it was fashion that undid the Masters' dominance over English martial arts. Broadswords, polearms, and staves were not stylish accessories, while rapiers became such. Much as in Japan during the Tokugawa era, the decline of real combat tests meant that instructors of questionable skill – making dubious claims – could flourish and surpass those with true ability.

For more on the Masters' skills, see *Masters of Defence Weapon Training* (p. 182).

Fechtbücher and Traveling Masters

Two facets of Renaissance martial arts merit special discussion: *fechtbücher* and traveling masters.

Fechtbücher

The *fechtbuch* (plural: *fechtbücher*), or "book of fighting," represents an important historical resource. Masters would pen fechtbücher to illustrate their techniques – mainly armed but also unarmed striking and grappling (often using holds that modern readers would consider "low" or "dirty"). These works varied greatly in quality. Some were poorly illustrated, badly written pamphlets full of common techniques. Others had excellent art – in one case, by Albrecht Dürer – and clear text. Many fechtbücher survive to this day, giving the modern student a glimpse of the incredible depth of the martial-arts training of an earlier time.

The purpose of fechtbücher *wasn't* self-instruction. Students were supposed to refer to them while training under the master. As a result, many fechtbücher and their instructions were intentionally unclear. A notable example was the 14th-century fechtbuch of Johannes Liechtenauer. It had excellent illustrations but deliberately cryptic instructions. Liechtenauer gave only his students the key to his mnemonic devices. Armed with this, they could profit from the book while others would be stymied. It wasn't until the 15th century that a student, Sigmund Ringeck, broke ranks and explained Liechtenauer's writings.

Books of this type weren't unique to Germany or even Europe. Virtually every culture had some form of written, inscribed, or painted combat manual. Some of these were straightforward texts on fencing, others were books of military strategy reputed to contain hidden lessons in swordplay (or vice versa), and yet others were scrolls that illustrated fighting techniques but gave only cryptic descriptions. Perhaps the earliest "fechtbuch" was Egyptian: a set of tomb paintings that depicted wrestling moves that are still in common use.

Traveling Masters

Germany's martial-arts masters were similar to England's Masters of Defence: commoners who trained until they attained master status through grueling public duels. Like the Masters of Defence, they knew how to put on a show. Groups of masters – accompanied by their journeymen, apprentices, and inevitable camp-followers – would travel around Germany demonstrating their skills at festivals. They would conduct tests for mastery, stage mock combats to show off their proficiency, and collect money from spectators. In a historical campaign, such an eclectic group of combat-trained wanderers would be an ideal party of PCs!

Renaissance Europe

By the time of the Renaissance, heavy armor, guns, and masses of disciplined infantry were the norm in warfare. On the battlefield, arms designed for use by ranked troops overshadowed those suited to individual combat. In the civilian world, though, there was a growing need for weapons and training useful in street skirmishes and duels.

The first important civilian weapon of the period was the rapier. Its long blade was designed to let the wielder hit with a thrust before an opponent with a shorter, broader sword of comparable weight – like a military sword – could attack. Early rapiers could cut *and* thrust, but as time went on, tactics favored the thrust so much that later blades were rarely edged. Rapiers became the center of an arms race, with longer and longer rapiers emerging to increase the wielder's chances of scoring the first strike. These were unwieldy against other weapons but their length gave them an edge in a rapier vs. rapier fight – very useful when dueling!

The rapier's length made parrying difficult. Most rapierists relied on the off hand to parry, using a cloak, main-gauche, or mail glove. Some preferred a second rapier – not for its parrying ability but for the increased odds of defeating the foe before *needing* to parry! Fencers in this period sought the *botte segrete* (p. 86), or the secret unstoppable attack. This might have been the lunge – an extended thrust that took advantage of the rapier's length and thrusting ability.

Long blades eventually went out of fashion as masters discovered that shorter ones had a defensive advantage. This led to a cycle of new tactics that inspired even shorter weapons and necessitated further refinements in technique. The smallsword was the end result: a short, light, stiff blade designed solely for thrusting and equally useful for offense and defense. The quest for the *parata universale* – the Universal Parry, which could stop even the *botte segrete* – replaced the search for the unstoppable attack. For more on such "ultimate" attacks and defenses, see *Secret Techniques* (p. 86).

Modern Europe

Modern Europe owes much of its martial-arts heritage to an explosion of interest in combative sports – and later, Asian fighting styles – that began during Victorian times.

Victorian Europe

The Victorian period saw a great resurgence in sportive martial arts across Europe. Polite society still regarded boxing and wrestling as brutal sports of the lower classes – and indeed these activities were *extremely* popular with those classes. This "lower-class" nature didn't stop the posh from sponsoring fighters, attending fights, and wagering recklessly large amounts of money, though; it simply kept them from participating.

As for armed martial arts, the period witnessed the development of sport quarterstaff forms (using a far shorter staff than the medieval version) and the widespread practice of singlestick (stickfighting based on broadsword combat). With dueling outlawed and combative fencing no longer acceptable to settle scores, sport fencing began to surge in popularity. New weapons and rules appeared to make fencing safer, shifting the emphasis to technique and sportsmanship.

This renaissance had some unfortunate consequences for martial-arts history, though. The writings of Victorian historians and fencing enthusiasts alike painted fencing as the pinnacle of swordfighting evolution. This myopic viewpoint helped generate the myth that knights were unskilled thugs when compared to skilled, elegant fencers – an error that would poison histories of the European martial arts until the present day.

20th-Century Europe

Asian martial arts made their European debut near the close of the 19th century. In the 1890s, several Japanese teamed up with self-promoter and showman E.W. Barton-Wright to teach Jujutsu in England. For Barton-Wright, this was more an exercise in money-making than in teaching a martial art – but it wasn't long before Jujutsu and Judo came to stay for real. The first European Jujutsu instructor opened a school in Austria in 1904. By the 1930s, Judo had students across Europe. Even the Hitler Youth trained in Judo; the Nazis saw it as a masculine sport, worthy of future warriors.

Sport fencing, boxing, and wrestling remained popular, too. Most people saw these activities as excellent training in fitness, proper conduct, and gentlemanly behavior – and as suitable competition between nations. Boxing in particular surged in popularity as the Marquess of Queensbury rules removed some of its stigma without dulling its brutal edge.

During World War II, commandos trained in military martial arts. They needed skills to eliminate sentries and to fight using improvised weapons – or no weapons – when the ammunition ran out or circumstances made firearms undesirable. The knife, in particular, was popular.

After WWII, Asian martial arts continued to flourish. European judoka helped make Judo a competitive Olympic sport, and influenced its rules. Meanwhile, other Asian arts – such as Karate (pp. 169-172), and Pentjak Silat (pp. 189-191) brought back from Indonesia by the Dutch – became more popular. The French kickboxing style of Savate (pp. 193-194), its practitioners decimated by the World Wars, became more sportive in form.

In the late 20th century, two developments exerted a major influence on European martial arts. The first was an increase in academic interest in the martial arts of medieval and Renaissance Europe, accompanied by the appearance of hobbyists who wished to replicate those arts. The second was the rapid spread of mixed martial arts (p. 189). Today's Europe is a cultural swirl of martial arts, with traditional armed and unarmed European arts, Asian imports, and the increasingly popular mixed martial arts among its mosaic of styles.

Beyond Western Europe

Many Eastern European and Middle Eastern nations had or have their own martial arts. These styles receive less detail here only because they are for the most part either defunct or extremely new.

Middle East

Islamic warriors fighting against the Crusaders developed Furusiyya (pp. 159-161): a style of mounted combat that combined horse archery with close-in tactics. Its main practitioners were the Mamluks, who first served as soldiers in Egypt and then ruled there.

Wrestling has long been popular in Iranian and Turkish culture. Legendary heroes wrestled demons. Rulers kept famous wrestlers at their courts, and sometimes wrestled themselves. A Turkish wrestling tournament, Kirkpinar, is said to be the oldest continuously running sporting competition in the world, having been held since c. 1362. Both Turkey and Iran regularly send successful teams of wrestlers to international competitions.

Today, the Arab states sponsor many sporting events. One of the biggest grappling tournaments in the world is that of the Abu Dhabi Combat Club (ADCC), which attracts competitors from all over the globe. This is no longer held exclusively in the Middle East, but grappling championships remain popular there. In addition, most modern Arab states train their special-operations forces in the martial arts.

Israel

Present-day Israel is an embattled state, surrounded by potential foes and in internal turmoil owing to deep ethnic and religious divides. This motivates many people to study a martial art for protection. A popular modern style native to Israel is Krav Maga (p. 183), developed by Imi Sde-Or (born Imi Lichtenfeld) on the basis of his experience fighting Nazi toughs on the streets of Prague in the 1930s. Krav Maga stresses pragmatic self-defense tactics – especially alertness, fight-avoidance, and improvised weapons – and learning simple techniques thoroughly.

Russia

The Russian Empire covered a vast territory and engulfed many cultures. Wrestling was popular throughout the region. It came in several varieties, including belt wrestling (each contender wore a thick belt and tried to grab his opponent's belt and throw him), shirt wrestling, and free wrestling.

In the 1930s, when Soviet culture was on the rise, Anatolij A. Kharlampiev, Viktor A. Spiridonov, and Vasilij S. Oschepkov synthesized Sambo (p. 185) from many indigenous wrestling styles and Judo. Sambo went on to become the official martial art of the USSR. Aside from Sambo, only Judo – as an Olympic sport – enjoyed official sanction. Sambo practitioners have often done well in Judo and mixed martial arts competitions. Other martial arts have made inroads in the post-Soviet era, but Sambo's roots are firmly established and it remains Russia's signature fighting style.

AFRICA

Few people regard Africa as a hotbed of martial arts, but in fact the earliest verifiable evidence of the martial arts comes from ancient Egypt. Other African fighting styles are poorly known outside their homelands. It's clear that fierce warriors wielded spears and sticks with great skill throughout African history, however.

Ancient Egypt

Paintings on the walls of a tomb at Beni Hasan, dating to 1950 B.C. or even earlier, constitute the oldest known record of the martial arts. The frescoes depict wrestlers using holds that modern grapplers would recognize. These might have been for teaching – an early wrestling "manual" – or for artistic purposes.

Friezes on the walls of other Egyptian tombs show men and boys fighting with sticks before the pharaoh. It isn't clear whether this depicts a sport, training for war, or an exhibition for the pharaoh's entertainment. What *is* clear is that the Egyptians had their own martial arts, and that training and practice were a spectator sport for kings.

In a cinematic campaign, adventurers might plumb the depths of a musty Egyptian tomb searching not for funerary treasures but for the lost teachings of an ancient martial-arts master!

The Zulus

In the 19th century, the Zulus were pastoral herders living in southern Africa. They built an empire after the rise of a new king, Shaka. Shaka organized his warriors into disciplined regiments. His army developed a new method of spear fighting that used not only the traditional javelin but also a short spear for stabbing. Decades later, the Zulus dealt Britain a catastrophic defeat at the battle of Isandlwana. Subsequent battles proved disastrous for the Zulus, but their victory at Isandlwana cemented their reputation as fierce opponents.

Stickfighting

Many African tribes retain a tradition of stickfighting as both a sport and (until recently) a combative art. In some cases, fighters wear padding and wield whippy sticks; in others, they wear no protection and use heavy knobbed clubs. There are both one-stick and two-stick styles; two-stick styles use the off-hand stick for parrying. Some traditions eschew parrying and simply alternate strikes until one fighter gives in from the pain. Defending in such a contest is considered cowardly and weak! Whether African stickfighting traditions stretch back to those of ancient Egypt or are independent local developments isn't known.

The New World

Asian and European martial arts made the long trek to the New World along with immigrants from their homelands – often acquiring a distinctive flavor along the way. You can find martial artists from Canada to Argentina, but Brazil and the U.S. are home to the most active communities.

Brazil

Brazil, the largest nation in South America, is also the point of origin of two widely known martial arts: Capoeira (pp. 153-154) and Brazilian Jiu-jitsu (pp. 167-168). Both can trace their origins to Old World styles.

Capoeira developed from a fusion of styles, most from Africa but possibly including Savate (pp. 193-194). Largely practiced as a sport outside of Brazil, it originated as a combative form practiced by slaves. Even in modern times, streetfighters use it to settle differences.

Brazilian Jiu-jitsu originated with the Gracie family. They learned Jujutsu (pp. 166-168) and Judo (p. 166) from a Japanese immigrant and then applied their own experience to those teachings. The Gracies tested and refined their art in numerous no-holds-barred matches, called *vale tudo* ("anything goes") in Portuguese. Vale tudo makes an excellent venue for a campaign centered on competitive martial artists; see *The Contender* (p. 250).

United States

The earliest martial arts in the U.S. were boxing and wrestling, which have origins that long predate the colonization of America. During the 19th century, these were popular pastimes among the poorer strata of society. Lawmakers often outlawed prizefights, but this simply drove them underground or led to bizarre legal dodges such as paying an "appearance fee" at a bar, charging customers a "membership fee" for a one-night-only private club, or staging bouts on barges or at unadvertised locations along a train route. Today, American boxing and wrestling have a dedicated following in the U.S. and worldwide.

Few martial arts claim the U.S. as their point of origin, and even those that do – for instance, Hawaii's Kajukenbo (p. 168) and California's Jeet Kune Do (pp. 164-165) – can trace their development from Asian arts. Contact with America has changed many martial arts, though. The present-day U.S. has an eclectic collection of martial arts; look hard enough and you can find almost *any* style within its borders. Asian styles and mixed martial arts are especially common. This makes the U.S. a hotbed of martial-arts development.

The wealth of the modern U.S. means that even the smallest town can support one (or more!) martial-arts schools. It's common for parents to send little Taylor and Ashley off to the local *dojo* to get fit, learn confidence and self-defense, and "get better grades." Today, training in the martial arts is no more unusual than playing baseball or football.

The typical American school emphasizes tournament fighting, forms, and kata. Some academies hold an unusually large number of promotional exams – almost *everyone* gets a black belt after a predictable time period. Derogatory terms for such a business include "belt mill" and "McDojo." Other schools work on a tiered system, training most students in the art form but teaching a select few the entire combat style, either to preserve the tradition or to produce competitors for no-holds-barred bouts.

Women in the Martial Arts

Nature, nurture, or a combination of the two . . . whatever the reason, it's a historical fact that most of the combatants in humanity's wars have been male. Thus, it isn't especially surprising that men have dominated the martial arts since their inception. This certainly doesn't mean that women don't practice or teach martial arts!

Women have been martial artists for much of recorded history. Greek legends described the Amazons, reputed to be unrivalled as archers. Early tales of Celtic hero Cu Chulainn told of a female warrior. Both no doubt had some basis in fact. Muslim traveler Ibn Battuta wrote of women warriors in Southeast Asia. The naginata is famous as the weapon of Japanese noblewomen – both for fitness and defense in wartime – and in the 1930s was taught to schoolgirls.

Several martial arts – notably Wing Chun (pp. 203-204) and one form of Pentjak Silat (pp. 189-191) – claim a female founder in their legendary history. Tradition has it that Wing Chun is named after the woman who founded it, and that the Silat style was invented by a woman who observed two animals fighting. Neither origin is verifiable, but these styles certainly attract numerous female martial artists. Silat, especially, prides itself on female participation and has many women students and masters. Kalaripayit (pp. 168-169), too, has legends of female practitioners and instructors. Again, it's difficult to verify these but they clearly show that the art isn't solely for men.

Many modern schools are open only to women or hold women-only classes. This is somewhat controversial. For artistic styles, it's of little consequence. For combat or self-defense styles that might be used against men, however, it's a valid argument that practicing only against women leaves out an essential element of training: employing techniques against opponents of the type you're likely to face in an actual conflict. Suggesting that a women-only school produces poor or incomplete martial artists is a good way to start a fight, though!

In the sports world, competitive Judo has a women's division that features many competitors at the Olympic level. Mixed martial arts and professional boxing and wrestling have women's tournaments, too, and participation levels have grown steadily. In Japan, local Kyudo (p. 181) and Kendo (p. 175) schools and clubs are co-ed, and women and men sometimes compete head-to-head.

Some Famous Martial Artists

Below are short biographies of some important figures from martial-arts history, arranged chronologically to give a sense of the evolution of the fighting arts.

Milo of Croton (6th Century B.C.)

Milo was born in the 6th century B.C. in the Greek colony of Croton, in southern Italy. A prodigiously strong wrestler, he rose to prominence at the 60th Olympic Games (540 B.C.). He won at least *32* major wrestling contests – including six Olympic crowns – over a career spanning more than two decades. His attempt to win a seventh crown failed when his younger opponent (also from Croton) made it a contest of endurance and refused to close with the more powerful Milo. Despite his age, his rivals still feared his massive strength!

Milo was famously strong and large – it's said that he carried a bull calf around on his shoulders daily to strengthen his muscles, finally eating the bull when it reached adulthood four years later. Due to this feat, some credit him as the father of progressive resistance exercise. Milo also performed feats of strength and balance. He challenged people to move him from a precarious perch atop an oiled discus, or to bend his fingers or arm, and could burst a band stretched around his temples by inhaling. Legend has it that Milo himself carried and placed the great bronze statue dedicated to his Olympic victories.

Detractors made Milo out to be a buffoon, a glutton, and a man who thought with his muscles. He wasn't simply a wrestler, though – some sources claim that he was a disciple of Pythagoras (and once saved his life by holding up a falling roof), a man of political influence, and a brave warrior respected by his fellow soldiers. According to legend, he died of hubris: finding a partially split tree stump held open by wedges, he tried to tear it apart with sheer strength but the wedges fell out and his hands were trapped. Helpless, he was devoured by wild beasts. This legendary death features prominently in the many statues and paintings immortalizing Milo.

Theogenes of Thasos (5th Century B.C.)

Born on the island of Thasos in the early 5th century B.C., Theogenes was a boxer and pankrationist of legendary skill. A full-time athlete, he traveled widely to compete. He purportedly won between 1,200 and 1,400 bouts. These included 23 major contests, among them two Olympic crowns – one in boxing, one in pankration – and a "double victory" at Isthmus (winning boxing *and* pankration in the same day). Some sources claim that he killed or disabled most of those he defeated. True or not, his rivals feared him: he won at least one boxing competition because his opponents chose to withdraw rather than face him!

Theogenes was famously arrogant, aggressive, and concerned with personal honor. He named his son "Diolympos" – "twice at Olympia" – to commemorate his Olympic victories. He also had a reputation for competitiveness, and once challenged his guests at a feast to fight him at pankration. Trying to win at both boxing and pankration at the 75th Olympiad, Theogenes lost to his best opponent only after exhausting him and forcing him to default in the final match. The judges felt that Theogenes had deliberately undercut his opponent's chances for victory, fined him one talent (enough to pay at least 6,000 soldiers for a day!), and sternly rebuked him. He apparently took this in stride, as he continued to compete for many years.

Upon his death, Theogenes was enshrined like a god, complete with a statue hollowed out to hold donations. This relic acquired a reputation for miraculous healing. Theogenes was one of the first professional martial artists – he built his career entirely around fighting in contests and lived off his prize money.

William Marshal (1146-1219)

William Marshal was born c. 1146, the son of John Marshal – a middle-class knight and tender of the king's horses. Squired to another knight at age 12, he was himself knighted just before battle at age 20. William fought ably in his first battle. He went on to fight in dozens of tournaments and melees, and was more often than not victorious.

William served under four English kings, including Henry II and Richard I. He once put down a rebellion by Richard while in the service of Henry, but Richard so admired William's valor and loyalty that he granted him lands and a command upon becoming king. William also went on a crusade to the Holy Lands, where he fought for five years.

William was a paragon of knighthood: humble, well-spoken, honorable, and a noted leader of men. He was loyal to his king, brave, and dedicated. He was also a terrifically skilled fighter, a loyal companion in battle (and in the taverns afterward!), and fond of jousts. Like most Western martial artists, he claimed no particular school or master. He was skilled with knightly weapons (sword, lance, and mace), an expert horseman, and – based on what's known of his time period – almost certainly an adept wrestler, capable of handling himself unarmed as well as armed.

William's fearsome combat skills apparently waned little with age. He fought in battles and tournaments, and put down rebellions against his lord, right up until his death. At age 73, he led a charge against rebelling knights. He took three dents to his helm and personally fought the rebel commanders hand-to-hand. He died not in battle but of natural causes.

Musashi Miyamoto (1584-1645)

Born in the village of Miyamoto, Mimasaka province, Japan in 1584, Shinmen Musashi no Kami Fujiwara no Genshin – better known as Musashi Miyamoto – was the son of a samurai with a long and honorable lineage. His father either left or was killed, and his mother died, leaving Musashi an orphan in the care of a local priest.

Musashi was a precocious martial artist. Large for his age and prone to violence, he slew his first man in single combat at age 13, throwing his sword-armed opponent to the ground and dashing in his head with a stick – foreshadowing a tactic for which he would later become famous. At age 16, he joined the Ashikaga army in their fight against Tokugawa Ieyasu at the battle of Sekigahara. Musashi chose the losing side but survived both the battle and the subsequent hunting down and massacre of the defeated army.

Musashi then began his "Warrior's Pilgrimage." He traveled around Japan, honing his sword skills and fighting anyone willing to meet him in mortal combat. He was utterly single-minded about the martial arts. He left his hair uncut and took neither a wife nor a job. His sole concern was perfecting his art, and he thought only of battle. It's said that he wouldn't bathe without his weapon close at hand, to prevent enemies from taking advantage. He was eccentric, and showed up to more than one duel so disheveled and behaving so oddly that it unnerved his foe.

Musashi fought in six wars and hundreds of single combats until about age 50. A legend in his own time, he features prominently in stories from all parts of Japan. For instance, practitioners of Jojutsu (p. 192) proudly tell the tale of how their founder *lost* to Musashi and went on to perfect a style so powerful that even Musashi couldn't defeat him!

After his pilgrimage, Musashi adopted a son and became a teacher, commander, and advisor at the court of a daimyo on Kyushu. He fought in even more battles, acted as a general and sword instructor, and took up painting and woodcarving. In his final years, he left the court and lived alone in the mountains, contemplating the ways of the sword and of strategy. Shortly before his death, he wrote *Go Rin No Sho,* or "A Book of Five Rings," in which he expounded that strategy and swordsmanship were identical.

Musashi is best known for the style of Kenjutsu (pp. 173-175) he created, *Hyoho Niten Ichi Ryu.* He felt that fighting exclusively with two hands on a single sword was limiting, and espoused fighting with long and short swords simultaneously. Musashi did not himself use actual swords often – his preferred weapon was the *bokken,* or wooden training sword. His record of success in duels leaves little room to debate its deadliness. Musashi even fought duels with improvised clubs made from tree branches or oars.

Musashi was a ferocious fighter in his youth, ruthlessly killing his foes regardless of age, skill, and social position. In his later years, though, he became less bloodthirsty and was widely regarded for his great skill in Kenjutsu, earning the name *Kensei,* or "sword saint."

George Silver (Late 16th/Early 17th Century)

George Silver was a Master of Defence in late 16th- and early 17th-century England. He's best known for his written attacks on foreign martial-arts masters – notably those teaching the popular new dueling weapon, the rapier. He wrote two treatises on the subject. *Paradoxes of Defence* was published in 1599. The manuscript for *Brief Instructions on My Paradoxes of Defence* remained in a museum collection until finally published in 1898.

Silver epitomized the Master of Defence. Of humble origins and by most accounts literate and well-spoken, he was a master of all of the requisite weapons of personal combat and war. He honed his skills with constant training and tested them against other masters in open matches. Silver was confident of his ability to defeat any foe with any combination of weapons. The Italian rapier masters teaching in England rebuffed or ignored his many challenges, however.

Silver felt that the rapier masters' emphasis on the thrust was dangerous thinking. He acknowledged that a thrust through the body could kill, but pointed out that it wasn't so immediately disabling that the victim couldn't return the favor before falling! He favored a weapon that could deal cuts severe enough to cripple an opponent's limbs, effectively neutralizing him. His writings are often strident defenses of a combat form on its way to becoming outmoded and unfashionable, but they're also the work of a true martial-arts master who sought to prepare his readers for battle in all its forms.

Wong Fei-Hung (1847-1924)

Wong Fei-Hung was a physician and martial artist in Canton province, China. He was born in 1847, the son of Wong Kei-Ying – one of the famous Ten Tigers of Canton, a group of top martial-arts masters. Wong Kei-Ying traced his own martial-arts lineage – from his sifu (master) to his sifu's sifu – back to the Shaolin Temple's scattered masters.

As a physician, Wong was known for his compassion and skill. He would treat any patient, rich or poor. As a martial artist, he was credited with developing the Tiger-Crane form of Hung Gar Kung Fu (p. 163). A political revolutionary as well, Wong participated in a mass protest against the governor of Fujian province, which was brutally crushed. He fled to Canton, where he married several times and lived a quiet life until his death in 1924.

After Wong's death, Woshi Shanren wrote a series of popular novels about his life. Wong was also the main character in many Peking Opera productions and over 100 movies. Many actors have portrayed him, including Kwan Tak-Hing (who played him in most of those movies), Jet Li, Sammo Hung, and Jackie Chan. Wong's abilities and deeds grew in the retelling. He became a full-fledged folk hero, credited with fighting off scheming Triads, defeating secret plots, and standing up for China against rampant European colonialism. His name is instantly recognizable in Chinese cinema – complete with a theme song, a statue in his honor, and still-growing legends of his exploits.

John L. Sullivan (1858-1918)

John Lawrence Sullivan was born to Irish immigrant parents in Boston, Massachusetts on October 12, 1858. By 1880, he had started fighting, first in exhibitions (usually with gloves) and then in prize rings (with gloves, kid gloves, or bare knuckles). At the time, prizefighting was illegal and promoters nonexistent. The fighters' backers put up the prize money and side bets. Spectators paid admission and a hat was passed to gather money for the fighters. Police often interrupted the bouts, which were as a result frequently staged in undisclosed locations (once even on a barge!).

Sullivan stood 5'10" and weighed just under 200 lbs. in fighting trim. He sported the long handlebar mustache of his era and wore his dark hair short to prevent hair-pulling in the ring. He was the stereotypical celebrity athlete. He drank heavily, womanized, and partied, and saved little for the future. He took crazy dares, shot off guns, and once even ran into a burning building to help salvage furniture. He could also be generous, offering money or goods to those in need.

Sullivan fought under the loose London Prize Ring rules, which featured untimed rounds and allowed standing grapples, throws, and bare knuckles; in fact, he was the last of the bare-knuckle champs. Later, he became the first prizefighter to accept the Marquess of Queensbury rules – the forerunner of today's boxing regulations. Whatever the rules, he wasn't a finesse fighter. He ran down his opponents with his famous bull-like rushes and defeated them with ferocious strength. He participated in 47 prize bouts, with a record of 43-3-1. He fought in a match in France and one in Canada, and in hundreds of exhibitions.

In 1889, just outside New Orleans, Sullivan fought in the last great bare-knuckle boxing championship. He accepted the bout while he wasn't in top form, and hired a noted wrestling and boxing coach to whip him into shape for the reported sum of $10,000! It was money well-spent. Sullivan knocked out his opponent, Jake Kilrain, after 75 brutal rounds under the London Prize Ring rules. This was also Sullivan's greatest moment; he lost his next bout to James J. Corbett, a young fighter known for a bobbing, weaving, and ducking style that would soon characterize all prizefighting. Although Sullivan would win one more bout under the Marquess of Queensbury rules, his career as a boxer was over.

Sullivan died of a heart attack on February 2, 1918.

Funakoshi Gichin (1868-1957)

Funakoshi Gichin was in many ways the father of the modern sport of Karate. Born in Okinawa in 1868, at the dawn of the Meiji Restoration, he was a small and weak child. One of his classmates was the son of a Te (pp. 169-170) instructor, and Funakoshi took lessons – at night and in secret, since instruction was still illegal. His health improved, and this turned out to be the first step in what would later become his way of life.

Funakoshi sat for and passed the entrance exams for medical school, but furor over his samurai-class topknot led him to withdraw his application. He later cut off his topknot and became a schoolteacher, drawing on his early education in Chinese classics. Funakoshi continued to study martial arts at night under Azato Yasutsune. Azato was strict, requiring his student to repeat the same kata or drill until it was mastered before moving on to the next. Funakoshi went on to learn from several of Okinawa's top Te instructors.

In 1922, Funakoshi came to Japan as an official ambassador for Karate. He founded a dojo and called it and the style he taught there Shotokan (p. 170), after a nom de plume he used for his poetry (Shoto, or "Pine Wave").

Funakoshi was a great believer in the power of Te and the benefits of Karate as healthy exercise, and attempted to spread the practice of the martial arts to all. He was peaceful, and taught that the martial arts should only be used for self-defense – and even then, only when one's life was in danger. He had little tolerance for exaggerated techniques or myths about "fatal blows," and regarded "iron hand" training as bunk.

Funakoshi constantly refined and improved his style. He believed that each instructor should teach his own way and encouraged a diversity of Karate styles. Indeed, Shotokan is the forerunner of many modern Karate styles – including Kyokushin (pp. 171-172), founded by Funakoshi's student Mas Oyama (p. 24). Funakoshi died in 1957.

Ghulam Muhammad ("Gama") (1878-1960)

Ghulam Muhammad – better known as "The Lion of the Punjab" or simply "Gama" – was born in 1878 to Kashmiri parents in what was then India. Both he and his brother, Imam Bux, became wrestlers. Despite being a Muslim, Gama was accepted into Indian wrestling circles thanks to his enormous skill and power. By age 19, he stood 5'7" and weighed 200 lbs. He fought numerous matches against Indian opponents, defeating or drawing against them all and eventually defeating those capable of drawing against him.

In 1910 (some sources say 1908), Gama traveled to Europe to wrestle. He engaged in several catch-as-catch-can wrestling matches against the best grapplers he could find. These included the 234-lb. American B.F. "Doc" Roller and the 254-lb. Pole Stanislaus "Stanley" Zbyszko. Zbyszko was unable to take the offensive but his weight advantage allowed him to sustain a draw after a match that lasted over two and a half hours. He didn't show for the decision match, so Gama won the John Bull Belt by default.

Gama returned to India, where he had become a celebrity. He met all comers, reigning undefeated as world champion. Zbyszko fought Gama again in 1928 – this time in a traditional Indian dirt pit. Gama quickly disposed of him, throwing him in only six seconds and winning in 42 seconds.

Gama's strength and endurance were legendary. Every day, he would rise hours before dawn – common practice for Indian wrestlers – and begin his routine of 2,000 *dands* (a kind of pushup) and 4,000 *baithaks* (deep knee bends). His skill was equally fearsome: few could take the offensive in matches against him, and those who tried lost more quickly than those who chose to delay. His combination of power, stamina, and ability was unmatched.

Gama continued to wrestle until the India-Pakistan partition of 1947. He moved to Pakistan, losing his wealth, trophies, and state pension. He was unable to wrestle against champions because of the bitter political and religious divide the partition created. He died in 1960.

William E. Fairbairn (1885-1960)

William Ewart Fairbairn was born in England in 1885. He served in the Royal Marine Light Infantry from 1901 to 1907. Upon leaving the military, he joined the Shanghai Municipal Police.

In China, Fairbairn came into contact with Chinese and Japanese martial arts. As part of a SWAT-style "flying squad" called in to deal with troublemakers on a routine basis, he was able to put his training to immediate, practical use. Police records document his personal involvement in over *600* altercations! Despite his famous toughness, Fairbairn didn't escape unscathed – in fact, he once survived a beating by Triad hatchet men who left him for dead. This merely encouraged him to further develop his unarmed-combat abilities. He trained his men in "Defendu" – his own style, stripped down for quick instruction and effectiveness. In 1940, he retired from his post.

During World War II, Fairbairn was recruited to teach hand-to-hand combat to U.S. and British commandos, and to members of the OSS. Fairbairn and Eric Anthony Sykes (another member of Fairbairn's Shanghai squad) developed a system of sentry removal and quick, ruthless tactics for dealing with German troops. They also developed a knife – the Sykes-Fairbairn commando knife – for use with their style. Colonel Rex Applegate of the OSS contributed to their style, too, as well as to the pistol, submachine gun, and rifle training used by these special-operations troops. Some of Fairbairn's teachings were published in the book *Get Tough*. Fairbairn died in 1960.

Oyama Masutatsu ("Mas Oyama") (1923-1994)

Oyama Masutatsu was born Yong I-Choi in Korea in 1923. At age 15, he moved to Japan, hoping to become a military pilot. Life as a Korean in Japan was difficult, though, and his dreams of aviation fell away. He took the name Oyama after the family he lived with and began to train in Karate under Funakoshi Gichin (p. 23). He made rapid progress, having trained in Chinese martial arts while in Korea. He was a *nidan* (second-degree black belt) by age 18, when he joined the military.

After World War II, Oyama started to study Goju Ryu (pp. 170-171). He also took up Judo (p. 166), achieving *yondan* (fourth-degree black belt) after only four years. Oyama's life changed yet again after killing a knife-wielding attacker with a single strike to the head. Taking a life left him distraught. He supported the dead man's widow and children by working on their farm until they were able to take care of themselves. He then retreated into the mountains for a year and a half, meditating and developing his martial arts in constant training.

Oyama returned to civilization in time to win the first Japan-wide Karate tournament. In 1952, he toured the U.S. for a year, meeting all challengers, from all styles. He fought 270 matches, winning most with a single, well-placed blow. Oyama believed that fancy techniques and stances were secondary to power, and both his kicks and punches were strong. Word had it that if you failed to block him, you were defeated . . . but if you *did* block him, your arm was broken! For his incredible punching power, he became known as the "Godhand."

Oyama is also famous for bullfighting, although not in the traditional sense – he fought bulls barehanded, pitting his Karate against their brute strength. It's said that he fought 52 bulls in total, killing three and striking off the horns of most of the others using only his hands. In 1957, he fought a bull in a public match in Mexico. The bull gored Oyama but he got off its horns . . . and then removed one of them with a sword-hand strike. Oyama was bedridden for six months, but upon recovery returned to fighting bulls and practicing the martial arts.

Oyama founded Kyokushin (pp. 171-172) *karate-do* and established its first official dojo in 1956. Prior to this, he and fellow stylists gathered in a Tokyo field to practice with few holds barred, using open hands or towel-wrapped fists. Injuries were common and the dropout rate was prodigious. Over the years, Kyokushin has spread worldwide. Its training isn't nearly as brutal as Oyama's early classes, but it still has a well-deserved reputation for turning out tough martial artists.

Oyama died from lung cancer in 1994.

Bruce Lee (1940-1973)

Bruce Lee was born in San Francisco, California in 1940. His father – a popular entertainer – was in the U.S. to appear in a play. Bruce grew up in Hong Kong, however. By most accounts he was a good kid, if rambunctious; playful, but also hot-tempered and competitive. In his teens, he demonstrated ability as a dancer, winning a Hong Kong-wide cha-cha competition.

Bruce's introduction to the martial arts came from his father, who practiced T'ai Chi Chuan (pp. 200-201). Bruce preferred the more direct art of Wing Chun (pp. 203-204), and started training with Yip Man – an instructor from a long line of instructors. A talented and enthusiastic martial-arts student, Bruce also boxed for his high school. His temper got him into a lot of less-decorous fights with other teens around town, however. He often fought in full-contact challenge matches held on rooftops or in alleyways, against both armed and unarmed foes. It was a run-in with the police for fighting that convinced his family to send him to the U.S. to finish school. He arrived in America in 1959. In 1964, while at college in Seattle, Washington, he married Linda Emery, one of his kung fu students.

Soon after, Bruce began to teach martial arts full-time, opening what would become a chain of three schools. He had to turn away would-be students despite his high rates! He trained those of either sex and of any racial background. This caused quite a stir in the local Chinese community. A group of instructors offered Lee a formal challenge: cease teaching non-Chinese or face a duel. Bruce chose the duel and won handily, chasing his opponent around the room until he could force him to submit. Lee's students eventually included Kareem Abdul-Jabbar (seen in *Game of Death*), Lee Marvin, James Coburn, and Dan Inosanto.

After his duel, Bruce was unhappy. He had won but felt that his style had been too inefficient to let him win as quickly as he should have. This led him to develop a more streamlined method of fighting, which became known as Jeet Kune Do (pp. 164-165): "the way of the intercepting fist." Bruce drew on all of his martial-arts knowledge – boxing, fencing, and especially Wing Chun – to develop his art. He eventually closed his schools because he felt that they were leading to a rigid style instead of the adaptive process he sought to create.

Lee was a fanatical martial artist and an enthusiastic weightlifter, and jogged or ran daily. He also read books on martial arts, weight training, running, and anatomy. Never satisfied with his progress, he pushed himself and constantly sought out ways to work more efficiently. He paid a price for this enthusiasm: while doing a set of heavy back exercises without a proper warm up, he injured his sacral nerve. This sent him to the hospital and threatened to end his training permanently. Undaunted, Bruce spent his time in the hospital filling notebook after notebook with thoughts on the martial arts. In 1975, these notes would see posthumous publication as *The Tao of Jeet Kune Do*.

Hollywood discovered Bruce Lee in 1966, while he was demonstrating his art at a Karate tournament. He was cast as "Kato" on the television show *The Green Hornet*. This wasn't Lee's first acting experience. From age six until his late teens, Bruce had acted in Hong Kong films. Lee found it hard to make an impact in Hollywood, though – the film business there was resistant to the idea of a Chinese star. He eventually moved to Hong Kong to make movies with Golden Harvest Productions.

In Hong Kong, Lee was a tremendous success. His first movie, *The Big Boss* (called *Fists of Fury* in the U.S.), smashed all Hong Kong box-office records. Each of his two subsequent films, *Fists of Fury* (known as *The Chinese Connection* in America) and *Way of the Dragon* (titled *Return of the Dragon* in the U.S.), outdid the previous one. He did the fight scenes for a film to be called *The Game of Death* before a bigger project came along – *Enter the Dragon*.

Near the peak of his fame, just after *Enter the Dragon* was filmed, Bruce Lee died suddenly. Suffering from a severe headache while visiting a friend, he took medication, laid down for a nap, and died in his sleep. Rumors were rife that his death was caused by poison, a drug overdose, or rival martial artists using secret "hand of death" techniques. The truth is more prosaic: the headache remedy he took triggered a cerebral edema, killing him. He had previously had a scare and a hospital visit for a similar drug reaction, but neither Bruce nor the friend who gave him the medication realized that it contained ingredients to which Lee was allergic.

After Lee's death, his popularity hit an all-time high. *Enter the Dragon* launched the action-movie genre, and interest exploded in Chinese martial arts and Asian martial arts in general. Hong Kong and Hollywood alike sought "the next Bruce Lee" but found no one who could match his on-screen charisma, fantastic fitness, and sheer skill. To this day, Lee memorabilia, books, and movies continue to sell. His legacy of influence over the martial arts in America is immeasurable.

Bruce's son, Brandon, was on his way to modest movie stardom of his own when he suffered an untimely death on the set of *The Crow*. Brandon was shot dead by a gun that was supposed to be firing blanks. While indisputably an accident, his death rekindled conspiracy theories about Secret Masters or angry Chinese martial artists out to destroy Bruce Lee and his legacy.

Bruce is survived by his wife, Linda, and their daughter, Shannon.

Myths and Misconceptions

Myths and misconceptions heavily influence "common wisdom" about the martial arts. This comes as no surprise – the martial-arts world itself is full of unverifiable legends, misinformed students, wild claims, and bad data!

Boards Don't Hit Back

Tameshiwari is the art of using unarmed strikes to break things: boards, roofing tiles, blocks of ice, and even stones. It sometimes includes breaking *flaming* boards, shearing off the tops of beer bottles, and snuffing candles with the force of a blow. Tameshiwari is inextricably linked with Karate in the public mind – especially since many schools use it in flashy demonstrations and promotions. In reality, it's a minor, fairly impractical aspect of the martial arts.

Tameshiwari normally takes place under highly controlled conditions. Practitioners carefully select wood – most often pine – that is free of knots and has a clear grain. They choose tiles made of pottery known for its breakability and the fact that it doesn't shatter into sharp, hand-shredding shards. There are many tricks involved, too – some of them legitimate "training wheels" for beginners, others the tools of unscrupulous showoffs. These include drying or baking boards to remove springiness; separating multiple boards with spacers to make them easier to break; and shaving ice blocks in half and re-freezing them with rock salt between the halves to conceal the flaw.

Tameshiwari isn't purely for show, though. Karate masters often teach their students to pull their punches and kicks in practice, to prevent injury. Tameshiwari represents an opportunity to strike at full-force and prepare for actual contact.

> *NEVER FIGHT UNARMED BY CHOICE*
> *– Ned Beaumont,* ***Kill-As-Catch-Can***

Asian styles aren't the only ones to emphasize showy techniques. Greek wrestlers were fond of demonstrating their strength, balance, and dexterity. To show off their ability without fighting, they would break rocks, stand on a greased shield while people tried to dislodge them, and so on. More recently, Western circus wrestlers and boxers took on all comers and paid out prizes to those who could stand against them.

Don't Bring a Fist to a Knife Fight

In the real world, fists are no match for weapons. If an unarmed martial artist faces sticks, knives, swords, etc., he'll probably lose. Even if he's victorious, he's liable to be wounded.

Bad Reenactments

A problem hardly unique to the martial arts is that of bad reenactments. Simply put, these are demonstrations of martial skills that don't actually prove what they set out to establish. Most take one of two forms: the deliberately staged event or bad science.

Deliberately staged events are pure showmanship – whether to entertain or to deceive – by masters who claim chi powers, incredible speed or skill, or other special abilities. Such demonstrations *seem* to occur under "real-life" conditions but actually involve prepared props and/or subjects trained or coached by the master, typically in carefully engineered situations. Swords thrust into an iron throat might be flimsy "thunder blades" designed for showy looks and safety. Boards struck by a "power blow" might be baked to remove moisture, meaning they'll snap under minimal pressure. The master might "knock out" cooperative students using pressure-point strikes or "push" them across the room using his chi powers. And so on.

Bad science involves a methodical effort to prove or disprove a claim without genuine scientific rigor. If the objective is to demonstrate the impracticality of a technique, the weapons used might be inappropriate (e.g., a cheap replica) or wielded incorrectly (e.g., using a broadsword with katana techniques). A test of chi powers might lack any kind of control group. A computer model that "proves" that certain martial-arts techniques can snap ribs or break necks with ease might assume impossibly ideal conditions. Such exercises often lack proper attention to the sources, making it easier to pass off flimsy claims and inaccurate numbers as true.

Both types of bad reenactment help perpetuate false claims about the martial arts. Even successfully debunked myths can enjoy incredible vitality. Martial arts mythology is *resilient* . . . mostly because people *want* to believe in it!

GURPS reflects this reality. An armed fighter who parries a barehanded attack can injure his attacker (p. B376). An unarmed warrior who slugs a shield due to a successful block, or who strikes armor thanks to a *failed* defense, can hurt himself (p. B379). If these outcomes don't seem severe enough, the GM can use *Harsh Realism for Unarmed Fighters* (p. 124) to raise the stakes. Because weapons don't suffer these drawbacks – and enjoy superior reach, swing damage, and/or wounding modifiers – a weaponless fighter needs to be far more skilled (and *lucky*) than an armed opponent to win unscathed.

Martial-arts *fiction* doesn't always work this way. It often seems as if the bad guy who brings weapons to a fight ends up *more* vulnerable to the heroes' punches and kicks! Armed flunkies serve only to give the heroes a chance to show off by deflecting arrows, snapping swords, and dodging ill-timed spear thrusts. Archvillains and important henchmen who wield weapons against unarmed heroes fare better – but the finale inevitably comes down to fists and feet. Those who enjoy this genre convention should consider using *Unarmed Etiquette* (p. 132).

Movies where the heroes themselves are armed are an exception. *Chambara* movies delight in showing swordsmen gruesomely carving up unarmed foes, and *wuxia* movies often center on swordfighting. What matters is a fair contest – both sides armed or unarmed. And if an armed hero is disarmed and must fight barehanded, he'll certainly be victorious.

When Do I Learn Weapons?

Traditional martial arts either focused entirely on armed combat, emphasized barehanded techniques but included some weapons training, or balanced the two. European masters included wrestling in their armed styles. Filipino masters regarded sticks and knives as training tools, and taught advanced students the same techniques with bare hands. Only ancient sports styles minimized weapons training – and even then, the participants, being able-bodied men, were expected to be adept at another, weapon-dominated style for war. In short, it's historically inaccurate to segregate weapons from unarmed combat. Even today, there are parts of the world where it's best to assume that martial artists are armed!

This doesn't prevent modern schools – especially those that teach art or sport forms – from reserving weapons training for top students, or restricting it to tournaments and demonstrations. Reasons for this include philosophy ("master your body first"), cost (weapons are *expensive*), and safety (even the "safest" training weapons are more dangerous than bare hands). If a style is entirely weapon-based, it's likely to be purely an art or sport form; e.g., Épée (p. 160) or Kyudo (p. 181).

Even so, most modern military and police styles – and some weapon-based styles – *do* train in realistic conditions. Practitioners accept injuries as the cost of realism!

And "martial-arts weapons" capture the popular imagination from time to time even among those with *no* training. Witness the nunchaku fad of the '70s or the obsession with "ninja weapons" in the '80s. This fascination sometimes leads to weapons training in styles that weren't meant to use weapons.

Martial Arts and the Law

The martial arts – armed and unarmed – have had an interesting relationship with the law since the earliest days of both. At various points in history, certain regions have enforced laws restricting martial-arts training by class or by sex; banning weapons partly or completely; and even forbidding *unarmed* training.

In the modern world, unarmed fighting skills are rarely regulated. The *use* of fighting skills can sometimes result in difficulties with the law, though. As well, a jurisdiction that puts severe limits on the possession and use of firearms or knives is likely to extend those restrictions to "martial-arts weapons" – although one can usually carry them to and from martial-arts class unchallenged.

Martial Arts in Court

Contrary to longstanding urban legend, black belts *don't* have to register their hands as deadly weapons. This myth is traceable to publicity stunts before professional boxing matches and to outlandish claims made in the movies. Nowhere in the modern world is there a legal requirement for trained martial artists to register with the authorities.

Martial-arts experience *can* influence the case against a defendant on trial for a violent crime, though. If he's a martial artist, he can expect investigators to bring up his background in an attempt to show that he had the training to cause harm – or the knowledge and experience to show restraint. Major considerations include whether the initial attack was provoked, whether either party acted in self-defense, and whether the martial artist used "reasonable force." Most jurisdictions allow lethal force only if a life is at stake. In the U.S., there's precedent for considering an attacker's martial-arts training in a self-defense claim; a court could even find that someone who shot an unarmed assailant he knew to be martial-arts master was acting in "self-defense." On the other side of the coin, muggers have brought assault charges against victims who've fought them off – and the more injured they look in the witness box, the better the chance of convincing a jury.

In the eyes of the law, the best policy is to avoid a fight. If you can't, then "reasonable force" – such as restraining your attacker without harming him – is second-best. In such a situation, the police might opt not to intervene or simply to send everybody home: no harm, no foul. Unnecessary force – for instance, striking a drunk and stomping him after he hits the ground, or using any weapon against an unarmed man – is an excellent way to attract *serious* police attention in even relatively lawless parts. Macho posturing isn't a great way to avoid legal trouble, either. Remarks such as "Even with that knife, he didn't have a chance against me!" and "I could kill a guy in three seconds flat!" aren't conducive to a successful defense.

Ultimately, the police, magistrates, judges, jury, etc., who examine the events leading up to a fight or an assault may or may not see things from the martial artist's perspective . . . and it's *their* judgment that counts. Lethal force or even unnecessary nonlethal force can mean prison time. The GM should keep all this in mind if the PCs in a modern-day campaign get too "karate happy."

These considerations might not apply in historical or fictional settings. In some game worlds, the nobility might possess absolute, life-and-death power over commoners. A commoner striking a noble, however lightly, might receive a death sentence. A noble killing a commoner to test his new sword technique might be guilty only of showing off – or at most of damaging another noble's property by slaying a valuable peasant.

Teaching

Through most of history, all that a would-be teacher *needed* was the will to hang out a shingle. Instructors thus varied greatly in terms of skill, teaching ability, enthusiasm, and fees. Of course, if dueling was legal, the unskilled were unlikely to risk claiming mastery unless the money was excellent. But where dueling was illegal or looked down upon, and the martial arts rarely saw use in anger, false masters flourished alongside true ones.

In some times and places, though, martial artists *did* require a license to teach. For instance, in medieval and Renaissance Europe, those who wished to sell instruction sometimes needed a royal charter – which in turn required them to produce certification of their mastery. No such legal requirements exist today, but modern fighters must often join a federation or an organizing body in order to compete.

Separate from the issue of "who's a master" is the matter of injury – physical, psychological, or social. Historically, if a student suffered injury or was shown to be less skillful than his reputation demanded, the master could lose noble patronage or social approval. The teacher might face the law if he *struck* a social superior – even in training. Worries of modern teachers include insurance, lawsuits (for injury or harassment), half-hearted students, and concerned parents. Any of these things could lead to watered-down techniques, emphasis on Combat Art skills, and non-contact training.

Lastly, an instructor might not wish to teach just anyone lethal techniques for fear that an irresponsible student might use them unnecessarily, resulting in legal consequences! This was a serious concern for historical masters, and a realistic (and relatively benign) reason to apply the "Trained by a Fraud" lens (p. 145) to a style.

Style™

The names of many martial-arts styles – e.g., Hwa Rang Do (pp. 163-164) and Shorinjikempo (see *Kempo,* pp. 172-173) – and schools (such as Dog Brothers Martial Arts, mentioned under *Escrima,* pp. 155-156) are *trademarked.* ***Martial Arts*** doesn't append the trademark sign (™) because this isn't a legal requirement for a game. What the law *does* require is that those who sell martial-arts instruction under these names have the trademark-holder's permission.

There's a good reason for this. Historically, the first fake teacher probably set up shop 15 minutes after the first real one. Today's laws protect business from this kind of theft. Of course, a trademark sign says nothing about the quality of the *martial art.* Trademark law protects the fraud who wants to keep competing scam artists off his turf as well (or as poorly) as it protects the true master.

Historical style founders would have adopted trademarks if they could have – especially the frauds! Such self-promoters as E.W. Barton-Wright (see *Bartitsu,* p. 167) would have appreciated the veneer of legitimacy that a legal trademark provided back when such things still impressed the masses. In the absence of such protection, warrior and swindler alike had to resort to more direct action if they wished to defend against misuse of their good (or at least *popular*) name . . .

Chapter Two
Characters

*Jon Gilbey shouted, "No, Adrian. The **high** guard!" Less loudly, "Whatever possessed me to teach a girl?"*

Adrian smiled sweetly and repositioned her splintery waster. "The fact that Tom would teach me if you would not?"

Jon blushed and then focused on the business at hand. "Here we go," he said, swinging his wooden blade. "One, two, three!"

Adrian parried expertly.

*Jon nodded approvingly. "Again! One, two – **ow!**"*

Adrian's weapon snaked past Jon's and knocked him on the head. Adrian smiled again. "You said not to be predictable."

Jon rubbed his head. "Oh, you aren't. I wonder often which of us is the teacher here."

Any adventurer might know a few combat skills and be a capable fighter, but these things alone don't make him a martial artist. A true martial artist strives to master a *system* of fighting arts. He's dedicated to physical, mental, and possibly spiritual self-improvement in pursuit of that goal. He probably started training as a youth and has devoted far more than just his free time to learning and practicing his craft since then.

Such a lifestyle is usually only practical for those who are cloistered . . . or skilled enough to work as professional fighters, coaches, or instructors . . . or fortunate enough to be independently wealthy or have a generous patron. To hold a normal job and still be an accomplished and recognized martial artist requires almost fanatical determination! In game terms, the GM would be within his rights to forbid Laziness to such characters, require high Will, and perhaps even make one or more of Fanaticism, Obsession, and Workaholic *mandatory*.

On the other hand, law enforcers, soldiers, and others in occupations that bring them into contact with physically hostile individuals commonly learn to fight as part of their job. And *anyone* might take self-defense lessons or practice a sportive martial art to stay in shape. Such people aren't full-time martial artists like those discussed above, but they can justify being familiar with a fighting style and knowing its core skills and techniques – especially since their teachers often *are* career martial artists, supporting themselves by tutoring.

Martial Arts supports both kinds of characters. The difference has to do with focus, not with who would win in a fight. A career martial artist should put most of his points into ST, DX, HT, physical advantages, and his style's skills and techniques. A part-time student can certainly be in similar physical shape. He might be a good fighter, too – maybe *better* than a dedicated athlete, when it comes to playing for keeps. He'll have fewer points in martial-arts abilities, though, and probably *no* points in his style's cinematic or optional traits (see Chapter 5).

Power Level

The power levels discussed on p. B487 remain valid for both part-time and full-time martial artists. Some guidelines:

Feeble (under 25 points): No successful career martial artist will have so few points! Those in other professions will need their points for job skills – they won't have enough left over for martial-arts abilities. This level best suits the legions of hopeless goons that action heroes wade through in martial-arts movies.

Average (25-50 points): Too low for a dedicated martial artist other than a youth who's just starting out. "Ordinary folks" at this level can spare a point or two for martial-arts lessons, but dangerous occupations that include martial arts as on-the-job training remain out of reach.

Competent (50-75 points): This is probably the lowest level where a dedicated martial artist can work as an adventurer – and only if he takes a few disadvantages and focuses exclusively on the martial arts. Green military or police recruits will have enough points to cover their basic job skills and still learn the rudiments of a martial art.

Exceptional (75-100 points): At this level, it's possible to create a respectable career martial artist, although being a "star" requires extra points from disadvantages and leaves little room for other skills. A cop, soldier, etc., could be good at his job and have enough points left over to be competent at the martial arts, too.

Heroic (100-200 points): Most famous real-world martial artists are at this level. If they focus on the martial arts, they'll be *very* good – but many spread their points across abilities useful for acting, teaching, or writing. Individuals in other professions will have enough points to perform solidly at a job *and* a martial art. This level is ideal for realistic ***Martial Arts*** games. It lets the PCs be capable without being godlike or one-dimensional.

Larger-than-Life (200-300 points): As the ***Basic Set*** says, this level suits the leading roles in kung fu movies! Those with ordinary jobs can afford to be world-class in their field *and* heroic martial artists. Both character types are only borderline-realistic, but this is a good starting level for cinematic ***Martial Arts*** games and action-movie campaigns.

Legendary (300-500 points): Any character who starts out this powerful and has more than a few points in martial-arts skills will be an adept martial artist – even if ostensibly something else – unless intentionally designed to be physically incompetent. This level is suitable for style founders and the heroes of *wuxia* and *chambara* movies.

Superhuman/Godlike (500+ points): This is the realm of comics and video games, where "martial arts" is often code for "super-powers." Superhuman attributes and exotic advantages don't *have* to overshadow skills, though. By requiring the PCs to spend their many points on believable attribute levels and mundane traits, with the only exceptions being cinematic martial-arts skills and the special advantages in this chapter, the GM can run a campaign that's truly superheroic but nothing like "mutants in tights."

Realism Level

Few fields are as fertile ground for extravagant claims as the martial arts. Such claims, in turn, drive skeptics to doubt even believable, well-documented feats, further obscuring matters. Fortunately, the GM has the final say about what's "real" in *his* campaign – which is as important as the power level.

Realistic Martial Artists

Realistic martial artists are limited to normal human abilities. Attribute scores above 15 should be rare – and DX, IQ, and HT can't exceed 20 in any event. ST *might* go past 20, but the GM may restrict such scores to practitioners of styles that emphasize bulk (e.g., *Sumo,* pp. 198-199). The GM should strictly enforce secondary characteristic limits, too:

- HP and FP can't vary by more than 30% of ST and HT, respectively.
- Will and Per can't exceed 20 or be lowered by more than four levels.
- Basic Speed must stay within ±2.00 of its calculated value.
- Basic Move must remain within ±3 yards/second of *its* base value.

Only *mundane* advantages and disadvantages are allowed; those labeled exotic or supernatural are off-limits. Mundane traits described as "cinematic" – Enhanced Defenses, Gadgeteer, Gizmos, Gunslinger, Rapier Wit, Trained by a Master, Weapon Master, etc. – are also forbidden. The GM might even wish to rule out such borderline-supernatural advantages as Danger Sense, Daredevil, Empathy, Luck, and Serendipity.

The above restrictions weaken somewhat in TL8+ campaigns. Steroids, surgery, and so on can grant "superhuman" physical abilities even in realistic settings. ***GURPS Bio-Tech*** is indispensable for such games.

Realistic PCs can't learn skills that have prohibited advantages as prerequisites. This eliminates all cinematic martial-arts skills (for a list, see *Trained by a Master,* p. 48) and magic spells. It would be reasonable to forbid skills that produce supernatural effects, too, such as Alchemy, Enthrallment, Exorcism, Herb Lore, Musical Influence, and Ritual Magic.

Realistic martial artists can have any point total the GM likes . . . but as suggested under *Power Level* (above), anything over 200 points verges on unrealistic. A fighter with 250 or more points in purely realistic abilities *won't* seem realistic in play! He'll be a "combat monster" whose extreme attribute and skill levels let him duplicate the effects of cinematic abilities through brute force.

Even at low power levels, *believable* martial artists should spend their points evenly on all of their style's skills, not just on those useful in a fight. Unless they're cops, street fighters, or soldiers, they're liable to have Combat Art or Sport skills rather than combat skills, and are highly unlikely to have Combat Reflexes. There's no special reason to let high-tech martial artists capitalize on their typically high DX to have awesome Guns skills, either – not unless they're police or military sharpshooters. If the players want to play lethal fighters above all, consider running a cinematic campaign!

Beginning Students as PCs

The guidelines in this chapter assume that the PCs are experienced fighters, but it can be fun to play martial artists who are just starting out. If *all* the PCs are students, the GM may require everyone to start with the *Student* template (pp. 38-40) – or his own variation on it – and study the same style under a common master. Whatever ground rules the GM sets, the heroes should be low-powered. As the template suggests, 75 points is typical. Anything over 100 points is cinematic . . . for a student.

The fun of student PCs is that the players get to see them grow during play, painstakingly advancing in ability as they adventure. From a game-mechanical standpoint, the gradual introduction of new abilities and the associated optional combat rules enables players who are unfamiliar with ***Martial Arts*** to learn the rules in play. How *quickly* the students develop their skills is up to the GM.

If the GM religiously enforces *Improvement Through Study* (p. B292) and requires that even earned points be spent at the rates given there, it will take the students *many* game sessions to master their style. Since campaigns often don't last that long and because many players only enjoy the "absolute beginners" theme in small doses, the GM should consider using *Intensive Training* (p. B293) to keep things interesting. This isn't the only option, though – even if it's the most realistic one. The GM may let the heroes learn as described in *The Training Sequence* (p. 147), which abstracts long, possibly realistic training times as a die roll and a few minutes of play. In a cinematic game, the GM might even let the players spend earned points to increase their skills without pausing to train at all!

Alternatively, the students might be otherwise competent at their careers but beginners at the martial arts. The only limit on such PCs is that they can't have more points in their martial-arts abilities than indicated on the *Student* template. The heroes might even know *nothing* about the martial arts, in which case they must learn them in play – see *Learning New Styles During Play* (pp. 146-147). This is another good place for a training sequence; e.g., for spies learning to be ninja in a week . . .

Cinematic Martial Artists

Cinematic martial artists are free of some, most, or all of the limitations just described for realistic martial artists. The GM decides how far to go.

The simplest option is to permit no superhuman abilities other than Heroic Archer, Trained by a Master, Weapon Master, and cinematic skills. At low power levels, this can feel more authentic than a high-powered "realistic" campaign. For instance, many people find it easier to accept that an aged (and presumably skilled) martial-arts master with ST 10 can break boards using Breaking Blow than that a youthful warrior can have ST 20 – even if the latter is realistic by the letter of the rules. This treatment suits settings where the world looks like ours and anything unusual is hidden away in monasteries, rarely seen outside secret battles between masters.

To get a feel closer to a swashbuckling or sword-and-sorcery tale, allow superhuman attribute, secondary characteristic, and skill levels – and perhaps one or two levels of an exotic advantage like Damage Resistance or Striking Strength – but *not* cinematic skills. The heroes' feats are larger-than-life because the PCs are extraordinary raw material. There's nothing mystical afoot. The strong man has ST 25, not Power Blow. The rapier fighter can strike twice per second because his skill is high enough to absorb the -6 for Rapid Strike, not because Trained by a Master lets him halve the penalty. And so on.

Allowing all of the above – and most of the cinematic advantages under *Advantages* (pp. 42-53) besides – brings the campaign closer to a *wuxia* or *chambara* movie. Still, the heroes are limited to abilities from traditional martial-arts myth. They fly by projecting chi using Flying Leap. Their fists have DR because they punched iron for 10 years. They don't possess super-powers. They're *legendary* martial artists . . . but they're still *martial artists.*

Throwing in exotic and supernatural advantages in general turns the campaign into a video game or superhero comic book that's only loosely martial arts-based. The heroes *do* possess super-powers – they fly, shoot fire from their fists, and have skin that turns bullets. The players in such a "four-color" or "over-the-top" campaign will probably want access to ***GURPS Powers*** as well as ***Martial Arts*** when creating their PCs!

Like their realistic brethren, cinematic martial artists can have any point total the GM likes. The availability of flashy, *expensive* abilities means that the cinematic style of play works best at generous power levels – probably over 200 points, perhaps higher – but a cinematic campaign doesn't have to be high-powered. "Cinematic" has more to do with attitude than with cool powers. The GM should read *The Cinematic Campaign* (p. B488) and require the players to do the same. There's no denying the link between "high-powered" and "cinematic" in martial-arts games, though. At a sufficiently high power level, even a campaign that permits *no* special abilities will seem cinematic!

Character Templates

Below are templates for character types especially suitable as PCs in ***Martial Arts*** games. To use a template, simply pay its point cost, choose any options left open on the template, and note what abilities this gives you. To customize your PC, spend your remaining points – and any additional points from quirks or personal disadvantages – on whatever you like (subject to GM approval). See *How to Use Character Templates* (p. B258) for details.

Each template sets aside points for a martial-arts style but *doesn't* list the individual abilities to spend them on. To customize the character, choose a style from Chapter 5 and spend these reserved points on its components, as explained under *Components of a Style* (pp. 141-143). The template's "Customization Notes" section suggests especially suitable styles, along with appropriate "style lenses" from *Choosing a Style* (pp. 144-146).

Only *Contender* (p. 32), *Instructor* (pp. 34-35), *Monk* (p. 36), and *Student* (pp. 38-39) portray "career" martial artists. All of the remaining templates give traits for heroes who work at occupations where martial-art experience could be useful. These don't depict *typical* members of those professions, but unusual people who've chosen to invest a lot of time in martial-arts training, either for reasons of personal philosophy or to impress potential employers.

Stiletto

The base templates assume a 100- to 150-point realistic game. However, each has one or two "lenses" that convert it into a template suitable for a 200- to 250-point cinematic campaign. The GM should use the higher end of these point ranges if he wants the PCs to be naturally gifted *and* well-trained, as the templates keep attributes modest (between 10 and 13) and focus on skills. As well, the *Instructor* template is intended for a master – someone who is by definition better than most martial artists – and calls for closer to 200 points in a realistic game or 300 points in a cinematic one.

Remember that templates are neither required nor prescriptive. You can use them "as is," alter them, or ignore them and create a PC from whole cloth. But even if you choose to ignore them, they're worth skimming for *ideas* that could help you with your character concept.

Assassin

100 points

You're a silent killer. You might be a ninja, a government agent, a hired hit man, or a dangerous nutcase with an agenda. Whatever your motivations, you've chosen the martial arts as your tool. Unarmed combat is valuable for taking out targets that would never let a weapon get near, while "traditional" weapons – bows, knives, etc. – are quieter and less random than firearms or explosives. The trick is to get close enough . . . and you're an expert at that.

Attributes: ST 10 [0]; DX 12 [40]; IQ 12 [40]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 12 [0]; Per 12 [0]; FP 10 [0]; Basic Speed 5.50 [0]; Basic Move 5 [0].

Advantages: 20 points chosen from among DX +1 [20], IQ +1 [20], Per +1 to +4 [5/level], Acute Senses (any) 1-5 [2/level], Alternate Identity (Illegal) [15] *or* Zeroed [10], Cultural Familiarity [1/culture], Danger Sense [15], Honest Face [1], Night Vision 1-9 [1/level], Perfect Balance [15], Peripheral Vision [15], Style Familiarity (any) [1/style], or Style Perks [1/perk].

Perks: Style Familiarity (own style) [1].

Disadvantages: -20 points chosen from among Duty (Agency, clan, or guild; Extremely Hazardous; 12 or less) [-15] *or* (15 or less) [-20], Greed [-15*], Intolerance (Nation or other large group) [-5], Obsession (Assassinate a particular target) [-5*], Secret (Professional assassin) [-20], Sense of Duty (Clan or guild) [-5], or Social Stigma (Criminal Record) [-5]. ● Another -20 points chosen from among Bloodlust [-10*], Callous [-5] *or* Low Empathy [-20], Code of Honor ("Stay bought") [-5], Light Sleeper [-5], Loner [-5*], Nightmares [-5*], No Sense of Humor [-10], Paranoia [-10], or Trademark [-5, -10, or -15].

Primary Skills: *Either* Disguise (A) IQ+2 [8]-14 *or* Stealth (A) DX+2 [8]-14. ● Also spend 20 points in the skills and techniques of a combat style (see Chapter 5).

Secondary Skills: Pick *four* of Forced Entry (E) DX+1 [2]-13; Climbing (A) DX [2]-12; Camouflage or Savoir-Faire (Servant), both (E) IQ+1 [2]-13; Acting, Electronics Operation (Security), Fast-Talk, Holdout, Lockpicking, Shadowing, or Traps, all (A) IQ [2]-12; or Poisons (H) IQ-1 [2]-11.

Background Skills: Choose *three* of Area Knowledge (any) or Savoir-Faire (Mafia), both (E) IQ [1]-12; or Armoury (Melee Weapons or Missile Weapons), Explosives (Demolition or Fireworks), or Streetwise, all (A) IQ-1 [1]-11.

* Multiplied for self-control number; see p. B120.

Lens

Cinematic (+100 points): Add 80 points chosen from among Blunt Claws [3], Combat Reflexes [15], Cultural Adaptability [10], Damage Resistance 1-2 (Partial, Hands, -40%; Tough Skin, -40%) [1-2], Enhanced Time Sense [45], Extra Attack 1 or 2 (Multi-Strike, +20%) [30 or 60], Forceful Chi 1-4 [15/level], Gizmos (Only for style, -20%) [4/level], Heroic Archer [20], Innate Attack [Varies], Social Chameleon [5], Striker (Crushing) [5], Trained by a Master [30], or Weapon Master [20-45]. You *must* take either Trained by a Master or Weapon Master! ● Add 20 points in your style's cinematic skills (and prerequisites); Invisibility Art, Light Walk, and Lizard Climb are useful for stalking victims.

Customization Notes

Styles: Ninja should know Taijutsu (pp. 202-203) and at least one of Kenjutsu (pp. 173-175), Kusarijutsu (p. 179), Kyujutsu (pp. 179-180), or Shurikenjutsu (pp. 195-197); those in B-movies often practice Kobujutsu (p. 178). Dagger Fighting (p. 155) or Shortsword Fighting (p. 195) would serve realistic assassins well in *any* pre-modern setting. Modern government agents are typically taught a form of Military Hand-to-Hand (pp. 182-185). Cinematic killers occasionally eschew weapons for aggressive styles, such as Bando (pp. 151-152) and Muay Thai (pp. 185-186), or those with lethal pressure-point attacks, like Chin Na (p. 154), Hwa Rang Do (pp. 163-164), and Kalaripayit (pp. 168-169).

Style Lenses: Traditional ninja need no lens. "Military" makes sense for a modern government agent, while "Street" suits a mob hit man or suspense-movie nutcase.

Contender

100 points

You're a full-time competitor at a combat sport such as boxing, fencing, or sumo. You might be a medal-seeking Olympian, a professional jock, or a tough guy on the no-holds-barred circuit. Stereotypes needn't apply to you: not every Olympian is "clean," jocks aren't universally stupid and greedy, and tough guys don't have to be bloodthirsty. One thing almost certainly *is* true, though – you're either fighting or training most of the time.

Attributes: ST 12 [20]; DX 12 [40]; IQ 10 [0]; HT 12 [20].

Secondary Characteristics: Damage 1d-1/1d+2; BL 29 lbs.; HP 12 [0]; Will 10 [0]; Per 10 [0]; FP 12 [0]; Basic Speed 6.00 [0]; Basic Move 6 [0].

Advantages: 20 points chosen from among ST +1 or +2 [10 or 20], DX +1 [20], HT +1 or +2 [10 or 20], HP +1 to +3 [2/HP], Will +1 to +4 [5/level], FP +1 to +3 [3/FP], Ambidexterity [5], Enhanced Dodge 1 [15], Enhanced Parry 1 [5 or 10], Fearlessness 1-5 [2/level] *or* Unfazeable [15], Fit [5] *or* Very Fit [15], Hard to Subdue 1-5 [2/level], High Pain Threshold [10], Reputation (Titlist) [Varies], Striker (Crushing; Limb, Shin, -20%) [4], Style Familiarity (any) [1/style], Style Perks [1/perk], or Wealth (Comfortable) [10] *or* (Wealthy) [20].

Perks: Style Familiarity (own style) [1].

Disadvantages: -20 points chosen from among Code of Honor ("Fight fair") [-5] *or* Secret (Cheater, fall-taker, steroid-user, etc.) [-5], Greed [-15*], Obsession (Win a title) [-5*] *or* (Become the best in the world) [-10*], Overconfidence [-5*], or Workaholic [-5]. ● An additional -20 points chosen from among any of the above or Appearance (Unattractive) [-4] *or* (Ugly) [-8], Bad Temper [-10*], Enemy (Contender of equal skill; Rival; 6 or less) [-2] *or* (9 or less) [-5], Jealousy [-10], Pacifism (Reluctant Killer) [-5] *or* (Cannot Kill) [-15], Reputation (see p. 54) [Varies], or Stubbornness [-5].

Primary Skills: 30 points in the skills and techniques of a sport or combat style (see Chapter 5).

Secondary Skills: Pick *two* of Bicycling (E) DX+1 [2]-13, Breath Control (H) HT-1 [2]-11, Lifting (A) HT [2]-12, Running (A) HT [2]-12, Sports (any) (A) DX [2]-12, or Swimming (E) HT+1 [2]-13.

Background Skills: Savoir-Faire (Dojo) (E) IQ [1]-10. ● Also spend 4 points on Current Affairs (Sports), First Aid, or Games (any), all IQ/E; Acting, Gambling, or Streetwise, all IQ/A; Intimidation, Will/A; or Autohypnosis, Will/H.

* Multiplied for self-control number; see p. B120.

Lenses

Cinematic (+100 points): Add 80 points chosen from among Arm ST +1 or +2 [5 or 10], Damage Resistance 1-2 (Partial, Hands, -40%; Tough Skin, -40%) [1-2], Enhanced Dodge 1-3 [15/level], Enhanced Parry 1-3 [5 or 10/level], Enhanced Time Sense [45], Extra Attack 1 or 2 (Multi-Strike, +20%) [30 or 60], Forceful Chi 1-4 [15/level], Innate Attack [Varies], Resistant to Chi Abilities (+3) [10], Recovery [10], Striking ST +1 or +2 [5 or 10], Trained by a Master [30], or Weapon Master [20-45]. You *must* take either Trained by a Master or Weapon Master! ● Add 20 points in your style's cinematic skills (and prerequisites); Power Blow is excellent for "finishing moves."

Tough Guy (+100 points): You're a hulking brute! You have no "mystical" abilities, but your gifts are just as cinematic. Add +1 to ST [10] and 90 points chosen from among ST +1 to +9 [10/level], HT +1 to +9 [10/level], HP +1 to +10 [2/HP], Will +1 to +10 [5/level], FP +1 to +10 [3/FP], Arm ST +1 or +2 [5 or 10], Damage Resistance 1 or 2 (Tough Skin, -40%) [3 or 6], Extra Attack (Multi-Strike, +20%) 1-3 [30/level], Lifting ST +1 or +2 [3 or 6], Recovery [10], Resistant to Arm Injury (+3) [1], Resistant to Neck Injury (+3) [1], or Striking ST +1 or +2 [5 or 10].

Customization Notes

Styles: Styles for historical contenders include Boxing (pp. 152-153), Greco-Roman Wrestling (p. 205), Pankration (pp. 188-189), and Sumo (pp. 198-199). The most common sportive styles today are Judo (p. 166), Karate (pp. 169-172), Kendo (p. 172), Professional Wrestling (p. 206), Sport Fencing (p. 160), and Tae Kwon Do (p. 200). Among those who compete in mixed martial arts and no-holds-barred events, Bando (pp. 151-152), Brazilian Jiu-jitsu (pp. 167-168), Muay Thai (pp. 185-186), Sambo (p. 185), and Submission Wrestling (p. 205) are popular.

Style Lenses: This template *is* a style lens – albeit a complex one – but a contender who competes in tournaments hosted by the armed services might have "Military," while one who fights in illegal events could justify "Street."

Crimefighter

100 points

You use martial-arts skills to uphold justice or keep the peace. You might be a watchman in a time or place where skilled fighters are common (e.g., feudal Japan), a modern cop who prefers to subdue crooks without the lethal finality of a bullet, or a vigilante who goes unarmed because weapons aren't available or would attract unwelcome attention. An interesting – if unlikely – alternative is the detective charged with solving martial arts-related crimes.

Attributes: ST 10 [0]; DX 12 [40]; IQ 12 [40]; HT 10 [0].

Del Duque (350 points)

Del Duque is a masked Mexican wrestler and freelance detective. Every Del Duque adventure starts with our hero enjoying a meal in some exotic locale while reading the newspaper. There's *always* an unsolved crime in the news, and the headline *always* hints at the action to come ("Thieves dressed as ninja steal art treasures!").

After a short investigation during which Del Duque inevitably stumbles onto clues that the police missed, he impresses the cops by identifying the culprits as evil masters of an obscure fighting style. He follows the trail to the criminals' lair, sneaks in, and uses a drop kick to jump the sentry. Within seconds, the rest of the gangsters come charging in and also suffer defeat. Then the boss appears and hits Del Duque a few times – but Del Duque soon catches his fist, twists his arm, and uses his trademark "pain grip" to force surrender. By the time the police arrive, Del Duque is tying up the bad guys.

Del Duque lives in a B-movie world where everybody speaks Spanish, nobody thinks it's odd that he's constantly masked (or asks how he eats with a mask on), and a lone wrestler is more capable than an entire police force. He doesn't seem all that fast or skilled, yet he always wins. He's definitely a cinematic hero!

Del Duque stands only 5'11" but must weigh at least 300 lbs. He was inspired by the *Crimefighter* template (pp. 32-34), and mixes Combat Wrestling (pp. 204-205) with Professional Wrestling (p. 206).

ST 16 [60]; **DX** 14 [80]; **IQ** 14 [80]; **HT** 14 [40].
Damage 1d+1/2d+2; BL 51 lbs.; HP 16 [0]; Will 14 [0]; Per 14 [0]; FP 14 [0].
Basic Speed 6.00 [-20]; Basic Move 6 [0]; Dodge 10*; Parry 12*.

Social Background

TL: 8 [0].
CF: Western [0].
Languages: Spanish (Native) [0].

Advantages

Combat Reflexes [15]; Damage Resistance 1 (Tough Skin, -40%) [3]; High Pain Threshold [10]; Higher Purpose (Bring criminals to justice) [5]; Intuition [15]; Serendipity 1 [15]; Trained by a Master [30].

Perks: Honest Face (Only when masked!); Special Exercises (DR 1, Tough Skin); Style Familiarities (Combat Wrestling; Professional Wrestling). [4]

Disadvantages

Fat [-3]; Honesty (12) [-10]; Pacifism (Cannot Harm Innocents) [-10]; Secret Identity [-10]; Sense of Duty (Law-abiding citizens) [-10].

Quirks: Always uses Drop Kick when making a surprise attack; Considers masks perfectly normal; Rarely speaks; Spends hours reading the newspapers, looking for high-profile crimes; Wears a cape, even though opponents could grab it. [-5]

Skills

Acrobatics (H) DX-1 [2]-13; Area Knowledge (World) (E) IQ [1]-14; Brawling (E) DX+2 [4]-16; Brawling Art (E) DX [1]-14; Criminology (A) IQ-1 [1]-13; Current Affairs (Headline News) (E) IQ [1]-14; Driving (Automobile) (A) DX-1 [1]-13; Forensics (H) IQ-2 [1]-12; Hidden Lore (Secret Styles) (H) IQ [2]-14; Immovable Stance (H) DX [4]-14; Intimidation (A) Will [2]-14; Judo (H) DX [4]-14; Knot-Tying (E) DX [1]-14; Law (Criminal) (H) IQ-2 [1]-12; Observation (A) Per [2]-14; Power Blow (H) Will [4]-14; Pressure Points (H) IQ [4]-14; Stealth (A) DX [2]-14; Streetwise (A) IQ [2]-14; Wrestling (A) DX+2 [8]-16; Wrestling Art (A) DX [1]-14†; Wrestling Sport (A) DX [1]-14†.

Techniques: Drop Kick (Brawling) (H) [2]-16; Hand Catch (Wrestling) (H) [4]-12*; Wrench Arm (H) [5]-16.

* Includes +1 for Combat Reflexes.
† Based on Wrestling default.

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 12 [0]; Per 12 [0]; FP 10 [0]; Basic Speed 5.50 [0]; Basic Move 5 [0].

Advantages: 15 points chosen from among Per +1 to +3 [5/level], Acute Senses (any) 1-5 [2/level], Combat Reflexes [15], Danger Sense [15], Hard to Kill 1-5 [2/level], Intuition [15], Legal Enforcement Powers [5, 10, or 15] *and* Police Rank 0-4 [5/level]†, or Style Perks [1/perk].

Perks: Style Familiarity (own style) [1].

Disadvantages: *One* of Duty (Law-enforcement agency; 12 or less) [-10]†, Secret (Vigilante) [-10], or Secret Identity (Caped crusader, masked avenger, etc.) [-10]. • A further -30 points chosen from among Charitable [-15*], Curious [-5*], Honesty [-10*], Intolerance (Criminals) [-5], Obsession (Bring down a particular crook) [-5*], Overconfidence [-5*], Pacifism (Cannot Harm Innocents) [-10] *or* (Cannot Kill) [-15], Sense of Duty (Law-abiding citizens) [-10], or Stubbornness [-5].

Primary Skills: Area Knowledge (any) (E) IQ+1 [2]-13; Criminology (A) IQ+1 [4]-13; and 20 points in the skills and techniques of a combat style (see Chapter 5).

Secondary Skills: Observation (A) Per [2]-12 and Streetwise (A) IQ [2]-12. • Also pick *five* of Forced Entry or Knot-Tying, both (E) DX+1 [2]-13; Driving (Automobile) or Stealth, both (A) DX [2]-12; Current Affairs (Regional) or Savoir-Faire (Police), both (E) IQ+1 [2]-13; Interrogation or Shadowing, both (A) IQ [2]-12; Intimidation (A) Will [2]-12; or Search or Tracking, both (A) Per [2]-12.

Background Skills: *Two* of Expert Skill (Hoplology), Forensics, Intelligence Analysis, Law (Criminal or Police), or Tactics, all (H) IQ-1 [2]-11; or Detect Lies (H) Per-1 [2]-11.

* Multiplied for self-control number; see p. B120.
† Duty must accompany Legal Enforcement Powers.

Lens

Cinematic (+100 points): Add 80 points chosen from among Enhanced Dodge 1-3 [15/level], Enhanced Parry 1-3 [5 or 10/level], Enhanced Time Sense [45], Extra Attack 1 or 2 (Multi-Strike, +20%) [30 or 60], Forceful Chi 1-4 [15/level], Gadgeteer [25], Gizmos [5/level], Heroic Archer [20], Higher Purpose [5], Innate Attack [Varies], Resistant to Chi Abilities (+3) [10], Trained by a Master [30], Weapon Master [20-45], or Wild Talent 1-3 [20/level]. You *must* take either Trained by a Master or Weapon Master! ● Add 20 points in your style's cinematic skills (and prerequisites); Hypnotic Hands, Kiai, and Pressure Points are handy for taking prisoners.

Customization Notes

Styles: Taihojutsu (p. 201) merits special mention because it was *invented* for law enforcers. Most grappling styles – including Aikijutsu (p. 149), Judo (p. 166), Jujutsu (pp. 166-168), and Wrestling (pp. 204-206) – are well-suited to subduing crooks. Being able to hit hard is also useful. Fictional 19th-century detectives might use Bartitsu (p. 167) or Savate (pp. 193-194); pulp heroes and practical cops prefer Boxing (pp. 152-153); modern vigilantes go for styles with "street cred," such as Capoeira (pp. 153-154), Jeet Kune Do (p. 164-165), and Kajukenbo (p. 168); and everyone is familiar with the Shurikenjutsu (pp. 195-197) skills of a famous crime-fighting "dark knight."

Style Lenses: "Police" is probable for an actual law officer. A vigilante might have "Self-Defense" or "Street," depending on how aggressive his methods are.

Duelist

100 points

You've studied the fighting arts, typically a knightly or sword style, in order to win duels for profit. You champion moneyed folk who wish to settle affairs of honor with blood – just not *theirs*. You're adept at remaining cool enough to strike not necessarily first but *best*. Dueling attracts hotheads, may be illegal, and often leaves corpses behind, so you must stay on the road to avoid those who would seek glory, vengeance, or justice at your expense.

Attributes: ST 11 [10]; DX 13 [60]; IQ 10 [0]; HT 11 [10].

Secondary Characteristics: Damage 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 10 [0]; Per 10 [0]; FP 11 [0]; Basic Speed 6.00 [0]; Basic Move 6 [0].

Advantages: 20 points chosen from among DX +1 [20], Basic Speed +1 [20], Ambidexterity [5], Enhanced Block 1 [5], Enhanced Dodge 1 [15], Enhanced Parry 1 [5 or 10], Fearlessness 1-5 [2/level] *or* Unfazeable [15], Hard to Kill 1-5 [2/level], Luck [15], Rapid Healing [5], Style Familiarity (any) [1/style], Style Perks [1/perk], Wealth (Comfortable) [10] *or* (Wealthy) [20], or Weapon Bond [1].

Perks: Style Familiarity (own style) [1].

Disadvantages: -20 points chosen from among Enemy (Glory-seeker or rival duelist; Hunter; 6 or less) [-5] *or* (9 or less) [-10], Enemy (Past victim's vengeful relatives; Hunter; 6 or less) [-5] *or* (9 or less) [-10], Reputation -1 or -2 (Ruthless killer) [-5 or -10], Secret (Illegal dueling deaths) [-20], or Social Stigma (Criminal Record) [-5]. ● An additional -20 points chosen from among Bloodlust [-10*], Callous [-5] *or* Low Empathy [-20], Code of Honor (Professional) [-5] *or* (Gentleman's) [-10], Distinctive Features (Dueling scars) [-1], Greed [-15*], Loner [-5*], or Overconfidence [-5*].

Primary Skills: 30 points in the skills and techniques of a combat style (see Chapter 5). Unlike most martial artists, a duelist can justify putting most of these points into just one skill!

Secondary Skills: Armoury (Melee Weapons) (A) IQ [2]-10; Current Affairs (People) (E) IQ [1]-10; First Aid (E) IQ [1]-10; and Savoir-Faire (High Society) (E) IQ [1]-10.

Background Skills: 4 points chosen from among Area Knowledge (any) or Savoir-Faire (Dojo), both IQ/E; Connoisseur (Weapons) or Merchant, both IQ/A; Diplomacy, Expert Skill (Hoplology), or Law (Criminal), all IQ/H; or Intimidation, Will/A.

* Multiplied for self-control number; see p. B120.

Lens

Cinematic (+100 points): Add 80 points chosen from among Enhanced Block 1-3 [5/level], Enhanced Dodge 1-3 [15/level], Enhanced Parry 1-3 [5 or 10/level], Enhanced Time Sense [45], Extra Attack 1 or 2 (Multi-Strike, +20%) [30 or 60], Forceful Chi 1-4 [15/level], Innate Attack [Varies], Resistant to Chi Abilities (+3) [10], Trained by a Master [30], or Weapon Master [20-45]. You *must* take either Trained by a Master or Weapon Master! ● Add 20 points in your style's cinematic skills (and prerequisites); Flying Leap is *extremely* useful for surprising adversaries and getting the first strike.

Customization Notes

Styles: Sword styles dominate the profession. These include Fencing (pp. 156-159), Kenjutsu (pp. 173-175), Longsword Fighting (pp. 180-182), Shortsword Fighting (p. 195), Sword-and-Buckler Play (p. 199), and Sword-and-Shield Fighting (pp. 199-200). Historical duelists might instead know Glaive Fighting (p. 187), Pollaxe Fighting (p. 191), or Quarterstaff (pp. 192-193). A duelist might supplement any of these styles with Combat Wrestling (pp. 204-205) and/or Dagger Fighting (p. 155). An alternative for the well-rounded 15th- through 17th-century European duelist is the very complete Masters of Defence Weapon Training (p. 182).

Style Lenses: Usually none, because the unmodified forms of most styles suitable for duelists are *meant* for dueling. "Trained by a Fraud" is conceivable for a wannabe duelist taught by an unscrupulous master, though.

Instructor

175 points

You're a martial-arts master with your own *dojo, salle,* gym, etc. While you're an accomplished fighter, your real expertise lies in inspiring students to train and in figuring out where they most need to improve. How you do this is up to you. You might favor newfangled "scientific" methods (e.g., geometric patterns on the floor or gleaming machines) or old-fashioned ones. You might patiently tutor your charges or beat them until they get it right . . .

Attributes: ST 12 [20]; DX 12 [40]; IQ 12 [40]; HT 12 [20].

Secondary Characteristics: Damage 1d-1/1d+2; BL 29 lbs.; HP 12 [0]; Will 12 [0]; Per 12 [0]; FP 12 [0]; Basic Speed 6.00 [0]; Basic Move 6 [0].

Advantages: 25 points chosen from among DX *or* IQ +1 [20], Will +1 to +5 [5/level], Basic Speed +1 [20], Charisma 1 or 2 [5 or 10], Combat Reflexes [15], Enhanced Block 1 [5], Enhanced Dodge 1 [15], Enhanced Parry 1 [5 or 10], Extra Attack [25], Fearlessness 1-5 [2/level] *or* Unfazeable [15], Fit [5] *or* Very Fit [15], High Pain Threshold [10], Indomitable [15], Language (Broken) [2], Longevity [2], Reputation [Varies], Status 1 or 2 [5 or 10], Style Familiarity (any) [1/style], Style Perks [1/perk], Wealth (Comfortable) [10] *or* (Wealthy) [20], or Weapon Bond [1].

Perks: Style Familiarity (own style) [1] *and* Style Familiarity (one other style) [1].

Disadvantages: Duty (School; 12 or less) [-10]. ● Either Bully (12) [-10], for a not-so-nice master, or any *two* of Code of Honor ("Fight fair") [-5], Pacifism (Reluctant Killer) [-5], Sense of Duty (Students) [-5], or Vow (Never refuse a request for training) [-5], for a pleasant one. ● A further -20 points chosen from among Bad Temper [-10*], Disciplines of Faith (Ritualism) [-5], Enemy (Members of rival school; Rival; 9 or less) [-5], Obsession (Perfect the ultimate style) [-10*], Odious Personal Habit (Inscrutable, or speaks in riddles) [-5], Overconfidence [-5*], Stubbornness [-5], or Workaholic [-5].

Primary Skills: Savoir-Faire (Dojo) (E) IQ+2 [4]-14; Teaching (A) IQ+2 [8]-14; and 40 points in the skills and techniques of *any* style (see Chapter 5).

Secondary Skills: Pick *one* of Diplomacy (H) IQ [4]-12, Intimidation (A) Will+1 [4]-13, or Leadership (A) IQ+1 [4]-13. ● Also select *one* of Body Language (A) Per+1 [4]-13 or Psychology (H) IQ [4]-12.

Background Skills: Any *three* of First Aid (E) IQ+1 [2]-13; Administration, Hidden Lore (Secret Styles), Public Speaking, or Writing, all (A) IQ [2]-12; Expert Skill (Hoplology), Philosophy (any), or Physiology, all (H) IQ-1 [2]-11; Meditation (H) Will-1 [2]-11; or Esoteric Medicine (H) Per-1 [2]-11. ● Also choose *one* of Breath Control (H) HT-1 [2]-11, Lifting (A) HT [2]-12, or Running (A) HT [2]-12.

* Multiplied for self-control number; see p. B120.

Lens

Cinematic (+125 points): Add 85 points chosen from among Blunt Claws [3], Damage Resistance 1-2 (Partial, Hands, -40%; Tough Skin, -40%) [1-2], Enhanced Block 1-3 [5/level], Enhanced Dodge 1-3 [15/level], Enhanced Parry 1-3 [5 or 10/level], Enhanced Time Sense [45], Extra Attack 1 or 2 (Multi-Strike, +20%) [30 or 60], Forceful Chi 1-4 [15/level], Heroic Archer [20], Innate Attack [Varies], Inner Balance 1-4 [15/level], Resistant to Chi Abilities (+3) [10] *or* (+8) [15], Striker (Crushing) [5], Trained by a Master [30], Weapon Master [20-45], or Wild Talent (Focused, Martial Arts, -20%) 1-4 [16/level]. You *must* take either Trained by a Master or Weapon Master! ● Add 40 points in your style's cinematic skills (and prerequisites) – preferably all of them.

Customization Notes

Styles: Every style has masters, but teachers of certain styles are more likely to elicit strong reactions – usually respect, fear, or disapproval – from their community. Hoplomachia (pp. 161-162), Kalaripayit (pp. 168-169), and Pentjak Silat (pp. 189-191) all have this reputation. Historically, Masters of Defence (p. 17) were outspoken and influential, and often enjoyed noble patronage . . . or censure. In modern times, the menacing drill sergeant who teaches Military Hand-to-Hand (pp. 182-185) is among the strongest of instructor archetypes.

Style Lenses: An instructor normally practices an unmodified style – even if what he teaches has the "Military," "Police," or "Self-Defense" lens – but he could have one of these lenses himself. "Trained by a Fraud" is unlikely, but some masters *are* frauds; see *Frauds*.

Frauds

Instructor (p. 34-35) depicts a talented martial artist who genuinely teaches a fighting style – whatever his personal flaws. The world is full of frauds, though. Some have little skill but pretend otherwise because they're dishonest or crazy. Others are skilled masters who don't teach anything useful out of laziness, concern that student injuries might ruin their reputation, fear that their teachings might be turned to evil or against them, and so on.

In a lighthearted game with little mortal combat, it can be fun to play a phony. In *any* ***Martial Arts*** campaign, the GM might wish to keep players on their toes by making some instructors charlatans. To create a convincing fraud, consider the traits listed below. The *students* of such a pretender must buy their style with the "Trained by a Fraud" lens (p. 145). For rules on bogus martial arts in action, see *Faking It* (p. 130).

Advantages: Charisma, Reputation, Smooth Operator, and Voice can all help lure students. Alternate Identity is an excellent way to avoid getting caught! Don't overlook the Honest Face perk.

Disadvantages: Greed is the motivation of most frauds. Laziness often accompanies it in the case of those with real skill. Compulsive Lying, Delusions, and Overconfidence are all common. Even true masters might harbor Delusions about their skills – or simple Paranoia. Being a fake can be a risky Secret.

Skills: Acting, Fast-Talk, and Performance are crucial. Complete shams might add Stage Combat. Those trying to pass off watered-down styles as valuable in combat have Combat Art/Sport skills. Dishonest masters may truly possess the skills they purport to teach, even if they don't share these with their students. In all cases, Intimidation is a great way to discourage prying questions.

Techniques: Total cons don't know any techniques! Those with combat skills, or at least Art/Sport versions, know their style's usual techniques. Dishonest masters may know useless techniques (p. 95). Deluded ones likely have secret techniques (p. 86) . . . which might still be useless.

Monk

100 points

You've isolated yourself from society in order to contemplate existence and purify your soul. You practice martial arts not to defeat foes (although you *can* fight if you must) but to focus your mind. You might practice your art in a monastery or alone, as a hermit. You don't actively seek adventure – but it might find you during a pilgrimage or a quest, or when disrespectful outsiders challenge the peace of your monastery or hermitage.

Attributes: ST 11 [10]; DX 11 [20]; IQ 12 [40]; HT 11 [10].

Secondary Characteristics: Damage 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 12 [0]; Per 12 [0]; FP 11 [0]; Basic Speed 5.50 [0]; Basic Move 5 [0].

Advantages: 15 points chosen from among ST *or* HT +1 [10], Will +1 to +3 [5/level], Autotrance [1], Claim to Hospitality (Monasteries of the same order) [1], Clerical Investment [5], Enhanced Dodge 1 [15], Enhanced Parry 1 [5 or 10], Fearlessness 1-5 [2/level] *or* Unfazeable [15], Fit [5], High Pain Threshold [10], Less Sleep 1-4 [2/level], Longevity [2], Perfect Balance [15], Resistant to Disease (+3) [3], Resistant to Poison (+3) [5], Single-Minded [5], or Style Perks [1/perk].

Perks: Style Familiarity (own style) [1].

Disadvantages: -25 points chosen from among Disciplines of Faith (Monasticism or Mysticism) [-10] *or* (Asceticism) [-15], Fanaticism (Philosophical or religious) [-15], Low TL 1 or 2 [-5 or -10], Pacifism (Cannot Kill or Self-Defense Only) [-15], Vow (Chastity, Vegetarianism, etc.) [-5], Vow (Silence) [-10], Vow (Always fight unarmed) [-15], or Wealth (Struggling) [-10], (Poor) [-15], *or* (Dead Broke) [-25]. ● A further -15 points chosen from among the above traits or Charitable [-15*], Loner [-5*], Oblivious [-5], Sense of Duty (Fellow monks) [-5], Shyness [-5 or -10], or Workaholic [-5].

Primary Skills: Meditation (H) Will [4]-12 *or* Religious Ritual (H) IQ [4]-12; Philosophy *or* Theology, both (H) IQ [4]-12; and 30 points in the skills and techniques of an art or combat style (see Chapter 5).

Secondary Skills: Pick *two* of Autohypnosis (H) Will-1 [2]-11, Breath Control (H) HT-1 [2]-10, Esoteric Medicine (H) Per-1 [2]-11, Hypnotism (H) IQ-1 [2]-11, Mind Block (A) Will [2]-12, Occultism (A) IQ [2]-12, Pharmacy (Herbal) (H) IQ-1 [2]-11, or Savoir-Faire (Dojo) (E) IQ+1 [2]-13.

Background Skills: First Aid (E) IQ [1]-12, and *either* Cooking (A) IQ-1 [1]-11 *or* Housekeeping (E) IQ [1]-12.

* Multiplied for self-control number; see p. B120.

Lens

Cinematic (+100 points): Add 80 points chosen from among Enhanced Dodge 1-3 [15/level], Enhanced Parry 1-3 [5 or 10/level], Enhanced Time Sense [45], Extra Attack 1 or 2 (Multi-Strike, +20%) [30 or 60], Heroic Archer [20], Higher Purpose [5], Innate Attack [Varies], Inner Balance 1-4 [15/level], Reduced Consumption 1 or 2 [2 or 4], Resistant to Chi Abilities (+3) [10] *or* (+8) [15], Social Chameleon [5], Trained by a Master [30], True Faith [15], Weapon Master [20-45], or Wild Talent 1-3 [20/level]. You *must* take either Trained by a Master or Weapon Master! ● Add 20 points in your style's cinematic skills (and prerequisites); Body Control, Mental Strength, and Zen Archery all suit a meditative monk.

Customization Notes

Styles: The most famous monastic style by far is Shaolin Kung Fu (p. 194). Other traditional kung fu styles for Chinese monks include Chin Na (p. 154), Hung Gar (p. 163), Pak Hok (p. 188), and Praying Mantis (pp. 191-192). A Japanese monk might know Bojutsu (p. 192) or Naginatajutsu (p. 186). A European monk could know Quarterstaff (pp. 192-193) – and a former Crusader might be adept at Knightly Mounted Combat (pp. 175-177) or Sword-and-Shield Fighting (pp. 199-200). The best surviving manual on Sword-and-Buckler Play (p. 199) was written by and *for* Christian monks.

Style Lenses: A monk normally trains in an unmodified style.

Movie Star

100 points

You're an actor, often a contender gone soft, who specializes in martial-arts roles. You might work on swashbuckling films featuring musketeers and pirates, or *chambara* and *wuxia* flicks about samurai and kung fu masters – or just bad action movies. Most of your moves are faked and choreographed, but you train at the martial arts to improve your odds of getting a plum role. A lot of your fans think you're the real deal. On a good day, so do you!

Attributes: ST 10 [0]; DX 12 [40]; IQ 11 [20]; HT 12 [20].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 11 [0]; Per 11 [0]; FP 12 [0]; Basic Speed 5.00 [-20]; Basic Move 5 [0].

Advantages: 15 points chosen from among ST +1 [10], Appearance (Attractive) [4] *or* (Handsome) [12], Charisma 1-3 [5/level], Fashion Sense [5], Fit [5], Languages (any) [2-6/language], Reputation [Varies], Shtick [1], Smooth Operator 1 [15], or Voice [10]. ● An additional 20 points chosen from among the above traits or Contacts (any) [Varies], Daredevil [15], Luck [15], Signature Gear [Varies], Status 1 or 2 [5 or 10], or Wealth (Comfortable) [10] *or* (Wealthy) [20].

Perks: Style Familiarity (own style) [1].

Disadvantages: -15 points chosen from among Code of Honor ("The show *must* go on!") [-5], Debt 1-20 [-1/level], Duty (Contract; Nonhazardous; 12 or less) [-5], Greed [-15*], Impulsiveness [-10*], or Obsession (Become #1 at the box office) [-10*]. ● A further -25 points chosen from among Addiction [Varies], Alcoholism [-15], Bad Temper [-10*], Compulsive Carousing [-5*], Delusions (see pp. 53-54) [-5 to -15], Jealousy [-10], Lecherousness [-15*], Overconfidence [-5*], Pacifism (Reluctant Killer) [-5] *or* (Cannot Kill) [-15], Reputation (see p. 54) [Varies], Selfish [-5*], Slow Riser [-5], or Stubbornness [-5].

Primary Skills: Performance (A) IQ+2 [8]-13; Stage Combat (A) DX+1 [4]-13; and 20 points in the skills and techniques of an art or sport style (see Chapter 5).

Secondary Skills: Pick *four* of Acrobatics (H) DX-1 [2]-11, Acting (A) IQ [2]-11, Dancing (A) DX [2]-12, Makeup (E) IQ+1 [2]-12, Professional Skill (Modeling) (A) IQ [2]-11, Public Speaking (A) IQ [2]-11, Singing (E) HT+1 [2]-13, or Skiing (H) HT-1 [2]-11.

Background Skills: 4 points chosen from among Sports (Golf, Tennis, etc.), DX/A; Current Affairs (Popular Culture) or Savoir-Faire (High Society), both IQ/E; Connoisseur (any) or Fast-Talk, both IQ/A; Carousing, HT/E; or Sex Appeal, HT/A.

* Multiplied for self-control number; see p. B120.

Lenses

Cinematic (+100 points): Add 80 points chosen from among Enhanced Dodge 1-3 [15/level], Enhanced Parry 1-3 [5 or 10/level], Enhanced Time Sense [45], Extra Attack 1 or 2 (Multi-Strike, +20%) [30 or 60], Gizmos (Only for style, -20%) [4/level], Heroic Archer [20], Innate Attack [Varies], Rapier Wit [5], Serendipity 1-4 [15/level], Trained by a Master [30], Weapon Master [20-45], or extreme levels of traits on the realistic template: Appearance (Very Handsome) [16] *or* (Transcendent) [20], Charisma 4-12 [5/level], Luck (Extraordinary) [30] *or* (Ridiculous) [60], Smooth Operator 2-4 [15/level], and Wealth (Very Wealthy) [30] *or* (Filthy Rich) [50]. You *must* take either Trained by a Master or Weapon Master!

- Add 20 points in your style's cinematic skills (and prerequisites); Flying Leap, Light Walk, and Lizard Climb suit *wuxia* stars who do their stunts for real.

Tough Guy (+100 points): You're a beast of a man, typecast as the guy who shrugs off baseball bats and fires machine guns one-handed. You're as unbelievable as any flashy *wuxia* star – but it's all grit, not mystical mumbo-jumbo. See *Contender* (p. 32) for statistics.

Adrian Froste (200 points)

Adrian was born in 1537 to a Warwickshire man-at-arms and his wife. Despite being raised like any English girl, she was more fascinated with her father's skills than her mother's domestic duties. She eventually convinced several of her father's younger comrades to train her. Most regarded this as a fair trade for the opportunity to spend time with a pretty (if eccentric) girl.

When Adrian was 17, her father marched off to some nastiness in which the Duke of Suffolk was embroiled. It proved to be a rebellion, and her father was slain when forces loyal to Queen Mary defeated Suffolk. Shortly thereafter, her mother was killed in random reprisals against Protestants. Adrian escaped the same fate only by taking up a rusty longsword – a souvenir of her father's – and fighting her way free.

Once safe, Adrian cut her hair, dressed in men's clothing, and posed as one of England's many traveling "masters," showing off for food and drink. She swore a vow to avenge her parents' deaths by seeking news of unpopular deeds by the Queen's agents in the countryside, finding those responsible, and killing them. She soon found *herself* sought by bounty hunters coming to collect the price on her head. Several Englishmen, two Welshmen, and one Italian later, she still walks free.

Adrian is a larger-than-life prodigy at 19 years of age, and stronger than some men – which lets her move her 5'8", 125-lb. frame with blinding speed. She was built with the *Duelist* template (p. 34) and has Masters of Defence Weapon Training (p. 182).

ST 12 [20]; **DX** 14 [80]; **IQ** 11 [20]; **HT** 11 [10].
Damage 1d-1/1d+2; BL 29 lbs.; HP 10 [-4]; Will 11 [0]; Per 11 [0]; FP 11 [0].
Basic Speed 7.00 [15]; Basic Move 8 [5]; Dodge 10; Parry 13; Block 10.

Social Background

TL: 4 [0].
CF: Christian European [0].
Languages: English (Native) [0].

Advantages

Attractive [4]; Enhanced Parry 1 (All) [10]; Luck [15].

Perks: Grip Mastery (Longsword); Style Familiarity (Glaive Fighting; Italian School; Longsword Fighting; Masters of Defence Weapon Training; Pollaxe Fighting; Quarterstaff; Sword-and-Buckler Play; Sword-and-Shield Fighting); Weapon Bond (Her father's longsword). [10]

Disadvantages

Enemy (Many bounty hunters; Hunter; 6 or less) [-10]; Loner (12) [-5]; Secret (Woman) [-5]; Social Stigma (Criminal) [-5]; Trademark (Simple; Always takes the time to strip the bodies of those she slays – looking for items of value to the needy – even when that's unsafe) [-5]; Vow (Never refuse any request for aid) [-15].

Quirks: Abstains from intimate relations; Accepts only things she needs, never money, from those she aids; Claims to be the bastard son of a local official when asked for identification; Fights *dirty;* Maneuvers to keep opponents at maximum reach in duels. [-5]

Skills

Acting (Cross-Dressing) (E) IQ+1 [2]-12†; Area Knowledge (England) (E) IQ+1 [2]-12; Armoury (Melee Weapons) (A) IQ-1 [1]-10; Brawling (E) DX [1]-14; Broadsword (A) DX+4 [16]-18; Current Affairs (England) (E) IQ+1 [2]-12; Disguise (Cross-Dressing) (E) IQ+1 [2]-12†; Fast-Talk (A) IQ [2]-11; First Aid (E) IQ [1]-11; Hiking (A) HT [2]-11; Knife (E) DX [1]-14; Polearm (A) DX [2]-14; Shield (E) DX [1]-14; Shield (Buckler) (E) DX [1]-14; Shortsword (A) DX [0]-16*; Spear (A) DX [2]-14; Staff (A) DX [2]-14; Stealth (A) DX [2]-14; Two-Handed Sword (A) DX+4 [14]-18*; Wrestling (A) DX [2]-14.

Techniques: Feint (Two-Handed Sword) (H) [3]-20; Sweep (Two-Handed Sword) (H) [4]-18.

* Based on Broadsword default.
† *Optional* specialties; see p. B169.

Customization Notes

Styles: Unarmed styles with a strong body of kicks are popular on the big screen. These include Hapkido (p. 161), Kyokushin (pp. 171-172), Muay Thai (pp. 185-186), Tae Kwon Do (p. 200), and Wushu (pp. 206-207). Other styles made famous by movie stars are Aikido (p. 149), Jeet Kune Do (pp. 164-165), Professional Wrestling (p. 206), and Wing Chun (pp. 203-204). Actors often use training in modern art and sport forms to *simulate* Shaolin Kung Fu (p. 194) and Taijutsu (pp. 202-203) – but in a cinematic game, their skills might be real. Weapons show up in film, too, led by the whippy swords of Sport Fencing (p. 160), the trademark nunchaku and sais of Kobujutsu (p. 178), and the "ninja stars" of Shurikenjutsu (pp. 195-197).

Style Lenses: The watered-down styles that result from "Self-Defense" and "Trained by a Fraud" are suitable for a phony. An ex-contender would know the unmodified style.

Spy

100 points

You spy for an intelligence, military, or security service. You aren't an analyst or a diplomat, though – you're a more "hands-on" kind of spy. Your specialties are physical infiltration, gathering information, and getting out in one piece. You employ martial arts because they're hard to trace, silent, and the ultimate concealed weapon. These features make them handy for taking out inconvenient sentries and making informants talk.

Attributes: ST 10 [0]; DX 12 [40]; IQ 12 [40]; HT 10 [0].

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 12 [0]; Per 12 [0]; FP 10 [0]; Basic Speed 5.50 [0]; Basic Move 5 [0].

Advantages: 15 points chosen from among Alternate Identity (Legal) [5] *or* (Illegal) [15], Claim to Hospitality (Safe-houses of allied nations) [10], Contact Group (Spy network; Skill-15; 9 or less; Somewhat Reliable) [10] *or* (Skill-18) [15], Rank 1-3 (Administrative or Military) [5/level], or Security Clearance [5, 10, or 15]. ● Another 15 points chosen from among Will +1 to +3 [5/level], Per +1 to +3 [5/level], Acute Senses (any) 1-5 [2/level], Cultural Familiarity [1/culture], Danger Sense [15], Eidetic Memory [5] *or* Photographic Memory [10], Flexibility [5], High Pain Threshold [10], Languages (any) [2-6/language], Peripheral Vision [15], Style Familiarity (any) [1/style], or Style Perks [1/perk].

Perks: Style Familiarity (own style) [1].

Disadvantages: Duty (Intelligence service; Extremely Hazardous; 15 or less) [-20]. ● *One* of Enemy (Counterintelligence cell; Hunter; 9 or less) [-20], Enemy (Enemy nation; Watcher; 12 or less) [-20], or Secret (Spy) [-20]. ● Another -10 points chosen from among Callous [-5], Curious [-5*], Intolerance (Enemy nation) [-5] *or* (All nations but own) [-10], Paranoia [-10], or Sense of Duty (Own nation) [-10].

Primary Skills: Area Knowledge (any) (E) IQ [1]-12; Observation (A) Per [2]-12; Stealth (A) DX [2]-12; and 20 points in the skills and techniques of a combat style (see Chapter 5).

Secondary Skills: Pick *one* of these three options: Acting (A) IQ [2]-12 *and* Disguise (A) IQ [2]-12; Parachuting (E) DX+2 [4]-14; or Scuba (A) IQ [2]-12 *and* Swimming (E) HT+1 [2]-11. ● Choose *two* of Forced Entry (E) DX+1 [2]-13; Climbing (A) DX [2]-12; or Electronics Operation (Security), Lockpicking, or Traps, all (A) IQ [2]-12. ● Select *one* of Filch (A) DX [2]-12; Electronics Operation (Surveillance), Interrogation, or Photography, all (A) IQ [2]-12; or Lip Reading or Search, both (A) Per [2]-12. ● Take *one* of Escape (H) DX-1 [2]-11, Holdout (A) IQ [2]-12, or Smuggling (A) IQ [2]-12.

Background Skills: Pick *two* of Cartography or Propaganda, both (A) IQ-1 [1]-11; or Cryptography, Diplomacy, Economics, Expert Skill (Computer Security, Military Science, or Political Science), Forensics, Geography (Political), or Intelligence Analysis, all (H) IQ-2 [1]-10.

* Multiplied for self-control number; see p. B120.

Lens

Cinematic (+100 points): Add 80 points chosen from among Enhanced Dodge 1-3 [15/level], Enhanced Parry 1-3 [5 or 10/level], Enhanced Time Sense [45], Extra Attack 1 or 2 (Multi-Strike, +20%) [30 or 60], Forceful Chi 1-4 [15/level], Gizmos [5/level], Innate Attack [Varies], Inner Balance 1-4 [15/level], Resistant to Chi Abilities (+3) [10], Trained by a Master [30], Weapon Master [20-45], or Wild Talent 1-3 [20/level]. You *must* take either Trained by a Master or Weapon Master! ● Add 20 points in your style's cinematic skills (and prerequisites); Invisibility Art and Light Walk work wonders.

Customization Notes

Styles: Historical ninja were spies, and used Taijutsu (pp. 202-203) when undercover and unarmed. Today, guns relegate martial arts to the court of last resort, for use when the spy is disarmed and has nothing to lose. Various forms of Military Hand-to-Hand (pp. 182-185) are most common, but such training is easily traced. To avoid this, some officers learn popular "civilian" styles: Boxing (pp. 152-153), Jujutsu (pp. 166-168), Karate (pp. 169-172), Wrestling (pp. 204-205), etc. Any style works in a cinematic game, but Western super-spies from the 1960s generally know Judo (p. 166) *and* Karate, while Russian and Chinese secret agents seem to prefer Sambo (p. 185) and Wushu (pp. 206-207), respectively.

Style Lenses: For a ninja, none. For a modern spy, the "Military" or "Police" lens, depending on the agency. A *good* spy avoids fights and could get by with "Self-Defense." A wartime spy can't always circumvent violence and might end up with a skill set that looks a lot like the "Street" lens.

Student

75 points

You're a martial-arts neophyte – but a talented, driven one. You make up in youthful energy what you lack in experience. In time, you could become a model example of *any* of the archetypes portrayed by the other templates. For now, you train, making whatever sacrifices this requires of you. You might spend all of your spare time at the gym – or, if you're a traditional student, live with your master and work as his servant.

Attributes: ST 10 [0]; DX 12 [40]; IQ 10 [0]; HT 12 [20].

Kai Lian (250 points)

Kai Lian is a secret agent of the Shining Temple of the Autumn Wind, the location of which is known to no one – travelers to and from the monastery must go blindfolded, in the company of a blind master. She is trained in the way of Shaolin, as well as in two of the Temple's secret styles. Her trademark attacks are a lethal strike with her long fingernails (Delicate Hand Dragon Claw), a leaping kick (Graceful Floating Axe), and a chi-blast that can hammer foes at 30 feet (Autumn Wind Sky Fist).

Kai Lian's present assignment is in frontier America, land of the six-shooter, telegraph, and locomotive. Her job is a tough one: retrieve the Five Tigers Jade Buddha statue, which was stolen from its guardian monks by American crooks. To them, it was merely a valuable antique. To those who know better, it's a powerful relic, capable of binding evil spirits.

The Temple chose Kai Lian for her stealth and fighting abilities, and the fact that she learned broken English from her master. None of this has helped her much when it comes to dealing with American culture and technology. "Frisco" was nothing like China, and it took all of her acrobatic skills to dodge the bullets of those thugs at the docks. They fought like men possessed, and Kai Lian is beginning to suspect that there's more to this mystery than meets the eye.

Kai Lian is a petite woman (4'10" and 90 lbs) in her mid-30s, with unusually long fingernails, clad in simple but immaculate clothing. She was inspired by the cinematic *Monk* template (p. 36). Her style is Shaolin Kung Fu (p. 194).

ST 9 [-10]; **DX** 14 [80]; **IQ** 13 [60]; **HT** 11 [10].
Damage 1d-2/1d-1; BL 16 lbs.; HP 9 [0]; Will 14 [5]; Per 13 [0]; FP 14 [9].
Basic Speed 6.00 [-5]; Basic Move 6 [0]; Dodge 12; Parry 12.

Social Background

TL: 3 [-10].
CF: Chinese [0].
Languages: English (Broken) [2]; Mandarin (Native) [0].

Advantages

Blunt Claws [3]; DR 1 (Partial, Hands, -40%; Tough Skin, -40%) [1]; Enhanced Dodge 3 [45]; Flying Fists (p. 45) [5]; Perfect Balance [15]; Trained by a Master [30].

Perks: Shtick (Clothes never get torn or dirty); Style Familiarity (Shaolin Kung Fu; two secret styles for use with *Shout It Out!*, p. 132). [4]

Disadvantages

Duty (Shining Temple of the Autumn Wind; 15 or less; Extremely Hazardous) [-20]; Shyness (Mild) [-5]; Social Stigma (Second-Class Citizen) [-5]; Vow (Fight without weapons) [-15]; Wealth (Poor) [-15].

Quirks: Believes that users of TL4+ gadgetry are weak; Finds big moustaches exceptionally silly; Humble; Incompetence (Riding); Shouts out the name of each technique before attacking (much to the puzzlement of American foes). [-5]

Skills

Acrobatics (H) DX+1 [4]-15*; Climbing (A) DX [1]-14*; Esoteric Medicine (H) Per-1 [2]-12; Flying Leap (H) IQ+1 [8]-14; Judo (H) DX-2 [1]-12; Jumping (E) DX [1]-14; Karate (H) DX+4 [20]-18; Light Walk (H) DX [4]-14; Lizard Climb (H) DX [4]-14; Meditation (H) Will-2 [1]-12; Observation (A) Per-1 [1]-12; Pharmacy (Herbal) (H) IQ-1 [2]-12; Philosophy (Buddhism) (H) IQ-1 [2]-12; Power Blow (H) Will [4]-14; Shadowing (A) IQ-1 [1]-12; Staff (A) DX-1 [1]-13; Stealth (A) DX [2]-14; Tracking (A) Per-1 [1]-12.

Techniques: Lethal Strike (Karate) (H) [3]-18; Flying Jump Kick (Karate) (H) [8]-18.

* Includes +1 for Perfect Balance.

Secondary Characteristics: Damage 1d-2/1d; BL 20 lbs.; HP 10 [0]; Will 10 [0]; Per 10 [0]; FP 12 [0]; Basic Speed 6.00 [0]; Basic Move 6 [0].

Advantages: 15 points chosen from among ST +1 [10], HT +1 [10], HP +1 to +3 [2/HP], Will +1 to +3 [5/level], FP +1 to +3 [3/FP], Ambidexterity [5], Fit [5] *or* Very Fit [15], High Pain Threshold [10], Language (Broken) [2], Patron (Martial-arts master; 6 or less) [8] *or* (9 or less) [15], Pitiable [5], Single-Minded [5], or Style Perks [1/perk].

Perks: Style Familiarity (own style) [1].

Disadvantages: -15 points chosen from among Duty (Master; Nonhazardous; 12 or less) [-5] *or* (15 or less) [-10], Fanaticism (Master, school, or style) [-15], Obsession (Reach a specific grade) [-5*], Overconfidence [-5*]†, or Workaholic [-5]. ● Another -15 points chosen from among Chummy [-5] *or* Gregarious [-10], Delusions (see pp. 53-54) [-5 to -15], Easy to Read [-10], Gullibility [-10*], Impulsiveness [-10*], Low Self-Image [-10]†, Pacifism (Reluctant Killer) [-5], Post-Combat Shakes [-5*], Sense of Duty (Master) [-2] *or* (Fellow students) [-5], Social Stigma (Minor) [-5], or Wealth (Struggling) [-10] *or* (Poor) [-15].

Primary Skills: Savoir-Faire (Dojo) (E) IQ+2 [4]-12 and 15 points in the skills and techniques of a martial-arts style (see Chapter 5).

Secondary Skills: Lifting (A) HT [2]-12 and Running (A) HT [2]-12.

Background Skills: 6 points chosen from among Hobby (any), DX/E or IQ/E; Sports (any), DX/A; First Aid, Games (any), Housekeeping, or Savoir-Faire (Servant), all IQ/E; Cooking, IQ/A; or Carousing, HT/E.

* Multiplied for self-control number; see p. B120.
† Low Self-Image and Overconfidence are incompatible.

Lens

Cinematic (+75 points): Add 60 points chosen from among Destiny [5, 10, or 15], Enhanced Block 1-3 [5/level], Enhanced Dodge 1-2 [15/level], Enhanced Parry 1-3 [5 or 10/level], Extra Attack 1 (Multi-Strike, +20%) [30], Forceful Chi 1-2 [15/level], Heroic Archer [20], Innate Attack [Varies], Inner Balance 1-2 [15/level], Resistant to Chi Abilities (+3) [10], Trained by a Master [30], Weapon Master [20-45], or Wild Talent 1-2 [20/level]. You *must* take either Trained by a Master or Weapon Master! ● Add 15 points in your style's cinematic skills (and prerequisites); students often drill at Breaking Blow and Sensitivity.

Customization Notes

Styles: It's possible to be a student of *any* style. If an ordinary man on the street has martial-arts training in a modern-day game, he'll most likely know Greco-Roman Wrestling (p. 205), Judo (p. 166), Karate (pp. 169-172), Kendo (p. 175), Tae Kwon Do (p. 200), T'ai Chi (the meditative version on p. 201, *not* T'ai Chi Chuan), Wing Chun (pp. 203-204), or Wushu (pp. 206-207), depending on his culture. Aikido (p. 149) and Hapkido (p. 161) are growing in popularity in the West, as are such actively promoted arts as Hwa Rang Do (pp. 163-164) and Kempo (pp. 172-173).

Style Lenses: See the lenses suggested for the kind of martial artist that the student aspires to become. Lessons at the typical modern-day gym lead to "Self-Defense." "Trained by a Fraud" is unfortunately common.

Stuntman

100 points

You stand in for movie stars (although probably not the skilled ones described under *Movie Star,* pp. 36-38) and play nameless bad guys in martial-arts movies. A stuntman might work as an aerialist, cowboy, driver, marksman, and many other things, all in the same feature. You're good at some of these things, but you're great at *fighting.* Most of your martial-arts skills are slanted toward what looks good, but the real thing looks best, and you know enough about it to be convincing.

Attributes: ST 11 [10]; DX 12 [40]; IQ 10 [0]; HT 12 [20].

Secondary Characteristics: Damage 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 10 [0]; Per 10 [0]; FP 10 [-6]; Basic Speed 6.00 [0]; Basic Move 6 [0].

Advantages: 20 points chosen from among ST +1 or +2 [10 or 20], DX +1 [20], HT +1 or +2 [10 or 20], HP +1 to +3 [2/HP], Basic Speed +1 [20], Basic Move +1 to +3 [5/level], Daredevil [15], Enhanced Dodge 1 [15], Fearlessness 1-5 [2/level] *or* Unfazeable [15], Flexibility [5], Hard to Kill 1-5 [2/level], High Pain Threshold [10], Perfect Balance [15], Rapid Healing [5] *or* Very Rapid Healing [15], Style Familiarity (any) [1/style], or Style Perks [1/perk].

Perks: Style Familiarity (own style) [1].

Disadvantages: -20 points chosen from among Compulsive Behavior (Thrill-Seeking) [-5*], Duty (Agent, producer, or studio; 9 or less) [-5] *or* (12 or less) [-10], Greed [-15*], Impulsiveness [-10*], On the Edge [-15*], or Overconfidence [-5*]. ● Another -20 points chosen from among the above traits or Compulsive Carousing [-5*], Delusions (see pp. 53-54) [-5 to -15], Gigantism [0], Minor Addiction (Ordinary painkillers) [-1], Minor Handicap (Old injury) [-1], Overweight [-1] *or* Fat [-3], Pacifism (Reluctant Killer) [-5] *or* (Cannot Kill) [-15], Reputation (see p. 54) [Varies], Stubbornness [-5], or Trickster [-15*].

Primary Skills: Acrobatics (H) DX+2 [12]-14; Jumping (E) DX+1 [2]-13; Stage Combat (A) DX+1 [4]-13; and 20 points in the skills and techniques of almost any style (see Chapter 5).

Secondary Skills: Performance (A) IQ+1 [4]-11. ● Also select *two* of Parachuting (E) DX+2 [4]-14; Climbing, Driving (any), Fire Eating, Riding (any), or Sports (any), all (A) DX+1 [4]-13; Escape (H) DX [4]-12; Acting or Scuba, both (A) IQ+1 [4]-11; Swimming (E) HT+2 [4]-14; or Skating or Skiing, both (H) HT [4]-12.

Background Skills: 5 points chosen from among Guns (any), DX/E; First Aid or Makeup, both IQ/E; Armoury (Melee Weapons) or Explosives (Fireworks), both IQ/A; or Artist (Scene Design), IQ/H.

* Multiplied for self-control number; see p. B120.

Lenses

Cinematic (+100 points): Add 80 points chosen from among Damage Resistance (Tough Skin, -40%) 1 or 2 [3 or 6], Enhanced Dodge 1-3 [15/level], Enhanced Parry 1-3 [5 or 10/level], Enhanced Time Sense [45], Extra Attack 1 or 2 (Multi-Strike, +20%) [30 or 60], Forceful Chi 1-4 [15/level], Gizmos (Only for style, -20%) [4/level], Heroic Archer [20], Innate Attack [Varies], Resistant to Chi Abilities (+3) [10], Recovery [10], Trained by a Master [30], or Weapon Master [20-45]. You *must* take either Trained by a Master or Weapon Master! ● Add 20 points in your style's cinematic skills (and prerequisites); the GM may let you use Breaking Blow when slamming bodily into doors and windows.

Tough Guy (+100 points): Like the cinematic stuntman above, you perform "impossible" stunts. The difference is that instead of being impossibly agile, you're tough enough to take those falls for real! See *Contender* (p. 32) for statistics.

Customization Notes

Styles: Stuntmen are often former athletes who competed at Boxing (pp. 152-153), Judo (p. 166), Karate (pp. 169-172), or Tae Kwon Do (p. 200). Many tough guys come from the world of Greco-Roman Wrestling (p. 205), Professional Wrestling (p. 206), or Sumo (pp. 198-199), or are ex-soldiers with a Military Hand-to-Hand (pp. 182-185) background. Most of the notes under *Movie Star* (pp. 36-38) are also applicable.

Style Lenses: Cops or soldiers who've moved into showbiz should have "Military" or "Police," as appropriate. "Street" suits many tough guys; quite a few real-life stuntmen are the genuine article.

Warrior

100 points

You're a full-time man-at-arms. You might be a knight, mercenary, or volunteer – or perhaps you're a conscript, draftee, or levy who never got sent home. Whatever your situation, you're in it for the long haul and you've gravitated to the martial arts as a set of tools that can help you survive on (and off) the battlefield. Unlike most martial artists, you have a good excuse to be skilled with heavy, *military* weapons.

Attributes: ST 11 [10]; DX 12 [40]; IQ 10 [0]; HT 11 [10].

Secondary Characteristics: Damage 1d-1/1d+1; BL 24 lbs.; HP 11 [0]; Will 10 [0]; Per 10 [0]; FP 11 [0]; Basic Speed 6.00 [5]; Basic Move 6 [0].

Advantages: 20 points chosen from among ST +1 or +2 [10 or 20], DX *or* IQ +1 [20], HT +1 or +2 [10 or 20], HP +1 to +3 [2/HP], Per +1 to +4 [5/level], FP +1 to +3 [3/FP], Combat Reflexes [15], Danger Sense [15], Enhanced Block 1 [5], Enhanced Dodge 1 [15], Enhanced Parry 1 [5 or 10], Fearlessness 1-5 [2/level] *or* Unfazeable [15], Fit [5] *or* Very Fit [15], Hard to Kill 1-5 [2/level], High Pain Threshold [10], Military Rank 1-4 [5/level]†, Penetrating Voice [1], Rapid Healing [5] *or* Very Rapid Healing [15], Style Familiarity (any) [1/style], Style Perks [1/perk], or Weapon Bond [1].

Perks: Style Familiarity (own style) [1].

Disadvantages: -25 points chosen from among Code of Honor ("Stay bought") [-5], (Soldier's) [-10], *or* (Bushido or Chivalry) [-15], Duty (Unit or force; 12 or less) [-10] *or* (15 or less) [-15]†, Fanaticism (Unit, force, nation, etc.) [-15], Greed [-15*], Intolerance (Enemy nation) [-5] *or* (All nations but own) [-10], or Sense of Duty (Unit) [-5] *or* (Own nation) [-10]. ● A further -15 points chosen from among the above traits or Berserk [-10*], Bloodlust [-10*], Callous [-5], Chummy [-5] *or* Gregarious [-10], Overconfidence [-5*], Stubbornness [-5], or Workaholic [-5].

Primary Skills: Soldier (A) IQ+2 [8]-12, plus 20 points in the skills and techniques of a combat style (see Chapter 5). ● Spend a *further* 10 points on your style or on military weapon skills typical for your TL:

TL0-3: Crossbow, Shield, or Thrown Weapon (Spear), all DX/E; Axe/Mace, Bow, Broadsword, Polearm, Shortsword, or Spear, all DX/A; or Sling, DX/H.

TL4-5: Gunner (Cannon) or Guns (Musket, Pistol, or Rifle), both DX/E; or Broadsword, Polearm, Rapier, Shortsword, Spear, or Throwing, all DX/A.

TL6-8: Gunner (MG), Guns (GL, LAW, LMG, Rifle, or SMG), or Liquid Projector (Flamethrower), all DX/E; or Spear or Throwing, both DX/A.

TL9+: Beam Weapons (Projector or Rifle), Gunner (Cannon or Beams), or Guns (GL, Gyroc, LAW, or Rifle), all DX/E; or Force Sword or Throwing, both DX/A.

Secondary Skills: Hiking (A) HT+1 [4]-12 *or* Riding (any) (A) DX+1 [4]-13. ● Also choose *two* of Stealth (A) DX+1 [4]-13; Camouflage or First Aid, both (E) IQ+2 [4]-12; Armoury (any), Forward Observer, Leadership, or Navigation (Land), all (A) IQ+1 [4]-11; or Observation or Survival (any), both (A) Per+1 [4]-11.

Background Skills: 4 points chosen from among Gesture or Savoir-Faire (Military), both IQ/E; Connoisseur (Weapons), Gambling, or Heraldry, all IQ/A; Expert Skill (Hoplology or Military Science), Strategy, or Tactics, all IQ/H; Carousing, HT/E; or Intimidation, Will/A.

* Multiplied for self-control number; see p. B120.

† Duty must accompany Military Rank.

Lenses (Realistic)

Hand-to-Hand Combat Instructor (+25 points): Add Fit [5]; Teaching (A) IQ+2 [8]-12; and an extra 12 points of style skills and techniques. Add the NCO template to get a drill sergeant.

Knight or Samurai (+25 points): Add Status 2 [5] and Wealth (Wealthy) [20]; Status includes +1 from Wealth. ● *Replace* Soldier with Leadership (A) IQ+2 [8]-12. ● Add Lance and Two-Handed Sword, both DX/A, to primary weapon skill lists. ● Riding is *mandatory*. ● Add Savoir-Faire (High Society), IQ/E, to background options.

NCO (+35 points): Add IQ +1 [20]; Military Rank 1 [5]; Leadership (A) IQ+1 [4]-12; Tactics (H) IQ-1 [2]-10; and an extra 4 points in primary, secondary, or background skills. Maximum Military Rank is 4.

Officer (+50 points): Add IQ +1 [20]; Military Rank 3 [15]; Leadership (A) IQ+1 [4]-12; Savoir-Faire (Military) (E) IQ+1 [2]-12; Tactics (H) IQ [4]-11; and 5 more points in primary, secondary, or background skills. This is a *veteran*, not a green lieutenant!

Lenses (Cinematic)

Cinematic (+100 points): Add 80 points chosen from among Blunt Claws [3], Damage Resistance 1-2 (Partial, Hands, -40%; Tough Skin, -40%) [1-2], Enhanced Block 1-3 [5/level], Enhanced Dodge 1-3 [15/level], Enhanced Parry 1-3 [5 or 10/level], Enhanced Time Sense [45], Extra Attack 1 or 2 (Multi-Strike, +20%) [30 or 60], Forceful Chi 1-4 [15/level], Heroic Archer [20], Innate Attack [Varies], Resistant to Chi Abilities (+3) [10], Striker (Crushing) [5], Trained by a Master [30], or Weapon Master [20-45]. You *must* take either Trained by a Master or Weapon Master! ● Add 20 points in your style's cinematic skills (and prerequisites).

Tough Guy (+100 points): You're the soldier from the movies, shrugging off arrows or bullets as you wade into the enemy with a massive two-handed weapon . . . or a hefty machine gun. See *Contender* (p. 32) for statistics.

Customization Notes

Styles: An historical warrior *could* have any style known in his time and place. Armed styles meant for battlefield use – Armatura (p. 150), Hoplomachia (pp. 161-162), Kenjutsu (pp. 173-175), Kyujutsu (p. 179-180), Naginatajutsu (p. 186), Sojutsu (pp. 197-198), Spear Fighting (pp. 196-197), Sword-and-Shield Fighting (pp. 199-200), etc. – make the most sense. For a mounted warrior, add Bajutsu (p. 151), Furusiyya (pp. 159-161), and Knightly Mounted Combat (p. 175-177) to this list. A smart soldier will supplement his training with an unarmed style – perhaps Aikijutsu (p. 149) or Combat Wrestling (pp. 204-205). Modern troops learn Military Hand-to-Hand (pp. 182-185).

Style Lenses: A genuine battlefield style requires no lens. Other styles should have "Military" if taught formally, "Street" if picked up in pubs and ports.

Advantages, Disadvantages, and Skills

The martial arts are ultimately about personal capability. Dedicated fighters train hard, and the most successful tend to be fit, talented people to begin with. These realities make the PCs' advantages, disadvantages, and skills remarkably important in a ***Martial Arts*** campaign – worthy of the same attention as exotic powers in a superhero game or magic in a fantasy setting.

Even if the martial arts are "background color" in another type of campaign – fantasy, historical, military, etc. – the GM should realize that martial artists are popular as PCs. To those who like to play them, their aptitudes and training are as vital as their weapons and background. If the GM wants such heroes to be viable and *fun,* he should lend some thought to how he plans to handle their capabilities. It's crucial to let the players know in advance which traits are allowed, which are off limits, and which work differently.

Advantages

The advantages discussed below either work differently in a ***Martial Arts*** game or require additional interpretation for martial artists. Consult with the GM before taking any trait described as "cinematic." Such abilities may have additional prerequisites (typically Trained by a Master or Weapon Master) and are likely off-limits in a realistic campaign.

Altered Time Rate

see p. B38

This advantage has no place in a *realistic* game. Real-world martial artists who can land multiple techniques in the space of a second are using All-Out Attack (Double) (p. B365), Rapid Strike (p. B370), Combinations (p. 80), and so forth. They aren't warping time!

Altered Time Rate is also unsuitable for "traditional" cinematic settings. To stay true to martial-arts myth, those whose blinding speed results from schooling in secret fighting arts should use Trained by a Master or Weapon Master to halve the Rapid Strike penalty, while those with exceptional coordination should look at Extra Attack (p. B53). Fighters with both can make many *attacks* but are still limited to one *maneuver* per turn.

However, some comic books and movies depict impossibly fast martial artists who can engage several widely spaced opponents before any of them can retaliate. This requires multiple maneuvers per turn, implying Altered Time Rate. In campaigns inspired by such fiction, the GM may allow one or more levels of this advantage to those with Gunslinger, Heroic Archer, Trained by a Master, or Weapon Master.

For more on speedy heroes, see *Multiple Attacks* (pp. 126-128).

Claws

see p. B42

Many martial artists toughen their hands by punching a heavy bag, wooden post, etc. The usual goal is to condition the hands so that hitting hard surfaces is less risky (treat this as DR; see *Damage Resistance,* p. 43), but some unorthodox exercises are intended to *harden* the hands into deadly weapons. These include striking iron or steel, driving extended fingers into hot sand, and applying rank-smelling unguents. The results often have a colorful name, such as "iron hand" or "eagle claw." Represent this using Blunt Claws [3] – and perhaps other traits.

Chakram

Realistically, any toughening extensive enough to improve punching damage would irreversibly damage the hand. The GM should only let realistic fighters buy Blunt Claws if they also take Bad Grip 1 [-5]. The package is a net disadvantage (-2 points). Since Bad Grip 1 gives -2 to grapple or use melee weapons, this severely curtails the martial artist's *other* combat options.

In a cinematic campaign, the GM may relax this restriction and allow esoteric, non-destructive exercises or amazing ointments. If so, individuals with Trained by a Master should have access to such methods and be able to buy Blunt Claws *without* Bad Grip. If those without Trained by a Master want this advantage, they can either get it the hard way (with Bad Grip) or pay 10 points for Unusual Background (Access to secret hand-toughening exercises).

It's possible to modify just *one* hand. This doesn't reduce the point cost of Claws or Unusual Background, but Bad Grip must have the -80% limitation "One hand only." This reduces its value to -1 point and means that its -2 penalty applies to one-handed tasks with the modified hand. For two-handed tasks, the penalty is only -1.

Those who wish to do this in play should see *Learnable Advantages* (p. B294). Base the time required on the cost of Blunt Claws (3 points). Where applicable, any Unusual Background must be bought *before* training begins, while Bad Grip appears at the end of this time.

For another option, see the Limb limitation under *Striker* (p. 47).

Damage Resistance

see p. B46

Suitably limited Damage Resistance fits many kinds of cinematic campaigns. A few ideas:

Ablative: Some action heroes can absorb a lot of damage before their luck runs out. They suffer kicks, punches, falls, etc., throughout the story, but only get *hurt* in the finale. To simulate this, the GM may allow DR (Ablative, -80%) [1/level]. Each point of damage rolled blows away a point of DR. This DR doesn't protect against poison – but while it lasts, it *does* keep poisoned weapons from delivering their deadly dose! Such DR works much like HP, but the two aren't the same. Compare lost HP to the victim's basic HP score to determine crippling, major wounds, and death.

Limited: Other fictional heroes are resistant to bludgeoning but affected normally by blades, bullets, and beams. To represent this, the GM may permit DR (Limited, Crushing, -40%) [3/level]. Limited, Unarmed is also -40%, and affects cutting and impaling Claws, Strikers, and Teeth.

Partial: Martial artists often toughen extremities or limbs into "iron body parts." Those with Trained by a Master may buy DR with Partial (-80% for one hand or one foot; -40% for two hands, two feet, one leg, or one arm; or -20% for two legs or two arms) *and* Tough Skin (-40%). This traditionally accompanies Claws (p. 42), or requires or *is* an Iron Body Parts perk (p. 50).

Tough Skin: The GM may let *really* tough guys buy DR (Limited, Crushing, -40%; Tough Skin, -40%) [1/level] for their whole body. Attacks that don't break the skin or carry a contact poison or chi-based touch attack simply hurt less. Some warriors have DR (Tough Skin, -40%) [3/level] and are harder to hurt with all attacks! Martial artists who simulate tough body parts using Partial *must* also take Tough Skin.

The GM decides how much DR to allow and of what type, and should base the time needed to acquire it through training on its final point cost (see *Learnable Advantages,* p. B294). Outside of superhero games, DR 1-2 is probably enough unless it's Ablative. Ablative DR could go up to HP in any cinematic game, and up to 5×HP for heroes who survive 10-story falls and 60-mph car wrecks. Anything is possible, though. Damage Resistance might have nearly *any* modifier when part of a chi power (see *Chi Powers for Martial Artists,* p. 46). The GM should design powerful defensive abilities himself and present them in a manner similar to the offensive ones under *Innate Attack* (pp. 45-47). For instance:

Ghost Shirt (-70%): DR 20 (Limited, Bullets, -60%; Pact, -10%) [30]. *Notes:* Your chi lets you resist bullets – *if* you don't use modern weapons yourself! The special Pact limitation means you must take and observe Vow (Use only muscle-powered attacks) [-10]. If you use guns, explosives, etc., for any reason, you immediately lose the DR until 1d days have passed (the GM rolls in secret). Treat the combination of DR and Vow as a meta-trait: Ghost Shirt [20]. *20 points.*

Enhanced Defenses

see p. B51

The GM decides how many levels of these traits are available. Enhanced Defenses are cinematic and not especially suitable for a purely realistic game . . . but in a campaign that adds subtle cinematic elements to a largely realistic setting (see *Hybrid Campaigns,* pp. 239-241), a single level won't upset things. The typical "action movie" game can take two levels in stride. Campaigns that feature extreme comic-book and *wuxia* action might go up to three levels, but probably not beyond that – not unless the GM likes untouchable fighters!

Desirable Advantages

Below are lists of advantages particularly valuable to martial artists, split into categories that reflect common fictional archetypes. Anybody can have the *mundane* traits, but only cinematic or super-powered characters are likely to have the *exotic* or *supernatural* ones.

- *Agility and coordination.* Fighters who put precision before power and feel that evading blows is more useful than being able to take lumps often have some of these traits, plus good DX, Basic Speed, and/or Basic Move. *Mundane:* Ambidexterity (p. B39); Combat Reflexes (p. B43); Enhanced Defenses (p. B51); Extra Attack (p. B53); Flexibility (p. B56); and Perfect Balance (p. B74). *Exotic & Supernatural:* Altered Time Rate (p. B38); Arm DX (p. B40); Enhanced Move (p. B52); Enhanced Time Sense (p. B52); Slippery (p. B85); and Super Jump (p. B89).
- *Endurance and toughness.* Some martial artists pride themselves on being able to take a few hits. This calls for high HT, FP, Will, and/or HP, along with an advantage or two from this list. *Mundane:* Fit (p. B55); Hard to Kill (p. B58); Hard to Subdue (p. B59); High Pain Threshold (p. B59); Rapid Healing (p. B79); and Resistant (p. B81). *Exotic & Supernatural:* Damage Resistance (p. B46); Injury Tolerance (p. B60); Recovery (p. B80); Regeneration (p. B80); Regrowth (p. B80); Supernatural Durability (p. B89); and Unkillable (p. B95).
- *Power and strength.* Heavy hitters require ST – as much as they can afford. In some campaigns, advantages that improve damage are available. *Exotic & Supernatural:* Arm ST (p. B40); Claws (p. B42); Striker (p. B88); Striking ST (p. B88); and Teeth (p. B91).
- *Situational awareness.* Tactical and streetwise warriors try to pick their fights carefully and avoid danger. These traits help, and work best with decent IQ and Per. *Mundane:* Acute Senses (p. B35); Danger Sense (p. B47); Fearlessness (p. B55); Peripheral Vision (p. B74); and Unfazeable (p. B95). *Exotic & Supernatural:* 360° Vision (p. B34) and Vibration Sense (p. B96) – although *any* superhuman sense could come in handy.

Finally, anyone who *routinely* goes on dangerous adventures would benefit from Daredevil (p. B47) and Luck (p. B66)!

Most martial artists can only take Enhanced Defenses listed under "Optional Traits" for their styles; see Chapter 5. Those with Trained by a Master or Weapon Master have access to *all* Enhanced Defenses. Weapon Masters who have Enhanced Parry may add their bonus to parries made using the Parry Missile Weapons skill (p. B212) as well as with regular Melee Weapon skills, when armed with suitable weapons.

To mute the deadliness of ranged weapons so that most fights end up at melee range, the GM may let heroes buy Enhanced Parry (All parries against ranged weapons) for 5 points/level – possibly at higher levels than other types of Enhanced Parry. This gives a bonus to regular parries against thrown weapons (see *Parrying,* p. B376) and to parries with the Parry Missile Weapons skill. Its bonus "stacks" with those for weapon-specific Enhanced Parry advantages.

Enhanced Time Sense

see p. B52

A fighter with Enhanced Time Sense (ETS) always acts before one who lacks it – both in the "turn sequence" (p. B363) and in a Wait situation (see *Cascading Waits,* p. 108). This is especially useful to a martial artist who must face firearms. It lets him spring across a room and take out a gunman who has him dead to rights! It also lets him parry bullets, if he knows the Parry Missile Weapons skill (see p. 58). He can even try to dodge a sniper's bullet (normally, no active defense is possible). The GM may extend these benefits to encompass blaster bolts and other slower-than-light ranged attacks.

> *I kick arse for the Lord!*
>
> *– Father McGruder,*
> ***Braindead***

All of this makes ETS perfect for campaigns based on action movies. In the movies, Stars always get the drop on Extras, even alerted Extras with machine guns, and snipers shooting at Stars always miss with their first shot. Naturally, PCs are Stars, as are bosses, top henchmen, and other important NPCs. Stars are likely to have ETS; the GM can even make it a "campaign advantage" that all PCs must have. Everyone else is an Extra, and Extras never have ETS. This approach converts ETS from an exotic advantage to an Unusual Background that extends "plot immunity" to Stars – an *extremely* common feature of martial-arts cinema. In some films, ETS only applies during action sequences; see the special limitation below.

Finally, in campaigns that use *Bullet Time* (p. 133), the GM might wish to reserve that rule for heroes who have ETS.

New Special Limitation

Combat Sense: Your ability only works when you're *fighting.* While the game is in "slow" time for combat (see *Time During Adventures,* p. B497), you enjoy all the usual benefits of ETS. The rest of the time, your advantage does nothing! It won't help you avoid penalties for being rushed on non-combat tasks and it's worthless against traps, snipers, and environmental hazards encountered out of combat. -20%.

Extra Attack

see p. B53

A realistic martial artist may take *one* level of Extra Attack to represent excellent coordination. This lets him attack with any combination of two *different* weapons, hands, or feet, with no restrictions on the skills involved. To attack multiple times with the same weapon or body part requires the Multi-Strike enhancement. If both attacks must use the same combat skill, take the Single Skill limitation. Both modifiers appear below.

The GM decides how many levels of Extra Attack are possible in a cinematic game. Multi-Strike should be *mandatory* for humans with more than one level, as with three or more attacks and only two hands, one hand will be striking twice. The GM may relax this requirement if the martial artist takes Single Skill for skill that covers kicking. A warrior with Extra Attack 3 (Single Skill, Karate) could make two punches and two kicks at once – at least in a *chambara* or *wuxia* game where fighters rarely seem to touch the ground!

The GM decides whether Extra Attack is learnable. If so, consider using Single Skill to represent practice with a particular combat skill. Fighters who use paired weapons are more likely to buy Off-Hand Weapon Training (p. 50) and Dual-Weapon Attack (p. 83), however.

See *Multiple Attacks* (pp. 126-128) for other important details.

New Special Enhancement

Multi-Strike: You can strike more than once with the *same* weapon or body part. This lets you launch more attacks than you have limbs, natural weapons, and attack abilities. You *can* use your best attack multiple times. +20%.

New Special Limitation

Single Skill: Your Extra Attacks apply only to a particular combat skill. For instance, Extra Attack 2 (Single Skill, Karate) lets you attack three times – but at least two of the attacks must be with the Karate skill. To attack more than once using a *weapon* skill, you need either one weapon per attack or the Multi-Strike enhancement. -20%.

Fearlessness

see p. B55

Mastering a fighting style is a great way to build confidence. The GM may wish to allow martial artists to buy a level of Fearlessness in play for every *two* levels by which their best combat skill exceeds DX. For instance, a fighter with Karate at DX+6 could "learn" Fearlessness 3. This option particularly suits military martial arts.

Flexibility

see p. B56

The +3 for Flexibility and +5 for Double-Jointed apply to *all* rolls to break free (p. B371) – including attempts to escape the locks and holds in Chapter 3.

Gizmos

see p. B57

Stealthy assassins and warriors in martial-arts fiction, especially ninja, always seem to have *exactly* the hardware they need – blowpipes, flash grenades, garrotes, knives, smoke bombs, throwing stars, vials of poison, etc. – without carrying a concealed armory that slows them with its weight or draws suspicion with its bulk. To simulate this, the GM may permit those with Weapon Master to buy Gizmos with an Accessibility limitation: Only for style, -20%. This limits the Gizmos to things typically used by the martial artist's style (GM's opinion) *and* that weigh no more than 1 lb. apiece . . . but they're undetectable and don't count as encumbrance until revealed.

Gunslinger

see p. B58

As the ***Basic Set*** suggests, the GM may allow low-tech versions of this advantage that cover muscle-powered weapons. Here's an example suitable for mythic samurai, fantasy Elves, and green-clad English bandits.

Heroic Archer

20 points

You can perform amazing feats with any weapon that uses the Bow skill. When you Attack or All-Out Attack with a bow, you may add its Accuracy bonus to skill *without* taking an Aim maneuver. If you do Aim, you get +1 after one second or +2 after two or more seconds, in addition to Acc.

When you Move and Attack, you don't get your bow's Acc bonus but may *ignore* its Bulk penalty. Ignore the extra -1 or -2 to skill for a Flying Attack (p. 107) or an Acrobatic Attack (p. 107), too. This lets you shoot at full skill even while running, jumping, sliding down banisters, etc.

You can also disregard Bulk in close combat (see *Weapons for Close Combat,* p. B391). You never get an Acc bonus there but you do shoot at full skill. This makes the Close Combat technique (p. 69) redundant for you.

You can use *Quick-Shooting Bows* (pp. 119-120) to improve your rate of fire when you Move and Attack as well as when you Attack or All-Out Attack. Regardless of your maneuver, *halve* the -6 to skill for this stunt. On an Attack or All-Out Attack, add Acc to your attack roll but not to the skill roll to ready your bow hastily. Similarly, halve the penalty to shoot two arrows at once using Dual-Weapon Attack (p. 83); DWA (Bow) defaults to Bow-2 for you, not Bow-4.

Finally, when you use Fast-Draw (Arrow), total all applicable penalties from *Multiple Fast-Draw* (p. 103), *Fast-Draw from Odd Positions* (pp. 103-104), and *Move and Attack* (p. 107), halve the sum, and round in your favor.

You can combine Heroic Archer with any Weapon Master specialty that covers bows. This gives you the damage bonus for Weapon Master *and* all of the above benefits – and makes the quick-shooting penalty a mere -1!

Injury Tolerance

see p. B60

A new form of Injury Tolerance suits some cinematic action heroes:

Damage Reduction: You divide the injury you suffer by 2, 3, or 4 *after* subtracting DR from damage and applying wounding modifiers. This normally reduces all injury, but the GM should require the Limited modifier (see *Limited Defenses,* p. B46) in a ***Martial Arts*** game. "Physical Attacks" gives -20%, while "Crushing" or "Unarmed" gives -40%. *50 points for a divisor of 2, 75 points for 3, 100 points for 4.*

Innate Attack

see p. B61

Use Innate Attack to create the "chi blasts" wielded by martial artists in video games and comic books. These take *many* forms: flaming breath, devastating kiais, "weapons" of pure chi, and so on. Some of the more improbable claims made for legendary masters in the real world would also be Innate Attacks, such as blows delivered from a distance, direct psychic attacks, and the sinister "hand of death."

If the GM allows such abilities, he should limit damage to keep Innate Attack from eclipsing the fists, swords, bows, and so forth that martial artists *usually* use, even in video games. Martial-arts tradition provides convenient guidelines: these abilities draw their strength from the same well as the martial artist's unarmed attacks – his chi – and should inflict comparable damage. Since most of these exotic attacks violently expend the user's chi, they should cost FP. This provides a convenient hedge against overuse.

Such an attack should still be a useful alternative to an ordinary punch, though. Otherwise, who'd waste time developing it? Fitting capabilities include non-crushing damage, ongoing injury (like poison), the capacity to partially or wholly bypass DR, and *range.*

Below are worked examples of suitable abilities. Damage is 1d, equivalent to a strong man's punch. In each case, the sum of the modifiers used appears in parentheses after the attack's name. To alter damage, apply this total modifier to the cost of an Innate Attack of the desired size.

Breath of Dragon (-25%): Burning Attack 1d (Costs Fatigue, 1 FP, -5%; Melee Attack, Reach 1-4, Cannot Parry, -20%) [4]. *Notes:* A narrow flame jet – spewed from the mouth – that can scorch a target up to four yards away. This counts as a melee attack. Take an Attack maneuver and roll against Innate Attack (Breath) to hit. *4 points.*

Flying Fists (+0%): Crushing Attack 1d (Blockable, -10%; Costs Fatigue, 1 FP, -5%; Low Signature, +10%; Variable, +5%) [5]. *Notes:* By punching or kicking at air, you can smite a distant target. If the victim has never witnessed this ability, he must make a Sense roll at -4 to know he's being attacked! (He may defend normally against later uses.) It's otherwise a standard ranged attack with Acc 3, 1/2D 10, Max 100, and RoF 1. To use it, take an Attack maneuver. Roll against Karate to hit. *5 points.*

Ghost Knife (-40%): Impaling Attack 1d (Blockable, -10%; Costs Fatigue, 1 FP, -5%; Inaccurate 3, -15%; Increased 1/2D, ×5, +10%; Reduced Range, ×1/5, -20%) [5]. *Notes:* A hurled blade of pure chi, this is a standard ranged attack with Acc 0, 1/2D 10, Max 20, and RoF 1. To use it, take an Attack maneuver and roll against Thrown Weapon (Knife) to hit. *5 points.*

Chi Powers for Martial Artists

Martial Arts mostly treats passive chi abilities as advantages (e.g., Resistant to Chi Abilities) while modeling active ones as cinematic skills – Lizard Climb, Power Blow, etc. – in order to make them easier to tie into the styles in Chapter 5. Comic books and video games, however, often depict all such capabilities as something akin to psi powers or super-powers. They might be evident at birth, awakened by initiation or ordeal, or even learned (see *Learnable Advantages*, p. B294).

Like a psi power, a chi power consists of a set of advantages that must be bought with a power modifier (see *Power Modifier,* p. B254). Adept users may purchase levels of a Talent that aids die rolls to use those abilities, comparable to a psionic Talent (see *Psionic Talents,* p. B255). Below are two examples.

Body Control

The Body Control power lets you channel your chi *internally* in order to heal injury, perform amazing athletic feats, purge your body of poison, and so on.

Body Control Talent: You get +1 per level to use any Body Control ability, and can use earned points to acquire new abilities. In some worlds, Inner Balance (p. 47) *replaces* Body Control Talent and benefits both Body Control abilities and the skills listed for Inner Balance. *5 points/level (15 points/level for Inner Balance).*

Body Control Abilities: Breath Holding; Catfall; Damage Resistance, with Tough Skin; Enhanced Defenses (any); Enhanced Move (Ground); Extra Attack, with Multi-Strike; Lifting ST; Metabolism Control; Perfect Balance; Protected Sense (any); Radiation Tolerance; Reduced Consumption; Regeneration; Resistant, to any *physical* threat; Sensitive Touch; Silence; Striking ST; Super Climbing; Super Jump; Temperature Tolerance; and Universal Digestion.

Power Modifier: Body Control. The advantage is a chi ability within the Body Control power. To maintain it, you must spend a few hours a day exercising and meditating. Take a -10-point Disciplines of Faith or Vow disadvantage to cover this. If you fail to roleplay your disadvantage, your *entire power* fails the first time you call upon any of its abilities. Once it does, none of your abilities will work and you'll feel ill, suffering an affliction chosen by the GM from those under *Irritating Conditions* (p. B428); e.g., coughing/sneezing, drowsy, nauseated, or pain. The only cure is to take 1d days out from other activities to rebalance your chi. -10%.

Chi Projection

The Chi Projection power lets you direct your chi *externally* in order to blast enemies, project force fields, fly, and so forth.

Chi Projection Talent: You get +1 per level to use any Chi Projection ability, and can use earned points to acquire new abilities. In some worlds, Forceful Chi (p. 47) *replaces* Chi Projection Talent and benefits both Chi Projection abilities and the skills listed for Forceful Chi. *5 points/level (15 points/level for Forceful Chi).*

Chi Projection Abilities: Damage Resistance, with Force Field; Flight; Healing; Obscure (any); Rapier Wit, with Based on HT; Scanning Sense (Para-Radar); Terror, with Based on HT; and Vibration Sense. Chi Projection can justify nearly any Affliction or Innate Attack – and sometimes Telekinesis. The GM will usually restrict you to one or two "signature" attacks and set an upper limit on damage. Be sure to come up with elaborate names and special effects for your attacks! See *Innate Attack* (pp. 45-47) for examples.

Power Modifier: Chi Projection. The advantage is a chi ability within the Chi Projection power. Otherwise, this is identical to the Body Control limitation. -10%.

Other Powers

The GM who wants to create additional chi powers will get a lot of use out of ***GURPS Powers.*** Body Control and Chi Projection (as "Bioenergy") are both there, and the Body Control power modifier appears as a generic -10% modifier – "Chi" – for use with many powers. For instance, Chi can replace the modifiers given for the Antipsi, ESP, Psychic Healing, and Psychokinesis powers on pp. B255-257, converting them from psi powers to chi powers.

Hand of Death (+205%): Toxic Attack 1d (Contact Agent, -30%; Cosmic, Lingering special effect, +100%; Costs Fatigue, 2 FP, -10%; Cyclic, 10 sec., 6 cycles, Resistible, +125%; Delay, Triggered, +50%; Low Signature, +10%; Melee Attack, Reach C, -30%; Resistible, HT-4, -10%) [13]. *Notes:* To deliver the Hand of Death, you *must* touch bare skin. This requires a Karate roll in combat, an ordinary touch otherwise. Only witnesses with the Esoteric Medicine skill will recognize the Hand. Success means you can – at an unspecified future date, from any distance – trigger the Hand. The victim must then roll HT-4 every 10 seconds for a minute. Each failure means 1d injury, as if from poison. There's no way to remove an untriggered Hand or interrupt its toxic effects. Survivors heal normally. *13 points.*

Mega-Kiai (+75%): Crushing Attack 1d (Accessibility, Not in vacuum, -10%; Based on HT, +20%; Costs Fatigue, 1 FP, -5%; Malediction 1, +100%; No Blunt Trauma, -20%; No Knockback, -10%) [9]. *Notes:* Similar to the Kiai skill (p. B203), this mighty shout *injures* the target! To affect the victim, take a Concentrate maneuver and *win* a Quick Contest of Will vs. his HT. Your roll is at -1 per yard of distance between you. *9 points.*

Soul Blast (+170%): Fatigue Attack 1d (Malediction 2, +150%; No Signature, +20%) [27]. *Notes:* This invisible psychic attack disrupts the victim's chi. To affect him, take a Concentrate maneuver and *win* a Quick Contest of Will. Range penalties from the *Size and Speed/Range Table* (p. B550) apply to your roll. This chi attack *doesn't* cost FP like the others . . . it's slow and subtle, not violent. *27 points.*

Some of these abilities resemble weapons or unarmed attacks, and allow attack rolls against normal combat skills instead of the Innate Attack skill. This is a "special effect" aimed at preserving the martial-arts flavor. It doesn't affect point cost.

Normally, the only legal defense against a ranged Innate Attack is a dodge. However, a few of these attacks have the Blockable limitation or Melee Attack limitation, which lets the target attempt a block or parry. Others are Maledictions, which can be resisted but *not* avoided.

Innate Attacks are *unrealistic* and strictly for over-the-top cinematic games – and even then, they have Trained by a Master or Weapon Master as a prerequisite.

Regeneration

see p. B80

Regeneration offers an alternative to *Flesh Wounds* (p. B417) for the GM who wants cinematic PCs back in the game soon after being knocked out or left for dead, but who prefers up-front point costs. The GM chooses the permitted levels. Accessibility limitations are prudent on speedier versions. "Not in combat" (-20%) limits healing to between fights. "Only when unconscious" (-30%) means the hero heals after he passes out, until he awakens at 1 HP. Limited, Crushing (-40%) or Unarmed (-40%) allow quick comebacks from beatings – but be aware that they *also* create the need to record what caused each wound.

Resistant

see p. B80

Martial artists in cinematic games can be Resistant to Hypnotic Hands (p. 61), Invisibility Art (p. B202), Kiai (p. B203), Pressure Points (p. B215), or "Hand of Death" attacks (see *Innate Attack,* pp. 45-47). Neck-toughening exercises (an "iron neck") allow Resistant to Neck Injury, which gives a bonus in Quick Contests to avoid injury from chokes (p. B370) and Neck Snap (p. B404). Arm exercises might give a similar bonus to resist injury from Arm Lock (p. B403) and Wrench Limb (p. B404). Individually, the above items are "Rare." Resistant (+3) to any one of them costs 1 point and makes an excellent Style Perk.

The blanket category "Chi Abilities" is comparable in importance to "Psionics" and therefore "Very Common." Anyone might enjoy Resistant to Chi Abilities (+3) [10]; this represents unusually strong chi. Individuals with Trained by a Master can go as high as Resistant to Chi Abilities (+8) [15]. Immunity to Chi Abilities [30] only suits unnatural beings. These traits protect against *all* noxious effects caused by cinematic skills or chi powers (see *Chi Powers for Martial Artists,* p. 46).

Striker

see p. B88

In a cinematic game, the GM may permit fighters to buy any body part that isn't a limb or an extremity as a Striker. Real-world martial artists have claimed to have "iron" foreheads and buttocks, among other things. Such Strikers must be crushing, can't have the Long enhancement, and frequently suffer from Cannot Parry, Clumsy, and/or Limited Arc.

Video game-inspired Strikers – such as a heavy spiked ball at the end of a long braid – have no such restrictions. They can have almost any reach and damage type. It's up to the GM whether things like that spiked ball are Strikers or just equipment. As a rule, if it gets damage bonuses from unarmed combat skills *and* you're gaming in an unrealistic genre where searches for weapons always conveniently overlook it, it's a Striker.

All Strikers inflict thrust damage at +1 per die – more than most punches and kicks.

New Special Limitation

Limb: Your crushing Striker *isn't* a new body part but a limb. The limb has its normal reach and can strike with Brawling or Karate. Find punching or kicking damage as usual, including skill bonuses, and add +1 per die for the Striker. This *isn't* cumulative with the effects of Claws. *Limb, Arm* is cinematic, and also lets you parry with the arm as if it were a weapon; Unusual Background and training time are as per *Claws* (p. 42). *Limb, Shin* is a realistic part of some styles' training, and enhances shin kicks (p. 112). -20%.

Talent

see p. B89

For general rules governing Talents, see the ***Basic Set.*** Two new Talents are germane to ***Martial Arts:***

Forceful Chi: Breaking Blow, Erotic Art, Flying Leap, Hypnotic Hands, Hypnotism, Invisibility Art, Kiai, Power Blow, Precognitive Parry, Pressure Points, Pressure Secrets, Push, Throwing Art, and Zen Archery. *Reaction bonus:* honorable opponents, those who practice "hard" or "external" styles (including potential students and masters), and lovers (past or present). *15 points/level.*

Inner Balance: Autohypnosis, Blind Fighting, Body Control, Body Language, Body Sense, Breath Control, Dreaming, Immovable Stance, Light Walk, Lizard Climb, Meditation, Mental Strength, Mind Block, and Sensitivity. *Reaction bonus:* pacifists, ascetics, and those who practice "soft" or "internal" martial-arts styles. *15 points/level.*

Someone with Forceful Chi is gifted at projecting his chi – both subtly and violently – to affect objects and people. He can even influence missiles in flight, helping him aim his own ranged weapons and evade his enemies'. His tangible aura of fitness impresses those who face him on the battlefield, at the dojo, or in the bedroom.

A hero with Inner Balance has superior control over his body and mind. This inner peace strengthens his will, sharpens his senses, and enables him to perform impossible feats of endurance and balance. He's visibly at peace, and those who appreciate order and focus find him pleasant to be around.

Forceful Chi and Inner Balance are in many ways opposites. The GM could even make them mutually exclusive. However, the greatest masters of the Chinese martial arts – whose *yang* and *yin* are in perfect balance – might have high levels of *both* talents.

Inigo: You're using Bonetti's defense against me, ah?
Man in Black: I thought it fitting, considering the rocky terrain.
Inigo: Naturally, you must expect me to attack with Capo Ferro . . .
Man in Black: . . . naturally – but I find Thibault cancels out Capo Ferro, don't you?
Inigo: Unless the enemy has studied his Agrippa – which I have.

– The Princess Bride

These Talents don't guarantee *access* to cinematic skills. If a skill lists Trained by a Master or Weapon Master as a prerequisite, you must possess the relevant advantage to learn it.

Trained by a Master

see p. B93

This advantage represents schooling in the esoteric secrets of one or more fighting styles. These martial arts might be armed or unarmed, and of any provenance. One of the primary purposes of Trained by a Master is to give access to cinematic abilities, which might include:

- The cinematic skills Blind Fighting, Body Control, Breaking Blow, Flying Leap, Hypnotic Hands, Immovable Stance, Invisibility Art, Kiai, Light Walk, Lizard Climb, Mental Strength, Power Blow, Precognitive Parry, Pressure Points, Pressure Secrets, Push, Sensitivity, Throwing Art, and Zen Archery – but only if they're part of one of the martial artist's styles!
- Any technique or perk marked with an asterisk (*) to indicate that it's cinematic, provided it belongs to one of the martial artist's styles.
- Exotic and supernatural advantages that are normally off-limits to ordinary humans, such as Altered Time Rate (p. 42), suitably modified Damage Resistance (p. 43), certain Innate Attacks (p. 45-47), and chi powers (see *Chi Powers for Martial Artists,* p. 46).
- Fewer restrictions on advantages that are available to everyone, such as being able to take Claws (p. 42) without Bad Grip, buy all Enhanced Defenses (pp. 43-44), possess more than one level of Extra Attack (p. 44), have Resistant (p. 47) at up to +8 vs. chi abilities, and wield Strikers (p. 47) with Karate.

Another significant benefit of this advantage is to expand the martial artist's combat options. In campaigns that use the optional rules in Chapter 4, Trained by a Master (or Weapon Master) is required for *Chambara Fighting* (pp. 128-130) and *Bullet Time* (p. 133). The GM may also make it a prerequisite for attacking more than twice with Rapid Strike (see *Rapid Strike,* p. 127) or employing extra effort in a fight (see *Extra Effort in Combat,* p. 131). Those with Trained by a Master are never subject to *Harsh Realism for Unarmed Fighters* (p. 124). Finally, Trained by a Master halves the penalties for Rapid Strike (p. B370) and multiple parries (p. B376) – although this *isn't* cumulative with the similar halving for Weapon Master.

Weapon Master

see p. B99

In a ***Martial Arts*** campaign, this advantage represents natural talent with low-tech weapons, or training in the esoteric secrets of an *armed* fighting style. Its main benefit is the damage bonus noted in the ***Basic Set,*** but it also grants access to cinematic abilities, which might include:

- The cinematic skills Blind Fighting, Flying Leap, Kiai, Mental Strength, Power Blow, Precognitive Parry, Pressure Points, Sensitivity, Throwing Art, and Zen Archery, as long as they belong to one of the martial artist's *armed* combat styles.
- *Weapon* techniques and perks marked as cinematic (*), provided they're found among the martial artist's armed styles.
- Several advantages that are usually forbidden to normal characters, such as Altered Time Rate (p. 42), Gizmos (p. 45), certain Innate Attacks (pp. 45-47), and chi powers (see *Chi Powers for Martial Artists,* p. 46).
- Exemption from the usual restrictions on Enhanced Defenses (pp. 43-44) and Extra Attack (p. 44).

Those with Weapon Master also have wider options in combat. When using weapons covered by their advantage, they receive half the usual penalties for *Multiple Fast-Draw* (p. 103), *Quick-Shooting Bows* (pp. 119-120), *Rapid Strike with Thrown Weapons* (pp. 120-121), and *Multiple Blocks* (p. 123). At the GM's option, they can use *Chambara Fighting* (pp. 128-130) and *Bullet Time* (p. 133), too. They can generally attack more than twice using a Rapid Strike (see *Rapid Strike,* p. 127) and employ extra effort in battle (see *Extra Effort in Combat,* p. 131) – even if ordinary fighters cannot.

As the ***Basic Set*** indicates, if you have Weapon Master, you may halve the penalties for Rapid Strike (p. B370) and multiple parries (p. B376). Those who also have Trained by a Master do this *once* – they don't divide by 4. However, the halving of penalties for quick-shooting bows *does* "stack" with the effects of Heroic Archer (p. 45), for Weapon Master specialties covering bows.

These benefits apply when using any weapon covered by your advantage – whether in melee or ranged combat, and whether defending against melee attacks or using the Parry Missile Weapons skill (p. B212) against missiles – as long it's capable of what you wish to attempt.

Wild Talent

see p. B99

This ability is especially suitable for individuals who've achieved "harmony with the Tao" – the putative goal of many Chinese martial arts. A warrior can use this advantage to attempt unmastered techniques at *full* skill instead of at a default penalty, if he knows the underlying skill. A martial artist who also has Trained by a Master or Weapon Master can even attempt unknown cinematic skills. If your Wild Talent *only* works for these two purposes, add the -20% limitation "Focused, Martial Arts."

Extra Hit Points

The GM may let martial artists with appropriate Style Perks increase Hit Points by up to 100% instead of the usual 30%. Hulking TV wrestlers, heavyweight boxers, and massive *sumotori* traditionally enjoy this benefit. Such giants should use the *Build Table* (p. B18) to find weight from *HP* instead of ST. Use the "Overweight" column for HP up to 130% of ST, the "Fat" column for HP up to 150% of ST, and the "Very Fat" column for HP up to 200% of ST.

Extra HP can also represent an unrealistic damage-taking capacity for ordinary-sized people; see *Cinematic Injury* (p. 139). In that case, *anyone* might be able to buy lots of HP. Hit points in excess of ST don't affect the weight of such characters, or increase the damage they take or inflict in falls and slams.

Remember that major wounds, crippling, and death all depend on thresholds calculated from HP. Those with 20+ HP also benefit from *High HP and Shock* (p. B419) and *High HP and Healing* (p. B424).

PERKS

Three new types of perks are important in ***Martial Arts*** games. All can be gained in play. Each perk costs a point. For more on perks, see pp. B100-101.

Style Familiarity

Style Familiarity means you've studied and/or practiced a martial-arts style. You *must* pay a point for familiarity with any style you know. (*Exception:* The "Self-Defense" lens, p. 145, lets you ignore this requirement . . . but you won't enjoy the allowances below.) Its effects are as follows:

- You can acquire the style's Style Perks, learn its cinematic skills (provided you have Trained by a Master or Weapon Master), improve its techniques whenever you have the points, and buy abilities listed among its "Optional Traits" – even ones that are generally off-limits to PCs, if the GM agrees. Style Familiarity acts as an Unusual Background that gives you access to these things. See *Components of a Style* (pp. 141-143).
- You're familiar with the style's *culture* and don't suffer the -3 for lack of Cultural Familiarity when using such skills as Connoisseur (Weapons), Games, Savoir-Faire (Dojo), or Teaching to interact with co-stylists.
- In most settings, you have the equivalent of a 1-point Claim to Hospitality (p. B41) with a school or instructor.
- If your opponent has studied one or more styles and you have Style Familiarity with them *all,* you may reduce the defense penalty from his feints and Deceptive Attacks by -1. You're aware of his styles' tricks and tactics! If the technique he uses with Deceptive Attack or to follow a feint isn't an orthodox part of any of his styles, ignore this effect.

In some campaigns, the GM may let you learn Style Familiarity for styles so secret that they lack style descriptions. For these, ignore the rules above and use *Shout It Out!* (p. 132).

Style Perks

Style Perks are minor advantages or rules exemptions for veteran warriors. The best way to learn them is to study a martial art, as most styles offer them as advanced training. Anyone may buy one Style Perk per 20 points in combat skills. A martial artist who has Style Familiarity may further buy one of *that style's* perks per 10 points he has in its techniques and required skills; see *Components of a Style* (pp. 141-143). For example, 40 points in style abilities would allow two general perks *plus* four style-specific ones. Those with Style Familiarity for multiple styles and the minimum investment in each style (see *Combining Styles,* pp. 147-148) may count points in skills and techniques as part of each style that shares them.

Below, an asterisk (*) indicates a *cinematic* perk that requires Trained by a Master or Weapon Master. Perks with a † require specialization by skill, technique, weapon, etc., as noted. A style may offer a more restricted perk, but it still costs a point. The Style Perks for specific styles appear in Chapter 5 – and if they aren't listed here, they aren't available to non-stylists.

Armor Familiarity†

You're accustomed to fighting in armor. You may ignore -1 in encumbrance penalties to attack or parry with Judo, Karate, or a fencing skill. You have no penalty at Light encumbrance, -1 at Medium, and so on. You must specialize by skill: Armor Familiarity (Judo), Armor Familiarity (Rapier), etc. The GM may permit multiple levels to negate greater encumbrance. Each level is an additional Style Perk.

Biting Mastery

You've learned a highly developed body of effective bites for use in close quarters. You may use Karate skill to attack with a bite and add the Karate damage bonus to biting damage. Styles for fanged nonhumans often have this perk!

Chi Resistance*†

You can rally your chi against a particular chi-based attack form, giving you +3 to resist. Examples include Chi Resistance (Hypnotic Hands) and Chi Resistance (Pressure Points). For details and more examples, see *Resistant* (p. 47).

Cotton Stomach*

You've learned to catch attackers' hands and feet using your abdominal muscles (or rolls of fat!). Once per turn, you can attempt a standard unarmed parry against a punch or kick to your torso, but using your *body* instead of a limb. Success lets you use any follow-up technique capable of trapping an attacker – e.g., Arm Lock or Leg Grapple – "hands free."

Drunken Fighting*

You've mastered the mythical art of fighting while intoxicated (see pp. B439-440). When you're tipsy or drunk (p. B428), treat the -1 or -2 to DX as a +1 or +2 *bonus* in a fight. Penalties to IQ and self-control rolls apply normally!

Exotic Weapon Training†

Certain weapons have a built-in skill penalty due to their unusual balance relative to other weapons used with the same weapon skill. These include the *chigoridani,* three-part staff, and trident (see Chapter 6). You've trained enough with such a weapon that you no longer suffer this penalty. You must specialize by weapon.

Form Mastery†

When using a weapon that works with multiple skills, you must normally specify the skill you're using at the *start* of your turn (see *Switching Weapon Skills,* p. 104). You've practiced fluid shifts between forms and can change skills freely during your turn. For instance, you could start your turn using a spear with the Staff skill, switch to the Spear skill to attack, and then return to Staff for parrying. You must specialize in a weapon: Form Mastery (Naginata), Form Mastery (Spear), etc.

Grip Mastery†

Switching between one- and two-handed grips, or a regular grip and a Defensive Grip (p. 109-111), usually takes a Ready maneuver – but you've practiced until this has become second nature. You can do either grip change (or *both*) as a free action *once* on your turn, before or after your maneuver. For instance, you could make a one-handed katana cut and end your turn in a two-handed Defensive Grip. Next turn, you could shift to a regular two-handed grip and attack. You must specialize by weapon; Grip Mastery (Katana) is the most common version.

Ground Guard

You know a body of tactics for use when you and your opponent are both on the ground. In that situation only, you get +1 in all Regular or Quick Contests to do with grappling – pins, chokes, attempts to break free, etc. If your foe knows Ground Guard, too, your bonuses cancel out. This perk is named for a fighting position used when lying face-up, commonly called the "guard," but encompasses many related positions and also works when crawling or lying face-down.

Improvised Weapons†

You've practiced fighting with everyday items. These weapons might be improvised for others but they're familiar to you. Ignore skill penalties (only) when wielding them; see *Improvised Weapons* (p. 224). You must specialize by combat skill. You *can* learn Improvised Weapons (Brawling) or Improvised Weapons (Karate) to use improvised fist loads effectively.

Iron Body Parts *†

You've toughened a body part through exotic exercises. This provides resistance to injury – either a bonus to resist harm from breaks and locks (see *Resistant,* p. 47) or DR against strikes (see *Damage Resistance,* p. 43) – and the right to buy optional abilities. Details depend on the body part, each of which is its own specialty:

Iron Arms: You have +3 to ST and HT rolls to resist injury from Arm Lock, Wrench Arm, and the like. You may opt to purchase DR 1 or 2 (Partial, Arms, -20%; Tough Skin, -40%) [2 or 4] or Striker (Crushing; Limb, Arm, -20%) [4].

Iron Hands: This is simply DR 1 (Partial, Hands, -40%; Tough Skin, -40%) [1]. Once you've acquired this perk, you may elect to buy a second level of DR [1] and/or Blunt Claws [3]. See *Claws* (p. 42) for possible drawbacks to the latter option.

Iron Legs: You have +3 to ST and HT rolls to resist injury from Leg Lock, Wrench Leg, and similar techniques, and may optionally acquire DR 1 or 2 (Partial, Legs, -20%; Tough Skin, -40%) [2 or 4].

Iron Neck: You have +3 to ST and HT rolls to resist injury from chokes, strangles, and Neck Snaps, and may buy DR 1 or 2 (Partial, Neck, -50%; Tough Skin, -40%) [1 or 2], if you wish.

Naval Training

You've trained at fighting on a rocking ship or boat. You may ignore the -2 to attack and -1 to defend for bad footing under those circumstances.

Neck Control†

You're adept at striking from the clinch. You must specialize in one unarmed striking skill. Whenever you've grappled a *standing* opponent's head, neck, or torso (only), you get +1 to hit when you strike that foe with your skill.

Off-Hand Weapon Training†

You've practiced a particular skill enough with your "off" hand that you can ignore the -4 for using that hand (see *Handedness,* p. B14). This extends to all active defenses and techniques based on that skill. You must specialize by skill; any one-handed Melee Weapon, ranged weapon, or Fast-Draw skill qualifies.

This perk completely replaces the Off-Hand Weapon Training (OHWT) *technique* on p. B232. This is because the cost to buy off -4 as a Hard technique for even one skill is 5 points – the same as Ambidexterity, which eliminates the penalty for *all* skills – and in a ***Martial Arts*** campaign, fighters may need several versions of OHWT to be proficient in their style. As a perk, OHWT is cheaper than Ambidexterity for those with fewer than five specialties . . . and if someone is *that* dedicated, the GM should let him replace his five perks with Ambidexterity for the same points!

Power Grappling

You're adept at applying force precisely when wrestling. *Except* when rolling to hit or for an active defense, you may opt to base normally DX-based grappling rolls on ST. Moreover, whenever you make a ST roll that usually enjoys a ST bonus from Sumo Wrestling or Wrestling – e.g., the roll to break free – you may waive your bonus and attempt a ST-based Judo, Sumo Wrestling, or Wrestling roll *instead*.

Quick-Sheathe†

You've practiced sheathing your weapon *quickly*. After switching to a Reversed Grip (pp. 111-112) using a Ready maneuver, you can try a Fast-Draw roll to scabbard your weapon on the same turn. You can even attempt rolls against both the Reverse Grip technique (p. 78) *and* Fast-Draw to sheathe the weapon as a free action; see *Quick Sheathing* (p. 102). Specialties match those for Fast-Draw (pp. 56-57): Quick-Sheathe (Sword), Quick-Sheathe (Tonfa), etc.

Quick-Swap†

You've perfected the art of juggling a one-handed weapon between hands. Once per turn, *on your turn,* you can switch hands as a free action. The receiving hand must be empty. You must specialize by weapon skill: Quick-Swap (Knife), Quick-Swap (Rapier), etc.

Rapid Retraction†

You punch or kick so quickly that it's difficult for your opponent to trap your limb. You get +1 on all rolls to avoid such techniques as Arm Lock and Leg Grapple when they follow an enemy parry. You must specialize in Rapid Retraction (Punches) or Rapid Retraction (Kicks). The GM may allow Rapid Retraction (Bites) for nonhumans.

Shield-Wall Training

You've drilled extensively at fighting from behind a shield wall. You can sacrifice your block defense to block an attack on an ally standing *beside* you. Furthermore, you may ignore the -2 to attack when holding a large shield (see p. B547).

Shtick†

As noted under *Shtick* (p. B101), a "cool move" that provides no combat bonuses is a valid perk if it might occasionally be useful. Styles with Combat Art skills often teach such flourishes. An example is *chiburi:* flicking blood off a sword blade. Such Shticks require a combat skill roll to perform. Most either allow an Intimidation attempt as a free action (chiburi works this way) *or* give the maximum +4 for "displays of strength" listed for Intimidation (p. B202) if you use your entire next turn to make a deliberate attempt.

Skill Adaptation†

A style's skills represent its basic "subsystems." The techniques that normally default to each skill are that subsystem's core moves – but you know some less-orthodox tactics. You can learn techniques that *don't* default to a skill as if they did, at the usual default penalties. If a technique notes several penalties, use the easiest; e.g., Drop Kick defaults to Brawling-1, Sumo Wrestling-1, or Wrestling-2, so adapting it to Karate makes your default Karate-1. The GM sets the scope of each specialty. It may be as sweeping as Skill Adaptation (Brawling techniques default to Karate) or as narrow as Skill Adaptation (Breakfall defaults to Karate). A few examples important enough to get special names:

Acrobatic Feints: You've practiced using gymnastics to catch enemies off-guard. You may use the Acrobatics skill to feint and may improve the Feint (Acrobatics) technique. Similar perks might exist for other skills (e.g., "Dancing Feints" for the Dancing skill); see *Feints Using Non-Combat Skills* (p. 101).

Acrobatic Kicks: You've learned to kick as a natural extension of flips, jumps, and spins. You can default kicking techniques to Acrobatics instead of to Brawling or Karate. Acrobatic kicks *never* receive Brawling or Karate damage bonuses.

Clinch: You've integrated limited grappling moves into your Boxing, Brawling, or Karate skill – choose one. Whenever you grapple a *standing* opponent's head, neck, or torso (only), use your striking skill for the attack roll. This is rarely worth the point if you already know a grappling skill!

Special Exercises†

You pursue an exercise regimen that grants access to a capability that's normally cinematic or off-limits for your race. This is a perk-level Unusual Background – the ability itself has its own cost. Each trait requires its own perk: Special Exercises (DR 1 with Tough Skin), Special Exercises (Striking ST +1), Special Exercises (Arm ST +1), Special Exercises (HP can exceed ST by 100%), and so on.

Special Setup†

Certain techniques require a specific "setup" before you can execute them. You've learned an alternative setup. Your specialty must name *one* technique and spell out the change. For instance, if you can use Arm Lock after a Karate parry instead of after a Judo parry, you have Special Setup (Karate Parry > Arm Lock).

Strongbow

You've learned how best to draw a heavy bow. If you know Bow at DX+1, you can shoot a bow of your ST+1 instead of your ST. Bow at DX+2 or better lets you use a bow of your ST+2. You need a strong bow to see range and damage improvements; there's no effect when shooting a bow of your ST or less.

Style Adaptation†

You've adapted other styles' techniques for use with your style. Merge the techniques lists of all the styles involved, including yours. You may improve any technique on the combined list, provided it defaults to one of your style's skills. The GM specifies the styles adapted, which might be one or many; the number doesn't affect point cost. Style Adaptation (All) *is* legitimate for modern mixed styles.

Suit Familiarity†

You've learned special moves that offset the limitations of a bulky environment suit. You may ignore the DX penalties for such a suit. The Environment Suit skill (p. B192) still sets an upper limit on effective combat skill – you just don't suffer any *extra* DX penalties. You must specialize by Environment Suit skill: Suit Familiarity (Diving Suit), Suit Familiarity (Vacc Suit), etc.

Sure-Footed†

You've studied low, stable stances for fighting on shaky ground. This lets you ignore the -2 to attack and -1 to defend for a specific type of bad footing. You must specialize. Sure-Footed (Slippery) covers mud, oil, and blood, but not grappling an *opponent* with the Slippery advantage or an oily coating. Sure-Footed (Uneven) covers hills, piles of corpses, etc. The GM may allow other versions, such as *Naval Training* (p. 50).

Teamwork†

You've practiced fighting in a team. To use this perk, everyone in the squad must take a Ready maneuver to "form up." After that, the entire group acts at the same point in the combat sequence as its *slowest* member. On the team's collective turn, each member may select any maneuver he likes. The only requirement is that after everyone in the original formation has taken his turn, they're all still adjacent to one another (in adjoining hexes). If anyone gets separated, the team must form up again – with or without the straggler. A fighter who's formed-up may:

- Brace a teammate in *front* of him and within a yard, adding 1/5 (round down) of his ST or HP, as applicable, to his ally's score when his friend resists a slam (p. B371), executes a shove (p. B372), or suffers knockback (p. B378). This is a free action.
- Feint or make a Ruse and transfer the benefits to another teammate who can reach the same foe.
- Ignore the -2 to attack enemies in close combat with teammates (p. B392).
- Sacrifice a parry or block to defend a teammate *behind* him from a long weapon or missile that passes within a yard (through his hex).

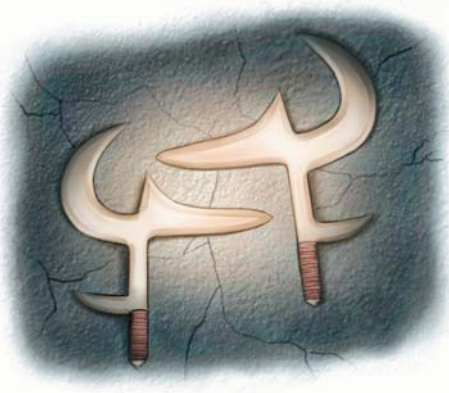
You must specialize by style *or* in working with a particular small group (such as an adventuring party). Only those with the *same* perk can form up and enjoy these benefits.

Technique Adaptation†

You've internalized your style's methodology so completely that you can adapt one of its techniques to skills it doesn't teach. You must specialize by technique: Technique Adaptation (Feint), Technique Adaptation (Ground Fighting), and so on. Once you've spent at least a point to improve that technique for a skill that's part of your style, you can buy that technique for other combat skills you know, provided it normally defaults to them. For instance, if you've learned Technique Adaptation (Feint) and bought up Feint (Karate) as part of your style, and studied Shortsword on your own, you could raise Feint (Shortsword).

Technique Mastery†

You've trained so intensively at a technique that you enjoy a higher maximum level. You must specialize in a technique – commonly a kick or a throw – that's part of your style and that appears in Chapter 3 (the GM may make exceptions). It must have a normal maximum of full skill or better, which disqualifies techniques based on active defenses and those that "cannot exceed prerequisite skill-*x*." A skill's core uses aren't eligible; e.g., Technique Mastery (Judo Throw) and Technique Mastery (Kicking) are fine, but Technique Mastery (Judo Grapple) and Technique Mastery (Karate Punch) aren't. If the standard maximum is skill, *yours* is skill+4. If the limit is ordinarily greater than skill, your maximum is two levels higher than usual (e.g., skill+6 with Arm Lock).



Hungamungas

Unique Technique†

You can use and improve a technique that's otherwise forbidden by *Creating New Techniques* (pp. 89-95). All such techniques are Hard. Each exemption requires its own perk. This is a perk-level Unusual Background.

Unusual Training†

With sufficient training, certain cinematic skills and techniques might work in reality. You've studied one of these. Unusual Training is an Unusual Background that lets you buy a cinematic capability *without* Trained by a Master or Weapon Master. Since what's "cinematic" is often not the feat but the ability to perform it unrestricted, the perk might specify a set of "believable" circumstances that must be true to use the skill or technique. For instance, Unusual Training (Dual-Weapon Attack, Both attacks must target the same foe) permits a fighter to improve Dual-Weapon Attack for use on one opponent; he still has the full -4 if he attacks *adjacent* adversaries simultaneously, because he lacks Trained by a Master and Weapon Master. *Tameshiwari* – realistic breaking techniques – is Unusual Training (Breaking Blow, Only vs. well-braced objects out of combat).

Weapon Adaptation†

You've adapted the moves used with one group of melee weapons to another class of weapons. This lets you wield the weapons covered by one weapon skill using a different skill and its techniques, with all of the benefits and drawbacks of that skill, provided the replacement skill defaults to the usual one at no worse than -4 *and* uses the same number of hands. Each adaptation is a separate perk; e.g., Weapon Adaptation (Shortsword to Smallsword) lets you use the Smallsword skill to fight when equipped with a Shortsword weapon – complete with fencing parries, superior retreats, and encumbrance penalties. The GM may permit silly adaptations, such as Knife to Halberd, as cinematic perks.

Weapon Bond

You own a weapon that's uniquely suited to you. Its quality might be no better than normal, but when *you* use it, you're at +1 to effective skill. This isn't a mystical attunement but a physical matter of balance, fit to your hand, and the like. If the weapon is lost or destroyed, the bond doesn't transfer to a new weapon, but you can acquire a new Weapon Bond in play.

You can have a bond to a weapon of any quality. The price paid for the weapon reflects the quality but not your special bond with it.

DISADVANTAGES

Martial artists will find physical disadvantages unusually crippling – especially such things as Bad Back, Blindness, Lame, Neurological Disorder, One Arm, One Eye, One Hand, Quadriplegic, and Wounded. These problems *do* suit veterans who've suffered injuries, but they're best avoided when creating warriors as new PCs. Other traits that can make life difficult for fighters are Cannot Learn, Combat Paralysis, Hemophilia, Low Pain Threshold, Pacifism (Total Nonviolence), and Post-Combat Shakes.

The availability of cinematic abilities can alter what's truly "crippling," however. For instance, Blind Fighting (p. B180) can mitigate Blindness, while those with Flight thanks to the Chi Projection power (p. 46) won't be tied down by Lame. Only Cannot Learn and Quadriplegic make it genuinely impossible to be a martial artist.

Below are new forms of existing disadvantages that won't cripple martial artists but that can influence combat in interesting ways. They're ideal for ***Martial Arts*** campaigns.

Code of Honor

see p. B127

Three Codes from the ***Basic Set*** – Gentleman's, Soldier's, and Chivalry – suit martial artists well. Two additional Codes are important for historical campaigns:

Code of Honor (Bushido): The Japanese warrior code (see *The Samurai,* pp. 12-13). You must be absolutely loyal to your master and single-minded in the execution of his orders or those dictated by your station. You're expected to die rather than to fail in your task, and to commit ritual suicide without hesitation if so ordered. You must answer any challenge or insult to your lord. You must face pain, discomfort, and even death stoically. You must always be polite to your equals and superiors, and never overlook disrespect from social inferiors; such disrespect is usually punished by death. *-15 points.*

Code of Honor (Xia): The way of the Chinese knights-errant (see *Xia,* p. 8). You must be skilled at arms. You must keep your word, honor your pledges, be humble, and uphold justice for those in need. You must be brave and not spare yourself harm to help others. You must be willing to use force but also to show restraint when force isn't needed. You must respect and honor your teacher. *-10 points.*

Delusions

see p. B130

Martial artists occasionally harbor Delusions about their own or others' skills. Except when such problems lead one fighter to insult another, though, it's unrealistic for them to cause reaction penalties. Non-fighters tend to ignore warriors' braggadocio unless they're being threatened – they're likely to assume that's simply how fighters behave! Such Delusions have other effects instead.

On any turn in combat when such a Delusion would apply (GM's decision), you must attempt a self-control roll; see *Self-Control Rolls* (p. B121). Delusions don't usually have a self-control number, so use the "default" value of 12. The GM may permit other self-control numbers for combat-related Delusions, with the usual effect on point value.

Success lets you take your turn normally. Failure means you must do something *risky* – much as if you were suffering from On the Edge (p. B146). You might All-Out Attack, try an elaborate move that reduces effective skill to 3 (making any roll of 13+ a critical failure), or turn your side or back to an enemy in order to fight a more worthy foe. On a critical failure, you must do something that will affect the rest of the combat; e.g., discard a perfectly good weapon or piece of armor to show derision, or cut yourself for at least 1 HP of injury to demonstrate your toughness.

Common Disadvantages

Many martial artists are honorable warriors, dedicated athletes, or respectful traditionalists. These individuals frequently have such disadvantages as Code of Honor (p. B127); Disciplines of Faith (p. B132), typically Asceticism in historical settings; Pacifism (p. B148), most likely Reluctant Killer or Self-Defense Only; Sense of Duty (p. B153), to fellow students or a master; and Vow (p. B160).

The martial arts also attract more than their share of intemperate, obsessed, vengeful, and violent people who want to learn to maim or kill – or who believe in victory at any cost. These individuals often have some combination of Bad Temper (p. B124); Berserk (p. B124); Bloodlust (p. B125); Bully (p. B125); Callous (p. B125); Fanaticism (p. B136); Intolerance (p. B140); Obsession (p. B146); and Sadism (p. B152).

Either kind of fighter might find his confidence in his training blossoming into Overconfidence (p. B148). From an outsider's perspective, the dedication of a career martial artist looks like Workaholic (p. B162). Both disadvantages are almost universal among movie action heroes!

Finally, a few disadvantages are actually *desirable* for certain martial artists. Overweight, Fat, and Very Fat (p. B19) benefit those who practice Sumo (pp. 198-199), by reducing knockback from shoves and slams. Gigantism (p. B20), by granting +1 SM, gives a discount on the point cost of ST and a bonus to pin attempts (p. B370), making it valuable to grapplers.

Minor Delusions affect combat against a rare category of foes, apply just once per battle, *or* only come up under uncommon circumstances. *Examples:* "Western boxers are pansies, and no match for my karate." "If I start the bout with my secret technique, I'll almost certainly win." "I'm invincible if I fight in a temple." *-5 points.*

Major Delusions affect combat against a large category of foes *or* concern situations that might arise in almost any fight. *Examples:* "My skill at Asian martial arts makes me more effective than any Westerner." "Fighters who kick are weaklings and cowards." "Wounding me only makes me more dangerous." *-10 points.*

Severe Delusions affect almost all combat, all of the time. *Examples:* "I'm the best brawler in the world." "Being of good breeding, I can defeat any lower-class foe." "My style is the ultimate martial art." *-15 points.*

Reputation

see p. B26

You can have a Reputation for always targeting a certain hit location, overusing a combat option or technique, playing dirty tricks, and so forth. Price this as you would a bad Reputation – but the effect is to make you *predictable* rather than to cause others to react poorly. "Foes in combat" is a small class of people; multiply point value by 1/3. Frequency of recognition further modifies cost, as usual.

An opponent who recognizes you is ready for your "signature move," making it less likely to work. If this move requires a Quick Contest (like a feint, or the Quick Contest of IQ discussed under *Dirty Tricks,* p. B405), apply your Reputation level to your roll as a *penalty.* If it involves an uncontested attack roll, add your level to your rival's defense roll as a *bonus* instead. This is cumulative with the benefits your enemy gets from Style Familiarity (p. 49) and Evaluate (see *Countering Feints and Deceptive Attacks,* p. 100) against your feints and Deceptive Attacks, and with the +1 he has to defend against repeated uses of Targeted Attack (p. 68).

Example: Louis Lafouine is notorious for stabbing at the eyes – so much so that what would be a surprising tactic from anyone else is expected from him. He buys four levels of Reputation for this. He gets ×1/3 for "foes in combat" and he's recognized on a 10 or less – about half the time – for a further ×1/2. His Reputation is worth -3 points. Those who recognize Louis get +4 to defend against blows to the eyes.

If you don't attempt your "signature move" in every fight, the GM is within his rights to require you to buy off your Reputation with earned points. If you always do the same thing in combat (and leave witnesses), the GM might *assign* you this kind of Reputation!

Skills

Obviously, the most important skills for martial artists are combat skills (see *Combat Skills,* p. 55). The skills discussed here are mainly *non*-combat skills that merit additional notes for ***Martial Arts*** games. For combat techniques, see Chapter 3. To learn which skills are associated with a particular fighting style, see Chapter 5.

Skills marked with an asterisk (*) are *cinematic,* and unavailable in most realistic settings. In worlds where they exist, you need Trained by a Master or Weapon Master to learn them. Skills with a † *require* you to select a specialty.

Acrobatics

see p. B174

Acrobatics is as important as any combat skill for *capoeiristas,* action heroes, and other flashy fighters. It's required to use combat rules such as *Acrobatic Attack* (p. 107), *Acrobatic Dodge* (p. B375), *Acrobatic Movement* (pp. 105-107), and *Acrobatic Stand* (p. 98), which are at least semi-realistic, and *Chambara Fighting* (pp. 128-130), which is cinematic. Some fighting styles allow an "Acrobatic Feint," too; see *Feints Using Non-Combat Skills* (p. 101).

Autohypnosis

see p. B179

This skill is valuable to martial artists who wish to "fight through" pain and fatigue. In a cinematic campaign, the GM may want to replace the mandatory (20 - skill) seconds of concentration with a variable concentration time and apply the time-based modifiers used for Breaking Blow and Power Blow: -10 if used *instantly,* dropping to -5 after a turn of concentration, -4 after two turns, -3 after four turns, -2 after eight turns, -1 after 16 turns, and no penalty after 32 turns.

*Blind Fighting**

see p. B180

Those who have Inner Balance (p. 47) and ESP Talent (p. B256) or Telepathy Talent (p. B257) may add only the *highest* of the three Talents to their roll. These bonuses don't "stack."

*Body Control**

see p. B181

Body Control can replace HT when resisting Pressure Points (p. B215), Hand of Death (see *Innate Attack,* pp. 45-47), or chi powers (see *Chi Projection,* p. 46). Because it's also effective against the Affliction advantage and poisons, as stated in the ***Basic Set,*** and can resist chi-based afflictions, the GM might find it simpler to let it replace HT for *all* rolls to resist the afflictions on pp. B428-429, regardless of origin. Use the rules for flushing poisons to end enduring effects. The skill for identifying chi-based ailments is Esoteric Medicine (p. B192).

In fiction, Body Control is often used to manage injury. It can replace First Aid and Physician when you treat yourself (only) under the rules on pp. B423-425. Effective TL is that of Esoteric Medicine in the campaign – TL3, unless specified otherwise. Body Control serves as First Aid for bandaging and treating shock. If your level is HT+2 or better, you're considered to be in a physician's care when figuring long-term recovery. If you also receive external medical care, you must choose between it and this skill's benefits; the two don't "stack."

Combat Skills

Where rules in ***Martial Arts*** refer to "combat skills," they mean skills that let you attack or defend in melee combat (but not necessarily both – Garrote and Lance can only attack, and Parry Missile Weapons can only defend), or strike from afar using an innate or muscle-powered ranged weapon. The complete list appears below, sorted into subcategories commonly used by the rules. Combat Art and Sport skills (p. B184) *aren't* combat skills.

Melee Combat Skills

Axe/Mace (p. B208), Broadsword (p. B208), Cloak (p. B184), Flail (p. B208), Force Sword (p. B208), Force Whip (p. B209), Garrote (p. B197), Jitte/Sai (p. B208), Knife (p. B208), Kusari (p. B209), Lance (p. B204), Main-Gauche (p. B208), Monowire Whip (p. B209), Net (p. B211), Parry Missile Weapons (p. B212), Polearm (p. B208), Rapier (p. B208), Saber (p. B208), Shield (p. B220), Shortsword (p. B209), Smallsword (p. B208), Spear (p. B208), Staff (p. B208), Tonfa (p. B209), Two-Handed Axe/Mace (p. B208), Two-Handed Flail (p. B208), Two-Handed Sword (p. B209), Whip (p. B209), and all unarmed combat skills.

Unarmed Combat Skills:

- *Grappling Skills:* Judo (p. B203), Sumo Wrestling (p. B223), and Wrestling (p. B228).
- *Striking Skills:* Boxing (p. B182), Brawling (p. B182), and Karate (p. B203).

Ranged Combat Skills

Thrown Weapon Skills: Bolas (p. B181), Dropping (p. B189), Lasso (p. B204), Net (p. B211), Spear Thrower (p. B222), Throwing (p. B226), and Thrown Weapon (p. B226).

Missile Weapon Skills: Blowpipe (p. B180), Bow (p. B182), Crossbow (p. B186), Innate Attack (p. B201), and Sling (p. B221).

Boxing

see p. B182

This skill isn't specifically associated with the Boxing style (pp. 152-153). *Any* fighting style that teaches a "scientific" approach to punching – but not other unarmed strikes – might include it.

There's rarely a reason to learn Boxing if you know Karate. However, encumbrance penalizes attacks and parries with Karate but not with Boxing. Karate-users who believe that they could end up fighting unarmed while clad in heavy armor might therefore wish to invest in Boxing as well (but see *Armor Familiarity,* p. 49).

The damage bonus for Boxing only applies when attacking with that skill. It doesn't "stack" with Brawling or Karate bonuses.

Brawling

see p. B182

The Brawling skill has a more modest damage bonus than Boxing and Karate, doesn't grant the improved retreating bonus that those skills provide when parrying, and (unlike Karate) is at -3 to parry weapons. It also gives no defaults to "fancy" techniques such as high kicks, exotic hand strikes, and lethal cinematic attacks. Point for point, though, it can be just as deadly as Boxing or Karate . . . under the right circumstances.

First, Brawling is Easy, which means that the same investment in points buys +1 or +2 to hit relative to Boxing (Average) or Karate (Hard). This lets the brawler more easily target vulnerable body parts. Second, Brawling includes the ability to use a blackjack or sap, which largely equalizes damage. Third, Brawling is one of the few ways to improve one's skill and damage with biting, which can be a potent attack in close combat (see *Teeth,* p. 115), and can replace DX in a slam or when smashing foes into walls (see *Grab and Smash!,* p. 118). Finally, Brawling gives defaults to several vicious techniques that Boxing and Karate *don't* cover, including Drop Kick (p. 70), Elbow Drop (pp. 70-71), Eye-Gouging (p. 71), Knee Drop (p. 76), and Two-Handed Punch (p. 81). The last two points in particular mean that fighters with Boxing or Karate might want to invest in Brawling to expand their close-combat options.

The damage bonus from Brawling only applies when using that skill to attack. It doesn't "stack" with Boxing or Karate bonuses.

*Breaking Blow**

see p. B182

Breaking Blow normally only affects unarmed attacks. However, legendary warriors routinely use massive axes, mauls, and swords to lay waste to castles and splinter mighty trees. In a high-powered cinematic game, the GM may permit those who know Breaking Blow and Forced Entry (p. B196) to use this skill when attacking *inanimate objects* with melee weapons (and even battering rams!).

Combat Art or Sport†

see p. B184

In a real fight, martial artists with Combat Art or Sport skills function as if their skill were three levels lower. This is because of the -3 default penalty between Art/Sport skills and combat skills. If a combat skill enjoys special benefits – such as the +3 for a retreat when parrying with Boxing, Judo, Karate, or a fencing skill – these *do* apply to its Art and Sport forms. When these benefits depend on skill level, though, use the level *after* the -3 default penalty. For instance, to claim +1 damage for knowing Karate at DX level, a *karateka* with Karate Sport would need DX+3 level.

The reason why Combat Art skills aren't as effective as combat skills in a real fight isn't always that they "emphasize graceful movements and perfect stances," however. Just as often, these skills teach techniques that look impressive in a staged fight without regard for combat effectiveness *or* traditional aesthetics! Stunt fighters learn such Combat Art skills to put on an entertaining show for the camera or a live audience.

Even so, stunt fighters are still fighters. They may use combat and Combat Sport skills at the usual penalty (-3). To create an actor who knows nothing about fighting but who can *simulate* a fight by following directions, take Stage Combat (p. B222). This gives no default to combat skills. For more on simulated combat, see *Faking It* (p. 130).

The distinction between combat, Combat Art, and Combat Sport skills is a realistic one. It doesn't always suit fantastic and cinematic settings. The GM is free to waive the -3 default penalty between these skills and allow martial artists who know one skill to use the other two at the same level. This is suitable for action heroes, who use the same moves to pose and show off (Combat Art), compete in tournaments (Combat Sport), and wipe the floor with the bad guys (combat skills).

Qian Kun Ri Yue Dao

See *Techniques and Combat Art/Sport Skills* (p. 64) and *Untrained Fighters* (p. 113) for other important rules pertaining to Art/Sport skills.

Connoisseur†

see p. B185

A specialty of importance in ***Martial Arts*** games is Weapons. This skill defaults to any Armoury or armed-combat skill at -3. A successful roll lets you estimate a weapon's quality and value, identify a legendary weapon, or impress martial artists (may give +1 on Savoir-Faire (Dojo) or reaction rolls, at the GM's option). Craftsmen and fighters generally rely on their defaults unless they're also collectors.

Esoteric Medicine

see p. B192

In a realistic setting, the chi-based attacks of martial-arts myth are so much mumbo-jumbo. They're normal strikes and grapples, and the injury they inflict is treatable with mundane medical skills. A Psychology roll might be needed to convince the patient that he's suffering from a bruised kidney and not the dreaded *dim mak,* of course!

In a cinematic setting where such abilities as chi powers (see *Chi Projection,* p. 46) and the Pressure Points and Pressure Secrets skills (p. B215) exist, though, only Esoteric Medicine can recognize these things and treat their effects. Mundane medicine can heal lost HP, but it can't halt further injury from an ongoing effect or alleviate its symptoms. At the GM's option, Esoteric Medicine might rival mundane medicine when it comes to treating *ordinary* illness and injury, too. If so, it can do everything that Physician can do, and any skill with a Physician default (e.g., Diagnosis, First Aid, Pharmacy, Physiology, Poisons, and Surgery) defaults to Esoteric Medicine at the same penalty.

Expert Skill†

see p. B193

For general rules governing Expert Skills, see the ***Basic Set.*** A new Expert Skill is important in ***Martial Arts*** games:

Hoplology: This is the study of how people fight, invented by explorer Sir Richard F. Burton in the 19th century and championed by martial artist Donn F. Draeger in the 20th. Its goals are to classify weapons and fighting styles by their origins and capabilities, and understand *why* they evolved. Hoplology can stand in for Anthropology, Psychology, or Sociology to identify known types of ritual combat or combative behavior; Archaeology, Geography, or History to answer questions about who used a weapon or style, where, and when; and Armoury or Connoisseur (Weapons) to identify a weapon. A successful roll while watching a fight will identify the combatants' styles (but to identify *secret* styles, you'll need Hidden Lore, p. 57) and give an idea of what techniques to expect.

Fast-Draw†

see p. B194

In combat-heavy campaigns – like ***Martial Arts*** games – it's crucial to know *exactly* what weapons each Fast-Draw specialty covers. This list isn't exhaustive, but it's a start:

Force Sword: Any ultra-tech weapon that retracts into its hilt and requires the user to toggle a power switch to ready it. Includes all Force Sword, Force Whip, and Monowire Whip weapons.

Knife: All Knife and Main-Gauche weapons, and any weapon hurled using Thrown Weapon (Dart) or Thrown Weapon (Knife).

Sword: Weapons that call for Broadsword, Jitte/Sai, Rapier, Saber, Shortsword, or Smallsword skill – including *sticks* covered by those skills. The GM may extend this to such sticks as boomerangs and spear throwers, which use Thrown Weapon (Stick) and Spear Thrower, respectively.

Two-Handed Sword: All Two-Handed Sword weapons, plus any 1- or 2-yard Spear or Polearm weapon carried tip-down in a back sheath, like a naginata.

The GM may allow these *new* specialties for exotic weapons:

Balisong: Used to open or close a *balisong* (p. 213) that's already in hand. Roll against skill to do either. Critical failure causes a point of cutting damage to the hand; critical success gives +1 to Intimidation. Use Fast-Draw (Knife) to *draw* a balisong. If you use Fast-Draw (Balisong) on the same turn, it's at -2; see *Multiple Fast-Draw* (p. 103).

Flexible: Any chain, rope, or thong used as a weapon, including all Kusari and Whip weapons, and slings (use Sling skill). In cinematic campaigns, add nunchaku (use Flail skill) to the list.

Shuriken: Any weapon hurled using Thrown Weapon (Shuriken).

Stone: Sling ammo and throwing stones, when carried in a container. Works like Fast-Draw (Arrow).

Tonfa: Any baton with a protruding side handle, for use with Tonfa skill.

For special Fast-Draw rules, see *Multiple Fast-Draw* (p. 103), *Fast-Draw from Odd Positions* (pp. 103-104), *Who Draws First?* (p. 103), and *Quick-Readying Nearby Weapons* (p. 104).

*Flying Leap**

see p. B196

Flying Leap is vital for *chambara* or *wuxia* fighters! See *Special Feats for Cinematic Skills* (p. 129) for optional rules that greatly enhance this skill in highly cinematic games.

Games†

see p. B197

Judges of competitive martial-arts events *must* know Games, unless the standards are very low. Most contenders get by with IQ-based rolls against Combat Sport (p. B184). Any style with a sport version in Chapter 5 has its own Games specialty – or *several,* if there are multiple competition types in the setting.

All-in fighting championships are a special case. Some have a Games specialty that's unassociated with a style. Others have *no* rules . . . and no Games skill.

Group Performance†

see p. B198

See *Faking It* (p. 130) for rules for using the Fight Choreography specialty with Stage Combat. This skill also lets you coordinate demo bouts between fighters using Combat Art or Sport skills.

Hidden Lore†

see p. B199

A new specialty is available in ***Martial Arts*** games:

Secret Styles: You know about styles not widely taught in your world – their legends, living masters (and where to find them), techniques, and cinematic abilities, if any. This *doesn't* mean you know how to use them.

Hobby Skill†

see p. B200

The following skill is DX/Easy and often learned by martial artists in settings where they moonlight as fakirs and strongmen:

Feats of Strength: You collect tricks that show off your physical grit. Base the skill roll on the score that suits the feat (see p. B172): ST to tear a phone book in half or lift in a showy way (e.g., using teeth or a body piercing), DX to "punch out" a candle flame, Will to walk on hot coals or rest on a bed of nails, and so on. A -4 for lack of familiarity applies to tricks you haven't practiced. This skill doesn't improve your capabilities. You can only lift what your ST allows – and while a roll might mean you don't flinch when punched, you're still hurt. Also, while you know the secrets of hot coals and beds of nails, you suffer injury if you fail. In a cinematic game, Body Control, Power Blow, etc., replace this skill and *do* add new capabilities.

Judo

see p. B203

Judo is the generic skill of "advanced" unarmed grappling. It's part of any style that incorporates a systematic body of grabs, grapples, sweeps, and throws, regardless of the style's provenance. It isn't uniquely associated with the Judo style (p. 166); in fact, that art teaches the Judo Sport skill, not Judo!

Sumo Wrestling and Wrestling don't lend their ST bonuses to Judo techniques – even techniques that also default to those skills. Unless a rule explicitly states otherwise, you only receive these bonuses when using Sumo Wrestling or Wrestling, or their techniques.

Jumping

see p. B203

Jumping is necessary to get the most out of several optional combat rules, including *Acrobatic Movement* (pp. 105-107) and *Flying Attack* (p. 107) in any campaign, and *Chambara Fighting* (pp. 128-130) in cinematic games.

> *Though we cannot make it possible to fly to the heavens like Superman or to make your body transparent like the Invisible Man, we can make things that are impossible for ordinary people possible, if you practice diligently.*
>
> *– Mas Oyama,* ***This Is Karate***

Karate

see p. B203

Despite its name, the Karate skill isn't exclusively associated with Karate styles (pp. 169-172). It's the generic skill of "advanced" unarmed striking. It constitutes part of any art that teaches a complete system of strikes with hands, elbows, knees, and feet – whether that style comes from Okinawa, ancient Greece, or Alpha Centauri.

The damage bonus from Karate only applies when attacking with the Karate skill or one of its techniques. It never "stacks" with damage bonuses from Boxing or Brawling. At the GM's option, though, martial artists who gain Claws or Strikers as part of their training – or who belong to races with *natural* Claws or Strikers – may wield them with Karate to further enhance damage. To be able to apply Karate bonuses to *biting* damage, take the Biting Mastery perk (p. 49).

*Kiai**

see p. B203

This skill has a Japanese name but isn't restricted to practitioners of Japanese styles. It can represent *any* kind of war cry, and suits cinematic warriors of all stripes. The GM may want to waive the Trained by a Master or Weapon Master prerequisite. He might even allow those with Musical Instrument skills to gain the Intimidation bonus (but not stun enemies) at fairly long distances by playing instruments such as bagpipes.

Knot-Tying

see p. B203

Use Knot-Tying to tie up a foe after entangling him with a whip (p. B406) or a lariat (p. B411). You must enter close combat with him and roll a *Regular* Contest of Knot-Tying vs. his DX or best grappling skill each turn. This counts as an Attack. If you win, you bind his arms to his sides. If you lose, he's free of your weapon.

See *Binding* (pp. 82-83) for a more cinematic way to tie someone up with this skill.

*Light Walk**

see p. B205

This skill offers additional combat options in highly cinematic *chambara-* or *wuxia*-style campaigns. See *Special Feats for Cinematic Skills* (p. 129).

Main-Gauche

see p. B208

It's permissible to use Main-Gauche with your master hand to receive the benefits of a fencing parry while wielding a knife. Armed this way, you can also attack at your full Main-Gauche level. If you *just* want to attack with a knife, you can save a few points by learning Knife (DX/Easy) instead of Main-Gauche (DX/Average).

*Mental Strength**

see p. B209

In addition to helping resist the abilities mentioned in the ***Basic Set,*** Mental Strength can replace Will when resisting chi powers (see *Chi Projection,* p. 46) or the Hypnotic Hands skill (p. 61). It's also good against *mental* effects contested by a score other than Will, such as Mind Control spells and truth drugs that target HT – make a DX-, IQ-, HT-, or Per-based Mental Strength roll to resist, as appropriate. Finally, Mental Strength can substitute for Will to "stare down" a foe or resist the same; see *The Contest of Wills* (p. 130).

Parry Missile Weapons

see p. B212

Parry Missile Weapons isn't a cinematic skill, but it's far more effective in the hands of martial artists who enjoy cinematic abilities. For one thing, since fighters with DR 2+ on the hands can use this skill to parry with their hands, those who have DR 2 or more from "iron hands" (see *Damage Resistance,* p. 43) don't need weapons or armor to parry projectiles. Other "iron body parts" may parry, too, at the GM's discretion.

Warriors with both Enhanced Parry and Weapon Master for a weapon gain their Enhanced Parry bonus when using Parry Missile Weapons with that weapon. Those with Trained by a Master and "iron hands" likewise get a bonus for any Enhanced Parry that includes bare hands. The GM may also permit an Enhanced Parry variant that benefits attempts to parry ranged weapons by any means; see *Enhanced Defenses* (pp. 43-44).

Those with Enhanced Time Sense (ETS) can actually parry bullets, blaster bolts, and other slower-than-light firearms attacks; see *Enhanced Time Sense* (p. 44). Such parries are at -5. ETS doesn't normally allow parries against light-speed weapons such as lasers . . . but the GM may allow this, still at -5, if the defender *also* has Precognition (p. B77). For another option, see *Precognitive Parry* (p. 62).

The penalties for multiple parries in a turn are halved as usual for those with Trained by a Master or Weapon Master; see *Parrying* (p. B376). Don't roll separately to parry each hit from a rapid-fire attack, though. Roll just once. Success means you deflect one hit plus additional hits equal to your margin of success. Critical success parries all the hits!

*Power Blow**

see p. B215

At the GM's option, those who know Power Blow at Will+1 or better may use it in lieu of Will when attempting extra effort with physical feats or chi powers. Use *Extra Effort* (p. B356), not the usual Power Blow rules. The only change is that Power Blow replaces Will.

*Pressure Points**

see p. B215

The GM might want to let martial artists who know this skill attack pressure points that produce some of the effects under *Realistic Injury* (pp. 136-139), even in a cinematic game that doesn't otherwise use those rules. All of these attacks work as usual for Pressure Points: the attacker must strike the target hit location at an extra -2, inflict at least a point of injury, and *win* a Quick Contest of Pressure Points against the victim's HT.

- *Arm or Leg:* You can stop short of fully crippling a limb, inflicting any of the three levels of lesser effects under *Partial Injuries* (p. 136) – the most severe of which counts as torture for the purpose of Interrogation (p. B202). Duration is still 5d seconds. You can also target joints, as explained under *New Hit Locations* (p. 137). This gives the victim -2 on his HT roll to resist but otherwise produces the usual effects of a limb hit.
- *Neck, Skull, or Vitals:* You can temporarily induce any of the unpleasant effects on the table give for the targeted hit location under *Lasting and Permanent Injuries* (pp. 138-139). (*Exception:* You can't inflict Wounded.) Duration is 2d seconds, making attribute and Basic Speed penalties the most useful effects.

● *Other Hit Locations:* You may target a few of the other body parts discussed in *New Hit Locations*. Striking the ear causes Deafness (p. B129); the jaw, Mute (p. B125); and the nose, No Sense of Smell/Taste (p. B146). Disadvantage effects last 2d seconds. A successful attack on the spine causes immediate knockdown and stunning, regardless of injury. The victim gets the usual HT roll each turn to recover.

*Pressure Secrets**

see p. B215

In a cinematic game that generally ignores *Realistic Injury* (pp. 136-139), the GM may opt to apply those rules selectively to Pressure Secrets attacks. For instance, Pressure Secrets might be able to target the hit locations defined under *New Hit Locations* (p. 137) and count as an impaling weapon where favorable – notably, when attacking veins and arteries. The GM might even rule that if a Pressure Secrets attack inflicts twice the injury needed to cripple an ear or a nose, it plucks off the body part, much as a cutting attack would. To make Pressure Secrets truly frightening, the GM could ignore *Lasting and Permanent Injuries* (pp. 138-139) for most attacks, even deadly high-tech weapons, but enforce those rules when Pressure Secrets inflicts a major wound on the neck, skull, veins and arteries, or vitals.

*Push**

see p. B216

You may opt to substitute Push for ST (*not* skill) whenever you attempt an unarmed technique intended to knock an opponent down or back without grappling or injuring him. For shove-like techniques, use Push's special knockback-only "damage" instead of the usual roll. These benefits affect Push Kick (p. 78), Sweep (p. 81), Trip (p. 81), and any shove- or sweep-based technique (see *Basic Attacks,* p. 59).

Savoir-Faire†

see p. B218

Most formally trained martial artists know Savoir-Faire (Dojo). The effectiveness of this skill depends greatly on Style Familiarity (p. 49) and Cultural Familiarity (p. B23). A martial artist who has Style Familiarity with a style has no penalty to use Savoir-Faire (Dojo) to show proper respect, issue challenges, or otherwise interact with the style's practitioners *as martial artists* – even if he's unfamiliar with their culture. If he lacks Style Familiarity, he rolls at -1. If the unfamiliar style is from an unfamiliar culture, he suffers an additional -3.

Sports†

see p. B222

Competitive martial arts use Combat Sport skills (p. B184), not Sports. A lot of sports are essentially "bloodless" gladiatorial contests, though. Team sports in particular often involve violent contact. Sometimes, it's even legal.

Forget about winning and losing, forget about pride and pain: let your opponent graze your skin and you smash into his flesh; let him smash into your flesh and you fracture his bones; let him fracture your bones and you take his life! Do not be concerned with your escaping safely – lay down your life before him!

– Bruce Lee

Optionally, the GM may permit Sports rolls in combat; e.g., Sports (Rugby) to connect with a slam or Sports (Hockey) to attack with a two-handed stick. He might even allow techniques to default to Sports, where logical: Evade (p. 71) might default to Sports (Rugby), Hook (p. 74) might default to Sports (Hockey), and so on. Sports and techniques based on them are at -3 in a real fight – just as Combat Sport skills default to combat skills at -3. For a related topic, see *Techniques and Combat Art/Sport Skills* (p. 64).

Stage Combat

see p. B222

This skill has nothing to do with knowing how to fight – for real or for show. It's the ability to *fake* a fight by performing specific, rehearsed moves according to a script. To be a stunt fighter, learn Combat Art skills. For more on simulated combat, see *Faking It* (p. 130).

Sumo Wrestling

see p. B223

This skill is named after a traditional Japanese form of ritual combat (see *Sumo,* pp. 198-199) but could be part of *any* style that alternates shoves, slams, and sweeps to unbalance the enemy. In the real world, this combination is uncommon but not unknown – see *T'ai Chi Chuan* (pp. 200-201). Sumo Wrestling also suits practitioners of synthetic "strong man" styles (*sumotori* have competed at no-holds-barred fighting, and other contenders have no doubt adopted their best techniques), rugby players-turned-action heroes, and super-strong comic-book characters.

The ST and damage bonuses from Sumo Wrestling only apply when using the skill. They don't "stack" with Brawling or Wrestling bonuses in situations where more than one skill could apply.

Tactics

see p. B224

Tactics *is* a martial-arts skill, but it works before the action starts. Below are two options for the GM to use in place of the rules on p. B224.

Abstract: If not using a map, roll a Quick Contest of Tactics between the leaders of the two sides before the battle. The winner receives "rerolls" equal to his margin of victory. If his side has 10+ fighters, multiply this by 10% of the size of his force and round down; e.g., for 15 warriors, victory by four gives six rerolls.

In battle, a leader may grant his rerolls to any ally who has just attempted a combat-related die roll. The recipient rolls twice more and selects the best result. The leader's player *must* describe how such tactical factors as cover and formation altered the outcome. If the GM disagrees, the reroll is wasted. Unused rerolls disappear at the end of the fight.

Mapped: This method is intended for tactical combat (pp. B384-392) in which the plot doesn't dictate force placement. The GM must first designate what part of the battlefield each side controls when hostilities begin. It's fairest to bisect the map – north/south, left/right, etc. – unless the story demands otherwise. In player vs. player conflict, any division that both sides agree on is acceptable.

Next, roll a Quick Contest of Tactics between the leaders, recording the margin of victory. The winner chooses whether he or his rival puts warriors on the map first. In a tie, flip a coin or roll a die. The leaders then take turns placing one man – or 10% of their forces, if larger – on *their* side of the map.

Once everyone is on the map, the winner may move one ally (or 10% of his men, if larger) to a more favorable position on the "friendly" side of the map *or* one opponent (or 10% of the enemy, if larger) into adverse circumstances on the "hostile" side per point of victory. He may move fighters toward or away from bad footing, cover, concealment, support, etc. He may not move his warriors *behind* the foe or turn enemies to face the wrong way.

Wildcard Skills for Styles

In a silly or highly cinematic game, the GM may want to introduce wildcard skills (see p. B175) that encompass entire fighting styles. A "Style!" skill replaces all the skills of a single style – including optional skills that the GM believes every student should know. If the martial artist has Trained by a Master or Weapon Master, this includes the style's *cinematic* skills. Style! skills are DX-based, but allow IQ-, HT-, Per-, and Will-based rolls for skills controlled by those scores.

A Style! skill removes the need to learn individual techniques. The stylist may roll against the maximum level allowed for any technique his style offers, using his Style! skill as the underlying skill. If the technique has no maximum, use skill+3. Techniques that aren't part of the style but that default to the style's core skills default to Style! at the usual penalties. To improve such techniques above default, learn a new Style! skill that covers them.

Even DX-3 level in a Style! skill grants Style Familiarity with that style. Don't buy it separately. The stylist may purchase his style's Style Perks for a point apiece without regard for total points in the style. If a perk requires specialization by skill, the Style! skill *is* a valid specialty and the perk works with all applicable skills of the style.

Example: Escrima (pp. 155-156) requires students to learn Karate, Main-Gauche, and Smallsword. It has many optional skills – the GM might rule that all but Bow, Shield, and Tactics suit modern-day fighters. Escrima! would replace all of these skills. With Trained by a Master or Weapon Master, it would replace Mental Strength, Power Blow, and Pressure Points, too. A stylist with Escrima! could use any of his style's techniques at its maximum level; for instance, he could try Dual-Weapon Attack at Escrima! or Feint at Escrima!+4 when using Escrima weapons.

A martial artist with Escrima! gains the benefits of Style Familiarity (Escrima) without having to buy it. He may ignore limits on points in style when he takes Style Perks, buying as many as he wants for a point apiece. If he selects the Off-Hand Weapon Training perk, it's for Escrima! and lets him ignore the off-hand penalty whenever he uses that skill.

*Throwing Art**

see p. B226

The damage bonus for Throwing Art only applies to purpose-built throwing weapons and doesn't "stack" with the damage bonus for Weapon Master. Neither bonus improves the damage listed for improvised weapons in the ***Basic Set.*** Martial artists with Throwing Art may find this expanded list of improvised weapons helpful:

Thrust-4 – *Crushing:* BB*, bottle cap, button, matchstick*, or wadded cigarette foil*. *Cutting:* Business card, creased cigarette foil, or folded dollar bill. *Impaling:* Paper dart ("airplane"), sewing needle*, straightened paperclip*, or 1" finishing nail*.

Thrust-3 – *Crushing:* Egg, ice cube*, pebble, small die, or 1" bolt. *Cutting:* Credit card, playing card, poker chip, or small coin (penny). *Impaling:* Blowgun dart*, chopstick, hairpin, hypodermic syringe, knitting needle, lockpick, pencil, or 2"-3" nail*.

Thrust-2 – *Crushing:* Large die, pistol cartridge, small tree nut, wristwatch, or 2"-3" bolt. *Cutting:* Large coin (silver dollar), pizza cutter, potsherd, or razor blade. *Impaling:* Dart (from the pub, not a war dart), fork, penknife, scalpel, or 4"-5" spike.

Thrust-1 – *Crushing:* Handball, pocket watch with chain, large tree nut, rifle cartridge, or 4"-5" bolt. *Cutting:* Metal ruler, paint scraper, or spatula. *Impaling:* Crossbow bolt, fondue fork, kebab skewer, screwdriver, table knife, or 6" spike.

Thrust – *Crushing:* Baseball, flashlight battery, machine gun cartridge (.50 or larger), or roll of coins. *Cutting:* Broken bottle, hand spade, hubcap, or metal plate. *Impaling:* Arrow, barbecue fork, marlinspike, piton, or railroad spike.

Thrust+1 – *Crushing:* Beer can or bottle (full), coconut, flashlight, horseshoe, purse of coins, rolling pin, telephone, or whetstone. *Cutting:* Cleaver, metal serving tray, or rotary saw blade. *Impaling:* Hedge trimmer, lawn dart, or pool cue (javelin-style).

Swing+1 – *Crushing:* Baseball bat, golf club, ham (whole), pistol, pool cue (end over end), small household appliance (swung by power cord), or tire iron.

* At the GM's option, these items can also be blown from the mouth at full skill.

Tonfa

see p. B209

Learn this skill only if you want to be able to switch quickly between a regular grip (to swing a tonfa like a club) and a Reversed Grip (to strike and parry with a tonfa in close combat), or if you plan to buy an Arm Lock technique (p. 65) for use with a tonfa. If you carry a tonfa merely to enhance "unarmed" strikes and parries, Brawling or Karate will suffice. For more information, see *Reversed Grip* (pp. 111-112).

Wrestling

see p. B228

This skill is part of any style that teaches grapples, pins, and takedowns – many of which don't have "wrestling" in their name (see *Wrestling,* pp. 204-206). It represents a *combat* skill, not a sport, and offers defaults to many damaging techniques for knocking down or crippling foes: Backbreaker (p. 82), Drop Kick (p. 70), Elbow Drop (pp. 70-71), Knee Drop (p. 76), Piledriver (p. 85-87), and Wrench Spine (p. 82). These feats of strength nicely complement the sweeps and throws of Judo. Fighters who know one skill would certainly benefit from the other.

Wrestling and Sumo Wrestling differ, too. Wrestling can't substitute for DX in a shove or a slam – and doesn't include sweeps – but makes up for this by giving a ST bonus that extends to chokes, locks, neck snaps, pins, and wrenches (unlike that of Sumo Wrestling). A fighter with both skills could slam or sweep a foe to the ground and follow up with a pin . . . or an elbow drop!

Like the bonus for Sumo Wrestling, Wrestling's ST bonus becomes a damage bonus when making an attack that inflicts damage: +1 *per die* at DX+1, increasing to +2 at DX+2 or better. The ST and damage bonuses for these skills never "stack." You only receive the bonus of the skill you're using.

*Zen Archery**

see p. B228

Those who have the Heroic Archer advantage (p. 45) and Bow at 18+ may learn this skill *without* having Trained by a Master, Weapon Master, or the Meditation skill.

New Skills

Some additional cinematic skills may be available to those with Trained by a Master or Weapon Master in ***Martial Arts*** games.

*Hypnotic Hands**

IQ/Hard

Defaults: None.
Prerequisites: Trained by a Master and Hypnotism at 14+.

You can induce a trancelike state in others through hypnotic hand motions. You can only affect a single victim, who must see your *hands.* Hypnotic Hands doesn't work on those who are blind, facing away, etc., and is affected by any defense effective against hypnotism or chi-based mind control.

To use your skill, take a Concentrate maneuver. At the end of your turn, you can either roll to influence your target or opt to continue the motions. If you continue, take another Concentrate maneuver . . . and so on, until you decide to attempt your skill roll. The total focus and complex motions required by this skill give you -2 to all active defenses while concentrating.

Once you decide to project your chi to influence your victim, spend 1 FP and roll a Quick Contest of Hypnotic Hands against his Will.

Tetsubo

Modifiers: -1 per two *full* yards of distance between you; any visibility penalties (for darkness, smoke, etc.); +1 after two turns of concentration, +2 after four turns, +3 after eight turns, +4 after 16 turns, and a further +1 per doubling of time, with no upper limit.

If you win, your opponent is mentally stunned (see p. B420) for seconds equal to your margin of victory. After that, he may roll against IQ each turn to recover. Until he does, you can use your Hypnotism skill on him – even in combat! This takes the usual five seconds, but your subject resists at Will instead of at Will+5. See *Hypnotism* (p. B201) for effects. If you know Invisibility Art (p. B202) and choose to use it, your victim is at -5 in the Quick Contest to notice you.

*Lizard Climb**

DX/Hard

Defaults: None.
Prerequisites: Trained by a Master, and both Acrobatics and Climbing at 14+.

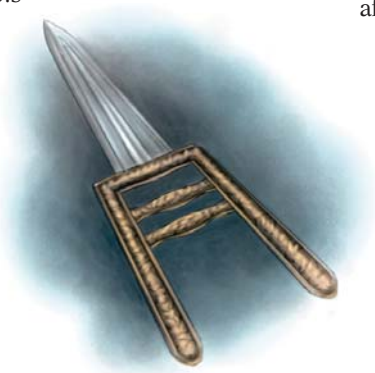
This skill lets you scale vertical or near-vertical surfaces – walls, steep hills, large tree trunks, etc. – like a gecko. You must climb facing the surface, using (empty) hands and feet, or with your back to it, using elbows and heels. Roll once per *second* of climbing.

Modifiers: A penalty equal to encumbrance level (e.g., -1 for Light). The type of surface matters: +2 for rough natural materials (bark or a rock face), +0 for most walls (wood, brick, or stone), or -2 for smooth surfaces (glass or steel); +2 if sloped rather than vertical. Add -1 if wet, -3 if icy or slimy, or -5 if greased. Freeing a hand or foot gives -2 per extremity less than four (minimum one) in contact with the surface. Claws (p. B42) or artificial claws (*neko-de*) give +2 when climbing any surface but a smooth one – but only when *facing* it.

Success lets you travel half your Move up, down, or across the surface, or simply cling to it without moving. For instance, with Move 7, you could climb 3.5 yards – about one story – up a sheer wall in a second! Lizard Climb *isn't* Clinging (p. B43), though. In particular, you can't move along ceilings.

Failure means you fall, but you can try to catch yourself (see below). On a critical failure, you fall *away* from the surface and can't reach it in order to stop your fall.

If falling past a surface close enough that you can reach it, you can try to break your fall. Make a DX roll to touch the surface, and then a Lizard Climb roll at -1 per 5 yards already fallen, plus the above modifiers. Success stops your fall. Failure means you continue to fall; you can't make a repeated attempt.



Katar

You can dodge normally while climbing and retreat by skittering up the wall. If you make a skill roll at a suitable penalty to free a limb, you can even attack and parry at no penalty. However, any combat result that causes a fall – knockback, knockdown, critical miss, etc. – knocks you *off* the wall. You can try to stop yourself if you're not stunned, but shock penalties (if any) apply.

When climbing something other than a flat surface (e.g., a rope), a successful Lizard Climb roll gives a bonus to Climbing. This equals half your margin of success, rounded down. Minimum bonus is +1. In a *chambara-* or *wuxia*-style campaign, other stunts are possible – see *Special Feats for Cinematic Skills* (pp. 129-130).

*Precognitive Parry**

IQ/Hard

Defaults: None.
Prerequisites: Trained by a Master or Weapon Master; Danger Sense or Precognition; and one melee combat skill at 18+.

This skill allows you to parry attacks that normally come in too fast to parry – bullets, beams, etc. – *without* having Enhanced Time Sense. You must be aware of your attacker for Precognitive Parry to work; it's worthless against true surprise attacks. Whenever an attack that satisfies these criteria would hit you, make a Precognitive Parry roll.

Modifiers: Add the *higher* of your ESP Talent (p. B256) or Forceful Chi (p. 47).

On a failure, you can't parry. You may still dodge, if the attack is one that permits a Dodge roll. On a critical failure, though, you believe that the attack will miss and don't even *bother* to dodge!

On a success, you're alerted to the attack far enough in advance that you can move a weapon or limb to intercept it. You may attempt to parry just as if you were defending against a melee attack. Combat Reflexes and Enhanced Parry give their usual bonuses.

Failure on the parry means you're hit. Success means you interpose your weapon or limb in time. The attack inflicts its damage on whatever you're using to parry. If using a weapon, it's destroyed if reduced to -5×HP after DR (see *Damage to Objects,* p. B483) – but only damage in excess of this affects *you,* and your DR protects normally. If using a limb, you're simply hit in the limb instead of in the attack's original hit location. Success by five or more on the parry, or critical success, deflects the attack without harm to your weapon or limb.

A force sword or force whip doesn't have DR or HP – it's made of energy. A successful parry with such a weapon deflects an energy attack harmlessly and burns up a projectile. Against a *really big* projectile, the GM may want to roll damage for the force weapon and compare it to the projectile's DR and HP.

Knowing when and where a melee attack, thrown weapon, or slower missile will hit is also useful. You may opt to try a Precognitive Parry roll before an active defense against such an attack. Success gives +1 to your defense. Failure means you misjudge, giving -2. As usual, critical failure means you believe the attack will *miss* and don't even bother to defend.

*Sensitivity**

Per/Very Hard

Defaults: None.
Prerequisites: Trained by a Master or Weapon Master.

Sensitivity represents skill at being hyperaware of a nearby enemy's stance and intent. Choose *one* opponent – who must be in close combat with you *and* either touching you, visible, or detected with Blind Fighting – and roll against Sensitivity. This is a free action on your turn.

Modifiers: +2 for Sensitive Touch; +2 for Vibration Sense; the *higher* of Telepathy Talent (p. B257) or Inner Balance (p. 47); -1 per failed attempt against the subject this combat.

Success gives +1 to all close-combat attacks and defenses against that opponent, and to Blind Fighting, Immovable Stance, Precognitive Parry, and Push rolls made to combat him. Success by 3 or more, or critical success, gives +2. These benefits last for as long as you and your rival stay in close combat. If you leave and return, roll again. You may opt to reroll each turn. You *must* reroll if you change subjects.

Chapter Three
Techniques

The big American lunged, but his attack was off-target thanks to Kai's jab. Kai saw where the punch was going and sideslipped. It was suddenly clear to Kai why Americans had invented the telegraph: they insisted on advertising everything – even a punch.

The thug yelled, "My name is Boris Howard Fine. I'm the bare-knuckles champ 'round here. No ***GIRL*** *is gonna get the better of me!" He emphasized his point by launching another all-out punch.*

Kai deflected it with her hand and followed through with a lightning-fast riposte. "Whipping Branch Strikes Ape!"

"Who you callin' an ape?" Boris took the hit and swung again.

Kai evaded by tumbling acrobatically between Boris' legs, striking as she went. "Cunning Rat Picks Grapes!"

"Gah!" Boris looked startled and then fell over.

Kai turned to the growing crowd with a slight bow. "Excuse me, which way to San Francisco?"

A *technique* is any feat of skill that one can improve independently of the governing skill. The techniques in this section, being intended for martial artists, depend mainly on combat skills. They represent attacks, defenses, weapon-handling routines (grip changes, weapon retention, etc.), and strategies for coping with less-than-ideal circumstances (for instance, fighting from the back of a galloping mount).

Martial-arts techniques obey all of the rules under *Techniques,* pp. B229-230. Their properties in brief:

Specialties: The buyer of a technique must specify the combat skill he's learning it for. (*Exception:* This isn't necessary for a technique associated only with Dodge or an attribute.) This is the technique's *specialty.* Most techniques offer a limited selection of specialties – perhaps one of the subcategories under *Combat Skills* (p. 55), often an even shorter list. A warrior *can* learn a given technique for several different skills, but he must study and pay for each specialty separately.

Defaults: A technique defaults – typically at a penalty – either to the skill chosen as its specialty or to an active defense or another technique based on that skill. (*Exception:* A technique associated with Dodge or an attribute defaults to that score.) The penalty occasionally differs from specialty to specialty. A warrior who hasn't spent points to *improve* a technique can still *attempt* it at default.

Prerequisites: To improve a technique above default, the buyer must have at least one point in any skill listed as a *prerequisite.* This always includes the chosen specialty skill and may include others.

Difficulty: Techniques come in two difficulties: Average and Hard. This affects only the point cost to improve the technique; see the *Technique Cost Table* (p. B230).

Maximum: Nearly every technique has an upper limit relative to the parent skill. Once the martial artist reaches this level, he must raise the underlying skill to improve further.

Description: Some techniques raise or lower the attacker's defenses, or those of his target. Others affect damage. Many require a skill roll and/or specific action for setup or recovery. Several are new versions of such maneuvers as All-Out Attack and Move and Attack, and *replace* the usual rules for those maneuvers. A few have unique effects. Read the *entire* entry to learn the technique's strengths, weaknesses, and peculiarities.

Techniques and Combat Art/Sport Skills

A technique that defaults to a combat skill also defaults to the related Combat Art and Combat Sport skills at the same penalty. The Art version is for exhibition, the Sport version is for competition. If you improve the technique, however, you need only buy it *once.* Your level relative to the controlling skill – default, default+1, etc. – applies when using the technique with *any* of these skills. On your character sheet, you can note the specialty and associated skill level for any of the three skills.

Example: Kanjo Tosho knows Karate Art at 16 and learns Jump Kick (p. 75). Jump Kick defaults to Karate-4, so it also defaults to Karate Art-4. His default is 12. He improves this to default+3, giving him Jump Kick (Karate Art) at 15. This is mainly for show – it looks great! However, Tosho also has Karate at 15, so default+3 means he could use Jump Kick (Karate) at 14 in a real fight. And with Karate Sport at 14, he could even try Jump Kick (Karate Sport) at 13 in competition. Tosho's player decides which one of the three appears on his character sheet, but he only pays points to improve *one* technique.

This is a special case! Normally, when Skill A defaults to Skill B, Skill A's techniques *don't* default to Skill B's techniques. For instance, Shortsword defaults to Broadsword-2, so a fighter with Broadsword at 20 has Shortsword at 18 by default. Back Strike (p. 67) defaults to skill-2; therefore, if he improves Back Strike to default+2 for Broadsword, he gets Back Strike (Broadsword) at 20. But this *doesn't* give him Back Strike (Shortsword) at default+2, or 18. He only gets his usual default, or 16.

Sodegarami

Using Techniques Together

Some techniques can be used together in a way that combines all of their effects in a single success roll. For instance, you could use Ground Fighting (p. 73) with Kicking (pp. 75-76) to kick from the ground, rolling only once to attack. In such situations, determine the *relative level* of each technique by taking the difference between its level and that of its parent skill. Like relative skill level (p. B171), this is helpful information to note on your character sheet. To calculate your level with the combined technique, sum the relative levels of all the techniques involved and add the total to the underlying skill.

Example: With Karate at 14, Kicking at 13, and Ground Fighting (Karate) at 12, your *relative* level with Kicking is 13 - 14 = -1. Your *relative* level with Ground Fighting is 12 - 14 = -2. When kicking from the ground, add relative levels and roll at Karate-3, or 11.

Learning Techniques

Each style in Chapter 5 emphasizes specific techniques that those who know it (see *Components of a Style,* pp. 141-143, and *Buying a Style,* pp. 146-148) may elect to study and improve. A fighter can attempt *any* technique that defaults to *any* of his skills, regardless of what style he practices or whether he even studies a style. Instruction in a martial art is simply a justification for buying the art's techniques above default, if the martial artist wishes.

It's fairest if individuals who receive systematic training learn fastest, although the GM may make exceptions. If using the rules on p. B292, dedicated training at a style counts as *Intensive Training.* Martial artists who receive instruction outside their style (e.g., from friends or visiting masters) advance according to *Education,* or half as fast. Those who learn from books, videos, etc., improve as per *Self-Teaching,* or 1/4 as fast. Studying opponents' techniques in bouts is *Learning on the Job* and 1/8 as fast – but the entire duration of the tournament counts, not just time spent competing.

The GM decides whether adventurers can use earned points to improve techniques outside their style. This is probably fair if a warrior routinely attempts a technique at default in mortal combat. See *Quick Learning Under Pressure* (p. B292) for rules.

Whatever the justification for improving a technique, find the point cost using the *Technique Cost Table* (p. B230). It's sometimes tempting to invest in many techniques, but it's rarely cost-effective to spend points on more than a few – perhaps only a single Hard one – per skill. Players on a budget should check whether improving the underlying skill would be better, particularly at low skill levels where 1 or 2 points could buy up the entire skill. It's most efficient to work on the skill until it costs 4 points/level, then pick one or two techniques as "signature moves" and raise them until they're at or near the maximum. A fighter can end up with a sizeable list of techniques if he does this for several skills.

Example: Bridget has DX 13 and Karate-15 [12]. She gets Feint-15 and Kicking-13 by default. Buying Feint-16 [2] and Kicking-14 [2] would cost 4 points, but it would be more effective to invest those points in Karate. Karate-16 [16] would give Feint-16 and Kicking-14 by default, and improve every other use of Karate, too. Of course, Feint-18 [4] would give the highest Feint for 4 points and be the best choice if Bridget wanted Feint as a signature move!

Realistic Techniques

Many of these techniques are *difficult* – and some are dangerous to the user – but all are realistic. The GM could allow even the flashiest of them in a high-realism campaign.

Acrobatic Stand

Average

Default: Acrobatics-6.
Prerequisite: Acrobatics; cannot exceed Acrobatics skill.

This represents training at quickly regaining your feet in a fight; see *Acrobatic Stand* (p. 98) for details. A successful roll lets you go from lying down to standing as a single Change Posture maneuver; on a critical success, you do so as a "step." Failure means you go to a sitting posture. Critical failure leaves you lying down, wasting your turn.

You can also use Acrobatic Stand to go from crawling or sitting to standing as a step. In this case, failure means you stand as a Change Posture maneuver, not as a step. Critical failure means you fall down!

Modifiers: A penalty equal to your encumbrance level.

Aggressive Parry

Hard

Default: prerequisite skill Parry-1.
Prerequisite: Boxing, Brawling, or Karate; cannot exceed prerequisite Parry.

Only a few "hard" styles teach this tactic. Instead of merely deflecting a blow, you attempt to *injure* your attacker with an especially forceful parry. This is incompatible with Cross Parry (p. 121).

Roll against Aggressive Parry to defend, at the usual -2 for Boxing vs. a kick, or -3 for Boxing or Brawling vs. a swung weapon. You cannot retreat. Failure means you're hit; your attacker may choose to hit his original target, your parrying arm, or your parrying *hand.* Success means you parry and may roll against the underlying skill to strike the attacking body part or weapon, modified as follows.

Modifiers: Against unarmed, -2 to hit an arm or leg, -4 to hit a hand or foot; -2 for Boxing vs. a leg or foot; -1 if your foe knows Rapid Retraction (p. 51). Against armed, a basic -3; another -3 to -5 for weapon size (see p. B400); a further -3 for Boxing or Brawling vs. a swung weapon.

Success on this skill roll inflicts thrust-4 crushing damage or thrust-2 at -1 per die, whichever is *worse,* on the targeted weapon or body part. Skill bonuses apply normally. Failure means you didn't parry forcefully enough to inflict damage.

Weapon parries against unarmed attacks are essentially aggressive "for free"; see *Parrying Unarmed Attacks* (p. B376).

Arm or Wrist Lock

Average

Default: prerequisite skill.
Prerequisite: Judo, Wrestling, or appropriate Melee Weapon skill; cannot exceed prerequisite skill+4.

An arm (or wrist) lock is an attempt to restrain or cripple an opponent by twisting his arm. It normally uses Judo or Wrestling skill. This technique lets you improve effective skill for this purpose only.

To use Arm Lock, you must have two hands free and make a successful barehanded parry with Judo or Wrestling against your opponent's melee attack. On your first turn following the parry, you may attempt to capture your attacker's arm *if he's still within one yard.* This is an attack: step into close combat and roll against Arm Lock to hit. Your foe may use any active defense – he *can* parry your hand with a weapon! If his defense fails, you trap his arm.

Your foe may attempt to break free (p. B371) on his next turn, but you're at +4 in the Quick Contest. If he loses, he has a cumulative -1 on future attempts to break free.

On your *next* turn – and each turn thereafter, until your foe breaks free – you may try to damage the trapped arm. Roll a Quick Contest: the *higher* of your ST (including your Wrestling bonus) or Arm Lock vs. the *higher* of your victim's ST or HT. If you win, you inflict crushing damage equal to your margin of victory. The target's *rigid* DR protects normally. Flexible armor, including natural DR with the Flexible or Tough Skin limitation, has no effect.

If you cripple your victim's arm, he drops anything in that hand. You can inflict no further damage on a crippled limb but you can continue to roll the Contest each turn. If you win, your target suffers shock and stunning just as if you had inflicted damage.

Rolls to inflict damage are completely passive and don't count as attacks. You can simultaneously make close-combat attacks on your opponent, who defends at -4 in addition to any penalties due to injury caused by the lock itself. If you decide to throw him using the lock, this *does* count as an attack; see *Throws from Locks* (pp. 118-119).

You can use this ability *offensively* as well. Instead of waiting to parry an attack, grapple your foe normally with Judo or Wrestling. If he fails to break free on his next turn, you may try Arm Lock on your next turn, just as if you had parried his attack.

You can also apply this lock with a weapon. Default and prerequisite skills become a weapon skill. To initiate the lock requires a weapon parry or an Armed Grapple (p. 67). A reach C weapon gets +1 in the Quick Contest to cause damage; anything longer gets +2. Edged weapons can inflict crushing *or* cutting damage, but you must make a DX roll when you roll to inflict injury. Failure does thrust cutting damage to your off hand (DR protects normally). Otherwise, use the rules above.

Arm Lock uses precision and skill to cripple a foe's limb. For a brute-force technique, see *Wrench (Limb)* (p. 82).

Techniques That Aren't

Martial artists practice dozens of distinct attacks and defenses that they call "techniques." The majority of these aren't techniques in the sense of pp. B229-233. ***GURPS*** lets fighters use their combat skills to try *hundreds* of permutations of maneuvers, movement, and combat options; e.g., a swordsman can use Attack to turn in place and stab to the face, which is nothing like using All-Out Attack to dart forward and hack at a foot. Most "techniques" that martial artists study are simply variations of this kind. To underline this, the GM may opt to deny certain actions to the relatively untrained (see *Limited Maneuver Selection,* p. 113).

Below are examples of "non-techniques." Warriors generally can't improve these independently of skill – although highly optional Targeted Attacks (p. 68) and Combinations (p. 80) can remove hit location and Rapid Strike penalties.

Stances

Every martial art has specialized stances, many of which bear interesting names: "cat stance" (from Karate), "boar's tooth" (from Longsword Fighting), and so on. Defensive stances allow the Defensive Attack (p. 100) and All-Out Defense maneuvers. Forward-leaning, aggressive stances justify All-Out Attack (Long) (pp. 97-98). Low, broad stances are less vulnerable to takedowns, and explain why high grappling skills help resist such attacks. Knowledge of effective fighting stances isn't an independent technique – it's one of the most basic elements covered by any combat skill.

Punches

Any straight or crossing blow with a closed fist is a basic punch at Boxing, Brawling, or Karate skill. The name for such a strike depends on the style and the combat maneuver. Crosses, hooks, and reverse punches are typical Attacks; a jab is the archetypal Defensive Attack; and a lunge punch, roundhouse, or haymaker is a Committed Attack (pp. 99-100) or All-Out Attack.

Many famous punches from sports and cinema are nothing more exotic than punches that use specific combat options. For instance, a "rabbit punch" is a punch to the back of the head or neck; the opening strike of Bruce Lee's "straight blast" is a Deceptive Attack that relies on sheer speed (see *Jeet Kune Do,* pp. 164-165); and the classic two-jab combination favored by boxers is a Rapid Strike.

Only punches that use unorthodox striking surfaces – the side of the hand, an open hand, an extended finger, two clasped hands, etc. – or that deliver extra damage *without* going "all-out" merit distinct techniques. These strikes are tricky without extra training. Examples include Exotic Hand Strike, Hammer Fist, Two-Handed Punch, and Uppercut.

Kicks

Almost every standing kick to a frontal target – including crescent, rising, side, and snap kicks – is a straight kicking attack at Karate-2 or Brawling-2. Short, jabbing kicks are Defensive Attacks. Hard-hitting hook and roundhouse kicks are Committed Attacks or All-Out Attacks. Combat options often enter the equation, too. For instance, the "double side kick" of Tae Kwon Do is a Rapid Strike – and also a Telegraphic Attack (p. 113).

To improve all of these kicks, raise Kicking (pp. 75-76) – or increase Karate or Brawling. Only kicks from unusual positions (Back Kick), those with limited target selection (e.g., Axe Kick and Stamp Kick), and those that require the attacker to hop, spin, or jump (such as Jump Kick, Spinning Kick, and Drop Kick) can justify distinct techniques. The additional training is needed to work around the risk or awkward angles involved.

Weapon Strikes

Armed stylists – especially swordsmen – often name or number their art's basic guard positions, thrusts, and swings. These are by definition *standard* attacks and parries, not explicit techniques. Most "advanced" methods add in maneuvers other than Attack. Draw cuts, flicking blows from the wrist, and so on are Defensive Attacks. Aggressive tactics – flèche, lunge, pass, stab-and-twist, etc. – are Committed Attacks or All-Out Attacks. The "floor lunge" is an All-Out Attack (Long).

Even some *unusual* modes of attack are normal blows combined with combat options. A dramatic, circular sword cut (called a *moulinet* by saber fighters) is a Telegraphic Attack. Sliding a weapon along the enemy's to bypass his guard (a "glide" or *coulé*) is a Deceptive Attack. Using the tip of a blade to cut is a Tip Slash (p. 113). Striking a two-handed blow using a one-handed weapon is an application of Defensive Grip (pp. 109-111). Attacking with an inverted blade is an example of Reversed Grip (pp. 111-112).

Weapon techniques are mainly for difficult combat conditions (horseback, close combat, etc.) or non-striking attacks (especially sweeping and grappling).

Grappling

Grapples, takedowns, and pins – and many follow-ups, such as strangling and the options in *Grab and Smash!* (p. 118) – are possible even for average, untrained people. The Judo, Sumo Wrestling, and Wrestling skills teach moves that make such actions more effective, but these are left abstract, not bought as techniques. Grappling the arms from behind is called a "full nelson" and a takedown made by hooking your leg around your opponent's, a "reap" . . . but Full Nelson and Reap aren't techniques. The same applies to so-called "sticking hands": situational awareness is simply part of basic skill, and explains why more skilled fighters have a higher Parry and better odds in Quick Contests.

Grappling techniques are reserved for locks, breaks, and throws that require precise body positioning to be effective. Anyone can grab a foe, but it takes training to apply an arm bar. Examples include Arm Lock, Neck Snap, and Piledriver.

Setup Tactics

Attacking into an adversary's attack is a Stop Hit (p. 108), and a standard option for anybody who takes a Wait maneuver. Converting a parry into an attack is a Riposte (pp. 124-125), and possible for any fighter who can parry. To be successful at either, one must be good at attacks and parries in general. It makes little sense to train at these things exclusively!

Armed Grapple

Hard

Defaults: Cloak, or other prerequisite skill-2.
Prerequisite: Cloak or appropriate Melee Weapon skill; cannot exceed prerequisite skill.

Many armed styles teach how to step close to a foe, maneuver a weapon past him, and then pull it in tightly to restrain him. This results in an actual grapple of his body in close combat. To snag an opponent at full reach, use Entangle (p. 71) for a flexible weapon or Hook (p. 74) for one with a hook or other projection. To lock blades with him, use Bind Weapon (see below).

To initiate an armed grapple, roll against weapon skill at -2 – this is an awkward and unconventional attack for most weapons. It's a standard move with a *cloak,* however, and uses your unpenalized Cloak skill (see p. B404). Use the hit location penalties for grappling, not those for striking.

Your opponent may use any normal defense. If he fails to defend, you've successfully grappled him with your weapon. While using your weapon to grapple, you can neither attack nor defend with it. On your turn, you can follow up with a takedown, pin, choke, or Arm Lock (options depend on the body part grappled). Releasing the grapple is a free action.

A one-handed weapon other than a cloak can only grapple if you grip it in two hands first. This requires a Ready maneuver.

Attack from Above

Average

Default: prerequisite skill-2.
Prerequisite: Any unarmed or Melee Weapon skill; cannot exceed prerequisite skill.

Some styles teach techniques for pouncing on a foe from above. This technique lets you buy off the -2 to attack described in *Attack from Above* (p. B402). It's particularly suitable for cinematic ninja!

Axe Kick

Hard

Default: Karate-4.
Prerequisite: Karate; cannot exceed Karate skill.

This kick involves lifting a leg and smashing it down onto the target heel-first. It's a special option for Committed Attack (pp. 99-100) and All-Out Attack (p. B365). Use the rules below *instead* of the normal rules for those maneuvers.

An Axe Kick has reduced *vertical* reach. If your foe's SM exceeds yours by +1, you can't target his head while he's standing. If he's larger, you can't hit his head unless he's crawling or on the ground. Resolve an attack to the foot as a Stamp Kick (pp. 80-81) rolled at your Axe Kick level.

As a Committed Attack, an Axe Kick does thrust+1 crushing damage – or thrust at +1 per *two* dice, if better – plus skill bonuses. Roll against Axe Kick to hit. Afterward, you can't dodge or retreat until your next turn, and are at -2 on all remaining active defenses.

As an All-Out Attack, an Axe Kick does thrust+2 – or thrust at +1 per die, if better – plus skill bonuses. Hit or miss, you have *no* defenses until your next turn!

An Axe Kick is difficult to back away from. If your opponent's retreat bonus makes the difference between a hit and a miss for an attack aimed above the foot, the kick still hits a lower body part. Head or neck shots strike the torso; torso, arm, or hand blows hit a leg; and kicks to the groin or leg stomp a foot.

This move also beats down the target's guard. A successful attack roll gives the defender -1 to parry any attack *following* the Axe Kick until his next turn – even if his defense against the kick succeeds. Axe Kick is a good opener for a Rapid Strike or Combination!

Back Kick or Back Strike

Hard

Defaults: prerequisite skill-2, or -4 for a kick.
Prerequisite: Karate or any Melee Weapon skill; cannot exceed prerequisite skill.

This technique lets you kick or use a melee weapon against a foe to your rear without making a Wild Swing or changing facing – although your legs must be free in order to change *stance.* Back Kick defaults to Karate-4. Back Strike defaults to Melee Weapon-2 and you must specialize; e.g., Back Strike (Staff). To throw a "back punch," use Elbow Strike (p. 71).

To use this technique, you *must* know that your adversary is behind you! Roll against Back Kick or Back Strike to hit, at an extra -1 if you target a specific hit location.

A Back Kick has standard reach and damage for a kick. A Back Strike can only reach an enemy within one yard, regardless of weapon length. Thrusting attacks do their usual damage; swinging attacks have -2 damage or -1 damage per die, whichever is worse. A Back Strike from a Reversed Grip (pp. 111-112) uses the reach and damage effects of that grip *instead* of those given here.

In all cases, you're at -2 to all active defenses until your next turn. This *is* cumulative with the -2 to parry with a weapon in a Reversed Grip!

Bind Weapon

Hard

Default: prerequisite skill-3.
Prerequisite: Jitte/Sai or any fencing weapon skill; cannot exceed prerequisite skill.

Fencers with swords that have crosspiece hilts can lock blades or hilts in a so-called bind. With a pronged weapon such as the *jitte* (p. 217), it's possible to bind any weapon. This technique covers all such tactics.

To bind, you must first successfully parry your opponent's fencing blade with your own such sword – or use a Jitte/Sai weapon to parry *any* weapon. On your first turn after the parry, roll against Bind Weapon to try to bind the weapon you parried; this is an attack. If you're using a fencing weapon, your adversary must be within a yard and you must step into close combat. With a Jitte/Sai weapon, the target weapon must merely be in reach (see p. B400).

Your foe's only legal defenses are a dodge or a parry with the targeted weapon. He may retreat for the usual bonus. If his defense fails, you bind weapons – and if he tried to retreat, he can't step back.

You can use Bind Weapon *offensively* rather than after a parry. Step into range (see above) and roll against Bind Weapon to hit. The only difference is that your foe may try any defense, not just a dodge or a parry with the target weapon.

While a bind is in effect, neither fighter can use the weapons involved to attack or defend. All other actions taken by defender and attacker alike are at -2 DX.

Your foe may attempt to free his weapon on his turn. This counts as an attempt to break free (p. B371), and requires a full turn and a Quick Contest of his weapon skill against your Bind Weapon technique. If he uses finesse to disengage, make DX-based rolls. If he uses brute force, the rolls are ST-based. If he *wins,* the bind ends – and if he used ST, *you* must make a skill or Retain Weapon roll or drop the weapon you used to bind!

Either of you can escape by dropping the weapon in the bind. This is a free action at any time. *You* can end the bind without losing your weapon. This, too, is a free action – but only on your turn.

This tactic is common for two-weapon fencers – especially those with a main-gauche. The objective is to bind the enemy's blade and attack with a secondary weapon. Jitte/Sai fighters use paired weapons to similar effect.

Breakfall

Average

Defaults: Acrobatics, Judo, or Wrestling.

Prerequisite: Acrobatics, Judo, or Wrestling; cannot exceed prerequisite skill+5.

Optional Rule: Targeted Attacks

Attacks on "high-value" targets – face, chinks in armor, weapons, etc. – are effective fight-stoppers, which is why so many fighting styles teach them. These rules let warriors study such moves as Hard techniques called *Targeted Attacks.* For each Targeted Attack (TA), the martial artist must specify three things:

Skill: The Melee Weapon or unarmed combat skill used.

Attack: The specific strike or grapple involved. For weapon skills, this is either "Swing" or "Thrust." For unarmed striking skills, this is generally "Punch." Either can instead name a striking technique such as Disarming, Kicking, Lethal Strike, or Return Strike. For grappling skills, options are "Grab," "Grapple," and – for Judo – "Throw."

Target: This can be a hit location other than the torso (Eye, Face, Arm, etc.), chinks in armor at a specific hit location (Torso Chinks *is* valid, although the GM may rule that some hard armor isn't vulnerable), or Weapon. The attack must be able to target the location in the first place – a condition that most often affects attacks to the vitals, eye, or chinks in armor (see pp. B399-400).

The default penalty equals the modifier to hit the target. For strikes, this is -2 for Arm or Leg, -3 for Groin or Vitals, -4 for Hand or Foot, -5 for Face or Neck, -7 for Skull, or -9 for Eye. It's -10 for chinks in armor on any of these locations (this *replaces* the usual penalty), but only -8 for chinks in torso armor. All strikes at weapons default at -4. Blows (Swing, Punch, etc.) intended to *break* a weapon have no extra penalty; attempts to disarm must specify Disarm as their attack and have a further -2 except with a fencing weapon (see p. B400).

Grapples use *half* the usual hit location penalty: -1 for Arm or Leg, -2 for Hand or Foot, -3 for Face or Neck, etc. *Grabs* for weapons are at -4. Judo throws can target any body part but the Eye, Vitals, or Groin, at the penalties given for strikes. Such throws damage the targeted location *and* require a HT roll to avoid stun (see *Judo Throw,* p. 75).

If defaulting from a skill, add the penalty for any special attack: -1 for Knee Strike; -2 for Elbow Strike, Kicking, or Lethal Strike; -4 for Lethal Kick; and so on. If defaulting from a technique, *don't* apply this penalty – the technique's default already includes it! Disarms default to skill *and* Disarming at the same penalty.

By improving Targeted Attack, the fighter can buy off up to *half* of his default penalty (round up) for a strike, grab, or throw, or the *whole* penalty for a grapple. Write the TA as "TA (**Skill** *Attack*/Target)." Some examples:

TA (Boxing Punch/Face): Defaults to Boxing-5; cannot exceed Boxing-2.

TA (Broadsword Disarm/Weapon): Defaults to Broadsword-6 or Disarming (Broadsword)-6; cannot exceed Broadsword-3 or Disarming (Broadsword)-3.

TA (Broadsword Swing/Neck): Defaults to Broadsword-5; cannot exceed Broadsword-2.

TA (Judo Throw/Skull): Defaults to Judo-7; cannot exceed Judo-3.

TA (Karate Knee Strike/Groin): Defaults to Karate-4 or Knee Strike-3; cannot exceed Karate-2 or Knee Strike-1.

TA (Rapier Thrust/Vitals Chinks): Defaults to Rapier-10; cannot exceed Rapier-5.

TA (Wrestling Grab/Weapon): Defaults to Wrestling-4; cannot exceed Wrestling-2.

TA (Wrestling Grapple/Arm): Defaults to Wrestling-1; cannot exceed Wrestling.

Roll against Targeted Attack to hit. A TA against a weapon assumes -4 to hit; roll at +1 vs. large weapons (-3 to hit), -1 vs. small ones (-5 to hit).

Repeating a Targeted Attack makes you predictable. If you use the same TA twice on a foe in a fight, he defends at +1 against your third and later uses!

Targeted Attacks are realistic but complex. The GM is welcome to forbid them if they seem too fussy.

This technique covers ways of controlling or absorbing the shock of a fall: shoulder rolls, slapping the ground, and so on. When you're thrown for damage (see *Judo Throw,* p. 75), a successful Breakfall roll deducts one plus your margin of success from damage. If this prevents *all* damage, you may opt to end up crouching instead of lying down. You can also try to end up crouching after a non-damaging throw, but the lack of momentum makes it tricky: roll at Breakfall-3. Finally, you may substitute Breakfall for Acrobatics when rolling to reduce the effective distance of a fall (see *Falling,* p. B431); any success lets you end up crouching, if you wish.

Cavalry Training

Hard

Default: Melee Weapon skill-2.
Prerequisites: Riding *and* any Melee Weapon skill; cannot exceed Melee Weapon skill.

This technique lets a mounted warrior buy off the -2 for attacking on the same turn as his mount (see *Attacks by Mounts,* p. B397). It also helps when he attacks while his mount's velocity is 7 or more relative to his target. Such an attack is normally at +1 to damage and -1 to skill (see *Cavalry Weapons,* p. B397), but improving Cavalry Training to Melee Weapon skill-1 eliminates this -1. Raising Cavalry Training to full skill eliminates *both* penalties. Remember that skill with a mounted attack can't exceed Riding skill – or Combat Riding (see below), if better.

Choke Hold

Hard

Defaults: Judo-2, Wrestling-3, or appropriate weapon skill-3.
Prerequisite: Judo, Wrestling, or appropriate weapon skill; cannot exceed prerequisite skill.

This close-combat attack involves locking the target's neck and applying pressure. It requires two hands. Roll against Choke Hold to hit. If you come from in front of your victim, you're at -1.

Your victim may try any legal defense. If he fails, you apply the hold, which counts as a grapple. If you struck from behind, he can only defend if he knew you were coming (see p. B391). Otherwise, all he can do is attempt to tuck his chin to counter your hold. This is a parry at -2 with a grappling skill. He can't retreat. If he succeeds, you grapple him but get no hold; critical success means he completely ducks your attack.

On your foe's next turn and on subsequent turns, he may try to break free. You're at +5 in the Quick Contest for using two hands. You control only his neck and head, not his arms and legs. He *can* attack you at the usual -4 for being grappled. If you came from behind, he may only try the strikes detailed under *Pain and Breaking Free* (p. 119) or attempt to grapple your arm, which allows the usual follow-up techniques on later turns.

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On your *next* turn – and on each turn thereafter, until your prey breaks free – you may apply pressure to your victim's carotid arteries to subdue him or to his trachea to choke him. This counts as an attack. Roll the Quick Contest described in *Choke or Strangle* (p. B370). Your hold gives you +3 ST. A carotid ("blood") choke inflicts fatigue damage. A tracheal ("air") choke delivers crushing damage.

You can apply this hold using a weapon. Default and prerequisite skills become a weapon skill. The lever gives a *further* ST bonus to restrain or injure your victim: +1 if reach C, +2 if longer. You can choke with the flat or the edge of a sword; if using the edge, you may only choke for *cutting* damage. You must grasp a sword with one hand on the handle, one on the blade. Make a DX roll when you roll to inflict injury. Failure does thrust cutting damage to your off hand (DR protects normally).

Close Combat

Hard

Defaults: prerequisite skill-4, -8, or -12.
Prerequisite: Any Melee Weapon skill; cannot remove more than half the default penalty.†

In close combat (p. B391), a weapon without "C" in its Reach statistic gives a skill penalty based on its reach: -4 for reach 1, -8 for reach 2, or -12 for reach 3. In addition, swing damage is at -1 per yard of reach; e.g., a broadsword does -1 damage, a greatsword gets -2, and a full-sized halberd has -3. Thrusting attacks do normal damage. Calculate skill and swing damage penalties using the weapon's *longest* reach, not the reach at which it's currently ready.

This technique lets you buy off *half* the skill penalty. You may buy it up to skill-2 for a reach 1 weapon, skill-4 for a reach 2 weapon, or skill-6 for a reach 3 weapon.

All of this assumes a normal grip. See *Reversed Grip* (pp. 111-112) for an alternative. Hilt punches and the like use *Pummeling* (p. 111) instead of these rules; this technique doesn't apply.

† Close Combat is also available for ranged weapons. This lets you buy off the entire Bulk penalty for close-combat purposes only; see *Weapons for Close Combat* (p. B391). Those with Heroic Archer (p. 45) don't *need* this technique.

Combat Riding

Hard

Default: Riding.
Prerequisite: Riding; cannot exceed Riding+4.

This technique represents training at riding under combat conditions. Use it instead of Riding whenever you roll to *control* your mount in battle. It doesn't cover fighting – for that, learn Cavalry Training (see above) or Mounted Shooting (p. 77) – but where the rules limit weapon skill to Riding, your limit is Combat Riding instead. Combat Riding never aids Riding rolls to mount up, stay mounted, or direct your mount hands-free – see *Hands-Free Riding* (p. 73), *Quick Mount* (p. 78), and *Staying Seated* (p. 81) for those tricks – or for such non-combat activities as dressage, racing, and travel.

Counterattack

Hard

Default: prerequisite skill-5.
Prerequisite: Any unarmed combat or Melee Weapon skill; cannot exceed prerequisite skill.

Counterattack represents attacking as soon as possible after defending in order to take advantage of the momentary "hole" an attacker must leave in his defenses. You can only attempt it on your turn immediately following a successful active defense – and only vs. the foe against whom you defended. If you blocked or parried, the Counterattack doesn't *have* to use the hand(s) you used to defend, although it can if you wish.

Roll against Counterattack to hit. Your foe is at -2 to Parry, or to his resistance roll if you tried a grappling move that uses a Quick Contest (e.g., takedown), or at -1 to Block or Dodge. If you hit, your attack inflicts its usual damage. You *can* use another technique as your counterattack; see *Using Techniques Together* (p. 64) to find effective skill level.

Crack

Average

Default: Whip-4.
Prerequisite: Whip; cannot exceed Whip skill.

You can "crack" any ordinary whip – this is the sound of the tip breaking the sound barrier! Such an attack is at -4 to skill but +2 to damage. Crack lets you buy off the skill penalty. In a cinematic (or silly) campaign, Crack might work with anything whip-like: ropes, belts, long braids, wet towels . . .

Disarming

Hard

Default: prerequisite skill.
Prerequisite: Any unarmed combat or Melee Weapon skill; cannot exceed prerequisite skill+5.

If you know this technique above default, you may use it *instead* of the underlying skill whenever you attack to disarm (see *Knocking a Weapon Away,* p. B401) – both for the roll to hit and in the ensuing Quick Contest. For instance, if you have Broadsword-14 and Disarming (Broadsword)-17, you disarm as if you had Broadsword-17. Penalties to hit the target weapon, including the -2 for using a non-fencing weapon, and modifiers in the Quick Contest (such as the +2 for Jitte/Sai and Whip weapons) apply normally.

Drop Kick

Hard

Defaults: Brawling-1, Sumo Wrestling-1, or Wrestling-2.
Prerequisite: Brawling, Sumo Wrestling, or Wrestling; cannot exceed prerequisite skill.

This attack uses two feet in an attempt to injure and knock down an opponent. It's a special option for Move and Attack. Use the following rules *instead* of the normal rules for that maneuver.

A Drop Kick is a type of slam (p. B371). You must move at least a yard towards your target. The kick itself has a reach of 2 yards. Roll against Drop Kick to hit. Damage is as for a slam, at +2 for going feet first (or +3 if wearing heavy boots). Brawling, Sumo Wrestling, or Wrestling adds its usual damage bonus. Succeed or fail, you immediately fall down. Until your next turn, you may block or parry from the ground at the usual penalties, but you can't dodge or retreat.

In a cinematic game, GMs may allow an Acrobatics-5 roll for the attacker to land on his feet after a successful Drop Kick. A miss results in a fall!

Ear Clap

Average

Defaults: Boxing-3, Brawling-3, or Karate-3.
Prerequisite: Boxing, Brawling, or Karate; cannot exceed prerequisite skill-1.

This is an attack on your foe's ear using a cupped or open hand. The goal is to pop his eardrum, stunning and deafening him. You must be in close combat and have at least one free, *empty* hand.

Roll against Ear Clap to hit. Your opponent may use any active defense. If the attack succeeds, it does thrust-3 crushing damage plus skill bonuses. In addition, roll a Quick Contest: Ear Clap vs. the victim's HT. If you win, your target is physically stunned (p. B420); he's also at -1 DX and deaf in one ear (treat as Hard of Hearing) for 1d seconds. On a critical failure on the HT roll or critical success on Ear Clap, the victim must roll as if for a crippling injury to see how long he's partially deaf; see p. B422. Permanent harm is possible!

Ear Clap works best if you box both ears simultaneously. To do a double Ear Clap, you must have *two* free, empty hands and use All-Out Attack (Double) or another form of multiple attacks. Dual-Weapon Attack with the appropriate unarmed combat skill is one option; add the penalties for that technique to Ear Clap to determine effective skill. If only one hand hits, resolve it as above. If both hit, roll *one* Quick Contest. If you win, your victim is deaf in *both* ears (treat as Deafness) for 2d seconds. Once again, a critical failure on HT or critical success on Ear Clap indicates a crippling injury that could become permanent.

Elbow Drop

Hard

Defaults: Brawling-4 or Wrestling-5.
Prerequisite: Brawling or Wrestling; cannot exceed prerequisite skill.

This is a devastating elbow strike delivered using the whole body. It's normally done by dropping from a standing posture, driving an elbow into the victim and landing on top of him. You can use it against a kneeling, sitting, or lying foe, making it an ideal follow-up to a takedown. Elbow Drop is a special option for Committed Attack or All-Out Attack. Use the rules here *instead* of the usual ones for those maneuvers.

Roll against Elbow Drop to hit. The victim may dodge or block, or parry at -2. If he parries, your body counts as a weapon with weight equal to your ST; see *Parrying Heavy Weapons* (p. B376).

As a Committed Attack, Elbow Drop inflicts thrust+2, or thrust at +1 per die if better. Brawling adds its usual damage bonus; Wrestling adds damage equal to its ST bonus (+1 at DX+1, +2 at DX+2 or better) instead. As an All-Out Attack, damage is thrust+3, or thrust-1 at +2 per die if better, plus skill bonuses. If an Elbow Drop causes knockback, the target goes nowhere – but if he's sitting or kneeling, he must make the usual DX roll or be knocked down.

If you miss, you hit the ground and suffer the damage you would have inflicted. The same thing happens if your opponent blocks with a shield.

Succeed or fail, you end up lying face-up on the ground. After a Committed Attack, you're at -2 to defend and unable to retreat. After an All-Out Attack, you're defenseless!

Elbow Strike

Average

Defaults: Brawling-2 or Karate-2.
Prerequisite: Brawling or Karate; cannot exceed prerequisite skill.

You can jab an elbow into an enemy *behind* you in close combat. Roll against Elbow Strike to hit. There's no modifier for not facing him, but add an extra -1 if you target a specific hit location. A hit inflicts thrust-1 crushing damage, plus skill bonuses. Treat an elbow to someone in *front* of you as a punch.

Elbows are short-ranged and hard to hurt. You may not select All-Out Attack (Long) (pp. 97-98). *Hurting Yourself* (p. B379) applies, but damage is 1/10 of what you roll – not 1/5 – and both it and injury from enemy parries affects the *arm,* not the hand.

Entangle

Hard

Defaults: Kusari-4 or Whip-4.
Prerequisite: Kusari or Whip; cannot exceed prerequisite skill.

You can use a flexible weapon such as a whip or a kusari to entangle a foe. Roll against Entangle to hit. If your opponent fails to defend, the weapon wraps around him.

If you hit your victim's arm or torso, you ensnare it. On subsequent turns, you must take a Ready maneuver to keep your opponent snared. Roll a Quick Contest of ST each turn. If you win, you immobilize your foe. If you lose, he pulls your weapon from your grasp. On a tie, he immediately breaks free without disarming you.

If you entangle the neck, use the same rules but your opponent has -5 in the Contest. If you win, the whip or kusari cuts off the victim's breathing – see *Suffocation* (p. B436).

If you entangle a foot or a leg, the target must make a DX roll to remain standing (this is *instead* of the Contest above). He's at -4 if he was running. If he falls, he takes 1d-4 crushing damage – or 1d-2 if running. On subsequent turns, use the rules above to keep him entangled.

You must keep your weapon taut at all times to immobilize or suffocate your victim. This requires a Ready maneuver each turn. If you're mounted and your mount is trained to do this for you, substitute its ST for yours in the Quick Contest.

To escape from a *taut* whip or kusari, you must attack and cut it (the damage required depends on the weapon). To escape from a *limp* weapon – including one pulled from the attacker's grasp – you need a free hand and must make three successful DX rolls. Each attempt counts as a Ready maneuver, during which you may take no other action.

Evade

Average

Defaults: Acrobatics or Judo.
Prerequisite: Acrobatics or Judo; cannot exceed prerequisite skill+5.

This technique represents training at avoiding opponents who wish to obstruct your movement. Evade (Acrobatics) lets you flip over, tumble under, or twist around your foe, while Evade (Judo) allows you to ward off your enemy's hands as you run past. Either replaces DX when trying to evade (see *Evading,* p. B368). All normal penalties apply.

Exotic Hand Strike

Average

Default: Karate-1.
Prerequisite: Karate; cannot exceed Karate skill.

Certain hand strikes use unusual striking surfaces: the edge of the hand, a single protruding knuckle, a claw-shaped fist, etc. These do extra damage to fleshy or fragile targets at the cost of being much more vulnerable to injury when striking a hard surface such as armor or bone. Roll against Exotic Hand Strike to hit. Standard hit location penalties apply. Damage is thrust crushing plus Karate bonuses. *Hurting Yourself* (p. B379) applies if your target has *any* DR – not just DR 3+.

Eye-Gouging

Hard

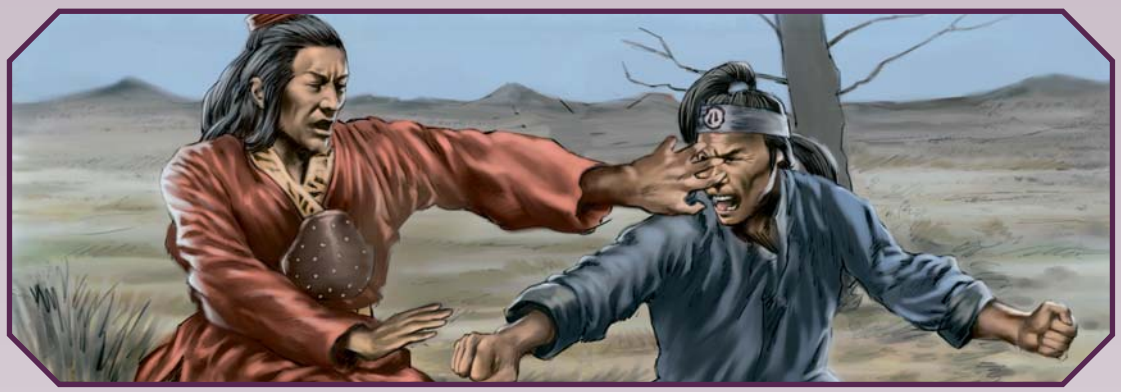
Defaults: Brawling-5, Judo-5, or Wrestling-5.
Prerequisite: Brawling, Judo, or Wrestling; cannot exceed prerequisite skill.

This close-combat attack consists of grabbing someone's head and pressing your thumbs into his eyes. It usually requires *two* empty hands. Roll against Eye-Gouging to hit.

Your foe may defend normally. If he fails, you grapple him and he cannot see! He can try to break free (p. B371) as usual on his turn.

Until your victim breaks free, you can drive your thumbs into his eyes on subsequent turns. This counts as an attack but doesn't require an attack roll. *Each* eye takes thrust-4 crushing damage. This can cripple and blind the eyes but never gets the ×4 wounding modifier for the skull – the thumbs are too short! (*Exception:* The GM may give some nonhumans the perk "Long Thumbs," in which case the wounding modifier *does* apply. The same goes for fighters with Talons or Long Talons.)

You *can* gouge one-handed. The attack roll is against Eye-Gouging-4. Only one eye takes damage on later turns.



"Go for the eyes!"

Blinding your foe is an effective tactic – but while the eyes are fragile, they're also too small for most strikes to get at them effectively. Eye-Gouging (p. 71) is one solution but hardly the *only* one!

All of these close-combat strikes require an empty hand. If one of them hits and the target fails to defend, the victim must roll vs. Will. Any failure means he *flinches* and has -1 to attack and defense rolls until the end of his next turn, in addition to the technique's other effects.

*Eye-Pluck**

Hard

Defaults: Brawling-10 or Karate-10.
Prerequisite: Brawling or Karate; cannot exceed prerequisite skill-4.

This cinematic technique involves using the clawed fingers of one hand to grab an enemy's eye and pull it out. It's a strike, not a grapple. You can try it repeatedly but you can't "hold onto" your enemy's eye. Roll against Eye-Pluck to hit.

Damage is thrust-3 *crushing,* plus your Brawling or Karate bonus. Injury over HP/10 cripples the eye. Any excess is lost. The difference between this and Eye-Poke is that if you cripple the eye, your victim must make an immediate HT roll. Failure means you pluck out his eye – a *permanent* crippling injury! See p. B422.

If your foe's Size Modifier exceeds yours by +5 or more, his eye is too big for you to grab and your Eye-Pluck counts only as an Eye-Poke.

Eye-Poke

Hard

Defaults: Boxing-9, Brawling-9, or Karate-9.
Prerequisite: Boxing, Brawling, or Karate; cannot exceed prerequisite skill-4.

This is a jab to the eye using an extended finger. It can blind but it never gets the ×4 wounding modifier for the skull (compare *Lethal Eye-Poke,* below). Roll against Eye-Poke to hit.

A hit inflicts thrust-3 *crushing* damage. Injury over HP/10 cripples the eye. Any excess is lost. A miss by 1 strikes the protective bone around the eye, damaging the face instead – but as you're hitting bone, skull DR (usually DR 2) protects. *Hurting Yourself* (p. B379) applies if your target has *any* DR, not just DR 3+, or if you hit bone.

Due to the risk of finger injury, many fighters pull this blow (see *Subduing a Foe,* p. B401). Little damage is needed to cripple an eye in any event!

Eye-Rake

Hard

Defaults: Brawling-5 or Karate-5.
Prerequisite: Brawling or Karate; cannot exceed prerequisite skill.

This technique attempts to blind the foe by scratching a clawed hand across his face and eyes. It's easier than most strikes to the eyes because you're using a broad striking surface against a large target (the upper face), but actual injury is superficial at best.

On a successful hit, roll thrust-1 *crushing* damage. However, this isn't a hard strike and normally inflicts *no* injury. Instead, the victim must make a HT roll at a penalty equal to the damage that penetrates DR. Failure means he's blinded for 1 minute times his margin of failure. Critical failure means one eye suffers HP/10 of real injury (round down) and is crippled!

*Lethal Eye-Poke**

Hard

Default: Karate-11.
Prerequisite: Karate; cannot exceed Karate-5.

This is an attempt to drive an extended finger through an eye socket and into the *brain.* Treat it as Targeted Attack (Karate Lethal Strike/Eye) for all purposes. It inflicts thrust-2 *piercing* damage, plus Karate bonuses. It can blind *and* gets the ×4 wounding modifier for the skull – just like any other piercing attack. With sufficient damage, it can kill.

Feint

Hard

Default: prerequisite skill.
Prerequisite: Any unarmed combat or Melee Weapon skill†; cannot exceed prerequisite skill+4.

Feints aren't always phony attacks. They include breaks in rhythm, false steps, head fakes, and other ploys to misdirect the foe. This technique represents training in all such methods. If you know it above default, use it *instead* of the underlying skill whenever you feint (p. B365) or someone tries to feint you. For instance, with Broadsword at 14 and Feint (Broadsword) at 16, you would make and resist feints at 16.

Hook Swords

Feint includes knowledge of Beats (pp. 100-101) and Ruses (p. 101). Make a ST-based roll to attempt a Beat or to use ST to resist one, an IQ-based roll to try a Ruse, or a Per-based roll to use Per to resist a Ruse. To find your level, add the difference between the relevant score and DX to Feint; e.g., DX 12, IQ 14, and Feint at 16 would allow a Ruse at 18.

† Some styles include a Style Perk that permits a default to Acrobatics, Dancing, or another non-combat skill; see *Feints Using Non-Combat Skills* (p. 101).

Finger Lock

Hard

Default: Arm Lock-3.
Prerequisite: Arm Lock; cannot exceed Arm Lock technique.

This technique lets you grab fingers and twist them painfully. Use the rules under *Arm or Wrist Lock* (p. 65), except that damage is to the *hand* – which is easier to cripple than the arm.

Ground Fighting

Hard

Default: prerequisite skill-4.
Prerequisite: Any combat skill; cannot exceed prerequisite skill.

This technique lets you buy off the -4 to attack while crawling, lying face-up, or lying prone. Roll against Ground Fighting *instead* of the prerequisite skill when you use that skill to attack from the ground. For instance, if you had Wrestling at 14 and Ground Fighting (Wrestling) at 13, you could grapple from the ground at skill 13.

For every two points invested in Ground Fighting, you may also ignore -1 of the -3 to *defend* from the ground. Ground Fighting at skill-3 or skill-2 means you're at -2, while at skill-1 or full skill, you have only -1. This replaces the rule on p. B231.

Hammer Fist

Average

Defaults: Brawling-1 or Karate-1.
Prerequisite: Brawling or Karate; cannot exceed prerequisite skill.

A "hammer fist" is a punch using the *side* of a clenched fist. This technique includes both the true hammer fist and similar attacks meant to prevent injury to the attacker at the cost of less damage to the target: forearm smashes, punches with the palm or heel of an open hand, etc. In all cases, the striking surface is larger and less rigid than for a normal fist, reducing damage – but it's much harder to injure yourself, making this strike ideal for hard targets.

Roll against Hammer Fist to hit. Damage is thrust-2 plus skill bonuses. If *Hurting Yourself* (p. B379) would apply, damage is 1/10 of what you roll, not 1/5. Furthermore, you suffer a point less damage if your hand is parried aggressively or with a weapon, or otherwise stopped painfully.

If your hand is crippled, you may use Hammer Fist to deliver a forearm smash. Use the above rules, but any self-inflicted injury affects the arm instead of the hand.

Handcuffing

Average

Defaults: Binding, DX-2, Judo-1, or Wrestling-2; cannot exceed Binding, DX, Judo, or Wrestling.

This is a limited, realistic version of Binding (pp. 82-83) for handcuffing a target quickly. It only works in close combat – and only if you grappled your target on a previous turn or parried his melee attack immediately prior to your turn.

On your turn, roll a Quick Contest: Handcuffing vs. the *higher* of your victim's DX or best grappling skill. This counts as an attack. Victory means you've handcuffed a limb of your choice. On later turns, you can repeat the process to cuff another limb or make an uncontested Handcuffing roll to attach the cuff to an inanimate object (pole, car door, bomb . . .) within a yard.

You can handcuff a *pinned* opponent automatically in 2d seconds. A successful, unopposed Handcuffing roll reduces this to two seconds (one second on a critical success).

Escape attempts use the Escape skill (p. B192) or Slip Handcuffs technique (p. B233). This takes a minute. Time reductions give the usual penalties; see *Time Spent* (p. B346). The GM may permit cinematic heroes *one* attempt at -10 to escape in a turn – effectively instantly.

Hands-Free Riding

Hard

Default: Riding-3.
Prerequisite: Riding; cannot exceed Riding skill.

Using only one hand to control your mount gives -1 to all Riding rolls, while using no hands at all gives -3; see *Mounted Combat* (p. B396). This technique represents training to buy off these penalties. Roll against Hands-Free Riding instead of Riding to control your mount using no hands. If you've improved this technique at all, you may *ignore* the -1 for using only one hand.

Head Butt

Hard

Defaults: Brawling-1 or Karate-1.†
Prerequisite: Brawling or Karate; cannot exceed prerequisite skill.†

This is a close-combat strike using the forehead. Natural targets are the face (-5) and skull (-7) of a standing adversary, but you can attack anything! However, while the skull is hard, it has poor reach and leverage for striking.

Roll against Head Butt to hit. Damage is thrust-1 crushing. Your victim may defend normally; if he parries, any damage this causes affects your *face*. Self-inflicted injury for a target with DR 3+ applies to the *skull;* however, your skull's DR 2 protects normally. If you have rigid head protection – e.g., a metal helm – add +1 to damage and apply your armor's DR against self-inflicted injury.

† Head Butt requires practice to be effective; fighters without Brawling or Karate strike at DX-2 and do only thrust-2 damage. This move is sometimes used while grappling and (illegally) in boxing matches, but it doesn't benefit from Boxing, Judo, Sumo Wrestling, or Wrestling. Races with Strikers (p. B88) on their head don't *need* Head Butt – they attack at full skill and do superior damage.

Head Lock

Hard

Defaults: Judo-3 or Wrestling-3.
Prerequisite: Judo or Wrestling; cannot exceed prerequisite skill.

This attack involves controlling an enemy's head and neck using two arms. It targets similar body parts to Choke Hold (p. 69). However, the goal is to lock your victim's neck in a way that lets you injure it or his throat – not to cut off his blood or air supply.

To apply this lock, you must first grapple your opponent by the neck; see *Grappling* (p. B370). Your victim may attempt to break free on his turn. If he fails, then on your *next* turn, you have two ways to injure him: you may attempt to choke him as described under *Choke or Strangle* (p. B370), substituting Head Lock for ST if better, or you may try to throw him as explained in *Throws from Locks* (pp. 118-119). You can alternate between these attacks for as long as you maintain the lock.

Treat sports-wrestling locks that seek to avoid causing injury as simple head or neck grapples. The same goes for the so-called head lock seen on the street (an arm around the neck).

Hook

Hard

Default: prerequisite skill-5.
Prerequisite: Any appropriate Melee Weapon skill; cannot exceed prerequisite skill.

This is the technique of using a weapon with a projection – usually a hook – to snag a foe's head, limb, weapon, or shield in order to pull him off-balance. You can *learn* it for any Melee Weapon skill, but you'll need a suitable weapon to *use* it.

Hook is a common technique for Axe/Mace, Polearm, and Two-Handed Axe/Mace, but while picks and most axes can hook, maces and knobbed clubs can't – and only a few polearms sport hooks. It's possible to add hooks to weapons that normally lack them, such as spears and staffs. Some swordfighting schools even taught (gauntleted!) fighters to grab their weapon by the *blade* and hook with the pommel and crosspiece. Swords wielded this way use the Axe/Mace or Two-Handed Axe/Mace skill, and are *unbalanced*. See Chapter 6 for more on suitable weapons and the associated skills.

Roll against Hook to hit, modified for the target as noted below. Your adversary may defend normally. Hook doesn't *usually* inflict damage, but some weapons have an edged hook (see below). While using a weapon to hook a foe, you can't use it to attack or parry. You can always release or drop it as a free action on your turn, however.

If hooking the head or a limb, apply standard hit location penalties. If you succeed, then on subsequent turns you may attempt to pull your victim off-balance or even to the ground. Roll a Quick Contest of ST. If you win, you drag your opponent into a kneeling posture; if he's kneeling or crouching, he falls down. He can't stand until he breaks free or you release him. If you lose or tie, nothing happens. If you critically fail, you drop your weapon! Your foe may try to break free normally on his turn.

Hooking a weapon is an attempt to disarm; see p. B401. Apply the usual penalty to hit the weapon but ignore the -2 for a non-fencing weapon. You get +2 in the ensuing Quick Contest, in addition to the usual modifiers. If you lose the Contest, your opponent retains his weapon and escapes from your hook.

If hooking a shield, roll to hit at -4 *plus* its DB. If you succeed, you may attempt to pull it out of line. Treat this as an attempt to disarm, but your opponent gets *+4* in the Quick Contest if his shield is strapped to his arm. You get +2 if hooking with a two-handed weapon. If you win, the shield becomes unready – it's still on your foe's arm but he can't block with it or benefit from its DB until he breaks free and takes a Ready maneuver to reorient it.

Certain weapons designed for hooking are sharpened on the inside of the hook. These include the Chinese hook sword and the European bill. Such weapons inflict the damage listed for their hook in addition to the above effects. If using the optional *Pain and Breaking Free* rule (p. 119), such weapons are very effective against lightly armored foes!

Horse Archery

Hard

Default: Bow-4.
Prerequisites: Bow *and* Riding; cannot exceed Bow skill.

"Horse Archery" is shorthand for Mounted Shooting (Bow/Horse). See *Mounted Shooting* (p. 77).

Jam

Hard

Default: prerequisite skill Parry-1.
Prerequisite: Brawling or Karate; cannot exceed prerequisite Parry.

A Jam is an attempt to parry a low-line attack – typically a kick – by interposing a foot or leg aggressively enough to injure the attacker. It's only useful against attacks on your lower body (feet, legs, or groin). You may attempt it *instead* of a non-damaging leg or foot parry once per turn; see *Parries with Legs or Feet* (p. 123).

Roll against Jam to defend, at the usual -3 for Brawling vs. a swung weapon. You cannot retreat. Failure means you're hit; your attacker may choose to hit his original target, your parrying leg, or your parrying *foot*. Success means you parry and may roll against the underlying skill to strike the attacking body part or weapon, modified as follows.

Modifiers: The usual -2 for kicking. Against unarmed, +0 to hit a leg, -2 to hit an arm or foot, -4 to hit a hand; -1 if your foe knows Rapid Retraction (p. 51). Against armed, a basic -3; another -3 to -5 for weapon size (see p. B400); a further -3 for Brawling vs. a swung weapon.

Success on this skill roll inflicts thrust-3 crushing damage or thrust-1 at -1 per die, whichever is *worse,* on the targeted weapon or body part. Skill bonuses apply normally. Failure means you didn't parry forcefully enough to inflict damage.

> *Punches and kicks are tools to kill the ego.*
>
> *– Bruce Lee,*
> ***The Tao of Jeet Kune Do***

Judo Throw

Hard

Default: Judo.
Prerequisite: Judo; cannot exceed Judo skill.

This is the primary attack of the Judo skill. On the turn immediately after a successful Judo parry, you may attempt to throw your attacker if he's within a yard. You must have at least one hand free to do so. This counts as an attack. Roll vs. Judo to hit. (On an All-Out Attack, you can't try two throws but you can make one attempt at +4.) Your foe may use any active defense – he *can* parry your hand with a weapon! If his defense fails, you throw him.

A thrown foe falls where you please. On a battle map, he lands in any two hexes near you. One of these hexes must be his starting hex, your hex, or any hex adjacent to one of those hexes. Your victim must roll against HT. Failure means he's stunned. If you throw him into someone else, that person must roll vs. the higher of ST+3 or DX+3 to avoid being knocked down.

The intent of Judo Throw is normally to put your rival on the ground – not to injure him – but you *can* throw him in a way that maximizes the impact of the fall on a specific location, injuring it. This is frowned upon in sport matches! Treat a damaging throw like any other, but at -1 to hit plus any hit location penalty (*not* halved for grappling). Any location but the eye, vitals, or groin is valid; common targets are the skull, neck, and arm. Damage is thrust-1 crushing; there's no bonus for skill. The victim may attempt a Breakfall (pp. 68-69) roll to reduce injury. Other effects are as for a regular Judo Throw.

You may also throw a grappled foe. Instead of parrying first, you must grapple your opponent. On a later turn, try to throw him. This is an attack resolved as a Quick Contest: Judo vs. the *highest* of your adversary's ST, DX, or best grappling skill. If you attempt a damaging throw, the extra penalties *do* modify your roll. If you win, you throw your victim as above. Otherwise, you don't – but unless you critically failed, you retain your grapple and may try again on a future turn.

Jump Kick

Hard

Default: Karate-4.
Prerequisite: Karate; cannot exceed Karate skill.

This showy, dangerous move lets you leap into the air to increase range and damage with a kick. Some sources claim it was used to unhorse riders! It's a special option for Committed Attack (pp. 99-100) and All-Out Attack (p. B365). The rules below *replace* the standard ones for those maneuvers.

As a Committed Attack, a Jump Kick involves a short jump forward or sideways that ends in a sharp kick. You *must* take two steps toward your foe; this effectively gives an extra yard of reach. Roll against Jump Kick to hit. A hit does thrust+1 crushing damage – or thrust at +1 per *two* dice, if better – plus Karate bonuses. Afterward, you cannot dodge or retreat until next turn, and have -2 on all other active defenses. On a miss, make the usual DX roll to avoid a fall; see p. B274.

An All-Out Attack involves hurling your body at your opponent foot-first. You must move at least half your Move (minimum 2 yards) forward. Roll against Jump Kick to hit. Your target parries at -2. A hit inflicts thrust+2 – or thrust at +1 per die, if better – plus skill bonuses. If you miss, or if your target successfully defends, you *fall down* unless you can make a DX-4 or Acrobatics-2 roll. Hit or miss, you have no defenses at all until next turn!

These rules are intended for ***Martial Arts*** campaigns. The GM is free to use the less-realistic version on p. B231 in games that don't focus on the martial arts.

Kicking

Hard

Defaults: Brawling-2 or Karate-2.
Prerequisite: Brawling or Karate; cannot exceed prerequisite skill.

Kicking covers all kicks not defined as standalone techniques: crescent kicks, hook kicks, rising kicks, roundhouse kicks, snap kicks, etc. Knowledgeable players are free to embellish, but in all cases, a kick requires an attack roll against Kicking and inflicts thrust crushing damage. Use Brawling or Karate skill – *not* Kicking – to determine the damage bonus, and use only the *highest* bonus. If you miss, roll vs. Kicking or DX to avoid falling down.

Combine Kicking with Committed Attack (pp. 99-100) or All-Out Attack for devastating kicks like roundhouses or stepping side kicks, or with Defensive Attack (p. 100) for close, jabbing kicks. Add in Deceptive Attack (p. B369) for fast snaps and other tricky moves, or Telegraphic Attack (p. 113) for slow kicks with big windups.

Knee Drop

Hard

Defaults: Brawling-3 or Wrestling-4.
Prerequisite: Brawling or Wrestling; cannot exceed prerequisite skill.

This brutal attack involves dropping your entire weight onto your foe knee-first. It's normally executed from a standing posture by driving your knee into your adversary and landing on top of him. You can only use it against an opponent who's lying down, but it's an ideal follow-up to a takedown. Knee Drop is a special option for Committed Attack or All-Out Attack. Use these rules *instead* of the usual ones for those maneuvers.

Roll against Knee Drop to hit. Your victim may dodge or block, or parry at -2. If he parries, your body counts as a weapon with weight equal to your ST; see *Parrying Heavy Weapons* (p. B376).

As a Committed Attack, Knee Drop inflicts thrust+2, or thrust at +1 per die if better. Brawling adds its usual damage bonus; Wrestling adds damage equal to its ST bonus (+1 at DX+1, +2 at DX+2 or better) instead. As an All-Out Attack, damage is thrust+3, or thrust+1 at +1 per die if better, plus skill bonuses.

On a miss, you hit the ground and one leg takes the damage you would have inflicted. If your opponent blocks with a shield, it has the same effect.

Succeed or fail, you end up kneeling. You're at -2 to defend and unable to retreat after a Committed Attack. After an All-Out Attack, you're defenseless!

Dirty Tricks

Which tactics are considered "dirty tricks" depends on exactly where, when, and whom you're fighting. In a sporting match, anything that's against the rules for fairness or safety reasons – dangerous holds, biting, blows to the groin, dirt in the eyes, etc. – is "dirty," and getting caught means a forfeit and possible legal action. These things may be overlooked in a duel or a joust (even an "honorable" knightly one), but unequal or poisoned weapons would be "dirty," with results ranging from a career-destroying reputation to bloody vendetta. On the street, in prison, or at war, of course, all bets are off!

Throwing dirt, sand, beer, etc., in the eyes is a popular dirty trick. Treat this as an attack based on DX, at -5 for the face but +3 for the width of the cloud or splash. The victim may dodge or block, but not parry. If hit, he must roll against HT. Failure means he's blinded for 1d-3 seconds (minimum 1). Critical failure means he's blinded for 1d-3 *minutes* (minimum 1) – he looked right into the attack with two open eyes!

An unexpected illegal blow in a sporting match or duel may take a defender by surprise. Treat the first illegal blow as a free feint resolved immediately before the attack is resolved, on the same turn. Defenses against subsequent illegal blows of any kind suffer no penalties – the defender won't be caught out twice! This won't work on a battlefield, because nothing is against the "rules."

Knee Strike

Average

Defaults: Brawling-1 or Karate-1.
Prerequisite: Brawling or Karate; cannot exceed prerequisite skill.

This is a snapping blow with the knee. Unlike a kick, it's only useful in close combat (reach C). Roll against Knee Strike to hit. If you've grappled your opponent, he defends at -2; if you grappled from the front, you may attack his groin at *no penalty!* On a hit, roll thrust crushing damage, plus your Brawling or Karate bonus.

Some fighters like to grab an opponent's head and pull it down into a Knee Strike. For details, see *Grab and Smash!* (p. 118).

Leg Grapple

Hard

Defaults: DX, Wrestling, or Judo; cannot exceed DX+4, Wrestling+4, or Judo+4.

Leg Grapple is an attempt to catch the leg of a kicking foe. It's a common response to high kicks. To use it, you must have one hand free and successfully parry a kick to your upper body – skull, eye, face, neck, torso, vitals, arm, or hand.

On your first turn following the parry, you may attempt to capture your opponent's leg *if he's within a yard*. This is an attack. Step into close combat and roll against Leg Grapple to hit. Your foe can only dodge; this represents retracting his kick before you can catch him. If you succeed, you've grabbed his leg.

Your foe may attempt to break free (p. B371) on his next turn, but you're at +4 in the Quick Contest. Most fighters follow this technique with Leg Lock (see below) or a takedown (p. B370). If you try a takedown, you're at +3 in the Quick Contest.

This technique is frowned upon in competition – and often outright illegal in the ring – but very common in street fights. If the campaign emphasizes high-kicking cinematic warriors, the GM may not want to let fighters improve Leg Grapple.

Leg Lock

Average

Defaults: Judo or Wrestling.
Prerequisite: Judo or Wrestling; cannot exceed prerequisite skill+4.

A leg lock is an attempt to restrain or cripple an opponent by twisting his leg. This technique allows you to improve your effective Judo or Wrestling skill for this purpose only.

To use Leg Lock, you must have *two* hands free and already have a successful Leg Grapple (p. 76) on your opponent. On your first turn following the Leg Grapple, you may attempt to place your foe's leg in a lock. This is an attack. Roll against Leg Lock to hit. Your victim may use any active defense – he *can* parry your hand with a weapon! If his defense fails, you trap his leg in a lock.

Your foe may attempt to break free (p. B371) on his next turn. If he loses, he has a cumulative -1 on future attempts to break free.

On your *next* turn – and each turn thereafter, until your opponent breaks free – you may try to damage the trapped leg. Roll a Quick Contest: the *higher* of your ST (including your Wrestling bonus) or Leg Lock vs. the *higher* of your victim's ST+4 or HT+4. If you win, you inflict crushing damage equal to your margin of victory. The target's *rigid* DR protects normally. Flexible armor, including natural DR with the Flexible or Tough Skin limitation, has no effect.

If you cripple your victim's leg, he'll be unable to stand on it. You can inflict no further damage on a crippled limb, but you can continue to roll the Contest each turn. If you win, your target suffers shock and stunning just as if you had inflicted damage.

Rolls to inflict damage are completely passive and don't count as attacks. You can simultaneously make close-combat attacks on your opponent, who defends at -4 in addition to any penalties due to the damage caused by the lock itself. An attempt to throw him using the lock *does* count as an attack; see *Throws from Locks* (pp. 118-119).

You can also apply this technique *offensively.* You must first use Judo or Wrestling to grapple your victim's leg with two hands. If he fails to break free on his next turn, you may try Leg Lock on your next turn.

Leg Lock uses finesse to cripple a foe's limb. For a brute-force technique, see *Wrench (Limb)* (p. 82).

Low Fighting

Hard

Default: prerequisite skill-2.
Prerequisite: Any combat skill; cannot exceed prerequisite skill.

This technique lets you buy off the -2 to attack from a kneeling or crouching posture. Roll against Low Fighting *instead* of the prerequisite skill whenever you use that skill to attack from a low posture. For instance, if you had Wrestling at 14 and Low Fighting (Wrestling) at 13, you could grapple from your knees at skill 13.

Low Fighting affects the -2 to *defend* while kneeling in the same way. If you know it at skill-1, you're at -1 to defend, while at full skill, you have no penalty.

Low-Line Defense

Hard

Default: prerequisite skill Parry-2.
Prerequisite: Boxing or Sumo Wrestling; cannot exceed prerequisite Parry.

Kicking is illegal in the boxing or sumo ring, so boxers and *sumotori* don't normally train to face it – which is why Boxing and Sumo Wrestling parries are at -2 against kicks. Fighters who cross-train against kicking martial artists or use their skills outside the ring can certainly learn to parry kicks, however! This technique lets them buy off the -2.

Mounted Shooting

Hard

Default: ranged weapon skill-4.
Prerequisites: Riding or a vehicle-operation skill (Bicycling, Driving, Teamster, etc.), *and* a ranged weapon skill; cannot exceed ranged weapon skill.

You've practiced shooting a ranged weapon from a moving mount or vehicle – chariot, horse, howdah, etc. You must specialize by both weapon skill *and* mount or vehicle type. Use the specialties listed for the two skills chosen as prerequisites. Mounted Shooting (Bow/Horse) is extremely common and called "Horse Archery" for brevity (p. B231).

If you've *improved* this technique, modifiers for a rough ride and/or limited mobility (see *Attacking from Moving Vehicle or Mount,* p. B548) – including those for turning in the saddle to shoot – can't reduce your weapon skill below your Mounted Shooting level when using your chosen weapon from the specified platform. Other penalties apply normally. For instance, if you had Thrown Weapon (Spear)-13 and Mounted Shooting (Thrown Spear/Chariot)-11, the penalties for a bumpy chariot ride couldn't reduce Thrown Weapon (Spear) below 11, before other modifiers.

Remember that your skill with a *mounted* attack can't exceed Riding skill (p. B397). Combat Riding (p. 69) mitigates this for the rider himself, but his passengers are limited by his Riding skill.

Neck Snap

Hard

Default: ST-4; cannot exceed ST+3.

This brute-force attack consists of grabbing and suddenly twisting the victim's head, with the intent of snapping the neck. Unlike most techniques, Neck Snap defaults to ST, not a skill. Wrestling gives its usual skill-based ST bonus.

To use this technique, you must first grapple your opponent by the neck using two hands; see *Grappling* (p. B370). Your victim may attempt to break free on his turn. If he fails, then on your *next* turn, roll a Quick Contest: Neck Snap vs. the *higher* of his ST or HT. This counts as an attack.

If you win, you inflict swing crushing damage on your victim's neck, with the usual ×1.5 wounding modifier for hit location. The target's *rigid* DR protects normally, but flexible armor – including natural DR with the Flexible or Tough Skin limitation – has no effect. Neck injury can have serious consequences; see *Lasting and Permanent Injuries* (pp. 138-139).

Otherwise, you inflict no damage. You may make repeated attempts on later turns. Your opponent may attack you or attempt to break free during this time, subject to the usual limitations of being grappled.

Push Kick

Hard

Defaults: Brawling-3 or Karate-3.
Prerequisite: Karate or Brawling; cannot exceed prerequisite skill.

This is a kick that shoves your adversary away instead of injuring him. You hit him with the flat of your foot and *push*. Many kickboxing styles use this technique to shove an opponent into the ropes or far enough away to allow a full-extension finishing move.

A Push Kick is a shove (p. B372) in all respects except that it's done as a kick. Roll against Push Kick to hit. Your opponent may defend normally. If you succeed, roll your usual kicking damage and *double* it. This damage causes no injury – use it only to work out knockback (p. B378).

The above rules assume a Push Kick to the torso. A Push Kick to the leg gives the victim -2 to any DX roll to avoid falling down as a result of knockback. Targeting the skull, face, or neck makes the penalty -3. No other hit locations are valid.

Quick Mount

Average

Defaults: Acrobatics-3, Jumping-3, or Riding-3.
Prerequisite: Acrobatics, Jumping, or Riding†; cannot exceed prerequisite skill.

This technique represents training at quickly mounting a horse or similar beast. Roll against it instead of Acrobatics, Jumping, or Riding for this purpose. See *Mounting Up* (p. B396).

† The GM may allow Quick Mount for motorcycles and even cars (a speedy slide through an *open* window into the driver or passenger's seat). This technique requires Acrobatics, Jumping, or the appropriate *Driving* skill.

Retain Weapon

Hard

Default: prerequisite skill.†
Prerequisite: Any weapon skill; cannot exceed prerequisite skill+5.†

If you know this technique above default, you may use it instead of the underlying skill whenever somebody *actively* tries to disarm you (see *Knocking a Weapon Away,* p. B401). For instance, if you have Staff-13 and Retain Weapon (Staff)-16, you resist disarms as if you had Staff-16.

Should an adversary try to disarm you using brute strength, you may make a ST-based Retain Weapon roll instead of a ST roll. Find your level by subtracting DX and adding ST. For example, if you have ST 14, DX 12, and Retain Weapon-15, your ST-based level is 15 - 12 + 14 = 17.

† When learning this technique for missile weapons such as guns and bows, it defaults to DX and cannot exceed DX+5.

Return Strike

Hard

Defaults: Flail-5 or Kusari-5.
Prerequisite: Flail or Kusari; cannot exceed prerequisite skill.

This technique capitalizes on a kusari or flail's flexibility to strike the enemy from behind while facing him. To attempt it, you must have sufficient reach to attack a yard *beyond* your opponent – that is, reach equal to his range from you plus a yard.

Roll against Return Strike to hit. If the target has never seen this move (GM decides), treat it as an attack from behind. This usually allows no active defense! Otherwise, it's considered an attack from the side, which gives -2 to most defenses. See pp. B390-391 for detailed rules. Damage is unchanged, but only the DR on your victim's *back* applies.

You can combine Return Strike with Close Combat (p. 69) to do a "wrap shot" while in close quarters; see *Using Techniques Together* (p. 64). Treat this as striking *into* close combat (p. B392). If you miss your target or he dodges, you may hit yourself!

Reverse Grip

Average

Defaults: prerequisite skill-6 for most one-handed weapons, skill-4 for two-handed ones, or full skill for Tonfa (only).
Prerequisite: Any Melee Weapon skill; cannot exceed prerequisite skill.

This technique – useful only with weapons that can make thrusting attacks – lets you avoid the need for a Ready maneuver to switch between a regular overhand grip and an underhand grip more suitable for close-quarters stabbing. A successful Reverse Grip roll lets you change grips *instantly.* Failure means you drop the weapon and your turn ends . . . and critical failure also inflicts Tip Slash (p. 113) damage on your torso!

Once reversed, most weapons work differently – see *Reversed Grip* (pp. 111-112) for details. The main uses for this technique are to prepare a long weapon for close combat and to sheathe your weapon more quickly (see *Quick Sheathing,* p. 102).

You can also use this technique to spin a tonfa (p. 225). It defaults to full Tonfa skill, as the weapon's side handle makes this move exceptionally easy.

Sacrifice Throw

Hard

Default: Judo.
Prerequisite: Judo; cannot exceed prerequisite skill level.

This technique involves grappling your opponent, falling with him, and using your entire weight to throw him. It's risky, but difficult to resist. You may only attempt it if a regular Judo Throw (p. 75) would be possible; that is, on your turn immediately following a successful Judo parry or grapple. Sacrifice Throw is a special option for All-Out Attack (p. B365). Use these rules *instead* of the standard ones for All-Out Attack.

Before you attempt the throw, you must declare whether you intend to land face-up, face-down, or kneeling, as well as where you plan to end up. One of your landing hexes – the only one, in the case of kneeling – must be your hex, your foe's hex, or a hex adjacent to one of these. You must

Using Your Legs

Much as you can kick as well as punch, you can use your legs to grapple. To do so, you must be facing your adversary and not pinned. You have -2 to DX or skill, but +2 to ST. The DX penalty stems from using your legs, not from posture. You only suffer penalties for a non-standing posture against a *standing* foe; Low Fighting and Ground Fighting affect these normally. Your enemy's posture might give additional penalties to grapple certain hit locations from some postures; see *Postures, Hit Locations, and Techniques* (pp. 98-99). If you grapple with legs from a standing start, you avoid all posture penalties but end your turn lying face-up. It counts as a step to leap up, use your legs, and fall; see *Change Posture* (pp. 98-99).

Grapples using legs allow all the usual follow-ups – takedown, pin, strangle, bear hug, Neck Snap, etc. – at -2 DX, +2 ST. You can learn leg-based versions of grappling techniques for this. Each is a *separate* technique with an extra -2 on its default. All get +2 ST – or +1 to damage, if there's no ST roll. Options include:

Leg Throw: As Judo Throw (p. 75), but defaults to Judo-2.

Lower-Body Arm Lock: As Arm Lock (p. 65), but defaults to Judo-2 or Wrestling-2.

Lower-Body Head Lock: As Head Lock (p. 74), but defaults to Judo-5 or Wrestling-5.

Lower-Body Leg Lock: As Leg Lock (p. 65), but defaults to Judo-2 or Wrestling-2.

Triangle Choke: As Choke Hold (p. 69), but defaults to Judo-4 or Wrestling-5.

also state whether you want your *victim* to end up face-up or face-down, and where, subject to identical restrictions. You *can* end up in the same place; that is, you can land atop him or pull him down on top of you.

After stating your goal, roll against Sacrifice Throw to hit. Succeed or fail, *you* immediately end up in your declared posture and location, defenseless due to your All-Out Attack! Your opponent has -1 to dodge or block. He's at -3 to parry if you fell or at -2 if you only dropped to your knees. If he fails to defend, you throw him exactly as you planned. If you were grappling him, you may let go as a free action, but you don't have to – it's common to hang on and follow a Sacrifice Throw with a pin or choke.

This throw is dangerous in combat but common and useful in point-based matches.

Scissors Hold

Hard

Default: Wrestling-2.

Prerequisite: Wrestling; cannot exceed Wrestling skill level.

This technique allows you to grapple an adversary's legs using your own. You must have both legs free. You must also be lying face-up, sitting, or standing – but if you're standing, then successful or not, you automatically end your turn on the ground. Scissors Hold isn't possible from other postures (kneeling, crouching, etc.).

Roll against Scissors Hold to hit. Your opponent defends normally. If you succeed, you've grappled his legs with yours. He may try to break free on his turn. If he fails, or chooses not to try, you've locked your legs around his. He may attempt to break free on subsequent turns, but at a cumulative -1 per turn.

If your foe is standing, Scissors Hold leads naturally to a takedown (p. B370). Having both of his legs grappled this way gives you +3 in the Quick Contest!

Spinning (Attack)

Hard

Defaults: prerequisite skill-2, or -3 for a kick.

Prerequisite: Karate or any Melee Weapon skill; cannot exceed prerequisite skill.

This technique involves turning in a circle before attacking. You must specialize. Spinning Punch defaults to Karate-2, and covers all forms of spinning hand and arm strikes. Spinning Kick defaults to Karate-3. Spinning Strike defaults to Melee Weapon-2, and you must specify the skill; e.g., Spinning Strike (Knife). All of these are special options for All-Out Attack or Committed Attack (pp. 99-100) – use the rules below *instead* of the normal ones for those maneuvers.

The goal behind spinning before attacking is to deceive your opponent. This might work on a less-skilled adversary, but a skilled fighter is likely to detect your ploy and defend more easily. To simulate this, roll a Quick Contest of Spinning Attack against your opponent's best melee combat skill *before* you make your attack roll. If you win, you may subtract your margin of victory from your victim's defense roll against the blow. If you lose, you "telegraph" your intentions and your foe may add *his* margin of victory to his defense! Thus, this move is risky . . . but it's still common in tournaments and sport martial arts.

Next, make an attack roll against Spinning Attack. Your target may use any active defense, adjusted by the modifier determined in the Contest. This *does* add to the penalty for a feint, Deceptive Attack, etc. – a well-executed Spinning Attack can increase the defense penalty while a bad one can cancel it out (or worse). However, if you wish to try a Deceptive Attack, you must apply the penalty for that option to both your roll in the Contest *and* your attack roll.

As a Committed Attack, a Spinning Attack does normal damage for your punch, kick, or weapon. It leaves you at -3 on all defense rolls and unable to retreat. If you struck with a hand or a weapon, you can't use it to parry. If you kicked, you can't dodge at all. These penalties last until your next turn.

Optional Rule: Combinations

Martial artists often practice executing a particular sequence of techniques in rapid succession with the goal of economizing movement to the point where the separate moves become a single, fluid motion. A skilled fighter can perform such a "combination" almost as quickly as he could a single technique. Reflecting this reality in the game adds significant complexity; thus, this section is *optional.*

A Combination is a technique that lets a warrior buy off the Rapid Strike penalty for a specific sequence of two or three attacks. A three-attack Combination *does* enable a martial artist to exceed the two-attack limit for a realistic Rapid Strike . . . *if* he spends points on it (see below).

To design a Combination, specify two or three Targeted Attacks (TAs) and their order. Almost any TA is "legal," including a basic attack to the torso or a TA the fighter hasn't improved; e.g., treat an ordinary rapier thrust to the torso as TA (Rapier Thrust/Torso). An attack *can* appear multiple times if it doesn't involve a weapon that becomes unready (or stuck) after attacking. Grapples and grabs are acceptable, but the only subsequent attacks that the grappling hand(s) can make are those that *require* a grip on the target; e.g., Judo Throw.

A Combination lets a fighter eliminate the Rapid Strike penalty – bypassing the usual "precision for speed" tradeoff – by omitting the extra step of matching attacks to targets. This means it always goes off the same way. Thus, it cannot include *untargeted* attacks or leave the *order* of attacks unspecified.

A Combination is a special technique with "split" skill levels, one per attack, written as follows:

Combination (**Skill 1** *Attack 1*/Target 1 + **Skill 2** *Attack 2*/Target 2 + **Skill 3** *Attack 3*/Target 3)-Level 1+Level 2+Level 3

Each portion defaults to the underlying attack at -6 for two attacks or -12 for three, *halved* for Trained by a Master or Weapon Master. When improving the Combination, buy it as a Hard technique but add an extra point cost equal to the number of attacks: default+1 costs 4 points for a two-attack combo, 5 points for a three-attack one. Fighters without one of the two advantages above can only use a three-attack technique if they've spent the minimum 5 points to raise it above default. Improvements adjust all levels by the same amount and can at most buy off the default penalty.

Example 1: Don Ortiz has Rapier-18 with TA (Rapier Thrust/Vitals)-16 and Brawling-15 with Kicking (Brawling)-15. He knows a Combination that involves a rapier thrust to the vitals using his TA and then a Brawling kick to the torso using Kicking. At -6 for two attacks, his default is Combination (Rapier Thrust/Vitals + Brawling Kick/Torso)-10+9. He could improve this to 16+15 for 9 points.

Example 2: Sifu Chen has Trained by a Master, Judo-20, and Karate-22. He uses a Combination to grab and then throw his foe (both at his unmodified Judo level), and then boot him in the head (Karate at -2 for a kick and -5 for the face, or 15). Three attacks default at -12 but Chen halves this to -6 for Trained by a Master. His default is Combination (Judo Grapple/Torso + Judo Throw + Karate Kick/Face)-14+14+9. He can raise this as high as 20+20+15 for 10 points.

Treat a Combination like any Rapid Strike – subject to all the usual rules for multiple attacks (see *Multiple Attacks,* p. 126-128) – with these exceptions:

- Certain attacks require an earlier attack as a "setup"; e.g., a Judo Throw requires a grapple. If the setup attack fails, the follow-up attack is impossible. This immediately ends the Combination, even if it has a third attack.
- The target of the Combination defends normally, but if he makes his defense roll against an attack – or if his attacker misses with one – he gets +3 to defend against the remainder of the Combination.
- If you use the same Combination twice on a given opponent in a fight, he defends at +1 against your third and later uses.

Two-Handed Combinations: A two-attack Combination consisting of a one-handed attack with either hand works the same way but the penalty is -4 (not -6). Adding a third attack to the Combination – either before or after attacking with either hand – makes the penalty -9 (not -12). Cinematic warriors are generally better off learning Dual-Weapon Attack (p. 83).

Defensive Combinations: Many realistic "combinations" involve a defense that leads into an attack. Don't use these rules for that! Instead, see *Riposte* (pp. 124-125).

As an All-Out Attack, a Spinning Attack involves putting your full weight behind the blow, using an exaggerated spin (360° or more!), and/or a making a wide, looping attack. You're at -2 to skill for both the Contest and your attack roll. However, your damage is at +2 or +1 per die, whichever is better. You have *no* defenses.

In either case, if you throw a Spinning Kick, balancing during the spin is especially difficult. If your kick misses or your foe successfully defends, the roll to avoid falling is against DX-2.

You can combine Spinning Punch with Elbow Strike (p. 71), Exotic Hand Strike (p. 71), Hammer Fist (p. 73), or Lethal Strike (p. 85). Likewise, you can mix Spinning Kick with Lethal Kick (p. 85). The GM may permit other techniques, and may allow armed techniques to work with Spinning Strike. See *Using Techniques Together* (p. 64) to find effective skill level.

Stamp Kick

Hard

Defaults: Brawling-3 or Karate-3.

Prerequisite: Brawling or Karate; cannot exceed prerequisite skill.

This kick consists of a swift, downward stamp with the heel, using your entire body weight to give additional force to the kick. It does more damage than a normal kick, but it can only target an opponent who's lying down or the foot or leg of a standing foe.

Roll against Stamp Kick to hit. Damage is thrust+1, plus your Brawling or Karate bonus. On a miss, you stomp the ground and must make a DX roll to avoid ending up off-balance and unable to retreat until your next turn.

Staying Seated

Average

Default: Riding.
Prerequisite: Riding; cannot exceed Riding+4.

This technique represents special training in the art of staying on the back of a mount. Knights learn it to keep their seat in combat; rodeo riders practice it to win competitions! When rolling for any reason to avoid falling off your mount (for instance, the rolls on p. B397), use Staying Seated instead of Riding.

Sweep

Hard

Default: prerequisite skill-3.
Prerequisite: Appropriate Melee Weapon or unarmed combat skill; cannot exceed prerequisite skill.

This technique lets you knock down an opponent in a single attack rather than by grappling him and executing a takedown or throw. It *isn't* aimed at his center of mass with the goal of pushing him away, like a Push Kick or shove. It's an attempt to "clothesline" his neck or head, knock his legs out from under him, or otherwise unbalance him.

Roll against Sweep to hit. Hit location is a special effect – don't apply a penalty for it. Your target may defend normally. If he fails, roll a Quick Contest: your Sweep or ST vs. his ST, DX, Acrobatics, or best grappling skill. Use the *highest* value in both cases. If he loses, he falls down.

Many combat skills can Sweep. You can try an armed version with any two-handed weapon with reach 2+. This defaults to Polearm, Spear, Staff, Two-Handed Axe/Mace, Two-Handed Flail, or Two-Handed Sword, and has the weapon's usual reach. You can also Sweep with Judo, Karate, or Sumo Wrestling. When you attack, specify a stiff arm to the upper body (reach C, requires a free hand), a sweeping kick (reach C, 1, uses a leg), or a pull in a clinch (reach C, only when grappling). Those with Strikers, especially tails, can learn Sweep (Brawling) and attack at their usual reach.

Regardless of the weapon used, Sweep is a slow, pushing attack that doesn't inflict damage.

Trip

Hard

Default: prerequisite skill Parry-1.
Prerequisite: Judo, Sumo Wrestling, or Wrestling; cannot exceed prerequisite Parry.

Trip lets you cause a two-legged foe to stumble and miss with a slam. It counts as a parry with the prerequisite skill. Success means you avoid the slam *and* your attacker must make a DX or Acrobatics roll at -5 or fall down!

Per p. B376, a charging fighter's "effective weight" as a weapon equals his ST. Since your weight limit with an unarmed parry equals your Basic Lift, Trip fails *automatically* if your foe's effective weight exceeds your BL. At ST 8 and BL 13, you couldn't stop a ST 14+ opponent. With ST 14 and BL 39, only ST 40+ giants would be a problem.

Shield DB doesn't benefit Trip. You can't retreat for a bonus, either – or use a Slip or Sideslip (see *Retreat Options*, pp. 123-124). You *can* Dive by assuming a crawling posture across your foe's path. Apply the usual modifier to your roll and use 2×BL to determine whom you can trip.

You can't attack with Trip – use Sweep (see above) for that. However, you can use Trip to intercept someone running past you (*not* merely stepping) within a yard. On a battle map, that's through *your* hex or an *adjacent* hex. This works like a regular Trip and counts as a parry.

Trip can use many body parts: arms, legs, a hip, etc. You *must* Dive or use a free foot to intercept a runner who isn't trying to slam you.

Two-Handed Punch

Average

Default: Brawling-2.
Prerequisite: Brawling; cannot exceed Brawling skill.

This technique involves either knitting the fingers of two hands together to strike or striking with two fists held together. A common move in movies and on television, it's not terribly safe or effective in reality.

Roll against Two-Handed Punch to hit. Your opponent defends normally, but if he successfully parries and inflicts damage, *both* of your arms take full damage. If you take damage from striking DR 3+, *both* hands take full damage. Damage is thrust+1 crushing – or thrust at +1 per die, if better – plus your Brawling bonus.

On a turn when you attempt a Two-Handed Punch, you can only parry once with your hands. This *does* count as a Cross Parry (p. 121) – the parry is more effective but you only get one.

Uppercut

Average

Defaults: Boxing-1, Brawling-1, or Karate-1.
Prerequisite: Boxing, Brawling, or Karate; cannot exceed prerequisite skill.

This is a short punch directed upward from a low stance. It delivers a powerful blow to an opponent standing in close. You can only use Uppercut against the upper body – skull, eye, face, neck, torso, arm – of a standing foe. (*Exception:* If his SM exceeds yours, you can target everything but his feet.) Damage is thrust crushing plus skill bonuses. Your target defends normally.

Uppercut is a *very* close-range punch. Many fighters throw it after getting their adversary in a clinch with the other arm. Grappling an opponent around the back of his head and punching is illegal in modern sport boxing, but very effective (see *Grab and Smash!*, p. 118).

Wrench (Limb)

Hard

Default: ST-4; cannot exceed ST+3.

This technique involves grabbing and suddenly twisting an enemy's limb to dislocate or break it. It defaults to ST – not a skill – and must be learned separately for each limb: Wrench Arm, Wrench Leg, and so forth. Wrestling gives its usual skill-based ST bonus.

To use this technique, you must first grapple your opponent by the desired limb using two hands; see *Grappling* (p. B370). He may attempt to break free on his turn. If he fails, then on your *next* turn, roll a Quick Contest: Wrench (Limb) vs. the *higher* of your victim's ST or HT. He gets +4 if you're wrenching his leg. This counts as an attack.

If you win, you inflict swing crushing damage on the limb. The target's *rigid* DR protects normally. Flexible armor – including natural DR with the Flexible or Tough Skin limitation – has no effect.

Otherwise, you inflict no damage. You may make repeated attempts on later turns. Your opponent may attack you or attempt to break free during this time, subject to the usual limitations of being grappled.

Wrench Spine

Hard

Defaults: ST-4 or Wrestling-4; cannot exceed ST+3 or Wrestling+3.

Some old wrestling manuals depict techniques for breaking an opponent's back: pick him up, hoist him over both shoulders, and then pull his leg and arm (or *neck*) to snap his spine. While not difficult, this procedure is *slow* and requires great strength. For a rapid, cinematic spine-snapper, see *Backbreaker* (see below).

Wrench Spine takes several turns to execute. On your first turn, you must grapple your opponent with two hands around the torso. Resolve this as a normal grapple.

If your victim fails to break free on his turn, roll against Wrench Spine on your next turn to hoist him into position. Success means you lift him up and swing him over your shoulders. *Any* failure means you fall down with your foe on top of you and take thrust damage to your own neck. If your opponent's weight exceeds your BL×4, you simply can't pick him up; your attempt fails but you don't fall or hurt yourself.

On later turns, roll a Quick Contest of Wrench Spine vs. the *higher* of your victim's ST+4 or HT+4. If you win, you inflict swing crushing damage. The target is the spine. There's no wounding multiplier for this location but sufficient injury can mean severe and possibly permanent crippling; see *New Hit Locations* (p. 137). Even if the GM isn't using the spine hit location in general, he should use those rules for Wrench Spine.

The target's *rigid* DR protects normally. Flexible armor, including natural DR with the Flexible or Tough Skin limitation, has no effect. The spine's *own* DR doesn't help, either – you're not striking the spine but applying continuous pressure to break it.

You may make repeated attempts on later turns. Your opponent may attack you or attempt to break free during this time, subject to the usual limitations of being grappled.

Cinematic Techniques

These techniques are so risky – or so unlikely to be effective in a real fight – that few reputable real-world schools teach them. This doesn't mean they're impossible, only that a martial artist needs Trained by a Master or Weapon Master to *improve* them. Anybody can *attempt* a cinematic technique at default, if the GM permits.

The GM is free to forbid a technique – even at default – if he feels it would spoil the game's "feel." This might be because the campaign is realistic, but cinematic techniques don't automatically fit every cinematic setting, either. Conversely, if the GM believes that a technique is realistic, it *is* . . . at least in his game.

*Backbreaker**

Hard

Defaults: ST-3 or Wrestling-3; cannot exceed ST+3 or Wrestling+3.

Some cinematic wrestlers – and strongmen in general – can pick up an opponent and break his spine over their knee. To attempt this, you must first grapple your foe with two hands around the torso. Resolve this as an ordinary grapple.

If your opponent fails to break free on his turn, roll against Backbreaker on your next turn. Success means you lift up your victim, drop to one knee, and smash his back across your other knee. Failure means you drop him; he ends up face-up on the ground and you end up kneeling, but neither of you suffers damage. If his weight exceeds your BL×4, you simply aren't strong enough to pick him up – you waste a turn *trying* to lift him and can't proceed with the technique.

A successful Backbreaker does swing crushing damage to the *spine.* This location has no special wounding multiplier but sufficient injury can do serious harm; see *New Hit Locations* (p. 137). Even if the GM isn't using the spine hit location, he should use those rules for Backbreaker.

The target's *rigid* DR protects normally. Flexible armor, including natural DR with the Flexible or Tough Skin limitation, has no effect. The spine's DR *does* apply, as this is a direct blow to the spine.

*Binding**

Hard

Default: prerequisite skill.

Prerequisite: Judo or Knot-Tying; cannot exceed prerequisite skill+4.

This is the technique of binding a victim limb-by-limb while parrying his attacks. In Japanese legend, guards and police used it to restrain criminals, while ninja used it for abductions. To use Binding, you must have a rope (or handcuffs) ready in *two* hands.

Binding only works in close combat. On your turn after a successful grapple or parry – unarmed or using the rope – you can attempt to bind a limb. To do so, *win* a Quick Contest of Binding vs. your foe's DX or best grappling skill. This is an attack. To tie up successive limbs, repeat the process. You can bind two limbs with cuffs, any number with a rope. Your victim *can* try to free himself on his turn; use the rules for Bolas (p. B410).

If you bind all of your victim's legs, he must roll vs. DX-6 every turn or fall down. His DX and ST are at -6 to resist takedowns and techniques intended to knock him down. If you bind *all* of his limbs, he's helpless – although he can attempt an Escape or DX-6 roll to free himself (see *Escape,* p. B192).

*Dual-Weapon Attack**

Hard

Default: prerequisite skill-4.
Prerequisite: Any unarmed combat or one-handed Melee Weapon skill†; cannot exceed prerequisite skill.

If you attack with two weapons at once, you're normally at -4 on each attack unless you All-Out Attack. This technique lets you buy off the penalty. To eliminate the *extra* -4 for the "off" hand, you'll also need Off-Hand Weapon Training (p. 50). See *Dual-Weapon Attacks* (p. B417) for other important details.

You must learn Dual-Weapon Attack (DWA) separately for each *skill.* For instance, attacking with two axes requires two DWA (Axe/Mace) rolls, but attacking with an axe and a whip requires a DWA (Axe/Mace) roll and a DWA (Whip) roll.

Dual-Weapon Attack is a valid *combat option* even in realistic games. The *technique* is cinematic because you need Trained by a Master or Weapon Master to improve it.

† This technique is also available for Guns (Pistol) even in realistic campaigns and for Bow in cinematic ones. DWA (Bow) lets you shoot two arrows at once from a bow, possibly at different targets! Heroic Archer halves the default penalty to -2. Readying a second arrow requires an extra Ready or use of *Multiple Fast-Draw* (p. 103).

*Dual-Weapon Defense**

Hard

Defaults: prerequisite skill Block-1 or Parry-1.
Prerequisite: Any combat skill that gives a Block or Parry score; cannot exceed prerequisite Block or Parry.

You're normally at -1 to defend against a Dual-Weapon Attack (p. B417). This technique lets you buy off that penalty. To ward off both attacks, you must make two defense rolls *simultaneously:* a parry with either hand or a parry with one hand and a block with the other. Roll against Dual-Weapon Defense for the weapon or shield in each hand.

You can also learn Dual-Weapon Defense for use with a two-yard or longer Polearm, Spear, Staff, or Two-Handed Sword weapon. This lets you buy off the -1 to parry *both* halves of a Dual-Weapon Attack with a *single* parry; see *Parrying with Two-Handed Weapons* (p. 123).

*Fighting While Seated**

Hard

Default: prerequisite skill-2.
Prerequisite: Any combat skill; cannot exceed prerequisite skill.

Some cinematic martial artists show their contempt for lesser opponents by remaining seated when attacked. This technique *replaces* the prerequisite skill while seated; e.g., if you have Karate at 20 and Fighting While Seated (Karate) at 19, you can punch or feint from a seated position at 19, kick at 17, etc. Fighting While Seated also helps with the -2 to *defend* while seated. If you know it at skill-1, you're at -1 to defend, while at full skill, you have no penalty.

You may stand on your turn by taking a Change Posture maneuver. To stand *instantly,* roll against Acrobatic Stand (p. 65) at +4. Success lets you take any maneuver normally. Failure means you must take a Change Posture maneuver.

For rules on fighting while *sitting* on the ground rather than *seated* in a chair, see *Postures, Hit Locations, and Techniques* (pp. 98-99).

*Flying Jump Kick or Flying Lunge**

Hard

Defaults: prerequisite skill-4, or -7 for a kick.
Prerequisite: Karate or any *thrusting* Melee Weapon skill; cannot exceed prerequisite skill.

A "flying" attack is a devastating blow that gets extra power from a full run and jump at the enemy. Realistic martial artists practice this stunt for show – never for combat. In the movies, though, all bets are off! Flying Jump Kick defaults to Karate-7 and ends in a kick. Flying Lunge defaults to Melee Weapon-4 for any *thrusting* weapon, and involves hurling yourself weapon-first at the foe.

Either flying attack is a special option for Move and Attack (p. B365). Use the rules below *instead* of the normal ones for that maneuver. If you use this technique, it's *all* you can do that turn, no matter how fast or skilled you are.

To launch a Flying Jump Kick or Flying Lunge, you must first make a running broad jump; see *Jumping* (p. B352). This requires a DX or Jumping roll. If successful, then at the end of your jump, roll against your level with this technique to hit.

Your victim parries at -2. If you hit, you inflict your usual damage at +2 – or at +1 per die, if better. Start with kicking damage for Flying Jump Kick, your weapon's thrusting damage for Flying Lunge.

Afterward, you cannot retreat. Moreover, you cannot dodge if you kicked or parry if you used a weapon. All of your remaining active defenses are at -2. These effects last until your next turn.

This technique is *dangerous!* If you fail the roll for your jump or your attack – or if your target successfully defends – you *fall* unless you can make a DX-8 or Acrobatics-4 roll. On a fall, you suffer damage for a collision with an immovable object (the ground) at an effective Move equal to the full distance of your run and jump.

*Grand Disarm**

Hard

Defaults: fencing weapon skill-9, other Melee Weapon skill-11, or unarmed combat skill-11.

Prerequisite: Any unarmed combat or Melee Weapon skill; cannot exceed prerequisite skill.

Grand Disarm is a special All-Out Attack that lets you disarm *every* foe adjacent to you with lightning speed. Use these rules instead of the usual ones for All-Out Attack (p. B365). If you attempt a Grand Disarm, it's *all* you can do that turn, no matter how fast or skilled you are.

A Grand Disarm involves spinning in place – you *cannot* step – and trying to disarm every single foe within a yard. You *must* engage your enemies in either clockwise or counterclockwise order (your choice). You can't combine this with any technique except Disarming (p. 70).

Shuriken

Roll against Grand Disarm once per foe, in the order chosen above, to hit his weapon. Your opponents may defend normally. If you critically miss on any of these attacks, your Grand Disarm ends immediately and you must roll on the *Critical Miss Table* (p. B556).

After resolving all of the attack and defense rolls, you may try to disarm everyone who didn't successfully defend! Use the rules on p. B401; you roll against the higher of your weapon skill or your Disarming technique (*not* Grand Disarm). Resolve each disarming attempt completely before moving to the next. Should *you* be disarmed during one of these Contests, don't keep rolling – your turn ends immediately.

Since Grand Disarm is an All-Out Attack, you have no active defenses afterward. In a cinematic game, though, it's traditional for those disarmed this way to gape and gawk on their next turn – not to attack with another weapon or bare hands. The GM should make an IQ roll for each foe (in over-the-top games, at -1 per successful disarm after the first). Those who fail are mentally stunned (p. B420) by your awe-inspiring move!

*Hand Catch**

Hard

Default: prerequisite skill Parry-3.

Prerequisite: Judo, Sumo Wrestling, or Wrestling†; cannot exceed prerequisite Parry.

This technique – popular with cinematic warriors, muscular henchmen, and super "bricks" – involves *catching* an incoming attack in your hand. It *isn't* realistic! It's a one-handed parry, even if the prerequisite skill usually parries with two hands, and incompatible with Cross Parry (p. 121).

Roll against Hand Catch to defend, at the usual -2 for Sumo Wrestling vs. a kick, or -3 for Sumo Wrestling or Wrestling vs. a weapon. You cannot retreat. Failure means you're hit. The attacker may choose to hit his original target, your parrying arm, or your parrying *hand*. Success means you parry and may roll against the prerequisite skill to grab your attacker, modified as follows.

Modifiers: Against unarmed, -2 to hit a hand or foot; -2 for Sumo Wrestling vs. a foot; -1 if your foe knows Rapid Retraction (p. 51). Against armed, a basic -3; another -3 to -5 for weapon size (see p. B400); a further -3 for Sumo Wrestling or Wrestling vs. a weapon.

Success on this skill roll means you grapple the extremity or grab the weapon! On later turns, you can use any combat option or technique that requires a grab or grapple to set up – Disarming, Finger Lock, Judo Throw, Snap Weapon, Wrench Limb, etc., as applicable. Failure means you deflect the attack but fail to catch your attacker.

The GM may let realistic fighters try this technique at default. The consequences of failure are steep enough to keep it under control.

† You can also learn Hand Catch for Parry Missile Weapons in order to catch ranged weapons. If you have Precognitive Parry, you can use *any* Hand Catch specialty for this. Hand Catch can only trap projectiles (not beams) that the underlying parry could deflect. Use the standard modifiers for such parries instead of those above. Success plucks the weapon from the air, regardless of hand DR. Failure means you're hit. Don't use Hand Catch to catch something thrown *to* you – use *Catching* (p. B355).

*Hand-Clap Parry**

Hard

Default: prerequisite skill Parry-5.

Prerequisite: Judo or Karate; cannot exceed prerequisite Parry.

This often-foolhardy cinematic technique – common in samurai stories – lets you *trap* an opponent's weapon in mid-stroke. By clapping your hands together, you capture the weapon's blade, haft, or head.

Roll against Hand-Clap Parry to defend against an attacker's weapon. Success means you stop the attack and trap the weapon. Failure means you're hit, and your assailant may choose to hit his original target or *either* of your hands! Succeed or fail, this is the only parry you may make with your hands this turn.

If you trap the weapon, your enemy's turn ends *immediately*. He loses any additional attacks or maneuvers he might have had, and can't step. He can't use the trapped weapon to parry or attack until you relinquish it. On future turns, he may try to break free. If he opts to give up his weapon, it's a free action on his turn.

On your next turn, you may attempt to disarm or use Snap Weapon (p. 87). You don't have to do either – you can act normally while holding onto the weapon, as long as you leave two hands on the weapon and don't step away from your victim. Relinquishing the weapon is a free action on your turn.

If you make a successful disarm attempt – or your foe releases his weapon – you may try to reverse the weapon and ready it yourself on your next turn. This requires a DX roll. Success means you catch the weapon, which counts as a Ready maneuver. On a critical success, you ready the weapon *instantly!* Failure means you drop it. On a critical failure, you also inflict Tip Slash (p. 113) damage on your torso.

> *. . . Iros lunged, hitting the shoulder. Then Odysseus hooked him under the ear and shattered his jaw bone so bright red blood came bubbling from his mouth, as down he pitched into the dust, bleating, kicking against the dust, his teeth stove in.*
>
> *– Homer,* ***The Odyssey***

*Initial Carving**

Hard

Default: prerequisite skill-4.
Prerequisite: Any fencing weapon skill; cannot exceed prerequisite skill.

A cinematic swashbuckler can try to carve an initial using his blade. Determine where he'll carve the initial and the number of strokes he'll need to carve it – for instance, a Z takes three. The first stroke is at no penalty beyond that for hit location; it's at -0 on the torso, -5 on the face, and so on. If the stroke inflicts at least a point of cutting damage, it will mark anything but metal or similarly hard materials, ripping cloth (but not armor), scarring skin, and delivering any poison vile enough to need only a scratch. An impaling weapon can make a Tip Slash (p. 113) to do cutting damage.

It's more difficult to align the remaining strokes of the initial relative to the first. The attack roll is at -4 (in addition to hit location modifiers) for an initial roughly 4"×4". If a subsequent stroke fails by 4 or less, it makes a slash but it isn't properly connected to the earlier lines – there's a gap or an overlap (roll a die). This can be bad form; it might even change the initial to another letter! It's possible to connect lines that are too far apart; try again at the same modifier. The victim might object to the *erasing* process, however, as this involves at least half a dozen crisscross lines. Initial Carving is generally the realm of the incredibly skilled . . . or those named Inigo, Ignatz, or Irene.

You must learn a separate technique for each letter. It lets you buy off the -4 for the second and later strokes. To remove the penalties for carving in a specific hit location, buy a Targeted Attack (p. 68).

Example: Don Lorenzo Estrada wishes to leave the initials L.E. on the skin of several (unwilling) acquaintances, so he practices long and hard. He spends 4 points on the L and 5 on the E (which takes four strokes, so he wants to get it right the first time). His Rapier skill is 14; he'll make the first stroke of each letter on a 14 or less. The next part of the L is at default+3, giving a net -1 to skill – he needs a 13. The E is at default+4; he has no penalty to carve it at all.

*Lethal Kick**

Hard

Default: Karate-4.
Prerequisite: Karate; cannot exceed Karate skill.

This kick focuses all of your strength onto a toe or toes, converting your blow from crushing to *piercing*. This lets you target the vitals or eyes. Roll against Lethal Kick to hit, applying the usual hit location penalties. Damage is thrust-1 plus your Karate bonus. *Hurting Yourself* (p. B379) applies if your target has *any* DR – not just DR 3+.

Lethal Kick is generally impossible while wearing fully enclosed shoes or boots, but the GM might allow it with such pointy footwear as cowboy boots and stiletto heels – especially in a cinematic campaign!

As *combat options,* Lethal Kick and Lethal Strike (below) are reasonable even in a realistic game. The *techniques* are cinematic because only warriors with Trained by a Master can improve them.

*Lethal Strike**

Hard

Default: Karate-2.
Prerequisite: Karate; cannot exceed Karate skill.

This is a hand strike with stiffened fingers. It uses the rules for Lethal Kick, above, but damage is thrust-2 plus your Karate bonus. It's possible while wearing gloves with individual fingers, even gauntlets, but incompatible with mitts, boxing gloves, etc.

*Piledriver**

Hard

Defaults: ST-5 or Wrestling-5.
Prerequisite: Wrestling; cannot exceed ST or Wrestling.

Piledriver involves grappling your opponent, turning him upside down, and driving his skull into the ground by sitting down *hard.* This is a clumsy, risky move, rarely seen outside professional ("entertainment") wrestling. It's a special All-Out Attack option – use these rules *instead* of the usual ones for that maneuver.

To execute a Piledriver, you must first grapple your opponent with two hands by the arms, torso, or legs. Resolve this as an ordinary grapple. Your foe may defend normally.

If your enemy fails to break free on his turn, then on your *next* turn, make a Piledriver roll to turn him head-down and drop to a sitting posture. This counts as an attack. If your victim's weight exceeds your BL×4, you aren't strong enough to pick him up – your attack fails automatically but you must still roll to see if you *critically* fail!

Your victim may defend at the usual penalties for being grappled. If he knows the Wrestling skill, he can counter your move by pivoting to make the attack mechanically difficult. This defense counts as a Wrestling parry and is possible even if your foe has no hands free.

A successful Piledriver does thrust+4 crushing or thrust+2 at +2 *per die,* whichever is greater, plus damage equal to your ST bonus from Wrestling (+1 at DX+1, +2 at DX+2 or better). Apply this to the skull. Immediately afterward, you can attempt a pin as a *free action.* Your opponent may resist as usual – but he's still grappled and may be stunned or otherwise suffering from his injuries.

If your Piledriver fails for any reason but being too weak to lift your foe, including a successful enemy defense, you still drop to a sitting posture. You must also roll vs. HT. A failed HT roll means you sit down too hard, strain your gut, etc. Apply the damage you would have inflicted to your own torso. Critical failure on the Piledriver roll means you end up sitting and injure yourself *automatically* (no HT roll).

Secret Techniques

Martial-arts legend features countless "ultimate techniques" taught only to advanced students. Kung fu has *dim mak* – the "death touch" – with supposed origins in 13th-century Taoist medicine. The rapier masters of the 16th and 17th centuries reputedly attacked with the *botte segrete,* or "secret strike," while 18th-century smallsword masters defended with the *parata universale,* or "universal parry." These were the irresistible force and immovable object of European swordplay. The list goes on.

Most fabled techniques have prosaic origins. Death touches and similar strikes have their genesis in physiology, not esoteric medicine. When healers discover new human frailties, warriors seek to exploit them in battle; see *New Hit Locations* (p. 137) for examples. This isn't magic – a sufficiently skilled fighter can target any body part he wishes, given a reason to do so.

This doesn't stop rumors about secret techniques from arising when one man defeats another with a strike to an unusual target. An example is the *coup de Jarnac.* Guy de Chabot de Jarnac killed François de Vivonne de La Châtaigneraie (one of France's greatest swordsmen) on July 10, 1547, in France's last legal duel. He used a feint followed by a cut to the hamstring. This is immobilizing but not usually fatal, but La Châtaigneraie – mortified that an inferior defeated him in this way – refused medical aid and bled to death. It wasn't long before dishonest masters were offering to teach the *coup de Jarnac* to gullible, wealthy students!

Tactics, like medicine, developed gradually. Lunging with a sword seems obvious – anyone can attempt it in ***GURPS*** (see *All-Out Attack (Long),* pp. 97-98) – but it wasn't common before the 16th century. Until the lunge became widespread, swordsmen who used it to defeat foes were spreading the legend of a *botte segrete.* Similarly, when lighter blades enabled the sword to rival the buckler and main-gauche on defense, tales of the *parata universale* followed. This is just the standard fencing parry described in *Fencing Weapons* (p. B404).

In a realistic campaign, effective secret techniques shouldn't exist. If the GM enforces *Limited Maneuver Selection* (p. 113), however, an untrained fighter won't have access to all of the combat maneuvers and options in the ***Basic Set*** and Chapter 4, many of which *are* quite effective. Should he experience these at the hands of a well-trained opponent (and survive), he might spread rumors of secret techniques. The GM shouldn't let the truth slip until the PCs see this "amazing" move in action.

Still, every tactic *was* a brilliant new discovery at some point. The GM is welcome to forbid maneuvers or options that he feels warriors wouldn't know about in his setting. He might let skilled martial artists buy knowledge of these tactics as perks – one per option, maneuver, or rarely known hit location. Those who witness such moves can try them . . . but until they spend that point, treat their efforts as ordinary attacks and defenses.

In a cinematic game, secret moves definitely exist – as cinematic skills and techniques, or even as special powers (see *Chi Powers for Martial Artists,* p. 46). *Dim mak* might be the Pressure Secrets skill or the Hand of Death (see *Innate Attack,* p. 46). The *botte segrete* might be the Flying Lunge technique.

In any game, unethical instructors might *claim* to teach secret techniques. The GM may rule that these are totally ineffective, and work as described in *Useless Techniques* (p. 95). Alternatively, they might be horribly risky – like the infamous *coup de D'Artagnan,* a *botte segrete* from *The Three Musketeers.*

A typical "risky" secret technique is Hard, defaults to Melee Weapon-4 or Acrobatics-4, and can't exceed the controlling skill. When used, roll a Quick Contest between the attacker's technique and *highest* of the target's Per, Body Language, or best melee combat skill. If the attacker wins, his foe's active defense is reduced as per a successful feint (p. B365). If he loses or ties, his adversary automatically defends against the attack *and* the technique-user has -3 to defend against his opponent's next attack.

Whatever the truth about secret techniques, people tend to believe in them. Martial arts-related Delusions (see *Delusions,* pp. 53-54) about invincible moves are appropriate. In the interest of good player-GM relations, the GM should consider permitting PCs who pay points for risky secret techniques to take related Delusions to defray the cost!

A variation is to grapple your adversary, pick him up, and smash him skull-first into the floor, wall, or other fixed object. This is a common tactic for strong men in mixed martial arts bouts – often in response to being grappled. (If you do this *without* lifting your foe, use *Grab and Smash!*, p. 118, instead.) This move works as described above with three important differences:

1. If your foe is grappling *you* with two hands and you have a free hand, you can opt to grapple his head or arm with only *one* hand as your initial grapple. This is a standard grapple; your rival defends normally. However, if he lets go of you on his turn, you can't attempt a Piledriver on your next turn (you still keep your grapple).
2. The attack roll is at +3, because you're not trying to invert your victim after you pick him up.
3. Damage drops to thrust+2 crushing or thrust at +1 *per die,* whichever is greater, plus the Wrestling bonus.

*Pole-Vault Kick**

Hard

Default: Karate-4.
Prerequisites: Jumping *and* Karate; cannot exceed Karate skill.

This technique is a variation on Jump Kick (p. 75) that uses a pole – typically a quarterstaff but sometimes a sword stuck in the ground or even a convenient banister – to vault into a kick. It involves a short pole-vault forward or sideways that ends in a sharp kick. It's a special option for All-Out Attack. Use the following rules *instead* of the normal ones for that maneuver.

To attempt a Pole-Vault Kick, you must have two hands on a pole, sword, or similar vertical lever. You *must* take at least two steps toward the foe; this effectively gives you an extra yard of reach. Roll against Pole-Vault Kick to hit. Your target parries at -2.

If you hit, you do thrust+3 crushing damage – or thrust+1 at +1 per die, if better – plus your Karate bonus. If you miss, or if your target successfully defends, you *fall down* unless you can make a DX-4 or Acrobatics-2 roll. Hit or miss, you have no defense at all until your next turn!

As strange as it may seem, some real-world martial artists *do* practice this kick, although its effectiveness is doubtful. At the GM's option, realistic warriors who practice especially flashy styles can buy a Style Perk that lets them improve this technique.

*Pressure-Point Strike**

Hard

Default: prerequisite combat skill-2.
Prerequisites: Either Pressure Points or Pressure Secrets, *and* a combat skill that's useful with those skills; cannot exceed combat skill.

Attacks with the Pressure Points and Pressure Secrets skills are normally at -2 to hit. This technique lets you buy off this penalty.

*Roll with Blow**

Hard

Default: prerequisite skill-2.
Prerequisite: Acrobatics or any unarmed combat skill; cannot exceed prerequisite skill.

This represents special training at presenting little resistance to the force of a punch or other bludgeoning attack, resulting in less injury. Whenever you're hit by a *crushing* attack, you may roll against Roll with Blow to reduce damage.

Success means you take half damage (round up) *before* subtracting DR . . . but *double* the basic damage roll to calculate knockback (p. B378). This doubling is cumulative with the effects of attacks that normally cause extra knockback. Make a DX roll at -1 per yard of knockback to avoid falling down. Critical success on Roll with Blow means you take only 1 point of damage (extra knockback still applies).

Failure means you take normal damage *and* extra knockback. On a critical failure, you *also* fall down automatically and are physically stunned!

Roll with Blow is risky in places where knockback is likely to mean a collision. In a superhero game, the GM may let anyone learn this skill – people being knocked great distances into and through things is very much in-genre!

*Snap Weapon**

Hard

Defaults: ST-4 or ST-based Jitte/Sai-4; cannot exceed ST+3 or ST-based Jitte/Sai+3.

Cinematic strongmen often use brute strength to snap weapons. You can only attempt this if you trapped the target weapon with a barehanded grab or Bind Weapon (Jitte/Sai) on an earlier turn – or on your turn after making a successful Hand Catch or Hand-Clap Parry. Roll a Quick Contest: Snap Weapon vs. the weapon's HT. Use HT 10 for missile weapons, HT 12 for melee weapons. *Cheap* weapons get -2; *fine* ones, +1; *very fine* ones, +2. This is an attack. If you win, you inflict thrust crushing damage on the weapon.

*Springing Attack**

Hard

Default: prerequisite skill-2.
Prerequisite: Any unarmed combat or Melee Weapon skill; cannot exceed prerequisite skill.

Springing Attack represents an attack made from the kind of deep stance that some cinematic fighters use to "store up" energy for a powerful strike. To make an attack like this, you must first crouch. This takes your entire turn – you may do nothing else.

On your *next* turn, make a roll against Springing Attack – not the prerequisite skill – to hit with your first attack. If you hit, that one attack is at +2 to damage or +1 per die, whichever is better. If you miss, you have -2 to DX and all active defenses until your next turn. On a critical miss, you fall down! If your foe defends, you suffer no special ill effects.

Silly Techniques

Humorous movies often feature *silly* techniques that embarrass or distract the victim. These aren't "cinematic" in the usual sense – they aren't legendary, high-powered, or chi-based – but neither are they realistic. Most simply wouldn't work in a real fight. The GM may rule that such techniques are useless (see *Useless Techniques,* p. 95), but in a silly game it's more fun to let them work!

Double Eye-Poke

Hard

Defaults: Brawling-5 or Karate-5.
Prerequisite: Brawling or Karate; cannot exceed prerequisite skill.

This is a darting thrust to both eyes using one hand with two extended fingers – often accompanied by suitable sound effects ("Poink!"). The goal isn't to maim but to distract the victim so you can pull a fast one or run away! If hit, the target must roll vs. HT. Failure means he's blinded for seconds equal to his margin of failure.

Eye-Poke Defense

Hard

Default: prerequisite skill Parry.
Prerequisite: Any unarmed combat skill; cannot exceed prerequisite Parry+5.

The best defense against Double Eye-Poke is to place a hand upright along the nose, which forces the attacker's fingertips to stop short of the eyes. This parry is an *ultimate defense,* and can go as high as Parry+5. Of course, it only works against Double Eye-Poke . . .

Flying Atomic Wedgie

Hard

Defaults: Brawling-8 or Wrestling-8.
Prerequisite: Brawling or Wrestling; cannot exceed prerequisite skill.

The Flying Atomic Wedgie is a Move and Attack: you leap past the target, grab hold of his underpants, and *pull* at full power – hopefully getting the shorts up over his head. If you hit, roll a Quick Contest of ST with the victim. You're at +1 per yard you ran toward him. If you win, he suffers agony (p. B428) for minutes equal to your margin of victory and embarrassment for considerably longer.

Halitosis Attack

Average

Default: HT-5; cannot exceed HT+5.
Prerequisite: Odious Personal Habit (Foul Breath).

This dreaded attack is an attempt to overcome the enemy with bad breath in close combat. To use it, you must grapple your foe from the front or he must do the same to you. On later turns, roll a Quick Contest: your Halitosis Attack vs. your victim's HT. This counts as an attack.

If you win, you stun your victim for seconds equal to your margin of victory. If you critically succeed or he critically fails, he's *retching* for that time instead (p. B429). If he has No Sense of Smell/Taste, though, he's immune!

There are persistent rumors of a Flatulence Attack that works on foes who grapple you from behind. The GM should decide whether martial farts suit his campaign.

Noogie

Hard

Defaults: Brawling-5 or Karate-5.
Prerequisite: Brawling or Karate; cannot exceed prerequisite skill.

A Noogie is a knuckle rub to the top of the head. If hit, the victim suffers moderate pain on his next turn (only). Repeated hits on *successive* turns cause this to progress a step a turn to severe pain, terrible pain, and agony. Further attacks extend the agony's duration. For rules for pain and agony, see p. B428.

The best way to use Noogie is to pin the target and noogie away until he's in agony. This gives the usual +3 to Intimidation when you finally stop and make demands ("Say 'uncle'!").

Head DR beyond the standard DR 2 for the skull grants immunity.

Nose Slap

Hard

Defaults: Brawling-5 or Wrestling-5.
Prerequisite: Brawling or Wrestling; cannot exceed prerequisite skill.

Nose Slap is a close-combat attack that involves grabbing the victim's nose with one hand and using the other to slap him across the face – all in one smooth motion. If hit, the target is stunned and must roll vs. HT. Failure means he drops anything he's holding in either hand and clutches his nose. If he has something he can't drop, like a shield, he hits himself in the face with it. Nyuk!

Wet Willy

Hard

Defaults: Brawling-6 or Karate-6.
Prerequisite: Brawling or Karate; cannot exceed prerequisite skill.

To attempt a Wet Willy, you must first take a Ready maneuver and moisten a finger with saliva. The following turn, roll against Wet Willy to wiggle the slimy finger around in your adversary's ear. If he's hit, he must roll as if Squeamish (p. B156) with a self-control roll equal to his Will. If he's *already* Squeamish, he must attempt his normal self-control roll at -3. Failure has the usual effect.

You may combine Springing Attack with another striking technique. See *Using Techniques Together* (p. 64) to find effective skill level.

*Timed Defense**

Hard

Default: active defense-2; cannot exceed active defense.

This technique helps you defend against opponents who use acrobatics or speed to move behind you and attack. It lets you buy off the -2 for a flank or "runaround" attack (p. B391) for one active defense. For Block or Parry, you must specialize by combat skill. You may use Timed Defense (Dodge) only once per turn.

*Whirlwind Attack**

Hard

Default: prerequisite skill-5.
Prerequisite: Boxing, Karate, or any Melee Weapon skill; cannot exceed prerequisite skill.

Whirlwind Attack is a special All-Out Attack that lets you attack *every* foe adjacent to you with lightning speed! If you make a Whirlwind Attack, it's *all* you can do that turn, no matter how fast or skilled you are. Since it's an All-Out Attack, it leaves you with no active defenses. Otherwise, the rules below replace the usual ones for that maneuver.

When you launch a Whirlwind Attack, you spin in place (you *cannot* step) and attack all foes within a yard. You must attack them in clockwise or counterclockwise order – your choice. All of your attacks must be kicks, punches, or strikes with a swung weapon, and you cannot combine Whirlwind Attack with another technique (such as Disarming, but see *Grand Disarm,* p. 84) or with cinematic skills such as Power Blow.

Determine a random hit location for each foe and then roll against Whirlwind Attack to hit, with the usual hit location penalties. Your opponents defend normally. Resolve each attack completely before moving to the next one. If using a weapon that can get stuck (see *Picks,* p. B405), your Whirlwind Attack ends on the first successful attack. If any of the attacks is a critical miss – or if any of your enemies critically succeeds on his defense – then that attack and *all remaining attacks* are critical misses. Roll on the *Critical Miss Table* (p. B556) once per attack!

You may end a Whirlwind Attack facing in any direction.

Creating New Techniques

This chapter's techniques don't constitute an exhaustive list. Each martial-arts master has unique moves, a typical fencing manual describes hundreds of attacks and parries for *one* type of sword, and a global survey of unarmed fighting arts would reveal *thousands* of kicks. This doesn't even touch on feats from legend and cinema, which – freed of the fetters of physics – vastly outnumber realistic techniques! Thus, the GM is likely to learn of new techniques from fact and fiction . . . and face players who want signature moves for their characters.

Tonfas

Most "new" techniques are variations on existing ones, with differences so subtle that they don't merit game effects. For these, don't bother with the design system below. Just rename one of the techniques on pp. 65-89 to agree with your source and use its rules as written. The original technique and all renamed versions should default to one another at no penalty. For instance, you might refer to Lethal Strike (p. 85) as "Spear Hand" or "Crane's Bill," but all would use the Lethal Strike rules and default to each other at full skill.

Below is a greatly expanded version of *Creating Techniques* (p. B229) that's intended for *truly* new techniques. This system is meant for dedicated ***Martial Arts*** campaigns. Its degree of detail would be excessive in other kinds of games. It's also primarily for GMs. If the GM permits players to use it, he should carefully examine their creations before allowing them.

Name

Give the technique an evocative name. You might take this from a real-world style or a fictional source, or simply make it up. The name might be prosaic, like "Uppercut"; designed to frighten enemies, like "Up From Hell"; or poetic, like "Brushing the Horse's Tail" or "Swallow Takes Wing."

Concept

Decide what the technique does in game terms. Skip down to *Defaults* (pp. 90-92) to see what's possible, if you're unsure. The crucial thing to remember is that combat skills – studied as part of a style or on their own – represent the distillation of decades, centuries, or *millennia* of experience under circumstances where error could mean death. Thus, their core uses provide a tried-and-true balance between several measures of effectiveness, notably defense, mobility, power, precision, reach, and speed. A technique that stresses one or two of these things *will* compromise the rest.

Also bear in mind that a technique *cannot* improve the core use of the skill to which it defaults: punching for Boxing, Brawling, or Karate; grappling for Judo, Sumo Wrestling, or Wrestling; or swings and thrusts for Melee Weapon skills. Techniques can only boost secondary uses (e.g., kicking, for Brawling or Karate) or *penalized* versions of primary ones. The same logic applies to techniques that default to active defenses: these cannot improve ordinary active defense rolls, only penalized uses in special circumstances.

Prerequisites

Unless the technique is based on Dodge or an attribute, it must specify at least one prerequisite skill. The technique automatically defaults to this skill – or, for defensive techniques, to the Block or Parry score calculated from this skill. If more than one skill qualifies as a prerequisite *and* gives a default, the buyer must specialize; see *Specialties* (p. 92-93). Skills that don't give defaults can still be logical prerequisites; e.g., Acrobatics for flamboyant jumping kicks, or Riding for mounted techniques.

It's reasonable to name another *technique* as a prerequisite, too. This may or may not give a default. A fighter must have at least a point in the prerequisite technique to improve the subsidiary technique, but he can always attempt it at default – or even at "double default," if he has points in the underlying skill but not in either technique.

Finally, advantages can be prerequisites. By far the most common of these is Style Familiarity (p. 49) with a style that teaches the technique. All cinematic techniques require Trained by a Master or Weapon Master – anyone can *attempt* them but only warriors with one of those advantages can *improve* them. Techniques for nonhumans might require Claws, Extra Arms, Strikers, etc., if they rely on such body parts.

Basic Attacks

A *basic attack* is any fundamental use of a combat skill that can form the basis of an offensive technique, defining its initial effects and default penalties. A skill's "core" use is the most basic attack of all and defaults at +0. For an unarmed striking skill, this is a hand strike or punch that deals thrust-1 crushing damage (p. B271). For an unarmed grappling skill, this is a grapple (p. B370). For a weapon skill, this is any of the attacks listed in the table entry for that weapon – although not every weapon technique works with every attack. Trickier options include elbow strikes (p. B404, p. 71), grabs (p. B370), kicks (p. B271, pp. 75-76), knee strikes (p. B404, p. 76), shoves (p. B372), slams (p. B371), sweeps (p. B232, p. 81), and throws (p. B203, pp. 75,78-79).

Defaults

A technique *must* default to a skill, another technique, an active defense, or (rarely) an attribute. The default penalty measures the technique's precision. Improvements in areas other than precision – mobility, power, reach, etc. – worsen the penalty, while shortcomings reduce it. The more all-round capability a technique offers, the worse its default penalty and the more points you must spend to get *good* at it!

Many techniques incorporate maneuvers, active defenses, or combat options (such as Telegraphic Attack and Wild Swing), but thanks to the design principles behind ***GURPS,*** they obey the same rule: if they favor one type of effectiveness, they sacrifice another.

Below are guidelines for assigning default penalties. You can save time and effort by starting with the closest existing technique and adjusting its default as you add and subtract effects. The most important rule is this:

The final default modifier can never give a *bonus.* If this happens, set it to 0.

Offensive Techniques

When building an *offensive* technique, you must choose the attack it's based on. This determines its basic default penalty. Some important options by skill, with basic default penalties given in parentheses:

Boxing: Punch (+0).
Brawling: Elbow (-2), Kick (-2), Knee (-1), Punch (+0), or Slam (+0).
Judo: Grab (-4), Grapple (+0), Sweep (-3), or Throw (+0).
Karate: Elbow (-2), Kick (-2), Knee (-1), Punch (+0), or Sweep (-3).
Melee Weapon: Strike (+0). A hooked/tined weapon, whip, etc., can Grab (-4). A long weapon can Sweep (-3).
Sumo Wrestling: Grab (-4), Grapple (+0), Shove (+0), Slam (+0), or Sweep (-3).
Wrestling: Grab (-4) or Grapple (+0).

Unless you specify otherwise, the technique works with *all* of All-Out Attack, Attack, Committed Attack, Defensive Attack, and Move and Attack. It can work differently in each case, though. If so, be sure to describe the differences.

You can limit the technique to a subset of these maneuvers. If you do, you must *also* choose one specific option for any maneuver that offers multiple options. The technique inherits the effects of these maneuvers and options – including any built-in penalties to the attack roll, which adjust the default penalty. For instance, a kick (-2) that must use Move and Attack (-4) would default to skill-6 and use the Move and Attack rules. If you apply *any* of the modifications below, the technique effectively becomes a new option for the maneuver(s) in question.

Additional effects further modify the default. While some of these are open-ended, extreme levels are cinematic; see *Designing Cinematic Techniques* (pp. 94-95). Common options include:

Damage: +4 to default for -2 damage or -1 damage per die, whichever is *worse;* +2 to default for -1 damage; -2 to default for +1 damage; or -4 to default for +2 damage or +1 damage per die, whichever is *better.* Techniques based on Defensive Attack cannot take damage bonuses but can worsen their damage penalty for an improved default.

Extra Movement: Techniques based on Committed Attack can optionally allow a double step at -2 to hit. Those based on Move and Attack let the attacker travel his full Move at -4 to hit. In either case, add the appropriate penalty to the technique's default penalty. Alternatively, base the technique on All-Out Attack, which allows half Move at *no* penalty. For a slam-based technique, remember that a slam isn't at -4 to hit (and isn't "capped" at skill 9) as a Move and Attack, and allows *full* Move as an All-Out Attack.

Hit Location: Add any hit location penalty to the default. No technique can eliminate *every* hit location penalty, though! At most, a technique can eliminate the penalty for *one specific target.* For details, see *Targeted Attacks* (p. 68).

Opponent's Defenses: +2 to default per +1 to *all* of the opponent's defenses against the attack, or -2 to default per -1 to any *one* of the target's defenses against the attack. If the technique penalizes more than one defense, only the largest penalty uses this scheme; smaller penalties to other defenses give only -1 to default per -1 to defense. For instance, if the victim has -2 to parry, -1 to block, and -1 to dodge, the default is at -6.

Own Defenses: +2 to default per -1 to *all* of one's active defenses while attacking, or -2 to default per +1 to any *one* active defense. The latter modifier differs from Defensive Attack in that it trades skill rather than damage for a defensive bonus; it can "stack" on top of a regular Defensive Attack. Techniques based on Committed Attack include that maneuver's basic -2 to all defenses and cannot remove this by adding a defensive bonus – but they can get an easier default by taking a *worse* penalty! Techniques based on All-Out Attack cannot modify the attacker's defenses at all.

Wild Swing: If the attack specifically strikes a target to the side or back, apply the -5 Wild Swing penalty to its default (see *Wild Swings,* p. B388).

Special Benefits: Each built-in exemption from the usual rules gives -1 to the default penalty. Such benefits are similar to Style Perks (pp. 49-52) but apply only to one technique. Examples include:

- Being able to retreat after a particularly acrobatic Committed Attack.
- Bypassing the DX roll to avoid falling on a miss with a low-powered kick.
- Ignoring the effective skill limit of 9 on a Wild Swing when striking rearward.

A technique can also "trade" one of the usual effects of the attack on which it's based for a different but equally valuable effect. For example, Push Kick (p. 78) lets a Brawling or Karate kick act as a shove (p. B372), trading kicking damage for the ability to use *twice* that damage for knockback only. Conversely, a "Slap" technique might turn a Sumo Wrestling shove into a strike that inflicts punching damage instead of knockback. Such benefits often make an entirely new basic attack available to a skill. All such techniques get -1 to their default penalty to reflect the fact that they're unusual, rarely taught uses.

Special Drawbacks: Extra restrictions give +1 apiece to the default penalty. A few examples:

- An additional success roll required before attempting the technique (failure means the technique fails) or to recover afterward (with negative consequences on a failure!).
- Having to Do Nothing to recover on the turn after the technique. This is cumulative with the modifier for an extra success roll afterward.
- Having to parry an attack by the future target and/or use a "setup" move that takes a *full turn* (e.g., grapple him or take a Ready maneuver) to be able to employ the technique. This is cumulative with the modifier for an extra success roll beforehand. Throws *automatically* work like this and cannot claim this drawback.
- Increased odds of the attacker getting hurt on an ordinary miss. This might be self-inflicted injury when punching any DR instead of DR 3+, collision damage, etc.
- Limited target selection, most often "upper body only" (skull, eyes, face, neck, torso, vitals, arms, and hands), "lower body only" (groin, legs, and feet), or "only on a foe who isn't standing or who has lower SM."

Some drawbacks come in multiple levels:

- A penalty to the DX roll to avoid falling on a missed kick is worth +1 for DX-2, +2 for DX-4, or +3 for DX-6 or worse. A required or automatic fall, as for Drop Kick (p. 70) or Elbow Drop (p. 70-71), is worth +4. Having to drop to a kneeling or sitting posture is worth only +2.
- Reduced maximum reach is worth +1 per yard. Going from 1 to C counts as 1 yard (+1) and is common for low-powered kicks.

Example 1: Back Kick (p. 67) gets the basic -2 for a kick and an extra -5 for a Wild Swing, since it's an attack directly backward. Furthermore, it *ignores* the usual skill cap of 9 on a Wild Swing – a special benefit (-1). These penalties total -8. However, the attacker has -2 to his defenses, which adds +4. The final default penalty is thus -4.

Example 2: Flying Jump Kick (p. 83-84) gets the basic -2 for being a kick plus the -4 for Move and Attack. It gets +2 damage, for another -4, and gives the target -2 to parry, for a *further* -4. It has two special benefits, too: it ignores the skill cap of 9 on a Move and Attack (-1) and lets the attacker add his jumping distance to his Move (-1). These penalties total -16! However, the kick leaves the attacker at -2 to defend, for +4. And it has three special drawbacks: it requires a Jumping roll to execute (+1); the roll to avoid a fall is at DX-6 (+3), which becomes DX-*8* with Move and Attack's built-in -2 to avoid falls; and any fall results in collision damage (+1). These bonuses total +9, making the final default penalty -7.

Locks and Holds

A *lock* or a *hold* with special effects on the turn after the attacker grapples his victim is an offensive technique that defaults to a grappling skill. The basic default penalty is the penalty to grapple the target hit location (see p. B400). On top of this, all such techniques have three mandatory modifications: having to grapple or parry in order to attempt the hold or lock gives +1 for requiring an additional success roll *and* +1 for taking an extra action to set up, while the ability to inflict ongoing suffocation or injury via a Quick Contest, when a grapple normally causes no damage, is a special benefit worth -1. These modifiers total +1. Apply other modifiers as necessary.

Example: Arm Lock (p. 65) targets the arm, which has a hit location penalty of -1 for grappling purposes, making the basic default penalty -1. It gets another -1 for being able to inflict ongoing injury. These penalties total -2. However, the initial grapple takes an extra turn (+1) and requires an attack roll (+1), adding +2. The net default penalty is +0.

Defensive Techniques

A *defensive* technique defaults either to Dodge or to the Block or Parry score calculated from a particular combat skill. It might default to more than one of these defenses, in which case the buyer must specialize (see *Specialties,* pp. 92-93).

A use of a defensive technique is a use of the active defense to which it defaults for *all* purposes. It's only possible if the fighter could attempt the underlying defense – that is, never after an All-Out Attack or against a surprise attack, and only against an attack that the defense could affect. It takes the same modifiers as that defense; e.g., Combat Reflexes gives +1 and retreating provides +1 or +3. Where the rules limit the number of defenses possible or give penalties for multiple defenses, techniques that default to Block or Parry count as blocks or parries, respectively.

Most defensive techniques offer a way to "buy off" penalties to defenses. These have a default penalty equal to the situational penalty in question. Some examples:

-1 to defend against a Dual-Weapon Attack (p. B417).

-1 to parry using a knife.

-2 to block a flail.

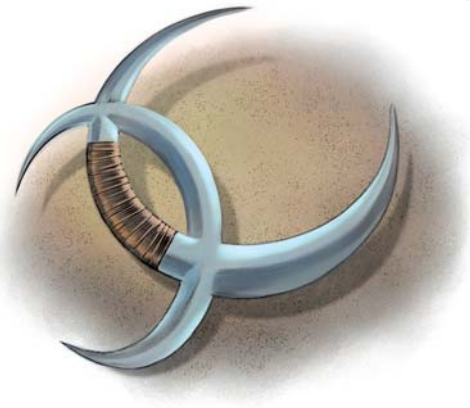
-2 to defend against an attack from the side (p. B390) or above (p. B402), or a "runaround" attack (p. B391).

-2 to parry a kick if using Boxing or Sumo Wrestling.

-2 to parry using a whip.

-3 to parry weapons using unarmed skills other than Judo and Karate.

-4 to parry a flail.



Deer Antlers

The GM may permit other effects – either instead of or in addition to the above – each of which modifies the default. Examples include:

Opponent's Defenses: The defender can use his defense to "set up" his next attack. For each -1 to the default, the attacker is at -1 to parry the defender's attack, on the next turn only, if that parry involves the weapon that the defender warded off using this technique.

Own Attack Roll: Another kind of "setup." For each -1 to the default, the defender gets +1 to his attack roll, on the next turn only, against the attacker he warded off using this technique.

Own Defenses: -1 to default per +1 to *one other* active defense after defending with this technique, or +1 to default per -1 to *all other* active defenses after using this defense. The latter modifier can only offset penalties; it cannot result in a net bonus.

Special Benefits: Each built-in exemption from the standard rules – e.g., being able to drop to the ground or sidestep as a retreat against a melee attack – gives -1 to the default penalty. A few potent benefits might give -2; e.g., being able to retreat *two* steps or step directly *toward* your enemy and count it as a "retreat," either of which is cinematic if you can improve it!

Special Drawbacks: Each additional restriction on the defense adds +1 to its default penalty. This cannot give a net *bonus*. Some examples:

- An additional success roll required before attempting the technique. Failure means the defense fails!
- Attacker may opt to hit a more vulnerable target than his intended one if the defense fails. A common example is a weapon parry that involves risky hand placement on the parrying weapon, giving the attacker the option to strike a *hand* should the parry fail.
- Falling down on an ordinary failure.
- Inability to defend against a broad category of attacks: armed attacks, close-combat attacks, swings, thrusts, etc.
- Increased injury from the incoming attack if the defense fails. This is worth +1 to the default for +1 to the attacker's damage – or +2 if the attacker gets the *better* of +2 damage or +1 damage per die.

Example: A fighter wishes to use his Brawling parry to ward off swung weapons by stepping inside his attacker's guard and parrying the weapon arm instead of the weapon. Brawling has -3 to parry weapons. The ability to step *forward* as a "retreat" is a special benefit that adds a further -2. The total penalty is -5. However, there's a major drawback: failure means stepping into the attack for +2 damage! This gives +2, making the final default penalty -3.

Utility Techniques

The GM may allow a technique that "buys off" a *specific* situational skill penalty for all uses of a skill, if a fighter could logically study a body of moves that would be useful in that situation. However, no technique can eliminate a *general* category of penalties, such as "all posture penalties." For instance, Ground Fighting (p. 73) defaults to skill-4 and permits a fighter to buy off the -4 to attack when lying down, while Low Fighting (p. 77) defaults to skill-2 and does the same for the -2 when sitting or kneeling . . . but a single technique couldn't encompass both.

Utility techniques need not be based on combat skills to be useful in a fight. Warriors might be able to improve their odds with special uses of Acrobatics, Jumping, and other athletic skills in combat; see *Acrobatic Stand* (p. 98) and *Breakfall* (pp. 68-69) for examples.

Specialties

If a custom-built technique defaults to multiple skills, list those skills. Individuals who learn the technique *must* specify which version they know and note the skill name as the technique's "specialty" on their character sheet; e.g., Elbow Strike (Brawling) or Elbow Strike (Karate). There's no default between such specialties – even if the parent skills *do* default to one another.

Techniques that default to other techniques automatically "inherit" the specialty of the parent technique. For instance, if a student learns Finger Lock from his default to Arm Lock (Judo), he automatically has Finger Lock (Judo).

All of this applies equally to defensive techniques. The fighter must specify both the defense (Block, Dodge, or Parry) and the skill that enables it (unnecessary for Dodge); e.g., Dual-Weapon Defense (Shield Block) or Dual-Weapon Defense (Staff Parry).

If a technique defaults *only* to ST, DX, Dodge, or a similar score that doesn't derive from a skill level, it doesn't require specialization.

Difficulty Level

The lists below assign "Average" or "Hard" difficulty to broad classes of techniques on the bases of real-world difficulty and game balance. These are merely guidelines! The GM may rule that an otherwise Average technique with many special effects is Hard – or that one that would normally be Hard is only Average because it's such a basic use of the skill to which it defaults.

Average

- Holds and locks that pit the *attacker's* arms or hands against the *target's* torso, arms, or legs.
- Unarmed strikes and shoves involving elbows, hands, knees, and other "intuitive" striking surfaces. This varies by race; e.g., teeth are a dog's first resort but not a man's.
- Weapon thrusts and swings.

Hard

- Defensive techniques.
- Disarms.
- Feints.
- Holds and locks applied using the *attacker's* legs or feet, or that go after the *target's* feet, hands, head, or neck.
- Improved resistance to disarms, feints, grapples, etc.
- Multiple strikes, regardless of how many arms or weapons the attacker has.
- Techniques that buy off penalties for a *target* (e.g., hit location) or *situation* (e.g., posture, or combat from a moving platform).
- Unarmed attacks that involve "unintuitive" striking surfaces. This depends on race; e.g., a kick is unbalancing and thus unintuitive for a human but not for a horse.
- Weapon-based grabs and grapples.

Maximum Level

A combat technique should *always* specify a level past which further improvement is only possible by raising the parent skill, technique, etc.

A technique that defaults to a skill, technique, or active defense at a *penalty* cannot be raised past the score to which it defaults. ***GURPS*** treats attacks and defenses as discrete actions . . . but in reality, each move "sets up" the next. Any technique tricky enough to give a penalty is only as good as the fighter's grasp of the basics he uses to set it up.

On the other hand, a technique that defaults to a skill (only) at *no* penalty represents a "sub-skill": a body of knowledge that one could theoretically isolate and study almost as if it were its own skill. Skill+4 is a reasonable maximum here – but the GM is free to use skill+3 to control easily abused techniques or skill+5 for self-limiting ones.

A technique that defaults to a *technique* or an *active defense* at no penalty can never exceed the parent score, however.

Techniques that default to *attributes* constitute a special case. Improving a technique like this represents training at a feat that anybody could try – which describes most skills! Since there's no upper limit on skills, the GM could fairly allow almost any maximum.

Description

The description of a technique should provide about the same degree of detail as the worked examples in this chapter. Remember that techniques *include* all of the effects of the combat options, maneuvers, and techniques from which they're built, except for those deliberately removed using the design system. To keep page-flipping in play to a minimum, summarize the basic and added effects in one place.

Designing Realistic Techniques

Every aspect of a realistic technique should make sense in real life. In particular, the *tradeoffs* should be logical. One could stack up any number of effects and work out the "fair" default . . . but that would be an abstract number shuffle and have little to do with reality. In general:

- *Damage:* For realistic punches, damage bonuses should come with drawbacks – most often high potential for self-inflicted injury. If a punch gets extra damage *without* such a limitation, base it on Committed Attack (Strong) or All-Out Attack (Strong).

Kicks can deliver extra damage with fewer drawbacks, or even with other bonuses. For instance, a high-powered kick that involves jumping at the foe might be parried at a penalty, as it's difficult to parry an entire person!

Weapon strikes that deliver extra damage involve exaggerated windups, awkward striking angles, or placing the weapon in contact with the target for a long time (e.g., a drawing or sawing cut). Any of these things should give the target a *bonus* to defend.

Extra-powerful kicks and weapon blows tend to open up the attacker's guard, giving him a penalty to his own defenses! Many are Committed or All-Out Attacks.

- *Extra Movement:* In realistic games, high-mobility attacks should be Committed or All-Out Attacks. Allowing fighters to buy off the -4 for Move and Attack is *unrealistic* – being able to run at top speed, attack at full skill, and still defend effectively is simply too much action for one second.
- *Opponent's Defenses:* Realistic bonuses to the target's defenses against an offensive technique shouldn't exceed +2. They make the most sense for haymaker punches, extra-damage weapon attacks, and other slow or clumsy strikes that are easy to see coming and avoid.

Penalties to an opponent's Parry – from offensive *or* defensive techniques – shouldn't be worse than -2. These mainly suit tricky "spinning" attacks, kicks that get their bonus damage from a jump (which can bash the defender's hand aside), and parries that involve moving inside the foe's guard . . . which tend to cause extra damage to the user if he fails! Few realistic techniques can justify a penalty to the defender's Block or Dodge. For that, use a feint or Deceptive Attack.

- *Own Attack Roll:* The bonus to hit with an attack that follows a defensive technique shouldn't exceed +2. Such techniques tend to be *dangerous* and should usually result in the defender taking extra damage if he fails.

● *Own Defenses:* A bonus to one's Block, Dodge, or Parry when using an offensive technique shouldn't exceed +2 for a realistic attack. This is typically a Parry bonus, and only benefits parries with the weapon used to attack. It represents a guarded blow calculated to "feel out" the foe in order to better respond to him – much like a Defensive Attack – and often comes with a reduction in damage. It wouldn't be unrealistic to tie +1 Parry to -1 damage and +2 Parry to -2 damage. Bonuses to other defenses when using a *defensive* technique should likewise not exceed +2.

Similarly, a penalty to all of one's own defenses when attacking likely represents an aggressive attack similar to Committed Attack. The GM might wish to make this penalty mandatory for techniques that get bonus damage. In any event, the defense penalty from a realistic offensive *or* defensive technique shouldn't be worse than -2.

● *Special Benefits:* Above all, these must make sense. For instance, a full-powered kick shouldn't be able to take "no DX roll to avoid falling on a miss" as a benefit. A kick *that* safe is likely low-powered, with a damage penalty . . . or has a balancing drawback, such as being a low kick that can only affect the feet and legs of a standing target. Removing the effective skill cap of 9 from a Wild Swing *is* realistic; many real-world martial arts teach precision strikes to the side and rear. Eliminating the same limit for a technique based on Move and Attack is *highly* unrealistic, however!

● *Special Drawbacks:* These, too, must be logical and fit in with the technique's other effects: a full turn of Ready to "wind up" before a high-damage attack, reduced reach for a cautious attack that gives the attacker a Parry bonus or a damage penalty, a Jumping roll to execute a dangerous kick (and a penalty to the DX roll if it misses), etc. The GM shouldn't permit "super-techniques" that give the attacker damage and defense bonuses, penalize the target's defenses, and offer many special benefits . . . and then "pay" for it all by piling on a dozen unrelated drawbacks.

Lastly, it's important to recognize that it isn't realistic to buy off *every* penalty. As noted above, no believable offensive technique should be able to eliminate the -4 for a Move and Attack – and of course any penalty that a cinematic technique can't handle (see below) is *definitely* beyond the reach of a realistic one!

Designing Cinematic Techniques

A cinematic technique *doesn't* have to make sense. All that matters is that it's true to the spirit of the game and – if taken from a fictional source – its origins. Legend and cinema are full of "super-techniques" that give bonuses in every category, the only cost being a huge default penalty . . . which is of no concern to the master, whose prodigious skill can easily absorb a mere -15 or -20. A few guidelines for GMs who wish to temper their cinematic campaigns with game balance:

● *Damage:* No matter how deadly a technique is reputed to be, the GM should limit its damage bonus to +2 (or +1 per die, if better). Weapon Masters *already* get a damage bonus, while unarmed fighters can learn Pressure Secrets. These simulate the devastating "secret techniques" of cinematic masters far better than do massive technique-based damage bonuses.

● *Extra Movement:* In settings with a *chambara* or *wuxia* sensibility, there should be many techniques that let warriors buy off the -4 for Move and Attack. To truly simulate these genres, *most* techniques should have a Move and Attack variant! An attack that gets extra movement from jumping, tumbling, vaulting, etc., has an additional -1 – or -2 if it allows full-fledged acrobatics (see *Flying Attack,* p. 107, and *Acrobatic Attack,* p. 1007).

● *Hit Location:* Contrary to the rules for Targeted Attacks (p. 68), the GM may wish to allow warriors to eliminate hit location penalties completely by buying cinematic techniques. This is *deadly* – imagine a swordsman who can completely remove the -9 to hit the eyes or the -10 for chinks in armor on the skull – but it *is* in keeping with much of martial-arts fiction.

● *Opponent's Defenses:* Bonuses to the target's defenses against offensive techniques can go as high as +4 in cinematic games. Use this for exotic "finishing moves" that only work against opponents who are already defeated and unable to defend. On the other side of the coin are mythical techniques (either offensive or defensive) that can supposedly defeat the strongest defense. These might give an opponent up to -4 to his Block, Dodge, and/or Parry.

● *Own Attack Roll:* Elaborate defensive techniques might give +4 or more to hit one's foe after parrying his attack at a proportionally huge penalty. This is an excellent choice for the cinematic barbarian, whose parry is often little more than a powerful, cleaving blow designed to knock aside his opponent's weapon and lead directly into an attack.

● *Own Defenses:* A cinematic warrior might get up to +4 to one of his defenses for an elaborate offensive technique that involves attacking from some secret guard position . . . or up to -4 to all of his defenses when making a desperate lunge or mighty swing that's designed to avoid retaliation by killing the target. He might receive between +4 and -4 to *other* defenses when using a similarly extreme defensive technique.

● *Special Benefits:* Almost anything is possible! Offensive techniques that make it possible to buy off Move and Attack penalties are particularly common. These often toss in an extra -1 to get rid of the skill limit of 9 and a further -1 to eliminate the restriction against retreating afterward.

Defensive techniques can enjoy similarly extreme benefits. A classic example is defense against attacks from behind without having Peripheral Vision or 360° Vision. This benefit gives a basic default of -1, plus the usual -2 for the awkward angle. A technique like this might *require* Danger Sense or Precognition to use at all.

● *Special Drawbacks:* There are at least two schools of thought on this matter. Some techniques seem to pay for their effectiveness by being risky. They offer many benefits alongside frightening drawbacks that keep their default penalties relatively modest. Even a beginner can try these moves . . . but *any* failure is disastrous!

Other techniques have no special down side – except, of course, for a huge default penalty. This puts them out of the reach of beginners. Once perfected, though, they're very reliable and very deadly.

The GM decides which model to use. He might use the same one for every technique he designs, vary his approach from style to style, or let the chips fall where they may.

The GM should be more lenient about which combat penalties a cinematic technique can remove, too. The only hard-and-fast rule is that no technique should make it possible to buy off the penalties for Rapid Strike or multiple parries (reducing these penalties is the territory of Trained by a Master and Weapon Master, which are far more expensive than any technique); those for distraction, stunning, the momentary shock from injury, etc. (nobody spends enough time in any of these states to get *good* at fighting that way); and those for darkness or invisibility (but see *Blind Fighting,* p. B180).

Useless Techniques

A few techniques are almost worthless in a real fight. They *seem* to make sense but simply don't work in reality – although this doesn't automatically make them cinematic or silly (see *Silly Techniques,* p. 88). This is often the case for secret techniques, many of which are so secret that they've never been tested in anger (see *Secret Techniques,* p. 86).

If the GM wishes, he can cook up plausible-sounding techniques with intriguing names and have unscrupulous – or naïve – masters offer to teach them to the PCs. Since these techniques don't really do anything special, he can assign default penalties, difficulties, and maximum levels more-or-less randomly.

A potential student gets an IQ-based roll against the technique's prerequisite skill when he first hears about or witnesses the technique. If the teacher is being *deliberately* deceptive, treat this as a Quick Contest, with the teacher using Fast-Talk if speaking, his combat skill if demonstrating. If the student succeeds (or wins the Contest), he realizes that the technique is a dud. Otherwise, he's unsure – the player must decide whether to spend time and points to learn the technique, and the GM has no obligation to tell the truth.

On a successful roll, offensive techniques work as attacks and defensive ones work as active defenses. But that's all they are: ordinary attacks and defenses encumbered with a default penalty. The GM should mumble, shuffle paper, and roll dice in secret whenever they're used to give the *impression* that something more is going on.

On a critical success, however, the sheer lack of logic involved throws the opponent off-guard! If the technique-user was attempting an attack, he rolls on the *Critical Hit Table* three times and picks whichever result he likes best. If he was trying a defense, he makes his opponent roll three times on the *Critical Miss Table* and chooses which result to apply. In effect, he gets the benefit of Luck on the roll on the table – because he got lucky!

Designing Techniques for Nonhumans

Slight physiological differences between humans and nonhumans needn't imply new techniques. It's easiest to use human techniques and simply note the impact – if any – of minor physical peculiarities. Features (p. B452) should only alter special effects. Small differences that make techniques more effective don't change the *techniques* but qualify as racial perks (just like Fur, p. B101) in ***Martial Arts*** games; e.g., "Long Thumbs" is a perk because it converts Eye-Gouging (p. 71) from a nasty attack to a *deadly* one.

Major body parts – Extra Arms, Strikers, etc. – often *do* require new techniques. The fastest way to design such a technique is to start with a human technique and modify its default and damage to reflect the capabilities of nonhuman body parts relative to those that the technique assumes. For example, a tail is an Extra Arm that "punches" for thrust-1 damage while a leg has -2 DX and kicks for thrust damage, so when adapting kicks to tail strikes, the default becomes two points less severe but damage drops a point. Thus, a "Tail Smash" based on Stamp Kick (pp. 80-81) defaults at -1, not -3, and does thrust damage, not thrust+1.

Design techniques with *no* human equivalent using the detailed system. The standard attack modes of a body part are its basic attacks, with effective DX and damage as noted above. A technique that grants a whole new basic attack – e.g., a grapple with a Striker such as horns – has a special benefit and merits the standard -1 to its default.

Additional notes and examples appear under *Sweep* (p. 81), *Teeth* (p. 115), and *Close Combat and Body Morphology* (p. 114-117).

Chapter Four
Combat

The Italian used his dagger to ward off Adrian's sword, and then counterattacked with a rapier thrust to her heart. "Impacciato, inglese!"

Adrian nimbly melted out of reach and shifted her left hand from ricasso to hilt, putting 10 feet of ground and three feet of steel between herself and her enemy. "Your language is the howling of dogs, fop. I know only that you wear enough gold to feed a family for a year."

"And I shall have more once I collect the price on your head," retorted the bounty hunter. He struck Adrian's extended blade with both of his own – but her strength and her sword's weight foiled his disarm.

"You plan to cut off my head using your inadequate little weapon?" Adrian taunted, keeping her distance.

It was enough. Her rival's face flushed red and he launched himself at her . . . but the infamous "flying lunge" simply screeched along Adrian's blade as it encountered her guard.

Spinning, Adrian spoiled her foe's landing with a slap of her blade, sending him sprawling face-first. Pricking his back with her point, she delivered an ultimatum, "Yield now and you shall lose only gold."

The combat techniques in Chapter 3 and fighting styles in Chapter 5 add significant depth to the abilities of warriors. A martial artist doesn't simply roll against his Karate or Smallsword skill – he uses his Tae Kwon Do expertise to throw a Jump Kick or his Escrima training to try a Dual-Weapon Attack. Not all combat options map to techniques and styles, though. Many require extensions to the combat system itself.

This entire chapter is an addendum to Chapters 11-14 of the ***Basic Set.*** It expands on the rules given there for combat and injury. Some of these additions are highly realistic while others are extremely cinematic, but they're all *optional.* The GM decides which rules apply. It's possible to use *everything* . . . but it's more fun (and less confusing!) to use only the subset of material that suits the campaign's genre and realism level.

Expanded Combat Maneuvers

In a ***Martial Arts*** game, the GM might permit the following additional possibilities for the combat maneuvers described on pp. B363-366. These options supplement those in the ***Basic Set*** but don't replace them. Unless noted otherwise, all of the usual benefits and drawbacks of the underlying maneuver still apply – notably those described under "Movement" and "Active Defense."

As explained in *Creating New Techniques* (pp. 89-95), some combat techniques are based on specific maneuvers; e.g., Jump Kick (p. 75) is a Committed Attack or All-Out Attack. Such techniques are new options for the maneuvers in question, on an equal footing with but distinct from those in the ***Basic Set.*** For instance, Jump Kick allows a unique All-Out Attack option, All-Out Attack (Jump Kick), which you can't combine with a basic option such as All-Out Attack (Strong) or another technique-specific option like All-Out Attack (Whirlwind).

Aim

You can take an Aim maneuver to improve your odds with *Rapid Fire with Thrown Weapons* (p. 120) or *Rapid Strike with Thrown Weapons* (pp. 120-121). You must declare which opponent you're aiming at. Your aiming bonuses (for Accuracy, turns of Aim, etc.) only apply to attacks against that one foe, regardless of how many attacks or shots you have. For a Rapid Strike, apply the Accuracy of each weapon separately to its own attack roll.

Repeating Crossbow

A warrior with the Heroic Archer advantage generally gets his weapon's Accuracy bonus *without* an Aim maneuver – see p. 45 for details. If he chooses to Aim, he gets a further +1 for the first second of Aim, or +2 for two or more seconds of Aim.

All-Out Attack

The GM should permit the four "basic" All-Out Attack options (Determined, Double, Feint, and Strong) and the new Long option below with any melee attack that doesn't specifically forbid them. In particular, a *grappler* can use All-Out Attack to travel up to half his Move into close combat and grab or grapple at +4, grapple two body parts, or feint and *then* grapple. He can even use All-Out Attack (Long) to grab his foe from a yard away – although it's unwise to give an armed enemy room to use his weapon!

The GM should be generous about substituting feints for attacks, too. All-Out Attack (Feint) is just an All-Out Attack (Double) that trades the first attack for a feint, so there's no reason why a fighter couldn't reverse the order: attack first and then feint to benefit a later attack. Other alternatives include using All-Out Attack (Determined) to feint at +4 and All-Out Attack (Long) to feint a distant foe.

All-Out Attack is perfect for simulating cinematic actions. All-Out Attack (Double) might be a chop followed by a spinning draw cut . . . or a single, deadly "throat-slitting" attack, the two attack rolls reflecting the difficulty of the feat, the chance that the victim could escape mid-cut, and the potential for twice the damage. All-Out Attack (Strong) could represent a stab followed by a twist of the blade, a big roundhouse punch, or grabbing someone and pulling him into a blow. All-Out Attack (Long) might involve throwing a weapon at the enemy and catching it as it bounces off!

Combat options take things a step further. A warrior could choose All-Out Attack (Double) and make a Rapid Strike or Dual-Weapon Attack with one of his two attacks, giving him *three* attacks (see *Multiple Attacks,* pp. 126-128). Or he could use All-Out Attack (Feint) to feint and then make a Deceptive Attack, striking an "unstoppable blow."

A little imagination lets players avoid long lists of techniques, provided the GM is flexible and the PCs are willing to take the risk of an All-Out Attack.

All-Out Attack (Long)

This is a fifth All-Out Attack option for melee combat. It represents a full-extension jump or lunge. It gives the fighter an extra yard of reach; e.g., he could use a shortsword, which normally has a reach of 1 yard, to strike somebody *2* yards away.

All-Out Attack (Long) has no effect on the attack roll. For thrusting attacks, there's no effect on damage, either. Swinging attacks are more awkward, and at -2 damage or -1 damage per die, whichever is *worse.*

As usual for All-Out Attack, the attacker may move up to half his Move forward before attacking. This makes it possible to simulate balestras and similar gap-closing moves. Even without movement, this maneuver can be useful for leaning over or under a barrier, or over a fighter who's kneeling, sitting, or lying down. However, the extra reach *can't* be used to attack past a crouching or standing fighter – through his hex, in tactical combat – as his body would get in the way of the extended arm and foot.

The attacker may opt to end this maneuver in a crouch, which represents a sprawling lunge with a hand on the floor for support (often termed a "floor lunge"). He *cannot* support himself with a hand that's holding the weapon used to attack; thus, two-armed beings with two-handed weapons can't drop to a crouch. The supporting hand need not be empty – it can hold a shield, second weapon, etc. This crouch calls for a DX roll. Failure means the fighter ends up *kneeling* instead; critical failure means he *falls down.*

All-Out Attack (Long) is incompatible with Defensive Grip (pp. 109-111), which involves holding the weapon *closer* than usual, and mutually exclusive with other All-Out Attack options (Determined, Double, Feint, and Strong). It's compatible with most other attack options: Deceptive Attack (p. B369), Rapid Strike (p. B370), Telegraphic Attack (p. 113), Tip Slash (p. 113), etc.

Slams as All-Out Attacks

A real-life slam is usually an All-Out Attack at a full run. To reflect this, slams (including flying tackles, pounces, and shield rushes) enjoy a special relationship with All-Out Attack: the attacker can travel up to *full* Move! He may choose the Determined, Feint, or Strong option, but not Long – for extra reach, do a flying tackle.

The Double option is a special case. The attacker can't slam twice but he *can* launch another melee attack before he slams. This first attack can be on the slam's target (the slam representing bodily follow-through on a charging attack) or on somebody passed along the way. Doing either allows only *half* Move, as usual for All-Out Attack.

ATTACK

When attacking with a technique, be sure to read its description! Many techniques – especially cinematic ones – *don't* allow an ordinary Attack maneuver. They only work with All-Out Attack, Committed Attack, or Move and Attack.

Note also that while Attack allows "any" active defense, some attacks preclude a later parry. In particular:

- If using a weapon that can get *stuck* (see *Picks,* p. B405), you cannot parry until you free the weapon.
- If you *grab* or *grapple,* the hand(s) you use to grip your foe cannot parry.
- If you strike using a weapon that becomes *unready,* it cannot parry afterward.
- If you strike using an *unbalanced* weapon, you cannot parry with it that turn.

CHANGE POSTURE

You don't need a Change Posture maneuver to assume a lower posture in order to *grab, grapple, pin, shove, slam,* or *strike* at reach C. If making one of these attacks as part of an All-Out Attack, Attack, Committed Attack, or Move and Attack maneuver, you may take one of the following posture changes as part of the movement portion of your maneuver:

- *Dive forward to go* ***from*** *standing* ***to*** *kneeling, crawling, or lying prone.* This counts as your entire step if making an Attack or Committed Attack. It costs you one movement point if making an All-Out Attack or Move and Attack, and must come at the end of your movement. For instance, if you had Move 6, you could run 3 yards to All-Out Attack, or run only 2 yards and dive prone. On a battle map, if you end up crawling or prone, your upper body ends up in the front hex of your choice.
- *Dive forward to go* ***from*** *kneeling* ***to*** *crawling or lying prone.* This takes your entire movement allowance in all cases. Your upper body ends up in the front hex of your choice.
- *Fall backward to go* ***from*** *standing* ***to*** *sitting or lying face-up.* This takes your entire movement allowance if you make an All-Out Attack, Attack, or Committed Attack. It costs you one movement point if making a Move and Attack, and must come at the end of your movement. If you change to lying face-up, your lower body ends up in the front hex of your choice.
- *Fall backward to go* ***from*** *kneeling or sitting* ***to*** *lying face-up.* This uses up all of your movement in all cases. Your upper body ends up in the side or back hex of your choice.

To drop to the ground defensively on an opponent's turn, use the rules under *Retreat Options* (pp. 123-124) or *Sprawling* (p. 119) instead.

Acrobatic Stand

If *lying face-down* or *face-up,* you can attempt a flip, kip-up, or roll that takes you directly to a *standing* posture without assuming a crawling, kneeling, or sitting posture first. This requires a Change Posture maneuver; you can't do it as the "step" portion of another maneuver.

Make an Acrobatics-6 roll with an additional penalty equal to encumbrance level. Success means you end your turn standing; on a critical success, you *can* use this as the step portion of an Attack, Committed Attack, Defensive Attack, Feint, or Ready. Failure means you end your turn sitting (*not* kneeling or crawling); critical failure means you remain face-down or face-up.

If you're *sitting* or *crawling,* you can try to spring into a *standing* posture as a step – exactly as if you were going from kneeling to standing. Roll at Acrobatics-6 minus encumbrance level. Success lets you stand and execute any maneuver that allows a step. Failure means you stand, but it counts as a Change Posture maneuver and your turn ends. On a critical failure, you fall down!

In either case, you can opt to "stand" in a crouching posture – handy when regaining your feet under fire.

These rules assume you stand defensively. You may opt to go "all-out." This gives +4 to Acrobatics but deprives you of active defenses! If lying, any success – even critical success – means a rapid posture change *only.* If sitting or crawling, your sole option after a success is an All-Out Attack.

Postures, Hit Locations, and Techniques

Realistically, a fighter's posture influences the attacks he can attempt, rendering some impossible while making others easier or harder. The modifiers for postures and hit locations in the ***Basic Set*** are *generic.* They're usually fine but they don't cover every possible situation. For instance, the -4 for lying down and -5 to hit the face suggest that a prone man can hit a standing foe in the face at -9. He probably can – with a sword. He shouldn't be allowed to try this with a knife or a fist unless he has Stretching, though!

The GM is free to assign a modifier to any attack he feels should be easier or harder from a given posture, and to forbid those that seem silly. Below are detailed rules for those who enjoy extreme realism. They assume two fighters with Size Modifiers that differ by no more than ±1. For more extreme SM differences, use *Combat at Different Levels* (p. B402).

All of these modifiers are cumulative with each other and with the standard modifiers for posture, hit location, and technique. For instance, if a sitting fighter leans back on his hands and kicks up at the face of a standing foe, he takes the usual -2 for sitting, -2 for kicking, and -5 for targeting the face . . . and an *extra* -1 to target the face and -1 to kick, because he's sitting.

Standing

+0 to attack/+0 to defend

Hit Location Effects: Remove -1 from the hit location penalty to attack the neck, face, eye, or skull of a *kneeling* or *sitting* man, or to kick the leg or foot of a *standing* man.

Prohibited Attacks: None.

Modified Attacks: Punches and attacks with close-combat weapons (reach C) against enemies who are lying down require the attacker to stoop into a near-crouch, which gives -2 to hit. Elbow Strike and Knee Strike can't reach those who are lying down at all – use Elbow Drop and Knee Drop. Head Butt can't reach opponents who are lying down either, and has -2 to hit even against kneeling, sitting, or crawling foes. Using Scissors Hold or the grappling techniques in *Using Your Legs* (p. 79) forces the attacker to fall down.

Kneeling

-2 to attack/-2 to defend

Hit Location Effects: Remove -1 from the hit location penalty to attack the feet, legs, or groin of a *standing* man, but add -1 to hit his neck, face, eye, or skull.

Prohibited Attacks: All kicks, Backbreaker, Knee Drop, Knee Strike, Piledriver, Scissors Hold, and any Sweep using a leg.

Modified Attacks: Elbow Drop is at -1 damage and can only target someone who is crawling or lying down. Head Butt is at -2 to hit an opponent who is crawling or lying down – and against a standing opponent, it can only target the legs or groin. Techniques from *Using Your Legs* (p. 79) can only target the legs of a standing man.

Sitting

-2 to attack/-2 to defend

Note: If seated *on* something (e.g., a chair), the rules under *Fighting While Seated* (p. 83) apply instead.

Hit Location Effects: Remove -1 from the hit location penalty to attack the feet, legs, or groin of a *standing* man, but add -1 to hit his neck, face, eye, or skull.

Prohibited Attacks: Aerial kicks (Drop Kick, Flying Jump Kick, Jump Kick, Pole-Vault Kick, etc.), Back Kick, Backbreaker, Knee Drop, Piledriver, and any kind of slam.

Modified Attacks: The rules under *Kneeling* apply here, too. In addition, Elbow Strike cannot hit the neck, face, eye, or skull of a standing man. Knee Strike, any Sweep using a leg, and all permitted kicks are awkward, and have an extra -1 to attack and damage rolls. Downward kicks (Axe Kick, Stamp Kick, etc.) can only hit opponents who are crawling or lying down, or the feet of a standing foe, and do -1 damage.

Crawling

-4 to attack/-3 to defend

Hit Location Effects: Remove -2 from the hit location penalty to attack the feet or legs of a *standing* man, but add -2 to hit his neck, face, eye, or skull.

Prohibited Attacks: Backbreaker, Elbow Drop, Knee Drop, Piledriver, Scissors Hold, Two-Handed Punch, any Sweep using a leg, all kicks except Back Kick, and weapon strikes at reach 1+.

Modified Attacks: Elbow Strike is awkward, has an extra -1 to hit, and cannot reach the neck, face, eye, or skull of a standing man. Against a standing foe, Head Butt can only attack the groin, legs, or feet. Knee Strike can only target an opponent who is lying down, the legs or feet of a sitting man, or the feet of a standing man. Techniques from *Using Your Legs* (p. 79) can only target the legs of a standing man.

Lying Face-Up

-4 to attack/-3 to defend

Hit Location Effects: Remove -2 from the hit location penalty to attack the feet or legs of a *standing* man, but add -2 to hit his neck, face, eye, or skull.

Prohibited Attacks: Aerial kicks (as explained for *Sitting*), Back Kick, Backbreaker, Elbow Drop, Knee Drop, and Piledriver.

Modified Attacks: Elbow Strike and Head Butt cannot reach any part of a standing man but his feet or legs, and cannot attack the neck, face, eye, or skull of anyone who isn't crawling or lying down. Stability removes -2 from the penalty for permitted kicks and Sweeps with legs, but lack of leverage gives -1 damage. Knee Strike, punches, and close-combat weapon attacks (reach C) cannot reach above the groin of a standing man.

Lying Face-Down (Prone)

-4 to attack/-3 to defend

Hit Location Effects: Remove -2 from the hit location penalty to attack the feet or legs of a *standing* man, but add -2 to hit his neck, face, eye, or skull.

Prohibited Attacks: Backbreaker, Elbow Drop, Knee Drop, Piledriver, and all kicks except Back Kick.

Modified Attacks: Elbow Strike, Head Butt, and Knee Strike cannot reach any part of a standing man but his feet, and cannot attack the neck, face, eye, or skull of anyone who isn't crawling or lying down. Punches and close-combat weapons cannot target anything above the groin on a standing man. Techniques from *Using Your Legs* (p. 79) can only target the legs of a standing man.

Committed Attack

Most martial arts teach a continuum of options between the dedicated offense of All-Out Attack and pure defense of All-Out Defense. The Attack maneuver is a good middle ground, but the GM may allow two new maneuvers that let fighters emphasize either offense or defense without forsaking the other completely. *Committed Attack* falls between Attack and All-Out Attack, while *Defensive Attack* (below) lies between Attack and All-Out Defense. In campaigns that use these rules, some combat techniques *require* the user to choose one of these maneuvers instead of Attack.

Committed Attack represents an aggressive attack such as a "haymaker," lunge (for a full-extension lunge, see *All-Out Attack (Long)*, pp. 97-98), pass, or roundhouse. The fighter must use a ready melee attack and choose one of these options before he attacks:

- *Determined:* Make a single attack at +2 to hit.
- *Strong:* Make a single attack at normal skill and +1 to damage. This only applies to melee attacks doing ST-based thrust or swing damage – not to force swords, etc. At the GM's option, the damage bonus can scale up for high-ST characters: add +1 to damage per two *full* dice of basic damage, before other modifiers.

Movement: Step or *two* steps. A second step gives -2 to hit, making the total modifier +0 for Committed Attack (Determined) or -2 for Committed Attack (Strong). Movement can come before or after the attack. An attacker who takes two steps *can* step, attack, and step again – a tactic known as "attack and fly out."

Active Defense: The attacker cannot parry with the hand(s) he used to attack, block if he attacked with his shield or cloak, or dodge if he kicked. He can use any other defense, but at -2. He cannot retreat.

Defensive Attack

This represents a cautious "probing" attack made from a full guard position, such as a jab with a thrusting weapon (including a fist or foot) or a quick, light tap with a swung one. The fighter must use a ready melee attack. He gets -2 damage or -1 damage per die, whichever is *worse,* but enjoys improved active defenses – see below. If he attempts to grab or grapple, his target gets +1 to defend.

Movement: Step. Movement can come before or after the attack.

Active Defense: Any. Before the attacker rolls, he must select a defensive benefit. If he attacks with a balanced weapon (including a hand or a shield), he may choose either +1 to Parry with one of his weapons or +1 to Block. He *can* assign the bonus to the weapon he's striking with. If he attacks with an *unbalanced* weapon (one with "U" in its Parry statistic), he may claim +1 to Parry or Block with a different weapon, or opt to parry with the same weapon, at no bonus, *despite* using it to attack. If he kicks, he gets no Block or Parry bonus but +2 on rolls to avoid a Leg Grapple (p. 76) and on DX rolls to avoid falling.

Evaluate

Evaluate provides *exactly* the same benefits for Committed Attack and Defensive Attack that it does for the maneuvers listed on pp. B364-365. In combat-heavy campaigns – like most ***Martial Arts*** games – the GM may want to use the following optional rules.

Countering Feints and Deceptive Attacks

If you're watching your opponent's rhythm and movements in order to get a clear shot at him, you're more likely to notice *everything* he's doing – including his actions toward you! At the GM's option, you may use your current Evaluate bonus against a foe to cancel out defense penalties from any feint or Deceptive Attack he attempts against you. This can never give a net bonus. For instance, if you've taken two turns of Evaluate (for +2 to skill) when your foe launches a Deceptive Attack that gives you -4 to defend, you would defend at only -2.

This applies only to Deceptive Attacks and feints that occur *while* you're taking the Evaluate maneuver, and only negates penalties to defend against that one foe. Once you make an attack on him and claim your Evaluate bonus, you lose this side benefit until you Evaluate again.

Evaluate and Non-Combat Skills

If you're paying close attention to one person on the battlefield, you're more likely to notice anything unusual or dangerous about him. Apply your current Evaluate bonus to IQ rolls to notice him playing tricks on you (see *Dirty Tricks,* p. B405); Body Language rolls to determine whether he's nervous, on drugs, Berserk, etc.; Expert Skill (Hoplology) rolls to identify his martial-arts style; and Observation rolls to spot Supernatural Features, concealed weapons, and other "interesting" items. This applies only *while* you Evaluate.

Feint

A fighter's ability to notice and react to trickery in combat is realistically a question of experience. It has little to do with the weapon he happens to have in hand! If the GM doesn't mind a little added complexity, he should consider allowing all combatants to *resist* (but not initiate) feints using their *best* Melee Weapon or unarmed combat skill.

Example: Baajikiil the spear-master, having snapped off his spear in a foe's sternum, hastily snatches up his enemy's mace. He knows Spear at 18 but must wield the mace at default Axe/Mace skill . . . a paltry 8. He still has his trusty shield, which he uses at his Shield skill of 16. If he tries to feint, he rolls at 8 with the mace or 16 with the shield – his Spear skill doesn't help. However, if he *resists* a feint, he does so at skill 18. He might not know much about hitting people with a mace, but he's a veteran fighter and won't be easy to fool!

By the same token, those who know any specialty of the Feint technique (p. 73) may use it to *resist* feints as well as to execute them. Their knowledge of combat deceptions makes them much less likely to fall for such tricks.

Beats

A strong fighter can try to batter down his enemy's guard in preparation for an attack. This is a *Beat*. An option for a ready melee attack, it requires a Feint maneuver. Unlike a feint, a Beat must target one particular defense:

- If the fighter successfully blocked or parried an attack *immediately prior* to this turn, he can use the limb, shield, or weapon he defended with to Beat. He must target the weapon or shield he defended against – or his enemy's unarmed guard, if the foe attacked barehanded.
- If the fighter attacked his enemy *this* turn or on the *immediately previous* turn, and his opponent successfully blocked or parried, he can attempt a Beat with the attack he just used. He must target the weapon or shield his adversary defended with – or his rival's unarmed guard, if the foe defended barehanded.

● If the fighter has his victim grappled barehanded or with a weapon (via Entangle, Hook, etc.), he can target his opponent's Dodge *or* unarmed guard by pulling him off-balance or holding him in place.

Resolve the Beat as a Quick Contest of melee combat skills. This works like a feint, but the initiator makes a *ST*-based skill roll. His victim may try either a DX-based skill roll to break contact or a ST-based roll to meet force with force.

If the aggressor wins, his margin of victory lowers the targeted defense like a feint would. A Beat against a weapon or a shield affects its Parry or Block, one on an unarmed guard penalizes *all* barehanded parries, and of course Beats against Dodge affect Dodge. That defense is reduced against attacks from *anyone!* There's *no effect* on other defenses. The penalty lasts until the end of the next turn of the fighter who made the Beat.

Ruses

A cunning warrior can sometimes get his foe to lower his guard through clever tactics rather than deftness (a feint) or sheer power (a Beat). Such a ploy is called a *Ruse,* and calls for a Feint maneuver.

A Ruse involves a Quick Contest of combat skills, like a feint. However, it's a dirty trick (p. B405) – and like most such tricks, it's based on IQ. The trickster makes an IQ-based skill roll rather than the usual DX-based one. His opponent can choose to resist with a Per-based skill roll (which represents being wary), a standard DX-based roll (to get his weapon back in position), or his Tactics skill. Handle this as a feint for all other purposes.

Defensive Feints

You can use a feint (including a Beat or a Ruse) to make it harder for your enemy to attack you instead of weakening his defenses. This is useful when your opponent is less skilled than you but has a weapon you would rather not defend against – for instance, a force sword when you're armed with a conventional blade. Roll the attempt as usual. If you win, you inflict a penalty on your foe's next attack roll against you *instead* of on his next defense roll against you.

Spotting Feints

The GM *shouldn't* tell the players when an NPC makes a successful feint or Ruse against a PC. He should do everything he can to convince them that the NPC just missed. By the same token, the GM shouldn't abuse his omniscience and have NPCs flee from successful feints by PCs. By definition, the subject of a feint doesn't know he's been had! An observer who takes a Concentrate maneuver and makes a successful roll against Tactics or Body Language (to "read" one of the fighters involved) might realize what's going on . . . but this shouldn't be automatic.

One way to remove the temptation to act on gaming-table knowledge in the game is to have all combatants *declare* feints and Ruses when they execute them . . . but to *roll* the Quick Contest the instant before the attack it would affect. Treat the Quick Contest and the attack roll as a single action. Nobody can trigger a Wait in between! Nervous fighters are free to flee from every opponent who gets tricky, but they can't selectively react to *successful* feints.

On the other hand, a *failed* feint or Ruse is obvious. The same goes for *any* Beat, successful or not – this isn't a subtle maneuver!

It's possible to be ready for a feint, though. If your opponent has studied one or more styles and you have Style Familiarity (p. 49) with them *all,* you have a good idea of the kinds of tricks he's likely to try. This reduces the defense penalty by -1. As discussed under *Evaluate* (p. 100), if you're taking an Evaluate maneuver against someone who successfully feints you, your current Evaluate bonus offsets the defense penalty. These effects are cumulative, and defray offensive and defensive feints, Beats, and Ruses alike, but can never give a net *bonus*.

Feints Using Non-Combat Skills

A few styles include a Style Perk that lets a skill other than a combat skill make a feint. The GM decides which skills are capable of feints, Beats, and Ruses, and what scores are used to resist these gambits. Acrobatics, Dancing, and similar skills require an ordinary DX-based roll by the one attempting the feint. His opponent resists with a standard DX-based combat skill roll. Exotic skills, on the other hand, might even involve Will or HT; e.g., a Ruse with Sex Appeal would pit the initiator's HT-based Sex Appeal skill against a *Will*-based combat skill roll by his adversary!

Ready

The special rules for melee weapons in this chapter apply only when you have a *ready* weapon. Once you take a Ready maneuver to draw a weapon – or make a Fast-Draw roll to do the same – it stays ready until:

● *You lose it.* This happens if you deliberately drop it, throw it, or give it away; a foe uses a grab or grapple to make you drop it (see *Unarmed Combat,* p. B370); you parry a weapon heavy enough to break or knock aside your own (see *Parrying Heavy Weapons,* p. B376); an opponent successfully breaks or knocks away your weapon (see *Striking at Weapons,* p. B400); you suffer knockdown (see *Knockdown and Stunning,* p. B420); or a critical hit or critical miss disarms you (see *Critical Success and Failure,* p. B556).

● *You lose control of it.* This *may* occur if an enemy tries but fails to disarm you (p. B401), or due to a critical miss (p. B556). It *always* happens if your weapon has a "‡" in its ST statistic and you use it to attack, unless you're extremely strong (see *ST,* p. B270), or if your weapon gets stuck (see *Picks,* p. B405).

● *You put it away.* This normally takes two Ready maneuvers for a melee weapon; see p. B383.

Thus, a weapon that's ready *stays* ready until one of the above events occurs, while a weapon that's unready *stays* unready until you take a Ready maneuver to remedy the situation. Most other events in combat – being slammed, changing posture, suffering shock, etc. – have no effect on weapon readiness.

There are situations in which you might take a Ready maneuver for a *ready* weapon, though:

- *To adjust reach.* As noted under *Reach* (p. B269), if your weapon has more than one reach marked with an asterisk (*) in its Reach statistic, like a halberd, you need a Ready maneuver to select a different reach from the one you're currently using.
- *To change grips.* The "regular" grip uses the combat rules as written, and is best for most situations. The Defensive Grip (pp. 109-111) is useful when you have a dangerous enemy in front of you and no foes behind you. The Reversed Grip (pp. 111-112) is handy for close combat. Altering grip takes a Ready maneuver.
- *To change hands.* You can use some weapons (bastard swords, spears, etc.) in one hand *or* two. Most armed grappling techniques require two hands on the weapon, even if it's normally one-handed. To switch between one- and two-handed grips – or to pass a one-handed weapon from one hand to another – requires a Ready maneuver.

Bagh-Nakh

You can combine these three options with each other and with drawing, picking up, or regaining control of an unready weapon, except where explicitly forbidden. The entire procedure counts as a single Ready maneuver.

Generally, all of a weapon's functions are available when it's ready. There are two special cases where this isn't true but you *don't* need a Ready maneuver to restore full functionality – you just need to wait until your next turn:

1. You can use your weapon with two different skills. Some weapons work with more than one Melee Weapon skill. You can only enjoy the benefits of one skill per turn. You can switch skills from turn to turn, and only need a Ready to go between one- and two-handed skills; e.g., Broadsword and Two-Handed Sword. See *Switching Weapon Skills* (p. 104).

2. Your weapon is unbalanced. A weapon with a "U" in its Parry statistic cannot parry immediately after an attack. If you attack, you must wait until your next turn before you can parry again. See *Unbalanced Parries* (p. 125).

The rest of this discussion applies primarily to melee weapons. See *Quick-Shooting Bows* (pp. 119-120) for a special Ready-and-Attack option for archers.

Defensive Grip

Shifting into or out of a Defensive Grip (pp. 109-111) with a melee weapon requires a Ready maneuver. This is *never* a free action – even for those with the Fast-Draw skill – but the required Ready can be simultaneous with one or more of drawing the weapon, changing its reach (if it has a "*" in its Reach statistic), regaining control after an attack (if it has a "‡" in its ST statistic), or shifting between one- and two-handed grips.

Examples: A fighter who swung his glaive at reach 3 could use one Ready maneuver to assume a Defensive Grip *and* reduce his reach to 2 *and* regain control of his weapon. A warrior with a broadsword could use a single Ready to unsheathe his sword directly into a Defensive Grip – but if he used Fast-Draw to get his weapon, he would still have to take a Ready to get into a Defensive Grip.

Reversed Grip

To go from a regular grip or Defensive Grip to a Reversed Grip (pp. 111-112), or vice versa, usually takes a Ready maneuver. This maneuver can also adjust reach (in fact, assuming a Reversed Grip *automatically* reduces the reach of most weapons) and switch between one- and two-handed grips. You can't use the same Ready to recover after an attack; that requires its own Ready maneuver. You *can* draw a sheathed weapon directly into a Reversed Grip, though.

There are techniques for shifting back and forth between a normal grip (but *not* a Defensive Grip) and a Reversed Grip *without* a Ready, but these are risky. To attempt a rapid grip change, make a weapon skill roll at -4 for a two-handed weapon, -6 for a one-handed one. *Exception:* A tonfa (p. 225) has a side handle specifically designed to allow this grip change, permitting a roll at unpenalized Tonfa skill.

Success means an immediate grip change, allowing you to take your turn normally. Your weapon must remain in the chosen grip for the remainder of your turn; you cannot change grips again.

Failure means you drop your weapon. Critical failure means you inflict Tip Slash (p. 113) damage on your torso and *then* drop your weapon! Any failure counts as an unsuccessful Ready maneuver and ends your turn.

Quick Sheathing

Being in a Reversed Grip makes a special Ready option available: you can scabbard your weapon in *one* turn instead of the usual two (p. B383). This is because one of the more common ways to sheathe a weapon involves assuming a Reversed Grip – and you've already done that! (The other way is to hold the weapon normally and take one turn to align it with its scabbard, another to sheathe it. This keeps your weapon in the more versatile normal grip should you need it during that first turn.)

If you have a Style Perk that enables you to use Fast-Draw to sheathe your weapon quickly, you *can* use it from a Reversed Grip. This lets you Ready to a Reversed Grip and attempt a Fast-Draw roll afterward to scabbard your weapon in one turn. If you make the skill roll for a rapid grip change followed by a Fast-Draw roll, you can sheathe your weapon *instantly.* See *Iaijutsu* (p. 174) for a style that offers this perk.

Multiple Fast-Draw

A successful Fast-Draw roll lets you ready a stowed weapon instantly, without taking a Ready maneuver; see *Fast-Draw* (p. B194). Realistically, this takes *some* time. Skill imposes a limit on how many weapons you can draw and still act.

Every turn, you may Fast-Draw *one* weapon per hand at no penalty – although draws with the "off" hand have the usual -4. If you give away or willingly discard a weapon, or hurl a throwing weapon – but *not* if you fail a Fast-Draw roll or lose a weapon on a critical miss – you may make further Fast-Draw attempts later on your turn. Repeated attempts with a given hand are at a cumulative -2 per Fast-Draw roll after the first. For instance, a fencer could Fast-Draw a rapier with his master hand at no penalty and a dagger with his off hand at -4; however, he would have -2 if he cast aside his rapier and attempted to Fast-Draw a pistol and -6 if he pitched his dagger and tried to Fast-Draw another.

Two-handed Fast-Draw attempts count against the total for *both* hands. For instance, if a swordsman uses Fast-Draw to ready a greatsword with two hands and then discards it, he's at -2 to try another Fast-Draw with either hand.

Similarly, two-handed Fast-Draw attempts use the *worst* penalty accrued for either hand involved. If our swordsman Fast-Draws and hurls a knife using his right hand, he's at -2 to Fast-Draw his greatsword, even though he hasn't tried Fast-Draw with his left hand.

It's possible to Fast-Draw multiple, identical weapons *at once* for the purpose of *Rapid Strike with Thrown Weapons* (pp. 120-121) or Dual-Weapon Attack (Bow). The weapons must weigh less than 1 lb. and be worn in a way that lets you reach them all with one hand. Make a single roll at -2 per weapon. For the sake of future Fast-Draw rolls, this counts as one previous attempt *per weapon*. For instance, Fast-Draw (Knife) would be at -8 for four daggers at once, and an ensuing Fast-Draw (Sword) roll to draw a rapier with that hand would have -8 for four previous Fast-Draws.

Success and failure have their usual effects in all cases. Any failure ends your turn; no further Fast-Draw attempts are possible. Critical failure means you also drop the weapon – or *all* the weapons, if drawing multiple weapons simultaneously!

Heroic Archers and Weapon Masters may halve all multiple Fast-Draw penalties for weapons covered by their advantage. If *both* advantages apply, divide by 4 (round in the warrior's favor).

Fast-Draw from Odd Positions

The Fast-Draw skill assumes that you're standing still with nobody holding onto you, able to use your master hand to reach your weapon. In close combat and other cramped quarters, you must make a DX roll to *reach* a weapon before you can Fast-Draw it (see *Readying in Close Combat*, p. B391). For added realism, apply the following modifiers to Fast-Draw rolls and DX rolls to reach weapons:

Crawling or lying down: -4
Crouching, kneeling, or sitting: -2
Grappled: -4
Hanging upside down: -2
Move or Move and Attack: -2 during or after the maneuver
Off-hand: -4

The weapon's *location* is another important modifier, the effects of which depend on the weapon and Fast-Draw specialty:

Who Draws First?

A staple of martial-arts drama is the standoff between two warriors who suddenly draw weapons and attack each other. Who draws first – and consequently gets the first strike – is crucial here!

If combat is in progress, resolve the situation using the turn sequence (p. B363). The faster fighter takes his turn first. If his weapon is ready, or if he can Fast-Draw it, he gets the first attack. If he must take a Ready maneuver, his turn ends. Then the slower fighter takes his turn. If he has a weapon ready – or can Fast-Draw one – *he* gets the first attack. If he, too, must take a Ready maneuver, it's the faster fighter's turn again . . .

If combat *isn't* in progress, use the following rules:

● *Neither fighter has a ready weapon; one knows Fast-Draw, the other does not.* The fighter with Fast-Draw may roll against his skill. If he succeeds, he strikes first. If he fails, resolve this as a standoff between two fighters, neither of whom knows Fast-Draw (below). If he *critically* fails, he throws away his weapon and his foe strikes first!

● *Neither fighter has a ready weapon;* ***both*** *or* ***neither*** *know Fast-Draw.* Roll a Quick Contest. Use *Fast-Draw* skill if both fighters have it, *weapon* skill if neither does (or if one does but failed his attempt). The winner strikes first. In a tie, they attack simultaneously; they may dodge or block, but not parry! Regardless of the skill used, apply the modifiers under *Fast-Draw from Odd Positions*, plus these special modifiers:

Grease: A greased scabbard gives +1 here, but the greasy weapon gives -1 to weapon skill on *later* rolls.

Hand on Weapon: A fighter with a hand already on his weapon adds +4. Both fighters can claim this bonus!

Length: The fighter with the *longer* weapon has -1 (his weapon takes longer to clear its scabbard).

Weight: The fighter with the *heavier* weapon has -1 unless he has at least 1.5 times the required ST for the weapon.

● *One fighter has a ready weapon; his opponent knows Fast-Draw.* Roll a Quick Contest. The ready fighter uses weapon skill; his only modifier is +1 if he has Combat Reflexes. The unready fighter uses Fast-Draw skill modified as for a Quick Contest of Fast-Draw (above), with an additional *-10!* The winner strikes first. In a tie, the fighter with the ready weapon strikes first.

● *One fighter has a ready weapon; his opponent lacks Fast-Draw.* The fighter with the ready weapon strikes first.

Arrow: +1 if stuck in the ground at your feet, +0 if in a quiver, or -2 if thrust through a belt. If you have multiple types of arrows, roll randomly for the type drawn. Attempts to draw a specific type of arrow suffer an *extra* -2.

Flexible: +0 if properly coiled and hanging at your belt, but -2 if worn *as* a belt or otherwise wrapped around your body.

Force Sword: +0 if hanging at your hip, -1 if hanging anywhere else, -2 if protruding from a boot*, or -3 if in a pocket or otherwise concealed.

Knife: +0 if sheathed at your hip or (darts only) in a quiver, -1 if sheathed elsewhere (bandolier, wrist, handle-down on chest†, etc.), -2 if carried in a boot* or thrust through a belt without a sheath, -3 if in a pocket or concealed, or -5 if carried in your teeth (and critical failure means you inflict normal cutting damage to your face!).

Shuriken: +0 if carried on pegs on armor or in a pouch, but -3 if carried any other way (in a pocket, up a sleeve, concealed in a belt buckle, etc.).

Sword: +0 if sheathed at your hip on the side *opposite* your weapon hand, or over either shoulder; -1 if sheathed at your hip on the *same* side as your sword hand, but +0 if you draw into a Reversed Grip (pp. 111-112). Add -2 if you lack a proper scabbard (e.g., a sword thrust through a belt). A sword cane or sheathed sword carried in hand gives +0.

Tonfa: +0 if carried in a loop at your hip on the *same* side as your weapon hand, -1 if in a loop on the *opposite* side, or -2 if carried in any other way.

Two-Handed Sword: +0 if worn over either shoulder in a proper back sling, or carried in hand but sheathed and resting on a shoulder; -2 if slung any other way.

* A weapon in a boot is *easier* to reach from low postures: when crouching, kneeling, or sitting, ignore the -2 for a weapon in a boot *and* the -2 for posture, and roll at +0.

† A knife carried handle-down on the chest gets -1 to Fast-Draw, but gives *+1* to DX rolls to reach the weapon in close combat and lets you ignore the -2 for hanging upside down.

All of these modifiers are cumulative with each other and those under *Multiple Fast-Draw* (above). Shock, distraction, and afflictions have the same effect on Fast-Draw rolls and DX rolls to reach weapons as they do on attack rolls.

Quick-Readying Nearby Weapons

Readying a weapon from the ground normally takes *two* Ready maneuvers: one to kneel or crouch and grab it, one to prepare it for combat. Assuming a low posture at the start of your first turn counts as a "step"; so does standing up at the end of your second turn. However, you can try a showy Ready maneuver that lets you grab and ready a weapon in *one* second. This requires a DX or Fast-Draw roll, at -3 if you crouch first or -5 if you use a foot to flip the weapon into your hand while standing.

Likewise, it takes two Ready maneuvers to fetch a weapon from a table or a weapon rack: one to grab it (and possibly release it from the rack), one to prepare it for fighting. You can remain standing, though; you needn't crouch. In this case, readying the weapon with a single Ready maneuver requires a DX or Fast-Draw roll at -3. Use this rule for a sword stuck point-down in the ground, too – but the modifier is -3 from horseback and only -1 on foot.

In all cases, success means you ready the weapon in one second (never instantly, even with Fast-Draw). Failure means you don't grasp the weapon and waste your entire turn clutching at air. Critical failure means you knock the weapon 1d yards away in a random direction. On an 18, you instead grab a blade or spike, or smash your hand into the floor, wall, or table. Roll thrust damage to your hand – or to your *face,* if flipping a weapon with your foot! This is cutting for a blade, crushing otherwise. If grabbing a sword stuck in the ground, it's the *sword* that's damaged – the tip snaps off, turning its impaling attack into a crushing one.

Switching Weapon Skills

Many weapons work with more than one combat skill. If you must change the number of hands involved in order to change skills, switching skills requires a Ready maneuver. This includes preparing a two-handed missile weapon, like a bow, for use as an improvised one-handed club.

If you can change skills *without* changing the number of hands involved, though, you can simply specify which skill you're using as a free action at the *start* of your turn. This doesn't require a Ready maneuver. However, it compels you to use your level with that skill and the statistics listed under that skill on the weapon table, and limits you to techniques and options valid for that skill. At the start of your next turn, you can specify a different skill.

Example: A warrior with a spear can wield it one-handed using Thrown Weapon (Spear), one- *or* two-handed with Spear, or two-handed with Staff. If he has it ready for throwing in one hand and a foe steps into melee range, he can simply declare he's using Spear instead of Thrown Weapon at the start of his next turn. If he wants to switch to a two-handed Spear grip for better thrusting damage, he'll need a Ready maneuver. Once his spear is in that grip, he can choose to use it with either Spear or Staff at the *start* of each turn. Spear allows him to stab with the tip but he must parry using Spear. Staff gives him +2 to Parry but limits him to Staff techniques, crushing damage, etc.

Move

Outside of pure ground-fighting styles, martial-arts masters laud the virtues of mobility. An extra point of Basic Move or one less level of encumbrance can mean the difference between life and death. This is why fighters in training often run as much for speed as for endurance, and why even warriors who face dangerous weapons might enter battle in light armor or *no* armor.

To give high-Move martial artists a realistic advantage, the GM should consider using *Movement in Tactical Combat* (p. B386) for the Move maneuver even when not playing out combat on a battle map. Tell the players how far apart the combatants are and strictly enforce movement point costs for facing, posture, footing, etc. This makes "closing the gap" with a foe wielding a ranged weapon – or fleeing from a losing battle – as dramatic as landing and avoiding blows.

Of course, Move is mainly for going from A to B. It's nearly always more effective to close the gap by selecting All-Out Defense (Increased Dodge) to travel at half Move and receive a Dodge bonus, or by taking Move and Attack to run at full speed and launch an attack. The GM should make the players aware of these tactical options and keep track of movement point costs for them as well.

Finally, in a cinematic ***Martial Arts*** game, heroes are as likely to move by jumping as by running. A Move maneuver lets a fighter jump from a standing start or run any distance up to his current Move and *then* jump. See *Jumping* (p. B352) for rules. To save time in play, calculate high- and broad-jump distances – for both standing and running jumps – and record the full values and halved values for combat on the character sheet. Some additional flashy movement options appear below.

Acrobatic Movement

Martial Arts campaigns often feature *capoeiristas,* ninja, and dashing swordsmen who move acrobatically in combat to avoid obstacles and surprise enemies. Below are some classic stunts for use during a Move maneuver. After attempting any of these, your *next* dodge (only) is automatically an Acrobatic Dodge (p. B375), whether or not you used the Acrobatics skill: you dodge at +2 if your feat succeeded but at -2 if it failed.

These options are flamboyant but risky, and obey the laws of physics – which makes them plausible in a realistic campaign. For over-the-top cinematic action, see *Chambara Fighting* (pp. 128-130). For acrobatic versions of the Change Posture and Feint maneuvers, see *Acrobatic Stand* (p. 98) and *Feints Using Non-Combat Skills* (p. 101), respectively.

Banister Sliding

Roll against the better of DX-2 or Acrobatics-2 to slide down a banister at Move 5, regardless of your Move score. This assumes a sitting posture. Roll against Acrobatics-8 if you're standing up! In either case, you can slide until you run out of banister, but you must make this roll once per turn.

Failure means you slip off and land standing on the stairs at a random point along your path; the GM can roll dice or simply choose a spot. Critical failure means you *fall* off at a random point, pitch headfirst down the stairs, and suffer a collision with the ground at Move 5 – or at Move 7, if you were standing. If the banister had open air on one side, roll 1d on a critical failure. On 1-3, you fall down the stairs as usual; on 4-6, you go *over* the railing and suffer falling damage!

Evading

You may substitute Acrobatics for DX when evading during a Move maneuver (see *Evading,* p. B368). Specify what you're doing: tumbling between your foe's legs, rolling over his shoulder, etc.

If your high-jump distance – with any bonus for running but *halved* for use in combat – exceeds your opponent's height, you can try to evade by leaping over him. In this case, use Jumping in place of DX.

In either case, if you win the Quick Contest, you evade and can continue moving. If you tie, your foe stops you. But if you *lose,* you fail to evade and take +1 damage if your foe manages to hit you before your next turn – you leapt right into his attack!

Skidding

To skid across slippery ground, you must have moved toward it last turn. Make a DX or DX-based Skating roll at the surface's combat penalty for bad footing – usually -2 (p. B547) – each turn. You may kneel or go prone as a free action without affecting speed. On the first turn of skidding, success lets you slide the distance you moved toward the slick area last turn; on later turns, you travel half as far as on the previous turn (round down). This is *instead* of running as described in *Bad Footing* (p. B387). Failure means you fall if standing, stop otherwise. Critical failure means you wipe out and collide with the ground (see *Immovable Objects,* p. B431).

Spinning

If you use more than half your movement points, you may normally change facing by only one hex-side (see *Facing Changes,* p. B387). To spin to face *any* direction at the end of your turn, make an Acrobatics or DX-based Running roll with the speed penalty for the distance you moved that turn. Consult the table on p. B550; e.g., Move 5 gives -2. Failure means you end up facing a random direction; roll 1d. Critical failure means you fall down.

You can also spin at the end of a skid. To do so, roll as explained under *Skidding* (above) *instead,* but apply the speed penalty for spinning to the die roll. Failure and critical failure are as for skidding.

Swinging

You can swing from any rope, chandelier, etc., strong enough to support your weight (GM's decision). If it's within reach or you can reach it with a step, simply grab it and swing. If it's more than a yard above you, roll vs. Jumping to reach it. Failure means you waste your turn jumping and missing; critical failure means you fall down.

The object's length determines how far you can swing. Regardless of its true length, its *effective* length can't exceed the distance from its suspension point to the ground. You can swing a distance of up to 3/4 of length in any direction from an object hanging vertically. If it's roughly 45° off-vertical, like a tied curtain, you can swing twice as far but your path must follow the imaginary line through your starting position and the place where the object *would* hang vertically. You can veer up to 10% of swinging distance (minimum a yard) to either side to avoid obstacles.

Dealing with Charging Foes

The surest counter to a charge is a stop thrust (see *Wait,* p. B366): Wait, and then make a thrusting attack against an enemy who tries to close with you. You'll get a damage bonus for his movement. He can defend, but he can't *retreat* if he moved more than a step toward you.

Below are other options. These make life hard for *chambara* and *wuxia* fighters, and don't especially suit *cinematic* games.

Parry

You can use a ready melee weapon to parry a grab, grapple, slam (including a pounce or flying tackle), or any other unarmed attack at no special penalty *as* your attacker enters close combat. Effective "weapon weight" is ST/10 lbs. if he grabs or grapples, ST lbs. otherwise.

If you succeed, roll against weapon skill to injure your foe (at -4 if he used Judo or Karate). If your weapon can only thrust, success inflicts thrusting damage; otherwise, use swinging damage. This counts as a parry, not an attack.

See also *Parrying Heavy Weapons* and *Parrying Unarmed Attacks* (p. B376).

Obstruction

If someone tries to evade you from the front (see *Evading,* p. B368) and you have a melee weapon that can parry, you may roll against weapon skill instead of DX in the Contest. You keep him from evading if you win or tie – but if you *win,* you use your weapon to stop him! This counts as a parry with that weapon. Find damage as for *Parry,* above, and then halve it (round down).

Holding a Foe at Bay

If a stop thrust, parry, or obstruction attempt results in knockdown (p. B420), your foe falls, stunned. His turn ends. If it causes knockback (p. B378), he must use additional movement to close the gap. He might not be able to reach you; he could even fall down!

Even if neither knockback nor knockdown occurs, your weapon is in the way. If you inflicted injury with anything but a thrusting, impaling weapon – or if you rolled damage but didn't penetrate DR – your foe must *win* a Quick Contest of ST with you to get closer. Otherwise, you hold him off. To keep coming, he must use two movement points to sidestep and take a different path.

If you wounded your foe with a thrusting, impaling weapon, it's *inside* him. He can still spend two movement points to back off and change paths. Alternatively, he can try a Will-3 roll – at +3 for High Pain Threshold or -4 for Low Pain Threshold – to run himself through! Success increases his wound to the maximum possible injury from your original blow. Then find maximum damage for *your* weapon using *his* thrust score. If this exceeds the DR on his back, he can keep moving toward you and your weapon is considered stuck (see *Picks,* p. B405).

Example: Tiberius runs 4 yards toward Rufus, who stop thrusts with his spear. Rufus' damage is 1d+3, +2 for the charge, for 1d+5. He rolls 8 points of damage, which pierces Tiberius' DR 5 armor and inflicts 6 points of injury. Tiberius makes a Will-3 roll and pushes forward. Rufus' maximum damage was 11, which would inflict *12* points of injury. Tiberius loses 6 more HP. Tiberius has ST 13. A spear in his hands would do 1d+3. Maximum damage is 9. This exceeds DR 5, so the spear comes out his back as he moves in!

To execute the swing, make an Acrobatics roll at the speed penalty for the distance traveled (see p. B550). Apply a further -2 if swinging by the legs. Success lets you swing and hop off at any point along your path. Failure means you miscalculate and swing to a random point on the path – roll dice or the GM chooses. On a critical failure, you *fall* at a random location and suffer a collision with the ground; velocity equals the maximum distance you could have swung.

Tic-Tacs

A "tic-tac" is a running leap at a vertical surface, followed by a foot plant and shove to propel you up and away. This requires a roll against the better of Acrobatics-4 or Jumping-4. Success gives you height equal to 1/4 your running *broad* jump distance (p. B352) and lets you rebound the same distance horizontally. Halve distances in combat. Failure means a fall from the same height; critical failure inflicts maximum falling damage.

If this moves you into contact with another surface (e.g., a parallel wall), you can push off again. Use the same rules but roll at an extra -2. The "run" for calculating distance is the horizontal distance from your last tic-tac (in yards, rounded down). You can keep bouncing – at -2 per tic-tac – until you stop short of a wall *or* gain height equal to Basic Move/2 yards.

Once you stop, you can try anything allowed after acrobatic movement, including an Acrobatic Attack (p. 107). You may try to clear an obstacle, if you're high enough; see *Vaulting and Diving* (p. 107). In either case, apply the cumulative penalty for tic-tacs if that would be worse than the usual modifier for movement.

Example: David has Basic Move 6. He runs 4 yards and pushes off the wall of an alleyway with an Acrobatics-4 roll. Broad jump distance is (2 × Basic Move) - 3 feet, but he adds 4 to Basic Move for his run, giving 17'. He flies 17'/4 = 4.25' (1.4 yards) horizontally and gains 4.25' of height. He hits the far wall, 3' away, and jumps again. His running start is only 1 yard from his previous tic-tac. The roll is Acrobatics-6. He succeeds. This gives 11', which launches him 11'/4 = 2.75' (0.9 yard) across the alley – not far enough for a third tic-tac – and gives him 2.75' more height, or 7' total. He can now dive for a vent that's 6' off the ground. He makes an Acrobatics-6 roll and slips through.

Tumbling

You may attempt to cartwheel, roll, or otherwise tumble across level ground at full Move. Make an unmodified Acrobatics roll. On a success, anyone who makes a ranged attack on you must add your Move to range, contrary to *Ranged Attacks on Human Targets* (p. B373). Failure means you only get half your Move and no special benefits. Critical failure means you *fall down* and go nowhere!

Vaulting and Diving

Anybody can crawl under a table, clamber over the hood of a car, etc., in two turns, as explained under *Jumping During Combat* (p. B352). To bypass such an obstacle without stopping, you must run at least two yards toward it to build momentum, have one or more movement point left, and attempt an Acrobatics roll. This roll is at -4 to dive through a window, or to tuck and roll between a high obstacle and a low one, such as two pipes or laser beams.

Success means you tumble under, vault over, or dive past the obstacle. This costs one movement point – but if you have any movement left, you can keep moving. You *can* try this stunt again on the same turn, but at a cumulative -2 per attempt after the first.

Failure means you fall down under or atop the obstacle but manage to avoid collision damage. Of course, falling "onto" flame or deadly lasers still hurts! Critical failure means you collide with the barrier, suffer collision damage (see *Collisions and Falls,* p. B430) if it's solid, and end your turn lying down in front of it.

Move and Attack

You can use this maneuver with *any* melee attack – bite, grapple, kick, shield bash, etc. – not just a strike with an empty hand or a melee weapon. If your attack delivers *thrusting* damage, you may substitute slam damage (HP × velocity/100), if that would be better. For instance, a centaur with ST 18, HP 18, and Move 12 thrusts for 1d+2 but slams for 2d, so her Move and Attack with a spear (thr+3 imp) would inflict 2d+3 imp.

For extra realism, modify the defense limitations on Move and Attack as follows:

Active Defense: If you attacked using an arm, you cannot use *that arm* to parry (if the attack involved a fist, elbow, or weapon) or block (if you used a shield or cloak). If you used any other body part (foot, head, knee, mouth, shin, etc.) to attack, you cannot dodge. You can use any other defense, but you cannot retreat. These restrictions take effect *after* you make your attack roll. If someone uses a Wait to interrupt your maneuver before then, you may defend normally and then finish your maneuver.

The GM should consider extending the -2 for "trying to do two things at once" to *all* success rolls except defense and resistance rolls against enemy attacks. For instance, it would modify DX rolls to evade or to keep someone from evading *you* (see *Evading,* p. B368), Fast-Draw rolls, rolls to stay standing after suffering knockback (see *Knockback,* p. B378), and Sense rolls to notice something in combat.

Most melee attack options (e.g., hit location) are compatible with Move and Attack. Assess penalties for these *before* applying the effective skill limit of 9. Rapid Strike and Combinations *aren't* allowed, however. Neither is Deceptive Attack, unless you're making an attack that removes the skill cap (such as a slam or a cinematic technique like Flying Jump Kick), as it requires a final effective skill of at least 10. Certain uses of extra effort in combat are also forbidden, including Flurry of Blows, Mighty Blows, and Giant Step.

This maneuver is unfavorable in *realistic* melee combat due to its penalties and limits. In *cinematic* games, special techniques exist that make it more attractive.

Acrobatic Attack

You can use any of the special tricks described under *Acrobatic Movement* (pp. 105-106) as the movement portion of a Move and Attack. The benefits and drawbacks of Move and Attack "stack" with those of your acrobatic feat. You have an additional -2 on both your attack roll *and* any roll required to pull off the stunt – the price of doing two things at once!

Example: Manfred wishes to swing 10 yards on a rope and cut down one of the Black Duke's bodyguards with his saber as he passes. Consulting *Swinging* (pp. 105-106), he sees that a 10-yard swing requires an Acrobatics roll at -4, which becomes -6 with the extra -2 for an Acrobatic Attack. His attack has the usual -4 for Move and Attack, plus another -2 for his stunt; it, too, is at -6. Since this is a Move and Attack, Manfred's adjusted attack roll cannot exceed 9, and he cannot parry or retreat afterward . . . and thanks to his swing, his next dodge counts as an Acrobatic Dodge, but he could end up in the wrong spot or even fall down.

When creating a technique based on Acrobatic Attack, you must specify the particular acrobatic movement option it uses. Its basic default is -6: -4 for Move and Attack plus an extra -2 for Acrobatic Attack. Add an extra -1 to ignore the skill cap of 9. Remember that all rolls for the movement portion of the technique are at -2.

Flying Attack

Somewhat less risky than an Acrobatic Attack is a Flying Attack: a Move and Attack with a jump for extra distance (*not* to avoid an obstacle, evade a foe, etc.) just before the attack. You must run, then jump, and *then* attack. You cannot change the order; you need an uninterrupted run to build momentum for the jump, and a successful jump to attack.

First, run as far as you plan to. This can be any distance up to your full Move. In fact, this option gives little benefit *unless* you run your full Move!

Next, make a running broad jump. This requires a DX or Jumping roll. Success gives extra movement equal to your jumping distance at the end of your run. Add the bonus for running, but *halve* the final distance for jumping in combat. Your jump carries you in the direction you were running. Failure means you fall down and you turn ends; you cannot attack. See *Jumping* (p. B352) for details.

Finally, launch your attack. You can attack anyone you can reach from your landing point. This is at -5 instead of the usual -4 for Move and Attack. The usual restrictions on Move and Attack still apply, such as the maximum adjusted skill of 9.

Many cinematic techniques are Flying Attacks. These often time the jump to improve damage, and focus so sharply on offense that they lack the usual skill cap on Move and Attack. See *Creating New Techniques* (pp. 89-95) to learn how to design techniques like this. Such moves have dire consequences if they fail, though – the attacker is so committed to attacking that he needs a successful hit to brake! For an example, see *Flying Jump Kick or Flying Lunge* (pp. 83-84).

Wait

Wait requires you to name a particular event and declare your response in advance. The *event* can be as general or as specific as you wish. You could specify, "I'll Attack Otto with my rapier if he steps into reach on my right and utters so much as one word." However, it would be equally legitimate to declare, "I'll Attack Otto with my rapier if he steps into reach," or, "I'll use my rapier to Attack the first enemy who steps into reach."

Your *response* must be more specific. You must name the maneuver and weapon you plan to use; e.g., "I'll Attack with my main-gauche" or "I'll All-Out Attack (Strong) with my rapier." You don't have to name particular combat options or techniques, though; you can decide these when you act. For instance, when you Attack with your rapier, you could choose to disarm, stab to the vitals, make a Rapid Strike, etc.

The new maneuvers Committed Attack (pp. 99-100) and Defensive Attack (p. 100) are both valid responses. If you choose Committed Attack, you must specify in advance whether it will be Determined or Strong.

Stop Hits

It has often been in vogue among swordsmen to attack an opponent *as* he attacks or prepares to attack, the idea being to stop his blow and hit him while he's committed to attacking. There are many variations on this tactic, known as "attack on preparation," "stop cut," "stop thrust," and "time thrust." Such gambits aren't limited to swordplay; Bruce Lee (pp. 24-25) was an advocate of the "intercepting fist." For game purposes, the collective term for these moves is Stop Hit – if only to distinguish them from the "stop thrust" on p. B366.

To try a Stop Hit, take a Wait and declare that you intend to attack your foe. Instead of simply attacking *first,* which allows him to parry and continue with his attack, you attack into his attack in an effort to hit him while he's on the offensive and less able to defend. Since *you're* on the offensive, too, this is a gamble: your skill against his.

You and your opponent both roll to hit normally. If you both miss, nothing happens. If one of you hits and the other doesn't, the struck fighter defends at -1 . . . or at -3 if he tries to parry with the weapon he used to attack. If you *both* hit, the one with the largest margin of success defends normally while the other has the penalty above – but in a tie, you *both* suffer this penalty!

You can do this with an unbalanced weapon (one with a "U" in its Parry statistic) or even one that becomes unready after an attack – and if you do, you *can* try to parry your foe's weapon. This is because your Stop Hit and parry are a single move, not two distinct actions. You cannot parry after your Stop Hit, however.

See *Counterattack* (p. 70) and *Riposte* (pp. 124-125) for two related ways to take advantage of an attacker.

Cascading Waits

When multiple fighters trigger Wait maneuvers simultaneously – or nearly so – it's crucial to know *who goes first.* This can arise in many situations, the most common of which are:

- One combatant's actions trigger another's Wait, his response triggers *somebody else's* Wait . . . and so on.
- Two or more fighters with Waits wish to attack one another.
- More than one person with a Wait wishes to affect the same target (grab an object, count coup, etc.).

The GM *could* rule, "He who shouts first, acts first," but that would be unfair to timid players who play aggressive fighters. This is a roleplaying game, after all! Below is a fairer method.

> *A good martial artist does not become tense – but ready. Not thinking, yet not dreaming. Ready for whatever may come.*
>
> *– Bruce Lee*

First, determine which of the waiting parties wishes to commit to action immediately. The *only* choices here – for PC and NPC alike – are "I proceed" or "I continue to wait." No qualifiers are allowed!

Then roll a Quick Contest. Each fighter rolls against the score he intends to use: DX to grab an object or activate a simple control (e.g., press a button), a combat skill to attack, a DX-based roll against a technical skill to operate complex controls quickly, etc. Not everyone needs to use the same kind of skill. For instance, if one convict is trying to stab another, his would-be target is so close that he can grab the knife, and a guard is standing by a button that will close a door between the prisoners – and all three have a Wait – the first would make a Knife roll, the second, a Wrestling roll, and the third, a DX roll.

Modifiers: +1 for Combat Reflexes; a bonus equal to Basic Speed (drop all fractions); +2 for fighters who needn't move at all, +0 for those who need only take a single step, or -1 per yard of distance for those who must move further (to All-Out Attack).

Those who succeed act in order of decreasing margin of success, then those who fail act in order of increasing margin of failure. Tied fighters act truly simultaneously; if they attack one another, they cannot parry with the weapons they're using to attack! If a faster fighter's action renders that of a slower fighter impossible, the slower one loses his action (and his Wait).

If, at any time during the sequence of actions determined by this Quick Contest, the conditions become right to trigger the Wait of a previously uninvolved fighter, he can try to interrupt – but this isn't automatic! He rolls exactly as above, but with an extra -2 for jumping in late. He enters the sequence where his margin of success or failure indicates. If this is before the person he's trying to interrupt, he successfully interrupts him. If not, he just has to wait and risk losing his action if it becomes impossible.

Enhanced Time Sense: If one or more of those involved has the Enhanced Time Sense advantage (p. B52), resolve their actions first using the method above. Then settle things for those without this trait. Individuals with ETS and a Wait can interrupt those who lack ETS at *any* time.

Additional Combat Options

A "combat option" is a tactic that a fighter can use in conjunction with more than one maneuver (e.g., *Deceptive Attack,* p. B369) or active defense (e.g., *Retreat,* p. B377). It doesn't *necessarily* have any connection to specific techniques; then again, it might form the basis of a technique or be available only when performing certain techniques. The GM chooses the options allowed in his campaign. They can spice up combat by giving warriors more choices . . . but the modifiers and conditions they add can also slow down combat, which is a steep price to pay in a cinematic game.

Melee Attack Options

These options apply only in melee combat. Most specifically affect unarmed or melee weapon *attacks* made as part of an All-Out Attack, Attack, Committed Attack, Defensive Attack, or Move and Attack maneuver, or feints made during these maneuvers or a Feint maneuver. A few options – notably *Defensive Grip* (see below) and *Reversed Grip* (p. 111-112) – also have effects on other maneuvers or on active defenses.

Combinations

Martial artists can learn a class of multiple-attack techniques called "Combinations" (p. 80). These constitute a special case of Rapid Strike (p. B370), which makes them compatible with All-Out Attack, Attack, Committed Attack, and Defensive Attack, but *not* with Move and Attack. The chosen maneuver modifies all applicable elements of the Combination: All-Out Attack (Strong) gives +2 damage with all strikes, Committed Attack (Determined) gives +2 to hit with all attacks, and so on.

Regardless of skill or speed, a fighter can use only *one* Combination per maneuver. If he does, he can't execute a Rapid Strike or Dual-Weapon Attack (p. B417) as part of the same maneuver. For more on the interaction between rules that let a warrior use a single maneuver to attack more than once, see *Multiple Attacks* (pp. 126-128).

A feint at the end of the maneuver immediately previous to the one that delivers the Combination lowers the target's defenses against the whole thing. The same is true for the feint portion of All-Out Attack (Feint) when the ensuing attack is a Combination. If using *Riposte* (pp. 124-125), a Combination counts as a single attack. The target's defense reduction applies against all parts of it, but note that only *one* active defense suffers the full penalty and it generally takes more than one defense to stop a Combination.

Any or all parts of a Combination can be Deceptive Attacks (p. B369) or Telegraphic Attacks (p. 113). These options modify the attack and defense rolls to resolve the affected portion(s) of the technique only. A fighter *can* mix and match; for instance, he could start a three-attack Combination with a Deceptive Attack, follow with an unmodified attack, and then finish with a Telegraphic Attack.

The viability of each attack after the first in a Combination depends on how well the preceding attacks do. If the attacker misses with one of these – or if his foe makes a successful active defense against it – his target gets +3 on rolls to avoid the remainder of the Combination. This bonus applies equally to active defenses and to rolls against ST, DX, or skill for attacks that use Quick Contests.

If a later attack requires a successful earlier attack to proceed, the "setup" *must* work for the fighter to attempt the "follow-up"! If it doesn't – for whatever reason – the rest of the Combination is forfeit. Common situations include:

- *Attacks with limited reach.* If a Combination involves an attack with fixed reach, that attack can only work if the preceding ones leave the target in range. In particular, if a close-combat strike like a punch or a Knee Strike follows an attack that hurls the victim one or more yards away – most often a shove, throw, or strike that inflicts knockback – the Combination ends if the attacker can't step to deliver the short-ranged attack.
- *Holds, locks, throws, and disarms using grappling skills.* Combinations that include such attacks *require* a successful grab or grapple, and cannot proceed without it.
- *Strikes that require a prone target.* A Combination that directs a Knee Drop, Stamp Kick, or similar attack against the target's upper body can only proceed if an earlier attack puts the victim on the ground. It might specifically set up such a move using a throw, takedown, or Sweep . . . but many realistic Combinations end with a strike like this on the off chance that an earlier blow knocks down the target by pushing him off-balance (see *Knockback,* p. B378) or injuring him (see *Knockdown and Stunning,* p. B420).

A Combination doesn't preclude movement by the attacker. He may make full use of any movement his maneuver permits. He can intersperse this between the elements of his Combination however he sees fit, although some maneuvers limit his options (e.g., All-Out Attack allows only *forward* movement). He needn't specify this when he learns his technique, as realistic Combinations take into account that some movement is inevitable in combat. This freedom doesn't extend to the order of *attacks,* which is always fixed.

The target may retreat after any element of the Combination, gaining a bonus to his active defenses against that attack and all that follow. This is gradual movement – not a sudden lurch, like knockback – and *doesn't* take him out of reach of the remaining attacks. Treat the distance between attacker and defender as constant unless the attacker steps or the defender suffers knockback, a throw, etc. If using tactical combat, move a retreating defender back a hex only after resolving the effects of the entire Combination.

Defensive Grip

A fighter with at least two hands and a one- or two-handed melee weapon can use a "strong" two-handed grip that sacrifices side-to-side movement for frontal defense. To assume or relinquish a Defensive Grip requires a Ready maneuver (see *Ready,* p. 101-104).

A Matter of Inches

These rules address minute differences between melee weapons. They're *highly* optional. Use them only if you want subtle distinctions influencing your battles!

Swing vs. Thrust

Swung weapons enjoy superior damage because they take extra time to apply ST through a long arc, increasing momentum. This makes swings slower than thrusts. When using *Who Draws First?* (p. 103) and *Cascading Waits* (p. 108), combatants must declare in advance whether they plan to thrust or swing. Those who intend to swing get -1 in these Quick Contests. When using *Stop Hits* (p. 108), fighters making swings subtract 1 from their margin of success to see who gets the defense penalty.

Weapon Weight

A weapon's weight and balance affect reaction time in two ways.

Relative Weapon Weight: How heavy the weapon feels. When using *Who Draws First?, Cascading Waits,* or *Stop Hits,* each fighter has a modifier for his weapon:

User's ST under weapon's ST statistic: -1 per point of difference
Bare hands: +2 (or +0; see below)
User's ST at least 1.5 times weapon's ST statistic: +1
User's ST at least twice weapon's ST statistic: +2
User's ST three or more times weapon's ST statistic: +3
Unbalanced weapon ("U" in its Parry statistic): -1

Apply this to the Quick Contest or margin of success just like the swing penalty in *Swing vs. Thrust.* It *replaces* the -1 for having the heavier weapon in *Who Draws First?*

This modifier affects two other situations. Bare hands get +0, not +2, in these cases.

- Add it to skill when making or resisting a feint. It's easier to flip a relatively light weapon to a new attack or defense position.
- Adjust the -4 penalty per parry after the first in a turn (p. B376) by this amount – a bonus offsets it, a penalty worsens it. Trained by a Master or Weapon Master halves the *total* penalty (round against the defender). Use this rule *instead* of halving the penalty for fencing weapons.

Absolute Weapon Weight: How heavy the weapon actually is. A heavy weapon or an unbalanced one with its weight concentrated in the head is *beneficial* here. Use these modifiers:

Bare hands: +0
Balanced weapon weighing 1.5 lbs. or less: -2
Balanced weapon weighing more than 1.5 lbs., less than 3 lbs.: -1
Balanced weapon weighing 3 lbs. or more: +0
Unbalanced weapon: +1

This adjustment plays two roles:

- Add it to skill when making or resisting a Beat.
- Add *twice* this modifier to parries against flails, cumulative with the basic -4. Use this rule *instead* of forbidding fencing weapons to parry flails outright.

Weapon Length

A weapon's Reach statistic is an approximation. "C" describes anything under 1 yard long, "1" covers lengths between 1 yard and just under 2 yards, and so on. Two weapons with identical Reach could differ in length by 1 or 2 feet! It's possible to categorize weapons relative to other weapons with the *same* Reach:

Extremely Long: Bill, dueling polearms (all), eku, glaive, halberd, heavy spear, horse-cutter (any), long spear, long staff, naginata, pollaxe, quarterstaff, rope dart, spear, trident.

Very Long: Chain whip, flail, great axe, greatsword, javelin, kusari, kusarigama, kusarijutte, lajatang, maul, monk's spade, scythe, short spear, sodegarami, tetsubo, three-part staff, urumi, warhammer, whip.

Long: Bastard sword, estoc, gada, katana, longsword, rapier (any).

Medium: Axe, backsword, bokken, broadsword, cavalry saber, dao, jian, jo, large falchion, late katana, light club, mace, mensurschläger, morningstar, pick.

Short: Baton, bola perdida, bolas, cutlass, dusack, falchion, hatchet, hook sword, jutte, kick, knobbed club, kukri, life-preserver, long knife, nunchaku, qian kun ri yue dao, saber, sai, shortsword, sickle, small axe, small falchion, small mace, smallsword (any), tonfa, weighted scarf.

Very Short: Balisong, bite, dagger (any), deer antlers, elbow, katar (any), knee, knife, knife-wheel, main-gauche, punch, shield bash, short baton, slashing wheel, stiletto, straight razor.

For instance, a greatsword and a rapier both have Reach 2, but a greatsword is longer.

When using *Who Draws First?* in a standoff between fighters with weapons of identical Reach, the -1 for the longer weapon goes to the individual who has the longer weapon on this progression. It takes longer to draw a greatsword than a rapier!

When weapons are *already* out, length is an advantage. In a *Cascading Waits* or *Stop Hits* situation, ties go to whoever has the longest Reach. If Reach is tied, they go to the longest weapon on the scale above. A rapier is at a disadvantage to beat a greatsword to a hit.

If length doesn't break the tie, thrusts come before swings. If *that* doesn't break the tie, the lightest weapon goes first. If that, too, is a tie, the fighters really *do* act simultaneously.

A warrior using a Defensive Grip has his weapon firmly in front of him in two hands. He holds a two-handed weapon, like a staff, across his body. For *any* weapon, this grip gives +1 to parry attacks from the *front* but an extra -1 to parry attacks from the *side* (for a net -3; see *Defending Against Attacks from the Side,* p. B390).

If using a one-handed weapon, Defensive Grip involves placing a second hand on the weapon. This hand must be *empty.* The extra hand makes it awkward to use normal one-handed strikes but adds power: -2 to attack rolls, +1 to damage. Treat the weapon as two-handed for all purposes. When using this grip with a fencing weapon (a weapon with "F" in its Parry statistic), it becomes possible to parry flails at the usual penalties.

If using a two-handed weapon, Defensive Grip involves moving one hand forward to "choke" the weapon or grip it by the ricasso. This effectively reinforces the weapon, giving -1 to odds of breakage. It also greatly narrows the possible arc of a swing, giving -2 to hit with a Wild Swing (for a net -7; see *Wild Swings,* p. B388) and less power with *swinging* attacks: -2 damage or -1 damage per die, whichever is *worse.*

Treat a weapon that can be used one- *or* two-handed – such as a bastard sword or a spear – as two-handed for this purpose.

A warrior with a *sword* of any kind can instead opt to place a hand just behind the tip, as part of his Ready to a Defensive Grip or using a later Ready. The rules above apply for everything *except* reach and damage: regardless of the sword, reach drops to C ("close combat only") and damage becomes thrust impaling – or thrust crushing, if blunt. Swung attacks are impossible. This allows superior point control, removing -2 from the penalty to target chinks in armor, cumulative with any similar benefit the weapon grants.

A fighter using a Defensive Grip can select *any* maneuver – even All-Out Attack (but not the Long option) or Committed Attack. Deceptive Attack (p. B369), Rapid Strike (p. B370), Telegraphic Attack (p. 113), and Tip Slash (p. 113) likewise remain viable.

Pummeling

You can strike with the pommel or hilt of any fencing weapon or sword, or with the butt of a reach C or 1 melee weapon. Roll against DX-1, Brawling-1, or Karate-1 to hit. You may substitute Hammer Fist with a one-handed weapon or Two-Handed Punch with a two-handed one, if better. Use *full* DX, Boxing, Brawling, or Karate skill to punch with a tonfa or with a sword that sports a knuckle guard (backsword, cutlass, etc.). Reach is always C. In all cases, damage is thrust crushing (like brass knuckles) plus skill bonuses, +1 if using two hands.

Reversed Grip

A fighter with a reach C, 1, or 2 thrusting weapon (typically a knife, spear, or sword) can invert his weapon and use an "ice-pick grip," the weapon extending along his arm rather than as an extension from it. Switching into or out of this Reversed Grip normally calls for a Ready maneuver; see *Ready* (pp. 101-104). This has several combat effects.

Most weapons have less reach when reversed. A reach C weapon remains reach C. A reach 1 weapon is still reach 1 when striking to the rear, but can only attack at reach C to the front or sides (although this allows it to function as a close-combat weapon). A reach 2 weapon functions as reach 1 for *all* purposes – half its length is in front of the wielder, the other half is behind him. Longer weapons are too awkward to reverse.

This grip favors stabbing, but its reduced reach and overall awkwardness make swung attacks and parries less effective. *Thrusting* attacks get +1 damage. *Swinging* attacks are at -2 damage or -1 damage per die, whichever is worse. Parries with the weapon are at -2.

Brawling and Karate parries are possible when wielding a reach C or 1 weapon this way. The defender parries with the weapon resting along his forearm. A failed parry lets the attacker choose to hit his original target *or* the weapon (the arm would be struck if it weren't for the weapon; see p. B377). This special parry is at only -1 – or at *no* penalty if using a tonfa (p. 225), which is designed for it.

What Is . . . a Deceptive Attack?

As stated on p. B369, a Deceptive Attack can represent "any number of advanced fighting techniques." This doesn't mean "techniques" in the sense of Chapter 3, although some of those techniques penalize the target's defenses. In fact, one can deliver almost *any* attack using *any* technique in a deceptive way. Common deceptions include:

- *Change-up.* The attacker waits for his target to commit to a defense and then abruptly alters his attack vector (or his attack!) to avoid it; e.g., starting a rapier thrust to the throat so that the defender will move to protect his upper body, and then dropping the sword point to the gut at the last moment. Unlike using Rapid Strike to feint and attack, this is one fluid motion – which is why it uses one die roll. The logic behind the penalty is similar, though: the attacker is performing a lot of action in relatively little time.
- *Radical angle of attack.* The attacker angles his blow so that it passes over, under, or around the defender's guard; e.g., stabbing upward with a dagger held low, swinging an axe wide so that it comes in behind a shield, or moving in close and looping a punch outside the victim's field of vision. The awkwardness of the angle explains the *attacker's* penalty.
- *Sheer speed.* The attacker strikes so swiftly that the defender has little time to respond. The penalty on the attack roll reflects the difficulty of aiming a fast-moving attack. The "secret techniques" of many masters are simply ordinary techniques combined with this kind of Deceptive Attack. Bruce Lee (pp. 24-25) was famous for this!

Which option you use is a "special effect" – it has no effect on game play. In a combat-heavy game, though, describing your Deceptive Attacks is an important part of roleplaying. The GM may award character points accordingly.

When striking to the *front* or *sides,* a reversed weapon can make its usual thrusting or swinging attacks, subject to the damage modifiers above. Since the attacker's body partly conceals the weapon, Deceptive Attacks and feints are more effective: if either succeeds, add an extra -1 to the target's defense penalty.

The user can also strike with the butt of his weapon. If its effective reach is C, treat this as *Pummeling* (p. 111). If effective reach is 1, this is an attack using weapon skill. The butt of a crushing weapon (e.g., a staff) inflicts its full thrusting damage. Other weapons do their usual thrusting damage at -1, converted to crushing. Butt strikes don't enjoy the bonus thrusting damage or improved Deceptive Attacks and feints noted above.

When striking to the *rear,* a reversed weapon can only make *thrusting* attacks with its tip, but still at +1 to damage for Reversed Grip. These attacks otherwise obey the usual rules for a Wild Swing (p. B388) or a Back Strike (p. 67).

This grip is most useful for knives, which are neither long-ranged nor ideal for cutting and parrying in the first place. Many knife fighters *prefer* this grip. It's also effective with a tonfa. Swordsmen rarely use this grip except to strike enemies in close combat.

Shin Kicks

Kicking with a *shin* instead of with a foot is an option for Jam, Kicking, and Spinning Kick – but not for other kicks, or against someone who's behind you or lying down. Skill and damage don't change. You get +1 damage for rigid leg armor, not for boots. *Hurting Yourself* (p. B379) applies if you strike *any* DR. If your opponent parries such a kick and inflicts damage, it affects your leg, not your foot.

This move is most effective if you have the advantage Striker (Crushing; Limb, Shin, -20%). Damage is then at +1 per die *and* you only hurt yourself if you kick DR 3+. See *Striker* (p. 47).

Shoves with Weapons

You can use a shield or any rigid weapon with reach 1+ (not a kusari, whip, etc.) to shove a foe. Resolve this as explained for *Shove* (p. B372), but roll against weapon skill to hit. "Damage" is thrust crushing, at -1 per die if using a one-handed weapon or shield, plus the weapon's highest Reach or shield's Defense Bonus. As usual, double this to find knockback.

With a long weapon, you can simultaneously shove *two* nearby foes; see *Slams with Long Weapons* (p. 112) for allowed weapons and targets. Both attacks are at -4 to hit. Roll knockback-only damage as above but apply the *basic* roll to each target instead of twice that amount to just one of them.

Slams with Long Weapons

A pole held across the body is useful for knocking people over in a slam. This move – called "cross-checking" in ice hockey – is a variation on the shield rush (p. B372) for long weapons. Only reach 2+ weapons can do this, and only when ready in a two-handed grip. This usually limits it to Polearm, Spear, Staff, Two-Handed Axe/Mace, and Two-Handed Flail weapons, but Two-Handed Sword weapons can also slam when held in a Defensive Grip. To charge and strike with the *end* of a weapon, see *Move and Attack* (p. 107).

Resolve this attack as explained under *Slam* (p. B371), but roll against weapon skill to hit. (This represents keeping the weapon on target as you rush – a historically accurate part of training with long weapons!) If you hit, add your weapon's highest Reach to your regular slam damage. Your *weapon* takes damage instead of you, but you still fall down if your opponent rolls twice your damage or more.

Using a long pole makes two options available that aren't possible with ordinary slams and shield rushes. First, you can target the *neck,* at the standard -5 to hit. This has no special effect on the slam but gives you the favorable modifiers for crushing damage to the neck.

Second, you can run between two opponents who are no further apart than the reach of your weapon (adjacent if reach 2, with up to a yard of empty space between them if reach 3) and slam them *both.* Roll separately at -4 to hit each foe; this is a variation on Dual-Weapon Attack (p. B417). Determine damage normally, adding Reach as above, but make a single damage roll and divide it by two. This is the damage to each foe – even if you hit just one. Work out who knocks down whom separately for each attack. *You* have two chances to fall. Only a big, fast fighter with a heavy weapon is likely to knock down two men!

Striking at Shields

You can attack a shield, cloak, or buckler much as you would a weapon. Use *Striking at Weapons* (pp. B400-401) with the following modifications.

If the shield is strapped to your adversary's arm, you can only strike to damage it; you can't knock it from his grasp. The penalty to hit is the usual -4 to attack a reach 1 melee weapon, but add a bonus equal to the shield or cloak's Defense Bonus (DB). This gives -3 to hit a light or small shield, or a light cloak; -2 to hit a medium shield or a heavy cloak; or -1 to hit a large shield.

If your opponent is using a cloak or hand-held buckler – that is, anything that uses the Cloak or Shield (Buckler) skill – you *can* strike to disarm, if you prefer. Use the penalty above, but all weapons (even fencing weapons) suffer an extra -2 to hit.

Your victim may *dodge* or *block* (but not parry) your attack. Retreating gives its usual bonus. His DB doesn't add to his defense roll, however. A shield or cloak's DB rates its tendency to get in the way, and he's trying to get it *out* of the way or turn it so that the blow slides off.

Resolve damage to shields and cloaks according to *Damage to Shields* (p. B484); see *Shields* (p. B287) for DR and HP. In a disarm attempt against a cloak or buckler, roll the usual Quick Contest. *Neither* fighter receives any modifier for weapon type.

Grabbing Shields

You can also attempt to *grab* a shield or cloak. This requires at least one empty hand. Roll against DX or a grappling skill to hit – but instead of the usual -4 to grab a weapon hand (see *Grabbing,* p. B370), roll at -4 plus the shield or cloak's DB. Your opponent can use any active defense; he *can* parry your hand with a weapon.

A successful attack means you've grabbed the shield or cloak. Until your victim breaks free or you let him go, he cannot block or add his DB to his defenses. He may attempt to break free on his turn; see *Break Free* (p. B371). If so, you're at the usual +5 if you used both hands. He gets +4 if his shield is strapped to his arm.

Telegraphic Attack

You can carefully line up an attack in combat much as you would during a stress-free practice session, gaining the +4 for routine skill use discussed on p. B171. Such an attack is often termed "telegraphic" because it transmits your intentions to your foe. This makes it easy to avoid: all active defenses against a Telegraphic Attack are at +2!

A Telegraphic Attack is the opposite of a Deceptive Attack (p. B369) and you cannot combine the two. Likewise, you cannot use a Telegraphic Attack as a Riposte (pp. 124-125) and it gains no benefit from an earlier feint. The +4 to hit doesn't "stack" with the bonus for Evaluate, either. You can combine it with all other combat options.

There's also a restriction on the *results* of a Telegraphic Attack: the +4 to hit doesn't affect your chance of a critical hit. Use your skill before the bonus to determine this. For instance, if you had skill 11 and the +4 made it 15, you would roll a critical hit on 3-4, not on 3-5; if you had skill 15 and the +4 gave you 19, you would score a critical hit on a roll of 3-5, not 3-6.

Use this option when you *must* attack at a penalty but All-Out Attack (Determined) or Committed Attack (Determined) would be too risky. Fighters most often use Telegraphic Attack to offset the -3 for Combat Art or Sport skills in combat (athletes often have good *accuracy* but little subtlety), shock penalties, and penalties for attacks that are at the edge of their skill level (e.g., for specific hit locations) . . . and to strike from behind!

Tip Slash

If your weapon can thrust for impaling damage, you can instead swing it so that the tip pierces and rips across your target laterally. This is called a Tip Slash. Treat it as a *cutting* attack for all purposes: wounding modifiers, Injury Tolerance, etc. It can be useful when impaling damage doesn't affect your target much!

A Tip Slash is an attack at full skill, distinct from other attacks listed on the weapon table. For the purpose of Targeted Attacks (p. 68) and Combinations (p. 80), it's a different basic attack from "Thrust" or "Swing." Cutting damage equals the weapon's impaling damage, at -2. Weapon quality affects this normally. Where the rules distinguish between thrusts and swings (e.g., parrying unarmed), a Tip Slash is a *swing*, despite using thrust damage.

A Tip Slash uses the weapon's current maximum reach. If holding the weapon in a grip that permits two or more different attacks, use the *longest* reach. Parry and ST are unaffected.

Examples: A Tip Slash using a dagger (thrust-1 impaling) inflicts thrust-3 cutting at reach C. A Tip Slash with a fine-quality rapier (thrust+2 impaling) does thrust cutting at reach 2. A Tip Slash with a long spear held in two hands (thrust+3 impaling) delivers thrust+1 cutting at reach 2 *or* 3, depending on how you hold it.

Untrained Fighters

Untrained fighters are a danger to themselves . . . and often to their allies, too! These optional rules simultaneously make such combatants less predictable and limit their choices. They're realistic but add extra complexity.

Fear

Combat is frightening to the unprepared. At the start of hostilities – when "slow" time starts and combatants start acting turn-by-turn (see *Time During Adventures,* p. B497) – those with neither combat skills nor Combat Reflexes must make a Fright Check (p. B360). Apply the usual +5 for the "heat of battle" and any bonus for a successful Leadership roll by the group's leader (see p. B204). The GM may rule that those who fail simply drop their weapons and flee instead of rolling on the *Fright Check Table.*

"Coin Toss" Option

If someone with neither combat skills nor Combat Reflexes passes his Fright Check, he may elect to back off (a series of Move maneuvers) instead of turning his back to the foe and fleeing. If he chooses to fight, though, roll 1d at the start of his turn:

1-3 – He attacks the nearest foe that poses a danger – to him, a Dependent, an Ally, an adventuring companion, or a bystander, in that order. To offset his lack of skill, he makes an All-Out Attack (Determined) without realizing it!

4-6 – He decides to protect himself. He uses All-Out Defense (Increased Dodge) to move away from the nearest foe. If he has a ready weapon or shield, he may select Increased Parry or Increased Block instead.

Roll again each turn!

Limited Maneuver Selection

Untrained fighters have a narrower tactical palette than skilled martial artists. Only combatants with at least DX level in a melee combat skill (1 point if Easy, 2 points if Average, or 4 points if Hard) can choose a Committed Attack, Defensive Attack, or Feint maneuver, or exercise combat options such as Deceptive Attack, Defensive Grip, and Rapid Strike. *Exception: Anyone* can attempt a Telegraphic Attack. Unskilled fighters are *more* likely to choose this option!

Combat Art or Sport Fighters

Those who know only Combat Art or Sport skills *might* count as "untrained." Actual combat skills default to their Art/Sport analogs at -3, so a fighter who has only an Art/Sport skill needs *DX+3* level (8 points if Easy, 12 points if Average, or 16 points if Hard) to choose the maneuvers and options above.

Close-Combat Options

These expanded rules apply mainly in close combat – that is, for melee combat at ranges under a yard (reach C). For more information, see *Close Combat* (p. B391).

Makhila

All-Out and Committed Attacks When Grappling

All-Out and Committed Attacks compromise your defenses against grapples as well as against strikes. They also make it easier for an opponent to follow up his grapple with a takedown, pin, or other close-combat move.

If you make an All-Out Attack, you're *truly* defenseless. You automatically lose any Contest to avoid a close-combat attack following a grapple. This includes all takedowns, pins, throws from locks, and grappling techniques that "attack" using a Quick Contest (e.g., Handcuffing). You still get a ST or HT roll to resist injury from strangling, Arm Lock, Neck Snap, Wrench Limb, etc.

If you make a Committed Attack, the -2 to active defenses also applies to your rolls to avoid takedowns, pins, etc. Otherwise, you function normally against actions that follow a grapple.

Neither All-Out Attack nor Committed Attack prevents you from rolling to keep someone *you've* grappled from breaking free, though, or gives a penalty to such a roll. That isn't a *defense* roll!

Your actions after grappling or being grappled – including your own attempts to break free – require you to choose an Attack, All-Out Attack, or Committed Attack maneuver. They aren't compatible with Defensive Attack and aren't free actions. If you make an All-Out Attack (AOA) or Committed Attack (CA), you're subject to the effects above and use the following special rules:

Determined: You may use this option to get +2 (CA) or +4 (AOA) to a *DX*-based roll (DX or a DX-based skill or technique) for the purpose of a takedown, lock, or hold. You cannot apply this bonus to a *ST*-based roll – but see the Strong option, below.

Double: You may use AOA (Double) to try two grappling moves, subject to the restrictions under *Grappling and Multiple Attacks* (p. 128).

Feint: You may use AOA (Feint) to make a feint or a Beat against a grappled foe before trying Arm Lock, Judo Throw, or another grappling attack that allows an active defense. You can also use AOA (Feint) on the turn after you parry to make a feint or a Beat and *then* attempt such an attack, if it's one that can follow a parry. AOA (Feint) is pointless if no active defense is involved; e.g., with break free, strangle, or pin.

Long: AOA (Long) isn't an option in close combat.

Strong: You may use this option to get +1 (CA) or +2 (AOA) to a *ST*-based roll (ST or a ST-based technique) for a takedown or pin, to strangle or otherwise injure a foe, or to break free. For techniques that base injury on thrust or swing damage as opposed to on a margin of victory, apply the bonus directly to damage.

See *Actions After a Grapple* (p. B370) and *Actions After Being Grappled* (p. B371) for further details.

Close Combat and Body Morphology

The combat rules in the ***Basic Set,*** while generic, occasionally assume an upright humanoid with two arms, hands, legs, and feet (or equivalent body parts). Traits that alter your body away from this norm change how certain rules work – *especially* for grapples, pins, and close-combat techniques!

Below are notes on the combat effects of selected physiological traits. Anything not mentioned here either has no appreciable effect or uses the rules for the traits it includes (e.g., Quadriplegic combines Lame and No Fine Manipulators). In general, if a body part is *missing,* you can't use techniques that require it and are immune to enemy techniques that target it.

Extra Arms

see p. B53

If you can bring more than two arms to bear on a foe, each arm after the second gives +2 to hit with a grapple (but *not* with follow-up techniques), to prevent your victim from breaking free (of grapples, pins, locks, etc.), and to break free yourself. Each hand after the first two gives +2 ST to choke or strangle, too. If you have *more* arms than your opponent – the exact number is irrelevant – you get +3 to pin him or resist his pin attempts. You only receive these bonuses for arms of regular length or better.

Special modifiers can give additional effects:

Extra-Flexible: Such arms are immune to injury from Arm Lock (which only counts as an ordinary grapple) but *not* Wrench Arm. They also get +2 on the DX roll required to ready a weapon in close combat (p. B391).

Foot Manipulators: You can use these limbs to meet the requirements of any rule that calls for arms *or* legs – but you can never use a limb as both an arm *and* a leg at the same time. Decide how you're using it at the start of your turn.

No Physical Attack: In addition to being unable to strike, these arms cannot grapple, pin, choke, etc., and don't give the close-combat bonuses above. They're still valid targets for *enemy* techniques that target arms!

Short: These arms never give the close-combat bonuses above. If you use *only* Short arms for a close-combat task, all rolls are at -2 regardless of how many arms you have.

Weapon Mount: As No Physical Attack, except that Arm Lock is ineffective against the limb – it only counts as an ordinary grapple. Wrench Arm works normally.

Extra Legs

see p. B54

The number of legs a foe must grapple to keep you from walking, kicking, etc., equals the number of crippled legs needed to make you fall. If he restrains fewer legs *and* you have more than twice his ST, you can walk – just lower Move by the usual amount for a small number of crippled legs.

Example: If you had six legs, a weak enemy grappling one leg would merely reduce your Move by 20% – he'd have to grapple *four* legs to immobilize you!

In addition, each leg past two gives +1 to resist enemy attempts to knock you over (e.g., takedown or Sweep) and to the roll to avoid falling after a missed kick. When you grapple using legs (see *Using Your Legs,* p. 79), each *pair* of legs after the first gives the bonuses specified under *Extra Arms,* above, per arm past the first two. If you have more legs than your foe has free hands, you get +3 to pin him by sitting on him (see *Shifting Grapples and Freeing Hands,* pp. 117-118). Finally, having four or more legs lets you attempt a pounce (p. B372).

Extra Mouth

see p. B55

A mouth on your torso can bite someone who's pinning you! A mouth elsewhere is immobilized only if a foe grapples the body part it's attached to. For more on biting, see *Teeth* (see below).

Horizontal

see p. B139

Your posture gives you +1 to strike or grapple the feet, legs, or groin of an upright foe whose Size Modifier is no more than one different from your own, but -1 to hit his neck, face, eye, or skull. For greater differences in SM, see *Combat at Different Levels* (p. B402).

Your joints bend the wrong way for Backbreaker, Elbow Drop, Elbow Strike, Knee Drop, Knee Strike, Piledriver, Two-Handed Punch, and Uppercut. You can't learn these techniques or attempt them at default. You can't make a flying tackle, either – but you *can* pounce if you have Extra Legs.

Your kicking damage is at -1 per die unless you have Claws or make a Back Kick or Stamp Kick. However, you can really put your back into a Head Butt. Add +1 per die to your damage with this technique!

Injury Tolerance

see p. B60

Diffuse fighters are *immune* to grapples, pins, locks, and so forth. Homogenous ones are susceptible to such things, but techniques that injure by tearing muscle and breaking bone – e.g., Arm Lock, Leg Lock, Neck Snap, Wrench Limb, and all throws from locks – cannot inflict damage.

No Eyes prevents Eye-Gouging, Eye-Poke, Eye-Rake, etc., from causing blindness or special injury. No Neck renders Choke Hold ineffective and means that neither Neck Snap nor a throw from a Head Lock can injure you. No Head protects completely against all of these attacks . . . but if you lack a head, you can't make a Head Butt!

Teeth

A toothy mouth lets you bite in close combat. Roll against DX or Brawling to hit. You can either nip and let go or *hold on* and grapple your victim in addition to injuring him. Either is an attack that takes *full* hit location penalties – not halved for grappling – and inflicts thrust-1 crushing damage. Brawling improves damage. The Teeth advantage (p. B91) can change damage type.

Allowed hit locations for a bite and the effects of grappling with teeth depend on relative Size Modifier. These rules draw heavily on concepts explained in *New Hit Locations* (p. 137). Read that first!

Your SM is no greater than your victim's. You can't bite his skull, spine, veins/arteries, or vitals. You can bite his face, neck, torso, or limbs, but you'll merely nab a fold of flesh. This can only cripple a limb on critical hit results 7, 8, 13, or 14. You can target a tendon within a limb at an extra -3. Handle this like an attack on a joint – it *can* cripple. You can also target and cripple an ear, nose, or extremity (or, at another -3, the tendons inside an extremity). In all cases, a bite counts as a *one-handed* grapple for the purpose of strangling, breaking free, techniques, etc.

On subsequent turns, you can *worry.* This counts as an attack but it always hits – simply roll biting damage each turn. Injury can't exceed HP/4 to a nose, an ear, or the tendons in an extremity, or HP/3 to an extremity or the tendons in a limb. Keep rolling damage, though! Further attacks inflict full *shock.* Should total injury reach twice that needed to cripple a nose or an ear, you bite it off. Twice the amount to cripple a hand removes a finger (see *Missing Digit,* p. B144). You can't remove an entire extremity or limb.

Your SM exceeds your victim's by +1 or +2. You can target *any* hit location susceptible to your bite's damage type, and can cripple or sever limbs. Treat grapples using your teeth as *two-handed* for the purpose of strangling, breaking free, Neck Snap, and Wrench Limb, but as one-handed for all other purposes. Otherwise, use the rules above.

Your SM exceeds your victim's by +3 or more. Your maw can engulf his entire head or torso. This allows you to attack, worry at, and cripple *any* body part. If you bite and grapple the torso, you can attempt a pin on a standing foe. Success means he's trapped helplessly in your jaws!

Born Biters: Some creatures have elongated jaws built for biting – a zero-cost racial feature. They get +1 to +3 to effective SM only to determine how they bite. Apply the same bonus to rolls to hit their jaw or nose. A SM 0 reptile man with +3 SM for biting would bite as if he had SM +3, but enemies would target his jaw at only -3, his nose at -4. Those with *any* level of this feature suffer a nose hit on a roll of 1-2 on 1d when struck in the face.

Biting Techniques: Targeted Attacks with teeth take the form "TA (Brawling Bite/Hit Location)." Neck Snap (Teeth) and Wrench Limb (Teeth) are distinct from the standard versions, and must be learned separately.

Lame

see p. B141

If you're *standing,* the penalties for Crippled Legs (-3) and Missing Legs (-6) affect all of your DX-based rolls in close combat, and opponents get +3 in the Contest for any takedown, Sweep, or similar move intended to knock you down. None of this applies if you're sitting, kneeling, or lying down – just use the usual penalties for your posture. You can *attempt* any technique at the above penalty, unless it requires more legs than you have (e.g., you can't use Scissors Hold with one leg).

If you're Legless, you must fight from the ground at the usual penalties (-4 to attack, -3 to defend) and can't do anything that requires legs, such as Knee Strike or any kick or leg-based grapple. Techniques that require you to drop to a sitting, kneeling, or prone posture (Backbreaker, Elbow Drop, Piledriver, etc.) are also impossible. An opponent with legs has an effective +1 SM advantage over you, giving him +3 to pin you or resist your pins. You must use your arms for a pin, which denies certain options under *Shifting Grapples and Freeing Hands* (pp. 117-118). However, you're *immune* to Leg Grapple, Leg Lock, Sweep, and similar attacks.

No Fine Manipulators

see p. B145

No Fine Manipulators: You must "hug" to grapple, which is clumsy. Grapples, pins, and takedowns receive no penalty, but grappling techniques (notably Arm Lock, Backbreaker, Choke Hold, Head Lock, Leg Grapple, Leg Lock, and Piledriver) are at -4 unless they use only the legs, like Scissors Hold and everything under *Using Your Legs* (p. 79), or the teeth, like the Neck Snap (Teeth) and Wrench Limb (Teeth) options under *Teeth* (p. 115). You're at -4 to make a Judo Throw. Shoves and most unarmed strikes take no penalty, but attacks that require fingers are *impossible,* which rules out strangling and choking with hands, grabbing weapons, Eye-Poke, Finger Lock, Lethal Strike, and Pole-Vault Kick (you can't grip the pole).

No Manipulators: Your *only* close-combat attack options are a bite, slam (but not a flying tackle), Head Butt, or blow with a Striker. You can't pin a foe, and an enemy who has any hands at all gets +3 to pin *you.* You can only break free by wriggling, at -4.

Exception: Constriction Attack (p. B43) and Double-Jointed (p. B56) together enable grapples, takedowns, pins, chokes, locks, and breaking free at *no* penalty, using the torso – just like a python. Such attempts are equivalent to two-handed. You must learn body-only techniques separately, like those for teeth.

No Legs

see p. B145

Follow the rules for being Legless (see *Lame,* see above), except in these special cases:

Aerial or Aquatic: You can fight from your native medium (air or water) at full skill; you don't suffer the penalties for lying down. You can even plunge downward to bash a foe into the ground using Elbow Drop or Piledriver, if you have the necessary hands or elbows. Your SM must exceed your victim's to pin him "hands free" by landing on him; treat this as sitting on him. You can't make or be affected by any attack that requires legs or feet.

Sessile: You can't do *anything* that requires legs, a posture change, or so much as one step of moment. All you can do is strike and grapple with any arms or Strikers you have. However, you're completely immune to takedowns, Sweep, Trip, etc.

Slithers: As Legless, unless you have both Constriction Attack (p. B43) and Double-Jointed (p. B56). Then the exception under *No Fine Manipulators* (above) applies.

One Arm and One Hand

see p. B147

Either disadvantage means that you can't use two hands to grapple or to pin, making it easier for your victim to break free (p. B371). You're also at half ST when you choke or strangle, and you have -1 damage per die if you shove. An opponent with two or more hands gets +3 to pin you or resist your pins. Techniques that normally require two hands are either much less effective for you or totally impossible; see *The Sound of One Hand Grappling* (see above).

Note that while a handless arm can't punch or grab, it *can* deliver an Elbow Drop or Elbow Strike.

Spines

see p. B88

Those who use any kind of grapple, hold, lock, or pin on you take damage *each* turn until they let go. The same applies to anyone you *pin,* but not to enemies you grapple or restrain with a hold or lock that uses your arms or legs.

The Sound of One Hand Grappling

Most grappling techniques in Chapter 3 "require" two hands. In reality, there are one-handed variants of Arm Lock, Choke Hold, Head Lock, Leg Lock, Neck Snap, and Wrench Limb (but *not* Backbreaker, Piledriver, or Wrench Spine).

DX-based rolls to *initiate* such moves are at -2, or at -4 if using the crook of one arm because the hand isn't free. This is cumulative with any penalties in the technique description (e.g., the -1 to use Choke Hold from in front). DX-based rolls to *inflict damage,* including throws from locks (pp. 118-119), are at -4.

ST-based effects use *half* ST, rounded down. This affects defaults (e.g., for Neck Snap), Quick Contests, and thrust and swing damage. When strangling, halve ST instead of applying the -5 on p. B370. Should a technique give a ST bonus – intrinsic or for using a weapon – add it *after* halving.

If a technique offers a choice of rolls, always use the most favorable.

If your victim tries to break free, you obviously can't claim the +5 for using two hands when you're using just one; see p. B371. Moreover, you don't benefit from the technique's innate bonuses to keep him from breaking free (e.g., +4 for Arm Lock) and he doesn't suffer its special penalties (e.g., -1 per repeated attempt for Arm Lock).

Striker

see p. B88

A Striker cannot grapple, pin, or make holds, locks, or throws – it can only strike. It *can* parry (unless it has Cannot Parry) and even Sweep (p. 81). A *crushing* Striker can shove (p. B372) as effectively as an arm.

To immobilize a Striker, an attacker must grapple it. The penalty for this is -1, just as for an arm or a leg. Arm Lock, Leg Grapple, Leg Lock, Wrench Arm, and Wrench Leg *don't* work on Strikers, but martial artists on worlds with nonhuman species might know equivalent techniques for attacking Strikers. Each variant is a separate technique.

Long Weapons in Close Combat

You can *try* to strike with a non-close combat weapon (anything without a "C" in its Reach statistic) in close combat, but this is awkward. You must hold it out to one side, make "wrap" shots at your opponent's back, swing at sharp angles, or thrust almost straight up or down. Still, sometimes it's better than the alternative!

A reach 1+ weapon in close combat gives a skill penalty equal to -4 times its *longest* reach in yards, regardless of the reach you were using it at. This is -4 for 1-yard weapons (most one-handed swords, flails, and impact weapons), -8 for 2-yard weapons (spears, staffs, short polearms, most two-handed flails and impact weapons, and longer swords – greatsword, katana, rapier, etc.), and -12 for 3-yard weapons (long spears and polearms). This lowers skill for *all* purposes – including making and resisting disarms and feints, and all armed striking techniques – except those specifically excepted below.

You can parry in close combat, but this is also at a penalty. Calculate Parry from your *reduced* skill. Thus, a weapon parries at -2 in close combat if reach 1, -4 if reach 2, or -6 if reach 3. This doesn't affect parries made *as* your foe enters close combat. Likewise, if you're able to retreat out of close combat, you get your *full* Parry plus the usual retreat bonus.

Thrusting damage is unchanged in close combat, but it's hard to get in a good swing. Reduce swung damage by -1 per yard of your weapon's *maximum* reach. For instance, a broadsword has -1 swinging damage; a two-handed sword, -2; and a halberd, -3. In addition, a reach 2 or 3 Polearm, Spear, or Two-Handed Axe/Mace weapon can only do quarterstaff damage with the haft (swing+2 crushing, less the reach penalty) unless you take a Ready maneuver to choke it around the head. It takes another Ready to prepare it for normal use after leaving close combat.

These effects apply to all weapon use, offensive or defensive, while in close combat. It doesn't matter whether your current target or attacker is in close combat with you! Just having someone in the way is enough to make things awkward.

Exception: Pummeling (p. 111), grappling techniques (Armed Grapple, Bind Weapon, Choke Hold, etc.), and similar close combat-specific moves *don't* suffer skill or damage penalties in close combat. See *Defensive Grip* (pp. 109-111) and *Reversed Grip* (pp. 111-112) for other ways to use long weapons in close without these penalties.

More Actions After a Grapple

These rules expand on *Actions After a Grapple* (p. B370).

Bear Hugs

If you've used two arms or two legs to grapple an opponent's torso, you can *squeeze.* For this to be effective, your Size Modifier must exceed your victim's! Resolve this as an attempt to strangle; see *Choke or Strangle* (p. B370). If you lack Constriction Attack (p. B43), you're at -5 in the Quick Contest. Using your legs gives the usual -2 DX and +2 ST (see *Using Your Legs,* p. 79). Victory inflicts crushing damage – but the torso lacks the neck's ×1.5 wounding modifier.

You can try to crush the breath out of your victim without cracking his bones. Roll as above. Victory causes fatigue instead of crushing damage. The GM may permit you to inflict fatigue (*not* injury) on someone of your SM if he weighs no more than your BL×4.

Shifting Grapples and Freeing Hands

These options let you change *how* you're grappling or pinning a foe:

Add a Hand: If you've *grappled* or *pinned* a foe, you can dedicate one or more *additional* hands to restraining him. This makes it easier to choke him and harder for him to break free, and lets you use techniques that require more hands. Adding hands is a free action at the *start* of your turn. The hands used must be empty. Once you commit a hand, you can't use it for barehanded attacks until your *next* turn, when you can let go as a free action (see *Release a Hand,* see below).

Release a Hand: If you've *grappled* or *pinned* a foe, releasing your grip with one or more hands – usually so that you can strike – is a free action *on your turn.* To maintain your grapple or pin, you must hold on with at least one hand (but see below). If you let go with all of your hands, your victim breaks free! One-handed locks and holds are less effective; see *The Sound of One Hand Grappling* (p. 116).

Shift Grip: If you've *grappled* a foe, you may relocate your grip from its current hit location to a new one – typically to prepare for a technique that requires you to grapple a specific body part. This *isn't* a free action; it counts as an attack. Roll a Quick Contest, with each fighter using the *highest* of DX or his best grappling skill. The fighter with the most free hands gets +3. The hit locations involved are irrelevant. If you win, your grip shifts to the desired location. On a tie, you're still grappling the original body part. If you lose, your foe breaks free. If you don't mind the extra turn and the chance of losing your grip, you *can* grapple the torso and shift grip to avoid hit location penalties.

Sit on Him: If you've *pinned* a foe, you can restrain him by sitting on him. This shift counts as an attack. Roll a Quick Contest. Each contestant uses the *highest* of ST, DX, or his best grappling skill. The *larger* fighter gets +3 for every point by which his SM exceeds his enemy's. Your victim gets +2 per arm after the first two. If you win, you free all of your hands and change posture to sitting. You may choose to sit on his upper body, in which case he can attack using legs, or on his lower body, in which case he can attack with one arm. All of his attacks suffer the usual -4 for lying down *and* -4 for being grappled. You have +5, not +10, against his break free attempts, as if using one hand. He's otherwise pinned, and can't move, change posture, etc., until he breaks free. On a tie, you keep the original pin. If you lose, your foe breaks free and rolls out from under you.

Grab and Smash!

Grapples can set up vicious strikes. These tactics are realistic but complex. It's the GM's call whether to allow them.

All-Out Grapple and Strike

Martial artists and brawlers often grab opponents and pull them into thrusting attacks. Such strikes are powerful and hard to avoid. Examples include yanking a head into a Knee Strike (famous in Bando and Muay Thai), throwing an Uppercut in a clinch (illegal but common in Boxing), and pulling someone onto a knife. The perks Clinch (p. 51) and Neck Control (p. 50) are handy here!

This is an All-Out Attack (Double). Use the first attack to grapple your rival. If it works, he'll suffer the standard defense penalties against the ensuing strike; see *Defense While Grappling* (pp. 121-122).

Your second attack can be a strike with anything except the arm(s) used to grapple. This is a close-combat attack. If you use a weapon longer than reach C, see *Long Weapons in Close Combat* (p. 117).

If the grapple works *and* you hit the grappled location with a thrusting attack, your strike gets the damage bonus for All-Out Attack (Strong). This also applies to blows to the groin, spine, or vitals if grappling the torso; the eye, jaw, or nose if grappling the head; or an artery or joint if grappling a location containing such a target. You may retain your grapple after striking or relinquish it immediately.

Use these rules only on the turn when you initiate your grapple. You *must* All-Out Attack to grapple *and* receive bonus damage. To brutalize an adversary you grappled on an earlier turn, use All-Out Attack (Strong).

Kiss the Wall (Carpet, Car Door, . . .)

If you've used two hands to grapple a foe *and* you're standing or kneeling, you can ram him into a wall or other massive object within a yard – or the ground, if he's lying down. This *isn't* a Judo Throw (p. 75), but an attempt to hold onto your victim and propel him using your own momentum.

This is an attack rolled against DX, Brawling, Sumo Wrestling, or Wrestling. You can target any hit location but the feet, at full penalties. If your victim is lying down, you can only target his face or skull. Your opponent may either dodge or parry with a free hand, subject to *Defense While Grappling* (pp. 121-122).

A successful attack inflicts thrust crushing damage, +1 for a hard surface, plus your skill bonus. Treat the ST bonus for Sumo Wrestling or Wrestling as a damage bonus. A critical miss means you slip, take this damage to your face, and lose your grapple!

Twofers

You *can* knock two foes together! Use the rules above, with these changes:

All-Out Grapple and Strike: As your initial grapple, make a Dual-Weapon Attack (-4) against *adjacent* foes in close combat. Both defend normally. If you grapple only one, your grapple counts but you can't strike. If you grapple both, make a DX, Brawling, Sumo Wrestling, or Wrestling roll to ram them together. They may defend as usual. If *both* fail, you inflict thrust-1 crushing damage to the grappled location on each. The only damage bonus is +1 if you grapple two skulls and knock them together.

Kiss the Wall: You may ram your grappled adversary into any hit location on an *enemy* within a yard. Use the *worst* hit location penalty; e.g., bashing a face (-5) into a leg (-2) gives -5. Your second opponent defends normally, although the incoming body counts as a weapon with weight equal to the first victim's ST (p. B376). If either foe defends, nobody is hurt. If both fail, each takes thrust crushing damage, plus skill bonuses. The +1 for a hard surface applies only when ramming skulls together.

Switch Arms for Legs: If you've used your arms to *grapple* a foe, you can attack to grapple him with your legs (see *Using Your Legs,* p. 79) and then let go with your arms as a free action – or vice versa. *Defense While Grappling* (pp. 121-122) affects enemy defenses against such follow-up grapples.

Shoving People Around

If you've *grappled* a foe and you're both standing, you can try to use him as cover, make him walk, etc. This counts as an attack. Roll a Quick Contest, with each contestant using the *highest* of ST, DX, or his best grappling skill. If you have your rival in a lock or a hold, you may use your level with your grappling technique, get +3 no matter what you roll against, and gain your technique's bonus for using a weapon (if any) – but since you're using pain to force compliance, *he* has +3 for High Pain Threshold or -4 for Low Pain Threshold.

If you win, you may move behind him (your facing changes), spin him to put his back to you (his facing changes), *or* force him to take a step in any direction with you – all without letting go. If *he* wins, he gets his margin of victory as a bonus if he tries to break free on his next turn. A tie means nothing happens.

Throws from Locks

If you have a *standing* enemy in an Arm Lock, Finger Lock, Head Lock, or Leg Lock – including a lower-body version (see *Using Your Legs,* p. 79) – you can throw him using the trapped body part as the axis of the throw. You can try this on any turn *after* the one during which you applied the lock. This counts as an attack but is resolved with a Quick Contest: your Judo or lock technique vs. your victim's ST, DX, Breakfall, or best grappling skill. You may each take your pick; Breakfall isn't always ideal (see below).

If you win, you throw your opponent to the ground and twist the affected body part. This inflicts swing crushing damage. Wrestling adds its ST bonus as a damage bonus. Apply damage to the arm if an Arm Lock, hand if a Finger Lock, neck if a Head Lock, or leg if a Leg Lock.

If the defender wins or ties, he isn't thrown. (*Exception:* If he used Breakfall to resist, he *falls* if he wins or ties but isn't *thrown* for damage.) He's still in the lock unless you rolled a critical failure. If he's standing, you may try to throw him again on a later turn.

See *Neck Snap* (p. 77) and *Wrench (Limb)* (p. 82) for alternative ways to torque body parts, and *Judo Throw* (p. 75) and *Sacrifice Throw* (pp. 78-79) for other throws.

Pain in Close Combat

Much of what occurs in close combat is about pain as much as injury. These optional rules let you simulate excruciating, joint-grinding action.

Inflicting Pain with Locks

When applying a grappling technique that lets you cause ongoing harm – Arm Lock, Choke Hold, Finger Lock, etc. – you may opt to cause pain. Roll normally, at the usual modifiers, and note the FP or HP you would have inflicted. Instead of fatigue or injury, though, your victim suffers an affliction (p. B428): moderate pain at 2-3 points, severe pain at 4-5 points, terrible pain at 6-9 points, or agony at 10+ points. Reroll each turn; the effects aren't cumulative.

To use a painful lock to force someone to move, see *Shoving People Around* (p. 118).

Pain and Breaking Free

Experienced fighters extol the virtues of *injuring* a rival grappler in order to distract him and break free (see *Break Free,* p. B371). This is realistic and effective . . . if you hit! Attacks are at -4 while grappled and can't involve any body part or weapon that your foe is restraining.

If your assailant is *behind* you – using a garrote, applying a Choke Hold, etc. – your options are limited. You can make a Wild Swing (p. B388) or a Back Strike (p. 67) with a weapon in a free hand; use Back Kick (p. 67) or Elbow Strike (p. 71); try a Stamp Kick (pp. 80-81) to his foot; or bite his arm or hand (see *Teeth,* p. 115). The penalties for these attacks and hit locations are cumulative with the -4 for being grappled.

If you're pinned, you *can't* attack without an exotic advantage: Extra Mouth on your torso, Innate Attack from the eyes, etc.

If your attack roll succeeds, your opponent can try any close-combat parry with a free hand; a Jam, if you kicked; a grappling skill parry with the arms he's using to hold you; or a dodge. The last two options represent shoving *you* aside. If he fails, you inflict your usual damage.

Killing him, knocking him out, or crippling the only limb he's holding on with means you're free! Crippling one of several limbs lowers his ST bonus to restrain you. Stunning him gives him -4 to prevent you from breaking free until he recovers.

If you wound him, his shock penalty (-1 to -4) lowers his ST as well as his DX if you try to break free. However, the penalty vanishes before your next turn, so the only way to capitalize on it is to try to break free *immediately.* To do so, you must make two attacks – whether via All-Out Attack (Double), Extra Attack, or Rapid Strike. Your first attack is your attempt to wound your attacker; your second is your attempt to break free.

These rules also apply if an ally wounds your attacker.

All of this cuts both ways. If you're injured, your shock penalty applies to your attack rolls *and* your ST rolls to break free! The same goes for pain penalties caused by an assailant who uses *Inflicting Pain with Locks,* above.

Sprawling

When an attacker tries a takedown (p. B370) or a technique based on a takedown, you may opt to fall willingly in an attempt to achieve superior ground position. This is known as "sprawling." It's risky, but it's useful against someone you *know* is less adept than you are at Ground Fighting (p. 73).

If you sprawl, you fall down – that is, your enemy's takedown works automatically – but the Quick Contest still occurs and you roll at +3. If your rival wins, you simply fall. If he loses or ties, though, *he* falls, too – in tactical combat, you end up lying atop him in the same two hexes – and he loses any grapple he had on you.

Ranged Attack Options

These rules significantly enhance the "firepower" of muscle-powered ranged weapons. They describe feats that *might* be possible for extremely skilled realistic warriors, but the GM is free to reserve them for Weapon Masters.

Quick-Shooting Bows

Bows have RoF 1 and Shots 1(2). This means that an archer can normally loose an arrow every three seconds. Heroic bowmen – elves, legendary samurai, Merry Men, and so on – are traditionally capable of raining down arrows *much* more quickly than that! The GM of a cinematic campaign can use this next rule to enable such rates of fire.

An archer who has already drawn an arrow can try to ready and shoot his bow in one smooth motion. This requires an Attack or All-Out Attack (Determined) maneuver – a Heroic Archer (p. 45) may instead choose Move and Attack – and calls for *two* Bow rolls at -6. If the bowman has the Heroic Archer advantage or a form of Weapon Master (pp. 48-49) that encompasses bows, halve the penalty to -3. If he has *both,* he's at only -1! For anyone, All-Out Attack (Determined) adds +1 to both rolls.

The first roll is to draw the bow. Success lets the archer ready his bow instantly and shoot at once. Failure means he readies his bow too slowly to attack this turn but can shoot at no special penalty on a later turn. Critical failure means he *drops* his bow! Whatever his roll, he's defenseless if he chose All-Out Attack – and since a failure doesn't permit a shot, it amounts to a Ready that leaves him without active defenses.

The second roll is to shoot. This is only possible if the first roll succeeds. Treat this as an ordinary ranged attack, but with the extra penalty above.

Successfully executed, this shaves a second off the usual two-second ready time for a bow. The archer takes a Ready maneuver to draw an arrow, and uses the Quick-Shooting option on the following turn to ready and shoot his bow. If he rolls well, he can shoot *every other turn* – as if his bow had RoF 1 and Shots 1(1).

The archer *can* precede this feat with a Fast-Draw (Arrow) roll to ready an arrow instantly. Any failure means he drops the arrow (or the quiver; see p. B195) and spends his entire turn taking an unproductive Ready maneuver. Success readies an arrow and allows an immediate Quick-Shooting attempt. If the bowman makes all his rolls, he can shoot *every* turn. In effect, he has RoF 1 and Shots equal to his quiver's capacity . . . and can rival many firearms!

The GM may permit Quick-Shooting with other low-tech missile weapons that have RoF 1 and Shots 1(2). Simply change the skills required: Blowpipe-6 and Fast-Draw (Arrow) for blowpipes, Sling-6 and Fast-Draw (Stone) for slings, and so on.

At the GM's option, realistic archers can quick-shoot bows *out of combat*. There are real-life speed-shooting competitions, after all. Use the rules as written. Doing this under fire is cinematic, though – apply an extra -4 to Bow and Fast-Draw rolls for this feat in combat in a realistic game.

Rapid Strike with Thrown Weapons

Cinematic kung fu masters and ninja often hurl multiple throwing weapons with uncanny precision. To simulate this, the GM may wish to let Rapid Strike (p. B370) – *including* the cinematic version on p. 127 – work with thrown-weapon attacks. For instance, a warrior could toss two weapons at -6, three at -12, four at -18, and so on. Halve these penalties for Weapon Masters. Such a Rapid Strike *can* target multiple opponents, just like one made in melee combat.

If the weapons weigh less than 1 lb. apiece (e.g., daggers or shuriken), the fighter can carry up to four in one hand, ready for *throwing* – but if he's holding more than one, treat them as unready for *melee* combat. Each weapon rests between two fingers, not clutched in the fist, so the GM may let six-fingered races ready five weapons, limit four-fingered races to three, and so on. If the weapons weigh 1 lb. or more (e.g., large knives), it's only possible to hold one at the ready, but it's ready for all purposes.

A warrior can carefully ready multiple small weapons – or a single large weapon – by taking one Ready maneuver per weapon. Alternatively, he may Fast-Draw his weapons, as described under *Multiple Fast-Draw* (p. 103). Any failed Fast-Draw roll ends his turn. If he has a ready weapon in each hand and knows the Quick-Swap perk (p. 51) for the one in his "off" hand, he can even throw the weapon in his master hand, snatch the other weapon with Quick-Swap, and throw it with his master hand as part of the same Rapid Strike.

A fighter can mix and match weapons and means of readying. For instance, a ninja who wishes to hurl four shuriken could Fast-Draw all four or carefully ready some and Fast-Draw the rest. He could even throw the shuriken and then Fast-Draw or Quick-Swap a large knife and throw it. The thrower must declare how many attacks he intends to attempt before he starts. Use the Rapid Strike penalty for the number of attacks *planned* – even if a failed Fast-Draw roll or critical miss cuts things short.

This is *not* the same as throwing a weapon with each hand, which is a Dual-Weapon Attack (p. B417), but a fighter holding multiple small weapons ready in each hand can throw them all! All attacks with one hand are a single Rapid Strike, with an extra -4 for Dual-Weapon Attack and a further -4 for attacks with the "off" hand.

Rapid Fire with Thrown Weapons

A classic tactic of ninja and gadgeteers is to toss many tiny throwing weapons (caltrops, ball bearings, shuriken, etc.) at once, with the goal of hitting *somebody* with *something*. This is far less precise than *Rapid Strike with Thrown Weapons* (see above). Use the following special rules instead.

The weapons used must be ready for throwing. It takes a turn to ready a fistful of tiny weapons from a handy container, or to ready the container itself. You can toss up to BL/50 lbs. of small, sharp items or BL/20 lbs. of small, blunt ones with one hand (use BL/20 lbs. for *all* weapons in a cinematic campaign!), or launch up to BL/2 lbs. of projectiles from a container – box, pouch, hollow staff, etc. This is a limit on the number of items you can *throw* for useful effect, not a measure of how many you can *lift*.

Treat the entire collection of thrown weapons as a *missile* weapon with Acc 0, RoF and Shots equal to the number of items hurled, and Rcl 2. For four shots or less, Damage is at -1 *per die* relative to a single weapon of that kind, and Range is 2/3 usual. For more than four shots, Damage is at -2 *per die* and range is 1/3 usual. Bulk is -2 for a fistful of weapons, -6 for any kind of container.

Handle the throw as a rapid-fire missile attack; see *Rapid Fire* (p. B373). Roll against Throwing to hit, regardless of what you're throwing. You can throw all the weapons at one target for a bonus to hit or use *Spraying Fire* (p. B409) to attack multiple foes. All-Out Attack (Suppression Fire) isn't an option – that assumes a steady stream of fire, not a single burst of projectiles.

If you know Throwing Art, you *can* roll against that skill to hit, and receive its usual bonuses to range and damage!

Example: A comic-book ninja with ST 13 and Throwing-14 hurls a handful of shuriken at a foe 2 yards away. His BL is 34, so he could normally toss 34/50 = 0.68 lb. of sharp objects with one hand . . . but this is a cinematic game, so he can toss a full 34/20 = 1.7 lbs. of shuriken. Since a shuriken weighs 0.1 lb., his "fistful" consists of 17 stars! For a ST 13 man, a shuriken normally has Damage 1d-1 cut, Range 6/13. Since there are more than four, this becomes Damage 1d-3 cut, Range 2/4. The attack has Acc 0, RoF 17, and Rcl 2. The bonus for RoF 17 is +4 and the range modifier for 2 yards is 0, so the ninja needs 14 + 4 = 18 to hit. He rolls a 10, succeeding by 8. That's four multiples of Rcl 2, so he hits with one star plus four extras, for a total of five.

For instance, if our ninja had four shuriken in his right hand and two in his left, he could make two Rapid Strikes. His right-hand attacks would be at -18 for Rapid Strike and -4 for Dual-Weapon Attack: -22. His left-hand throws would have -6 for Rapid Strike, -4 for Dual-Weapon Attack, and -4 for using the off hand: -14. Needless to say, he'll want Weapon Master and Ambidexterity if he plans to do this often!

These rules represents multiple, carefully targeted attacks directed at specific foes and hit locations. To toss fistfuls of tiny items haphazardly as one big attack, see *Rapid Fire with Thrown Weapons* (p. 120).

Tricky Shooting

Feints and Deceptive Attacks needn't be limited to melee combat. The optional rules below let warriors who specialize in Bow, Throwing Art, and so forth compete on an equal footing with hand-to-hand experts, if the GM wishes. This *might* be realistic – but the GM may reserve these options for cinematic games, restrict them to Heroic Archers and/or Weapon Masters, or simply forbid them. They can be used together or separately.

Prediction Shots: Ranged combat involves "leading the target" – that is, tracking his motion and calculating where to shoot so that the projectile will intercept his path. Many archers and marksmen even claim to be able to read a target's body language, deduce his reaction to seeing a weapon pointed at him (or to the shot itself), and shoot where he'll jump, duck, step, etc. To simulate such strategies, the GM may let fighters use Deceptive Attack (p. B369) with ranged weapons. Since this represents an attempt to put the shot where the target is most likely to dodge, and not the ploys used in melee combat (see *What is . . . a Deceptive Attack?*, p. 111), the defense penalty reduces Dodge but *not* Block or Parry. As usual for a Deceptive Attack, the attacker's effective skill after all modifiers must be at least 10, which makes this option most useful at short range.

Ranged Feints: The target of a ranged attack only gets an active defense if he's aware of the shooter, because then he can read his adversary's body language and guess when the shot will come. As just discussed, though, a shooter can read his *target's* body language, too. This is identical to the situation in melee combat but at longer range, and the GM may rule that a ranged attacker can feint (p. B365) – most often by faking a shot to draw the defender's guard or by "aiming" at one target and then suddenly spinning to shoot at another. A feint at distance is only possible if the attacker could hit the target with his weapon *and* his victim is aware of him (an unaware mark simply gets no defense!). All modifiers that would apply to an actual attack also apply to the feint. When using this rule, those with ranged weapons *can* use All-Out Attack (Feint).

Active Defense Options

Except as noted, these expanded rules apply during any maneuver that permits an active defense. Parry options require a *ready* melee weapon – or, for an unarmed parry, a hand that isn't holding onto someone or something. Anything involving a retreat is only possible if you're standing or lying down, and aren't stunned.

Cross Parry

If you have two ready melee weapons, you can commit *both* to a single parry. This is useful when your opponent has a two-handed weapon or one that's so powerful or heavy that a one-handed parry would be risky. It often involves crossing weapons in an effort to catch the attacker's weapon between them, which is why it's called a *Cross* Parry.

To attempt a Cross Parry, both hands must be able to parry. Work out what your Parry would be with either hand, applying all the usual modifiers – for weapon type (e.g., -1 if using a knife), number of previous parries with that weapon, and so on. Your Parry is the *better* of the two modified scores, +2 for the extra support.

For the purpose of *Parrying Heavy Weapons* (p. B376), treat this exactly as if it were a parry with a two-handed weapon that weighs as much as the two weapons combined. Effective quality is that of the *lowest*-quality weapon. If the rules indicate that a weapon breaks, it's the lighter of the two; if they weigh the same, roll randomly. Remember that two-handed weapons can parry things that weigh up to *twice* BL without being swept aside.

Example: A 2-lb. shortsword is normally susceptible to breakage against weapons that weigh 6 lbs. or more. Being one-handed, a weapon that weighs more than the user's BL will sweep it aside. Crossed with a 1-lb. large knife, total weight would be 3 lbs. It would take a 9-lb. or heavier weapon to cause breakage – and if something *did* break, it would be the knife, not the expensive sword. Furthermore, this would let the defender parry weapons weighing up to 2×BL.

A Cross Parry is always legal against a flail weapon or a kusari, even if it involves two fencing weapons. Apply the usual penalty for parrying such a weapon to the *final* Parry score. If you parry a kusari, the wielder may attempt a free Entangle as usual (p. B406), with success binding *both* of your weapons.

The down side to a Cross Parry is that it ties up both weapons in a way that prevents you from using either for any further parries this turn. In addition, if you critically miss, the *Critical Miss Table* results affect *both* weapons!

Supported Parry: If you have a ready melee weapon and an empty hand, and both can parry, you can put your hand on your weapon to support it as you parry. This simply adds +1 to your Parry with the weapon and lets you parry as if you had a two-handed weapon. No other benefits apply. You cannot use either hand to parry again this turn.

Defense While Grappling

A grappled fighter has -4 to DX (p. B370). This affects combat skills, giving -2 to Block and Parry – and a grappled limb *can't* block or parry. Dodge is at -1, equivalent to the effect of -4 DX on Basic Speed (which isn't reduced). If a technique gives a worse defense penalty (e.g., -4 for Arm Lock), use that *instead*. Finally, the victim can't step or change posture while defending, so he can't retreat or use Acrobatic Dodge.

The grappler has no penalties. However, he can't parry with a limb without releasing its hold on his victim. To retreat or use Acrobatic Dodge, he must let go with *all* of his limbs.

Fencing Parries

As explained under *Parry* (p. B269), a weapon with "F" in its Parry statistic uses the *Fencing Weapons* rules on p. B404. This doesn't mean that it's a European fencing blade – only that it's light and responsive enough to benefit from stances similar to those used with such swords. The special rules for fencing parries are a function of these stances, and apply when wielding *any* weapon sufficiently well-balanced to use with the Main-Gauche, Rapier, Saber, or Smallsword skill.

What Is . . . a Parry?

Martial artists usually use the term "parry" to describe a defense that redirects or deflects an attack without absorbing much of its energy. Intercepting an attack and safely dissipating its energy is called a "block." In ***GURPS,*** these terms have different meanings. "Parry" refers to *either* kind of defense made with a weapon or a limb. "Block" describes either type of defense executed with a shield.

Not every parry involves contact. A parry against an attack on your *weapon* or your *hand* represents yanking the target out of harm's way, and *Parrying Heavy Weapons* (p. B376) doesn't apply to the attempt.

Not all parries involve limbs, either. If you parry a *grappling* technique (e.g., Judo Throw or Piledriver) using Boxing, Brawling, Judo, Karate, Sumo Wrestling, or Wrestling, you can opt to "counter" – twist or sprawl so that your adversary's technique fails – rather than slap away your enemy's hands. This doesn't require a free hand. It resembles a dodge, but it's a parry in game terms.

Neither of the above parries can set up an Arm Lock, Judo Throw, or other grappling technique on your turn. You must use a hand and make contact to do that. When using a combat skill at its DX default or parrying unarmed at DX/2 + 3, your parry is a frantic, brute-force attempt to slap aside the attack, and always involves *some* contact.

Most "fencing stances" present a reduced profile to an adversary in front of you, and place your weapon(s) between your body and your attacker. They generally include some combination of turning sideways, lining up your front and back legs perpendicular to the foe, and making a quarter turn to confront the enemy with *two* fencing weapons. These particulars have implications that the GM may wish to explore in a ***Martial Arts*** game, *if* he deems the added realism worth the extra bookkeeping:

Multiple Parries: One benefit of such stances is that they permit short parries that redirect blows just enough for you to lean out of their path. These efficient movements don't carry your weapon out of line, which means you suffer *half* the usual penalty for multiple parries; see *Number of Parries* (p. B376). This is realistic for frontal attacks, but attacks from the side require you to sweep your weapon out of line. If the GM is willing to keep track, then when counting multiple parries, parries against attacks that don't come from in front give the *full* penalty to future parries.

Retreating: Fencing stances use leg placement that allows swift retreats, giving +3 instead of +1 when you retreat on a parry. Realistically, this benefit won't apply when you Dive or when you retreat by rolling while lying down. In both cases, reduce the retreat bonus to the usual +1. The basic bonus is still +3 when you Sideslip or Slip, though – such moves *are* easier from these stances. For details, see *Retreat Options* (pp. 123-124).

Encumbrance: Since a fencing parry is actually a rapid parry-and-dodge, factors that limit Dodge ought to affect Parry. Encumbrance penalizes Parry just as it does Dodge . . . and logically, Dodge penalties from maneuvers, techniques, and other combat options should also affect fencing parries (but not vice versa). For instance, if a foe successfully parries your kick and sets up a Riposte (pp. 124-125) that reduces your Dodge, the penalty affects your attempts to parry with fencing weapons, too.

Parrying Flails: Fencing weapons' inability to parry flails (see *Flails,* p. B405) isn't a weakness of the fighting stances used but a peculiarity of specific weapons. Most rapiers, sabers, and smallswords are so tip-light that they can only parry massive swung weapons near the hilt. This lets a flail loop close enough to hit! To avoid this, reinforce the weapon with a Cross Parry (p. 121) or a Defensive Grip (pp. 109-111).

Other weapons capable of a fencing parry lack this weakness. Any weapon that *also* works with a non-fencing skill – meaning any skill other than Main-Gauche, Rapier, Saber, or Smallsword – has a mass distribution that lets it parry flails at the standard -4. Examples include the short staff, which can use the Smallsword skill or the Shortsword skill (treat it as a baton), and any rapier heavy enough to use with the Broadsword skill.

Limiting Dodges

There's no limit to the number of times you may dodge *different* attacks during your turn (see *Dodging,* p. B374). You can even try a dodge when attacked with a firearm, provided you're aware of your attacker. This doesn't mean that you're ducking multiple melee attacks and dodging bullets. It simply means that you're moving unpredictably in combat, leading your adversaries to misjudge your position and miss some of the time. You're only actively ducking blows if you try an Acrobatic Dodge, retreat, or dodge and drop. In situations where you're moving but can't dodge – against surprise attacks, after an All-Out Attack, after kicking with a Move and Attack, and so on – your movement is predictable and attackers can easily compensate for it.

The two *optional* rules below make dodging less effective. They may or may not be realistic . . . but they make combat more deadly, which can contribute to a gritty feel that suits some realistic games. It's strongly recommended that the GM exempt fighters with Trained by a Master or Weapon Master from these rules.

Limiting Multiple Dodges: The GM may prefer to regard each dodge as a deliberate attempt to avoid a particular attack. If so, it ought to be difficult to dodge many attacks in a short time – just as it's harder to attempt more than one parry (p. B376) or block (see *Multiple Blocks,* see below). To simulate this, the GM may assess a cumulative -1 per dodge after the first in a turn. The first dodge has no penalty, but subsequent dodges are at -1, -2, -3, and so on.

Restricted Dodge Against Firearms: The GM may feel that because beams and bullets reach their mark at high speed, before the target could move appreciably, dodging should be less effective against them. Optionally, if a fighter is aware of someone with a firearm (make a Vision roll if unsure) *and* selects All-Out Defense, Attack, Change Posture, Defensive Attack, Feint, Move, or Move and Attack on his turn, he may take "evasive movement" with respect to *that one foe* as a free action. If the specified gunman shoots at him before the start of his next turn, he may dodge. All of the usual modifiers apply. To claim the bonus for *Acrobatic Dodge* (p. B375), he must make his Acrobatics roll during his turn. To claim the bonus for *Dodge and Drop* (p. B377), he must dive prone at the end of his turn (this can be part of his free action). He can't dodge firearms attacks from any enemy but the one he specified, evade more than one shooter, or declare his evasive movement after being attacked.

Multiple Blocks

The GM may want to allow fighters to block more than once per turn, by analogy with multiple parries with the same hand or weapon (see *Number of Parries,* p. B376). Since a shield is bulky and must be held in place for long enough to absorb the blow, this is more difficult than repeated parries – apply a cumulative -5 per block after the first. Thus, the first block is unpenalized but subsequent blocks are at -5, -10, -15, and so on. Those with the Weapon Master advantage *halve* these penalties and round in the negative direction (-3, -5, -8 . . .).

Parries with Legs or Feet

If you have two or more functional legs, you can try to ward off a blow to your lower body (feet, legs, or groin) by parrying with a foot or a leg instead of a hand or a weapon. Use your full Brawling or Karate Parry score. There's no special penalty – although Brawling parries have the usual -3 against swung weapons – but there *are* several drawbacks:

- As noted above, this parry is only effective against low-line attacks. It's worthless against attacks above the waist.
- You cannot retreat on the same turn you make a leg or foot parry. If you've already retreated, you cannot attempt such a parry. If you've already tried a parry like this, you cannot retreat – you must stay where you are.
- On a failed parry against a *weapon,* your attacker may choose to hit his original target or the leg you parried with. If your leg suffers more than half your HP in injury, it's automatically crippled (see *Crippling Injury,* p. B420) and you immediately fall down.

You may attempt only *one* foot or leg parry per turn, regardless of skill. However, this is in addition to hand parries. You could theoretically parry once per hand and once with a foot before suffering penalties for multiple parries.

While this parry looks like a kick, it doesn't damage your foe. For a version that does, see *Jam* (pp. 74-75).

Parrying with Two-Handed Weapons

Many great Masters of Defence wrote of the virtues of long, two-handed weapons – notably bills, greatswords, bastard swords, and quarterstaffs – for fending off multiple adversaries. The heft and surface area of such weapons *do* make it feasible for a skilled warrior to angle his weapon to stop several attacks in rapid succession. Usually, he wards off distant blows in a manner that obstructs close-range ones, or trades reach for time by dealing with progressively more distant attackers one at a time as they approach.

If the GM decides that such claims are true in his campaign, he might allow any *ready* Polearm, Spear, Staff, or Two-Handed Sword weapon that's at least two yards long and wielded in two hands to use the following rules:

Dual-Weapon Parry: A weapon like this can make a *single* parry at -1 to deflect *both* halves of a Dual-Weapon Attack (p. B417). Success wards off the two attacks. Critical success means the attacker must roll on the *Critical Miss Table* (p. B556) once for each weapon. On any failure, though, both blows hit!

Multiple Parries: These weapons have *half* the usual penalties for parrying more than once in a turn (p. B376). Thus, successive parries in a turn are at a cumulative -2 per parry after the first – halved to -1 per parry for a Weapon Master! A Dual-Weapon Parry counts as a single parry for this purpose.

Retreat Options

As explained under *Retreat* (p. B377), once per turn, you can step away from any one attacker to get a bonus to all active defenses against his melee attacks. In tactical combat, this lets you step into any adjacent hex that's *further* from your enemy than your starting hex.

Moving away from your adversary is the safest and most effective option in reality, but not the only one. Generalizing the movement component of a defense to work more like a step (see *Step,* p. B368) opens up additional possibilities. You can combine any of these with an Acrobatic Dodge (p. B375).

Dive: If you're *standing* or *kneeling,* you may try to dive under a melee attack. This is similar to the "dodge and drop" used to avoid ranged attacks, but less effective: all your defenses against that attacker are at -1 plus your retreat bonus (+1 for most defenses; +3 for a dodge or a parry with Boxing, Judo, Karate, or a fencing skill). This leaves you prone – in tactical combat, you're lying in your starting hex and the adjacent hex of your choice. Since you're lying down, you have -3 to defend against future attackers! This is risky . . . but if you're cornered and have allies nearby, a net +2 to Dodge *now* might be worth the gamble. You can also dive as a "spoiling measure" against an enemy who tries a takedown; see *Sprawling* (p. 119).

Sideslip: If you're *standing,* you can step aside without retreating in an effort to let the attack pass through your former position. In tactical combat, you may move into any adjacent hex that's the *same* distance from your attacker as your starting hex. All your defenses against that opponent are at -1 plus your retreat bonus (+1 or +3). This gives a net +0 to blocks and most parries. However, dodges and mobile parries end up at +2, making this option useful when you have a defense like that and don't want to give ground to a foe with a longer weapon.

Slip: If you're *standing,* you can try to close the gap between you and your foe as you evade or deflect his attack. In tactical combat, you may step into any adjacent hex that's *closer* to your assailant than your starting hex. You *can* step into close combat with him! Your defenses against that attacker are at -2 plus your retreat bonus (+1 or +3); thus, you have a net +1 at best, -1 at worst. Against a stop thrust (p. B366), add another -1. This tactic is for times when it's actually *more* dangerous to keep your distance than to close with the enemy – such as when he has a pistol or a long weapon, especially if you're unarmed.

It may be possible to buy off the penalties for these options by improving special techniques. Such techniques should always come with risks. You have to trade off *something* to defend at a bonus without giving ground! The most common drawback is increased injury from the incoming attack if the defense fails. See *Defensive Techniques* (pp. 91-92).

Riposte

A gambit popular with martial artists is a parry that carries the attacker's weapon out of line or otherwise compromises his defenses, "setting up" a counterattack – or *riposte* – that exploits the opening. Executed correctly, the riposte is difficult to avoid. However, it often requires the defender to begin his attacking motion early and give up some of his *own* ability to defend. Thus, it can backfire spectacularly!

Harsh Realism for Unarmed Fighters

The ***Basic Set*** treats unarmed combat favorably: there's no "off" hand, Judo and Karate don't have a penalty to parry weapons, and you can't hurt yourself unless you strike DR 3+ or your opponent uses a weapon to parry your attack. See *Parrying* (p. B376) and *Hurting Yourself* (p. B379) for details. This makes it unrealistically tempting to fight barehanded against armed and armored foes.

Kusarigama

Below are optional rules that add risk to unarmed combat. They're *unsuitable* for most games – even "realistic" martial-arts fiction tends to err on the side of a good story – and opposite in spirit from cinematic rules (see *Cinematic Combat,* pp. 125-133). Still, the GM can use both kinds of rules in the same campaign, enforcing harsh realism for most fighters but ignoring it in favor of cinematic options for those with Trained by a Master or Weapon Master!

Bruised Knuckles: Shock may vanish in a second (see *Shock,* p. B419), but injuries make it painful to strike with the hurt body part. Striking at full power with an injured body part inflicts the shock penalty for its accumulated wounds (maximum -4) as if wounded anew. You can avoid this by hitting with less force: take a damage penalty equal to the shock penalty. High Pain Threshold lets you ignore this; Low Pain Threshold means you must make a Will roll at this penalty or flinch and pull your punch anyway!

Defense Limitations: Boxing, Judo, and Karate are at +3 to Parry on a retreat for reasons of mobility. As discussed under *Fencing Parries* (p. 122), this reliance on footwork has its drawbacks. Reduce the +3 to +1 when retreating by *diving* or *rolling* instead of by stepping. As well, apply Dodge penalties due to maneuvers, techniques, combat options, and enemy action to Parry for these skills.

Low-Line Parries: A standing man has -2 to parry an attack on his legs or feet if using a hand or a reach C weapon. Leg and foot parries aren't penalized (see *Parries with Legs or Feet,* p. 123).

Parrying Weapons: Unarmed combat skills – *including* Judo and Karate – parry weapons, swung or otherwise, at -3. Failure by 3 or less means the parry still "succeeds" in the sense that you got your limb in the way. The attacker hits the parrying limb *instead* of his intended target, and rolls his usual damage. In close combat (only), ignore this drawback for Judo and Karate parries vs. rigid crushing weapons – clubs, sticks, etc.

Striking Bone: The shins and skull give their owner DR 0 and DR 2, respectively, but are tougher than this suggests. When you strike the skull with any unarmed attack, *Hurting Yourself* applies. If you strike the leg using a shin kick (p. 112), roll 1d. On a 1 – or on 1-3, if your foe tried and failed a leg parry – you knock shins. Apply *Hurting Yourself* unless you have the advantage Striker (Crushing; Limb, Shin, -20%).

Strong and Weak Hands: Most unarmed fighters are markedly more capable with one hand than the other. When using the "off" hand, you have the usual -4 to skill (and therefore -2 to Parry) *and* -2 to ST (giving -1 to punching damage). In campaigns that use this rule, Off-Hand Weapon Training becomes a Style Perk for all barehanded striking arts, and it and Ambidexterity (p. B39) eliminate *both* penalties.

To set up a Riposte, declare that you wish to do so *before* you parry. Choose a penalty to your Parry score – the larger the penalty, the greater your focus on the counterattack. This cannot reduce your Parry, before all other modifiers except Enhanced Parry, below 8.

Then add the remaining modifiers and try to parry the attack. You *can* retreat – but if your foe steps back after attacking, you might end up too far away for a Riposte.

Success means you parry and set up a Riposte. If your *first* attack next turn uses your parrying weapon against the foe you parried, one of *his* active defenses against it suffers the penalty you accepted on your parry. If you parried his hand or weapon, reduce his Parry with that hand (with either hand, if his attack used two hands). If you parried his shield, lower his Block. If you parried an unarmed attack other than a hand strike (bite, kick, slam, etc.), reduce his Dodge. Apply *half* this penalty (drop fractions) to any other defense he attempts against your attack – including rolls to resist grappling moves that use Quick Contests instead of active defenses (e.g., takedowns).

Failure means you're hit, as for any failed parry. Your attempt gives you no special benefits – although you can still attack your foe on your next turn, if his attack leaves you in any shape to do so.

Example: Harry the Good and Black Odo are dueling with broadswords and medium shields. Harry has Broadsword-16 and Enhanced Parry 1, for a Parry of 12. Odo attacks Harry with his sword and Harry decides to attempt a Riposte. Odo being his mortal enemy, Harry goes for broke and takes the maximum penalty: -4, which drops his Parry to 8. With +1 for Combat Reflexes and +2 for his shield's DB, his final Parry is 11. He succeeds, warding off Odo's attack. This allows him to Riposte with his sword (*not* a shield bash, kick, etc.) on his turn. He does so and succeeds! If Odo tries to parry with his sword, he has the same penalty Harry did, or -4. If he attempts a dodge or block, he has *half* this penalty, or -2.

A Riposte is most effective when you're more skilled than your foe, when you have many defensive bonuses (Combat Reflexes, shield, weapon with a Parry bonus, etc.), or when your target is *already* compromised – e.g., kneeling or on bad footing.

The active defense penalties from Riposte and from feinting *are* cumulative. If on your turn you successfully feint a foe, and on his turn he attacks and you parry at a penalty, then you can Riposte on your *next* turn, forcing him to defend with penalties for both the feint and the Riposte. This takes two turns and offers many opportunities for failure . . . but when it works, it's devastating!

You cannot combine Deceptive Attack and Riposte, though. A Riposte *is* a Deceptive Attack – just one where you're taking a defensive risk instead of an offensive one.

Unbalanced Parries

As discussed under *Parry* (p. B269), a weapon that has a "U" in its Parry statistic is *unbalanced*. You cannot parry with it after using it to attack – although you *can* parry with another weapon, or dodge or block. Likewise, if you use it to parry an attack during a Wait, you cannot use your Wait to attack with that weapon later on in the same turn.

Being unbalanced has nothing to do with becoming *unready* after an attack or a parry – that only happens to weapons with "‡" next to their ST statistic. It just means that the weapon has distinct offensive and defensive stances: attacking carries the weapon out of line for defending, and vice versa. Rules that allow you to attack or parry multiple times per turn work normally. You just can't attack *and* parry.

This does make it tricky to execute Riposte (pp. 124-125). You must parry to do this – and since you can't parry after you've attacked, you must forgo attacking with your weapon for an entire turn, use it to parry an attack, and Riposte on your *next* turn. This makes the option less spontaneous than it is with a balanced weapon like a sword or a staff . . . which is realistic.

A Defensive Attack (p. 100) *does* allow a parry after an attack with such a weapon, and is an important exception to these rules.

Cinematic Combat

Fiction usually depicts combat *dramatically*, as either a heroic contest or a violent ballet. Often the bias is subtle, with the storyteller extending the benefit of the doubt to barely possible feats but otherwise hewing to reality. This is typical of the gossip of real-world martial artists when they relate tales of how *their* style pushes the limits! At the other end of the spectrum are epics that pit the superhuman techniques and unlikely weapons of the heroes against those of the villains, with little regard for physical laws.

Termed "cinematic" because it's most familiar to us from the movies, this dramatic approach isn't unique to the silver screen. This is the world of heroes from earliest myth and legend, battling armies, monsters, and gods; swashbucklers from romantic novels, dueling all comers to certain victory; comic-book ninja and commandos, using sheer skill to make up for small numbers; and masked wrestlers on television, taking hard hits from the top rope and still walking away from the bout.

In campaigns in this vein, the GM should consider using most or all of the optional rules in this chapter that aren't strictly unrealistic but that are possibly *optimistic*. These fall into two main categories:

- Rules that speed up actions or make extra actions possible (or easier), such as *Quick Sheathing* (p. 102), *Multiple Fast-Draw* (p. 103), *Quick-Shooting Bows* (pp. 119-120), *Rapid Fire with Thrown Weapons* (p. 120), *Rapid Strike with Thrown Weapons* (pp. 120-121), *Multiple Blocks* (p. 123), and *Parrying with Two-Handed Weapons* (p. 123).

Faster Combat

You can run extremely detailed fights using ***Martial Arts*** and the ***Basic Set,*** but most gamers find *quicker* combats more fun! Below are tips on how to speed up battle. They're advice, not rules – the GM should use only the suggestions that suit his gaming group.

- *Limit options.* Let the players choose only those options that suit the kind of game you're running: realistic or cinematic, emphasizing unarmed martial arts or weapon styles, etc. Politely but firmly forbid the rest.
- *Encourage options that lower defenses.* Deceptive Attacks, feints, Ripostes, and Stop Hits add complexity . . . but reduced defenses increase the odds that a blow will land and end the fight. This keeps battles from taking forever because nobody ever fails a defense roll.
- *Make a "cheat sheet."* List modifiers and page numbers for all the optional rules you intend to use. An index card is ideal for this – and doubles as a handy bookmark for a page of frequently used rules.
- *Work out everything in advance.* Somewhere on the character sheet of each PC or important NPC, note such things as allowed movement, modified skill, and damage with attacks; jumping distance; slam damage at full Move; and crippling thresholds (damage over HP/2 and HP/3).
- *Require speedy decisions.* Tell each player to have his actions ready when his turn comes. If he doesn't, he must take some "default" action agreed upon in advance: All-Out Defense, Do Nothing, repeat his previous action, etc. "My PC is a kung fu master! He'd know what to do!" doesn't hold water. A second is still a second, even for a kung fu master. There's plenty of time to weigh options while others are taking *their* turns.
- *Encourage "trademark moves."* Have each player work out a few "standard operating procedures" in the form of an entire turn's worth of actions calculated in advance; e.g., "Committed Attack (Strong) and Rapid Strike: thrust to the vitals at skill 13, then a Deceptive swing to the torso for -2 defenses at skill 12." These are good "default" actions for the player who can't make up his mind!
- *Hold players responsible for remembering options.* If you let the players use a specialized rule, make it *their* job to remember its details and location. If they can't remember the rule, their *characters* decide not to use the tactic.
- *Have major wounds end fights.* An NPC should flee or surrender if he takes a major wound (or crippling wound), unless he has a serious mental problem like Berserk. Don't keep going until everyone on one side is unconscious or dead. It takes forever and isn't especially realistic *or* cinematic.

- Rules that make fighters more mobile – especially if they involve acrobatics! These include *Acrobatic Stand* (p. 98), *Feints Using Non-Combat Skills* (p. 101), *Acrobatic Movement* (pp. 105-107), *Acrobatic Attack* (p. 107), *Flying Attack* (p. 107), and *Retreat Options* (pp. 123-124).

None of these options is absolutely cinematic. Used conservatively, they might even be realistic. Nevertheless, a campaign that features a large proportion of these rules will *feel* cinematic, while one that omits most of them won't – regardless of the GM's intent!

Some optional rules offer additional detail that *doesn't* suit a fast-and-loose cinematic game, the worst offenders being *Postures, Hit Locations, and Techniques* (pp. 89-99), *Fast-Draw from Odd Positions* (pp. 103-104), *A Matter of Inches* (p. 110), *Close Combat and Body Morphology* (pp. 114-117), *More Actions After a Grapple* (pp. 117-119), and *Fencing Parries* (p. 122). *Harsh Realism for Unarmed Fighters* (p. 124) and *Limiting Dodges* (pp. 122-123) are meant for realistic characters, and would ruin the fun of cinematic warriors. Finally, *Untrained Fighters* (p. 113) doesn't suit PCs (even untrained ones) in a cinematic campaign – although it's a good option for "cannon fodder" NPCs!

Below are additional rules that can help build a cinematic feel. Except for *Multiple Attacks,* which appears here because it refers to several superhuman advantages, most of these *are* strictly cinematic. Use them in a realistic campaign at your peril!

Multiple Attacks

Multiple attacks by the same fighter in a single turn almost define cinematic combat, although they can occur even in realistic campaigns. These guidelines help explain how the many options for multiple attacks interact. They apply to all attacks, but focus on melee combat; see *Ranged Attack Options* (pp. 119-121) for additional rules for rapid *ranged* attacks.

Each combatant – however numerous his limbs and whatever his weaponry – starts with *one* attack per All-Out Attack, Attack, Committed Attack, Defensive Attack, or Move and Attack maneuver, and many normally select only *one* of those maneuvers per turn. Three situations modify these basic assumptions:

Altered Time Rate (p. B38): Each level of the Altered Time Rate advantage bestows one additional *maneuver* per turn – not just an extra attack! The remaining rules in this section apply *separately* to each All-Out Attack, Attack, Committed Attack, Defensive Attack, or Move and Attack maneuver chosen.

Extra Attack (p. B53): Each level of the Extra Attack advantage gives one additional *attack* per All-Out Attack, Attack, Committed Attack, Defensive Attack, or Move and Attack maneuver. Extra Attack benefits *only* those maneuvers. For instance, someone with Extra Attack 2 could use Attack to make three attacks instead of one; if he also had Altered Time Rate 1, he could choose two Attack maneuvers and make three attacks with each.

All-Out Attack (p. B365): Selecting All-Out Attack (Double) lets a warrior add *one* attack to his usual number, with that maneuver only. If he has Extra Attacks, he still adds one attack – he doesn't double his attacks! All-Out Attack (Determined), (Long), and (Strong) give no extra

attacks, but their benefits apply to *all* attacks with that maneuver. For those with Altered Time Rate, the effects of All-Out Attack don't carry over to later maneuvers; for instance, a super who chooses All-Out Attack (Double) and then Attack would get one extra attack with his All-Out Attack but only the usual number of attacks with his Attack.

Attacks can involve any combination of unrestrained body parts (hands, feet, Strikers, etc.) and ready weapons. Weapons that become unready after an attack can strike only once. Kicks are at -2 unless improved via a technique. Attacks with the "off" hand are at -4 for those without Ambidexterity (p. B39) or Off-Hand Weapon Training (p. 50).

Once per All-Out Attack, Attack, Committed Attack, Defensive Attack, or Move and Attack maneuver, a fighter who desires more attacks may trade *one* (and only one) of his attacks for *one* of these special options:

Rapid Strike (p. B370): Unless he took Move and Attack, a warrior can split one of his melee attacks into *two* attacks with the same weapon or *two* unarmed attacks, at an extra -6. Those with Trained by a Master or Weapon Master take half the penalty, and may be able to attempt three or more attacks; see *Rapid Strike* (below).

Combination (p. 80): A martial artist who has studied a Combination can substitute it for an ordinary Rapid Strike. Otherwise, treat this as a Rapid Strike.

Dual-Weapon Attack (p. B417): A fighter with two ready weapons in different hands can use one of his attacks to attack with both weapons at once. These two attacks are at an extra -4, but the Dual-Weapon Attack (p. 83) technique lets cinematic martial artists reduce this penalty. This option *is* allowed for two unarmed attacks with different hands.

Rapid Strike

In a cinematic campaign – especially a *chambara* or *wuxia* one – the GM may wish to allow more than two attacks with a Rapid Strike (p. B370). If so, the penalty becomes -6 per extra attack: -6 for two attacks, -12 for three, -18 for four, and so on. This applies to *all* the attacks; it doesn't accumulate gradually. For instance, three attacks would all be at -12.

Individuals with Trained by a Master or Weapon Master may halve this penalty; e.g., a Weapon Master could make four attacks at -9. In addition, the GM may rule that only those who have these advantages can attempt three or more attacks with a Rapid Strike.

The GM is free to cap the maximum number of attacks possible with a Rapid Strike. However, this rule is fairly self-limiting: a hero *could* attempt 10 attacks . . . but even with Weapon Master, he would be at -27! To ensure that only skilled warriors can make large numbers of attacks, simply limit adjusted skill to 12.

Feints and Multiple Attacks

A fighter can trade melee attacks for feints (see *Feint*, p. B365) on a one-for-one basis. Modifiers for maneuvers and attack options *do* affect skill for this purpose; e.g., a feint during a Rapid Strike is at -6. A warrior can use Move and Attack to "Move and Feint," but at -4 and with a skill limit of 9, it's self-defeating.

A feint that precedes attacks on the same subject during the same maneuver affects the victim's defenses against those attacks; thus, All-Out Attack (Feint) is no different from using All-Out Attack (Double) to feint and attack the same target. If the attacker uses the last attack of a maneuver to feint a foe, its benefits apply to attacks against that opponent during his *next* maneuver. This maneuver will nearly always occur on his next turn – but after one turn, the feint is no longer effective.

It's "legal" but not terribly effective to attempt multiple feints against the same enemy in the space of a single maneuver. Only the *most recent* feint applies, even if it wasn't the *best* one. It's possible to "undo" a good feint with a lousy one!

A feint *never* unreadies a weapon, even if an attack would.

Multiple Targets

A fighter who has two or more melee attacks with a given maneuver can use them to attack or feint multiple foes. He can alternate between opponents in any order he wishes – but each *full* yard (hex, on a battle map) he skips between targets "wastes" one attack. Thus, it's most efficient to attack adjacent adversaries from right to left or left to right, striking each enemy in succession.

What Is . . . a Rapid Strike?

A Rapid Strike (p. B370) is normally two distinct attacks – one after the other – but it doesn't have to be. It might instead be a single motion that connects more than once: a punch with an elbow behind it, a sword cut calculated to hit two legs at once, a knee to the groin that ends with a stamp to the foot, and so on. Since the two blows don't hit the same location at the same time, this is just a "special effect." The target may defend normally against each attack, and has his full DR against both.

Other Rapid Strikes consist of a blow with a vicious follow-up. The target still gets normal defenses and DR against this. For instance, a knife thrust followed by a cut could represent stabbing and then tearing. The victim might twist so that the knife slides out (dodge), use his shield to shove you away (block), or restrain your wrist (parry). His armor DR would affect the second attack – despite the knife being inside his armor – because you have to rip through him *and* his armor. Similar logic applies to a stamp-and-grind with the heel, chop-and-draw with a sword, a grapple that nabs one arm and pulls it across the body to trap the other, and so on.

The GM should permit anything that applies on a per-attack basis – poison or magical flame on a blade, Innate Attack with Aura, and so on – to work once per attack, not just once per Rapid Strike. Simply assume that the target is exposed for longer or over a greater proportion of his body.

Because such interpretations have no game effects, you may take dramatic license when describing a Rapid Strike. This is good roleplaying!

Example 1: An attacker with two attacks can only attack adjacent targets (in adjoining hexes, on a map). If he tried to attack two opponents with a gap between them, he'd lose an attack . . . and be back to just one attack.

Example 2: Someone who has three attacks and two adjacent opponents could make two attacks on one foe and one on the other, in any order. If his enemies were one full yard apart, he could only attack each of them once – skipping a yard would use up an attack. If he had a third adversary adjacent to the first two, he could opt to attack each of them once, moving from left to right or right to left. Skipping the one in the middle would be like fighting two people a yard apart, and cost him one attack.

When executing a technique specifically designed to engage multiple opponents, its special rules *always* supersede this general rule. For examples, see *Grand Disarm* (p. 84) and *Whirlwind Attack* (p. 88).

Grappling and Multiple Attacks

Any grappling move that counts as an attack is permitted as part of a multiple attack sequence during a maneuver. You must usually attempt *different* actions (takedown and pin, kick and break free, break free and grapple, etc.). You can't make repeated attempts at a takedown, pin, or lock; try to injure an opponent repeatedly through strangling or an Arm Lock, Neck Snap, etc.; or take multiple shots at breaking free. However, you *can* try the same move against different body parts or opponents, grapple and attempt an instant follow-up, or – if making an attack that must follow a parry, such as Arm Lock – insert attacks between the parry and the follow-up. For instance, if you parried using Judo and then made two attacks, you could feint and *then* use Arm Lock.

Chambara Fighting

Japanese *chambara* movies and Hong Kong *wuxia* films use wires and camera angles to create the illusion of warriors catapulting through the air, battling while balanced on bamboo canes or telephone wires, leaping from rooftop to treetop, and generally ignoring gravity. Traditionally, fighters in these tales *aren't* comic-book superheroes, capable of flight and telekinesis. They're just so skilled at the martial arts that they can perform the most fantastic feats from martial-arts legend.

The rules below make it possible to simulate this kind of action. They make *no* effort to be realistic! Only use them in highly cinematic campaigns – and only for combatants who have either Trained by a Master or Weapon Master. Even in the most over-the-top movies, only *true* masters can perform these stunts.

Chambara Movement

Mighty leaps and acrobatic flips almost define the genre. In a chambara campaign, a fighter with Trained by a Master or Weapon Master and both Acrobatics and Jumping at DX level or better may leap his full jumping distance in combat, contrary to *Jumping During Combat* (p. B352). Work out high- and broad-jump distance – for standing and running jumps – and record it on the character sheet to avoid having to figure it out in play. This greatly benefits Flying Attacks (p. 107) and evading by jumping (see *Evading,* p. 105).

The GM should allow *Acrobatic Stand* (p. 98) and *Acrobatic Movement* (pp. 105-107), and *halve* all penalties for these stunts (rounding in the negative direction). For instance, the penalty for Acrobatic Stand becomes -3. In the case of multiple, cumulative penalties, find the final penalty and halve the total.

Other Multiple Actions

The *Multiple Attacks* rules apply only to the All-Out Attack, Attack, Committed Attack, Defensive Attack, and Move and Attack maneuvers. A fighter can "trade" attacks for feints, but he can't sacrifice attacks to perform tasks covered by other maneuvers. He cannot make multiple posture changes with Change Posture (but see *Acrobatic Stand,* p. 98), hastily Ready an unready weapon (but he can *draw* several weapons; see *Multiple Fast-Draw,* p. 103), count his turn as more than one second of Concentrate, or Aim or Evaluate on a turn when he attacks. *Exception:* Individuals with Altered Time Rate can do all of these things by taking suitable maneuvers on their turn!

Chambara Attacks

A trademark of chambara fighting is attacking on the move, striking foes on all sides. In a chambara campaign, the GM should use the expanded rules for Rapid Strike (p. 127) to let martial artists attack as often as their skill allows.

A chambara fighter with more than one melee attack thanks to Extra Attack or All-Out Attack (Double) can "trade" some of these for extra steps on a one-for-one basis. He can insert steps anywhere in his attack sequence – even in the middle of a Combination, Dual-Weapon Attack, or Rapid Strike (none of which can be traded for steps).

Example: Serena has Extra Attack 1, giving her two basic attacks. Taking an Attack maneuver, she converts one into a Rapid Strike for three attacks at -6 apiece (-12, halved for Trained by a Master). She trades the other for a step. With the basic step allowed on an Attack, she gets *two* steps. She elects to attack, step, attack, step, and attack again!

Naturally, chambara fighters can use both *Flying Attack* (p. 107) and *Acrobatic Attack* (p. 107). When making an Acrobatic Attack, add the -2 to Acrobatics to any penalty for a specific stunt and then halve it as usual. Also halve the -2 to attack, making it -1, just like a Flying Attack. The GM should invent suitable techniques to capitalize on this. There are three main varieties:

- Acrobatic attacks that let the hero buy off the -4 to hit for a Move and Attack and -1 for an Acrobatic Attack, and ignore the skill limit of 9 when doing so. These have a basic default of -6.

● Flying attacks that permit the fighter to eliminate the -4 to hit for a Move and Attack and -1 for a Flying Attack, and bypass the skill limit of 9. These also have a default of -6.

● Spinning attacks that allow the martial artist to reduce the -5 to hit for a Wild Swing and avoid the usual skill cap of 9. These, too, default at -6.

See *Creating New Techniques* (pp. 89-95) for details. The benefits of these techniques are not "free" to everybody with Trained by a Master or Weapon Master. However, warriors with one of these advantages, Acrobatics and Jumping at DX, *and* at least a point in an offensive technique may attempt an "acrobatic," "flying," or "spinning" version of their technique at default (-6), with benefits as described above.

Chambara Defenses

Retreating great distances by flipping and leaping is the definitive chambara defense! In chambara campaigns, those with Trained by a Master or Weapon Master should have access to the expanded rules under *Retreat Options* (pp. 123-124), even if other fighters do not, and all of the following options:

● They get +3 to *all* active defenses when they retreat – including blocks and parries that would normally get only +1.

● They may retreat more than once, and more than a yard at a time, up to a distance equal to their Move each turn. These retreats get the usual +3, but there's a cumulative -1 per retreat after the first. Any retreat that exceeds one step is at an extra -1 per yard. For instance, a Move 7 fighter could retreat 3 yards at +0 (+3 for retreating, -3 for 3 yards), 1 yard two times at +2 and +1 (the basic +3, -1 and -2 for the second and third retreat), and finally 2 yards at -2 (+3, -2 for 2 yards, -3 for the fourth retreat).

● They can use Acrobatics to enhance *any* defense, not just Dodge. Treat this just like *Acrobatic Dodge* (p. B375), except that it also works with Block and Parry. Any number of defenses can be acrobatic, at a cumulative -1 to Acrobatics per defense after the first.

Another feature of chambara movies is that attacks from behind don't surprise veteran warriors! A fighter with Combat Reflexes *and* Trained by a Master or Weapon Master can sense such an attack. It counts as coming from the side – not the rear – exactly like a "runaround" attack (p. B391), giving the defender -2 to active defenses. Practitioners of any style can learn the Timed Defense technique (p. 89) to buy off even this penalty.

Lastly, the GM should permit all options that enable or enhance multiple blocks and parries – notably *Multiple Blocks* (p. 123) and the two special rules under *Parrying with Two-Handed Weapons* (p. 123). All chambara fighters should be allowed to learn Dual-Weapon Defense (p. 83), too, regardless of their style.

Special Feats for Cinematic Skills

Three cinematic skills are *essential* in chambara campaigns: Flying Leap (p. B196), Light Walk (p. B205), and Lizard Climb (pp. 61-62). These have all their usual functions, plus a few additional ones.

Flying Leap

A triple-powered leap is sometimes overkill in combat. A jump that merely *doubles* jumping distance – and ST, for a Drop Kick, Flying Jump Kick, etc. – is at +5 to skill.

Wuxia movies simulate flying leaps by suspending actors from wires, giving such jumps a lazy, floating appearance instead of an aggressive, ballistic one. Within the story, the explanation is often "lightening the body." If you leap like this, you still have double or triple your jumping distance – but use only your *normal* jumping distance to work out your Move in a slam, and your unmodified ST for a Drop Kick, Flying Jump Kick, etc. This kind of jump is at +5 to skill.

These modifiers only cancel out penalties for hasty use of the skill – they never give a net bonus. You *can* combine the two options for *+10* to skill. This negates the -10 to use the skill instantly and permits a jump for double distance with no bonuses to ST or slam damage, which is still very useful when evading or making a Flying Attack.

Flying Leap costs the usual 1 FP per use with these options, but since they're both less exhausting than full-powered use, success by 5+ means there's no FP cost at all!

Light Walk

You can use Light Walk to move across almost any fragile or flimsy surface without falling through, including a glass skylight (no modifier), tent (-2), hanging laundry (-4), dense hedge (-6), or canopy of leaves at treetop height (-8). Roll once per turn. This is a free action. Success lets you take your turn normally. Failure means you start to fall. You can still act, but you should probably use your turn to grab something!

Light Walk also allows feats of balance. This is much easier than walking on thin ice or treetops, because it's actually *possible* in real life! All such attempts are at +8, plus the Size Modifier for the *thickness* of whatever you're trying to stand on (see p. B550). For instance, a 1" rail (-11 for thickness) would require a roll at -3. Once again, roll every turn.

You can even try to leap up and land on an enemy's weapon! This requires an Attack maneuver and is all you can do that turn. Roll against Light Walk to hit, at the standard penalty for weapon size. Treat failure as a missed kick. Success means you hit. Your foe can try any active defense – he may injure your foot if he parries (see p. B376) – but if he fails, you're standing on his weapon! He cannot use it to attack or parry. He can take a Ready maneuver to dump you off (roll vs. Light Walk to land; failure indicates a fall), but this unreadies his weapon. If he chooses to fight with another weapon, kick, etc., he's at -4 to hit.

In all cases, if you're knocked back (see *Knockback*, p. B378), apply the penalty for the surface you're balancing on to your roll to stay standing. You may use the highest of DX, Acrobatics, Judo, or Light Walk. Perfect Balance gives its usual +4. If you fail, you fall *through* or *off* the surface!

Lizard Climb

You can use this skill for movement in combat. Each yard of movement along a wall costs +1 movement point; see *Movement Point Costs* (p. B387). You can grab walls and let go multiple times in the space of a turn, but you must make a new skill roll each time you cling to a wall, with failure meaning a fall that ends your turn.

Mind Games

An important part of martial-arts mythology, especially in cinematic settings, is that "martial artist" is as much a mindset as it is a skill set. These optional rules address this philosophy.

The Contest of Wills

In martial-arts films and samurai legends, entire battles are fought in the mind. The warriors lock eyes, and then one suddenly breaks eye contact and walks away, beaten . . . or charges, knowing that he's doomed.

To initiate a Contest of Wills, the challenger must Concentrate and lock eyes with his opponent. If his foe accepts the challenge, he must take a Concentrate maneuver as well. If he rejects it, he must make a Will roll to avoid being drawn in anyway. Success means he can take his turn normally and cannot be challenged again this combat.

Once the Contest begins, roll a *Regular* Contest of Will each turn. Either fighter may substitute Intimidation or Mental Strength for Will, if better.

Modifiers: Fearlessness; +5 each for Indomitable and Unfazeable; the better fighter gets +1 per three levels by which his best combat skill exceeds his opponent's. Reputation can go either way. For instance, -2 for being a ruthless killer would give +2, but +2 for being merciful might give -2. In some settings, Status and other reaction modifiers apply.

Roll once per turn until somebody wins. Find the winner's margin of victory as if this were a Quick Contest and make a reaction roll for the loser, applying the margin as a bonus. Use the "potential combat situation" results on the *Reaction Table* (p. B560). If this drives the loser to attack, he has the winner's margin of victory as a penalty to his attack rolls!

This rule is for PCs and major NPCs. See *Fear and Martial Artists* (below) for a way to demoralize thugs.

Concentration and the Martial Arts

Losing your cool can mean losing the fight! If a martial artist fails his self-control roll for a mental disadvantage that would *distract* him (GM's opinion), he fights at -2 to DX. This includes submitting to Bad Temper in any fight, Lecherousness when facing a sexy foe, etc., but *not* things like Berserk and Bloodlust.

Fear and Martial Artists

Fear can be a killer, too. A failed Fright Check (p. B360) is likely to stun the victim and make him easy prey. The GM may require Fright Checks from combatants who suffer dismemberment (p. B421) or lose an eye to an Eye-Pluck (p. 72), a nose or an ear to Pressure Secrets (p. 59), or any body part to a bite (see *Teeth,* p. 115). While most Fright Checks in combat are at +5 for the heat of battle, those for gruesome injuries are not!

Heroic PCs can use Intimidation (p. B202) on minor NPCs. The GM may want to quantify the +1 to +4 for displays of strength as +1 per five of their number the NPCs know the heroes have defeated, to a maximum of +4. This doesn't have to be in the same fight! It affects soldiers who hear tales from buddies who survived the last battle, thugs who see the heroes emerge unscathed from a room guarded by a dozen of their comrades, etc. Reputation is another important modifier; see *The Contest of Wills* (above). Enough bonuses make even default skill (Will-5) effective!

Faking It

To convincingly fake martial-arts skill based on what you've seen in demos and movies, make a DX-based Performance roll. Success means your audience believes you! This lets you attempt Intimidation using the rules for specious intimidation. Critical success means you pass yourself off as a master, which may have minor social benefits.

To portray the martial arts on stage or screen, roll against Stage Combat (p. B222). This defaults to Combat Art/Sport skills at -2, and to combat skills and Performance at -3. For scenes involving multiple performers, roll against the lowest of the *worst* performer's skill and the choreographer's Fight Choreography skill (p. B198).

Such tricks provide no combat benefits and are unlikely to fool *real* martial artists! Against a trained fighter, treat these rolls as Quick Contests. He gets an IQ-based roll against his best combat, Combat Art, or Combat Sport skill. You must *win* to convince him you're the real thing.

You can end a jump stuck to a wall that's within reach of your leap. To do so, make a Lizard Climb roll when you land.

If you're against a flat surface, with enough room to climb at least half your height, you can try a Lizard Climb roll to retreat *upward* as part of an active defense. Apply the usual skill modifiers; for instance, if you leave hands free to parry or block, you'll have -2 per extremity less than four dedicated to the climb. Success gives a further +1 to your retreat bonus, making it +4; critical success means your defense succeeds automatically! Failure or critical failure means the defense fails or critically fails.

Some common stunts seen in *wuxia* movies combine Lizard Climb with Light Walk. For instance, running up a bent bamboo cane, about 3" across, would require a Lizard Climb roll (at +2 for bark, +2 for a slope, but -4 for both hands free) *and* a Light Walk roll (at +8 for a feat of balance but -8 for a 3" cane), with failure on either indicating a fall.

Extra Effort in Combat

The GM may regard *Extra Effort in Combat* (p. B357) as a natural fit to a cinematic ***Martial Arts*** game. And it is! The decision as to *who* may use those rules will influence the campaign's overall flavor, though.

If only individuals with Trained by a Master or Weapon Master can employ extra effort, and if the PCs have those advantages while "cannon fodder" NPCs do not, then combat will move *quickly.* The masters can spend FP to buy a decisive edge over their adversaries and defeat several times their number. This suits games in the action-movie spirit: the heroes emerge from battle tired but victorious after defeating vast hordes of inferior foes!

If both sides have special advantages and can use extra effort, then battles may last a *long* time. Skill being equal, if one side uses extra effort, then the other must do the same to compete . . . and a Feverish Defense standoff between expert fighters results in few fight-stopping hits. This *is* in keeping with showdowns between masters in martial-arts fiction. While fine for dramatic finales, it's a little boring as standard fare.

If *anyone* – even the man on the street – can draw on extra effort, then masters may conserve their energy. They can make multiple accurate attacks *without* extra effort, and have abilities that enhance defense and damage. They'll force mundane foes to use extra effort to keep up, thereby wearing down their enemies to the point where they're easy prey. This supports the myth that true masters make fighting look effortless. It's also a fair way to prevent PCs with special advantages from outclassing those without, keeping combat fun and interesting for everyone.

Existing Options

The extra-effort options on p. B357 generally work as written with the rules in this chapter, but a few notes are in order:

Feverish Defense: This is incompatible with Committed Attack (pp. 99-100) as well as with All-Out Attack. The +2 to one defense roll "stacks" with the +1 for Defensive Attack (p. 100) or +2 for All-Out Defense (Increased Defense). *All* of these bonuses are cumulative with the +1 to parry frontal attacks with Defensive Grip (pp. 109-111).

By using all of these options and retreating, a fighter can buy a lot of time. This can slow down combat. To keep things dramatic, the GM may rule that only combatants in the throes of mental disadvantages can go to such extremes. For instance, a hero with Sense of Duty could sacrifice himself in a retreating battle down a narrow corridor as his allies escape, or a villain with Cowardice could clutch his rapier in both hands and be beaten back to the wall, to collapse in exhaustion rather than shed blood.

Flurry of Blows: This is "legal" for any number of attacks made with a Rapid Strike during an All-Out Attack, Attack, Committed Attack, or Defensive Attack. The attacker can buy this benefit for some or all of his blows. The cost is 1 FP *per attack.* Those with Trained by a Master or Weapon Master halve the penalty again (drop all fractions). For instance, a Weapon Master making a Rapid Strike for four attacks would have a basic -18, halved to -9 for his advantage. He could use Flurry of Blows to be at only -4 for one, two, three, or all four attacks. This would cost him 1-4 FP.

Mighty Blows: This is exclusively an option for Attack; it doesn't work with All-Out Attack, Committed Attack, Defensive Attack, or Move and Attack – or with techniques based on these maneuvers. It *is* compatible with techniques that allow bonus damage on a regular Attack. A fighter with multiple attacks thanks to Extra Attack, Dual-Weapon Attack, Rapid Strike, or a Combination may apply this to more than one attack, but the cost is 1 FP *per attack.*

New Options

These options obey the ground rules given on p. B357. You must declare that you're using extra effort – and spend FP – *before* you roll the dice. Critical failure causes 1 HP of injury in addition to any other results.

Giant Step: If you take an Attack or Defensive Attack maneuver, you can spend 1 FP for one extra step. You're buying mobility similar to All-Out Attack, Committed Attack, or Move and Attack without the drawbacks, and *cannot* combine this option with those maneuvers. You may take your extra step before or after you attack; you *can* step, attack, and step again. When using *Chambara Attacks* (pp. 128-129), this extra step work identically to steps gained from sacrificing attacks, and you can combine the two. Critical failure on the attack causes 1 HP of injury to the leg (not the weapon arm), as if dodging.

Great Lunge: If you make an Attack, Committed Attack, or Move and Attack in melee combat, you can spend 1 FP to get the effects of an All-Out Attack (Long) (pp. 97-98) *without* sacrificing your defenses. These include +1 reach, -2 damage or -1 damage per die with *swinging* attacks, and the option to drop into a crouch. This is incompatible with Defensive Grip, and with the All-Out Attack and Defensive Attack maneuvers.

Heroic Charge: If you make a Move and Attack, you can spend 1 FP to ignore both its skill penalty and its effective skill cap in melee combat. If you do a Flying Attack (p. 107) or Acrobatic Attack (p. 107), the extra -1 or -2 to hit still applies. Likewise, you're still subject to *defensive* penalties (no parry or retreat). Chambara fighters may spend 1 FP to ignore the -6 default penalty for attempting the "acrobatic" or "flying" version of a technique.

Rapid Recovery: If you attack with an unbalanced weapon (one with "U" in its Parry statistic) during an Attack maneuver or with *any* weapon using Move and Attack, and a foe later attacks you, you can spend 1 FP to parry with that weapon. You must spend the FP before you try your first parry – but unless this parry critically fails, the weapon can continue to parry afterward, at the usual penalties. In effect, you've returned the weapon to its guard position. This is one of the benefits of Defensive Attack; there's no point in taking this option with that maneuver.

You may use no more than *one* offensive option (Flurry of Blows, Giant Step, Great Lunge, Heroic Charge, or Mighty Blows) and *one* defensive option (Feverish Defense or Rapid Recovery) per turn.

More Cinematic Combat Rules

The unrealistic *Cinematic Combat Rules* (p. B417) – particularly *Cannon Fodder, Flesh Wounds, Melee Etiquette,* and *TV Action Violence* – are extremely appropriate for a *chambara*-style or Hollywood action-movie game. Some gamers might find them too silly for a serious campaign, though – even one that uses many other cinematic options. Below are further thoughts in this vein. Not all are *rules!* A few are advice to the GM on how to roleplay NPC adversaries.

Unarmed Etiquette

Weapons and shields *can't* parry or block unarmed attacks. This applies to PCs and NPCs alike. Against an unarmed foe, it may be necessary to discard weapons to survive – a weapon in each hand leaves only dodges against unarmed strikes! This reflects how swordfights work in some movies: fighters never use a blade to stop an unarmed attack painfully. *Unarmed* defenses that injure – Aggressive Parry and Jam – aren't affected.

Gun Control Law

If the PCs don't have firearms of their own, ordinary thugs won't use guns except to *threaten* them. When the thugs *attack,* they'll use bare hands or melee weapons as well. "Name" adversaries (a crack sniper hired to kill the PCs, the boss' right-hand man, etc.) may use firearms, but won't defend against attacks intended to disarm them.

Imperial Stormtrooper Marksmanship Academy

If the *Gun Control Law* is broken, the bad guys won't hit with the first shot (or *shots,* if using rapid fire). This always lands close enough that the PCs know they're under fire, but never does any damage. The GM may extend this protection for multiple turns if the PCs are using *Acrobatic Movement* (pp. 105-107) to get away instead of fighting!

Shaking It Off

A PC can undo the effects of a failed HT roll to avoid knockdown or unconsciousness by spending 1 FP immediately after he fails the roll. He feels woozy (the lost FP), but he shakes it off and stays standing. This is useful against knockdown by a 1-HP blow to the head or vitals that *Flesh Wounds* cannot affect (it always lets 1 HP through, which might still cause knockdown), and to weather attacks that *TV Action Violence* won't avert (such as unarmed blows to the torso and explosions that allow no defense roll).

Shout It Out!

In some comedic martial-arts films, fighters loudly name each move from a hidden style before they execute it. Attackers don't merely *use* "Death Palm," "Dragon's Claw," or "Eagle's Beak" . . . they *shout it out.* These attacks are supposedly unstoppable except by potent defenses – but merely knowing a counter isn't enough. The defender must shout out *his* move, too!

To simulate this, the GM may let players *make up* style names and buy Style Familiarity (p. 49) with these fictitious styles at the standard point cost. Each perk represents an entire body of hidden moves. The person who named the style must describe the general "flavor" of its moves; e.g., "Monkey King style is inspired by the monkey's agility and cunning."

A fighter can exploit such a Style Familiarity in two ways. He can shout out the name of an attack before launching it, giving the target -1 to defend against it, *or* he can call out the name of a defense, gaining +1 to his defense roll. If the attacker announces his attack ("Cobra Fist!") *and* the defender names his defense ("Snake Charmer!"), the modifiers cancel out.

These attacks and defenses aren't *actual* techniques like those in Chapter 3 but names the player makes up on the spot in keeping with the spirit of his fictional style. For instance, the Monkey King fighter might defeat a "Crane Style" defense with a "Monkey Snatches Fish from Bird" strike. The actual moves can be standard techniques – even ordinary attacks and parries. The martial artist uses his secret training to enhance them, naming them aloud to channel his chi.

A warrior can shout out only *one* technique – offensive or defensive – per style per battle. Once he has used a move from a secret style, it won't catch his foes off-guard again. If he has several special Style Familiarities, each represents a *different* body of hidden teachings that he can use in the same battle. Opponents might not be surprised by another Monkey King attack – but they won't expect a Righteous Southern Fire move! Reset the count in the next fight, even against the same adversaries. In the movies, old rivals always bring new tricks to a rematch.

The GM might wish to limit martial artists to one such Style Familiarity per full 50 character points they have, to ensure that experienced masters know more secrets than young Turks. He can also introduce *special* moves that have only one specific counter . . . in which case the PCs must develop it on their own or find an instructor who can teach it (an excellent time for *The Training Sequence,* p. 147).

Proxy Fighting

A staple of humorous martial-arts movies is the martial artist who fights indirectly using items found around the battlefield. He doesn't wield these objects as improvised weapons – he uses them as "proxies" through which he can deliver his usual techniques! For instance, he might deliver a Jump Kick by leaping up and kicking a typewriter at a foe, grapple another enemy by slamming a door on him, and parry an attack by spinning an office chair into his assailant's path.

A fighter can only use an object this way if nobody else is holding onto it, its weight doesn't exceed his Basic Lift (use 1/10 the weight of a suspended or rolling item, such as a door or a cart), and it can move to reach the desired target or block the incoming blow. If *all* these conditions are true, the martial artist can use any of his normal techniques at -4. When punching or kicking an object at someone out of reach, add the usual range penalty (see p. B550). Rather than bog down combat with math, assume that maximum range is ST/2 (round *up*).

A skilled martial artist can also use *people* this way – traditionally, young disciples, hapless sidekicks, or adversaries.

For this to work, the master's best melee combat skill (armed or unarmed) must exceed his victim's. He can either knock his proxy's body into other people or grab his unwitting ally and manipulate him like a giant puppet. In either case, if the proxy is armed, the controller *can* use the weapon (at default, if he lacks the necessary skill).

If the master merely wishes to slap another person into his foe, his proxy must be within *his* reach and his intended target must be within his *proxy's* reach. The proxy's facing is unimportant. The controller may attack his proxy with any strike (not a grapple) at an extra -4 plus the penalty to hit the "borrowed" body part: -2 for an arm or a leg, -5 for the head. If he hits and his proxy fails to defend, the proxy is unharmed but the commandeered body part strikes the desired target exactly as if the master had landed his technique directly.

To use someone else as a puppet requires a successful grapple with both hands from behind. The martial artist puts his hands on his proxy's arms, positions his legs behind the other person's legs, and so on. This takes a *full* turn.

On each later turn, determine whether the grappled proxy is willing or unwilling. A willing proxy must be conscious and take a Do Nothing maneuver on his turn (he can still shout and make big eyes). An unwilling proxy is anyone able to protest being used this way, most often an enemy. An unwilling proxy may try to break free as usual on his turn. Someone who is stunned – e.g., a wounded foe or a mentally stunned passerby – counts as willing!

The master cannot use a grappled proxy to perform any maneuver that requires more than a step or any technique that requires a jump. In a chambara game, he cannot use the special mobility rules. Otherwise, he can use all of his usual attacks and defenses. For a willing proxy, all rolls are at -4; for an unwilling one, the penalty equals the proxy's ST/2 (round *up*) but is always at least -4.

When attacking, damage is unchanged in all cases. There's no bonus for working through a heavy object or a strong person, and no penalty for using a light object or a weak person. (Unrealistic? Yes, but this is a *silly* rule!) If the target parries an attack in a way that would damage the attacker, any damage is to the proxy.

When defending, success stops the incoming blow as usual. Objects simply get in the way, although the GM may rule that the attack destroys a fragile object. People "parry" blows with their limbs or weapons, or "dodge" by being pulled aside. Failure means the proxy is hit, not his controller.

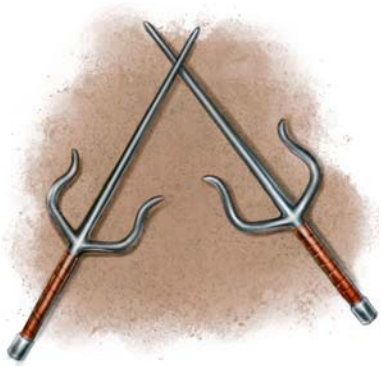
For obvious reasons, it's best not to use your Dependent this way! However, a skilled-but-frail master might fight through his clumsy-but-hardy student – and *any* fighter might find it handy to use one of his nemesis' henchmen as a human shield.

Bullet Time

At the GM's option, a player may spend 3 bonus character points to *stop time* for his PC in combat. He can do this at *any* time – even between an enemy's attack roll with a gun and the targets' dodge rolls or bullets' damage rolls, hence the name of the rule. The one thing this can't interrupt is death. If a failed HT roll means the PC is dead, he's dead; the player can't stop time to get a dying action.

Entering Bullet Time gives the hero *one* turn to do anything that he could do with a normal turn. After that, ordinary time resumes and the GM assesses the outcome of the fighter's actions. The player cannot spend more points to buy multiple, consecutive turns of stopped time.

Possible effects include:



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- All-Out Attack, Attack, Committed Attack, Defensive Attack, and Move and Attack let him attack one or more foes, as his abilities allow. He rolls to hit normally. His targets are defenseless. The GM determines damage effects (knockback, knockdown, etc.) and applies them immediately when time returns to normal, before anything else occurs.
- Attack maneuvers also let him pluck arrows, bullets, etc., out of the air. The player may specify how close he lets them come before he stops time. It takes a DX roll and an attack to grab each projectile. Snatched weapons have no momentum upon returning to normal time, and cannot injure anyone.
- Concentrate lets him activate or deactivate a special ability, operate controls, etc., so that the ability or machine will be "on" (or "off") when normal time resumes.
- Move or Change Posture means that when time speeds back up, he'll be in his new location or posture.
- Ready allows him to draw an item, open a door, etc. When normal time resumes, the item is ready in his hand, the door is open, and so on.

In all cases, if he moves so much as a step during Bullet Time, all "paused" melee or missile attacks on him automatically miss when time starts again. If he moves between a weapon and its intended victim, the attack hits *him* when normal time resumes, although he may defend normally. If his actions move another person into the path of a suspended attack, it hits that person instead – but the victim may defend himself.

During Bullet Time, everything but the PC who initiated the change freezes . . . from *his* perspective. He sees everyone else paused in mid-step, bullets and arrows hanging in air, hand grenades trapped between ticks of the clock, and so on. He and any items he's carrying are the only things that move. Everyone else sees *him* move in a blur.

Bullet Time is similar to *Player Guidance* (p. B347) in that it lets players use unspent points to purchase game-world effects, but the effects are more dramatic. It's designed to simulate video games and "sci-fi wuxia" movies. It's *inappropriate* for campaigns based on traditional *chambara* or *wuxia* films, or quasi-realistic action movies. Even in games where it *is* suitable, the GM should limit it to combatants with Enhanced Time Sense, Trained by a Master, or Weapon Master.

Tournament Combat

Not all combat is in deadly earnest. In modern times, most martial-arts battles take place in the bloodless, often contact-free environment of the tournament. Even in bygone eras, when martial arts served a deadly purpose day in and day out, tournaments were popular. Tournament combat sometimes served a judicial, religious, or social role, and entire martial arts with few military or self-defense applications existed for tournament battle.

Roleplaying Tournaments

There are two ways to resolve tournaments and competitions. One is to game them out as regular combat, with each fighter taking his normal actions on a one-second time scale. The other is to use one of the abbreviated methods below, which are designed to answer the questions "Who won?" and "What happened to the competitors?"

Quick Contest Method

The simplest way to resolve a tournament is with a Contest (p. B348) between the fighters. Roll a Quick Contest of combat, Combat Art, or Combat Sport skills; the exact skills involved depend on the type of competition (see *Competition Types,* pp. 134-135). The winner of the Contest wins the match. This is useful when you only need to know who won. It works best for non-contact or light-contact events, or full-contact events where injury is rare (e.g., Kendo or Judo).

This method *can* be used to resolve "death match" tournaments, though – most often those involving NPCs. In this case, if the winning competitor fails his skill roll in the Contest, he takes a full-force hit from his opponent's *best* attack to a random hit location. This represents an injury suffered in the course of the match. The loser also suffers these consequences, even if his skill roll succeeds. If a contestant critically fails, roll *three* attacks in this manner. No defense rolls are allowed. Even if the fighter won, he suffered to do so!

A winning fighter may be victorious but suffer severe or even *fatal* injury. This isn't unrealistic. One Olympic Pankration match in ancient Greece was won posthumously – the winner was mortally wounded but forced his rival to submit before he expired!

For especially dramatic competitions, use this method round-by-round or point-by-point. Award the winning fighter the round or a point. Total up the number of winning rounds or points for each competitor to determine the winner.

Detailed Method

Use this option to resolve competitions in round-by-round detail without playing out each second. For instance, a boxing round is three minutes long. Played out a turn at a time, this would be *180* seconds of combat! Not only is that too long to game out, it's unheard of for fighters to be active for every single second of a match. Realistically, each fighter will spend most of the round circling, evaluating and probing his opponent. These rules provide a snapshot of the "action" while allowing for round-by-round drama.

When using this method, fights consist of *lulls,* during which the contenders rest and circle, and *flurries,* when exchanges of blows take place. The GM should roll secretly for the length of flurries and lulls; realistically, fighters don't know how much of an opening they have to press the action. This also adds tension as a close fight nears its end without a decision.

Each round starts with an initial lull lasting 4d seconds. Then roll 2d to determine the length of the first flurry, 4d for the next lull . . . and so on, until the round ends. During a flurry, play out combat normally using the rules in the ***Basic Set.*** If both parties retreat, step out of each other's reach, or Do Nothing, an early lull occurs (roll 4d for duration). The fighters step back to take a breath, are separated by the referee (if there is one), or otherwise disengage. During a lull, fighters may Change Posture, Do Nothing, Evaluate, Move, Ready, or take appropriate free actions.

A fighter may also attempt to extend a flurry by pressing the fight. If both sides wish to press, the action continues for another 2d seconds without the need for a roll. If only one competitor wishes to press, roll a Quick Contest of Tactics. If the pressing fighter wins, the flurry continues for seconds equal to his margin of victory. Otherwise, a lull begins immediately.

Assess fatigue after each round – or after every two to three minutes, if the contest doesn't have rounds. Use the costs under *Fighting a Battle* (p. B426). Always deduct FP spent on *Extra Effort in Combat* (p. 131) immediately, though.

These rules allow fighters to battle for fairly realistic periods of time. The GM may wish to lengthen or shorten lulls and flurries, depending on the contest. Bare-knuckle boxing matches sometimes took dozens of multiple-minute rounds, with the action coming fast and furious for brief periods, followed by long lulls of little action or extended clinching. For these types of matches, roll only one flurry *per round.* Pressing to extend a flurry may be the only way to score a victory against a reluctant foe, and a wily fighter may be able to stay in the ring with a tougher foe . . . if he can survive the flurries!

Competition Types

The world has seen *many* different types of tournament combat. The examples below are merely the most common forms.

Sport Competitions

Demonstrations: These tournaments are a show of the competitors' artistic form and control. Each performs one or more *kata,* drills, or forms. Judging is point-based. Use Combat Art skills to resolve such competitions.

Non-Contact: In these tournaments, fighters throw full-force blows at each other but must *stop* just prior to touching the target. This prevents injury except in rare cases (a critical failure). Judges stationed around the ring or square judge the effectiveness of attacks. Points are scored for proper techniques aimed at specific targets. Typically, play halts after each "hit" so that the judges can score. Then the fighters return to their start positions. Non-contact contests use either Combat Art or Combat Sport skills.

Light Contact: Light-contact bouts are similar to non-contact ones, but some physical contact occurs and fighters must pull their blows to avoid inflicting injury. Alternatively, blows are dealt with some force, but armor, padded gloves, or (for weapon competitions) specially designed weapons prevent serious injury; for details, see *Training Equipment* (pp. 232-234). Non-striking sport styles like Greco-Roman Wrestling and Judo, which forbid holds that can cause injury, are also light contact. Use Combat Sport skills to resolve these matches.

Full Contact: In full-contact bouts, fighters exchange full-strength blows. Because of the risk of injury, such tournaments are rarely *unprotected.* Most use padding and armor, as well as gloves and foot coverings designed to soften blows. They often restrict "legal" targets, too. For example, competitive Tae Kwon Do only scores points for techniques that hit hard enough to move the target, but limits kicks to above the waist and punches to the torso, and encases competitors in padded chest and head protectors. Full-contact competitions are common in non-striking styles, which usually only forbid holds prone to causing injury (choke holds, damaging arm locks, etc.). Muay Thai, Lethwei, and Kyokushin "knockdown" tournaments (which forbid only punches to the head) are unprotected full contact, while Kendo and Tae Kwon Do are protected full contact. Protected contests use Combat Sport; unprotected matches use actual combat skills.

No Holds Barred: These tournaments are full-contact matches with few (or *none*) of the niceties mentioned above. Despite the name, some tactics – usually choke holds, hair pulling, and attacks to the eyes – *are* barred for legal and safety reasons. Mixed martial arts competitions, ancient Greek Pankration matches, and early Sumo tournaments are no holds barred. Use standard combat skills to resolve such bouts.

Other Competitions

Some varieties of tournament combat are less "friendly" than even the most brutal sporting matches . . .

Judicial Combat

Many societies, especially those of medieval Europe, allowed for trial by combat (p. B508). The fighting was in earnest. Witnesses regarded the winner as having been judged innocent – and the loser, guilty – by God.

Judicial combat often had many rules. For example, if a man faced a woman, he would fight from a waist-deep hole armed with a club, and she would have a shield and a mace with which to subdue her handicapped foe. Knights typically faced each other with matched weapons in a small ring or square, and fought until one party was slain or incapacitated, or surrendered. Pollaxes were common for knightly contests, as was the *ahlspiess* (p. 212).

Some fighters made careers as paid stand-ins for aggrieved parties; see *Duelist* (p. 34). This could backfire, as the practice was often illegal. One such English fighter had a foot cut off as a judicial punishment for selling the use of his sword arm!

Use actual combat to game out judicial contests, not the abbreviated methods under *Roleplaying Tournaments* (p. 134).

Melees and Jousting

Medieval Europe also featured tournaments to allow knights to practice their combat skills and demonstrate their valor off the field of battle. Melees pitted a mass of knights against each other on a field. Combat was nearly as violent as actual warfare, and injuries and fatalities could result.

In jousts, knights practiced their skill with horse and lance. Competitors often used heavier armor than they would wear in battle, fought with blunt-tipped lances designed to shatter on impact, and were separated by a rail to prevent horses from colliding. Even with these protections, deaths occurred. The best target to hit to knock an opponent down was the visor, which didn't always prevent lethal lance shards from penetrating. Falls from horseback could also prove deadly, especially if the knight was trampled. Geoffrey of Brittany died in this way in 1186, which let John Lackland take the English throne in 1199 – a pivotal event in Western history.

Use combat skills (and possibly actual combat) to resolve early competitions. Later in history, Combat Sport skills – notably Lance Sport – are more appropriate.

Religious Combat

Tournaments may be held to honor the gods or spirits, or to promote a religious philosophy. A modern example is Sumo, which still has Shinto ritual deeply embedded in its customs and rules. Some faiths regard bloodshed in religious combat to be an ill omen – but in certain settings (especially fictional or fantasy worlds) blood may be *required* for the tournament to be deemed a success!

Injury and Recovery

Injury is an important part of a ***Martial Arts*** campaign, since it's a likely consequence of fighting, even in a tournament. Below are several variations on the rules for injury and recovery in Chapter 14 of the ***Basic Set.*** They're intended for humans, goblins, cat girls, and similar living beings – not for undead, robots, and other entities with exotic abilities such as Injury Tolerance.

Realistic Injury

These rules are for GMs who want combat to be painful, gory, and deadly. They're most suitable for grittily realistic campaigns. They don't suit cinematic games at all . . . the GM should instead use *Cinematic Combat Rules* (p. B417) and *More Cinematic Combat Rules* (pp. 132-133) to let heroes avoid death and maiming, and possibly some of the options under *Cinematic Injury* (p. 139).

Partial Injuries

When injury occurs, there's an immediate burst of pain and then adrenaline kicks in to compensate. *Shock* (p. B419) represents this kind of short-term pain. Eventually, though, the adrenaline wears off and the wound starts to *hurt*. Use this optional rule to model the effects of such long-term pain.

You can ignore the effects of a non-crippling injury for 2×HT seconds. After that, you start to suffer impairment. The precise effects depend on the severity and location of the wound, as indicated below. Use the *worst* applicable result. High Pain Threshold halves these DX penalties, rounding in your favor (e.g., -1 becomes no penalty at all). Low Pain Threshold multiplies them by 1.5, rounding against you (e.g., -1 becomes -2).

Arm

Injury up to HP/5: -1 DX for any action involving that arm, including two-handed tasks.

Injury over HP/5, up to HP/3: -3 DX.

Injury over HP/3, up to HP/2: The arm is almost broken. It hurts so much that you must make a Will roll to use it. Roll at +3 for High Pain Threshold or -4 for Low Pain Threshold. Success lets you act at -5 DX; failure indicates you Do Nothing!

Injury over HP/2: Cripples the arm.

Leg

Injury up to HP/5: -1 DX to kick with the injured leg. Kicking with the good leg is at -1 if standing – you must support your body with the injured leg – but at no penalty if lying down.

Injury over HP/5, up to HP/3: -3 DX to kick with the injured leg. If standing, kicking with the good leg is at -1, but any roll to avoid falling is at -3. If lying down, there's no penalty to use the good leg. Dodge is at -1 and Move is 80% normal if standing.

Injury over HP/3, up to HP/2: Your injured leg hurts so much that you must make a Will roll to kick with it, at +3 for High Pain Threshold or -4 for Low Pain Threshold. Success lets you kick at -5 DX; failure means you Do Nothing. You *cannot* kick with the good leg from a standing posture – your wounded leg won't support your weight – but you can use it as usual if lying down. Dodge is at -2 and Move is 50% normal if standing.

Injury over HP/2: Cripples the leg.

Hand or Foot

Hand and foot injuries don't give a DX penalty, but they *hurt* if you use the wounded extremity to strike. Use the "Bruised Knuckles" rule under *Harsh Realism for Unarmed Fighters* (p. 124).

Torso

Injury over 1/3 HP: -1 to DX for all purposes.

Injury over 1/2 HP: -2 to DX, Move is 80% normal.

Injury over 2/3 HP: -3 to DX, Move is 50% normal (the usual penalty for having less than 1/3 your HP remaining).

Extreme Dismemberment

If a *cutting* attack would sever the leg or foot of someone who's standing or lying down, or the arm or hand of a fighter who's grappling or using two hands to wield a weapon, it might cut through the target body part and strike the *other* hand, arm, leg, or foot! To see if this occurs, roll damage normally, subtract DR, and multiply by 1.5 for a cutting attack. If the resulting injury exceeds that required for dismemberment (see p. B421), the attacker may elect to carry his attack through to the other limb or extremity.

To do this, the attacker must make a weapon skill roll to guide his weapon to its new target. Roll against the effective skill of the initial attack at -1. Success means the second limb or extremity is hit. The victim gets no active defense (he has *already* failed to avoid this attack) and the attacker doesn't reroll damage – use the original damage roll. Apply an effective DR equal to the new target's DR, plus the DR of the severed body part, plus HP/2 if that was a limb or HP/3 if it was an extremity (round up).

Example: Leif swings his greatsword (2d+3 cutting) at the arm of a mercenary who is wielding a spear in two hands. Leif's skill is 15 and the arm is at -2 to hit, so his effective skill is 13. His attack roll succeeds and his opponent fails to parry – a hit! Leif rolls 12 points of damage. Subtracting DR 2 for his foe's armor leaves 10 points of damage. The cutting modifier converts this to 15 points of injury. The spearman has 11 HP, so Leif must inflict 6 HP (injury *over* HP/2) to cripple the arm. Twice that, or 12 HP, hacks it off . . . so the arm comes off.

But Leif caused *15* points of injury, so he may opt to cut through to the other arm at -1 to his original attack roll, or 12. He succeeds, his target receives no defense, and the damage roll is the original 12. The effective DR of the second arm is its own DR 2, plus the severed arm's DR 2, plus 6 HP for sliced meat and bone. This comes to DR 10, so 2 points of cutting damage penetrate. This deals 3 points of injury to the spearman's *other* arm!

New Hit Locations

Martial artists fond of surgical precision in combat, especially those buying Targeted Attacks (p. 68) and Combinations (p. 80), won't always be happy with the options under *Hit Location* (p. B398). The GM may allow them to target a few additional hit locations.

Some blows to these new locations count as major wounds, causing HT rolls to avoid knockdown and stunning – see *Major Wounds* and *Knockdown and Stunning* (p. B420). Crippling injuries always count as major wounds *and* render the body part useless. For recovery times, see *Duration of Crippling Injuries* (p. B422). Actual dismemberment (p. B421) is permanent!

These rules assume a square hit on the body part. Hits to the surrounding hit location often overlap these targets, but only a direct hit gets the special effects below.

Injury Tolerance may render some locations nonexistent: joints, spine, and veins and arteries for Diffuse or Homogenous; veins/arteries for No Blood; ear, jaw, and nose for No Head; and veins/arteries in the neck for No Neck. Disadvantages may have similar effects. Invertebrate removes the spine; No Legs means no joints or veins/arteries in the legs, either; and No Manipulators eliminates joints and veins/arteries in *all* limbs.

Ear (-7): A fighter who can attack his foe's face or skull can specifically target an ear instead. Treat this as a face hit except when making a *cutting* attack specifically to slice off the ear. In that case, injury over HP/4 is lost but has no special effect . . . but *twice* this amount removes the ear. This is a major wound, but without the -5 to knockdown rolls for a face hit. Missing ears (one or both) permanently reduce Appearance by a level. A miss by 1 hits the torso. To use a cupped hand to concuss the ear and cause deafness, see *Ear Clap* (p. 70).

Jaw (-6): The jaw is part of the face and only valid as a separate target from in front. Treat a hit as an ordinary face hit, except that a *crushing* blow gives the victim an extra -1 to knockdown rolls. A miss by 1 hits the torso.

Joints (-5 or -7): Limbs and extremities contain vulnerable joints that an attacker can target with a *crushing, cutting, piercing,* or *tight-beam burning* attack. The roll to hit has an *extra* -3: -5 for an arm or a leg, -7 for a hand or a foot. This allows crippling with injury over HP/3 (not HP/2) for a limb, or injury over HP/4 (not HP/3) for an extremity. Excess injury is lost. *Dismemberment* still requires twice the injury needed to cripple the whole body part – not just the joint. HT rolls to recover from crippling joint injuries are at -2. A miss by 1 hits the limb or extremity, but not the joint.

Nose (-7): The nose is part of the face, and a valid target only from the front. Treat a hit as a face hit, but injury over HP/4 breaks the nose. This counts as a major wound to the face *and* mangles the nose – the victim has No Sense of Smell/Taste (p. B146) until the injury heals. It's possible to angle a *cutting* attack to lop off the nose, in which case crippling injury counts as an ordinary major wound (no -5 to knockdown for the face) and injury in excess of this is lost. However, *twice* this amount takes off the nose, which reduces Appearance by two levels permanently. In all cases, a miss by 1 hits the torso.

Spine (-8): The spine (in the torso) is a hard target – narrow, bony, and buried in meat – but injury there can end a fight. *Crushing, cutting, impaling, piercing,* and *tight-beam burning* attacks from behind can target the spine. The vertebrae provide an additional DR 3. Use the wounding modifiers for the torso, but any hit for enough injury to inflict a shock penalty requires a knockdown roll, at -5 if a major wound. Injury in excess of HP *cripples* the spine. This causes automatic knockdown and stunning, plus all the effects of Bad Back (Severe) (p. B123) and Lame (Paraplegic) (p. B141). Roll twice after the fight to recover, once to avoid gaining each of these disadvantages on a lasting or permanent basis! A miss by 1 hits the torso.

Veins and Arteries (-5 or -8): A fighter with a *cutting, impaling, piercing,* or *tight-beam burning* weapon can target a major blood vessel in the neck (jugular vein or carotid artery), arm (brachial artery), or leg (femoral artery). The attack has an *extra* -3: -5 for a limb, -8 for the neck. The sudden blood loss increases the wounding modifier for that hit location by 0.5; e.g., a cutting attack gets ×2 instead of ×1.5 against a limb, or ×2.5 instead of ×2 for the neck. Since the intent is to start bleeding – not to destroy bone and muscle – ignore crippling effects and damage limits for limbs. Realistically, such injuries can cause almost instant unconsciousness, with death coming in *seconds.* The GM may rule that *Mortal Wounds* (p. B423) doesn't apply and that any failed HT roll to avoid death means the victim collapses and bleeds out messily. This is a "special effect" of dying from a vein or artery hit. A miss by 1 hits the neck, arm, or leg, as appropriate.

Notes for Existing Hit Locations

For greater consistency when using this level of detail, alter the hit locations in the ***Basic Set*** as follows. The GM may reserve extra die rolls for randomly targeted attacks.

Arms and Legs: On any arm or leg hit, roll 1d. On a 1, a *cutting, impaling, piercing,* or *tight-beam burning* attack hits a vein/artery, while a *crushing* attack hits a joint.

Face: On a hit from in front, roll 1d. A 1 means a skull hit if the attack was *impaling, piercing,* or *tight-beam burning,* a nose hit otherwise. When attacking from behind, the face is at -7 to hit, not -5.

Hands and Feet: On any hand or foot hit with a *crushing, cutting, piercing,* or *tight-beam burning* attack, roll 1d. On a 1, the attack hits a joint.

Neck: On any neck hit with a *cutting, impaling, piercing,* or *tight-beam burning* attack, roll 1d. On a 1, it hits a vein/artery. Also roll 1d for *crushing* attacks from behind; a 1 indicates a spine hit. Crippling the spine this far up – a "broken neck" – causes Quadriplegic (p. B150), not merely Lame (Paraplegic). This occurs automatically if Neck Snap (p. 77) or a throw from a Head Lock (p. 74) inflicts injury over HP to the neck!

Skull: When attacking from behind, the skull is at -5 to hit, not -7.

Torso: On a hit with a *crushing, impaling, piercing,* or *tight-beam burning* attack, roll 1d. On a 1, it hits the vitals. Also roll 1d for a *cutting* blow from behind; a 1 indicates a spine hit.

Vitals: Crushing attacks *can* target the "vitals" – e.g., the solar plexus from in front or the kidneys from behind – at -3. Wounding modifier is only ×1, but shock requires a HT roll for knockdown, at -5 if a major wound.

Severe Bleeding

Realistic campaigns should probably use the optional *Bleeding* rules on p. B420. In gritty games, the GM might also want to use the rules below for severe injuries. Where these indicate a penalty to bleeding rolls, this *is* cumulative with the usual -1 per 5 HP of injury. For greater deadliness, add the penalties for multiple injuries and use the highest applicable rate of blood loss.

Dismemberment: Destroying a body part causes profuse bleeding. Bleeding rolls are at an extra -1 to HT for a superficial loss (ear, nose, etc.), -2 for an extremity, or -3 for a limb. Add another -1 for an extremity or limb actually *severed* by cutting damage. For a *limb,* make bleeding rolls every 30 seconds – not once per minute – regardless of how it was lost. In all cases, once HP lost to bleeding equal the injury needed to cripple the body part, revert to using the normal bleeding rules.

Neck: Cutting, impaling, and *piercing* attacks to the neck can cause severe blood loss even if they don't hit veins or arteries. Make bleeding rolls every 30 seconds, at -2.

Skull or Eye: Bleeding due to a *cutting, impaling, piercing,* or *tight-beam burning* attack to the skull – directly or via an eye – reduces blood flow to the brain. The amount of blood might not be especially large but *any* blood loss is severe; lasting harm occurs in only a short time. Make bleeding rolls every 30 seconds.

Veins and Arteries: Bleeding rolls are at -3 – or at -4 if the injury was due to a cutting attack. Make bleeding rolls every 30 seconds. This assumes a severe but not automatically lethal cut. See *New Hit Locations* (above) for the "instant death" due to bleeding.

Vitals: Internal bleeding from injuries to vital organs is usually fatal without surgery. Make bleeding rolls every 30 seconds, and roll at -4.

Bandaging Severe Wounds

A minute's work with bandages won't stop *really* severe bleeding. Optionally, apply the total penalty to bleeding rolls – for both the size and location of the wounds – to First Aid rolls made to halt bleeding (see *Bandaging,* p. B424). To staunch bleeding from the skull, eye, neck, vitals, or veins and arteries, make a Surgery roll at the same penalties; First Aid won't suffice.

Lasting and Permanent Injuries

Lost HP represent blood loss and general trauma, but some hit locations have more enduring effects. Wounds to limbs and extremities can cripple (see *Effects of Crippling Injury,* p. B421). *New Hit Locations* (p. 137) gives rules for severed ears and noses, and for crippling injury to the joints and spine. Since these effects are the primary reason to strike such body parts in combat, they belong in any campaign that allows fighters to target these hit locations in the first place.

At the GM's option, severe *internal* injuries can cause lasting or permanent infirmity, too. These effects take time to show up – but when they do, they can end an adventuring career. Thus, it's probably a good idea to reserve them for realistic historical and military games, horror campaigns, and so on, where a "war wound" or slow decline is in-genre.

On a major wound (injury over HP/2) to the *neck, skull, veins/arteries,* or *vitals,* roll 3d on the appropriate table to see whether there is any effect beyond lost HP. If there is, make a HT roll to determine whether the condition is temporary, lasting, or permanent, just as per *Duration of Crippling Injuries* (p. B422). Rapid Healing (p. B79) has its usual effects.

*How **GURPS** Works: "Stun" vs. "Real" Injury*

A common misconception is that barehanded combat inflicts "stun" injury that somehow differs from "real" injury caused by weapons. This is untrue in real life *and* in ***GURPS.*** A punch or a kick rarely bleeds much, giving the illusion of lesser harm – but if it sends a man to the ground, breaks his arm, or knocks him out, it inflicts genuine, tissue-destroying damage. Being crushing, a fist or a foot might lack the wounding modifier of a cutting, piercing, or impaling weapon, but it has the same potential to maim or kill as a crushing weapon. Realistic PCs trading kicks and arm locks should understand that while it takes longer to dish out 20 HP, the injuries are as deadly as 20 HP lost to stabs and bullets, and won't heal any faster. Cinematic PCs often have access to abilities that mitigate this.

Neck Wounds Table

Roll 3d. *Death* from a cutting attack means partial or complete decapitation. Those attempting magical or technological resuscitation must first reattach the head!

3 – Respiratory or circulatory problems, giving -1 HT. Critical failure on the recovery roll means delayed death by aneurysm. Treat this as Terminally Ill (Up to two years); see p. B158.
4, 5 – Stroke resulting in brain damage. Roll on the *Skull Wounds Table* for effects.
6, 7 – Severe neurological damage, resulting in Numb (p. B146).
8-13 – No special effect.
14, 15 – Damage to the throat, resulting in Disturbing Voice (p. B132) – or Cannot Speak (p. B125), if injured to -HP or worse.
16, 17 – As **4, 5.**
18 – Severely reduced neck mobility, giving -1 DX.

Skull Wounds Table

Roll 3d. *Death* from a skull injury means the brain is destroyed, preventing ultra-tech "brain reading."

3 – Widespread neurological damage, giving Epilepsy (p. B136).
4 – General cognitive impairment, giving -1 IQ.
5 – Damage to the prefrontal cortex, giving Low Empathy (p. B142).

6 – Damage to the temporal lobes, giving Partial Amnesia (p. B123) – or Total Amnesia, if injured to -HP or worse.
7 – Damage to the parietal lobe, giving Dyslexia (p. B134).
8 – Damage to the cerebellum, giving slurred speech. Treat this as Stuttering (p. B157).
9 – Damage to the occipital lobes, giving Bad Sight (p. B123). Critical failure on the recovery roll means Blindness (p. B124)!
10, 11 – No special effect.
12 – Ruptured eardrums or damage to the temporal lobe, giving Hard of Hearing (p. B138). Critical failure on the recovery roll means full Deafness (p. B129).
13 – Damage to the cerebellum, giving a level of Ham-Fisted (p. B138) – or two levels, if injured to -HP or worse.
14 – Widespread brain damage, giving Neurological Disorder (Mild). See p. B144.
15 – Brain stem damage that impairs reaction time ("startle response"), giving -1 Basic Speed.
16 – Severe damage to the cerebellum, giving -1 DX.
17 – As **14,** but Neurological Disorder (Severe).
18 – As **14,** but Neurological Disorder (Crippling).

Veins and Arteries Wounds Table

Roll 3d. *Death* from such a wound means the victim "bleeds out." This is messy and obvious, makes ordinary resuscitation impossible, and tends to disappoint vampires.

3 – Circulatory damage, giving -1 HT. Critical failure on the recovery roll means delayed death resulting from aneurysm. Treat this as Terminally Ill (Up to two years); see p. B158.
4, 5 – For an artery in the arm or leg, lack of blood flow cripples the limb; treat this as a crippled limb. For a vein/artery in the neck, roll on the *Neck Wounds Table* instead.

Royal Odysseus pondered if he should hit him with all he had and drop the man dead on the spot, or only spar, with force enough to knock him down.

– Homer, ***The Odyssey***

6, 7 – Circulatory damage, giving one level of Easy to Kill (p. B134) plus one extra level if injured to -HP, two extra levels at -2×HP, and so on.
8-13 – No special effect.
14, 15 – A severe tear that counts as Wounded (p. B162). This *can* become permanent, like any other crippling injury.
16, 17 – As **4, 5.**
18 – A blood clot travels to the brain and causes a stroke. Roll on the *Skull Wounds Table* for effects.

Vitals Wounds Table

Roll 3d. At the GM's option, *death* from such a wound means an instantly lethal blow to the heart!
3 – Severely weakened vital organ(s), giving -1 HT. Critical failure on the recovery roll means eventual death due to organ failure. Treat this as Terminally Ill (Up to two years); see p. B158.
4 – Stabbing pains in the chest or abdomen that count as Chronic Pain (p. B126). The GM assesses effects worth *roughly* -1 point per lost HP. For instance, 21 HP of injury might cause Chronic Pain (Agonizing; 4 hours; 9 or less) [-22].
5 – Damage to the kidneys, liver, pancreas, or other organs, resulting in Restricted Diet (p. B151). The special diet amounts to a "very common" item.
6 – Shock to the immune system, giving one level of Susceptible to Disease (p. B158) plus one extra level if injured to -HP, two extra levels at -2×HP, and so on.
7 – Reduced cardiovascular fitness, giving -1 FP plus an extra -1 FP if injured to -HP, -2 FP at -2×HP, and so on.
8 – Weakened heart, giving one level of Easy to Kill (p. B134) plus one extra level if injured to -HP, two extra levels at -2×HP, and so on.
9-12 – No special effect.
13 – A deep hole that counts as Wounded (p. B162). If this becomes permanent, it may be deliberate (a result of surgery) or the result of incomplete healing.
14 – General damage to the vital organs, leading to Slow Healing 1 (p. B155).
15 – Severely reduced cardiovascular health, giving Unfit (p. B160) – or Very Unfit, if injured to -4×HP or worse.
16 – Chronic health problems that require daily care. Treat as Maintenance (Physician; 1 person; Daily); see p. B142.
17 – As **16,** but requires care three times per day. Treat as Maintenance (Physician; 1 person; Three times daily).
18 – As **16,** but requires *constant* life support. Treat as Maintenance (Physician; 1 person; Constant).

Cinematic Injury

Characters in martial-arts films commonly have an unrealistic capacity for surviving brutal punishment. In some tales, the hero takes a beating, then gets a second wind and wins the fight. In others, fighters are simply hurt less by fists, feet, etc., than by blades, bullets, fire, and poison. *Flesh Wounds* (p. B417) can simulate the first type of "realism." Exotic advantages offer other ways to handle both situations.

Regeneration is an excellent alternative for second winds. Damage Resistance, Injury Tolerance, and piles of HP are handy for warriors who can absorb massive damage. See *Advantages* (pp. 42-53) and *Extra Hit Points* (p. 49) for discussions of these traits in ***Martial Arts*** campaigns, and *Desirable Advantages* (p. 43) for some related traits.

The GM decides who can possess these capabilities. He might make them available only to those with Trained by a Master or Weapon Master. He might make them options or mandatory "campaign advantages" for *all* PCs and important NPCs. It's even possible to give everyone in the game world such traits – at least in a silly game. If so, the GM should consider applying the advantages' *effects* without charging points. If everybody is super-tough, it isn't an advantage worth noting.

Chapter Five
Styles

Del Duque's cape swirled dramatically as he sized up the henchmen that El Asesino Oscuro had thrown in his path.

The tattooed Japanese with no neck grunted. "We're gonna find out what you look like ***without*** *the mask."*

"Monsieur might have noticed," the Frenchman commented, swiping at the air with his cane, "that this isn't a lucha libre match."

"Louis, Jin, and me, we're here to break a few bones, ***puta,*** *" spat the tall one Del Duque knew only as Leonardo, punctuating his words with a swift kick.*

Behind his mask, Del Duque smiled. Sumotori, savateur, capoeirista . . . these would be easy. He had come expecting ninja!

"Martial arts" describes a huge variety of disciplines with many different objectives and philosophies (such as those discussed in *External vs. Internal, Hard vs. Soft,* p. 162). It can be hard to tell where one art ends and another begins, but in general, a "martial art" or "style" is any body of fighting methods and tactics – aesthetic, competitive, or combative in focus – taught together for long enough to acquire a distinct identity. In ***Martial Arts,*** these terms are often synonymous with "school" or even "master," and occasionally refer to a collection of schools – even rivals – that teach the same abilities *in game terms.*

This means that if a single set of skills and techniques describes a whole collection of related traditions, ***Martial Arts*** treats them as one style – although the entry for that style discusses its history and variants. Conversely, if several traditions with identical origins teach different skills and techniques – common when a venerable style diverges to serve multiple, incompatible purposes – they get separate entries. The most common schism is that between a style's "combat" forms and other forms; see *Do vs. Jutsu* (p. 148).

Martial Arts distinguishes styles on the basis of abilities in order to provide another tool for individualizing characters – another roleplaying "hook." Each player can pick the style that suits his vision of his PC and be certain that this selection influences his options on the battlefield. The chosen style sets aside *his* PC's actions from those of PCs who practice other styles, thus ensuring that each hero is distinctive even in combat, where dice and rules often threaten to eclipse roleplaying.

To ensure that there are plenty of choices, this chapter describes many different styles – some defunct, some current, and some fictional. The GM is free to modify these to suit his game and his view of the martial arts. In a realistic campaign, nearly any combination of *believable* abilities is supportable; the world is full of hybrid styles and breakaway schools. In a cinematic campaign, all that matters is that each style offers an interesting set of cinematic abilities so that players can use it to create fun and memorable PCs!

Components of a Style

In game terms, the tactics and methods of a style are a collection of skills, techniques, and perks. Some of these components represent the style's most basic principles, taught to all students. A martial artist must buy *all* such required elements to qualify for lessons that teach the style's more advanced moves, which *aren't* mandatory.

The next few sections explain how a martial artist must spend points acquired though training at his style (for details on point costs and learning times, see *Buying a Style,* pp. 146-148). This means his starting points plus points earned by studying at his school, unless the GM rules otherwise. He can spend points awarded during adventures however he wishes, within the limits set by *Adding and Improving Skills and Techniques* (p. B292). He can even learn his style's advanced elements by studying another style that treats them as basic . . . although his master might disapprove!

Not all styles have every component discussed below. Some consist of core skills without techniques. Others offer no perks. Many lack cinematic abilities. If a style omits any of these items, it's *intentional.*

Cinematic Abilities and Prerequisites

Heroic Archer, Trained by a Master, and Weapon Master are explicitly listed as optional traits only for styles for which they're extraordinarily appropriate. A student of *any* style must possess one of these traits in order to learn cinematic skills, though – these advantages are *prerequisites* for such skills. A martial artist who lacks such an advantage must learn it (see *Learning Secret Martial-Arts Techniques,* p. B293) before he can have cinematic skills that depend on it. The GM decides whether the master who taught him his mundane abilities can provide this training.

Cinematic skills may have mundane skills as prerequisites, too. If these aren't part of the style, the student is expected to venture outside his school, learn the necessary skills, and return. The absence of extracurricular skills from the style doesn't make them any less necessary.

Attempts to improve a style's cinematic *techniques* are subject to the same rules.

Skills

A style's skills are its irreducible core. They represent the majority of any student's training. The most important skills are of course *combat* skills: weapon skills for armed styles; Boxing, Brawling, and Karate for unarmed striking styles; Judo, Sumo Wrestling, and Wrestling for unarmed grappling styles; and a mixture of these for well-rounded styles.

Non-combat skills may show up as well, and say a lot about the style's character. Arts with a strong sports element require Games. Styles for mounted warriors include Riding. Very formal styles incorporate Savoir-Faire (Dojo). Some traditional martial arts claim to be a path to enlightenment, and teach Meditation, Philosophy, or Theology.

To learn a style and qualify to buy *any* of its other components, a student must spend at least a point on each skill under "Skills" (but not those under "Cinematic Skills" or "Optional Traits"). This is figured into style cost.

Cinematic Skills

A style often carries a body of legend . . . tales of feats that true masters can perform. These are its cinematic skills, and represent a heroic exaggeration of its teachings. Not every style includes cinematic skills. Modern "scientific" styles developed for military, police, or sporting purposes are too young to have much of a mythology – and their no-nonsense instructors tend to shoot down improbable claims.

A martial artist must spend at least a point on each of his style's mundane skills and buy its Style Familiarity (p. 49) before he can learn his style's cinematic skills. Thus, in a ***Martial Arts*** game, the prerequisites of these skills are the usual ones (see *Cinematic Abilities and Prerequisites,* see left) *plus* the basic components of an appropriate style.

Techniques

Each style lists the techniques that students can *improve* via study at any orthodox school of that art – or even without instruction, if they earn enough points during an adventure – once they've bought Style Familiarity and spent a point on each of the style's skills. Anyone may *attempt* any technique that defaults to any of his skills. If it doesn't appear as part of a style he knows, though, raising it above default requires outside instruction.

Wax on, right hand. Wax off, left hand. Wax on, wax off. Breathe in through nose, out the mouth. Wax on, wax off. Don't forget to breathe, very important.

– Miyagi, ***The Karate Kid***

The GM may ease this restriction, but enforcing it has its benefits. For one thing, it gives combat a roleplaying dimension, with each fighter having his own "repertoire" of moves. It also makes it easier for players to remember the techniques available to them, as it's simpler to learn the game effects of a handful of techniques than those of every possible technique – especially for players who lack personal martial-arts experience and have trouble visualizing what's going on.

A martial artist doesn't *have* to spend points on any of his style's techniques. They're always optional. In game terms, raising one or two techniques per skill above default – possibly to their maximum – is a good investment. It's an inexpensive way to enjoy a higher effective combat skill in some specialized situations. This is realistic. Martial artists who have learned a style's basics (its skills) do tend to specialize in a few favorite moves.

However, a martial artist who wishes to improve more than a couple of techniques for a skill is better off raising the skill. He'll need a lot of time and points to improve his skill to the point where his default with a technique equals a specialist's level . . . but when he's done, he'll be a formidable foe. This, too, is realistic. In the long term, a well-rounded fighter *will* be more successful, because he'll have more tools in his toolbox.

Cinematic Techniques

A style's cinematic techniques are the least-realistic techniques commonly attributed to it. They're separated from regular techniques only because they're more appropriate for cinematic campaigns than for realistic ones. To *improve* them, a martial artist must have Trained by a Master or Weapon Master, Style Familiarity, and at least a point in each of the style's mundane skills. Any martial artist can *attempt* his style's cinematic techniques at default, however.

Perks

Most styles include a few useful bits of knowledge that, once taught, change the way a martial artist views and practices his art. There's a clear difference in thinking "before" and "after" learning each of these things. Many of them *seem* obvious once learned – but most aren't! Unlike skills and techniques, you either know these secrets or you don't. Once you do, you work them into your exercises and your grasp of them improves in tandem with your skills; you don't study them independently.

In game terms, these are martial arts-related perks. They come in two varieties, both acquired just like skills and techniques. See Chapter 2 for much more information.

Style Familiarity

Each style has its own Style Familiarity perk. This represents rote memorization of the art's stances and movements. It has little to do with *performing* such moves – that's skill. It simply makes it possible to recognize those forms well enough that they won't come as a complete surprise. In game terms, a fighter with Style Familiarity ignores -1 in defense penalties from feints and Deceptive Attacks by co-stylists. Any martial artist who "knows" a style should have its Style Familiarity. Some stripped-down self-defense schools omit this . . . with negative consequences.

To learn a style and be able to buy its Style Perks and cinematic skills and techniques, a student *must* buy its Style Familiarity perk. This is figured into style cost.

Style Perks

Improvements to combat skills and techniques correspond primarily to increases in accuracy. Not all advanced martial-arts classes have this goal in mind, however. Some teach how to fight under adverse conditions, eliminating penalties rather than providing bonuses. Others show students new, unorthodox applications of lessons they've already learned. Familiarization with another style – with the goal of imparting the tools to adapt its techniques – is common, too. Unusual exercise regimens intended to toughen body parts or develop other physical advantages are yet another possibility.

Each form of special training corresponds to a special perk called a "Style Perk." An exceptional time investment in learning the style's more mainstream components is the surest path to Style Perks. A student with Style Familiarity may buy one Style Perk per *full* 10 points he has in that style's techniques and *required* skills. A martial artist never has to learn Style Perks. The training they represent isn't universal, and is optional even when offered.

Optional Traits

The components discussed so far are things taught by almost every school of a style. Some are more common than others; many are optional. However, the GM should make them available to PCs who meet the prerequisites and receive instruction in the style, unless there's a good setting-related reason to forbid this.

Items listed under "Optional Traits" are less cut-and-dried. They aren't so much components of the style as they are elements frequently associated with it. Possibilities include extra "entrance requirements" enforced by demanding masters; prerequisites for instruction in the art's more mainstream teachings at certain schools; advanced training; and *consequences* of training. Where left unspecified, such details are up to the GM.

Advantages

Optional advantages are most often either traits that would lead somebody to study and succeed at the style or learnable advantages (p. B294) taught only at particular schools. More rarely, they're entrance requirements for exceptionally strict schools. See *Desirable Advantages* (p. 43) for many suitable examples. A few traits bear special mention:

Cultural Familiarity: Martial artists might have no choice but to travel abroad if they wish to study certain styles. Even if they learn at home, a martial art from a foreign land might encourage or even pressure them to become familiar with the art, food, music, and values of its background culture. This is especially true when the master hails from that culture! Any of these situations could justify Cultural Familiarity (p. B23).

Languages: As noted for Cultural Familiarity, those who study foreign styles might end up immersed in foreign ways. This definitely includes Languages (p. B23). A given master or school might refuse to instruct students in any language *but* that of the style's homeland, because only that tongue has a vocabulary capable of properly explaining the style's moves . . . or because the master speaks only that language!

Unusual Abilities: The style's teachings might even enable students to buy cinematic advantages: Enhanced Time Sense, Extra Attack, Innate Attack, etc. These are subject to the same prerequisites as cinematic skills. See Chapter 2 for many examples.

Disadvantages

Optional disadvantages are a mixture of traits that might influence a martial artist to pick this style over another, pledges required of new students at strict schools (most of which are self-imposed mental disadvantages; see p. B121), and side effects of training. A particular disadvantage can fall into more than one category. For instance, someone might elect to study Sumo because he's Fat . . . or end up Fat after practicing Sumo and eating the diet it prescribes. See *Common Disadvantages* (p. 53) for possibilities.

Skills

Optional skills fall into three categories:

- Skills that only some masters regard as "basic." If the GM rules that an optional skill works this way, it goes on the main skill list *for that school* and adds a point to style cost.
- Skills that all students of the style are encouraged to study in order to gain a fuller understanding of the style. These are never necessary for the skilled *practice* of the style.
- Skills reserved for advanced students. These play a similar role to techniques, Style Perks, and cinematic skills: they're never required, but martial artists who wish to learn them must first buy Style Familiarity and put a point into each of the style's basic skills.

The GM decides which niche each optional skill occupies.

Style vs. Style

A source of perpetual debate in the martial-arts world is the question "Which styles are better than what others?" The reality – which ***GURPS*** tries to model – is that almost any martial art can make a capable fighter out of somebody with suitable physical, mental, and emotional potential . . . but some styles do so more readily than others.

Not all styles are created equal – some truly *are* superior for certain purposes. Styles created for combat turn out apt fighters but rarely graceful *kata* performers or tournament winners. Dedicated sports styles produce contenders who perform better under controlled conditions than in a "street fight." And styles optimized for fitness and relaxation rarely train warriors or champs, but are more likely than other styles to have a positive effect on the average person's health.

There is no "best" or "ultimate" style, though. Styles are good for what they're designed for. Judo, Tae Kwon Do, and Karate were designed as sports. Their practitioners focus on competition – although some become tough fighters. On the other hand, a Jeet Kune Do, MCMAP, or Krav Maga stylist learns to fight. He'd probably lose badly in a kata competition or a light-contact match scored on proper form, but pit him against an assailant in a dark alley and the result would be quite different. Mixed martial arts (p. 189) attempt to bridge this gap, training martial artists for full-contact matches but sharply limiting the use of techniques that are effective but likely to inflict crippling injury.

In a cinematic game, all bets are off. A realistic combat style might churn out capable warriors . . . but these would face easy defeat at the hands of disciples of more artistic styles with working chi powers. Sports styles might be every bit as effective in a deadly fight as in the ring. And the most "peaceful" arts might teach techniques capable of defeating any foe!

School vs. School

It's rare for every school of a style to teach in an identical fashion – or even to profess a uniform style. Some belong to large federations that attempt to dictate a standardized curriculum. Others are independent, however, or part of a loose group that doesn't try to enforce standards.

The GM can use this to justify modifying a style for the students of a specific school or master. He should be generous in allowing *players* to request changes to styles – within limits. Players who desire custom-designed styles should refer to *Creating New Styles* (p. 146) instead.

Choosing a Style

Every would-be student asks, "Which style should I study?" The answer depends in part on that to a more fundamental question: "What do I want to do?" Possibilities include getting in shape, competing, fending off muggers, fighting crime, and killing enemy soldiers. It's tempting to select a style whose history and reputation seem compatible with your objectives, but it's crucial to realize that the goals of the school you choose, and of its teachers, are far more important than the style itself. The police academy and YWCA anti-rape program might both teach "karate" – and even share instructors – but you can be sure that the two courses are very different!

The short answer, then, is that nearly any style will do – if your instructor puts the right "spin" on it. Pick a style that's common in your game world . . . or one you've heard of in real life . . . or simply one that sounds interesting. It really doesn't matter, as long as your choice isn't *too* outlandish (e.g., Yabusame – horse archery – isn't practical for self-defense!). Then modify the style's training with the "lens" below that best matches your goals. All of these style variations, being practical, automatically exclude *cinematic* skills and techniques.

Military: Start with any non-military style and spend an extra point on each of Knife and Spear. If the style includes Combat Art/Sport, Games, or Savoir-Faire (Dojo), make these skills optional – although services that encourage competition might teach Combat Sport or Games. Add Retain Weapon for Knife, Pistol, and Rifle to the style's techniques. Remove any "fancy" technique that would be difficult to teach usefully in a few weeks of training; this includes any Average technique with a default penalty of -5 or worse and any Hard technique with a default of -4 or worse. The result is a no-nonsense variation on the local fighting style. In affluent nations, recruits might learn a dedicated military style instead; see *Styles for Soldiers* (p. 145).

Police: Start with any style and spend two extra points: one on Judo *or* Wrestling, one on Shortsword *or* Tonfa. Combat Art/Sport, Games, and Savoir-Faire (Dojo) become optional skills – officers may learn them on their own time. Some instructors integrate Guns (Pistol), Guns (Shotgun), and Liquid Projector (Sprayer) into the training. Add Handcuffing and Retain Weapon (with any weapon your department issues) to the style's techniques. Omit Average techniques with a default penalty of -5 or worse and Hard

Ultimate Styles

In some game worlds, *Style vs. Style* (p. 143) is hokum. There *is* an "ultimate" style (or styles – some settings have several), and it's the wellspring of all other martial arts. Other styles are merely *aspects* of the True Way. The ultimate style *is* the True Way.

Trained by a Master is always a prerequisite for learning an ultimate style. By definition, anyone who knows the ultimate source of the martial arts is a master! Weapon Master is suitable for an armed ultimate style – although most ultimate styles profess that "a true master needs no weapons" and provide the ability to back up the claim. Those trained in an ultimate style are familiar with every style derived from it and must purchase a 20-point Unusual Background that counts as Style Familiarity with *all* styles.

An ultimate style contains all techniques and all of the skills from which they default, as well as all cinematic skills. It may also contain a few "invincible" or "unstoppable" moves with ludicrously steep default penalties; design these using *Creating New Techniques* (p. 89-95). It sometimes contains Combat Art and Sport versions of its combat skills, but a master can usually get by on defaults from his extraordinarily high combat skills. The GM might even consider using *Wildcard Skills for Styles* (p. 60).

Fictional ultimate styles include Sumito (from Steven Perry's "Matador Series") and Sinanju (from Warren Murphy and Richard Sapir's *Destroyer* books). Some people claim that certain real-world styles are ultimate styles. T'ai Chi Chuan (pp. 200-201), Shaolin Kung Fu (p. 194), Ninjutsu (see *Ninja and Ninjutsu,* p. 202), and Te (pp. 169-170) would all work as the basis for an ultimate style. So would Pankration (pp. 188-189), which some speculate came to India with Alexander the Great and went on to China. In all cases, use the details below and *ignore* the entry for the style's realistic version (which might still exist for use by lesser martial artists).

Ultimate Combat

9 points

Skills: Acrobatics; Breath Control; Judo; Jumping; Karate; Parry Missile Weapons; Sumo Wrestling; Wrestling.

Techniques: All.

Cinematic Skills: Blind Fighting; Body Control; Breaking Blow; Flying Leap; Hypnotic Hands; Immovable Stance; Invisibility Art; Kiai; Light Walk; Lizard Climb; Mental Strength; Power Blow; Precognitive Parry; Pressure Points; Pressure Secrets; Push; Sensitivity; Throwing Art; Zen Archery.

Cinematic Techniques: All.

Perks: Skill Adaptation (Brawling techniques default to Karate); Style Adaptation (All); any cinematic Style Perk; any Style Perk from a style descended from the ultimate style (GM chooses).

Optional Traits: Altered Time Rate; Ambidexterity; Combat Reflexes; Enhanced Time Sense; Extra Attack; Weapon Master.

techniques with a default of -4 or worse. The specifics of weapons training and techniques depend on the jurisdiction and the individual instructor.

Self-Defense: Buy any style *without* its Style Familiarity perk. Keep all of its skills. Hard techniques, Style Perks, and optional traits aren't taught. Training seldom exceeds a point in Judo and/or Karate, and perhaps a point in a few of the style's Average techniques (Arm Lock, Elbow Strike, and Knee Strike are popular) – although modern women's self-defense courses might add Eye-Rake, Targeted Attack (Karate Kick/Leg), and similar Hard techniques for discouraging stronger assailants. Those without previous training typically find self-defense lessons stressful, so *Quick Learning Under Pressure* (p. B292) applies when learning in play. Once per class, roll for each skill and, when the skills are known, each technique. Improvement past the first point in each of these things requires the usual 200 hours a point.

Street: Streetfighters typically rely on Brawling and Melee Weapon skills, but some train. Choose any style and spend an extra point on Brawling if it lacks striking skills or on Wrestling if it has no grappling skills. Put another point into a Melee Weapon skill of your choice – typically Axe/Mace (for wrenches and pipes), Flail (for chains), or Knife. Remove Combat Art/Sport, Games, and Savoir-Faire (Dojo) skills. The GM, playing the role of the instructor, should add a single unorthodox technique (such as Head Butt) or Style Perk (often Clinch or Improvised Weapons) to the style. Optional traits are usually ignored.

Trained by a Fraud: You learned from a fraud or a con-artist. He might have been well-meaning but incompetent; a grifter selling a fake art; or a businessman who put fees for memberships, belts, and tests ahead of solid instruction. Regardless of your teacher's motives, your training is showy but useless. Replace all of the style's skills with Combat Art versions of its combat skills. Techniques don't change, but the GM should add one or more worthless techniques (see *Useless Techniques,* p. 95). You may also have a Delusion (pp. 53-54). Overconfidence is appropriate, too: you believe that your skills are as effective as your instructor claims, which could get you into deep trouble . . .

Lenses are entirely *optional.* Purists, historical warriors, and cinematic heroes should probably learn "traditional" styles as written. If you do choose a lens, though, it's best to apply it to a style with goals that complement it. In all cases, it's helpful to know which arts favor what uses. The next few sections loosely categorize styles by purpose.

Self-Defense

One can learn almost any style for "self-defense," but some styles are more suitable than others. Today, these are generally *unarmed* styles, both because most people don't go armed at all times and because there are legal consequences to using a weapon in self-defense. In earlier times – or in rougher areas – weapons might be more common. Those concerned with self-defense in such situations tend to learn armed styles (or simply carry firearms!).

Common styles for self-defense include Aikijutsu (p. 149), Hapkido (p. 161), Karate (pp. 169-172), Krav Maga (p. 183), and Tae Kwon Do (p. 200) – with or without the "Self-Defense" lens. Short-course self-defense training typically has the lens. However, some students show up seeking self-defense lessons, enjoy the experience, and stay to learn the entire style.

Styles for Cops

Police fall somewhere between civilians seeking self-defense lessons and soldiers seeking weapons training. Soldiers learn to *kill.* Civilians train to ward off attackers with minimal harm – and minimal legal consequences! Police generally have restrictions on the amount of force they can use but enjoy greater latitude than civilians.

Police styles favor techniques that can physically control or incapacitate an opponent without inflicting injury. Even societies that presume "guilty until proven innocent" tend to prize capture over killing. These goals differ from those of military styles, which seek to disable the opponent without regard to his safety.

Tokugawa-era Japanese police trained in Taihojutsu (p. 201); modern Japanese officers train in Aikido (p. 149), Judo (p. 166), and/or Kendo (p. 175). In the U.S., the style depends on the department. Examples include Aikido (p. 149), Boxing (pp. 152-153), Brazilian Jiu-jitsu (pp. 167-168), Hapkido (p. 161), and Karate (pp. 169-172) . . . and it's common for American lawmen to be dedicated students of *other* styles on their own time.

Styles for Soldiers

Military styles – unlike those for self-defense or law enforcement – don't concern themselves with the opponent's safety. The goal is to incapacitate the target expediently and by the best available means. In recent centuries, this has most often meant using a firearm.

Historically, emphasis on the martial arts increased with troop quality. Peasants and irregulars rarely received *any* martial-arts instruction, while professional soldiers learned a combat style. The nobility and other elite warriors – those with ample time to train and the economic means to do so constantly – learned complex styles or even multiple styles. This is still true today: elite special-operations forces generally enjoy superior training.

Near the start of the 20th century, most soldiers learned little more than a series of set attacks and responses. Genuine styles soon emerged, emphasizing a few broadly useful techniques and plenty of aggressiveness. Dedicated military styles include Fairbairn (pp. 182-183) and MCMAP (pp. 183-185). The versions of Krav Maga (p. 183) and Sambo (p. 185) given in ***Martial Arts*** are "combat" forms of those arts, taught mainly to troops. Some services use stripped-down Brazilian Jiu-jitsu (pp. 167-168), or forms of Judo (p. 166) or Jujutsu (pp. 166-168). Most troops learn bayonet fighting, too; use Jukenjutsu (p. 197) to represent all such training.

Streetfighting

"Streetfighting" systems are generally simpler and more direct than other martial arts. They eschew fancy techniques, *kata,* and art or sport forms in favor of what works in a fight, and openly accept "dirty" techniques such as shots to the groin or eyes (see *Go for the Eyes!,* p. 72). Practicality trumps attractiveness and legality.

Some styles were born "stripped down" for use on the street: Krav Maga (p. 183) is a streetfighting system and Jeet Kune Do (pp. 164-165) is – in the words of Bruce Lee, its creator – "scientific streetfighting." However, nearly *every* modern style claims some degree of street utility. The more combat-oriented the style, the less modification it needs for this to be true. Omitting forms, kata, belts, and similar formalities is widely regarded as being a necessary step. A student of even the most artistic style can become a streetfighter – it just requires extreme dedication and training.

Streetfighting styles also include ad hoc "prison" or "prison yard" styles. These have a relatively small body of techniques; they only retain what works. Weapons, if any, are improvised. Emphasis is on quickly eliminating the opponent before the guards see who did what to whom.

Buying a Style

Buying a style is a simple matter of purchasing its individual elements at their usual point costs, subject to the rules under *Components of a Style* (pp. 141-143). Since a style's basic components are typically taught together, and are prerequisites for its advanced abilities, it's useful to know their minimum cost. This is the "style cost," which appears at the start of each style entry.

Style cost is a point for Style Familiarity plus an additional point per basic, mundane skill. It always equals the number of skills in the style, plus one. Cinematic and optional skills only increase style cost if the GM deems them "required training" in his campaign. No other traits ever influence style cost.

For game purposes, a martial artist doesn't "know" a style until he buys all of its basic components by spending points equal to style cost. He can always spend more; style cost is the *minimum* investment to unlock the style's advanced abilities. The next few sections discuss different ways of making this investment.

Styles Bought During Character Creation

A newly created martial artist who's supposed to "know" a style should possess *all* of the traits included in its style cost. If he has these things, he can enter play with points in the style's techniques, cinematic skills (as long as he meets their other prerequisites), and Style Perks (one per 10 points in the style's skills and techniques). He may also purchase any optional abilities that the GM has set aside for the style's advanced students.

Learning New Styles During Play

A PC can learn a new style during the course of the game. As a rule, he *must* have a teacher; therefore, his first task is to find an instructor. Depending on the campaign and the

Creating New Styles

This chapter presents many historical styles and a few non-historical ones. It doesn't have space for every historical style, though – and fictional worlds need *original* styles. These are good reasons to design new styles.

GM-Developed Styles

The GM has free rein to develop new styles. The only hard-and-fast rule is that a style *needs* a unifying philosophy – even if it's only "defeat all foes in total combat" – or it will feel like a haphazard group of skills and techniques, tossed together on a whim. In particular, look out for techniques and skills that don't mix well. For instance, the aesthetics of Karate Art are at odds with the pragmatism of Head Butt, and Breath Control and Combat Art/Sport would seem impractical next to Melee Weapon skills in a style intended for soldiers.

A useful method of generating new styles is simply to rename existing ones – perhaps Martian Kung Fu is just Wushu with a different name. Another option is to modify a style with one of the lenses under *Choosing a Style* (pp. 144-146) or a GM-created lens. Yet another is to modify an existing style to suit the peculiarities of a nonhuman race; e.g., Dwarven Ogre-Slayers learn Sumo but add Brawling to its skills and Head Butt and TA (Head Butt/Groin) to its techniques.

Player-Developed Styles

A player might want his PC to develop a custom style in play – whether a "self-defense" version of an existing style for quickly training NPCs or fellow PCs, or a whole new style that will cement his place in history. That's fine! There's no harm in letting a player select combat skills, techniques, and perks that his PC *knows,* call them a style, and formalize it by spending a point on Style Familiarity. Multiple PCs can even pool abilities by teaching each other. Anyone who wants credit as a cofounder must know *all* of the style's abilities, though; "the guy who taught Judo to the founder" doesn't count.

A player might also wish to create styles *out* of play, for his PC to learn or to add color to the game world. This is riskier. The GM must ensure that the player isn't trying to design an "ultimate style" or "the style with every technique I want an excuse to learn." Such styles should also be in tune with the setting's history and flavor.

The Training Sequence

In a realistic game, learning a new style involves studying with a teacher (see *Learning New Styles During Play,* pp. 146-147). Training is a common theme in cinematic stories, too, but traditionally occurs far faster than *Improvement Through Study* (p. B292) allows – never mind the glacial pace of *Learning Secret Martial-Arts Techniques* (p. B293). Cinematic heroes learn entire *styles* in mere days or weeks! Movies help suspend disbelief by inserting a "training sequence." This is a series of brief scenes – a *montage* – depicting the hero's steady improvement and suggesting a lot of time and effort. It always ends in time for the hero to win the big tournament or defeat the bad guys (whose plans were conveniently on hold).

This optional rule describes such a training sequence in game terms. It's for cinematic games where the PCs lack the downtime for realistic training – and for any gaming group that regards Time Use Sheets (p. B499) as boring accounting. It isn't just for martial arts. The GM may use a training sequence whenever the PCs have a few days to learn from a great master: musical skills from Apollo, spells from an archmage, and so on.

There are two criteria for a training sequence:

1. A legendary master. The teacher must be a true master of his art. He must have level 20+ with the skills being taught and level 12+ with the Teaching skill. Moreover, he must possess a special advantage that represents his "spark." For martial arts, this is Trained by a Master or Weapon Master. It might be Magery 3+ for magic, the Spirit meta-trait for shamanic rituals, and so on. Details are up to the GM, who should choose requirements that suit his campaign.

2. An exceptional student. A new martial artist must have no attribute below racial average (10 for a human), and at least two that are two or more levels above this (12+ for a human). The GM may allow Reawakened or a suitable Destiny to substitute; he might even *require* such a trait. A skilled martial artist adding a new style must know all the skills of another style at level 16+. If he's trying to add cinematic skills or techniques, he also needs Trained by a Master or Weapon Master. Vary this as needed; for instance, a wizard might need IQ *four* levels above average and related spells (or the Thaumatology skill) at 16+.

If both conditions are met, choose a training time and roll against the master's Teaching skill.

Modifiers: The Teaching modifiers on p. B224; the bonuses under *Equipment Modifiers* (p. B345) for lavish training facilities, but never a penalty for poor (or *no*) equipment; the modifiers under *Time Spent* (p. B346) for training periods shorter or longer than a full week (-9 for a day, -7 for a weekend, +2 for a month, or +4 for a season).

Success doesn't give the students points but enables them to spend *earned* points on any perks, skills, or techniques the master teaches, to a maximum of points equal to the margin of success. Students with Eidetic Memory add five points to this limit; those with Photographic Memory add 10. Those who have the Laziness disadvantage halve the final limit. Critical success means each student also *gains* a free point, which he must spend on the abilities his master taught.

Failure means the students learn nothing. On a critical failure, they also suffer training injuries. When the training sequence ends, apply the instructor's most damaging attack to a random hit location for each student, as if he had struck them!

This rule works best when the heroes have the chance to earn points during game sessions building up to an important tournament or showdown, or on a quest for a legendary master. Just before the adventure's finale, the GM cuts to the training sequence, describes the lessons and exercises, rolls the dice, and lets the players spend points. Then regular game time resumes and the heroes can use their new abilities to compete, confront their enemy, or pass their "final exam."

style, this might be as simple as opening the Yellow Pages or as complex as a quest!

Once the PC has a teacher, he may spend character points on the abilities of the new style, starting with its required components. He must put at least a point into each basic skill he doesn't already know and then buy Style Familiarity. After spending points equal to style cost, he may acquire advanced abilities if he wishes.

The student can earn the points for his new style via study (see *Improvement Through Study,* p. B292) or on an adventure that exercises suitable skills. Either way, the most realistic rate of learning is a point per 200 hours of supervised lessons and practice. For a cinematic alternative, see *The Training Sequence* (see above).

Combining Styles

Every style has flaws. Striking styles are vulnerable to limb captures by grapplers. Grappling styles – especially ground-fighting ones – aren't ideal for fighting multiple aggressors. Unarmed styles are weak against weapons. Weapons training is worthless without a weapon. Hand-to-hand styles can't fend off ranged weapons. And so on.

One way to patch these holes is to learn a style that aims to be truly comprehensive, but such breadth implies a massive time investment by the student. The more common solution is to learn multiple styles. For instance, Muay Thai (pp. 185-186) stresses striking over grappling, while Brazilian Jiu-jitsu (pp. 167-168) emphasizes grappling but teaches few strikes . . . and a martial artist who learned *both* would be a formidable unarmed fighter.

A PC who *starts* with several styles must buy each style as described in *Styles Bought During Character Creation* (p. 146). He must pay the full style cost for each style, even if they have overlapping skills. This represents the minimum investment in time and effort to learn those styles.

However, the martial artist doesn't have to buy duplicate skills multiple times. If he already possesses some of a style's components, for whatever reason, these *do* satisfy his styles' requirements. For instance, if he knows three styles that include Karate, he need only buy Karate once – not three times! If this means that the sum of the style costs for his styles exceeds the points he actually needs to meet the basic requirements of those styles, he can spent the "excess" points on *any* component(s) of those styles.

Example: Maj. Milstein learns Krav Maga (p. 183) and Sambo (p. 185). Krav Maga has a style cost of 3 points, for Style Familiarity (Krav Maga), Karate, and Wrestling. Sambo has a style cost of 4 points, for Style Familiarity (Sambo), Judo, Karate, and Wrestling. Maj. Milstein *must* spend 7 points – but Karate and Wrestling overlap, so he can spend the 2 points this "saves" him on any component of *either* style. He puts them into the Leg Lock technique from Sambo.

The same rules apply to second and later styles learned *in play.* The student doesn't "know" a new style until he spends points equal to its cost, as described in *Learning New Styles During Play* (pp. 146-147). If he already knows some of the basic components of the new style, though, he can use points that would normally go toward those things to buy other elements of that style or any overlapping one.

Historical and Modern Styles

Below is a selection of historical and modern martial arts. It's only a small sampling, highlighting widely known or *interesting* styles. There are hundreds if not thousands of styles – and many have numerous sub-schools or regional or ethnic variants, or looked quite different at various points during their history.

Do vs. Jutsu

Traditional Japanese martial arts have names ending in either *-do,* meaning "way," or *-jutsu,* meaning "art." In theory, a style with a -do name is artistic, and emphasizes self-development or physical exercise under controlled conditions. A -jutsu ending denotes a style that focuses on techniques with practical applications in lethal combat, practiced under rigorous circumstances. Thus, "Aikijutsu" is a variety of combat grappling while "Aikido" is a form of spiritual enlightenment through martial training. Most modern schools follow this naming practice.

The distinction isn't rigid, though. Some schools that offer -do forms teach skills intended for combat, while certain schools of -jutsu forms instruct students in sportive or artistic styles. For example, Yoshinkan Aikido teaches the Tokyo Metropolitan Riot Police course – a one-year black-belt program of harsh training and grueling practice under realistic conditions – alongside its regular curriculum. On the other hand, modern Naginatajutsu schools restrict targets, and use wooden naginata for *kata,* bamboo-tipped naginata for competition, and kendo armor . . . all despite the -jutsu suffix.

Confusing matters further is the fact that some non-Japanese schools have adopted these suffixes, teaching Muay Thai Do or even T'ai Chi Jutsu. Not all instances of "do" refer to the Japanese word, either. The Korean art of Tae Kwon Do *is* a sport but *isn't* a "do" form, and Bruce Lee's Jeet Kune Do most definitely isn't an art or sport form!

Martial Arts takes the stance that, in general, -do forms teach Combat Art or Sport skills while -jutsu forms offer combat skills. If there's any doubt, ***Martial Arts*** assumes the combat form simply because ***GURPS*** is an adventure game and Art/Sport skills aren't very useful in the deadly situations that adventurers get into!

Style Origin

Every style has an "origin story." For recent styles, this is mundane historical record. For traditional styles, it's often mythical and unverifiable, laced with tales of mystical or divine influence. For instance, many Japanese *ryuha* claim as their origin an enlightening vision that inspired the founder to develop new tactics. Dozens of kung fu styles trace their genesis to the Shaolin Temple; others supposedly mimic the movements of animals. Ancient cultures often held that the gods themselves taught mortals the first fighting arts!

The truth is usually more pedestrian. Many styles emerged from much earlier ones whose origins are lost to history. Modern styles that trace their lineage to ancient times often derive more from *other* modern styles than from their supposed ancient heritage. For instance, modern Pankration styles are based largely on Jujutsu and Wrestling, and have no direct connection to ancient Greece. Similarly, Tae Kwon Do claims to be an amalgamation of multiple Korean styles but owes a lot to modern Karate, from which it borrowed its ranking system and *kata.*

For each style, ***Martial Arts*** gives the most common origin story *and* the historically verifiable facts, where these differ. In a cinematic campaign, legendary origins might be true. Such a game is also likely to have "ultimate styles" that spawned all other styles (see *Ultimate Styles,* p. 144).

When creating a new style, the GM should consider fabricating an origin story. This can be prosaic (like the origin of Jeet Kune Do) or seated in myth and legend (like the tales of the Shaolin Temple). In settings with strong fantastic or supernatural elements, many styles might *truly* be wisdom from the gods! Cultists trained in the sanity-blasting art of *Cthulhu Ryu* would be frightening indeed.

Style Variations

These style write-ups are merely guidelines. Not every school adheres rigidly to its style's traditional teachings or to a curriculum sanctioned by widely recognized masters. Some offer heavily modified styles. Others just borrow a name; for instance, a "karate" academy might teach a *Korean* striking art and a "jujutsu" instructor might give lessons in some style of Judo or Wrestling.

Sport Forms: Where a style has both combat *and* sport forms, the sport form appears in a nearby box unless it's the style's main version.

AIKIJUTSU

2 points

Aikijutsu (also called *Aikijujutsu*) was the grappling art of the Japanese *bushi*. Samurai used its techniques when disarmed, and to subdue foes in situations where using weapons was forbidden – such as in the presence of one's lord. Famous schools include Daito-ryu Aikijujutsu and Ueshiba Morihei's Aikijutsu. At least one school claiming to date from the 11th century still exists today.

Aikijutsu assumes that the enemy *will* resist, and doesn't wait for him to take the initiative. Stylists use few All-Out or Committed Attacks, and prefer to avoid directly confronting force with force. A typical move is to grapple the opponent, throw him, and then place him in a painful or crippling lock. Some schools teach fighters to attack or feint to provoke a reaction, and then take advantage of the foe's movement to grapple or throw him. These schools would add the Karate skill and Feint (Karate) technique, or teach Jujutsu (pp. 166-168) alongside Aikijutsu.

Historical Aikijutsu schools, especially prior to the Tokugawa era, assumed that both attacker and defender would be armored. They taught techniques for grappling, locking, and disarming an armored opponent on uneven ground. Even modern schools routinely teach how to defend against swords, staves, and knives. Faced with an armed adversary, a stylist would let him attack, then use Disarming or Arm Lock to take away his weapon or cripple his limb.

Japanese culture regarded rising to one's feet in the presence of one's lord as rude, so a samurai would learn to grapple with and disarm an assailant attempting to harm his lord without rising from his knees. For this reason, Aikijutsu teaches techniques for use while kneeling.

Skills: Judo.

Techniques: Arm Lock; Breakfall; Disarming (Judo); Ground Fighting (Judo); Low Fighting (Judo); Trip.

Cinematic Skills: Immovable Stance; Mental Strength; Pressure Points; Push.

Cinematic Techniques: Hand-Clap Parry; Roll with Blow.

Perks: Armor Familiarity; Power Grappling; Sure-Footed (Uneven).

Optional Traits

Advantages: Combat Reflexes; Forceful Chi; Language (Japanese).

Disadvantages: Code of Honor (Bushido); Duty (To lord).

Skills: Broadsword; Karate; Savoir-Faire (Dojo); Shortsword; Staff; Theology (Shinto).

Techniques: Finger Lock.

Aikido

3 points

Ueshiba Morihei founded Aikido in 1920s Japan as a more peaceful, artistic version of Aikijutsu. Its goals are spiritual development and finding inner harmony, but it has also become popular for self-defense. While O-Sensei (as Ueshiba is known) emphasized the development of the spirit and *ki*, some schools focus on the mechanics of locks and throws.

Aikido's main technique is the throw. Aikido throws describe a circular motion. The attacker (called the *uke* in training) flows with the defender's movement, assisting the throw and using Breakfall to land safely. Needless to say, this makes Aikido's throws less useful in a real fight than those of a style that trains against resisting opponents. Stylists don't regard this as an obstacle to the art's development, but it does limit Aikido's self-defense value.

Some Aikido schools *don't* assume an unresisting foe. A notable example is the Tokyo Metropolitan Riot Police course taught by the Yoshinkan Aikido school in Tokyo, Japan. Such teachings are sometimes termed "hard" Aikido. Even these schools teach artistic techniques and expect cooperation between uke and defender, though. To represent "hard" Aikido, add the Judo skill.

A few Aikido schools add strikes (*atemi*) to distract or "soften" the foe – and often to finish him once he's down! Use the style under *Aikijutsu* (see left) for this, with the addition of Karate.

Ueshiba was said to be capable of almost superhuman feats of skill, including the ability to dodge bullets with ease. In a cinematic game, these might be a set of secret techniques passed on to exceptional students.

Skills: Judo Art; Savoir-Faire (Dojo).

Techniques: Acrobatic Stand; Arm Lock; Breakfall; Finger Lock; Ground Fighting (Judo Art); Low Fighting (Judo Art).

Cinematic Skills: Immovable Stance; Invisibility Art; Mental Strength; Pressure Points; Push.

Cinematic Techniques: Dual-Weapon Attack (Judo Art); Roll with Blow.

Perks: Power Grappling; Skill Adaptation (Acrobatic Stand defaults to Judo Art).

Optional Traits

Advantages: Cultural Familiarity (Japan); Enhanced Dodge; Inner Balance; Language (Japanese).

Disadvantages: Delusions.

Skills: Breath Control; Judo; Knife Art; Staff Art; Theology (Omoto); Two-Handed Sword Art.

Armatura

6 points

Armatura was the fighting style of the Roman legions during the 1st through 3rd centuries A.D., when they were a professional army. The legions' armament dates to the 4th century B.C., however, and this style might have its roots in that period. The basic forms taught to legionaries, auxiliaries, and marines were similar – although the various arms emphasized different weapons. In many cities, young men of the upper and middle classes took instruction in military combat as a matter of pride. They, too, learned Armatura – but from professional instructors, sometimes brought in from gladiatorial schools.

Legionaries carried two *pila* (throwable spears). They would hurl one or both while the enemy was at a distance, and then engage with shield and *pilum* if holding ground, shield and *gladius* (sword) if assaulting. They trained to lead with their shield and use it offensively to shield bash or shove the enemy; Beats (pp. 100-101) with the shield were common. They also learned to minimize the disadvantages of their large shield, stabbing around it while using it for cover. Defensive Attacks (jabbing thrusts) were routine. More aggressive attacks – but only rarely Committed Attacks – generally followed up a successful shove or Beat. Parries were less common than blocks.

Auxiliary infantry learned a similar style but carried different equipment. Replace Shortsword with Broadsword and make Thrown Weapon (Spear) optional. *All* Roman troops prided themselves on their knowledge of dirty tricks. It would be reasonable to add a variety of unsporting techniques to any version of the style.

The Roman legions were a prosaic bunch; there are few tales of legendary feats of arms. However, given the great store Roman writers put by the stamina and bravery of their troops, cinematic legionaries might merit high FP, several levels of Fearlessness, and the Immovable Stance skill. Enhanced Block, and the skills Kiai (for the *barritus* battle cry) and Power Blow, also fit.

All Roman soldiers of the mid-to-late Empire probably learned Armatura. It became less common toward the end of the Empire – as auxiliaries became an increasingly large part of the Roman forces, it grew harder to find the necessary training. Armatura is also useful as the basis for styles for troops armed like Roman legionaries in fantasy worlds.

Skills: Hiking; Shield; Shortsword; Spear; Thrown Weapon (Spear).

Techniques: Feint (Shield or Shortsword); Retain Weapon (Shortsword or Spear); Targeted Attack (Shortsword Thrust/Vitals).

Cinematic Skills: Immovable Stance; Kiai; Power Blow.

Perks: Naval Training, for marines; Shield-Wall Training; Teamwork (Armatura).

Optional Traits

Secondary Characteristics: Improved FP.

Advantages: Combat Reflexes; Enhanced Block; Fearlessness; Fit.

Disadvantages: Duty; Stubbornness.

Skills: Axe/Mace; Brawling; Riding (Horse); Swimming; Wrestling. Auxiliaries might have Bow or Sling. All but the greenest of legionaries should know Soldier/TL2, which includes training at building forts *quickly*. Their supervisors would have Engineer/TL2 (Combat).

Armatura Equestris

6 points

The cavalrymen of the Roman Empire combined the military traditions of various subject peoples into a highly effective martial art. Their composite style blended standoff tactics (every soldier had to be proficient with either the javelin or the bow) with hand-to-hand techniques. Training included horsemanship. Some troops even learned how to cross bodies of water with their mounts while still in formation.

Roman horsemen wielded a medium shield of light construction in a mobile blocking style, and strove to keep the enemy on their shield side. The majority relied on the spear and the javelin as weapons, but riders often had training with the thrusting broadsword (similar to that of auxiliary infantry) and some troops were mounted archers. Cavalrymen thrust the spear downward rather than couching it like a lance. When tossing the javelin, they sometimes hurled it end-over-end instead of in a flat trajectory, to better slip around a defender's shield – a kind of Deceptive Attack (see *Tricky Shooting,* p. 121).

Armatura Equestris survived through much of the Dark Ages. Other European cavalry of the period used a similar style with heavier armor and longer spears, as did Byzantine horsemen. The latter favored the bow while Western forces preferred the javelin.

There are few legends of amazing abilities among the Roman cavalry. However, they sometimes claimed incredible skill both as riders and with their weapons. One left an epitaph commemorating how he shot an arrow into the air and then split it in two with a second arrow before it hit the ground . . . while on horseback . . . while his mount was swimming the Danube! Heroic Archer and the Zen Archery skill would fit heroes of this caliber.

The traits below assume a bow-armed cavalryman. For a javelin-equipped horseman, replace Bow with Thrown Weapon (Spear) and Horse Archery with Mounted Shooting (Thrown Spear/Horse). Some cavalrymen were recruited from the infantry; these should have the training under *Armatura* (see above), too. Armatura Equestris suits realistic "Knights of King Arthur." For the abilities of *legendary* Arthurian knights, see *Knightly Mounted Combat* (pp. 175-177).

Skills: Bow; Broadsword; Riding (Horse); Shield; Spear.

Techniques: Cavalry Training (Broadsword or Spear); Combat Riding; Hands-Free Riding; Horse Archery; Quick Mount.

Cinematic Skills: Zen Archery.

Perks: Strongbow; Sure-Footed (Water).

Optional Traits

Advantages: Animal Empathy; Combat Reflexes; Heroic Archer.

Disadvantages: Duty; Overconfidence; Stubbornness.

Skills: Axe/Mace; Brawling; Fast-Draw (Arrow); Knife; Swimming; Wrestling.

Bajutsu

3 points

Bajutsu was the traditional Japanese art of horsemanship. It taught the horseman how to control his mount. He had to study *fighting* from his mount separately. Other cultures that employed cavalry took a similar approach and had identical styles. Riders trained in Bajutsu or its equivalent should study an armed style separately or merge its techniques with those of Bajutsu via the Style Adaptation perk. For candidate styles, see *Armatura Equestris* (p. 150), *Furusiyya* (pp. 159-161), *Knightly Mounted Combat* (pp. 175-177), and *Yabusame* (p. 181).

Cinematic Bajutsu masters often have fantastic mounts and/or high levels of Animal Friend. They can also learn unique specialties of certain cinematic skills that enable them to augment their *mount's* abilities. These skills can't exceed the horseman's Riding skill, and work on the horse – not the rider.

Skills: Animal Handling (Equines); Riding (Horse).
Techniques: Combat Riding; Hands-Free Riding; Quick Mount; Staying Seated.
Cinematic Skills: Flying Leap (Horse); Immovable Stance (Horse); Light Walk (Horse).
Perks: Style Adaptation (Any mounted style).

Optional Traits

Advantages: Ally (Mount); Animal Empathy; Animal Friend; Signature Gear (Mount); Speak With Animals (Horses, -80%).
Disadvantages: Sense of Duty (Animals).
Skills: Acrobatics; Savoir-Faire (Dojo).
Techniques: Cavalry Training; Horse Archery; Mounted Shooting.

Bando

Bando is one of a range of Burmese martial arts that fall under the umbrella term *Thaing*. Prior to World War II, there were nine regional Bando styles. After WWII, most of these merged into ABA Bando, which is now common worldwide. This style appears below, along with the rarer Kachin Bando.

Bando is famous for its many animal forms, each of which represents an aspect of the style. Only the master's family learns the full style. This helps keep the style "pure" and prevents outsiders from learning all of the master's tricks.

All Bando styles practice physical toughening techniques such as striking tree trunks, heavy bags, or other hard objects. Physical fitness is emphasized – as is heedlessness of death.

ABA Bando

4 points

Dr. Maung Gyi – son of one of the men who developed Bando after World War II – introduced Bando to the U.S. in 1959, formed the American Bando Association (ABA), and founded its namesake style. ABA Bando is a powerful style meant for self-defense and combat situations. The ABA describes it as the "Jeep of martial arts": practical and reliable, but free of frills.

Stylists are known for their aggressiveness. Attacks are fast and continuous, aimed at overwhelming and defeating the foe. Rapid Strike and All-Out Attack (Double) are very common as the practitioner rains down blows on his adversary. He'll attack the legs in order to disable his opponent, and then switch his attention to the skull, face, and body to finish him. The goal is a rapid and decisive victory. The precise methodology depends on the fighter's animal form. Deer emphasizes flight and escape, snake focuses more on grapples and chokes, boar prefers a full-bore, head-on attack heedless of injury, and so on; see *Bando Animal Forms* (see above).

ABA Bando has a belt system like that of the Japanese martial arts, and students also wear the *gi*. Many techniques are adaptations from non-Burmese systems. This makes the system more eclectic and flexible but subjects it to claims that it's "watered down." Instruction in ABA Bando is available worldwide.

Skills: Judo; Karate; Savoir-Faire (Dojo).
Techniques: Aggressive Parry (Karate); Arm Lock; Counterattack (Karate); Elbow Strike; Hammer Fist; Head Butt; Head Lock; Knee Strike; Stamp Kick.
Cinematic Skills: Breaking Blow; Mental Strength; Power Blow.
Cinematic Techniques: Roll with Blow.

Bando Animal Forms

Bando contains various animal forms, the exact number of which depends on the specific school. There are typically 12 in ABA Bando (boar, bull, cobra, deer, eagle, monkey, paddy bird, panther, python, scorpion, tiger, and viper) and 16 in Kachin Bando (barking deer, boar, bull, cobra, crocodile, eagle, monkey, paddy bird, panther, python, scorpion, sun bear, tiger, viper, white elephant, and white rhino). These forms aren't sub-styles! They describe the personality, tactics, and favored techniques of the *fighter* – not of Bando itself. They also differ from kung fu animal forms, which aim to replicate the *animal's* tactics.

The lineage holder and his immediate family train in all of Bando's techniques and skills. Outsiders, even trusted students, learn only the small subset of moves appropriate to their animal form. This makes them effective fighters . . . but they lack the gamut of skills necessary to defeat the lineage holder and his family. A student who wishes to learn the full style must persuade his master to part with a family secret – or to let him join the family.

The GM may wish to treat each animal form as a separate Style Familiarity – e.g., Style Familiarity (Kachin Bando, Bull Form) – and reserve the full version – e.g., Style Familiarity (Kachin Bando) – for the lineage holder and his family.

Perks: Iron Legs; Power Grappling; Special Exercises (Striker, Crushing with Limb, Shin); Style Adaptation (Any modern style).

Optional Traits

Advantages: Fearlessness; Fit; High Pain Threshold.

Disadvantages: Bloodlust.

Skills: Knife; Philosophy (Buddhism); Smallsword; Whip; Wrestling.

Kachin Bando

3 points

Kachin Bando is a fighting style of the Jingpaw, or "men of the hills" – a northern Burmese people famous for their guerrilla campaigns against the Japanese in World War II. History credits them with killing more than 10,000 Japanese soldiers while losing only a few hundred men. "Kachin" is a Burmese term meaning "savage," sometimes used by outsiders to describe the Jingpaw. Strong animists, their Bando has 16 animal forms.

Kachin Bando incorporates many *Naban* (wrestling) moves. These include "bottom riding" techniques very similar to the guard of Brazilian Jiu-jitsu. The style respects no rules in true combat; it uses biting, eye-gouging, raking with the fingernails, and other "dirty" techniques. Advanced students may learn Banshay (p. 176) or just a few weapons, such as the knife and kukri.

Kachin Bando is an aggressive style aimed at quickly disabling or killing the enemy. Stylists throw shin kicks to the legs to cripple the foe, or to the head to knock him out, and often aim vicious hand strikes at the head and neck. If the fight goes to the ground, the fighter is likely to apply a Choke Hold, Leg Lock, or Arm Lock – using his hands *or* legs – to kill or incapacitate his opponent. Feints aren't common, while full-bore attacks are; a Committed Attack (Strong) or even All-Out Attack (Strong) with a punch, kick, or Knee Strike is a favorite way to knock out the enemy. Defenses are similarly hard: the Bando man likes to use Jam against kicks and Aggressive Parry (often with the elbow) to stop punches.

Students usually start by learning Lethwei (p. 186). Once they have a firm grounding in that art – and possibly after proving themselves in a few fights – they graduate to Bando lessons. Schools outside of Burma sometimes teach the full style from the outset, since Lethwei contests are less common than mixed martial arts fights and self-defense applications.

Cinematic Kachin Bando stylists should focus on brutal "hard" techniques rather than on chi abilities. As the Jingpaw are animists, spirit magic might suit a cinematic master – but the optional advantages below are more fitting than chi powers *or* magic.

Kachin Bando remains obscure today. Northern Myanmar is difficult to access and in a constant state of low-level rebellion, while there are few instructors outside the region. The style *is* taught in the Eastern U.S., however. Kachin Bando has no ranking system, uniform, or association.

Skills: Karate; Wrestling.

Techniques: Aggressive Parry; Arm Lock; Choke Hold; Elbow Strike; Eye-Gouging; Eye-Rake; Ground Fighting (Karate or Wrestling); Hammer Fist; Head Butt; Jam; Kicking; Knee Strike; Leg Lock; Low Fighting (Karate or Wrestling); Lower-Body Arm Lock; Lower-Body Leg Lock; Push Kick; Triangle Choke.

Cinematic Skills: Power Blow.

Cinematic Techniques: Roll with Blow; Timed Defense.

Perks: Biting Mastery; Iron Legs; Neck Control (Karate); Power Grappling; Special Exercises (Striker, Crushing with Limb, Shin); Style Adaptation (Lethwei).

Optional Traits

Secondary Characteristics: Improved FP and HP.

Advantages: Combat Reflexes; Damage Resistance (Tough Skin, -40%); Fearlessness; Fit or Very Fit; Hard to Subdue; High Pain Threshold; Striking ST.

Disadvantages: Bloodlust; Overconfidence.

Skills: Axe/Mace; Judo; Knife; Shortsword.

Boxing

4 points

This is the *modern* sport of boxing. It developed out of bare-knuckle and no-holds-barred matches in the 19th century, but it has deeper roots: the ancient Greeks boxed in the Olympics and the Romans featured boxing in their arenas. Historically, most matches were bare-knuckle – although the ancient Greeks and Romans wore the *myrmex* (p. 220) or *cestus* (p. 214) to inflict more damage! Before modern times, matches weren't timed; victory was by either submission or incapacitation.

Modern boxing stresses footwork, hand speed, and striking power. Permissible targets are the front of the torso above the waist, the head, and the arms – but only the head and torso count for scoring. It's illegal to grapple, kick, or indeed strike with anything but the knuckles of the hand. Boxers wear padded gloves to protect their hands. Because gloved hands rarely get hurt punching the skull, there's a heavy emphasis on head blows. Severe head trauma can occur from prolonged bouts (or prolonged careers!) and deaths in the ring occur every year. Today's matches typically have 10 to 12 three-minute rounds, but 15 rounds or even unlimited rounds were common in the past.

Boxing rewards defensive tactics and guarded movement. In game terms, boxers stick to Defensive Attack (the jab), Feint, Wait, and Evaluate until an opening presents itself for an Attack. This goes on until one contender is worn down, stunned, or otherwise vulnerable – then his opponent delivers a Committed Attack or even an All-Out Attack to finish the bout. Move and Attack is deprecated in favor of more cautious movement, and All-Out Attack is rare *except* to finish a beaten adversary.

Special tricks and techniques are common. Combinations (p. 80) are a favorite, the classic "one-two" being a straight left-hand punch followed instantly by a straight right-hand punch. Boxers learn to lean into the ropes that border the ring to absorb some of the force of punches (cinematic boxers might be able to roll with a punch *anywhere,* not just in the ring). Dirty tricks – blows to the vitals or groin, "accidental" head butts, and even gouging the eyes with the thumb – can cost you points or get you disqualified, but sneaky (or desperate!) boxers employ them nonetheless.

Boxing is a sport, but boxers hit hard and practice with full contact. All should learn the Boxing skill – although Boxing Sport is appropriate for amateur bouts, exhibitions, and purely point-based tournaments. Boxers who cross-train to become kickboxers or train to fight outside the ring commonly learn Low-Line Defense.

"Roadwork" – jogging and running – has been part of boxers' training since at least the time of ancient Greece. The Running skill isn't mandatory, but a PC boxer would need a good explanation for a trainer or gym that didn't expect him to run! Roadwork is the standard way to build up the stamina and overall fitness that are crucial for boxers. Improving endurance, strength, and staying power is at least as important as developing technique. The GM should let boxers who *do* train like this increase ST, DX, and HT, provided they have the points.

Boxers are legendary for their agility and ability to take punishment without serious harm – perhaps because they're so fit and train in conditions that match their competitive arena. The optional traits below reflect this. Higher-than-usual HP and Basic Speed, and even low levels of Striking Strength, might be realistic. The GMs should certainly permit cinematic boxers to possess such traits, as well as DR (Ablative, -80%) so they can take shots without feeling it.

The Sweet Science

Before the ring and gloves, boxing was a sport of the ancient Greeks. It never disappeared – although from the Middle Ages until about the Napoleonic period, fighters used the Brawling skill as often as the Boxing skill, and brute strength generally garnered more admiration than technique. Certain tactics common to ancient and modern boxing, such as sidestepping and slipping, fell into disuse.

Ancient Greek Boxing

3 points

In ancient Greece, boxing was a brutal Olympic sport. Fighters wore little or no hand protection, but sometimes donned the *myrmex* or *cestus* to dish out more punishment. Only the head and torso were legal targets. Bouts could result in serious injury or maiming. All of this (along with the style traits below) applies equally to Roman boxers. Many Greek boxers trained in Pankration (pp. 188-189), too. Such athletes should learn that style instead but add Style Familiarity (Boxing) and Games (Boxing) to reflect participation in both sports.

Skills: Boxing; Games (Boxing).
Techniques: As *Boxing* (pp. 152-153), but add Exotic Hand Strike (Boxing).
Perks: Skill Adaptation (Exotic Hand Strike defaults to Boxing); Special Exercises (DR with Ablative); Special Exercises (Striking ST +1).

Bare-Knuckle Boxing

3 points

Before being codified as a sport, boxing was an often-illegal contest with few rules. Ground techniques were forbidden, but fighters used standing grapples, chokes, and all manner of blows prohibited in modern matches. Many cultures have some form of stand-up, bare-knuckle contest. This style with the "Street" lens (p. 38) can represent the techniques used in underground "boxing clubs" and back-alley brawling.

Skills: Boxing; Wrestling.
Techniques: As *Boxing* (pp. 152-153), but add Head Butt.
Perks: As *Boxing*, but replace Clinch with Skill Adaptation (Head Butt defaults to Boxing).

Optional Traits

Secondary Characteristics: Improved FP, as matches have *no* time limit and frequently go on for hours.

Skills: Boxing; Boxing Sport; Games (Boxing).
Techniques: Counterattack (Boxing); Feint (Boxing); Targeted Attack (Boxing Punch/Face); Targeted Attack (Boxing Uppercut/Face); Uppercut.
Cinematic Skills: Power Blow.
Cinematic Techniques: Roll with Blow.
Perks: Clinch (Boxing); Neck Control (Boxing); Special Exercises (DR with Ablative); Special Exercises (Striking ST +1); Unusual Training (Roll with Blow, Only against the ropes).

Optional Traits

Attributes: Reduced IQ (too many head blows!).
Secondary Characteristics: Improved Basic Speed and HP.
Advantages: Fit or Very Fit; Hard to Subdue; High Pain Threshold; Striking ST.
Disadvantages: Reduced Appearance.
Skills: Running; Savoir-Faire (Gym).
Techniques: Low-Line Defense (Boxing).

Capoeira

4 points

Capoeira is an acrobatic martial art developed in Brazil by African slaves imported by the Portuguese. Its exact origins are unclear, but it seems to have grown out of a fusion of fighting arts from several parts of Africa. Savate (pp. 193-194) might have influenced it as well. In any event, Capoeira has existed in some form since the 16th century, although it has become more organized and visible in recent times.

Dance is a traditional form of practice and demonstration in African martial arts. Capoeira inherited this trait. Tradition claims that its dances enabled slaves to practice their art under the nose of unwitting overseers. Whatever the truth, dance and Capoeira are closely linked. Musical instruments – notably the *berimbau* (a bow-like stringed instrument) and drums – are a fixture at the Capoeira *jogo* (match), and strikes occur within the context of the rhythm and beat.

Capoeira fighters claim that slaves could do the style's athletic kicks – especially its signature handstand kicks – while chained at both wrists and ankles. This might be optimistic but it's in-genre for a cinematic game. A trained *mestre* (master or teacher) could certainly defend himself once freed! Thus, Capoeira let escaped slaves protect themselves from recapture.

Capoeira stylists are in constant motion, mixing high-line strikes with low-line sweeps in a flowing series of attacks. Kicks make frequent use of Deceptive Attack, for kicks coming out of acrobatic moves, *and* Telegraphic Attack, for showy, easily spotted kicks. Fighters commonly alternate between Committed Attack and All-Out Defense (Increased Dodge). A handstand kick – executed by standing on one or both hands and then kicking out with the feet – is an All-Out Attack (Strong) with one foot or an All-Out Attack (Double) with two. Because acrobatic moves are so fundamental to the style, practitioners may learn the Acrobatic Kicks perk as soon as they have a point in Acrobatics (*instead* of the usual 10 points in skills and techniques).

Knobbed Club

Groundwork and defense are also important. Stylists use Sweep to take a foe to the floor and Scissors Hold to grapple a vulnerable adversary. They dodge more often than they parry, making frequent use of retreats and Acrobatic Dodge.

Early forms of Capoeira were taught informally, without an established curriculum or ranks. Fighters typically learned it from fellow slaves – or later, on the street – and honed their skills by putting the lessons to practical use. These "schools" also trained with such easily found weapons as knives, machetes, razors, and sticks. Dirty fighting tactics were common, especially holding razors between the toes (requires the style's unique Razor Kicks perk and inflicts thrust-1 *cutting*) and throwing dirt in the eyes. This variety of Capoeira still exists on the streets in certain places.

Modern schools often mix Capoeira with Karate, Jujutsu, and other Asian martial arts. Some have ranking systems with colored *cordões* (cords, worn as belts), fairly uniform clothing, and *kata*-like drills. An *academia* of this kind might place more emphasis on jogo and sportive play, and teach Karate Art and Wrestling Sport instead of combat skills – although this isn't universally true. Students rarely get training in weapons other than sticks, which are used in a dance-like drill to make music (add Smallsword Art).

Cinematic mestres should definitely have actual combat skills and weapons training! Any cinematic ability that improves leaping and dodging is suitable, as is the Springing Attack technique.

Skills: Acrobatics; Karate; Wrestling.

Techniques: Acrobatic Stand; Axe Kick; Back Kick; Ear Clap; Feint (Karate); Hammer Fist; Head Butt; Jump Kick; Kicking; Scissors Hold; Spinning Kick; Sweep (Karate).

Cinematic Skills: Flying Leap; Power Blow.

Cinematic Techniques: Roll with Blow; Springing Attack.

Perks: Acrobatic Feints; Acrobatic Kicks; Razor Kicks; Technique Mastery (Kicking).

Optional Traits

Advantages: Enhanced Dodge; High Pain Threshold; Language (Portuguese); Musical Ability, especially in sport and art forms.

Disadvantages: Bloodlust; Overconfidence; Reputation (Uses dirty tricks).

Skills: Dancing; Knife; Musical Instrument (Berimbau and others); Savoir-Faire (Dojo); Shortsword; Singing; Smallsword.

Chin Na

2 points

Traditional Chinese kung fu has four parts: kicking, punching, grappling, and seizing vital points. Chin Na (roughly, "seize and control") – also called "Chin Na Kung Fu" – is a term for the last two aspects. It's a truly ancient art. Grappling has been part of China's martial tradition since before written record, and joint-manipulation and locking techniques are equally old.

Martial artists typically learn Chin Na as part of one or more other Chinese styles, most of which describe their joint-locking methods as "Chin Na." Chin Na is also the subject of many texts on its own, however, and remains remarkably consistent across styles that teach it. It's sometimes taught independently, to students from many arts. For game purposes, it qualifies as its own style.

Chin Na aims to control and defeat the opponent by manipulating joints and activating pressure points. It regards painful locks that force the victim to submit without permanent injury as merciful, as its methods can cripple or kill! The Chin Na practitioner attempts to get a hold on his adversary – usually by making a parry that sets up an Arm Lock or Finger Lock. In a life-or-death struggle, he'll use more harmful techniques. He might even act offensively, grappling his enemy in order to use locks and throws. Fully offensive postures such as All-Out and Committed Attack are uncommon, though.

Chin Na is often taught alongside traditional healing and first aid. Students are expected to be able to use their knowledge to heal as well as to harm. Cinematic practitioners can utilize their extensive knowledge of pressure points to kill or to heal, and might become inured to pain thanks to endless practice with their *sifu*.

Skills: Judo.

Techniques: Arm Lock; Choke Hold; Finger Lock; Head Lock; Leg Grapple; Trip.

Cinematic Skills: Pressure Points; Pressure Secrets.

Cinematic Techniques: Pressure-Point Strike.

Perks: Technique Mastery (Arm Lock); Technique Mastery (Finger Lock); Unusual Training (Pressure Points).

Optional Traits

Advantages: High Pain Threshold; Language (Chinese).

Disadvantages: Pacifism (Cannot Kill).

Skills: Esoteric Medicine; First Aid; Philosophy (Buddhism or Taoism); Physiology; Savoir-Faire (Dojo).

Dagger Fighting

3 points

This knife-fighting style is based on medieval and Renaissance European martial arts but differs little from Asian, African, and ancient Roman arts. It would fit into almost any setting "as is." Likewise, while "dagger" historically described a fairly specific weapon (see Chapter 6), Dagger Fighting works with *any* of the fighting knives used worldwide for streetfighting and personal defense, and as auxiliary weapons in dueling and warfare – singly or in pairs. Practitioners typically favor larger blades, however.

Most schools taught both the "sword" grip (the normal grip) and the "ice pick" grip (see *Reversed Grip,* pp. 111-112). Dagger fighters learned to switch rapidly between grips to take full advantage of the fluid mix of knife work and grappling that characterizes a knife fight. Tactics emphasized feints, disarms (barehanded and by slashing hands and arms), and direct attacks. "Spinning" techniques – for instance, turning one's back on an advancing enemy in order to drive one's knife backward and into him – weren't unknown.

"Kung Fu"

"Kung fu" is a Chinese term for "hard work" or "good effort." Originally applied to any endeavor, it has become synonymous with the martial arts. Kung fu isn't a specific style. It's a blanket term for *all* Chinese martial arts. The uninformed often misapply it to other fighting arts, though – much as they do "karate."

Many of the styles in this chapter are forms of kung fu: Chin Na (p. 154), Hsing I Chuan (pp. 162-163), Hung Gar (p. 163), Pa Kua Chuan (pp. 187-188), Pak Hok (p. 188), Praying Mantis (pp. 191-192), Shaolin Kung Fu (p. 194), T'ai Chi Chuan (pp. 200-201), Wing Chun (pp. 203-204), and Wushu (pp. 206-207). Kuntao (pp. 178-179) is a variety of kung fu taught in Indonesia. Other styles drew heavily on kung fu during their development, including Jeet Kune Do (pp. 164-165), Kajukenbo (p. 168), and Kempo (pp. 172-173). There are hundreds if not *thousands* of kung fu styles and sub-styles!

The dagger fighter prefers to circle his foe, feinting, jabbing, and watching for any weakness or opportunity. This is a series of Wait, Evaluate, Feint, and Defensive Attack maneuvers. He'll move in for the kill only when his adversary is vulnerable – injured, feinted, etc. Multiple, darting attacks are more likely than a single powerful blow, and the fighter might deliver several potentially lethal blows to ensure that his enemy dies quickly enough to be unable to return the favor.

Most attacks target the arm or hand to disarm, or the neck or vitals to kill. Stylists do stab but often prefer the cut, simply because a slash at arm's length offers superior reach. Single-knife schools also grapple using the empty hand (often known as the "live hand"). Moves include grabbing the opponent's weapon and grappling his weapon arm in order to break it or render his weapon harmless, usually after a parry.

As martial arts go, Dagger Fighting comes with few improbable claims. A couple of cinematic skills fit the style, though. Hypnotic Hands suits the complex rhythms of knife work, while Power Blow would let low-damage knives deal powerful blows that could instantly cripple limbs or kill.

Modern knife-fighting schools are remarkably similar to historical ones but tend to replace the emphasis on parrying larger weapons (such as swords) with gun-disarming techniques. It's difficult to find training in serious knife-fighting in realistic conditions outside of military and covert-ops circles. Moreover, it's often illegal to carry a weapon-length knife, and *using* even a legal one can mean trouble with the law! This last matter isn't a modern phenomenon. Even in historical settings where everyone carried and used knives as tools, ordinary citizens often regarded skilled knife-fighters as desperados or criminals.

In any era, many knife-fighters learn another style as well – either armed or unarmed.

Skills: Knife; Wrestling.

Techniques: Arm Lock (Knife or Wrestling); Armed Grapple (Knife); Back Strike (Knife); Choke Hold (Knife); Feint (Knife); Retain Weapon (Knife); Reverse Grip (Knife); Spinning Strike (Knife).

Cinematic Skills: Hypnotic Hands; Power Blow.

Cinematic Techniques: Dual-Weapon Attack (Knife or Wrestling); Fighting While Seated (Knife).

Perks: Off-Hand Weapon Training (Knife); Quick-Swap (Knife).

Optional Traits

Advantages: Ambidexterity.

Disadvantages: Reputation (Thug).

Skills: Brawling; Fast-Draw (Knife); Main-Gauche; Thrown Weapon (Knife).

Techniques: Disarming.

Escrima

4 points

Escrima is likely the best-known martial art of the Philippines. Famous as a stick- and knife-fighting style, it includes unarmed techniques as well. The notes below apply not only to Escrima but also to the related styles Kali and Arnis, and to the numerous variations on all three arts.

"Escrima" and "Arnis" are bastardizations of the Spanish terms *esgrima* (fencing) and *arnes* (harness, short for "harness of the hand"), but the styles don't derive from Spanish fencing. The true origin of Escrima is unclear, but some sources date it to at least 1521, when natives armed with sticks and bows fought with Ferdinand Magellan's expedition and slew Magellan. Local folklore – and the simple nature of the style's weapons – point to an even longer history.

Escrima training starts with sticks made of fire-hardened rattan, palm, or ebony. Later training adds knives (used in both normal and "ice pick" grips) and – in some schools – machetes. Empty-hand movements are based on stick and knife techniques, and every unarmed motion is amplified when a weapon is in hand. The *guro* (master) decides when the student is ready to graduate from sticks, to blades, and finally to empty hands. *Escrimadors* (as Escrima stylists are known) also learn a number of locks and holds, using the stick as a lever to disarm, immobilize, or choke the opponent.

Escrimadors prefer the Defensive Attack and Attack maneuvers to Committed Attack and All-Out Attack. They'll often attack the enemy several times in rapid succession – the style accepts that a foe rarely falls to a single technique – and skilled fighters will employ Rapid Strikes. Kicks tend to be low-line Defensive Attacks. Movement is "triangular," with the fighter moving between the points of an imaginary triangle rather than straight forward or back. This is true both on the offensive (attacks tend to be indirect) and on the defensive (the Sideslip retreat option is more common than the Slip or simple retreat).

Escrima is *aggressive*. It always assumes that the foe is armed, and escrimadors learn to parry an opponent's weapons and counterattack swiftly. Emphasis is on attacks to the arms, hands, and legs rather than to the body, the goal being to disarm or cripple the foe before he can injure the escrimador – a strategy sometimes called "defanging the snake." The stylist finishes disarmed or weakened adversaries with attacks to the vitals, neck, and skull, or using a lock or choke. Even the style's defenses work toward these goals, with Aggressive Parry being typical. Traditional parrying surfaces are the elbows, knees, and shins – not the forearms and legs.

In addition to the above, early escrimadors learned to use bows and shields, throw knives, and render first aid. They often studied tactics for fighting in small groups or against multiple foes. These skills are optional, but a historically accurate escrimador would know them all!

Modern Escrima schools sometimes limit training to stickfighting in light-contact, heavy-padding bouts. Students of such schools wouldn't learn Karate or Main-Gauche, and should replace Smallsword with Smallsword Sport, making style cost 2 points. This isn't universal – plenty of schools emphasize real contact, minimal protection, and harsh training. A few also add the *balisong* (p. 212) and techniques to draw it quickly.

Breakaway schools – famously, Dog Brothers Martial Arts in the U.S. – add ground techniques from Brazilian Jiu-jitsu, as well as additional locks and holds. Such schools teach attacks off standing grapples. One such tactic is to parry and Slip to close with the opponent, and then grapple him and seek a stick-assisted Choke Hold. Schools like this add Wrestling, Ground Fighting (Wrestling), and Ground Fighting (Smallsword). Style cost becomes 5 points.

Escrima incorporates several subsystems for using two weapons at once, including *sinawali* (two sticks), *espada y daga* (sword/stick and knife), and *daga y daga* (knife and knife). Even in a realistic game, escrimadors may learn an Unusual Training perk that lets them improve Dual-Weapon Attack. Both attacks must be directed at a single foe.

Skills: Karate; Main-Gauche; Smallsword.

Techniques: Aggressive Parry (Karate); Arm Lock (Smallsword); Armed Grapple (Smallsword); Choke Hold (Smallsword); Disarming (Smallsword); Elbow Strike; Feint (Main-Gauche or Smallsword); Knee Strike; Targeted Attack (Main-Gauche Swing/Arm); Targeted Attack (Main-Gauche Swing/Hand); Targeted Attack (Smallsword Swing/Arm); Targeted Attack (Smallsword Swing/Hand).

Cinematic Skills: Mental Strength; Power Blow; Pressure Points.

Cinematic Techniques: Dual-Weapon Attack (Main-Gauche or Smallsword); Dual-Weapon Defense (Smallsword).

Perks: Off-Hand Weapon Training (Main-Gauche or Smallsword); Unusual Training (Dual-Weapon Attack, Both attacks must target the same foe); Weapon Adaptation (Shortsword to Smallsword).

Optional Traits

Advantages: Ambidexterity; Combat Reflexes.

Disadvantages: Berserk (see *Berserk and the Martial Arts*, p. 179); Bloodlust.

Skills: Bow; Boxing; Fast-Draw (Balisong, Knife, or Sword); First Aid; Judo; Savoir-Faire (Dojo); Shield; Staff; Tactics; Thrown Weapon (Knife); Wrestling.

Fencing Styles

Like "kung fu" and "karate," "fencing" describes an entire spectrum of martial arts. In ***GURPS,*** it refers to any of the many sword styles built around the fencing skills (p. B208): Rapier, Saber, and Smallsword – and sometimes Main-Gauche. Some historical masters were willing to mix and match weapons, unarmed techniques, and tactics to suit their personal taste. Others dedicated themselves to a single weapon.

Below is a sampling of some major schools of fencing. In each case, there were *many* minor variations. In a campaign set in an appropriate era, the GM may require a separate Style Familiarity for each master's teachings!

Italian School

5 points

Italian fencing originated in the 16th and 17th centuries, and revolved around the teachings of such masters as Camillo Agrippa, Ridolfo Capo Ferro, and Girard Thibault. The main weapon was the rapier, with a knife, a cloak, or occasionally a second rapier (the two constituting "a case of rapiers") held in the off hand. The Italian School emphasized counterattacks in "one time," meaning a combination defense/riposte instead of a parry-and-counterattack rhythm. This strategy sacrificed some defensive surety for a chance to strike back.

Fighters of this school make extensive use of the Riposte (pp. 124-125), and follow up this gambit with an Attack or even a Committed Attack, but only rarely with a Defensive Attack. Italian stylists seek to counter the foe *quickly,* forgoing some defense for a good offense. Defensively, Italian School fencers are more likely to dodge, or to parry with a secondary weapon, than to parry with their main blade while pressing the attack. This aggressive counterattacking can get a fencer in trouble; the Overconfidence disadvantage definitely fits!

Grappling was very much a part of the style. Some schools taught throws in addition to grapples and locks, and even instructed students in catching an incoming blade with the off hand. Such schools would substitute Judo for Wrestling.

Cinematic fencers frequently augment this style with Acrobatics and Jumping to gain additional mobility. They

Stickfighting

Stickfighting is one of the most ancient forms of combat – only slightly more recent than unarmed grappling and striking. A primitive ancestor of man armed with a thighbone and an Escrima *guro* doing *sinawali* with rattan sticks are both stickfighters; Escrima is but one of hundreds of stickfighting styles known to the world throughout history. Adventurers will encounter stickfighting across Africa, Asia, Europe (Ireland, Portugal, Russia . . .), and the Americas, from prehistoric times to the present day.

African Stickfighting

2 points

Sub-Saharan Africa has a rich stickfighting tradition. Some styles use a stick grasped in the middle as a parrying stick and another stick gripped at the end to strike. Such styles sometimes use a weapon much closer to a knobbed club (p. 219) for striking – add Axe/Mace for the primary stick, making style cost 3 points, and use Smallsword for the off-hand parrying stick. (Irish shillelagh fighting uses similar tactics: attacks are with a knobbed club, parries are with a shorter stick in the off hand.)

Skills: Smallsword.
Techniques: As *Escrima* (pp. 155-156), but remove all Karate and Main-Gauche techniques. For styles with Axe/Mace, any technique listed for Smallsword is also available for Axe/Mace.

Optional Traits

Advantages: Ambidexterity.
Skills: Brawling.

La Canne de Combat

2 points

French cane fighting emerged during the Napoleonic period, when wearing swords was banned within Paris' city limits. Parisians switched to canes and wielded them with sword techniques. Some schools used a crook-topped cane as long as 5 1/2 feet; these schools would replace Smallsword with Staff and add the Hook (Staff) and Sweep (Staff) techniques. This style was often taught in conjunction with Savate (pp. 193-194).

Modern French cane-fighting schools teach double-cane techniques, as well as Knife (for the bowie knife and straight razor), Shortsword (for the cutlass), Staff, and Whip. Some add firearms training, too.

The style used with the German *dusack* (p. 215) would be similar; simply replace Smallsword with Shortsword. Martial artists who prefer long, narrow canes would replace Smallsword with Rapier. In both cases, adjust the techniques to match the master skill.

Skills: Smallsword.
Techniques: Disarming (Smallsword); Feint (Smallsword).

Optional Traits

Advantages: Ambidexterity.
Techniques: Dual-Weapon Attack (Smallsword).

Victorian Singlestick

2 points

The sport of singlestick originated in 18th- and 19th-century Britain and America. Based on saber and broadsword practice, participants would carry a single stick, with the other hand either held or tied behind the back. American president Teddy Roosevelt was an enthusiastic singlestick player. Singlestick also influenced the Sikh sport of *gatka,* or sword-dancing. *Gatka* practitioners should add the Dancing and Stage Combat skills, making style cost 4 points.

Skills: Broadsword Sport.
Techniques: Feint (Broadsword Sport).

Optional Traits

Skills: Games (Singlestick).

often have access to a body of amazing techniques with which to defeat lesser foes, including the legendary flying lunge and mastery of two-weapon fighting. Weapon Master (Rapier and Main-Gauche) is indispensable!

Italian masters often trained students in weapons of war as well. The broadsword, longsword, two-handed sword, and pike were standard military weapons of the age, and more useful than a rapier against armor or when fighting in formation.

Skills: Main-Gauche; Rapier; Shield (Buckler); Wrestling.
Techniques: Bind Weapon (Main-Gauche or Rapier); Counterattack (Rapier); Disarming (Main-Gauche or Rapier); Feint (Main-Gauche or Rapier); Targeted Attack (Main-Gauche Thrust/Vitals); Targeted Attack (Rapier Thrust/Face); Targeted Attack (Rapier Thrust/Neck); Targeted Attack (Rapier Thrust/Vitals).
Cinematic Skills: Flying Leap.
Cinematic Techniques: Dual-Weapon Attack (Main-Gauche or Rapier); Dual-Weapon Defense (Main-Gauche or Rapier); Flying Lunge (Rapier); Grand Disarm (Rapier); Hand Catch; Initial Carving (Rapier).
Perks: Off-Hand Weapon Training (Rapier); Technique Adaptation (Counterattack).

Optional Traits

Advantages: Ambidexterity; Combat Reflexes; Enhanced Dodge.
Disadvantages: Overconfidence.
Skills: Acrobatics; Broadsword; Cloak; Jumping; Rapier Art; Savoir-Faire; Spear; Two-Handed Sword.

La Verdadera Destreza

4 points

La Verdadera Destreza ("The True Skill") was the Spanish school of swordsmanship. It was a *civilian* art. In fact, the Spanish were among the first to recognize that military and civilian swordfighting were distinctly different. It developed as a method of dueling and satisfying the demands of honor – a testament to the Spanish sensitivity to honor.

> *What noise is this? Give me my long sword, ho!*
>
> *– Capulet,* ***Romeo and Juliet***

The stances and techniques of La Verdadera Destreza drew heavily from mathematics and science, and stylists – *diestro* – studied Classical geometry and natural philosophy in addition to the sword. The ideal diestro remained cool and detached, projecting dignity and grace. He avoided excessive motion and "vulgarity" in form or technique in favor of efficient, geometry-based movements. He learned to watch his opponent and "read" his stance in order to respond at the best moment. The diestro also maintained blade-to-blade contact as much as possible in order to sense his adversary's intent from his blade. Masters were said to be able to use these methods to fight effectively even in the dark!

La Verdadera Destreza emphasizes reaction to the opponent's opening. The diestro stands erect, point toward the enemy, awaiting the perfect moment to strike. He attacks only when he achieves *desvio:* redirection of (or possibly *indifference* to) his foe's weapon. Thus, the style's signature moves are the Evaluate and Wait maneuvers. When the adversary launches an attack that leaves him vulnerable, the diestro parries and then follows up with a Counterattack to a vital location. He eschews the similar but riskier Riposte (pp. 124-125).

The style also teaches disarms and counters to disarms, and how to fight with either hand – indeed, some stylists learn to fight with two rapiers simultaneously. Unarmed techniques aren't part of the style. The diestro defeats his foes using his blade, not by wrestling.

In a cinematic game, the sensitivity and poise of the diestro suggest several special abilities. The style is also well-suited to Weapon Master (Rapier). Cinematic stylists *won't* be flashy fencers like those in the movies. Instead, they'll be extremely composed, unflappable, and imperturbable in the face of the enemy.

Skills: Expert Skill (Natural Philosophy); Mathematics/TL2 (Pure); Rapier.

Techniques: Bind Weapon (Rapier); Counterattack (Rapier); Disarming (Rapier); Feint (Rapier); Retain Weapon (Rapier); Targeted Attack (Rapier Thrust/Face); Targeted Attack (Rapier Thrust/Neck); Targeted Attack (Rapier Thrust/Vitals).

Cinematic Skills: Blind Fighting; Light Walk; Mental Strength; Precognitive Parry.

Cinematic Techniques: Dual-Weapon Attack (Rapier); Dual-Weapon Defense (Rapier); Initial Carving (Rapier).

Perks: Chi Resistance (Kiai); Off-Hand Weapon Training (Rapier); Sure-Footed (Uneven).

Optional Traits

Advantages: Combat Reflexes; Danger Sense; Enhanced Parry (Rapier); Unfazeable; Weapon Master (Rapier).

Disadvantages: Code of Honor (Spanish); Overconfidence.

Skills: Body Language; Cloak; Main-Gauche; Philosophy (Hermetic); Rapier Art or Sport; Savoir-Faire.

Perks: Weapon Bond.

Transitional French School

4 points

Thanks to gunpowder, the popularity of armor continued its decline in the years after the Italian School (p. 156) appeared. Heavy armor-piercing weapons, in turn, also became less common. The rapiers of the time capitalized on the prevalence of light weapons and armor by becoming shorter and lighter.

In France, a fencing style soon emerged to take advantage of this. The heyday of this "Transitional French School" was between 1640 and 1720 – a period known today as the Transitional Era – when fencers widely regarded it as a superior way to use a rapier. Its masters taught that the sword alone was the basis of both offense and defense, and did away with defensive weapons such as the cloak and main-gauche. Its importance faded with the early 18th-century development of the smallsword and the rise of schools that favored it (see *French Smallsword,* p. 159).

A fencer of this style *usually* starts the fight on the defensive. He favors Evaluate and Wait until he parries and creates an opening, and then opens his own offensive with a Counterattack. Deceptive Attacks are common, typically in the form of a glide along the opponent's blade. However, the rapierist might also attempt extremely aggressive (and risky!) attacks, such as an All-Out Attack (Long) ending in a crouch – a floor lunge – to attack a distant foe, or a two-step Committed Attack (Determined) to press an adversary who's giving ground.

Cinematic masters of this style are much like those of the later French Smallsword style. They're highly mobile, attempting acrobatic techniques, great leaps, and fantastic lunges. High DX, Basic Speed, and Acrobatics are common, and Perfect Balance is extremely useful for running along banisters and landing after chandelier swings!

Historically, this style gave equal weight to elegance of execution and effectiveness of technique, and some masters taught methods that were more artistic than practical. For these, eliminate Rapier but retain Rapier Art. Such *salons* were a great place to learn both secret techniques (p. 86) and useless techniques (p. 95). Most schools took their training seriously, though, and prepared students for deadly duels.

Skills: Games (Sport Rapier); Rapier; Rapier Art.

Techniques: Bind Weapon (Rapier); Close Combat (Rapier); Counterattack (Rapier); Disarming (Rapier); Feint (Rapier); Retain Weapon (Rapier).

Cinematic Skills: Flying Leap.

Cinematic Techniques: Flying Lunge (Rapier); Initial Carving (Rapier).

Optional Traits

Secondary Characteristics: Improved Basic Speed.

Advantages: Enhanced Parry (Rapier); Perfect Balance; Status; Wealth.

Disadvantages: Code of Honor (Gentleman's); Delusion ("My style is inherently superior to all others."); Overconfidence.

Skills: Acrobatics; Broadsword; Jumping; Main-Gauche; Savoir-Faire; Shield Art (Buckler); Two-Handed Sword Art.

French Smallsword

4 points

French Smallsword represented the apex of the fencing arms race. As fencers placed increasing emphasis on the riposte, they sought progressively shorter blades to give them greater speed and maneuverability. The result was the smallsword: a short, stiff thrusting blade. The attendant fencing style became a gentleman's martial art, with the riposte and elegant form as its core values. Proponents claimed that its defensive techniques applied to *all* combat – not just to smallsword fencing. Such claims resemble those of an "ultimate style" (see *Ultimate Styles*, p. 144). In a cinematic game, smallsword fencing might indeed hold all of the secrets of combat!

French Smallsword's signature tactic is the Riposte (pp. 124-125): a parry and counterattack "in one time." Disarms are also routine; a stylist might parry his enemy's blade, whip it from his grasp, and then dispatch his unarmed victim. Some fighters even attempt this as an All-Out Attack (Double) – but should it fail, the would-be predator is likely to end up prey. Smallsword fencers often use All-Out Attack (Long) to lunge at a distant foe, typically stabbing but occasionally making a Tip Slash (p. 113). Advanced students learn to grapple, but the aim is always to ward off the opponent's attack and run him through.

Cinematic masters of this style are fluid, elegant, and acrobatic. The Jumping and Acrobatics skills are as common as Enhanced Parry. Swashbucklers might swing from chandeliers, slide down banisters, and disarm half a dozen foes with a single sweep of the blade. They're blindingly fast *and* incredibly agile, and able to use their prodigious defensive abilities with any weapon. High DX and Basic Speed are a must!

This style was common from the early 18th century until about 1830. Its main weapon was the smallsword, but masters were still expected to train students in the cavalry saber and sometimes the cutlass. Smallsword fencing was significantly more artistic than the rapier styles it replaced. While it was a functional martial art, many students learned an overly artistic form . . . yet believed in its utter invincibility. Such students would often know secret techniques (p. 86) or useless techniques (p. 95).

Skills: Games (Sport Fencing); Smallsword; Smallsword Art.

Techniques: Bind Weapon (Smallsword); Close Combat (Smallsword); Disarming (Smallsword); Feint (Smallsword); Retain Weapon (Smallsword); Targeted Attack (Smallsword Thrust/Vitals).

Cinematic Skills: Flying Leap.

Cinematic Techniques: Flying Lunge (Smallsword); Grand Disarm (Smallsword); Initial Carving (Smallsword).

Perks: Quick-Sheathe (Sword); Quick-Swap (Smallsword).

Optional Traits

Advantages: Enhanced Parry (All); Perfect Balance; Status; Wealth.

Disadvantages: Code of Honor (Gentleman's); Delusion ("My style is inherently superior to all others"); Overconfidence.

Skills: Acrobatics; Broadsword; Broadsword Art; Jumping; Main-Gauche; Main-Gauche Art; Riding (Horse); Savoir-Faire; Shortsword; Shortsword Art; Staff Art; Two-Handed Sword Art; Wrestling.

Furusiyya

5 points

Furusiyya was the combat horsemanship style of the Mamluks, slave soldiers trained from childhood. It evolved out of earlier tactics used widely by Muslim armies. Manuals surviving from the 13th century detail the Mamluk version, but researchers believe that Furusiyya was essentially identical across the Islamic world. The practitioners of Furusiyya – like their contemporaries, the elite knights of Europe – regarded their combat skills as a fine art. Not all Muslim warriors received such extensive training, but their basic skills were similar.

Contrary to longstanding myth, Islamic horsemen wore armor – sometimes more than their Christian opponents. However, the training and tactics of Furusiyya prepared them better for the role of light cavalry. The style depended heavily on the bow and spear held two-handed, although fighters did use the small shield in close quarters. Furusiyya's weapons also included such exotica as fire siphons, naphtha grenades, and crossbows that launched primitive Molotov cocktails. Like many exotic weapons, such things were probably less effective than bows and spears (or else *everyone* would have used them!). In a cinematic campaign, though, the GM should let stylists use these devices to good effect.

Those trained in Furusiyya learn a fast-paced, fluid style of combat. They keep their distance from the enemy and engage the foe only on ground of their choosing. Mounted, they alternate between raining down arrows and swooping in using the spear. The bow always precedes the spear against uninjured, prepared opponents. When closing with the spear, stylists use Evaluate to look for an opening. The attack itself is two-handed and overhand – often a Committed Attack (Strong) or an All-Out Attack (Strong).

Furusiyya fighters also use the broadsword, emphasizing the cutting stroke. Some use two swords in a double-blade style. This is only somewhat cinematic. Even in a *realistic* game, it's possible to use one blade to Beat (pp. 100-101) and the other to strike a blow as part of a Dual-Weapon Attack.

Sport Fencing

Sport fencing largely eliminates moves that are dangerous to one's opponent. The point is to test skill – not to kill one's adversary – so sport styles favor safety and structure over the rough-and-tumble of combat fencing. For instance, sport fencers rarely swing their weapons; even saber cuts are powered by wrist and fingers, not hip and shoulder, making them faster but reducing the odds of injury. Matches take place on a strip and emphasize linear movement . . . unlike duels of the past, which took place wherever honor demanded. Further distinguishing sport fencing from combat are such rules as "right of way" and "priority," which determine which hits count and which fencer can attack, and in what manner.

In game terms, sport fencers don't use the Strong option for All-Out or Committed Attack. The Determined, Feint, and Long versions are quite common, however. The Deceptive Attack and Riposte combat options see extensive use, too.

Cinematic sport fencers aren't bound by these restrictions. The GM ought to let such PCs learn combat *and* Combat Sport skills, and give them access to the full range of maneuvers and combat options. Their techniques should work as well in battle as on the strip.

Below are several sport-fencing styles. *Schläger* is less common than the others and uses a bare blade; injury determines the victor.

Épée

3 points

Épée uses a sporting version of the rapier. Only thrusting attacks can score but the entire body is a valid target. No "right of way" rules apply.

Skills: Games (Epee Fencing); Rapier Sport.
Techniques: Counterattack (Rapier Sport); Feint (Rapier Sport).

Optional Traits

Advantages: Enhanced Parry (Rapier).

Foil

3 points

The foil (p. 215) was developed in the late 19th century as a practice blade. Épée fencers often learn Foil as an introduction to fencing, but it *is* a full-fledged sport of its own. The only valid target in Foil is the torso. Thrusts only count if you have "right of way," which lasts from the start of your attack until your opponent successfully parries and ripostes, giving *him* the right of way.

Skills: Games (Foil Fencing); Smallsword Sport.
Techniques: Counterattack (Smallsword Sport); Feint (Smallsword Sport).

Optional Traits

Advantages: Enhanced Parry (Smallsword).

Saber

3 points

Saber fencing developed from cavalry sword practice. Since cutting attacks are very effective from horseback, Saber includes both cuts *and* thrusts. Valid targets are the body above the hip line. "Right of way" applies in Saber just as in Foil.

Skills: Games (Saber Fencing); Saber Sport.
Techniques: Counterattack (Saber Sport); Feint (Saber Sport).

Optional Traits

Advantages: Enhanced Parry (Saber).

Schläger

3 points

Schläger (or *Mensur*) is the form of "academic" swordplay used as a test of personal quality by German fraternities since the late 18th century. It still has its adherents. It uses the sharp-edged *mensurschläger* (p. 220). Participants don goggles and wrap the head and neck to prevent serious injury. They then trade Defensive Attacks, slashing at the face – the only valid target – until someone is cut deeply enough to bleed. This frequently scars, and some fighters participate expressly to gain a dueling scar as a badge of honor!

Skills: Broadsword Sport; Games (Schläger Fencing).
Techniques: Feint (Broadsword Sport); Targeted Attack (Broadsword Cut/Face).

Optional Traits

Advantages: Enhanced Parry (Broadsword).
Disadvantages: Distinctive Features (Dueling scars).

Cinematic stylists routinely brandish two swords, launch devastating spear thrusts, and make incredible long-distance bow shots from horseback. Legends of Furusiyya-trained warriors emphasize their speed and accuracy, not mythical abilities. Heroic Archer is very appropriate.

The Mamluks of Egypt practiced Furusiyya until the early 19th century; Mamluk cavalry fought Napoleon at the Battle of the Pyramids. Its heyday was during the 13th-century Crusades. Finding a Furusiyya teacher shouldn't be difficult for Muslim PCs. Non-Islamic warriors are probably out of luck . . . although some auxiliaries in Crusader armies – the mostly Christian, mostly locally born *turcopoles* – trained to fight in the same manner.

Skills: Bow; Broadsword; Riding (Horse); Spear.
Techniques: Cavalry Training (Broadsword or Spear); Combat Riding; Hands-Free Riding; Horse Archery; Quick Mount; Targeted Attack (Broadsword Swing/Neck); Targeted Attack (Spear Thrust/Vitals).
Cinematic Skills: Zen Archery.

Cinematic Techniques: Dual-Weapon Attack (Broadsword).

Perks: Off-Hand Weapon Training (Broadsword); Strongbow; Unusual Training (Dual-Weapon Attack, Both attacks must target the same foe).

Optional Traits

Advantages: Enhanced Parry (Any); Heroic Archer.

Disadvantages: Disciplines of Faith; Impulsiveness; Overconfidence.

Skills: Animal Handling; Axe/Mace; Brawling; Crossbow; Fast-Draw (Arrow); Liquid Projector (Flamethrower); Shield; Throwing.

Hapkido

5 points

Hapkido ("Way of Coordinated Power") is a Korean martial art developed during the 1950s. Its founder learned Aikijutsu (p. 149) in Japan, and combined it with Judo (p. 166) and Korean striking arts on returning home. One of his students later named the resulting style. Hapkido incorporates strikes, throws, and joint locks, as well as weapons training for advanced students. It uses a colored belt system similar to that of Tae Kwon Do (p. 200). Despite its recent origins, the style has spread rapidly; it isn't difficult to find a Hapkido school in Korea, Europe, or North America.

Three main principles guide Hapkido methodology. The Circle Principle states that all techniques are round and cyclical, each feeding off the results of the previous one. The River Principle says that the style must conform to the circumstances but unleash power in a sudden torrent, like a river. The Influence Principle holds that the martial artist should use movements that influence his opponent to make responses that he can anticipate and counter. The idea is to make one's *adversary* do most of the work that leads to his defeat.

Stylists use locks, throws, and strikes, separately and in combination. They often let the opponent strike first, neutralize his attack, and then counter it. A counter to a high kick might be a Leg Grapple followed by a Sweep or a takedown; a counter to a punch might be a parry followed by an Arm Lock and/or a Judo Throw. The martial artist sometimes follows the victim of a throw to the ground to apply a Choke Hold. It's also common to mix in kicks and punches; for instance, after an Arm Lock and before a Judo Throw. Hapkido includes spectacular kicking techniques, too: jumping kicks, kicks thrown from a kneeling posture at a foe behind, and high kicks. Many of these follow a successful Arm Lock, to ensure that the target won't be able to defend effectively.

Hapkido weapons include the short staff, sword (often a bokken), and jutte. Many masters reserve training in these for higher-ranking students. However, even beginners learn *defenses* against such weapons.

Hapkido is young, but like many arts it claims a heritage that includes ancient styles. The cinematic skills and techniques below are those that match the legends of these "ancestor" martial arts, as well as the stories surrounding the style's founder and his most important students. Masters are said to have great control of their minds – and sometimes those of their students, even at great distances . . .

Skills: Judo; Karate; Karate Sport; Savoir-Faire (Dojo).

Techniques: Arm Lock; Back Kick; Breakfall; Choke Hold; Head Lock; Jump Kick; Kicking; Leg Grapple; Leg Lock; Spinning Kick; Sweep (Judo or Karate).

Cinematic Skills: Breaking Blow; Flying Leap; Power Blow.

Cinematic Techniques: Flying Jump Kick; Roll with Blow.

Perks: Back Kick possible from kneeling without posture penalty.

Optional Traits

Advantages: Language (Korean); Telepathy Talent.

Disadvantages: Overconfidence.

Skills: Broadsword; Jitte/Sai; Knife; Staff.

Hoplomachia

5 points

Hoplomachia was the armed combat style of the ancient Greek city-states. Most citizens learned only the spear and shield, but dedicated warriors studied the entire art. The style outlasted the citizen armies, and was common among professional soldiers and mercenaries alike. For an earlier style suitable for "heroic" Greek warriors, see *Heroic Spear Fighting* (p. 196).

Hoplomachoi (as practitioners were known) lead with their medium shield, often held out at an angle in front of the body or even horizontally, rim pointed toward the enemy. They use shield bashes, Beats (pp. 100-101) with the shield, and shoves to render the foe more vulnerable before bringing the spear into play. Favorite targets for the spear are the less-armored neck and face. Defensively, stylists prefer to block with the shield rather than parry with the spear. Close in, hoplomachoi make aggressive use of the spiked spear butt or resort to a sword – typically a shortsword but occasionally a broadsword. A common tactic is to grapple an adversary in order to drive the sword or butt spike into him.

Practitioners of Hoplomachia often acted as teachers, offering their services to young men seeking training in the style as well as in unarmed combat styles; see *Pankration* (pp. 188-189) and *Ancient Greek Boxing* (p. 153). Greek society was divided on their status: some thought them essential to a city's military strength while others regarded them as dangerous men of doubtful morals. Indeed, a number of philosophers agued that this kind of training was detrimental to a soldier because it taught him how to defend *himself* rather than to rely on his comrades in a firm battle line. Whatever the prevailing view, a teacher would not be difficult to find in ancient Greece.

Skills: Shield; Shortsword; Spear; Wrestling.
Techniques: Close Combat (Shortsword); Feint (Shield); Spinning Strike (Spear); Targeted Attack (Spear Thrust/Face); Targeted Attack (Spear Thrust/Neck).
Cinematic Skills: Immovable Stance; Push, used with shield.
Perks: Grip Mastery (Spear); Naval Training, for elite *epibatai,* or marines, aboard triremes; Teamwork (Hoplomachia).

Optional Traits

Advantages: Combat Reflexes; Cultural Familiarity (Ancient Greece); Enhanced Block; Language (Ancient Greek).
Disadvantages: Duty (Polis); Reputation (Dangerous man of doubtful morals); Sense of Duty (Polis).
Skills: Boxing; Brawling; Broadsword; Hobby Skill (Feats of Strength); Running.

External vs. Internal, Hard vs. Soft

Martial artists often distinguish between "external" and "internal" styles. External arts stress physical achievement and strong attacks. Internal ones emphasize spiritual development, and sometimes have deep philosophical underpinnings (e.g., in Taoism or Buddhism). This distinction originated in China, which traditionally sorted the martial arts into the Wudong schools (Taoism-based styles such as Hsing I Chuan, Pa Kua Chuan, and T'ai Chi Chuan), which were deemed "internal," and the Shaolin schools (all other Chinese styles), which were identified as "external."

Another common way of classifying the martial arts is to dub them either "hard" or "soft." Hard styles are those that meet force with force in an effort to overwhelm the opponent, while soft ones are those that yield to aggression and attempt to redirect the enemy's force. Faced with an attacker, a hard school defends and then counterattacks – or even seizes the initiative and attempts to defeat the foe *before* he can attack. A soft stylist seeks to avoid confrontation, and responds with a throw, trip, or lock if attacked.

The "external vs. internal" split is more legendary than actual. An external style might counsel spiritual development; for instance, Nito Ryu Kenjutsu (pp. 174-175) is solidly external but its creator wrote a deeply philosophical work on the martial arts: *A Book of Five Rings.* The "hard vs. soft" dichotomy is similarly idealized; few "hard" styles lack "soft" parries and retreats. And while external styles *tend* to be hard and internal ones *tend* to be soft, this isn't universal. Hsing I Chuan (see below) is hard *and* internal, while Judo (p. 166) and Wrestling (pp. 204-206) are soft *and* external. A single art might have elements from each of these four categories!

Today, these terms describe a style's methodology more than anything else. "Hard" is another way of saying that the art makes heavy use of striking (Boxing, Brawling, Karate, and Melee Weapon skills), as exemplified by Boxing (pp. 152-153), Jeet Kune Do (pp. 164-165), Karate (pp. 169-172), Wing Chun (pp. 203-204), and most armed styles. "Soft" suggests a preference for grappling (Judo, Sumo Wrestling, and Wrestling skills); Aikido (p. 149), Chin Na (p. 154), Pa Kua Chuan (pp. 187-188), and T'ai Chi Chuan (pp. 200-201) are good examples. "External" and "internal" are used the same way by everyone but purists.

Hsing I Chuan

3 points

Hsing I Chuan (also known as *Hsing-yi* or *Xingyichuan*) is one of China's three main "internal," or Taoist, styles. Unlike its sister arts Pa Kua Chuan (pp. 187-188) and T'ai Chi Chuan (pp. 200-201), Hsing I Chuan is linear and direct. Modern research traces its origins to a teacher in mid-17th century Shanghai, who developed it from spear techniques. However, legend attributes its invention to General Yue Fei in the Song Dynasty (960-1127), who created it as a style for army officers. Supposedly, masters passed down the art in secret until the mid-1600s, when it became widespread.

Hsing I Chuan is organized around five "fists" (strikes) and 12 animal styles. The fists are named for the five traditional Taoist elements and the type of strike used: water ("drilling"), wood ("penetrating"), earth ("crossing"), metal ("splitting"), and fire ("pounding"). This focus on strikes makes Hsing I Chuan unusual for an "internal" style. The style is linear and depends on very firm stances; Hsing I Chuan fighters are famously hard to budge. The stylist relaxes his body until the last instant, when he tenses to strike, defend, or throw. In training, forms are less common than two-person drills aimed at teaching the proper feel for combat.

Hsing I Chuan is an offensive-minded martial art. Its normal stance is compact, faces the foe, and keeps the hands up to defend the vitals and face. Practitioners seek to attack first. If this is impossible, the stylist attempts to avoid his enemy's attack and then launch an overwhelming counterattack into his assailant's motion. The most common methods of doing so are the Counterattack technique and the Riposte option (pp. 124-125). Typical follow-ups to parries include Exotic Hand Strike (usually aimed at the torso), Sweep, and Arm Lock.

Hsing I Chuan makes more use of the hands than the feet, and kicks are uncommon. The style also favors crippling and killing attacks over throws and merely painful locks. After injuring a foe with a lock, a Hsing I Chuan stylist releases his grip in order to free both hands for defense. Practitioners tend to favor a single, powerful attack over multiple strikes; a straightforward Attack or Committed Attack (Strong) is common, only rarely with the Rapid Strike option.

Hsing I Chuan formerly used many weapons, including the spear, staff, various edged swords, the hook sword, and the halberd. Modern schools often omit weapons training. Advanced students sometimes still learn these traditional weapons, though.

Cinematic Hsing I Chuan masters are said to be unmovable after settling into a stance, capable of defeating foes with a shout, and able to sense danger as it approaches. They often perfect Power Blow in order to deliver body-shattering strikes.

Hsing I Chuan and Pa Kua Chuan share a history. Past masters of these arts befriended one another and exchanged techniques and forms. Students of one style often train in the other, and some forms of each school are amalgamations of both. Hsing I Chuan schools aren't common, but there are instructors worldwide.

Skills: Judo; Karate.

Techniques: Arm Lock; Counterattack (Karate); Exotic Hand Strike; Sweep (Judo or Karate); Trip.

Cinematic Skills: Breaking Blow; Immovable Stance; Kiai; Mental Strength; Power Blow; Pressure Points; Pressure Secrets; Sensitivity.

Cinematic Techniques: Lethal Strike; Pressure-Point Strike; Springing Attack; Timed Defense.

Perks: Style Adaptation (Pa Kua Chuan); Technique Adaptation (Counterattack).

Optional Traits

Secondary Characteristics: Improved Per.

Advantages: Danger Sense; Enhanced Parry (Bare Hands).

Disadvantages: Bloodlust.

Skills: Breath Control; Broadsword; Polearm; Savoir-Faire (Dojo); Shortsword; Spear; Staff.

Hung Gar Kung Fu (Tiger-Crane Style)

4 points

Legend has it that one of the Five Masters who survived the burning of the Shaolin Temple in the 17th century passed along his kung fu skills to fellow rebels against the Manchu in the form of Hung Gar. Later, one of the style's most famous practitioners – Chinese folk hero Wong Fei-Hung (p. 22) – created the tiger-crane variation described below. The actual history is hard to verify. Hung Gar certainly existed in Wong Fei-Hung's time, as he built upon an existing system rather than inventing his own. It *might* stretch back as far as the 17th century, but that's conjecture. Today, Hung Gar is taught worldwide. It isn't difficult to find a master, but the style has a reputation for extremely strenuous apprenticeships.

There are many forms of Hung Gar, but all include the tiger as the basic animal form. Tiger-crane combines the physical power and courage of the tiger with the committed strikes, deceptive movements, and counterattacks of the crane (see *Pak Hok*, p. 188). Hung Gar is a southern Chinese style, and emphasizes firm stances, close-in tactics, low-line kicks, and high-line punches. It teaches fighters to use both hands equally, to fight armed and unarmed, and to keep their balance on slippery planks and rocking boats. Students study deep breathing and remain in deep stances for long periods of time in order to learn to hold firm against a foe.

Stylists prefer to use Aggressive Parry to ward off attacks, and then follow immediately with a Counterattack. This counter is very strong and often a Committed Attack or even an All-Out Attack. The style's teachings consider evasion less important than the ability to withstand attacks and counter them in place.

Hung Gar also has an armed component. Masters sometimes reserve this training for advanced students. Weapon forms include staff, spear, broadsword, paired broadswords, paired butterfly swords, whip, polearm, knife, and double whip.

Hung Gar holds chi development in high regard, as its deep breathing and strong stances suggest. Thus, cinematic masters should be capable of great feats. They should also be strong, fit, and possess remarkable patience and endurance. Exceptional physical abilities – including high ST, HT, and FP – are as likely as chi powers.

Skills: Breath Control; Karate; Philosophy (Buddhism).

Techniques: Aggressive Parry (Karate); Counterattack (Karate); Exotic Hand Strike; Hammer Fist; Jam; Stamp Kick.

Cinematic Skills: Body Control; Immovable Stance; Power Blow; Pressure Points; Pressure Secrets.

Cinematic Techniques: Pressure-Point Strike.

Perks: Iron Body Parts (Any); Naval Training; Off-Hand Weapon Training (Any); Sure-Footed (Slippery).

Optional Traits

Secondary Characteristics: Improved FP and HP.

Advantages: Ambidexterity; Fit or Very Fit; Language (Cantonese); Striking ST.

Disadvantages: Overconfidence.

Skills: Broadsword; Judo; Knife; Polearm; Shortsword; Spear; Staff; Whip.

Techniques: Dual-Weapon Attack (Broadsword, Shortsword, or Whip).

Hwa Rang Do

5 points

Hwa Rang Do (HRD) is a Korean art with ties to the fighting and healing techniques of the Hwarang (p. 14). It's said to have originated from *um yang kwan* ("hard and soft together"), martial skills influenced by 1,500 years of Korean history. The modern style known as Hwa Rang Do was founded in Seoul in 1960, by Dr. Joo Bang Lee. It isn't simply a fighting style; black sash-ranked students learn healing and philosophy, and study chi and meditation intensively. HRD is most common in the U.S., South Korea, and Europe, but there are schools worldwide.

Hwa Rang Do combines striking and grappling, and mixes these unarmed techniques with weapons training. Strikes are both linear and circular. Grappling includes throws and submission holds, often in conjunction with pressure-point activation.

Hwa Rang Do stylists prefer to open a fight with punches and kicks in an attempt to disable or injure the foe. The spinning kick is one of the style's signature moves, and is performed jumping, standing, kneeling, and as a leg sweep – most often as a Committed Attack (Determined). After injuring his opponent or successfully parrying an attack, the HRD stylist closes in to grapple, seeking to finish the fight with an Arm Lock, Judo Throw, takedown, or choke. Fighters train to move smoothly into and out of grappling range, using strikes and grapples interchangeably.

Even low-ranked students learn weapons; PCs who study HRD should start buying weapon skills immediately. Standard weapons are the *sang-jyel-bong* (nunchaku), staff, spear, broadsword, knife, and short staff. Optional weapons training is extensive, and includes the baton and bow. HRD schools also encourage parallel training in *Kumdo* (Korean Kendo – use the rules for *Kendo,* p. 175). At advanced levels, weapons training mixes takedowns, sweeps, and strikes.

Hwa Rang Do has a large body of legendary abilities. The extensive study of chi and practice of chi-based feats make it especially powerful in a cinematic campaign. Legends attribute body- and mind-control powers, telepathy, and secret pressure-point techniques to masters – and note that training in such matters is part of the curriculum for high-level black sashes even today.

Skills: Judo; Karate; Karate Sport; Savoir-Faire (Dojo).

Techniques: Arm Lock; Back Kick; Breakfall; Counterattack (Karate); Disarming (Judo); Exotic Hand Strike; Head Lock; Jump Kick; Kicking; Spinning Kick; Sweep (Karate).

Cinematic Skills: Body Control; Breaking Blow; Power Blow; Pressure Points; Pressure Secrets.

Cinematic Techniques: Pressure-Point Strike.

Perks: Chi Resistance (Any); Spinning Kick takes no posture penalty; Unusual Training (Breaking Blow, Only vs. well-braced objects out of combat).

Optional Traits

Advantages: Fit or Very Fit; Language (Korean); Telepathy Talent.

Disadvantages: Overconfidence.

Skills: Breath Control; Broadsword Art; Esoteric Medicine; First Aid; Flail; Judo Art; Karate Art; Knife; Meditation; Shortsword; Smallsword; Spear; Staff; Two-Handed Sword Art.

Jeet Kune Do

3 points

In 1967, Bruce Lee (pp. 24-25) founded Jeet Kune Do (JKD) in California. He welcomed all students who could meet his high standards of training. In describing his art, Lee said, "Jeet Kune Do is a process, not a goal; a means but not an end, a constant movement rather than an established static pattern." In other words, Lee didn't consider JKD to be a style – although this didn't prevent fiction, movies, and schools from representing it as one after his death. JKD is taught worldwide today. *How* it's taught varies greatly; see *The Tao of Jeet Kune Do* (see box).

Jeet Kune Do rejects the aesthetic and spiritual considerations of traditional martial arts. Lee believed that those styles were incomplete and restrictive, and placed too much emphasis on set patterns. JKD emphasizes spontaneity; it's a set of tools for engineering a flexible response to *any* violent situation. Anything that works is acceptable: grappling, throwing, striking, ear twisting, biting. JKD favors direct attack and instant counterattack over traditional "defend-then-counter" approaches. It also demands rigorous physical training – a legacy of its founder's obsession with fitness and the great demands his art makes of its practitioners.

The Tao of Jeet Kune Do

Jeet Kune Do (JKD) is an evolving art. Bruce Lee himself felt that it wasn't a style at all, but a process. He believed that even *naming* JKD might have been an error – it made it easier to mistake his process of exploration for a finished result.

While Lee didn't favor stagnation in the martial arts, he did believe that he had stripped his fighting style down to a core of simple, useful techniques applicable to all humans. Yet he also felt that martial arts were about "honestly expressing yourself," and that each person would have to learn about him- or herself through the arts – not simply study another's way. His paradoxical endorsement of both the individual need to explore and learn *and* the idea that all humans have the same tools to fight with led JKD to develop along two different paths after his death.

Some schools teach a fairly rigid curriculum in an attempt to match Lee's style as it was at the time of his death. They believe that one should not throw away Lee's experience, teaching, and knowledge in favor of new developments. Other schools heavily add to and subtract from JKD, and maintain that the true lesson of JKD is that it must continue to grow. Ironically, *both* types of schools have often added additional techniques and skills to the JKD syllabus, while Lee saw JKD as a process of subtraction – like a sculptor removing what's unnecessary to depict his subject.

With the GM's permission, players should be able to add to or subtract from the techniques listed under *Jeet Kune Do* (p. 165) to represent the curriculum of *their* school. JKD/Escrima and JKD/grappling-style blends are especially common. Other schools may teach another style but import a few tools or techniques from JKD and use the JKD name. These schools should simply add Style Adaptation (JKD) to their main style; they don't teach the full version of JKD.

Jeet Kune Do fighters typically put their "power side" (dominant hand) forward. This is the opposite of what most styles counsel, including Boxing. Stress is on the attack, even when on the defensive; the Counterattack technique and the Riposte option (pp. 124-125) are favorite tactics. Deceptive Attacks stacked with feints are also common, as Lee was a great believer in "progressive indirect attacking": throwing a series of strikes and using each attack to draw an opening for the next. JKD practitioners aim kicks at the legs to bring down the opponent, and hand strikes at the eyes, face, vitals, and groin.

Martial-Arts Uniforms

The stereotypical martial-arts uniform is the ubiquitous Japanese *gi* (slang for *dogi*). Worn by *judoka* and *karateka,* it consists of loose, string-drawn cotton pants and a wrap top, cinched with an *obi* (belt) denoting rank. The traditional gi is white, but many schools wear black, blue, or even multicolored gis – either for style (black became popular during the ninja-crazed 1980s) or for practical reasons (black doesn't show stains!). Asian and Asian-derived styles often use the gi.

Many other styles have trademark garb. Boxers wear shorts, *sumotori* wear a *mawashi,* wrestlers wear a singlet, and Tapak Sutji Pentjak Silat students wear a red uniform with yellow striping. There are countless other examples.

Some Aikido, Aikijujutsu, and traditional Japanese *budo* schools (teaching Kendo or Kyudo, for example) use the *hakama,* or split skirt. Worn over a normal gi, this is split front and back to allow free movement of the legs.

Kung fu schools often adopt the pajama-like silk shirt common in China, along with gi-like drawstring pants. These uniforms are likely to be brightly colored, not white or black. Most have sashes instead of belts.

Mixed martial arts practitioners commonly wear shorts and gloves (women add a sport top) – the expected uniform in no-holds-barred matches. Typically, students train in shorts and t-shirts. Brazilian Jiu-jitsu stylists are a notable exception, usually training (and competing) in a gi, which they regard as an important part of their art.

Modern schools emphasizing "street use" or self-defense often train in street clothes. Students of historical schools – especially in styles that teach skills meant for actual combat – also tend to wear day-to-day clothing, not a uniform. This *may* be fairly uniform in nature, but such martial artists don't change into special clothes to train!

Uniforms in Combat: The crucial difference between fighting in and out of clothing – including uniforms and armor – is that nudity offers fewer handholds, making it easier to break free. If you're naked or in a skin-tight outfit, you get +1 to break free. Increase this to +2 if sweaty (at least 1 FP lost to exertion or heat) or +3 if oiled (lasts for one fight and costs $2 per application). Elaborate garb, including traditional Japanese costume, has many handholds and gives *-1*.

If JKD has a signature attack, it's the "straight blast." This starts with a front-hand straight punch with the striker's full body weight behind it – often a Committed Attack. It's frequently used to intercept an attacker (see *Stop Hits,* p. 108). The opening blow is then followed by a series of Rapid Strikes to disrupt and overwhelm the victim.

Lee built JKD from a number of styles. It draws heavily on Wing Chun (pp. 203-204), and also on Boxing (pp. 152-153), Escrima (pp. 155-156), fencing, other kung fu styles, and Lee's own extensive experience and experimentation. He added spectacular high kicks for their cinematic impact, but primarily used low kicks in practice. The central philosophy of JKD was reduction – not addition. Lee experimented with many techniques from other arts but only kept a tight core of broadly useful ones. JKD fighters don't have a wide range of techniques but rather an extensive range of applications for the small set they practice. Recognizing his art's stripped-down nature, Lee sometimes referred to JKD as "scientific streetfighting."

While Lee demonstrated his ability with weapons on film, JKD is an unarmed martial art. Nevertheless, some schools offer weapons training – and cinematic Bruce Lee clones should possess numerous weapon skills to better match his movie exploits! Lee also enjoyed *tameshiwari,* or breaking, but regarded it as an amusing stunt and not a combat skill. JKD is a combat style. No sport version exists, although Lee chose his moves on the set as much for how they looked as for how well they would work in a fight.

Lee had little regard for the special powers that some traditional martial-arts masters claimed. This didn't prevent admirers from ascribing such abilities to him – a result of his charisma, skill, and fame. The cinematic components below reflect Lee's exploits *in the movies.*

Skills: Judo; Karate.

Techniques: Counterattack (Karate); Ear Clap; Elbow Strike; Eye-Poke; Feint (Karate); Head Butt; Kicking; Knee Strike; Stamp Kick.

Cinematic Skills: Power Blow; Pressure Points; Pressure Secrets; Push.

Cinematic Techniques: Flying Jump Kick; Lethal Eye-Poke; Lethal Strike; Pressure-Point Strike.

Perks: Biting Mastery; Style Adaptation (All); Technique Adaptation (Counterattack); Technique Adaptation (Feint).

Optional Traits

Advantages: Combat Reflexes; Fit or Very Fit.

Disadvantages: Delusion ("Bruce could . . ."); Obsession (Perfect my martial art).

Skills: Brawling; Flail; Running; Savoir-Faire (Dojo); Smallsword; Staff; Thrown Weapon (Shuriken); Wrestling.

Techniques: Jump Kick.

Perks: Off-Hand Weapon Training (Flail or Smallsword).

Judo

4 points

Judo is a Japanese combative sport that focuses on grapples and throws. It was one of the first martial arts taught on a large scale in the West. It became popular in Europe in the 1920s and '30s, and in America after World War II. Today, Judo is an Olympic sport that attracts competitors from around the world.

While Judo evolved from Jujutsu (see below), it's definitely a sport. It concentrates on throws, not on locks or chokes, and has many modifications aimed at reducing the likelihood and severity of injuries. Judo doesn't teach counters to punches and kicks, either, and many moves that work well against another *judoka* (Judo player) on a mat would be dangerous at best in a real fight. Some schools use *kata* to walk through various throws and holds, and competitions often feature artistic displays of kata. Judo training isn't gentle, though; competitive players use *randori* – a form of freestyle sparring – to prepare for matches.

Judo was partly responsible for the Western myth that a small-but-skilled martial artist could defeat any foe, no matter how large. In reality, many techniques legal in Judo matches depend as much on strength as on skill. Judo tournaments have weight classes for a reason!

If Judo has a body of larger-than-life lore, it's the exotic techniques, strange abilities, and unlikely victories of weak over strong depicted in Western television and movies – notably in the 1960s – with no explanation other than "I know Judo!" Wildly inaccurate depictions sometimes even included "Judo strikes," especially chops with the edge of the hand. The cinematic skills and techniques below assume that legends about the style's founder *and* the movies' wildest claims are all true. Cinematic judoka should *always* buy Judo in addition to Judo Sport.

Early Judo included a full repertoire of punches, kicks, and throws, and both standing and ground-fighting techniques. For this kind of Judo, use Jujutsu.

Skills: Games (Judo); Judo Sport; Savoir-Faire (Dojo).
Techniques: Arm Lock; Breakfall; Ground Fighting (Judo Sport).
Cinematic Skills: Blind Fighting; Immovable Stance; Mental Strength; Power Blow; Pressure Points.
Cinematic Techniques: Roll with Blow.
Perks: Power Grappling; Technique Mastery (Judo Throw); Technique Mastery (Sacrifice Throw).

Optional Traits

Secondary Characteristics: Improved FP.
Advantages: Fit or Very Fit; Hard to Subdue.
Disadvantages: Delusions.
Skills: Judo; Judo Art.
Techniques: Choke Hold; Feint (Judo Sport).

Jujutsu

Jujutsu originally referred to the unarmed fighting arts of Japan – and certain armed ones, too. Today, the term is commonly associated with locks, holds, and throws. Like "karate" and "kung fu," "jujutsu" is a broad label. It describes a variety of styles: ground-fighting schools that finish foes with chokes, stand-up throwing-and-locking styles, and striking arts indistinguishable from Karate (pp. 169-172).

"Jujutsu" no longer describes strictly Japanese styles, either. Brazilian Jiu-jitsu (pp. 167-168), for instance, originated in South America after an expatriate Japanese instructor introduced Judo (see left) and Jujutsu (see below) there. Several variants have been developed in the U.S., too.

Below are two representative styles. See *Aikijutsu* (p. 149) and *Aikido* (p. 149) for some noteworthy forms of "jujutsu" that differ enough to merit separate treatment.

The J-Word

Jujutsu is the name of a traditional Japanese martial art. It has seen several different transliterations over the centuries, but we favor "jujutsu" in ***Martial Arts.*** Many fighting styles – some only loosely connected Jujutsu (see below) – use variant spellings: jujitsu, jiu-jutsu, jiu-jitsu, and others. Whichever spelling one prefers in the Roman alphabet, all of these terms originate from the same *kanji,* or Chinese characters, in Japanese. Some specific usages:

Jiu-jitsu: Used by the Gracie and Machado families for their Brazilian Jiu-jitsu styles, as well as by many American schools.
Jiu-jutsu: A transliteration found in older sources but uncommon today.
Jujutsu: The most common modern transliteration, used for the traditional art.

Jujutsu

3 points

The style described below is a purely unarmed art; *bushi* would study it as part of a larger *ryu* (see *Ryu,* p. 12). Historical Jujutsu forms ranged from arts that focused on grapples and throws to "hard" styles that differed little from karate. This version is a mixed style that uses grappling and striking equally.

Jujutsu is a very direct martial art. The fighter uses strikes to injure and weaken the enemy, followed by locks and throws to disable him or render him helpless. Kicks tend to be low-line. Other strikes target the vitals, neck, groin, and especially the face (a man in armor is usually least-armored there). Stylists train extensively at armored grappling techniques, known as *kumi uchi.* Locks, pins, and throws are much more effective than unarmed blows against an armor-clad adversary!

Cinematic *jujutsuka* (Jujutsu fighters) use their knowledge of pressure points and vital areas to overcome their foes. They're forceful and direct, using kiais and lethal attacks to stun and then slay opponents.

Jujutsu styles *often* vary from the components listed below. Individual schools may add or subtract techniques. Today, Jujutsu usually omits weapons entirely, rarely if ever teaches tactics for use in armor, and emphasizes grappling over striking. Strikes are still a core tactic, but stylists use

them more to supplement or set up grapples than as primary attacks. Some modern schools still utilize weapons in training, but mainly to teach how to defend against weapons, not how to use them.

Skills: Judo; Karate.

Techniques: Arm Lock; Back Kick; Disarming (Judo); Elbow Strike; Low Fighting (Judo or Karate); Targeted Attack (Karate Kick/Leg); Targeted Attack (Karate Punch/Face); Targeted Attack (Karate Punch/Neck).

Cinematic Skills: Immovable Stance; Kiai; Mental Strength; Pressure Points; Pressure Secrets.

Cinematic Techniques: Hand-Clap Parry; Lethal Strike; Pressure-Point Strike.

Perks: Armor Familiarity; Power Grappling; Sure-Footed (Uneven).

Optional Traits

Advantages: Combat Reflexes; Forceful Chi.

Disadvantages: Duty.

Skills: Broadsword; Knife; Savoir-Faire (Dojo); Shortsword; Spear; Staff; Two-Handed Sword.

Techniques: Ground Fighting (Judo or Karate).

Brazilian Jiu-jitsu

3 points

The Gracie family developed Brazilian Jiu-jitsu (BJJ) during the early 20th century, after Japanese-born *judoka* and wrestler Maeda Mitsuyo taught them Judo and Jujutsu. Maeda and the Gracies created a style that emphasized ground fighting and technique over brute strength. The Gracies first exhibited their skills as part of a circus wrestling team, taking on fairground challengers. Over the decades, the Gracies stripped away techniques that they deemed inefficient and sharpened their focus on *ne waza,* or ground techniques.

The Gracies became famous by issuing challenges to all comers, including world-champion boxers (none of whom accepted). They fought no-holds-barred matches called *vale tudo* (Portuguese for "anything goes") to demonstrate their skills. In the early 1990s, an American form of vale tudo emerged – the "Ultimate Fighting Championship" – which gave the Gracies a venue in which to fight. They did well, with Royce Gracie capturing the first two titles and grappling-trained fighters dominating the UFC ever since. For more on no-holds-barred fighting, see *Tournament Combat* (pp. 134-135) and *Mixed Martial Arts* (p. 189).

The Gracies – and their relatives, the Machado family – formed the core of BJJ. They later exported it to the U.S. and beyond. Other instructors have expanded the style, but at its heart it remains the ground fighting-heavy style of the Gracie family.

Brazilian Jiu-jitsu's philosophy is that most fights end up on the ground, so you might as well go there immediately and control the action once you hit the ground. BJJ stylists wait for an opening, and then "shoot" in and grapple (typically an Attack or Committed Attack). They follow up with a takedown and then an Arm Lock, Choke Hold, or Leg Lock to force a submission. In a life-or-death struggle, a BJJ fighter would use a quick choke or a broken limb or two to disable his assailant.

Some BJJ fighters like to set up submissions from the bottom, using the "guard" (lying face-up, with the adversary on top and usually between their legs). Others seek the "mount" (kneeling or crouching *on* an opponent who's prone or lying face-up), fighting from the top and passing their rival's guard. Stylists learn locks, chokes, and defenses for use in *either* situation. A few forms of BJJ add strikes, but it's more common for BJJ practitioners to cross-train in another style if they desire striking skills. BJJ stylists are famously patient, often pinning a foe and slowly working into position for a fight-winning lock.

Bartitsu

4 points

Bartitsu was developed by E.W. Barton-Wright in the late 1890s. Barton-Wright based his style heavily on Jujutsu (pp. 166-168) but added moves from Boxing (pp. 152-153), no-holds-barred Wrestling (pp. 204-206), Victorian Singlestick (p. 157), and even fencing for good measure. The art became famous when Sir Arthur Conan Doyle revealed Sherlock Holmes to be a practitioner (and misnamed it "Baritsu").

Barton-Wright turned to public exhibitions to attract students, disgusting and driving off his Japanese partner in the dubious venture. His demonstrations were as much about showmanship and feats of strength as actual fighting methods. He made grandiose claims of Bartitsu's effectiveness against *all* opponents in *all* circumstances.

Some of Bartitsu's techniques were questionable and likely more dangerous to the user than to his opponent if done vigorously; the GM could add these as useless techniques (p. 95). Risky Committed and All-Out Attacks were common. Still, the core form was a combative Jujutsu style, and some of the added techniques *were* valuable to a pragmatic fighter. A stylist who can't distinguish the dangerous moves from the functional ones would qualify for a Delusion!

The components below assume a functional art. A harshly realistic take would replace all combat skills with Combat Sport skills. In our world, Bartitsu attracted few students, but in a cinematic Victorian setting it might be a thriving style with functional combat abilities and cinematic skills.

Skills: Brawling; Hobby Skill (Feats of Strength); Judo.

Techniques: Arm Lock; Head Butt; Head Lock; Knee Strike.

Cinematic Skills: Immovable Stance; Power Blow; Push.

Perks: Power Grappling.

Optional Traits

Advantages: Fearlessness.

Disadvantages: Delusions; Overconfidence.

Skills: Boxing; Broadsword; Cloak; Lifting; Performance; Running; Smallsword; Stage Combat; Wrestling.

Brazilian Jiu-jitsu is a relatively new art without a mystical background. Nevertheless, some cinematic skills fit the more hyperbolic descriptions of its effectiveness!

Skills: Judo; Wrestling.

Techniques: Arm Lock; Breakfall; Choke Hold; Ground Fighting (Judo or Wrestling); Leg Grapple; Leg Lock; Leg Throw; Low Fighting (Judo or Wrestling); Lower-Body Arm Lock; Lower-Body Head Lock; Lower-Body Leg Lock; Scissors Hold; Triangle Choke; Trip.

Cinematic Skills: Blind Fighting; Pressure Points.

Cinematic Techniques: Roll with Blow.

Perks: Ground Guard; Power Grappling; Technique Adaptation (Ground Fighting); Technique Adaptation (Low Fighting).

Optional Traits

Secondary Characteristics: Improved FP.

Advantages: Enhanced Dodge; Enhanced Parry (Bare Hands); Fit or Very Fit; Hard to Subdue; Language (Portuguese).

Disadvantages: Bully; Overconfidence; Reputation (Always goes for the takedown after a grapple).

Skills: Brawling; Karate; Savoir-Faire (Dojo).

Kajukenbo

3 points

Kajukenbo is a "fusion" martial art, founded in Hawaii in 1947 by a mixed group of martial-arts instructors. They created a street-ready system to use in the bars and streets of the rough neighborhood in which they lived. The first classes didn't use padded floors or mats. Injuries were very common among early students! By 1950, Kajukenbo had a dozen schools and had spread to the mainland. Today, it's taught across America and Europe.

"Kajukenbo" is an acronym describing its constituent arts: "ka" for (Korean) Karate, "ju" for Judo and Jujutsu, "ken" for Kenpo, and "bo" for Boxing – both Chinese (Chu'an-fa kung fu) and American. Several other systems – including native Hawaiian arts and Escrima – inform the style as well. The founders' real-world experience in frequent street fights is also clearly visible in Kajukenbo's teachings.

Kajukenbo is truly a fusion of both techniques and traditions. It uses the high-line kicks of Korean martial arts, the throws and grapples of Judo and Jujutsu, and the hand strikes of Kenpo, Chu'an-fa, and Boxing. Its low-line kicks also come from kung fu. It mixes Japanese and Chinese ranking systems: students progress through *kyu* and *dan* ranks, but upper dans wear red belts, not black ones. Teachers are called *sifu*. Despite its tough nature, it's sometimes known as a Christian martial art, as its founders stressed the importance of family and faith, and opened practice sessions with prayer.

Kajukenbo is above all a streetfighting style. It uses Hammer Fist to prevent hand injury and low-line kicks to the legs and groin to avoid Leg Grapples. Deep stances are common, with the stylist planting his feet to avoid being moved out of position. Fighters practice freestyle follow-ups to finish a fallen adversary, including stomps and kicks to the vitals, head, kidneys, and spine of a foe curled up to ward off blows. They also learn to pile on attack after attack to finish an enemy who tries to flee.

Kajukenbo teaches a full range of attacks but emphasizes aggressive ones. The stylist resorts to All-Out Defense or Defensive Attack only if he can't find an opening, and once his enemy is injured or stunned, he rains down attacks using Committed Attack and All-Out Attack (often Double or Strong). Throws and locks follow parries, and aim to put the victim in a position for follow-up strikes; for instance, a grappled arm or leg immediately becomes the target of attacks intended to break it. Fighters use Exotic Hand Strike (in the form of clawed fingers) to gouge and rip foes after grabbing them.

Kajukenbo also stresses "clearing" an area – that is, checking for remaining hostiles. This became part of the system after one of the founders defeated a foe in front of him in a barroom brawl . . . and was stabbed in the kidney from behind. Practitioners are taught to sidestep away from a fallen enemy and then step back while turning around, checking in all directions for anyone who might want to backstab them. In game terms, Kajukenbo fighters should turn around and Wait after dispatching an adversary.

Like many modern arts, Kajukenbo has no body of legendary techniques. It *does* have a lineage of other martial arts with such legends. The cinematic skills below reflect these parent styles.

Several offshoot schools exist. Some are "softer" and rely more on parries followed by throws and locks. Others are hard styles. They're all close enough for the components below to cover them.

Skills: Judo; Karate.

Techniques: Arm Lock; Elbow Strike; Exotic Hand Strike; Hammer Fist; Kicking; Leg Grapple; Stamp Kick; Sweep (Karate).

Cinematic Skills: Immovable Stance; Power Blow.

Cinematic Techniques: Lethal Kick; Timed Defense.

Perks: Neck Control (Karate); Special Exercises (DR 1 with Tough Skin).

Optional Traits

Secondary Characteristics: Improved Per.

Advantages: Combat Reflexes; Danger Sense.

Disadvantages: Bloodlust; Sense of Duty (Kajukenbo schools).

Skills: Boxing; Brawling; Carousing; Observation; Savoir-Faire (Dojo); Streetwise; Wrestling.

Kalaripayit

14 points

Kalaripayit – sometimes *Kalaripayattu* ("place of exercise training") – is a term for the traditional weapon-and-wrestling form of Kerala, India. The art as practiced today dates to the 9th century A.D., but India had similar forms of armed and unarmed combat long before that. Legend has it that the founder of the Kerala state also founded the first *kalari* (place) for teaching the fighting arts. It's more probable that Kalaripayit evolved from the weapon and wrestling practices of the warriors of the local villages. Many sub-styles of Kalaripayit exist. These resemble the style presented here in most respects.

Kalaripayit starts with weapons training and phases in unarmed combat for advanced students. Before the beginner learns *any* combat skills, though, he must prepare mentally and physically with meditation, massage, and yoga-like poses intended to build strength and clear the mind. Only then is he taught the staff, *muchan* (baton), and *otta* (curved club). After several years, he progresses to advanced weapons: knife, *gada* (two-handed mace), broadsword, shield, spear, and finally *urumi* (whip-sword). Before the advent of gunpowder, this list included the bow, too. Once the student masters these skills, he learns striking and grappling.

Jutte

Advanced fighters go on to study *marma* (see box): the art of using special strikes to particular vital points to kill enemies. Masters learn a series of *mantras* capable of affecting the world. When spoken, these words of power enhance the *guru*'s power, grant the abilities of totemic animals, heal, or smite foes. In a game where magic works, Kalaripayit masters are likely to be wizards who specialize in the Body Control and Healing colleges, and in the shapeshifting spells of the Animal College. Mantras are one of the style's deep secrets, taught to selected students; revealing them is said to weaken their power.

Kalaripayit teachings are closely tied to Hindu beliefs. In a historical campaign, only Hindu PCs are likely to receive training. Legend tells of several women who achieved great reputations as Kalaripayit instructors, so female stylists might well be historically accurate! In recent times, Indian expatriates have started teaching Kalaripayit in such places as the United Kingdom, making it available to anyone who cares to learn, Hindu or not.

Skills: Axe/Mace; Broadsword; Karate; Knife; Meditation; Shield; Shortsword; Spear; Staff; Theology (Hinduism); Two-Handed Axe/Mace; Whip; Wrestling.

Techniques: Arm Lock; Elbow Strike; Knee Strike; Low Fighting (Any).

Cinematic Skills: Body Control; Mental Strength; Pressure Points; Pressure Secrets.

Cinematic Techniques: Pressure-Point Strike; Roll with Blow.

Perks: Unusual Training (Pressure Points).

Optional Traits

Advantages: Magery.

Disadvantages: Duty (To instructor); Sense of Duty (India); Vow (Do not reveal the secret of the mantras).

Skills: Esoteric Medicine; Physiology; Savoir-Faire (Dojo); spells.

Karate

The term "karate" and most of the styles it describes are 20th-century constructs. Regarded as the quintessential Japanese martial art, Karate is Okinawan in origin – Funakoshi Gichin (p. 23) brought it to Japan in the early 20th century. In 1933, Japan recognized *karate-do* as an official martial-arts *ryu* (school). Its precursor was an art called *Te,* or "hand." Te, in turn, owed much to the Chinese martial arts.

Originally, the *kanji* characters for "karate" were those for "Chinese" and "hand." In the 1920s, Funakoshi and his fellow *sensei* replaced the kanji for "Chinese" with that for "empty," both pronounced "kara." This changed "karate" from "Chinese hand" to "empty hand," emphasizing use over origin. These early masters also adapted many Karate terms from Okinawan to Japanese.

Karate – despite its practitioners' reputation in the popular mind – is a *-do* form. Its techniques are designed as much for safe sparring and *kata* as for combat utility. Karate *can* be effective in a fight, but it's primarily a sport. There are combat-oriented Karate schools that teach full-contact martial arts, but few dojos break free of the artistic kata and low-contact sparring which characterize the art.

Below is a small sampling of important Karate styles, both Japanese and Okinawan. This list is far from exhaustive – there are dozens of other styles, and the instructors of many styles have developed further variations. Major styles not discussed here include Chito Ryu, Shito Ryu, Shorin Ryu, Uechi Ryu, and Wado Ryu. The GM can safely use the styles described here as guidelines when expressing these other arts in game terms.

Te

3 points

The various forms of *Te* – sometimes called *Di* – were Karate's Okinawan precursors, and included *Naha Te, Shuri Te,* and *Tomari Te.* Developed while weapons were banned, Te was strictly an unarmed art; for Okinawan weapons training, see *Kobujutsu* (p. 178). Te was brutal and combat-oriented. It was taught informally, had neither a ranking system nor a uniform, and made few distinctions between styles. The master taught techniques and *kata* at his discretion rather than in a set order.

Marma

Marma is the Indian study of pressure points. It's a closely guarded secret, passed along only to the most advanced students of Kalaripayit (pp. 168-169). Marma's claims and methods are identical to those of other martial arts that use pressure points.

Marma is a subset of Kalaripayit, not studied alone. Only Kalaripayit stylists can learn Pressure Points from a marma master. Furthermore, because marma teaches how to both heal *and* kill, stylists who study Pressure Points *must* learn Esoteric Medicine and Physiology, too.

Some sources claim that marma techniques exist for tigers, elephants, and other animals. If the GM wishes, marma practitioners can avoid the penalties in *Physiology Modifiers* (p. B181) by buying a Style Perk for each animal they've studied. Veterinary is an appropriate optional skill for such characters.

Te stresses deflecting an incoming attack and then launching a strong counterattack. The goal is to finish the fight with a single blow – either a killing punch or kick, or an incapacitating pressure-point strike. Stylists use Aggressive Parry to ward off an enemy's attack, and then follow up with a disabling or lethal attack. Committed Attack (Strong) is common, and blows often target the vitals, neck, or skull.

Many Te masters went on to found Karate schools, but almost none passed on pure Te. Today, training in Te is nearly impossible to find – the GM could reasonably require a modern PC to have an Unusual Background if he wishes to know Te. This rarity makes Te an excellent "ultimate style" (see *Ultimate Styles,* p. 144).

Skills: Judo; Karate.

Techniques: Aggressive Parry; Back Kick; Counterattack (Karate); Elbow Strike; Exotic Hand Strike; Hammer Fist; Kicking; Knee Strike; Leg Grapple; Sweep (Karate); Targeted Attack (Karate Exotic Hand Strike/Vitals); Targeted Attack (Karate Kick/Vitals); Targeted Attack (Karate Punch/Neck).

Cinematic Skills: Breaking Blow; Immovable Stance; Kiai; Mental Strength; Power Blow; Pressure Points; Pressure Secrets.

Cinematic Techniques: Dual-Weapon Attack (Karate); Lethal Kick; Lethal Strike; Pressure-Point Strike; Targeted Attack (Lethal Kick/Vitals); Targeted Attack (Lethal Strike/Vitals).

Perks: Iron Body Parts (Any); Special Exercises (Striking ST +1); Unusual Training (Breaking Blow, Only vs. well-braced objects out of combat).

Optional Traits

Advantages: Combat Reflexes; High Pain Threshold; Languages (Japanese, Okinawan).

Disadvantages: Reduced Appearance; Unnatural Features (Gnarled knuckles from iron-hand training).

Skills: Any weapon skill under *Kobujutsu* (p. 178); Parry Missile Weapons; Savoir-Faire (Dojo).

Shotokan

4 points

Shotokan Ryu is the Karate school founded by Funakoshi Gichin (p. 23). It's named for the pseudonym he used when writing poetry: Shoto ("Pine Wave"). Funakoshi led the relocation of Karate to Japan, and today his school is one of the world's largest Karate organizations. Many Karate schools worldwide teach either Shotokan or a style based on it.

In Shotokan as in most traditional Karate styles, the *karateka* learns to defend and then counterattack, and launches each technique with the intention of disabling his adversary in a single blow. At the start of the fight, he uses Evaluate to size up his foe or All-Out Defense to ensure a successful defense. After stopping the initial attack, he hits back with a strong blow, typically a punch or a kick aimed at the head, neck, or torso. Attacks to the limbs are less frequent. Shotokan uses a lot of feints, and an alternating series of Feints and Attacks – plus the rare All-Out Attack (Feint) – is a common rhythm, with the fighter stringing together techniques until his opponent fails to defend.

Shotokan stresses *kata* and preset pattern drills. Freestyle sparring is uncommon. In competition, scoring is for techniques stopped just short of contact, and there are limits on the number of consecutive attacks that contenders can launch. However, the style retains much of its Te core. Students drill hard in its techniques, practicing them against *makiwara* (p. 233) and using them in *tameshiwari* (breaking). Thus, the art remains valid for self-defense.

Funakoshi didn't believe in chi powers and often debunked or refuted wilder claims about the martial arts. Nevertheless, after his death, some adherents attributed amazing capabilities to him. Cinematic Shotokan stylists might possess several chi abilities and be able to pull off such showy tricks as using tameshiwari against active, resisting foes.

Funakoshi placed great emphasis on the peaceful nature of *karate-do.* Even when he recounted using Karate in circumstances that most would deem justified self-defense, he felt that he had overreacted and used too much force. Karateka who emulate Funakoshi and adhere to his teachings might have Pacifism (Self-Defense Only).

Skills: Karate; Karate Art; Savoir-Faire (Dojo).

Techniques: Back Kick; Elbow Strike; Exotic Hand Strike; Feint (Karate); Hammer Fist; Jump Kick; Kicking; Knee Strike; Spinning Kick; Stamp Kick.

Cinematic Skills: Breaking Blow; Immovable Stance; Kiai; Mental Strength; Pressure Points; Pressure Secrets.

Cinematic Techniques: Lethal Kick; Lethal Strike; Pressure-Point Strike.

Perks: Clinch (Karate); Technique Adaptation (Feint); Unusual Training (Breaking Blow, Only vs. well-braced objects out of combat).

Optional Traits

Advantages: Language (Japanese); Reputation (Student of Funakoshi, from all karateka).

Disadvantages: Pacifism (Self-Defense Only).

Skills: Any weapon skill under *Kobujutsu* (p. 178); Games (Karate); Judo Sport; Karate Sport; Parry Missile Weapons.

Goju Ryu

5 points

Chojun Miyagi founded Goju Ryu in the 1920s after studying under Higaonna Kanryu, a noted master of *Naha Te* and Chinese kung fu. Miyagi further pursued both Te and kung fu, and developed his own Karate style. He formally named it "goju," or "hard and soft," in 1927.

Goju Ryu's philosophical base is strongly linked to Chinese Taoism. Some of its *kata* originated with kung fu forms. The style heavily emphasizes deep-breathing techniques, slow kata done with surface muscle contraction, and strong stances.

Goju Ryu stylists usually fight from a strong, defensive stance. They avoid meeting force with force; instead, they attempt to avoid the enemy's attack and retaliate with a strong counter. Despite this, Goju Ryu's strong stances and training at absorbing blows without shifting from a stance make it an effective linear style. Many of its parries are

meant to injure the attacker as much as defend. Like all Karate styles, Goju Ryu seeks to defeat the enemy with a single, decisive blow. Fighters make extensive use of the Wait and All-Out Defense maneuvers, and then strike back with an Attack or Committed Attack (Strong) aimed at a vital location.

Today, Goju Ryu is widespread. However, many modern dojos – especially in the U.S. and Europe – have largely discarded its internal teachings and concentrate solely on its hard, external training. Schools often teach a variety of Okinawan weapons in addition to unarmed fighting.

Skills: Breath Control; Karate; Karate Art; Savoir-Faire (Dojo).

Techniques: Aggressive Parry; Back Kick; Elbow Strike; Exotic Hand Strike; Hammer Fist; Kicking; Knee Strike; Spinning Kick; Targeted Attack (Karate Exotic Hand Strike/Vitals); Targeted Attack (Karate Kick/Vitals).

Cinematic Skills: Body Control; Breaking Blow; Immovable Stance; Kiai; Power Blow; Pressure Points; Pressure Secrets.

Cinematic Techniques: Dual-Weapon Attack (Karate); Lethal Kick; Lethal Strike; Targeted Attack (Lethal Kick/Vitals); Targeted Attack (Lethal Strike/Vitals).

Perks: Clinch (Karate); Iron Hands; Special Exercises (DR 1 with Tough Skin); Unusual Training (Breaking Blow, Only vs. well-braced objects out of combat).

Optional Traits

Advantages: Language (Japanese); High Pain Threshold.

Disadvantages: Disciplines of Faith.

Skills: Any weapon skill under *Kobujutsu* (p. 178); Games (Karate); Parry Missile Weapons.

Isshinryu

4 points

Shimabuku Tatsuo, an expert in Shorin Ryu and Goju Ryu, founded Isshinryu (meaning "one heart, one mind") in 1954. A student of Chojun Miyagi, Shimabuku broke from his parent styles and formed his own after his teacher's death. Many of the differences had to do with his personal philosophy, which he expected his students to learn and follow.

Isshinryu diverges from most other Karate styles in action as well. The most visible distinction is that while *karateka* generally corkscrew their fist into the horizontal when punching, Isshinryu fighters keep their knuckles vertical. They throw shorter strikes, too, "snapping" out punches and then retracting them quickly. Other differences include less stress on high-line kicks in favor of kicks that aren't as vulnerable to a Leg Grapple, and a preference for multiple, quick strikes over a single, disabling blow.

Isshinryu karateka fight in close, and favor punches and short-range kicks over showier, longer-ranged attacks. They often use Combinations, Rapid Strikes, and Dual-Weapon Attacks. When kicking, they prefer targets below the waist. All of these strikes are more likely to be Defensive Attacks or Attacks than Committed Attacks or All-Out Attacks. Stylists usually use punches to fight their way out of a standing grapple.

There are Isshinryu schools the world over. Finding an Isshinryu dojo in the U.S. isn't difficult.

Skills: Karate; Karate Art; Savoir-Faire (Dojo).

Techniques: Aggressive Parry; Back Kick; Elbow Strike; Exotic Hand Strike; Feint (Karate); Hammer Fist; Kicking; Knee Strike; Spinning Kick.

Cinematic Skills: Kiai; Mental Strength; Pressure Points; Pressure Secrets.

Cinematic Techniques: Dual-Weapon Attack (Karate); Pressure-Point Strike.

Perks: Clinch (Karate); Rapid Retraction (Punches); Unusual Training (Breaking Blow, Only vs. well-braced objects out of combat).

Optional Traits

Secondary Characteristics: Improved Per.

Advantages: Language (Japanese); Peripheral Vision.

Disadvantages: Overconfidence.

Skills: Any weapon skill under *Kobujutsu* (p. 178); Games (Karate); Judo.

Techniques: Leg Grapple.

Kyokushin

4 points

Mas Oyama (p. 24), a student of Funakoshi Gichin (p. 23), founded Kyokushin in the late 1950s. He greatly emphasized physical toughness and *hissatsu:* one shot, one kill. His style reflects this, and teaches a traditional "block hard, then counter" approach. Students learn to parry an incoming attack firmly and retaliate with a single strike capable of incapacitating the opponent. Alongside power they learn control. In training, they attack just short of their partner to avoid injury.

Kyokushin stylists often use Committed Attack to follow up a successful parry. They target the head, neck, groin, and other vital areas to end the fight in a single blow. Punches to the skull typically use Hammer Fist. Fighters rarely retreat to avoid attacks. Rather than give ground, they punish their opponent with an Aggressive Parry and then follow it with a finishing technique – often an All-Out or Committed Attack (Strong).

Kyokushin tournaments don't allow punches to the head (kicks *are* allowed), so athletes who practice this style sometimes leave their face poorly protected or don't bother to strike the head. Another weakness is minimal grappling training. The usual response to a grapple is to seize the assailant – using plain DX or the Clinch perk – and batter him into letting go.

Training in Kyokushin emphasizes *tameshiwari* (breaking), full-force attacks, and "toughening" exercises that involve breaking objects *over* the student. Even in a realistic game, students can purchase Style Perks that increase their ability to dish out and take damage. In a cinematic campaign, advanced fighters have access to the fantastic abilities attributed to Mas Oyama. They'll stand their ground in the face of any adversary (human or otherwise!) and smash down foes using a single strike – or merely shock them into submission with a well-timed kiai! Those interested in playing a PC like this need look no further than Mas Oyama's own life for roleplaying tips.

Belts and Grading

In the popular imagination, a "black belt" is a martial-arts master. In reality, not all black belts are masters and not all arts use colored belts – or have *any* ranking system. Even in styles that use belts, the black belt doesn't mark the end of instruction: a black-belt student has mastered the basics and is ready for *true* apprenticeship. If his style is combative, he might be extremely tough. If his style is artistic, he might be less capable in a fight than the average brawler!

A widespread origin myth for the black belt suggests that a novice received a white belt. When he had learned enough to be deemed a master, the belt would be so dirty that it was black. This is at best unverifiable.

What *is* verifiable is that today's familiar colored-belt system was invented for Judo (p. 166) by founder Jigoro Kano. The rankings in that system were: white (6th through 4th kyu), brown (3rd through 1st kyu), black (1st through 5th dan), red-and-white (6th through 8th dan), and solid red (9th and 10th dan). Later, 10th dan was changed to white. The rankings didn't stop at 10th dan, but no one was ever promoted higher. In this system, one says the ranking's number first, then its name; for instance, 4th kyu is *yonkyu* and 4th dan is *yondan*. In English, "dan" becomes "degree"; e.g., a 10th dan is a "10th-degree black belt." Kyu rankings are usually known only by color.

When Te (pp. 169-170) came to Japan and became Karate, it adopted Judo's ranking system. Funakoshi Gichin created the first *karate-do* black belts in 1924. Today, Karate (pp. 169-172) and Tae Kwon Do (p. 200) use similar systems, but with 10 kyu ranks and 10 dan ranks; belt colors vary considerably. Kendo (p. 175) doesn't use belts, but has eight kyu and eight dan ranks. Chinese systems use sashes instead of belts, and the top color is red or gold. The only generalization one can make about other Asian styles is that the top and bottom ranks are black and white – usually. Outside Asia, sport styles typically have ranking systems based on belts or colored patches (e.g., Brazilian Jiu-jitsu and sport Sambo), fighting record (e.g., Boxing, Wrestling, and mixed martial arts), or a combination of the two (e.g., Savate).

Things were quite different before modern times. In the Japanese arts, instructors in each *ryu* issued teaching certificates, awarding grades that denoted how advanced and respected the teacher was. The chosen head of the ryu held the highest rank. Chinese martial arts used a similar system, with a letter from an instructor testifying to his student's skill. In historical Europe, the Masters of Defence (p. 17) had a grading system similar to that of trade guilds: "apprentice," "journeyman," and finally "master." A would-be master had to acquit himself with any combination of weapons in a public test by other masters.

A great many historical and modern arts have *no* formal ranking system. Each school ranks its students by seniority. Instructors either receive teaching permission from their peers on an ad hoc basis or are entirely self-proclaimed.

Kyokushin attracted many students at its inception and is still widely taught today. Its full-contact sparring and tournaments, emphasis on *tameshiwari* competitions, and strenuous belt tests are well-known in martial-arts circles. These things have made the style famous for producing tough, contest-hardened martial artists. Kyokushin schools are found worldwide.

Skills: Karate; Karate Sport; Savoir-Faire (Dojo).

Techniques: Aggressive Parry; Axe Kick; Back Kick; Elbow Strike; Exotic Hand Strike; Hammer Fist; Head Butt; Jump Kick; Kicking; Knee Strike; Spinning Kick; Stamp Kick.

Cinematic Skills: Breaking Blow; Immovable Stance; Kiai; Mental Strength; Power Blow; Pressure Points; Pressure Secrets.

Cinematic Techniques: Lethal Kick; Lethal Strike; Pressure-Point Strike.

Perks: Clinch (Karate); Iron Hands; Special Exercises (DR 1 with Tough Skin); Special Exercises (Striking ST +1); Unusual Training (Breaking Blow, Only vs. well-braced objects out of combat).

Optional Traits

Advantages: Combat Reflexes; High Pain Threshold; Language (Japanese); Reputation (Kyokushin student, from all karateka).

Disadvantages: Overconfidence; Reputation (Throws punches to the body, kicks to the head).

Skills: Breath Control; Hobby Skill (Feats of Strength); Judo; Parry Missile Weapons.

KEMPO

7 points

Kempo, sometimes spelled *Kenpo,* is a Japanese striking art with origins in China. In popular usage, "kempo" – like "karate" and "kung fu" – is occasionally a generic term for *all* Chinese and Japanese striking arts. Here it refers specifically to Shorinjikempo: the Shaolin Kung Fu-based style founded in 1947 by Doshin So.

Shorinjikempo teaches hard-style strikes similar to those of modern Karate (pp. 169-172) combined with soft-style grapples and throws akin to those of Aikijutsu (p. 149). It puts artistic *kata* on an equal footing with combat techniques and expects students to learn its underlying philosophy alongside its fighting methods. Doshin So founded Shorinjikempo to teach both martial arts *and* Buddhist philosophy, which he felt was lacking in postwar Japan. The goal of its training is to make the student a peaceful, better person in harmony with Buddhist principles.

Unlike *karateka,* who usually twist their fist into the horizontal plane when punching, Kempo stylists throw vertical punches. Kempo shares Karate's practice of aiming strikes at vital locations, however – indeed, cinematic masters often raise their Pressure Points skill to extraordinary levels. Kempo fighters train to parry their attacker and then counter with a punch, kick, or throw. A common follow-up to a grapple or a Judo parry is an Arm Lock, with the usual goal being not to injure the victim but to cause him pain and then exploit his shock by attempting an immediate throw or takedown. Practitioners integrate all of these responses seamlessly, flowing back and forth between striking and grappling as they counter their opponent's actions.

Shorinjikempo includes weapons training for very advanced students – although few actually receive it. Weapons include the staff, baton, and *yawara* (p. 226).

Until recently, Kempo's official symbol was the *omote manji:* a counterclockwise swastika traditionally used in Buddhism to denote the location of temples. Decades of difficulty in persuading outsiders that this swastika was in no way connected to Nazism eventually took its toll, however. In 2005, Kempo changed its symbol to a pair of interlinked circles set in a four-pointed badge.

Kempo schools vary greatly in their teachings. Some proffer kung fu variants modified to incorporate elements of Jujutsu (pp. 166-168) and Karate. Others teach Karate or kung fu forms that are only nominally Kempo. There are even *Christian* schools that offer a style very similar to Shorinjikempo but with Christian prayers replacing Buddhist rituals.

Skills: Breath Control; Judo; Karate; Karate Art; Philosophy (Buddhism); Savoir-Faire (Dojo).

Techniques: Arm Lock; Back Kick; Breakfall; Elbow Strike; Kicking; Knee Strike; Spinning Kick.

Cinematic Skills: Body Control; Immovable Stance; Mental Strength; Pressure Points; Pressure Secrets.

Cinematic Techniques: Pressure-Point Strike.

Perks: Special Setup (Karate Parry > Judo Throw).

Optional Traits

Advantages: Language (Japanese).

Disadvantages: Disciplines of Faith; Pacifism (Self-Defense Only).

Skills: Judo Art; Shortsword; Staff.

Kenjutsu

3 points

Kenjutsu is the art of the Japanese longsword, or *katana.* The katana held a privileged place for the samurai class – it was said to house its owner's soul. Its manufacture was a mystical ritual that combined metallurgical skill with a strong sense of aesthetics. It and the fighting methods used with it have become legendary.

Samurai most often wielded the katana in two hands, and the style described here favors two-handed methods. The blade was balanced well enough for one-handed use, though, and there were schools that weighted one- and two-handed use more evenly. These would feature more Broadsword techniques.

Kenjutsu places much emphasis on the cut. Fighters learn to thrust but usually use their sword for deep slashes. Likewise, while Kenjutsu teaches a full range of parries, it isn't a defensive art. Stylists commonly make Committed and All-Out Attacks. The classic Kenjutsu tactic is to dash the opponent's blade out of line with a Beat (pp. 100-101) and then finish him with a cut. Ultimately, Kenjutsu is a highly aggressive style.

Kenjutsu training uses the *bokken* (wooden sword). This is safer than a bare blade, but severe injuries can – and did – occur during practice. Musashi Miyamoto (pp. 21-22) felt that the bokken was *deadlier* than the katana, and used it or improvised substitutes to fight lethal duels.

When it comes to legends about weapons and their wielders' abilities, the katana and Kenjutsu have few rivals. In a cinematic game, nearly any skill or technique that could conceivably work with a sword should be available to one *ryu* or another. A few schools reputedly taught how to *throw* either the katana or the *wakizashi* (shortsword) as a secret tactic of last resort!

Secret methods needn't be cinematic, however. Historically, Kenjutsu was only *part* of a particular ryu (see *Ryu,* p. 12). Warriors normally studied the katana alongside the other weapons in the samurai arsenal. Kenjutsu *ryuha* were unusually numerous, though – there were more than 700 during the Tokugawa era! The differences between them were typically minute and only distinguishable by advanced practitioners, but many schools were rivals that keenly guarded secret techniques from one another. Thus, a realistic ryu would probably teach only a subset of the techniques from the extremely complete list below – stressing some moves over others – while possibly adding optional ("secret") components.

Today, Kenjutsu schools are extremely rare. Would-be students must typically seek out instruction in Japan. Kendo (p. 175) is far more common.

Korean swordsmen use a weapon very similar to the katana, called the *jang gum.* Korean sword arts are nearly identical to Kenjutsu in game terms, and should use the components listed below. They're less likely to offer Fast-Draw or techniques for two-sword fighting, though, and practitioners make jumping attacks (treat as Committed or All-Out Attacks) more often.

Skills: Broadsword; Two-Handed Sword.

Techniques: Back Strike (Two-Handed Sword); Counterattack (Two-Handed Sword); Feint (Broadsword or Two-Handed Sword); Targeted Attack (Two-Handed Sword Swing/Arm); Targeted Attack (Two-Handed Sword Swing/Neck); Targeted Attack (Two-Handed Sword Swing/Skull); Targeted Attack (Two-Handed Sword Thrust/Neck); Targeted Attack (Two-Handed Sword Thrust/Vitals).

Cinematic Skills: Blind Fighting; Flying Leap; Immovable Stance; Kiai; Mental Strength; Power Blow.

Cinematic Techniques: Dual-Weapon Defense (Two-Handed Sword); Timed Defense (Two-Handed Sword); Whirlwind Attack (Two-Handed Sword).

Perks: Grip Mastery (Katana).

Optional Traits

Advantages: Combat Reflexes; Language (Japanese); Weapon Master (Katana).

Disadvantages: Code of Honor (Bushido); Duty.

Skills: Armoury; Breath Control; Broadsword Art; Fast-Draw (Sword or Two-Handed Sword); Meditation; Philosophy (Zen Buddhism); Savoir-Faire (Dojo); Shortsword; Thrown Weapon (Sword); Two-Handed Sword Art.

Techniques: Counterattack (Broadsword); Low Fighting (Broadsword or Two-Handed Sword); Reverse Grip (Two-Handed Sword).

Perks: Weapon Bond.

Iaijutsu

5 points

Iaijutsu is the Japanese art of drawing a weapon and striking or parrying with it in a single motion. It rose to prominence during a period when samurai were routinely armed but not typically in combat. (In battle, they'd ready their weapons *before* engaging the enemy!) It fell into disfavor after "crossroad cuttings" – practicing Iaijutsu skills on convenient passersby – became common. Swordsmen often studied Iaijutsu alongside Kenjutsu (above) or Nito Ryu (below).

Iaijutsuka (Iaijutsu stylists) focus on two sets of tactics. Defensively, they practice drawing the sword to fend off blows – especially surprise attacks. Offensively, they learn to draw and strike before their victim can react.

The iaijutsuka doesn't necessarily expect to win the fight with his initial strike. He remains poised to deliver second and later attacks should his foe survive the first one. After dispatching his enemy, he composes himself while remaining wary; treat this as a Wait maneuver. Once it's clear that no further threat remains, the iaijutsuka cleans his blade before sheathing it.

The motion used to clean blood from the blade is called *chiburi.* This automatically follows many Iaijutsu moves, whether or not the iaijutsuka plans to sheathe his weapon. It can consist of a broad, swinging motion, a wrist snap, or spinning the sword. Flicking the blood of a fallen enemy from the blade used to cut him down can impress onlookers and surviving foes – roll a free Intimidation attempt! In cinematic and fantasy games, chiburi is also useful for removing corrosive monster blood, incriminating poison, etc.

Skills: Broadsword; Broadsword Art; Fast-Draw (Sword); Two-Handed Sword.

Techniques: Back Strike (Broadsword or Two-Handed Sword); Low Fighting (Broadsword or Two-Handed Sword); Targeted Attack (Broadsword or Two-Handed Sword Swing/Arm); Targeted Attack (Broadsword or Two-Handed Sword Swing/Neck); Targeted Attack (Broadsword or Two-Handed Sword Swing/Skull); Targeted Attack (Broadsword or Two-Handed Sword Thrust/Neck); Targeted Attack (Broadsword or Two-Handed Sword Thrust/Vitals).

Cinematic Skills: Mental Strength; Precognitive Parry.

Cinematic Techniques: Springing Attack (Broadsword or Two-Handed Sword); Timed Defense (Broadsword or Two-Handed Sword).

Perks: Grip Mastery (Katana); Quick-Sheathe (Sword); Shtick (Chiburi).

Optional Traits

Secondary Characteristics: Improved Basic Speed and Per.

Advantages: Combat Reflexes; Danger Sense; Language (Japanese).

Disadvantages: Reputation (For crossroad cutting).

Skills: Meditation; Observation; Savoir-Faire (Dojo); Shortsword; Shortsword Art.

Perks: Weapon Bond.

Gada

Nito Ryu

3 points

Nito Ryu ("two swords school") is a term used for *Hyoho Niten Ichi Ryu,* the Kenjutsu style founded by Musashi Miyamoto (pp. 21-22) in 17th-century Japan. Musashi felt that holding a sword in two hands restricted the wielder's movements, limited his defensive and offensive options, and was impossible on horseback or when carrying a second weapon (such as a spear or bow) for battle. He developed a style that used the katana in one hand, freeing the other to use the *wakizashi* (shortsword) simultaneously or to hold another weapon. Although heavily identified with the sword, Musashi also learned to use the *jitte* (p. 217) from his family's martial-arts training, and modern schools teach this to advanced students.

Nito Ryu can be very aggressive, attacking with both blades at once or using them alternately to rain down blows. Stylists wield their weapons forcefully, using Committed Attack or even All-Out Attack (Double) to overwhelm their foe. When armed with two swords, they favor Dual-Weapon Attack – often using one blade to feint (or to Beat; see pp. 100-101) and the other to attack. Nito Ryu makes regular use of both weapons to fend off single-weapon attacks (see *Cross Parry,* p. 121), followed by a Counterattack. Overall, it eschews defensive tactics in favor of overpowering the foe.

Musashi was known for his aggressiveness and his disdain for many of the trappings of the samurai. His impressive success record in mortal duels also gave him a reputation for bloodthirstiness. Nito Ryu stylists may choose to duplicate their style founder's less-praiseworthy traits as well as his skills.

Skills: Broadsword; Shortsword.

Techniques: Counterattack (Broadsword or Shortsword); Feint (Broadsword or Shortsword); Targeted Attack (Broadsword or Shortsword Swing/Arm); Targeted Attack (Broadsword or Shortsword Swing/Neck); Targeted Attack (Broadsword or Shortsword Swing/Skull); Targeted Attack (Broadsword or Shortsword Thrust/Neck); Targeted Attack (Broadsword or Shortsword Thrust/Vitals).

Cinematic Skills: Mental Strength; Power Blow.

Cinematic Techniques: Dual-Weapon Attack (Broadsword or Shortsword); Dual-Weapon Defense (Broadsword or Shortsword); Timed Defense (Broadsword or Shortsword); Whirlwind Attack (Broadsword or Shortsword).

Perks: Off-Hand Weapon Training (Shortsword); Unusual Training (Dual-Weapon Attack, Both attacks must target the same foe).

Optional Traits

Advantages: Ambidexterity; Combat Reflexes; Language (Japanese).

Disadvantages: Bloodlust; Obsession (Perfect sword skills); Odious Personal Habit (Bad manners); Reputation (User of unconventional strategies).

Skills: Breath Control; Broadsword Art; Fast-Draw (Sword); Jitte/Sai; Meditation; Philosophy (Zen Buddhism); Savoir-Faire (Dojo); Staff; Tactics; Two-Handed Sword.

Knightly Mounted Combat

Medieval European knights studied the martial arts intensively. From an early age, they practiced mounted and foot combat, alone and in groups. Their fighting styles evolved over time to keep up with increasingly heavy armor and larger mounts, and the weapons that accompanied those developments.

Early Medieval

6 points

Following the demise of the Roman Empire, mounted warriors gradually came to dominate European warfare. These early knights were armed with the spear and the broadsword (which was both a status symbol and their main weapon). Stirrups were common, but the saddles of the time didn't provide sufficient support for true "couched lance" techniques. Protection consisted of mail armor and a medium or large shield.

These early knights used the spear overhand – or, occasionally, couched under the right arm – to attack their enemies' vulnerable face, neck, and vitals. When wielding the broadsword, they generally dealt overhand slashing blows, although thrusting attacks weren't unknown. When using *either* weapon, they preferred to block with the shield rather than parry. Close in, they employed wrestling moves – both to prevent the enemy from using his weapons and to disable attackers when they were themselves disarmed.

Legends of knightly combat often mention fierce battle cries that terrified lesser foes – a Western version of Kiai. Legends also tell of knights cleaving foes in half, killing horses with a single blow, and other feats worthy of Power Blow.

Kendo

4 points

Samurai disappointed with *kata*-only practice developed Kendo as a form of contact training less risky than sparring with bokken. Their efforts yielded specialized light armor, the *shinai* (split-bamboo sword), and rules intended to prevent injury while allowing contact.

Kendo is a sport, not a combat form. Limited targets, light weapons, and strong protection contribute to the participants' safety. Players may strike the protected face, neck, torso, and hands. In order to score, they must declare their target as they attack. They're allowed to shove, but only sword blows score. Many Kendo moves would get you killed in a real swordfight.

One Kendo variant – based on *Nito Ryu* (pp. 174-175) – uses *two* swords. Replace Two-Handed Sword Sport with Broadsword Sport and Shortsword Sport; change the techniques to match; add Dual-Weapon Attack (Broadsword Sport or Shortsword Sport) to cinematic techniques; and include Off-Hand Weapon Training (Shortsword Sport) and Unusual Training (Dual-Weapon Attack, Both attacks must target the same foe) as Style Perks. Style cost becomes 5 points. Players use Dual-Weapon Attack to feint and attack, since only one attack counts for scoring purposes. Striking twice can invalidate both scores!

Kendo was briefly banned during the Allied Occupation of Japan, but was restored in 1947. Since the 1960s, it has become an international sport. Today, it's widely popular in Japan, where it's a common sport in school. Korea's *Kumdo* is identical, but uses Korean etiquette and nomenclature.

Skills: Games (Kendo); Savoir-Faire (Dojo); Two-Handed Sword Sport.
Techniques: Feint (Two-Handed Sword Sport); Targeted Attack (Two-Handed Sword Sport Swing/Arm); Targeted Attack (Two-Handed Sword Sport Swing/Skull); Targeted Attack (Two-Handed Sword Sport Thrust/Neck).
Cinematic Skills: Kiai; Immovable Stance; Mental Strength; Power Blow.
Cinematic Techniques: Dual-Weapon Defense (Two-Handed Sword Sport); Whirlwind Attack (Two-Handed Sword Sport).

Optional Traits

Advantages: Enhanced Parry (Two-Handed Sword).
Disadvantages: Delusions.
Skills: Breath Control; Meditation; Philosophy (Zen Buddhism); Shortsword Art; Two-Handed Sword Art.

Iaido

5 points

Iaido is the *-do* form of Iaijutsu (p. 174). Like Kendo, it started life as a way to cope with the loss of combat conditions under which to practice. Unlike Kendo, it focuses on *kata* and drill, not free sparring. Stylists often use an unsharpened sword.

Skills: Broadsword Art; Fast-Draw (Sword); Savoir-Faire (Dojo); Two-Handed Sword Art.
Techniques: Low Fighting (Broadsword Art or Two-Handed Sword Art).
Cinematic Skills: Mental Strength.
Cinematic Techniques: Springing Attack (Broadsword Art or Two-Handed Sword Art).
Perks: Grip Mastery (Katana); Quick-Sheathe (Sword); Shtick (Chiburi).

Optional Traits

Secondary Characteristics: Improved Basic Speed and Per.
Advantages: Combat Reflexes.
Disadvantages: Delusions.
Skills: Meditation; Shortsword Art.

Armed Styles

Many cultures have styles that consist largely – if not solely – of collections of weapon skills. For examples, see *Kobujutsu* (p. 178) and *Masters of Defence Weapon Training* (p. 182). The armed styles below are equally noteworthy, if less-famous. The GM can create similar styles for Dark Ages warriors, Aztec knights, ancient soldiery, and so on.

Banshay

7 points

Banshay is the armed sub-style of *Thaing* (a blanket term for Burmese martial arts). It's usually learned in conjunction with Bando (pp. 151-152). It includes the use of fist loads, sticks, batons (*dhot*), staffs, clubs, spears, shields, knives, machetes, kukris, swords (short through broad), axes, bows, crossbows, ropes, chains, belts, whips, shoes, and even clothes. Ancient legends are plentiful, such as that of Prince Sawthi of Burma, who slew four giant monsters after being trained by a hermit archery master.

Skills: Broadsword; Knife; Shield; Shortsword; Spear; Staff.

Techniques: As *Kobujutsu* (p. 178), but for the above weapon skills.

Optional Traits

Advantages: Combat Reflexes; Heroic Archer; Language (Burmese).

Skills: Axe/Mace; Bow; Brawling; Crossbow; Kusari; Whip.

Krabi Krabong

8 points

Krabi Krabong is a Thai combat style that dates back at least 400 years. Its earliest origins are unknown owing to the loss of written records in Thailand. However, it's clear that Thailand's royal bodyguards learned the art and that matches served as both spectator sport and training.

Krabi Krabong teaches the *daab song meu* (twin short swords), *krabi* (saber), *mae sun-sawk* (twin tonfa-like clubs), *ngao* (polearm), and *plong* (staff). It also includes unarmed strikes, grapples, and throws. Unarmed blows often parallel those of Muay Thai (pp. 185-186) but are frequently reinforced with weapons – e.g., elbow strikes while using the mae sun-sawk – and many fighters learn Muay Thai alongside Krabi Krabong.

Modern Krabi Krabong matches still involve real weapons. Competitors avoid hitting the opponent, however, and instead strike his weapons or halt just short of impact. Injuries do occur but an injured fighter can continue. The contenders' endurance and display of skill determines victory. Competitive fighters should learn Combat Sport *and* combat versions of the style's weapon skills – or *only* Combat Sport versions, if they're strictly athletes.

Skills: Judo; Karate; Polearm; Saber; Smallsword; Staff; Tonfa.

Techniques: Back Kick; Elbow Strike; Feint (Polearm, Saber, Smallsword, or Staff); Kicking; Knee Strike; Sweep (Staff); Uppercut.

Cinematic Skills: Power Blow.

Cinematic Techniques: Dual-Weapon Attack (Saber, Smallsword, or Tonfa).

Perks: Style Adaptation (Muay Thai); Unusual Training (Dual-Weapon Attack, Both attacks must target the same foe); Weapon Adaptation (Shortsword to Smallsword).

Optional Traits

Advantages: Combat Reflexes; Language (Thai).

Disadvantages: Crippling injuries.

Skills: Games (Krabi Krabong); Shield.

This style is appropriate for knights during the years 600-1100. In later periods, it could represent the training of light cavalry from "backwater" or "tribal" provinces.

Skills: Broadsword; Riding (Horse); Shield; Spear; Wrestling.

Techniques: Cavalry Training (Broadsword or Spear); Combat Riding; Hands-Free Riding; Quick Mount; Retain Weapon (Spear); Staying Seated.

Cinematic Skills: Kiai; Power Blow.

Perks: Grip Mastery (Spear); Shield-Wall Training.

Optional Traits

Advantages: Combat Reflexes; Enhanced Block; Status; Wealth.

Disadvantages: Code of Honor (Chivalry); Duty (To liege).

Skills: Animal Handling; Axe/Mace; Bow; Brawling; Knife; Swimming; Thrown Weapon (Spear).

High Medieval

7 points

Between the 12th and late 14th centuries, a different style of combat emerged. Knights of the High Middle Ages were still able foot combatants, but the emphasis shifted to horsemanship. The "couched" lance became the knight's trademark attack. Those who fought this way resembled the stereotypical knights of fiction: still clad in mail, but soon adopting plate armors of increasing complexity, greathelms, and bright heraldic colors.

High medieval knights led with the lance or sword hand rather than with the shield – which was medium, small, or totally absent. They avoided dismounted combat in favor of a charge with the couched lance. In addition to using the lance for shock action, they trained to use its head for a Tip Slash (p. 113).

While they favored the lance, knights of this period also learned to fight using the broadsword, axe, and mace. The sword was their primary sidearm, used to both cut

and thrust. The thrust was somewhat more common – and was often aimed at chinks in other knights' heavy armor. Knights sometimes wielded their swords two-handed, and used Committed Attack (Strong) to defeat their opponents' armor. Grappling skills were still standard training.

Myths of knightly prowess from this period always focus on the knights' strength and fortitude. Cinematic knights can deliver blows capable of shearing an armored man in half. They can fight through incredible punishment – even eventually fatal injury – and when they finally drop, they always take enemies with them. Use Fearlessness, Hard to Kill, High Pain Threshold, and improved HP to help model this. Their great battle-oaths may cause foes (especially heathens or pagans) to flee in terror.

Horsemanship was all-important for this style, and the necessary proficiency meant that training started at a young age. Wealth was also critically important. The weapons, armor, and mount that let the knight dominate the battlefield weren't cheap!

Skills: Axe/Mace; Broadsword; Lance; Riding (Horse); Shield; Wrestling.

Techniques: Cavalry Training (Axe/Mace or Broadsword); Combat Riding; Staying Seated; Targeted Attack (Broadsword Thrust/Vitals); Targeted Attack (Broadsword Thrust/Vitals Chinks).

Cinematic Skills: Kiai; Power Blow.

Cinematic Techniques: Timed Defense (Axe/Mace or Broadsword).

Perks: Technique Adaptation (Cavalry Training).

Optional Traits

Secondary Characteristics: Improved HP and Will.

Advantages: Combat Reflexes; Enhanced Parry (Broadsword); Fearlessness; Hard to Kill; High Pain Threshold; Status; Wealth.

Disadvantages: Code of Honor (Chivalry); Duty (To liege); Sense of Duty (To liege).

Skills: Animal Handling; Bow; Brawling; Crossbow; Polearm; Shield (Buckler); Spear; Two-Handed Sword.

For what man shall be able long in fight to stand up, either to revenge, or defend himself, having the veins, muscles, sinews of his hand, arm, or leg clean cut asunder?

– George Silver,
Paradoxes of Defence

Late Medieval

5 points

Knightly combat in the late 14th through 15th centuries was drastically different from earlier styles. Highly developed armor and the relative uselessness of the lance against disciplined infantry forced knights to abandon their cherished heavy-cavalry role in favor of more versatile training in foot and mounted combat. They came to rely entirely on plate armor for protection, completely abandoning the shield in favor of two-handed, armor-piercing weapons.

Mounted, the main weapon remained the lance, although the sword saw use. On foot, the knight either faced his opponent squarely or led with the off hand. His primary weapons were the thrusting bastard sword and dueling halberd – with the mace and pick favored as backup weapons for their deadliness and effectiveness against heavy armor.

The knight normally held his sword or halberd in a Defensive Grip (pp. 109-111), but quickly shifted to a normal grip to attack a vulnerable foe. "Trick" attacks – such as the Deceptive Attack option and Spinning Strike technique – were common. A typical finishing move was either an Attack or a Committed Attack (Strong) aimed at a vulnerable location such as the neck or vitals. Unarmed knights used refined grappling, throwing, and choking techniques. In all cases, foot combat stressed agility and speed in heavy armor. The knight's survival depended on his ability to parry or dodge!

Advanced fighters sometimes rounded out their training with knife-fighting skills. A few learned an entire dagger-fighting style; see *Dagger Fighting* (p. 155). Some knights also trained specifically with the pollaxe, adding the methods of Pollaxe Fighting (p. 191) to this art.

After the 15th century, this style became increasingly uncommon.

Skills: Judo; Lance; Riding (Horse); and Polearm *or* Two-Handed Sword.

Techniques: Cavalry Training (Any); Choke Hold (Polearm or Two-Handed Sword); Combat Riding; Counterattack (Polearm or Two-Handed Sword); Hook (Polearm); Spinning Strike (Polearm or Two-Handed Sword); Staying Seated; Sweep (Polearm); Targeted Attack (Two-Handed Sword Swing/Neck); Targeted Attack (Two-Handed Sword Thrust/Neck); Targeted Attack (Two-Handed Sword Thrust/Vitals); Targeted Attack (Two-Handed Sword Thrust/Vitals Chinks).

Cinematic Skills: Kiai; Power Blow.

Cinematic Techniques: Timed Defense (Any).

Perks: Armor Familiarity (Judo); Grip Mastery (Polearm or Two-Handed Sword); Style Adaptation (Pollaxe Fighting).

Optional Traits

Secondary Characteristics: Improved Basic Speed.

Advantages: Combat Reflexes; Enhanced Parry (All); Status; Wealth.

Disadvantages: Code of Honor (Chivalry); Duty (To liege).

Skills: Animal Handling; Axe/Mace; Brawling; Broadsword; Knife; Savoir-Faire; Shield; Spear; Staff.

Kobujutsu

8 points

"Kobujutsu" (or *Kobudo*) is a term for *all* Okinawan weapons training, military or civilian – although it occasionally describes ancient (pre-Meiji) martial arts in general. According to some accounts, a 15th-century Okinawan king banned all weapons but ceremonial ones among civilians. Okinawans responded by learning to fight with weaponized versions of day-to-day tools, as well as by honing their unarmed fighting arts (see *Te,* pp. 169-170). Later, Japanese invaders banned all weapons – ceremonial or otherwise – along with unarmed-combat training. All this did was drive the Okinawan martial arts underground and further encourage practitioners to disguise *kata* and weapon drills as dances.

Okinawan military weapons included the *bisento,* bow, broadsword, crossbow, *katana,* knife, *naginata,* shortsword, and *yari.* Even the musket and pistol eventually entered the fold. Post-ban civilian weapons were the *bo* (staff), *eku, jo, kama, kusarigama, nunchaku, rokushaku kama* (kama-staff combination), *sai,* spear, *tekko* (brass knuckles), *tonfa,* and *tuja,* and such hidden weapons as the fan, pipe, and umbrella. Traditional Kobujutsu also covered the *timbe,* a form of buckler used both to block and to strike. For weapon descriptions, see Chapter 6.

Given the number of weapons involved, it was rare for a school to offer training in *everything.* Most emphasized a few choice weapons. Thus, the style described here covers only the weapons most commonly associated with Kobujutsu. Traditionalists, Weapon Masters, instructors, and so on should still learn most or all of the listed weapon skills. The complete style would only be readily available in Okinawa, however!

Like Karate, Kobujutsu seeks to deflect an incoming attack and then retaliate with a single crushing blow. *Kobujutsuka* (Kobujutsu stylists) commonly take the Wait maneuver and attack the enemy when he steps into range, or parry his attack and then counter with a blow aimed to finish him. Many strikes are Deceptive Attacks, because while they're direct and linear, they're also quick and difficult to defend against. Stylists learn to fight against each weapon using any other.

Today, "kobujutsu" often refers to training in the civilian weapons developed under the weapons ban. Some masters do still offer the complete art, but this is rare. Modern schools tend to focus on the kama, nunchaku, sai, staff, and/or tonfa. In many cases, these weapons are taught as part of a Karate style.

Skills: Axe/Mace; Flail; Jitte/Sai; Savoir-Faire (Dojo); Staff; Tonfa; and at least *one* of Broadsword, Knife, Kusari, Polearm, Shield (Buckler), Shortsword, Spear, and Two-Handed Axe/Mace.

Techniques: Disarming (Jitte/Sai); Feint (Any weapon skill in style); Reverse Grip (Axe/Mace or Jitte/Sai).

Cinematic Skills: Power Blow.

Cinematic Techniques: Dual-Weapon Attack (Axe/Mace, Flail, Jitte/Sai, or Tonfa); Dual-Weapon Defense (Any weapon skill in style); Whirlwind Attack (Any weapon skill in style).

Perks: Grip Mastery (Staff); Off-Hand Weapon Training (Any one-handed weapon skill in style); Technique Adaptation (Feint); Technique Adaptation (Whirlwind Attack).

Optional Traits

Advantages: Ambidexterity; Combat Reflexes; Enhanced Parry (All).

Disadvantages: Obsession (Master all Okinawan weapons).

Skills: Bow; Combat Art form of any weapon skill in style; Crossbow; Guns; any weapon skill above not learned initially.

Kuntao

6 points

"Kuntao" is an umbrella term for the martial arts of the ethnic Chinese in Indonesia and Malaysia. The name comes from the Chinese term *chuan do* ("way of the fist") and describes Chinese kung fu that has been influenced by contact with Pentjak Silat (pp. 189-191) – Kuntao's traditional rival. Like Pentjak Silat, Kuntao isn't a style but a *range* of styles. The version given here is a "hard" variety. For softer forms, use the style components of Pa Kua Chuan (pp. 187-188) or T'ai Chi Chuan (pp. 200-201).

Kuntao stresses hard strikes and speedy counterattacks. The emphasis is on punching, but the style also includes low-line and spinning kicks for use against foes caught off-guard or on the ground. Stylists learn to retract their punches quickly to counter Pentjak Silat practitioners' attempts to grab incoming limbs, and study the Evade technique – and employ it often – to stay out of grappling range. They make frequent use of the Counterattack technique and the Riposte option (pp. 124-125) to exploit the openings that opponents leave in their defenses when attacking. On the defensive, Kuntao fighters often follow up parries with throws.

Like its ancestor styles and its close neighbor, Pentjak Silat, Kuntao teaches many weapons. These include the broadsword, butterfly swords (usually paired), chain, hook sword, *jian, lajatang, liangtjat* (sharpened stick), *sai, siangkam,* spear, staff, three-part staff, two-handed sword, whip, and various polearms. See Chapter 6 for descriptions of these weapons. Students eventually learn all weapons but commonly start out with only a few.

Historically, because of Kuntao's rivalry with Pentjak Silat, each school's teachers and students kept it secret from their non-Chinese neighbors and other Kuntao schools alike. At its most peaceful, this took the form of phony demonstrations intended to obscure the true art. There were also bloody clashes between Pentjak Silat and Kuntao schools, though – and even between rival Kuntao schools.

Today, finding a Kuntao instructor is difficult – in part because of the art's tradition of secrecy and in part because many masters believe modern students lack the focus needed to learn the art. Nevertheless, there are a few schools abroad. These sometimes combine Kuntao with other forms of kung fu, Karate, or even Pentjak Silat!

Skills: Broadsword; Judo; Karate; Shortsword; and at least *one* of Jitte/Sai, Knife, Kusari, Polearm, Smallsword, Spear, Staff, Two-Handed Flail, Two-Handed Sword, and Whip.

Berserk and the Martial Arts

Many cultures have a special name for a killing rage. The best-known of these is *berserk*. This comes from the Old Norse *berserksgangr,* a word for the fierce, single-minded battle lust exhibited by warriors in Icelandic myth (and perhaps in reality). In Malaysia, Indonesia, and the Philippines, the term is *amok*. People who "run amok" go on a rampage of random killing until they're themselves slain. In modern U.S. lingo, this would be "going postal" . . . but that can also refer to a more coldly planned killing spree. ***GURPS*** reserves "berserk" – and the Berserk disadvantage (p. B124) – for those who experience genuine battle frenzy!

Berserk fighters don't "forget" their training – they simply forsake any defense for a furious attack. In game terms, those who suffer the effects of Berserk can only take the All-Out Attack maneuver. They can still use skills and techniques, learned or at default, subject to a few special rules.

Berserkers *can* employ techniques that require a turn or more of Ready to set up – they just have to use All-Out Attack instead of Ready for the setup. The options are Determined, for +4 to DX-based rolls required by the setup, or Strong, for +2 to ST-based rolls . . . at the usual cost of no active defenses. The berserker must also use All-Out Attack for the technique itself on a later turn. He's free to select any option that suits his technique. This is most likely to be Determined or Strong, but could instead be Double, Long, or even Feint.

However, berserkers can't use techniques that are active defenses, including Aggressive Parry and Jam; techniques that rely on active defenses, such as Counterattack; or combat options that depend on taking an active defense, like Cross Parry (p. 121) and Riposte (pp. 124-125). This is true even if such a move would be the most effective tactic possible! Such is the cost of not defending.

Techniques: Arm Lock; Back Kick; Counterattack (Karate); Evade; Exotic Hand Strike; Hammer Fist; Head Lock; Spinning Kick.

Cinematic Skills: Blind Fighting; Body Control; Breaking Blow; Mental Strength; Power Blow; Pressure Points; Pressure Secrets; Throwing Art.

Cinematic Techniques: Dual-Weapon Attack (Shortsword); Pressure-Point Strike; Roll with Blow.

Perks: Off-Hand Weapon Training (Shortsword); Rapid Retraction (Punches).

Optional Traits

Advantages: Language (Chinese).

Disadvantages: Social Stigma (Minority Group, Chinese in Indonesia).

Skills: Breath Control; any weapon skill above not learned initially.

Kusarijutsu

2 points

Kusarijutsu is the Japanese art of the *kusari,* or weighted chain. Its developers were likely medieval samurai who sought a flexible backup weapon. Chain weapons may date back as far as the beginning of the Kamakura period (1192).

Practitioners learn to use the kusari to strike blows, entangle the foe's legs, and apply Choke Holds and Arm Locks (which involve entangling the arm and then twisting it into a painful or crippling position). Due to their weapon's excellent reach but poor defensive capabilities, they alternate aggression with caution. Stylists prefer to use Wait, Evaluate, or Feint to set up an opponent before dealing a disabling attack – possibly with Entangle or Back Strike. Until such a decisive attack is possible, they move to take advantage of reach and keep the enemy at bay. Once the adversary is vulnerable, though, a crushing finishing move with Committed Attack (Strong) or All-Out Attack (Strong) is likely.

Cinematic Kusarijutsu stylists can swing their weapon with enormous force. They can also bind adversaries with loops of chain in combat. Some train to strike a single target with both ends of their kusari at the same time – or to attack two adjacent foes, one with either end. These last two moves count as Dual-Weapon Attacks, and are only possible with a kusari held in two hands *and* readied at less-than-maximum reach.

Kusarijutsu is an excellent starting point for non-Japanese martial arts that use chain weapons, or for cinematic or fictional styles that use (often bizarre or impractical) chain- and rope-based weapons: rope darts, bladed chains, chains with saw-edged spiked balls, etc. For more on the kusari and its many variants, see Chapter 6. For the *kusarigama* and *its* variations, see *Kusarigamajutsu* (p. 180).

Skills: Kusari.

Techniques: Arm Lock (Kusari); Back Strike (Kusari); Choke Hold (Kusari); Entangle (Kusari); Return Strike (Kusari); Targeted Attack (Kusari Swing/Arm); Targeted Attack (Kusari Swing/Skull); Targeted Attack (Kusari Thrust/Face).

Cinematic Skills: Power Blow.

Cinematic Techniques: Binding; Dual-Weapon Attack (Kusari).

Perks: Special Setup (Kusari Parry > Arm Lock).

Optional Traits

Advantages: Weapon Master (Kusari).

Disadvantages: Overconfidence.

Skills: Flail; Judo; Savoir-Faire (Dojo).

Techniques: Spinning Strike (Kusari).

Perks: Weapon Bond.

Kyujutsu

4 points

Kyujutsu is the Japanese art of the bow, or *yumi* (typically the *dai-kyu,* or composite bow). It's primarily a combat style. For sport and art variants, and non-Japanese styles, see *Archery* (p. 181).

Kusarigamajutsu

3 points

Warriors sometimes attach the *kusari* to another weapon (see *Combination Weapons,* p. 214). The *kusarigama* – a kusari fastened to a *kama* (sickle) – is the most famous combination. The chain is affixed to either the kama's head or the butt of its handle. This style covers both cases, but each variation demands its own tactics.

If the chain is attached to the handle, the user wields the kusarigama in two hands: his master hand holds the kama while his off hand controls the kusari. He can then "throw" the chain. The usual target of a throw is the opponent's face or hands – hopefully distracting or injuring him, creating an opening to move in and strike with the kama. This kind of quick attack with both parts of the weapon is a (realistic) Dual-Weapon Attack.

A related tactic with this kind of kusarigama is to swing just the kusari in an attempt to entangle or injure the foe. If the intent is to injure, the attacker aims for the skull or neck. If using the Entangle technique, he targets the arms, legs, or weapon. The turn *after* stunning or entangling his enemy, the wielder rushes in with the kama for a finishing blow. This is likely to be a Committed or All-Out Attack – especially if the kusari took the victim's weapon out of commission! The kusarigama user might pull his opponent off-balance prior to such an attack; treat this as a takedown or a Beat (pp. 100-101).

It's possible to hold onto the kusari and whirl the kama around on the end of the chain. This is potentially deadly, as it imparts greater speed to the kama. However, attacking commits the whole weapon – the kama isn't in the master hand, ready to strike and parry. On a hit, or on an enemy block or parry, the *entire weapon* becomes unready!

If the chain is attached at the head, the user can wield the weapon with one hand. The kusari swings freely and the wielder attacks with it (pulling his kama swings short of the target) *or* the kama. Often he'll use Entangle to snare the foe's weapon or pull him in (again, a takedown or a Beat), and then assault him with unarmed strikes or a secondary weapon.

Kusarigamajutsu is typically part of a larger *ryu* – frequently a secret or hidden element. Some Naginatajutsu (p. 186) schools teach the kusarigama as a backup weapon. For stylists using other kusari combinations, use this style but replace Axe/Mace with the appropriate skill: Jitte/Sai for the *kusarijutte,* Staff for the staff-chain, and so on. Tactics remain the same.

Skills: Axe/Mace; Kusari.

Techniques: Choke Hold (Kusari); Entangle (Kusari); Return Strike (Kusari); Targeted Attack (Axe/Mace Swing/Neck); Targeted Attack (Kusari Swing/Arm); Targeted Attack (Kusari Swing/Skull); Targeted Attack (Kusari Thrust/Face).

Cinematic Skills: Power Blow.

Cinematic Techniques: Dual-Weapon Attack (Axe/Mace or Kusari).

Perks: Grip Mastery (Kusarigama); Off-Hand Weapon Training (Kusari); Unusual Training (Dual-Weapon Attack, Both attacks must target the same foe).

Optional Traits

Advantages: Ambidexterity.

Disadvantages: Overconfidence.

Skills: Karate; Two-Handed Sword.

Since arrows weren't terribly effective against armor, samurai learned to aim for the face, which was only rarely protected by a mask. Samurai also practiced shooting at a full gallop. They used *inuomono,* or dog-shooting, to hone their skills. This involved chasing dogs across open fields and shooting at them – often with arrows equipped to whistle and warn the dog. This taught warriors to shoot at fast-moving, quick-dodging targets.

Legendary archers could hit targets at extreme range with great accuracy. They used their skills not only to kill but for "trick shots" – cutting standards from poles, knocking decorations off helmets, and so on – to intimidate the foe. Japanese bowmen employed several peculiar arrowheads specifically for the purpose (see *Special Arrows,* p. 232).

Kyujutsu represents the *minimum* training a samurai needs to fight from horseback using a bow. Most receive additional mounted-combat instruction; see *Bajutsu* (p. 151). Later samurai and *ashigaru* (conscript infantry) might train to fight on foot; see *Foot Archery* (p. 181).

Skills: Bow; Fast-Draw (Arrow); Riding (Horse).

Techniques: Combat Riding; Hands-Free Riding; Horse Archery; Targeted Attack (Bow Shot/Face).

Cinematic Skills: Mental Strength; Pressure Points (Bow); Zen Archery.

Cinematic Techniques: Pressure-Point Strike.

Perks: Strongbow; Technique Adaptation (Targeted Attack).

Optional Traits

Secondary Characteristics: Improved Per.

Advantages: Acute Vision; Heroic Archer; Wealth; Weapon Master (Bow).

Disadvantages: Code of Honor (Bushido).

Skills: Animal Handling (Dog or Horse); Bow Art; Meditation; Savoir-Faire (Dojo).

Perks: Weapon Bond.

Longsword Fighting

5 points

Longsword Fighting was popular in Central Europe from around 1350 until almost 1600. The longsword (p. 219) was ideally suited to two-handed tactics. Fighters regarded one-handed use as secondary, and didn't use a shield at all; they either kept two hands on their weapon or used one hand to grab the foe while driving in the sword with the other. Masters rounded out the training with punching, kicking, grappling, and knife fighting.

Swordsmen typically grasped the longsword in a Defensive Grip (pp. 109-111), holding the long ricasso and using the blade to ward off blows. They launched attacks from both this grip and the normal grip. Against plate-armored foes, they favored thrusts aimed at chinks in armor. Some attacks used an *inverted* sword: the fighter held his weapon by the blade and either bashed his opponent with the hilt as if it were a mace or used the Hook technique with the crosspiece.

Armored and unarmored warriors alike practiced Longsword Fighting. Those with armor would grapple, shove, slam, and Beat (pp. 100-101) extensively, closing with their foe and trying to put him at a disadvantage in order to finish him with a stab to a vital area. Unarmored fighters – less protected from cuts and stabs – circled and kept their distance. They used Evaluate, Wait, and Feint to spot or create an opening before moving in for the kill. Both circumstances called for a strong attack capable of punching through armor; in game terms, either Committed Attack (Strong) or All-Out Attack (Strong).

While the style's iconic weapon was the longsword, both the thrusting bastard sword and thrusting greatsword saw use. The latter was often known as the *zweihänder* in the hands of the *doppelsöldner,* who received twice the pay of other foot soldiers. To gain this coveted status, he had to produce a diploma from a recognized longsword master.

Medieval heroes who wish to learn this style shouldn't have trouble finding a master in 14th- through 16th-century Central Europe. The rapier rapidly replaced the longsword for civilians during the 16th century, but the longsword remained a common military weapon. Period art depicts Italian fencing masters with longswords as late as the 1580s. Modern recreationists have restored a version of this style based on the writings of German longsword masters.

Archery

Kyujutsu (pp. 179-180) is hardly the only bow style. The horse archery of the Great Plains Indians, Huns, Mongols, Scythians, etc., would be similar but lack such specifically Japanese elements as Code of Honor (Bushido) and Animal Handling (Dog), and offer different Targeted Attacks. Military Rank and Status would join Wealth as optional traits, the mix varying by culture. Some styles differ more radically.

Foot Archery

3 points

Historically, infantry as well as cavalry were archers. In the time a horse archer took to master a weapon *and* a mount, a foot archer could develop great arm strength, letting him draw heavier bows. Tactics relied more on ambush and massed fire than on aim, but bowmen shot targets for sport and practice – especially in England. Melee Weapon skills were important for close defense and to finish off foes.

Cinematic archers like Robin Hood might focus on aim, learning Targeted Attacks and special skills for engaging concealed or distant targets. Larger-than-life heroes could easily justify the Kiai skill, too. Archery served as much to demoralize as to kill, and bowmen were known for their battle cries!

Modern athletes should replace Bow with Games (Archery), and use Bow Sport for shooting.

Skills: Bow; Bow Sport.
Techniques: Close Combat (Bow); Retain Weapon (Bow).
Cinematic Skills: Blind Fighting; Kiai; Zen Archery.
Cinematic Techniques: Dual-Weapon Attack (Bow).
Perks: Special Exercises (Arm ST +1) up to three times, allowing Arm ST +3; Strongbow; Sure-Footed (Slippery).

Optional Traits

Secondary Characteristics: Improved Per.
Advantages: As *Kyujutsu* (pp. 179-180), but remove Wealth and add Fit.
Skills: Armoury (Missile Weapons); Camouflage; Fast-Draw (Arrow); Hiking; Intimidation; Melee Weapon skills; Soldier; Stealth.
Techniques: Targeted Attack.

Kyudo

4 points

With the rise of firearms on the Japanese battlefield in the 1570s, the bow fell into decline as a military weapon. Japanese society admired skilled archers, though, and desired to preserve Kyujutsu. Thus, it became one of the first *-jutsu* arts to develop a *-do* form.

Kyudo breaks down each shot into eight stages and expects the archer to move smoothly between them, performing each with equal deliberation. Training proceeds slowly and treats target shooting as a distraction until one has mastered posture, breathing, and the draw. The art is equally formal in competition.

Kyudo is practiced from both kneeling and standing postures.

Skills: Bow Art; Meditation; Savoir-Faire (Dojo).
Techniques: Low Fighting (Bow Art).
Cinematic Skills: As *Kyujutsu* (pp. 179-180).

Optional Traits

Secondary Characteristics: Improved Per.
Advantages: As *Kyujutsu,* but remove Wealth.
Skills: Autohypnosis.

Yabusame

3 points

Yabusame, used in Shinto ritual, is one of the only surviving examples of horse archery today. Practitioners use the same *yumi* as in Kyudo, but from horseback. Emphasis is on precision. The archer has but a small window of opportunity in which to aim and shoot while riding at a full gallop.

Skills: Bow Sport; Riding (Horse).
Techniques: Combat Riding; Hands-Free Riding; Horse Archery.
Cinematic Skills: Zen Archery.

Optional Traits

Secondary Characteristics: Improved Per.
Advantages: As *Kyujutsu* (pp. 179-180), but remove Wealth.
Disadvantages: Disciplines of Faith.
Skills: Bow; Savoir-Faire (Dojo).

Skills: Brawling; Judo; Knife; Two-Handed Sword.

Techniques: Arm Lock (Judo); Armed Grapple (Two-Handed Sword); Bind Weapon (Two-Handed Sword); Choke Hold (Two-Handed Sword); Close Combat (Two-Handed Sword); Counterattack (Two-Handed Sword); Disarming (Judo or Two-Handed Sword); Ground Fighting (Knife); Kicking; Knee Strike; Retain Weapon (Two-Handed Sword); Targeted Attack (Two-Handed Sword Thrust/Face); Targeted Attack (Two-Handed Sword Thrust/Neck); Targeted Attack (Two-Handed Sword Thrust/Vitals Chinks); Trip.

Cinematic Skills: Mental Strength; Power Blow.

Cinematic Techniques: Dual-Weapon Defense (Two-Handed Sword); Timed Defense (Two-Handed Sword).

Perks: Armor Familiarity (Judo); Grip Mastery (Longsword); Skill Adaptation (Bind Weapon defaults to Two-Handed Sword); Sure-Footed (Uneven).

Optional Traits

Advantages: Enhanced Dodge; Enhanced Parry (Two-Handed Sword or All); Weapon Master (Two-Handed Sword).

Disadvantages: Obsession (Achieve certificate of mastery).

Skills: Broadsword; Fast-Draw (Knife); Two-Handed Axe/Mace; Wrestling.

Techniques: Hook (Two-Handed Axe/Mace).

Perks: Weapon Bond.

Masters of Defence Weapon Training

12 points

The English and German "Masters of Defence" were men who prided themselves on their expertise with a wide variety of weapons, civilian *and* military. Their art seems to have originated in the 15th century. It lasted until the late 17th century across most of Europe. As time wore on, the Masters – and students willing to train with them – became increasingly less common and ultimately disappeared entirely.

To learn this style, a would-be student had to find an accredited master and become his apprentice. Next came a lengthy training period, followed by tests – first to become a journeyman and eventually to qualify as a master. These would be excellent goals for a PC in a historical game.

A master of this style was expected to know *all* of its many weapons and be able to fight them in any combination. Fighters also learned *unarmed* techniques – especially those useful for dealing with armed foes. Some masters taught a substantial number of throws and locks; their schools would teach Judo rather than Wrestling. Practitioners didn't regard such unarmed methods as "dirty." Anything that worked was acceptable. Indeed, many masters lost eyes or digits proving their skill during certification tests or in subsequent duels. The one-eyed English Master of Defence was a common stereotype!

Tactics varied greatly depending on the weapons used. When wielding *any* weapon, though, stylists would mix armed techniques with unarmed ones intended to disarm the foe. Masters regarded such methods as crucial when disarmed – and as valuable additional means of defeating an armed opponent even when armed.

In a cinematic game, Masters of Defence make excellent Weapon Masters. The sheer breadth of their training means that they're fearsome fighters with almost any available weapon. There are tales of Masters standing off several adversaries at once, casually defeating skilled opponents (*especially* fencers and other foreigners!), and shearing men in half with tremendous blows.

Masters of Defence were commoners, not members of the upper class. This often led to social difficulties when dealing with their rapier-instructor contemporaries, who could simply ignore their challenges owing to the difference in status. Despite this, it's possible that some Masters learned the rapier – either to better defend against it or because they recognized its growing importance as a street weapon.

Skills: Brawling; Broadsword; Knife; Polearm; Shield; Shield (Buckler); Shortsword; Spear; Staff; Two-Handed Sword; Wrestling.

Techniques: Arm Lock; Armed Grapple (Polearm, Spear, Staff, or Two-Handed Sword); Disarming (Any skill in style); Feint (Any weapon skill in style); Hook (Polearm); Sweep (Polearm, Spear, Staff, or Two-Handed Sword).

Cinematic Skills: Kiai; Power Blow.

Cinematic Techniques: Dual-Weapon Attack (Shortsword); Grand Disarm (Staff or Two-Handed Sword); Whirlwind Attack (Staff or Two-Handed Sword).

Perks: Form Mastery (Spear); Grip Mastery (Two-Handed Sword); Off-Hand Weapon Training (Shortsword).

Optional Traits

Advantages: Ambidexterity; Combat Reflexes; Fearlessness; Languages (English or German); Weapon Master.

Disadvantages: Low Status; Missing Digit; One Eye.

Skills: Judo; Rapier; any other weapon skill not listed above.

Perks: Style Familiarity (Italian School).

Military Hand-to-Hand

Historically, many of the fighting arts in this chapter – particularly the armed ones – saw battlefield use. Their role diminished as firearms spread and became dependable, but veterans knew that ammunition could run out and that guns weren't always manageable in close quarters. Thus, hand-to-hand combat remained a part of almost every recruit's basic training. Some armies adapted traditional styles. Others invented new ones, like the relatively modern "scientific" or "synthetic" styles below.

Fairbairn Close Combat Training

5 points

W.E. Fairbairn (pp. 23-24) – with some assistance from Rex Applegate and Eric Sykes – created the style of hand-to-hand fighting most widely taught to Allied commandos in World War II. Fairbairn and Sykes also designed a fighting knife for use with their style: the Sykes-Fairbairn "commando" knife (p. 225). Applegate developed close-quarters pistol techniques.

This style emphasizes killing and sentry removal. There's nothing gentlemanly about its methods or their execution; it's purely pragmatic. The training places relatively little

emphasis on traditional kicking and punching, because the practitioner is supposed to be taking out sentries or isolated enemy troops – not fighting in a stand-up brawl.

Training includes throws, locks, and strikes to vital areas. It also covers concealing weapons, tying up prisoners, and fighting with sticks and even chairs! Targeted Attack (Knife Thrust/Neck) is one of the style's most important techniques. It normally follows a grapple and is itself followed by a cut outward from the throat to ensure that the enemy bleeds out quickly. These moves can form the basis of a brutal but effective Combination (see *Combinations,* p. 80).

In a cinematic game, Fairbairn-trained commandos might be able to replicate some of the legendary feats of the ninja, such as silent, invisible movement. Fairbairn *was* trained in the Far East . . . perhaps he learned some secrets that he only passed along to the most elite soldiers.

Skills: Judo; Karate; Knife; Stealth.
Techniques: Choke Hold; Disarming (Judo); Head Butt; Knee Strike; Neck Snap; Targeted Attack (Knife Thrust/Neck).
Cinematic Skills: Invisibility Art; Light Walk.
Cinematic Techniques: Backbreaker; Binding.
Perks: Improvised Weapons (Karate).

Optional Traits

Advantages: Combat Reflexes.
Disadvantages: Bloodlust; Overconfidence.
Skills: Garrote; Holdout; Knot-Tying; Shortsword.

Krav Maga

3 points

Imi Sde-Or (born Imrich Lichtenfeld) grew up in Bratislava, Czechoslovakia. During the 1930s, rising anti-Semitic violence in the region moved Imi – an experienced circus wrestler and competitive grappler – to train his fellow Jews to combat attackers willing to use weapons and "dirty" tactics. When he immigrated to Palestine in 1942, Imi started training settlers in his fighting system, which he later named "Krav Maga" (Hebrew for "contact combat" or "contact fight"). Today, Krav Maga is the official martial art of the Israeli Defense Forces.

Krav Maga mixes strikes, takedowns, and both standing and floor grappling. Kicks are low-line and used to disable the legs for a quick victory. The style expects the fighter to be aggressive, eschewing Defensive Attack in favor of Attack and Committed Attack. The Krav Maga stylist typically opens with a strike intended to distract or injure the foe, followed by either a grapple and takedown or a Head Lock and throw. After downing his opponent, he'll end the fight with a pin or a Choke Hold.

The style also teaches disarms against guns and knives. Once the weapon is out of the opponent's grasp, the Krav Maga student learns to kick it away or otherwise ensure that his original assailant or a third party can't use it. Stylists even practice techniques to keep the enemy from detonating a grenade!

Krav Maga incorporates improvised-weapons training and stresses using anything available to win. Practitioners learn to throw objects at opponents to distract as well as to injure, and to stab with pens and pencils, hit with purses, reinforce punches with rocks, and so on. Survival is the only goal and training is done without ceremony. Instructors expect students to learn to spot dangerous situations and deal with them – by fighting or fleeing, as appropriate.

By design, Krav Maga is easy to learn, useful for people of any size or fitness level, and effective in real combat situations. Krav Maga has no sport version, although there's a civilian self-defense version that's somewhat different from the combat form presented here. Both versions use a colored-belt system nearly identical to that of Judo (p. 166).

Krav Maga has no body of legend, but several cinematic skills and techniques would follow logically from its realistic ones in a cinematic game.

Skills: Karate; Wrestling.
Techniques: Arm Lock; Breakfall; Choke Hold; Disarming (Wrestling); Elbow Strike; Eye-Rake; Ground Fighting (Wrestling); Hammer Fist; Head Lock; Knee Strike; Stamp Kick.
Cinematic Skills: Mental Strength; Power Blow; Pressure Points; Pressure Secrets.
Cinematic Techniques: Lethal Strike; Pressure-Point Strike; Roll with Blow.
Perks: Improvised Weapons (Karate).

Optional Traits

Advantages: Combat Reflexes; Fit; Language (Hebrew).
Disadvantages: Bloodlust; Social Stigma (Minority Group, Jew).
Skills: Boxing; Brawling; Guns (Pistol, Rifle, or SMG); Savoir-Faire (Dojo); Knife; Spear.
Techniques: Retain Weapon (Pistol or Rifle).

MCMAP (U.S. Marine Corps Martial Arts Program)

3 points

MCMAP (pronounced "mihk-map") is a direct, simple style taught to all U.S. Marine Corps personnel during Basic Training. It replaces the Linear Infighting Neural-override Engagement (LINE) system of the 1990s, which taught set responses to specific attacks. MCMAP emphasizes quick, violent attacks to stun or confuse the opponent, followed by a takedown or throw. It has a few submission techniques for less-than-lethal situations, but no sport form – its main purposes are to teach Marines basic self-defense skills and to encourage aggressiveness.

Training is accordingly direct – recruits pair off and practice against each other – and includes hands-on drills that involve multiple opponents, armed attackers, and "mob engagements." Students learn a small number of techniques chosen for their violence, effectiveness, and (relative) ease of use in fighting gear. Rounding out the instruction are simple lessons in disarming, weapon retention, and bayonet fighting, plus enough training in improvised weapons to inculcate in the Marine the idea that any item can be a weapon if necessary. Advanced schooling, typically conducted in the infantry schools or operating forces, progresses into grappling and ground-fighting tactics.

The Purpose of Military Hand-to-Hand

Many traditional martial arts have a battlefield history and could justly claim to be "military." For game purposes, however, "military hand-to-hand" specifically describes the melee combat styles taught to TL6+ troops armed with firearms. That is, it refers to *modern* military styles.

The biggest difference here is that the arts practiced by pre-gunpowder warriors were primary skill sets, while those learned by modern soldiers are last resorts. A high-tech infantryman carries a rifle, grenades, and often a pistol. He enjoys the support of machine guns, mines, and mortars. He can radio for a fire mission. He'll use all of these tools before joining hand-to-hand combat, because they're all more efficient at killing the enemy. A samurai or a Roman legionary, on the other hand, *starts* with a spear or a sword!

This is important for soldier characters. Modern military training *doesn't* spend as much time on hand-to-hand combat as on firearms. Thus, a Marine PC shouldn't have many more points in MCMAP than in Guns skills. Elite troops who *are* highly trained at melee combat have different skills and techniques from their historical brothers, too. The GM who wants to design his own military styles should be aware of the goals of such arts.

Disarming and Weapon Retention

Modern warfare is all about firearms. If you have a gun and the other guy doesn't – and he doesn't surrender before he gets close enough to be a threat – *shoot* him. In close-quarters battle, though, any tight corner could conceal an enemy close enough to grab your weapon. To counter this, military styles teach how to keep weapons away from unfriendly hands; that is, the Retain Weapon technique.

If the *other* guy has the gun, the correct response is to take away his weapon and shoot him with it – *not* to attack with a knife or a jump kick. Thus, military styles teach ways to gain control of an opponent's firearm, too. This is the Disarming technique.

This emphasis on keeping and taking away weapons explains why most military styles favor grappling skills over striking skills, with few exceptions.

Knife, Rifle Butt, and Entrenching Tool

This doesn't mean that melee weapons are worthless. When you're out of ammo, you don't walk around empty-handed, hoping to take away an enemy's weapon. You use what you have. To kill the other guy before he kills you, a *long* weapon is best. Typical Melee Weapon skills taught by military styles – in order from longest to shortest reach – are Spear (for the fixed bayonet); Axe/Mace (for entrenching tools, or a rifle butt used as a club) or Shortsword (for a machete or unfixed sword bayonet); and Knife (for fighting knives and unfixed knife bayonets).

Military styles prioritize these skills in order of reach. Training for military police is sometimes an exception, as it might focus on Shortsword or Tonfa for use with a baton. If weapon techniques are taught, they're similar to those for unarmed combat – Disarming and Retain Weapon – possibly with the addition of Close Combat.

The Mk. I Boot

Barehanded combat training is good for aggression and morale. Troops learn Brawling or Karate primarily for this reason. Military styles focus on techniques with the booted foot: Jam, Kicking, Stamp Kick, etc. Hand techniques involve brutal mauling, like Eye-Gouging and Neck Snap, not breaking fists on helmets.

Unarmed striking is truly the last resort. If you're fighting without a weapon – and can't take somebody else's – you're probably doomed. The most realistic use of unarmed strikes is as "finishing moves": stomping on the head or windpipe of a fallen foe.

Sentry Removal

Silently neutralizing a sentry is the only situation where a melee weapon is preferable to a firearm. This arises less often in reality than in action movies, which is why ordinary troops don't carry silencers, glove pistols, and similar exotica. When necessary, a knife will do and the goal is to *kill,* not to fight. If you can't silence the target without a struggle, *shoot* him – a single shot is no less stealthy than a screaming brawl. The Knife skill is all that's needed here, but techniques such as TA (Knife Swing/Throat) and TA (Knife Thrust/Vitals) aren't unknown.

Some styles teach the Garrote skill, but a garrote is tricky to use on someone wearing bulky body armor and web gear. Thus, the skill is typically optional.

MCMAP practitioners engage the foe with a punch, kick, grapple, or grab, followed by a throw or takedown attempt. They usually finish a downed opponent with a double stomp to the head: two Stamp Kicks aimed at the face or skull. Treat this as an All-Out Attack (Double) or Rapid Strike.

While MCMAP is a specific training style for a particular military branch, it's a good example of the kind of unarmed training used to condition recruits. Other services have very similar styles. None of these offer cinematic skills – they completely lack legends of special abilities. Cinematic stylists should simply buy high skill, ST, DX, and HT.

Remember that however skilled a Marine gets at unarmed combat, he's expected to rely on his firearms and bayonet first. All recruits receive bayonet training similar to Jukenjutsu (p. 197) in addition to MCMAP. They also receive firearms training, of course – but this isn't part of MCMAP *or* topical for ***Martial Arts.***

Skills: Brawling; Judo.

Techniques: Disarming (Judo); Elbow Strike; Knee Strike; Stamp Kick; Targeted Attack (Stamp Kick/Face); Targeted Attack (Stamp Kick/Skull).

Perks: Improvised Weapons (Brawling).

Optional Traits

Advantages: Combat Reflexes; Fit or Very Fit.

Disadvantages: Bloodlust; Overconfidence.

Skills: Karate; Spear; Staff.

Techniques: Ground Fighting (Brawling or Judo); Retain Weapon (Rifle).

Sambo

4 points

Sambo is an acronym for the Russian ***sam****ozashchita* ***b****ez* ***o****ruzhiya* ("self-protection without weapons"). The style originated in the 1930s as an amalgamation of traditional wrestling styles – including Mongolian, Caucasian, Greco-Roman, and belt wrestling – and Judo. Its founders deliberately set out to design a unifying "Soviet" art that would replace all existing styles in the USSR.

Grappling comes first in Sambo. Strikes serve chiefly to distract or injure the enemy, "softening" him for an effective hold or lock. Stylists use a full range of maneuvers, but the style emphasizes aggression over reaction, making Wait and Evaluate less common than Attack and Committed Attack. Perhaps unusually, Sambo makes extensive use of Leg Locks. Many proponents claim that limb locks are more effective than chokes for defeating a foe.

While Sambo lacks a body of legendary techniques, it enjoys a mystique as a brutally effective art used by ruthless, physically powerful men. Cinematic samboists are likely to have high levels of ST and HT, and use Power Blow to shatter arms and snap legs. They might also know certain "strong man" techniques that, while not realistic for actual combat, feature prominently in the wilder claims made for the style.

The style presented here is military or "combat" Sambo, taught to special-operations forces and elite police units. There's also a sport version. To get this, add the Wrestling Sport skill and remove the Disarming and Choke Hold techniques – and since striking isn't allowed, eliminate Karate and its techniques, too.

Skills: Judo; Karate; Wrestling.

Techniques: Arm Lock; Choke Hold; Disarming (Judo); Elbow Strike; Ground Fighting (Wrestling); Head Lock; Leg Lock; Leg Throw; Lower-Body Arm Lock; Lower-Body Head Lock; Lower-Body Leg Lock; Stamp Kick; Triangle Choke; Wrench (Limb).

Cinematic Skills: Immovable Stance; Mental Strength; Power Blow.

Cinematic Techniques: Backbreaker; Piledriver.

Perks: Iron Legs; Power Grappling; Special Exercises (Striking ST +1); Technique Adaptation (Ground Fighting).

Optional Traits

Advantages: Combat Reflexes; Fit; High Pain Threshold.

Disadvantages: Bloodlust.

Skills: Boxing; Brawling; Knife; Spear.

Muay Thai

3 points

Muay Thai is Thailand's native kickboxing style. It's related to other Thai martial arts, such as Krabi Krabong (p. 176). Due to the burning of Siamese records in the 17th century, its origins are lost. As a form of full-contact tournament fighting, though, the style dates back *at least* that far. Muay Thai is practiced worldwide today.

Muay Thai is a pure striking style. Students learn three kicks, six punches, and use of the knees and elbows. Few targets are off-limits. Stylists learn no grapples or throws, but takedowns from a "clinch" sometimes occur when fighters get in close. Most contenders prefer to throw Knee Strikes in the clinch, however (see *Grab and Smash!*, p. 118).

Muay Thai fighters are famously aggressive. They favor Committed Attack and shun Defensive Attack. Most kicks use the shin as a striking surface, and the usual targets are the head and body (for the knockout) or the legs (to score a knockdown). Muay Thai has a distinctive guard style, with both hands held up and far forward of the body to help ward off elbows and high kicks. Against low kicks, the usual counter is a Jam.

Finishing moves tend to be spectacular – often Telegraphic Attacks (p. 113) – and too risky to attempt against a fresh, wary opponent. Examples include the jumping Knee Strike, which is an All-Out Attack (Strong), and a Spinning Punch that incorporates an Elbow Strike. Fighters save Spinning Kick for fight-ending shots, too. Even then, many consider this technique showy – and insulting to the victim!

Most Muay Thai fighters learn their art from professional teachers at training camps, sometimes under the control of promoters. Professional prizefighters train daily; their regimen includes cross-training, bag work, sparring, yoga, massage, and running. In the past, conditioning exercises included hitting the legs with sticks or kicking trees to toughen the shins, but modern practitioners use heavy bags. Muay Thai camps are full of prospective fighters hoping for a shot at the title – much like boxers in other countries. Few last long enough to make it far. Poverty and crippling injuries are more common than title shots.

In matches, competitors wear modern boxing gloves or hand wraps, mouth guards, and groin protectors. In historical times, they wore wraps dipped in glue and rolled in broken glass, the goal being identical to that of ancient Greek and Roman boxers who used the *myrmex* or *cestus*. A contender might fight one or more matches per month. Thanks to the full-contact nature of the "sport," fighters often have short careers; the hard training, dubious safety procedures, and frequent matches can result in career-ending injuries.

In Thailand, traditional rituals still surround matches: a ceremonial dance (*ram muay*) with respectful bows to teachers (*wai kru*) before a bout, music during it . . . and betting. No one bets until after the first round, which fighters use to demonstrate their toughness and skill. Contenders are often as young as 14 or 15, ferociously fighting for a chance at a living in the sport. Outside Thailand, Muay Thai has lost much of its ritual but retains its combative nature. Muay Thai mixed with grappling arts has been successful in mixed martial arts matches, and some Karate practitioners have made the leap to professional Muay Thai.

Skills: Games (Muay Thai); Karate.

Techniques: Counterattack (Karate); Elbow Strike; Jam; Kicking; Knee Strike; Leg Grapple (DX); Push Kick; Spinning Kick; Spinning Punch; Sweep (Karate); Targeted Attack (Karate Kick/Leg); Uppercut.

Cinematic Skills: Power Blow.

Cinematic Techniques: Roll with Blow.

Perks: Clinch (Karate); Iron Legs; Neck Control (Karate); Special Exercises (Striker, Crushing with Limb, Shin); Technique Mastery (Knee Strike).

Lethwei

4 points

Lethwei (also known as *Lethay*) is a Burmese boxing system similar to Muay Thai (pp. 185-186). Unlike Muay Thai, however, Lethwei permits throws, head butts, and sweeps. It's even legal to strike a falling opponent once on the way down, if his head is at least 12 inches from the floor. Competitors rarely use substantial hand wrappings, let alone gloves.

Lethwei has no weight classes, although some tournaments group contenders by age and experience. A bout goes four rounds. The first three rounds end when there's bleeding from a head wound or an especially effective strike or takedown. The final round lasts until one participant is knocked out or gives in. Under traditional rules, a fighter *must* submit to end the match; unconscious contestants are revived and given the option to continue or submit.

Skills: As *Muay Thai,* but add Judo and change Games specialty to Lethwei.

Techniques: As *Muay Thai,* plus Head Butt.

Perks: As *Muay Thai,* plus Iron Hands.

Optional Traits

Advantages: Hard to Subdue; High Pain Threshold.

Optional Traits

Advantages: Fit or Very Fit; Hard to Subdue; High Pain Threshold.

Disadvantages: Social Stigma (Minor); low Wealth; crippling injuries galore.

Skills: Boxing; Boxing Sport; Dancing (Ram Muay); Savoir-Faire (Gym); Wrestling.

Naginatajutsu

3 points

Naginatajutsu is a Japanese polearm-fighting style for use with the *naginata* (a sword blade mounted on a staff) or *nagamaki* (which has more equal blade-to-haft proportions). The naginata was a battlefield weapon, and schools dedicated to it have existed since at least the mid-12th century. Indeed, Benkei the monk – legendary companion of the great 12th-century hero Yoshitsune – was a Naginatajutsu master. The weapon itself is several centuries older than that, so the style might have even earlier origins. By 16th century, firearms had relegated the polearm to a largely ceremonial role. Naginatajutsu became a martial art practiced by noblewomen for home defense and to add physical training to a largely sedentary lifestyle.

Naginatajutsu is an offensive style. The weapon has a length advantage over most others and lends itself to swift, wheeling motions, so practitioners seek to eliminate the foe *quickly.* Stylists use feints to draw out the opponent and attacks to the legs and body to disable or kill him. Historically, the leg was such a popular target that warriors wore heavy shin armor specifically to counter naginata cuts! Full-extension lunges that exploit the naginata's length are very common; treat such an attack as an All-Out Attack (Long). Fighters also use long-range swings. Other training includes butt strikes, both to targets in front and behind; techniques for disarming foes and retaining the naginata in the face of similar disarms; and sweeps with the end of the pole.

Naginata schools teach staff forms as well as polearm skills, for use in the event that the naginata's blade breaks off. Some *ryuha* train using a naginata that has a sharp cap on the butt, which allows the weapon to serve as a spear *in extremis* or after a feint with the blade. Others teach the knife or shortsword as a backup weapon.

Naginatajutsu schools still exist today. In fact, there's a dedicated federation committed to spreading the art. Modern students usually learn a sport version (see *Naginatado,* p. 187).

Skills: Polearm; Staff.

Techniques: Back Strike (Staff); Disarming (Staff); Feint (Polearm or Staff); Retain Weapon (Polearm); Sweep (Polearm or Staff); Targeted Attack (Polearm Swing/Face); Targeted Attack (Polearm Swing/Leg).

Cinematic Skills: Kiai; Mental Strength; Power Blow.

Cinematic Techniques: Dual-Weapon Defense (Polearm or Staff); Whirlwind Attack (Polearm or Staff).

Perks: Form Mastery (Naginata); Grip Mastery (Naginata).

Optional Traits

Advantages: Combat Reflexes; Enhanced Parry (Polearm).

Disadvantages: Reputation (Always aims for the legs).

Skills: Knife; Parry Missile Weapons; Savoir-Faire (Dojo); Shortsword; Spear; Two-Handed Sword.

Polearm Fighting

The world has seen a mind-boggling variety of polearms – more than a few of which have been the subject of multiple fighting styles. Historians often dismiss these weapons as suitable only for mass combat and ill-trained peasant infantry. Historical warriors, on the other hand, often regarded polearms as ideal for man-to-man combat. Indeed, some Masters of Defence held certain varieties of bills and glaives to be superior to *all* other weapons! Of course, most of these martial artists used polearms that were shorter, lighter, and far more agile than the full-length battlefield weapons that historians read about in chronicles of old wars.

The specifics of polearm-fighting styles vary as much as the weapons, but a few principles are nearly universal. Polearm fighters normally hold the shaft in a Defensive Grip (pp. 109-111) and parry with both the blade and the haft. Most attacks are Defensive Attacks with the tip (thrusts). The warrior saves swings for fallen or disarmed foes – but uses Committed Attack (Strong) when he *does* swing. The fight consists primarily of using Evaluate and Wait to circle and look for an opening, or Feint to create one. Most styles avoid close-in fighting and seek to keep enemies at bay, although some teach kicking.

Chinese polearm styles differ somewhat in that while they're pragmatic, they also contain extravagant flourishes to impresses friend and foe alike. Polearm Art is a common addition.

For more on the *weapons* used in polearm fighting, see Chapter 6.

Chinese Horse-Cutter Fighting

4 points

This Chinese style uses the *pudao* or "horse-cutter," a weapon functionally similar to the European halberd. It's suitable for use with the halberd and the Okinawan *bisento* as well.

Skills: Polearm; Polearm Art; Staff.

Techniques: As *Naginatajutsu* (p. 186), plus Counterattack (Polearm) and Spinning Strike (Polearm).

Perks: Form Mastery (Horse-Cutter); Grip Mastery (Horse-Cutter).

Optional Traits

Advantages: Combat Reflexes.

Glaive Fighting

4 points

This Welsh polearm style uses the dueling glaive or the forest bill. Swiss halberd fighting would be almost identical – just change the Form Mastery specialty to Halberd.

Skills: Brawling; Polearm; Staff.

Techniques: Counterattack (Polearm); Disarming (Polearm); Feint (Polearm or Staff); Hook (Polearm); Kicking; Knee Strike; Spinning Strike (Polearm); Sweep (Polearm); Targeted Attack (Polearm Swing/Leg); Targeted Attack (Polearm Thrust/Vitals).

Perks: Form Mastery (Dueling Bill); Form Mastery (Dueling Glaive).

Optional Traits

Advantages: Combat Reflexes.

Naginatado (or Atarashii Naginata)

4 points

Naginatado is the sport form of Naginatajutsu (p. 186). Stylists use a wooden naginata for *kata* and solo drills – a practice dating back to the early 17th century – and a bamboo-bladed weapon and kendo armor when sparring. Valid targets in bouts are the head, neck, torso, and shins.

Skills: Polearm Sport; Savoir-Faire (Dojo); Staff Sport.

Techniques and Perks: As *Naginatajutsu*.

Pa Kua Chuan

5 points

Pa Kua Chuan – also called *Pa Kua Chang, Bagua,* or *Baguazhang* – is one of the three major "internal" arts of Chinese kung fu, the others being Hsing I Chuan (pp. 162-163) and T'ai Chi Chuan (pp. 200-201). Legend places its origins as far back as the 14th century. Its verifiable history starts in 1796.

Pa Kua Chuan translates literally as "eight trigram palm," hinting at its basis in the *I Ching.* Practitioners walk in circles while making complex hand movements. The art is nonaggressive, and based on avoiding blows and redirecting the foe's attacks. It does include some strikes – especially with the open palm (treat as Hammer Fist). These are effective, although they *look* deceptively lazy and unskilled.

The Pa Kua Chuan practitioner normally chooses Wait, Defensive Attack, or All-Out Defense (Increased Parry). Only after his opponent commits to an attack does he respond – most often with a lock or a throw. Strikes are infrequent; stylists prefer evasion and redirection to taking the offensive. Move and Attack, Committed Attack, and All-Out Attack are all extremely rare for the same reason.

Developing and channeling chi is the ultimate goal of Pa Kua Chuan. The style can be effective in a realistic game . . . but it's *devastating* in a cinematic one. Masters avoid incoming blows with steady walking and sidestepping, and use Push, Pressure Points, and Power Blow to defeat attackers.

Legend tells of a friendship between a famous Hsing I Chuan master and a renowned Pa Kua Chuan master. Some sources say that they fought a three-day duel before the Hsing I Chuan master finally laid out the Pa Kua Chuan master with a strike! Each master was so impressed by the other's style that they shared their secrets, cementing the tradition of training one another's students. Whatever the truth, Pa Kua Chuan practitioners frequently learn Hsing I Chuan as well, students of one art are welcome at schools of the other, and the styles have borrowed from one other – some Pa Kua Chuan schools teach *linear* forms from Hsing I Chuan.

Skills: Judo; Karate; Meditation; Philosophy (Taoism).

Techniques: Arm Lock; Exotic Hand Strike; Hammer Fist.

Cinematic Skills: Hypnotic Hands; Immovable Stance; Mental Strength; Power Blow; Push; Pressure Points; Pressure Secrets.

Cinematic Techniques: Roll with Blow.

Perks: Style Adaptation (Hsing I Chuan).

Optional Traits

Advantages: Enhanced Dodge; Enhanced Parry (Bare Hands).

Disadvantages: Disciplines of Faith (Ritualism).

Skills: Judo Art; Karate Art; Savoir-Faire (Dojo).

Pak Hok

3 points

Legend has it that an early 15th-century Tibetan monk developed Pak Hok kung fu after observing a struggle between a crane and an ape. As the story goes, the crane deftly avoided the ape's attacks and plucked out an eye, thereby winning the fight despite the mismatch in strength. Inspired, the monk created the style originally called "lion's roar" and later renamed *Pak Hok,* or "white crane." Other sources claim that the style predates Bodhidharma's arrival at the Shaolin Temple, which would date it to the 6th century or even earlier. Its verifiable history is traceable only to the 17th century, when it was first taught publicly to monks and non-monks alike in Canton.

Pak Hok works off four principles: *cham,* or remorseless and completely committed attack without thought of retreat; *sim,* or dodging strikes while leaving the hands free to counterattack; *cheung,* or assaulting the foe with a ceaseless barrage of blows; and *it,* or countering the enemy's attacks by being one step ahead. Stylists employ very distinctive footwork which mimic a crane's careful (but quick) steps.

The Pak Hok stylist prefers Wait and Evaluate at the start of a fight. When his foe attacks, he dodges or parries and then counters with a Committed or All-Out Attack – most often using the Counterattack technique. After landing a telling blow, he unleashes a torrent of strikes to finish his opponent, making extensive use of Rapid Strike and All-Out Attack (Double). Defensive Attack is rare, but a stylist facing multiple foes might use the Attack maneuver instead of Committed Attack or All-Out Attack.

The style's usual attacks are punches and beak-like Exotic Hand Strikes – although a Hammer Fist to the face sees use as well. Feints are most often Beats (pp. 100-101) intended to knock down the target's guard. Pak Hok considers kicks secondary to punches; stylists sometimes *use* Jump Kick but they only *train* extensively at Kicking and Sweep. This last technique features prominently in Pak Hok's signature combination: a parry followed immediately by a backhand punch to the neck and a foot sweep, thrown as a Counterattack. If using *Combinations* (p. 80), Combination (Karate Punch/Neck + Karate Sweep) should be common among stylists.

Pak Hok schools also teach a few Chinese weapons, including the *jian,* spear, staff, and chain whip. Some add Chin Na (p. 154) to the system to complement their strike-heavy art with locks and throws.

Pak Hok places little emphasis on chi, instead aiming for maximum speed and power. Despite this, several special abilities make sense for the cinematic practitioner. Think of these as focused skill and strength – not as exotic powers! Most famous is the lethality of the master's beaked hand, said to be capable of plucking out the foe's eye as the crane did in Pak Hok's legendary origin.

Before the 17th century, Pak Hok was a secret art – or at least an obscure one. Finding an instructor in the modern world isn't difficult, however.

Skills: Karate; Philosophy (Buddhism).

Techniques: Counterattack (Karate); Exotic Hand Strike; Feint (Karate); Hammer Fist; Kicking; Sweep (Karate); Targeted Attack (Karate Hammer Fist/Face); Uppercut.

Cinematic Skills: Power Blow; Pressure Points.

Cinematic Techniques: Eye-Pluck; Lethal Kick; Lethal Strike; Pressure-Point Strike.

Perks: Special Setup (No Hands > Karate Parry), allows parries with the body instead of the hands, with each replacing a hand parry; Technique Adaptation (Counterattack).

Optional Traits

Advantages: Enhanced Dodge; Enhanced Parry (Bare Hands); Fit; Striking Strength.

Disadvantages: Callous; Overconfidence.

Skills: Judo; Rapier; Spear; Staff; Whip.

Pankration

5 points

Pankration was the ancient Greek style of all-in wrestling. Its name translates as "all powers" and refers to the fact that in competition, all holds and strikes were permitted. Matches were long and brutal, and could end in death or disfigurement. Pankrationists needed a great deal of endurance to last even a single bout. They trained to fight equally well on slick ground, loose sand, and soft earth.

Pankrationists generally took Evaluate or Wait maneuvers until they spotted a good opening, then rushed in to deliver strikes or to execute a grapple and takedown. They used all manner of attacks. Hand strikes included punches dealt with protruding knuckles or stiffened fingers, overhead chops using the edge of the hand, and blows with the heel of the palm. Finishing moves done as All-Out Attacks were crowd-pleasers. Fighters usually fought defensively, though; the most common end to a match was a decisive hold on the ground. Fatal damage from strikes, limb wrenches, or chokes wasn't uncommon.

Pankration had no weight classes, so champions tended to be strong men. However, the ancient Greeks admired the skilled contender who defeated his opponents through superior technique as much as the strong fighter who simply overpowered his foes with brute force. There were also those who felt that *all* pankrationists were bloody-handed, simple-minded fools who represented the worst in Greek culture, and whose skills were worthless to the *polis* during wartime.

There are modern versions of Pankration. These don't trace their heritage back to ancient Greece but do take inspiration from the original sport. Skills and techniques are similar but tend to deemphasize moves that would be illegal in sanctioned mixed martial arts events.

Skills: Games (Pankration); Judo; Karate; Wrestling.

Techniques: Arm Lock; Elbow Strike; Exotic Hand Strike; Ground Fighting (Judo or Wrestling); Hammer Fist; Kicking; Knee Strike; Leg Grapple; Low Fighting (Wrestling); Stamp Kick; Wrench (Limb).

Cinematic Skills: Immovable Stance; Power Blow.

Cinematic Techniques: Backbreaker; Lethal Strike; Roll with Blow.

Perks: Iron Hands; Neck Control (Karate); Sure-Footed (Slippery); Sure-Footed (Uneven).

Optional Traits

Secondary Characteristics: Improved FP and HP.

Advantages: Fit or Very Fit; High Pain Threshold.

Disadvantages: Bloodlust; Overconfidence; Reputation (Bloody-handed, simple-minded fool).

Skills: Boxing; Games (Boxing); Hobby Skill (Feats of Strength).

Pentjak Silat

Pentjak Silat (also *Pencak Silat*) is a term for the martial arts of Indonesia. There are scores of Silat styles. One count suggested more than 160 . . . and this was probably low, because many instructors regard their art as secret and conceal it from all but carefully selected students. Most forms come from Java, but Silat exists across Indonesia, and also in Malaysia and the Philippines (Filipino Silat fighters should blend one of the styles below with Escrima, pp. 155-156). Because Indonesia was a Dutch colony, Silat is found almost anyplace that received Indonesian-Dutch immigrants, too – including Europe. Attempts to unify Silat into a single entity have failed.

As a general rule, Silat stylists fight low to the ground, launching strikes and throws from crouching stances and using rapid sideways movement. They learn to strike hard in order to destroy the foe's means of attacking – and to retreat if faced with superior force. Students study weapons from the first days of training. All Silat variations teach the art's signature weapon, the *kris* (p. 219).

Like many Asian styles, Silat has legendary origins. For instance, one form of Silat claims that a woman from Sumatra saw a fight between a snake and a bird, and used their moves as inspiration for the style. In reality, Silat appears to be a mixture of native martial arts influenced by Indian and Chinese styles. During the Japanese invasion of Indonesia during World War II, Japanese arts were also an influence.

Pentjak Silat styles vary from soft to extremely hard. Some stress destructive striking techniques and brutal limb breaks. Others concern themselves with meditation, hypnotic hand rhythms, and even supernatural powers. Indeed, many Silat styles purport to grant magical abilities, with the kris serving as a focus (much like the Powerstone and Staff in ***GURPS Magic***). This makes Silat an ideal transplant to Yrth in a ***GURPS Banestorm*** campaign! Experts of such styles can reputedly kill at a distance and render themselves impervious to weapons.

Below are two of the many Pentjak Silat variations. The GM may wish to develop more if running a Silat-heavy game. "Art" and "sport" forms are rare, though. Silat *is* a kind of cultural expression – dance-like exhibitions accompanied by music are common at celebrations – but this aspect of the style is secondary to its combative side.

Mixed Martial Arts

"Mixed martial arts" (MMA) is an emergent trend in modern martial arts. It isn't a style but an umbrella term for *any* style or combination of styles that includes both striking and grappling tactics for fighting limited-rules bouts. MMA events pit fighters from many different styles against one another, and are rapidly growing in popularity.

In early no-holds-barred bouts, pure striking stylists did poorly because they couldn't cope with elementary chokes and locks once a grappler took them to the ground. Dedicated grapplers did well until faced with opponents trained to strike and grapple, both standing and prone. The curriculum of MMA schools reflects the lessons learned from these matches. Such schools are pragmatic – gyms more than dojos, even in tradition-heavy Japan.

Mixed martial arts competitors learn to punch and kick until they can grapple their adversary and finish him with a choke, lock, or close-in strike. Each fighter has his strengths and weaknesses, but no serious contender can afford to be without training at both striking and grappling. While almost any style that offers effective, fight-tested techniques and full-contact sparring can be *part* of a MMA curriculum, a striking stylist must learn a grappling art – and vice versa – to be competitive.

Common MMA striking styles include Bando (pp. 151-152), Boxing (pp. 152-153), and Muay Thai (pp. 185-186). Nearly any grappling art makes an excellent basis for MMA training – including such sport forms as Judo (p. 166) and Greco-Roman Wrestling (p. 205), which sometimes show up in MMA bouts after a fighter learns locks and holds illegal in his original sport! A few arts are essentially MMA "as is," most famously Brazilian Jiu-jitsu (pp. 167-168), Sambo (p. 185), and modern Pankration (pp. 188-189). On the other hand, kick-heavy styles such as Tae Kwon Do and Savate, and "soft" arts like Aikido and T'ai Chi Chuan, play almost no role in MMA.

In game terms, a MMA fighter needs a style or a blend of styles that offers striking skills (usually Karate or Boxing) *and* grappling skills (Judo or Wrestling). Ideal choices are arts that teach techniques popular in MMA, notably Arm Lock, Choke Hold, Ground Fighting, and Low Fighting. The Clinch, Neck Control, and Style Adaptation perks – especially Style Adaptation (All) – are common among competitors. If using templates, *Contender* (p. 32) works best. Instructors might use *Instructor* (pp. 34-35) or be contenders with the Teaching skill and too many injuries to fight.

Kumango Silat

4 points

The heartland of Kumango Silat is Bukittinggi (Fordekok), in the Menangkabau area of Sumatra. The style's origins are unknown, but it's believed to be a native Sumatran art. It's still practiced in the 21st century.

Kumango Silat is a soft, flexible Silat form. It emphasizes evasions and escapes from grapples. Stylists yield to an attacker's movements and then slip free. Fighters parry from outside to inside, usually sidestepping (see *Retreat Options,* pp. 123-124) to get to the enemy's flank. They favor the elbow parry – an Aggressive Parry – against incoming kicks and Knee Strikes. The usual counter to a high kick is a Leg Grapple followed by a throw or a takedown.

Feints are an important part of Kumango Silat, and often precede a Deceptive Attack. The attack itself might be a kick, a punch, or *both,* thrown as a Dual-Weapon Attack. Strikes focus on the foe's centerline, the primary targets being the groin, neck, and vitals. Stylists also grapple – a favorite target being the foe's parrying arm – and follow up with throws, locks, and (especially) strikes.

Kumango Silat stances are very low and incorporate thigh slaps and deep movements. Practitioners often fake these motions as part of a feint or Deceptive Attack. The hands cover the groin and body, or the back of the neck while turning. Stylists practice stances on sandy beaches in order to get used to shifting ground.

Kumango Silat is rare outside of Indonesia but a good model for other "soft" Silat styles. Like all forms of Silat, it includes weapons training from the start. At some schools, students learn Combat Art versions of its core skills instead of combat skills.

Skills: Judo; Karate; Knife.

Techniques: Aggressive Parry (Karate); Arm Lock; Counterattack (Karate or Knife); Elbow Strike; Evade; Exotic Hand Strike; Feint (Karate or Knife); Leg Grapple; Low Fighting (Judo, Karate, or Knife); Spinning Kick; Spinning Punch; Sweep (Judo or Karate); Targeted Attack (Karate Kick/Groin); Targeted Attack (Karate Punch/Neck); Targeted Attack (Karate Punch/Vitals); Targeted Attack (Knife Thrust/Vitals); Trip.

Cinematic Skills: Breaking Blow; Hypnotic Hands; Mental Strength; Power Blow; Pressure Points; Pressure Secrets.

Cinematic Techniques: Dual-Weapon Attack (Karate); Springing Attack (Karate).

Perks: Sure-Footed (Sand); Technique Adaptation (Low Fighting); Unusual Training (Dual-Weapon Attack, Both attacks must target the same foe).

Optional Traits

Advantages: Cultural Familiarity (Southeast Asia); Language (Indonesian).

Disadvantages: Delusion ("My kris has magical powers"); Vow (Uphold Islam and the traditions of the style).

Skills: Jitte/Sai; Judo Art; Karate Art; Knife Art; Kusari; Main-Gauche; Staff; Whip.

Tapak Sutji Pentjak Silat

6 points

Ifan Badjam officially founded Tapak Sutji Pentjak Silat in 1963, at the age of 72, in Central Java. A long period of development and practice preceded this event, however, and the art's true origins stretch back to the 1920s and the founding of an earlier school with identical drills and teachings. Practitioners fought the Japanese during WWII, the Dutch in the late 1940s, and the Communists in the 1960s.

Like other Silat styles, Tapak Sutji stances are low to the ground. They aren't static – the practitioner keeps moving to gain an advantage over his foe. Traditionally, students practiced the style outdoors on uneven ground, on beaches, or in tangled undergrowth, and were expected to cope with (and learn to fall on!) the rough and varied natural terrain.

Tapak Sutji practitioners make extensive use of Judo Throw, Sweep, and Trip to put the opponent on the ground. Follow-ups are more likely to be strikes than grapples or locks. Attacks often follow feints, and are usually Deceptive Attacks. Stylists like to counter an enemy attack with a parry followed by either an immediate Counterattack or an Arm Lock and *then* a strike or throw. As usual for Silat, the aim is to destroy the foe's ability to continue the attack, so the limbs are common targets.

Tapak Sutji includes training in a vast array of traditional Indonesian weapons. It also adds a short, flexible metal truncheon called the *segu* (treat as a baton) and the Japanese katana. Stylists don't use the katana with Kenjutsu stances or tactics, but rather in the mobile, low-to-the-ground Silat style.

Silat Traditions

Silat tradition regards the connection between master and disciple as a blood relationship. The bond is as much that of parent and child as it is that of student and teacher. This is very different from the more businesslike arrangements common in the West.

According to hoplologist Donn Draeger, the teacher traditionally expected the student to give him certain gifts before he would offer instruction:

- A chicken, the blood of which would be spread on the ground as a symbolic substitute for the student's blood.
- A roll of white cloth, for use as a burial shroud should the student be killed during training.
- A knife, to represent the sharpness expected of the student.
- Tobacco, for the teacher to smoke.
- Money, to replace the teacher's clothing torn during training.

The student also had to swear an oath on the Koran to uphold the style's traditions and the laws of Islam.

These practices aren't common in Silat schools in the modern West, but such academies often have charters and rules that are nearly as stringent. The GM could certainly have a teacher from the "old country" expect Western students to respect these traditions, or use them as inspiration for a fictional style. In a fantasy or space-opera setting, the gifts might be strange indeed . . .

Tapak Sutji Pentjak Silat is widely practiced. Finding a Tapak Sutji school in Indonesia, Europe, and many other parts of the world is relatively easy. Tapak Sutji students wear a red uniform with yellow bands on the neck and sleeves.

Skills: Judo; Karate; Knife; Shortsword; Two-Handed Sword.

Techniques: Arm Lock; Breakfall; Counterattack (Karate, Knife, or Shortsword); Exotic Hand Strike; Feint (Karate, Knife, Shortsword, or Two-Handed sword); Jump Kick; Kicking; Low Fighting (Judo, Karate, Knife, or Shortsword); Sweep (Judo or Karate); Targeted Attack (Karate Kick/Leg); Targeted Attack (Karate Punch/Arm); Trip.

Cinematic Skills: Breaking Blow; Hypnotic Hands; Mental Strength; Power Blow; Pressure Points; Pressure Secrets.

Cinematic Techniques: Springing Attack (Karate).

Perks: Sure-Footed (Uneven); Technique Adaptation (Low Fighting).

Optional Traits

Advantages: Cultural Familiarity (Southeast Asia); Weapon Master.

Disadvantages: Delusion ("My kris has magical powers."); Vow (Uphold Islam and the traditions of the style).

Skills: Jitte/Sai; Judo Art; Karate Art; Knife Art; Kusari; Main-Gauche; Shortsword Art; Staff; Two-Handed Sword Art; Whip.

Pollaxe Fighting

4 points

The pollaxe was popular for knightly judicial duels in 15th- and early 16th-century Europe. This weapon *wasn't* the massive "axe-head-on-a-shaft" described on p. B272, which was primarily suited for use by ranked soldiers. Rather, it was a shorter "dueling halberd" (p. 216) – sometimes with a toothed hammer instead of an actual axe blade – designed specifically for personal combat.

Knights normally gripped the pollaxe two-handed, like a staff, spacing their hands far apart and holding the shaft diagonally across the body. In game terms, this would be a Defensive Grip (pp. 109-111). Fighting was close-in, and favored jabs with the point and *short* swings over wide, sweeping blows that – while powerful – would expose the attacker. Another popular tactic was hooking the beak, blade, or spike behind the opponent's weapon, leg, or neck. Feints and Defensive Attacks were common, but a fighter would use Committed Attack (Strong) or All-Out Attack (Feint) if his rival seemed vulnerable.

Some pollaxes concealed a hollow space in the head that was filled with an irritant "blinding powder." Launching this is a dirty trick (see *Dirty Tricks,* p. 76). The attacker can use Polearm skill instead of DX to throw the powder if knows the appropriate Style Perk. However, roll 1d after any *swinging* attack with the weapon. On 1-2, the powder spills prematurely (and harmlessly). Any critical miss means the powder affects the pollaxe's wielder, in addition to the results on the *Critical Miss Table!*

Despite its fearsome appearance, the pollaxe was more popular in tournaments than in wartime. Some scholars believe that this was because it wasn't especially effective at penetrating armor – even a full-force swing would knock down an armored man without inflicting much injury. This is more a commentary on the fighters' armor than their tactics, which were certainly earnest enough. Practitioners should definitely learn combat skills, not Combat Sport skills.

The pollaxe lost whatever military utility it might have had once warfare became an issue of massed pikes and halberds rather than individual warriors. Some commanders still carried a pollaxe while leading such troops, however.

Skills: Brawling; Games (Knightly Combat); Polearm.

Techniques: Disarming (Polearm); Feint (Polearm); Hook (Polearm); Knee Strike; Retain Weapon (Polearm); Stamp Kick; Sweep (Polearm).

Cinematic Skills: Power Blow.

Perks: Grip Mastery (Dueling Halberd); Unique Technique (Powder Spill).

Optional Traits

Advantages: Status; Wealth.

Disadvantages: Code of Honor (Chivalry).

Skills: Knife; Polearm Sport; Shortsword; Two-Handed Axe/Mace; Wrestling.

Praying Mantis Kung Fu

4 points

Tradition has it that a 17th-century Shaolin monk observed a praying mantis hunting and – inspired by its deft use of its hooked forelimbs – adapted the insect's movements to his own style and added elements from other arts to create Praying Mantis Kung Fu. Like all legendary origins, this tale is impossible to verify. Still, several Chinese martial arts that emulate the mantis' methods survive today. The style described below is a type of *Northern* Praying Mantis. Southern Praying Mantis also exists but shares only a name – not techniques or history.

Mantis is noted for its narrow, low stances that mimic those of its namesake insect, with close-in elbows and both hands extended forward, often held open or claw-like. Its signature move is the "hook": the stylist grabs his enemy's arm in order to pull him off-balance, push his guard aside, apply an Arm Lock, throw him, or otherwise impede him. This is a grapple attempt – ideally, executed swiftly enough to be a Deceptive Attack. An attempt to pull the foe off-balance is a Beat (pp. 100-101) if the aim is to reduce his defenses, a takedown (p. B370) if the goal is to put him on the ground. Mantis fighters also use Judo Throw (preferably a *damaging* throw; see p. 75) to take down a victim and position him for a finishing move.

Stylists use Wait and Evaluate until their opponent commits. They seek to void their attacker's aggressive movements by stepping aside or parrying, and then counterattack with a cascade of precise strikes – often using a Rapid Strike to launch two attacks, or a feint and attack to overwhelm the foe quickly. Practitioners value placement and skill over brute strength. Mantis punches use the open hand, a vertical fist, and various Exotic Hand Strikes (details depend on the style variant, and might involve a single finger, a protruding knuckle, etc.).

Staff Fighting

Staff fighting is as widespread as stickfighting (p. 157). In the age of spears and polearms, a warrior would train to use his pole weapon as a staff should its head come off in battle. In *any* era, the staff's simple construction and ease of use make it an extremely accessible weapon.

Bojutsu

2 points

Japan and Okinawa had highly developed staff-fighting arts, called *Bojutsu.* Many *ryuha* taught Bojutsu forms, typically emphasizing the effective use of the *naginata* or *yari* should its head break off in battle. A *bo* (staff) might be up to 8' long, but the *rokushakubo,* or "six-foot staff," was most common.

Skills, Techniques, Perks, and Optional Traits: As *Quarterstaff* (p. 193).

Jojutsu

3 points

Legend has it that Jojutsu's founder, Muso Gonnosuke, challenged Musashi Miyamoto, fought using Bojutsu, and lost. He decided that he needed more flexibility than the staff offered, shortened the *bo* to create the *jo,* and then used this weapon to fight Musashi to a standstill (or even defeat him). His school, *Shindo-Muso Ryu,* is the most common Jojutsu style. Jojutsu uses techniques similar to both Bojutsu (above) and Kenjutsu (pp. 173-175), and training involves the *bokken* as well as the jo.

Skills: Staff; Two-Handed Sword.
Techniques: Arm Lock (Staff); Disarming (Staff or Two-Handed Sword); Feint (Staff or Two-Handed Sword); Sweep (Staff).
Cinematic Skills and Techniques: As *Quarterstaff* (p. 193).
Perks: Form Mastery (Jo).

Optional Traits

Advantages: Enhanced Parry (Staff).
Skills: Karate.

Sport Quarterstaff

2 points

Quarterstaff fighting evolved into a popular sport in 19th-century England. Practitioners used bamboo staffs to avoid injury, and wore protective headgear and padding. The rules removed grappling and stressed less-damaging blows.

Skills: Staff Sport.
Techniques: Feint (Staff Sport).

Optional Traits

Advantages: Enhanced Parry (Staff).

Cinematic Mantis uses chi to accelerate its already-rapid attacks. Its light and flexible stances allow practitioners to walk without leaving a trace, while its precision strikes can target vital points. Its claw-like hand movements and quick steps can even *hypnotize* the foe, leaving him open for a fight-ending blow.

Buddhist philosophy is a traditional part of Praying Mantis instruction. The skills below assume a modern campaign, but in a historical game – especially one where students must learn the style from monks – the GM should add Philosophy (Buddhism) and raise style cost to 5 points. Mantis schools sometimes teach weapons, including all manner of "Shaolin" weapons. Some stylists learn a core of Mantis tactics and then adapt other styles (nearly always Chinese) to the "Mantis" system; such martial artists should learn the art described here and buy Style Adaptation perks for these other styles.

Skills: Judo; Karate; Karate Art.
Techniques: Arm Lock; Counterattack (Karate); Ear Clap; Exotic Hand Strike; Eye-Poke; Hammer Fist; Kicking; Knee Strike; Targeted Attack (Judo Grapple/Arm).
Cinematic Skills: Hypnotic Hands; Light Walk; Power Blow; Pressure Points; Pressure Secrets; Sensitivity.
Cinematic Techniques: Lethal Eye-Poke; Lethal Strike; Pressure-Point Strike; Roll with Blow.
Perks: Chi Resistance (Hypnotic Hands); Iron Hands; Special Setup (Karate Parry > Arm Lock); Style Adaptation (Varies).

Optional Traits

Advantages: Combat Reflexes; Enhanced Parry (Bare Hands); Extra Attack; Forceful Chi.
Disadvantages: Disciplines of Faith.
Skills: Broadsword; Broadsword Art; Philosophy (Buddhism); Staff; Staff Art; Two-Handed Flail; Two-Handed Flail Art; Two-Handed Sword; Two-Handed Sword Art.

Quarterstaff

2 points

Considered by many to be a quintessentially *English* weapon, the quarterstaff was and still is practiced the world over. Historically, some masters held it in low regard next to the sword. Others – such as George Silver (p. 22) – considered it the "perfect" weapon, and praised its tactical flexibility, ability to stand off enemies either singly or in groups, and striking power. One needn't look any further than the tales of Robin Hood to gain an appreciation of its legendary status!

Against a shorter weapon, the staff fighter takes advantage of his reach. He keeps his distance, using strikes and the Disarming and Sweep techniques to attack from afar. If his enemy's weapon is *longer,* though, he steps in close with an Attack or rushes in with a Move and Attack. Once inside his opponent's reach, he uses Armed Grapple or Sweep to put his adversary on the ground, and then finishes him with a thrust, swing, or Choke Hold. Not every instructor teaches all of these moves . . . but most teach the majority of them.

Historical staff fighters used weapons of many lengths – the half-staff, quarterstaff, pikestaff, and so forth – named for their dimensions, the wielder's grip, and/or the staff's origin; see Chapter 6. A true master knew how to use *all* of these weapons. The staff-fighting style given here assumes a fully developed "school" that teaches all lengths and techniques. It's nominally European, but Asian arts are very similar; see *Staff Fighting* (p. 192).

Some masters put a spike on one end of their staff. Others practiced staff tactics as a "backup" to pike fighting, for use in the event that the head broke off their weapon. Add the Spear skill and the Form Mastery (Spear) perk to reflect such a style.

Skills: Staff.
Techniques: Arm Lock (Staff); Armed Grapple (Staff); Back Strike (Staff); Choke Hold (Staff); Disarming (Staff); Feint (Staff); Sweep (Staff).
Cinematic Skills: Blind Fighting; Power Blow; Pressure Points; Push.
Cinematic Techniques: Dual-Weapon Defense (Staff); Grand Disarm (Staff); Pressure-Point Strike (Staff); Timed Defense (Staff); Whirlwind Attack (Staff).
Perks: Grip Mastery (Staff).

Optional Traits

Advantages: Enhanced Parry (Staff).
Disadvantages: Overconfidence.
Skills: Polearm; Spear; Staff Art; Wrestling.

Savate

3 points

Savate is a kicking, punching, and grappling art native to the south of France. The earliest historical reference to "savate" is in an 18th-century poem. Its techniques are certainly much older, though, and probably saw use as far back as the 15th century. Sometime in the interim, Savate became the streetfighting style of choice for sailors, thugs, and toughs.

In 1877, Joseph Charlemont and his son opened a Savate school in Paris. Charlemont Academy took both male and female students, noble and common, and Savate become fashionable. Later in the 19th century, *savateurs* in contact with Japanese martial artists began to combine their art with Jujutsu, developing the system further while retaining its distinctive French style. After two World Wars, however, few savateurs remained (less than three dozen silver glove holders) and emphasis shifted to a sport form; see *La Boxe Française* (see above).

Savate is best known as a kicking art but includes a full range of hand strikes, head butts, and even hip and shoulder strikes. Its famous kicks are both high- and low-line – with low kicks being more common – and thrown jumping, spinning, and *main au sol* ("hand on the floor"). Treat a main au sol kick as either a Committed Attack or an All-Out Attack (Long). Stylists use grapples to avoid an attack or set up a strike, not for locking or immobilizing.

Savate frequently includes cane fighting for advanced students; serious cane fighters should learn *La Canne de Combat* (p. 157) as well. Certain schools also teach a full range of weapons, including knives, swords, straight razors, whips, and even guns. Some offer an improvised-weapons sub-style called *Panache* to silver-gloves students. This teaches how to use any object or item of clothing to distract or injure an antagonist.

There are two ways to handle cinematic savateurs. They *might* throw spectacular acrobatic kicks following handstands and cartwheels, their exaggerated stances, feints, and kicks retaining effectiveness even as they impress with their artistry. Alternatively, such fighters might be like the bare-knuckled, full-contact savateurs of old, in which case they should have the same "cinematic" traits as boxers (see *Boxing*, pp. 152-153).

Modern Savate is often a sport form that favors clean, elegant kicks and punches over pragmatic street techniques. It eliminates grappling and "dirty fighting," and doesn't include cane fighting or Panache. Students of this art learn La Boxe Française, *not* the style described here. Savate is most common in France but has an international federation. It's possible to find schools – albeit with some difficulty – worldwide.

Savate Rankings

Colored patches customarily identified as "glove colors" signify Savate rankings (the gloves themselves don't change color). New students receive the blue glove after completing the introductory training. Further training leads to the green, red, white, and yellow glove, the silver glove for *technique* (first through third degree), and ultimately *professeur* (instructor) status. The red glove is the minimum rank for competition in sport Savate and sometimes called "Savate's black belt."

Several additional ranks can't be reached through training alone. The bronze glove and the silver glove for *competition* (first through fifth degree) are awarded in competition, on the basis of skill *and* success at full-contact matches. The gold glove is a title awarded on the basis of exceptional merit – as much for service in the name of the art as for technique and competitive victories.

Unlike most martial arts, Savate has separate student and teaching ranks. Starting at green, students can learn to teach. The future professeur receives specialized training in how to structure and instruct a class.

La Boxe Française

3 points

La Boxe Française is a sport form of Savate that became popular after World War II. It lacks weapon arts and emphasizes ring-safe techniques over streetfighting ones. While the style retains some self-defense applicability, it isn't a complete armed and unarmed combat system like its forerunner.

Skills: Games (La Boxe Française); Karate Sport.
Techniques: Back Kick; Feint (Karate Sport); Jump Kick; Kicking.

Optional Traits

Skills: Acrobatics.

Skills: Karate; Wrestling.

Techniques: Back Kick; Drop Kick; Feint (Karate); Hammer Fist; Head Butt; Jump Kick; Kicking; Spinning Kick.

Cinematic Skills: Flying Leap; Power Blow.

Cinematic Techniques: Flying Jump Kick; Lethal Kick; Roll with Blow; Springing Attack (Karate).

Perks: Improvised Weapons (Karate); Technique Mastery (Kicking).

Optional Traits

Advantages: Language (French).

Disadvantages: Bloodlust.

Skills: Acrobatics; Broadsword; Guns; Karate Art; Knife; Savoir-Faire (Dojo); Shortsword; Smallsword; Whip.

Techniques: Acrobatic Stand.

. . . regardless of how wonderful a technique is, if you are unable to apply it, you are in no better position than if you didn't know it at all. Each technique must be practiced with all your heart many hundreds, many thousands of times, until you master it to the point where you can apply it.

– Mas Oyama, ***This Is Karate***

Shaolin Kung Fu

6 points

Shaolin Kung Fu is the world-famous art of the Shaolin Temple monks. No martial-arts school is so steeped in myth as the Temple, and its kung fu inherited this legendary status. Separating fact from fiction is difficult . . . even in the face of rigorous research. What *is* verifiable is that there was more than one Temple and that their monks were as renowned for their skill with the staff and bare hands as for their piety. They were also well-known for their resistance to Manchu rule, and for sheltering rebels and refugees – both of which ultimately led to the Temple's destruction at the hands of the Manchu.

The main weapon of the Shaolin monks was the staff, which earned them fame for most of the past millennium. It was the ideal weapon: inexpensive, convenient to carry, and a symbol of priesthood in many Asian countries (although it's hard to say which came first: the symbol or its use as a weapon!). The monks trained to use the staff for attack and defense, and as the basis of some unarmed-combat moves – including their signature Pole-Vault Kick.

Shaolin monks also learned (or at least had access to training in) many other weapon skills. There are stories of monks using nearly every Chinese weapon – but especially the hook sword, *jian,* and three-part staff, and such exotica as the "deer antlers" and *qian kun ri yue dao.* See Chapter 6 for more about these weapons.

Cinematic Shaolin monks are capable of just about *every* amazing feat from martial-arts myth. This is in part due to the immense body of folk legend surrounding the Temple's monks and in part due to decades of martial-arts movies ascribing the incredible abilities of almost any martial artist to "Shaolin Temple training." The GM could fairly permit nearly any cinematic skill, technique, or perk!

In historical times, the only way to learn this style was to travel to the Shaolin Temple and become a monk. A monk's life was more about meditation and hard chores than martial arts – hundreds of kung fu movies notwithstanding. Those who wished to go on to become masters had to commit to *life* in a monastery. The GM might make exceptions in a cinematic game.

Finding a Shaolin Kung Fu instructor in the modern world isn't difficult – but many of these schools actually teach other kung fu styles, or Wushu (pp. 206-207), under the Shaolin name. A few schools *do* seem to be able to trace their lineage back to the Shaolin Temple, and teach a style much like the historical one described here. They usually teach Combat Art skills only, however, or save genuine combat skills for advanced students.

Skills: Judo; Karate; Meditation; Philosophy (Buddhism); Staff.

Techniques: Arm Lock (Judo or Staff); Armed Grapple (Staff); Back Kick; Choke Hold (Staff); Disarming (Staff); Elbow Strike; Exotic Hand Strike; Feint (Karate or Staff); Hammer Fist; Jump Kick; Kicking; Spinning Kick; Spinning Punch; Spinning Strike (Staff); Stamp Kick; Sweep (Judo or Karate).

Cinematic Skills: Blind Fighting; Body Control; Breaking Blow; Flying Leap; Hypnotic Hands; Immovable Stance; Kiai; Light Walk; Lizard Climb; Mental Strength; Power Blow; Pressure Points; Pressure Secrets; Push; Sensitivity.

Cinematic Techniques: Dual-Weapon Defense (Staff); Fighting While Seated (Karate); Flying Jump Kick; Grand Disarm (Judo or Staff); Lethal Eye-Poke; Lethal Kick; Lethal Strike; Pole-Vault Kick; Pressure-Point Strike; Roll with Blow; Timed Defense; Whirlwind Attack (Karate or Staff).

Perks: Chi Resistance (Any); Cotton Stomach; Drunken Fighting; Iron Body Parts (Any); Special Exercises (DR 1 with Tough Skin); Special Exercises (Striking ST +1); Style Adaptation (Any Chinese style); Technique Mastery (Any kicking technique).

Optional Traits

Advantages: Combat Reflexes; Fit or Very Fit; Forceful Chi; High Pain Threshold; Inner Balance; Language (Chinese).

Disadvantages: Disciplines of Faith; Sense of Duty (Shaolin Monastery); Vows.

Skills: Acrobatics; Broadsword; Broadsword Art; Judo Art; Jumping; Karate Art; Knife; Knife Art; Polearm; Polearm Art; Shortsword; Shortsword Art; Staff Art; Two-Handed Flail; Two-Handed Flail Art; Whip; Whip Art.

Shortsword Fighting

4 points

The shortsword was unpopular for much of the Middle Ages. Around 1250, however, it reappeared in the hands of foot soldiers. By the late 15th or early 16th century, it was the standard sidearm of the German *Landsknecht*. Commoners across Europe also used this light, handy, cheap sword. The law often played a role in this: it was quite common to restrict broadswords to the nobility. The shortsword – like the dagger – was legal on the street in some cities . . . and useful in tight corners.

Shortsword Fighting was a style for unarmored or lightly armored combatants relying on deft footwork and quick parries for protection. The razor-sharp swords were primarily cutting weapons, although most had a stabbing point. Swordsmen used Defensive Attack to "feel out" the enemy and Deceptive Attack to bypass his guard. Because most wore little or no armor, they avoided All-Out Attack, Committed Attack, and other tactics that opened them up to retaliation.

Stylists learned to fight in close combat with hand parries, grapples, kicks, and blows with the pommel. Some historical fighters preferred *two* swords – one to defend and the other to attack – to a single blade and an open hand. Cinematic warriors would use two weapons to attack or parry at the same time, of course!

The shortsword is likely to be a favorite weapon of urban thugs and ruffians wherever it's permitted on the streets. Fairly or not, then, stylists might gain a reputation for being scum themselves. Shortsword fighters seeking to expand their skills might learn Dagger Fighting (p. 155) and/or Combat Wrestling (pp. 204-205) as well. Shortsword Fighting was also a popular "backup" style for those schooled in Longsword Fighting (pp. 180-182).

Skills: Brawling; Judo; Shortsword.

Techniques: Arm Lock; Armed Grapple (Shortsword); Bind Weapon (Shortsword); Close Combat (Shortsword); Disarming (Judo); Eye-Gouging; Eye-Poke; Feint (Shortsword); Ground Fighting (Shortsword); Low Fighting (Shortsword); Targeted Attack (Shortsword Swing/Arm); Targeted Attack (Shortsword Swing/Neck); Targeted Attack (Shortsword Thrust/Vitals).

Cinematic Techniques: Dual-Weapon Attack (Shortsword); Fighting While Seated (Shortsword).

Perks: Grip Mastery (Shortsword); Off-Hand Weapon Training (Shortsword); Quick-Swap (Shortsword); Skill Adaptation (Bind Weapon defaults to Shortsword).

Optional Traits

Advantages: Combat Reflexes; Enhanced Parry (Shortsword or All).

Disadvantages: Reputation (Ruffian).

Skills: Fast-Draw (Sword); Knife; Main-Gauche.

Shaolin Traditions

The Shaolin Temple's visible traditions are its students' orange robes, shaved heads burned with a pattern of nine small dots, and physical fitness (imparted by years of martial-arts training). These things are familiar from TV, movies . . . and actual monks. The People's Republic of China reopened the long-closed Temple as a cultural center. It's a popular destination for visiting martial artists, who train there or with any of the many unaffiliated teachers who live nearby. In the past, of course, one had to *join* the Temple to train there.

Historically, entry into the order was fairly mundane. Impressing the resident monks with your seriousness about the vows, and taking those vows, would be the only requirements. This might still be difficult; it's said that Bodhidharma sat outside the Temple for years, seeking entrance, until his gaze burned a hole in the mountain. On the other hand, the Temple *did* have a reputation for taking in wanderers, political dissidents, and other refugees – often rebels against the ruling Manchu Dynasty – if they were willing to take vows. Some of these monks might be more concerned with the world outside than with meditation or prayer. This reputation and the presence of politicized monks (both refugees and long-time acolytes) led to many conflicts with the government.

Movies and TV shows prefer a more exotic "admission test." Typically, one must either fight some or *all* of the monks (usually in ascending order of skill), or take unrealistically severe vows of obedience. Most of these fictional treatments also require a "final exam" before one is considered a true monk.

The TV show *Kung Fu* had its own, now famous, version of the "final exam." After training for years, students had to pass an ordeal involving an oral test on Buddhist philosophy, a maze filled with "attack dummies" and traps sprung by surprise, and other tricks designed to trip up the unwary and unskilled. Finally, the candidate had to lift a red-hot cauldron weighing 500 lbs. and carry it a short distance. On the sides were raised markings that branded the carrier's arms with a dragon and a tiger, marking him as a Shaolin monk. This is Hollywood rather than reality – but it certainly suits *cinematic* Shaolin monks!

Shurikenjutsu

4 points

This is the Japanese art of throwing and concealing the *shuriken* (throwing blade; see p. 223). Contrary to popular perception, shuriken weren't merely "ninja throwing stars." Samurai valued them as backup weapons, because they were easy to conceal and quick to deploy. Some shuriken (especially single-pointed spikes) functioned as fist loads, too, making them useful last-ditch melee weapons. Shurikenjutsu was usually a "hidden" or "secret" part of a *ryu,* because the shuriken was most effective when the enemy wasn't expecting it.

Spear Fighting

Sojutsu (pp. 197-198) is but one of the world's many spear arts. The spear is a *very* simple weapon that has seen extensive use in warfare, hunting, and personal combat since before recorded history. It survives today as the bayonet, taught by modern armies as much to instill aggressiveness in recruits as for combat utility.

Chinese Spear Fighting

4 points

Chinese Spear Fighting is *dramatic.* A move particular to Chinese styles, especially cinematic ones, is the full-extension thrust with one hand on the very end of the pole. This is an All-Out Attack (Long) that ends in a crouch, inflicting normal one-handed damage. Cinematic fighters should use the Flying Lunge technique and the Tip Slash option (p. 113) extensively, too.

Chinese spears are flexible, allowing arced thrusts. Treat these as Deceptive Attacks. A decorative horse-hair tassel – white or brightly colored – is knotted behind the head. This serves to distract enemies and prevent blood from running down the shaft (which could foul the wielder's grip).

Skills: Acrobatics; Spear; Staff.

Techniques: As *Sojutsu* (pp. 197-198), but add Feint (Staff) and Sweep (Staff).

Cinematic Skills and Techniques: As *Sojutsu,* but add Flying Lunge (Spear).

Perks: Form Mastery (Spear); Grip Mastery (Spear).

Optional Traits

Skills: Spear Art.

Heroic Spear Fighting

4 points

This style is based on the heroic stories of Homer's *Iliad.* Greek heroes carried two spears and a sword. They were ferried to battle on chariots but dismounted to fight. They usually threw one spear and saved the other for melee. The sword was a backup, used when both spears were lost or against especially difficult foes. Spear fighters should also learn Pankration (pp. 188-189) or some form of Wrestling (pp. 204-206) or Boxing (pp. 152-153).

Greek epics often demonstrated the enemy's ferocity and the danger posed by his weapons by having the hero narrowly avoid an attack that went on to kill his chariot driver. The GM could treat this as a limited Extra Life!

Legendary Celtic warriors fought similarly, and should use this style as well. They were famed for being able to run up volleys of arrows shot at them. See *Special Feats for Cinematic Skills* (pp. 129-130) for ideas on how to handle this.

Skills: Shield; Spear; Thrown Weapon (Spear).

Techniques: As *Sojutsu* (pp. 197-198), but remove Disarming (Spear) and Sweep (Spear).

Cinematic Skills and Techniques: As *Sojutsu,* but add Dual-Weapon Attack (Thrown Spear).

Perks: Naval Training; Off-Hand Weapon Training (Thrown Spear).

Optional Traits

Advantages: Combat Reflexes; Fearlessness; High Pain Threshold. A fierce Reputation is *critical* – it's usually what the warrior is fighting to establish!

Disadvantages: Bad Temper; Bloodlust; Overconfidence.

Skills: Shortsword.

Continued on next page . . .

Shurikenjutsu stresses readying the shuriken quickly, without letting the opponent see it. Stylists typically conceal it in the palm or behind a sleeve. They toss the weapon with a sharp overhand or underhand motion, spin it sideways, or throw it while sweeping their hand through a sword-drawing motion – attacking the enemy by surprise even as they ready their sword. Treat such moves as either dirty tricks that use Holdout vs. Perception (see *Dirty Tricks,* p. 76) or one of the options under *Tricky Shooting* (p. 121). The GM should consider letting practitioners learn a Style Perk that gives them access to *Tricky Shooting* if the campaign doesn't generally use those rules.

Stylists hurl shuriken rapidly, ideally throwing at least one per second to deny the foe a lull that he could exploit to advance or attack. To do this, ready a shuriken in each hand (possibly using Fast-Draw), throw the one in your master hand, use the Quick-Swap perk to move the other to your throwing hand, and Fast-Draw a replacement with the off hand. Use *Rapid Strike with Thrown Weapons* (p. 120-121) to throw two or more blades! Fast-Draw and Quick-Swap let you keep a steady rain of shuriken heading toward your victim.

Cinematic Shurikenjutsu works somewhat differently. Rather than hurling a constant stream of shuriken, practitioners throw *multiple* blades from both hands simultaneously! They toss shuriken with such precision that they can break firearms, shatter chains, and split thick slabs of wood.

Shurikenjutsu still exists, its practices of concealment and quick throwing unchanged from its combative predecessor. Students use sharp shuriken to practice on targets, blunt ones to practice on partners in padded armor. Thanks to the shuriken's popularity during the 1980s "ninja craze" in the U.S., many regard it as a weapon of criminals or wannabe ninja and treat those who carry shuriken accordingly.

Shurikenjutsu schools sometimes teach how to throw knives, too – including the *kubizashi* (head-displaying knife) and such larger blades as the *tanto* (large knife). The GM can also adapt this style for other thrown weapons, such as the *chakram* (p. 214), although the name and Thrown Weapon skill would certainly change.

Spear Fighting (Continued)

Iklwa Fighting

5 points

History credits Shaka, the early 19th-century Zulu king, with turning the Zulus into a warrior nation. He forged war bands into disciplined regiments, or *impi,* and trained his troops to fight with the short-handled, long-bladed *iklwa* instead of the *assegai* (javelin). They also used the knobbed club. When not at war, Zulu warriors led a pastoral existence, and thus tended to be both fit and fleet of foot.

Iklwa Fighting is extremely direct. It uses the shield not only to deflect attacks but also to hook the enemy's shield and drag him off-balance. After pulling his foe off-guard, the warrior stabs his opponent in the vitals and disembowels him (to release his spirit in death). Committed Attack (Strong) is common.

Skills: Axe/Mace; Running; Shield; Spear.
Techniques: As *Sojutsu* (pp. 197-198), but replace Disarming (Spear) and Sweep (Spear) with Armed Grapple (Shield) and Feint (Shield).

Optional Traits

Advantages: Combat Reflexes; Fit.
Disadvantages: Bloodlust; Callous.
Skills: Guns.

Jukenjutsu (Bayonet Fighting)

4 points

Jukenjutsu is the Japanese art of bayonet fighting, but it works "as is" for the bayonet style of almost any military force in the world. Jukenjutsu has both sport and combat forms. Sport fighters use padding-tipped rifles and throat, chest, and face protection. Only these three targets are valid – and only thrusting is allowed. Purely military bayonet training omits Savoir-Faire (Dojo) and Spear Sport. Some soldiers also learn Knife.

Skills: Savoir-Faire (Dojo); Spear; Spear Sport.
Techniques: Feint (Spear); Retain Weapon (Rifle); Targeted Attack (Spear Thrust/Face); Targeted Attack (Spear Thrust/Neck); Targeted Attack (Spear Thrust/Vitals).

Optional Traits

Advantages: Combat Reflexes.

Viking Spear Fighting

4 points

Shields were relatively uncommon for foot troops in Asia but very common in Europe. This style is suitable for spear fighters from across Europe or anywhere warriors use the shield and hurled spear in battle. Its users included the Vikings, who especially admired heroic feats with the thrown spear.

Skills: Shield; Spear; Thrown Weapon (Spear).
Techniques: As *Sojutsu* (pp. 197-198).
Cinematic Skills and Techniques: As *Sojutsu,* but add Dual-Weapon Attack (Thrown Spear).
Perks: Naval Training; Off-Hand Weapon Training (Thrown Spear); Shield-Wall Training.

Optional Traits

Advantages: Combat Reflexes; Enhanced Block.
Disadvantages: Berserk.
Skills: Axe/Mace; Broadsword; Parry Missile Weapons; Thrown Weapon (Axe/Mace); Two-Handed Axe/Mace.
Techniques: Hand-Catch (Parry Missile Weapons).

Skills: Fast-Draw (Shuriken); Holdout; Thrown Weapon (Shuriken).
Techniques: Targeted Attack (Shuriken Throw/Eyes); Targeted Attack (Shuriken Throw/Hand); Targeted Attack (Shuriken Throw/Leg); Targeted Attack (Shuriken Throw/Neck).
Cinematic Skills: Breaking Blow.
Cinematic Techniques: Dual-Weapon Attack (Thrown Shuriken).
Perks: Off-Hand Weapon Training (Fast-Draw or Thrown Shuriken); Quick-Swap (Shuriken); Unusual Training (Can use *Tricky Shooting* in a campaign that doesn't use those rules).

Optional Traits

Advantages: Ambidexterity; Weapon Master (Shuriken).
Disadvantages: Reputation ("Thug or criminal," in a modern game; "Signature move: carries and uses concealed shuriken," in a historical one).
Skills: Karate; Thrown Weapon (Knife).

Sojutsu

3 points

Sojutsu, also known as *Yarijutsu,* is the Japanese art of spear fighting. While samurai are popularly associated with swords, many preferred the spear for warfare – mainly because of its reach advantage and effectiveness against mounted foes. Historically, the spear played a very important battlefield role.

Sojutsu deals primarily with using the spear for stabbing. It includes some training at wielding the spear as a staff, but warriors who wish to make extensive use of such tactics should consider studying Bojutsu (p. 192) as well. Sojutsu schools hardly ever teach spear throwing: few *bushi* carry multiple spears, and throwing away one's primary weapon is foolhardy at best!

Sojutsuka (Sojutsu fighters) use their spear's length to keep the enemy at bay, holding their weapon two-handed and usually at maximum reach. Stylists circle, using Wait and Evaluate to look for an opening to exploit, or Feint to create one. When they strike, they go for a lethal thrust to the vitals, neck, or (especially against an armored foe) face. They often use Committed Attack (Strong) to penetrate armor and ensure an incapacitating hit.

Cinematic Sojutsuka are known for their fierce battle cries and armor-cracking strikes. They can even launch a Whirlwind Attack, attacking multiple adversaries with a Tip Slash (p. 113). This tends to be a last resort, since Tip Slash isn't especially damaging.

Some Japanese spears had hooks or even L-shaped spearheads designed for hooking and grabbing. Practitioners who use such weapons might learn Armed Grapple (Spear) and/or Hook (Spear).

Skills: Spear; Staff.

Techniques: Disarming (Spear); Feint (Spear); Retain Weapon (Spear); Sweep (Spear); Targeted Attack (Spear Thrust/Face); Targeted Attack (Spear Thrust/Neck); Targeted Attack (Spear Thrust/Vitals).

Cinematic Skills: Kiai; Mental Strength; Power Blow.

Cinematic Techniques: Dual-Weapon Defense (Spear); Whirlwind Attack (Spear).

Perks: Form Mastery (Spear); Grip Mastery (Spear); Off-Hand Weapon Training (Spear).

Optional Traits

Advantages: Combat Reflexes.

Disadvantages: Code of Honor (Bushido).

Skills: Savoir-Faire (Dojo); Thrown Weapon (Spear).

Techniques: Armed Grapple (Spear); Hook (Spear).

Sumo

4 points

Sumo is a form of traditional Japanese combat. Closely tied to the Shinto religion, it's as much a ceremony as a sporting event. It's also Japan's earliest unarmed martial art. It originally included all manner of hand strikes and kicks, and deaths occurred in the ring, but killing techniques were banned in the early 8th century. The sportive form originated in the Sengoku Jidai Era, and the *dohyo* (wrestling ring) came into use in 1578. Today, there are six *basho* (tournaments) each year, with one bout a day for 15 days.

Before Sumo became a ring-based sport, stylists – also known as *sumotori* or *rikishi* ("strong gentlemen") – trained samurai, acted as bodyguards, and fought in fairly brutal matches. Few techniques were barred. Victory was by submission.

In modern Sumo, matches are short and explosive. Sumotori square off in the ring and begin the match by mutual decision. Common tactics include throws (typically over the leg, a variation on Sweep), shoves, and slams. Feints are extremely important, and include fakes, simple ploys such as the *nekodamashi* ("cat confuser," a clap in the opponent's face), powerful slaps, and shifts of weight to trick one's rival into opening himself to fight-winning shoves. Contenders frequently use Committed Attack (Strong) or All-Out Attack (Strong) for a full-force shove – often after a Feint. The first fighter to touch the ground with anything other than the soles of his feet, or to contact the ground outside the ring, is the loser.

Sumotori train at "stables," where the daily routine consists of chores, Sumo practice, and eating gigantic amounts of high-protein, high-fat foods to gain weight. Great bulk isn't a requirement – young children, male and female, engage in the sport – but because Sumo has no weight classes, sheer size tends to influence a fighter's career. Simply put, a large man is harder to lift and shove. Strong sumotori *have* won bouts "simply" by lifting a smaller opponent and dropping him outside the ring!

Cinematic sumotori are like realistic ones, but more so – in every sense. They're even larger, stronger, and harder to move. Their massive bulk enhances their combat ability.

Sumo is most widely taught in Japan. It's easy to learn the basics and almost anyone can try to join a stable, but training is grueling and designed to weed out non-contenders. Schools do exist outside Japan – especially in Eastern Europe, Hawaii, and Mongolia – but those who want to "make it" must join a

Sumo Traditions

Almost every aspect of Sumo contains elements of both ritual and sport. All fighters wear a uniform – a long, wrapped loincloth called a *mawashi* (sometimes decorated with tassels) – and variations aren't allowed. They must style their hair in a samurai's topknot, or *chonmage*. Low-ranking sumotori do each other's hair or that of their seniors; high-ranking ones sometimes have a professional stylist on their staff.

Before the fight begins, each contestant grabs a handful of salt and throws it to ritually purify the ring. Then they square off. When both feel prepared, they start the match. The fighters typically attempt to "psyche out" their rival first, and may return to their corners three or four times before they clash. It can take up to four minutes for high-ranking sumotori to begin a bout! (Low-ranking ones are expected to get on with it quickly . . .) Matches have no time limit, and range from seconds to minutes in length.

Sumo rankings depend on victories. Successful rikishi are voted up and down through five ranks. The top two ranks – *ozeki* and *yokozuna* (grand champion) – are most important. Ozeki who seek to become yokozuna must win at least two *basho* to merit consideration. Only those who show proper "spirit," dignity, and good technique receive the rank. Yokozuna is a status, not merely a title. Once a sumotori becomes yokozuna, he can't lose that rank! A fading yokozuna is expected to honorably and voluntarily retire to avoid bringing shame to the rank.

Japanese stable. Ranked competitors *must* be able to speak polite Japanese. All participants, including foreigners, use Japanese ring names that feature the first *kanji* of their trainer's name.

Sumo is purely a sport; no "self-defense" schools exist. However, the style favors size and strength, and its practice and tournaments are full-contact. These factors make Sumo *potentially* useful outside the ring if the stylist learns its optional skills and techniques.

Skills: Games (Sumo); Savoir-Faire (Dojo); Sumo Wrestling.

Techniques: Feint (Sumo Wrestling); Sweep (Sumo Wrestling); Trip.

Cinematic Skills: Immovable Stance; Power Blow.

Cinematic Techniques: Springing Attack (Sumo Wrestling).

Perks: Power Grappling; Special Exercises (DR 1 with Partial, Skull and Tough Skin); Special Exercises (HP can exceed ST by 100%).

Optional Traits

Secondary Characteristics: Improved HP.

Advantages: Language (Japanese); Reputation (From fans).

Disadvantages: Fat or Very Fat; Gluttony.

Skills: Brawling; Intimidation; Judo; Karate.

Techniques: Hammer Fist; Low-Line Defense (Sumo Wrestling).

Sword-and-Buckler Play

5 points

Sword-and-Buckler Play was a popular means of self-defense among the European nobility and bourgeoisie from about 1250 until the 16th century. It might have originated even earlier – Germanic and Viking warriors were known to wield the iron boss of a wooden shield like a buckler when the shield was hacked apart. The style seems to have been particularly fashionable with the urban upper classes, students, and clerics. Infantry, missile troops especially, studied it for protection when their formations were broken.

Sword-and-Buckler Play involved the broadsword, buckler, and unarmed strikes and grapples, and emphasized speed and mobility. Stylists faced their foe squarely with both sword and buckler, to keep him at arm's length. They used the sword aggressively to cut and thrust, the buckler to ward off blows and make shield bashes. Bucklers occasionally had sharp edges for *slashing,* too; see Chapter 6 for more on sharpened shield rims. A warrior who couldn't bring his sword and buckler into play would attempt kicks, punches, grapples, and takedowns. Sword-and-buckler fighters tended to fight defensively, using the Defensive Attack and Attack maneuvers until the enemy was at a disadvantage, then moving in with strong armed or unarmed attacks.

Few legends surround sword-and-buckler fighters. However, larger-than-life stylists could certainly exist in a cinematic campaign! Likely techniques are those that enhance fighting with two weapons at once.

While primarily a combative art, Sword-and-Buckler Play also had a sportive side. Fighters would sometimes put on public displays or engage in friendly competition. The style remained common across Europe until the 16th century, when fencing became more fashionable. Fencing with the buckler and rapier would continue for another century or so.

Skills: Brawling; Broadsword; Shield (Buckler); Wrestling.

Techniques: Arm Lock; Armed Grapple (Buckler); Bind Weapon (Broadsword); Counterattack (Broadsword); Disarming (Broadsword); Feint (Broadsword or Buckler); Kicking; Retain Weapon (Broadsword or Buckler); Trip.

Cinematic Techniques: Dual-Weapon Attack (Broadsword or Buckler); Dual-Weapon Defense (Broadsword or Buckler).

Perks: Skill Adaptation (Bind Weapon defaults to Broadsword); Special Setup (Brawling Parry > Arm Lock); Sure-footed (Uneven).

Optional Traits

Advantages: Enhanced Block.

Disadvantages: Overconfidence.

Skills: Fast-Draw (Sword); Knife; Rapier; Shield.

Perks: Weapon Bond.

Sword-and-Shield Fighting

4 points

Sword-and-Shield Fighting was the art of using the broadsword and shield in combat. It likely originated in the Dark Ages, although conclusive evidence is scanty. Its heyday was the early Middle Ages, but it survived – even thrived – well into the Renaissance. The Spanish used sword-and-shield troops until the 16th century, and the style vanished from the battlefield only after the spread of firearms rendered the shield obsolete.

Unlike bucklers, shields were distinctly military in character. Civilians rarely carried them. After 1350, the shield was primarily a tool of the infantry in Europe. Fighters used shields of all sizes – from small to large – made of metal, wood, and leather. Some even sported sharp spikes!

Sword-and-Shield Fighting required lots of room. It stressed footwork, darting strikes, and fighting at arm's length. Stylists held the shield forward to repulse enemies, and used more blocks than parries. They learned some wrestling moves but largely avoided close combat (unlike practitioners of Sword-and-Buckler Play).

The sword-and-shield fighter circled his foe and used Wait and Evaluate to seek an opening, or a Beat (pp. 100-101) with his shield to create one. He often attacked by rushing in, striking, and pulling back quickly. Treat this as a Committed Attack (Determined) with two steps – one in, one out. He might instead launch a Defensive Attack in the form of a jabbing thrust to a vulnerable location. If his attacker left himself open on the offensive, the stylist punished him with the Counterattack technique. If his enemy pressed the attack, the sword-and-shield man responded with All-Out Defense (Increased Block), and used retreats to open the gap. When things got *too* close, he made aggressive use of his shield – both to shove his opponent back to arm's length and to bash him.

Tae Kwon Do Ranks

Tae Kwon Do (see below) denotes rank using a series of colored belts, just like the Japanese arts from which it took its ranking system. It uses 10 *gup* ranks and 10 *dan* ranks. Belt colors are: white (10th gup), yellow (8th gup), green (6th gup), blue (4th gup), red (2nd gup), and black (1st through 10th dan). Odd-numbered gup ranks use a belt of the previous rank's color with a stripe of the next rank's color; e.g., a 7th gup wears a yellow belt with a green stripe.

Not all schools use this traditional ranking system. Many have adopted a wide variety of belt colors to denote different ranks, adding solid colors such as purple and orange to denote odd-numbered gups. Some add more intermediate stripes between belts to allow for steady progress through small promotions.

There are no tales of "cinematic" sword-and-shield fighters. The GM should certainly allow them, though, and a few techniques are very appropriate for the style.

Modern reenactors – in particular the Society for Creative Anachronism (SCA) – have worked hard to recreate this style. Use the style as written, replacing combat skills with Combat Sport skills. For live-steel reenactors, even this change is unnecessary.

Skills: Broadsword; Shield; Wrestling.
Techniques: Counterattack (Broadsword); Feint (Broadsword or Shield).
Cinematic Techniques: Dual-Weapon Attack (Broadsword or Shield); Dual-Weapon Defense (Broadsword or Shield); Flying Lunge (Broadsword).
Perks: Shield-Wall Training; Sure-Footed (Uneven).

Optional Traits

Advantages: Combat Reflexes; Enhanced Block; Enhanced Dodge.
Disadvantages: Duty.
Skills: Acrobatics; Brawling; Knife.

Tae Kwon Do

5 points

Tae Kwon Do (Korean for "hand-foot way") traces its lineage through several Korean martial arts back to 500 A.D. – or earlier, by some accounts. Its official founding was in 1955, however. While it's descended from combative arts, it's largely a sport form, like modern Karate. Indeed, it borrowed some *kata* (later removed and replaced with native forms) and the use of colored belts from that art. There are schools that teach Tae Kwon Do for self-defense rather than for competition, though; these feature full-contact matches (with padded armor) and intense training.

Tae Kwon Do emphasizes striking, especially the power, speed, and utility of *kicking.* Stylists use all manners of kicks – particularly high kicks aimed at the head, since these score the most in competition. They even practice a kick thrown after a 540° spin; treat this as the All-Out Attack version of Spinning Kick (pp. 79-80). Tae Kwon Do also teaches punches – including spear-hand and ridge-hand strikes – but considers them secondary. Schools that teach self-defense versions of the art put punches on a more equal footing with kicks.

In competitive Tae Kwon Do, punches score only if they strike the chest. Kicks must hit the opponent at waist level or higher. Spectacular high kicks rack up the most points and offer the possibility of a knockout victory. Stylists also show off breaking techniques to demonstrate strength. Instructors and judges expect advanced practitioners to be able to break boards or concrete with *all* punching and kicking techniques.

Tae Kwon Do is widespread – particularly in the U.S., where it was introduced a year after it was founded – and it's easy to find a teacher. Many "karate" schools actually teach a form of Tae Kwon Do! Tae Kwon Do was a featured demonstration sport at the 1988 Olympic Games and became a full-fledged Olympic sport at the 2000 Games.

Skills: Jumping; Karate; Karate Sport; Savoir-Faire (Dojo).
Techniques: Axe Kick; Back Kick; Elbow Strike; Exotic Hand Strike; Jump Kick; Kicking; Spinning Kick; Spinning Punch; Sweep (Karate).
Cinematic Skills: Breaking Blow; Flying Leap; Power Blow.
Cinematic Techniques: Flying Jump Kick.
Perks: Rapid Retraction (Kicks); Technique Mastery (Any kicking technique); Unusual Training (Breaking Blow, Only vs. well-braced objects out of combat).

Optional Traits

Advantages: Fit.
Disadvantages: Overconfidence; Reputation (Aims kicks high).
Skills: Acrobatics; Games (Tae Kwon Do).

T'ai Chi Chuan

6 points

T'ai Chi Chuan – literally "supreme ultimate fist," but in fact named after the famous yin/yang diagram – is an art intended for combat and self-defense. It seems to have originated in 17th-century China, but it's based on much older principles. The GM could reasonably include T'ai Chi Chuan in a historical game set centuries or even *millennia* before the 17th century. Modern gamers should know that while this style is the ancestor of the T'ai Chi system practiced for health and spiritual reasons today, the two *aren't* identical; see *T'ai Chi* (p. 201).

T'ai Chi Chuan is an internal art based on *qigong* breathing techniques, chi flow, and balance. The practitioner creates a "root," or point of balance, and uses this to launch and resist attacks. Punches often employ the palm or a loose fist; stylists use the Hammer Fist technique extensively. Kicks are generally low-line and regularly accompanied by a fake strike to distract – a Deceptive Attack.

The primary basis of T'ai Chi Chuan practice is a single form that contains *all* of the art's techniques, done slowly and with relaxation. In combat, the martial artist uses the same methods at full force. T'ai Chi Chuan includes "push-hands" practice. Practitioners stand face-to-face and try to push over their opponent or draw him into pushing against a sudden

lack of resistance, thereby throwing or tripping him. This helps train stylists at balance and at knocking over foes with a shove.

In combat, the T'ai Chi Chuan fighter normally takes Wait maneuvers, lets his foe attack first, and makes good use of Stop Hit (p. 108) and Riposte (pp. 124-125). He wards off his assailant with parries, then grabs him and applies a lock. Typical follow-ups to locks are throws, takedowns, and strikes. The stylist might instead use a shove to take down an off-balance opponent or to set up an adversary for a low-line kick, punch, or throw. All-Out and Committed Attacks are rare.

Cinematic T'ai Chi Chuan is especially powerful. This is mainly due to its emphasis on chi abilities. The GM should allow cinematic stylists to replace Sumo Wrestling with Push on the style's skill list.

Traditional T'ai Chi Chuan includes weapon forms for the *dao, jian,* spear, and staff. Some schools add the combat fan and slashing wheel. Like the art's unarmed forms, its weapon techniques are smooth, flowing, and deceptively relaxed. Most modern schools teach Combat Art versions of weapon skills, when they offer them at all.

Skills: Breath Control; Judo; Judo Art; Karate; Sumo Wrestling.
Techniques: Arm Lock; Hammer Fist; Sweep (Judo, Karate, or Sumo Wrestling).
Cinematic Skills: Immovable Stance; Mental Strength; Pressure Points; Pressure Secrets; Push.
Cinematic Techniques: Pressure-Point Strike; Roll with Blow.
Perks: Unusual Training (Push, May not step or move while doing so).

Optional Traits

Advantages: Forceful Chi; Inner Balance; Perfect Balance.
Skills: Autohypnosis; Broadsword; Broadsword Art; Knife; Knife Art; Meditation; Savoir-Faire (Dojo); Spear; Spear Art; Staff; Staff Art.
Techniques: Push Kick.

T'ai Chi

2 points

T'ai Chi is a meditative version of T'ai Chi Chuan (pp. 200-201). T'ai Chi practitioners – unlike T'ai Chi Chuan stylists – throw all strikes completely without force and rarely if ever practice against an opponent. Such training imparts no effective striking ability. Few schools offer push-hands practice. Weapons training, if any, teaches Combat Art skills exclusively.

Skills: Judo Art.
Cinematic Skills: Immovable Stance; Push.
Cinematic Techniques: Roll with Blow.

Optional Traits

Skills: Autohypnosis; Breath Control; Broadsword Art; Knife Art; Meditation; Savoir-Faire (Dojo); Spear Art; Staff Art.

Taihojutsu

6 points

Japan's Tokugawa period was an era of growing state control. Police were called on to rein in unruly ronin and samurai, who were often armed and sometimes dangerous. In the capital, Edo, this led to a larger police force trained in refined tactics for capturing criminals. Foremost among their methods was *Taihojutsu,* a martial art aimed at quickly disarming a resisting adversary and rendering him helpless without causing permanent injury or death.

Taihojutsu's signature weapon was the *jutte,* which was capable of parrying swords, disarming, and striking without inflicting bloody cuts like a sword would. The jutte was so closely identified with Taihojutsu that it became as much a symbol of authority as a weapon. Other Taihojutsu weapons included the *kusarijutte, sasumata,* and *sodegarami* ("sleeve catcher"). Chain- and truncheon-type weapons were popular because they were difficult if not impossible for a sword to break, and could disarm a sword-wielding foe. For more on these weapons, see Chapter 6.

The goal of Taihojutsu was to disable or capture the opponent *without* causing serious harm. Almost anything that accomplished this was acceptable. For instance, Taihojutsu-trained officers occasionally carried *metsubushi* (p. 220) and used them to blow blinding powder in the target's face to make him easier to apprehend. Training also emphasized group tactics – officers worked in pairs or in small teams to surround a suspect, rapidly disarm him, and tie him up. Because of this emphasis on capture, Defensive Attacks and such techniques as Disarming and Targeted Attacks on limbs were common. Grapples tended to be a prelude to a takedown or an Arm Lock.

Taihojutsu included *Hojojutsu:* the art of tying up suspects with rope (frequently using elaborate knots). This usually followed a pin or an Arm Lock that prevented the detainee from resisting effectively. Cinematic practitioners can use the Binding technique to truss opponents in combat *without* restraining them first!

Taihojutsu was unique to Tokugawa-era Japan. The style is extinct today, although some of its component weapon skills remain. See *Styles for Cops* (p. 145) for notes on *modern* police styles.

Skills: Jitte/Sai; Judo; Knot-Tying; Kusari; Staff.
Techniques: Bind Weapon (Jitte/Sai); Disarming (Jitte/Sai or Kusari); Entangle (Kusari); Hook (Staff); Targeted Attack (Jitte/Sai Swing/Arm); Targeted Attack (Kusari Swing/Arm).
Cinematic Skills: Mental Strength; Pressure Points.
Cinematic Techniques: Binding; Pressure-Point Strike; Snap Weapon (Jitte/Sai).
Perks: Form Mastery (Kusarijutte); Style Adaptation (Kusarijutsu); Teamwork (Taihojutsu); Technique Adaptation (Disarming).

Optional Traits

Advantages: Enhanced Parry (Jitte/Sai).
Disadvantages: Duty; Sense of Duty (Innocent Civilians).
Skills: Blowpipe; Polearm.
Perks: Weapon Bond, usually to a jutte.

Ninja and Ninjutsu

The Japanese characters that form the word "ninja" mean "one who endures." An alternative reading is "the art of invisibility." In some times and places, ninja were also known as *shinobi.*

Ninjutsu (occasionally spelled *Ninjitsu*) is a term for the entire collection of arts practiced by ninja. Among other things, these include disguise, climbing, evasion, spying, and armed and unarmed combat. *Taijutsu* (see right) describes a particular set of combat skills.

Ninja Weapons

Few of the weapons popularly associated with ninja were uniquely "ninja weapons." For instance, Tokugawa-era police used the *metsubushi* (a kind of blowpipe) to distract suspects; samurai carried the *kusarigama* and *shuriken* as backup weapons; and the *tonfa, sai,* and *nunchaku* belonged to the Okinawan art of Kobujutsu (p. 178). Ninja generally favored the weapons of the samurai. This isn't surprising – these weapons were readily available and would make it easier to blend in while disguised, and the ninja would be schooled in their use, because many (perhaps most or all) ninja were in fact members of samurai clans.

Ninja might have used more hidden and combination weapons than most people, though, as backup weapons or surprise tactics. An "unarmed" spy could conceal several deadly (or at least distracting) secrets! The poisoned weapons frequently suggested for ninja are unlikely, however – such things tend to be as dangerous to the user as to the victim. Like modern assassins, ninja probably knew that food was the best vehicle for poison.

Ninja Characters

Every ninja ought to know Taijutsu (see above). A historical ninja will practice one or more Japanese weapon styles as well; e.g., Kenjutsu (pp. 173-175), Kusarijutsu (p. 179), Kusarigamajutsu (p. 180), or Shurikenjutsu (pp. 195-197). Cinematic ninja should further add Kobujutsu (p. 178) – to use so-called "ninja weapons" from Okinawa! For suitable ninja templates, see *Assassin* (pp. 31-32) and *Spy* (p. 38).

Realistic ninja should equip themselves as described above. Cinematic ones might wear a "ninja suit" (the infamous hooded black outfit, which *isn't* historical; see *The Ninja,* p. 13) or other martial-arts costume. Some might include firearms in their arsenal – especially comic-book super-ninja.

Ninja vs. Ninjas

In ***Martial Arts,*** we follow accepted English usage and use "ninja" for both the singular and the plural. However, many people prefer "ninjas" for the plural – and this seems somehow more appropriate for a cinematic game. When playing fast and loose with equipment and fighting styles, why fret over the English word for a Japanese concept? The true master of deception knows there's power in names and *wants* people to get such things wrong!

Taijutsu

6 points

Taijutsu ("body combat art") is the striking and grappling art of the ninja. This term *isn't* synonymous with *Ninjutsu.* "Ninjutsu" encompasses all of the ninja's skills – not just Taijutsu but also training at stealth, subterfuge, and deception, and a number of other armed and unarmed styles. These additional elements have nothing to do with Taijutsu!

Taijutsu has three main components, taught together and given equal emphasis:

1. Falling, tumbling, and acrobatics.
2. Striking, kicking, and breaking.
3. Grappling and joint locking.

Stylists use speed, flexibility, and quick movement to defend themselves and defeat their opponents. They remain mobile and seek to avoid a static fight. To accomplish this, the ninja makes regular use of Evade to skirt foes and Acrobatic Dodge to avoid attacks.

Taijutsu punches use both closed fists and Exotic Hand Strikes (finger strike, spear-hand, *shuto,* etc.). Kicks primarily connect with the heel, the ball of the foot, or the top of the foot. Preferred targets for all types of strikes are the groin, vitals, neck, and eyes, as Taijutsu aims to disable the enemy quickly. Deceptive Attacks that rely on sheer speed or changes of target are common. Conversely, Telegraphic Attacks (p. 113) are rare.

After weakening his opponent with strikes, the Taijutsu practitioner either piles on *more* blows or moves in with a grapple followed by a throw or a takedown. Once his foe is down, he may deliver a finishing strike, apply an Arm Lock to achieve submission, or follow his victim to the ground for a pin. Advanced students sometimes learn further ground techniques, but the art is primarily stand-up.

Modern Taijutsu schools teach a large number of weapons that would be part of other jutsu in historical times. Such training typically starts within the first few belts, although some schools reserve weapons for black belts. Weapons include the *hanbo, jo, katana,* knife, *kusari, naginata, ninja-to, shuriken,* spear, staff, and even the *tessen* (combat fan); see Chapter 6 for details. All of these skills are optional, but it's unusual to learn Taijutsu without learning weapons. Some even say that the entire goal of Taijutsu is to learn to use anything as a weapon – whether it's built for the purpose or improvised. Stylists use the footwork, tactics, and hand motions of unarmed Taijutsu when armed, and learn to regard a weapon as an enhancement to the body's natural weapons, not a replacement for them.

Cinematic Taijutsu stylists are ninja in the grand folkloric tradition. They have access to a huge body of cinematic abilities. They can move without being seen, control bodily functions, walk without sound, and fight blindfolded. Their strikes are lethal, silent, and almost unstoppable. Tales of the ninja credit them with virtually every feat in martial-arts myth. Hollywood-style ninja frequently master Kobujutsu weapons, too – indeed, skill with the *nunchaku, sai,* and *tonfa* is practically required!

Modern Taijutsu schools do exist, and practitioners are called "ninja." Some teach a reinvented form of Ninjutsu – complete with stealth training, costumes, and nunchaku. Others focus almost exclusively on Taijutsu. Currently, there's only one certified Grand Master of Taijutsu, who heads three schools of *Ninpo* (Ninjutsu) and six other martial-arts schools amalgamated into a single *budo ryu.* These schools use the standard 10 *kyu* and 10 *dan* ranks, although a few have 15 dan ranks. Students do partner drills, perform *kata* (sometimes modified by broken rhythms and improvised techniques), and wear *gi.*

Historical ninja would learn a combat style nearly identical to this. As noted above, they would acquire their weapon skills separately. They should study styles for primary weapons (such as the katana, *wakizashi,* and spear) and backup weapons (such as the shuriken and kusari). For more about ninja, see *Ninja and Ninjutsu* (p. 202).

Skills: Acrobatics; Judo; Karate; Karate Art; Savoir-Faire (Dojo).

Techniques: Acrobatic Stand; Arm Lock; Breakfall (Acrobatics or Judo); Choke Hold; Ear Clap; Elbow Strike; Evade (Acrobatics or Judo); Exotic Hand Strike; Eye-Poke; Feint (Karate); Kicking; Knee Strike; Targeted Attack (Karate Exotic Hand Strike/Neck); Targeted Attack (Karate Kick/Groin); Targeted Attack (Karate Punch/Neck).

Cinematic Skills: Blind Fighting; Body Control; Breaking Blow; Flying Leap; Hypnotic Hands; Invisibility Art; Light Walk; Lizard Climb; Mental Strength; Power Blow; Pressure Points; Pressure Secrets; Sensitivity; Throwing Art.

Cinematic Techniques: Eye-Pluck; Hand-Clap Parry; Lethal Eye-Poke; Lethal Kick; Lethal Strike; Pressure-Point Strike; Roll with Blow; Timed Defense.

Perks: Acrobatic Feints; Improvised Weapons (Any); Style Adaptation (Any Japanese armed style); Technique Adaptation (Feint); Unusual Training (Sensitivity, Only while at least one hand is in physical contact with the opponent).

Optional Traits

Advantages: Enhanced Dodge; Language (Japanese).

Disadvantages: Delusions; Overconfidence; Reputation (Silly ninja wannabe).

Skills: Jumping; Knife; Kusari; Polearm; Shortsword; Shuriken; Spear; Staff; Two-Handed Sword; any weapon skill under *Kobujutsu* (p. 178).

Techniques: Ground Fighting (Judo).

Wing Chun

4 points

Wing Chun is a combative martial art native to southern China. According to legend, it was founded in the early 18th century. After the destruction of the Shaolin Temple, a nun named Ng Mui fled south. She met Yim Wing Chun, a shopkeeper's daughter, and taught her Shaolin boxing. Yim added techniques and went on to teach her style to her husband, who named it after her. Variations on this story have Yim learning the style to defeat a bullying general who wished to take her as his concubine.

Wing Chun's actual origins seem to be more prosaic. The style appears to have coalesced out of fighting techniques used in southern China – particularly by boatmen. References to fighters using forms and technique names unique to Wing Chun suggest that its history extends back more than a century before its legendary founding.

There are several schools of Wing Chun. The most common variation today is that of the Yip family, who have taught Wing Chun for centuries. The art's most famous student, Bruce Lee (pp. 24-25), was a student of Yip Man.

Wing Chun is notably short on ceremony and ritual. It traditionally lacks ranks and bowing, and has only three forms. The style focuses on a small set of widely applicable tools and stresses practicing these until they come naturally in combat. The emphasis is on close-range fighting – short punches, low-line defensive kicks, soft parries, and standing locks. Its characteristic stance is slightly backward-leaning, with the feet set side-by-side. Wing Chun includes two weapons: the butterfly sword, used in pairs, and the staff, used like a two-handed sword to make wide swinging attacks.

Fundamental to Wing Chun are the concepts of the centerline, an imaginary line drawn down the center of the practitioner's body, and the six "gates" (high, middle, and low, on either side of the centerline), which are openings to attack from or through. Stylists learn to keep their centerline pointed at the foe while staying off his, minimizing his ability to strike while maximizing their own effectiveness. Another key aspect of the art is *chi sao,* or "sticking hands": feeling an opponent's shifts of balance or focus in order to respond with a parry and counterattack, or to trap his limbs. Students sometimes practice chi sao blindfolded to increase sensitivity.

Wing Chun expects the practitioner to seize the initiative and steamroll his adversary with rapid attacks. The Wing Chun fighter uses "chain punches" – strings of Defensive Attacks, often thrown as Rapid Strikes – to keep the foe off-balance. Kicks frequently target the legs and tend to be Defensive Attacks as well. The stylist meets the *enemy's* kicks with a Jam. If using Combinations (p. 80), Combination (Karate Punch/Torso + Karate Kick/Leg) is common among stylists. This sometimes follows a parry that drags down the opponent's guard to open him up for the combo; model this as a Counterattack. The fighter continues to attack like this until he stuns or weakens his victim, then uses strikes – likely in combination with a lock – to finish him.

Cinematic Wing Chun stylists are extremely powerful. They can sense enemy attacks using Sensitivity and use their chi to root themselves in place. Their unarmed strikes are especially lethal, aimed at pressure points or vital locations to paralyze or kill.

Wing Chun is widespread. Finding a teacher isn't difficult. Some schools use a formal ranking system of colored sashes; others have no ranking system at all.

Skills: Karate; Shortsword; Wrestling.

Techniques: Arm Lock; Close Combat (Shortsword); Counterattack (Karate or Shortsword); Elbow Strike; Feint (Karate or Shortsword); Jam; Knee Strike; Stamp Kick; Targeted Attack (Karate Kick/Leg).

Cinematic Skills: Blind Fighting; Immovable Stance; Mental Strength; Power Blow; Pressure Points; Pressure Secrets; Sensitivity.

Cinematic Techniques: Dual-Weapon Attack (Shortsword); Dual-Weapon Defense (Karate or Shortsword); Lethal Eye-Poke; Lethal Strike; Pressure-Point Strike.

Perks: Off-Hand Weapon Training (Shortsword); Special Setup (Karate Parry > Arm Lock); Technique Adaptation (Counterattack); Unusual Training (Sensitivity, Only while at least one hand is in physical contact with the opponent).

Optional Traits

Advantages: Ambidexterity; Enhanced Parry (Bare Hands or All); Inner Balance; Language (Cantonese).

Disadvantages: Overconfidence.

Skills: Knife; Savoir-Faire (Dojo); Staff; Two-Handed Sword.

Techniques: Leg Grapple.

Perks: Off-Hand Weapon Training (Knife).

Wrestling

Wrestling, in one form or another, is the world's oldest martial art. Humans (and their ancestors) have wrestled since long before recorded history. Almost every culture – not just those known for their martial arts – has *some* form of wrestling, whether for sport or for combat. This includes Asian countries renowned today for their striking styles, such as China. Below is a *tiny* sampling of important wrestling styles, selected for their utility in ***GURPS*** campaigns in general and ***Martial Arts*** games in particular.

Combat Wrestling

4 points

Combat Wrestling – sometimes known as "all-in fighting" – was a pragmatic combat art. Knights, fencers, and other professional armsmen routinely learned it to supplement their armed skills. It had neither rules nor a sense of fair play. All holds were "legal," and any tactic that could damage, dismay, or disable the enemy was considered good.

Combat Wrestling was common at least as far back as the Middle Ages. It continued well into the Renaissance; indeed, many fencing masters felt obliged to include a section on wrestling techniques in their manuals to demonstrate that their knowledge of fighting was complete. Many such manuals survive today. Their depiction of fighters armed with swords and fencing weapons choking, punching, and tripping one another puts the lie to the modern ideal of the "gentlemanly" fencer.

Stylists learned to reach cautiously and wait for their opponent to make a mistake. They used Wait and Evaluate extensively. Attacks took the form of grapples and strikes calculated to disable the foe quickly: standing grappling techniques such as Arm Lock and Finger Lock; limb wrenches; and incapacitating blows aimed at the eyes, groin, jaw, nose, and neck. Most Combat Wrestling styles assumed a battlefield or a street brawl as the setting, so ground-fighting tactics were rare. The first priority of a fighter on the ground was to *get up!*

The masters emphasized the importance of strength to wrestling, but they also knew that muscle alone wasn't always enough to win a grappling contest. They taught counters against armed assailants and expected students to be able to fight both armed and unarmed. A few even taught techniques for kicking weapons (especially knives) out of an attacker's hand.

Combat Wrestling assumed an armed and often armored adversary, so it emphasized grapples and throws over strikes. Thus, striking techniques weren't as a rule especially advanced. Some masters were dangerous and notable exceptions, however.

Cinematic wrestlers should be strong, although there are period illustrations that show a wrinkled old man cheerfully demolishing his strapping young opponent. Fighters learned the body's vital areas and strikes to target them, which could justify the Pressure Points skill. Many other cinematic feats fit the style. One manual even showed how to parry weapon attacks while seated!

This style, with slight variations, works for no-holds-barred wrestling worldwide – be it in China, the Caucasus, the Middle East, or Sub-Saharan Africa. Historical heroes should have no trouble finding a master in almost *any* place or period.

Skills: Brawling; Judo; Wrestling.
Techniques: Arm Lock; Breakfall; Choke Hold; Disarming (Brawling, Judo, or Wrestling); Elbow Strike; Eye-Gouging; Eye-Rake; Finger Lock; Hammer Fist; Head Lock; Knee Drop; Knee Strike; Neck Snap; Sweep (Judo); Targeted Attack (Brawling Kick/Groin); Targeted Attack (Brawling Punch/Face); Wrench (Limb); Wrench Spine.
Cinematic Skills: Immovable Stance; Mental Strength; Pressure Points.
Cinematic Techniques: Backbreaker; Fighting While Seated (Judo); Pressure-Point Strike.
Perks: Special Exercises (Lifting ST +1).

Optional Traits

Advantages: Combat Reflexes; Fit or Very Fit.
Disadvantages: Bloodlust; Bully; Overconfidence.
Skills: Karate.
Techniques: Elbow Drop; Ground Fighting (Judo or Wrestling); Kicking; Stamp Kick.

Greco-Roman Wrestling

3 points

The sport wrestling we know today traces its origins to the ancient Olympic Games. Modern Greco-Roman Wrestling is a safer, less-extreme version of those early matches. The sport still demands great skill, fortitude, and fitness of its competitors, however.

The rules of sport wrestling put the athletes' safety first, and replace techniques liable to cause actual injury with safer moves. For instance, they allow head locks – but only if the attacker loops one of the defender's arms into the lock, too. This reduces the odds of the lock inflicting neck injury . . . and renders it less effective in combat or a no-holds-barred match. Despite this, collegiate wrestlers *have* successfully made the leap to mixed martial arts and more combative forms of wrestling. In game terms, they simply improve Wrestling from their Wrestling Sport default and add the striking skills necessary to compete.

Greco-Roman wrestlers are highly mobile. If one technique fails, they quickly switch to another. They respond to their rival's movement and reactions, exploiting any opening to go for a pin, lock, or reversal (breaking free of a hold and applying one of their own). Wrestlers use Beats (pp. 100-101) to physically overpower their opponent's guard, and feints – such as weight shifts and fakes – to create offensive opportunities. The art prizes skill over strength, but strong wrestlers have a definite advantage. In a match, competitors receive points for successful techniques, even if they don't force a submission. Bouts are timed, and point totals determine the winner when the time runs out.

Greco-Roman Wrestling is an Olympic sport, practiced worldwide. In the U.S., almost every high school or college has a wrestling team. Thus, it's exceptionally easy to find training. Wrestlers train hard and coaches expect them to be fit and strong. The GM may *require* competitive wrestlers to take the Fit advantage. High ST is also common.

Skills: Games (Wrestling); Wrestling Sport.
Techniques: Arm Lock; Feint (Wrestling Sport); Low Fighting (Wrestling Sport).
Perks: Power Grappling; Special Exercises (Lifting ST +1).

Optional Traits

Secondary Characteristics: Improved FP.
Advantages: Fit or Very Fit.
Disadvantages: Obsession (Make and maintain weight).
Skills: Lifting; Savoir-Faire (Gym); Wrestling.

Submission Wrestling

3 points

Submission Wrestling is a form of modern wrestling similar in character to mixed martial arts, but without striking. The goal is to force the opponent to submit using locks or chokes. Wrestlers score points for throws, positions, and holds. Matches that last the allotted time without a submission are decided on points. A major championship held annually by the Abu Dhabi Combat Club attracts competitive wrestlers worldwide.

Skills: Games (Submission Wrestling); Wrestling.
Techniques: Arm Lock; Choke Hold; Ground Fighting (Wrestling); Leg Lock; Low Fighting (Wrestling); Lower-Body Arm Lock; Lower-Body Leg Lock; Triangle Choke; Trip.
Perks: Power Grappling; Special Exercises (Lifting ST +1); Technique Adaptation (Ground Fighting).

Optional Traits

Advantages: Fit or Very Fit; Hard to Subdue.

Indian Wrestling

4 points

India has a long tradition of wrestling. According to myth, the gods taught the art to a mortal so that he could defeat a demon. Its actual origins are untraceable, as they date to prehistory. Wrestling was common in India from the time of the earliest written records, though, and is still popular today.

Indian wrestlers strive for massive size. The ideal is solid slabs of muscle – not the sheer weight favored by Japan's *sumotori*. The sport depends on submissions and pins, which limits the value of mass for its own sake.

Wrestlers rise as early as 3 a.m. to exercise, and do *dands* ("cat stretch" pushups) and *baithaks* (deep knee bends) to build endurance and strength. They always do these exercises in a 1:2 ratio, and each exercise has its own routine. They spend the whole day alternately wrestling, exercising, and undergoing massages to prepare their muscles for more work. Medieval wrestlers ate meat; modern ones eat great quantities of almonds, milk, and *ghee* (clarified butter) to fuel their activities. Wrestlers are expected to be celibate, patriotic, and stoic.

Like other sport wrestling, Indian Wrestling emphasizes pins and holds. Its trademark tactic is the steady, patient application of technique and pressure to force the opponent to submit. Otherwise, it largely resembles Greco-Roman Wrestling (p. 205) in execution.

Wrestlers traditionally work out with the *gada,* or two-handed mace. They often pose for pictures holding it but rarely learn to fight with it. In a historical or cinematic game, it might see more use as a weapon.

Cinematic Indian wrestlers should be incredibly strong. Like Hindu *yogi,* they might be capable of feats of body control. Their self-denial in terms of sex, food, and luxuries is seen as instrumental in developing internal energy to project during bouts.

Skills: Savoir-Faire (Dojo); Wrestling; Wrestling Sport.

Techniques: Arm Lock; Ground Fighting (Wrestling); Low Fighting (Wrestling).

Cinematic Skills: Body Control; Immovable Stance; Light Walk; Mental Strength; Pressure Points.

Perks: Special Exercises (FP can exceed HT by 50%); Special Exercises (Lifting ST +1).

Optional Traits

Secondary Characteristics: Improved FP.

Advantages: Cultural Familiarity (India); Fit or Very Fit; Inner Balance.

Disadvantages: Overconfidence; Sense of Duty (India); Vows (Celibacy, Vegetarianism).

Skills: Two-Handed Axe/Mace; Two-Handed Axe/Mace Art.

Professional Wrestling

4 points

Professional Wrestling, or "entertainment wrestling," has a worldwide following – from the U.S. to Japan, from Europe to South America. It encompasses everything from amateur "backyard" wrestling to the show-biz world of the professional federations. It's the style of television wrestlers, masked Mexican *luchadors* . . . and super-powered bricks.

Professional Wrestling revolves around spectacular or painful-*looking* techniques. It's an aggressive style, with competitors using grapples, takedowns, and hard strikes to send their opponent to the floor. Committed Attack (Strong) and All-Out Attack (Strong) are exceedingly common for strikes and takedowns!

There's some debate about the real-world effectiveness of Professional Wrestling. It *is* a performance, but many competitors are fit and *strong.* The techniques they exhibit – if performed "for real" – could do tremendous damage. However, "rivals" in the ring are really more like skilled accomplices who practice going along with each other's moves in order to increase the performance value and reduce the odds of injury. It's safe to assume that if a wrestler successfully pulled off one of these techniques in earnest, it would hurt – a lot.

Cinematic wrestlers can perform the art's many stunts *outside* the ring, on unwilling and uncooperative opponents. They're terrifically strong and capable of absorbing massive punishment without flinching (but not without dramatic superficial bleeding!). They should have high ST and HT, and advantages such as Hard to Subdue. Special skills – notably Power Blow, used for massive roundhouse punches and hoisting foes for Backbreakers and Piledrivers – rely not on chi but on "adrenaline surges" or theatrical effort. A high FP score is useful for fueling these skills and for extra effort. Cinematic techniques often *look* quite different from the way they do in other arts; for instance, Springing Attack involves leaning back against the cage or ropes enclosing the ring.

Would-be career wrestlers attend schools that cater to aspiring pros. Some of these gyms also teach actual combat skills, but the potential pro studies the *artistic* techniques necessary for crowd-pleasing wrestling. In addition to the skills required below, wrestlers often learn Stage Combat and Performance to look better in *and* out of the ring.

The GM decides how "realistic" Professional Wrestling is in his campaign. If he wants wrestlers to be more martial artists than performers, he should replace Combat Art skills with combat skills. The techniques below are also merely suggestions.

Pros – cinematic or otherwise – often have named signature moves. These range from useless techniques (p. 95) to everyday ones, even basic kicks and punches, with colorful names. The GM may allow Skill Adaptation perks that let *any* technique default to Wrestling Art; e.g., a "suplex" would be Skill Adaptation (Sacrifice Throw defaults to Wrestling Art). Each move requires its own perk, and because the default is to Wrestling Art, combat use is at -3. Most wrestlers use these as fight-ending "finishing moves."

Skills: Brawling Art; Wrestling Art; Wrestling Sport.

Techniques: Breakfall; Choke Hold; Drop Kick; Elbow Drop; Head Butt; Stamp Kick; Wrench (Limb).

Cinematic Skills: Breaking Blow; Power Blow.

Cinematic Techniques: Backbreaker; Hand Catch; Piledriver; Roll with Blow; Springing Attack (Brawling Art).

Perks: Shtick (Varies); Skill Adaptation (Varies); Special Exercises (DR 1 with Tough Skin); Unusual Training (Roll with Blow, Only on the spring-loaded ring floor or against the ropes).

Optional Traits

Secondary Characteristics: Improved FP and HP.

Advantages: Ally (Tag-team partner); Charisma; Hard to Subdue; High Pain Threshold; Patron (Wrestling organization); Reputation (Good Guy, from fans).

Disadvantages: Fat; Gigantism; Reputation (Bad Guy, from fans); Reputation (Signature move).

Skills: Acrobatics; Brawling; Games (Professional Wrestling); Hobby Skill (Feats of Strength); Performance; Stage Combat; Two-Handed Axe/Mace (for chairs!); Wrestling.

Techniques: Arm Lock; Exotic Hand Strike; Hammer Fist; Head Lock; Neck Snap.

Wushu

6 points

Wushu is the state-sponsored martial art of the People's Republic of China (PRC). In the 1950s, the PRC officially adopted the term "wushu" in place of "kung fu" to refer to *all* armed and unarmed fighting arts. These notes describe a specific style – *also* called "Wushu" – which the central sports committee created from Northern ("long") kung fu, Southern kung fu, T'ai Chi, and weapons training.

The Communist government saw traditional martial arts as reactionary and subversive – they couldn't forget the traditional links between anti-government secret societies and kung fu. The authorities also felt that the martial arts were worthless for modern combat but useful for cultural expression and encouraging fitness. Thus, when the central sports commission created its style, it replaced many combat-useful techniques with attractive moves that had no combat value. "Internal" techniques were eliminated as well, on the basis that they were superstitious and backward-looking.

After the Cultural Revolution ended in 1976, internal techniques started to reappear. At the end of the 1990s, full-contact matches known as *san shou* became increasingly common, giving rise to more combat-useful applications. Although Wushu training still produces mainly athletes and movie stars, some of its practitioners have been genuine fighters.

Wushu favors deep stances, long punches, and high kicks. It borrows some short strikes and tight stances from Southern styles, but they're less common. The art is both acrobatic and attractive, and stresses showy techniques and athleticism over practical applications. Weapons training typically involves blunt weapons and "thunder blades" designed to flash, bend, and make loud noises during demonstrations. Such training is extremely common in Wushu schools, but not required. Most Wushu-trained martial artists *should* learn at least one of the optional weapon skills listed for the style.

Wushu fighters typically use high kicks and multiple strikes. Single-strike techniques are less common than flurries of blows; thus, Rapid Strike and All-Out Attack (Double) are common. Wushu is also *aggressive,* thanks to its emphasis on flashy moves. Stylists routinely throw Jump Kicks and other Committed and All-Out Attacks. They use spinning strikes of all kinds, both when armed and when unarmed.

By design, Wushu eschews martial-arts myth. Nevertheless, thanks to exhibitions of showy techniques – and movies featuring Wushu-trained actors doing *wuxia* and wire stunts – many old legends remain and the style has even acquired a number of *new* ones. Cinematic Wushu practitioners should be able to perform most of the moves seen in kung fu movies, even those claiming to be about Wing Chun, the Shaolin Temple, T'ai Chi, or other arts. Many of the stars of these movies are Wushu stylists, not Shaolin monks or Wing Chun students! Thus, Wushu is ideal for high-powered *wuxia* campaigns.

Wushu is commonly available in the PRC. Schools are less common elsewhere, but a student should be able to find one if he looks hard enough. Some schools that claim to teach another form of kung fu – often Shaolin – teach strongly Wushu-derived styles.

Skills: Acrobatics; Jumping; Karate; Karate Art; Savoir-Faire (Dojo).

Techniques: Acrobatic Stand; Axe Kick; Back Kick; Evade; Exotic Hand Strike; Feint (Karate); Jump Kick; Kicking; Spinning Kick; Spinning Punch; Sweep (Karate).

Cinematic Skills: Breaking Blow; Flying Leap; Mental Strength; Power Blow; Pressure Points; Pressure Secrets.

Cinematic Techniques: Dual-Weapon Attack (Karate); Dual-Weapon Defense (Karate); Fighting While Seated (Karate); Flying Jump Kick; Lethal Kick; Lethal Strike; Pole-Vault Kick; Pressure-Point Strike; Roll with Blow; Springing Attack (Karate); Timed Defense.

Perks: Acrobatic Feints; Technique Adaptation (Spinning Attack); Technique Mastery (Any Spinning Attack); Unusual Training ("Split Kick": Dual-Weapon Attack, Only to kick two adjacent foes).

Optional Traits

Advantages: Cultural Familiarity (China); Fit or Very Fit; Flexibility; Language (Mandarin).

Disadvantages: Delusions; Obsession (Perfect my art).

Skills: Broadsword Art; Judo; Judo Art; Performance; Philosophy (Communism); Shortsword Art; Spear Art; Staff Art; Stage Combat; Two-Handed Flail Art; Whip Art.

Techniques: Dual-Weapon Attack (Shortsword Art); Flying Lunge (Any weapon Art); Sweep (Spear Art, Staff Art, or Two-Handed Flail Art); Whirlwind Attack (Any weapon Art).

Fictional Styles

Fiction is full of imaginary martial arts. Some of these are similar to historical ones, even inspired by them. Others are radically different. In particular, if a world has magic, nonhuman races, or different physical laws, its fighting styles will reflect this. Below are a few examples. For additional notes, see *Designing Techniques for Nonhumans* (p. 95).

Death Fist

11 points

Death Fist is the creation of a secretive guild of master Body Control wizards. It has since spread beyond their hidden mountain stronghold . . . but this hasn't diminished its fearsome reputation for destructive power!

Death Fist assumes that the wizard is fighting multiple and/or armed and armored opponents while unarmed. Some stylists also practice the staff as a means of extending their reach or countering armed foes. Such training is optional, however. The style's core techniques are meant to be effective when the mage lacks or is unable to use his staff.

Against armed foes, the style teaches its practitioners to avoid striking hard armor or having a hand parried by a weapon. Stylists prefer to cast a Melee spell and hold it ready while they Wait or Evaluate. They seek to lure the enemy into striking first so they can retaliate using the Arm Lock or Counterattack technique – plus their charged spell. They learn to commit fully and disguise their line of attack, and often combine Committed Attack (Determined) with Deceptive Attack. They rarely use Defensive Attack, however; they consider it a mark of trepidation and misplaced caution.

Against multiple opponents, stylists learn to grapple one foe and either use him as a shield against the rest or throw him to the ground to even the odds temporarily. Against a single adversary, they use similar tactics but usually favor a throw after unleashing their spell. This buys the time to cast another Melee spell without interruption!

Cinematic Death Fist stylists combine magic and chi abilities in a single, devastating package. They often learn many spells besides the few the style requires. Great Haste and Dexterity are particularly common, as they enhance the wizard's close-combat abilities and make it safer to charge in and use Deathtouch while unarmed.

Death Fist is extremely rare. The only way to get instruction is to join the guild in its secret fortress. The path is heavily trapped and guarded by strange beasts, and stylists roam the approaches looking for interlopers on whom to test their skills. Those who successfully evade these dangers must pass a magical and physical test. Failure means death. The GMs may wish to require an Unusual Background to reflect all of this.

Skills: Judo; Karate; and the spells Clumsiness, Deathtouch, Itch, Pain, Paralyze Limb, Resist Pain, Spasm, and Wither Limb.

Techniques: Arm Lock; Counterattack (Judo or Karate); Jump Kick; Targeted Attack (Judo Grapple/Arm); Targeted Attack (Judo Grapple/Leg).

Cinematic Skills: Body Control; Mental Strength; Pressure Points; Pressure Secrets; Sensitivity.

Cinematic Techniques: Roll with Blow.

Perks: Style Adaptation (Quarterstaff); Technique Adaptation (Counterattack).

Optional Traits

Advantages: Combat Reflexes. Magery 2 is *required* to learn the spells and hence the style; additional Magery is common.

Disadvantages: Bloodlust; Overconfidence; Reputation (Member of a strange cult).

Skills: Acrobatics; Jumping; Staff; Thaumatology.

Dragon-Man Kung Fu

10 points

Dragon-Man Kung Fu is the martial art of a secret order of heroes founded thousands of years ago to fight the Oni. These warriors bested the Oni in a terrible battle, but this merely forced the Oni to turn to stealth and disguise. The Oni use their magical powers to hide among men while they work their evil, their goal being to make the world more like their own by seeding disorder and chaos. To stop them, the acolytes of the Dragon Temple teach heroes their art . . . including the secret of breathing fire! Only flame can destroy an Oni permanently.

In unarmed combat, Dragon-Man Kung Fu disdains ground fighting and wrestling in favor of stylish kicks, hard punches, and stunning throws. Stylists prefer to fight armed, however. The most common weapon of the Green Dragon acolyte (novice) is the sword – usually the *jian* but occasionally the broadsword, *katana,* longsword, or paired butterfly swords. The staff and spear are popular, too. Attacks are often acrobatic and make good use of feints and Deceptive Attack. Against stunned or surprised opponents, practitioners like to shout a loud *kiai* or the name of their technique and launch an All-Out or Committed Attack, typically as a Telegraphic Attack (p. 113). No matter what the situation, Dragon-Man fighters make extensive use of *Acrobatic Movement* (pp. 105-107).

Dragon-Men are noted for twirling their weapon full-circle in a bloody overhead flourish after defeating a foe. Not all acolytes do this – especially if there's immediate danger from another enemy – but it's a signature move of the order. This can be extremely intimidating, especially when accompanied by a loud kiai!

To join the Dragon Temple, a would-be initiate must first find its secret location in the mountains. Next comes a lengthy apprenticeship spent both exercising and studying the order's philosophy and history. Candidates must demonstrate the highest standards of heroism and goodness – although there are rumors of a fallen acolyte who cooperates with (some say *leads*) the Oni.

Dragon-Men advance in rank as they hone their skills and demonstrate their heroism. The Temple has 10 ranks: Third through First Order Green Dragon, Third through First Order Red Dragon, Third through First Order Golden Dragon, and finally Grandmaster of Dragons, reserved for the eldest and wisest of the templars. Acolytes receive ritual tattoos indicating their standing. These start out small and simple, but get progressively more complex at higher ranks.

Stylists can emulate their totem beast in one important respect – they can channel their chi to *breathe fire.* This is a melee attack using the Innate Attack (Breath) skill. See "Breath of Dragon" under *Innate Attack* (p. 45) for details. Damage and point cost depend on rank:

Green Dragon: Burning Attack 1d (Costs Fatigue, 1 FP, -5%; Melee Attack, Reach 1-4, Cannot Parry, -20%) [4]. *4 points.*

Red Dragon: As above, but with Burning Attack 2d. *8 points.*

Golden Dragon: As above, but with Burning Attack 4d. *15 points.*

The GM might also want to let high-ranking acolytes purchase other chi abilities that are uniquely tailored to them.

Dragon-Man Kung Fu is ideal for an anime-inspired fantasy campaign. It *might* suit a secret order in some modern "hidden magic" games, but it works best if the heroes have big eyes, small mouths, and gigantically oversized weapons. Trained by a Master and Code of Honor (Xia) are *required* to learn Dragon-Man Kung Fu. There is *no* realistic version!

Skills: Acrobatics; Breath Control; Innate Attack (Breath); Judo; Karate; Meditation; Philosophy (Dragon Temple); Rapier; and at least *one* of Smallsword, Spear, Staff, or Two-Handed Sword.

Techniques: Acrobatic Stand; Arm Lock; Axe Kick; Back Kick; Jump Kick; Kicking; Spinning Kick; Spinning Punch; Spinning Strike (Any).

Cinematic Skills: Breaking Blow; Flying Leap; Hypnotic Hands; Kiai; Lizard Climb; Mental Strength; Power Blow; Pressure Points; Pressure Secrets.

Cinematic Techniques: Dual-Weapon Attack (Any); Dual-Weapon Defense (Any); Flying Jump Kick; Flying Lunge (Any); Roll with Blow; Timed Defense.

Perks: Acrobatic Feints; Chi Resistance (Any); Form Mastery (Spear); Grip Mastery (Any); Shtick ("Dragon-Man Flourish": +4 to Intimidation on the turn after knocking down or killing a foe); Weapon Adaptation (Broadsword to Rapier); Weapon Adaptation (Shortsword to Smallsword).

Optional Traits

Secondary Characteristics: Improved Basic Speed and FP.

Advantages: Detect (Oni); Enhanced Parry (All); Extra Attack (with Multi-Strike); Fit; Forceful Chi; Higher Purpose (Slay Oni); Reputation (Do-gooder); Weapon Master.

Disadvantages: Distinctive Features (Dragon-Man tattoo); Fanaticism; No Sense of Humor.

Skills: Esoteric Medicine; History (Dragon Temple); Jumping; Stealth; any weapon skills not mentioned above.

Force-Swordsmanship

5 points

Force-Swordsmanship is the art of the superscience force sword (p. B272). In some game worlds, the force sword is the sidearm of the nobility; indeed, tradition or the law might *restrict* it to individuals with Status 2+. Young nobles swagger about with ornate weapons at their hips. They practice with low-powered training blades . . . but the real thing is fashionable for dueling (legal or not). This gives Force-Swordsmanship the character of fencing in 17th- and 18th-century Europe.

In other settings, anybody can *carry* a force sword but few truly know how to use it. Locating an instructor requires the sort of quest found in legends about the traditional martial arts. Unlocking the weapon's secrets takes a lifetime, and the few who master it command respect for their skill, dedication, and power. This imbues the art with a flavor closer that of cinematic kung fu.

The force-swordsman practices both aggressive attacks and careful defenses, for use in two different situations. If his foe lacks a force sword, he attacks strongly, exploiting his weapon's ability to destroy lesser arms when parrying or parried. Against a similar weapon, though, the stylist fights more defensively. He uses parries to stop force-sword strikes (and Parry Missile Weapons and Precognitive Parry to deflect beams and projectiles!) and dodges – especially Acrobatic Dodge – to get out of harm's way and into a better position from which to attack. In either circumstance, the standard grip is two-handed, although practitioners learn to fight one-handed and some wield *two* force swords simultaneously.

Force-swordsmen often attack their enemy's weapon. This is because most ordinary weapons can't resist their blade! This tactic carries over to force sword vs. force sword duels in the form of a Beat (pp. 100-101).

The most advanced students learn grappling techniques, but rarely use them except to counter another fighter's wrestling moves. Against a similarly armed foe, the force sword makes close combat far too dangerous. Against an adversary *without* a force sword, the sword itself is the best option for attack.

Cinematic masters can channel their chi to stun foes with a word, resist great mental pressure, make prodigious leaps, and deflect beam-weapon attacks. Damage from the force sword isn't ST-based, but the GM might let Power Blow double (or even triple!) the weapon's damage. This is usually only possible for force-swordsmen who craft their own force sword in tune with their chi; the GM should probably require Weapon Bond. Damage bonuses for Weapon Master also apply, with the same caveats. Psi powers (pp. B254-257) accompany all of this in some settings, but with power modifiers similar to those in *Chi Powers for Martial Artists* (p. 46).

> *Luke Skywalker: All right, I'll give it a try.*
>
> *Master Yoda: No. Try not. Do or do not. There is no try.*
>
> ***– The Empire Strikes Back***

This style mainly suits space-opera campaigns with lots of superscience. It works best in cinematic games – because to most players, Force-Swordsmanship *without* the ability to parry blaster fire and demolish foes while wearing a helmet with the blast shield down simply isn't Force-Swordsmanship. Similar styles may exist for other "force weapons," such as the force whip.

Skills: Acrobatics; Force Sword; Force Sword Art; Parry Missile Weapons.

Techniques: Feint (Force Sword); Targeted Attack (Force Sword Swing/Arm); Targeted Attack (Force Sword Swing/Leg); Targeted Attack (Force Sword Swing/Neck).

Cinematic Skills: Blind Fighting; Body Control; Flying Leap; Kiai; Mental Strength; Power Blow; Precognitive Parry.

Cinematic Techniques: Dual-Weapon Attack (Force Sword); Dual-Weapon Defense (Force Sword); Whirlwind Attack (Force Sword).

Perks: Acrobatic Feints; Chi Resistance (Any); Grip Mastery (Force Sword); Off-Hand Weapon Training (Force Sword); Special Setup (Power Blow works with Force Sword); Sure-Footed (Slippery); Sure-Footed (Uneven).

Optional Traits

Advantages: Enhanced Dodge; Enhanced Parry (Force Sword); Fit; Forceful Chi; psi Talents; Weapon Master (Force Sword).

Disadvantages: Code of Honor; Sense of Duty (Close friends and companions).

Skills: Armoury (Force Swords); Fast-Draw (Force Sword); Jumping; Karate; Savoir-Faire (Dojo); Wrestling.

Perks: Weapon Bond.

Freefighting

5 points

Freefighting is a martial art for low- and zero-gravity situations. It became popular with long-term space-dwellers during the mid-21st century. It emphasizes taking away weapons (especially those dangerous to sensitive spaceship components) and tying up the opponent quickly with the goal of subduing him. It also includes basic punching and kicking techniques. Stylists often work strikes into combinations with grappling moves, the intent being to stun the target for long enough to get a solid hold.

Freefighting has *many* variations. Some fighters train with knives. Others learn the baton, focusing more on simple strikes than on advanced stickfighting methods. There are also "freefighting" forms of several major martial arts – Bando, Escrima, and Jujutsu being especially popular – and numerous fusion styles.

The style isn't old enough to have much of a body of legend. Popular entertainment frequently depicts its practitioners pulling off spectacular moves, however. Most fiction shows the fighter dodging and weaving with incredible ease – often using showy low-g acrobatics – while tying up the foe with handy cable or cable ties, all the while never losing contact with him.

Truth is often stranger than fiction. The specific style of Freefighting described here has among its students a small, skillful group who live permanently in microgravity and who've replaced their legs with a second pair of arms. These martial artists replace Knee Strike with Elbow Strike.

Skills: Brawling; Free Fall; Judo; Vacc Suit.
Techniques: Arm Lock; Disarming (Judo); Knee Strike.
Cinematic Skills: Blind Fighting; Sensitivity.
Cinematic Techniques: Binding; Roll with Blow.
Perks: Suit Familiarity (Vacc Suit).

Optional Traits

Advantages: 3D Spatial Sense; Enhanced Dodge; Perfect Balance.
Skills: Acrobatics; Climbing; Fast-Draw (Knife or Sword); Jumping; Karate; Knife; Shortsword.

Smasha

4 points

Smasha is an orcish martial art with unknown origins. All of its practitioners show a degree of refined brutality that's disturbing at best. Some can even perform vicious feats beyond the capabilities of any ordinary orc. Fortunately, few orcs have the dedication to take their studies that far; most practitioners are mundane fighters. Only truly remarkable orcs master the full intricacies of Smasha, but almost every tribe includes a few brawler-wrestlers with more skill than the average orc.

Smasha is a *highly* aggressive style. Practitioners always attempt to seize and hold the initiative, and Defensive Attack is unheard of. The few "defensive" moves the style does teach start with Aggressive Parry and follow up with attacks on the injured limb. Stylists use every dirty trick to disorient, damage, and destroy the enemy, and target the eyes, skull, neck, groin, and vitals in preference to all other locations. A fallen victim invites a Stamp Kick or five – the orc using All-Out Attack (Strong) or (Determined) if his prey has no allies nearby!

Cinematic Smasha practitioners are even *more* brutal. They can stun foes with their battle-cries and deliver tremendous blows to vulnerable spots with pinpoint accuracy.

Skills: Boxing; Brawling; Wrestling.
Techniques: Aggressive Parry (Brawling); Arm Lock; Choke Hold; Eye-Gouging; Eye-Poke; Eye-Rake; Head Butt; Kicking; Neck Snap; Stamp Kick; Targeted Attack (Boxing Punch/Neck); Targeted Attack (Boxing Punch/Skull); Targeted Attack (Brawling Kick/Groin); Targeted Attack (Brawling Stamp Kick/Neck); Targeted Attack (Brawling Two-Handed Punch/Neck); Two-Handed Punch.
Cinematic Skills: Kiai; Power Blow; Pressure Points; Pressure Secrets.
Cinematic Techniques: Eye-Pluck; Pressure-Point Strike; Roll with Blow.
Perks: Clinch (Boxing or Brawling); Iron Hands; Neck Control (Boxing or Brawling); Special Exercises (DR 1 with Tough Skin); Special Exercises (Striking ST +1); Technique Adaptation (Aggressive Parry).

Optional Traits

Advantages: Combat Reflexes; High Pain Threshold.
Disadvantages: Bloodlust; Bully; Callous; Overconfidence.
Skills: Acrobatics; Garrote; Holdout; Jumping; Knife; Poisons; Stealth; any other weapon skills.
Techniques: Dual-Weapon Attack (Knife).

Chapter Six

Weapons and Equipment

*Adrian bolted the heavy oaken door behind her. She could already hear the sound of her pursuers' hatchets hacking away at it. She glanced at the remains of her longsword. It could be reforged – **would** be, it was her father's – but it wouldn't help her now.*

As her eyes adjusted to the gloom, she looked around the room: no other doors and the window was a tiny grille. Then she spotted the weapons – aha, a guardroom! Her luck hadn't run out completely.

The dagger would be too light to handle hatchets and falchions. The rusty shortsword was crumbling. And the halberd was far too long for such close quarters. Standing in the corner, though, was a nastily hooked bill, not much taller than Adrian. That would do nicely!

*Grasping the weapon across her body, Adrian turned toward the door, glad that she hadn't spent **all** her time studying swordplay.*

Purely unarmed fighting styles exist, but most traditional martial arts evolved for use in battles or duels involving weapons. Many were intended for *armored* warriors facing similarly clad opponents. These basic realities remain for today's combat styles, but art and sport forms often replace lethal weapons – or *all* weapons – with nonlethal ones, and armor is typically either nonexistent or designed specifically as training equipment.

Traditional or modern, lethal or nonlethal, the hardware used by the practitioners of many styles can be as complex as their tactics. Tomorrow's gear will probably be even *more* elaborate. See ***GURPS Ultra-Tech*** for futuristic equivalents to many items found in this chapter.

Cross-Cultural Encounters

Weapons don't evolve in a vacuum. They're optimized to meet the needs of a particular place and time. A fighter normally trains to use his culture's weapons to confront *probable* threats – meaning armaments common in his region and in nearby areas, especially those favored by enemy cultures. He'll rarely have experience wielding or facing weapons from distant lands and other times, much less those from far-off planets and crosstime! The GM decides how to handle this.

The simplest option is to assume that Melee Weapon skills include the ability to adapt quickly to new tools and threats. Those who know such a skill can use all of the weapons listed for it the ***Basic Set*** and ***Martial Arts*** – even completely alien ones – at no penalty. In armed clashes, the statistics and footnotes on the tables completely parameterize each weapon. To settle unlikely duels (bill vs. three-part staff, katana vs. rapier, etc.), follow the rules as written and ignore the weapons' provenance. For instance, in an affray between a gladius-wielding Roman legionary and a 16th-century rapierist, neither is penalized for lack of knowledge of the other's weapon. Moreover, if our legionary has a large Indian katar (wielded with Shortsword) and our rapierist has a Chinese jian (used with Rapier), neither suffers a penalty for unfamiliarity with his *own* weapon, either.

On the other hand, the detail-oriented GM is free to rule that fighting with an unfamiliar melee weapon gives -2 to skill. See *Familiarity* (p. B169) for details.

If this is true, then it follows that fighting *against* an unusual weapon should also be challenging. This gives -2 to skill whenever a fighter directly engages a weapon that he has neither seen before nor trained against. This penalty doesn't affect attack rolls, but it does penalize Quick Contests (to disarm, feint, etc.) and give -1 to parry the unusual weapon. In most cases, *both* fighters will suffer these penalties, in which case it's best to ignore the effect on Quick Contests (it cancels out) and keep only the -1 to parry.

When using penalties for unfamiliarity, the GM decides which weapons are "familiar" and "unfamiliar" to fighters. He might use Cultural Familiarity (p. B23), boundaries on a map, or fiat. In some worlds, military and civilian weapons, the arms of different social classes, etc., might be mutually unfamiliar. Remember that this is a two-way street! You can declare that you're from an obscure culture so that everybody has -1 to parry your cool ethnic weapons . . . but *you* will have -1 to parry almost everybody else's weapons.

This isn't the same thing as familiarity with your opponent's *fighting style.* For that, see *Style Familiarity* (p. 49).

Weapons

Most martial arts are designed around their home culture's traditional weapons, which evolve as tactics, technology, and threats spur each other on. New armaments that prove to be better than existing ones are eventually adopted, and warriors adapt old techniques to them and invent new fighting styles to exploit their strengths. Of course, martial artists have also been known to employ truly *bizarre* weapons for aesthetic or superstitious reasons. Modern schools frequently teach the strangest of these alongside the most practical of traditional weapons, other cultures' weapons, and modern weapons, leading to hybrids that aren't "traditional" anywhere but at that school!

Balisong

Below is a glossary of melee and muscle-powered melee weapons – traditional and modern, common and unusual, generic and culturally specific. It favors weapons used by martial-arts styles in this book and definitely *isn't* exhaustive. An entry in Small Caps indicates a weapon that appears on the weapon tables on pp. B271-276 or pp. 226-232. The rest are functionally similar enough to one of these weapons that they can use the same statistics, even if they differ radically in appearance. For details, read the entry.

Ahlspiess – *Germany*. A pole weapon that's roughly equal proportions handle and long metal spike, with a rondel (round handguard) where the halves meet. Used primarily for dueling – usually in a Defensive Grip (pp. 109-111). Treat as a Spear (p. B273), but it can't be thrown and is considered a solid-metal (DR 6) sword for breakage; see pp. B483-485.

Arit – *Indonesia*. A Sickle (p. 226).

Atlatl (p. B276) **–** *Aztec*. A stick used to launch javelins. The name is Nahuatl (Aztec), but many similar weapons exist worldwide. The user fits the javelin into a notch and then launches it with a one-handed swing of the stick.

Axe (p. B271) **–** *Universal.* A wedge-shaped blade on a wooden handle, for use in one hand and not balanced for throwing. It comes in many shapes and sizes, such as the Small Axe (p. 226), which is only slightly larger than a Hatchet (p. B271).

Backsword (pp. 226-227) **–** *England*. A single-edged Thrusting Broadsword (p. B271) with a basket hilt.

Bagh-Nakh (illustration, p. 102) – *India*. Also known as "tiger claws," this claw-like weapon is worn on the hand and held with rings for the pinky and thumb. Treat as a Bladed Hand (p. 226).

Balisong (p. 228; illustration, p. 212) – *Philippines*. A tangless folding knife with a pair of hollow handles that pivot forward to sheathe the blade or back to serve as a grip. A modern balisong has metal bearings that let the user flick it open and shut theatrically; see *Fast-Draw* (pp. 56-57). Sometimes called a "butterfly knife."

Bastard Sword (pp. B271, B274) – *Europe*. A sword manageable enough to wield one-handed but with a grip long enough for two hands. A sharp point was standard – use the Thrusting Bastard Sword (pp. B271, B274) in a historical campaign. Often called a "hand-and-a-half sword" after TL4.

Eku

Baton (p. B273) – *Universal.* A short, balanced club, usually wooden or metal. The police version, often in hard plastic, is also called a "nightstick." Some batons are only knife-sized; use the Short Baton (pp. 228, 229) statistics for these.

Bill (p. 229) – *England*. A bladed polearm with a hook on the back that lets the wielder use the Hook technique (p. 74), typically to unseat a horseman. Initially a battlefield weapon, it was sometimes given a shorter haft for individual combat, resulting in the Dueling Bill (pp. 229, 230).

Bisento – *Japan, Okinawa*. A larger, heavier Naginata (pp. B272-274) copied from a Chinese polearm. Use the statistics for a Heavy Horse-Cutter (p. 229).

Blackjack (p. B271) – *Universal.* A small, weighted truncheon made of cloth, rubber, or soft leather, designed to deliver a beating without obvious bruising (Diagnosis-2 to notice the injury on a casual examination). Every culture has its own name: "cosh," "sap," etc.

Bladed Hand (p. 226) – *Exotic.* A set of joined, nearly parallel blades – of close to equal length – worn on the hand and used to claw like an animal. Some are short and knife-like; others are long and rake-like.

Blowpipe (p. B275) – *Universal.* A long, narrow tube that lets the user launch breath-propelled darts. The projectiles are too tiny to be effective against large animals or humans without poison. Also useful for blowing powders into an opponent's face.

Bo – *Japan*. A Quarterstaff (pp. B273-274).

Bokken (pp. 227, 230) – *Japan*. A wooden sword. Usually has a handguard: rubber-and-plastic today, but wood or leather – or absent – on older versions. Also called a "bokuto."

Bola Perdida (pp. 227, 231) – *Argentina.* A rock (or other weight) fastened to a thong. The name is from Argentina but the weapon is universal. Used for throwing – like a one-shot sling that tosses both sling *and* stone – and as a flail. Sometimes called a "bola loca."

Bolas (p. 227, B275) – *Universal*. Two or more weights attached to cords and knotted together. Used by hunters to entangle the legs of animals, but also a serviceable flail. Often called a "boleadora."

Bolo – *Philippines*. A wide-bladed machete. Treat as a Falchion (p. 229).

Boomerang (p. 231) – *Australia*. An angled, more aerodynamic Throwing Stick (p. 225) designed for hunting. Doesn't return; returning versions are unsuitable as weapons and in any event wouldn't return if they hit. The GM may make an exception for martial artists with Throwing Art! Treat as a Baton (p. B273) if used as a club.

Bow (p. B275) – *Universal.* A flexible stave, bent and kept under tension by fastening a string between its ends. This creates a spring that enables the user to shoot arrows by placing them against the string and drawing and releasing it. The Short Bow might be made of little more than a handy bough, although strong ones aren't, and is typical of the earliest bows. The Regular Bow is longer and more powerful. The Longbow – made famous in Wales – is the pinnacle of single-material ("self") bow technology, and at least 6' long. The Composite Bow is made of layers of different materials glued together. This improves strength and compression resistance, giving a regular-sized bow more power than a longbow. The finest longbows, however, are made of yew, the natural properties of which yield a weapon similar to a composite bow; the GM may rule that fine-quality longbows are effectively composite bows.

Bowie Knife – *USA*. A broad, heavy-bladed knife, favored by Savate practitioners. Treat as a Large Knife (pp. B272, B276) or a Long Knife (pp. 228-229), depending on size.

Brass Knuckles (p. B271) – *Universal.* A fist load that covers the knuckles. As likely to be horn, iron, steel, or lead-reinforced leather as brass. The wearer ignores *Hurting Yourself* (p. B379) when punching and gets +1 to punching damage, but also suffers from Bad Grip 3 (p. B123).

Broadsword (p. B271) – *Europe.* A term for what medieval warriors called an "arming sword," coined by 17th-century writers to distinguish robust military swords from narrow-bladed civilian ones. Typically 30" to 40" long. Traditionally *pointed;* use the Thrusting Broadsword (p. B271) statistics.

Butterfly Sword – *China*. A short, wide-bladed chopping sword with a knuckle guard. Treat as a Small Falchion (p. 229).

"And thou pratest like a coward," answered the stranger, "for thou standest there with a good yew bow to shoot at my heart, while I have nought in my hand but a plain blackthorn staff wherewith to meet thee."

– Little John to Robin Hood, ***The Merry Adventures of Robin Hood***

Cane – *Universal.* The walking stick is an accessory of gentlemen worldwide. Treat as a Light Club (p. B271). Many are topped with a crook (adds no cost or weight), which enables the Hook technique (p. 74).

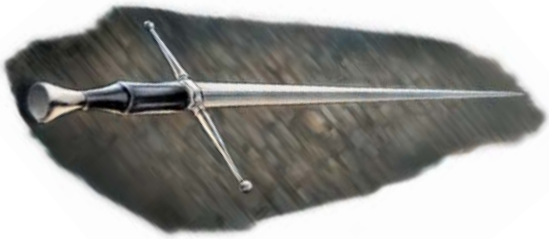
Cavalry Saber (p. B271) **–** *Europe, USA.* A curved sword optimized for one-handed use from horseback. Resembles the fencer's Saber (p. B273) in profile, but is heavier and wielded more like Broadsword (p. B271).

Cestus (p. 226) **–** *Ancient Rome*. A studded or spiked leather hand covering; treat as a gauntlet (DR 4). Elbow-length versions were common: 2× cost and 4× weight. They provide DR 4 to the arm on 1-3 on 1d, and their +1 damage extends to Elbow Strike (p. 71).

Cha – *China.* A Trident (p. 229). See also *Southern-Tiger Fork* (p. 225).

Chain Whip (p. 228; illustration, p. 4) **–** *China*. A whip made of chain or short metal bars (usually seven or nine of them) joined by chain. Used to lash foes and to entangle like a Kusari (p. B272).

Chakram (p. 231; illustration, p. 42) **–** *India*. A metal ring, edged on the outside, that's spun around the finger on the inside rim and thrown.



Estoc

Chiang – *China*. A Spear (pp. B273, B276).

Chigoridani – *Japan*. An odd combination weapon consisting of a chain with a flanged weight on one end and a tasseled cord tied to the other, the chain passing through an iron pipe that serves as a sliding handle. Used two-handed, it's effectively a Kusari (p. B272) that gives -2 to skill but permits a parry with the pipe, improving its Parry from -2U to 0U. Add $20 and 1 lb. to kusari cost and weight. A similar weapon, the *konpei,* has projecting wings on a shorter handle.

Chukonu – *China*. A Repeating Crossbow (p. 231). Also transliterated "zhuge nu."

Combination Weapons

A warrior might want to enjoy the tactical benefits of several specialized melee weapons at once. The obvious solution is to carry a different weapon in each hand, but this isn't practical when using a shield or a two-handed weapon. A workaround is to stick the useful part of one weapon onto another, creating a "combination weapon."

To design a combination weapon, start with a basic melee weapon – commonly a hafted one (one with a pole, like an axe or a staff) – and add the cost and weight of the desired features below. These options add extra attack modes for the wielder to choose from, in addition to the standard choices for his weapon. Such attacks use the weapon's usual skill, except as noted.

Hammer: Any swung, hafted cutting or impaling weapon can have a hammer head behind its striking head. Damage is that of its usual swinging attack, but *crushing. $25; 0.5 lb.*

Hook: Any swung weapon, even a sword, can have a small hook to permit use of the Hook technique (p. 74). Hooking inflicts thrust-2 cutting for a one-handed weapon, thrust-1 for a two-handed one. A hook can be blunt in order to snag victims without causing damage, but this is no cheaper. *$25; neg. weight.*

Kusari, Two-Yard: Any reach 1+ weapon can have a short kusari (weighted chain) attached. Use the statistics on p. B272, except that reach is only 1, 2*. It goes on the head or butt of an impact or pole weapon, or on the pommel of a club or sword (to put it *inside* a metallic baton, jutte, etc., see *Hidden Weapons,* p. 218). The wielder may use his weapon normally *or* swing the chain using the Kusari skill. The weapon becomes two-handed, if it wasn't already; one hand controls the chain at all times. *$40; 2.5 lbs.*

Kusari, Four-Yard: As above, but the kusari is full-sized, with reach 1-4*. *$80; 5 lbs.*

Pick: Any swung, hafted weapon that deals crushing or cutting damage can have a hardened spike at right angles to its haft. Damage is that of its usual swinging attack, but at -1 and *impaling.* Like any pick, it can get stuck; see p. B405. The weapon also gains the benefits of a hook. *$50; 0.5 lb.*

Sickle: Any swung, hafted weapon can have a small sickle head. Damage is equivalent to that of its usual swinging attack, but at -1 and *cutting* or -2 and *impaling.* The weapon also gains the benefits of a hook. *$30; 0.5 lb.*

Spear: Any hafted weapon can add a spearhead that does thrust+2 impaling damage one-handed, thrust+3 impaling two-handed. Thrusting doesn't unready the weapon – even if swinging normally does. *$30; 0.5 lb.*

Apply +1 to the weapon's ST statistic per 1 lb. or fraction thereof added to a one-handed weapon, or per 2 lbs. or fraction thereof added to a two-handed one. Adding a kusari makes the weapon two-handed automatically. For more on ST and weapons, see p. B270.

Example 1: A sickle (p. 223) costs $40, weighs 2 lbs., and requires ST 8. A *kusarigama* is a sickle with a short kusari on its head or butt. A two-yard kusari adds $40 and 2.5 lbs., making final cost and weight $80 and 4.5 lbs. It also turns the combination weapon into a two-handed weapon. Adding 2.5 lbs. of weight to a two-handed weapon results in +2 to ST, making it 10.

Example 2: A scythe (p. B274) costs $15, weighs 5 lbs., and requires ST 11. An *okusarigama* is a scythe with a long kusari attached. A four-yard kusari adds $80 and 5 lbs., raising cost to $95 and weight to 10 lbs. Adding 5 lbs. of weight to a two-handed weapon gives +3 to ST, making it 14.

Chung Bong – *Korea*. A Baton (p. B273) or Short Staff (p. B273).

Cloak (pp. B275, B287) **–** *Europe*. A fighter may wrap part of his cloak around his arm and use it defensively (to block) or offensively (to feint or grapple; see p. B404). The main difference between a Heavy Cloak and a Light Cloak is that the former gives a higher DB and takes a few seconds longer to cut to shreds.

Combat Fan (p. 226) **–** *China, Japan, Korea.* A metal version of the folding fan carried by men and women alike. Folds partially or not at all. Used as a backup weapon and symbol of authority. Called a "tessen" ("iron fan") in Japan.

Crossbow (p. 231, B276) **–** *Asia, Europe.* A bow attached to a grooved stock and fitted with a trigger, used to shoot short, thick arrows called "bolts." Endless varieties exist! For instance, the Composite Crossbow (p. 231) uses a Composite Bow (p. B275), while the Pistol Crossbow (p. B276) is small enough to wield one-handed. The Chinese were fascinated with *concealed* crossbows. Full-sized models were worn on the back and triggered by bowing, while pistol-sized ones were hidden in stirrups and sleeves; see *Hidden Weapons* (p. 218). Related weapons include the Prodd (p. B276) and Repeating Crossbow (p. 231).

Cutlass (p. B273) **–** *Europe.* A short sword favored by sailors, pirates, and *savateurs.* Its substantial hilt encloses the hand, giving DR 4. This is cumulative with glove DR, but the hilt lacks the space to accommodate gloves with DR 3+ (e.g., steel gauntlets).

Daab – *Thailand.* A Shortsword (p. B273). Usually used in pairs.

Dagger (pp. B272, B276) **–** *Universal.* In ***GURPS*** usage, a short, point-only knife. Historically, the term described a *double-edged* knife with a crosspiece and a pommel – a tiny sword. In casual usage, it might instead mean a Rondel Dagger (p. 228), a Stiletto (p. 228), or any knife from Small Knife (pp. B272, B276) to Long Knife (p. 228) size. Proponents of Dagger Fighting (p. 155) favor the larger weapons.

Dai-Kyu – *Japan.* A Composite Bow (p. B275) with the grip one-third of the way up the bow instead of in the center. Used on foot (sometimes while kneeling) and from horseback.

Dan Bong – *Korea*. A Short Baton (pp. 229-229).

Dan Gum – *Korea*. A Large Knife (B272, B276).

Dan Sang Gum – *Korea*. A short, wide-bladed sword. Treat as a Small Falchion (p. 229).

Dao (p. 227) **–** *China*. A heavy-bladed sword with an extra-long handle, used one-handed for chopping and stabbing.

Deer Antlers (p. 228; illustration, p. 92) **–** *China.* Two interlocked, crescent-shaped blades with a handle in the center of one of the blades, creating a four-pointed cutting weapon capable of trapping weapons between its points. Usually used in pairs.

Dhot – *Burma*. A Baton (p. B273).

Discus (p. 231) **–** *Ancient Greece.* A wooden or metal throwing disc. Eclipsed as a weapon of war by bows and spears, but still thrown today by athletes (modern models may be weighted plastic).

Dusack (p. 229) **–** *Germany*. A sturdy wooden Shortsword (p. B273), wielded like the real thing. Also called a "rudis" (ancient Rome) or a "waster" (England).

Eku (p. 229; illustration, p. 213) **–** *Okinawa*. A *large* oar, used as a makeshift polearm.

Épée – *France*. A light, unsharpened thrusting sword intended for sport fencing. Treat as a Smallsword (p. B273), but the blunt tip inflicts thrust-1 *crushing* damage. Modern épées are equipped for electric scoring.

Escrima Stick – *Philippines*. A stick, usually 25" to 35" long, made of rattan for training or hardwood (such as ebony) for fighting. Treat as a Short Staff (p. B273).

Estoc (p. 227; illustration, p. 214) **–** *Europe*. An edgeless thrusting sword with a triangular or diamond cross section, designed to pierce chinks in plate armor. Generally held in a Defensive Grip (pp. 109-111) and used for Committed or All-Out Attacks on a prone victim. The specialized design removes -2 of the penalty for targeting chinks in armor (p. B400). Also called a "tuck."

Falchion (pp. 227, 229; illustration, below) **–** *Universal.* A medieval European term applied loosely to almost any single-edged sword, but most often to one that's flared, heavy, and/or curved forward at the tip, which favors cutting over thrusting. Most ironworking cultures developed such a blade; hunters and soldiers worldwide valued it as a tool (for butchering game, cutting brush, opening coconuts, etc.) and a weapon. Typically shortsword-sized, but the Large Falchion (p. 227) is broadsword-sized.

Falchion

Fei Biao – *China.* See *Flying Dart* (see below).

Fire Wheel – *China*. A form of Slashing Wheel (p. 228).

Flail (p. B274) **–** *Universal.* A two-handed weapon – seen almost anywhere grain flails are used – consisting of iron bars, spiked balls, or similar jagged weights attached to a long haft by a chain or a cord.

Flying Dart – *China*. A throwing blade with a ring handle and a length of cloth as a stabilizer. Treat as a Small Throwing Knife (p. 231) or a Large Throwing Knife (p. 231), depending on size.

Foil – *France*. A whippy sport-fencing "sword" with a button tip. The blade is designed to make precise strikes possible while punishing sloppy technique. Treat as a Dress Smallsword (p. 229), but damage is thrust-2 *crushing.* Modern foils are equipped for electric scoring.

Force Sword (p. B272) **–** *Science Fiction*. A space-opera swashbuckler's energy blade. The ***Basic Set*** version is used one- *or* two-handed – like a Katana (pp. B271, B274) – with the Force Sword skill. A smaller, one-handed model might do 7d(5) burn, have reach 1, cost $6,000, and weigh 1 lb. At the GM's option, it may have a Parry statistic of 0F and use Force Saber (DX/A, defaults to Force Sword-3 or any fencing skill-3).

Weapons of Quality

The weapons in ***Martial Arts*** come in all the usual quality grades, with effects as described in *Melee Weapon Quality* (p. B274) and *Muscle-Powered Ranged Weapon Quality* (p. B277). Those two rules cover *materials* quality: seasoning, temper, etc. They affect breakage for all weapons; sharpness, and hence damage, for blades; and factors that influence range for missile weapons (e.g., elasticity, in the case of bows).

The GM may want to introduce quality grades for *balance,* too. Realistically, this is no less important than materials. For melee weapons, thrown weapons, and ammunition (arrows, bolts, etc.), balance modifies the user's weapon skill for all purposes. For missile weapons, it adjusts Accuracy.

Cheap (Balance): 40% of list price, -1 to skill or Acc.
Good (Balance): List price, no effect on skill or Acc.
Fine (Balance): 5× list price, +1 to skill or Acc.

Sticks – batons, clubs, quarterstaffs, wooden stakes, etc. – and improvised weapons can't have fine balance. All three grades are possible for melee and thrown weapons (besides sticks); for blowpipes, bows, and crossbows; and for arrows and bolts. The +1 for fine balance *is* cumulative with the +1 for Weapon Bond (p. 53) – a weapon can be nicely balanced for anyone but perfect for *you.*

To combine balance with materials quality, use the next rule.

Optional Rule: Custom Quality Levels

The GM may opt to allow attractiveness, balance, and materials to vary independently. Pick the desired features below, add their price modifiers, and apply the final percentage to the weapon's price *after* all other modifications. If this gives a discount larger than -80%, limit it to -80%. "Balance" refers to the previous rule; "materials" describes the quality ratings in the ***Basic Set.***

Cheap (Balance): All weapons: -60%.
Good (Balance): All weapons: +0%.
Fine (Balance): All weapons but sticks and improvised weapons: +400%.

Cheap (Materials): Melee and thrown weapons only: -60% at TL0-6, -80% at TL7+.
Good (Materials): All weapons: +0% at TL0-6, -60% at TL7+.
Fine (Materials): Arrows, bolts, and crushing-only or impaling-only melee or thrown weapons: +200% at TL0-6, +0% at TL7+. Fencing weapons and swords: +300% at TL0-6, +0% at TL7+. Other cutting melee or thrown weapons: +900% at TL0-6, +0% at TL7+. Blowpipes, bows, and crossbows: +300%.
Very Fine (Materials): Fencing weapons and swords only: +1,900% at TL0-6, +300% at TL7+.

Presentation: All weapons: +400% or more. There's no upper limit! Such weapons fetch more when resold. Start with the inflated original purchase price and *halve* any discount or depreciation for a second-hand weapon.

Silver: Solid silver arrows, bolts, or melee or thrown weapons can only be of "good" materials quality, yet break as if cheap: +1,900%. Silver-coated or -edged weapons can be of any quality: +200%. See *Silver Weapons* (p. B275) for rules. While valuable, not all silver is "presentation" quality.

Example 1: Sir Liam, a TL3 knight, wants the ultimate werewolf-slaying sword. He commissions a thrusting broadsword that has fine-quality balance (+1 skill, +400%), very fine-quality materials (-2 breakage, +2 damage, +1,900%), and silver edges (+200%). The total modifier is +2,500%. Applying this to the sword's $600 list price gives a final cost of $15,600!

Example 2: General Schwarz, a TL7 officer, is presented with a dress saber. The blade is almost worthless for fighting, with cheap-quality balance (-1 skill, -60%) *and* materials (+2 breakage, -80%). However, it's of presentation quality – the rubies and gold look great (+400%). The final modifier is +260%. List cost for a saber is $700, so this one costs $2,520. If Schwarz ever sells it, he'll get most of that sum.

Forest Bill – *England*. A Dueling Bill (pp. 229-230).
Fukiya – *Japan*. A Blowpipe (p. B275), favored by ninja.
Fuscina – *Ancient Rome*. A Trident (p. 229). Often used by gladiators in conjunction with a Melee Net (p. B276).
Gada (p. 230; illustration, p. 174) **–** *India*. This giant mace symbolizes strength. Wielded two-handed, it can be swung or gripped near the head to "punch." The listed gada is *small;* the GM may scale up damage bonus, cost, weight, and ST together; e.g., ×1.2 gives sw+6, $120, 18 lbs., ST 19. Reach doesn't change – the head just gets bigger.
Garrote (p. B272) **–** *Universal.* Any length of cord, wire, or rope used to strangle.
Gladius – *Ancient Rome*. A Shortsword (p. B273).
Glaive (p. B272) **–** *Europe.* A polearm consisting of a pointed cleaver on a long haft, which evolved from the Heavy Spear (p. 229) in ancient times. A shorter version – the Dueling Glaive (p. 229) – was used for individual combat in the Middle Ages.
Great Axe (p. B274) **–** *Universal.* A large, two-handed axe, "weaponized" from the woodsman's (or executioner's!) axe.
Greatsword (p. B274) **–** *Europe.* A true two-handed sword. It usually has a sharp tip (a Thrusting Greatsword, p. B274). A typical European greatsword has a *ricasso* ending in two protruding spikes that protect the wielder's hand.
Halberd (p. B272) **–** *Europe*. A heavy polearm with an axe-like head that sports both a back-spike (enables the Hook technique, p. 74) and an axial spike (used like a spear). The battlefield version may be shortened to a Dueling Halberd (pp. 229-230) for individual combat.

Hanbo – *Japan.* Treat this "half-staff" (which is what the name means) as a Jo (pp. 227, 230).

Han-Kyu – *Japan*. Literally, "half-bow" – a Short Bow (p. B275) sometimes modified by ninja to fit in a sleeve.

Harpoon (p. B276) – *Universal.* A barbed hunting spear with a line attached. *Not* an entangling weapon; pulling on the line tends to yank it out (see footnote 8, p. B276). In melee, treat it as a clumsy Heavy Spear (p. 229) with reach 1, 2* and -2 to skill.

Hatchet (pp. B271, B276) – *Universal.* A light, short-hafted axe suitable for throwing.

Hishi – *Japan*. A Dagger (pp. B272, B276).

Hook Sword (pp. 226-227; illustration, p. 73) – *China*. A blunt weapon shaped like an inverted "J," with an edged handguard for punching. The crook enables the Hook technique (p. 74) – and the inside *is* edged, ostensibly for crippling horses! Usually used in pairs.

Horse-Cutter

Horse-Cutter (p. 229; illustration, at right) – *China*. A polearm with a heavy chopping blade similar to that of a Dao (p. 227), intended for use by footmen against horsemen. The Heavy Horse-Cutter (p. 229) is half again the length and mass of the Light Horse-Cutter (pp. 229-230).

Hungamunga (p. 231; illustration, p. 52) – *Sub-Saharan Africa.* A flat "throwing iron" with multiple sharp points – typically between five and eight – and a handle. Most hungamungas require Thrown Weapon (Knife), but the Large Hungamunga (p. 231) uses Thrown Weapon (Axe/Mace). TL2 models are soft iron and may bend on impact. Roll 1d after a throw; on a 1-3, it bends and is useless. Bending it back takes 10 seconds and an Armoury+3 roll. TL3+ steel blades may ignore this rule. Also called a "mongwanga."

Iklwa – *Zulu*. A Short Spear (p. 229) with a long, broad head, unbalanced for throwing.

Jang Bong – *Korea*. A Quarterstaff (pp. B273-274).

Jang Gum – *Korea*. A long, curved sword used in one or two hands. Treat as a Katana (pp. B271, B274).

Javelin (pp. B273, B276) – *Universal.* A slender spear, balanced for throwing but also useful as a light melee weapon.

Ji – *China.* A Halberd (p. B272).

Jian (pp. 227, 229; illustration, p. 69) – *China*. A straight, one-handed sword with a long, narrow blade that's light enough for fencing but strong enough for cutting. A tassel often decorates the handle.

Jitte – *Japan.* A sharp, spearhead-like blade with two side prongs for disarming. Treat as a Sai (pp. 227-228, 231). The name of this weapon and that of the Jutte (below) are occasionally exchanged, or used for both weapons – the result of a shift in transliteration practices.

Jo (pp. 227, 230) – *Japan*. A four- to five-foot stick normally used with two-handed staff techniques.

Jutte (pp. 227-228; illustration, p. 169) – *Japan.* A blunt baton with a single prong for catching parried blades for disarming. Confusingly, some sources swap the name of this weapon and that of the *jitte* (above), or use the same term for both.

Kabutowari – *Japan.* The so-called "helmet breaker" is a curved metal truncheon. Its handle and sheath resemble those of the *wakizashi* (p. 225), letting a non-samurai look as if he's carrying a sword without breaking the law. Some evidence suggests that it was used alongside the *tachi* (p. 225) as a secondary and parrying weapon. Treat as a Baton (p. B273) that's both presentation quality *and* fine quality. It gets +1 to swinging damage and costs $150; other statistics don't change.

Kakute (p. 227) – *Japan.* A ring with small teeth or "horns," used to get a firm grip on an opponent and assail pressure points. A pair – one on the ring finger, one on the thumb – gives +1 to rolls to prevent a grappled foe from breaking free and +1 to Pressure Points skill while grappling, but Bad Grip 1 (p. B123) with weapons. Twisting the rings into position for grappling or out of the way for other tasks takes a Ready maneuver.

Kama – *Japan*. A Sickle (p. 226) with a straight, pointed blade sharpened on the inside edge.

Katana (pp. B271, B274) – *Japan.* A slightly curved, single-edged sword designed for one- or two-handed use. The ***Basic Set*** describes an early Tokugawa-era weapon in transition from the two-handed *nodachi* (p. 221) to a blade short enough to wear thrust through a sash. Use the Late Katana (pp. 227, 230) statistics for later-era katanas, including modern ones.

Katar (pp. 228-229; illustration, p. 62) – *India*. A blade with a perpendicular handle equipped with hand or arm guards, awkward for slashing but ideal for thrusting. Grip mechanics permit the use of armed *or* unarmed combat skills to parry, as with the Tonfa (p. 226). Typically knife-sized, but the Large Katar (p. 229) is shortsword-sized.

Kettukari – *India*. A Quarterstaff (pp. B273-274).

Kittate – *Japan.* A one-piece iron pick with an L-shaped spike on the peen, intended as a portable candle-holder. Stuck in a wall pick-first, with a candle on the spike, it can provide hands-free light. It's also an effective weapon – treat as a Pick (p. B271).

Knife (pp. 228-229, B272, B276) – *Universal.* Any one-handed blade smaller than a sword, built for effective cutting *and* stabbing. Lightest is the Small Knife (pp. B272, B276), which may be balanced well enough to throw. The next size up is the Large Knife (pp. B272, B276), which is often purpose-built for combat but rarely throwable. Largest – at a total length between 15" and 23" – is the Long Knife (pp. 228-229), which is only marginally less substantial than a Shortsword (p. B273) and never throwable. For throwable knives, see Throwing Knife (p. 231).

Hidden Weapons

Martial-arts tales (especially ninja stories) often feature concealed weapons. Normally, warriors who wish to hide weapons use the Holdout skill. The GM rolls in secret for each weapon. The roll is usually unopposed, but against an *alerted* observer it becomes a Quick Contest vs. Observation skill if watched or Search skill if searched. Treat potential foes as "alerted" on any failed uncontested roll. A badly hidden weapon is grounds for suspicion!

For a ranged weapon, Holdout has a penalty equal to Bulk. For a rigid melee weapon, add weight in lbs. (treat "neg." as 0) to *longest* reach in yards (treat "C" as 0), round up, and apply a penalty of that size. For a flexible weapon (kusari, whip, etc.), do the same calculation but use *shortest* reach.

Examples: A dagger is 0.25 lb., rigid, and has longest reach C; 0.25 + 0 = 0.25, which rounds up to give -1. A kusari is 5 lbs., flexible, and has shortest reach 1; 5 + 1 = 6, so the penalty is -6.

The *carrier's* size also matters. If the reach used above exceeds his height in yards (round up), don't bother rolling – the weapon is simply too long to hide. Otherwise, apply his Size Modifier to the roll; a bigger person has more hiding places. There are many ways to get further bonuses.

Urumi

Concealed-Carry Rigs

A rig designed to buckle under clothing is $50 for +1 to Holdout, $200 for +2. It replaces the weapon's usual sheath or cover, so it adds no weight. The bonus applies only for a specific weapon or one just like it. The wearer must use Ready or Fast-Draw to get his weapon. Fast-Draw is at -1 from such rigs (*instead* of the penalty for a concealed weapon under *Fast-Draw from Odd Positions,* pp. 103-104).

Trick Weapons

An alternative to the rigs above is to modify the *weapon,* removing its handle or stock and replacing it with a mechanism for extending it (like a sleeve sword on an armband) or firing it (like a sleeve pistol crossbow). This adds 50% to the weapon's cost. The added mechanism replaces a grip, so there's no effect on weight. This gives +2 to Holdout.

To use a trick weapon, the wearer must be able to work its mechanism. This requires a free hand for a wrist-blade, a bow from the waist for a back-mounted crossbow, etc., and a DX (*not* Fast-Draw) roll. Success readies a melee weapon instantly or fires a missile weapon. Failure means nothing happens; repeated attempts are possible. Critical failure means the weapon falls off, stabs the wearer, or anything else the GM likes. Trick weapons are notoriously finicky!

A strapped-on weapon is *awkward.* Melee weapons give -1 to skill. Missile weapons have Acc 0 and never get Aim bonuses.

Special Clothing

Clothing designed to hide things gives a Holdout bonus for *all* weapons. This is cumulative with the bonus for a rig or a trick weapon. A price equal to cost of living (p. B265) for the wearer's apparent Status purchases an outfit that gives +1. Four times that amount buys +2.

Disguised Weapons

Building a weapon into something obvious *doesn't* involve Holdout. Those looking for it *must* use Search to learn its true function.

A weapon that works "as is" but looks like a harmless item – normally possible only for blunt instruments – costs double. For instance, a *yagyuzue* (p. 225) is a presentation-quality jo, which would normally cost $50. Disguising it as a walking stick doubles that to $100.

A thrusting-only pole weapon can have a cap crafted to let it look and function as stick of the same overall weight until uncapped (a Ready maneuver). Add $30 to cost – $150 if presentation-quality – and 0.5 lb. to weight. A *makhila* (p. 219), for instance, is a presentation-quality javelin. That's usually $150, 2 lbs., but the fancy cap makes it $300, 2.5 lbs. and disguises it as a light club.

A weapon sheathed entirely inside a larger item has its usual weight but costs *triple.* The decoy item has its full weight, too; its cost is normal if fake, tripled if functional (like another weapon). For example, a *kusarijutte* (p. 219) built from a functional jutte ($40, 1 lb.) with a 2-yard kusari ($40, 2.5 lbs.) inside is $240, 3.5 lbs. Blades hidden this way, like sword canes, are thin – quality is a level lower than what's paid for.

Effects of Hidden Weapons

A sudden assault with an *undetected* weapon counts as a surprise attack (p. B393). When one weapon is merely hidden inside another, the target knows a weapon is present. On the turn the hidden weapon pops out, his first defense against it is at -2. In either case, defenses against attacks after the first aren't affected.

Knife-Wheel (p. 228) – *China*. A Slashing Wheel (p. 223) with knife blades protruding from either side. Traditionally used in pairs.

Knobbed Club (p. 226; illustration, p. 154) – *Universal.* A club with an enlarged striking head, such as the knobkerrie.

Kontos – *Ancient Greece*. A Heavy Spear (p. 229).

Kozuka – *Japan*. A Small Knife (pp. B272, B276).

Krabi – *Thailand*. A light, curved sword with a long handle. Treat as a Saber (p. B273).

Kris – *Indonesia*. A wavy-bladed knife of any size, believed by some to possess magical powers. The blade is slotted loosely into the handle, which is usually curved; quality is often *cheap.* Treat as a Small Knife (p. B272), Large Knife (p. B272), or Long Knife (p. 228-229), as appropriate. Not balanced for throwing.

Kukri (p. 228; illustration, p. 255) – *Nepal.* A heavy chopping blade, curved to a 45° angle in the middle. The listed kukri is knife-sized; treat a larger one as a Small Falchion (p. 229) or even a Falchion (p. 229). Modern kukris are often made from truck springs – even fine and very fine examples!

Kusari (p. B272) – *Japan*. A chain weighted at both ends, also called a "kusarifundo" or "manrikigusari" ("ten-thousand-power chain"). It's possible to "snap" a kusari at the foe end-first. Damage becomes *thrust* crushing, but the attack avoids two of the drawbacks on p. B406: it works even in close quarters and has no chance of hitting you in the face on a critical miss.

Kusarigama (p. 228; illustration, p. 124) – *Japan*. A kama (Sickle, p. 226) with a two-yard Kusari (p. B272) attached to the handle's butt. Requires a hand on the handle and a hand on the chain, and counts as a weapon in either hand. The wielder snares the enemy with the kusari using Entangle (p. 71) and then finishes him with the kama. Treat these as normal kusari and kama attacks, but use the first line of kusarigama statistics for the two-yard kusari. Cinematic warriors sometimes swing the kama by the chain, like an edged flail – the second line represents this – but the GM may forbid this in a realistic game. Some versions affix a four-yard kusari to the butt (see *Combination Weapons,* p. 214) or a two-yard kusari *atop* the handle, opposite the blade (permits one-handed use but counts as only one weapon, either a kusari *or* a kama – choose each turn).

Kusarijutte (p. 228) – *Japan.* A Jutte (pp. 227-228) with a two-yard Kusari (p. B272) attached to the handle. One hand goes on the handle, the other on the chain. Use the standard jutte and kusari rules, except that the short kusari uses the statistics listed for the kusarijutte. Some versions hide the kusari *inside* the jutte and release it out the tip of the weapon – see *Combination Weapons* (p. 214) and *Disguised Weapons* (p. 218).

Rapier

Lajatang (p. 229) – *Indonesia*. A polearm with crescent-shaped blades on both ends.

Lance (p. B272) – *Europe.* "Lance" loosely describes any long spear, but the ***Basic Set*** weapon is a heavy spear sturdy enough to deliver the energy of a horseman equipped with stirrups and a high-backed saddle. It usually has a grip and a handguard, unlike an infantry spear. *Tournament* lances are blunt and shatter on impact; see p. B397.

Lariat (p. B276) – *Americas*. A rope that ends in a loop tied with slipknot, traditionally used to capture horses and cattle without injury. For *combat* rules, see p. B411. Also known as a "lasso."

Liangtjat – *Indonesia.* A Wooden Stake (pp. B272, B276).

Life-Preserver (p. 227) – *England*. Slang term for a small truncheon, often one with an attached cord. Use the listed statistics when swinging it by the cord (the "traditional" target is the legs); otherwise, treat as a cheap-quality Blackjack (p. B271).

Monk's Spade

Light Club (p. B271) – *Universal.* Any *balanced* wooden club, whether a dedicated weapon (good quality or better) or a handy branch, table leg, etc. (cheap). A baseball bat isn't a light club but a Knobbed Club (p. 226).

Longsword (p. 227; illustration, p. 4) – *Germany.* A light Thrusting Bastard Sword (pp. B271, B274) designed for two-handed thrusting, often from a Defensive Grip (pp. 109-111). To facilitate this tactic, only the tip-most 6" of the blade was normally sharpened.

Mace (pp. 226, 231, B271, B276) – *Universal.* Any unbalanced, one-handed war club with a massive stone, wooden, or metal crushing head. The smooth-headed Round Mace (pp. 226, 231) is ancient, but modern martial artists still use "melon head hammers" and similar weapons (sometimes even in pairs, in Chinese styles). The standard Mace (pp. B271, B276), with flanges or spikes for bashing through plate armor, is a classic weapon of medieval Europe. Lighter versions – the Small Round Mace (pp. 226, 231) and Small Mace (pp. B271, B276) – are often backup weapons. A thrown mace is a deadly projectile; the attacker lobs it rather than hurling it in a straight line.

Machete – *Universal.* A chopping blade used to harvest fruit and clear brush. Treat as a Kukri (p. 228) or a Falchion (p. 229), depending on size – but it may little resemble either and is often cheap-quality.

Mae Sun-Sawk – *Thailand*. A side-handled club, typically used in pairs. Treat as a Tonfa (p. 226).

Main-Gauche (p. 228) – *France, Italy.* A stiff knife with a large basket hilt and broad crosspiece, designed primarily as a parrying weapon. Used alongside a rapier. Not throwable.

Makhila (illustration, p. 114) – *Basque*. A gorgeous metal-shod cane. The heavy handgrip unscrews to reveal a spearhead. Treat as a Light Club (p. B271) if capped, a Javelin (pp. B273, B276) if uncapped. This presentation-quality disguised weapon costs $300, weighs 2.5 lbs.

Masakari – *Japan*. An Axe (p. B271). Less often, a Great Axe (p. B274).

Maul (p. B274) – *Universal.* A heavy, two-handed hammer.

Unorthodox Attacks

Often in fiction, and occasionally in reality, a warrior will be capable (or crazy!) enough to use a weapon in a way that it was never meant to be used.

One-Handed Two-Handers

As explained on p. B270, a strong enough fighter can wield a two-handed melee weapon – one with "†" or "‡" on its ST statistic – in one hand. When doing so, use the weapon's two-handed statistics but apply a -1 to damage. The skill required to wield it may change:

Two-Handed Use	*One-Handed Use*
Polearm	Axe/Mace or Spear*
Spear	Spear†
Staff	Broadsword
Two-Handed Axe/Mace	Axe/Mace
Two-Handed Flail	Flail
Two-Handed Sword	Broadsword

* Use Axe/Mace to *swing* the polearm, Spear to *thrust* with it.

† Most spears have a "†" next to ST on the second line of statistics – the one marked *"two hands."* Such weapons still use the Spear skill when wielded in one hand, and one-handed performance is given by the first line of statistics, *not* the rules above.

Hurled Melee Weapons

The table below gives the skill used to hurl a weapon not built for throwing. Such an attack has an extra -4 to hit! Damage is the weapon's usual thrusting or swinging damage – consult the "Attack" column to learn which. Those who know Throwing Art may use that skill instead, at *no* penalty, and get its usual damage bonus. In all cases, Acc is 0; Range is ×0.5/×1 for weapons up to 4 lbs., ×0.2/×0.5 for heavier ones; RoF is 1; Shots is T(1); ST is unchanged; and Bulk is the Holdout penalty calculated in *Hidden Weapons* (p. 218).

Throwing Skill	*Melee Weapon Types*	*Attack*
Bolas	Flail, Kusari, Two-Handed Flail	Swing
DX	Swords*	Thrust
Thrown Weapon (Axe/Mace)	Axe/Mace, Two-Handed Axe/Mace	Swing
Thrown Weapon (Disc)	Shield	Thrust
Thrown Weapon (Knife)	Jitte/Sai, Knife, Main-Gauche	Thrust
Thrown Weapon (Spear)	Polearm, Spear, Staff	Thrust
Thrown Weapon (Stick)	Sticks†	Swing

* *Blades* wielded with Broadsword, Rapier, Saber, Shortsword, Smallsword, or Two-Handed Sword, hurled point-first. If the GM permits Thrown Weapon (Sword), use it at no penalty – not DX at -4. Kenjutsu (pp. 173-175) offers this skill.

† *Sticks* wielded with the sword skills listed above use Thrown Weapon (Stick) at -4 and inflict swinging damage.

Mensurschläger (pp. 226-227) – *Germany.* A narrow, blunt-tipped, basket-hilted sword for Schläger (p. 160).

Metsubushi – *Japan.* Ninja and police favor this all-in-one delivery system for powders (usually blinding agents). It consists of a mouthpiece with a removable cap. A tube at the other end contains one dose of powder. It takes only a second to *ready,* but it's too fussy to *reload* in combat. Treat as a Blowpipe (p. B275) that can only shoot powders at one yard – see *Blowpipe* (p. B180) for rules.

Mijin – *Japan*. Three short chains weighted with iron balls, linked to a central ring. Treat as a Bolas (p. 227, B275) for melee combat and throwing. The statistics don't change; metal is denser and pricier than leather and stones, but there's far less of it.

Miséricorde – *France.* Translates as "mercy," either in the sense of "beg for mercy" or the "mercy" shown by finishing a wounded foe. Describes any stabbing-only knife – typically a Dagger (pp. B272, B276), Rondel Dagger (p. 228), or Stiletto (p. 228) – and refers to its use to attack chinks in the armor of fallen knights.

> *It's hard to kill a horse with a flute!*
>
> *– The Blind Man,* ***The Silent Flute***

Monk's Spade (p. 229; illustration, p. 219) – *China*. A polearm with a sharp, spade-like head on one end and a crescent-shaped blade on the other.

Monowire Whip (p. B272) – *Science Fiction*. A weighted monomolecular wire on a short handle. For many special rules, see *Whips* (p. B406).

Morningstar (p. B272) – *Europe*. A one-handed flail consisting of a handle linked to a spiked striking head by a chain. Some sources use the term for a Mace (p. B271) with a spiked striking head.

Muchan – *India.* A Baton (p. B273) that's traditionally wielded in a Defensive Grip (pp. 109-111).

Mutton – *Philippines*. A Baton (p. B273).

Myrmex (p. 226) – *Ancient Greece*. Leather hand wrapping with sharp edges that inflict shallow cuts when punching. Gives DR 1 to the hand – but also Bad Grip 1 (p. B123).

Nagamaki – *Japan*. Fundamentally a Naginata (pp. B272-274), but with a longer blade and a shorter staff.

Naginata (pp. B272-274) – *Japan*. A staff-length polearm with a sword-like head. The sport of Naginatado (p. 187) uses wooden pole with a pliant, leather-tipped bamboo head; damage is swing or thrust *crushing.* All-hardwood training naginata prevent accidental cuts but are as deadly as any staff: swing+2 or thrust+2 crushing.

Nata – *Japan*. A Hatchet (pp. B271, B276).

Neko-De – *Japan*. A Bladed Hand (p. 226) commonly associated with ninja. Used for both climbing and fighting.

Net (p. B276) **–** *Ancient Rome*. A weighted net designed for combat. The Melee Net is a one-handed thrown or melee weapon, used by Roman gladiators in conjunction with the Trident (p. 229). The Large Net requires two hands and is only for throwing, but is also harder to escape from. See p. B411 for rules. A fighter with a net can trail it in front of him to trip foes. The hex containing the net is bad footing. Furthermore, the wielder can try to yank the net out from under the enemy. Roll a Quick Contest of ST. If the user wins, his opponent falls. Otherwise, nothing happens . . . but if his ST roll is a critical failure, *he* falls instead!

Designing the Perfect Weapon

There are several rules for modifying weapons. Use them all if you like! They apply in the following order:

1. Add accessories using *Combination Weapons* (p. 214). Record the new cost and weight.

2. Adjust quality using *Weapons of Quality* (p. 216). Modifiers apply to the total price of combination weapons, using the most expensive applicable type; e.g., a staff with a sickle is "other cutting melee weapons" and not "crushing-only melee weapons."

3. Conceal the weapon using *Hidden Weapons* (p. 218). Cost modifiers apply after changes for accessories and quality. Weight modifiers are cumulative with those for accessories.

Ngao – *Thailand*. A polearm tipped with a fork, spearhead, or long blade. Treat a forked ngao as a Trident (p. 229), a spear-tip ngao as a Spear (p. B273), and a bladed ngao as a Naginata (pp. B272-274).

Ninja-To – *Japan*. Also called a "ninjaken," this is a straight-bladed Shortsword (p. 223) associated with ninja. Reputable historians and hoplologists have found no straight-bladed Japanese swords older than the mid-20th century – but Ninjutsu stylists (see *Ninja and Ninjutsu,* p. 202) claim that the design is almost a thousand years old. In a cinematic game, it has a hollow sheath that works as a Blowpipe (p. B275) and snorkel.

Nodachi – *Japan*. A curved sword similar to the Katana (pp. B271, B274), but longer. Treat as a Thrusting Bastard Sword (pp. B271, B274) or a Thrusting Greatsword (p. B274), depending on size. Longer weapons existed but were strictly ceremonial.

Nunchaku (p. B272) **–** *Okinawa*. Popular fiction wrongly portrays this Okinawan flail as a "ninja weapon." It consists of two lengths of wood linked by a chain or cord, the length of which varies but is usually short. Sometimes wielded in pairs.

Okusarigama – *Japan.* A large Scythe (p. B274) with a full-length Kusari (p. B272) mounted on the head; use *Combination Weapons* (p. 214) to work out statistics. Users often plant the staff on the ground or against the body with one hand (takes a Ready maneuver but lowers the weapon's ST requirement by one) and swing the kusari with the other.

Otta – *India*. An S-shaped club styled to resemble an elephant's tusk, traditionally held in a Defensive Grip (pp. 109-111). Treat as a Knobbed Club (p. 226).

Paku – *Indonesia*. A Wooden Stake (p. B276) used for throwing.

Panthiruchan – *India*. A Quarterstaff (pp. B273-274).

Parang – *Indonesia*. A cleaver- or machete-type sword of Small Falchion (p. 227) to Falchion (p. 229) size.

Partisan – *Europe*. A spear with triangular spikes ("ears") at the base of a broad head. This prevents impaled foes from running themselves through to close with the wielder; see *Holding a Foe at Bay* (p. 106). Otherwise, treat as an unthrowable Spear (p. B273). Also called a "Bohemian ear-spoon."

Pedang – *Indonesia*. A Shortsword (p. B273).

Piau – *Indonesia*. A throwing blade. Treat as a Shuriken (p. B276).

Pick (p. B271) **–** *Europe, Middle East.* A one-handed war club with a beaked head mounted at right angles to the handle. It's designed to penetrate armor; the narrow tip removes -2 of the penalty for targeting chinks in armor (p. B400).

Pikestaff – *England*. The shaft of a long spear or pike, used as a fighting stick. Treat as a Long Staff (p. 230).

Pilum (illustration, p. 222) **–** *Ancient Rome*. Plural is "pila." A throwing spear. Its head has an unhardened iron portion that bends on a hit, preventing the enemy from hurling it back or easily removing it from a shield. If a thrown pilum hits, it becomes useless except as a staff until straightened. Should it strike a *shield,* footnote [4] under the *Muscle-Powered Ranged Weapon Table* (p. 232) applies. In either case, unbending the head requires a free hand and a foot, and takes three Ready maneuvers and a ST roll. Treat as a Spear (pp. B273, B276) in all other respects.

Pisau – *Indonesia*. A Small Knife (pp. B272, B276).

Plong – *Thailand*. A bamboo Quarterstaff (pp. B273-274).

Plumbata (p. 231) **–** *Ancient Rome*. A short javelin or "war dart" with a fletched wooden shaft. Part of the slender metal head is made of lead (*plumbum,* whence the weapon's name) that deforms on impact, fouling shields and making it a one-use weapon.

Parrying Flails

As explained under *Fencing Parries* (p. 221), the inability of the rapier, saber, and smallsword to parry flails (see p. B405) is a consequence of blade design, not weapon skill. Any weapon that works with the Main-Gauche, Rapier, Saber, or Smallsword skill *and* at least one Melee Weapon skill other than those four can parry flails at the usual penalties. This includes the edged rapier (and any other rapier that weighs 3 lbs. or more), jian, jutte, sai, and short staff (which is identical to a baton).

Pollaxe (p. B272) – *Europe*. The ***Basic Set*** calls this a "*pole*axe" and not a "*poll*axe." The error is forgivable for the weapon given there: a large axe head on a long pole – a battlefield polearm. The Dueling Pollaxe (pp. 229-230) is nearly identical but shortened for personal combat. However, "pollaxe" often refers to a far more elaborate dueling polearm with an axe *or* hammer head, a beaked peen, a top spike, a spiked butt, and a metal-reinforced shaft. Use the Dueling Halberd (pp. 229-230) statistics; the only effect of a hammer head is to exchange the swing+4 cutting attack for a swing+4 crushing attack. Purpose-built for Pollaxe Fighting (p. 191) between armored knights, this polearm is optimized for the Defensive Grip (pp. 109-111). Even in games that don't use the Defensive Grip option, the GM should allow it with *this* weapon.

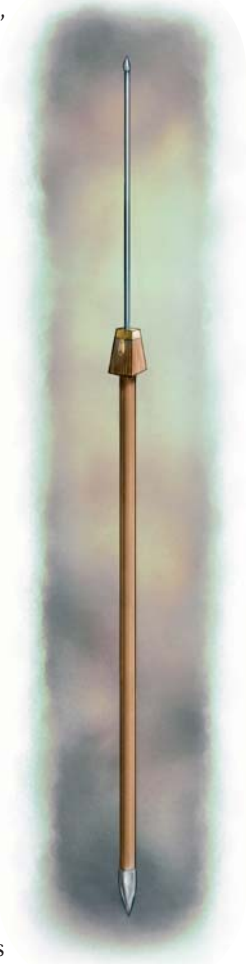
Prodd (p. B276) – *Europe, Middle East*. "Prodd" or "prod" means the bow assembly of any Crossbow (p. B276). It's also the name of a bird-hunting crossbow that launches lead pellets instead of bolts. Furusiyya (pp. 159-161) practitioners use special prodds that lob primitive naphtha grenades. These get Acc 1 and Range –/×5, and can't shoot pellets. See *Molotov Cocktails and Oil Flasks* (p. B411) for the effects of a hit.

Pudao – *China*. See Horse-Cutter (p. 217).

Puñal – *Philippines*. A knife of any size. Treat as a Dagger (pp. B272, B276), Small Knife (pp. B272, B276), Large Knife (pp. B272, B276), or Long Knife (pp. 228-229).

Qian Kun Ri Yue Dao (pp. 226, 230; illustration, p. 56) – *China*. The "heaven and earth, sun and moon sword" is a 4' to 5' metal bar with a sickle-like blade at either end. The wielder holds it across his body with his hands inside a pair of handguards – each with *another* crescent-shaped blade on it. He can cut and thrust with one end, "punch" in close combat, or use both ends at once for a Dual-Weapon Attack against two adjacent foes. Attacks with this complex weapon are at -1.

Quarterstaff (pp. B273-274) – *Universal*. A balanced 5' to 7' wooden pole, wielded two-handed (often in a central grip). It enjoys worldwide praise for its defensive utility and ability to deal combat-winning blows. The GM should allow it to benefit from *Parrying with Two-Handed Weapons* (p. 123), even if he doesn't otherwise use that rule. Soldiers regularly learned staff fighting to ensure that they could defend themselves if their polearm lost its head. A broken polearm uses the statistics for a Long Staff (p. 230) – as does the traditional 8' to 9' medieval European quarterstaff. Drag limits the striking power of a long staff, and it requires a Defensive Grip (pp. 109-111) to be useful at close range.



Pilum

Rapier (pp. 227, 229, B273; illustration, p. 219) – *Europe*. A long, one-handed sword with a stiff, narrow blade built for stabbing (but not for parrying – rapierists often carried a secondary weapon or a cloak for defense). Despite modern misconceptions, the rapier *isn't* flimsy or fragile; it's simply longer and thinner than a military cut-and-thrust sword of similar weight, as befits a civilian weapon designed to combat lightly armored foes. There are many variations. The Light Rapier (p. 229) is a later-era weapon well on its way to becoming a Smallsword (p. B273). In the other direction, there were longer rapiers calculated to give a tactical edge in a duel. Historically, the rapier "arms race" led to lengths so extreme that London had a law restricting length, enforced by snapping off the excess! Such blades aren't practical for adventurers. Early rapiers generally had sharp edges and enough weight for cutting, and later blades sometimes emulated this. These are the Edged Rapier (p. 229) and Light Edged Rapier (p. 229), respectively.

Repeating Crossbow (p. 231; illustration, p. 97) – *Asia*. A Crossbow (p. B276) that's first loaded (from a gravity-fed "magazine") and cocked, and then fired, by pushing and pulling a lever. It has no separate trigger and can't be carried cocked. The shooter must take a Ready maneuver immediately before each shot, but can shoot every other second.

Ring Sword – *China*. A Large Falchion (p. 227) decorated with rings on the back edge.

Rochin – *Japan*. A Short Spear (p. 229).

Rokushaku Kama – *Okinawa*. A kama (Sickle, p. 226)-Quarterstaff (pp. B273-274) combination. See *Combination Weapons* (p. 214).

Rokushakubo – *Okinawa*. A Quarterstaff (pp. B273-274), tapered at the ends.

Rondel Dagger (p. 228; illustration, p. 11) – *Europe*. A heavy dagger with broad discs as its pommel and handguard. The pommel design lets the user drive a blow home with the other hand, erasing -2 of the penalty for targeting chinks in armor (p. B400). If the wielder is wearing gauntlets (any gloves with DR 4+), the discs lock the weapon in place point-down: the wielder *must* use a Reversed Grip (pp. 111-112) but gets +2 to resist disarming.

Rope Dart (p. 229; illustration, p. 233) – *China*. A small metal throwing spike on the end of a rope. This lets the user retrieve the projectile after hurling it. The dart is smooth and bullet-shaped – not barbed – and can't snag and reel in the *target*. Light, ranged, and retrievable, the rope dart is a useful backup weapon for cavalry.

Saber (p. B273) – *Europe*. A light, one-handed cut-and-thrust sword built for fencing.

Sai (pp. 227-228, 231; illustration, p. 133) – *Okinawa*. A three-tined metal truncheon with a long central spike and a pair of short side prongs. Most often both side prongs point forward, but sometimes one is reversed (no game effect). Historical weapons had *sharp* points, but

improvised and modern ones might be blunt. Similar weapons exist throughout Asia; several predate the sai.

San Jie Gun – *China*. See Three-Part Staff (p. 225).

Sang-Jyel-Bong – *Korea*. A Nunchaku (p. B272).

Sap Glove (p. 226) **–** *Universal*. A soft leather glove with steel shot or lead powder sewn into it to increase punching power. Gives the hand DR 2 and Bad Grip 1 (p. B123).

Scimitar – *Asia*. A blanket term for a curved, one-handed slashing sword from Eastern Europe, Turkey, the Middle East, or South Asia, such as the *kiljic* (Ottoman Empire), *podang* (Indonesia), *shamshir* (Persia), *shasqa* (Russia), or *talwar* (India). A light one is a Shortsword (p. B273); a heavier one is a Cavalry Saber (p. B271) if steeply curved, a Thrusting Broadsword (p. B271) otherwise. A curved *chopping* sword, also common in these parts, is a Falchion (p. 229) or a Large Falchion (p. 227).

Scythe (p. B274) **–** *Universal.* A *big* sickle, used to harvest grain. Rarely a dedicated weapon – but a weaponized scythe forms the basis of the *okusarigama* (p. 221).

Segu – *Indonesia*. A slender metal Baton (p. B273).

Sheng Biao – *China*. See Rope Dart (p. 222).

Shield (pp. B273, B287) **–** *Universal.* Shields of all sizes appear worldwide. Some are designed for offense. A spiked boss (p. B273) adds $20 and 5 lbs. A sharpened edge – just a portion, for the bearer's safety! – is an option for any *metal* shield. This adds no cost or weight, and inflicts swing-2 cutting damage. Light shields can have one or two knives attached to the grip (like the Indian *madu*), making knife attacks an option for the shield hand without sacrificing blocking – although Knife and Shield skills are at -1. Add the cost and weight of the chosen knives.

Short Staff (p. B273) **–** *Universal.* A balanced stick, between 25" and 36" long, made of rattan (often fire-hardened) for training, hardwood for fighting. Often used in pairs.

Shortsword (p. B273) **–** *Universal.* A one-handed cut-and-thrust sword between 18" and 24" long.

Shuriken (p. 226, B276; illustration, p. 84) **–** *Japan*. An entire class of metal throwing weapons – small enough to conceal in clothing or hair – hurled with a flick of the hand or a snap of the wrist. Historically, they were samurai weapons as much as "ninja weapons." The best-known are *star shuriken,* which are disc-, cross-, or star-shaped, with sharp edges or spikes. Most have three to nine points, with four or eight being usual. A few are S-shaped. Any might have holes cut in them to make a distinctive sound in flight – as a psychological ploy, for signaling, or merely to show off. *Spike shuriken* resemble needles. Sharp at one end, the other end may be blunt, sharp, or have a fin-like tail. All shuriken use the statistics on p. B276, but alter damage to thrust-2 impaling for spike shuriken. It's possible to claw with a shuriken held in the hand; see the *Melee Weapon Table* (p. 226, 230). Cinematic ninja sometimes do this with shuriken held in the toes, which requires a perk equivalent to Capoeira's Razor Kicks (p. 154) and uses identical rules.

Siangkam – *Indonesia*. An arrow-like metal dagger used in one hand (often one in *each* hand). Treat as a Small Knife (p. B272) that's only capable of thrusting attacks.

Sickle (p. 226) **–** *Universal.* A weaponized farmer's tool. The blade on a weapon-quality sickle is usually straight, not crescent-shaped. This allows hooking and swung impaling attacks.

Slashing Wheel (p. 228) **–** *China*. A semicircular blade, sometimes toothed, gripped by a crossbar and used to cut opponents. Often used in pairs.

Sleeve Sword – *China*. A spring-loaded Shortsword (p. B273) attached to the arm. See *Trick Weapons* (p. 218) for rules.

Silly Weapons

Realistic "martial-arts weapons" can be inefficient, overly complex, and/or hopelessly specialized. Cinematic ones are often all of those things and *silly,* too! They're still terrifyingly effective in their native setting, though. Below are some fictional examples. Cost, weight, and other details are deliberately left vague. Such factors seem quite irrelevant to the cinematic schoolgirls and old men who wield these weapons.

Buzzsaw Ball-and-Chain: This schoolyard classic combines the benefits of a heavy kusari and a giant morningstar! Now with spring-loaded saw blades in the ball. (The chain strikes with Kusari skill for thrust+3 crushing. The ball uses Two-Handed Flail skill for swing+4 crushing. Popping the blades takes a Ready maneuver but makes damage *cutting.* Reach 1-4*.)

Decapitating Hood: There's nothing quite like a chain that ends in a metal bell full of *whirling blades.* Catch your enemy's head in it to decapitate him. Fling the severed head at his friends to send an unmistakable message. True masters will want two! (Decapitating Hood is a unique DX/Very Hard skill. Roll at -5 to drop the bell over an opponent's head. It inflicts 5d cutting damage per second to the neck until the victim dies of decapitation. Expelling the head gives +5 to Intimidation. Ejecting a head or readying the weapon after a throw requires a Ready maneuver. Reach 1-10.)

Doom Pincers: What's better than a heavy gauntlet fitted with razor-sharp shears? One with a *powerful clockwork engine,* of course! (The blades can strike as a regular shortsword or grapple at -2 to grappling skill. Grappled foes take 2d cutting damage per second to the grappled body part. Reach C, 1.)

Sword-Chuks: Two swords linked pommel-to-pommel with a chain let you use slick nunchaku moves to slice and dice enemies. Yes, these are *full-length* swords – and that means superior reach! (Treat exactly as a nunchaku except that damage is *cutting* and reach is 1, 2.)

Whip-Blade: This sword is actually *five* blades linked end-to-end by a chain. A clever mechanism hidden in the handle lets you pull the sections together into a chopping blade or loosen them to create a deadly metal whip. (Functions as a regular falchion, wielded with the Shortsword skill, or as a two-yard whip that inflicts *cutting* damage, which uses the Whip skill. Changing modes requires a Ready maneuver.)

Improvised Weapons

A real weapon is preferable to an improvised one – but an improvised one is much better than nothing. Below are some everyday items that can stand in for real weapons at skill and/or damage penalties. The skills or techniques needed appear in brackets. The Improvised Weapons perk (p. 50) for a skill allows you to ignore penalties to that skill but not to damage.

Treat an improvised weapon as *cheap* for all purposes. If it uses an unarmed skill or technique, the user can still parry with his hand. If it uses a weapon skill, it *can't* parry unless specifically noted. Glass objects break on 1-3 on 1d on any strike or parry; on a 1, you also suffer thrust cutting damage to the hand.

Barbell: Swing as maul at full damage [Two-Handed Axe/Mace-2]. Can parry.

Belt: Choke as rope garrote at -1 damage [Garrote-1]. Strike with buckle as life-preserver at -1 damage [Flail-1]. Strike or entangle as one-yard whip at -1 damage [Whip-2].

Bootlaces: Choke as rope garrote at -1 damage [Garrote-2].

Bottle, Broken: Strike as small knife at full damage but armor divisor (0.5) [Knife-2].

Bottle, Intact: Strike as knobbed club at -2 damage [Axe/Mace-2]. If it breaks, treat as "Bottle, Broken." Can parry.

Bra: Choke as rope garrote at -1 damage [Garrote-2]. Underwire can rake at +1 "damage" [Eye-Rake-1].

Car Antenna: Swing as baton or short staff at -2 damage [Shortsword-1 or Smallsword-1] – or at *full* damage with a bunch [Shortsword-2 or Smallsword-2]. Can parry.

Chain, Unweighted: Strike as kusari at -1 damage [Kusari-1] or entangle as kusari [Kusari-4]. Cheap chain is $6 and 2 lbs. per yard.

Chopstick: Punch as yawara [Hammer Fist-1].*

Comb or Brush: Punch as yawara [Hammer Fist-1].*

Credit Card: Cut with edge for swing-4 cut, maximum 1d-4 [Brawling-4, Karate-4, or Knife-4].*

Curtain Rod: Strike as jo at full damage if solid, -2 damage if hollow [Broadsword-1, Staff-1, or Two-Handed Sword-1]. Can parry.

Dental Floss, Entire Braided Spool: Choke as *wire* garrote at -2 damage [Garrote-3].

Dumbbell: Swing as small mace at full damage [Axe/Mace-1]. Can parry.

Earring Posts, Pins, etc.: Rake at +1 "damage" [Eye-Rake-1].*

Eyeglasses: Rake at +1 "damage" [Eye-Rake-1], automatically ruining them as eyeglasses.*

Ice Scraper: Swing as small knife at -2 damage [Knife-1].

Keys: Rake at +1 "damage" [Eye-Rake-1].*

Magazine, Tightly Rolled: Thrust (*not* swing) as baton at full damage [Shortsword-1]. Can parry.

Nail Clippers: Stab as dagger at -3 damage [Knife-2]. Rake at +1 "damage" [Eye-Rake-1].*

Pen or Pencil: Stab as dagger at -2 damage (-1 for a *huge* pen) [Knife-1].

Purse, Clutched: Use for two-handed punch [Two-Handed Punch-2]. Doesn't affect damage but eliminates extra risk of hand injury.

Purse, Swung on Strap: Strike as life-preserver at -1 damage [Flail-1].

Rim of Bottle, Can, or Glass: Punch as yawara [Hammer Fist-1].*

Ruler, Steel: Strike as one-yard urumi at -2 damage [Whip-2]. Too whippy to use with Knife skill!

Scarf: Choke as rope garrote at full damage [Garrote-1]. Knotting something heavy into an end creates a weighted scarf that strikes at full damage [Flail-1].

Scissors: Stab as dagger at -1 damage [Knife-1].

Shank or Shiv: A sharpened spoon, toothbrush handle, etc., made by prison inmates. Stab as dagger at -1 damage [Knife-1].

Stiletto Heel: In hand, swing for swing-4 imp, maximum 1d-4 [Axe/Mace-4]. Worn, stamp at +1 damage [Stamp Kick-2].

* Warriors who know Pressure Secrets (p. B215) may use this item to punch at no penalty beyond the standard -2 for that skill. This gives +1 on the ensuing Pressure Secrets roll. An item that counts as brass knuckles or a yawara gives its usual +1 to damage. An item with an edge, like a credit card, can deal *cutting* damage instead of impaling damage, if the attacker prefers.

Sling (p. B276) – *Universal.* A thong or cord with a pouch or cup for a missile. The wielder loads the pouch, grasps both ends of the cord in one hand, whirls the loaded sling overhead (horizontally) or next to him (vertically), and releases one end to launch the projectile. Attaching a sling to a stick wielded in two hands improves leverage, thereby increasing power and range; this is the Staff Sling. Either type of sling can lob stones or lead bullets – or even primitive Molotov cocktails (see *Molotov Cocktails and Oil Flasks,* p. B411), at Acc 0 and 40% normal range.

Smallsword (p. B273) – *France*. This one-handed thrusting sword is speedy on attack *and* defense, but its light weight and short reach are serious liabilities. The Dress Smallsword (p. 229) is even lighter and shorter, but can pass as a fashion accessory.

Sodegarami (p. 230; illustration, p. 64) – *Japan.* A metal-reinforced staff with barbs along its length and a barbed head that's either forked or T-shaped. The design is intended to snag clothing, and the standard attack with this weapon is the Hook technique (p. 74). The similar *sasumata* ends in a wide, blunt fork intended to enclose the opponent's torso. Use the same statistics but remove the thrust+2 crushing attack. However, the wielder can shove (p. B372) a standing foe using the Staff skill, or pin (p. B370) him if he's prone or against a wall – both at reach 1, 2. *Modern* sasumata lack barbs; hooking inflicts no damage.

Southern-Tiger Fork – *China*. A Trident (p. 229).

Spear (p. 196, B273, B276) **–** *Universal.* A pole with a pointed stabbing head, prized for its versatility: long, useful in one hand or two, often throwable, and uniformly deadly. Many variants sacrifice some flexibility for special-purpose effectiveness. The Short Spear (p. 229) – short, one-handed, and unthrowable – is a poor man's stabbing sword. The Long Spear (p. B273) is exclusively a melee weapon, employed with or without a shield for formation fighting. The Heavy Spear (p. 229) is similar, but has an extra-wide head for disemboweling; it's so massive that it *requires* two hands.

Stiletto (p. 228; illustration, p. 31) **–** *Italy*. A thin, stiff dagger that can slip between the links of mail and into the joints of plate armor. The narrow blade removes -2 of the penalty for targeting chinks in armor (p. B400).

Straight Razor (p. 228) **–** *Universal.* A man's folding razor, used to slash. It can't stab or parry. See *Capoeira* (pp. 153-154) for rules for kicking with a razor held in the toes; this gives reach 1 and +1 damage. Fine- and/or presentation-quality blades are common.

Sykes-Fairbairn Commando Knife – *England*. A famous knife used in Fairbairn Close Combat Training (pp. 182-183). The broad, double-edged blade is, at its base, wider than the handle. Balanced for melee *and* throwing. Treat as a Large Knife (pp. B272, B276).

Tachi – *Japan*. Treat this cavalry sword as a Cavalry Saber (p. B271) or a Katana (pp. B271, B274), depending on size. The main difference from the katana is that it's slung, not thrust through a sash.

Tactical Flashlight – *USA.* A shock-resistant flashlight designed for use as a Baton (p. B273) is $100, 1 lb.; a tough add-on light for an existing baton is $80. A smaller light with a reinforced or toothed lens rim counts as a *yawara* (p. 226), and is $100, 0.25 lb.

Tanto – *Japan*. A chisel-pointed Large Knife (p. B272).

Tapado – *Philippines*. A stick equivalent to a Jo (pp. 227, 230), used with moves similar to Jojutsu (p. 192).

Tekko – *Japan, Okinawa.* This variation on Brass Knuckles (p. B271) generally consists of a handle or thumb and pinky rings supporting a "knuckle" of metal.

Tetsubo (p. 230; illustration, p. 61) **–** *Japan*. The name means "iron staff," but it's actually a two-handed *wooden* club with an iron-studded cap. Usually used in a Defensive Grip (pp. 109-111).

Three-Part Staff (p. 230; illustration, p. 9) **–** *China*. Three short staffs linked by rope or chain, used two-handed – traditionally with a Defensive Grip (pp. 109-111). The wielder can grasp it at one end and swing it as an extra-long flail, or employ both ends like clubs or nunchaku for a Dual-Weapon Attack on adjacent foes. A difficult weapon; all attacks are at -1.

Throwing Axe (pp. B271, B276) **–** *Europe.* An Axe (p. B271) balanced for throwing. It comes in many varieties. The Small Throwing Axe (pp. 226, 231) is halfway between a full-sized axe and a Hatchet (pp. B271, B276) in size. Cruciform throwing axes (and hatchets) that lack proper handles give -2 to skill as melee weapons but cost $10 less.

Throwing Knife (p. 231) **–** *Universal.* True throwing knives rarely have a handguard, often lack a substantial handle, and are balanced for hurling, not fighting. This gives -2 to skill in melee combat. Like all knives, they come in many sizes; the Large Throwing Knife and Small Throwing Knife are typical.

Throwing Stick (p. 231) **–** *Universal.* Any heavy stick balanced enough to throw.

Timbe – *Okinawa*. A buckler-style light Shield (pp. B273, B287) used to strike and block.

Tobiguchi – *Japan.* The weaponized version of a short-bladed fire hook. Treat as an unthrowable Hatchet (p. B271) capable of the Hook technique (p. 74).

Tomahawk – *American Indian.* A Hatchet (pp. B271, B276), Small Axe (p. 226), or Small Throwing Axe (p. 226), depending on size and balance. Often sports a back spike (pick); see *Combination Weapons* (p. 231).

Tonfa (p. 226; illustration, p. 89) **–** *Okinawa*. A side-handled Baton (p. B273), often used in pairs. Held in a Reversed Grip (pp. 111-112) to aid Karate parries and enhance punches, or quickly spun to strike as a club.

Tongkat – *Indonesia*. A Short Staff (p. B273).

Toya – *Indonesia*. A Quarterstaff (pp. B273-274).

Trident (p. 229) **–** *Ancient Rome*. A three-tined fork based on a fishing spear, used with a Net (p. B276) by gladiators. Multiple tines make it tip-heavy (-2 to hit) and easy to intercept (+1 to target's Block or Parry), and distribute the force of impact (armor divisor (0.5)), but are tricky to evade (-1 to enemy's Dodge).

Truncheon – *Universal.* A generic term for a club of Blackjack (p. B271) to Baton (p. B273) size.

Tuja – *Okinawa*. A small fishing trident, used one-handed. Treat as a Sai (pp. 227-228, 231) with a (0.5) armor divisor.

Uchine – *Japan.* A throwing arrow. Treat as a Plumbata (p. 221).

Urumi (p. 230; illustration, p. 218) **–** *India.* A one-handed sword with a long, flexible blade, used to whip the target. Cutting damage assumes that one or both edges are sharp. Blunt urumi exist; these can only make crushing attacks. Sharpness doesn't affect cost or weight.

Wakizashi – *Japan.* This curved Shortsword (p. B273) is the traditional partner of the Katana (pp. B271, B274).

War Fork – *Europe.* A Trident (see above).

Warhammer (p. B274) **–** *Europe.* A long, two-handed Pick (p. B271). Often given a heavy hammer behind the spike (see *Combination Weapons,* p. 214).

Weighted Scarf (p. 227) **–** *India.* A scarf with a weight in one or both ends. Famously used as a Garrote (p. B272) by the Thuggee cult, but also a serviceable light flail.

Whip (p. B274) **–** *Universal.* A length of braided leather that allows the wielder to deliver lashes or use the Entangle technique (p. 71). At 2 lbs. per yard (footnote 12, p. B274), the whip is weighted and studded. Those interested primarily in entangling can use a lighter whip that inflicts swing-5 and weighs 0.5 lb. per yard. ST is 3, +1 per yard. Other statistics (including cost) don't change.

Wooden Stake (pp. B272, B276) **–** *Universal.* A pointed stick. Better than nothing.

Yagyuzue – *Japan*. A walking stick made by carefully fitting bamboo segments around a flanged steel rod, encasing this composite core in papier-mâché, and then lacquering the whole thing. This yields a beautiful hidden weapon. Treat it as a Jo (pp. 227, 230) with +1 to swinging damage. Its painstaking construction makes it presentation quality *and* fine quality. Cost – if available at all – is $100. Other statistics don't change.

Yari – *Japan*. A Spear (pp. B273, B276). May have an L-shaped head to facilitate the Disarming (p. 70) and Hook (p. 74) techniques; this adds $10 and 0.5 lb. Such spears aren't throwable.

Yarinage – *Japan*. A Javelin (pp. B273, B276).

Yawara – *Japan*. A short stick held in the fist with its ends protruding, used as a fist load and a lever. Cost and weight are as Brass Knuckles (p. B271). Gives +1 to damage with the Hammer Fist technique (p. 74) and +1 to follow-up rolls with Judo holds and locks (to injure, prevent escape, etc.). The similar *dokko, kubotan,* and *tenouchi* use identical rules.

Yumi – *Japan*. A Bow (p. B275), most often a *dai-kyu* (p. 215).

Zweihänder – *Germany*. A Thrusting Greatsword (p. B274) with a *ricasso* to facilitate a Defensive Grip (pp. 109-111).

Melee Weapon Table

Each melee weapon in the table below appears once per skill that can be used to wield it. Weapons capable of several different attacks get one line per basic attack. In all cases, "–" means the statistic doesn't apply, "var." means the value varies, and "spec." indicates that special rules apply; see the footnotes. Other terms and notation are as defined in *Weapon Statistics* (pp. B268-271). For quick reference:

TL: The tech level at which the weapon became widespread in the real world.

Weapon: The name of the specific weapon if it's unique to a particular culture, or of the *class* of weapon if it's used in many places (see the appropriate entry on pp. 212-226).

Damage: The ST-based damage that the weapon inflicts. Weapons that are poor at penetrating armor have an armor divisor of (0.5), which multiplies DR by 2.

Reach: The weapon's reach, in yards. "C" indicates a weapon for close combat (see p. B391). A weapon with multiple reaches (e.g., "1, 2") can strike at any of those reaches – but an asterisk (*) means that changing reach requires a Ready maneuver.

Parry: The modifier to parry when using the weapon with the indicated skill. "F" means the weapon is a fencing weapon (see p. B404). "U" means it's unbalanced and can't parry on the turn it attacks. "No" means it *can't* parry!

Cost: The price of a new weapon, in $.

Weight: The weapon's weight, in lbs.

ST: The minimum ST needed to wield the weapon properly; fighters with lower ST suffer -1 to skill per point of ST deficit. Effective ST for damage purposes can't exceed triple the listed ST. "†" means the weapon requires two hands; "‡" means it requires two hands and becomes *unready* after an attack unless you have at least 1.5 times the listed ST.

Notes: Any special notes, including applicable footnotes at the end of the table.

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
AXE/MACE (DX-5, Flail-4, or Two-Handed Axe/Mace-3)								
0	Knobbed Club	sw+1 cr	1	0	$20	2	8	
0	Round Mace	sw+2 cr	1	0U	$35	5	12	[1]
0	Small Axe	sw+1 cut	1	0U	$45	3	10	
0	Small Round Mace	sw+1 cr	1	0U	$25	3	10	[1]
0	Small Throwing Axe	sw+1 cut	1	0U	$50	3	10	[1]
1	Sickle	sw cut	1	0	$40	2	8	
	or	sw imp	1	0U	–	–	8	[2]
	or	thr-2 cut	1	0U	–	–	8	Hook. [3]
BRAWLING, KARATE, or DX								
1	Myrmex	thr cr	C	0	$20	0.25	–	[4, 5]
2	Cestus	thr cr	C	0	$50	1	–	[4, 5]
3	Bladed Hand	sw-2 cut	C	0	$100	1	6	[4]
	or	thr imp	C	0	–	–	6	[4]
3	Combat Fan	thr cr	C	0	$40	1	7	[4]
	or	thr-2 cut	C	0	–	–	6	-2 to hit.
3	Hook Sword	thr-1 cut	C	0	$200	3	–	Hilt punch. [4, 5]
3	Qian Kun Ri Yue Dao	thr-1 cut	C	0	$250	3	–	Hilt punch. [4, 5]
3	Shuriken	thr-2 cut	C	0	$3	0.1	–	Used to claw. [4]
3	Tonfa	thr cr	C	0	$40	1.5	–	Butt jab. [4]
4	Backsword	thr cr	C	0	$550	3	–	Hilt punch. [4, 5]
5	Mensurschläger	thr cr	C	0	$500	3	–	Hilt punch. [4, 5]
6	Sap Glove	thr cr	C	0	$30	0.5	–	[4, 5]

Craig: Uh, uh, they're not that cool.
Stan: Hyeah, "they're not that cool." These are real authentic weapons from the Far East.
*– **South Park,** "Good Times with Weapons"*

TL	*Weapon*	*Damage*	*Reach*	*Parry*	*Cost*	*Weight*	*ST*	*Notes*
BROADSWORD (DX-5, Force Sword-4, Rapier-4, Saber-4, Shortsword-2, or Two-Handed Sword-4)								
0	Jo	sw cr	1	0	$10	2	9	
	or	thr cr	1	0	–	–	9	
3	Bokken	sw+1 cr	1	0	$40	3	10	
	or	thr+1 cr	1	0	–	–	10	
3	Dao	sw+2 cut	1	0U	$700	5	11	
	or	thr imp	1	0U	–	–	11	
3	Estoc	thr+2 imp	1	0	$500	3	10	[6]
	or	sw+1 cr	1	0	–	–	10	
3	Hook Sword	sw+1 cr	1	0	$200	3	10	[5]
	or	thr+1 cr	1	0	–	–	10	
	or	thr-2 cut	1	0	–	–	10	Hook. [3, 7]
3	Jian	sw cut	1	0	$700	3	10	
	or	thr+1 imp	1, 2	0	–	–	10	
3	Large Falchion	sw+2 cut	1	0U	$625	4.5	11	
	or	thr-1 imp	1	0U	–	–	11	
3	Longsword	sw+1 cut	1	0	$700	4	10	
	or	thr+2 imp	1, 2	0	–	–	10	
4	Backsword	sw+1 cut	1	0	$550	3	10	[5]
	or	thr+1 imp	1	0	–	–	10	
4	Edged Rapier	sw cut	1, 2	0	$1,000	3	10	
	or	thr+1 imp	1, 2	0	–	–	10	
4	Late Katana	sw+1 cut	1	0	$550	3	10	
	or	thr+1 imp	1	0	–	–	10	
5	Mensurschläger	sw+1 cut	1	0	$500	3	10	[5]
	or	thr cr	1	0	–	–	10	
FLAIL (DX-6, Axe/Mace-4, or Two-Handed Flail-3)								
0	Bola Perdida	sw cr	1	-2U	$10	1	6	[1, 8]
0	Bolas	sw+1 cr	1	-2U	$20	2	7	[1, 8]
0	Life-Preserver	sw-1 cr	1	-2U	$5	0.5	5	[8]
0	Weighted Scarf	sw cr	1	-2U	$10	1	6	[8]
GARROTE (DX-4)								
0	Weighted Scarf	spec.	C	No	$10	1	–	[9]
JITTE/SAI (DX-5, Force Sword-4, Main-Gauche-4, or Shortsword-3)								
3	Jutte	sw cr	1	0	$40	1	6	[10]
	or	thr cr	1	0	–	–	6	
3	Sai	sw cr	1	0	$60	1.5	7	[1, 10]
	or	thr imp	1	0	–	–	7	
JUDO, SUMO WRESTLING, WRESTLING, or DX								
3	Kakute	spec.	C	No	$10	0.1	–	+1 vs. break free.

TL	Weapon	Damage	Reach	Parry	Cost	Weight	ST	Notes
KNIFE (DX-4, Force Sword-3, Main-Gauche-3, or Shortsword-3)								
0	Short Baton	sw-1 cr	C, 1	-1	$10	0.5	5	
	or	thr cr	C	-1	–	–	5	
2	Katar	sw-3 cut	C, 1	-1	$50	1	6	[5, 6, 11]
	or	thr+1 imp	C	-1	–	–	6	
2	Kukri	sw-1 cut	C, 1	0	$50	1.5	7	
	or	thr-1 imp	C	0	–	–	7	
2	Long Knife	sw-1 cut	C, 1	0	$120	1.5	7	
	or	thr imp	C, 1	0	–	–	7	
3	Balisong	sw-3 cut	C, 1	-1	$50	0.5	5	+1 Holdout.
	or	thr-1 imp	C	-1	–	–	5	
3	Deer Antlers	thr+1 cut	C	0	$75	1.5	5	[5, 7]
3	Knife-Wheel	thr+1 cut	C	0	$75	1.5	5	[5]
	or	thr-1 imp	C	0	–	–	5	
3	Rondel Dagger	thr imp	C	-1	$40	1	6	[6]
3	Slashing Wheel	thr+1 cut	C	0	$60	1	5	[5]
3	Stiletto	thr-1 imp	C	-1	$20	0.25	5	[6]
4	Main-Gauche	sw-3 cut	C, 1	0	$50	1.25	6	[5]
	or	thr imp	C	0	–	–	6	
5	Straight Razor	thr-2 cut	C	No	$30	0.1	4	

KUSARI (DX-6, Monowire Whip-3, Two-Handed Flail-4, or Whip-3)								
2	Rope Dart	sw-1 cr	1-4	-2U	$30	0.5	5†	[8, 12]
	or	thr-1 imp	1-4	-2U	–	–	5†	[8, 12]
3	Chain Whip	sw+(1-4) cr	1-4*	-2U	$50/yd.	3/yd.	var.†	[8, 13]
3	Kusarigama	sw+2 cr	1, 2*	-2U	$80	4.5	10†	[8]
	or	sw+2 cut	1, 2*	-2U	–	–	11†	[8, 14]
3	Kusarijutte	sw+2 cr	1, 2*	-2U	$80	3.5	8†	[8]
MAIN-GAUCHE (DX-5, Jitte/Sai-4, Knife-4, Rapier-3, Saber-3, or Smallsword-3)								
3	Deer Antlers	thr+1 cut	C	0F	$75	1.5	5	[5, 7]
3	Jutte	sw cr	1	0F	$40	1	6	
	or	thr cr	1	0F	–	–	6	
3	Knife-Wheel	thr+1 cut	C	0F	$75	1.5	5	[5]
	or	thr-1 imp	C	0F	–	–	5	
3	Rondel Dagger	thr imp	C	0F	$40	1	6	[6]
3	Sai	sw cr	1	0F	$60	1.5	7	[1]
	or	thr imp	1	0F	–	–	7	
3	Slashing Wheel	thr+1 cut	C	0F	$60	1	5	[5]
3	Stiletto	thr-1 imp	C	0F	$20	0.25	5	[6]
4	Main-Gauche	sw-3 cut	C, 1	0F	$50	1.25	6	[5]
	or	thr imp	C, 1	0F	–	–	6	

TL	Weapon	Damage	Reach	Parry	Cost	Weight	ST	Notes
POLEARM (DX-5, Spear-4, Staff-4, or Two-Handed Axe/Mace-4)								
0	Eku	sw+3 cr	1, 2*	0U	$40	8	12‡	
3	Bill	sw+3 cut	2, 3*	0U	$125	8	11‡	
	or	thr+3 imp	1-3*	0U	–	–	11†	
	or	thr-1 cut	1-3*	0U	–	–	11†	Hook. [3, 7]
3	Dueling Bill	sw+2 cut	1, 2*	0U	$100	6	9†	
	or	thr+3 imp	1, 2*	0	–	–	9†	
	or	thr-1 cut	1, 2*	0U	–	–	9†	Hook. [3, 7]
3	Dueling Glaive	sw+2 cut	1, 2*	0U	$80	6	9†	
	or	thr+3 imp	1, 2*	0	–	–	9†	
3	Dueling Halberd	sw+4 cut	1, 2*	0U	$120	10	12†	
	or	sw+3 imp	1, 2*	0U	–	–	12†	[2]
	or	thr+3 imp	1, 2*	0	–	–	11†	
3	Dueling Pollaxe	sw+3 cut	1, 2*	0U	$100	8	11†	
	or	sw+3 cr	1, 2*	0U	–	–	11†	
3	Heavy Horse-Cutter	sw+5 cut	2, 3*	0U	$150	12	13‡	
	or	thr+3 imp	1-3*	0U	–	–	12†	
3	Lajatang	sw+2 cut	1, 2*	0U	$100	7	10†	
	or	thr+2 cut	1, 2*	0	–	–	10†	
3	Light Horse-Cutter	sw+4 cut	1, 2*	0U	$120	8	11‡	
	or	thr+3 imp	1, 2*	0U	–	–	11†	
3	Monk's Spade	sw+1 cut	1, 2*	0U	$100	6	9†	
	or	sw+2 cr	1, 2*	0U	–	–	9†	
	or	thr+2 cut	1, 2*	0	–	–	9†	
RAPIER (DX-5, Broadsword-4, Main-Gauche-3, Saber-3, or Smallsword-3)								
3	Jian	sw cut	1	0F	$700	3	10	
	or	thr+1 imp	1, 2	0F	–	–	10	
4	Edged Rapier	sw cut	1, 2	0F	$1,000	3	10	
	or	thr+1 imp	1, 2	0F	–	–	10	
4	Light Rapier	thr+1 imp	1	0F	$400	2	8	
4	Light Edged Rapier	sw-1 cut	1	0F	$700	2.25	8	
	or	thr+1 imp	1	0F	–	–	8	
SHORTSWORD (DX-5, Broadsword-2, Force Sword-4, Jitte/Sai-3, Knife-4, Saber-4, Smallsword-4, or Tonfa-3)								
0	Short Baton	sw-1 cr	C, 1	-1	$10	0.5	5	
	or	thr cr	C	-1	–	–	5	
2	Dusack	sw cr	1	0	$30	1.5	7	
	or	thr cr	1	0	–	–	7	
2	Falchion	sw+1 cut	1	0	$400	3	10	
	or	thr-2 imp	1	0	–	–	10	
2	Large Katar	sw-1 cut	1	0	$400	2	8	[5, 6, 11]
	or	thr+1 imp	1	0	–	–	8	
2	Long Knife	sw-1 cut	1	0	$120	1.5	7	
	or	thr imp	C, 1	0	–	–	7	
2	Small Falchion	sw cut	1	0	$200	2	8	
	or	thr-2 imp	1	0	–	–	8	
SMALLSWORD (DX-5, Main-Gauche-3, Rapier-3, Saber-3, or Shortsword-4)								
4	Dress Smallsword	thr imp	C, 1	0F	$300	1	5	
SPEAR (DX-5, Polearm-4, or Staff-2)								
1	Heavy Spear	thr+4 imp	2, 3*	0U	$90	6	11†	[15]
1	Short Spear	thr+1 imp	1	0	$30	2	6	[15]
2	Trident	thr+3(0.5) imp	1*	0U	$80	5	11	-2 to hit. [7, 16]
	two hands	thr+4(0.5) imp	1, 2*	0	–	–	10†	-2 to hit. [7, 16]

TL	Weapon	Damage	Reach	Parry	Cost	Weight	ST	Notes
STAFF (DX-5, Polearm-4, or Spear-2)								
0	Jo	sw+1 cr	1	+2	$10	2	6†	
	or	thr+1 cr	1	+2	–	–	6†	
0	Long Staff	sw+2 cr	2, 3	+2	$15	5	10†	
	or	thr+2 cr	2, 3	+2	–	–	10†	
3	Dueling Bill	sw+2 cr	1, 2	0U	$100	6	9†	Blunt pole.
	or	thr+2 cr	1, 2	0	–	–	9†	Blunt tip.
3	Dueling Halberd	sw+2 cr	1, 2	0U	$120	10	12†	Blunt pole.
	or	thr+2 cr	1, 2	0	–	–	11†	Blunt tip.
3	Dueling Pollaxe	sw+2 cr	1, 2	0U	$100	8	11†	Blunt pole.
	or	thr+2 cr	1, 2	0	–	–	11†	Blunt tip.
3	Light Horse-Cutter	sw+2 cr	1, 2	0U	$120	8	11†	Blunt pole.
	or	thr+2 cr	1, 2	0	–	–	11†	Blunt tip.
3	Qian Kun Ri Yue Dao	sw+1 cut	1	+2	$250	3	7†	-1 to hit. [5]
	or	thr+1 imp	1	+2	–	–	7†	-1 to hit.
	or	thr cut	1	+2	–	–	7†	-1 to hit. [17]
3	Sodegarami	sw+2 cr	1, 2	0	$100	4	7†	
	or	thr+2 cr	1, 2	0	–	–	7†	
	or	thr-1 cut	1, 2	0U	–	–	7†	Hook. [3]
TONFA (DX-5 or Shortsword-3)								
3	Tonfa	sw cr	1	0	$40	1.5	7	[11]
	or	thr cr	C, 1	0	–	–	7	
TWO-HANDED AXE/MACE (DX-5, Axe/Mace-3, Polearm-4, or Two-Handed Flail-4)								
1	Gada	sw+5 cr	1, 2*	0U	$100	15	16‡	
	or	thr+2 cr	1*	0	–	–	15†	
2	Tetsubo	sw+4 cr	1, 2*	0U	$100	10	13‡	
	or	thr+2 cr	1, 2*	0	–	–	12†	
TWO-HANDED FLAIL (DX-6, Flail-3, Kusari-4, or Two-Handed Axe/Mace-4)								
2	Three-Part Staff	sw+3 cr	1-3	0U	$60	5	11†	-1 to hit. [8]
	or	sw+1 cr	1	0U	–	–	11†	-1 to hit. [8, 17]
TWO-HANDED SWORD (DX-5, Broadsword-4, or Force Sword-4)								
0	Jo	sw+1 cr	1	0	$10	2	8†	
	or	thr+1 cr	1	0	–	–	8†	
2	Tetsubo	sw+3 cr	1, 2	0U	$100	10	13†	
	or	thr+2 cr	2	0	–	–	12†	
3	Bokken	sw+2 cr	1	0	$40	3	9†	
	or	thr+1 cr	1	0	–	–	9†	
3	Longsword	sw+1 cut	1	0	$700	4	9†	
	or	thr+3 imp	1, 2	0	–	–	9†	
4	Late Katana	sw+2 cut	1	0	$550	3	9†	
	or	thr+1 imp	1	0	–	–	9†	
WHIP (DX-5, Kusari-3, or Monowire Whip-3)								
3	Urumi	sw-1 cr	1-3	-2U	$400	4	8	[12]
	or	sw-1(0.5) cut	1-3	-2U	–	–	8	[12]

Notes:

[1] Can be thrown. See *Muscle-Powered Ranged Weapon Table* (pp. 231-232).

[2] May get *stuck;* see *Picks* (p. B405).

[3] Hook enables the Hook technique (p. 74), which also damages the victim.

[4] This attack receives Brawling or Karate damage bonuses.

[5] Gives the hand (only) DR. A myrmex gives DR 1, a cestus gives DR 4, and a sap glove gives DR 2; all are gloves of a sort and mutually exclusive with other gloves. For other weapons, this indicates a metal hilt that provides DR 4, cumulative with glove DR – although the hilt is too cramped to accommodate *metal* gauntlets. Deer antlers, hook swords, katars, qian kun ri yue dao, and wheels don't enclose the hand completely; DR applies only on a roll of 1-3 on 1d.

[6] Reduce penalty for targeting chinks in armor (p. B400) by -2.

[7] Can strike to disarm (p. B401) *without* -2 to hit for using a non-fencing weapon.

[8] Attempts to *parry* flails and kusaris are at -4; fencing weapons ("F" parry) can't parry at all! Attempts to *block* such weapons are at -2. Halve these penalties for the bola perdida, bolas, life-preserver, and weighted scarf.

[9] Counts as a rope garrote; see *Garrotes* (p. B405).

[10] Gets +2 to disarm when wielded with Jitte/Sai skill; see pp. B208, B401.

[11] Use Brawling or Karate parry if better than usual weapon parry.

[12] Can only lash the target for damage; none of the special whip rules apply.

[13] Specify maximum reach (1-4 yards) when bought. Damage is swing, +1 per yard of maximum reach. Cost and weight are *per yard.* ST is 8, +1 per yard.

[14] When swinging the kama on the end of the chain, the kusarigama can't disarm or entangle like a regular kusari (p. B406).

[15] Broad, edged head gives +1 to Tip Slash (p. 113) damage.

[16] Target at -1 to Dodge, +1 to Block or Parry.

[17] Use these statistics when using both ends for a Dual-Weapon Attack.

Muscle-Powered Ranged Weapon Table

All terms and notation in this table follow the definitions on pp. B268-271. In brief:

TL: The tech level at which the weapon became widespread in the real world.

Weapon: The name of the weapon or class of weapon; see the matching entry on pp. 212-226.

Damage: The ST-based damage that the weapon inflicts.

Acc: Accuracy, the bonus to skill if you take an Aim maneuver before attacking.

Range: The number before the slash is Half-Damage Range; at or beyond this range, halve the weapon's damage roll. The number after the slash is Maximum Range. These are expressed as multiples of the wielder's ST – or the *weapon's* ST, for crossbows.

Weight: The weapon's weight, in lbs. If the weapon has Shots 1, this is *unloaded* weight and the weight after the slash is that of one shot. If the weapon has shots 2+, this is *loaded* weight and the weight after the slash is that of one full reload.

RoF: Rate of Fire. This is 1 for all of these weapons (but see *Ranged Attack Options,* pp. 119-121).

Shots: The number of shots the weapon can fire before you must reload. "T" indicates a thrown weapon. The parenthetical number is the number of Ready maneuvers required to reload the weapon or ready another thrown weapon. An "i" next to this means the time listed is *per shot.* Crossbows use special rules; see pp. B270, B410.

Cost: The price of a new weapon, in $.

ST: The minimum ST needed to use the weapon properly; wielders with lower ST suffer -1 to skill per point of ST deficit. "†" means the weapon requires two hands. This *isn't* the ST used to determine range and damage for a crossbow; see p. B270.

Bulk: The penalty to skill when you take a Move and Attack maneuver (p. B365) or use Holdout to conceal the weapon.

Notes: Applicable footnotes at the end of the table.

TL	*Weapon*	*Damage*	*Acc*	*Range*	*Weight*	*RoF*	*Shots*	*Cost*	*ST*	*Bulk*	*Notes*
BOLAS (No default) or SLING (DX-6)											
0	Bola Perdida	sw cr	0	×6/×10	1	1	T(1)	$10	6	-2	
CROSSBOW (DX-4)											
2	Repeating Crossbow	thr+1 imp	1	×7/×15	10/0.6	1	10(3i)	$500	7†	-5	[1, 2]
3	Composite Crossbow	thr+5 imp	4	×25/×30	7/0.06	1	1(4)	$950	8†	-6	[1]
THROWN WEAPON (AXE/MACE) (DX-4)											
0	Round Mace	sw+2 cr	1	×0.5/×1	5	1	T(1)	$35	12	-4	
0	Small Round Mace	sw+1 cr	1	×1/×1.5	3	1	T(1)	$25	10	-3	
0	Small Throwing Axe	sw+1 cut	1	×1/×1.5	3	1	T(1)	$50	10	-3	
2	Large Hungamunga	sw+2 cut	2	×1/×1.5	4	1	T(1)	$60	11	-3	[3]
THROWN WEAPON (DART) (DX-4 or Throwing-2)											
2	Plumbata	thr imp	1	×2.5/×3.5	1	1	T(1)	$20	6	-2	[4]
THROWN WEAPON (DISC) (DX-4 or Throwing-2)											
1	Discus	thr+2 cr	2	×4/×6	2	1	T(1)	$40	6	-3	
2	Chakram	thr+1 cut	1	×4/×6	1.5	1	T(1)	$50	6	-2	
THROWN WEAPON (KNIFE) (DX-4)											
2	Hungamunga	sw-1 cut	1	×0.8/×1.5	1	1	T(1)	$40	6	-3	[3]
2	Large Throwing Knife	thr imp	1	×1/×2	1	1	T(1)	$40	6	-1	[3]
2	Small Throwing Knife	thr-1 imp	1	×0.8/×1.5	0.5	1	T(1)	$30	5	0	[3]
3	Sai	thr imp	0	×0.8/×1.5	1.5	1	T(1)	$60	7	-3	
THROWN WEAPON (STICK) (DX-4)											
0	Boomerang	sw cr	2	×6/×10	1	1	T(1)	$20	6	-2	
0	Throwing Stick	sw-1 cr	1	×4/×8	1	1	T(1)	$10	6	-2	

Notes:

[1] A crossbow bolt costs $2.

[2] Requires a Ready maneuver on the turn *immediately* before each attack, to work the lever. If using *Malfunction* (p. B279), Malf. is 14.

[3] Not balanced for melee combat! Treat a small throwing knife as a small knife, a hungamunga or a large throwing knife as a large knife, and a large hungamunga as an axe, but with -2 to skill and therefore -1 to Parry (for knives, this adds to the usual -1 to Parry).

[4] *Plumbatae* (or *pila,* p. 221) striking a nonmetallic shield – deliberately (see *Striking at Shields,* p. 112) or on a block – stick and deform, penalizing Shield skill: -1 for any at all, -2 if total projectile weight is at least half shield weight, -4 if total weight equals or exceeds shield weight. Removing each dart requires a Ready and a ST roll at a penalty equal to its damage roll.

Special Arrows

Practitioners of Kyujutsu (pp. 179-180) – and many other archers – will be familiar with these special arrowheads as well as with regular and bodkin points (p. B277):

Barbed: Yanking out a barbed arrow inflicts *half* the injury it delivered going in. No effect on cost or weight (most war arrows are barbed by default).

Blunt: Converts damage to *crushing.* Used for training or for hunting fowl. Half cost, normal weight.

Bowel Raker: Converts damage to *cutting.* Gives -1 to Acc and subtracts 5 from both Range multipliers; e.g., ×15/×20 becomes ×10/×15. Yanking it out inflicts *half* the injury it delivered going in. No effect on cost or weight.

Frog Crotch: Has a C-, U-, or Y-shaped head sharpened on the inside of the curve. Used against limbs, and to cut ropes or (in heroic stories) bowstrings. Converts damage to *cutting*. No effect on other statistics.

Humming Bulb: Has a hollow, fluted tip that whistles in flight. Used to signal or to flush game. Some of these heads can carry a tiny payload – often an oil-soaked rag. Gives -1 to Acc and subtracts 5 from both range multipliers. Damage becomes *crushing* with an armor divisor of (0.5). No effect on cost or weight.

Willow Leaf: Converts damage to *cutting.* No effect on other statistics.

Training Equipment

For some people, "martial-arts school" conjures up images of wooden dummies and *makiwara,* racks of weapons, and walls covered in yin-yang symbols and pictures of the founder. Others imagine a dimly lit gym with battered heavy bags, weight benches, and dangling speed bags arranged around a ring or a cage. A martial-arts school might look like that . . . or an ordinary hardwood gym strewn with wrestling mats . . . or a shallow dirt pit . . . or a clearing in the woods!

A properly designed training environment with good equipment helps students hone their skills. It makes more challenging exercises possible and minimizes the likelihood of unpleasant consequences. The wrong environment can make practice impossible (try doing acrobatic kung fu moves in a tiny room) or *painful* (like a hardwood floor you're going to hit a hundred times while perfecting a technique).

Equally important is how the school trains. Some schools frown upon sparring but let students use bags and mitts to practice strikes. Others go further and emphasize kata and choreographed partner drills over throwing full-powered blows. Still others encourage students to pound on each other in minimal gear – "Only bleeding in training lets you avoid bleeding in combat." Most artistic styles avoid contact and sparring, while combat styles employ such methods extensively or exclusively; either way, the equipment must support the training.

Training Equipment Quality

A flimsy heavy bag or fragile *muk yang jong* will soon break, while rusty swords and snapped-off broom handles are unsafe practice weapons at best. High-quality gear costs more but is *better* in every way. In particular, good equipment – or a good variety of it – gives a bonus to success rolls for teaching and learning the martial arts, including those for *The Training Sequence* (p. 147).

The bonuses for training equipment correspond to those under *Equipment Modifiers* (p. B345), but *individual* item quality (e.g., a fine-quality heavy bag) isn't usually what's important. Instead, look at the gear's total cost – whether that buys a few high-quality pieces of equipment, an eclectic collection of oddball paraphernalia, or a whole lot of nearly expendable items. The bigger the cash outlay, the better the bonus.

Below are some guidelines. The GM should be flexible in allowing substitutions; not all styles train alike. This is especially true in historical and cinematic games. Generally, an improvised weapon can substitute for a real one in training, and unarmed martial artists should *never* suffer penalties for poor or missing equipment – the human body and a source of martial knowledge are all they need!

Basic Equipment (+0): At least $500 for a modest open space (e.g., a bedroom with the furniture pushed out of the way) with a mat or other smooth surface; a heavy bag, *makiwara,* or dummy; wraps and gloves – or a practice weapon and protective gear, for weapon arts; a man-sized mirror; and appropriate clothing.

Good Equipment (+1): At least $2,500 on better "basic" items – e.g., a larger space; wall-to-wall, floor-to-ceiling mirrors; or extra bags, *makiwara,* or dummies – and any of the specific items on pp. 233-234.

Fine Equipment (+2): At least $10,000 on "basic" items, plus machines that measure striking pressure, a regulation cage or ring, and a full range of the gear on pp. 233-234.

Best Equipment (+TL/2, minimum +2): A building-sized setup that costs at least $1 million – be it a secret commando base, state-of-the-art Olympic facility, the Shaolin Temple, or a superhero danger room. Until TL6, the bonus is no higher than the +2 for "fine" equipment, but *hundreds* of students at once can benefit from it.

Well-made equipment also lasts longer. Apply the quality modifier to any HT roll made for the *equipment* during training; see *Damage to Objects* (p. B483).

Gloves

Contrary to popular belief, martial artists wear gloves more to protect themselves than for their opponents' safety. Some gloves *do* reduce striking damage, but their purpose is mainly to prevent fight-stopping hand injury.

Boxing Gloves

Regular boxing gloves are mitten-like, completely enclosing the fingers and thumb. They give DR 2 vs. crushing (DR 1 vs. other damage) and -2 to punching damage. The wearer has Bad Grip 3 (p. B123) for *all* purposes. $40, 1 lb. (pair).

Open-Palmed Gloves

As *Boxing Gloves,* except that they only give Bad Grip 2 and their DR doesn't protect against finger locks, which can target the uncovered thumb!

Mixed Martial Arts Gloves

These open-palmed gloves have separate fingers and thin protection everywhere but over the knuckles. They let the wearer grapple as well as strike, and don't give Bad Grip. They provide DR 1 vs. self-inflicted injury only; see *Hurting Yourself* (p. B379). $65, 0.5 lb. (pair).

Rope Dart

Hand Wraps

In competition, boxers and other unarmed strikers generally wrap their hands before donning gloves. This protects the hands by padding the knuckles and reinforcing the wrist. It also absorbs sweat, which wears out the cheap wraps instead of the expensive gloves. Some sports use wraps alone. Wraps provide +1 DR vs. self-inflicted injury only. They cause Bad Grip 1 by themselves. Worn under gloves, DR is cumulative but only the *worst* level of Bad Grip applies. $5, neg. wt.

Targets

Every striking style uses some kind of target when live humans aren't available (or permitted) for the purpose.

Heavy Bag

A cylindrical canvas, vinyl, or leather bag filled with rags, sawdust, or shredded stuffing – or rarely, with sand, small rocks, or other exotica. Most hang from a rope or a chain; some are freestanding, and may be water-filled. All are designed for punching and larger ones are also good for kicking. Punching a bag can tear the skin, so it's standard to wear wraps or gloves. Heavy bags help fighters develop hitting power and "toughen up" hands, feet, or shins (often by striking progressively harder bags).

Heavy bags normally range in 10-lb. increments from 20 lbs. (a small bag, suitable for punching) to 120 lbs. (a long "banana" bag for low shin kicks). Standard sizes are 80 lbs. and 100 lbs. Cost is $1 a pound, and includes a 3-lb. chain to hang the bag. Freestanding bags cost $1.50 a pound but don't require a chain or an overhead beam.

Makiwara

A board wrapped in canvas, cord, or thick rope – in order of increasing coarseness – used to toughen the hands and practice full-powered strikes. Some *makiwara* are small and handheld; others are large and freestanding, or spring-loaded for wall mounting. Cost ranges from free for homemade models to $50+ for sturdy, attractively decorated boards.

Muk Yang Jong

A wooden training dummy used in Wing Chun and other Chinese styles. It consists of a thick post set upright on a base, with two "arms" and a bent "leg" near the ground. The limbs are mounted securely but loosely, allowing hard contact without injury. $650, 110 lbs.

Pads

Padded targets worn by a partner and used to practice striking include:

Focus Mitts: Small, glove-like pads for punching. Give the hands DR 2 vs. crushing (DR 1 vs. other damage) and Bad Grip 3. $50, 2 lbs. (pair).

Shield: A large, handheld target for kicking and kneeing. Provides DR 3 vs. crushing (DR 2 vs. other damage). $50, 2 lbs.

Heavy Pads: Larger mitts for punching and kicking. Give the hands DR 5 vs. crushing (DR 3 vs. other damage) and Bad Grip 3. $75, 5 lbs. (pair).

Body Pads: Groin and stomach protection that allows kicks and knees to the body. Give the torso DR 4 vs. crushing (DR 2 vs. other damage). $60, 8 lbs.

Armor

Martial artists, especially practitioners of armed styles, often wear armor. Historical warriors should use the armor on pp. B282-286. The following items are specialized equipment for competition or training. Some safety gear costs more than "real" armor that provides higher DR. This is because it's built to safeguard *both* participants, not simply to protect one from deliberate harm!

Breastplate, Sparring: Upper-body protection for contact sparring. Foam gives the torso (including vitals) DR 1 vs. crushing damage, only from the front. $40, 2.5 lbs.

Leather – required for women's MMA matches – increases DR to 2 vs. crushing (DR 1 vs. other damage). $60, 4 lbs.

Cup: A plastic guard that gives the groin DR 2 vs. crushing (DR 1 vs. other damage), only from the front. Also grants +2 to knockdown rolls for groin hits. $20, neg. wt.

Foot Guards, Sparring: Foam guards for the *top* of the foot. DR 2 vs. crushing (DR 1 vs. other damage); only applies on a roll of 1-3 on 1d if the bottom of the foot could also be hit. Also gives -2 to kicking damage. $30, 0.5 lb. (pair).

Helmet, Sparring: Used by boxers and karateka. A foam mask gives the skull and face DR 1 vs. crushing. $40, 1 lb.

A leather-covered padded helmet increases DR to 2 vs. crushing (DR 1 vs. other damage). $60, 3 lbs.

If using *Harsh Realism for Unarmed Fighters* (p. 124), either helmet prevents self-inflicted damage from striking the skull.

Kendo Do: A fiberglass, lacquered-bamboo, or plastic cuirass that gives the torso (including vitals) DR 3, only from the front, on a roll of 1-5 on 1d. $100, 4 lbs.

Kendo Kote: Padded, open-palmed gloves with wrist protection. Give the hands DR 2 vs. crushing (DR 1 vs. other damage). Also protect the arm on a roll of 1 on 1d. Give Bad Grip 1 (p. B123). $65, 1 lb (pair).

Kendo Men: A steel-grilled helmet with neck protection. Gives the face and neck DR 3, and the skull DR 1, only from the front. $150, 5 lbs.

Kendo Tare: A belt of armor that protects the hips and groin from the front. The center guard is usually decorated with the kendoka's name. Gives the groin DR 1, only from the front. $120, 2 lbs.

Mask, Fencing: A metal-grilled mask, used for sport fencing with the épée, foil, or saber. Gives the skull, eyes, and face DR 2. $50, 3 lbs. Add $50 if insulated for electric scoring.

Mouthguard: A form-fitted plastic mouthpiece worn to protect the jaw and teeth. Gives +1 to knockdown rolls for face or jaw hits, but makes speech difficult (treat as Disturbing Voice, p. B132). $20, neg. wt.

Police Training Suit: A padded training suit with a metal-masked helmet. Bulky and restrictive (-3 DX, -1 Move), it gives the skull and face DR 5; the torso and groin DR 3 vs. crushing (DR 1 vs. other damage); and the arms, legs, hands, and feet DR 2 vs. crushing (DR 1 vs. other damage). A basic suit without hand or head protection is $500, 7 lbs.; a full suit is $2,000, 15 lbs.

Shin Pads: Padded leather-, vinyl-, or cloth-covered pads that protect the knee, shin, and top of the foot, giving the legs and feet DR 2 vs. crushing (DR 1 vs. other damage), only from the front, on a roll of 1-3 on 1d. Also gives the wearer -2 damage with shin kicks. $40, 2 lbs. (pair).

Rigid plastic pads raise DR to 2 and don't affect shin kick damage. $20, 3 lbs.

Training Weapons

Training weapons are blunted, less-rigid, padded, and/or made of softer materials. Varieties include:

Blunt: A cutting or cut-and-thrust weapon that isn't sharpened but could be. Treat as a good-quality weapon for all purposes but damage, which becomes *crushing.*

Flexible: A thrusting-only weapon made whippy, with a button tip. Treat as a blunt that gets -2 crushing damage. Use *cheap* costs for TL6+ sporting gear. Price anything earlier as good-quality. Classic examples are the flexible smallsword and dress smallsword, known as the épée (p. 215) and foil (p. 215), respectively.

Heavy Blunt: An overweight weapon – blunt and unable to take an edge, if bladed – designed to develop the muscles used to control it. Common historically but rare today; trainers believe that overcompensating for extra weight teaches incorrect reflexes. Has 20% of the cost and 200% of the weight of a good weapon. Damage becomes crushing, at +1 for swings but -1 for thrusts. Add +2 to the ST requirement.

Padded: A wooden weapon wrapped with cloth, foam, etc. Has 5% of the cost and 100% of the weight of a good weapon. Damage becomes *crushing,* at -2 for thrusts and -4 for swings.

Ultra-Light: A light, flexible nonmetallic weapon for competition – usually aimed at an armored target to allow full-powered hits without injury. Has 5% of the cost and 60% of the weight of a good weapon. Damage becomes crushing with an armor divisor of (0.5). ST requirement is 1/3 usual (round down). An example is the Japanese *shinai:* a straight-edged "katana" made of split bamboo held together with cloth bindings.

Wooden: A *hard* wooden version of a metal weapon. Has 5-10% of the cost and 100% of the weight of a good weapon. Damage becomes crushing but isn't reduced – such weapons are quite capable of beating someone to death or shattering bones. The best-known example is the *bokken* (p. 213): a wooden katana.

Weights

Barbells and dumbbells are standard tools for modern martial artists who lift weights. Earlier warriors did weight training with heavy wooden clubs, rocks on sticks, and even weighted shoes. The idea that weight training is "new" to the martial arts is far from true! Weight gear varies greatly in cost. Improvised equipment may be free or nearly so; a full gym, with machines and/or rubber-coated weights machined to Olympic tolerances, can cost tens of thousands of dollars.

Chapter Seven
Campaigns

Del Duque burst the door with a drop kick and rolled to his feet. Nobody home, but there was the stolen Chinese statue, attached to a machine with a date readout. Carbon dating, perhaps? As he touched the statue, things went black . . .

Kai stepped over the last thug and slipped behind the curtain. There was the Five Tigers Jade Buddha, in the hands of an unconscious, masked man. How odd! She reached for the Buddha.

As Del Duque came to, he saw a petite woman grab for the statue. He tried to warn her: "Peligro!"

Kai seized the Buddha but the fat man hung on, yelling in Spanish. A Mexican bandito! As she summoned her chi for the upcoming battle, the Buddha's eyes flashed. Oh, no . . .

Adrian hadn't noticed a trapdoor, but the man and woman who fell from the ceiling were a blessing. They knocked down one of her adversaries, evening the odds.

The other bounty hunter responded by dropping his hatchet and pulling forth a strange device. An instant later, a dagger struck his hand. Adrian capitalized on the distraction, sending her foe to the ground with a vicious blow.

A man with a shortsword stepped from the shadows, glanced at the Buddha, and yelled, "Prof!" Then he turned to the others. "I'm Dai. If you want to get out of this, follow us!"

A good ***Martial Arts*** campaign is more than a series of adventures for expert fighters. The GM needs to plan both the setting and his plots with care, and gameplay shouldn't always boil down to a glorified slugfest. Martial-arts fiction – even the backstory of the typical video game – features such classic dramatic fixtures as the attainment of long-sought goals, the rise of heroes, quests (for justice, knowledge, or vengeance), and exotic cultures and locations. The goal of this chapter is to help the GM take advantage of this rich tradition.

Cinematic vs. Realistic Campaigns

When starting any new campaign, the GM must choose whether to take a "realistic" stance, a "cinematic" one, or some middle road. This is arguably the most important decision of all in a game that features the martial arts – overshadowing even the choice of genre and setting – because martial-arts legend and fiction are about warriors trained in skills intended for violence. Where there's violence, there's pain, injury, and death . . . except when the storyteller focuses instead on such ideals as the heroes' principles, abilities, or basic "coolness." It can be difficult to reconcile the differences.

Each type of campaign has its strengths and weaknesses, and of course the players' preferences may differ from the GM's. If the PCs behave like high-kicking action heroes in a realistic game, or are all brutal pirates and mast-top snipers in a romantic 17th-century swashbuckling tale, the result will be a pile of dead bodies, followed by a dead campaign. The GM should therefore involve the players in his decision and note the abilities and rules that the campaign will use – and perhaps more importantly, the ones that it *won't* use.

The Realistic Campaign

The real world is the one we know best, but it *isn't* what many gamers think of when you say "martial arts." Contrary to movies and comic books, realistic martial artists can't rely on fists to defeat a sword, never mind a volley of arrows – and even the best archer or swordsman is just a poorly armed target to a gunman. Except in a staged exhibition, a real martial artist can't smash a door with a single punch, either . . . or shoot two arrows at once . . . or fence blindfolded. Without cinematic abilities and combat options, all of this is true in ***GURPS,*** too – although ***GURPS*** is fairly forgiving because a game that punishes the players for not being combat experts isn't fun!

There are two, equally important elements to a realistic ***Martial Arts*** game: believable characters and realistic combat. We discuss these in greater detail below. A good GM carefully weighs both considerations against player expectations before opting to run a realistic campaign.

Realistic Characters

In a realistic campaign, the PCs should be built as discussed under *Realistic Martial Artists* (p. 29): limited attributes, mundane advantages and disadvantages only, and no cinematic abilities. The GM sets the power level but should realize that individuals built on over 200 points will be

*NPCs for **Martial Arts** Campaigns*

Much of *Cinematic vs. Realistic Campaigns* discusses what the GM lets PCs do. That's only half the picture – the players of martial-artist PCs will grow bored without enemies to fight and masters to learn from. Because martial-arts styles have the potential to add *many* skills, techniques, and perks to character sheets, martial-artist NPCs can be time-consuming to design and play; therefore, it's wise to "triage" the supporting cast and match bookkeeping efforts to relative importance.

Cannon Fodder: Cardinal's Guards, students of rival schools, gang members . . . these are NPCs whose role is to harass the PCs while their leader escapes, plots, or sets an elaborate ambush. Ignore character points and full character sheets, and don't bother writing down full-fledged styles. Such NPCs know their style's realistic skills (never its cinematic ones), use techniques at default, and lack perks beyond Style Familiarity. Aside from skills, all they need is ST, DX, HT, HP, Basic Speed, Basic Move, and damage for their main attack. In combat, they're subject to the *Cannon Fodder* (p. B417) rule. In a realistic game, modify this so that wounded NPCs flee, feign death, or surrender instead of collapsing. Most real people don't want to die! If the NPCs are low-grade thugs, consider using *Untrained Fighters* (p. 113) regardless of actual training.

"Name" NPCs: These include the leader of a Guard patrol, the star student of a rival school, and the boss' lieutenant. They might merely be high-value targets, but their wit, social skills, and so on can become important, so build them as full-fledged characters. To save time, select a template from Chapter 2 (or another ***GURPS*** book) and make few changes. When adding a style, focus on skills – but select a few "signature" techniques, a Style Perk or two, and perhaps an optional trait to give the NPC some depth. A single cinematic skill is also appropriate, in a cinematic game. If there are multiple NPCs like this, distinguish them by giving them different styles, or different skills and weapons taught by the same style. In a realistic campaign, *most* NPCs should be like this unless you want to send the message "life is cheap." Even a hulking psycho is a *person.* In any type of game, NPC allies should use these guidelines, too.

Masters: True masters are rare enough to be built the hard way, like PCs. They should have all of their style's skills, many of its techniques, and multiple Style Perks (possibly including custom perks). Most have optional traits, too; after all, such abilities are optional because some master, somewhere, believes they're important. In a cinematic campaign, add cinematic skills and techniques freely. Note that in a realistic game, the *boss* needn't be the *master*. A crime lord or enemy officer might be in charge, but an underling who's dedicated to fighting – perhaps the boss' guard or private fencing instructor – is more likely to be a martial-arts master.

notable, not ordinary Joes. In addition, the PCs shouldn't have character-point investments in combat-ready martial arts that outstrip what's realistic for their occupations. Martial-arts skills should fill one of the roles that they fill in real life:

Hobby: Most students of the martial arts are dabblers, studying the martial arts out of curiosity, with neither the intention nor the training to enter combat. They rarely have anything more than a few points in Combat Art and Sport skills. If they study a style, it has the "Self-Defense" or "Trained by a Fraud" lens (see *Choosing a Style,* pp. 144-146). They don't use *any* of the templates in Chapter 2; their occupational templates are things like "Cook," "Duke," and "Reporter."

Backup Skills: This is the most realistic role for combat-effective martial arts. People in dangerous occupations, if they think they might have to fight without ranged weapons or the support of allies, often study a martial art for survival's sake. Their style typically has the "Military," "Police," or "Street" lens. To have the slightest chance against better-armed foes or superior numbers, they need to invest a lot of time – potentially more than they put into their job skills. The *Assassin, Crimefighter, Spy,* and *Warrior* templates in Chapter 2 reflect this.

Specialized Career: Full-time martial artists in the real world are usually athletes (the *Contender, Instructor,* and *Student* templates), ascetics (use the *Monk* template), or from a time or a place where it's possible to make a living with martial-arts skills (the *Duelist, Movie Star,* and *Stuntman* templates). Most are acutely aware that, outside their rarefied specialty, their skills are of limited value and no match for the weapons and training of soldiers. Their mental disadvantages might reflect such concerns; Pacifism is reasonable, and even Cowardice isn't out of line for someone who avoids real fights.

Combat Realism

Realism is also about how forgiving the *setting* is when fists, swords, and arrows start flying. Obviously, almost all cinematic combat rules are out of place in a realistic game; see *Cinematic Combat* (pp. 125-133) for a long list. Many GMs insist on using *Tactical Combat* (pp. B384-392), too, so that the action is in sharp focus and there's no "fudging" of movement. "Realism" means different things to different people, though.

Gritty Realism

This type of campaign pays attention to every lethal detail. It zooms in on the blood and snapping bones, and because it doesn't let the surprising durability of the human body get in the way of a good mauling, it can be *more* deadly than reality. A game like this uses all of the detailed options from Chapter 4 and the ***Basic Set:*** *Changing Posture in Armor* (p. B395), *Posture, Hit Locations, and Techniques* (pp. 98-99), *A Matter of Inches* (p. 110)**,** *Limiting Dodges* (pp. 122-123), and so on. Rules that involve pain and maiming are key; e.g., *Teeth* (p. 115), *Pain in Close Combat* (p. 119), *Grab and Smash!* (p. 118), *Harsh Realism for Unarmed Fighters* (p. 124), and *Realistic Injury* (pp. 136-139). Options that give the final word on realism to the GM – *Extra Effort in Combat* (p. B357), *Dual-Weapon Attacks* (p. B417), and anything labeled "Acrobatic" – usually aren't available.

Strengths: Ideal for introducing martial-arts rules into a realistic campaign where they didn't previously feature, because the risks tied to their use minimize the odds of players suddenly turning every fight into a martial-arts exhibition and shifting the game's focus. This is especially true if the campaign already had a gritty theme: trench warfare, hyper-realistic detective stories, etc. The detailed approach appeals to players who regard RPGs more as simulations than as storytelling tools.

Weaknesses: Many gamers get their perceptions of the martial arts from movies and comic books, and play their characters accordingly. In a gritty game, this is a recipe for maimed or dead PCs and unhappy players. Using every realistic rule means a lot of extra bookkeeping for everyone – especially the GM – and slows down combat as people turn pages to check every rule that applies in the situation. Realistic violence is quite disturbing to some people.

Moderate Realism

This is what most gamers view as "realism." People can die, and karateka are advised not to parry swords with bare hands, but the heroes are insulated from the worst fates by the game's inherent bias toward PC survival. A moderate-realism campaign should use the combat rules in the ***Basic Set,*** plus any of the realistic maneuvers and combat options from Chapter 4 that the GM likes – *All-Out Attack (Long)* (pp. 97-98), *Committed Attack* (pp. 99-100), *Defensive Grip* (pp. 109-111), and so on. It should avoid optional rules that add fine detail (such as *A Matter of Inches*) or painful consequences (like *Harsh Realism for Unarmed Fighters*), but might add one or two for flavor.

Strengths: Has the advantage of familiarity, since it uses rules that everybody already knows plus a handful of new options that players can ignore without handicapping their characters. Players who know something about real-world martial arts get to show off their knowledge. Probably the best compromise for a storytelling GM with a group of ultra-realistic gamers.

Weaknesses: Still too deadly for gamers raised on action movies and comics. It can be *worse* than a gritty campaign in this regard, because the system's tendency to err on the side of PC survival – explicitly suppressed in a gritty campaign – can lull some players into assuming that the game is cinematic and playing accordingly. Just close enough to gritty realism to frustrate players who like bloody simulations.

Borderline Realism

This kind of game allows anything that doesn't actively challenge the players' willing suspension of disbelief – even if it isn't strictly realistic. What matters is the *appearance* of realism. Such a campaign follows the guidelines under *Moderate Realism,* except that it avoids all rules that add fine detail to combat and injury while permitting many options of debatable realism; e.g., *Buying Success* (p. B347), *Extra Effort in Combat* (p. B357), *Dual-Weapon Attacks* (p. B417), *Acrobatic Movement* (pp. 105-107), *Acrobatic Attack* (p. 107), *Quick-Shooting Bows* (pp. 119-120), and *Tricky Shooting* (p. 121).

Special-Case NPCs

Non-player characters should generally be subject to the same rules as PCs. Needlessly dangling options in front of the players that *they* can't exercise – but that the GM's alter egos can – erodes GM-player relations. There are situations where it's appropriate to make exceptions, however.

Cinematic NPCs in Realistic Games: A martial-arts master with cinematic abilities provides a handy way to segue from a realistic campaign to a hybrid or cinematic one. Often he's a teacher, helping the PCs develop cinematic abilities of their own. In a conspiracy or horror game – and even in some kinds of pulp and fantasy – a fighter with cinematic martial-arts abilities is a suitable *opponent*. In that case, it's crucial that the GM portray the villain's capabilities as mysterious and dangerous – like black magic – so that the players experience fear or moral superiority, not jealousy.

Realistic NPCs in Cinematic Games: In games where the PCs are bouncing off walls and swinging from chandeliers, it's traditional for "cannon fodder" NPCs to lack access to cinematic abilities and combat options that the PCs take for granted. If the campaign has horror overtones or focuses on epic moral conflict – both of which feature in many martial-arts movies – it's true-to-genre for certain foes to be dangerous because a number of realistic rules apply when fighting them. For instance, the faceless knights of the evil overlord might have no special skills and rely on armor for defense . . . but hitting them with bare fists *hurts* (*Harsh Realism for Unarmed Fighters,* p. 124) and they fight dirty, chopping off limbs and targeting vital areas (*Realistic Injury,* pp. 136-139).

Strengths: Gamers who like to play action heroes can pull it off by spending character points to buy successes or burning FP for extra effort. Players who prefer a trusty, no-frills sword or gun can have that, too – and the points they save by avoiding massive investments in flashy skills such as Acrobatics can buy combat skills that make them as effective as their showoff teammates. A fair compromise, but compare *Rubber Realism* (p. 240).

Weaknesses: Too cinematic for some diehard realists, who will see enough of the pro-realism bias in the combat system to want more. Those who like cinematic games may be frustrated at the "glass wall" between them and the *really* cool optional rules. Powerful borderline-realistic PCs can do through brute force much of what cinematic ones can do with special abilities, defeating the point of choosing a realistic campaign.

The Cinematic Campaign

The cinematic world is that of martial-arts movies and legend. In a cinematic game, martial artists *can* do the impossible – or at least the highly improbable. As with realistic games, abilities and combat rules both make a contribution to the overall "feel," and the GM must make choices that satisfy his expectations and those of his players. Below are some ***Martial Arts***-specific guidelines to supplement the general advice on cinematic campaigns on pp. B488-489.

Cinematic Characters

Cinematic PCs (and NPCs) should have access to incredible abilities. As noted under *Cinematic Martial Artists* (p. 30), these can range from a few cinematic skills, through superhuman attributes and exotic advantages, to full-fledged super-powers – and perhaps include all of these things – depending on the GM's plans for the campaign. Minimum power level is around 200 points, simply because the PCs have to be able to afford such abilities.

Unlike realistic campaigns, cinematic campaigns don't demand that abilities line up with occupations. The cook at the noodle stand is often a master of chopping more than vegetables, the foppish duke could be a deadly swordsman, and the mild-mannered reporter might be a superhero by night. What matters isn't that a hero's skills are realistic – because they won't be – but that they're consistent with the legends about his fighting style and with his *personal* style.

Still, the templates in Chapter 2 can help players design many kinds of heroes found in martial-arts fiction – just apply the "Cinematic" lens! For instance, the ninja of legend would use the cinematic *Assassin* or *Spy* template, while an action-movie vigilante has the cinematic *Crimefighter* template. Several templates provide a "Tough Guy" lens for the player who wants his PC to thrive in a cinematic environment *without* flashy moves – an important archetype in many martial-arts tales.

Cinematic heroes should have at least some of the cinematic skills, techniques, and Style Perks listed for their style in Chapter 5, and probably several optional traits. This makes the style lenses under *Choosing a Style* (pp. 144-146) unsuitable, since they specifically exclude cinematic skills and techniques. However, "Self-Defense" and "Trained by a Fraud" have a way of showing up in *silly* stories . . . and tough guys without cinematic skills often have the "Military," "Police," or "Street" lens.

Above all, a cinematic PC or NPC needs a strong sense of his place in the campaign. Be he a bumbling fool with untapped talent, a brooding assassin, a square-jawed pulp hero, or a romantic swashbuckler, his personality, actions, fighting style, and gear should paint a single, vivid picture. For instance, cinematic ninja dress in black and use swords, not guns; pulp heroes do carry guns, but prefer fists; and swashbucklers use swords *and* pistols, but dress in lace and avoid skulking and brutish fisticuffs.

Mad, Crazy Action

Cinematic campaigns should move quickly and emphasize action over detail. When the heroes are taking on guns with fists and dashing up tree trunks, it's missing the point to worry about how hard it is to stand up in armor (you can do *acrobatics* in armor!) or whether it's possible to throw a Back Kick while seated (over the shoulder, of course!). Cinematic games should therefore avoid the high-detail options recommended for realistic campaigns in *Combat Realism* (pp. 237-238) – particularly those suggested under *Gritty Realism.* Instead, the GM should use the cinematic

rules he feels suit the genre and setting. Details vary, depending on how wild the campaign is supposed to be, but all cinematic games can benefit from *Faster Combat* (p. 126).

Larger-than-Life

This is *Borderline Realism* (pp. 237-238) writ large. The world is a lot like our own but cinematic martial artists can bend the rules, just like the heroes in pulp stories and Hollywood action movies. In a larger-than-life campaign, all of the barely realistic and cinematic rules listed under *Cinematic Combat* (pp. 125-133) are in effect *except* for *Chambara Fighting* (pp. 128-130) and *More Cinematic Combat Rules* (pp. 132-133). This allows acrobatics and extra effort in combat – and makes multiple attacks and defenses easier – but everything is within the realm of the possible under absolutely ideal conditions (that rarely occur in real life!).

Strengths: Gamers who want to play action heroes are happy. Players who find that silly aren't out of luck, because *not* buying Trained by a Master or Weapon Master means 20-45 more points for Bow or Guns – and they can exploit "merely" borderline-realistic rules such as *Tricky Shooting* (p. 121) to nail the annoying, back-flipping ninja. Since most gaming groups have mixed preferences but lean more toward the cinematic side, this might be the best compromise of all.

> *Yes, these are bruises from fighting, and yes, I'm okay with that. I am enlightened.*
>
> *– Narrator,* ***Fight Club***

Weaknesses: The presence of any cinematic abilities shatters many gamers' willing suspension of disbelief. Meanwhile, roleplayers who want *wuxia* or *chambara* heroes are liable to scoff at the campaign being called "cinematic." Once the genie of cinematic abilities is out of the bottle, there's no going back; some players will dump character points into such traits, yielding unbalanced PCs and making the game more cinematic than the GM intended.

Epic

Epic campaigns are the realm of *wuxia* and *chambara* films, which don't allow the laws of physics to get in the way of a good story. Every option in *Cinematic Combat* is potentially appropriate, except for *Bullet Time* (p. 133). The GM should still avoid silly rules – for instance, *Proxy Fighting* (p. 132) – in a serious game. Epic games don't make an intentional effort to violate natural laws, though. The goal is to remain true to legend, which often requires the world to be largely realistic for everyone but the heroes and their arch-enemies so that their abilities look suitably impressive.

Strengths: Comes closest to traditional martial-arts legend, and handles the often-campy action of movies that superimpose legendary abilities on modern settings. Thus, it's satisfactory to even the most demanding fan of martial-arts fiction. For the rest of us, it's just plain fun!

Weaknesses: Totally incompatible with a group that prefers realistic games. Epic campaigns aren't extreme enough for gamers who want superhero and anime martial artists with physics-warping capabilities unrelated to traditional martial arts, either. Unless the GM has mastered the rules, using many cinematic options can slow down play as much as using lots of detailed, realistic options – but *not* using cinematic rules defeats the purpose.

Over-the-Top

At the pinnacle of the cinematic pyramid are campaigns that work like anime or comic books, which – freed of the need for actors and sets, and limited only by the artists' imagination – *aren't* constrained by physics. Over-the-top games are totally unlimited. They might use extreme rules like *Bullet Time* and "switch off" certain core rules. For instance, the GM could ignore ST requirements for melee weapons to let elfin warriors wield greatswords one-handed; suspend *The Rule of 16* (p. B349) so that masters of Hypnotic Hands, Pressure Points, etc., are invincible; or ignore the limits of *Parrying Heavy Weapons* and *Parrying Unarmed* (p. B376) so that knives and fists can parry the heftiest weapons with impunity.

Strengths: Perfect for fans of anime, superhero comics, and movies filled with CGI effects. The GM can simply *ignore* a large number of rules that exist to make combat realistic, which lets the game run more quickly. Cartoon violence may make the violent martial-arts genre more acceptable to squeamish gamers and more suitable for younger players.

Weaknesses: Even those who love action movies may find that the bent physics and weak resemblance to reality make it hard to identify with their characters. Those who prefer realistic gaming but are willing to try a cinematic game may dislike the fact that realistic PCs seem like comic relief. The lack of limits on the PCs' capabilities can lead irresponsible players to assume that there are no limits on *behavior,* either, and things can rapidly grow sillier (or more offensive) than intended.

Hybrid Campaigns

Some genres lend themselves naturally to "hybrid" campaigns that mix cinematic and realistic elements. A hybrid can also result from a player-GM compromise on tastes and expectations. There are a number of ways to handle such games.

The simplest is to view realism level as a sliding scale with *Gritty Realism* (p. 237) at one end and *Over-the-Top* (see above) at the other. In this picture, hybrid campaigns fall into the area in the middle, where *Borderline Realism* (pp. 237-238) shades into *Larger-than-Life* (see above). The advice given for those campaign styles is all that's needed to run this type of hybrid. This is especially suitable for simple compromises and for dramatizations of real-world events (which are basically realistic but take some cinematic license to engage the audience).

A more intricate approach is to treat "realistic" and "cinematic" as two distinct sets of building blocks for campaigns. *Most* campaigns use either one set or the other – but with care, a good GM can blend elements from both. Below are two examples; see *The Secret Abilities Campaign* (p. 240) for a third.

Amazing Abilities

One option is to embed some of the unrealistic abilities from *Cinematic Characters* (p. 238) in a setting that obeys *Combat Realism* (pp. 237-238). Users can do the impossible, but without the protection from realistic consequences that would accompany their capabilities in a cinematic game world. A board-breaking karateka might know Power Blow . . . but if *Harsh Realism for Unarmed Fighters* (p. 124) is in effect, he must apply -2 to the ST of his off hand before multiplying it and risks breaking his hand if he slugs an enemy in the skull. A super-fast martial artist might have Extra Attack or even Altered Time Rate . . . at the cost of Increased Consumption, Short Lifespan, and Skinny to reflect his sped-up metabolism.

This approach suits conspiratorial settings that seem outwardly realistic but where the Secret Masters suppress knowledge of aliens, Bigfoot, psi powers, and so forth. In such a campaign, super-soldier serum or the teachings of Shangri-La might permit ordinary humans to perform amazing feats in a coldly unforgiving world. Of course, nothing says that a martial artist with uncanny abilities knows how they work, who wants to dissect him to figure him out, or what *other* secrets the universe holds.

Other possibilities include "gritty" fantasy, post-apocalypse, and superhero games. Magic, weird radiation, etc., might give rise to unusual gifts without shoring up the human body's weaknesses or making it any less painful to punch steel or bite dirt. A cinematic master might be capable of everything in the kung fu movies, but a knee in the groin can still make him let go and a crossbow bolt in the knee can still cripple him for life.

Strengths: Excellent for the specialized genres noted above, and also a useful way to introduce cinematic martial arts into an existing game without overshadowing everything else. If the combat realism level is gritty but the abilities are over-the-top, this type of campaign can unify a divided gaming group: the realism aficionados get blood, guts, and precisely customized swords and rifles, while the cinema buffs get cool powers.

Weaknesses: The limits of a realistic backdrop can backfire if the players turn the PCs' special abilities against a world that isn't ready for them. If cinematic abilities continue to triumph because of great die rolls, the players are liable to forget the risks of failure – which may lead to dead PCs when the luck finally runs out. Not everyone is comfortable with the idea of supernatural forces lurking in the real world.

The Secret Abilities Campaign

A special type of hybrid campaign is one where the setting is no more realistic than a cinematic one but the heroes initially have little or no access to special abilities. This isn't because those advantages, skills, and techniques don't exist, but because they're emerging for the first time, reappearing after centuries of neglect, or controlled by masters who haven't chosen to reveal themselves to the world. Whatever cinematic abilities the GM allows, the PCs must discover most or all of them in play. Adventure possibilities include tracking down rumors and ancient writings, seeking a master, and dealing with the jealousy of rivals and the fear of the less-gifted.

The GM could even develop a Secret Abilities campaign slowly and artfully from an established realistic campaign. He should subtly feel out the players ahead of time to ensure that they're open to such a shift, of course. Fantastic elements would show up first on the periphery, then as minor special abilities in the hands of foes, and so on. Ultimately, the PCs would end up with capabilities totally outside their original concepts.

This isn't the same as *Amazing Abilities* (see above). Both kinds of games feature Secret Masters and strange powers set against a backdrop that looks like our own world, but the heroes of a Secret Abilities story *aren't* in a realistic setting; they're simply unaware of what's possible with suitable training, or that their grasp of the laws of the universe is incomplete. A common theme in this kind of tale is for one of the heroes to experience an event that should have been fatal – and would have been, in the real world – only to cheat death at the last moment by doing something he *thought* was impossible, or to awaken in the care of an ancient master or mysterious monks who reveal the truth.

Strengths: In keeping with a lot of traditional martial-arts fiction, and therefore with players' expectations of how cinematic heroes start their careers. The GM can phase in cinematic abilities and rules *gradually,* so that he and the players can learn at a reasonable pace. The GM has maximum control of the cinematic options allowed, which helps prevent the worst abuses.

Weaknesses: Proponents of cinematic games might get anxious waiting for things to get moving. If the cinematic truths are revealed suddenly in an overtly realistic game, players may resent the "bait and switch" nature of the campaign. On the other hand, if the GM is forthright with his plans, the players may look for clues and secret masters at every turn, and hoard character points for cinematic abilities instead of developing their characters.

Rubber Realism

On the other hand, the PCs might be constrained by *Realistic Characters* (pp. 236-237) in a world that operates according to *Mad, Crazy Action* (pp. 238-239). In that case, adept martial artists can do more not because they have unrealistic abilities but because they're good at realistic skills in a world where "realism" is bent or broken. For instance, being an expert at Acrobatics would allow amazing dodging and movement, and a sufficiently high level of Karate would permit many attacks with a Rapid Strike . . . but because nobody knows Flying Leap, Light Walk, or Lizard Climb, *those* stunts wouldn't be possible.

This kind of campaign is more suitable than a purely cinematic one for simulating modern action movies where the violence is unrealistic but mythical martial-arts abilities are unknown. Bullets don't hurt much and explosions are slow enough to outrun, but martial arts are merely another weapon in the arsenal, alongside big guns, explosives, and speeding cars. Campaigns inspired by epic costume pieces (notably "sword and sandal" films) can also work this way. The heroes all have perfect teeth and

shiny armor, and never die from an infected wound, but it's all thanks to destiny, valor, or divine favor – not strange martial-arts abilities.

Strengths: At the combat realism level of *Larger-than-Life* (p. 239), this type of game shares the strengths of *Borderline Realism* (p. 237-238); in fact, many roleplayers are willing to accept the realism level of *Epic* (p. 239) as long as the *characters* are believable. This approach is handy for cinematic games where martial arts exist but aren't supposed to be in the spotlight.

Weaknesses: Devotees of historical fiction will find the lack of festering wounds and bad breath disappointing. Cinema enthusiasts might not see the point of allowing flashy forms of Move and Attack without cinematic techniques to remove the penalties, large numbers of Rapid Strikes without Trained by a Master to offset *those* penalties, and so on. Thus, rubber realism can further split a divided group if the GM isn't diplomatic.

Campaign Setting

After determining the realism level of his ***Martial Arts*** campaign – including its power level – the GM must choose its setting. This decision influences the types of martial artists suitable as PCs, the styles they can learn, and the kinds of adventures they'll have.

Tech Level

Tech level (see pp. B511-514) is a crucial parameter in any setting but *particularly* important in a ***Martial Arts*** campaign. Technology – guns in particular – can diminish the importance of martial-arts skills or render them completely irrelevant!

> *When you get into a fight, everybody reacts differently.*
>
> *– Bruce Lee*

At TL0-3, portable firearms are nonexistent – or so weak as to be no more threatening than muscle-powered weapons. Melee weapons and low-tech missile weapons decide battles, making martial-arts skills *vital* for warriors. Cinematic abilities can make their wielders supreme! Metallic armor, especially in TL3, makes unarmed combat difficult . . . but armed styles take into account both wearing and defeating such armor.

At TL4, guns begin to dominate the battlefield. Martial artists become less relevant; warfare is about massed firepower more than individual skills. Armor remains heavy but grows less common as firearms advance, and is rare *off* the battlefield. Martial-arts skills remain important when the powder runs out, for missions where guns aren't ideal (taking prisoners, stealthy operations, etc.), and in civilian affrays.

At TL5-8, increasingly efficient repeating firearms appear. Armor is rare, so unarmed fighters and melee weapons can in theory be effective . . . but guns are *many times* as lethal. To be relevant, martial artists need to pour far more points into their skills than do their gun-armed friends and foes. By TL6, even potent cinematic abilities are less useful than an automatic weapon and a point or two in Guns.

At TL9+, *realistic* ultra-tech renders martial arts little more than a specialized niche. The trend might reverse in a space-opera universe, though. For instance, fighters might wear personal force screens that can stop bullets and beams from small arms, but which have little effect on relatively slow melee attacks. Or they might wield force swords and be able to parry incoming fire with impunity!

Other Fantastic Abilities

There's no need to limit superhuman abilities to chi powers and cinematic skills and techniques in a ***Martial Arts*** game. Gamers *expect* magic in fantasy and psionics in space opera. Regardless of genre, such elements are an excellent match for the myths associated with some styles. The GM should also consider the role of nonhumans and supernatural events. These might be the campaign's focus or inexplicable elements on its fringes, but both feature prominently in martial-arts legend. For details about the folklore and remarkable claims surrounding particular arts, see Chapter 5.

Time and Place

A campaign's location and period largely determine the available martial arts. A style doesn't exist until it's founded . . . and often disappears after its heyday. For instance, heroes can't learn Jeet Kune Do (pp. 164-165) in 19th-century China and will have difficulty finding training in Knightly Mounted Combat (pp. 175-177) in 20th-century America. These considerations needn't be rigid, though – a globetrotting game can include styles from all over, a time-travel campaign can feature the arts of any period, and the Infinite Worlds setting knows *no* limits!

Classical Greece and Rome

Classical Greece was home to some of the world's oldest verifiable fighting arts. Those described in ***Martial Arts*** include Ancient Greek Boxing (p. 153), Pankration (pp. 188-189), and Wrestling (pp. 204-206). Treat Greek wrestling as Submission Wrestling (p. 205) – the styles are very similar.

The most important martial arts of ancient Rome were Armatura (p. 150) and Armatura Equestris (p. 150), developed for the legions. Rome had relatively few native unarmed arts. Gladiators and dedicated legionaries tended to adopt Greek styles of barehanded fighting.

An especially appropriate theme for the Classical campaign is *The Contender* (p. 250), with the PCs playing Olympic wrestlers, boxers, and pankrationists. Greek fighters such as Milo of Croton (p. 21) and Theogenes of Thasos (p. 21) were professionals, fighting full-time. Theogenes fought so often that he lacked the time to earn his keep any other way! Between Olympic events, athletes toured, competing for prize money in regional matches. The Olympics were the season's peak event. Roman gladiators suit this theme equally well – pampered, massaged, fed, and trained to fight. The call of the arena seduced free men and women, even nobles, to take up the trident and net.

Another excellent theme is *War is Hell* (p. 248). Warrior PCs might be elite members of Alexander's Companions, Spartan hoplites, or Roman legionaries. Appropriate Greek styles are Hoplomachia (pp. 161-162) for hoplites and Heroic Spear Fighting (p. 196) for the early Greek warriors of Homeric epic. Armatura and Armatura Equestris suit Roman troops.

The Quest (p. 247) is almost required for a mythic Greek game. The Gods are always sending strapping young heroes (sometimes demigods) on quests that demand much swordplay, spear combat, and wrestling. On completing their quest, the heroes usually end up in charge. This sets the stage for a mythic War is Hell game, as the heroes fight to expand – or merely to keep – their kingdom.

Historical China

No place is more storied in the martial arts than China. In fact, China's influence is so profound that many people associate the term "martial arts" exclusively with Asian arts – and sometimes specifically with *Chinese* ones.

Spring and Autumn

The period known as "Spring and Autumn" lasted from 722 to 481 B.C. It was during this time that the *xia* lived (see *Xia,* p. 8). The xia are a ***Martial Arts*** campaign waiting to happen. Many modern martial-arts legends originate in tales of the xia.

The xia confront bandits, corrupt bureaucrats, evil warlords, and injustice in general. In a magical campaign, they face the supernatural as well. The *Vigilante Justice* (p. 249) theme is tailor-made for them – they aren't government officials but self-motivated do-gooders bent on justice, not law! The period of the xia is rather short, but there's no good reason not to extend it. Later xia might confront Mongol invaders, fight the Manchu, and stand side-by-side with Shaolin monks.

Virtually any kung fu style is appropriate for xia. In a cinematic game, *any* Chinese style works, no matter how anachronistic. Cinematic Wushu (pp. 206-207) is especially suitable. It's a 20th-century style, but actors in *wuxia* movies are frequently Wushu practitioners.

Campaigns featuring xia work best if using the realism level described for *Epic* (p. 239) or even *Over-the-Top* (p. 239), as legends of the xia emphasize abilities far beyond the constraints of reality. Almost any power level can work if cinematic abilities exist – although players familiar with the genre might be disappointed if the game lacks wire-work, invincible swordsmen, and magic, all of which drive up the power level. Even in games that lack cinematic abilities, the *PCs* should firmly believe in such things and expect and respect the supernatural.

Medieval China

"Medieval China" describes a long period for a huge country. This can be daunting to those unfamiliar with Chinese history, but the necessary research is worth the effort – frequent warfare, secret societies, invasion, and rebellion make it a time of high adventure! Many kung fu styles claim origins in this era, too, so PCs can interact directly with style founders . . . or *be* them, in a high-powered game. Finally, the Shaolin Temple is at the height of its power during this age.

Any kung fu style would fit a game set in medieval China. Styles with a verifiable existence during the early years, such as Shaolin Kung Fu (p. 194), are appropriate throughout the period. Later styles, such as Pak Hok (p. 188) and T'ai Chi Chuan (pp. 200-201), *claim* earlier origins and wouldn't be out of place. As always, Wushu (pp. 206-207) works well in a cinematic campaign thanks to its appearance in modern films.

Modern China

Modern China is fertile ground for adventure – especially during the tail end of the 19th century and opening decades of the 20th.

From 1899 until 1901, the Boxer Rebellion raged. Those events make an excellent backdrop for confrontations between martial arts and modern firepower. A campaign could focus on waves of sword-wielding kung fu artists versus small groups of heroic Japanese, Americans, and Europeans . . . or on heroic Chinese martial artists rallying their brethren against colonial oppressors!

A down side to this kind of campaign is that the Boxer Rebellion demonstrated just how ineffective the martial arts are against guns and disciplined troops. This might still be true in a game with cinematic abilities – Hypnotic Hands and Power Blow won't stop bullets. Heroes with unrealistically high Dodge scores *can* handle gunfire routinely, but this unbalances melee combat. The Rebellion is a great background for a Secret Abilities campaign (p. 240), though: perhaps the Boxers *had* special abilities, just not enough masters to defeat the numbers and technology of the colonial powers.

In the decades after the Boxer Rebellion and before World War II, China is a land in chaos, with enemies inside and out. Foreigners and Chinese can adventure side-by-side. In the 1920s and 1930s, feuding warlords, White Russian refugees, Western adventurers, encroaching Japanese, and a Communist revolution provide an explosive mix . . . all in a land steeped in martial arts. Many period-piece movies are set in this time, including the *Once Upon a Time in China* series and Bruce Lee's *The Chinese Connection*.

William Fairbairn's (pp. 23-24) special police unit in Shanghai – constantly involved in tricky situations and fights (armed and unarmed), and with a colorful character in charge – is a great employer for PCs in this period. It's also a good backdrop for a high-realism campaign. Fairbairn himself suffered serious injury using his martial arts against troublemakers!

After WWII, Communist China suppressed the association of superhuman powers with the martial arts. Chinese

movies kept the myths alive, however. These were often period pieces set in the era of the *xia* or the Shaolin Temple. While many were made in pre-unification Hong Kong, epics such as *Crouching Tiger, Hidden Dragon* and *Hero* are more recent, and highly regarded as *wuxia*. Actors in these movies practice Wushu (pp. 206-207), which is China's official art, making it suitable for modern Chinese martial artists even in a cinematic game. It *is* still possible to train in all other forms of kung fu in China, however.

Historical Japan

Japan has a rich martial-arts history. Like China, it's often synonymous with "martial arts" in the popular mind. Two groups of historical Japanese martial artists – the samurai and the ninja – are the subject of a large proportion of martial-arts legend and fiction.

The "Samurai Era" and Tokugawa Era

The samurai were central to Japanese martial arts from about 800 A.D. until abolished as a class in the 19th century. Along with low-born hopefuls, they fought in the constant conflicts that first fractured and then eventually unified Japan. They rose to prominence when the Yamato government began to rely on local nobles to provide mounted archers, and remained important until around 1600, when Japan was unified under the Tokugawa Shogunate. After that, battle became rare but the martial arts didn't decline in popularity or social importance.

This entire period is flush with martial arts. Armed styles prevail – taking on armored opponents barehanded is foolhardy if there are weapons handy! Appropriate styles include Bajutsu (p. 151), Bojutsu (p. 192), Iaijutsu (p. 174), Kenjutsu (pp. 173-175), Kusarijutsu (p. 179), Kusarigamajutsu (p. 180), Kyujutsu (pp. 179-180), Naginatajutsu (p. 186), and Sojutsu (pp. 197-198). Shurikenjutsu (pp. 195-197) also exists, and grows useful later in the period, when armor heavy enough to shrug off shuriken isn't worn routinely. An early samurai would be an expert in the bow and regard it as the central weapon of combat. Later samurai would emphasize the sword, spear, and polearms – but the bow remains in use even after the advent of the gun. On Okinawa, the main weapon style is Kobujutsu (p. 178), although samurai from the mainland and those educated in China practice styles from abroad, too.

Unarmed styles include Aikijutsu (p. 149) and Jujutsu (pp. 166-168). Sumo (pp. 198-199) is mainly a sport . . . but some sources have lords hiring *sumotori* as bodyguards, implying that sumo hadn't yet lost all combat utility. Te (pp. 169-170) is the dominant barehanded style on Okinawa, but frequent contact with China makes kung fu styles another possibility.

Ninja participated in the conflicts of this era. Ninja characters should be trained in Taijutsu (pp. 202-203) and some of the armed styles listed for samurai. For more on the topic, see *Ninja and Ninjutsu* (p. 202).

The Tokugawa era marked an end to the continuous conflict. With more students and instructors surviving to pass on their skills, the period saw an explosion in the number of *ryuha*. Some detractors point out that this was partly because *ineffective* styles survived – styles that in an earlier era would have gotten their proponents killed in combat before they could pass on their art. On the other hand, Musashi Miyamoto (pp. 21-22) was active at this time and founded *Niten Ichi Ryu* (see *Nito Ryu,* pp. 174-175) . . . and the founder of Jojutsu (p. 192) created his style after an encounter with Musashi. Both styles are quite effective!

What's certain is that a game set in this age would feature all of the earlier styles plus those developed during the peaceful times that followed. Many of these arts suit any Japanese campaign set before the modern era. Some exist even today, although *-do* forms are more common than *-jutsu* forms.

Most Japanese movies and manga depicting these periods boast cinematic abilities *and* extreme bloodshed. A campaign inspired by this fiction would be an excellent hybrid (see *Hybrid Campaigns,* pp. 239-241). It might adopt such realistic rules as *Harsh Realism for Unarmed Fighters* (p. 124) and *Realistic Injury* (pp. 136-139) (*Extreme Dismemberment* in particular!), but depict reality as described for *Borderline Realism* (pp. 237-238) or even *Epic* (p. 239) games. Especially appropriate themes are *The Quest* (p. 247) and *War is Hell* (p. 248).

Running historically accurate Japanese characters can be challenging for non-Japanese. However, such anime as *Samurai Champloo* simply transplant modern attitudes into the era to facilitate the story. The GM might wish to do the same.

Modern Japan

After World War II, the American occupiers initially banned most martial arts. The ban didn't hold up for long, though. American servicemen often trained enthusiastically, and many went on to found dojos upon returning to the U.S. The most famous modern art was probably Karate (pp. 169-172), introduced into Japan prior to WWII by Okinawan instructors.

Today, Karate (especially Shotokan and Kyokushin), Aikido (p. 149), and Taijutsu (pp. 202-203) are all popular. In addition, *-do* forms of most historical combat arts still exist and some schools keep ancient traditions alive. Yabusame (p. 181) practitioners demonstrate their art on holidays. Japanese participation in Sumo (pp. 198-199) is declining but the sport is still wildly popular – and a steady influx of foreign-born wrestlers competing at the top levels keeps interest high. Such sports as Judo (p. 166), Kendo (p. 175), and Kyudo (p. 181) are common activities for Japanese teenagers, although people of all ages participate.

In late 20th- and early 21st-century Japan, mixed martial arts (p. 189) are becoming more popular. There are a number of competing "brands" or leagues, and fighters often compete in several of these. MMA and kickboxing matches are major television events, and participants endorse products and make TV appearances quite unrelated to fighting!

A modern Japanese campaign might have any realism level and any theme. Recent Japanese fiction runs the gamut from *Gritty Realism* (p. 237) to *Over-the-Top* (p. 239). Modern Japan is relatively safe, though, making the "Street" lens (p. 145) on styles inappropriate and the courses represented by "Self-Defense" (p. 145) vanishingly rare. Even the riot police train in formal, traditional styles.

Post-Classical Europe

The uninformed often regard Europe as the poor cousin of the martial-arts world – a latecomer that only developed true "martial arts" in the 19th and 20th centuries. In fact, Europe has *always* had martial-arts styles, taught by dedicated instructors who handed down their art from generation to generation. Few ancient arts survived because, unlike China and Japan, Europe lacked long periods of peace during which to preserve them. European styles had to adapt continuously to the changing face of combat!

Medieval Europe

The dominant battlefield styles for a medieval European campaign are mounted. Most important is Knightly Mounted Combat (pp. 175-177), the version depending on the period. The style detailed under *Early Medieval* is suitable until the 12th century – and practitioners might coexist with Byzantine cavalry trained in Armatura Equestris (p. 150). The variety under *High Medieval* is appropriate for the 12th through 14th centuries. *Late Medieval* describes the form that accompanied the adoption of plate armor by knights, and suits the end of the Middle Ages. In Outremer, the Crusaders' Muslim foes and local allies practice Furusiyya (pp. 159-161). Finally, while Bajutsu (p. 151) is Japanese, Christian and Islamic knights alike have equivalent training.

On foot, styles used by both nobles and commoners include Sword-and-Shield Fighting (pp. 199-200) and Sword-and-Buckler Play (p. 199). The latter is especially popular with wealthy commoners, students, and city-dwelling young men of all kinds. Dagger Fighting (p. 155) suits both students and toughs seeking an edge in a brawl, as well as soldiers and knights skilled with their backup weapon. The "ultimate" commoner art is Masters of Defence Weapon Training (p. 182). Its exponents train in a wide variety of weapons for both the battlefield and individual combat.

Primarily unarmed martial arts are also in wide use. Wrestling is a popular pastime, and Combat Wrestling (pp. 204-205) is a serious combative art. Striking styles include a form of Bare-Knuckle Boxing (p. 153) – but in this period, the Boxing skill is out of fashion. Bouts use Brawling, and fighters who duck, parry, or avoid attacks are seen as cowardly and weak. The object is to batter your rival with punches before his blows stop *you* in your tracks! Complex striking arts such as Pankration (pp. 188-189) are all but lost thanks to the decline of a structured system of support for professional athletes, Christian denunciations of gladiatorial games, and the simple fact that wrestling is more practical against armored foes.

Many themes suit the era. *The Quest* (p. 247) might involve efforts to reclaim the Holy Lands – or the Holy Grail. *War Is Hell* (p. 248) is ideal for any of the Crusades or many European wars. *Wanted!* (p. 249) is of course perfect for a campaign inspired by Robin Hood. *The Contender* (p. 250) works well in later eras, with the PCs as a group of knights errant or wandering Masters of Defence, fighting at tourneys and displaying their skills.

Renaissance Europe

Contrary to common belief, guns didn't instantly render armor obsolete and in doing so inspire the replacement of heavy, armor-defeating weapons with lighter blades. That's a rough summary of about *400 years* of evolution, much of it post-Renaissance – that is, all of TL4. Guns, armor, and fencing coexisted for centuries. Civilians carried fencing weapons; soldiers used firearms and polearms, and armor grew heavier in response. The rapier was for the street and private grievances; halberd, pike, and two-handed sword dominated melees in the affairs of kings. Thus, many medieval European arts survived well into the Renaissance.

Most civilians and others who seek "self-defense" or dueling arts will study fencing in a Renaissance campaign. The rapier appears early on, with the Italian School (pp. 156-157). Proponents of Masters of Defence Weapon Training (p. 182), notably George Silver (p. 22), still teach their art but are losing out to the more fashionable and popular rapier.

On the battlefield, soldiers wield halberds using a style almost identical to Chinese Horse-Cutter Fighting (p. 187), or use glaives and bills with Glaive Fighting (p. 187). Knights and infantry with two-handed swords train at Longsword Fighting (pp. 180-182). Foot soldiers, knights, and civilians alike learn Dagger Fighting (p. 155) and Shortsword Fighting (p. 195). Across the Mediterranean, the Mamluks of Egypt still practice Furusiyya (pp. 159-161) – and continue to do so until defeated by Napoleon in 1796!

Unarmed arts are virtually unchanged from the Middle Ages. The main combative style is Combat Wrestling (pp. 204-205). Brutal Bare-Knuckle Boxing (p. 153) matches in front of wagering crowds remain common in urban and rural areas alike. Armed styles typically include the grappling, throwing, and locking skills needed to defeat an armed and often armored adversary.

Swashbuckling Europe

The rise of the state and the disappearance of the armored knight didn't bring about a decline in the martial arts. In fact, they rang in an era of legendary swordsmen – although the most famous of these lived in later works of fiction! Martial arts suitable for a post-Renaissance campaign vary with the chosen time period, but fencing styles are without a doubt the most important of these.

In a swashbuckling campaign, both arms and armor are *light.* Rapiers – and later, smallswords – are as much a fashion accessory as a means of personal violence. Armor is rare aside from ornate dress suits; even on the battlefield, only such specialized troops as cuirassiers (heavy cavalry equipped with swords, breastplates, and helmets) wear it.

In warfare, guns dominate but skirmishing with blades continues. Military men favor heavy cut-and-thrust swords over fencing weapons for this purpose. Despite the much-touted "primacy of the point," they still prefer a blade heavy enough to whack through helmets, shakos, and skulls

during wartime – and substantial enough to counter bayonets and the exotic weapons of hostile natives. Officers learn to use fencing weapons for duels *and* heavier swords for battle, and carry the weapon appropriate to the situation. A cavalry saber would be decidedly gauche at court, while a smallsword isn't ideal when facing charging cuirassiers.

Two groups in this period lend themselves especially well to a ***Martial Arts*** game: Musketeers and pirates. The Musketeers are an elite force of mounted infantry who serve the king of France. Early on, they use the rapier, cloak, and main-gauche more than their namesake weapon. After 1720 or so they favor the smallsword, but still prefer the blade to the gun for settling affairs of honor. The Italian School (pp. 156-157), Transitional French School (pp. 158-159), and French Smallsword (p. 159) are ideal styles for Musketeers and their rivals. La Verdadera Destreza (p. 158) fits Spanish-centered games – and Spanish-trained rivals of PCs in the King's service! Unarmed combat rarely figures in accounts of the period, but low-born fighters using Bare-Knuckle Boxing (p. 153), Dagger Fighting (p. 155), and possibly Savate (pp. 193-194) can keep the game from becoming too sword-centered.

Some pirates fence, too – especially fictional ones such as Captain Blood (from the books by Rafael Sabatini) and the heroes of Errol Flynn movies. They don't have "chi abilities" but *do* display aptitude beyond that of normal men. Historical pirates would more likely be of common birth and have little opportunity to learn fencing. Appropriate styles for them include Bare-Knuckle Boxing, Dagger Fighting, and Combat Wrestling (pp. 204-205). Pirates range far and wide, and might encounter slaves adept at Capoeira (pp. 153-154), experts at African Stickfighting (p. 157), dismounted Mamluks using Furusiyya (pp. 159-161) to protect their fleet, Indonesians who practice Pentjak Silat (pp. 189-191), and so on. In a sufficiently cinematic (or well-traveled historical) campaign, practitioners of all of these styles might find their way to the Spanish Main!

Swashbuckling almost *demands* a low realism level and a highly cinematic treatment; see *Borderline Realism* (pp. 237-238) and *Epic* (p. 239). However, it's perfectly valid to run an extremely realistic game set in this period, especially one centered on pirates or historical European wars. Almost any theme can work. *Wanted!* (p. 249) and *The Quest* (p. 247) suit the freebooting character of pirates. A Musketeer-style campaign works better with *War is Hell* (p. 248) – or even *Vigilante Justice* (p. 249), in the spirit of the Scarlet Pimpernel.

Fantasy

Fantasy games generally take place in pre-gunpowder environments where muscle-powered melee and missile weapons dominate combat. Such settings are ideal for the martial arts! Warriors who depend on their brawn for warfare, monster-slaying, and questing after treasure will almost certainly develop advanced fighting styles.

Two fictional styles tailored to fantasy campaigns appear in Chapter 5: Death Fist (pp. 207-208) is exclusively for mages, while Dragon-Man Kung Fu (pp. 208-209) can grant almost anyone "magical" powers. Many historical styles work as well. Traditional fantasy often takes place in a setting heavily influenced by medieval Europe, so such medieval arts as Knightly Mounted Combat (pp. 175-177) and Quarterstaff (pp. 192-193) are appropriate. Well-rounded fighters should look at Masters of Defence Weapon Training (p. 182) – especially if the GM allows the Weapon Master advantage. For barehanded fantasy warriors, Pankration (pp. 188-189) is an excellent choice. In a game world inspired by historical Asia, the many Asian styles that trace their origins to ancient times are similarly useful.

Kalaripayit (pp. 168-169) and Pentjak Silat (pp. 189-191) are particularly well-suited to a game that features magic. The former has spell-like mantras, while practitioners of the latter ascribe magical powers to the *kris*. If magic is a real, active force, then it would greatly enhance either art.

Most fantasy campaigns include magic use, so cinematic martial-arts abilities aren't likely to pose much of a threat to game balance – in fact, they can actually *strengthen* it. If fighters can use Power Blow and Flying Leap, then their players are less likely to feel overwhelmed by mages who can fly and toss fireballs. A blend of *some* cinematic feats with generally realistic combat rules can also be fun, however; see *Hybrid Campaigns* (pp. 239-241). Any theme can work – "fantasy" is a broad category – but of course *The Quest* (p. 247) is a time-honored tradition.

Yrth

The land of Yrth, detailed in ***GURPS Banestorm,*** is an excellent setting for a ***Martial Arts*** campaign. Any medieval European or Islamic style *might* be present! Particularly suitable are Furusiyya (pp. 159-161), the High Medieval variation on Knightly Mounted Combat (pp. 175-177), Longsword Fighting (pp. 180-182), Masters of Defence Weapon Training (p. 182), Pollaxe Fighting (p. 191), and Quarterstaff (pp. 192-193) – and Viking Spear Fighting (p. 197), at least in the Nomad Lands.

There's plenty of room for regional specialties, too. Classical arts, notably Ancient Greek Boxing (p. 153) and Pankration (pp. 188-189), might reemerge in Megalan arena combat. In Araterre, such fencing styles as the Italian School (p. 156), La Verdadera Destreza (p. 158), and Transitional French School (pp. 156-157) are suitable – albeit with less emphasis on lighter blades and more on swords capable of defeating armored opponents. Sahud is likely home to *many* Asian arts, including most kung fu styles and Japanese martial arts; Okinawan immigrants might even have brought Te (pp. 169-170). In any of these regions, the presence of multiple Earthly styles makes unusual combinations probable. Sahud in particular is a confusing blend of cultures and doubtless home to a bewildering variety of "fusion" martial arts.

Later banestorms could convey students and instructors of more recent styles to Yrth. Bear in mind that Yrth is a combative place, though. Styles intended for fitness, artistic display, or theatrics in a modern, gun-dominated environment simply won't do as well as arts that employ melee weapons and teach techniques useful in combat.

On top of all this, nonhumans on Yrth surely brought *their* styles; see *Smasha* (p. 210) for an example. And of course human and nonhuman systems will adapt, blend, and cross-train in strange ways, leading to variations unheard of on Earth. A campaign set outside Sahud is unlikely to fit the "kung fu movie" stereotype, but martial artists have a role to play in *any* combat-heavy game – or even in one that features tournaments and the accompanying courtly intrigues.

Modern Day

Modern-day games are among the easiest to stage. The players are intimately familiar with the setting. Adventure ideas are no further away than the daily news. Best of all, such campaigns can take advantage of an *incredibly* broad range of martial arts.

For one thing, *many* of the traditional arts described in *Historical and Modern Styles* (pp. 148-207) exist in the modern world. Styles formerly available only in remote locales or to select students have spread worldwide; usually, the sole requirement for training is a monthly fee. As well, recreationists have restored many "lost" styles using the original manuals, making it possible to study Longsword Fighting (p. 180-182), historical fencing (pp. 156-159), and so on. The Internet gives anyone with access to a computer the ability to look at reproductions of priceless historical documents that would otherwise be available only to a lucky few scholars – and these are often digital copies of the originals, not merely text.

There's also a wealth of *new* martial arts to choose from. Styles such as Aikido (p. 149), Brazilian Jiu-jitsu (pp. 167-168), Jeet Kune Do (pp. 164-165), Kajukenbo (p. 168), Karate (p. 183), Krav Maga (p. 185), Sambo (pp. 169-172), and Tae Kwon Do (p. 200), to name but a few, are 20th-century creations, even if they claim older roots. Mixed martial arts (p. 189) are exciting, popular, and an entirely modern invention – one that owes a lot to no-holds-barred spectacles broadcast on TV.

A few of the style lenses under *Choosing a Style* (pp. 144-146) are especially appropriate in a modern-day game. The "Police" lens suits cops, from patrolmen to SWAT. "Self-Defense" is common for those learning quick-and-dirty techniques to protect themselves from crime. And "Trained by a Fraud" fits both McDojo students and store-bought black belts.

The main challenge in a modern-day game is "gun control." Dozens of points spent on martial-arts abilities can become irrelevant in a single burst of gunfire. The law is another obstacle: except in a cinematic game, punches and kicks that can incapacitate a foe can land you in prison. For more on this topic, see *Martial Arts and the Law* (pp. 26-27).

Many themes can work in a present-day campaign, but today's focus on the martial arts as sports makes *The Contender* (p. 250) especially fitting. *To Serve and Protect* (pp. 247-248) and *Vigilante Justice* (p. 249) are good for action-movie games. Any realism level is appropriate, but because players in modern-day games often expect something between *Gritty Realism* (p. 237) and *Moderate Realism* (p. 247), the GM should introduce cinematic elements with care.

Post-Apocalypse

Most post-apocalypse stories are set after a nuclear war, natural disaster (asteroid strikes and plagues are popular), or supernatural force (often zombies) has devastated the world. Civilization has collapsed or is rapidly disintegrating, and its comforts – from automobiles to mass-produced ammunition – are in short supply. In some scenarios, tiny pockets of survivors carve out lives in the aftermath. In others, warlords forge empires from the ruins.

This is an ideal backdrop for a ***Martial Arts*** game, because the GM can inject *limited* doses of the technology that makes modern-day campaigns amusing – snazzy firearms, explosives, etc. – into a world where melee combat enjoys the same importance that it has in a pre-gunpowder setting. Ammo and spare parts for high-tech gear are in short supply . . . but fists, feet, sticks, and knives always work. Any art that suits a modern-day game might survive. The "Military," "Street," and "Self-Defense" style lenses (pp. 144-145) are all useful for stripping down martial arts for combat. If there are unusual threats to confront, completely new styles might emerge – just imagine one built around weapons and tactics effective against zombies!

The role of martial artists can vary. If the GM emphasizes "might makes right," then a pocket empire might grow around a martial-arts master and his loyal disciples – or a warlord could employ such fighters to train his army. Alternatively, martial artists might go into voluntary exile, shunning the shattered world to concentrate on their art. Hermit masters are a trope of martial-arts fiction. Campy, mutant-filled worlds are another post-apocalypse staple, and equally suitable for a ***Martial Arts*** game. Mutants might roam the hostile wastelands, and ultra-tech weapons could go hand-in-hand with kung fu. "Chi powers" could even be *mutant* powers!

The Quest (p. 247) is the most important theme, and typically involves the search for some lost bit of technology that can save the world. However, *War is Hell* (p. 248) works for soldiers serving a warlord, and *The Contender* (p. 250) suits a game centered on B-movie death sports played out in the ruins of civilization. Any realism level is possible. Mutants, or sword-wielding barbarians fighting sorcerers in the ruins, call for *Epic* (p. 239) or *Over-the-Top* (p. 239). For survivors eking out an existence in an unfriendly world, though, *Gritty Realism* (p. 237) is ideal.

Science Fiction

Most science-fiction settings fall into one of two broad categories: "space opera" or "hard science."

Space Opera

The space-opera genre is sometimes called "sword and blaster" for a reason: warriors of the future seem to rely as much on a trusty blade – be it a force sword or a material one – as on ultra-tech firearms. Stories often feature low-tech natives who have their own forms of swordsmanship for these futuristic fencers to contend with. All of this is ideal for a ***Martial Arts*** game!

If martial artists use force swords, then they're likely to study Precognitive Parry (p. 62) in order to deflect energy bolts. This puts swordsmanship and marksmanship on an equal footing. Force-Swordsmanship (p. 209) is tailor-made for such games. With sufficient investment in a chi-powered Innate Attack (pp. 45-47), a cinematic fighter can rival guns and missiles even at a distance.

Alternatively, swordsmen might prefer traditional blades, or ultra-tech upgrades such as vibroblades and monomolecular swords. The best-known example of this appears in Frank Herbert's *Dune,* where force shields can stop swift blows but not a knife pushed slowly through the screen. In such a setting, Dagger Fighting (p. 155) and Combat Wrestling (pp. 204-205) – or even a renamed version of Jujutsu (pp. 166-168) – would be *de rigueur* for a serious martial artist.

Any martial-arts style can work in a space-opera game. The more it relies on weapons amenable to ultra-tech improvements – whips become *monowire* whips, katanas become *vibro*-katanas, three-part staffs become flexible stun batons, etc. – the better. Unarmed arts also suit the genre, especially in swashbuckling games where two-fisted heroes fight bug-eyed monsters on any terms possible.

Campaign themes for space-opera games include *The Quest* (p. 247), with the heroes seeking an elusive force-sword master; *War is Hell* (p. 248), for soldiers fighting for or against the Galactic Emperor's legions; and *Warriors of the Night* (pp. 249-250), for ultra-tech ninja using cinematic abilities against aliens. Realism is strictly optional. Any of the lenses under *Mad, Crazy Action* (pp. 238-239) is appropriate.

Hard Science

Hard-science games are set in a future with little or no "superscience." Blasters, bug-eyed aliens, faster-than-light travel, psionics, etc., are rare or nonexistent. Stories often take place entirely on near-future Earth or within the solar system.

This kind of campaign faces the same challenges as a modern-day game – notably, the superiority of guns to muscle-powered combat – without the up side of player familiarity with the game world. Still, hard science fiction can be a good place for the martial arts. Indeed, if the campaign is set in Earth's future, it would be difficult to justify the demise of the martial arts when they've already survived *millennia* of technological change!

Appropriate styles are as described for *Modern Day* (p. 246). Moreover, if martial-arts history is anything to go by, new needs will inspire fresh styles. For instance, if people live and fight in low gravity, they'll invent fighting arts for their environment. This is the logic behind Freefighting (p. 210), which doesn't require superscience or chi powers to be effective.

Such a campaign can still feature cinematic abilities. Consider William Gibson's near-future tale *Neuromancer,* which includes a ninja who seems to possess the Blind Fighting skill. Cybernetic implants, biotech, and advanced physical and psychological conditioning can all provide believable explanations.

Realism levels and campaign themes are as for *Modern Day.* Hard science *generally* favors a realistic game. The GM shouldn't feel bound by this, however.

Campaign Themes

After choosing a realism level and setting for his campaign, the GM should lend some thought to its tone. What's its focal point, if any? What sorts of roles do the PCs play? In short, what's the *theme?*

Some campaigns have no real theme. The GM creates the setting, the players generate their characters, and then the heroes drift from adventure to adventure. This tends to give the campaign an amorphous feeling unless the GM is exceptionally skilled at thinking on his feet or the players really want a mindless slugfest (which *can* be fun . . . for a while).

The gaming group that feels that a campaign should be like a collaborative novel (or series), with some sort of central plot, will probably prefer something more focused. The GM can either choose a theme based on the PCs his players create or select it beforehand and restrict the character types to those that fit. Below are several possibilities.

The Quest

The PCs are on a quest. They might be seeking enlightenment, tracking down a lost artifact, searching for rare materials needed for high-quality weapons, or working toward a laudable goal. Appropriate goals include rescuing a prisoner, freeing a people from bondage, defeating a conspiracy or an enemy, and bringing peace to the land. A common quest in cheesy kung fu movies is recovering "lost" knowledge – typically a miraculous cure for a disease, a tome of all wisdom, or forgotten martial-arts secrets.

The advantage of such a campaign is that the PCs have an excuse to wander around, looking into every mystery. Still, the GM should ensure *some* kind of steady progress or the quest will seem never-ending. A wide-ranging adventuring party can run into martial artists from around the world during their search. Some might be allies; others, enemies. Either way, such encounters enable the GM to introduce new martial-arts styles for the seekers to learn or contend with. Enemies might be genuine adversaries, but rivals for the quest object – willing to sabotage the heroes' progress to get ahead – are equally fitting.

Star Wars depicts a quest – the heroes seek to defeat a galactic empire – and includes a young martial-arts student seeking a master (see *The Quest for the Master,* p. 248). *The Swordsman II* is another example, the goal being to stop a power-crazed martial artist from becoming completely invincible. *The Silent Flute* is a classic quest: a martial artist seeks the ultimate truth, aided by an enigmatic guide!

Don't overlook the quest for *revenge.* The PCs might seek the enemy who killed their master, betrayed them in the past, or otherwise wronged them and theirs. Revenge quests are common in martial-arts fiction. *The Count of Monte Cristo* is of course a classic – but there are plenty of excellent modern tales, such as *Kill Bill* and *Lady Snowblood.*

To Serve and Protect

The PCs are law enforcers, private eyes, or security forces. Historical games can have them as cops in 1920s Shanghai, 19th-century San Francisco . . . or Tokugawa Japan. The further back one goes, the less significant the role of firearms and the greater the importance of the martial arts. Modern campaigns have all of their usual drawbacks: the presence of guns and the relative scarcity of situations where martial-arts abilities make a difference. Even on the street, Driving, Guns, and social skills are more valuable than martial-arts training – at least in a realistic game.

The Quest for the Master

In a cinematic game, the PCs will eventually want to learn cinematic skills . . . or acquire Trained by a Master, Weapon Master, or Heroic Archer in order to be *able* to learn such skills. In any kind of campaign, they might want to study a new style. The GM could simply charge points and move on, but the quest for the Master – the sole teacher who can impart the necessary training – is an ancient and honorable subplot.

This could become a quest for any of several reasons. The most obvious is that the students don't have a master. Even if they do, he might not be able to teach them. He might believe that they're unready for the next lesson and send them on a mission, with the promise of training if they succeed. He might realize that he has taught them everything he knows and direct them to seek out *his* master. He might die of old age . . . or be killed.

The quest itself should be an adventure – possibly long, definitely dangerous. And once the heroes find the Master, they needn't immediately realize this. Most players expect the B-movie clichés: a wise old man, traditional in every way, who always knows what would-be students need (typically, the opposite of what they *want*). The Master doesn't *have* to be anything like that.

The Master might be a boy. Or a woman. Or skilled but stupid. Or a drunk. Or *evil.* Or greedy. ("Sure, I'll teach you the Seven Secret Kicks. That'll be $30,000, in gold. For each of you.") In a cinematic game, the Master might be a member of another race, a spirit, or even a god. The Master might not be a single entity at all, but an entire temple, village, or *planet* full of special teachers.

The adventure doesn't end when the students find the Master. The Master may set tasks for them, and these might not appear to make much sense . . . they might even seem evil or illegal. Perhaps they are! There's no law that says all masters must be good people. How the would-be students react to this is a roleplaying challenge.

There's also the matter of the time required. Instruction could take years (per *Learning Secret Martial-Arts Techniques,* p. B293) or be compressed into a few days or weeks (see *The Training Sequence,* p. 147). In a highly cinematic game, the adventurers might journey to a hidden valley or isolated monastery where years seem to pass but only a few weeks go by in the outside world.

Then again, the quest might not lead the students to a person. Founders of real-world styles have named dreams, meditation, and watching animals fight as inspirations. Enlightenment might come from the quest itself, with the seekers learning from their journey – if they survive it! Each obstacle they pass might teach an important lesson. Such things take as long as learning from a Master – perhaps longer.

The quest works best in a historical setting where teachers are rare and some schools are outlawed. In the modern world, where martial-arts schools advertise, the quest is usually part of a cinematic campaign. Searching for "hand of death" on 411.com won't accomplish much!

Still, a quest is possible in a realistic modern-day game. The Master need not advertise, or have a phone number or a fixed address. He could be an illegal immigrant with ties to organized crime. The PCs might not even know his name. Or the Master might be easy to *find* but temperamental, and the "quest" lies in convincing him to give lessons. Situations like this can be as trying and deadly as any journey – especially if the PCs must stay in the wrong end of town or an isolated village in a foreign country while they look for the Master or wait for him to make up his mind.

To make the martial arts central to a modern police game requires cinematic combat realism, even if cinematic *abilities* don't exist. "Buddy movies" regularly feature martial artists – usually one of an odd-couple detective duo – who use their arts to augment their shooting skills or who actually *prefer* fists and feet to firearms. Such cops draw their weapons only after using a few well-placed kicks to take down the bad guy and just before slapping on the cuffs! Television shows such as *Martial Law* are inspirational, as are innumerable Hollywood movies – the martial-artist lawman is a B-movie staple.

War Is Hell

A war campaign is an excellent place for the martial arts, obviously. The PCs needn't belong to a national army – mercenaries are common throughout history. During global conflicts, such as the World Wars, "adventurers" on the fringes of major theatres or in minor theatres might choose sides on the basis of personal gain, not national allegiance. In smaller struggles, soldiers of fortune can nearly always find employment.

World War II is especially fertile ground for a ***Martial Arts*** game. Japanese officers carry swords and have martial-arts training in the form of Aikijutsu (p. 149), Jujutsu (pp. 166-168), Kenjutsu (pp.173-175), or Kendo (pp. 175); their enlisted underlings practice Jukenjutsu (p. 197). Allied commandos learn Fairbairn Close Combat Training (p. 182-183p). Burmese, Filipino, and Indonesian guerrillas fight the Japanese with guns, sticks, and swords. Many 20th-century style originators lived through and fought in WWII.

In modern games, guns dominate warfare. Why drop your rifle to punch and kick if a three-round burst can settle the matter more effectively? The martial arts are still part of the military experience, though – from basic training for green recruits to advanced arts reserved for special-operations forces. The more elite the troops, the more opportunities they have to learn and use martial arts. A "silencer" isn't perfect, it merely makes a gun less noisy . . . but a stealthy, well-trained man with a knife *can* remove a sentry without a sound – at least in a cinematic campaign!

Good examples of war-themed martial-arts fiction are *The Duellists,* which chronicles a private duel during wartime, and *The Three Musketeers* (the novel and many movies), which includes intrigue, private squabbles, and a siege. David Gemmell's *Legend* features a Weapon Master and other larger-than-life martial artists at war. *The Seven Samurai* follows mercenaries in a small, private war.

A Learning Experience

The PCs might be students. They might practice at a dojo, kwoon, salle, or boxing gym . . . or belong to a gladiator school . . . or train under a wizened old master in his remote hideout (or suburban home). Or perhaps *they* are the instructors. Whatever the situation, the campaign focuses primarily on the *students'* training and advancement.

This type of game works well in settings where inter- or intra-school competition can turn violent, or where martial-arts academies are centers of political intrigue. Even in a modern-day campaign, street fights between schools can occur. Realistic rivalries are mostly friendly; rivals might compete and then go out together after the tournament to celebrate. But cinematic (and many historical) settings feature more violent relationships.

The Shaolin Temple is the most famous martial-arts school of all time. Scores if not hundreds of movies have featured students training there. Historically, the Temple was a refuge for rebels and wanderers, and was ultimately destroyed by a besieging army. This catapulted its surviving students into a life on the run – a desperate situation, but an ideal premise for an adventure-filled campaign.

This theme often segues into others. If the school teaches fighters for competition, the campaign can cross over with *The Contender* (p. 250) theme. If events force the academy underground, the game will take on elements of *Wanted!* (see below).

The Karate Kid illustrates this theme well: a bullied teen in a new town pairs up with a wise old master. *The Paladin,* by C.J. Cherryh, is another example. It later adds elements of *War is Hell* (p. 248) and *The Quest* (p. 247), all in the same story!

Vigilante Justice

The PCs are rogue crimefighters – not merely maverick lawmen. They might be in cahoots with the police, tolerated by them, or actively hunted by criminal and cop alike. If the vigilantes are wanted by the authorities, then a secret identity is a must.

Suitable characters and martial-arts styles depend on the campaign's location, time period, and realism level. In a realistic, modern-day game, guns are more useful than martial arts. In cinematic settings, though, vigilantes tend to be as good with their fists as they are with firearms, and use Jeet Kune Do (pp. 164-165), Taijutsu (pp. 202-203), etc., to defeat crooks. Templates such as *Crimefighter* (pp. 32-34), *Assassin* (pp. 31-32), and *Spy* (p. 38) suit fictional heroes well. While implausible in real life, even *Movie Star* (pp. 36-38) or *Stuntman* (p. 40) could work, for a vigilante with a secret identity.

Without investigation or some other form of activity, this kind of campaign quickly degenerates into a series of fights against the Bad Guy of the Week. To keep the game fresh, the GM might want to combine this theme with another. *The Quest* (p. 247) works well if the heroes are hunting a long-term foe or criminal mastermind, while stepping too far over the line can lead to a *Wanted!* (see right) campaign.

This theme is extremely popular in martial-arts fiction. *The Green Hornet* television series is a perfect example, with secretly police-sanctioned vigilantes and a nod and wink to reality. *Kung Fu* features a Shaolin monk wandering the American West, dispensing fortune-cookie wisdom and hard kicks to bad guys. Other sources include *Yojimbo,* with a feudal Japanese ronin playing both sides of a conflict to further his personal sense of justice, and most Jackie Chan and Bruce Lee movies. In fact, all of Lee's movies except *Enter the Dragon* feature him as a private citizen bent on justice – in that movie, he's a *sanctioned* agent!

Wanted!

A powerful enemy such as a rival school, the mob, or a ninja clan hunts the PCs. Or perhaps the *authorities* seek them, in which case they could be heroic rebels, vigilantes who went too far, or loyal spies who happen to work for the wrong side. Of course, they might simply be common criminals – assassins, thieves, etc.

The protagonists must either keep moving or operate out of a hideout that their enemies can't easily locate or penetrate. Regardless, they can't let down their guard because their hunters could be anywhere . . . or have gotten to anyone. To give them more to do than flee or hide, the GM should consider adding elements of *The Quest* (p. 247). Perhaps the fugitives seek the piece of information that can prove their innocence, the secret style that will let them turn the tables on their opponents, or the one person who can help them escape to freedom.

The GM can run any ***Martial Arts*** game with a small group or a single player, but this theme works especially well under such circumstances. A small group is less prone to squabbles that risk compromising everyone. A single PC, however powerful, will often need to deal with NPCs to get by – exposing himself to adventure and possible betrayal.

The *Lone Wolf and Cub* series is about a ronin-turned-assassin hunted by a powerful, government-connected ninja clan. It's also a quest, because the hero seeks revenge – on a huge scale. Robin Hood and his Merry Men (a showcase for Heroic Archer, p. 45, and *Quarterstaff,* pp. 192-193) constitute another excellent example.

Warriors of the Night

The PCs might be ninja or sulsa . . . or members of a secret society such as a tong or a Triad . . . or guerrillas using their martial-arts skills to wreak havoc after an invasion. Alternatively, they might be on the other side, tracking down and destroying such a group. Or they might be on *neither* side, and caught in the middle.

There are many variations on this theme. The "warriors of the night" might be loyal servants of a lord or commander, freedom fighters, mercenaries, or an evil cult. They might have no master or a single employer, or hire out to the highest bidder. If they answer to someone, that person might have little loyalty to *them* and regard them as expendable. In a realistic campaign, betraying such a valuable asset as a band of guerrillas or group of ninja after a job would be foolish and wasteful. In a cinematic game, it should happen often!

This theme sometimes shows up alongside *A Learning Experience* (p. 249). The heroes are ninja-in-training – or perhaps someone is using their school as a cover for clandestine activities. Their master might work for good or for evil, and they might be his loyal dupes or willing partners.

Almost any setting is possible. In feudal Japan, the PCs might be ninja, helping their lord unify Japan or keep the Tokugawa Shogunate in power. In China, they might belong to a secret society that's trying to overthrow the Manchu. In a modern-day game, they might be special-ops troopers working behind enemy lines or in remote lands where resupply is difficult and martial arts are a way to save ammo. A fun *cinematic* modern-day campaign has the heroes caught in the crossfire between rival tongs or ninja clans – and having little luck convincing anyone of their unlikely predicament!

Timothy Zahn's *The Blackcollar* exemplifies this kind of campaign: a tiny group of cinematic ninja spearhead the resistance against alien invaders. The Chuck Norris movie *The Octagon* is inspirational for a "good hero vs. evil ninja" campaign.

The Contender

The PCs are fighters on a competitive circuit. Perhaps all of them compete, or maybe only one or two are contenders while the rest are instructors, coaches, trainers, doctors, bodyguards, and friends. Many martial-arts schools enter multiple contestants in a tournament, so fighters could reasonably travel from event to event as a group – and occasionally even face each other in bouts.

The focus of such a campaign is the tournaments. Fights might be legal and regulated or illicit and of dubious safety. Even legal matches can prove deadly, intentionally (as in Roman gladiatorial contests) or accidentally (as in modern boxing). Illegal events in the real world generally feature lower-quality opponents – the desperate fight illegally, while the talented fight in the big leagues for the real money. In a cinematic game, the opposite is true: underground death matches attract only the best!

The activities that dominate the time in between tournaments depend on the setting and the realism level, and might suggest a whole different theme. Examples include training, working at jobs that use fighting skills outside the ring, and fending off rivals or money-hungry crime syndicates in order to survive to the next bout. Historical contenders moved in a variety of social circles, too, from the lowest to the highest. Roman gladiators, Japanese sumotori, and American boxers were all hired as bodyguards, desired as party guests, and retained as martial-arts instructors.

This theme is surprisingly portable across history, and allows for travel and adventure. Pankrationists and boxers traveled between events in ancient Greece. Indian wrestlers and American bare-knuckle boxers might compete almost anywhere in the world in an early 20th-century game. Mixed martial artists and Lethwei (p. 186) fighters would compete in full-contact matches worldwide in a 21st-century campaign. South America's vale tudo matches are an ideal venue for a modern-day game.

Rocky and *Raging Bull* are both excellent fictional treatments of this theme – and see *The Blood of Heroes* for a post-apocalypse twist. For real-life inspiration, the best places to look are the professional boxing, kickboxing, sumo, and wrestling circuits, and the various MMA championships. The rules, format, and prize money for such contests are widely available, making it easy to stage a realistic modern-day game. Historical records for some older events are available, too – sumo records go back centuries.

. . . what kind of powers do you have? Do you use them for good, or for awesome?

– Strong Bad,
Some Kinda Robot

The Silly Campaign

The GM *can* simply play the martial arts for laughs! One option is a campaign in the tradition of low-quality kung fu movies with bad dubbing, worse plots, and blatant continuity errors. Another is a game inspired by *well-made* martial-arts comedies.

The shorter the campaign will run, the better silliness works as a standalone theme. In a one-shot game, you can have great fun with a paper-thin plot ("You killed my brother! Prepare to die!"), clichéd PCs, horrendous accents, and legions of disposable goons . . . but such things get old after a few sessions. In a long-running campaign, it's advisable to mix silliness with a more serious theme: fighting imperialism, saving a school, etc. The silliness *level* can be the same in both cases. For instance, the movie *Shaolin Soccer* features high silliness (Shaolin monks use chi abilities to win soccer games!) but mixes it with *The Quest* (p. 247).

Silly martial-arts movies abound. Slapstick is an excellent match with the martial arts, if only because the difference between a pratfall and a spectacular martial-arts move is a painfully small slip. This describes almost all the work of Jackie Chan and his frequent costar, Sammo Hung. Most Chan movies combine *Borderline Realism* (pp. 237-238) with lots of humor and quickly healing bruises. *Kung Fu Hustle* is definitely *Over-the-Top* (p. 239)! Silly stories don't *have* to dispense with reality or tragedy, though: *Magnificent Butcher* is a classically silly martial-arts film, yet depicts a violent murder. There are also many "serious" movies with such low quality and bad dubbing that they seem silly, although the distinction can be hazy; for instance, *Dirty Ho* is intentionally silly *and* dubiously dubbed.

Silly martial arts can lighten up even a non-***Martial Arts*** game! For inspiration, see Blake Edwards' "Pink Panther" movies or any 1960s super-spy flick that features "judo chops" and "Hi-keeba!" karate action.

Glossary

Martial Arts uses many foreign-language terms and assigns specific technical meanings to several everyday words.

bushi: *Japan*. A warrior, most often a *samurai* (q.v.).

capoeirista: *Brazil.* A Capoeira (pp. 153-154) practitioner.

chambara: *Japan*. A genre of action cinema showcasing improbable martial-arts exploits, typically featuring *ninja* and *samurai* (qq.v.).

chi: *China*. The life force found in all beings. Literally means "breath." Also transliterated as "qi." See *Religion, Philosophy, and Fists* (p. 11).

cinematic: Describes campaigns inspired by action movies, martial-arts mythology, etc., and unrealistic traits or combat options suitable for such games.

circular: Describes a style where attacks and defenses favor pivoting or sweeping motions *around* an axis, most often the stylist's upright body.

dojang: *Korea*. A martial-arts school.

dojo: *Japan*. A martial-arts school. Might refer to *any* school in modern usage, not just a Japanese one; e.g., "Muay Thai dojo."

fechtbuch (pl. **fechtbücher):** *Germany*. A "book of fighting" or martial-arts manual – usually one that combines weapon play with no-holds-barred striking and wrestling.

guard: 1. Any combination of stance and limb/weapon placement that enables a fighter to defend. **2.** In ground fighting, when the bottom fighter, facing up, uses his legs to grapple his rival and gain a defensive and even offensive advantage. The top fighter must try to avoid this by passing the legs and achieving a *mount* (q.v.).

gymnasium: *Ancient Greece*. A place for learning martial arts (which most Greek sports were or emulated, in some fashion). In modern usage, any space for practicing sports.

-ka: *Japan*. The Japanese suffix for a person who does an activity. A Karate practitioner is a *karateka,* a Judo stylist is a *judoka,* and so forth. Sumo wrestlers are *rikishi* (q.v.) or *sumotori,* though.

kalari: *India*. A martial-arts training area – often a shallow, dirt-walled pit.

kata: *Japan*. A preset – some would say dance-like – routine done to learn a style's techniques. Also called "forms." Some martial artists regard kata as a waste of time; others claim mastery of kata is a precondition to true mastery of the style.

Kenpo: *Japan*. **1.** A different transliteration of Kempo (pp. 172-173), used interchangeably. **2.** A term for some forms of Kenjutsu (pp. 173-175).

ki: *Japan*. The Japanese term for *chi* (q.v.).

kiai: *Japan*. A shout or battle cry, usually done simultaneously with a technique. In cinematic games, it's a chi-based attack in its own right; see *Kiai* (p. B203).

kwoon: *China*. A martial-arts school.

LINE: Acronym for "Linear Infighting Neural-override Engagement," the U.S. Marine Corps' predecessor to MCMAP (q.v.). LINE is a series of set responses to specific attacks rather than a genuine style.

linear: Describes a style where attacks and defenses favor straight-line movement *along* one or two axes, either directly toward/away from the enemy (a "|" or "+" shape, with the foe at the top) or at an angle to him (more of a "×" shape).

McDojo: A disparaging name for a martial-arts school perceived to be selling belts; a common place to be Trained by a Fraud (p. 145).

MCMAP: "Marine Corps Martial Arts Program," the current hand-to-hand combat style of the U.S. Marine Corps. See pp. 183-185.

mestre: *Brazil*. A Capoeira (pp. 153-154) teacher.

mixed martial arts (MMA): An umbrella term for modern sportive martial arts used in limited-rules, full-contact striking and grappling matches (p. 189).

mount: In ground fighting, when the top fighter kneels and straddles his rival's chest or back, grappling or pinning him for an almost decisive advantage. The bottom fighter must try to escape, perhaps by putting the enemy in his *guard* (q.v.).

ninja: *Japan*. Historically, a spy and/or assassin. Cinematically, a black-clad master of stealth and exotic weapons and techniques.

prana: *India*. Another – arguably the earliest – term for *chi* (q.v.).

ricasso: *Europe*. An unsharpened and sometimes leather-wrapped length of blade just above a sword's hilt for the wielder to grasp when using a Defensive Grip (pp. 109-111).

rikishi: *Japan*. A Sumo (pp. 198-199) practitioner.

ronin: *Japan.* A masterless *samurai* (q.v.).

ryu (pl. **ryuha):** *Japan*. A school or body of martial arts. Most ryuha teach multiple styles. See *Ryu* (p. 12).

salle: *France*. A martial-arts school, typically for fencing (pp. 156-159) or Savate (pp. 193-194).

samurai: *Japan*. A Japanese noble warrior in service to a lord.

sensei: *Japan*. A title of respect for a teacher, properly given *after* the name he asks his students to use (e.g., "Peter-sensei," not "Sensei Peter").

sifu: *China*. A title of respect for a teacher. Also transliterated as "shifu."

stop hit: An attack launched into an oncoming attack with the intent to preempt it. See *Stop Hits* (p. 108).

technique: Training at one specific attack, defense, or other action covered by a skill.

Triad: *China*. A secret society, originally with benevolent aims but more recently tied to crime.

wuxia: *China*. A genre of martial-arts cinema based on the exploits of the *xia* (q.v.), commonly featuring over-the-top action, wirework, and magic!

xia: *China.* A Chinese knight-errant. See *Xia* (p. 8).

Bibliography

Described below are works that the authors found useful, sprinkled with inspirational reading and viewing for gamers using ***Martial Arts.*** This list is hardly exhaustive – there are *thousands* of excellent martial-arts books and movies!

Books (Nonfiction)

Amberger, J. Christoph. *The Secret History of the Sword* (Unique Publications, 1999). This collection of articles on swords and dueling through history is valuable for those who wish to make swordfights seem more "real."

Anglo, Sydney. *The Martial Arts of Renaissance Europe* (Yale University Press, 2000). Outstanding coverage of the titular subject. Considers martial arts as they were, not as lesser versions of modern arts. Covers armed, armored, and unarmed combat equally.

Capo Ferro, Ridolfo (Jared Kirby, editor). *Italian Rapier Combat* (Stackpole Books, 2004). A translation of a highly influential rapier manual from 1610, well-illustrated and full of authentic tactics and details.

Cuyler, P.L. *Sumo: From Rite to Sport* (Weatherhill, 1979). Excellent source on Sumo traditions and history.

Draeger, Donn F. and Smith, Robert W. *Comprehensive Asian Fighting Arts* (Kodansha International, 1969). The authors recorded everything they could on Asian fighting arts – including styles that have since become nearly extinct. Some assertions are suspect or unsourced, but the book is truly comprehensive. Get the 1997 reprint.

Fairbairn, W.E. *Get Tough! How to Win in Hand-to-Hand Fighting* (D. Appleton-Century Co., 1942). No-nonsense fighting techniques developed for WWII combat. Reissued by Paladin Press in 1979.

Green, Thomas A. (editor). *Martial Arts of the World: An Encyclopedia* (ABC-CLIO, 2001). This excellent two-volume martial-arts encyclopedia overlooks no major style or geographical location, although some arts get relatively little hard detail.

Lee, Bruce (John Little, editor). *Bruce Lee Library* (Tuttle Publishing, 1997). A seven-volume collection of writings, letters, and notes by Bruce Lee, assembled from his personal library and organized topically. Highly recommended.

Lee, Bruce. *The Tao of Jeet Kune Do* (Ohara Publications, 1975). Bruce Lee's reflections on Jeet Kune Do and martial-arts philosophy.

Mol, Serge. *Classical Weaponry of Japan* (Kodansha International, 2003). An excellent, well-illustrated resource on obscure Japanese weapons, with weapon names in both kanji and English.

Musashi, Miyamoto. *A Book of Five Rings* (The Overlook Press, 1974). A translation of *Go Rin No Sho* (1645). Many read the master swordsman's reflections on swordsmanship as a philosophy of combat and even business.

Oyama, Masutatsu. *This Is Karate* (Japan Publications, 1972). Kyokushin founder Oyama's text on karate and his style. Extremely complete, with lots of "showoff" techniques and practical instruction.

Salzman, Mark. *Iron & Silk* (Vintage, 1987). A Westerner learns kung fu in China. A good look at a modern, cross-cultural master-student relationship. Made into a movie (dir. Shirley Sun, 1990).

Twigger, Robert. *Angry White Pajamas* (Quill, 1997). A writer takes the Yoshinkan Aikido Tokyo Riot Police course. An excellent account of harsh civilian martial-arts training.

Vegetius (M.D. Reeve, editor). *Epitoma rei militaris* (Oxford University Press, 2004). A translation of history's most comprehensive treatment of Roman military training and tactics – which was a powerful influence on the development of Western martial tradition from its 4th-century publication until the 19th century. Also called *De re militari.*

Zabinski, Grzegorz, with Walczak, Bartlomiej (translators). *Codex Wallerstein* (Paladin Press, 2002). A translation of the famous 15th-century sword, dagger, and wrestling manual.

Books (Fiction)

Cherryh, C.J. *The Paladin* (Baen, 1988). A young warrior forces an old master to accept her as his student – an interesting play on Trained by a Master.

Gemmell, David. *Against the Horde* (Ace, 1988). An aging warrior goes to battle one last time. Features a Weapon Master and psi-enhanced martial arts. Reissued as *Legend* in 1997.

Murphy, Warren and Sapir, Richard. *The Destroyer* (1971-present). A series of 110+ trashy adventure novels. Chiun's Sinanju is an example of an "ultimate style." Good fun! William Murray penned many later titles. Published by Pinnacle, followed by Signet, then Gold Eagle, and most recently Tor.

Perry, Steven. *The Man Who Never Missed* (Ace, 1985). This and the rest of the "Matador Series" (*Matadora, The Machiavelli Interface,* etc.) blend science fiction with cinematic martial arts – including Sumito, an "ultimate style."

Zahn, Timothy. *The Blackcollar* (DAW, 1983). Elite commandos use martial-arts weapons and techniques in a guerilla war against aliens.

Comic Books

Hama, Larry. *Nth Man, the Ultimate Ninja* (Marvel, 1989-1990). Ultimate ninja John Doe confronts an insane supervillain during World War III and its aftermath. Cinematic ninja action mixed with super-powers and militaria.

Koike, Kazuo and Kojima, Goseki. *Lone Wolf and Cub* (Dark Horse Comics, 2000-2002). A 28-volume comic (originally a Japanese manga) set in Tokugawa Japan. Follows the adventures of samurai-turned-assassin Ogami Itto and his young son, Daiguro. Features almost every samurai trope – and most ninja tropes, too.

Miller, Frank and others. *Daredevil* (Marvel, 1964-present). Daredevil is a blind martial-arts master who contends with ninja, a supervillain Throwing Art expert, and other martial artists. Created by Stan Lee, but look for Miller-era comics (1979-1982). The spin-off comics and movie are of uneven quality.

Movies

36th Chamber of Shaolin (Chia-Liang Liu, 1978). This Gordon Liu kung fu classic has a horrible plot but some of the best Shaolin training sequences ever made.

Above the Law (Andrew Davis, 1988). This Steven Seagal action flick plausibly combines gunplay and martial arts in a modern setting.

Adventures of Robin Hood, The (Michael Curtiz, 1938). Features a Basil Rathbone vs. Errol Flynn fencing duel, plus cinematic archery!

Batman Begins (Christopher Nolan, 2005). This *Batman* remake sets a quest for the master (with an interesting turn), ninja, and a revenge quest against a superheroic backdrop.

Big Trouble in Little China (John Carpenter, 1986). An overconfident trucker gets entangled in magic and martial arts in San Francisco's Chinatown. First American attempt at a *wuxia* film is a mixed bag, but fun.

Bruce Lee: A Warrior's Journey (John Little and Bruce Lee, 2000). This documentary on Bruce Lee's life and his unfinished final film, *Game of Death,* has great footage of Lee in action – both in "cinematic" form and demonstrating his true skills.

Dirty Ho (Chia-Liang Liu, 1979). Groundbreaking kung fu comedy, with death-touch, proxy fighting, and a gullible thief dragooned into helping a master with a secret.

Drunken Master II (Chia-Liang Liu, 1994). Outstanding nonstop action and drunken-style kung fu. Possibly Jackie Chan's best work – although *every* Chan movie should be considered inspirational for comic games!

Duellists, The (Ridley Scott, 1977). Two Napoleonic officers are locked in an *affaire d'honneur.* Features duels with sabers and smallswords, and even one on horseback. Based on a Joseph Conrad story.

Enter the Dragon (Robert Clouse, 1973). Bruce Lee's influential final film introduced many common "action movie" tropes. Also check out *The Big Boss* (Wei Lo, 1971), *The Chinese Connection* (Wei Lo, 1972), and *Return of the Dragon* (Bruce Lee, 1972) – the first two of which are *both* sometimes called *Fists of Fury.*

Fatal Flying Guillotines, The (Raymond Lui, 1977). Cheesy kung fu action, unlikely weapons, bad acting, and poor dubbing make this worthy viewing for those running silly campaigns!

Hero (Yimou Zhang, 2002). A story of assassination and philosophy – told and retold several times as lies and deceptions are unmasked. Features beautiful *wuxia* action.

Karate Kid, The (John G. Avildsen, 1984). A bullied teen gets tutored in karate by an Okinawan master (played brilliantly by Noriyuki Morita).

Kill Bill: Vol. 1 and *Vol. 2* (Quentin Tarantino, 2003 and 2004). Tarantino's two-part homage to kung fu, revenge, samurai, and the Hollywood Western. Volume 1 features a samurai-movie swordfest and a killer schoolgirl. Volume 2 features an Ancient Master, cinematic martial-arts training, and a Western-style brawl.

Kung Fu Hustle (Stephen Chow, 2004). Gangster-wannabes trigger an escalating war between martial-arts masters. Mixes kung fu with dancing! The equally fun *Shaolin Soccer* (Stephen Chow, 2001) combines kung fu with soccer.

Once Upon a Time in China (Hark Tsui, 1991). Features Jet Li as Wong Fei-Hung. This movie and its many sequels (especially the first two) feature great martial-arts action set amidst Chinese nationalism and Western colonialism in late-19th century China.

Ong-bak (Prachya Pinkaew, 2003). A Thai villager – and Muay Thai and Krabi Krabong expert – uses flying knees and elbows to punish religious-artifact thieves.

Raging Bull (Martin Scorsese, 1980). This searing look at mid-20th century pro boxing features brutal fight scenes. Required viewing for a contender campaign!

Rocky (John G. Avildsen, 1976). A young boxer (a well-cast Sylvester Stallone) struggles for an unlikely title shot. Great training sequences. The sequels are formulaic.

Seven Samurai, The (Akira Kurosawa, 1954). Seven *ronin* help poor villagers defend themselves against bandits. A classic plot – and a fine example of how to assemble an "adventuring team" with diverse martial-arts experience and backgrounds.

Silent Flute, The (Richard Moore, 1978). A young seeker – accompanied by a blind, flute-playing master – sets out to defeat a legendary foe. Bruce Lee collaborated on the writing. Originally released as *Circle of Iron.*

Spartacus (Stanley Kubrick, 1960). A slave is trained as a gladiator before leading a revolt against Rome. Great training sequences, a famous gladiatorial duel, and an inspiring transition from a contender theme to a quest/war story.

Swordsman II (Siu-Tung Ching and Stanley Tong, 1991). A powerful warlord emasculates himself to achieve mystical powers. The heroes must use their own cinematic skills to stop him. Magic-heavy *wuxia* action ensues.

Three Musketeers, The (Richard Lester, 1973). This film and its sequel, *The Four Musketeers* (1974), feature excellent swashbuckling action.

Television

In addition to fictional works like those below, mixed martial arts tournaments are becoming more common television fare.

Cowboy Bebop (Hajime Yatate, 1998). This anime series includes an ex-gangster and bounty hunter who's a Jeet Kune Do expert. The martial-arts action has both style and verisimilitude. *Cowboy Bebop: Knockin' On Heaven's Door* (2001) has two of the best animated martial-arts scenes ever made.

Green Hornet, The (George W. Trendle, 1966-1967). Notable mainly as Bruce Lee's first major Hollywood break: as Kato, the Green Hornet's kung fu-using sidekick.

Kung Fu (1972-1975). David Carradine as Kwai Chang Caine, a Chinese monk exiled in the Wild West. A classic, full of "Shaolin wisdom" and kung fu action.

INDEX

With rare exceptions, *weapons* are *not* listed in this index. Instead, they have their own alphabetical glossary. *See Weapons* (pp. 212-226).

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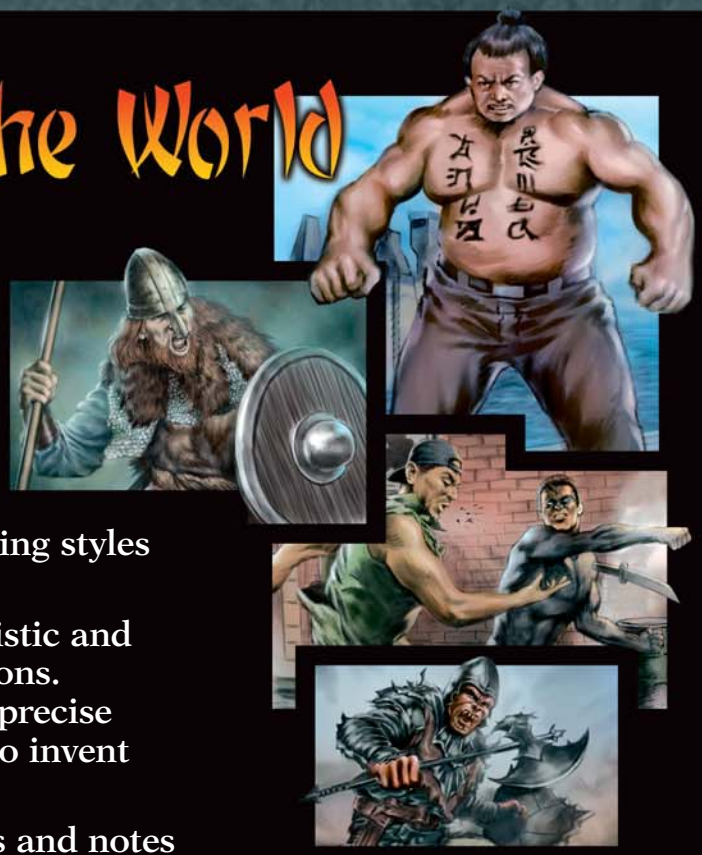
Fighting Around the World



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GURPS Fourth Edition

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BY DARK LORD AZAGTHOTH

GURPS Fourth Edition

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GURPS Fourth Edition

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The Way of the Jedi

There is no emotion, there is peace.
There is no ignorance, there is knowledge.
There is no passion, there is serenity.
There is no chaos, there is light.
There is no death, there is the Force.

The Way of the Sith

Peace is a lie, there is only passion.
Through passion, I gain strength.
Through strength, I gain power.
Through power, I gain victory.
Through victory, my chains are broken.
The Force shall free me.

The Way of the White Current

Not to conquer, not to convert
but to find the place, where one belongs.

INTRODUCTION

WHAT IS GURPS - STAR WARS

A long time ago, in a galaxy far, far away…

Welcome to the universe of Star Wars within GURPS. First of all, we have to tell you that this rulebook might not be about the Star Wars that you know and might not be what you expect to find.
This rulebook is designed with the idea of playing the Star Wars universe in a "realistic" fashion, not in a cinematic space opera type. To that purpose, the Star Wars technologies depicted in this book have been "modified" to reflect a more real science approach: In this book, the Storm trooper armor cannot be pierced by Ewok arrows. In this book, it's not possible to navigate a speeder bike going 500mph through a dense forest. In this book, people usually die when hit by a blaster shot, and in this book Storm trooper usually hit what they aim for…

"In fact, no one on Tatooine fires and destroys with this kind of efficiency. Only Imperial troops would mount an attack on a sandcrawlers with this kind of cold accuracy."

Obi-Wan Kenobi

So, you say, what will I find in this book and what period does it cover?

We have decided to concentrate our efforts on no period in specific. The Star Wars timeline spans over more than 25,000 years and we did not want to exclude any period (be it the Ancient Era, the era of the Old Republic, the Golden Age of the Sith, the Clone Wars, The Galactic Empire, or the New Republic). Most of the information contained in this book has been designed by the authors of Star Wars novels, computer games, comics, and of course… the six epic Star Wars movies.
A great deal of effort has been made to make sure that this gaming variant respects the flavor of the Star Wars genre and its spirit. We hope we have succeeded.

GURPS stands for "Generic Universal RolePlaying System," however; the guidelines in this rulebook are derived from the fourth edition and specified towards the Star Wars universe.

Disclaimer

The material contained in this book is drawn from the works of George Lucas, his collaborators and other Sci-fi authors who have helped the Star Wars phenomenon to grow since its birth in the late 70s. Most of the material referred to in this book is owned under copyright laws by George Lucas (Lucasfilm Ltd) and/ or/ either 20th Century Fox. All names, trademarks and logos used in this book are used without permission either given or implied by the copyright owners.

About GURPS

GURPS is a registered trademark of Steve Jackson Games Inc. All reference to their work used in this book are used without their permission given or implied.

Feedback

If you have read this book and have any comments, criticisms, ideas or you even want to report errors, such as typos and consistency errors, please contact me. You can use the following link (Contact me). Especially in the phase in which this book isn't finished yet, the feedback is most welcome.

When all goes well, a new release will be uploaded as soon as possible but at least once every month. See page 1 of this book to determine which release you've got and when a new update will be released. You can download these newer versions with the p2p program "emule" or you can download it at my website using the following link (My website).

GLOSSARY

GURPS is a roleplaying game (RPG). Like any hobby, gaming has its own unique language. To help you understand the concepts and terms used in this game (and other RPGs), we'll start with a few definitions:

RolePlaying Game (RPG):

A game in which players take on the personalities of imaginary individuals, or characters, in a fictional or historical setting, and try to act as those characters would.

Game Master (GM):

The referee, who chooses the adventure, talks to the players through it, judges the results, and gives out bonus points.

Character:

Any being – person, animal, robot, etc. – that is played by the GM or a player.

Non-Player Character (NPC):

Any character played by the GM.

Player Character (PC):

A character created and played by one of the players.

Statistics:

The numerical values that describe a character, piece of equipment, etc., taken collectively. These are often called "stats".

Party:

A group of PCs taking part in the same adventure.

Game World:

A background for play; a setting. "World" might mean "planet", but it could also refer to a region and historical period… or even an entire universe.

Adventure:

The basic "unit" of play in a roleplaying game, representing a single mission or plot. It might require several sessions of play, or just one play session.

Encounter:

One "scene" of an adventure, usually a meeting between the PCs and one or more NPCs.

Campaign:

A continuing series of adventurers. A campaign will usually have a continuing cast of PCs, and the same GM (or team GMs). It may move from one game world to another, with a logical reason.

Race:

The species to which you belong. Nonhuman characters (Twi'lek, Wookiee, or Rodian, for example) are common in Star Wars RPGs.

Notation Conventions

The following mathematical and scientific constants have been used in the design of this book:

- pc (parsec) = 3.26 light-years or 19.234 x 10^{12} miles or 30.8572 x 10^{12}km
- ly (light-year) = 5.9 x 10^{12} miles or 9.461 x 10^{12}km
- ly = 186,000 miles/s or 298,262km/s
- AU (Astronomical Unit) = distance from Coruscant to its sun or 100 million miles.
- Mach 1 = speed of sound at sea level at 20°C; 760mph or 340m/s
- 1 G = 11 y/s² (33 feet/s²) or 10.1 m/s² (G of Coruscant)
- MGLT = Modern Galactic Light Time or megalight; 1m/s or 1y/s
- MGLT (2) = 1 m/s² (2 turns/45°) or 1y/ s²
- sV (spherical volume) = 4/3piR³
- t (ton) = 1m³ or 1,000kg or 2,000lbs
- Kt (Kiloton, vessels and ships)= 1,000m³ or 1,000,000kg
- 1 mile = 1,760 yards = 5,280 feet = 63,360 inches
- 1 mile = 1,609.34 meters
- 1 yard = 91.44 centimeters or 3 feet or 36 inch
- 1 feet = 30.48 centimeters or 12 inch
- 1 inch = 2.54 centimeters

GURPS References

The GURPS Star Wars book is not a game in itself. Ownership of the Basic Set (GURPS 4th Edition Basic Set Characters & GURPS 4th Edition Basic Set Campaigns) is required. In this book, references are made to other books. The following abbreviations are used when referring to GURPS Books:

- GURPS 4th Edition Basic Set (BS)
- GURPS 4th Edition Fantasy (FA)
- GURPS 4th Edition Magic (MA)
- GURPS 4th Edition Powers (PO)
- GURPS 4th Edition Space (SP)
- GURPS 4th Edition Bio-Tech (BT)
- GURPS 4th Edition Ultra-Tech (UT)
- GURPS 4th Edition Vehicles (VE)
- GURPS 4th Edition Traveler Interstellar Wars (IW)

1: THE STAR WARS UNIVERSE

CHRONOLOGY

The Galactic Calendars

During the many millennia, people have started counting and recalculating anew over and over again. Each race, planet or society has its own calendar. Therefore; we will only use the calendars that were used by the majority of the galaxy's space traveling population.

The first notable calendar was used by the free people after the reign of the Rakata Empire. Because of the sudden disappearance of the Rakata at 500 planets at the same time, the indigenous inhabitants started all a new reckoning, without knowing of other races doing the same at the exact same time.

Because no planet has the same length of day and year, the calendars became less synchronized. With the adaptation of the Rakata hyperdrive engine, systems came relatively closer to one another, colonies were established and a standardization of time was desperately needed. Each civilization wanted their calendar and timetable to be used across the galaxy and chaos arose.

In 7,308 BBY, the Galactic Republic introduced a new Galactic Standard Calendar with the foundation of the Galactic Republic and the Jedi Protectorate as the first year. Rather than using a planet's length of a day and year, the average bio-clock or natural cycle of all known sentient beings was used. This resulted in a 24-hour day. A year consisted out of 12 cycles. A cycle had 5 weeks which in its turn had 7 days. Though the Republic's calendar was widely used, planet's which had not been contacted by alien races still used their own, somewhat primitive time notification.

Only 25,000 years later, a new calendar was being introduced… by force. This was the time of senator Palpatine who declared himself Emperor and the birth of the Galactic Empire had started. After the fall of Emperor Palpatine, this calendar was kept intact. This was mostly because Palpatine made sure that every remnant of the Old Republic was forgotten. Libraries were destroyed, databases erased, memory banks of droid were swept and Jedi Holocrons which were found were destroyed.

Date markers are as follows:

- GSC – Galactic Standard Calendar
- GIC - Galactic Imperial Calendar
- BBY – Before Battle of Yavin
- ABY – After Battle of Yavin

Date notifications are as follows: Date Marker Year/CycleWeek.Day. For example: GSC 24,102/011.1, or GIC 04/125.7. Because BBY and ABY are players aids it is noted as 23,000 BBY.

A simple way to determine the correct year in another calendar is to add 25,000 towards the canon BBY calendar to get the Galactic Republic calendar or 19 to get the Galactic Imperial Calendar (or subtract 24,981 years from the Galactic Standard Calendar).

Historical Database

This history may deviate from official and other canonical sources. It was mostly developed through our personal studies of the phenomenon and whatever sources were available to us. Gaps and uncertainties have been filled with our interpretation. This will be revised once more information is available.

Because many other sites (especially the Star Wars Wiki from Wookieepedia), dates are primarily mentioned in BBY and ABY.

The Pre-Republic Era

13.7 billion years BBY

The universe is formed through the universal event called the Big Bang. Galaxies, stellar and globular clusters form out the spatial miasma of hot gasses and cosmic rays.

10 billion years BBY

The Vordarian Beltway Galaxy, 850 trillion light years away from our Milky Way Galaxy, planetary systems near the galactic core are slowly forming. Among the first ones to evolve into full planetary star systems is the Coruscant star system.

7.5 billion years BBY

The first star in the Cularin system, named Morasil, is formed.

5 billion years BRE

Korriban and the Yavin system are formed.

3 billion years BBY

The Sharu race begins to evolve in the Rafa system.

2 billion years BBY

The Oseon system is created. A rogue star is believed to have passed too close to the system, disrupting the planet formation and creating an abnormally large asteroid belt.

80 million years BBY

Life emerges on Coruscant and on other planetary bodies across the galaxy.

10 million years BBY

Volcanic activity on Esseles begins to end.

7.5 million years BBY

First sentient species in the galaxy begin to evolve.

4 million years BBY

The Valley of the Giant Oysters on Mon Calamari begins to form.

3 million years BBY

An asteroid collides with the planet Vinsoth, killing most life on its surface. The remaining survivors evolve into the Chevin.

2,006,200 BBY

The Columi first evolve.

2,004,200 BBY

The Columi take to the trees and begin to develop for arboreal life.

2,002,200 BBY

The Columi learn to use tools.

2,002,000 BBY

The Columi, with their newly acquired skill of mining for minerals, begin building tree spanning cities.

2 million years BBY

The Columi achieve interstellar travel.
Wookiees begin to evolve on Kashyyyk.
Beggar's Canyon is formed on Tatooine.
Sullustans evolve underground on Sullust.

1 million years BBY

Feeling threatened by the Celestials, the Sharu go underground and hide their cities in order to protect themselves.
The Corellian system is presumably formed by the Architects.
The Hutts leave Varl and settle on the planet they dub Nal Hutta.
The Bith undergo a terrible war.

999,989 years BBY

By this time, most sentient species have begun keeping historical records, though they prove indecipherable to modern historians.

999,975 years BBY

Sernpidal takes Dobido as its moon.

750,000 years BBY

Goroth begins to develop intelligent life.

500,000 BBY

The Devaronians achieve space travel.
Naboo undergoes an ice age.
The Gree evolve.

499,989 BBY

By this time, most sentient species have records decipherable to modern historians.

300,000 BBY

The Gree civilization enters its golden age.

200,000 BBY

The Taungs of Coruscant attempt to conquer the 13 baeline Human nations of the Battalion of Zhell.
A volcano on Coruscant erupts decimating the Taung.
The Taung flee to the planet Roon.

199,989 BBY

The sky over Coruscant is finally free of ash.

130,000 BBY

Sith society begins (that is, the Sith species, not the Sith religion).

100,000 BBY

The planet Coruscant is now covered entirely by its principal city, later known as Galactic City.
The Sith race begins to develop their culture and civilization.
The Columi survey Coruscant and Duro, dismissing them as "primitive" disappointments.
The Kwa construct the Infinity Gate and the Star Temples on Dathomir.
Civilization on Goroth begins with an agricultural society.

95,000 BBY

The last time the lower levels of Coruscant see sunlight.

80,524 BBY

Sith magic is created on Korriban.

57,000 BBY

Utapau is colonized by humanoid species that would later evolve into the Pau'an and Utai species.

50,000 BBY

The Gree develop hypergates.

49,000 BBY

The Infinity Empire of the Rakata is established using a special form of hyperdrive.

40,000 BBY

Felucia is colonized by the Gossam
The Civilization on Garos IV is wiped out by a ground quake.

35,000 BBY

The Castle Lands of Oroboro are built by the Killiks on Alderaan.

30,000 BBY

The Infinity Empire reaches its peak and constructs the Star Forge.
The Killiks are driven from Alderaan and Alsakan.

29,000 BBY

The Kashi Mer Dynasty reaches its height.

28,000 BBY

The Rakata arrive on Korriban, but are eventually defeated by King Adas.

27,700 BBY

Reign of King Adas over the Sith ends.

27,500 BBY

The first Human colonists land on Alderaan.

27,000 BBY

Human colonists first arrive in the Tion Cluster.

26,000 BBY

The Morodins colonize Varonat.
The Library of Xer is built on Crinton's Point.
The Cult of M'dweshuu is formed on the Nikto homeworld of Kintan.
Alsakan is colonized by Humans from Coruscant in the colony ship, Kuat Explorer.

25,970 BBY

Churabba the Hutt takes over Kintan.

25,200 BBY

A major plague sweeps through the galaxy that kills only Rakata. As a result of this, twinned with subject species rebellion, the Infinity Empire collapses.
The Kitel Phar dynasty is founded on Atrisia.

25,180 BBY

The Verpine colonize the Roche asteroid filed.

25,130 BBY

The reign of Xim the Despot begins. Xim the despot rules a large portion of the galaxy. Xim is equipped with a War Droid army.

25,105 BBY

The Battle of Ko Vari and the First Battle of Vontor are fought between the Hutt Empire and the empire of Xim the Despot.

25,100 BBY

Both the Second and Third Battles of Vontor are fought between the Hutts and Xim the Despot.
According to Tionese history, Xim the Despot is killed at Vontor, but he is actually captured and later dies as a slave in the dungeons of Kossak on Evocar.
The Treaty of Vontor is signed.
The Hutts gain control of the Si'Klaata Cluster.

The Old Republic Era

25,000 BBY (GSC 0)

The Rakatan hyperdrive is adapted, manufactured, and widely distributed by the Corellians.
The Unification Wars are fought.
The Galactic Constitution is signed.
The Galactic Republic is formed.
Coruscant becomes the Republic's capital.
Merk Quanto is the first elected Supreme Chancellor.
The Jedi Order arises from the ashes of the Force Wars of Tython.
Jedi Knights establish a school on Ossus.
The Perlemian Trade Route is founded, linking Coruscant with Ossus.

24,980 BBY (GSC 20)

Rana Mas Trehalt, legendary Queen of Duro, dies.
Dasid becomes King of Duro.

24,500 BBY (GSC 500)

The first war between the Jedi begins, when some of their number are drawn to the Dark Side, forming the Legions of Lettow.

24,400 BBY (GSC 600)

The Dark Jedi lose the war.

24,000 BBY (GSC 1,000)

Hosk Station is constructed on the surface of Kalarba's largest moon.
The Tionese War is fought between the Galactic Republic and the Honorable Union of Desevro & Tion.

23,900 BBY (GSC 1,100)

The former worlds of the Union, (with the exception of Desevro), join the Galactic Republic as a member sector with Tion as the capital.

22,000 BBY (GSC 3,000)

The planet Nubia is settled.

20,100 BBY (GSC 4,900)

The Inner Rim is settled.

20,000 BBY (GSC 5,000)

The Galactic Republic's Great Manifest Period begins.
The Etti flee persecution in the Core and eventually settle on Etti IV.

19,997 BBY (GSC 5,003)

An indigenous sapient species of Neona goes extinct.

18,000 BBY (GSC 7,000)

Bureau of Ships and Services is created.

17,522 BBY (GSC 7,478)

Haruun Kal is colonized for the first time.

17,000 BBY (GSC 8,000)

The Alsakan Conflicts begin.
The Great Manifest Period ends.
The Indecta era begins.

16,950BBY (GSC 8,050)

The Arkanians settle Xexto subjects on Quermia for a genetic experiment.

15,500 BBY (GSC 9,500)

The Duinuogwuin Contention.
The first portable high-energy blade is constructed (though unstable and inefficiently guzzled power from a belt-mounted power supply).
The University of Coruscant is founded by Borz'Mat'oh and Supreme Chancellor Fillorean.

15,100 BBY (GSC 9,900)

The Anomids of Yablari develop hyperdrive.

15,000 BBY (GSC 10,000)

The Indecta era ends.
Yablari joins the Galactic Republic
Neimoidia is finally considered a separate culture from Duro.
Ando joins the Republic.
The planet Dahrtag is settled.
The Aquala and the Quara fight in a civil war.
The Hutts take over Evocar

14,975 BBY (GSC 10,025)

Necropolis is colonized.

14,000 BBY (GSC 11,000)

Vulta joins the Galactic Republic.

13,975 BBY (GSC 11,025)

The Duros discover Sneeve.

13,720 BBY (GSC 11,280)

The Herglic Trade Empire collapses.

13,000 BBY (GSC 12,000)

Lan Barell is discovered.

12,720 BBY (GSC 12,280)

The Herglic establish contact with the human colonists of the nearby Tapani Sector and join the Galactic Republic soon after.

12,500 BBY (GSC 12,500)

The slave trade becomes an everyday part of life on Ryloth.

12,000 BBY (GSC 13,000)

Ord Mantell is colonized by Corellian colonists as an advanced military outpost for the Republic.
The Pius Dea Crusades begin.
The Galactic Museum is established on Coruscant.

11,975 BBY (GSC 13,025)

Morseer is settled.

11,720 BBY (GSC 13,280)

The Twelve Kingdoms Era in the Tapani Sector begins.

11,708 BBY (GSC 13,292)

First contact between the Mrlssi and Humans occurs.

11,500 BBY (GSC 13,500)

Female Jedi Knight Halbret brings together a contingent of Jedi Knights to defeat a powerful Dark Jedi who has enslaved the Kathol species.

11,000 BBY (GSC 14,000)

End of the Pius Dea Crusades.

10,019 BBY (GSC 14,971)

The Corellians discover New Plympto.

10,000 BBY (GSC 15,000)

Gravlex Med is briefly occupied by Shusugaunt conquerors.
The Lost City of the Jedi is constructed on Yavin IV.
Abregado-rae is discovered by Galactic Republic scouts.
Kinyen recorded history begins.
The Great Library of Ropagi II is built b the Ropagu.

9,997 BBY (GSC 15,003)

Fortress Barlos is built on Pochi.

9,990 BBY (GSC 15,010)

Lightsabers are invented.
Kaja Cinis, a Civian built the fist lightsaber using a very rare Kyber crystal. Only three of these crystals exist.

9,988 BBY (GSC 15,012)

Adumar is settled.

9,000 BBY (GSC 16,000)

The Rianitus Period begins.

8,296 BBY (GSC 16,704)

Start of the Sullustan Calendar.

8,000 BBY (GSC 17,000)

The Republic establishes an outpost on the planet Malastare's eastern continent. Gran colonists arrive over the following millennia and begin to displace the native Dugs.
The Rianitus Period ends.

7,720 BBY (GSC 17,280)

The Twelve Kingdoms Era in the Tapani Sector ends.

7,700 BBY (GSC 17,300)

The war between the Meris and Teltiors on Merisee begins.

7,600 BBY (GSC 17,400)

Gorothites develop hyperdrive.

7,500 BBY (GSC 17,500)

Goroth Prime joins the Galactic Republic.

7,328 BBY (GSC 17,762)

The Tapani Sector joins the Galactic Republic.
The Mrlsst Academy is established on Mrlsst.

7,308 BBY (GSC 17,782)

The Galactic Standard Calendar is developed.

7,299 BBY (GSC 17,701)

Ishanna is colonized.

7,032 BBY (GSC 17,968)

The "Elders" engage in warfare with the Gungans, forcing the Gungans to retreat underwater.

7,003 BBY (GSC 17,997)

The Second Great Schism occurs, and the Hundred-Year Darkness begins.

7,000 BBY (GSC 18,000)

A prophecy tells of a Chosen One who will bring "balance to the Force".
According to legend, the Mandalorian Crusaders were formed on the planet Mandalore by the Taung, Mandalore the First.

6,997 BBY (GSC 18,003)

Mrlsst joins the Galactic Republic.

6,950 BBY (GSC 18,050)

Quermia is rediscovered by the Galactic Republic.

6,900 BBY (GSC 18,100)

End of the Hundred-Year Darkness.
The Dark Jedi lose the war at the Battle of Corbos, and the survivors are exiled from the Republic.
The Dark Jedi found the Sith Empire, which remains unknown to rest of the galaxy for almost two thousand years.
The Golden Age of the Sith begins
Quermia joins the Galactic Republic.

6,300 BBY (GSC 18,700)

S'krrr is discovered by the Rabaanites.

6,000 BBY (GSC 19,000)

Manderon Period reaches its height.
The Miraluka migrate to Alpheridies.
Rheshalva Interstellar Armaments is founded.

5,975 BBY (GSC 19,025)

Dorin joins the Galactic Republic

5,689 BBY (GSC 19,311)

The Sidereal Period begins.

5,500 BBY (GSC 19,500)

The first leg of the Rimma Trade Route is established by Tapani Sector merchants.

5,100 BBY (GSC 19,900)

Marka Ragnos defeats Lord Simus and is crowned Dark Lord of the Sith.
In the next three millennia to come, the following Dark Lords of the Sith were: Marka Ragnos, Ludo Kresh, Naga Sadow, Freedon Nadd and Exar Kun.
The Golden Age of the Sith ends with the death of Marka Ragnos

5,033 BBY (GSC 19,967)

A Jedi crashes on Yashuvhu and ultimately establishes a Force tradition there through his descendants.

5,032 BBY (GSC 19,968)

An interstellar race colonizes Kooriva, and becomes known as the Koorivar.
The end of the "Elder" civilization on Naboo
Future Jedi, Odan-Urr, is born on Draethos.

5,020 BBY (GSC 19,980)

Gav and Jori Daragon are born on Koros Major.

5,007 BBY (GSC 19,993)

The symbol of the Republic Navy is carved in a moon.

5,002 BBY (GSC 19,998)

Nazzri's hereditary monarchy is replaced with a theocratic oligarchy.

5,000 BBY (GSC 20,000)

The Great Hyperspace War begins when Gav and Jori Daragon accidentally lead the forces of the Sith Empire to the Republic.
Battle of Coruscant
Battle of Koros Major
Battle of Kirrek
Battle of Primus Goluud
First Battle of Korriban
Second Battle of Korriban

The Republic wins the war, but Dark Lord of the Sith Naga Sadow escapes to Yavin 4.
The planet Tatooine is discovered.

4,996 BBY (GSC 20,004)

The Great Jedi Library is established by Jedi Master Odan-Urr on Ossus.

4,995 BBY (GSC 20,005)

The Klatooinian Trade Guild is founded on Klatooine.

4,990 BBY (GSC 20,010)

The dissolution of the First Sith Empire.

4,800 BBY (GSC 20,200)

The Gank Massacres take place, resulting in the extinction of the Porporites.

4,700 BBY (GSC 20,300)

A Jedi Assembly is established.

4,519 BBY (GSC 20,481)

Uueg Tching, The fifty-fourth Emperor of Kitel Phard, states three ways on how to defeat an enemy, which ultimately becomes a famous, oft-referenced quote.

4,500 BBY (GSC 20,500)

The Quarren make war on the Mon Calamari.

4,400 BBY (GSC 20,600)

The Jedi Knight Freedon Nadd falls to the dark side, learning the secrets of the Sith from the spirit of Naga Sadow.

4,350 BBY (GSC 20,650)

The Beast Wars of Onderon begin.

4,250 BBY (GSC 20,750)

The Third Great Schism.
The Vultar Cataclysm.

4,200 BBY (GSC 20,800)

Anchorhead is founded on Tatooine.

4,156 BBY (GSC 20,844)

Taris suffers a civil war.
Non-humans are banished from the Upper City of Taris.

4,150 BBY (GSC 20,850)

Hapes is settled by raiders from Lorell.

4,070 BBY (GSC 20,930)

Amanoa is born on Onderon.

4,050 BBY (GSC 20,950)

The Lorell Raiders are defeated by the Jedi, resulting in the hatred of the Jedi within the Hapes Consortium.

4,048 BBY (GSC 20,952)

Drokko Kira is cast out of the Onderon city of Iziz.

4,024 BBY (GSC 20,976)

Nallastia is settled by colonists from the Darpa Sector.

4,019 BBY (GSC 20,981)

Four Jedi Masters (two Warrior Masters and two Sage Masters) establish the ziggurat of the Jedi Temple over the Force nexus on Coruscant.

4,018 BBY (GSC 20,982)

Ulic Qel-Droma is born on Alderaan.

4,015 BBY (GSC 20,985)

The Great Droid Revolution begins and is ended.
The Old Sith Wars begin.

4,014 BBY (GSC 20,986)

Future Mandalore, Canderous Ordo, is born on Ordo.

4,002 BBY (GSC 20,998)

Onderon joins the Galactic Republic.

4,000 BBY (GSC 21,000)

Sidrona Diath becomes Supreme Chancellor of the Galactic Republic.
The Beast Wars end, but the Great Sith War begins at the Battle of Onderon.
The Tallaani Shipyards are established on Tallaan.

3,998 BBY (GSC 21,002)

Foundation of the Krath cult.
The Freedon Nad Uprising occurs on Onderon.

3,997 BBY (GSC 21,003)

Former Jedi Exar Kun is crowned the new Dark Lord of the Sith
The Krath Holy Crusade begins with the Battle of Basilisk.
The Mandalorians, led by Mandalore the Indomitable, engage the Republic and the Basiliskans.
Jedi Knights Ulic Qel-Droma and Nomi Sunrider fight for the Republic at the First Battle of Empress Teta.
Jedi Master Arca Jeth dies at the Battle of Deneba while saving his apprentice, Ulic Qel-Droma.
After the Second Battle of Empress Teta, Ulic Qel-Droma defects to the Krath.
Ulic Qel-Droma becomes the apprentice of Exar Kun.

3,996 BBY (GSC 21,004)

At the Battle of Kuar on the Plains of Harkul, Ulic Qel-Droma defeats Mandalore the Indomitable in combat, winning his loyalty.
Mandalore the Indomitable is defeated by the Republic at the Battle of Onderon and killed by the beasts of Dxun. He is succeeded by Mandalore the Ultimate.
Sith Lord Ulic Qel-Droma turns away from the Dark Side.
Exar Kun is defeated at the Battle of Yavin IV by Ulic Qel-Droma and the Republic.
Both the Great Sith War and the Krath Holy Crusade end with the Third Battle of Empress Teta.
Mandalore the Ultimate begins secretly summoning clans from across the galaxy, building up arms and ships on Dxun, working toward the day when a new crusade can be launched.

3,995 BBY (GSC 21,005)

The Great Hunt is started by the Jedi to exterminate the terentateks.

3,994 BBY (GSC 21,006)

Ulic Qel-Droma revisits Yavin IV.

3,993 BBY (GSC 21,007)

The Great Hunt ends.

3,990 BBY (GSC 21,010)

The Sith Holocron of Adas is uncovered by Queen Amanoa of Onderon.

3,986 BBY (GSC 21,014)

Ulic Qel-Droma dies on Rhen Var.
Conclave on Exis Station.

3,976 BBY (GSC 21,024)

The Mandalorian Neo-Crusaders, led by Mandalore the Ultimate, begin to conquer worlds in the Outer Rim.
Brianna and Mical are born.
Visas Marr is born on Katarr.

3,974 BBY (GSC 21,026)

Mira is born.

3,970 BBY (GSC 21,030)

Beginning of the Kanz Disorders.

3,965 BBY (GSC 21,035)

The Mandalorian Wars begin with the First Battle of Onderon.
The Galactic Republic enters the war, but the Jedi Council forbids involvement by the Jedi until the problem has been assessed.

3,964 BBY (GSC 21,036)

Battle of Flashpoint Station.
First Battle of Suurja.
Second Battle of Suurja.
Third Battle of Suurja.
Fourth Battle of Suurja.

3,963 BBY (GSC 21,037)

The Battle of Cathar is so brutal, that it is also referred to as the Genocide of Cathar.
In response, the Jedi Revan and Malak defy the Jedi Council and lead a large faction of the Jedi, including the Jedi Exile, to war.

3,962 BBY (GSC 21,038)

Eres III is nearly destroyed by Mandalorian hands, while at the same time the Xoxin plains are intentionally set on fire and continue to burn, even twelve years later.
The Mandalorians nearly devastate planet Duro, forcing the Duros to evacuate and relocate.

3,961 BBY (GSC 21,039)

The Exchange is driven off Taris for a time, thanks to Revan's intervention.
Juhani is freed from slavery.
Revan and Malak discover Star Maps on Kashyyyk and Korriban.
Brejik takes command of the Black Vulkar gang on Taris.
Cassus Fett becomes the most wanted man in the galaxy.
Mandalore the Ultimate is killed by Revan at the Battle of Malachor V.
The Mandalorian Wars end.
The Jedi Exile, who was serving as a general, loses all connection to the Force, returns to the Jedi Council, and is exiled from the Order for her crimes.
Revan and Malak disappear into unknown space with a third of the Republic fleet.

3,959 BBY (GSC 21,041)

The Jedi Civil War begins.
Revan and Malak declare themselves Sith and invade the Republic.
Only the Battle Meditation of Bastila Shan staves off certain defeat.
Battle of Foerost.
Bombing of Telos IV.

3,958 BBY (GSC 21,042)

Griff Vao leaves Taris with Lena, abandoning his young sister, Mission.

3,957 BBY (GSC 21,043)

Revan is defeated onboard his flagship, after Malak turns against him. Bastila Shan brings Revan back to the Jedi, who use the Force to strip his memories and create a new identity for him.

3,956 BBY (GSC 21,044)

Battle of Taris.
Attack on Dantooine.
At the Battle of Rakata Prime, Revan kills Malak in a lightsaber duel, and the Republic Fleet destroys the Star Forge.
End of the Jedi Civil War.
The First Sith Civil War begins.

3,955 BBY (GSC 21,045)

Revan disappears into the Unknown Regions to destroy the ancient Sith Empire.
The First Sith Civil War ends.
First Jedi Purge begins.
Supreme Chancellor Cressa starts the Telosian Restoration Project, for which Aratech launches the G0-T0 droid series.
The Conclave on Katarr is called to discuss the future of the Jedi Order.
The Sith Lord Darth Nihilus uses his massive Force powers to feed off of the life on Katarr, destroying all life on the planet, (except for the Miraluka Visas Marr), and virtually wipes out the Jedi Order.

3,951 BBY (GSC 21,049)

The Exile is discovered aboard the Ebon Hawk, by Darth Traya.
First Battle of Dantooine.
First Battle of Onderon.
Second Battle of Onderon.
Battle of Telos IV.
The Exile reestablishes connection to the Force, then kills Darth Traya, Darth Nihilus, and Darth Sion, who have spent the last five years assassinating Jedi.
Destruction of Malachor V.
First Jedi Purge ends.
The Second Sith Civil War begins.
End of the Old Sith Wars.
The Exile departs to the Unknown Regions to find Revan.
The Czerka Corporation, through not entirely legal means, attempts to take control over the Telosian Restoration Project.

3,946 BBY (GSC 21,054)

Sixteen worlds in the Gordian Reach ruled by G0-T0 droids secede from the Galactic Republic to form the independent territory of 400100500260026.
The Republic, under the directive of Supreme Chancellor Cressa, retakes 400100500260026.

3,900 BBY (GSC 21,100)

The planet Naboo is colonized by settlers from Grizmallt.

3,670 BBY (GSC 21,330)

End of the Kanz Disorders.

3,600 BBY (GSC 21,400)

The Jedi free the Lorrdians from Argazdan control.

3,519 BBY (GSC 21,481)

An expansion to the Jedi Temple on Coruscant is made.

3,500 BBY (GSC 21,500)

The Iktotchi race is discovered by the Republic.

3,475 BBY (GSC 21,525)

Iktotch joins the Galactic Republic.

3,100 BBY (GSC 21,900)

The Hapan Consortium seals its borders with the rest of the Galaxy.

3,032 BBY (GSC 21,968)

The War of the Gungan Tribes.
The Gungans are unified under Boss Gallo.
Boss Rogoe dies.
Building of Otoh Gunga.

3,000 BBY (GSC 22,000)

Freia Kallea charts the Hydian Way.
Socorro is colonized by Corellian colonists.
The Alsakan Conflicts end.

2,996 BBY (GSC 22,004)

Saalo Morn fails to become a Jedi Knight and crosses over to the Dark Side.

2,992 BBY (GSC 22,008)

The planet Dathomir leaves the Paecian Empire.

2,989 BBY (GSC 22,011)

The Sayings, (an Atrisian reference), is stored in the Atrisian Imperial Historical Library.

2,979 BBY (GSC 22,021)

Jabiim joins the Galactic Republic.

2,973 BBY (GSC 22,027)

The Senate Rotunda is built.

2,700 BBY (GSC 22,300)

The city of Kala'din on Ryloth collapses.

2,519 BBY (GSC 22,481)

An expansion to the Jedi Temple on Coruscant is made, including the addition of the Jedi Archives.

2,200 BBY (GSC 22,800)

The beginning of the height of Saffa painting.

2,032 BBY (GSC 22,968)

Coruscant experiences its last major ground quake.
The Koorivar are expelled from Kooriva by an indigenous species.

2,019 BBY (GSC 22,971)

Durge is born.

2,000 BBY (GSC 23,000)

Jedi Master Phanius absconds from the order with a stolen Holocron.
The departure from the Jedi Order of Phanius and his followers becomes the Fourth Great Schism.
Phanius takes the name Darth Ruin and starts a New Sith Empire.
Darth Ruin is soon betrayed and killed by his followers.
The New Sith War begins.

1,998 BBY (GSC 23,002)

Ecclessis Figg is born.

1,991 BBY (GSC 23,009)

Jomark is colonized.

1,989 BBY (GSC 23,011)

The planet of Bespin is first colonized.

1,750 BBY (GSC 23,250)

The Dark Underlord becomes Dark Lord of the Sith.

1,550 BBY (GSC 23,450)

The end of the height of Saffa painting.

1,532 BBY (GSC 23,468)

The Koorivar win back control of Kooriva.
Battle of Gap Nine.

1,500 BBY (GSC 23,500)

Jaing and Durge are used as pawns in an unnamed Outer Rim cyberneticist's plot to start a war between the Mandalorians and the Sith.

1,489 BBY (GSC23,511)

The Sayings are printed for the Atrisian nobility.

1,466 BBY (GSC 23,534)

Battle of Mizra.

1,250 BBY (GSC 23,750)

Belia Darzu becomes Dark Lady of the Sith.
The Sictis Wars begin.

1,230 BBY (GSC 23,770)

Belia Darzu dies.
The Sictis Wars end.

1,196 BBY (GSC 23,804)

The civilization on Hathrox III is destroyed in a biochemical civil war.

1,100 BBY (GSC 23,900)

Tatooine is rediscovered by the Republic.
Start of the Republic Dark Age.

1,050 BBY (GSC 23,950)

Battle on Unknown World (Young Hoth).

1,043 BBY (GSC 23,957)

Darth Bane is born on Apatros.

1,025 BBY (GSC 23,975)

Hurst, father of Darth Bane, dies on Apatros.

1,020 BBY (GSC 23,980)

The planet Melida/Daan is colonized.
Battle of Phaseera.

1,015 BBY (GSC 23,985)

Darovit is born on Somov Rit.

1,010 BBY (GSC 23,990)

A Sith Lord creates the Behemoth from the World Below on Aduba-3.
Dannik Jerriko is born on Anzat.

1,001 BBY (GSC 23,999)

Spira is colonized.

Fall of the Republic Era

1,000 BBY (GSC 24,000)

Battle of Hoth.
Battle of Drom.und Kaas
Battle of Malrev IV.
Battle of Harpori.
Battle of Balowa.
First Battle of Ruusan.
Second Battle of Ruusan.
Third Battle of Ruusan.
Fourth Battle of Ruusan.
Fifth Battle of Ruusan .
Sixth Battle of Ruusan.
Seventh Battle of Ruusan.
The Battle of Ruusan. The remaining Sith are exterminated on Ruusan, with the exception of Darth Bane, who starts a new Sith Order with only one master and one apprentice at a time (this is

known as the Rule of Two). Each subsequent Sith would bear the title Darth, with few exceptions.
The Republic Dark Age comes to an end.
The Jafan Dynasty begins on Naboo.

990 BBY (GSC 24,010)

Darth Zannah fights and kills Darovit on Ruusan.

965 BBY (GSC 24,035)

Chiss Ascendancy passes the Non-Aggression Law.

920 BBY (GSC 24,080)

Aruk the Hutt is born.

915 BBY (GSC 24,085)

Sise Fromm is born.

896 BBY (GSC 24,104)

Yoda the Whill is born on Grentarik and later begins his training with Hysalrian Jedi Master N'Kata Del Gormo on an unknown swamp planet.

850 BBY (GSC 24,150)

A box containing a 10,000 year old lightsaber is discovered on Ossus.

800 BBY (GSC 24,200)

Yoda begins to train Jedi in the ways of The Force.

796 BBY (GSC 24204)

Yoda is granted the title of Jedi Master.

700 BBY (GSC 24,300)

B'omarr Monks construct the monastery on Tatooine that will eventually become Jabba's Palace.
An Alderaan Biotics operation is established on Borleias.

620 BBY (GSC 24,380)

The Antarian Rangers are established.

610 BBY (GSC 24,390)

Dewlannamapia is born on Kashyyyk.

600 BBY (GSC 24,400)

The Jedi Knight Allya is exiled to Dathomir.

596 BBY (GSC 24,404)

First Battle of Zeltros.
Jabba the Hutt is born on Nal Hutta.

595 BBY (GSC 24,405)

Gandle Ott is colonized by Humans.

571 BBY (GSC 24,429)

The Clatear and the Nhoras begin a large-scale species-based feud.

550 BBY (GSC 24,450)

The Bandit Alkhara moves into what will eventually become Jabba's Palace. His slaughter of a tribe of Sandpeople begins the centuries-long Tusken/Human blood feud.
The 222 fishing trawler is designed and produced by Ubrikkian Transports.

532 BBY (GSC 24,468)

Many Quarren and Mon Calamari were taken as laborers to Lamaredd.

529 BBY (GSC 24,471)

The Atrisian Parliament is formed.

519 BBY (GSC 24,481)

The species later known as the Polis Massans begin to investigate the remains of the Eellayin civilization on Polis Massa.

516 BBY (GSC 24,484)

Jabba the Hutt forces the bandit Alkhara out of his palace.

509 BBY (GSC 24,491)

Yaddle is born.

500 BBY (GSC 24,500)

The Jedi training vessel Chu'unthor, is built in orbit around the planet Abhean by Republic Fleet Systems.
The Federation of the Double Worlds is founded.
Plagen is discovered.
Tyvokka is born on Kashyyyk.

495 BBY (GSC 24,505)

Ikrit is born on the Outer Rim world of Kushibah.

491 BBY (GSC 24,509)

A civilization on Jandoon disappears.

490 BBY (GSC 24,510)

The Corporate Sector Authority, a free-enterprise fiefdom of the galaxy, is founded to free the Galactic Senate and corporate moneymakers from each other.

482 BBY (GSC 24,518)

Ikrit begins training under Master Yoda.

481 BBY (GSC 24,519)

Using the Force, Ikrit saves his village from Xinkra.

475 BBY (GSC 24,525)

Corellia unsuccessfully attempts to withdraw from the Galactic Republic, going so far as to utilize the Contemplanys Hermi clause for the first time in history.
Yinchorr is first charted by the Galactic Republic.

470 BBY (GSC 24,530)

Corellia, Selonia and Drall ally in a failed attempt to takeover the Federation of the Double Worlds.

439 BBY (GSC 24,561)

Spore is created by scientists on Ithor.

400 BBY (GSC 24,600)

The elitist Nomad's Retreat in the Nomad Mountains on Corellia expands its membership to become a public resort.
Susevfi is settled by Corporate Sector expatriates.

392 BBY (GSC 24,608)

Kal'shebbol is first settled by Twi'lek refugees.

380 BBY (GSC 24,620)

Kieran Halcyon defeats the Afarathau cult.

378 BBY (GSC 24,622)

Ikrit discovers the Golden Globe within the Palace of the Woolamander on Yavin IV.

350 BBY (GSC 24,650)

The Trade Federation is founded.
The Great Cleansing occurs on Fyodos, devastating the planet.
Attichitcuk is born on Kashyyyk.

340 BBY (GSC 24,660)

The Jedi training vessel Chu'unthor crashes on the surface of Dathomir.

332 BBY (GSC 24,668)

The Sheyfs of Clan Vos begin to rule Kiffu.

322 BBY (GSC 24,678)

The Annoo-dat conquer Gelefil.

321 BBY (GSC 24,679)

Ord Cestus becomes a prison planet.

320 BBY (GSC 24,680)

Rill is born.

319 BBY (GSC 24,681)

An embezzlement scandal results in twelve Cybot Galactica executives being imprisoned on Ord Cestus.

312 BBY (GSC 24,688)

Berethon e Solo establishes a democratic constitutional monarchy on Corellia, replacing the previous absolute monarchy.

300 BBY (GSC 24,700)

The Bothan Spynet is established.
Myrkr is discovered and settled.
The Ho'Din begin to industrialize and move down from the trees.
The Nozho-Weogar War between the Bith city-states of Nozho and Weogar devastates Clak'dor VII.

297 BBY (GSC 24,703)

The Kian'thar begin developing strong ties with Black Sun.

296 BBY (GSC 24,704)

The Tofs conquer the planet Nagi.

292 BBY (GSC 24,708)

Oon Tien is colonized by the Republic.

282 BBY (GSC 24,718)

The Houks colonize Sriluur.

275 BBY (GSC 24,725)

The Janguine language goes extinct, along with its users.

250 BBY (GSC 24,750)

Human colonists from Sallichecolonize Varonat, founding the settlements of Tropis-on-Varonat and Edgefields-on-Varonat.
Gelgelar is colonized.
Adarlon is colonized by Alderaanians.

247 BBY (GSC 24,753)

Bosbit Matarcher is born.

232 BBY (GSC 24,768)

The Jedi notice that the Force has begun to "flux", and fear that the dark side is growing again.
Worxer is destroyed when its sun goes supernova.

229 BBY (GSC 24,771)

The Gardaji Rift is surveyed by the Galactic Republic.

222 BBY (GSC 24,778)

A freighter from Geonosis crashes on Tatooine, leading to the domestication of the massifs by the Sandpeople.

220 BBY (GSC 24,780)

The Academy of Carida is founded.
The mining city of Tayana on Duro reaches its height.
Drongar is discovered by Nikto scouts.

219 BBY (GSC 24,781)

Gowix Computers is founded.

212 BBY (GSC 24,788)

Starting from his homeworld of Delemede, Bosbit Matarcher unintentionally time travels 190 years into the future, due to faulty relativistic shielding on his ship.

206 BBY (GSC 24,794)

Oppo Rancisis is born on Thisspias.
Quagga is born on Kashyyyk.

200 BBY (GSC 24,800)

A Wookiee named Chewbacca is born on Kashyyyk.
The Jedi Order feels that the Dark Side of the Force is growing strong again.
The star Carosi destroys the innermost five planets in the Carosus system.
Yperio Baobab creates Bab-Prime, precursor to Bab-Neo and modern-day droidspeak.
Memory wipes become common droid maintenance following a personality virus unleashed by a member of the Baobab Merchant Fleet.

195 BBY (GSC 24,805)

Glova is colonized.

194 BBY (GSC 24,806)

Birth of the Bab-Prime language.

192 BBY (GSC 24,808)

Recycling bacteria in a manner that revolutionizes waste management develops on Coruscant.

191 BBY (GSC 24,809)

The natives of Fere are wiped out by a plague.

190 BBY (GSC 24,810)

Vima-Da-Boda is born.

189 BBY (GSC 24,811)

Vortex joins the Republic.

188 BBY (GSC 24,812)

Kibh Jeen falls to the Dark Side of the Force.
Almas Academy is founded on Almas by the Jedi.
Qornah dies on Almas.

180 BBY (GSC 24,820)

The space station Tatoo III is constructed in orbit around Tatooine.

171 BBY (GSC 24,829)

Yoda travels to Ord Cestus and saves its natives, the X'Ting, from a disaster.

161 BBY (GSC 24,839)

The Tarasin Revolt begins on Cularin.

160 BBY (GSC 24,840)

Orn Belden, future Bakuran senator, is born.

157 BBY (GSC 24,843)

Chalmun is born on Kashyyyk.

155 BBY (GSC 24,845)

Tojjevvuk is born on Kashyyyk.

154 BBY (GSC 24,846)

The Tarasin Revolt on Cularin ends with the Cularin Compact.

150 BBY (GSC 24,850)

The Jafan Dynasty on Naboo ends and an elective monarchy begins.
The Bakur Corporation under Arden colonizes Bakura.
A coalition of corporations on Corellia overthrows its ruling constitutional monarchy, installing the office of Diktat to better steward business interests in the sector.

147 BBY (GSC 24,853)

Incom and Subpro enter into a partnership.

145 BBY (GSC 24, 855)

Brath Qella is discovered by the Galactic Republic's Third General Survey.

142 BBY (GSC 24,858)

The planet of Belasco begins a war with a neighboring planet.

140 BBY (GSC 24,860)

Brath Qella enters a deep ice age.

132 BBY (GSC 24,868)

The Republic first makes contact with the Elomin.

130 BBY (GSC 24,870)

The Potentium Heresy first appears amongst younger members of the Jedi Order.

128 BBY (GSC 24,872)

Eppie Antruse is born on Bakura.

124 BBY (GSC 24,876)

The Treaty of Trammis is orchestrated by Jedi Master Omo Bouri.
The Galactic Senate declares the Outer Rim to be a free trade zone.

121 BBY (GSC 24,879)

The armed conflict between the Human settlers and the Gungan natives of Naboo comes to an end.

120 BBY (GSC 24,880)

Ugloste is born on Gentes.

119 BBY (GSC 24,881)

The Republic discovers the planet Orax.

118 BBY (GSC 24,882)

A war between Garos IV and Sundari ends with a treaty.

115 BBY (GSC 24,885)

Jira is born on Tatooine.

112 BBY (GSC 24,888)

The 3PO-series protocol droid line begins production by Cybot Galactica.

110 BBY (GSC 24,890)

Batorine joins the Galactic Republic.

105 BBY (GSC 24,895)

Durga the Hutt is born on Nal Hutta.

104 BBY (GSC 24,896)

Xizor is born on Falleen.

102 BBY (GSC 24,898)

Count Dooku is born to an aristocratic family on Serenno. He is discovered by the Jedi, and begins his training in infancy.
Lorian Nod is born.
The Aqualish colonize Andosha II and the other Andoan Free Colonies.

100 BBY (GSC 24,900)

The Dowager Queen crashes on Tatooine, which is subsequently colonized by miners and farmers.
Fort Tusken is founded on Tatooine.
The corporate wing of the Bakur Memorial Building is built on Bakura.
Eixes Valorum is Supreme Chancellor.
Dreadnaught-class heavy cruisers vessels are first deployed.
The Prophets of the Dark Side colonize Kalakar Six from Dromund Kaas.
Eeth Koth is born on Nar Shaddaa.
Jaster Mereel is born on Concord Dawn.
Jocasta Nu is born.
An'ya Kuro is born.
An unnamed Mandalore is assassinated by the bounty hunter Durge and a group of rogue Jedi Knights.

99 BBY (GSC 24,901)

Survivors of the crash of the Dowager Queen found Bestine Settlement.

98 BBY (GSC 24,902)

The first attacks by Tatooine's Sandpeople occur at Fort Tusken, lasting three years.

97 BBY (GSC 24,903)

Droid Uprising occurs on Bakura.
Droid Uprising occurs on Tatooine.
Orn Belden and Eppie Antruse are married.

96 BBY (GSC 24,904)

Danoor is colonized by scientists studying in the Kathol Rift.

95 BBY (GSC 24,905)

Entechment is proposed with the election of a new Shreeftut on Lwhekk.
Fort Tusken on Tatooine is abandoned after three years of Sandpeople attacks.
Vizsla is born.

94 BBY (GSC 24,906)

Famine on Telos.
The 21st Battle of Zehava on Melida/Daan.

93 BBY (GSC 24,907)

A second group of colonists found Motesta and re-establish Anchorhead on Tatooine.

92 BBY (GSC 24,908)

Qui-Gon Jinn is born on an unknown planet. He is discovered by the Jedi, and begins his training in infancy.
Ki-Adi Mundi is born.
Montross is born.
Tahl is born.
Plo Koon is born.

91 BBY (GSC 24,909)

Finis Valorum is born on Coruscant.

90 BBY (GSC 24,910)

Coveway is colonized.
The future Dark Jedi Maw is born.

89 BBY (GSC 24,911)

Dooku is apprenticed to Jedi Master Thame Cerulian.
The Potentium heretics are expelled from the Jedi Order, and colonize Zonama Sekot.
Lorian Nod is expelled from the Jedi Order.
Eol Sha is settled by the Republic.

88 BBY (GSC 24,912)

The Dark Woman takes Ki-Adi Mundi to Coruscant for Jedi training.
Plett builds Plett's Well on Belsavis.
Sio Bibble is born on Naboo.

87 BBY (GSC 24,913)

Civil war breaks out between Garos IV and Sundari over the destruction of a Garosian grain-processing factory.
Tem Chesko is born.

86 BBY (GSC 24,914)

Locus Geen, future General in the Army of the Republic, is born.

85 BBY (GSC 24,915)

Mos Eisley is founded around the wreck of the Dowager Queen.

83 BBY (GSC 24,917)

Mos Espa is founded on Tatooine.
The Galactic Games are instituted.

82 BBY (GSC 24,918)

Dantius Palpatine is born on Naboo.
Dooku passes the trials and is made a Jedi Knight.
Yoda takes Ki-Adi Mundi as his Padawan learner.
Doman Beruss is born on Illodia.
Cliegg Lars is born on Tatooine.

81 BBY (GSC 24,919)

Nejaa Halcyon is born on Corellia.

80 BBY (GSC 24,920)

Rune Haako is born on Neimoidia.
Iaco Stark is born.
Etahn A'baht is born.
Panaka is born.
Orn Free Taa is born.

79 BBY (GSC 24,921)

Anoon Bondara is born on Ryloth.

78 BBY (GSC 24,922)

Rostek Horn is born on Corellia.
Scerra is born on Corellia.
Ronhar Kim is born.

77 BBY (GSC 24,923)

The Second Galactic Games are held.
Dooku, along with his apprentice Qui-Gon Jinn, is reunited with Lorian Nod, who is now the leader of a band of space pirates.
Ruwee Naberrie is born on Naboo.
Senator Blix Annon dies of a heart attack.

75 BBY (GSC 24,925)

Longwind is colonized by criminals released from Republic prisons.
Drewwa, the third moon of Almania, is colonized.

74 BBY (GSC 24,926)

Bail Antilles is born on Alderaan.

73 BBY (GSC 24,927)

The planet of Kegan begins a period of isolation.

72 BBY (GSC 24,928)

Mace Windu is born on Haruun Kal.
Shmi Skywalker is born on Cardonas.
Ebenn Q3 Baobab is born on Manda.

71 BBY (GSC 24,929)

Xanatos is born on Telos at about this time.
Ric Olié is born on Naboo.

70 BBY (GSC 24,930)

The Kira Run is founded, connecting the Lazerian system to the Ropagi system.
The space station Tatoo III is destroyed over Tatooine.
Seti Ashgad is born.
Jorus C'baoth is born on Bortras.

69 BBY (GSC 24,931)

Bail Organa of Alderaan is born.
The ruins of Wiyentaah are discovered on Polis Massa.
The Third Galactic Games are held.
Clat'Ha is born.
Cin Drallig is born.

68 BBY (GSC 24,932)

Nejaa Halcyon is taken as a Padawan learner.

67 BBY (GSC 24,933)

Ki-Adi Mundi completes his Jedi training.
Essara Till is born.
Nym is born on Lok.

66 BBY (GSC 24,934)

Jango Fett is born on Concord Dawn.
Radiant VII is built and launched over Corellia.
Dooku and Qui-Gon Jinn embark on their last mission as Master and Padawan.
Shmi Skywalker is sold into slavery.
Jan Dodonna is born on Commenor.
Dorja is born on Coruscant.
Vanden Willard is born on Alderaan.

65 BBY (GSC 24,935)

Nute Gunray is born on Neimoidia.
The Hutts take control of Tatooine.
Gragra is born on Tatooine.

64 BBY (GSC 24,936)

Qui-Gon Jinn passes the Trials and becomes a Jedi Knight.
Tahl passes the Trials and becomes a Jedi Knight.
The H'kig arrive on Rishi.
Wilhuff Tarkin is born on Eriadu.

63 BBY (GSC 24,937)

Otto, future Imperial General, is born on Coruscant.

62 BBY (GSC 24,938)

The Flash speeder is developed on Naboo.
The Fourth Galactic Games are held.
The R3 series astromech droid is developed around this time.
Jocasta Nu joins the Jedi Council.
Vana Sage is born on Alderaan.
Coleman Trebor is born on Sembla.
Nee Alavar is born on Lorrd.
Obi-Wan Kenobi is born on the yellow rocky world of Pilegias.

61 BBY (GSC 24,939)

Followers of the H'kig religion, fleeing from persecution on their homeworld, settle the planet Rishi.

60 BBY (GSC 24,940)

The Millennium Falcon is constructed over Corellia.

The Corellian Security Force, or CorSec, is formed on Corellia.
Nejaa Halcyon becomes a Jedi Knight.
The Mandalorian Civil War begins.
Jaster Mereel becomes Mandalore.
Saun Dann is born.
Raith Sienar is born.
Bib Fortuna is born.

59 BBY (GSC 24,941)

Nejaa Halcyon and Scerra have a secret wedding on Corellia.
Qui-Gon Jinn's first apprentice passes the Trials and becomes a Jedi Knight. Qui-Gon becomes a Jedi Master and takes Xanatos as his second Padawan learner.
Shaak Ti is born on Shili.
Quinlan Vos is born on Kiffu.

58 BBY (GSC 24,942)

Jango Fett is orphaned when his family of simple farmers is murdered by the Mandalorian Death Watch. He is picked up by former Journeyman Protector Jaster Mereel.
Jabba the Hutt is sent to Tatooine to represent the Desilijic Clan.
Mace Windu is sent to Hurikane to negotiate with the insectoid-rock humanoids. He makes peace with them and receives purple Hurrikaine Crystals that he uses to build his lightsaber.
Darsha Assant is born on Alderaan.
The Yinchorri gain representation in the Galactic Senate.

57 BBY (GSC 24,943)

The Yinchorri join the Galactic Republic.
Bruck Chun is born on Telos IV.
Gilad Pellaeon is born on Corellia.
Nield is born on Melida/Daan.
Cerasi is born on Melida/Daan.

56 BBY (GSC 24,944)

Obi-Wan Kenobi begins training in the Jedi Temple under Master Yoda.
Nerra Ziveri turns control of the Jedi Academy on Cularin to Lanius Qel-Bertuk and disappears.

55 BBY (GSC 24,945)

The Fifth Galactic Games are held.
The Neimoidians become the leaders of the Trade Federation.

54 BBY (GSC 24,946)

Khameir Sarin (later known as Darth Maul) is born on Iridonia.
Bant Eerin is born on Mon Calamari.
Joclad Danva is born.

53 BBY (GSC 24,947)

Xanatos leaves the Jedi Order after Qui-Gon Jinn is forced to kill the boy's father, Crion, on Telos.
The opera, The Brief Reign of Future Wraiths, leaves Coruscant to tour the Galaxy.
Padawan Jorus C'baoth attends Mirnic University.
Bossk is born on Trandosha.
Aurra Sing is born on Nar Shaddaa.

52 BBY (GSC 24,948)

Palpatine's predecessor, Vidar Kim, is assassinated on Coruscant.
Palpatine is elected to the Galactic Senate as Senator of Naboo and the Chommell Sector.
Oppo Rancisis begins teaching at the Jedi Temple on Coruscant.
The Galactic Correctional Authority is formed, and establishes prisons on several worlds including Oovo IV.
Jaster Mereelis killed at the Battle of Korda 6.
Jango Fett becomes leader of the Mandalorians.
Jedi Master Dooku mediates an end to the Sevarcos Dispute.
Jocasta Nu steps down from the Jedi Council.
Jar Jar Binks is born on Naboo.
Garm Bel Iblis is born on Corellia.
Bolabo Hujaan is born on Sullust.
Gaen Drommel is born on Oplovis.
V-Davi is born on Kegan.
The Twi'lek twins Tann Gella and Ann Gella are born on Ryloth.
Zam Wessel is born on Zolan.

51 BBY (GSC 24,949)

Jorus C'baoth begins his service as the personal advisor to Senator Palpatine of Naboo.
The Dark Woman brings Aurra Sing to Coruscant for Jedi training.
Silya Shessaun is born on Thesme.

50 BBY (GSC 24,950)

Galladinium founds Galladinium's Galactic Imports on Lenthalis.
The Moddell sector joins the Galactic Republic.
Salt is introduced to the Arcona.
Annaj joins the Galactic Republic and becomes the Moddell Sector capital.
Young Anomids develop a nonconformist subculture.
Galactic Republic scouts discover Bosph and the Bosph species.
The Republic makes first contact with the Eloms.
Quarg and his pirates are exiled from the Korteen Belt to Drexel II.
The Arkanian Revolution is fought over the re-engineering of the Yaka.
Jorj Car'das is born on Corellia.
Charal is born on Dathomir.
Airen Cracken is born on Contruum.
Roblio Darté is born.
Gorm the Dissolver is born.
Valin Halcyon/Hal Horn is born on Corellia.
Owen Lars is born on Ator.
Schennt is born on Corulag.
Sola Naberrie is born on Naboo.
Sayer Mon Neela is born.

49 BBY (GSC 24,951)

Lorana Jinzler is born on Coruscant.
Breha Organa is born on Alderaan.
Rorworr is born on Kashyyyk.
Deel Surool is born on Ryloth.
Sylvn is born on Cerea.
Pter Thanas is born.

48 BBY (GSC 24,952)

Arani Korden is born on Naboo.
Beru Whitesun is born on Tatooine.
Mon Mothma is born on Chandrila.
Aayla Secura is born on Ryloth.
Toba is born on Naboo.
Maximilian Veers is born on an Unknown Planet.

47 BBY (GSC 24,953)

Sharad Hett leaves the Jedi Temple.
A'Sharad Hett is born on Tatooine.
Sia-Lan Wezz is born.

46 BBY (GSC 24,954)

Padmé Amidala (Padmé Naberrie) is born to Ruwee and Jobal Naberrie on Naboo.
The Marzoon Confederacy joins the Republic.
Garven Dreis is born on Virujansi.

45 BBY (GSC 24,955)

The Katana fleet is lost.
Qui-Gon Jinn chooses a young Obi-Wan Kenobi as his Padawan.
Byss is first charted by the Galactic Republic.
Veruna becomes King of Naboo.
Raymus Antilles is born on Alderaan.
Brandei is born on Mantooine.
Dormé is born on Naboo.

44 BBY (GSC 24,956)

Xanatos commits suicide on Telos by jumping into a pool of acid, rather than be captured by his former master, Qui-Gon Jinn.
The Stark Hyperspace War.

Tyvokka is killed by Trade Federation droids.
Plo Koon joins the Jedi Council.
Kol Huro Unrest.
Ackbar is born on Mon Calamari.
Tap-Nar-Pal is born on Cerea.

43 BBY (GSC 24,957)

The planet of Kegan ends its thirty year isolation.
Durnar is born.
Dean Jinzler is born on Coruscant.
Ferus Olin is born.
Xeltek is born.

42 BBY (GSC 24,958)

Anakin Skywalker, the Chosen One who will bring balance to the Force, is born to a slave named Shmi Skywalker on Thessius, a watery island world. She carries him and gives birth to him, but he has no father.
T'Bolton is born on Lorrd.
Omo Bouri dies.

41 BBY (GSC 24,959)

Jedi Master Tahl dies on New Apsolon.
Kit Fisto takes on Tahl's apprentice, Bant Eerin, as his own apprentice.
Shea Sadashassa is born on Herdessa.
Darra Thel-Tanis is born.
Kitster Banai is born on Tatooine.

40 BBY (GSC 24,960)

Finis Valorum is elected Supreme Chancellor of the Republic.
Barriss Offee is born on Mirial.
Fenn Shysa is born on Mandalore.
Sien Sovv is born on Sullust.
Catarine Towani is born.
Jeremitt Towani is born.
Future Jedi master Adaz Storey is born.

39 BBY (GSC 24,961)

Shmi and Anakin Skywalker come to live on Tatooine when they are purchased by Gardulla the Hutt. However, the Hutt ultimately loses her prize to a junk dealer named Watto.
The Republic makes its first known survey of the swamp world, Dagobah.
Firmus Piett is born on Axxila.

38 BBY (GSC 24,962)

A Republic survey team crashlands on Dagobah and begins a one-way battle to survive.
Professor Murk Lundi takes a sabbatical to scour Kodai for a lost Sith Holocron.
Wald is born on Tatooine.
Diric Wessiri is born.
Narro Sienar dies when his starship is destroyed near Dantooine.

37 BBY (GSC 24,963)

The Yam'rii are enslaved.
Liberal revolution on Pergitor
Tour Aryon is born on Treylon II.
Bene is born.
Dama Montalvo is born on Alderaan.
Naat Reath is born.
Orman Tagge is born on Tepasi.

36 BBY (GSC 24,934)

Finis Valorum is re-elected Supreme Chancellor.
The Yam'rii uprising.
Nenevanth Tion is born on Lianna.
Horton Salm is born.
Cassio Tagge is born on Tepasi.

35 BBY (GSC 24,935)

The Great Resynchronization occurs, in an attempt to harmonize different Galactic calendars.
Padmé Naberrie is made an Apprentice Legislator.
Jedgar is born.

34 BBY (GSC 24,936)

The Mandalorians are destroyed by a Jedi task force led by Count Dooku in the Battle of Galidraan. Jango Fett is the only survivor.
Mandalorian Myles dies on Galidraan.
Anakin Skywalker begins to build C-3PO out of the pieces of several broken protocol droids.

33 BBY (GSC 24,967)

The Yinchorri Uprising begins.
Ki-Adi Mundi joins the Jedi Council.
In response to a wave of Nebula Front attacks, the Senate grants the Trade Federation the right to arm its ships, in return for trade route taxation.
Eriadu Trade Summit.
Padmé Amidala becomes Princess of Theed.
Republic exploration ship Pathfinder III rediscovers Yashuvhu.

Rise of the Empire Era

32 BBY (GSC 24,968)

Padmé Amidala, former Princess of Theed, is elected Queen of Naboo.
The Trade Federation, under the influence of Darth Sidious, blockades, and eventually invades, Naboo at the behest of the Dark Lord of the Sith.
Obi-Wan Kenobi and Qui-Gon Jinn free Queen Amidala along with her political entourage and personal security force.
R2-D2 an astromech droid aboard the Queen's Yacht repairs the shield generator in the midst of danger while the ship attempts to escape the blockade. After the ship eludes the Trade Federation and lands on the remote world Tatooine, R2-D2 begins a longstanding relationship with the protocol droid C-3PO build by Anakin Skywalker.
Anakin Skywalker is discovered by Qui-Gon Jinn on the planet Tatooine. Qui-Gon wins Anakin's freedom by betting against Anakin's owner Watto in a podrace Anakin himself participates in.
Queen Amidala returns to Naboo and ends a period of disdain between the two predominant species on the planet: Humans and Gungans. The Gungans engage the droid army while the Queen and her security force capture the leaders of the Trade Federation. In the battle, Qui-Gon Jinn is killed by Darth Maul, who, in turn, is killed by Obi-Wan Kenobi. Daultay Dofine is killed when the Droid Control Ship is destroyed.
Following the Battle of Naboo, Senator Palpatine is elected Supreme Chancellor of the Republic, replacing Finis Valorum.
Count Dooku leaves the Jedi Order and disappears, secretly joining Darth Sidious.
The creation of a secret clone army begins on Kamino, under the order placed by Jedi Master Sifo-Dyas. Jango Fett a bounty hunter whose DNA is the specimen for replication, requests an unaltered clone be made for him; he names him Boba Fett.
Count Dooku murders Sifo-Dyas and becomes Darth Tyrannus, the Sith apprentice of Darth Sidious.
Kendal Ozzel is born on Carida.
The Yuuzhan Vong reach the Galaxy.

31 BBY (GSC 24,969)

Lando Calrissian is born.
The Nightsisters succeed in capturing a Star Temple and slaughter many Kwi.

30 BBY (GSC 24,970)

Adi Gallia, Ki-Adi Mundi and A'Sharad Hett begin the hunt for Aurra Sing.
Vergere is dispatched to investigate Zonama Sekot; she offers to go with the Yuuzhan Vong.
Kh'aris Fenn attempts a coup on the Twi'lek Clan Council.

Professor Rynalla attempts to excavate the Bracers of Najus on Leritor.
Anzati released from stasis by Aayla Secura overrun Kiffex.

29 BBY (GSC 24,971)

Raith Sienar presents the original concept for the Death Star to Wilhuff Tarkin.
Han Solo is born on Corellia.
Thracia Cho-Leem leaves the Jedi Order.
Preparations begin for the Outbound Flight Project.
Jedi master Ki-Adi Mundi chooses Adaz Storey to be his Padawan.
The Jamaane Coup occurs.

28 BBY (GSC 24,972)

The Vagaari are defeated by the Chiss Ascendancy.
Chancery election; Palpatine is re-elected Supreme Chancellor.
Radnor is struck by a bioplague; the nearby Avoni attempt to conquer it.
The Colicoids take over spice processing on Nar Shaddaa.
Aayla Secura is knighted on Coruscant.
Quinlan Vos is promoted to Jedi Master on Coruscant.

27 BBY (GSC 24,973)

Mon Mothma is elected Senator of Chandrila.
The Outbound Flight Project departs from Yaga Minor.
The Sepan Civil War begins.
Reija Momen becomes administrator of the Intergalactic Communications Center.
Master Yarael Poof is slain by Ashaar Khorda while protecting Coruscant from the Infant of Shaa.

26 BBY (GSC 24,974)

Yeorg Captison is elected to the Bakuran Senate.
Maxo Vista wins the Galactic Games.

25 BBY (GSC 24,975)

The Yuuzhan Vong establish an advance base on the planet Bimmiel.
The Jedi begin a campaign against the Pirates of Iridium.
Alderaanian scouts find the planet Isis, but keep it a secret.
Shaak Ti joins the Jedi Council, replacing Yaddle.

24 BBY (GSC 24,976)

Count Dooku reappears on Raxus Prime and alleges that the Republic has become too corrupt and pushes for citizens to break from the Republic and form a new government of their own.
Granta Omega plots two assassination attempts on Palpatine and though they are averted by the Jedi, 21 Senators are killed.
Ferus Olin resigns from the Jedi Order. He eventually ends up living on the world of Bellassa where he starts a good friendship with Roan Lands.
Palpatine reaches the end of his second term as Supreme Chancellor; the passage of the Emergency Powers Act allows him to stay in office until the crisis is dealt with.
Amidala, after serving two terms as Queen, is appointed by her successor Jamillia to be Naboo's Senator.
Start of the Virgilian Civil War.
The Commerce Guild takes control of Korriban.
Ister Paddie assumes Lanus Wrede's former seat in the Galactic Senate.

23 BBY (GSC 24,977)

Ludi Billane is born on Ord Thoden.
Judder Page is born on Corulag.
Battle of Antar 4.

22 BBY (GSC 24,978)

The Military Creation Act and the Battle of Geonosis.
Anakin Skywalker returns to his homeworld of Tatooine and meets his step brother Owen Lars and his girlfriend Beru. Shmi Skywalker is captured by the Tusken Raiders. Anakin Skywalker finds her; unfortunately it is too late and his mother dies in his arms. Driven by anger and rage, Anakin massacres the entire village of Tuskens while the force ghost of Qui-Gon Jinn tries to stop him.
Obi-Wan Kenobi discovers that Nute Gunray has been attempting to have Padmé Amidala assassinated as revenge for the Battle of Naboo. He also discovers that the Separatists under the leadership of Count Dooku are forming the Confederacy of Independent Systems.
Palpatine is given emergency powers by the Senate and authorized the creation of the Grand Army of the Republic to "counter the increasing threats of the separatists."
The Clone War begins with the Battle of Geonosis. Mace Windu kills Jango Fett in the fighting and many Jedi are killed attempting to rescue Obi-Wan Kenobi, his apprentice and Padmé Amidala.
Anakin Skywalker and Padmé Amidala marry in secret on Naboo.

22 – 19 BBY (GSC 24,978 – 24,981)

The Clone Wars begin.
Aayla Secura and Ylenic It'kla track down a Techno Union scientist on Corellia.
Padawan Adaz Storey reaches the rank of Jedi Knight, however he goes into hiding on the planet Tatooine due to his vision of the future.
A Dark Jedi named Asajj Ventress meets Count Dooku and proclaims herself as a Sith. However after fighting with Count Dooku she understands that her power is inferior to theirs and wishes to join the Sith, so Darth Sidious and Count Dooku use her for their dark plan against Anakin Skywalker.

20 BBY (GSC 24,980)

Two warships battle above the planet Honoghr. A Lucrehulk-class Core Ship, crashes into the planet, triggering massive earthquakes and releasing toxic chemicals, trihexalophine 1138, into the air. When the disaster is over, all of the surviving Noghri clans put aside their differences and migrate to the habitable truce ground in search of a way to live on the dying world.

19 BBY (GSC 24,981 or GIC 0)

Birth of the Galactic Empire
The Clone Wars end, Count Dooku is killed by Anakin Skywalker during the Second Battle of Coruscant and General Grievous is destroyed on Utapau. Chancellor Palpatine, revealed to be the Sith Master Darth Sidious and with Anakin's help kills masters Windu, Kit Fisto, Saesee Tiin and Agen Kolar.
Darth Sidious reorganizes the Galactic Republic into the Galactic Empire with himself as Emperor and Anakin Skywalker turns to the Dark Side and becomes Darth Vader, Palpatine's ruthless second-in-command and apprentice.
The Great Jedi Purge is orchestrated by Sidious and Vader and almost all Jedi are hunted down and killed.
Darth Vader kills all the Separatist leaders on Mustafar.
Luke Skywalker and Leia Organa are born to Padmé Amidala on Polis Massa. Padmé Amidala dies in childbirth. Obi-Wan Kenobi, who survives the Purge, leaves Luke with Anakin's step brother Owen Lars and Leia with Bail Organa, in order to protect them from the Emperor and their father.
Mon Mothma and Bail Organa along with other senators loyal to the Republic, discuss in secret plans for a Rebellion. This eventually leads to the Galactic Civil War.

18 BBY (GSC 24,982 or GIC 1)

The Ghorman Massacre occurs.
Jedi Master Plett turns his fortress in Plawal on Belsavis into a sanctuary for fugitives from the Emperor's purges.
Emperor Palpatine constructs the Eye of Palpatine.
Callista transfers her spirit to the Eye of Palpatine's computer system.
Han Solo meets his cousin Thrackan Sal-Solo, who sells him back to Garris Shrike.
Obi-Wan Kenobi finds Ferus Olin, (a former Jedi apprentice of Siri Tachi), on Bellassa and foils an Imperial plot to mass murder the residents of Bellassa's capital city, Ussa.
Ferus Olin finds Jedi Master Garen Muln in the Crystal Caves of Ilum.
Obi-Wan Kenobi stops Inquisitor Sancor from finding information about Padmé Amidala's death on the asteroid Polis Massa.

Ferus Olin and Trever Flume find Jedi Master Fy-Tor-Ana, now going by the name of Solace, in the underlevels of Coruscant, with the help of Dexter Jettster.
Ferus Olin is captured by Imperial stormtroopers in the Jedi Temple, and then interrogated by Inquisitor Malorum.
Ferus Olin, with the help of Queen Apailana and Boss Nass, defeats Malorum and temporarily rids Naboo of its Imperial presence.
R4-G9 meets R-3PO.
Kylantha succeeds the late Apailana as Queen of Naboo.

17 BBY (GSC 24,983 or GIC 2)

Darth Vader defeats all of the Sa Cuis clones and defeats the rebellious Dark Jedi Sheyvan in a lightsaber duel.

16 BBY (GSC 24,984 or GIC 3)

Skee and his family flee to an unknown jungle planet during the Rodian Clan Wars.

15 BBY (GSC 24,985 or GIC 4)

The Rego Mineral Company contacts Altor 14.
The Fromm Tower Droid is created.

14 BBY (GSC 24,986 or GIC 5)

Syal Antilles runs away from home and changes her name to Wynssa Starflare.

13 BBY (GSC 24,987 or GIC 6)

The Renatasia system is re-discovered.

12 BBY (GSC 24,988 or GIC 7)

The Kamino Uprising.

11 BBY (GSC 24,989 or GIC 8)

Maridun is discovered by the Galactic Empire; slaving and mining operations are quickly established.
Soontir Fel is blackmailed from Corellia and enlists in the Imperial Academy of Carida.
The Confederate Remnant dissolves during the Battle of Mustafar.

10 BBY (GSC 24,990 or GIC 9)

Han Solo escapes from Trader's Luck and begins life on his own, apart from Garris Shrike's band of space gypsies.

9 BBY (GSC 24,991 or GIC 10)

Dash Rendar enters the Imperial Academy.
An groundquake crumbles Chadra-Fan civilization, converting those that survived into spacefaring nomads.
The HWK-290 light freighter that would become Moldy Crow is manufactured.
Sienar Fleet Systems purchases the patents and production rights to the Eta-2 Actis interceptor and Alpha-3 Nimbus V-wing from Kuat Systems Engineering.
Luke Skywalker contracts a case of Tatooine dust fever.
An entire village of settlers on Coveway is killed by the new Imperial garrison's commander.

8 BBY (GSC 24,992 or GIC 11)

On Falleen, two hundred thousand Falleen perish in a controlled Imperial bombardment of a city ruled by Xizor's father to quarantine the spread of a biological weapon.
Han Solo earns the nickname "Slick" from Lieutenant Badure when he safely lands a malfunctioning U-33 orbital loadlifter.
Emperor Palpatine discovers a method of transferring his consciousness into a new body in a Holocron retrieved from Jedi Master Ashka Boda.
The Mount Tantiss storehouse on Wayland completes construction. Its architects, V'Droz brothers are killed to keep it a secret.
Venthan Chass's Selonian nudes are displayed in the Coronet City Museum of Fine Art on Corellia.
Eib sells Gryseium Incorporated to Rigis Corazon.
The Mecetti government nationalizes its key industries.
Ken is delivered to the Lost City of the Jedi.

7 BBY (GSC 24,993 or GIC 12)

Soontir Fel is assigned the 6th Squadron of the 37th Imperial Fighter Wing.
Flirry Vorru is sent to Kessel after being framed by Prince Xizor.

6 BBY (GSC 24,994 or GIC 13)

Pooja Naberrie becomes Senator of Naboo at age 20.
Loka Hask is expelled from the Imperial Academy. Han Solo graduates from the same institution.
Xizor seizes control of Black Sun.
Lando Calrissian visits Trammis III.
Captain Hoffner and Talon Karrde discover the Katana Fleet.

5 BBY (GSC 24,995 or GIC 14)

Han Solo, now in a military academy, saves Chewbacca, now a slave, and is subsequently drummed out of the Imperial Navy. Chewbacca pledges a life-debt to Han Solo and remains his partner for the next three decades.
Lando Calrissian buys the Millennium Falcon.
Kyle Katarn enters the Imperial Academy of Carida.

4 BBY (GSC 24,996 or GIC 15)

Lando Calrissian discovers the Mindharp; its accidental activation causes massive changes in the Rafa system.
Jorj Car'das' starship is commandeered by a Bpfasshi Dark Jedi. The vessel crashes on Dagobah, where Yoda kills the Dark Jedi and heals Car'das.
The Service Special blaster pistol is developed.
Slyder moves onboard the Star of Empire.
Navik the Red attempts to slaughter Greedo's family, forcing them to flee to Nar Shaddaa.

3 BBY (GSC 24,997 or GIC 16)

Gallofree Yards goes bankrupt
Canna Omonda becomes senator of Chandrila, replacing Mon Mothma.
Lando Calrissian saves the Oswaft people.
Tavell Geen becomes Scrivinir of the Centrality.
The Rebel spy post, Ghost Base, is discovered and captured by Imperials.
The first recorded encounter with a Yarkora.
Narg is taken over by the Empire.
Han Solo wins the Millennium Falcon from Lando Calrissian during a sabacc tournament on Cloud City.
Tsoss Beacon constructed.

2 BBY (GSC 24,998 or GIC 17)

The Corellian Treaty is signed.
Emperor Palpatine creates the position of Grand Admiral.
Large phrikite deposits are located on Gromas 16.
The Cult of Varn is developed on Kamar.
Hart-and-Parn Gorra-Fiolla, Han Solo, Chewbacca and Odumin disrupted the Bonadan slave trade.
Greedo the Younger befriends Anky Fremp on Nar Shaddaa.
Demetrius Zaarin becomes Grand Admiral at New Year Fete Week.
Corellian Diktat Dupas Thomree dies.
Han Solo and Chewbacca attempt a clotheslegging scheme in the Cron Drift.

1 BBY (GSC 24,999 or GIC 18)

The Rebel Alliance takes shape.
Rebel spies steal the plans for the Empire's new Death Star battle station.
Dark Forces (Project "Dark Trooper," under the direction of Imperial Admiral Mohc, is foiled by Rebel agents).

The Rebellion Era

0 BBY (GSC 25,000 or GIC 19)

The Destruction of Alderaan and the Battle of Yavin.
The Imperial Senate is disbanded, giving Palpatine absolute power.
A squad of stormtroopers kills Owen and Beru Lars, Luke Skywalker's Uncle and Aunt, leaving him without any family that he knows of.
The Death Star destroys Alderaan and Obi-Wan Kenobi is killed by Darth Vader, but his spirit lives on.
The Battle of Yavin. Luke Skywalker, with the assistance of Obi-Wan Kenobi's spirit and Han Solo, destroys the Death Star before it can destroy the Rebel base on Yavin 4. Luke Skywalker and Han Solo join the Rebel Alliance. Grand Moff Tarkin dies in the destruction of the Death Star.
The Emperor decrees from his throne on Coruscant that another Death Star should be built.

0 ABY (GSC 25,000 or GIC 19)

The Super Star Destroyer Executor is launched under the command of Captain Kendal Ozzel. It is dispatched to destroy the Rebel base on Yavin. However, a miscalculation from Admiral Griff allows the Rebels to escape (after the Rebels are forced from Yavin IV, they briefly relocate to Thila before establishing Echo Base on Hoth).

1 ABY (GSC 25,001 or GIC 20)

Imperial forces seize Bakura.

2 ABY (GSC 25,002 or GIC 21)

An Imperial force led by Darth Vader catches up to some of the Rebels on Ord Mantell. It is here that Darth Vader learns the name of the Rebel who destroyed the Death Star, Luke Skywalker. While on Ord Mantell, Skorr, a bounty hunter working for Jabba the Hutt, nearly captures Han Solo.
Luke and Leia discover the Kaiburr crystal on Mimban.

3 ABY (GSC 25,003 or GIC 22)

The Battle of Hoth and the Subjugation of Bespin.
The Battle of Hoth. The Empire discovers the Alliance's secret base on Hoth and launches a successful attack on the Rebel base, with many Rebel casualties.
Admiral Ozzel is killed by Darth Vader for incompetence and Captain Piett assumes command of Vader's fleet.
Luke Skywalker discovers Yoda on Dagobah, and trains under him. When he receives disturbing visions of the future he halts his training but promises to return.
Boba Fett captures Han Solo to take him to Jabba the Hutt after Solo is frozen in carbonite on Cloud City. Lando Calrissian joins the Alliance.
Galactic criminal leader Prince Xizor plots the assassination of Luke Skywalker.
Luke Skywalker is seduced by the Dark Side of the Force.
Leia Organa, Luke Skywalker, and Lando Calrissian track Boba Fett to the Imperial enclave moon of Gall in the hopes of saving Han Solo. Boba Fett delivers Han Solo to Jabba the Hutt.
Bothan spies capture the plans to the Second Death Star.
Darth Vader reveals to Luke Skywalker that he is his father, but Luke is uncertain whether it is true or not.
Prince Xizor is killed by Darth Vader and Black Sun collapses.

4 ABY (GSC 25,004or GIC 23)

The Battle of Endor.
Han Solo is rescued from Jabba the Hutt and Jabba is killed by Leia Organa. Boba Fett is imprisoned in the sarlacc, but survives.
Yoda dies and Luke Skywalker discovers that he is truly the son of Darth Vader and that Leia Organa is his sister. He passes this information on to her.
The Battle of Endor begins, Luke Skywalker surrenders to Darth Vader and the Rebel Alliance successfully destroys the shield generator with the help of the Ewoks and Luke duels with Vader. Darth Vader/Anakin Skywalker is redeemed to the light side of the Force by the efforts of Luke Skywalker. Anakin Skywalker destroys Palpatine, saving his son's life, and dies on the light side of the Force. The prophecies of both the Chosen One and the Sith'ari are fulfilled.
The Battle of Endor. Lando Calrissian, Wedge Antilles and Nien Nunb destroy the second Death Star, virtually ending the Galactic Civil War. The Empire as the galaxy knows it is brought to an end and begins to tear itself apart through warlordism. Now-Admiral Piett dies when the Executor crashes into the Death Star.

4 ABY (GSC 25,004 or GIC 23)

A small Rebel task force responds to a distress call at Bakura. Converting into the Alliance of Free Planets, the Imperial and Alliance forces sign the Truce at Bakura, a ceasefire to work together to repel the invading Ssi-Ruuk.

The New Republic Era

5 ABY (GSC 25,005 or GIC 24)

The New Republic is established and Mon Mothma is Chief of State.
Luke Skywalker attains the rank of General. Six months later, after Imperial forces under the command of Lord Shadowspawn fought to the last man against his army, he retires from the military.
Ysanne Isard engages in a series of political maneuvers to damage the New Republic and seize control of the Empire.

6 ABY (GSC 25,006 or GIC 25)

Rogue Squadron reforms under Wedge Antilles.
New Republic forces switch from the guerilla tactics of the Alliance to a campaign of claiming important Core worlds as the Empire's grip crumbles.

7 ABY (GSC 25,007 or GIC 26)

The New Republic captures Coruscant from what remains of the Empire.
Ysanne Isard leaves an artificial virus called the Krytos Virus that infects all non-humanoids, behind on Coruscant to drain the New Republic's already strained resources and create an enmity between humans and non-humans. Together these are designed to tear the New Republic apart.
The New Republic secures the needed bacta from Thyferra in the Bacta War to eliminate the plague. Isard fakes her death and disappears.

8 ABY (GSC 25,008 or GIC 27)

Leia Organa marries Han Solo.
Prince Isolder allies the Hapes Consortium with the New Republic.
Imperial warlord Zsinj dies.

9 ABY (GSC 25,009 or GIC 28)

Jacen and Jaina Solo are born to Leia Organa and Han Solo.
Grand Admiral Thrawn's attempt to destroy the New Republic and restore dignity to the Galactic Empire fails.
Obi-Wan Kenobi's spirit moves.
The Noghri defect to the New Republic when they discover that the Empire has been manipulating them and polluting their world.
Ysanne Isard returns, and helps Rogue Squadron defeat her clone, who is using a warlord to do her dirty work. Isard is killed by Iella Wessiri on the Lusankya, while Wedge Antilles kills the clone and warlord.

10 ABY (GSC 25,010 or GIC 29)

The Imperial Remnant temporarily recaptures Coruscant, but splinters into two factions, and fights with each other. The New Republic is forced to hide at Pinnacle Base.
Emperor Palpatine is reborn in a clone body and makes Luke Skywalker his second in command, but Luke turns against him and kills Palpatine with Leia and destroys his flagship Eclipse.
The New Republic wins The Battle of Mon Calamari.

The Emperor returns again, but Empatajayos Brand destroys his life-force. Brand dies and Palpatine is ultimately dead. R2-D2 destroys Eclipse II and the Galaxy Gun, causing the destruction of the Imperial Fleet of Palpatine, and the planet Byss, where cloning machines of Palpatine are located.
Anakin Solo is born to Leia Organa and Han Solo.

11 ABY (GSC 25,011 or GIC 30)

Luke Skywalker establishes a Jedi academy on Yavin IV. Leia becomes the Chief of State of the New Republic.
Kyp Durron, under the influence of Exar Kun, uses the Sun Crusher to destroy Carida.
Corran Horn trains at the Jedi Academy on Yavin IV. He rescues his wife from Leonia Tavira, and destroys the Invids from the inside-out.
Exar Kun's spirit is destroyed.

12 ABY (GSC 25,012 or GIC 31)

The Darksaber is constructed.

13 ABY (GSC 25,013 or GIC 32)

Adumar joins the New Republic as a planetary government.

14 ABY (GSC 25,014 or GIC 33)

Lord Hethrir captures Han and Leia's children, but is defeated.
Rise and fall of the Disciples of Ragnos.

15 ABY (GSC 25,015 or GIC 34)

Tahiri Veila is orphaned.
Luke Skywalker confronts Brakiss for his Dark Side leanings. Brakiss flees Yavin 4.
Ailyn Vel concludes that her father, Boba Fett, is dead.
Sliven is injured badly during a battle between his tribe of Tusken Raiders and a group of smugglers.

16 ABY (GSC 25,016 or GIC 35)

The Black Fleet Crisis.
Under command of the Machiavellian Viceroy Nil Spaar the Yevethan forces conquer the Koornacht Cluster.
Luke meets the Fallanassi while in search for his mother.
Yevethan forces are defeated at the Battle of N'Zoth.

17 ABY (GSC 25,017 or GIC 36)

The Almanian Uprising.

18 ABY (GSC 25,018 or GIC 37)

The Corellian Insurrection.

19 ABY (GSC 25,019 or GIC 38)

The New Republic and the last fragment of the Empire sign a peace treaty ending all legalized conflict between the Empire and the New Republic.

20 ABY (GSC 25,020 or GIC 39)

Luke Skywalker marries Mara Jade.

21 ABY (GSC 25,021 or GIC 40)

GemDiver Station completes construction.

22 ABY (GSC 25,022 or GIC 41)

Jacen and Jaina Solo join the Luke Skywalker's Jedi Praxeum on Yavin IV.
Their younger brother Anakin Solo joins the Junior Jedi Class of the Academy months later and befriends a young Human girl named Tahiri Veila. The two young trainees have several adventures including discovering the Golden Globe and the ancient Jedi Master Ikrit, accompanying their Melodie friend Lyric to her homeworld of Yavin 8 to undergo an important ceremony, visits to Dagobah to discover Anakin's future and the discovery of Kenobi's lightsaber and an ancient Jedi Holocron at Bast Castle on Vjun. Anakin later returns to Coruscant where he attended school, developed his piloting skills, and studied under the careful tutelage of C-3PO.
Luke and Mara Jade Skywalker travel to the Unknown Regions where they join a Chiss/Empire of the Hand mission to locate the remains of the ill-fated Old Republic/Jedi expedition Outbound Flight. They discover it in an inaccessible region known as the Redoubt and also learn that the survivors of the Outbound Flight have founded a colony within the wreckage. This combined team also defeats a Vagaari attack.

23 ABY (GSC 25,023 or GIC 42)

Jacen and Jaina Solo fight against the Second Imperium which attempts to disrupt the peace between the New Republic and Imperial Remnant, as it has become known, and restart the Galactic Civil War.
Following the defeat of the Shadow Academy, the Academy is rebuilt. Anakin Solo also came to aid in the reconstruction efforts.
Leia resigns her post as Chief of State and the Bothan Borsk Fey'lya replaces her.

24 ABY (GSC 25,024 or GIC 43)

The Diversity Alliance, an extremist anti-human organization, is defeated by the Solo twins and their Jedi companions.
An attempt by Czethros to return Black Sun to its former glory is thwarted by the Solo twins and their Jedi companions.
Mon Mothma dies.

The New Jedi Order Era

25 ABY (GSC 25,025 or GIC 44)

The Yuuzhan Vong War begins.
The Yuuzhan Vong invade the galaxy
Chewbacca dies at Sernpidal.
The New Republic Historical Council sets the year of the Battle of Yavin to the year zero, adopting the current date system.

26 ABY (GIC 45)

Ben Skywalker is born to Luke Skywalker and Mara Jade.
Destruction of Kalarba, its moon Indoboc, and Hosk Station.
The Jedi Order is driven off Yavin 4 by the Yuuzhan Vong.
Sriluur is overrun by the Yuuzhan Vong.

27 ABY (GIC 46)

The Yuuzhan Vong conquer Coruscant.
Anakin Solo dies.
Chief of State Borsk Fey'lya is killed.
Cal Omas is elected Chief of State.
Tenel Ka Chume Ta'Djo becomes Queen Mother of the Hapes Consortium.
The Bothans declare a state of ar'kai for the first time in millennia.
First YVH 1 droid, YVH 1-1A, is released.

28 ABY (GIC 47)

The YVH-M droids are created by Lando Calrissian.
The New Republic is reorganized into the Galactic Alliance.
Nas Choka is escalated to Warmaster.
Ssi-Ruuk foiled attempt of a second invasion of Bakura.

29 ABY (GIC 48)

Radical, and still partially obscure, changes occur in the Chiss Expansionary Defense Force and Chiss society in general.

30 ABY (GIC 49)

Admiral Ackbar dies.
Coruscant is liberated from the Yuuzhan Vong.
Zonama Sekot forges a peace accord between the Galactic Alliance and the Yuuzhan Vong. The war ends after five years of fighting.

35 – 36 ABY (GIC 54 – 55)

The Dark Nest crisis.

35 ABY (GIC 54)

Efforts to rebuild galactic civilization after the Yuuzhan Vong war continue, with many war-torn worlds still under reconstruction.
The Jedi, struggling to come to terms with a new role in the galaxy and a new philosophy on the Force are called upon to act as police and diplomats by the Galactic Alliance, despite the wishes of Luke Skywalker.
Luke Skywalker sees an image of his mother for the first time through R2-D2.
A mysterious alien race called the Killiks with a leader very strong in the Force, who are ancient enemies of the Chiss return, with some of the younger members of the Jedi interfering, and becoming part of their alien "Hive", physically and mentally joined to each other.
Voren Na'al publishes the New Essential Chronology.

36 ABY (GIC 55)

The Swarm War occurs.
Luke Skywalker witnesses a hologram, kept by R2-D2, of his father leading the slaughter at the Jedi Temple, as well as another one in which Anakin was Force-choking his mother.
The Conclave on Ossus convenes.
Allana is born to Jacen Solo and Tenel Ka.

The Legacy Era

40 ABY (GIC 59)

Second Corellian Insurrection.
Jacen Solo and Ben Skywalker return from a dangerous covert mission on Adumar.
The Galactic Alliance, in an attempt to silence malcontent among its members, begins a deterrent campaign against Corellia, leaving the galaxy on the edge of a full-scale war.
Tensions begin to grow between members of the Skywalker-Solo clan.
Lumiya makes her first appearance in the galaxy in 20 years.
Jacen Solo becomes a Sith.
The first Civil War since the Galactic Civil War breaks out between the Galactic Alliance and the Corellian system and its allies.

104 ABY (GIC 123)

R2-D2 narrates his stories to a Shaman for the Journal of the Whills.

116 ABY (GIC 135)

Cade Skywalker is born.

127 – 130 ABY (GIC 146 – 149)

The Sith-Imperial War.

130 ABY (GIC 149)

Around that time, the Galactic Alliance, Jedi Order and Yuuzhan Vong initiate a successful terraforming of the war devastated planet Ossus. As a result, Yuuzhan Vong terraforming technology is implemented on a hundred other planets. The New Sith Order sabotages it.
The resurgent Galactic Empire (formerly the Imperial Remnant) starts a secession movement against the Alliance.
The Empire declares war on the Alliance at the Treaty of Anaxes.
The Sith form an alliance with the Galactic Empire through the Director of Imperial Intelligence Nyna Calixte.
After three years of fighting, the Alliance is defeated at Coruscant and its remaining territories are absorbed by the Empire which becomes the new galactic government. The Jedi Order is nearly destroyed during a massacre at Ossus, with Kol Skywalker as one of the causalities.
The Sith-Imperial War ends.
The New Sith Order turns against Emperor Roan Fel and his Imperial Knights.

137 ABY (GIC 156)

Cade Skywalker, descendant of Luke Skywalker, is trained as a Jedi but self-exiled of the Order to become a bounty hunter. He begins to rediscover his destiny as a Jedi Knight and as a member of the Skywalker family, and rises to fight the new Sith. He embarks in a series of adventures in his starship Mynoc*k*.

The saga continues…

Official Movie Database

32 BBY (GSC 24,968)

Star Wars Episode I: The Phantom Menace

22 BBY (GSC 24,978)

Star Wars Episode II: Attack of the Clones

22 – 19 BBY (GSC 24,978 – 24,981)

Star Wars Clone Wars

19 BBY (GSC 24,981 or GIC 0)

Star Wars Episode III: Revenge of the Sith

19 - 0 BBY (GSC 24,981 – 25,000 or GIC 0 - 19)

Star Wars Live Action TV Series

15 BBY (GSC 24,985 or GIC 4)

Star Wars: Droids

1.5 BBY (GSC 24,998/06 or GIC 17/06)

Star Wars: Ewoks

1 BBY (GSC 24,999 or GIC 18)

The All New Ewoks

0 BBY (GSC 25,000 or GIC 19)

Star Wars Episode IV: A New Hope

0 ABY (GSC 25,000 or GIC 19)

The Star Wars Holiday Special

3 ABY (GSC 25,003 or GIC 22)

Star Wars Episode V: The Empire Strikes Back
Caravan of Courage: An Ewok Adventure

4 ABY (GSC 25,004or GIC 23)

Ewoks: The Battle for Endor
Star Wars Episode VI: Return of the Jedi

AFFILIATIONS

Governments

Rakata Infinity Empire

(49,000 – 25,200 BBY)

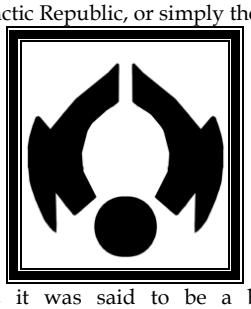
The Infinite Empire was the first known government in the galaxy founded by the Rakata, a scientifically advanced species that used their knowledge to conquer and enslave other species throughout the known Galaxy. The empire expanded over a period of twenty thousand years and at its height, it consisted of 500 subject worlds with a population of ten billion Rakata and one trillion slaves. It produced technological innovations such as terraforming machinery, semi-sentient star maps and computers, and the transmogrifying Star Forge (built in 30,000 BBY). Among its many crimes were those of aggressive war, slavery on a massive scale, and the casual obliteration of member worlds such as Tatooine. The Infinite Empire collapsed due to a civil war and a virulent plague that affected only the Rakata in 25,200 BBY.

Due to the limitations of the Rakatan hyperdrive technology, the Infinite Empire consisted of only 500 worlds, but they were scattered far and wide over the entire length of the known galaxy.

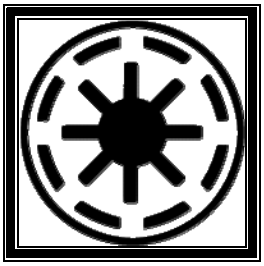
Galactic Republic

(25,000 – 19 BBY)

The Galactic Republic was the name of the galactic government prior to the establishment of the Galactic Empire in 19 BBY. Although it was commonly known as the Old Republic, this was not so until the establishment of the Empire; its name when it existed was the Galactic Republic, or simply the Republic.



In its latest years, it was said to be a benevolent—though ineffectual—democratic government tied up in layers of bureaucracy.



The Republic, as it was commonly known, had a highly democratic government that was able to sustain itself for over twenty-five thousand years. It is said that its complete history would "fill a thousand libraries".

The Galactic Republic was composed of a significant portion of the known Galaxy, stretching from the Core Worlds to Wild Space, though it was widely believed that the government held little power in the outlying regions, and preferred to focus its attentions on the Core Worlds.

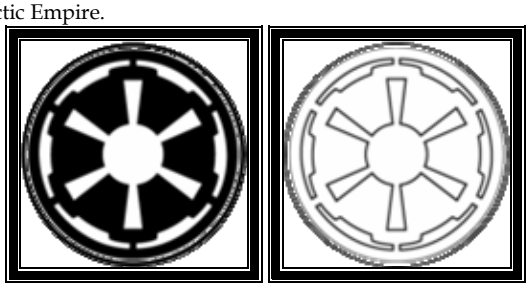
The capital of the Galactic Republic was Coruscant, a planet considered to be the cultural and economical center of the Galaxy, despite being located outside of the Deep Core. To signify its importance in galactic affairs, Coruscant was given coordinates 0-0-0 in the standard galactic coordinate system.

Galactic Empire

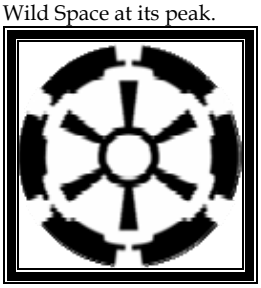
(19 BBY – now)

The Galactic Empire, also known as the New Order or Palpatine's New Order, was the galactic government established by Supreme Chancellor Palpatine to replace the Galactic Republic.

The Republic, which had lasted for almost 25,000 years, ended following a period of intense political turmoil and the devastation of the Clone Wars. After General Grievous was defeated at the Battle of Utapau, and while the leaders of the Confederacy of Independent Systems were being killed on Mustafar by Darth Vader, Supreme Chancellor Palpatine declared himself Emperor of the Galaxy and reorganized the Galactic Republic into the first Galactic Empire.



The Galactic Empire's territory consisted of over one million member worlds and fifty million colonies, protectorates, and governorships throughout the Galaxy stretching from the borders of the Deep Core to Wild Space at its peak.



The original name of the Empire's capital world was Coruscant; however, it was renamed Imperial Center by the Empire. Few outside the Empire's government used this name, and upon the capture of the planet by the New Republic, the name "Coruscant" was readopted.

Rebel Alliance

(1 BBY – 4 ABY)

The Rebel Alliance was founded during the reign of Emperor Palpatine by Senator Bel Iblis but left after a power struggle between him and senator Mon Mothma. The rebel Alliance made their first victory in 0 BBY, when they destroyed the first Death Star near Yavin IV.

After the destruction of the second Death Star and the deaths of both Emperor Palpatine and Darth Vader near Endor, the Rebel Alliance transformed from a loose rebel resistance into a new Galactic government, the New Republic.

New Republic

(5 ABY – 28 ABY)

The New Galactic Republic was the name of the galactic government established by the Alliance to Restore the Republic to replace the Galactic Empire after the Battle of Endor.

Formed in 5 ABY, after the dissolution of the former Alliance of Free Planets (which was formed directly after the Battle of Endor as an intermediate government), it was to become the supreme governmental authority of the Galaxy. The "New" Republic was supposed to be a sort of continuation of the original Galactic Republic that had become known as the Old Republic at that time. The New Republic was founded on the same premise that the old Galactic Republic was a thousand generations earlier—to have a representative parliamentary body govern the Galaxy in a fair and equal manner—and it was designed to eradicate the shortcomings that brought about the Galactic Republic's downfall. The New Republic was protected by the New Jedi Order that was established by Luke Skywalker, just as the Galactic Republic was once protected by the old Jedi Order.

New Republic's territory varied in size a great deal during the course of its history. In 8 ABY over 600,000 worlds were members, and by 9 ABY three-quarters of the known Galaxy, including all of the Core Worlds except the Corellian Sector were under the control of the New Republic. Yet, subsequent wars against Thrawn and the reborn Emperor reduced the size of the Republic drastically. By 15 ABY the New Republic only consisted of eleven thousand planets throughout the Galaxy, due to many former New Republic worlds choosing neutrality until the war with the Empire reached an end. By 19 ABY, most of the Galaxy had once against allied with the New Republic, in light of the fact that the war against the Imperial Remnant was approaching the end.

The Borderland Regions separated the territories of the New Republic and the Imperial Remnant during the latter part of the Galactic Civil War. Presumably, this was continued even after the Galactic Civil War.

Coruscant was the capital world of the New Republic, as it was for the Galactic Empire and the Galactic Republic before it. Its membership included worlds from all regions of the Galaxy, stretching from the borders of the Deep Core to Wild Space.

Galactic Alliance

(28 ABY – now)

The Galactic Federation of Free Alliances, better known as the Galactic Alliance, was the galactic government directly following the New Republic. Incorporating most of the known Galaxy, the Galactic Alliance was the first government to achieve this since the Galactic Republic.

The Galactic Alliance was composed of a significant portion of the known Galaxy, stretching from the Core Worlds to Wild Space. Its membership was greater than that of the New Republic, due to the fact that other governments like the Imperial Remnant and Hapes Consortium were members as well. The capital of the Galactic Alliance was Coruscant, keeping in tradition with the previous galactic governments. The Galactic Alliance was also bordered by two smaller galactic powers, the Chiss Ascendancy and Hutt Space. It is not clear if Hutt space was a nominal member of the Galactic Alliance, as it was under the Empire. The status of the other minor governments, such as the Corporate Sector, Cron Drift, Senex Sector, Juvex Sector, Centrality, and so on, is also unclear, although it is known that the Mandalore Sector didn't joined the Galactic Alliance as of 40 ABY.

Bakuran Protectorate

(15 BBY - now)

A Bakuran was a Human from the planet Bakura. Most Bakurans were descended from the Bakur Mining Corporation's colonists, who arrived on Bakura in 15 BBY. Soon afterwards, the Bakurans became independent of corporate control, setting up a Bakuran Senate and electing Prime Ministers. The descendants of Arden, the leader of the Bakur Mining Corporation's expedition, were the heads of the Bakuran government.

Bakura was independent of the Galactic Republic for decades. They were used as a base during the Clone Wars by the Confederacy of Independent Systems, but only for a short period of time. They remained neutral during this conflict, more concerned with internal disputes. By 1 ABY, these disputes left Bakura open to conquest by the Galactic Empire. Though there was a short period of resistance, the Bakurans were subjugated until 4 ABY, when they joined with forces from the Alliance to Restore the Republic to expel both the invading Ssi-Ruuk and the Imperial forces during the First Battle of Bakura. The Bakurans became supporters of the fledgling New Republic, but reasserted their independence by 18 ABY. Even then, they supported the New Republic during the Corellian Crisis, sending the Bakuran Defense Fleet to fight on the New Republic's side during the Battle of Centerpoint Station. Though they also fought a renewed Ssi-Ruuk offensive alongside the Galactic Alliance during the Second Battle of Bakura, the Bakurans continued their tradition of independence.

Due to the isolation of their homeworld, Bakurans had little contact with non-Humans other than the Kurtzen, Bakura's indigenous people. This, combined with the invasion of the Ssi-Ruuk, brought out an unfortunate xenophobic streak in many Bakurans, especially towards the most alien-looking non-Humans. Bakurans were also uneasy around droids, as a result of a droid uprising in 97 BBY.

Most Bakurans followed the teachings of the Cosmic Balance, a religion that held that every action in the universe had an equal and opposite reaction elsewhere (for example, if one person's life improved, another's life would have to become worse.) This also led them to be suspicious of the Jedi order, whose power they believed created an imbalance in the universe which required great evil to correct it.

Djemsok Federation

Also situated within the New Republic territory, and far from Imperial influences, the Djemsok Federation is a quiet and peaceful place. They keep away from galactic politics and live their normal lives in peace. But not everything is idyllic for them: their worlds lack many important resources and many speculate that they will eventually petition for admittance in the New Republic. They do field a standing army and navy, in order to patrol their borders.

Sventorii Autonomous Region

The Sventor are the worst situated of all neutral states. Stuck squarely in the middle of the New Republic and the Imperial border, they are constantly implicated in political turmoil as each side accuses them of cooperating with the enemy. The Sventor are having difficulties keeping their freedom as they are often harassed by Imperial troops raiding their natural resources. Lacking the capacity to defend themselves against the mighty Empire, they must let them pillage their worlds. The New Republic, lacking the resources to protect the Sventor against the enemy, can only watch. The non-intervention of the New Republic is quickly creating a strain in the Sventor – Republic relations and might eventually drive the Sventor to let the Empire conquer them.

Due to constant Imperial piracy of their commercial structure, research and production have come to a halt. Their navy is equipped mostly with surplus ships from the Clone Wars and cannot efficiently face-up with the Imperial fighting craft.

Shindaarni Alliance

Also sharing their border with both the Empire and the New Republic, the Shindaarni are in a better position than the Sventor, because they have high technology and can easily defend their frontiers. The Shindaarni are a very old race, older than the Humans, populating 80% of the galaxy, are. Some scholars even propose that they are the lost Precursor colony that managed to survive the Extinction and reemerged at about the same time the Humans did.

Both superpowers leave them strictly alone, fearing intervention in the continuing conflict. The Shindaarni are protectionists and have very strict control of their borders, rarely granting access of their space to anyone.

The average Shindaarni Defense Force (SDF) personnel are usually very well equipped. All are linked and operated through implants in the brain.

The Neutral Zone

(19 - 34 ABY)

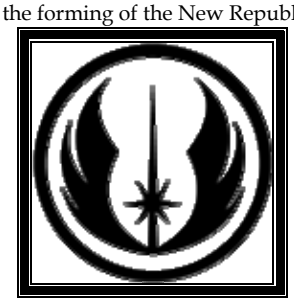
After the last major engagement that gutted both the New Republic Armed Forces and the Imperial Navy, diplomats met at Bakura and hammered a treaty that is mostly responsible for today's state of affairs. One of the provisions of the treaty was the establishment of a neutral zone separating two realms and a "non-aggression pact" for at least 15 years. The Neutral Zone varies in width from 2 parsecs to 4 parsecs and separates the two superpowers so that they do not touch directly in any places. The Neutral Zone only separates the New Republic and the Galactic Empire and thus not extend within the boundaries of other sovereign states, allowing free passage from one realm to the other through a 3rd party.

Religious Orders

Jedi Order

(25,000 – 19 BBY and 11 ABY – now)

Protectors of peace, these Force users are a military and political neutral law-enforcement, diplomats and judges. The Jedi Order, during the Rise of the Empire, was betrayed by one of their most gifted pupils, Anakin Skywalker and the order was completely destroyed. Only Obi-Wan Kenobi and Yoda survived the onslaught. Luke Skywalker managed to set up a new Jedi Academy during the forming of the New Republic.



Sith Order

(6,900 BBY – now)

The Sith was a race from the planet Korriban, behind the Sith nebula. Their Sith magic is the oldest art of using the Force but only after a twin, two merchants who jumped into hyperspace with good luck, landed on Korriban, the Sith became known to the rest of the galaxy. Even though the Sith have been slain, their believes and power still remains and once in a time, Force users are seduced by the Dark Side of the Force.

The Sith Order under Darth Bane was created as a result of the devastating Seventh Battle of Ruusan, which saw the annihilation of the previous Sith Order. Bane's Sith Order, known formally as the Order of the Sith Lords, was founded upon the principles of the Rule of Two, utilizing stealth and secrecy to achieve their means. It would be this Sith Order, and its principles, that would finally triumph over the Jedi and the Galactic Republic nearly 1,000 years later.

The Fallanassi

(? – now)

The Fallanassi are an ancient sect of Force adepts who refer to the Force as the White Current. Secretive in the extreme, they are believed to have wandered the galaxy for centuries little noticed by others, including the Jedi. They meditate on the workings of their bodies, minds and spirits; how those disparate elements form an individual; and how disparate individuals form eddies and whorls in the Current. They have little or no interest in manipulating the physical universe and apparently cannot use the Current to physically affect their surroundings.

This may seem like a weakness, but the Fallanassi have other strengths. They can use the Current to hide themselves and others from any known means of detection, and they are masters of creating illusions, which they can maintain for long periods of

time. Such skills, made more powerful by being used in cooperation, have served the order well, allowing its members to evade detection and remain detached from the societies within which they dwell.

Witches of Dathomir

Perhaps the best known of the non-Jedi who walk on the "Light" side of the Force, the Dathomir Witches are a clan-based matriarchy whose women are the sole Force users. Those Dathomir who turn to the Dark Side are referred to as: "Nightsister".

The Witches use the Force in a manner similar to several types of fantasy magicians. Their use of the Force is mystical in practice, and they call their abilities "spells". However, they do not have a large number of these spells, but their intensity when used often varies.

Most Witches can be found after the events of “Return of the Jedi”, although a few were known prior to the Clone Wars.

Sorcerers of Tund

An older order, some say as old as the Jedi, the Sorcerers of Tund also used the Force in a mystical manner. These Sorcerers often straddled the line between the Light and Dark sides, embracing the "Living" Force. The last known member of the order was killed during the eighteen year gap between “Revenge of the Sith” and “A New Hope”. It is possible that most of them had served with the Jedi during the Clone Wars and were subsequently eliminated alongside them when Order 66 was issued.

Like the Witches above, the Sorcerers used the Force to cast "spells". However, their spells were of the more traditional type.

H’kig

H’kig was a religious leader on the Core World of Galand martyred several centuries before the Battle of Yavin. About sixty years before that battle, some 50,000 of his followers, called the H’kig in veneration, left Galand and founded a religious colony on far-off Rishi. The colony quickly dissolved in religious schism, with the minority pulling up stakes once more settling on J’t’p’tan (Doornik-628E). The H’kig preach an ascetic code, valuing physical labor and rejecting all advanced machinery and demand strict standards about public dress, hair length and hair styles. Despite this they are tolerant of others, provided those others don’t interfere with H’kig practices.

Disciples of the Dark Side

This order of monks is descended from a Dark Lord of the Sith who broke off from that dark order over a difference of opinion. While remaining hidden, they sought to explore the power of the Force by looking inward instead of through conquest. Some claimed to "serve the balance of the Force", and that often meant opposing the light side which dominated the galaxy for so long.

The Disciples may learn many of the same Force abilities as the Jedi and Sith; however, their primary focus appears to be the powers of the mind.

The Brothers of Chaos

Out of their world of their fortified lair on Sarke, the fanatic faithful of Morgk, God of Chaos, terrorizes their Republican neighbors. The Brothers of Chaos (followers of Morgk) are a fanatical religious order that believes that the current bad situation of the Sventorii Autonomous Region is due to the “evil” and “decadent” New Republic. They believe that only the Jihad can deliver the peoples of Sventor from an eternity of hardship and poverty.

Large sums of money are spent each year by Republican worlds near the Sarke region for anti-terrorists activities and protection. Republic Rangers based nearby, all get extra training in anti-terrorism.

The Order of Aurora

History is fraught with stories of good Jedi turned to the Dark Side that revolted against those they were once sworn to protect. Thus, some ordinary peoples banded together and created the Order of Aurora, to protect the people’s interests against possible Jedi abuse. The Knights of Aurora are a secret organization that exists across the galaxy. It has existed for thousands of years and plans to exist for a thousand more. Members are accepted in the order based on their bloodlines and ties to existing members. No outsiders have been admitted in the past 500 years.

The Knight’s homeworld is unknown, as are their numbers.

The Group

The purpose of The Group remains mysterious to this date. They have been present in galactic affairs and history since the dawn of the Galactic Republic. From time to time, they have emerged with information that changed the course of history, while at other times their silence meant defeat rather than victory. No one can fathom The Group’s true purpose.

Of the little information available from The Group, only the following have been verified true time: All of their operatives appear to be females, they seem to have some Force Powers, they are extremely well informed about many subjects even some top secret operations and they seem to have access to a rather important source of revenues.

The leader and the homeworld of The Group remain a closely guarded secret.

Corporations

Some corporations have established themselves as political influential companies even to the point of being governments themselves.

BlasTech Corporation

BlasTech Corporation is one of the main corporations in producing handheld weapons. The Rebel Alliance was supplied illegally by BlasTech Corp. The most well know weapon was the BlasTech DLT 20A and the A280 Blaster Rifles.

Corellian Corporate Treaty

The CCT is a treaty between the major Corellian Corporations. Members are the Corellia Engineering Corporation, Corellia Mining Corporation, Corellia StarDrive, Corellian Chemical Corporation, Corellian MasterNav Incorporation and the Corellian Merchant’s Guilds.

Damage Incorporated

The largest mercenary company in known space, Damage Inc. has a reputation for quick decisive actions and highly professional soldiering. They have access to a large, unknown, source for funding that allows them to constantly upgrade and maintain a large weapon, vehicle and ship inventory. Signing a contract with Damage Inc. costs a lot of credits, but is worth it. Only the most famous mega-corporations or planetary governments can usually afford their combat rates.

Duros Corporate Alliance

The Duros Corporate Alliance is an entanglement of many small sub-corporations held together by a Corporate Government. They are well known for their droids with humanoid-looks. One of such sub-corporation manufactures protocol droids of the C-series. The

Duros Corporate Alliance was also the first to have a large order of JOG-0 by master Jè-Di for the newly founded Jedi Order.

Goliath Gmbh

Goliath Gmbh is the largest manufacturer of civilian and paramilitary weapons, armor and vehicles. It rules its multi-star system empire from its megalopolis HQ of David, on Balmorra.

Goliath is well known throughout the galaxy for the manufacture of the Artemis Mk IV Hand Blaster pistol, the most sold personal weapon of all time, with over 350 billion pieces on the market to date. Goliath is also the sole supplier of the Galactic Republic's Rangers armament and gear.

Incom Corporation

Incom Corporation is known across the galaxy for its main two products, the T-65B Aerospace Superiority Fighter and the Z-95 Planetary Dominance Fighter. Commonly referred to as the X-wing, the T-65B is the proud result of years of R&D by Incom.

Because of the superior engineering and design of the T-65B, Incom Corp has been selected as the sole supplier of fighters for the new Republic Armed Forces navy procurement division. Incom currently works on the next generation aerospace fighter (research code named Z-wing) technology, which will start replacing current X-, A- and Y-wings within the next 5 years.

Industrial Automation Corporation

IAC is known throughout the galaxy for its top-of-the-line astromech droids, among which the well known R2 series. From its HQ on Teltir (Inner Rim Territory, 3rd quadrant), IAC rules the largest droid manufacturing factories and research laboratories. Teltir itself is a corporate world, with over 60% of its population base involved in some way with IAC.

Beside the R1 through R7 series Astromech droids, IAC is reputed for its 1GD through 9GD Guard droid series.

InterGalactic Banking Clan

The monetary system is controlled by the Banking Clan based on the planet Muunilinst. They are the only ones who have banks and they are all linked together. Planets on which the Banking Clan has no influence still deal with hard currency. The Banking Clan itself only allows members of its own race, the Muun. Because of their long existence and mono-racial society, it is stated as an independent affiliation.

After their joining with count Dooku and the Separatists and, the defeat against the Grand Army of the Republic, they were put of commission; with the result of a wide spread inflation of the Republic credit. Only when the New Republic had been founded, the monetary system and the InterGalactic Banking clan were reinstalled.

Interstellar Transit Authority

The Interstellar Transit Authority is a permanent non-profit organization whose role is to regulate and maintain the conventions for use of stellar coordinates and mapping conventions regarding the use of hyperspace. The I.T.A. was created somewhere in 6,512 BBY and has always been respected by every nation and government. The I.T.A. is responsible for the seeding, maintenance and update of the hyperspace beacon network covering most of the galaxy. It owns a fleet of frigates to act as engineering centers and defense platforms.

The I.T.A. is based on Nekor in the Neutral Zone. From there, the I.T.A. Permanent Council and Assembly make their rulings about interstellar travel laws, and regulate the price of fuel production and distribution across known space.

Each of the major nations have a permanent representative on the council, is allowed a number of votes equal to the number of star systems they represent and owns a veto right on the council's decisions. Rulings made by the Council and the Assembly are final and must be obeyed by every nation.

Kuat Drive Yards

KDY is the largest manufacturer of spaceships and military technology in the known universe. At the time of the Empire, KDY manufactured the Victory-class, Imperial-class and Emperor-class Star Destroyers. During the New Republic, it sits in Republic space. KDY has re-tooled its production base to manufacture Mon Calamari MC80 Star Cruisers.

During peace time, KDY drops its production base from a war-driven economy to a peace-economy. Only 18% of its production facilities are in peace time geared for military production, the rest responding to civilian needs and other national interests. KDY shipyards and corporate HQ are located on Kuat.

Kyril & Darch

The most advanced AI and computers always bear the mark of K&D. Treated by some like species of art rather than tools, K&D's AI and computers are so advanced that they balance on the threshold between TL 12 en TL 13.

All of K&D production is done on their homeworld Vergesso.

Sienar Fleet Systems

This small Para-governmental outfit is the current manufacturer of the Imperial TIE ships and also supplies Strom trooper armors and rifles. The Imperial Household own 60% of Sienar's stocks with the other 40% distributed among some 20 influential Imperial families. Sienar's HQ and manufacturing facilities are located on Sluiss Van

Crime Syndicates

Black Sun

The Black Sun is the most prominent criminal syndicate in the Galactic Republic.

The Black Sun is the major source of illegal traffic related to guns, technology and drugs. Their web extends all across the republic and also deep in Imperial territory. The Black Suns are lead by prince Xizor. During the training of Darth Maul, many Black Suns have been killed by him in order of Darth Sidious.

Black Widow

The infamous Black Widow Company is a low-life mercenary band that borders on piracy. They have a reputation of unnecessary bloodshed, wanton mayhem and failure to complete contracts, sometimes even turning on their employers. The fact that they are a damn efficient fighting force and are seldom stopped during their mission is possibly the only reason why anyone would want to hire them. Their current HQ and staging world remains a closely guarded secret and is unknown.

Galactic Exchange

A prominent syndicate until the planet on which its HQ was based, was bombarded by Darth Malak's flagship.

Hutt Space

Nestled between Imperial and Republican space sits the region known as Hutt Space. A lawless bed of scum and villainy, Hutt Space is a haven for smugglers, criminals and anyone who's on the "most wanted" lists. Shortly after the downfall of the Empire, and before the Republic could consolidate too much power, many gang leaders flocked to Nar-Shaddaa and from there they instituted an autonomous region known as Hutt Space. It is a region devoid of "official" involvement (as it has always been) and where neither Republic nor Imperial forces are welcomed. Individual worlds are responsible for providing some of the police force, mostly to prevent major outbreak of violence.

At the head of those gang leaders sits always a Hutt. After Jabba the Hutt has been killed, many smugglers went their own way and 5 years later they teamed together, under leadership of Talon Karrde, to help the New Republic unofficially.

Shadow Wing

The Shadow Wing is a pirate syndicate which operates throughout the galaxy. This is only one of the pirate organizations, but one whose power is felt everywhere, even in the deep core systems. Their current HQ is located on a rogue asteroid which has been altered with a propulsion system and hyperdrive engine.

MONETARY SYSTEM

Throughout the galaxy, each civilization has its own currency. Each inhabitant of a modern society has a credit-chip or credit-stick. Merchants and traders also have an inter-chip. On the backwater planets, hard currency is still used.

Prices given in official GURPS books are the normal prices for a certain region with its appropriate currency. Outside the region, the value of a particular type of currency may vary (e.g., the Republic Dataries were less worth in the Outer Rim than inside the sphere of influence from the Galactic Republic.

Banking Systems

The Galactic Credit had many different values trough the 25,000 years of history. In general the GURPS $-sign is replaced by the Star Wars ₮-sign.

Galactic Banking Network

This is a collection of banks throughout the galaxy that have linked their assets together to allow free movement of funds. Up until the Rise of the Empire, this was solely run by the InterGalactic Banking Clan.

Credit-chip

This small memory device was developed to track a being's monetary value. Each chip was built with specialized memory algorithms to prevent tampering, and could be used to add or subtract credits from a being's account.

Credit-stick

This device replaced the traditional credit-chip as the preferred method for maintaining a being's monetary value. The credit stick was a pen-shaped device that performed the same functions as a credit-chip, with the same forms of memory algorithms and security checks, but in a smaller device.

Inter-chip

This small device processes the transfer from one party to another. When a being purchases something from a merchant, the merchant enters the cost into the inter-chip. The being then inserts their own credit-chip and the inter-chip debits their account in the correct number of credits before depositing them into the merchant's account. Payment between two individuals can also be accomplished the same way.

Currency

Alliance Credit

The Alliance credit as the official monetary unit used by the Alliance, it was exchanged on par with Imperial credits on most Alliance worlds. Other worlds would exchange 25 Alliance credits for a single Imperial credit.

Republic Credit

The Republic Credit, also called datary, was the standard monetary unit of the Galactic Republic. It was valid in all but the most remote systems.

Imperial Credit

The Imperial credit was the basis for all monetary transactions in the galaxy, during the height of the New Order. It defined a standard denomination around which all races and planets could easily interact in business and pleasure. During the Imperial reign, other monetary units were outlawed, except for those working as Imperial spies or mercenaries.

The Emperor issued a credit coin, the decicred, to celebrate his 10th anniversary as Emperor. The obverse of the coin displayed the visage of the Emperor, while the reverse displayed the Imperial emblem. This coin however, has more collectible value than real-life value.

Wupiupi, Peggat and Trugut

The wupiupi was a Huttese unit of money, and was in prominent use in the Outer Rim Territories during the Old Republic. There were sixty-four wupiupi in one peggat, which was worth four truguts (druggats) or about forty Republic dataries.

THE VORDARIAN BELTWAY GALAXY

The Galactic Map

The Vordarian Beltway galaxy is about 36,000 parsecs in diameter and approximately 3,600 parsecs in height. It contains just a hundred billion stars. Around half of these have planets which support some form of life. Some ten percent of these planets developed life on their own, and one in a thousand of these worlds developed sentient life. These rough calculations reveal that there are about 5 million forms of sentient life to be found in the Vordarian Beltway galaxy. To map such a vast space would consume enormous resources and a lot of space. Several maps have been sold but none of them look alike. The maps provided by West End Games, Wizards of the Coast, New Essential Chronology, and LucasArts have some similarities but also many differences. Therefore we have chosen not to make a galactic map for this game .

The Vordarian Beltway galaxy is divided into quadrants and density rings. The upper-right quart is called the First Quadrant (also called the Alpha Quadrant). Going clockwise you have the Second (Beta) Quadrant, the Third (Gamma) Quadrant and finally in the upper-left side the Fourth (Delta) Quadrant.
The density rings are named (starting from the inside going outward): Galactic Centre (GC), Deep Core (DC), Core (C), Colonies (CO), Inner Rim (IR), Expansion Region (ER), Mid Rim (MR) and Outer Rim (OR). Beyond that there is only space. This surrounding area is called Wild Space (WS).

Because galactic coordinates can be confusing at first, the quadrant and density ring is noted before the coordinates.

Galactic Centre (GC)

At the very heart of the galaxy, the Galactic Centre is a small region with huge gravitational pull of the vast number of young, stars, clustering tight together and making hyperspace travel impossible.

Deep Core (DC)

Near the very heart of the galaxy, the Deep Core (a.k.a. Core Systems) was a small region that hid unusual worlds. Due to the gravitational pull of the vast number of stars, hyperspace travel is difficult at best. The region was thought inaccessible until Emperor Palpatine found several safe hyperlanes into the region. The area remained an imperial stronghold almost twenty years after the Battle of Endor.

Core (C)

An ancient region bordering the outlying areas of the Deep Core, the Core Worlds were some of the most prestigious, well-developed, well-known, and heavily populated planets in the galaxy. The Core Worlds were the original areas of Human occupation. The Galactic Republic and subsequently, all galaxy-wide governments were born in the Core Worlds and spread out over the galaxy.

Colonies (CO)

The Colonies was the name given to a region of the galaxy between the Core Worlds and the Inner Rim. It was among the first areas outside the Core to be colonized, and the worlds here are typically heavily populated and industrialized.

During its reign, the Galactic Empire was very forceful in controlling the Colonies, and as a result, the New Republic gained support quickly there.

Inner Rim(IR)

The Inner Rim was a region of the galaxy between the Colonies and the Expansion Region. It was originally just called "The Rim" as it was expected to be the farthest extend of the known galaxy for centuries, but the Expanded Rim (later renamed the Expansion Region) was opened within a hundred years of the Inner Rim.

During the reign of Palpatine, the Galactic Empire ruthlessly controlled the Inner Rim. Rather than rebel, many residents chose to flee to the Outer Rim territories.

Expansion Region (ER)

The Expansion Rim was an experiment in corporate-controlled worlds, with powerful corporations exploiting and profiting heavily from the planets for their raw materials, metals and ores. Inhabitants were oppressed while the corporations stripped entire stellar systems of all their resources. Eventually civil unrest spread from system to system. The Galactic Republic eventually took control of the systems due to the mounting pressure from its denizens by limiting or evicting corporate interests. The Expansion Region worlds continued to be producers of raw materials and ores. However, most natural resources were exhausted during the Imperial era.

Mid Rim (MR)

With fewer natural resources (and therefore a smaller population) than many neighboring regions, the Mid Rim is a territory where residents work hard for everything they have. Several planets have built up impressive economies, and pirate raiders often hide in the relative unexplored spaces far from major trade routes.

Outer Rim (OR)

The Outer Rim was the last widely settled expanse before Wild Space and the Unknown Regions. It was strewn with obscure worlds, and rugged, primitive frontier planets. Due to its distance from the Core, the region was home to many supporters of the Rebel Alliance. The Empire's Grand Moff Wilhuff Tarkin was assigned the difficult task of bringing the entire Outer Rim in line.

Wild Space (WS)

Wild Space was the frontier of galactic society. Wild Space was unexplored for a long time because it was considered to be empty space. One can encounter uncharted nebulae, global clusters, galactic halo and only a few million stars.

Spatial Anomalies

Although it's a huge galaxy, the fact that it is well traveled makes the notification of spatial phenomenon rather simple. One only has to notify the Interstellar Transit Authority, and the next engineering ship will update the beacon network accordingly. Among the most notable features known to traveler, the following are spectacular sights or grave dangers.

Badlands

The Badlands are an area about 350 cubic parsecs, located on the Mid Rim, in the 3rd quadrant near Nar Shaddaa. The Badlands are a huge cloud of gases in a constant state of plasma fusion. It generates plasma fires of incredible magnitude, sometimes hot and big enough to swallow an Imperial-class Star Destroyer whole.
Certain paths exist to the 3 planets located inside the Badlands proper. These paths are not traveled often and are usually reserved to crazy bush pilots. No official carrier lands on any of the Three Sisters as the Badland's planets are known.
Of course, the difficulty traveling to the Badlands makes it a perfect area for pirate and smuggler's bases.

Cloak of the Sith Nebula

This huge cloud of proto-stars sits in the Outer Rim territories, 2nd quadrant and surrounds the Sith system and its planet Korriban. It is a spectacular sight due to its monstrous size (many cubic parsecs). The cloak of the Sith nebula always wreck havoc with the electronics of ships, often disabling those traveling to close to its borders.

Starforge Nebula

This area of the galaxy is a vast expanse of interstellar gas and is populated by a wealth of newborn stars. It is located in Ado

Sector. The Starforge Station and the homeworld of the Rakata can be found deep within this nebula.

Resources

In the Vordarian Beltway galaxy, many natural resources can be found unknown to us. Crystals used in the construction of lightsabers are explained in detail in the chapter The Force concerning the construction of lightsabers.

Below are those specific materials described which are used in the Star Wars Galaxy. Most of them just add flavor to the setting and some of them have specific properties which can used for building and construction of armor, weapons or even spaceships.

Normal materials used on Earth (e.g., iron, copper, bronze) are also used in the Star Wars galaxy but as time goes by, these materials became inferior to the newly found elements and created materials and alloys. These new alloy became lighter, stronger and more durable but some application require old fashion heavy metals (e.g., wheeled and tracked vehicles rely on mass to gain stability, trust. When these vehicles are to light they may be blown away by even a light wind).

Crystals & Minerals

Adegan

Adegan is a type of crystal that comes in many different forms. Adegan crystals can be imbued by the Force. Lightsabers always contain at least one Adegan crystal.

Ore & Metals

Agrinium

This lightweight metal is used to create a coating which is used to repair solar sails. During the era of the Great Sith War, agrinium was used to create strong, lightweight grips for knives and other melee weapons.

Alantium

This natural ore is an important component in the formation of starship hull plating.

Allum

This ore is the primary component used by the Mandalorians to create their unique body armor. It is know to be resistant to lightsaber damage.

Aurodium

This metal was considered a valuable commodity during the last decades of the Old Republic, and a large ingot could command more than 300 million Republic credits. The metal, especially in ingot form, appeared to burn with an inner light which refused to have a definite color.

This valuable ore was refined and used for currency by the Trade Federation, during the last decades of the Old Republic. The Federation would only accept bribes in the form of aurodium ingots, since they could be easily moved about without interference from the Republic.

Axidite

This strong metal is used to form control boxes and other protective coverings.

Bandorium

This unusual, liquid metal was found in the oceans of the planet Bandomeer, specifically long the path of the Gray Westerly. Scientists and engineers working for the major mining operations on Bandomeer discovered that bandorium seemed to move about in "tides," which seemed to be controlled by the winds of the Gray Westerly. The exact nature of these tides was not discovered. Bandorium was used in many starship counter-sensor systems, and it was believed that it was also used in the creation of cloaking devices.

Beryllius

This silvery metal was used to create antique-looking metal ware.

Bronzium

This metal is quite dense, and is often used in the creation of structures where radiation might be a threat.

Burthan

This element is often extruded into thin threads, which are used to reinforce metals and ferrocrete structures. It is a light-weight material.

Chromium

This metal is one of the primary metals used in the creation of droid plating, which has to be as light as possible, yet provide modest durability.

Cortheum

This rock, present in the crusts of planets which have corthel-laden atmosphere, is mined for a number of uses. Among its primary use is in the manufacture of photo-receptors used as droid eyes.

Cortosis

This unusual ore is known to repel the energy of a lightsaber blade. Despite its resistance to the blade of a lightsaber, cortosis was unstable in the presence of explosives, and would shatter if hit with a grenade. However, cortosis is known to cause any lightsaber that struck it, to overload and shut down.

Cubirian

This metal is one of a few other metals which are considered acceptable substitutes for meleenium, in the process of making durasteel.

Desh

This natural element was combined with terenthium to produce a super-light allow

Diatium

This metal was used in the creation of miniature power sources, such as those used in the lightsabers of the Jedi Knights.

Ditanium

A natural element used in the armor-like plating that covers military buildings.

Doonium

A heavy metal, mined from asteroids and the planet Atraken, used for the construction of war machines.

Durelium

This ore, found in the Mestra and Tava Yagen asteroid field, is an essential material used in the construction of hyperdrives.

Kalonterium

This low-grade ore was used in the development of weapons and building materials, before higher-grade ore like doonium and meleenium were discovered.

Lommite

A chalky ore once thought to be found exclusively on Elom, it is one of the primary components used in making transparisteel, durasteel and dura-armor.

Meleenium

Meleenium is the primary component of durasteel.

Neuranium

This is one of the heaviest, densest metals found in the galaxy. Among its most useful properties is the fact that even a millimeter-thick piece of neuranium was impervious to sensors.

Quadranium

This incredibly strong and durable element is used in the manufacture of starship fuel tanks, and could be honed to create a makeshift blade if necessary.

Rubindum

A valuable ore used in the production of hyperdrive engines.

Synthetics & Alloys

Armorplast

Armorweave

Baradium

A powerful but unstable synthetic element, baradium is used as the primary explosive in thermal detonators. When ignited, the baradium generates a particle field around the exploding particles which are being emitted from the detonator.

Duracrete

Duracrete is a building material that can be poured into forms. It then hardens into a nearly impervious surface.

Durafab

This is a strong fabric used to make tents and portable shelters.

Durafill

This dense, adhesive sealant was developed during the era of the New Republic for filling the micro pits and other small dents that were formed in a starship's hull as it moved through real space.

Duralloy

This is a composite metal that is used to plate starship hulls and heavy bulkheads.

Duranium

This expensive alloy is very hard and has a bony color. It is only used in the most vital parts (for example: the bone structure of general Grievous).

Durasteel

This strong, durable building material was created from Lommite, meleenium, neutronium, and zersium.

Ferrocrete

This is the first attempt to make concrete stronger and harder without using separate iron bars in it to hold it together. Most civilizations have abandoned the use of ferrocrete and are now using permacrete which is lighter and stronger.

Flimsiplast

Plastoid

Plastoid is made from compressed biological fossils. It is used for most household equipment, gear and other things. Cheap armors are made of plastoid.
Another type of plastoid is plastisteel. This is much harder and therefore more often used for armored suits, spacesuits and civilian vehicles.

Permacrete

Permacrete is the strongest type of concrete. Though it is heavy, it can easily carry its own weight even if its stacked many miles high. Most buildings are made of permacrete. Without permacrete, the high buildings on Coruscant were not possible.
Another application for permacrete is in starships. It is an altered version called hydro foamed permacrete which attains the same strength of normal permacrete but weigh a lot less.

Polyplast

Transparisteel

This is a transparent variant of durasteel. It is used in most of the TL 11 buildings and starships. During the fabrication of transparisteel, a mineral named lommite is used which makes durasteel transparent.

Ultrachrome

Ultrachrome is a hardened chrome to make those shiny starships. Ultrachrome is much stronger than normal chrome. Ultrachrome is specially made for starships. It reflects light and in a lesser amount heat but it is useless as armor. Naboo ships are famous of their completely enclosed ultrachrome starships.

Ultrachrome is also used as a superconductor and some Force-users plated their lightsaber handles with ultrachrome.

2. SCIENCE & TECHNOLOGY

Basically, the setting of Star Wars is TL 11. That is considered the galactic average. Some worlds have evolved more slowly and are still in pre-space technologies (TL 7-). Other, more recluse worlds are above galactic average and can even reach up to TL 15. Unless specified otherwise, technologies described in this book are galactic average, TL 11.

As with spacecraft technologies, most equipment in GURPS Star Wars is galactic average of TL 11, unless specified otherwise. Most equipment available from GURPS is available in the setting of Star Wars. Some technology is forbidden and assumes that it has not yet been developed or has been banned. Past experiences have shown that too much automation and medical sciences can have devastating effects over a society. This is why the technology has evolved to "super-science", but remains somewhat bulky and simple, often requiring certified personnel to handle. A good example is aboard a starship: A large number of engineers are required for the ship's drives, because they are not heavily automated. Some races, namely Bakuran and Shindaarni, do not have the same taboo and use heavy computerization and automation in their design.

Star Wars technology compared to real-life technology may differ… a lot. Though I intended to clarify the mechanics of the technology used in Star Wars, it is by no means scientifically true. Real-life plasma weapons are non-existable, and high powered lasers require more than just power (a mix chemicals which produce a toxic, invisible gas smelling like toothpaste).

Bionics

The advantages of bionic reconstruction are well known and widely used in the galaxy. Bionics has evolved in a distinct branch of medicine. All bionic reconstruction is assumed to imitate the replaced part perfectly, unless the patient decides otherwise. Bionic is used only in cases where bacta regeneration is not possible, like when a hand was completely severed and lost. Base costs assume human-looking bionic parts, with standard attribute values (10).

Implants

Implants are a subcategory of bionics. These types of enhancements are forbidden within the Republic. Implants include any sort of package that enhances attributes, skills or give special advantages such as immunities, regeneration etc.

Implants are very expensive and inserting an implant might prove difficult and even dangerous to the patient if the body rejects the artificial enhancement. Mental disorders are not uncommon with patients who had inserted an implant.

The fact that it is available does not mean that everybody starts getting implants. A strong cultural trait exists in most races and 99% of the population prefers to rely on real body parts rather than bionics. They are used as medical replacements only, not as augmenting devices (exceptions: Mandalorians and Shindaarni). GM's may wish to impose a "social stigma: Cyborg" a 10 points disadvantage to players that wish to have bionic equipped PCs.

Cloning

Although cloning is technologically possible at the technological level attained by most worlds, very strong ethical rules forbid the creation clones. The events of the Clone Wars have taught scientists, governments and the public to be afraid of the miracle brought by that science. Scientists that actively pursue cloning research can be prosecuted by the states and are eligible to life sentences on the worst prison planets that the Galactic (New) Republic can offer to convicts. Some worlds, mostly in the neutral states, do practice cloning. Since those are outside of the Republican sphere of influence, there is little the super power can do about it.

The Empire does not condemn cloning. As well as Senator Palpatine as one of his Grand Admirals, Thrawn, used clones to seize power, or create clones of them to insure a sort of immortality.

Computers

Small computers are always expert systems, designed for a particular task or group of tasks. All computers are always designed as AI, except the smaller systems like those found in PDA's or equipment computers. Larger systems, like those found aboard starships, are multipurpose systems with multiple capabilities not restricted to a specific task. Such systems are usually a group of parallel processing computers, each with their own subset of tasks. Because computers are 99% of the time AI systems, they can FEEL someone trying t fool around in their "guts". Thus, the hacker is at greater risk when attacking a computer system. Many larger systems include efficient defenses such as electric current feedback and numerous safety subprograms. Computer Hacking skill is IQ/Very Hard and always roll at least at-3 on computer systems (see page 184 of GURPS 4th Edition Basic Set). Many hackers have had their brains fried when hacking while hooked in a neural interface. Prudent hackers, or those using standard interfaces (keyboard, voice, HUD, etc.) usually live longer lives, but eventually get caught when the AI notifies police that it is being "assaulted".

Defensive Capabilities

For complete game statistics on energy weapons, please refer to the Equipment chapter.

Armor

Most armor available for spaceships will be manufactured of high-tech composite materials (e.g., durasteel). Because of the dangers inherent to space travel, current regulations forbid the use of certain types of armor plating that might be considered a risk to navigation.

Shields

Shields gain its power from different types of force field generators. All shields and screens are legality class 1.

Navigational Shields

Navigational shields are weak. They do not block incoming attacks. They are only installed on starships in order to block space dust and natural radiation.

Deflector Shields

This section will be added after I have bought GURPS Vehicles 4th Edition.

Force Screens

This section will be added after I have bought GURPS Vehicles 4th Edition.

Phototropic Shields

This is a shielding system that uses transparent materials such as transparisteel, and turns them into light filters. Phototropic shields absorb or disperse incoming light above certain brightness, thus allowing the individual using the material to not be blinded by large amounts of incoming light.

Droids

Use of Droids

Droids are as common in the galaxy as are other biological lifeforms. Droids are everywhere and are used in all types of jobs. From the smallest messenger droids to the largest defender droids, they are an intrinsic part of the day-to-day life of every citizen in the galaxy. Droids are available from specialized shops or from private citizens used as gods. Although they are "self-aware" and imbued with their own personality and quirks, droids are considered property and can be treated as seen fit by their masters. The relationship between owner and droid is very similar to slavery, although it is not considered as such due to the obviously artificial life of the droids.

Some droids, for different reasons or fluke of destiny, are without masters. Such droids are always regarded as oddities and suffer from a major social stigma. On some worlds, "free' droids are illegal and are hunted down and destroyed. Most citizens will not approach or deal with a "free" droid, afraid that it might be defective and dangerous. There is no standard programming that prevents droids from harming their masters or sentient beings. Most droids, even if self-aware, are somewhat restricted by the original programming and the role for which they were created. Thus, most droids not designed for violence will not even conceive the possibility that they can do violence to others.

The Taboo of Automation

On many worlds and across the galaxy in general, strong cultural traits exist against over automation and the use of computer sand robots to replace humans to do certain jobs. Three major events have created this social taboo among the citizen and politicians of the galaxy. The first one was the occupation by the war droids of the despot Xim. The second one was the Outbound Flight Project (in 23,984) and the third the Naboo crisis (23,998).

The despot Xim used a massive droid army to conquer the galaxy. Due to the lack of hyperspace capability, conquests by biological lifeforms were impossible. Droids could overcome the stresses and time of sub-light space travel. After the rule of Xim, a new law rose, forbidding any government to equip itself with a droid army.

The Outbound Flight Project was a major undertaking to explore beyond wild space and possibly reach another galaxy. Scientists had fully automated over 200 Dreadnaught-class cruisers, called the Katana fleet, and slaved their systems together so that they could act as one single entity. The result was disastrous as the whole fleet jumped and disappeared together. Although it has been found and the mystery explained partially, the Outbound Flight experience proved that over automation could be dangerous.

The Naboo Crisis is more a rewind of the war droids of Xim. Although it involved much automation, its main problem was the usage of droids during the crisis. In 23,998, the Trade Federation invaded the planet Naboo with whole armies of combat droids, aerospace fighter droids and fully automated starships. With an almost limitless source of troops (they just had to build more if needed), there seemed to be nothing to stop the invasion from reaching completion. Many senators quickly saw there a possible danger for the whole galaxy: What if a tyrant appeared with planet full of battle droids? What if worlds banded together and started conquering their neighbors with armies of such droids and space ships. What could the Republic do? All these concerns brought the Senate to regulate the ownership and usage of droids (not just war droids like before). Needless to say, with the eruption of the Clone Wars, the same attitude would quickly grow towards clones as tyrants actually did with clones what was feared of droids…

Current Republican and Imperial laws ban the use of droids as crew complements (they are allowed if the total droid population aboard ship represents less than 15% of the total crew complement). Furthermore, all ship systems are designed without automation hook-ups and other similar communication protocols and devices. It is possible to jury rig automation systems in space ships. Certain states (like Bakura and the Shindaarni) have no qualms about automation or droid in general.

Restraining Bolt

The easiest way to stop a droid from performing actions is to shut it down. Doing this can be achieved in two ways: flipping the appropriate switch on the droid (assuming it has one and it lets you get access to if…), using a restraining bolt or collar, or disable it by shooting the droid with an ion gun.

The restraining bolt is a small piece of hardware that is installed on the exterior of the droid, near its main power source. When activated, it temporarily short-circuits the power conduits and blacks out the droid, effectively shutting it down. The bolt comes with an integrated sensor that can determine where it should be placed for best result. It also contains a powerful encroaching anchor that allows it to be placed without damaging the droid, while still preventing its removal by the same droid. A special key is used to remove the bolt.

Restraining collars are simpler gear that is basically a cuff sets for droids: They are placed around the main propulsion system, preventing the droid from moving.

Typical prices vary between ₹75 to ₹200 for a bolt and ₹50 to ₹100 for a collar. Restraining bolts and collars are legality 1.

Player Character Droids

Playing a droid can be as much fun as it can be a challenge to most players. With a universe as diversified as the Star Wars universe, and with droids so common across the galaxy, it will be tempting to play a droid, if using GURPS 3rd edition Robots rules, you will quickly realize that building a simple droid like R2-D2 will make it a very expensive PC. Instead, you create a character using the standard GURPS 4th Edition rules and take the appropriate racial template (see chapter 12 Droids in this book).

The player should be allowed to earn experience in the regular manner, and find ways to upgrade it and buy new programs and aptitude.

Types of Droids

The following droids are among the most commonly encountered types:

Electronics

Photon technology is still very bulky compared to ordinary copper wired hardware. Thus most electronic devices rely on microcircuits and copper and gold wiring for their normal operations. Optic fiber is in use, but only on very large spaceships like star destroyers. Because of this, spacecrafts engines remain bulky and require a large number of personnel to maintain them.

Gravity Technology

Repulsor Lift

Another very important bit of technology available in the Star Wars universe is the repulsor lift. This is treated as GURPS contragrav. It allows vehicles, ships, tools, and robots to cancel the effect of gravity and effectively float away from the ground. Without proper propulsion, the unit is left to drift on air current. With the use of vectored thrust, the unit can move about and even reach orbit. It is also possible, through manipulation of the gravity field surrounding a vehicle, to achieve some movement. This allows, as an example, a fighter to move away from the ground crews before engaging its thrusters.

It allowed Man to be freed from the enslaving of gravity. With the repulsor lift, spacecraft could depart silently and quickly toward space, some robots could go about their business in all kinds of terrain and mostly, ground vehicles were no longer restrained to paved roads. Quickly after the discovery of repulsor lift, the ability to manipulate gravity in other form was discovered. This allowed Man to travel in zero-G without loosing its footing and flying off into space. Today, passengers can go about their business on spaceships as if they were still on the ground. Because of this though, many space travelers do not know even the basics of Free Fall manhandling and would be helpless if their craft lost its gravitational field.

Spaceships willing to jump in to hyperspace must have its repulsor lifts disabled. Only the artificial gravity generated by the hull-plating does not need to be shut down.

Interdiction Fields

Interdiction fields are the bane of space pilots and navigators. Because of the physics behind FTL travel, gravity fields play a major role in the ability (or lack thereof) of a ship to enter hyperspace. Any large gravity field will prevent a ship from entering hyperspace and will bring one out off hyperspace with drastic results. Special ships, called Interdictor-class cruisers of the Galactic Empire, exist that are equipped with powerful gravity well generators. These large projectors are designed to create a large gravity shadow across a ship's path, preventing it from entering hyperspace.

Medical Sciences

With the discovery of cloning and bionics, most doctors believed that most accidents and diseases could be cured. They were wrong. Cloning was rapidly outlawed in the galaxy, so that the venue of solution was closed to doctors and health officials. There remains only bionics, but in cases where the member was not to be amputated, bionics could do little. Many patients came to the hospital with degrees of ailments that required a more subtle level of intervention. The medical corps started researches in genetics and other parallel technologies issued from cloning. From there, they were able to create special viruses and molecules that could be tailored to a specific need and injected in the patient. Again, that was not sufficient to cure everything…

Kolto

During the Mandalorian War, the Galactic Republic was allowed to set up a temporary base on Manaan. There they learned from the local population the existence of kolto. Kolto was a fluid extracted from the soil of Manaan's vast oceans. This substance was, when it was pure and after it was refined, able to regenerate superficial damage. Somewhere in the year 3,960 BBY, the Sith also set up a base on Manaan. Because of the Selkath's blind neutrality and the animosity between the two camps, the soil of Manaan's oceans became its victim. The kolto became heavily polluted and could not be used for medical applications ever again.

Kolto is only available in ESU (Emergency Support Units). One ESU contains an injection gun and 10 ampoules which each regenerates 1 HP instantly. Such an ESU kit costs ₹300. A single ampoule costs ₹25.

Bacta

A few thousand years later, by a total fluke of chance, a group of colonists on Thyrferra discover bacta. Bacta is a serum issued from a plant (ambori) native of that planet and proliferating profusely in the dense jungles of the southern hemisphere. The colorless liquid from the ambori is mixed with the gelatinous, translucent red alazhi and kavam bacterial particles. That serum, when given the proper time to act, has the property to cure and regenerate almost any biological being. Quickly, the medical world started experimenting with bacta and induced-coma regeneration. It was discovered that bacta was the miracle cure…

Bacta is a universal medication available almost everywhere in the Star Wars universe from 4,000 BBY and later. Most hospitals and large ship's sickbays will be equipped with bacta-tanks to receive patients for treatment. Smaller ships will usually only carry ESU for lack of space and qualified resources. Bacta cannot bring back the dead. Bacta cannot fully regenerate a lost arm, but can help reattach one. A PC or NPC immersed in bacta will recuperate lost HT/HP at a rate of 2 per day. The following table should be used to determine additional recuperation time. Remember that a completely severed or destroyed member can only be replaced through the use of bionics.

Injury Level	Recovery Time*	Cost (₹)	Success Roll
HP to 0 HP	1HP/12 hrs	10/HP	HT+5
0 HP to –HP	1HP/18 hrs	15/HP	HT+3
-HP to –HPx2	1HP/24 hrs	25/HP	HT
-HPx2 to –HPx4	1HP/36 hrs	75/HP	HT-2
-HPx5	Dead	Burial	n/a
Crippled limbs	+24hrs/limb	+50/limb	As per above
Crippled organs	+24hrs/organ	+75/organ	As per above
Severed limbs (reattached)	+72hrs/limb	+150/limb	-1HT
Severed limbs (not reattached)	As per bionics	As per bionics	As per bionics

*Time required in induced coma in bacta-tank.

It is possible to do a field intervention with bacta. If used within 10 minutes, it will stop bleeding and restores 1 HP. This is in addition to any first-aid or physician rolls or any other mechanical or electronic devises used on that patient.

Offensive Capabilities

For complete game statistics on energy weapons, please refer to the equipment section.

Projectile Weapons

Projectile weapons ignore the DR bonus of ray shielding.

Proton Torpedo Launchers

The PTL is the basic launcher system for the popular Proton Torpedoes. It consists of a mechanical launch tube that ejects the torpedo from the tube at supersonic speeds (when firing in atmosphere, a sonic bang can be heard each time the weapon is fired). Once free of the tube, the torpedo operates on its own.

Proton Torpedo

The PTORP is a cased, energy, single shot weapon. The proton torpedo contains its own power source, which allows it to sustain the required speed (supersonic) and firepower to attack its target. The PTORP is catapulted out of the launch tube and ignites its own thrusters once cleared of the firing tube. The PTORP carries enough fuel to travel up to 30,000 yards (50,000 yards for the APTORP) in atmosphere. In space, maximum distance is unlimited, as the PTORP will continue on its vector even once its fuel is depleted. The explosive charge on the PTORP is made of a mix of proton and anti-protons that are synched to react together in stasis. Once the stasis is broken (due to impact), the protons and

anti-protons mix and thus create a small controlled anti-matter explosion.

Missile Launcher

The MSL is the most common weapon available, principally due to its low cost. It is the basic launcher system for the cheap and common concussion missiles sold across the galaxy. It consists of a mechanical launch tube that keeps the missile idle until needed. It does not eject or fire the missile per say, but simply holds it and guides it for launch. Most MSL are equipped with laser or neutrino guidance systems to assist the (A)CMIS in acquiring targets. Once free of the tube, the CMIS operates with its own fuel, thrusters, targeting-radar, and directional systems.

Concussion Missiles

The CMIS or the better ACMIS, along with its launcher, is the most common weapon available and that principally due to its low reload cost. It is a basic solid-fuel propelled explosive warhead (HEADPS). Most CMIS are equipped with laser or neutrino (ACMIS) guidance systems to assist them in acquiring targets. The information is usually fed to the CMIS by its parent MSL. Once free of the tube, the CMIS operates with its own fuel, thrusters, targeting-radar, and directional systems.

Heavy Rocket Launcher

The HRL can be found on the heavier bombers or attack fighters. These launchers are similar to the MSL but are slightly larger and greater in diameter to be able to support the Heavy Rockets. The HRL is equipped with laser or neutrino guidance system to assist the HROC in acquiring targets.

Heavy Rocket

The HROC are expensive, solid-fuel propelled warheads. The HROC are to slow and cumbersome and thus have no directional systems. Once free of the tube, the HROC operates with its own fuel and thrusters.

Space Bomb Launcher

The SBMBL differs from the other launchers in that they eject the projectile out of the tube.

Space Bomb

The SBMB are slow moving, short distance, high explosive warhead. The SBMB are ejected form the tube and thereafter cannot change speed or direction. Bombers and heavy attack fighters most enclose its target up to 0.5 miles before they can launch their bombs.

Energy Weapons

Energy weapons ignore the DR bonus of particle shielding.

Blasters

Blaster weapons all function in a similar way. The basic principle behind blaster technology is the plasma charge. The weapon uses its energy to heat a small amount of nitrogen (extracted from the atmosphere or from a small tank built into the weapon) into a semi-plasma state (gases at very high temperatures). The weapon then draws energy from the power cell to produce and emit a low-yield, charged particle field to support and compress the semi-plasma state of nitrogen. This "packet" of plasma is expelled from the weapon along the carrier particle field.

The overall effect gives the illusion that a "bolt" of orange/red energy is expelled from the barrel of the weapon. Because of the coldness of deep space, space-based blasters appear less efficient than their atmosphere-based cousins. This is due to the fact that the extreme temperature of deep space causes the semi-plasma state to loose heat (and thus power) rapidly. The end result is that space-based blasters do not provide anti-armor penetrating power. Because the bolt looses temperature rapidly it will only generate surface damage (crushing) rather than penetrating damage (impaling).

Laser Cannons

Most laser weapons function in the same way. LASER is an acronym for Light Amplification by Stimulated Emission of Radiation. The weapons fire a stream of high-energy ray-jacketed in an ionized particle field, creating the visual effect of a bolt rather than an invisible beam of radiation like a normal laser. Because of their high power yield, lasers do impaling damage. They are designed to penetrate armor and to keep on going once the target is breached. Direct hit damage from a laser weapon will often result in explosive decompression of the damaged ship section.

Turbolaser Batteries

Turbolasers are basically very powerful laser cannons operating in "boosted" or gatling modes. The principle remains the same as with regular lasers, except that turbolasers will use more power and concentrate the beam somewhat more than the regular cannons. The end result is a weapon that provides increased firepower, but at a greater energy consumption costs and at a greater size (due to added cooling and amplification gear).

Another facet of turbolasers versus cannons difference is in the turbo crew requirements. While a laser cannon may be fired automatically from a single gunner emplacement, turbolasers require a crew to man and fire the gun. STBL requires a crew of 3, MTBL a crew of 5 and LTBL a crew of 8. HTBL even require a crew of 25.

Super Lasers

A super laser is nothing more than multiple turbolasers firing at a special designed piece of equipment which combine, regulates and amplifies the separate beams into one massive shot. This weapon consumes a lot of energy and produces a lot of heat. Therefore, these weapons are only found on the large Death Stars build by the Empire. These where large enough to house the massive power reactors, cooling and amplification gear.

During the New Republic era, several capital ships where known to have smaller, keel-mounted versions of a Super Laser. These Super Lasers were not as powerful as that on the Death Stars, but was still capable of slashing through planetary shields, searing the crust and blowing apart entire continents.

Ion Cannons

Ion cannons are among the most common type of weapons found on civilian vessels. Mainly a defensive weapon, Ion cannons are used to disable, rather than destroy, the opponent. The principle is rather simple and has been known for tens of thousand years: The gun fires a bolt of ionized energy (photons or electrons) at a target in order to create an EMP pulse and thus disrupt the target's electronics and avionics.

If the bolt hits the target, the craft must make a HT roll in or take the appropriate effect. LIC attacks will make the roll at HT-3 (using size modifier as a bonus) or have 1d electronics-based systems disabled for HT turns. MIC will roll at HT-7 (using size modifier as a bonus) or have 2d electronic-based systems disabled for HT turns. HIC will roll at HT-12 (using size modifier as a bonus) or have 3d electronic-based systems disabled for HT turns. PIC will roll at HT-15 (using size modifier as a bonus) or have 4d electronic-based systems disabled for HT turns.

Power

Nothing beats a good old piston and air-cushioned shock absorber. The discovery of repulsor lift technology did not change the universe as much as it was initially feared. Most worlds still rely on mechanical forms of transport using wheels and tracks. The power systems have changed much, with a lot of cold fusion in use everywhere. The Supertec Gas Turbine, allowing a safe and environmentally friendly alternative to combustion of fossil fuels, also propels many ships and vehicles.

Corbana Gas Turbines

The Corbana Gas Turbine is similar to TL 9 deuterium – hydrogen fusion reactor. It uses a mix of corfaize and tibanna gases, and a fusion reactor to burn those two into plasma and expels it out of the engine assemble, producing thrust. The CTGT assembly contains its own internal fusion reactor to burn the mixed corfaize & tibanna into plasma. The main difference between the fusion air-ram and the CTGT is that the CTGT functions as a closed circuit and can thus be used in vacuum. The CTGT is more powerful than their equivalent fusion air-ram and provides a much higher thrust-to-mass ratio.

The most common form of power generation for building and large installation is the Cold Fusion Power Plant. Pollutant fossil fuels are almost extinct, except on very low-tech worlds (TL-5). The most widespread energy source is the Corfaize-Tibanna Gas Turbine. Although the CTGT is used mainly in vehicles and spaceships, it is sometimes found as the power source for larger droids and some older installations.

High tech nations such as the Bakuran and Shindaarni use anti-matter in their starships and in day-to-day use (Shindaarni only).

Sensors

This section will be added after I have bought GURPS Space 4th Edition. As far as I'm concerned using GURPS 3rd Edition Space, sensors are limited to TL7. A large starship can be detected only by accident at a distance as small as 1 AU. This would be visual or radio detection only. Finding planets of a star, while orbiting that star, would take a week of observation.

Combat scanning can detect ships at a range of 20 clicks. Detailed scanning of ships can be done within 1.5 clicks.

Point Detectors:

These sensors are used to locate and pinpoint jump points or jump line entries. This is an active sensor type.

Tools & Industry

The tools used by industries and individuals are not really much different from those in use on earth today. Although the technology available in the Star Wars universe is very advanced, the material used and tools used are very simple in manufacture. The good old pipe wrench still is the major tool used by most star ports mechanics. The good old manual screwdriver still comes in handy once in a while. Thus, high tech devices such as nano-machines do not exist. This is a direct result of the lack of computerization and automation in the galaxy.

Translators

There are many races in the galaxy, and none of them really speak the same language. Because Humans are so prolific and have managed to expand to the far reaches of the galaxy (especially during the Clone wars) they can be found anywhere, and make up about 80% of the galactic population. The Humans have made up most of the galaxy wide ruling government for over fifteen thousand years, and have managed to impose their language as the "default" official language in the galaxy. As such, Galactic Basic" or simply Basic, is the most known and spoken language. Although the TL level is high, it still does not permit the design and manufacture of "translators" other than in the form of protocol droids, thus obliging sentient to learn other languages, if they need to communicate. Most space travelers will speak basic plus at least 1 or 2 other languages. People that do not travel will usually only speak their native tongue.

3. ADVANTAGES

Allowed Advantages

Advantages which are listed in the racial template (see Chapter 12: Alien Species) must be taken by the player. With the GM's approval, additional advantages may be taken. The player should always clarify what the basis is for a particular advantage (e.g., biological, technical, Force). Even the mundane advantages should be explained.

Energy Reserves - Force

Points: ± 3 per 1 ER
Prerequisite: Force Sensitive
Modifier: Force -10%

Description

You are in harmony with yourself through your connection to the Force. For each 3 points spend you gain 1 ER. This ER can only be used to power Force abilities. This Force advantage may be bought multiple times. Energy Reserves - Force +2 simply means you have spent 6 points on 2 ER. See PO page 119.

Force Perception

Points: 50
Prerequisites: Force Sensitive; Racial Template - Miraluka

Description

You are blind to all wavelengths of light. However, your ability to see through the Force allows you to sense your surroundings as though you could see normally, allowing you to attack and make skill rolls without suffering penalties for blindness.

Force Perception includes the advantages 360° Vision (BS page 34), Dark Vision (BS page 47), See Invisible – Force (BS page 83) and limitation (Force), and the disadvantage Blindness (BS page 124) with Mitigator (Force).

You can enhance your Force Perception with Acute Senses for the normal cost. See FA page 128 and BS page 35.

Force Perception does not give you the ability to perceive the strength of Force users and auras. You need the Force Power – Force Sight. Force Perception is just a way of vision. Your brains will translate the information into visual images in the same way as the brain would with the information obtained by your eyes.

Force Sensitive

Points: 5

Description:

You can feel the Force. You must purchase this advantage before buying anything else (Force Powers, Force Talents, Force skills and Force Advantages).

You can only take this advantage at the creation of your character. Your character is either Force Sensitive or not. Taking this advantage does not mean your character is aware of his abilities.

The advantage Force Sensitive also grant the owner access to the more exotic advantages which are normally only available in the racial templates. These advantages are all subject to the limitation – Force and thus cost 10% less than normal.

Advantage	Prerequisite	Book
Absolute Direction	Force Sensitive	BS page 34
Absolute Timing	Force Sensitive	BS page 35
Combat Reflexes	Force Sensitive	BS page 43
Danger Sense	Force Sensitive	BS page 47
Destiny	Force Sensitive	BS page 48
Energy Reserves	Force Sensitive	Chapter 3
Enhanced Defenses	Force Sensitive; Trained By A Master or Weapon Master	BS page 51
Extra Attack	Force Sensitive	BS page 53
Fearlessness	Force Sensitive	BS page 55
Fit	Force Sensitive	BS page 55
Force Perception	Force Sensitive, Racial Template – Miraluka	Chapter 3
Force Training	Force Sensitive	Chapter 3
Longevity	Force Sensitive; Alter	BS page 66
Perfect Balance	Force Sensitive; Control	BS page 74
Recovery	Force Sensitive	BS page 80

Force Static

Points: 30

Description

You are "absent" in the Force. Force abilities cannot directly affect you or anything you are carrying or wearing. For instance, a Jedi could throw a rock at you, but he could not grab a sword from your hand or heal you using the Force.

For special limitations and enhancements see BS page 78.

Force Training

Points: 1 point per level/Force Ability
Prerequisite: Force Sensitive; Trained By A Master (Mastery & Harmony only)

Description:

This advantage comes in levels and must be Force-Sensitive to acquire this training from a Force using Master.

Note that high Force Training in combination with the appropriate Force Talent lets you produce powerful results with even the most basic Force skills. The GM sets the maximum and starting Force Training allowed to PCs.

The descriptions below are limited. The effect of Force Training will be described within the description of each Force ability but mostly lets you add extra enhancements. Sometimes an enhancement is not depended on Force Training. This enhancement is stated as being unlimited or irrespective of Force Training.

Note that Force Training is not an advantage that is noted down separately. It is inherent to a particular Force ability and should be noted down as such. For each one Force ability you should choose your level of Force Training after the approval of the GM. The points cost is not included in the Force ability.

Attuned:

You have been taught to learn to use the Force. This lets you add, if allowed, +1 level of any or all enhancements.

Adept:

You have extended knowledge of the Force. This lets you, if allowed, +2 levels of any or all enhancements.

Mastery:

You have mastered the Force. This lets you, if allowed, +3 levels of any or all enhancements.

Harmony:

You have become almost one with the Force. This lets you, if allowed, +4 levels of any or all enhancements.

Heat Dissipation

Points: +21 per level
Prerequisite: Racial Template – Dashade

Heat Dissipation contains three linked advantages. For each 4 levels of DR the character must have 2 levels Obscure and 2 levels of Temperature Control. A Dashade may use each absorbed heat damage to raise the temperature with 1 degree and as a side effect of this, others gain a penalty of 1 when they try to detect a Dashade by means of infra red based vision or scanning. Each level of Heat Dissipation costs 21 points.

Damage Resistance (Heat Absorption+4, Common, -40%)
Obscure (Infravision/infrared scanning+2)
Temperature Control (Heat +2, -50%)

Rank

Points: +5 per level
Prerequisites: Force Sensitive; membership of the Jedi Order or the Order of the Sith Lords.

Jedi

Padawan Novice:

These are the younglings. They have only started training as Jedi. It offers no Status.

Padawan Trainee:

These younglings have completed the first stage of the training. A training lightsaber is given to them by their Masters. Status is +1

Padawan Student:

These are pupils who have become of age and are allowed to go on assignments under close watch by their mentor. Status is +2.

Padawan Adept:

These are Jedi pupils who are at the final stage of their training. They must make a lightsaber at this stage before being ready for the trials. Their training lightsaber must be given back to his master. Their Status is +3.

Knight:

Jedi who succeeded their trials are known as Jedi Knights. They are the ones who are best known who fulfill assignments and complete many missions. Their Status is +4.

Grand Knight:

These are Jedi Knights granted a seat in the council but not granted the title of Master. Anakin Skywalker was a Grand Knight during the end of the Clone Wars. Status is +5.

Lord:

Jedi Lord should not be mistaken with a Sith Lord. During the Clone Wars, many Jedi were appointed as a commander, general, admiral or any other rank in the military. Their Status +5 added to the status obtained by the military rank they occupy. Mostly, the military rank is temporary (see BS page 29)

Master:

Jedi Knights can only be granted the title of Master by the Jedi Council. A seat in the Jedi Council is not necessary. Status is +6.

Grand Master:

Only one Jedi Grand Master at a time can exist. This is the highest rank a Jedi can achieve, and not many did. Status is +7.

Sith

Apprentice:

Force users who are being trained in the arts of the Sith are named Apprentice. They have access to lightsabers or any non-powered melee weapon. Sith Apprentices are sent on secret mission on an early stage. At the end of their training they must kill another Force user (e.g., Jedi Knight or higher or another Sith Apprentice or higher). Sith themselves have no rank or status. Their status mostly evolves as a result of the position they obtain (political, military, and administration).

Darth:

An original title of the Sith. Normally this title is paired with a Sith name other than the character's own name (e.g., Tyrannus, Vader or Maul). A Darth has killed at least one other Force user. More often, a Darth is called Lord or Dark Lord.

Master:

A Sith Master is the terror of the Jedi. Luckily there is only one Master at a time (after the Golden Age of the Sith). A prerequisite to this rank is either having an apprentice or just being the last Sith alive.

PERKS

MODIFIERS

Enhancements

Limitations

Dark Side

Points: -5%

Calling upon the Dark Side of the Force may have some negative effects. Each time when a Force ability with the limitation Dark Side is used, a Will test must be made. If the test is failed the character gains automatically another point of disadvantage.

These Dark Side disadvantages are: Bad Temper, Bloodlust, Bully, Callous, Compulsive Lying, Delusions, Fanaticism, Greed, Intolerance, Jealousy, Killjoy, Loner, Low Empathy, Manic-Depressive, Megalomania, Miserliness, Obsession, Overconfidence, Phobias, Reputation, Sadism, Secret, Selfish, and Uncontrollable Appetite, Unnatural Features, Appearance Penalty.

The points gained in this way must be put into Force Powers (e.g., improving the Force ability just used, improving Talents, taking new Force abilities, etc).

Depending on the campaign setting and the seriousness of the "evil act", modifiers may be added to reduce or enhance points cost. This way, a character can slide gradually towards the Dark Side when taking 1 point quirks and later on enhancing these quirks by altering the modifiers.

Author's note:

Although this limitation does not actually limit the use of Force abilities, it surely does prevent from characters learning that ability in order to stay on the Light Side of the Force. Characters who want to go the easy way, the quick one may be seduced to take this limitation for granted. The Force ability is cheap and the points gained by taking extra disadvantages improve the Force capability of the character in a much faster way than by earning CP.

Force

Points: -10%
All Force Powers have a counter. Some races are immune or resistant to some Force Powers (e.g., Hutt and Toydarian), other races are completely Force static (e.g., Yuuzhan Vong and Ysalamiri).

Some equipment might block or nullify some or all Force abilities (e.g., Lightsaber might block a Force Lightning).

Normally, Talents may be added freely (if one has already bought them) to your skill. The Force Talents may only be added to your Force ability if you have had any training in that particular ability and then you only add that much as the level of that Talent and the level of your Force training.

Author's note:

The combination of the three limitations described above explains the -10% modifier instead of the -5% modifier normally used by GMs as the Force Power modifier. This results in a 10% reduction of points cost for all Force abilities which, I think, reflect the overall superiority of a Force user over a mundane character.

Light Side

Points: -5%
Some Force Powers are inherent good, like using the Force to aid others.

Force Users who are walking the patch of the Dark Side might find it more difficult to use the Force for good (see the disadvantage Dark Side Taint).

4. DISADVANTAGES

Allowed Disadvantages

Disadvantages which are listed in the racial template (see Chapter 12 Alien Species) must be taken by the player. With the GM's approval, additional disadvantages may be taken. The player should always clarify what the basis is for a particular disadvantage (e.g., biological, technical, Force). Even the mundane advantages should be explained.

Code of Honor

Battle Honor

Points: -10
Prerequisite: Sludir Racial Template

Description:

Warriors eagerly show their battle prowess in close combat. Using ranged high-tech and ultra-tech weapons are dishonorable. Hiding and retreating are the tactics of a coward.

Clan or Family

Points: -5
Prerequisite:

Description:

The safety of your clan or family comes before all.

Jedi

Points: -15
Prerequisite: Jedi Order Template

Description:

The Jedi must stay at peace with the universe, and follow the Jedi code. The character may not use his powers for selfish or evil gains. Never break your word. Protects your Order, protect he Republic, and anyone weaker than yourself. Even in open war, sides and weapons must equal if the foe is also noble and chivalrous.

Nagai

Points: -5
Prerequisite: Nagai Racial Template

Description:

The Nagai hate and fear their extragalactic enemies, the Tofs. Whenever encountered a Nagai must attack a Tof after making a successful Fear roll with an -1 to Will for each Tof encountered at the same time.

Sith Rule of Two

Points: -5
Prerequisite: Order of the Sith Lords Template

Description:

There are only two Sith; a master and an apprentice. If there are more than two Sith at any time given, the chance is great infighting will occur when it is discovered.

Dark Side Taint

Points: -4 per level
Prerequisite: Force Sensitive; appropriate number of Dark Side Disadvantages

Description:

Tainted (-4): Your number of points with Dark Side disadvantages must be at least half of your Will score. All Dark Side Force abilities are used with a bonus of +1 and all Light Side Force abilities have a penalty of -2.

Devotee (-8): Your number of points with Dark Side disadvantages must be at least your Will score. All Dark Side Force abilities have a bonus of +2 and all Light Side Force abilities have a penalty of -4.

Dark Sider (-12): Your number of points with Dark Side disadvantages must be at least double to your Will. All dark Side Force abilities have a bonus of +4. All Light Side Force abilities have a penalty of -8 and all Neutral Force abilities have a penalty of -1.

In the Table below are all Force abilities listed and on what aspect the modifiers apply.

Force Ability	Aspect Modified
Beast Speech	Reaction Roll or Beast's IQ
Combat Precognition	attack roll, dodge, parry, or skill roll
Cure Another	IQ
Detoxify Another	IQ
Farseeing	Activation Number
Fear	Level of Terror
Force Grip	Level of Affliction
Force Jump	Level of Super Jump
Force Lightning	Innate Attack (Beam skill)
Force Move	Level of Enhanced Move
Force Pull	Fast Draw
Force Push	Push skill
Force Sight	Perception
Force Stealth	Force Sight
Heal Another	IQ
Heal Self	HT
Hyperspace Navigation	Piloting and Navigation (Hyperspace)
Mind Trick	Will
Sense Life	Perception

Disciplines of Faith

Jedi

Points: -10
Prerequisite: Jedi Order Template

Description:

You are complete devoted to the Jedi Orders pursuits, which often involves the denial of ego and self. You must spend at least 75% of your time completing tasks given by your Order, and cannot have above-poor Wealth, or Status beyond that granted by the Jedi Order, The Galactic Senate, or the Supreme Chancellor. After The Great Sith War it is forbidden to marry and maintain other family attachments.

Unnatural Features

Dark Channeling Eye

Points: -1 or -5
Prerequisite: Force Sensitive

Description:

Typically, when channeling the Dark Side of the Force, the user's eyes turn yellow. During this state all reaction rolls from non-Sith are at -1. If the visual effects do not wear off after stopping channeling the Dark Side of the Force it becomes a -5 point disadvantage.

QUIRKS

5. SKILLS

Armoury

Lightsaber/TL^ (IQ/Average)

Defaults: IQ-6 or Engineer (same) -4

Prerequisite: Force Sensitive

This is the ability to build, modify, and repair any lightsaber. It does not include skill at design; for tat, see Engineer (Lightsaber). A successful roll lets you find a problem, if it isn't obvious; a second roll lets you repair it. Time required is up to the GM.

Body Control

Force Trance (HT/Very Hard)

Defaults: None

Prerequisites: Trained By A Master; Meditation; Force Power – Control

You may enter a Force trance that slows your metabolism, allowing you to survive for extended periods of time with very little air, water, or food. You may enter a trance at will; doing this requires a minute. It also takes a minute to awaken from the trance. While in a trance, you heartbeat slows, your breathing all but cease, and you appear to be dead (use of the Sense based See Force power will identify the target as being in a trance). A character in a Force trance uses only 10% as much air as a sleeping person and needs no food or water for an extended period of time. For purposes of natural healing, a Force trance is equivalent of assisted healing.

You can also use this skill to flush poisons from your body (see BS page 181).

When entering a trance, the character must declare the circumstances under which the trance will end. Examples include a time limit or a certain stimulus (such as being touched)). A character in a trance is not conscious of his or her surroundings and may not use any skills or abilities.

A character can remain in a trance for up to one week in a dry climate or up to one cycle in a wet climate before succumbing to thirst. If a character can stay hydrated (via an intravenous drip, for example), he could remain in a trance for up to three cycles before dying of starvation.

Engineer

Lightsaber/TL^ (IQ/Hard)

Defaults: Armory (same) -7

Prerequisite: Force Sensitive

This is the ability to design and build any lightsaber. A successful roll lets you design a new system, diagnose a glitch, identify the purpose of a strange device on a found lightsaber, or improve a lightsaber to solve a problem. Time required for each event is up to the GM.

Hidden Lore

Jedi Lore (IQ/Average)

Defaults: None

You know the tales and history of the Jedi, their deeds and possibly even the Force itself.

This knowledge may be acquired by Jedi Masters, Force Spirits, or Jedi Holocrons. During the era of the Old Republic, Jedi Lore is still counted as hidden for the mundane people.

Sith Lore (IQ/Average)

Defaults: None

You know the secrets of the Dark Side of the Force, the motivations of the Sith Lords and possibly even the history of the Sith Lords.

This knowledge may be acquired by your Sith Master or Sith artifacts such as the Sith Holocrons.

Melee Weapon

Arg'garok (DX/Average)

Defaults: Two-handed axe -2

This weapon favored by Gamorrean warriors consists of a heavy axe blade mounted on a simple wood handle. The arg'garok is perfectly balanced to take advantage of the Gamorrean's low centre of gravity and enormous strength.

A Gamorrean trained with this weapon does not need to make a Ready maneuver after an attack.

Double-Bladed Lightsaber (DX/Average)

Default: Staff -5

This type of lightsabers has a lengthened hilt from which sprouts two energy blades.

A double-bladed lightsaber must have one Force crystal and may contain up to three Force crystals.

Gaderfii (DX/Average)

Defaults: Polearm -2; Spear -4; Staff -4; Two-Handed Axe/Mace -4

Gaderfii are unbalanced pole weapons made of scrap materials. no two Gaffi sticks are identical. Some have smooth sharp blades, others feature pointed tips and hooks, while others have crude jagged edges.

Force Pike (DX/Average)

Defaults: Polearm -5; Spear -3

Force pikes are powered spear-like weapons which do extra damage (mostly stunning)

Lightsaber (DX/Average)

Defaults: Any sword -5; Short-Bladed Lightsaber -2

Any sword with a blade made out of energy instead of matter. This refers to an ultra-tech weapon that projects energy from a powered hilt. Because of the lethal blade (even if touched lightly) the default to any sword skill is -5.

A lightsaber must have one Force crystal and may contain up to three Force crystals.

Short-Bladed Lightsaber (DX/Average)

Defaults: Any sword -5; Lightsaber -2

This type of lightsaber has a shortened blade (as a short sword or large knife).

A short bladed lightsaber must have one or two Force crystals.

Stranglestick (DX/Average)

Defaults: None

This is the skill of using a stranglestick. Stranglesticks are spear-length rods with forked ends that a thin strip of leather is threaded through. The strap can be tightened to restrain a target quickly and quietly. The Stranglestick does damage if the victim struggles. If the victim cooperates, the Stranglestick does no damage, but merely acts like a harness

Thogk (DX/Average)

Defaults: Two-handed sword -2

This weapon is favored among the wealthier Gamorrean. It consists of a heavy blade set into a crude hilt. The Thogk is perfectly balanced to take advantage of the Gamorrean's low centre of gravity and enormous strength.

Vibro-Weapons (DX/Average)

Default: Variable

These weapons include many types of powered weapons. Simply use the Melee Weapon skill instead but ad Vibro to the front of the name. The following skills are available: Vibro-dagger (knife); vibro-axe (axe/mace); vibro-blade (shortsword); vibro-halberd (polearm); vibro-lance; vibro-spear; vibro-sword (broadsword).

The defaults listed in BS are the values of other vibro-weapons. Using defaults of none vibro-weapon, subtract one of the default value (i.e., Lance has defaults DX-5 or Spear-3 but Vibro-Lance has Defaults DX-6 or Spear -4 or Vibro-Spear -3).

Parry Beam Weapons

(DX/Very Hard)

Defaults: Parry Missile Weapons -6

Prerequisites: Enhanced Time Sense; Melee Weapon – Any Lightsaber skill at +5

This skill lets you parry beam weapons (such as blaster bolts) with a ready lightsaber. Your Parry score is (skill/2) + 3, rounded down, but based on Parry Beam Weapons skill, not your Melee Weapon skill.

Thrown Weapon

Darkstick (DX/Hard)

Defaults: DX-6

This is the skill of throwing a Kerestian darkstick. A successful roll means the darkstick will return to the owner's hand. The thrower makes another darkstick roll for catching the weapon.

Lightsaber (DX/Average)

Defaults: Axe/mace throwing -2; Stick throwing -2; Knife throwing -4.

Lightsabers may be hurled towards the opponent (when the on switch can be locked).

6. THE FORCE

Introduction

The Force is an energy that occurs naturally in the galaxy, it springs from all forms of life. It has two "sides," a good side and a Dark Side, although this is a great oversimplification of the Force's existence. The Jedi Knights believed that the Force had many sides, including a living element and a unifying element, and it binds all things together in a great web of existence. In this way, the Jedi saw the Force as its own end. The modern Sith, while acknowledging that they learned of the Force through the Dark Side teachings of the ancient Sith, simply saw the singular power of the Force, which to them was a means to an end. The Jedi Knights discovered that the Force was accessible to all living beings through the presence of midi-chlorians in their cells. The more midi-chlorians that inhabited a being's cells, the more the being was able to contact the Force. However, a high concentration of midi-chlorians did not guarantee a being control of the Force. Only through intense study and dedicated training could a being become proficient in harnessing the power of The Force. The Jedi Council discovered that younger beings had an easier time of learning the techniques required to touch and control the Force, and eventually developed a system that actively sought out and identified beings with high midi-chlorian counts at their birth. With, or sometimes without, the permission of the parents, the Jedi took children no more than one year old away for training. Children and older beings, who had already established a set pattern of mental and physical usage, often were unable to complete the necessary training, and were deemed too wasteful of Jedi resources. The Jedi Knights have historically been the most powerful users of The Force, having trained with and learned the three basic techniques: control (the manipulation of one's internal Force strength), sense (detection of the Force in the external world), and alter (manipulation of matter with the Force). These techniques, used by them or in combination, allow the Jedi to perform many different activities with the Force. The Sith, on the other hand, gained strength from the Force by focusing their emotional energies - especially strong emotions like anger and hatred - which gave the quick mastery but didn't take much discipline. During the Yuuzhan Vong invasion of the galaxy, some twenty-five years after the Battle of Endor, the foundations on which the Jedi Knights based their knowledge of the Force were suddenly altered. There were several forms of life - primarily the ysalamiri of Myrkr - which could push back against the Force, but these creatures were assumed to live within the Force in some fashion. The Yuuzhan Vong, however, appeared as a void in the Force, neither projecting nor absorbing or repelling it. Many of the new Jedi Order struggled with the concept of a race of beings which seemed to lack any contact with the Force, since it was believed that the Force was contained within all forms of life, even if it was in trace amounts. Jacen Solo was one of the first Jedi to discover that the Force acted in many ways, without a true light or dark side, and that there were ways in which it could be attuned to at least recognize the alien invaders. The former Jedi Knight Vergere was instrumental in guiding Jacen to this realization, having spent more than thirty years in their presence. After the surrender of the Yuuzhan Vong at Coruscant some five years after their invasion began, Jedi Master Skywalker contemplated his new understanding of the Force. It was not a simple delineation between light and dark, but a more profound definition of the ways in which good and evil fight for control of an individual. Ultimately, he chose not to return the Jedi to their roles as an unbiased police force. Luke reasoned that the Jedi Knights of the Old Republic were once a meditative order that was drawn deeper and deeper into the machinations of the Republic when its Chancellors called for their help in mediating disputes. As this call for help escalated into the battle legions of the Clone Wars, the Jedi became less interested in the nature of the Force and more interested in separating good and evil into light and dark halves to the Force. The Jedi of the Old Republic, according to Skywalker, lost sight of the fact that the Force moved through an individual, not from them.

Living Force (Control)

This was the facet of The Force which connected a Jedi Knight to the living beings which surrounded him. This facet complimented the Physical Force, which allowed a Jedi to use the Force to manipulate objects around him, and the Unifying Force, which focused on the future and its bearing on a Jedi's place in the present. During the last decades of the Old Republic, the Jedi Council stressed a certain detachment from the Living Force, to help prevent attachment to other beings.

Physical Force (Alter)

This was the facet of The Force which allowed a Jedi to use the Force to manipulate objects around him. This facet complimented the Living Force, which connected a Jedi Knight to the living beings which surrounded him, and the Unifying Force, which focused on the future and its bearing on a Jedi's place in the present. It was this aspect of the Force which garnered the most attention during the training of most Jedi during the last decades of the Old Republic, a trend that moved the Jedi farther and farther away from understanding exactly what the Force was.

Unifying Force (Sense)

This was the facet of The Force which focused on the future and its bearing on a Jedi's place in the present. Those Jedi who studied the Unifying Force understood that the future was constantly in motion, but sought to understand this motion and develop an understanding of their place within achieving the highest of ideals. This facet complimented the Living Force, which connected a Jedi Knight to the living beings which surrounded him, and the Physical Force, which allowed a Jedi to use the Force to manipulate objects around him. It was this aspect of the Force that was perhaps the least understood of the three, a fact that was all the more obvious after the Jedi Purge. As Luke Skywalker set out to rebuild the Jedi Knights after the Battle of Endor, his own training led him to concentrate on the Living Force and Physical Force. It wasn't until the Yuuzhan Vong invaded the galaxy, and the Fosh Jedi Vergere returned from her self-imposed exile among them, that Luke began to consider what the Unifying Force meant to the new Jedi Knights.

The Force in GURPS

The Force allows the use of special advantages, disadvantages, talents and skills not allowed to other PC's. The prerequisite for becoming a Force user or simply having some link into the Force is the advantage Force-Sensitive.

Magic and Psionics

The Force replaces all Magic rules and Psionics rules given in the GURPS 4th Edition Basic Set. Those who are called wizards, mages, sorcerers or witches are in fact Force users. Psionics, super heroes, Gods, demons or whatever supernatural beings you can think of are all connected to The Force.

Powers

Powers, such as given in GURPS 4th Edition Powers still exists. Powers can be either based upon technology, biology or as in this case based upon the Force.

Fatigue

Using the Force requires concentration and can exhaust the user. This is reflected by expending FP when applying a Force ability. On a failed roll, no FP is expended and the Force ability does not work. On a critical failure, full FP must be paid while the Force skill doesn't work. On a critical success, no FP is paid at all.

Force users may have additional FP which can only be used to power Force abilities (see Energy Reserves - Force).

Range of Force Abilities

Some Force skills have a limited range such as 10 yards. If the range limitation is within communication range, you must be able to talk to the target (and he must be able to hear it, and understand it of course). Others may have the only range limitation of sight. This can be any kind of sight (e.g., direct sight, or live holo-transmission). Only a few Force skills have no range limitation at all.

THE DARK SIDE

The Dark Jedi's Code

There is no peace, there is anger.
There is no fear, there is power.
There is no death, there is immortality.
There is no weakness, there is the Dark Side.
I am the Heart of Darkness.
I know no fear, but rather I instill it in my enemies.
I am the destroyer of worlds.
I know the power of the Dark Side.
I am the fire of hate.
All the universe bows before me.
I pledge myself to the Darkness.
For I have found true life, in death of the light.

The Force may be used for either good or evil. Some Force abilities are created by the Sith and are inherent evil. Anyone who uses Force abilities listed as Dark side gains a Dark Side disadvantage. Some Force abilities are inherently good, although they might not give you Light Side advantages or reduce the number of disadvantages you've already acquired, these abilities are harder to use by tainted or Dark Siders.

Note that dark side Force skills are easier to use.
Each time a Dark Side Force ability is used, the character must make a Will roll modified with the total number of FP or HP paid as a penalty and the level of Force Training as a bonus. If the Will roll is successful, nothing happened. Is it a failure, another Dark Side disadvantage is gained. This reflects the joy a character has for doing his evil deed.

The nature of the Dark Side is a naturally corrupting one. The actual Force ability used does not matter; what matters is intent and action. Embracing the Dark Side enables characters to more readily commit unspeakable acts. By tapping into his darker emotions - anger, fear, and hate - a character may slip into the Dark Side. Should a Force-using character use a power while experiencing one of these emotions, the sudden surge of adrenaline gives him a slight initial bonus.

Several disadvantages may lead to the Dark Side. Anakin Skywalker, before he became Darth Vader, exhibited the following traits which, either directly or indirectly, led to his giving into temptation: Guilt Complex, Impulsiveness, Nightmares, On The Edge, Overconfidence, and Stubbornness. He was also quite arrogant, as was Count Dooku; while not a Disadvantage - at best a Quirk - his arrogance certainly aided in his downfall. He also, arguably, had a Dependent he lost: his mother, who died in his arms less than a minute after he freed her. He had also made a Vow; he would do everything he could to keep Padmé from dying in childbirth. (Ironically, he was the reason she died.)

In addition to these, acts of murder will certainly aid in a character's slide into the Dark Side. To kill in combat is not murder, but to cut off an unarmed opponent's head is. Despite this, the fall to the Dark Side is not punctuated by one single murder, or by killing a group of defenseless people in anger. The slide is punctuated by the complete lack of remorse over these acts. Once a Force-using character shows a complete lack of remorse in killing others will he truly have embraced the Dark Side.

If a number of points with Dark Side disadvantages reaches double the character's Will score he will automatically gain the disadvantage Dark Side Taint.

A character of which a number of points with Dark Side disadvantages reach quadruple his Will becomes a full Dark Sider and gains another level of Dark Side Taint.

The last level of Dark Side Taint is gained when the character has a number of points with Dark Side disadvantages equal to or higher than eight times his Will score.

These Dark Side disadvantages are: Bad Temper, Bloodlust, Bully, Callous, Compulsive Lying, Delusions, Fanaticism, Flashbacks, Greed, Impulsiveness, Intolerance, Jealousy, Lifebane, Loner, Low Empathy, Manic-Depressive, Megalomania, Miserliness, Obsession, On the Edge, Overconfidence, Paranoia, Phantom Voices (like the Emperor's voice telling Mara Jade to kill Luke Skywalker), Reputation (if your status as a Dark Sider is revealed), Sadism, Secret (if you want to keep your Dark Nature secret), Selfish, and Uncontrollable Appetite (typically for enhancing your connection to the Force), Unnatural Features, Appearance Penalty, or any other disadvantage which you, the GM, thinks fit the character to his journey to the Dark Side.

Benefits

The benefits of the Dark Side may not be obvious at first glance. However, the Dark Side of the Force does give some benefits, at least at first.

During the character's slide into the Dark Side, the pull is intensified by the bonus to the Dark Side Force abilities. Should a Force ability not require a dice roll, the character gains a 50% increase in its use. The drawback to this is that it is hard to maintain these emotions for very long; roll against the higher of IQ or HT once per minute of time experienced by the character. A success indicates that the character has expanded his darker emotions. This should model the surge of raw power a Force user feels when using his powers when angry or charged with hate.

Another benefit is one that goes against the standard GURPS rules. When acquiring one of the Dark Side disadvantages in play, the points that would be given by that disadvantage may be spent on additional Force abilities or on enhancing current ones. This should effectively model the rapid increase in power the Dark Side offers.

Dark Side Disadvantages

The following table lists all Dark Side disadvantages and modifications. These modifications are intended to enable characters to have Dark Side disadvantages but only in a mildly form. When the character transgresses deeper into the Dark Side, these modifications will change and make the disadvantages worth more negative points.

Disadvantage	Modifier	Point Cost
Appearance	Transcendent	+20
	Very Handsome/Beautiful	+16
	Handsome/Beautiful	+12
	Attractive	+4
	Average	+0
	Unattractive	-4
	Ugly	-8
	Hideous	-16
	Monstrous	-20
	Horrific	-24
Bad Temper	Resist almost all the time	-5
	Resist quite often	-10
	Resist fairly often	-15
	Resist quite rarely	-20
Bloodlust	Resist almost all the time	-5
	Resist quite often	-10
	Resist fairly often	-15
	Resist quite rarely	-20
Bully	Resist almost all the time	-5
	Resist quite often	-10
	Resist fairly often	-15
	Resist quite rarely	-20
Callous		-5
Oblivious		-5
Low Empathy		-20
Delusions	Minor	-5
	Major	-10
	Severe	-15
Fanaticism		-15
Flashbacks	Mild	-5
	Severe	-10
	Crippling	-20
Greed	Resist almost all the time	-7
	Resist quite often	-15
	Resist fairly often	-22
	Resist quite rarely	-30
Impulsiveness	Resist almost all the time	-5
	Resist quite often	-10
	Resist fairly often	-15
	Resist quite rarely	-20
Intolerance	Mundane, reaction-1	-1
	Mundane, reaction-2	-2
	Mundane, reaction-3	-3
	Jedi, reaction-1	-1
	Jedi, reaction-2	-2
	Jedi, reaction-3	-3
	Jedi, reaction-4	-4
	Jedi, reaction-5	-5
	Other Force users, reaction-1	-1
	Other Force users, reaction-2	-2
	Other Force users, reaction-3	-3
	Other Force users, reaction-4	-4
Jealousy		-10
Lifebane		-10
Loner	Resist almost all the time	-2
	Resist quite often	-5
	Resist fairly often	-7
	Resist quite rarely	-10
Manic Depressive		-20
Megalomania		-10
Miserliness	Resist almost all the time	-5
	Resist quite often	-10
	Resist fairly often	-15
	Resist quite rarely	-20
Nightmares	Resist almost all the time	-2
	Resist quite often	-5
	Resist fairly often	-7
	Resist quite rarely	-10
No Sense of Humor		-10
Obsession	Short Resist almost all the time	-2
	Short, Resist quite often	-5
	Short, Resist fairly often	-7
	Short, Resist quite rarely	-10
	Long, Resist almost all the time	-5
	Long, Resist quite often	-10
	Long, Resist fairly often	-15
	Long, Resist quite rarely	-20
On the Edge	Resist almost all the time	-7
	Resist quite often	-15
	Resist fairly often	-22
	Resist quite rarely	-30
Overconfidence	Resist almost all the time	-2
	Resist quite often	-5
	Resist fairly often	-7
	Resist quite rarely	-10
Paranoia		-10
Phantom Voices	Annoying	-5
	Disturbing	-10
	Diabolical	-15
Reputation	See BS, pages 26-28	-1 to -25
Sadism	Resist almost all the time	-7
	Resist quite often	-15
	Resist fairly often	-22
	Resist quite rarely	-30
Secret	Serious Embarrassment	-5
	Utter Rejection	-10
	Imprisonment or Exile	-20
	Possible Death	-30
Secret Identity		-5 to -40
Selfish	Resist almost all the time	-2
	Resist quite often	-5
	Resist fairly often	-7
	Resist quite rarely	-10
Stubbornness		-5
Supernatural Features	Pallor	-10
Uncontrollable Appetite	Resist almost all the time	-7
	Resist quite often	-15
	Resist fairly often	-22
	Resist quite rarely	-30
Unnatural Features	Dark Channeling Eye, temporary	-1
	Dark Channeling Eye, permanent	-5
Proud		-1

Note: Some Dark Side Disadvantages (i.e., Appearance) might cost points. These can only be acquired if they already had a more expensive version. In fact, it becomes a downgrade of what they had. (i.e., a Beautiful female Jedi becomes Attractive).

Redeeming to the Light Side

It is not uncommon in the Star Wars Universe for characters to redeem themselves and return to the Light Side of the Force. Luke Skywalker, Jaina Solo, and Anakin Solo have all spent time in the Dark Side, as have several characters in the computer games... Bastilla Shan, Kyle Katarn, the Jedi Exile, etc ... and returned to the Light Side. Please note that in each case the characters who returned to the Light did so with the aid of those who cared for them; even Vader needed help from his son to return.

This should only be done with great care; not only should the player spend points to remove the "Dark Side Disadvantages", but there should also be a serious undertaking by the character to walk the side of the Light. The road to redemption is never easy; GMs should not make it easy for the characters to do so. On the other hand, they should reward any player who makes a serious effort to redeem his character. The Force is not a roller coaster, nor is it a coin to be flipped at a whim.

THE FORCE AND GAMEPLAY

Using The Force

Gestures

As with magic, Force-users require to make gestures when using Force abilities. However, these gestures are only minor. Examples are., a small wave with your hand (like Obi-Wan and Qui-Gon make when trying to affect the minds of a storm trooper or a poor blue merchant); pointing with your hand and guiding with your arm or hand (as Dart Maul does with an object to hurl it against the controls for opening a door).

Although these gestures are more cinematic than necessary for the game, the character must be able to move something in order to use a Force ability actively. A Force-user frozen in carbonite won't be able to use his Force ability other than meditative Force skills like Farseeing.

Distraction and Injury

If you use an active defense against an attack, or are knocked back, knocked down, injured, grappled, or otherwise distracted while concentrating, make a Will roll at -3 to continue using your Force ability. On a failure, your efforts are spoiled and you must start over.

If you are stunned while concentrating, your Force ability is automatically spoiled.

If you are injured but not stunned while concentrating, and succeed on the roll to avoid distraction, you may use your Force ability. The shock penalty for your injury is applied as normal but since the Force is not bound by crude matter, it does not affect the usage of the Force. See GURPS 4th Edition page 419.

Gaining Force Abilities

You can use earned points to add enhancements to your Force advantages, or to buy higher levels of advantages that come in multiple levels. You cannot buy additional Talent with any Force power you possess as these are inborn. Finally, if you already have a Force power or Talent, you may buy new abilities within that power.

However, Force abilities are ever existent and the connection with it is inborn. Under normal circumstances, you cannot add abilities in powers you do not possess. The GM might allow you to gain new Force powers through hard study under supervision of another Force user or even watch other Force users and imitate them. Some Force users might even use ancient Holocrons from long past Jedi or Sith Masters as a training and information tool. For further information about Improvement through study see BS page 292 – 294.

Having Talents in a particular Force Talent will help the learning curve for all Force Abilities within that Force Power. Having no Talent will make it more difficult for a character to improve his Force Abilities.

Talent Level	Time Spend (hours)	Count As (hours)
0	2	1
1	1	1
2	1	2
3	1	3
4	1	4

This modification is cumulative to the time given in BS pages 292 – 294.

Force Related Advantages

Force users may acquire certain advantages which are unavailable to mundane characters. These advantages can be gained either by training or they might come gradually as the character becomes more strongly connected to the Force during the game.

Advantage	pts	Note
Combat Reflexes	+15	
Danger Sense	+15	
Enhanced Defenses (Dodge)	+15	
Enhanced Defenses (Parry)	+10	
Enhanced Time Sense	+45	Replaces Combat Reflexes
Extra Attack	+25/attack	
Fearlessness	+2/level	
Fit	+5 or +15	
Hard to Kill	+2/level	
Hard to Subdue	+2/level	
High Pain Threshold	+10	
Intuition	+15	
Longevity	+2	
Perfect Balance	+15	
Weapon Master	+20 or +25	

FORCE POWERS

Before any character can take a Force Power, he must already have the Advantage – Force Sensitive.

The abilities are named following the Star Wars naming convention. In the ability the dis.- advantages and modifiers are already included. These may not be altered by the player unless stated otherwise. They are inherent to that particular Force ability. The Force Training advantage however, may give the player the opportunity to improve (lessen the weight of the disadvantage) an ability.

Alter

Source: Force
Focus: Manipulation
Alter Talent: 10 points per level
Power Modifier: Force, -10%

This Force Power grants the character to use the Force in order to Alter the things and beings in the universe. You can change the distribution and nature of the Force in your environment. All Force abilities of the power Alter become available.

Alter Abilities:

Cure Another

Healing (Xenohealing – All Carbon-based life +60%; Disease only -40%; Light Side -5%)
Base: IQ
Enhancement: None
Cost: +32pts

See Healing (BS page 59).

Detoxify Another

Healing (Xenohealing – All Carbon-based life +60%; Poisons & Toxics only -40%; Light Side -5%)
Base: IQ
Enhancement: None
Cost: +32pts

See Healing (BS page 59). With this ability you are able to remove the effects of poison & toxics and the poison & toxic itself from the body. This requires an IQ roll at a modifier determined by the GM, from +1 for common poisons or toxics to -15 for the most exclusive poisons used by expert assassins.

Fear

Terror – On Sight (Costs Fatigue -5%; Dark Side -5%)
Base: Victim's Will
Enhancement: 1 to 4 Extra levels of Terror
Cost: +24pts +8pts/level

You can manipulate the Force to frighten others and use their fear against them, making them more susceptible to the lure of the Dark Side.

You must have visual contact with the target in order to affect him.

Force Stealth

Obscure (Defensive +50%, Stealthy +100%, Costs Fatigue -5%, Preparation Required – Meditation -20%)
Base: Force Sight Targeter
Enhancement: 1 to 4 Extra levels of Obscure; 1 to 4 Extra levels of Duration
Cost: Variable

With this ability, your character can meditate and lose himself in the Force, avoiding Force-based detection. You Force Stealth roll is opposed by the Force Sight roll of another Force-user. Whenever a Force-user wants to mask his presence in the Force, for whatever reason, he gathers the Force around him, meditates, and attempts to hide his connection to the Force. Although this ability is mostly used by Dark Siders (to stay hidden from the Jedi), it is a neutral ability.

Once activated, Force Stealth remains in place to counter Force Sight rolls until the time limit expires or until you use any Force ability. Using another Force ability solidifies your connection to the Force and makes masking your presence impossible.

This ability works invisible. There is no bonus to detect the absence of Force presence of your area.

The base penalty towards the Force Sight ability or Force Perception advantage is 1 + Control Talent (max of Force Training) + Extra levels Obscure (max of Force Training). Subtract this from the size, thus decreasing the Force Sight's (Perception's) effective range.

Heal Another

Healing (Xenohealing – All Carbon-based life +60%; Injuries Only -20%; Light Side -5%)
Base: IQ
Enhancement: IQ
Cost: +38pts

See Healing (BS page 59)

Heal Self

Very Rapid Healing (Costs Fatigue -5%)
Base: HT
Enhancements: None
Cost: +13pts

Your wounds heal quickly. Whenever you roll to recover lost HP or to see if you can get over a crippling injury, you get +5 to your effective HT. A successful HT roll means you heal two HP.

Note that this Force ability does not hasten recovery from the short-term effects of injury, such as stunning and knockout.

Mind Trick

Enthrallment - Suggest (Defaults: None; Will/Hard; No Memory +10%; Malediction+100%; Reduced Fatigue +100%; Reduced Time 200%; Sense-Based Hearing -20%)
Base: Victim's Will
Enhancement: 1 to 4 extra suggestions; Unlimited extra levels Enthrallment – Suggest skill.
Cost: see table below.

You are able to make an otherwise unpalatable suggestion seem completely acceptable to the target. You must be able to communicate with the target, and the suggestion can't obviously threaten the target's life. The target won't realize later that what he did was unreasonable.

If the target wins the Will versus Mind Trick contest, you can attempt to affect the mind of the same character in another situation after time has passed.

Force Training lets you make multiple suggestions at the same target quickly after another. These suggestions must different to each other (e.g., Obi-Wan makes multiple suggestions to a storm trooper in Mos Eisley). Each level of Force Training adds one additional suggestion. Still each suggestion made takes 2 seconds.

For ease of calculating CP for this ability, see the table below:

Skill Level	CP	Skill Level	CP
Will -3	0	Will +2	46
Will -2	4	Will +3	61
Will -1	8	Will +4	76
Will +0	16	Will +5	92
Will +1	31	Extra +1	+16

Control

Source: Force
Focus: Connection
Control Talent: 10 point per level
Power Modifier: Force, -10%

This advantage grants the character to use the Force in order to Control the things and beings in the universe. All Force skills of the power Control become available.

Control Abilities:

Beast Speech

Speak with Animals (Accessibility – Only on creatures -30%; Costs Fatigue -5%; Sense-Based -20%)
Base: Creature's IQ or Reaction Roll
Enhancement: None
Cost: +9pts

You can use the Force to speak with animals (BS page 87).

Force Grip

Affliction (Incapacitation – Choking +100%; Cost Fatigue -5%; Dark Side -5%)
Base: Victim's HT
Enhancements: 1 to 4 levels of Range; 1 to 4 extra levels of Affliction
Cost: variable

You can use the Dark Side of the Force to injure a single living opponent within sight by finding the lines of energy that connect all things together and using them to grip an organ or crush a larynx. See BS page 436. This is a ranged attack with 1/2D 10, Max 100, Acc 3, RoF 1, Shots N/A, and Recoil 1

The DR of any armor is ignored. If the target wears any kind of inflexible armor he continues to take damage.

As soon as the Force Grip is lost the effect is also lost and the victim may recover.

The range is only an indication. The victim must be in line of sight (either directly of via a com screen or holographic projection).

Force Jump

Super Jump (Costs Fatigue -5%)
Base: Basic Move & Jumping (DX/Easy)
Enhancement: 1 to 4 extra levels of Super Jump
Cost: variable

You can make super Human jumps (see BS page 89).

Force Lightning

Innate Attack – Burn (Damage Modifier - Surge +20%; Jet +0%; Cost Fatigue -5%; Dark Side -5%)
Base: Innate Attack – Beam (Default DX-4; DX/Easy)
Enhancement: 1 to 4 extra levels of Innate Attack; Unlimited extra levels of Innate Attack – Beam skill.
Cost: +5pts +5pts/level + cost of Innate Attack – Beam skill

You draw upon the Dark Side of the Force to blast one or more targets with deadly bolts of energy. This is a ranged attack with 1/2D 5, Max 10, Acc N/A, RoF 1, Shots N/A, and Recoil 1.

This Force ability consists out of two kinds Innate Attacks. One is the advantage (BS page 61) and the other is the skill (BS page 201). The skill is only used to direct the attack and its points must be paid separately.

The damage dice must be declared at which target they were directed. (e.g., A Sith Lord attacking a Jedi and a trooper with Force Lightning must declare before damage dice are rolled how many dice are directed towards the Jedi and how many towards the trooper. For example, if the Sith Lord could do 4d+1, he may decide to damage the Jedi with 3d+1 and the trooper with 1d.

Force Move

Enhanced Move (Costs Fatigue -5%)
Base: Basic Move & Running (HT/Average)
Enhancement: 1 to 4 extra levels of Enhanced Move
Cost: variable

You can draw upon the Force to enhance your top speed. You may only choose ground and/ or water but all restriction mentioned in BS page 52 still apply.

Force Pull

Telekinesis (Costs Fatigue -5%)
Base: Fast Draw (DX/Easy)
Enhancement: 1 to 4 extra levels of Telekinesis; 1 to 4 extra levels of Range; unlimited levels of Fast Draw skill.
Costs: variable

This ability lets you quickly pull a small object or weapon from its holster, sheath, or hiding place at a maximum distance of 10 yards. A successful roll means you ready the weapon immediately. If you pull a weapon out of someone's hands, your margin of success must be higher than the target's strength and higher than the target's strength +2 if he holds if with both hands. On a failure, the weapon stays were it is (maybe it trembles a little). You don't need to specialize in an object in order to pull it towards you, however, you must be acquainted with weapons which require some handling in order to activate it. For these weapons, if you don't have the appropriate skill, take an extra turn before you can ready the weapon.

Because the Fast Draw skill is part of a Force ability, the modifier due to Combat Reflexes or Ham-Fisted don't apply.

Force Push

Innate Attack – Crushing (Damage Modifiers - Double Knockback +20%; Jet +0%; Costs Fatigue -5%)
Base: Push (Defaults: None; DX/Hard)
Enhancement: 1 to 4 extra levels Innate Attack – Crushing; unlimited levels of Push skill.
Cost: variable

You are able to direct the Force in a single powerful push resulting in a knockback (BS page 378). This is a ranged attack with 1/2D 5, Max 10, Acc N/A, RoF 1, Shots N/A, and Recoil 1.

The skill Push added with Talent determines whether you hit your targets or not and how hard the Push is. Its points must be paid separately.

Sense

Source: Force
Focus: Future and Bearing
Sense Talent: 5 point per level
Power Modifier: Force, -10%

This advantage grants the character to use the Force in order to Sense the Force and surroundings in the universe. All Force skills of the power Sense become available.

Sense Abilities:

Combat Precognition

Precognition (One Event Only -40%; Costs Fatigue -5%)
Base: IQ
Enhancement: None
Cost: +12pts

You can use Combat Precognition to gain a Force bonus after you fail an attack roll, dodge, parry, or skill roll. If successful, you can check to gain a re-roll to use immediately. Consider that the Force-user had an earlier vision that he or she is now taking advantage of to change the course of events. Though the vision took place earlier, you spend the FP cost when you make the roll.

Farseeing

Precognition (Costs Fatigue -5%; Preparation Required -20%)
Base: IQ
Enhancements: None
Cost: +17pts

You can use the Force to gain vague impressions of events happening in other places or times. These are impressions only and usually focus on strong imagery and emotions.

The past and present can't change, so viewing such events relies on your getting the correct perceptions. The future is fluid, however, always in motion, and therefore subject to change. With the Farseeing ability, you can detect when your friends are in danger, examine significant details of a past event, or determine the probable outcome of a stated course of action.

You must declare what kind of vision you seek to experience – the time, place, and/or person of the vision.

Since the future is mutable, the accuracy of such visions can be far from perfect. The higher the Force Training, the more chance of succeeding you have.

In addition to entering a trance and seeking your own vision, the GM can use this skill to provide clues and visions to progress the campaign. As long as you have at least 1 level in the Sense Talent, the GM can aid your character in this way. Of course, the more levels you have in the ability, the better the quality of the vision.

Force Sight

Detect (Occasional – Force-users, Affects Insubstantial +20%, Costs Fatigue -5%, Vague -50%)
Base: Sense
Enhancement: 1 to 4 levels of Acute Sense - Force

Cost: +6pts

You can detect a Force-user or Force-aura, even when it is shielded from the five human senses. This requires one second of concentration after which the GM will secretly make a Force Sight (sense) roll for you (see Sense Roll, BS page 358). The range modifiers from the Size and Speed/Range Table (BS, page 550) apply, but ignore speed. Add 1 to size if the target used a Force ability during this or last turn. If the target Force-user used the Force Stealth ability, subtract his effective Force Stealth ability from the size (see Force Stealth). You may buy a Special Acute Sense (BS, page 35) to improve the roll thereby increasing your effective range.

On a success you can detect the presence of a Force-user or Force-aura. Direction, Force-power and Force Training are revealed only on a critical success, and you cannot analyze what you detect.

Hyperspace Navigation

Absolute Direction – 3D Spatial Sense (Hyperspace Only)
Base: Piloting and Navigation (Hyperspace)
Enhancement: 1 to 4 levels of Piloting and 2 to 8 levels of Navigation/TL11 (Hyperspace)
Cost: +10pts

You can decrease the inaccuracy or minimum jump distance while attempting a hyperspace jump with a spaceship.

Sense Life

Detect (Very Common – All Life, Costs Fatigue -5%, Vague -50%)
Base: Sense
Enhancement: 1 to 4 levels op Acute Sense – Force
Cost: +11pts

You can detect life forms, even when it is shield from the five human senses. This requires one second of concentration after which the GM will secretly make a Sense Life (sense) roll for you (see Sense Roll, BS page 358). The range modifiers from the Size and Speed/Range Table (BS, page 550) apply, but ignore speed. Subtract 1 to size if the target has 0 or less HP left or is unconsciousness (2 if both). You may buy a Special Acute Sense (BS, page 35) to improve the roll thereby increasing your effective range.

On a success you can detect the presence of a life form. Direction, and quantity are revealed only on a critical success, and you cannot analyze what you detect.

FORCE-BASED ORGANIZATIONS

"The Force is a river from which many can drink, and the training of the Jedi is not the only cup which can catch it."

Luke Skywalker

The Jedi and the Sith are not the only Force-based traditions in the galaxy. Many others also existed, some with unique philosophies on the Force. About sixty of these organizations existed throughout the Star Wars history. Some of these organizations will give its members certain Advantages and Disadvantages of which some of them are optional.

Jedi

"For over a thousand generations the Jedi Knights were the guardians of peace and justice in the Old Republic. Before the Dark times. Before the Empire."

Obi-Wan Kenobi

The Old Jedi order was an ancient and noble monastic peacekeeping organization unified by its belief and observance of the Force. Throughout the galaxy the Jedi were the most famous of the various organizations that relied on the Force for their power. Wielders of a mystical energy and the vibrant signature lightsaber, the Jedi Knights were revered as august guardians. Ideal brokers of peace, Jedi took swift, decisive action, possessed a calming demeanor, and were equal parts thinker and warrior; they were the epitome of serene power, wisdom, and patience. The Jedi Order, with its long, involved history, saw its members come to be the protectors of the Galactic Republic over the millennia in which that democratic union rose to prominence. The sworn enemy of the Sith, the Jedi Order was virtually destroyed by them during the Great Jedi Purge, but rebuilt as the New Jedi Order during the New Republic era.

Since the beginning and most likely before the Galactic Republic, scientists had been studying the Force and its connection to midi-chlorians. This research was most notably by the Paladins of the Chatos Academy, The Followers of Palawa and the Order of Dai Nedu, on planets like Ondos and Had Abbadon. The Jedi Order itself, however, began on Tython, where the brightest and best philosophers, priests, and warriors came together long ago to discuss their discoveries involving the enigmatic, mystical positive energy called the Ashla. Those who wanted to use the Bogan, the negative energy of the Force for their personal gain ignited a century long conflict called the Force Wars, from the ashes of which arose the Jedi Order. Some of these Jedi left Tython to defend the Galaxy, and became known as Jedi Knights.

Initially the Jedi were a contemplative order, but over time they began to take a more direct and active role in galactic affairs. The Jedi followed the "light" side of the Force, using their power for unselfish and beneficial acts. In the ensuing millennia, the history of the Jedi was intertwined with both the Republic they served and the Sith they fought.

The order suffered many Schisms—the first was the Great Schism, which produced Xendor's Legions of Lettow, but the most consequential was the subsequent Hundred-Year Darkness in 7,003 BBY, where the Dark Jedi, once again defeated, were banished from known space.

They arrived on Korriban, the home of the Sith people, a primitive but Force-sensitive species. The Dark Jedi impressed the Sith with displays of Force power, and became the rulers of the planet and formed the Sith Empire. Over time, the Dark Jedi intermarried with the Sith, and the two identities merged. The term 'Sith' would later come to refer not only to the Sith species but also to the Dark Jedi who followed the codes of these ancient Jedi.

In 5,000 BBY the Jedi and the Sith Empire clashed in the Great Hyperspace War. The Sith were defeated, but would return to haunt the Jedi in the Old Sith Wars and the New Sith Wars.

Sometime over the next one thousand years, the Republic granted the Jedi land over a Force nexus: a sacred mountain on Coruscant. The Jedi eventually centralized themselves here, founding the Jedi Temple in 4,019 BBY, which would stand for four thousand years.

Between the end of the Great Sith War in 3,996 BBY and the beginning of the Mandalorian Wars in 3,965 BBY, some Jedi traditions and organizational structures seem to have changed quite radically. Jedi of the period prior to the Great Sith War were openly allowed to marry and raise families. Each Jedi apprentice would be trained at a local Praxeum run by individual Jedi Masters, each of whom had a number of students. Governance of the Jedi Order was handled by a large-scale temporary gathering called a Jedi Convocation or Jedi Assembly.

After the Great Sith War, the Jedi seem to have adopted a stricter monastic code, forbidding marriage and other family attachments. The looser Jedi Convocation gave way to a permanent Jedi Council on Coruscant, made up of 12 respected Jedi Masters. Regional enclave councils, such as the one on Dantooine, handled day-to-

day issues in more remote areas, and ultimately answered to the Jedi High Council on Coruscant. This is the earliest point at which the term Padawan is verified as having been in wide use, and more individualized one-on-one relationships between Masters and Padawans replaced the larger classes of the Praxeum system. It is also possible that this was the point at which the revised version of the Jedi Code as established by Master Odan-Urr began to be accepted as the canonical version.

Becoming a Jedi required the most profound commitment and astute mind. The life of a Jedi was one of sacrifice. To hinder transgression, those who showed an aptitude for the Force were taken directly from birth (or soon afterward) to train in the Jedi Temple headquarters on Coruscant. From the beginning of their training a Jedi was expected to adhere to a strict Code that included concepts such as rational thought, patience, and benevolence. Emotions such as hate, anger, and fear were thought to be destructive and lead to the dark side, so such things were banned from Jedi practice.

The templates below should be applied onto your character in the same way as a racial template.

Jedi Order Template

Some (Dis)Advantages are era dependent and some are Rank dependent.

Prerequisites:

Being a member of the Jedi Order; Force Sensitive

Advantages:

Independent Income+1 [+1pt]: From 3,996 BBY until 19 BBY; 25 ABY to now; Legal Immunity (Galactic Republic, Padawan Novice) [+5pts]: Not from 19 BBY to 25 ABY or Legal Immunity (Galactic Republic, Padawan Trainee) [+10pts]: Not from 19 BBY to 25 ABY or Legal Immunity (Galactic Republic, Padawan Adept) [+15pts]: Not from 19 BBY to 25 ABY or Legal Immunity (Galactic Republic, Diplomatic, Knight or higher,) [+20pts]: Not from 19 BBY to 11 ABY; Patrons (The Jedi Order) [+20pts]: Not from 19 BBY to 25 ABY; Rank (Jedi) [+5pts/level]; Signature Gear (Lightsaber) [+1pts/50% of Average Campaign Starting Wealth]: Must have a self-made lightsaber to become a Knight; Trained By A Master (Adept or higher) [+30pts]

Optional Advantages:

Patrons (Your Master) [+10pts]

Disadvantages:

Code of Honor (Jedi) [-15pts]; Disciplines of Faith (Jedi) [-10pts]; Duty (Jedi, Almost all the Time, Extremely Hazardous) [-20pts]; Selfless [-5pts]; Wealth (Poor); 3,996 BBY – 19 BBY) [-15pts]: from 3,996 to 19 and 25 ABY to now.

Optional Disadvantages:

Dependent (Any Knight or Master may have a pupil, no more than 50%) [-5pts]; Enemies (Sith during the Old Republic era, Quite Rarely, x½) [-10pts] or (Sith during the Fall of the Republic era, Unknown, Watching, x¼, Quite Rarely, x½) [-3pts] or (Sith during The Rise of the Empire era, Unknown, Hunter, Fairly Often) [-25pts] or Enemies (Sith during the Rebel Alliance era, Hunter, Fairly Often) [-40pts]

Author's Note:

The optional disadvantages are entirely up to then GM. He may disallow having pupils or even may saddle you up with a pupil.

Sith Enemies may be disallowed by the GM entirely if he wishes so. He may instead corporate these into his scenario instead of random rolling the appearance of a Sith encounter. If Sith enemies are allowed, remember that after Darth Bane, the Sith waited patiently and did not actively intervene with Jedi business. Instead they waited, observed, trained and planned until the time was ripe for a powerful Sith to overthrow the Jedi.

Sith

"*Two there should be; no more, no less. One to embody power, the other to crave it.*"

Darth Bane

The Sith Order under Darth Bane was created as a result of the devastating Seventh Battle of Ruusan, which saw the annihilation of the previous Sith Order. Bane's Sith Order, known formally as the Order of the Sith Lords, was founded upon the principles of the Rule of Two, utilizing stealth tactics and treachery to achieve their means. It would be this Sith Order, and its principles, that would finally triumph over the Jedi and the Galactic Republic nearly 1,000 years later.

Order of the Sith Lords Template

There are two distinctive templates. One for being the pupil and one for being the master.

Advantages (Pupil):

Alternate Identity (Legal) [+5pts]; Patrons (Your Master) [+10pts]; Rank (Sith Apprentice or Darth) [+5 or +10pts]; Signature Gear (Red Lightsaber) [+1pts/50% of Average Campaign Starting Wealth]: Must have a self-made red lightsaber to become a Darth

Disadvantages (Apprentice):

Code of Honor (Sith Rule of Two) [-5pts]

Optional Disadvantages:

Dependent (A Sith may have a pupil) [-1 to -15pts] and Enemies (Another Sith, Hunter, Fairly often) [-20pts] or Secret (Possible Death) [-30pts]

Advantages (Master):

Alternate Identity (Legal) [+5pts]; Rank (Sith Master) [+15pts]; Signature Gear (Lightsaber) [+1pts/50% of Average Campaign Starting Wealth]

Disadvantages (Master):

Code of Honor (Sith Rule of Two) [-5pts]; Dependent (A Master must have a pupil) [-1 to -15pts]; Enemies (Your pupil, Watching, x¼, All the time, x3) [-15pts]

Author's Note:

If you acquire an apprentice while there were still two Sith alive, the Dependent becomes a Secret. If the Secret is revealed, and thus lose the disadvantage Secret, you will also gain the disadvantage of Enemies. If your Dependent's total Force Talents are higher than yours, it will be you who is hunted down. If your total Force Talents are higher than your apprentice's, it will be the apprentice who will be killed. If your apprentice's Force Talents are higher than that of the other Sith, you may decide to hunt him down (but it will still become your enemy).

Because treachery is one of the aspects of the Dark Side, it is quite possible to have a Patron or Dependent who is at the same time your enemy.

LIGHTSABERS

The Way of the Blade

The crystal is the heart of the blade.
The heart is the crystal of the Jedi.
The Jedi is the crystal of the Force.
The Force is the blade of the heart.

All are intertwined,
the crystal, the blade, the Jedi.
You are one.

Introduction

Having a Jedi character in the party can be a great asset to any group of adventurers. Especially in combat, the amazing skill with which one can wield a lightsaber.

Lightsabers are rare and highly prized weapons of Force users such as Jedi Knights and Sith Lords. Lightsabers are small, hand-held weapons that project an energy blade capable of cutting through the densest of materials. Each weapon was custom-made by a Jedi and no two are alike. Because the energy blade produces no resistance and has virtually no weight, it is very dangerous for beginners to use, and those without any formal training are as dangerous to themselves as to their opponents. In the hands of a Jedi Knight, these weapons are truly formidable, capable of deflecting blaster bolts in addition to their formidable melee combat capabilities. The weapons are extremely rare artifacts, they are very rarely found for sale and possession of a lightsaber was highly illegal during the Galactic Imperial reign.

Lightsaber Technology

The technology of lightsabers is even older than the order of the Jedi Knights themselves, and the Jedi, as is well known, has served as the guardians of peace and justice throughout the galaxy for over 25,000 years. However, the Jedi Great Library on Coruscant contains information about the first energy blade build in 15,500 BBY. In 9,990 BBY these energy blades have slowly been improved into the lightsaber we know today. Although the exact details of lightsaber operation remain shrouded in mystery for the non-Force users, the general technology is known. All the controls and components fit into a compact handle. When the Jedi activates the lightsaber, a tremendous charge of pure energy flows from the Diatium power cell. A series of multi-faceted gems focus the energy into a tight parallel beam. Each saber beam has a unique frequency which determines the "feel" of the blade, how it handles when cutting something or when coming in contact with another energy field or another saber. The frequency of each saber blade can be calculated from its color and pitch it generates. Lightsabers use between one and three gems to give their beam a specific frequency

Sabers with a single gem have a fixed amplitude, which does not allow the blade to be altered in length. Other sabers with multiple gems can alter their amplitude, and thus the blade length by rotating or varying the separation between the gems. Te best sabers use natural gems, but evidently, the Sith can forge synthetic gems with a small furnace and a few base elements.

The beam emits from a positively charged continuous energy lens at the center of the handle. The beam then arcs circumferentially back to a negatively charges high-energy flux aperture, usually set in a disk that also serves as a hand guard. The power amplitude determines the point that forms a blade of amazing strength.

A superconductor transfers the power from the flux aperture to the power cell. Almost no energy is lost in the process, the beam does not even radiate noticeable heat, though it does fluoresce and hum. The saber looses power only when it cuts through something, but not when contacting another blade; no lightsaber can cut another's beam.

Controls at the hilts of the saber adjust the power cell capacity and allow periodic recharging. Though exact duration figures are not known, it is clear that Jedi can use their sabers for years at a time before recharging becomes necessary. For gaming purposes, the durability of the Diatium power cell is set at 3000 hits divided by the number of crystals set in the handle (the more powerful the blade, the more energy it drains when cutting something).

Saber Construction

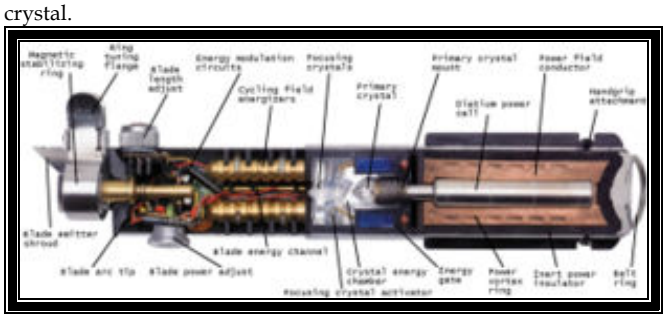
One of the Rites of Passage for a Jedi is for him to construct a lightsaber. The lightsaber acts as a focusing device, allowing the Jedi to reach a state of attunement with the Force which enhances his combat capabilities.

Jedi Padawans spend a great deal of time and effort constructing lightsabers, an elegant weapon of ancient technologies. The blade helps the Jedi focus, attuning him to the Force so that it more easily flows through him. It is used for combat only when other methods of conflict resolution have ended in failure.

Most Jedi build several lightsabers over a lifetime, each saber more powerful and well-balanced than the last. These improvements reflect the Jedi's increasing prowess in his use and understanding of the Force. The loss of a lightsaber can so demoralize a Jedi that he momentarily stumbles in his ability to access the Force (losing -2 in Force Powers until he constructs a new blade).

Mandatory Components

A lightsaber must have the following parts: a Diatium power cell, a handgrip, an activation plate, a safety, an emitter matrix, a recharge socket, a lens assembly, a power conduit, and a focusing crystal.



Diatium Power Cell

Cost: ₹2,000
Space: 1
Weight: 0.1 lbs.
Effect: 3000 hits/ number of crystals
Description: Diatium power cells can only be found in lightsabers. They produce a very high output of energy and are the only type of power cells which are strong enough to power a lightsaber. Diatium power cells are cosmic C-cells.

Handgrip

Cost: See table
Description: The handgrip is the hull of the lightsaber made of steel. The handgrip does not need to be a fine piece of manufacturing. For example: in "I Jedi" by Michael Stackpole, Coran Horn constructs a lightsaber from the handlebar on an old swoop. The Jedi of the Old Republic, however, construct much more aesthetically pleasing and complex, saber handles.

Material	Cost (₹)	Weight (lbs.)	Break
Bronze	10	0.20	+2
Iron	20	0.15	+1
Steel	100	0.10	-
Composite Steel	140	0.15	-1
Plastoid	200	0.05	+1
Durasteel	800	0.05	-2

The next thing which modifies the cost and weight of the handgrip is the length.

Length (inches)	Cost Modifier	Weight Modifier	Space (Units)
8	80%	80%	7
9	90%	90%	8
10	100%	100%	9
11	110%	110%	10
12	120%	120%	11
13	130%	130%	12
14	140%	140%	13
15	150%	150%	14
16	160%	160%	15
17	170%	170%	16
18	180%	180%	17
19	190%	190%	18
20	200%	200%	19

Activation Plate

Cost: See table
Space: 0.5
Weight: 0.1 lbs.
Effect: See table
Description: An activation switch to turn the lightsaber on/off is connected to an electronic device within the lightsaber. There are different types of switches. A double-bladed lightsaber may have two activation plates though this is not necessary.

Type	Effect	Construction Skill Penalty	Cost (₹)
Standard	One click activates, one click deactivates	0	10
Double Off-click	One click activates, double click deactivates; this is so that the lightsaber does not accidentally shut off during combat.	-1	12
Lock-on	The lightsaber's on/off switch can be locked into the "on" position and can't be turned off with one click.	-2	15
Force Activated	The wielder must use the Force within the handle to turn the lightsaber on/off.	-3	5

Safety

Cost: ₹10
Space: 0.5
Weight: 0.1 lbs.
Description: The safety switch prevents accidentally activation of the lightsaber when not in use.

Emitter Matrix

Cost: ₹500
Space: 1
Weight: 0.1 lbs.
Description: The emitter matrix produces a positively charged energy towards the lens assembly. One emitter matrix is needed for each blade. The outer hull of the emitter matrix is made of a super conductor which enables the negatively charged energy which returns from the flux aperture to go back to the power cell with no energy loss.

Recharge Socket

Cost: ₹50
Space: 1
Description: A recharge socket enables the lightsaber's power cell to be recharged on a power socket. It takes 50 minutes to fully recharge a Diatium power cell.

Lens Assembly

Cost: ₹500
Space: 1
Description: The lens assembly focuses the positively charged energy into a parallel beam. The lens assembly is tightly packed into a high-energy flux aperture.

Power Conduit

Cost: ₹100
Space: 1
Description: The power conduit transfers the energy from the power cell towards the emitter matrix, from the flux aperture to the super conductor and from the super conductor back to the power cell.

Force Crystals

The type of crystal used to focus the energy from the power cell determines the harmonic resonance and lethality of the weapon. Jedi Knights use Adegan crystals almost exclusively, as they have done for millennia. Sith Lords use synthetic crystals. All crystals use up 1 space and weigh around 0.1 lbs. The following crystals (listed in alphabetical order) can be used in lightsaber construction:

Adegan

Cost: ₹4,000
Rarity: Very Common
Effect: Damage 8d(5) burn; Force Powers+1
Description: A facetted crystal mined in the mountains of Dantooine is used in the construction of a lightsaber. It glows faintly with an inner blue, green, orange, violet, white or yellow light. Lightsabers can only contain one Adegan crystal per blade. Trying to power a blade with two Adegan crystals, results in an explosion (1d cr burn ex) upon activating the lightsaber. A double-bladed lightsaber may have two Adegan crystals (one for each blade) but this is not necessary.

Adegan (Synthetic)

Cost: ₹4,000
Rarity: Very Common
Effect: Damage 8d+3(5) burn
Description: A red crystal manufactured mostly by Sith followers. It glows faintly with an inner red light. Lightsabers can only contain one Adegan crystal per blade. Trying to power a

blade with two Adegan crystals, results in an explosion (1d cr burn ex) upon activating the lightsaber. A double-bladed lightsaber may have two Adegan crystals (one for each blade) but this is not necessary.

Ankarres Sapphire

Cost: ₹160,000
Rarity: Unique
Effect: ST+2; DX+1: Rapid Healing
Description: The crystal may have been found by the Jedi Exile at some point in 3,951 BBY. It was also held on board Kuari Princess by Dom Pricina until stolen by 4-Lom sometime before the Battle of Yavin.

Barab Ore Ingot

Cost: ₹2,000
Rarity: Common
Effect: Damage+1d rad
Description: Barab ore was a resource to Barab I. It actually lay on the planet's surface, meaning it was exposed to high doses of radiation and torrential downpours daily. This ore could be found in concentrated ingots that actually stored and magnified radiation.

Bondar

Cost: ₹500
Rarity: Very Common
Effect: Stun (HT+1)
Description: This crystal was mined on a far-orbit asteroid circling the Alderaan system. It produces a volatile lightsaber beam that pulses on contact, discharging part of its energy into an opponent. Trainings lightsaber are known to have only a Bondar crystal in it without any other.

Corusca Gem

Cost: ₹9,000
Rarity: Ultra Rare
Effect: Damage+1d; +1 step Armor Divisor; Break+2
Description: Corusca Gems were extremely rare and valuable crystals. They were produced by a combination of the extreme pressures present in the atmosphere of Yavin, pressures great enough to crush elements together, and the scraping of the liquefied air of the planet against its metallic core. They could be found in no other place in the galaxy, and their vibrancy resulted in the namesake of the galactic capital: Coruscant.

Despite their well known strength, Corusca Gems had shatterpoints, miniscule points where multiple edges and facets would come together, forming an extremely weak spot.

Damind

Cost: ₹3,000
Rarity: Uncommon
Effect: To Hit+3
Description: Found on the desert world Daminia, this crystal can be used in lightsaber construction to produce a clearly defined beam of subtly wider width and length.

Danite

Cost: ₹1,000
Rarity: Uncommon
Effect: Force Power – Sense+1
Description: Mined on Dantooine, this crystal is a focusing point for all Force users.

Dragite

Cost: ₹6,000
Rarity: Uncommon
Effect: HT+1; Affliction Sonic
Description: Dragite crystals were found on M'haeli, in the D'olop Mountain Range. The beam they created resonated loudly when it struck, inflicting a minor amount of damage.

Eralam

Cost: ₹20,000
Rarity: Very rare
Effect: To Hit+2; Damage+2
Description: Once mined on the third moon of Erai, ancient Sith bombardment shattered much that remained. If they can be found, these crystals produce a clear, superior lightsaber beam.

Firkran

Cost: ₹3,000
Rarity: Uncommon
Effect: To Hit+2; Surge
Description: This heavy crystal is collected by the natives of Rafa V. If used in lightsaber construction it produces an electrically charged beam that is devastating to droids.

Hurrikaine

Cost: ₹10,000
Rarity: Ultra Rare
Effect: Opponent's Parry/Block -3
Description: Found on the planet Hurikane. Lightsabers including this crystal are very good at penetrating defenses.

Jenruax

Cost: ₹8,000
Rarity: Rare
Effect: Enhanced Parry+1; Damage+2
Description: The refined form of Opila. This crystal has been cleansed of all impurities. When used in lightsaber construction it produces a blade of unerring quickness.

Kaiburr or Kiber

Cost: ₹310,000
Rarity: Ultra Rare
Effect: Damage+3d; Force Powers+3; Very Rapid Healing
Description: This crimson colored crystal was found on the planet Mimban. Local legend said that this crystal had the ability to enhance the Force Powers a thousandfold.

Kasha

Cost: ₹1,500
Rarity: Common
Effect: To Hit+1; Will+2
Description: The Kasha was a crystal traditionally used by the Cereans as a meditation tool. Patterns were scribed on each face of the crystal to harness its full energy potential, possibly created by Bi-Dar Tyunda thousands of years before. When used as a lightsaber crystal, it helped clear the wielder's mind of distractions, even during tense combat.

Krathracithe

Cost: ₹30,000
Rarity: Ultra Rare
Effect: Force Abilities – Dark Side+2; Dark Side only
Description: Found on the home world of the Krath, this crystal is a focusing point for Dark Side Force users. Only strong willed Jedi may be able to use a Krathracithe crystal in its lightsaber without being seduced to the Dark Side of the Force. Jedi Masters tend to keep these crystals out of any Padawan's reach

Kontarite

Cost: ₹20,000
Rarity: Ultra Rare
Effect: Silence+1
Description: Some Jedi Holocrons from the days of the Sith War indicate that certain Sith warriors had perfected the art of effectively silencing a lightsaber blade by adding a Kontarite Force crystal to reduce noise. Some lightsabers have been reduced to a nearly noiseless blade, making only the faintest whisper of noise when activated. After the Sith Wars these crystals have not been

encountered again. Normally a lightsaber gives you a penalty of 5 towards Stealth. This crystal negates a penalty of 2 towards Stealth versus listening devices, blind creatures, and other who rely on hearing to find you.

Krayt Dragon Pearl

Cost: ₹110,000
Rarity: Ultra Rare
Effect: To Hit+3; Damage+2d
Description: Taken from the gullet of a Krayt Dragon, this crystalline "pearl" appears to have refractory qualities that might allow it to function as a lightsaber crystal once properly adapted.

Lorrdian Gemstone

Cost: ₹8,000
Rarity: Rare
Effect: Parry Beam Weapons+3; Enhanced Parry+1
Description: Lorrdian gemstones originated during the Kanz Disorders, when the enslaved Lorrdians were forced to develop kinetic communication to communicate with another. This gave the Lorrdians the ability to better predict the action of others, including their Argazdan overlords, by careful observation of subtle changes in body language.

A few Force-Sensitive Lorrdians imbued certain gemstones with similar abilities. When these gems were installed in a lightsaber, the user was better able to read the action of their opponents. This enhanced the wielder's overall defenses and ability to deflect blaster bolts.

Luxum

Cost: ₹8,000
Rarity: Rare
Effect: To Hit+2; Damage+1d vs. Droids; Surge
Description: Ambria was a world in the grip of the dark side. Through years of mental battle, strange Jedi Master Thon contained the evil to Lake Natth. Long meditation can form this powerful crystal from the tainted water.

Mephite

Cost: ₹1,000
Rarity: Uncommon
Effect: Force Powers – Alter+1
Description: Found in the deep seas of Manaan, these crystals produce a fluctuating pulse through the beam.

Nextor

Cost: ₹2,000
Rarity: Uncommon
Effect: To Hit+1; +1 step Armor Divisor
Description: This crystal is mined in the mountains of M'haeli, and when used in lightsaber construction it produces a volatile blade that can cause surprising amounts of damage. Armor Divisor steps are in order: 1 (no divisor), 2, 3, 4, 5, 10, 100, and "ignores armor"

Obsidia

Cost: ₹25,000
Rarity: Very Rare
Effect: Damage+3; Damage+1d vs. Light Side; Dark Side only
Description: This dark crystal is found on the homeworld of the Sith, Korriban. It produces an intense and volatile beam which sears on contact. Within some Dark Lord's tomb, such crystals may be found, but not without any danger.

Opila

Cost: ₹5,000
Rarity: Uncommon
Effect: Damage+3; Damage+2d on Critical Success
Description: Found in the asteroid fields of the Fyrth system, this crystal can be used in lightsaber construction to produce an intense beam that seems extraordinarily quick to the cut.

Phond

Cost: ₹2,000
Rarity: Common
Effect: Damage+1d
Description: The strange byproduct of rare impurities bonding during the making of certain alloys and some random external condition, this crystal produces a fiercely burning lightsaber beam.

Pontite

Cost: ₹1,000
Rarity: Uncommon
Effect: Force Power – Control+1
Description: This crystal clearly marks the edges of the beam. These types of crystals are mostly found on rogue planets.

Qixoni

Cost: ₹90,000
Rarity: Ultra Rare
Effect: Damage +5; Energy Reserves – Force+5; Dark Side only
Description: These powerful gems were formed when a certain planet was consumed by its stars supernova. The power of a Qixoni crystal could only be harnessed by one with great strength in the Dark Side of the Force.

Relacite

Cost: ₹12,000
Rarity: Rare
Effect: Force Powers+2
Description: Refined from the magma of Mustafar. This is the top line of focusing crystals.

Rubat

Cost: ₹2,000
Rarity: Uncommon
Effect: To Hit+1; Damage+1
Description: Used in lightsaber construction. Rubat crystal is mined Phemis. It produces a clearly defined blade which the Jedi can easily focus on.

Ruusan

Cost: ₹3,000
Rarity: Common
Effect: Will+1; Charisma
Description: Ruusan crystals come from the Mid Rim planet of the same name. While not directly affecting a lightsaber's effectiveness, they aided a Jedi in focusing the Force.

Saphit

Cost: ₹50,000
Rarity: Ultra Rare
Effect: To Hit+3; Damage+2
Description: This crystallized material was excreted once every 11 yeas by the ancient Volice worm of Lwhekk, now extinct. It produces a more intense lightsaber beam, granting better control.

Sigil

Cost: ₹18,000
Rarity: Rare
Effect: To Hit+1; Damage+2d
Description: Mined in the Sigil system, this crystal is a costly but valuable addition to a lightsaber. It produces a fiercely bright beam that sears on contact, inflicting great damage.

Solari

Cost: ₹70,000

Rarity: Ultra Rare
Effect: To Hit+3; Damage+3; Damage+1d vs. Dark Side
Description: There are many famous lightsaber crystals spoken of in the history of the Jedi Order, though none is as powerful as the legendary Solari Crystal. An artifact of true light side power, only those Jedi who are pure in spirit can wield a lightsaber equipped with this gleaming white gem. When the great Jedi Master Ood Bnar initiated his life-cycle change after a thousand years of serving the Order, he bequeathed the Solari Crystal to his most promising student, a young female Jedi named Shaela Nuur. When Shaela disappeared shortly after the time of the Great Hunt, the Solari Crystal vanished with her.

Stygium

Cost: ₹12,000
Rarity: Rare
Effect: To Hit+1; DX+1; Stealth Skill+4
Description: In its pure, crystal form it was known to be suitable for use as a lightsaber crystal. It was known that when refined Stygium was mounted on a personalized lightsaber and wielded by a Force-Sensitive, the natural cloaking attributes of the crystal would augment the power of a stealth-minded Jedi in remaining unseen.

Ultima-Pearl

Cost: ₹6,000
Rarity: Uncommon
Effect: To Hit+3; Damage+2; Damage+1d on Critical Success; Armory (Lightsaber-2)
Description: Ultima-Pearls were uncommon, silvery, lustrous, spherical pearls found on Dac. They were used as lightsaber crystal, and were extremely potent in modifying the damage dealt by a lightsaber. Yet, for all its benefits, it required considerable skill to properly install an Ultima-Pearl.

Upari

Cost: ₹7,000
Rarity: Uncommon
Effect: To Hit+3; Damage+1d
Description: Strangely, this crystal is usually encountered scattered in the orbit of primarily forest worlds. It is brittle but versatile, and a Master Jedi can get it to produce many effects.

The process of creating a lightsaber varies depending on who the craftsman is, with each artisan giving the saber his own personal style. Most Jedi use Adegan crystals, usually flawless. Taking these naturally-occurring crystals, they build the lightsaber to their own personal tastes, in perfect harmony with nature through the crystal. The Sith, however, use a special furnace to artificially craft crystals in an intense heat, using the Dark Side of the Force to shape the crystals' growth so that when its time to remove it from the furnace it is already shaped to perfectly suit the Sith Lord's needs. Regardless of whether or not natural crystals or synthetic crystals are used, the process of creating a lightsaber is one of the most essential lessons the Jedi (and Sith) teach their students.

Velmorite

Cost: ₹4,000
Rarity: Rare
Effect: DX+1; +1 step Armor Divisor
Description: Velmorite was a crystal found on the planet Velmor. This crystal created a fine thin blade for wielding.

Optional Components

These components are not necessary for a lightsaber to function but the greatly enhance the ease of use.

Belt Ring

Cost: ₹10
Space: 0
Weight: 0.05 lbs.
Effect: enables Fast Draw - Lightsaber
Description: A belt ring is accompanied by a hook or d-ring attached to the lightsaber. You can easily put the lightsaber in the belt ring when not in use while it keeps nearby. Mostly the belt rings are attached to the wielders belt. A belt ring enables the wielder to use his Fast Draw skill.

Cell Recognizer

Cost: ₹1,150
Space: 1
Weight: 0.1 lbs.
Effect: Prevents unauthorized activation
Description: This device is used to modify a lightsaber such that it will not function for anyone except certain people. A small sensor array (₹800) and recognition chip (₹350) are installed in the handle of the lightsaber, which reads the cell patterns of whoever is holding the weapon. If the cell patterns do not match that of designated "safe" users, the weapon's power cells shut down, and any failsafe devices are activated. Failsafe devices can range from electrocution to a loud warble to a quiet beacon which alerts the owner via comlinks that the weapon is in the hands of an unauthorized bearer.

Length Adjuster

Cost: ₹100
Space: 1
Weight: 0.1 lbs
Effect: Adjust blade length
Description: A length adjuster enables the wielder to switch between variations of different lengths for the blade. The lightsaber must have more than one Force crystal for that particular blade installed. The blade can be lengthened or shortened effectively changing a lightsaber into a short bladed lightsaber and vice versa. Other lengths are pure cinematic and have no game statistics though the weight, space and cost should still be applied.

Pressure-Grip

Cost: ₹600
Space: 0.5
Weight: 0.05 lbs
Effect:
Description: This adapter for the handle of a lightsaber allows for what is, in essence, a "deadman" switch on a lightsaber. The lightsaber activates and deactivates as normal, but automatically deactivates should the pressure on the handle be removed. This is also good when combined with the Lock-on switch mentioned above. A pressure grip also prevents the user from throwing the lightsaber when activated.

Call Beacon

Cost: ₹1,000
Space: 1
Weight: 0.1 lbs
Effect: Call slave circuit
Description: This device will summon a ship with a slave circuit like a regular call beacon, only the button is embedded in the handle of the lightsaber.

Concealed Compartment

Cost: ₹100
Space: 1
Weight: 0
Effect: Payload 0.1 lbs per space used.
Description: A Jedi may create a hidden compartment in his lightsaber which can only be accessed if you know what to look for. The margin of success while constructing the concealed compartment is the penalty towards searching for it.

Water-Proof Casing

Cost: ₹200
Space: 0
Weight: 0.1 lbs.

Effect: Sealed against water
Description: When constructing a lightsaber, some Jedi (particularly those at home in a moist environment, like Mon Calamari) add a secondary water-proof casing to the handles of their lightsabers in order to protect the power cell inside. While still not reliable in functioning underwater, this will allow a lightsaber to be carried normally on aquatic journeys, without the necessity of removing the power cell. A water-proof must be crafted at the same time as the lightsaber itself to fit properly over the handgrip.

Trapped Handle

Cost: ₹500
Space: 1
Weight: 0.1 lbs
Effect: Trap causing 1d damage
Description: Typically reserved for Dark Jedi, some lightsabers have special traps in their handles to prevent unauthorized use. The handle may have spikes (1d impaling damage) or blades (1d cutting damage) which burst forth from the handle and damage the user, or electrocute the user instead (1d burn). Whatever the trap, they are triggered typically through incorrect cell recognition (see Cell Recognizer above), or by a dummy activation switch which trigger the trap.

Creating the Lightsaber

The steps given below are intended for newly created basic lightsabers only whether it is a short-bladed lightsaber, double-bladed lightsaber, or a normal lightsaber. Extra gadgets and functions are explained in Modifying the Lightsaber.

Step 1

Require the following items: special welding tools (₹50); gem-cutting tools (₹1,200); special tool kit (₹1,200). These tools may be available at any specialized shop in any TL11 or higher worlds. Alternatively, a Master may lend his tools to his student for the creation of his first lightsaber.

Step 2

Gather all components needed to construct your lightsaber. The majority of the parts that are found in a lightsaber are pretty common, the major exception being the crystal and the Diatium power cell, and can be purchased in most major towns or starports. A basic short lightsaber costs ₹7250 to build. By selecting all components and adding the space required by these components enables you to select the right size of handgrip. If you plan to modify the lightsaber later on by adding extra functions, keep in mind you pick a handgrip with enough space.

Step 3

Create a design for your lightsaber. Make a blueprint design using your Engineer (Lightsaber) skill. This skill roll determines the quality of the lightsaber. Consult the following table for the result:

Result	Quality	Break	Effect	Value
Critical Failure	Cheap	+2	-1 Acc	20%
Failure	Normal	-	-	30%
Success (margin 0)	Good	-	-	40%
Success	Fine	-1	+1 burn	100%
Critical Success	Very Fine	-2	+2 burn	400%

Step 4

Assemble the handgrip with all its components (power cell, recharge socket, safety, emitter matrix, power conduit and activation plate. This requires an Armory (Lightsaber) skill roll and takes about one day's precision work. A failure means one of the items is broken and should be repaired (increase of cost by 10%). A critical failure means an item is broken beyond repair. To determine which item is affected roll on the following table:

D6 roll	Component
1	Diatium Power Cell
2	Emitter Matrix
3	Power Conduit
4	Recharge Socket
5	Activation Plate
6	Safety

If you use an activation plate other than standard, apply the appropriate penalty.

If a water-proof casing is applied over the handgrip, add another penalty of 1 to the skill roll.

Step 5

Assemble the lens assembly with all its components. This requires an Armory (Lightsaber) roll and takes about one day's precision work. Failure means one of the lenses is damaged and should be repaired (increase cost by 10%). The lens assembly must be replaced if a critical failure is rolled.

Step 6

The focusing crystal must be chipped to your liking. A Jeweler/TL^ must be rolled. This phase of lightsaber construction can be very costly if you don't know how to chip a crystal correctly. The slightest failure renders the crystal unusable and a new crystal must be obtained. Most remarkable students are gifted an Adegan crystal by their Master which is already chipped.

Synthetic Adegan crystals are grown to perfection and need not to be chipped.

Step 7

When the crystal is perfectly chipped it should be imbued with the Force. The time required to perform this depends on the number of Force Talents and the listed costs of the Force crystal for each aspect (round up). An Adegan crystal cost ₹4,000. If the creator has 4 Alter Talents, 6 Control Talents and 7 Sense Talents it would take him 1000 hours + 667 hours + 572 hours = 2239 hours or 94 days.

While imbuing a Focusing crystal with the Force you are in complete meditation. Roll for each aspect: Living Force (Will + total number of Control Talents); Physical Force (Will + total number of Alter Talents); Unifying Force (Will + total number of Sense Talents). Failure of one of these rolls means you have to start all over again with the meditation.

Step 8

At the final stage you have three components. These three components must be assembled to acquire one piece. Make an Armory (Lightsaber) roll. A failure means the lightsaber does not work properly and must be repaired (cost +1%). A critical failure indicates the lightsaber explodes upon assembly (1d cr burn ex).

When the lightsaber's construction has been completed, plug it in a power connector that will be used to charge the Diatium power cell for the first time.

Modifying the Lightsaber

There are several ways to modify a lightsaber. You can add extra functions or gadgets to it or you can try to join two lightsabers together. Modifying a lightsaber takes a day's precision work.

Adding Optional Components & Crystals

Each optional component requires an Engineer (Lightsaber) skill roll. For each modification a penalty of 1 is added to your skill (e.g., the first modification has a -1, the second modification a -2, etc.). A failure means the part has been damaged and must be repaired (cost +10% of that part). A critical failure means the part has been broken beyond repair and should be replaced with a new one.

Each additional crystal should be chipped first (see Step 6 above) and be imbued with the Force (see Step 7 above). Adding the first additional crystal gives a penalty of 2 to your Engineer (Lightsaber) skill. The second additional crystal gives a penalty of 3.

The tools needed to modify a lightsaber are the same as for creating a new one with the exception of the gem-cutting tools. These tools are only needed if you add or replace a crystal with a new uncut one.

GM's may create new crystals. The cost of these crystals can be calculated as follows:

Effect	Cost (₹)	Rarity	Cost Multiplier
Damage +1d	4,000	Very Common	/10
Damage +1	1,000	Common	/2
Damage effect	1,000	Uncommon	x1
Attribute +1	1,000	Rare	x2
Limitation/enhancement	1,000	Very Rare	x5
Attack +1	1,000	Ultra Rare	x10
+1 Parry	1,000	Unique	x20
Advantage/Disadvantage	5,000		

Joining Sabers

Two (short-bladed) lightsabers may be joined together at the base of each saber to create a double-bladed lightsaber. In order to accomplish this you must have the following items: a magna lock for each saber (₹200 each), a release switch (₹50), and a power connector (₹150). The tools you need are the same as for adding new functions to the lightsaber (see above). Once obtained these items, a Jedi may attempt, with a penalty of 4 to the Engineer (Lightsaber) skill. Failure to make this roll results in one of the sabers being damaged (cost 10% of that particular lightsaber). A critical failure results in an exploding lightsaber (1d cr burn ex). If the roll is a success, they are joined by a powerful electromagnetic field which can only be unlocked by hitting the release switch.

7. COMBAT

8. GAMEMASTER'S SECTION

9. EQUIPMENT

WEAPONS

Weapon Statistics

Weapon tables provide the items of information explained below. A given column will only appear on a table if it is germane to the weapons on that table. In all cases, "-" means the statistic does not apply, "var." means the value varies, and "spec." means to see the relevant weapon skill in BS Chapter 4 or applicable section for special rules.

Although these rules have not been modified, they are described here so you don't have to swap books when going through the weapon tables.

TL (Tech Level)

The tech level at which the weapon first becomes widespread. You may only buy weapons of your campaign's TL or less, unless you have the High TL trait (BS page 23).

Weapon

The general class of weapon in question: e.g., "vibro-dagger" or "Bowcaster". Each entry represents a wide range of individual types.

Damage

For muscle-powered melee and missile weapons, such as swords and bows, damage is ST-based and expressed as a modifier to the wielder's basic thrusting (thr) or swinging (sw) damage, as given on the Damage Table (BS page 16). For example, a spear does "thr+2"", so if you have ST 11, which gives a basic thrusting damage of 1d-1, you inflict 1d+1 damage with a spear: note that swung weapons act as a lever, and so do more damage.

For firearms, grenades, and some powered melee weapons, damage is given as a fixed number of dice plus adds: e.g., a 9mm auto pistol lists "2d+2", which means that any user would roll 2d and add 2 to get damage.

Armor Divisors:

A parenthetical number after damage, e.g., (2) is an armor divisor. Divide the target's DR from armor or other sources by this number before subtracting it from your damage (or adding it to the target's HT roll to resist an affliction). For instance, an attack with a divisor of (2) would halve DR. A fractional divisor increases DR: (0.5) multiplies DR by 2; (0.2) multiplies it by 5; and (0.1) multiplies it by 10.

Damage Type:

An abbreviation indicating the type of injury or effect the attack causes.

A victim loses HP equal to the damage that penetrates his DR. Halve this for small piercing attacks; increase it by 50% for cutting and large piercing attacks; double it for impaling and huge piercing attacks. Subtract fatigue damage from FP instead of HP. Afflictions cause no injury, but impose a particular affliction on a failed HT roll, as specified in the weapon's notes. See Damage ad Injury (BS page 377) for additional rules.

Explosions:

An "ex" after crushing or burning damage indicates the attack produces an explosion. This may injure those nearby: divide damage by three times distance in yards from the centre of the blast. Some explosions scatter fragments that inflict cutting damage on anyone nearby (see Fragmentation Damage, BS page 414). Fragmentation damage appears in brackets; e.g., "3d(2d) cr ex" means an explosion that inflicts d crushing damage and throws fragments that do 2d cutting damage. The "danger radius" for fragments is five yards times the dice of fragmentation damage; e.g., 10 yards for (2d). If an explosive attack has an armor divisor, this only applies to the DR of a target that takes a direct hit, not to those caught in the blast radius or hit by fragments.

Afflictions:

Some special weapons don't list dice damage. Instead, they give a HT modifier; e.g., HT-3". Anyone who is hit must attempt a HT roll at the listed penalty to avoid the effects of the affliction (e.g., unconsciousness). For example, a BlasTech E-11 blaster rifle calls for a HT-6(3) roll to avoid being stunned for (20 - HT) seconds. Note that DR (modified by any armor divisor) normally adds to the victim's HT; for instance, a DR 6 vacc suit would give +2 (after divided by the blaster rifle's armor divisor of 3) to your HT roll to resist that blaster rifle.

Other Effects:

A few weapons have additional linked or follow-up effects, noted on a second line. These occur simultaneously with the primary attack on a successful hit. For details see Linked Effects (BS page 381) and Follow-Up Damage (BS page 381).

Some weapons have multiple setting or can be used in different ways; e.g., a gaffi stick can be either used as a swinging or thrusting weapon or an omni blaster's setting can be switched from lethal to stunning.

Abbreviation	Damage Type
aff	affliction
burn	burning
cor	corrosion
cr	crushing
cut	cutting
fat	fatigue
imp	impaling
pi-	small piercing
pi	piercing
pi+	large piercing
pi++	huge piercing
spec	special, see weapon's notes
tox	toxic

Reach

Melee weapons only. This is the distance in yards at which a human-sized or smaller wielder can strike with the weapon. For example, reach "2" means the weapon can only strike a foe two yards away, not a closer or more distant one.

"C" indicates you can use the weapon in close combat; see Close Combat (BS page 391).

Some weapons have a continuum of reaches; e.g., a spear with reach "1, 2" can strike targets either one or two yards away. An asterisk (*) next to reach means the weapon is awkward enough that is requires a Ready maneuver to change reach (e.g., between 1 and 2). Otherwise you can strike at foes that are at any distance within the weapon's reach.

Parry

Melee weapons only. A number; such as "+2" or "-1" indicates the bonus or penalty to your Parry defense when using that weapon (see Parrying, BS page 376). For most weapons this is "0" meaning "no modifier".

"F" means the weapon is a fencing weapon (see BS page 404).

"U" means the weapon is unbalanced: you cannot use it to parry if you have already used it to attack this turn (or vice verse).

"No" means the weapon cannot parry at all.

ACC (Accuracy)

Ranged weapons only. Add Accuracy to your skill if you took an Aim maneuver on the turn prior to your attack. If the weapon has a built-in scope, the bonus for this appears as a separate modifier after the weapon's base Acc; e.g., "7+2".

Range

Ranged weapons only. If a weapon has only one range number; this is the Maximum Range (Max) in yards at which it can attack a target. If two numbers appear; separated by a slash, the first is the Half-Damage Range (1/2D) and the second is Max. Damaging attacks on targets at or beyond 1/2D inflict half damage, and those that require a HT roll to resist are resisted at +3.

Muscle-powered weapons usually list 1/2D and Max as multiples of the wielder's ST, not as a fixed range. For example, "x10/x15" means 1/2D is 10xST and Max is 15xST, so someone with ST 10 would have 1/2D 100 and Max 150. For crossbows and mechanical artillery, use the weapon's ST in these formulas.

A few weapons have a minimum range, given in their Notes. The weapon cannot attack a target closer than this range, usually because it fires in a high arc, or has safety, fusing, or guidance limitations.

RoF (Rate of Fire)

Ranged weapon only. The maximum number of shots an ordinary shooter can fire in a one-second turn. A weapon can normally fire fewer shots (to a minimum of 1), if you wish, but some special notes apply:

"!" means the weapon can only fire on "full auto" (full automatic mode) like many machine guns and repeaters. Minimum RoF is ¼ the listed RoF, rounded up.

"mxn" (e.g., 3x9) means the weapon can fire a number of shots per attack equal to the first number (m) and that each shot releases smaller projectiles equal to the second number (n); see Shotguns and Multiple Projectiles (BS page 409).
"Jet" means the weapon shoots a continuous stream of fluid or energy, using the jet rules (BS page 106).

Shots

Ranged weapons only. The number of shots the weapon can fire before you must reload or recharge it. "T" means the weapon is thrown. To reload, pick it up or ready a new weapon!

The parenthetical number following Shots indicates the number of one second Ready maneuvers needed to reload all of the weapon's shots (e.g., by changing magazines) or, or a thrown weapon, the time needed to ready another weapon. An "i" next to this means you must load shots individually: the time listed is per shot rather than for all shots.

A crossbow or prodd takes the indicated time to ready (4 turns) only f its ST is no greater than yours (see Crossbows and ST, below) Double this if the bow's ST is 1 or 2 greater. If its ST is 3 or 4 greater, you need a "goat's foot" device to cock it; this takes 20 turns and requires you to stand. If its ST is 5 or more above yours, you cannot reload it at all.

Cost

The price of a new weapon, in $ (credits used in that particular era or location). For swords and knives, this includes a sheath or a scabbard. For firearms, this includes the minimal necessary cleaning kit. For ultra-tech weapons, this includes a power pack, energy cell or similar device. Power generators needed for some heavy weapons must be bought separately.

Weight

The weight of the weapon, in pounds; "neg." means "negligible". For missile weapons with shots 2+, this is loaded weight. The weight of one full reload appears after a slash.

Exception: If the weapon has Shots 1 (like a bow or guided missile launcher) or has backpack power supply (noted with a "p"), the unloaded weight is given. The weight after the slash is that of one shot (e.g., one arrow or guided missile) or the backpack.

ST (Strength)

The minimum Strength required to use the weapon properly. If you try to use a weapon that requires more ST than you have, you will be at -1 to weapon skill per point f ST you lack and lose one extra FP at the end of any fight that lasts long enough to fatigue you.

For a melee weapon, your effective ST for damage purposes cannot exceed triple the weapon's minimum ST. For instance, a large knife has minimum ST 6, so its "maximum ST" is 18; if you were ST 19+, you would compute your damage as if you has ST 8.

Natural weapons (e.g., a punch or kick) have neither minimum nor maximum ST.

"†" means the weapon requires two hands. If you have at least 1.5 times the listed ST (round up), you can use a weapon like this in one hand, but it becomes unready after you attack with it. If you have at least twice the listed ST, you can wield it one handed with no readiness penalty. But if it requires one hand to hold it and another to operate a moving part, like a bow or a pomp shotgun, it always requires two hands, regardless of ST.

"‡" means the weapon requires two hands and becomes unready after you attack with it, unless you have at least 1.5 times the listed ST (round up). To use it in one hand without it becoming unready, you need at least three times the listed ST.

"R" indicates a firearm that uses a musket rest. The weapon's weight includes that of the rest. It takes a Ready maneuver to balance the weapon on the rest, but after that, any aimed shot fired while stationary and standing up is automatically braced (see Aim, BS page 364).

"B" indicates a firearm with an attached bipod. When firing from a prone position using the bipod, treat the weapon as if it were braced and reduce ST requirement to ⅔ of the listed value (round up); e.g., ST 13 becomes ST 9.

"M" means the weapon is usually mounted in a vehicle or gun carriage, or on a tripod. Ignore the listed ST and Bulk when firing the weapon from its tripod or mount; the ST requirement only applies when firing the weapon without its mount. Removing the

weapon from its mount (or reattaching it) takes at least three one-second Ready maneuvers.

Crossbows and ST:

Crossbows and prodds have their own ST value. Use this instead of your ST to determine range and damage. You must specify the ST of such a weapon when you buy it. You van always use a bow that is weaker than you. If you use a stronger bow, it does more damage but take longer to cock (see Shots above).

Bulk

Ranged weapons only. Bulk is a measure of the weapon's size and handiness. Bulk modifies your weapon skill when you take a Move and Attack maneuver (see Move and Attack, BS page 365). It also serves as penalty to Holdout skill when you attempt to conceal the weapon.

Rcl (Recoil)

Firearms and beam weapons only. Rcl is a measure of how easy the weapon is to control when firing rapidly: the higher the value, the less controllable the weapon. Rcl 1 means the weapon is recoilless, or nearly so.

When firing at RoF 2+, every full multiple of Rcl by which you make your attack roll means you score one extra hit, to a maximum number of hits equal to total shots fired; see Rapid Fire (BS page 373). (Firearms and beam weapons with RoF 1 still list Rcl, for use with certain rules).

LC (Legality Class)

Ignore LC for "weapons" intended as tools, and for those that are completely improvised (like a wooden stake).

LC4 - Open:

The item is openly available in most societies, but tightly controlled societies might restrict access or use. Examples: Computer; thogk; sporting blaster pistol; swoop bike.

LC3 – Licensed:

The item requires registration with the authorities in most societies. Registration might involve a fee or examination, and might be denied to criminals, minors, etc. Examples: Speeder; blaster pistol; starship.

LC2 – Restricted:

Only military, police, or intelligence agencies may possess the item in most societies, although some licensed civilians might be permitted to keep it on their own property. Examples: Lightsaber; heavy blaster rifle; armored vehicles and starships.

LC1 – Military:

The item is available only to armed forces or secret spy agencies in most societies. Examples: Holdout blaster; vibro-weapons; fighting vehicles; turbo lasers.

LC0 – Banned:

The item is restricted to the armed forces of certain governments, who will go to extremes to keep it out of the hands of individuals and "have-not" governments. Examples: Super lasers; Sith artifacts.

Notes

The numbers listed here refer to applicable footnotes (if any) at the end of the table.

Melee Weapons

Blade Composition

The tip or blade of any muscle-powered melee or thrown weapon that inflicts cutting or impaling damage (excluding wooden stakes) is assumed to be stone at TL0, bronze at TL1, iron at TL2, steel at TL3, composite steel at TL4, kalonterium at TL9, and durasteel at TL11. For instance, a knife would be stone at TL0, bronze at TL1, iron at TL2, steel at TL3, kalonterium at TL9 but durasteel at TL11, while a vibro-sword would always be durasteel, as vibro-swords don't exist before TL11. Blade composition modifies effective quality when parrying a very heavy weapon.

Weapons made from outdated materials are usually available at cheap-quality prices.

Stone (TL0):

A stone blade has an armor divisor of (0.5) on its cutting and impaling damage, and receives no damage bonus for being fine or better quality. Regardless of actual quality, treat a stone blade as cheap for breakage purposes when parrying a swung weapon made of metal or other high-tech materials.

Obsidian (TL1):

A blade made of volcanic glass is very sharp, but easily broken or blunted. Treat as a good quality stone blade, but with +1 to cutting and +2 to breakage (as if cheap). It loses its damage bonus if used to parry any weapon (but not an unarmed attack) or to strike DR 2+.

Bronze (TL1):

A bronze blade receives no damage bonus for being of fine or better quality. Regardless of actual quality, treat a bronze blade as cheap for breakage purposes when parrying a swung weapon made of superior materials (e.g., iron or steel).

Iron (TL2):

An iron blade receives no damage bonus for being of fine or better quality. Regardless of actual quality, treat an iron blade as cheap for breakage purposes when parrying a swung weapon made of superior materials (e.g., steel, composite steel).

Steel (TL3):

Steel is the default material for blades. Use all rules as written.

Composite steel (TL4):

A Blade made of different kinds of steel to obtain hard, sharp cutting edges but keep the flexibility to withstand breakage. Treat as a good quality steel blade but add 50% to the weight.

Plastoid (TL7):

Plastoid includes carbon composites, plasteel, highly bonded poly-layered ceramic and other advanced, nonmetallic materials. Halve weight and double cost. Blades cannot exceed good quality (and are often cheap). Treat them as equivalent to steel for breakage, but their low weight means they're more likely to encounter a heavier weapon. Weapons that do only crushing damage (clubs, batons, etc.) are also available, in the usual quality grades. The primary benefit of plastoid weapons is that metal detectors cannot detect them.

Durasteel (TL11):

The best weapons one can find in the galaxy. Treat as fine quality composite steel with a +1 cutting and will cost 400% more. Durasteel is the only material which can withstand the enormous stress produces by the ultrasonic vibrators used in vibro-weapons.

Super-science

Some weapons are classified as TL^. This means the weapon counts as super-science. They cannot be bought in a whole or as parts. They can only be acquired with the approval by the GM and should be role played. A player should put a considerable amount op CP in his character before he can make or acquire such a weapon.

Like the lightsaber, only Jedi, Sith or other Force users are able to acquire them by rightful means.

Weapon Descriptions

Arg'garok:

This weapon favored by Gamorrean warriors consists of a heavy axe blade mounted on a simple wood handle. The arg'garok is perfectly balanced to take advantage of the Gamorrean's low centre of gravity and enormous strength. Arg'garoks are often acid-etched with jagged runes that supposedly inspire courage, honor, and strength.

A Gamorrean trained with this weapon does not need to make a Ready maneuver after an attack.

An arg'garok costs ₹100 on Gamorr and Pzob but ₹1000 on any other planet. A Gamorrean will receive this weapon for free from his own clan's females.

Thogk:

Every Gamorrean appreciates the simple effectiveness of the traditional Thogk, which literally translates to "log with a spike in it". These cheap, heavy clubs are available anywhere Gamorrean males congregate. Gamorreans who craft their own Thogks take great pride in pounding the weapon's metal spike through the meter-long chunk of gorgt wood with their bare hands. Lacking gorgt wood, Gamorreans might make Thogks out of any available lumber.

Many Gamorrean slaves are forbidden to make, use, or buy Thogks. Some masters find them unsavory weapons.

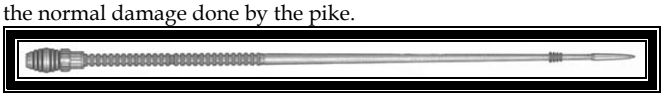
Gaderffii:

The gaderffii stick or gaffi stick is the traditional weapon of the Sandpeople of Tatooine. Because these weapons are often assembled from freighter plating or scrap allows and composites scavenged from wrecks in the harsh Tatooine deserts, no two Gaffi sticks are identical. Some have smooth sharp blades, others feature pointed tips and hooks, while others have crude jagged edges. The terms "gaderffii" and "gaffi stick" has become a popular slang term used to any crude looking non powered melee weapon.

When using this weapon as a crushing or cutting weapon, it takes one turn to ready. The Gaffi stick in the example above is just one example of Tusken Raiders crude weapon.

Force Pike:

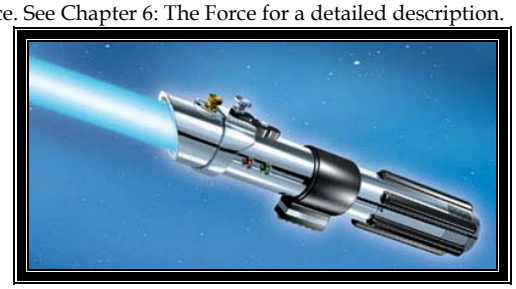
Force pikes do, when turned on, stunning damage in addition to the normal damage done by the pike.



A force pike requires a rechargeable C-cell to operate and lasts for 60 seconds continuous use.

Lightsabers:

Lightsabers are powered melee weapons which produce a small tight energy blade. Because its construction requires the knowledge of the Force these weapons are considered to be super-science. See Chapter 6: The Force for a detailed description.



A lightsaber requires a Diatium power cell (cosmic power C-cell) to operate and must be recharged after 3000 hits divided by the number of crystals in the lightsaber of continuous use. The Diatium cell can then be recharged.

Stun Baton:

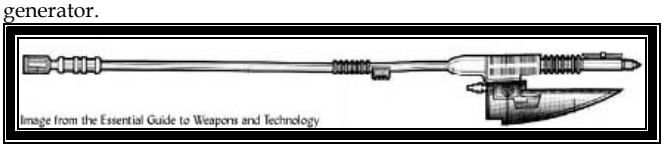
Manufactures by Merr-Sonn, the stun baton is a short, weighted club with a power pack in the handle, which can be activated to produce a stunning charge when it strikes a target.

A stun baton requires a rechargeable B-cell to operate and lasts for 20 hits.

Vibro-Weapons:

Vibro weapons come in all sorts and shapes, from vibro knuckles, knives, blades, lances, spears, swords, rapiers and even axes. A vibro-weapon holds a power cell which powers an ultra-sonic generator. A tremendous amount of vibration is sent to the blade or tip. Vibro-weapons are always considered to be made of durasteel (other types of cheaper metal would simply break under the extreme stress produces by the ultra-sonic vibrations).

Vibro-weapons are too unbalanced for throwing but if thrown, a safety device is triggered which shuts down the ultra-sonic generator.



Vibro-weapons use a rechargeable C-cell to operate and last for 300 seconds divided by the weapon's weight. For more information about vibro-weapons see UT page 164.

Melee Weapon Table

ARG'GAROK (Two-Handed Axe -2)									
TL	Weapon	Damage	Reach	Parry	Cost (ϟ)	Weight	ST	LC	Notes
1	Arg'garok	sw+3 cut cor	1, 2*	0U	100	12	13‡	4	[13]

Double-Bladed Lightsaber (Staff -5)									
TL	Weapon	Damage	Reach	Parry	Cost (ϟ)	Weight	ST	LC	Notes
^	Double-bladed lightsaber	8d(5) burn	C, 1	+2	Variable	Variable	4†	2	[15]
	or	8d(5) burn	1, 2*	0	-	-	4	-	[15]

Force Pike (Polearm -5; Spear -3)									
TL	Weapon	Damage	Reach	Parry	Cost (ϟ)	Weight	ST	LC	Notes
11	Force Pike	thr+3(4) imp	2, 3*	0U	1172	5	9	1	[14]
	or	thr+4(4) imp	2, 3*	0	-	-	9†	-	[14]
	and	HT-1(0.5) aff	2, 3*	0U	-	-	9	-	[5, 14]

GADERFII (Polearm -2; Spear -4; Staff -4; Two-Handed Axe/Mace -4)									
TL	Weapon	Damage	Reach	Parry	Cost (ϟ)	Weight	ST	LC	Notes
10	Gaderfii	sw-2 cr or cut	1, 2*	+1U	10	3	10†	4	
	or	thr-2 imp	1, 2	0U	-	-	10	-	

Lightsaber (Any Sword -5; Short-Bladed Lightsaber -2)									
TL	Weapon	Damage	Reach	Parry	Cost (ϟ)	Weight	ST	LC	Notes
^	Lightsaber	8d(5) burn	1, 2	0	Variable	Variable	3†	2	[15]
	or	8d(5) burn	1, 2*	0	-	-	3	-	[15]

Short-Bladed Lightsaber (Any Sword -5; Lightsaber -2)									
TL	Weapon	Damage	Reach	Parry	Cost (ϟ)	Weight	ST	LC	Notes
^	Short-Bladed Lightsaber	8d(5) burn	C, 1	-1	Variable	Variable	2	2	[15]

Stun Baton									
TL	Weapon	Damage	Reach	Parry	Cost (ϟ)	Weight	ST	LC	Notes
11	Stun Baton	HT-3(0.5) aff	C, 1	0	100	1	2	4	[5]

THOGK (Two-Handed Sword -2)									
TL	Weapon	Damage	Reach	Parry	Cost	Weight	ST	LC	Notes
1	Thogk	sw+3 cut cor	1, 2*	0U	10	8	13†	4	[13]
	or	thr+3 imp cor	2*	0	-	-	13†	-	

Notes

[1] Can be thrown. See Muscle-Powered Ranged Weapon Table (BD page 275).

[2] May get stuck; see Picks (BS page 405).

[3] Brawling (BS page 182) increases all unarmed damage; Claws (BS page 42) and Karate (BS page 203) improve damage with punches and kicks (Claws don't affect damage with brass knuckles or boots); and boxing (BS page 182) improves punching damage.

[4] If you miss with a kick, roll vs. DX to avoid falling.

[5] On a failed HT roll, victim is stunned for as long as weapon is in contact plus (20 - HT) seconds longer; and then can roll vs. HT-3 to recover.

[6] Attempts to parry flails are at -4, and fencing weapons ("F" parry) cannot parry at all! Attempts to block flails are at -2. A nunchaku is small, and gives half these penalties.

[7] This is an energy blade. Take a Ready maneuver to activate/deactivate. The blade cannot break, and damages any weapon or body part it parries or with which parries or blocks it. Extra energy cells cost ϟ100; weigh 0.5 lb., and last 300 seconds.

[8] A piece of rope used to strangle; see Garrotes (BS page 405).

[9] Damage increases in a mounted charge; see Cavalry Weapons (BS page 397).

[10] Hilt counts as brass knuckles in close combat.

[11] Noisy! Runs for two hours on half a gallon of petrochemicals.

[12] Specify maximum reach (up to 7 yards) when bought. Cost and weight are per yard. ST is 5, +1 per yard. Many special rules apply; be sure to see Whips (BS page 406).

[13] Creatures with low centre of gravity and skilled at this weapon do not need to make a Ready maneuver after an attack.

[14] This is a powered weapon. Take a ready maneuver to activate/deactivate. Extra energy cells cost ϟ80; weigh 0.5 lb., and last 200 seconds.

[15] This is an energy blade. Take a Ready maneuver to activate/deactivate. The blade cannot break, and damages any weapon or body part it parries or with which parries or blocks it. Extra energy cells cost ϟ2000; weigh 0.1 lb., and last 3000 hits per Force crystal installed. This weapon may contain any number of Force crystals (must fit in the handgrip) of which the first one is always an Adegan Crystal. Other crystals may allow the weapon to give extra properties. The damage given is its base damage (only one Adegan crystal). Lightsabers are always custom made weapons and therefore its price and weight varies. Further details are given in Chapter 6 The Force – Lightsabers.

Muscle Powered Weapons

Muscle powered ranged weapons are considered to be archaic but on some backwater planets these weapons are the only ones you can buy. Add 10% to the cost for each TL the planet/merchant is higher than the TL of the weapon.

Weapon Descriptions

Darkstick:

The Kerestian darkstick is much like a boomerang except the darkstick is made out of two parts; a handle and a cutting blade.

Muscle-Powered Ranged Weapon Table

Darkstick (DX -6)												
TL	**Weapon**	**Damage**	**Acc**	**Range**	**Weight**	**RoF**	**Shots**	**ST**	**Bulk**	**Cost (₹)**	**LC**	**Notes**
10	Darkstick	thr+1 cut	2	x1.5/x3	4	1	T(1)	11	-3	50	4	

Notes:

[1] Follow-up drug or poison attack if damage penetrates DR. Effects depend on the poison used; see Poison (BS page 437).

[2] Requires two hands to ready, but only one hand to attack.

[3] An arrow or bolt for a bow or crossbow is ₹2. A dart for a blowpipe, or a lead pellet for a prodd or sling, is ₹0.1. Sling stones are free.

[4] May entangle or ensnare the target; see Special Ranged Weapons (BS page 411).

[5] Cocking lever to reload a high-ST crossbow or prodd. You can reload a weapon up to 4 ST over your own with 20 one-second Ready maneuvers.

[6] A net has no 1/2D range. Max range is (ST/2 + Skill/5) for a large net and (ST + Skill/5 for a melee net.

[7] Can fire stones (TL0) or lead bullets (TL2). Lead bullets give +1 damage and double range.

[8] Tethered. Requires a Ready Maneuver and a successful ST roll to pull out (if you fail, you may try again next turn). Does half the damage coming out that it did going in.

Fire Arms & Beam Weapons

Fire arms are also considered to be archaic. All weapons listed in BS will cost 10% more for each TL the planet/merchant is higher than the weapon. However, in the age of beam weapons and ray-shields fire arms, called slugthrowers, have made a tremendous come-back on the backwater planets.

Beam Weapons in the Star Wars universe do not automatically have built in "smartgun" electronics. Subtract ₹500 from the prices given in the Ultra-Tech Firearm Table (BS page 280). The range has also been decreased to reflect a more Star Wars approach (these weapons are cheaper of course than their counterpart listed in GURPS Ultra Tech).

To reflect a more real Star Wars approach, the most common weapons appearing in the movies and computer games are listed below. For more weapons see UT pages 112 – 166. In the table below is a comparison from the Star Wars weapons and its GURPS Ultra-Tech counterpart from which it was derived from.

Star Wars Weapons	GURPS Ultra-Tech Weapons
Blasters	
Bowcaster	-
Holdout Blaster	Holdout Blaster
Sports Blaster Pistol	-
Blaster Pistol	Blaster Pistol
Heavy Blaster Pistol	Heavy Blaster Pistol
Blaster Carbine	Blaster Carbine
Blaster Rifle	Blaster Rifle
Heavy Blaster Rifle	Heavy Blaster
Omni Blaster	Omni Blaster Rifle
Blaster Cannon	Blaster Cannon (TL10)
Ion Guns	
Ion Gun Pistol	EMP Gun
Ion Gun Carbine	Pulse Carbine
Powered Slug Throwers	
Flechette Launcher	-
Light Repeater	Gauss PDW, 4mm
Repeater	Gauss LSW, 4mm
Heavy Repeater	Gauss HMG, 7mm

Power Packs

Power packs (or power cells) are needed to power most weapons (see UT page 19 – 20).

The cost listed in the Ultra-Tech Firearm Table is the weapon including a power pack, energy cell, slugs, bullets or whatever the weapon needs with the exception of weapons which have the notation "p" added to its weight.

Weapon Descriptions

Bowcaster:

The Bowcaster, or "laser crossbow", is crafted exclusively by the Wookiees of Kashyyyk. Made of a fusion of modern and ancient technologies, it appears to fire blaster bolts. Actually, the weapon hurls an explosive energy quarrel at incredible speed, much like an ancient rail gun.

A Bowcaster must be cocked between each shot. This act resets the metal bowstring and loads another quarrel onto the firing rail. Cocking and reloading a Bowcaster requires a Ready maneuver.

A Bowcaster requires an energy clip (C-cell) to operate. After 40 shots, the energy clip must be replaced.

Holdout Blaster:

Small, palm-sized blasters see widespread use in weapon-restricted areas. Most aren't large enough to use regular power packs. Holdout blasters are commonly found in the possession of undercover agents, gamblers and other scoundrels, or nobles seeking to protect themselves. They are sometimes carried by more lethal characters for back-up firepower.

A holdout blaster requires a B-cell to operate. After 6 shots, the energy cell must be replaced.

Sports Blaster Pistol:

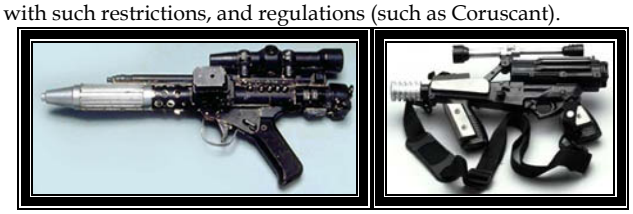
Also called target blasters, sporting blasters fill the gap between holdout and standard blaster pistols. They are common among both nobility and rural inhabitants throughout the galaxy. Sporting blasters tend to be long-barreled and difficult to conceal, but they have a more graceful appearance than the standard blaster. Also, target blasters easily obtained and are free from the regulations that plague most heavy blaster pistols and holdout blasters. This lack of regulation is chiefly due to the weapon's lack of firepower.

A sporting blaster pistol uses a small rechargeable B-cell.

Blaster Pistol:

The common blaster pistol doesn't exist. The word blaster is a blanket term for literally thousands of different designs from hundreds of manufacturers, such as the popular BlasTech DL-18. Blaster pistols are popular with urban police forces, traders, and

anyone who needs to pack respectable firepower in an easily carried package. Ownership of blaster pistols is regulated in many systems. Visitors may be required to leave their weapons aboard their ships or to secure special carrying permits while on a planet with such restrictions, and regulations (such as Coruscant).



A blaster pistol requires a C-cell to operate.

Heavy Blaster Pistol:

Heavy blaster pistols were invented to provide the sort of firepower one expects from a blaster rifle, but in a compact, more easily carried handgun. The heavy blaster pistol produces additional "punch" at the cost of weight en bulk..

The heavy blaster pistol is illegal or heavily restricted in most systems. Han Solo uses a heavy blaster pistol, the BlasTech DL-44.

A heavy blaster pistol requires 2 C-cells to operate.

Blaster Carbine

A blaster carbine is a weapon similar too, but generally shorter and less powerful than a rifle. The shorter length and lighter weight of carbines makes them easier to handle in close quarter combat situations, or when deploying from vehicles. The disadvantages of carbines, compared with their longer counterparts, are generally poorer long-range accuracy and shorter effective range.

The blaster carbine requires 2 C-cells to operate..

Blaster Rifle:

The blaster rifle is standard issue to soldiers across the galaxy. It features a retractable stock and is illegal for civilians to own in most planetary systems.

A blaster rifle requires 2 C-cells to operate.

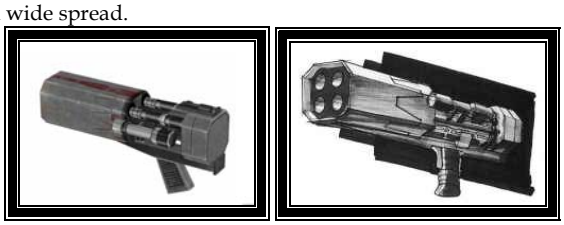
Heavy Blaster Rifle:

These are oversized blaster rifles mostly used by mounted troops or used on vehicles. In a platoon there is generally one trooper equipped with a heavy blaster rifle. Imperial troops were often accompanied by a heavy weapon trooper carrying a BlasTech DLT-20A.

A heavy blaster rifle requires a portable D-cell to operate.

Flechette Launcher

A flechette launcher was a ranged weapon that fired canisters and small missiles containing hundreds of razor-sharp flechettes. The projectiles would explode, releasing the flechettes at high velocity in a wide spread.



A single antipersonnel canister could eliminate an entire squad of soldiers, while anti-vehicle rounds, consisting of eleven-centimeter-long missiles, could affect a concentrated area of five meters in diameter. The flechettes contained within were strong enough to rip through ten centimeters of durasteel and were effective counter-measures against airspeeders and other light repulsorcraft.

Omni Blaster Rifle:

This is a standard blaster rifle but with a second setting. When set to this setting the rifle can be used to stun people. The Imperial storm troopers were equipped with the BlasTech E-11.

The omni blaster requires 2 C-cells to operate.

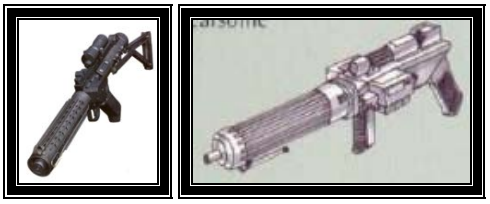
Light Repeater:

The light repeater blaster is the most effective weapon against angry mobs. Relatively cheap and it blasts the opposition into oblivion in seconds. Because repeater blaster bolts are so small, there is very little chance of hitting crucial elements in droids or vehicles. This weapon only operates in full automatic mode.

A light repeater blaster requires a C-cell and 4mm ammunition to operate.

Repeater:

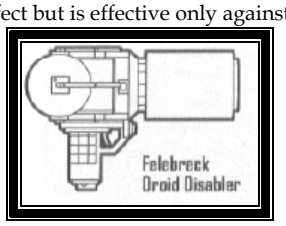
The repeater blaster is the largest rifle-style weapon carried by military personnel. The weapon is highly restricted and only operates in full automatic mode.



A repeater blaster requires one C-cells and 4mm ammunition to operate.

Ion Gun Pistol:

The personal ion gun pistol fires a stream of energy that wrecks havoc on electrical systems, making it effective against droids. Normally, an ion gun deals damage that fries a droid's circuits and disables its internal components. The ionization effect works like any other surge effect but is effective only against droids.



The blast from an ion gun has no effect on organic opponents unless those opponents have some amount of cybernetic equipment, such as a cybernetic limb.

An ion gun pistol requires a C-cell to operate.

Ion Gun Carbine:

This is a larger version of the ion gun pistol. The difference between the pistol version and the carbine is the weapon's casing. The carbine's casing a thicker and the longer barrel concentrates the ionization blast longer than the pistol resulting in a narrower beam which retains its power a little.

An ion gun carbine requires 2 C-cells to operate.

Small Arms Table

Beam Weapons (Bowcaster) (DX-4; other Beam Weapons -4; or Crossbow -4)													
TL	**Weapon**	**Damage**	**Acc**	**Range**	**Weight**	**RoF**	**Shots**	**ST**	**Bulk**	**Rcl**	**Cost ($)**	**LC**	**Notes**
10	Bowcaster	5d(2) burn, imp	12	60/180	11/0.5	1	40(3)	10†	-8	1	900	3	

Beam Weapons (Projector) (DX-4; other Beam Weapons -4; or Guns – Shotgun -4)													
TL	**Weapon**	**Damage**	**Acc**	**Range**	**Weight**	**RoF**	**Shots**	**ST**	**Bulk**	**Rcl**	**Cost ($)**	**LC**	**Notes**
11	Ion Gun Pistol	HT-3 aff (1 yard)	6	9/27	1.8/C	1	33(3)	4	-2	1	650	2	[2]
11	Ion Gun Carbine	HT-4 aff (1 yard)	12	16/48	5/2C	1	28(3)	5†	-3	1	2,000	2	[2]

Beam Weapons (Pistol) (DX-4; other Beam Weapons -4; or Guns – Pistol -4)													
TL	**Weapon**	**Damage**	**Acc**	**Range**	**Weight**	**RoF**	**Shots**	**ST**	**Bulk**	**Rcl**	**Cost ($)**	**LC**	**Notes**
11	Holdout Blaster	2d(5) burn, sur	3	13/50	0.33/B	3	6(3)	3	-1	1	60	1	
11	Sports Blaster Pistol	2d(5) burn, sur	6	20/60	1.2/B	1	6(3)	3	-3	1	300	4	
11	Blaster Pistol	3d(5) burn, sur	5	30/90	1.6/C	3	20(3)	4	-2	1	220	3	
11	Heavy Blaster Pistol	4d(5) burn, sur	5	50/150	3.3/2C	1	33(3)	6	-3	1	560	2	

Beam Weapons (Rifle) (DX-4; other Beam Weapons -4; or Guns – Rifle -4; or Guns – SMG -4)													
TL	**Weapon**	**Damage**	**Acc**	**Range**	**Weight**	**RoF**	**Shots**	**ST**	**Bulk**	**Rcl**	**Cost ($)**	**LC**	**Notes**
11	Blaster Carbine	5d(5) burn, sur	10+1	50/150	5.6/2C	3	17(3)	5†	-3	1	920	2	
11	Blaster Rifle	6d(5) burn, sur	10+2	70/210	10/2C	3	10(3)	7†	-4	1	1,800	2	
11	Heavy Blaster Rifle	8d(5) burn, sur	10+4	120/360	20/Dp	3	20(5)	10†	-6	1	4,000	2	
11	Omni Blaster Rifle	6d(5) burn, sur	10+2	70/210	12/2C	3	10(3)	8†	-5	1	3,600	2	[4]
	or	HT-6(3) aff	12	10/30	-	1	-	8†	-	-	-	-	
11	Long Range Blaster Rifle	6d(5) burn, sur	10+3	150/450	14/2C	1	10(3)	10†	-5	1	3,500	2	

Guns (Shotgun) (DX-4; most other Guns -2)													
TL	**Weapon**	**Damage**	**Acc**	**Range**	**Weight**	**RoF**	**Shots**	**ST**	**Bulk**	**Rcl**	**Cost ($)**	**LC**	**Notes**
11	Flechette Launcher	8d pi++	2	20/100	8/0.8	4x4	4+1(3i)	10†	-5	2		3	
	Or	2d pi++	3	20/100	-	4x1	16+1(3i)	10†	-	-		-	

Guns (Pistol) (DX-4; most other Guns -2; or Beam Weapons – Pistol -4)													
TL	**Weapon**	**Damage**	**Acc**	**Range**	**Weight**	**RoF**	**Shots**	**ST**	**Bulk**	**Rcl**	**Cost ($)**	**LC**	**Notes**

Guns (SMG) (DX-4; most other Guns -2; or Beam Weapons – Rifle -4)													
TL	**Weapon**	**Damage**	**Acc**	**Range**	**Weight**	**RoF**	**Shots**	**ST**	**Bulk**	**Rcl**	**Cost ($)**	**LC**	**Notes**
10	Light Repeater	4d(3) pi-	6+1	70/290	4.6/1	16	80(3)	9†	-3	2	360	2	[5c]

Guns (LMG) (DX-4; most other Guns -2; or Beam Weapons – Rifle -4)													
TL	**Weapon**	**Damage**	**Acc**	**Range**	**Weight**	**RoF**	**Shots**	**ST**	**Bulk**	**Rcl**	**Cost ($)**	**LC**	**Notes**
10	Repeater	6d+2(3) pi-	7+2	120/480	20/7	20!	300(5)	12B†	-5	2	1,300	1	[5c]

Notes

[1] Weapons requires atmosphere to function. No effect in trace atmosphere or vacuum!

[2] The damage has the Surge modifier (BS page 105). As well, whether or not any damage penetrates, the target must make a HT roll at -4, plus half the DR on the location struck (due to armor divisor). On a failure, the electrical shock stuns him. He may roll against HT every turn at the same penalty (but without DR bonus) to recover.

[3] Smoke, for, rain, cloud, etc. give the target additional DR equal to the visibility penalty. For instance, if rain gives a penalty of -1 per 100 yards, a laser firing through 2,000 yards of rain must penetrate an extra DR 20.

[4] In super-science game, an "omni-blaster" cost twice as much, but has "stun" setting: damage becomes HT-3(3) aff for a pistol, HT-6(3) aff for a rifle. On a failed HT roll, the victim is unconscious for minutes equal to his margin of failure. In the table above, these weapons are already listed separately so the price is already doubled.

[5] The weapon uses a power cell as well as 4mm ammunition.
- [A] Powered by a B-cell
- [B] Powered by two B-cells
- [C] Powered by a C-cell
- [D] Powered by a D-cell
- [E] External power

The power cell provides enough energy for firing its specific number of Shots, and is included in the weight.

Heavy Weapons

Power Packs

Power packs (or power cells) are needed to power most weapons (see UT page 19 – 20).

The cost listed in the Ultra-Tech Firearm Table is the weapon including a power pack, energy cell, slugs, bullets or whatever the weapon needs with the exception of weapons which have the notation "p" added to its weight.

Power Generators

Weapons which require a power generator still have a number of Shots listed. This is the maximum number of shots which can be fired before the barrel must cool down. The firer may decide to cool down the weapon before it has fired its maximum shots. For example; the heavy repeater blaster has Shots 100(5) which means for each 20 shots the weapon must cool down 1 second. After 100 shots fired continuously, it must cool down 5 seconds. If you fired 60 shots and you let the weapon cool down for two seconds, it means you only have 80 shots left before reaching maximum shots.

Weapon Descriptions

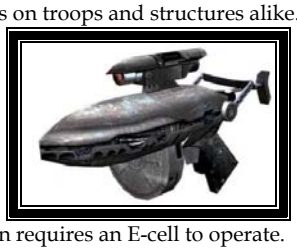
Heavy Repeater Blaster:

The heavy repeating blaster is a fearsome weapon typically operated from a bunker emplacement or mounted on a combat vehicle. The heavy repeating blaster only operates in full automatic mode. Snow troopers on Hoth were equipped with E-web heavy repeating blasters.

A heavy repeater blaster requires a portable D-cell or power generator to operate as well as 7mm ammunition.

Blaster Cannon:

Portable blaster cannons (about the size of real-world bazookas) fire powerful bolts of energy. Often used as an anti-vehicle weapon, the blaster cannons have the range and power to inflict devastating effects on troops and structures alike.



The blaster cannon requires an E-cell to operate.

Heavy Weapon Table

Gunner (Beams) (DX-4; other heavy weapons -4)													
TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost (ϟ)	LC	Notes
11	Blaster Cannon	5dx10(5) burn, sur	15	3,000/9,000	4,000/10Fp	1	20(5)	160M	-10	1	200K	2	[6]

Gunner ((Machine Gun) (DX-4; other heavy weapons -4)													
TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	ST	Bulk	Rcl	Cost (ϟ)	LC	Notes
11	Heavy Repeater	16d(3) pi	8	300/1,200	64/20	20!	200(5)	20M	-8	2	4,400	1	[7D]

Notes

[1] Weapons requires atmosphere to function. No effect in trace atmosphere or vacuum!

[2] The damage has the Surge modifier (BS page 105). As well, whether or not any damage penetrates, the target must make a HT roll at -4, plus half the DR on the location struck (due to armor divisor). On a failure, the electrical shock suns him. He may roll against HT every turn at the same penalty (but without DR bonus) to recover.

[3] Smoke, for, rain, cloud, etc. give the target additional DR equal to the visibility penalty. For instance, if rain gives a penalty of -1 per 100 yards, a laser firing through 2,000 yards of rain must penetrate an extra DR 20.

[4] Burn damage has the Surge damage modifier (BS page 105).

[5] In super-science game, an "omni-blaster" cost twice as much, but has "stun" setting: damage becomes HT-3(3) aff for a pistol, HT-6(3) aff for a rifle. On a failed HT roll, the victim is unconscious for minutes equal to his margin of failure. In the table above, these weapons are already listed separately so the price is already doubled.

[6] Detachable tripod weighs an extra 44 lbs.

[7] The weapon uses a power cell as well as 4mm ammunition.

- [A] Powered by a B-cell
- [B] Powered by two B-cells
- [C] Powered by a C-cell
- [D] Powered by a D-cell
- [E] External power

The power cell provides enough energy for firing its specific number of Shots, and is included in the weight.

Grenades

All grenades described in BS page 277 are all available on planets with the appropriate tech level. In addition to the grenades described in BS page 277, the grenades described below are also known in the Star Wars universe.

Weapon Descriptions

Chemical:

These specially made custom grenades are filled and prepared at the factory and clearly labeled as to their content. Each grenade contains a specific chemical payload, which affects targets within the grenade's burst radius depending on its type. The shell of a chemical load grenade disintegrates upon use; chemical load grenades cannot be refilled.

Agent T-238 is a debilitating nausea-inducing chemical. Those within the burst radius must make a HT-4 roll or be stricken with nausea for the next d4 hours (treat as exhausted). Cost ϟ65.

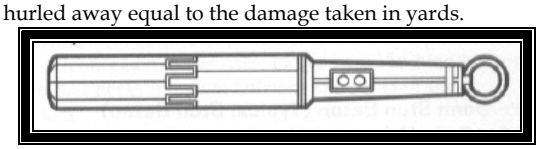
Fex-M3 is a deadly nerve toxin released in aerosol from. It is an inhaled poison (HT-4), initial damage 1d, secondary damage 2d. Cost ϟ105.

Smoke payloads produce smoke in the burst radius in gray, white, or various colors. Those within that area suffer the effects of (BS page 436) and gain one-half concealment. Cost ₮15.

Plank Gas is a corrosive chemical that deals 1d points of damage to all targets and objects in the burst radius each second for 3 seconds. Cost ₮85.

Concussion:

Concussion grenades cause damage by mere blast force and a fast pressure built up. In addition to the crushing damage, the victim Is also hurled away equal to the damage taken in yards.

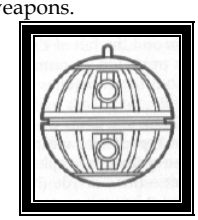


Fragmentation:

Fragmentation grenades, like most explosives, are highly restricted. Even combat units prefer to rely on blasters instead of these toss-and-forget one-shots. The standard frag grenade unleashes metal shrapnel with explosive force, slicing up anyone within the blast radius.

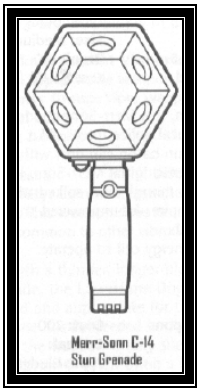
Plasma:

Plasma grenades use an ionized plasma gas to create a localized detonation. Although stated in BS page 277 as super-science, plasma grenades are not uncommon in the Star wars universe and are counted as TL11 weapons.



Stun:

When the object of a mission is to detain or subdue rather than kill, mercenary units, military personnel, and local law enforcement agencies use stun grenades. The standard stun grenade unleashes concussive energy that knocks out anyone within the blast radius. A stun grenade can't inflict a critical hit.



Anyone caught in the blast radius must make a HT-8 roll. Failure means you are stunned.

Thermal Detonator:

The thermal detonator is a fist-sized sphere containing baradium, a powerful radioactive explosive. Outlawed throughout known space, the thermal detonator produces a fusion reaction that generates a rapidly expanding field of searing heat and blast energy. Anything out of the blast radius is unaffected thanks to a built in ionization field.

Hand Grenade and Incendiary Table

TL	Weapon	Damage	Weight	Fuse	Cost (₮)	LC	Notes
11	Chemical	spec. (10 yd.)	1	2	50	2	[2, 4]
11	Concussion	7dx2 cr ex	1	4	80	2	[2]
11	Fragmentation	6dx4 cr ex (7d)	1	4	80	2	[2]
11	Plasma	6dx4 (2) burn ex	1	2	100	1	[2]
11	Stun	HT-8 (10 yd.)	1	2	70	2	[2, 5]
11	Thermal Detonator	8dx5 burn ex (10yd)	1	2	2000	1	[2, 6]

Notes

[1] Takes a Ready maneuver to light the fuse (impossible in rain, etc.) or five Ready maneuvers if you must insert the fuse first! A Molotov cocktail shatters on impact; a black Powder grenade detonates 3-5 seconds later; depending on fuse length.

[2] Takes one Ready maneuver to draw the grenade and a second Ready maneuver to pull the pin. Grenades detonate 2-4 seconds later; depending on grenade type.

[3] A glass bottle filled with gasoline, lit by a burning rag. See Molotov Cocktails and Oil Flasks (BS page 411).

[4] Fills a spherical volume with a radius specified at the damage column. The space is filled with smoke, teargas, etc; see Poison Examples (BS page 439) and Weapon Descriptions above. The cloud lasts about 80 seconds under normal conditions. Exotic chemical may cost more or have a lower LC.

[5] A Vision and Hearing-Based affliction that affects a 10-yards radius. The protected Hearing and Protected Vision advantages give +5 to the HT roll. If you fail to resist, you are stunned; roll against HT-weapon damage +1 each turn to recover. Does not create smoke in the area of effect.

[6] A thermal detonator causes radiation damage as well as burning damage. For each damage rolled, the victim also receives 1 rad (see BS page 435 en 436). Luckily, a thermal detonator does only damage within a 10 yards radius. Outside that radius, the damage is nullified by an ionization dampening field built within a thermal detonator.

Mounted Weapons

Weapon Descriptions

Light Blaster Cannon

The LBC is the smallest blaster available for vehicles. It provides low-yield firepower and is used mainly as a deterrent of defensive weapon.

Medium Blaster Cannon

The MBC (by many simply called the BC) is a good compromise between firepower and cost. MBCs are most often used as vehicle weapons.

Heavy Blaster Cannon

This heavier version of the BC provides added firepower through a larger energy output. It is mostly relegated to support or defensive fire.

Repeater Blaster Cannon

The RBC is a favored weapon by most vehicle crewmembers as it provides gatling strength firepower against targets. It is often found in a defensive role against infantry.

Gatling Blaster Cannon

The GBC is more expensive because it is multi-barreled. It provides an even faster ROF than the RBC with less chance of malfunction by overheating.

Small Laser Cannon

The SLC is the main weapon of choice for most small military crafts in space today. It provides a decent yield of damage, while remaining light and affordable enough.

Medium Laser Cannon

MLCs are the larger brothers of the SLC (found mostly in military vessels or on larger civilian ships) the MLC operates on a balanced design of good firepower and sensible energy consumption. Although it is a somewhat bulky weapon, its firepower compensates for its largish size.

Large Laser Cannon

The LLC are the top of the laser cannons family. They are considered heavy weapons and generate high amount of firepower. The LLC are found mostly on military ships as secondary weapons.

Gatling Laser Cannon

The GLC is better known by its more common name of "Quad Laser". That name comes from the fact that the GLC is equipped with 4 barrels, each able to fire 2 shots per second, giving the weapon its overall ROF of 8. The "Quad" is favored weapon among civilian merchant ships, as it provides great firepower in both offensive and defensive roles, especially when used in anti-aircraft barrages.

Small Turbolaser Battery

The smallest of the three members of the turbolaser family, the STBL (often dubbed Killer Baby) provides great firepower (over twice that of the LLC) in both offensive and defensive roles. The STBL is the weapon of choice on many military patrol crafts such as Carrack Light Cruisers.

Medium Turbolaser Battery

The most common heavy weapon in space, the MTBL equips most military vessels as the main gun type. The MTBL is a powerful weapon, able to shoot down and destroy most types of aerospace fighters with a single salvo. Its heavier firepower also makes it the weapon of choice in such roles as naval warfare (heavy ship against heavy ship) and siege warfare.

Large Turbolaser Battery

The largest weapon available for naval ships, the LTBL is feared by most ship captains and pilots. Able to destroy many small ships with a single shot of its powerful barrels, the LTBL is found mostly on capital warships such as Mon Calamari cruisers and Imperial Star Destroyers.

Heavy Turbolaser Battery

This is the largest turbolaser available, the HTBL and can be found only on Starbases, and as planetary defenses. The HTBL is able to destroy medium sized capital ships with a single shot from its massive barrels. Because of their heavy weight, they perform poor as anti-aircraft guns.

Planetary Turbolaser

Along with the planetary ion gun, the planetary turbolaser is part of major planets defensive grid. It is a beefed up version of the large turbolaser found on capital warships.

Super Laser Mark I

The SL Mk 1 is the first super laser and could be found on the first Death Star. The SL Mk 1 is the only one which had the chance to destroy an entire planet.

Super Laser Mark II

The SL Mk 2 could be found on the next two Death Stars of which one was destroyed during the battle of Endor. It has the same destructive power as the mark I but its firing rate is a little higher and lighter. Because of the reduced weight the weapon can be mounted on slight maneuverable mounts. The mounts can be directed against its opponents instead of turning the entire station.

Super Laser Mark III

A newer version of a weapon is normally more powerful, has greater range, or penetrates armor more quickly. None of these is true with the new SL Mk III, better known as the axial laser. This weapon can be found, mounted on the Eclipse Class Star Destroyers.

Light Ion Cannon

The smallest EMP gun available on the ship's market, the LIC provides a good protection-to-cost ratio to its owner. Easy to maintain and not requiring any gunner (can be fired by a dedicated computer), it is a perfect buy for small operators or single-crew ships like the T-38s or the BTL-S3 Y-wing.

Medium Ion Cannon

A common design, the ion cannon is just a larger version of the LIC. It provides greater disabling power, but at a greater cost. It is mostly used aboard medium-sized ships or planetary patrol boats.

Large Ion Cannon

The LIC is a standard design for large capital ships. It is often used to disable other large capital ships, or even space stations.

Heavy Ion Cannon

The largest pulse weapon available on ships, the HIC is mostly used on space stations as a capture system, in conjuncture with tractor beams.

Planetary Ion Cannon

The largest ion cannon in existence, the PIC can only be used as a planetary defense system so its massive power generators can be installed under the construction of the gun.

Mounted Weapons Table

TL	Weapon	Damage	Acc	Range	Weight	RoF	Shots	Rcl	Cost	LC	Notes
11	LBC	6dx2(5) burn, sur	10	900/2,700		4	20(5)	1		4	[5]
11	BC	6dx3(5) burn, sur	8	1,300/3,900		3	20(5)	1		4	[5]
11	HBC	6dx5(5) burn, sur	6	1,300/3,900		1	20(5)	1		3	[5]
11	RBC	6dx2(5) burn, sur	8	900/2,700		8	20(5)	1		4	[5]

11	GBC	6dx2(5) burn, sur	7	900/2,700		10	100(5)	1		3	[5]
9	SLC	6dx2(2) burn, imp	6	1,500/4,500		5	20(2)	1		4	[3, 5]
10	MLC	6dx3(2) burn, imp	5	1,800/5,400		4	20(2)	1		4	[3, 5]
11	LLC	6dx4(2) burn, imp	4	2,100/6,300		3	20(2)	1		3	[3, 5]
10	GLC	6dx2 burn, imp	4	1,500/4,500		12	100(2)	1		3	[3, 5]
11	STBL	8dx2(10) burn, imp	3	2,400/7,200		1	10(5)	2		2	[5, 7]
11	MTBL	8dx3(10) burn, imp	2	2,700/8,100		1	10(5)	2		2	[5, 7]
11	LTBL	8dx4(10) burn, imp	1	3,000/9,000		1	10(5)	2		2	[5, 7]
11	HTBL	8dx5(10) burn, imp	0	3,300/9,900		1	10(5)	2		2	[5, 7]
11	PTBL	8dx6(10) burn, imp	0	25,000		1	1(5)	2		2	[6]
^	SL Mk I	8dx1000(100) burn, imp	-5	50,000		1	1(25)	1		1	[7]
^	SL Mk II	8dx1000(100) burn, imp	0	50,000		1	1(20)	1		1	[7]
^	SL Mk III	8dx100(10) burn, imp	0	40,000		1	1(5)	1		1	[7]
11	LIC	HT-5 aff	5	600/1,800		4	25(2)	1		4	[2]
11	MIC	HT-6 aff	4	900/2,700		3	25(2)	1		3	[2]
11	LIC	HT-7 aff	3	1,200/3,600		2	25(2)	1		2	[2]
11	HIC	HT-8 aff	2	1,500/4,500		1	25(2)	1		1	[2]
11	PIC	HT-10 aff	0	21,000		1	1(4)	2		1	[6]

Notes:

All Mounted weapons are powered by a power generator, either from the vehicle or ship, or from an independent power generator. See Heavy Weapons section for detailed rules.

[1] Weapons requires atmosphere to function. No effect in trace atmosphere or vacuum!

[2] The damage has the Surge modifier (BS page 105). As well, whether or not any damage penetrates, the target must make a HT roll at -4, plus half the DR on the location struck (due to armor divisor). On a failure, the electrical shock stuns him. He may roll against HT every turn at the same penalty (but without DR bonus) to recover.

[3] Smoke, for, rain, cloud, etc. give the target additional DR equal to the visibility penalty. For instance, if rain gives a penalty of -1 per 100 yards, a laser firing through 2,000 yards of rain must penetrate an extra DR 20.

[4] If the weapon is used within an atmosphere, ignore the number of Shots. In space the weapon must be supplied by shells containing plasma in addition to power.

[5] If the weapon is used in space, ignore the half-damage range.

[6] Planetary guns can only hit objects in space and have no half-damage range.

[7] Cannot aim at targets closer than a quarter of the maximum range.

ARMOR

Armor Statistics

Only one armor table is given (High- and Ultra-Tech Armor Table). Furthermore, some examples are given of complete suits of armor commonly worn in the six Star Wars movies, used in Star Wars games, etc.

Armor tables provide the items of information explained below. A given column will only appear on a table if it is germane to the armors on that table. In all cases, "-" means the statistic does not apply, "var." means the value varies, and "spec." means to see the relevant armor skill in BS Chapter 4 or applicable section for special rules.

Although these rules have not been modified, they are described here so you don't have to swap books when going through the armor tables.

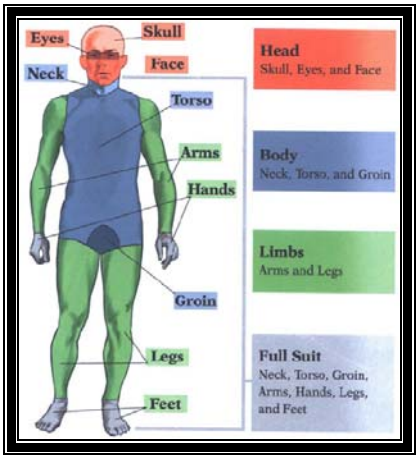
TL (Tech level)

The tech level at which the armor is commonly available.

Armor

This is the item's name.

Location



The area the armor protects on a humanoid wearer. Individual locations are skull (top of the head), face (the face, excluding the eyes), neck, eyes, arms, hands, torso (the abdomen and chest), groin, legs, and feet. Limbs cover the arms and legs, but not the hands or feet. Head covers skull, face, and eyes. Body is neck, torso, and groin. Full suit is everything but the head, unless stated otherwise.

DR (Damage Resistance)

The amount of damage Resistance the item gives. Subtract this from any blow that strikes the armored location. For instance, if you're wearing a DR 6 corselet and are hit in the torso for 8 points of damage, only 2 points penetrate and affect you. Some armor has a split DR: e.g., "4/2". This means DR varies by location or by type of attack: see notes for that piece of armor.

"*" means the armor is flexible. Flexible armor is easier to conceal or wear under other armor and quicker to don or remove, but it is more vulnerable to blunt trauma damage.

"F" means the DR only protects against attacks from the front.

Cost

The items price, in ₹ (credits). "K" is thousands; "M" is millions.

Weight

This is the item's weight, in pounds.

LC (Legality Class)

The item's Legality Class; see Legality Class (BS page 267).

Notes

Many items have special features or restrictions; see the notes after the table. Some advanced armor has built-in features that effectively grant the wearer advantages.

High- and Ultra-Tech Armor

Armor Descriptions

Darth Vader's Armor:

Darth Vader wears a unique suit of dark armor, imbued with Dark Side power through Sith construction techniques. The shock-absorbing padding covers all areas of the body and is made of allum, a material slightly resistant to lightsaber damage. The armor plating covers the body. The helmet covers the head. The helmet includes short-range communicator with scramble link. NBC mask and filters; life-support apparatus but is not for vacuum use. Vader's cloak is not included.

The above description is the armor as it is in Episode III. Somewhere between Episode V and VI his armor is upgraded.

The suit needs a C-cell in order to operate properly.

Imperial Clone Trooper Armor

Mostly called Clone Trooper Armor Mark II. It is a transitory armor between the Republic Clone trooper Armor and the Imperial Storm Trooper Armor. The armor still included the biomedical sensors.

The helmet includes short-range communicator with scramble link, NBC mask and filters. The suit also incorporate 12 hours of oxygen supply but is not sealed for vacuum use, only against NBC. The belt incorporates power pack holders (3 packs) and a spinneret with grappling hook.

The helmet needs a B-cell to operate.

Imperial Royal Guard Armor:

The personal guards of the Emperor wore red armor with a elaborate helmet. They wore also red cloaks (not included in these statistics). The armor is in fact an upgraded version of the Senatorial Guard Armor. Armored Plating have been added to the limbs and the helmet is equipped with a closed visor.

The helmet needs a B-cell to operate.

Imperial Scout Trooper Armor:

A typical Imperial design, the Scout armor, or sometimes called biker armor, is like the storm trooper armor but slightly lighter.

The helmet needs a B-cell to operate.

Imperial Snow Trooper Armor:

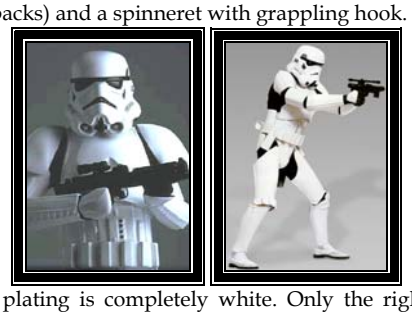
This is a modified version of the storm trooper armor. This armor has been adapted to protect the wearer against the cold climates on some artic planets.

The storm trooper armor can be adapted to a variety of climates. Examples of these are sand trooper; snow trooper; and swamp trooper.

The helmet needs a B-cell to operate.

Imperial Storm Trooper Armor:

Manufactured by Sienar Fleet Systems, the Storm trooper armor is the best available in the Imperial arsenal. It is made of biphasic carbide crystals over shock-absorbing padding. The armor covers all areas of the body. The helmet includes short-range communicator with scramble link, NBC mask and filters. The suit also incorporate 12 hours of oxygen supply but is not sealed for vacuum use, only against NBC. The belt incorporates power pack holders (3 packs) and a spinneret with grappling hook.



The armor plating is completely white. Only the right shoulder plating rank indicated the rank of the trooper.

The helmet needs a B-cell to operate.

Mandalorian Armor:

Mandalorian armor is quite old, dating from the Mandalorian wars in the year 3,965 BBY. The body armor, helmet (except visor)

and the gauntlets are made of allum, a material known to be resistant to lightsaber damage. The helmet contains macro binoculars, motion sensors, sound sensors, and infra-red sensors, a comlink, and a broadband antenna/signal interceptor.

The gauntlets can easily be equipped with extra gadgets. The left gauntlet may contain anti-security blades. The right wrist gauntlet may contain a miniature flamethrower, a whipcord and miniature laser. These gadgets must be bought separately.

A portable rocket launcher can be attached to the back of the body armor as well as a small rocket flight pack.

The helmet and each gauntlet need a B-cell to operate.

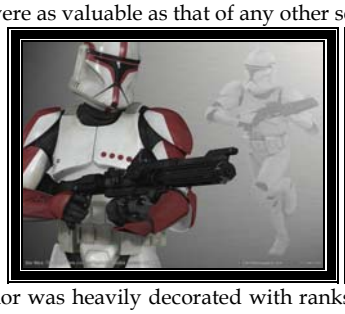
Morseerian Environmental Suit:

Away from their homeworld, Morseerians wear tight-fitting environmental suits with breath masks. The suit provides a personal methane atmosphere similar to that found on the Morseerian homeworld. The breath mask come equipped with protective goggles and straps designed to fit around a Morseerian's elongated head. In addition to creating an artificial atmosphere capable of sustaining its wearer indefinitely the suit and mask protect the wearer against harmful gases. A Morseerian wearing the suit and mask in immune to inhaled poisons.

The environmental suit has hundreds of independent methane pockets as well as redundant filtration systems to insure that it continues to function even when punctured.

Republic Clone Trooper Armor:

The predecessor of the Storm trooper armor, it has the same attributes except the armor is equipped with biomedical sensors. In the time this armor was standard equipment, the lives of the clones were as valuable as that of any other sentient.



The armor was heavily decorated with ranks, completed missions and decorations. Heroism was desperately needed in the war against the Separatists.

Republic Senatorial Guard Armor:

In the later Republic era, the senators were guarded by these Senatorial Guards. They were equipped with a distinctive looking armor. The blue or green armor came with a plumed helmet. The guards wear also cloaks (not included in the statistics).

Sith Trooper Armor:

Functionally, the armor of the Sith trooper is just as protective as most Republic equipment, but it has also been carefully designed to inspire dread. Armor plating is presented more obviously, making it appear more imposing, and the features of the wearer are completely obscured to make them a faceless inhuman entity. A Sith trooper is perceived as an extension of the Sith, and even in close combat an opponent sees only the cold faceplate of the helmet, never the soldier inside.

Sith trooper armor comes in silvery coverings for ordinary troopers, red for commandos and blue for officers. The underlying thermo suit is always black.

The helmet needs a B-cell to operate.

Skakoan Pressure Suit:

The Skakoans designed three different types of pressure suits to protect them from the adverse effects of atmospheres other than one found on their homeworld. Though composed of flexible materials, the heavier pressure suits are somewhat cumbersome and may reduce the wearer's speed.

All Skakoan pressure suits incorporate a vocalizer that distorts the wearer's speech patterns, making it difficult to tell one suit-wearing Skakoan from another.

Skakoan equip their pressure suits with tiny self-repair units designed to keep a damaged suit from rupturing. However, the self-repair units are not perfect: any single attack that deals damage equal to or greater than 10 + the suits DR ruptures the suit beyond repair, potentially exposing its wearer to hostile atmospheric conditions.

Although not their intended purpose, Skakoan pressure suits can protect a non-Skakoan from the harmful effects of Skako's dense, oxygen-poor atmosphere.

The suits offer the Voice advantage to Skakoan only.

The suit needs a C-cell to operate.

High- and Ultra-Tech Armor Table

TL	Armor	Location	DR	Cost (₮)	Weight	LC	Notes
11	Darth Vader's Armor	Full Suit	60/40	250,000	50	1	[4, 5, 6, 13]
	+Helmet	Head	60	50,000	5	1	[7, 11, 13]
11	Imperial Clone Trooper Armor	Full Suit	50/30	10,000	54	2	[4, 5, 6]
	+ Helmet	Head	18/12	2,000	9	2	[6, 10, 11]
11	Imperial Royal Guard Armor	Full Suit	20/12	4000	28	2	[5, 6]
	+Helmet	Head	12/8	750	8	2	[6, 8]
11	Imperial Scout Trooper Armor	Full Suit	45/27	9,000	47	2	[5, 6]
	+Helmet	Head	16/10	1,900	7	2	[6, 10, 11]
11	Imperial Snow Trooper Armor	Full Suit	50/30	11,000	55	2	[5, 6, 14]
	+Helmet	Head	18/12	2,500	10	2	[6, 10, 11, 14]
11	Imperial Storm Trooper Armor	Full Suit	50/30	10,000	52	2	[5, 6]
	+Helmet	Head	18/12	2,000	8	2	[6, 10, 11]
10	Mandalorian Armor	Full Suit	16/4*	10,000	32	3	[6, 13]
	+Helmet	Head	16/10	2,000	5	3	[6, 11, 13]
	+Gauntlets	Hands	12	500	4	3	[13]
11	Morseerian Environmental Suit	Full Suit	1	1,500	22	1	[5, 7]
11	Republic Clone Trooper Armor	Full Suit	50/30	10,000	55	2	[4, 5, 6]
	+Helmet	Head	18/12	2,000	10	2	[6, 10, 11]
11	Republic Senatorial Guard Armor	Full Suit	20/10	3,000	22	2	[6]
	+Helmet	Skull, Face	12/0	250	8	2	[6]
10	Sith Trooper Armor	Full Suit	18/12	1,000	20	2	[5, 6]
	+Helmet	Head	18/12	350	6	2	[6, 7]
11	Skakoan Pressure Suit Type I	Full Suit + mask	6/1	1,000	5	2	[6, 10]
11	Skakoan Pressure Suit Type II	Full Suit + mask	9/2	4,500	20	2	[6, 10]
11	Skakoan Pressure Suit Type III	Full Suit + mask	12/3	11,000	45	2	[6, 10]

Notes:

All TL7+ armor electronics and powered systems work for (TL-6) x 6 hours before they require recharging or refueling. For a TL11 suit is this 30 hours.

[1] Split DR: use the first, higher DR against piercing and cutting attacks; use the second, lower DR against all other damage types.

[2] Concealable as or under clothing

[3] DR increases with TL. After the TL of introduction, consult the following table:

TL	DR Multiplier
Intro	x1
Intro +1	x1.5
Intro +2	x2
Intro +3	x3
Any Higher	x4

[4] Biomedical sensors allow remote monitoring of vital signs, giving +1 to Diagnosis skill when examining the wearer. In addition, the suit is climate controlled.

[5] Requires NBC Suit skill, but at TL9+, the suit does not limit DX with a mask or helmet with note [7], the combination provides the sealed advantage.

[6] Split DR: use the higher DR only if the attack strikes the torso (if body armor), skull (if headgear), or underside of the foot (if footwear).

[7] Provides filter Lungs, Protected Smell, and Protected Vision, but before TL9 or poor quality, it also gives the No Peripheral Vision disadvantage.

[8] Provides Protected Vision.

[9] Suit's DR applies only against burning or corrosion damage.

[10] Requires Vacc Suit skill. If worn with its helmet, the suit gives Doesn't Breathe (for 12 hours), Protected Smell, Sealed, and Vacuum Support.

[11] Provides Protected Hearing, Protected Vision, and Radio (Requires Signal), Infravision, Night Vision 9, and (TL-8) levels of Telescopic Vision (TL11 has 3 levels), helmets also include a head-up display (HUD) compatible with "smartgun" electronics (BS page 278). Battlesuits add Hyperspectral Vision and Laser Communication.

[12] Requires Battlesuit skill. Gives Lifting ST+10; Striking ST+10; and Super Jump 1. Add +5 to Lifting ST; +5 to Striking ST; and +1 to Super Jump per TL past 9 (for TL11 Battlesuits the Lifting ST is +20; Striking ST+20; and Super Jump +3). With its helmet in place, it also grants Doesn't Breathe (for 12 hours), Protected Smell, Sealed, and Vacuum Support. Do not count suit toward encumbrance!

[13] Lightsaber resistant. When hit by a lightsaber subtract one from the lightsaber's armor divisor.

[14] Climate Controlled, but only for one climate which effectively gives a +3 to all HT rolls for that particular climate.

SHIELDS

MISCELLANEOUS EQUIPMENT

The following equipment list should include most items seen in the Star Wars movies. The GM is free to add items!

Camping & Survival Gear

Aquata Breather (TL11)

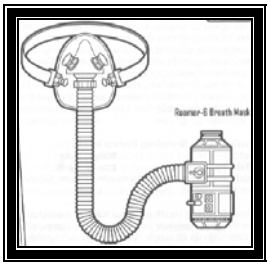
Cost: ₮350
Weight: 0.4 lbs.
Description: An aquata breather can provide 2 hours of breathable air through its mouthpiece. Characters typically use it underwater or in hazardous environments. Aquata breathers are a standard part of many high-end utility belt and field kit packages. Some consider them more reliable than breath masks, since they consist of a single part rather than several linked components.

It folds down for storage and can be easily concealed in a sleeve or pocket. The breather's only drawback is that it is designed to be disposable, and once used it cannot be refilled, instead, a whole new breather must be purchased.

Qui-Gon Jinn and Obi-Wan Kenobi use aquata breathers on several occasions in Episode I – The Phantom Menace.

Breath Mask (TL11)

Cost: ₮200 (incl. canister & filter for ₮25)
Weight: 8.8 lbs. (incl. canister & filter of 4.4 lbs.)
Description: This personal atmosphere-filtering system consists of a mask that fits over the nose and mouth and a hose connecting the mask to a portable life-support system. The breath mask provides approximately 1 hour of breathable atmosphere before the filter and atmosphere canister must be replaced. The breath mask offers no protection from extreme temperatures or vacuum.



A breath mask system can also be built into an armored suit.

To replace the filter and atmosphere canister, the user must make a Mechanic/TL11 skill roll. The GM makes this roll for the character. If the roll fails, the mask ceases to function 4d minutes after it is activated.

Kel Dor Antiox Breath Mask (TL11)

Cost: ₮2,000 (₮500 on Dorin)
Weight: 4.4 lbs.
Description: Made to fit Kel Dor respiratory organs and fitted with filters composed of Dorin isotopes, Kel Dor antiox breath masks costs hundreds of credits more than similar devices. The unit fits snuggly onto a Kel Dor's face, and non-Kel Dor occasionally mistake the antiox breath mask for insectoid mandibles or even gills.

The antiox breath mask's unusual attachments and isotopes can kill a non-Kel Dor foolish enough to try one on. Any non-Kel Dor who attempts to breathe through the mask will suffocate. The mysterious Kel Dor assassin Yem Nemnin is rumored to use his own breath mask to kill his victims, not the recommended use, but effective nonetheless.

A one year-supply of filters for the antiox breath mask cost 50 credits on Dorin and 200 credits elsewhere.

Communications and Information Gear

Credit-chip

Cost: ₮
Weight: negligible
Description: This small memory device was developed to track a being's monetary value. Each chip was built with specialized memory algorithms to prevent tampering, and could be used to add or subtract credits from a being's account.

Credit-stick

Cost: ₮
Weight: negligible
Description: This device replaced the traditional credit-chip as the preferred method for maintaining a being's monetary value. The credit stick was a pen-shaped device that performed the same functions as a credit-chip, with the same forms of memory algorithms and security checks, but in a smaller device.

Inter-chip

Cost: ₮
Weight: 0.2 lbs.
Description: This small device processes the transfer from one party to another. When a being purchases something from a merchant, the merchant enters the cost into the inter-chip. The being then inserts their own credit-chip and the inter-chip debits their account in the correct number of credits before depositing them into the merchant's account. Payment between two individuals can also be accomplished the same way.

Law-Enforcement, Thief and Spy Gear

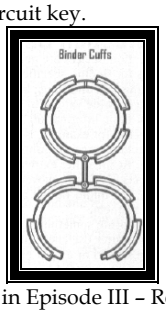
Code Cylinder

Cost: ₮500
Weight: 0.2 lbs.
Description: Compact encoded security devices are issued to many military, political, or corporate officials. A code cylinder accesses computer data via a droid's scomp link or provides entry into restricted facilities. Each cylinder features the user's personal clearance data. High-ranking personnel may carry more than one cylinder, each with different access codes encrypted within them. Republic citizens, Imperial officers, and New Republic personnel use them to facilitate security measures.

Code cylinders can be programmed at properly equipped computers by rolling a Computer Programming/TL11 with a , or without such systems by making a Computer Operation/TL11 roll with a -3 penalty. Failure to properly reprogram a code cylinder ruins the cylinder.

TaggeCo MagnaCuffs (TL11)

Cost: ₮600
Weight: 1.1 lbs.
Description: Magnacuffs are binder cuffs equipped with magnolocks. The cuffs have breakage number +35, 20 HP, and require a Computer Hacking skill with an imposing penalty of 10 to remove without the circuit key.



MagnaCuffs can be seen in Episode III – Revenge of the Sith on the wrists of Palpatine and in Episode IV – A New Hope on the wrists of Chewbacca.

Medical Gear

Bacta-Tank (TL^)

Cost: ₮100,000 + ₮350 per gal.

Weight: 1100 lbs. + 1.7 lbs. per gal. (Total: 1237 lbs.)
Description: This large, specialized tank is filled with the powerful healing agent, bacta, which promotes rapid healing. A bacta-tank and a supply of bacta is expensive, so much medical equipment is usually found only in hospitals, on board capital-class vessels, and within major military bases.

A patient must be equipped with a breath mask and fully submerged within the bacta for the healing agent to do its job. Bacta is a synthetic chemical that consists of gelatinous, translucent red alazhi and kavam bacterial particles mixed within the colorless liquid extracted from the plant ambori found within the jungles of Thyrferra. The bacterial particles seek out wounds and promote exceedingly fast tissue rejuvenation without scarring.

Any character who has suffered damage can benefit from a bacta-tank treatment, but its miraculous properties are most in evidence when used on severely wounded patients. Bacta treatment is the best method for reviving character that have been reduced to ⅓ or less of your HP.

Patients undergoing bacta-tank treatment heal at the following rates:

Injury Level	Recovery Time*	Cost (₮)	Success Roll
HP to 0 HP	1HP/12 hrs	10/HP	HT+5
0 HP to –HP	1HP/18 hrs	15/HP	HT+3
-HP to –HPx2	1HP/24 hrs	25/HP	HT
-HPx2 to –HPx4	1HP/36 hrs	75/HP	HT-2
-HPx5	Dead	Burial	n/a
Crippled limbs	+24hrs/limb	+50/limb	As per above
Crippled organs	+24hrs/organ	+75/organ	As per above
Severed limbs (reattached)	+72hrs/limb	+150/limb	-1HT
Severed limbs (not reattached)	As per bionics	As per bionics	As per bionics

*Time required in induced coma in bacta-tank.

It takes 80 gal. to fill a bacta-tank

Optics & Sensors

Tools

Transportation

Weapon and Combat Accessories

Blaster Repair Kit (TL11)

Cost: ₮125
Weight: 4.4 lbs.
Description: This handy kit provides most of the small tools necessary for the upkeep, repair, and customization of blaster pistols and rifles. The tools include a pulse adapter module tester, a collimator beam focuser, a prismatic crystal aligner, static pulse adapter modules, an energy converter valve, multiple gas valve nozzles, a spare gas container, a spare trigger cable, and a variable pressure adjuster. A full kit has enough space left over to hold three spare power packs. Due to incompatibility with other brand blasters, these kits can only be used with one brand of blaster weapons only. BlasTech and Merr-Sonn are such brands.

Slugthrower Maintenance Kit (TL6)

Cost: ₮
Weight:
Description:

10. VEHICLES

Vehicle Statistics

The tables in this section and section 11: Starships, give statistics for common vehicles which appear in the Star Wars universe. The definitions of these statistics are listed below so you don't have to swap books. For further details see BS, page 462 and up.

ST/HP (Strength/HitPoints)

The vehicles ST and HP. These are equal for a powered vehicle: the vehicle's mass determines both how powerful its engine must be (ST) and how hard it is to destroy (HP). Powered vehicles have the Machine meta-trait (BS page 263), which includes Injury Tolerance (Unliving).

Hnd/SR (Handling/Stability Rating)

The first number is Handling, the second is Stability Rating. See Control Rolls (BS, page 466) for details.

HT (Health)

The vehicle's HT, a measure of reliability and ruggedness. Fragile vehicles have an additional code:

"c" is Combustible.

"f" is Flammable.

"x" is Explosive.

Move

The first number is Acceleration and the second is Top Speed, in yards/second (double this to get mph). The statistics are equivalent to a character's Move and his top speed with enhanced Move. For ground vehicles, a * indicates a roadbound vehicle, while a ‡ indicates one that must follow rails. For pre-hyperspace spacecrafts, divide Acceleration by 10 to find it in Earth gravities (G), and note that c means the speed of light.

LWt. (Loaded Weight)

The represents the Loaded Weight, in tons (1 ton = 2,000lbs.), with maximum payload and a full load of fuel. Actual weight is often lower.

Load

The weight, in tons, of occupants and cargo the vehicle can carry, including the operator. To find cargo capacity, subtract the weight of occupants (for simplicity, assume 0.1 ton/person, including gear). To find "curb weight" (with fuel but no other payload), subtract Load from LWt.

SM (Size Modifier)

The vehicle's Size Modifier.

Occ (Occupants)

The number of occupants the vehicle can carry in reasonable comfort, given as "crew + passengers": e.g., 2+6 means two crew and six passengers.

"A" indicates a vehicle built for long-term accommodation, with room to sleep, cook, etc. If the vehicle affords the occupants special protection, there is an additional code:

"S" for Sealed (BS, page 82).

"P" for Pressure Support (BS, page 77).

"V" for Vacuum Support (BS page 96).

DR (Damage Resistance)

The vehicle's DR. Some vehicles have different DR on various faces or locations.

Range

Range is the travel distance, in miles, before the vehicle runs out of fuel.

"F" means the FP of the rowers or draft animals, and stored provisions, limit range.

Spacecraft either omit this statistic or use the entry to give the hyperdrive capabilities.

Cost

This lists the vehicles cost, in ₹. "K" means thousand; "M" means millions.

Locations

The vehicle's hit locations, besides its body. If a vehicle has multiple instances of a location, a quantity precedes the abbreviation: e.g., "3T" for a three-turreted ship. A vehicle's hit location determine both how it moves (see Basic Vehicle Movement, BS page 63) and what parts can be hit in combat (see Vehicle Hit Location Table, BS page 554).

Draft

For a watercraft, the minimum depth of water, in feet, it can safely operate in.

Stall

For an aircraft, the minimum speed, in yards/second, it must maintain to take off and stay airborne. "0" means it can hover.

Notes

This reflects any special capabilities or problems the vehicles has. If the vehicle has complex systems, footnotes or a separate description will detail weapons and equipment.

Wheeled & Tracked

Wheeled and tracked vehicles can be found anywhere but especially on those planets which lack the needed technology for repulsorlift drive technology.

Wheeled & Tracked Descriptions

Wheeled & Tracked Table

TL	Vehicle	ST/HP	Hnd/SR	HT	Move	LWt.	Load	SM	Occ	DR	Range	Cost	Locations	Draft/Stall	Notes

Notes:

Walkers

Walker Descriptions

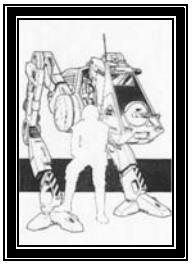
AT-AT (All-Terrain Assault Tank)

The 66 foot tall All-Terrain Armored Transport (AT-AT) is an imposing, four legged behemoth that shakes the ground as it plods toward enemy fortifications. In addition to its built-in weapons, an AT-AT carries as many as forty troopers or two AT-STs. During the Rebellion era, the Empire had firm control of the Kuat Drive Yards and sole access to the AT-STs and AT-ATs. Only after the fall of the Empire might these vehicles appear on the black market for sale (at exorbitant prices).

The AT-AT is armed with 2 LLCs, mounted on the cockpit and 2 MBCs mounted on the sides of the cockpit.

AT-PT (All-Terrain Personal Transport)

This was Kuat Drive Yards' All-Terrain Personal Transport vehicle, built from plans and designs originally developed by Rothan Heavy Engineering. A squat, single-pilot transport which was developed about the same time as the Katana fleet but which was never mass produced, it as similar to the At-ST, only smaller in stature. It was armed with a twin BC and a concussion grenade launcher. The AT-PT measured 12 foot 10 in length and stood 9 foot 8 tall, and could accommodate up to 200 pounds of cargo. The primary mission of the AT-PT was to give an individual all the firepower of an assault vehicle, while remaining extremely maneuverable and fast. Because the New Order was implemented before the At-PT could be put into production, it never became available to the civilian market. The Empire later rejected the AT-PT in favor of the larger AT-ST.



AT-RT (All Terrain Reconnaissance Transport)

This small, one-trooper walker was the predecessor to the AT-PT and the AT-ST. The All-Terrain Reconnaissance Transport was originally created for the use by the Grand Army of the Republic during the height of the Clone Wars, and could be configured in a variety of ways, depending on the environment into which it was deployed. Armaments were usually mounted to the "chin" of the AT-RT, and included a SLC or a SML. The primary drawback of the AT-RT was its lack of a sealed cockpit, thus exposing the pilot to enemy fire. Many felt that this was not a drawback at all, since it provided the pilot with a 360-degree view of the battlefield. Regardless, the AT-RT was often used in localized policing or mop-up actions in the wake of the main battle.

AT-ST (All-Terrain Scout Transport)

The 20 foot tall All-Terrain Scout Transport (AT-ST) is a nimble, two-legged mobile weapons platform that rapidly moves across battlefields and through cramped urban environments, providing reconnaissance and quick response fire support for ground troops.

The AT-ST is armed with two twin RBCs mounted on both sides of the cockpit and a twin MBC mounted in the front.

AT-TE (All-Terrain Tactical Enforcer)

The 40 foot All-Terrain Tactical Enforcer assault walker (AT-TE) was developed for mining companies on world troubled by raider activity or political turmoil. The standard AT-TE is armed only with six anti-personnel laser cannons in the form of RBCs. However, to increase their effectiveness during the Battle of Geonosis, Rothana Heavy Engineering technicians installed heavy assault cannons on the AT-TEs en route to Geonosis. The AT-TE carries up to twenty passengers and can travel up to four hundred miles before refueling. The vehicle is self-contained and can support a full complement of crew and passengers for two weeks without ever opening the doors. In medical emergencies, the AT-TE even provides a medical droid in an emergency storage locker, which folds down to double as an operating table.

The AT-TE's six-legged construction enables it to crawl efficiently. However, it has considerable difficulty maneuvering over tightly packed obstacles.

Walker Table

TL	Vehicle	ST/HP	Hnd/SR	HT	Move	LWt.	Load	SM	Occ	DR	Range	Cost	Locations	Draft/Stall	Notes
11	AT-AT	180			4/19	80	1	+7	5+40	150	500		4L		[1]
11	AT-PT	58	+2/1	12	4/18	1.73	0.25	+2	1	50	300	18K	G2L		

11	AT-RT	27	+2/1	10	2/23	0.25	0.1	+2	1	25	250	5.6K	E,2L		
11	AT-ST	58	+1/0	11	4/21	1.74	0.25	+3	2	50	250	18K	G2L,T2t		
11	AT-TE	160			3/18	110	60	+5	7+20	150	400		6L		[1]

Notes:

[1] The vehicle is Sealed but not intended for use in vacuum

Speeders

Groundspeeders, or more often simply called speeders, are the most common vehicles found on the civilized worlds of the galaxy. Operating on repulsorlift drive technology, they can achieve remarkable speeds. The classification can be somewhat misleading, though; this category includes some rather slow-moving speeders as well as the fast moving swoops but all are bound the low-altitude off a few inches to several yards.

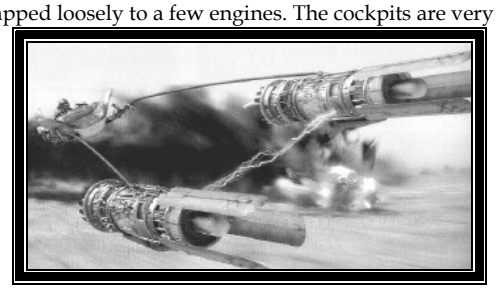
Speeder Descriptions

AAT

Landspeeder

Podracer

Equipped with powerful ion thrust engines, these dangerous pods are strapped loosely to a few engines. The cockpits are very small.



Speeder Table

TL	Vehicle	ST/HP	Hnd/SR	HT	Move	LWt.	Load	SM	Occ	DR	Range	Cost	Locations	Draft/Stall	Notes
11	AAT														
11	Landspeeder	50	+3/3	12	10/100	2	1	+4	1+5	4	2,000	400K	0	0	
11	Podracer	50	-5/1	12 f, x									E,2s		

Notes:

[1] Armed vehicle with a fixed weapon mount.

Air Speeders

Airspeeders are transports that fly as high as 250 miles above ground level. Most models have flight ceilings of less than 1 mile, however, all that's necessary to provide quick and easy short-distance transportation. Airspeeders are not capable of space travel, and require an atmosphere to function. They are meant to be utility craft but can be converted for battle.

Air Speeder Descriptions

Air Speeder Table

TL	Vehicle	ST/HP	Hnd/SR	HT	Move	LWt.	Load	SM	Occ	DR	Range	Cost	Locations	Draft/Stall	Notes

Notes:

Speeder Bikes

Speeder bikes are small, one-man needle-shaped transports, these are like fast repulsorlift motorcycles. The front of the bike holds the maneuvering systems, while the rear holds the power source. A seat and rider controls are located over the power source. They were built as cheap, quick, personal transports and recreational vehicles, they can be easily adapted to law enforcement and military purposes.

Speeder Bikes Description

Racing Swoop

Speeder Bike

STAP (Single Troop Aerial Platform)

Speeder Bike Table

TL	Vehicle	ST/HP	Hnd/SR	HT	Move	LWt.	Load	SM	Occ	DR	Range	Cost	Locations	Draft/Stall	Notes
11	Mil. Speeder Bike	30	+3/2	11	19/76	0.5	0.2	0	1+1	4	900	850K	E,X	0	[1]
11	Racing Swoop	35	+5/3	10	25/100	0.3	0.1	0	1	2	1,000	950K	E	0	
11	Speeder Bike	30	+4/2	11	20/80	0.5	0.2	0	1+1	3	1,000	825K	E	0	
11	STAP												E		

Notes:

11. STARSHIPS

STARSHIP SYSTEMS

A starship is a very complex piece of technology, composed of many component systems. Some of the most important of these systems are described here.

Maneuver Drives

Maneuver drives are devices used to propel spaceships through "normal" space from world to world. They are most often used to move between an inhabited world and a nearby point where the hyperdrive can be used. They are also used to move between worlds in a single star system; this is less common, since few star systems have more than one inhabited world. Finally, maneuver drives can be used for interstellar travel, but this is extremely rare since the distances are so long and the hyperdrive is a much more convenient method for crossing them.

Most civilizations (before 50,000 BBY) begin their exploration of space using reaction drives, "rockets" that eject mass backward in order to propel a vehicle forward. The main drawback of such drives is that they require vast quantities of reaction mass. This makes them expensive, and strictly limits the velocities they can reach.

Fortunately a better alternative is possible. At late TL9, new drives use power to generate forward thrust using cold fusion reactors (see Corbana Gas Turbines below) without ejecting reaction mass (except for a small mount of waste in the form of ion particles). Such near reactionless thrusters violate the laws of physics as understood in our society, but they make cheap, convenient space travel possible. These new drives drawback was its speed limitations and constant need for active propulsion. Reactionless thrusters are the standard maneuver drives used by all known spacefaring civilizations since 50,000 BBY. Some examples of these engines are the fission ion engine (better known in pairs called TIE) and fusial thrust engines (such as used on an x-wing).

The performance of a maneuver drive is most often expressed in terms of space acceleration and speed (Move). The speed is measured in MGLT. 1 MGLT equals 1 yard per second. Space acceleration is measured in yards per second² (sAccel or in Star Wars term MGLT/second). A drive that can deliver 11 yards/s² space acceleration can cause the ship to accelerate as if under standard Coruscant's gravity (33 feet per second per second).

Author's note: The exact meaning of MGLT is not clearly defined by LucasArts. ILM Artists introduced this term as a measurement of acceleration but soon it was used in computer games as a means of defining speed limits. MGLT might be an acronym for Modern Galactic Light Time or Micro-Gravity Linear Tolerance but the GL might as well stand for George Lucas. Charbel Tengroth and Makis Kalofolias have tested it by flying past large warships of known length at a fixed speed of 100 MGLT whilst making careful timing measurement and found that 100 MGLT = 100 m/s, and the relationship appears to be linear under all circumstance.

The Hyperdrive

The hyperdrive is the only known way to travel between star systems without spending years doing it (like with sub-light engines). Hyperspace is a parallel dimension to ours. In this dimension, the speed of light is not the ultimate limit. With the help of the hyperdrive motivator, spaceships "jump" through the barrier between worlds and enter this alternate dimension. Traveling through hyperspace is tricky, and is subject to two major laws.

The first law is that ships must enter hyperspace through a jump point. With the help of navigational computers (navcom), the pilot can calculate the nearest jump point that will propel him in his desired direction of travel. There are some very rare individuals or races that have a natural knack for hyperspace navigation: Those are highly praised as navigator and usually worth a lot to starships captains. Force users also have the ability to indistinctively calculate hyperspace jumps by using their Force abilities.

The second law is gravity. For some unknown reason, gravity plays a major role in the direction of travel and the capacity of a ship to enter hyperspace. A hyperdrive motivator cannot jump into hyperspace if it is within a gravity field of a planet, star, or even an artificial gravity field. Any object more massive than a given starship has the potential to disrupt the ship's hyperdrives. If the hyperdrive is actuated within 100 times the diameter (but less with newer hyperdrive motivators up to a minimum distance of 1 planetary diameter) of such an object, it may malfunction disastrously. Thus, navcom must take account the gravitational field of stellar bodies before jumping the spaceship into hyperspace. Special spaceships have been designed with large gravity generators. Those ships disrupt the hyperspace dimension and can bring a traveling spaceship prematurely out of hyperspace, or block one from jumping into hyperspace. The results of an unwanted or premature sortie out of hyperspace usually result in damage to the hyperdrive system.

Traveling through the hyperspace is defined below (see Hyperspace Navigation).

Hyperdrive Actuation Diode

This small component of a starship's hyperdrive was instrumental in the acceleration from sub-light speeds to supra-light speeds.

Hyperdrive Compensator

This was part of a starship's hyperdrive unit, and was the key component in slowing the ship down safely enough to re-enter real-space.

Hyperdrive Field Guide

This was the name of the specialized metal poles used to channel the energy produced by a hyperdrive, allowing it to propel a starship into hyperspace.

Hyperdrive Motivator

This is the starship component which is responsible for building up the energies necessary to propel a ship into hyperspace. The hyperdrive motivator creates an electromagnetic field around a starship, and then projects that field into hyperspace. Once in hyperspace, the hyperdrive motivator employs trilithium crystals to propel the ship through the continuum. When the ship's destination is reached, the hyperdrive motivator projects the ship's field back into real-space and cuts the trilithium drive.

Hyperdrive Shunt

This device, which is part of a starship's hyperdrive, allows excess heat and power to be bled off before it can damage the hyperdrive itself.

Travel Speed, Time & Distance

The speed is given in parsecs per hour (1 pc/hr = 3.26 ly per hour). The fastest engines ever build had a maximum speed of 175pc/hr during the Yuuzhan Vong invasion. The Millennium Falcon had a maximum speed of 150pc/hr and was considered the fastest ship during that time (considering that the fastest capital ship of the Empire had a maximum speed of 80pc/hr).

The hyperdrive design is similar to the one found in GURPS 4th Edition Space. Each hyperdrive motivator's speeds are based on the number of tons are carried across hyperspace.

The next big limitation is the maximum distance the hyperdrive motivator can build up energy for, and the engines allow. This value is given in parsecs.

The final important part is the accuracy (or inaccuracy) of the hyperdrive motivator. This is given in clicks. In a Space Opera Star Wars setting a click represents 1 mile, in a hardcore SF Star Wars setting a click represents 1 AU. The visual effect is clearly seen in computer games and in the movies where ships drop out of hyperspace and continue to move in normal space a short while at very high speeds.

To give you something to hold on, a ship which travels at 175pc/hr should cross the entire Vordarian Beltway Galaxy in about 8.5 days (but has to make 75 separate jumps to do so).

LC (Legality Class)

The LC may vary from engine to engine and from era to era. During the reign of Palpatine, all engines faster than 30pc/hr were outlawed while in the New Republic era ships with engines going 100pc/hr were very common among the military and private companies. It depends much on how oppressive the current government is and the political situation in the galaxy.

Hyperspace Disadvantages

During a hyperspace travel the course, speed or destination cannot be changed. Once the ship enters hyperspace it is bound to execute it projected route. However, a ship can still be pulled out of hyperspace by external causes such as shadow gravity wells and artificial interdiction fields.

During hyperspace travel, the crew is isolated from the rest of the galaxy. No communications (incoming and outgoing) are possible.

Sensors don't work. The crew of a ship in hyperspace has no means of all to scan the area of arrival before they enter normal space again. Then again, they cannot be scanned by others as well.

Engine Class Availability Table

Date	Fastest (pc/hr)	Inaccuracy (miles or AU)	Maximum (pc)	Gravity (planetary diameter)
25,000 BBY	1	50	100	100
24,000 BBY	2	49	125	90
20,000 BBY	3	48	150	75
15,000 BBY	4	40	200	60
12,000 BBY	5	30	225	50
11,000 BBY	7	20	250	45
10,000 BBY	10	14	275	40
8,000 BBY	15	12	300	35
6,000 BBY	20	10	325	30
5,000 BBY	30	9	350	25
4,000 BBY	40	8	375	20
3,000 BBY	50	6	400	16
2,000 BBY	75	6	425	12
1,000 BBY	100	6	450	8
0 BBY	125	5	475	4
10 ABY	150	5	500	3
100 ABY	175	5	525	2
125 ABY	200	5	550	1

The availability in the table above reflects the standard engines built which might be commonly used (if not restricted by law). Engines that are better than the ones described in the table are always custom build engines, or prototypes.

Hyperspace Navigation

I'm going to use the program AstroSynthesis 2.01b in order to map all systems. This program let's you make real 3D stellar designs which can also be printed as 2D maps.

Hyperjump Operations

A successful jump requires four skill rolls on the part of a ship's crew. These four skill rolls must be made in a specific order. They can be performed by four different people, or (since they must be done one after another) by fewer than four people on a ship with a very small crew. Attempting a jump with unrefined Corbana fuel is -2 to all four rolls. Attempting a jump from within 51-100 diameters of a massive object is -4, within 11-50 diameters is -8, and within 10 diameters is -12.

In each case, success on the skill roll means that the operation was successful and the next stage in the process can be attempted; if all four rolls succeed, the jump takes place as planned. A simple failure on a skill roll means that the operation was unsuccessful; that task must be attempted again, at a -1 penalty per subsequent attempt, or the whole process must be started over from the beginning.

A critical failure on any of the four rolls means that a jump mishap may take place. Roll again. On a success, the task has experienced a simple failure, as above. On a failure, the jump mishap takes place. On a second critical failure, a jump disaster takes place, and the starship is completely destroyed (or simply experiences crippling damage, at the GM's option).

If the process of planning and executing a jump is performed under routine conditions (the ship is not under fire, the ship is well-maintained, point of departure and arrival are both traveled before, and there are no penalties to any of the rolls) then skill rolls may not be necessary. Under such circumstances, any crewman with at least 12 in one of the requisite skills can perform the associated task, assuming success without having to make the roll.

The four skill rolls, in the required order, are as follows:

- Navigation (Space) is used to locate the proper point at which the ship should enter hyperspace, and plot a course through normal space that will bring the starship to that point.
- Piloting is used to maneuver the ship to the proper jump point. The Piloting specialization that is necessary depends on the performance of the starship's maneuver drives; the most likely candidate is Piloting (High-Performance Spacecraft).
- Navigation (Hyperspace) is used to "plot a course" through hyperspace. The ship's navigator determines the proper setting for the hyperdrive controls that will bring the ship out at the desired point at the destination. If the I.T.A. placed hyperspace buoy at the origin, then this roll is at +1. If the I.T.A. placed a beacon at the destination, then this roll is at +2.
- Mechanic (Hyperdrive) is used when the ship reaches the jump point, to activate the hyperdrive and make sure that it operates within the parameters defined by the Navigation (Hyperspace) skill.

Jump Mishaps

Hyperdrives are very temperamental machines, and can malfunction spectacularly. Although they are quite reliable when used under ideal conditions, they become less so when used under stress. Many hyperdrive technicians are intensely superstitious…

Hyperdrives have several "failure modes", depending on exactly why a given jump failed to take place as planned.

- No Jump: If a Navigation (Space) or Piloting mishap takes place, the result is "no jump", the hyperdrive simply fails to operate. The process of planning and

executing the jump must be resumed from the beginning.

- Misexit: If a Navigation (Hyperspace) mishap takes place, the ship's navigator has planned the wrong path through hyperspace and the ship fails to return to normal space at the desired location. Roll 1d. On a 1, the ship has exited near a solitary world, comet, or odd chunk of rock in the origin star system. On a 2-3, the ship exits near a world or gas giant in the destination star system, but not the right world or gas giant. On a 4-6, the ship exits at a random point on the destination star's 100-diameter limit. Misexit mishaps are usually not dangerous, but they can wreak havoc with the ship's schedule (and can be inconvenient when the ship is trying to make a rendezvous).
- Misjump: If a Mechanic (Hyperdrive) mishap takes place, the hyperdrive undergoes a serious malfunction. Roll 1d. On a 1-2, the ship undergoes no jump, as above. On a 3-4, the ship experiences a failed jump, it spends a week in hyperspace, and then emerges into normal space at the exact same point from which it departed. On a 5-6, the ship experiences a misdirected jump, and emerges from hyperspace at a point very distant from its intended destination.

Bridge Systems

A spaceship's control center is usually its bridge, a special compartment from which the rest of the ship's systems can be managed. Several major systems are actually centered on the bridge, notably the ship's communicators and computers.

Short-range craft can have a small cockpit, large cockpit, or huge cockpit. Starships will usually have a small bridge, a standard bridge, or a command bridge. The type of bridge installed determines the level of performance that can be expected from communications and computer systems.

Communications Systems

All ships have several different communications systems installed. These systems operate using the rules for the Telecommunication advantage (BS page 91).

Radio

Shipboard radios use the standard rules for that Telecommunication type, and may have the Video enhancement. A cockpit has one radio, a small bridge has two, a standard bridge has five, and a command bridge has 10. A cockpit radio's range is 186,000 miles. A bridge radio's range is 1 parsec.

Laser

Shipboard laser communicators use the standard Telecommunication rules, with the laser and Video enhancements. A cockpit or small bridge has one laser communicator, a standard bridge has two, and a command bridge has four. A laser's range is 50 miles and a line-of-sight is required.

HoloNet

Starships may be equipped with HoloNet Transceivers and emitters. A HoloNet can only be used freely during the Old Galactic Republic era (25,000 BBY) and The New Republic era (5 ABY) until the Yuuzhan Vong destroy the HoloNet grid in 25 ABY. After 30 ABY the HoloNet grid comes back online gradually using shuttles carrying HoloNet emitters and transceivers. During the Galactic Empire, only Imperial ships are able to use the HoloNet grid. A small bridge has one HoloNet transceiver and emitter, a standard bridge has 2, and a command bridge has four. A HoloNet emitter's range is 1 parsec and is relayed by the HoloNet grid (if within range) to its destination, and thus nearly limitless within the Republic's or Imperial's territory.

Hyperwave Transmitter

A Hyperwave transmitter was the radio device used aboard starships to send ultra-fast messages through hyperspace. This resulted in any message send to be received in one second. For each radio emitter present on a starship, a separate hyperwave transmitter is needed.

SID-Transponder

Every ship is required by law to install and SID-transponder system. This system sends out an automatic identification code by radio communicator. On a civilian ship this system comes factory-sealed; it can be turned on or off, but the identification code can't be altered easily. Military systems can be reprogrammed to give false identities to enemy ships, or not to respond at all. Cockpits install one SID-transponder system. Bridges install two to give a backup.

Computer Systems

Every cockpit and bridge system includes three identical computers for redundancy. A small cockpit or bridge installs microcomputers, with Complexity equal to TL-5. A large cockpit, huge cockpit, or standard bridge installs microframes, with Complexity equal to TL-4. A command bridge installs mainframes, with Complexity equal to TL-3.

Sensor Systems

Every ship needs sensor systems to ensure that the crew is aware of its surroundings and any potential threats. All ships have a mix of active and passive sensors.

An active sensor directs emissions, such as radar, at a target, then analyzes the energy that "bounces" back in order to learn about the distance, direction, size, composition, appearance, and other aspects of the target. Active sensors use the rules for Scanning Sense (BS page 81). The basic type is Radar, with the Multi-Mode and Targeting Enhancements

The ship's passive sensors use a combination of telescopes, cameras, and similar devices to take whatever electromagnetic radiation is already present in the environment. Passive sensors use the rules for Hyperspectral Vision advantage (BS page 60' with the Extended High-Band and Extended Low-Band enhancements. They also have Telescopic Vision (BS page 92) and Protected Sense (BS page 78).

A ship's sensor systems are given a Scan rating which is a measure of their range and power of resolution. The scan rating is used during space combat or when a ship simply wishes to detect or track another object.

Life Support Systems

Manned ships always need elaborate systems to provide crew and passengers with clean air, potable water, food, and habitable temperatures, and to deal with biological wastes. These life-support systems are much more complex than most non-technicians realize; maintaining and repairing them is one of the most unpopular shipboard duties.

Star Wars starships don't have total-recycling life support systems. Breathable air and water are recycled with high efficiency, but biomass is not. Ships must bring on provisions on a regular basis. Meanwhile, waste matter accumulates in the ship's life support system, and must be dumped from time to time. Imperial ships tend to dump their waste prior to a hyper jump.

Capacity

A life support system is rated for its capacity, the number of people that can be supported by the system for long periods of time (assuming that enough provisions are on hand).

A life support system can be overloaded if necessary. Roll 3d after each day of overloading, at +1 per full 10% by which the number

of people aboard exceeds system capacity. On an adjusted roll of 13 or more, the system begins to break down, losing 10% of its current capacity (rounded up to the nearest full person) for each point by which the roll was exceeded. A Mechanic – High Performance Spacecraft roll can be attempted one per day; if it succeeds, it will restore 10% of full capacity. Note that once the life support begins to fail, the effect snowballs. If the ship remains overloaded, life support will eventually reach 0% and fail. At that point, all oxygen in the air will be used up within 1d hours, and everyone will die. Those in low berths are unaffected if life support fails…as long as the power stays on.

Short-Term Life Support

Some ship components carry short-term life support, and can keep a few crewmen or passengers alive for a matter of hours. Such systems are normally only used in emergencies or on board short-term ships (fighter craft, shuttles, and so on). Refer to the ship design rules in this chapter.

STARSHIP OPERATIONS

Operating a starship requires considerable advance planning. Some of the pertinent considerations are discussed below.

Travel Times

Many travelers, especially merchants, will want to know how long it takes to reach their destination.

Interplanetary Travel

Interplanetary distances are usually measured in miles or astronomical units. One astronomical unit is equal to 100 million miles, the average distance between the planet Coruscant and its sun Coruscant.

Spaceships usually follow a nearly straight-line course through space, accelerating to their cruising speed (or top speed when necessary), flying al the way at the same speed until arrival, then decelerating in order to match velocities with the destination upon arrival. This is the most efficient way to reach any destination in normal space, using maneuver drives as powerful as ion fission engines or fusial thrust engines.

Normal space travel will mostly only occur when entering or exiting hyperspace, flying between starships or starports. Flying from one planet to another planet would take to long using reactionless drives.

Interstellar Travel

Interstellar distances are measure in parsecs. One parsec is equal to 3.26 light-years or 19.234 x 10^{12} miles.

Although the exact duration of a interstellar using hyperdrives can be predicted, a ship and its crew can fail during of its hyper jumps needed to reach the final destination. This may end in a disaster or simple extends the duration of the travel.

Starship Costs

Starships are expensive pieces of equipment, beyond the means of any but the wealthiest individuals. Most starships in the Star Wars universe are owned by large organizations, governments, corporations or even syndicates.

Financing

Most small-scale Republic starship owners purchase their ships with financial backing from larger corporations or the Galactic Republic government. Imperial merchant ships, held by individuals or small groups, are subsidized by the Empire. In either case, the ship's backers expect due diligence from their active partners in pursuing agreed-upon goals, and also expect significant returns on their investment. Owners who consistently fail to meet their objectives may find their ships repossessed or worse.

The details of such a subsidy scheme vary, but a typical honest arrangement is as follows.

The individual or corporation purchasing the ship must have a good reputation and a well-considered business plan. The financial backer will have goals in mind that the ship is intended to fulfill: maintaining regular contacts among colonies, developing new trade routes, discovering new commodities or markets, conducting astrographic surveys, collecting economic intelligence, performing as naval auxiliary in wartime, and so on. The future owners and backers negotiate until they reach an agreement on how the ship will be used and what kinds of returns are expected.

The purchaser is expected to put up a substantial fraction of his own money to demonstrate his commitment. The amount of this "down payment" varies, up to 20% of the ship's purchase price. The backers will then cover the rest of the cost. The owner's share of net profits (after expenses) is determined by multiplying their down payment by a factor (typically x4) to represent the active risks they run in operating the ship, and dividing the result by the ship's purchase price. The backers receive the remainder. After a specified period (generally 30 years), full title reverts to the owner, who then retains all of the profits for himself.

Maintenance

Starships require constant routine maintenance. Members of the engineering, maintenance, and life support crew sections spend most of their time performing this maintenance. The extend size of these crew sections indicates the amount of maintenance that must normally be performed. Each member of these crew sections is assumed to provide eight man-hours per day in maintenance work. At the GM's option, crewmen from races with the Less Sleep advantage or the Workaholic disadvantage may provide more man-hours per day, while crewmen with the Laziness, Short Attention Span, or Sleepy disadvantages may provide fewer.

If a ship is short-handed in the pertinent of crew sections, crew may be required to put in longer work shifts, members of other sections may have to chip in, or the ship may simply fall short on its required maintenance.

The rules for the Maintenance disadvantage (BS page 143) apply, as do the rules under Breakdown (BS page 485). Although maintenance work is performed on a continuous basis, the maintenance period is bi-weekly. If insufficient maintenance is performed during a maintenance period, the ship loses one point of HT and must make a HT roll. If the HT roll fails, the ship loses 1d dHP (D-scale hit points, used to measure damage to spacecraft).

See Damage Effect (Chapter 7: Combat) for the effects of damage to the ship; in particular, damage due to missed maintenance may lead to Major Damage results, indicating serious breakdown in ship's systems.

Along with routine maintenance, every starship requires a complete overhaul once a year to ensure that it remains in good working order. This annual maintenance restores any damage or HT loss due to missed routine maintenance, and removes any remaining faults not caused by battle damage. It costs 0.1% of the basis price of the ship, and requires two full weeks at a Class B or better starport. The ship's operators should make provision for the payment of the maintenance fee when it comes due, and should prepare for the revenue lost while the ship is laid up.

Supplies

The primary expendable item used by any TL11 starship is the Corbana (a mixture of corfaize-tibanna gas) fuel used to feed the power unit which provides all the power for the ship's systems, maneuver drives and hyperdrives.. Refined fuel can only be purchased at a Class B or better starport, and normally costs ₹350/dton. Unrefined fuel can be purchased at a Class D or better starport and costs ₹80/dton.

Meanwhile, starship crews must purchase provisions. Standard provisions cost ₹6 per man-day, and must be carried as cargo. One dton of provisions has a mass of 12 tons, contains 2,000 man-days of food and other supplies, and costs ₹12,000.

Crew Salaries

Crew salaries must be paid on a monthly basis. For merchant ships, a fair monthly salary for any given crewman is ₹600 + (₹900 x Merchant Rank) + (₹300 x best job skill). If the exact mix of skills and Merchant Rank levels among the crew is undetermined, this can be approximated as ₹9,000 for the senior Captain commanding a large merchant ship (1,000+ dtons), ₹7,800 for the Captain commanding a smaller merchant ship, ₹6,600 for each officer, ₹5,700 for each petty officer, and ₹4,800 for each ordinary crewman.

If a ship makes a particularly profitable voyage, it is common for part of the profit to be distributed among the crew as bonus. Any such division is up to the ship's commanding officer or the policy of his corporate sponsors.

Service Fees

When a starship makes berth, it must usually pay a variety of service fees. For simplicity, the GM may assume that these amount to ₹100 per dton of ship per week (or fraction of a week) in port. If the GM wishes to track the fees more closely, he may apply the following.

Berthing Fee

Berthing fees cover power, life support, and data hook-ups at the berth, access to facilities for maintenance, and often courtesy transportation to the main starport terminal. Once paid, berthing fees cover unlimited arrivals and departures for the entire duration, although crowded starports frown on berths that stand empty for too long. The standard berthing fee, at both Republic and Imperial starports, is ₹20 per dton of ship for the first six full days, plus ₹2 per dton of ship per day thereafter.

Customs Duties

These duties apply when any foreign party moves goods through a starport onto a world. As far as a merchant crew is concerned, customs duties never apply to freight (goods owned by someone else that the crew has been paid to transport), in such cases, any duties are paid by the owner of the freight. However, whenever a merchant sells cargo (speculative goods that he owns himself) on a world, he must pay any duties that apply. During the Old Republic (before the trade franchise began), the Republic didn't collect a duty. From 32 BBY, the Republic always collects a duty of 2% of the sale price of the cargo. During the Imperial reign, this was raised to 4%. In other regions, the duty depends on the starport and the type of cargo; the duty will be 1d%. Customs duties can be avoided through smuggling (see Covert Operations, IW page 176).

Freight Handling

Ships that don't have enough personnel to handle cargo or freight themselves can pay starport stevedores to do the loading or unloading. The necessary number of crewmen is one per 250 dtons of cargo or freight; the needed crewmen can come from the cargo services section, or can be diverted from other crew sections that aren't busy in port (gunners or ship's troops, for example). The standard cost of hired stevedores is ₹20 per dton of cargo or freight, with a minimum of ₹500.

Lighterage Fees

Cargo, freight, and fuel can be delivered to or from a ship that's away from the starport. Cargo and freight lighterage costs ₹10/dton from surface to orbit, ₹15/dton to a ship at a planet's 100-diameter limit, or ₹40/dton to a ship at a star's 100-diameter limit. Fuel delivery is more expensive: ₹80/dton from surface to orbit (if the starport has no refueling facilities in orbit), ₹100/dton o a ship at a planet's 100-diameter limit, or ₹400/dton to a ship at a star's 100-diameter limit.

Shuttle Tickets

A one-way ticket from orbit to a planetary surface (or back) is ₹50 per person. Each person can bring up to 200 pounds of baggage; any extra is carried at lighterage rates.

Special Handling

Any cargo or freight that requires special handling adds 50% to all freight handling and lighterage fees.

Starport Administration Fee

This fee covers the cost of administration, maintenance, and operation of the port, as well as search and rescue services. The standard fee is ₹500, paid on landing.

Waste Dumping Fee

Star Wars starships do not have total-recycling life support systems. Over time, s ship's life-support system accumulates wastes, which must be disposed of. These can be ejected into space for free (although this is usually illegal in crowded shipping lanes or in low orbit space). They can also be dumped at any starport, for ₹1/man-day since the ship last cleaned the life-support system.

Wharf Fees

If cargo or freight is to be stored on the berth, the wharf fee covers the use of port facilities, warehouse space, and transfer space on the berth itself. The owner of freight usually pays this fee, but merchant crews carrying speculative cargo must pay for their own space. The standard cost is ₹20/dton for up to 30 days, and ₹2/dton per day thereafter.

Fines

Fines are the personal responsibility of the ship's captain, unless the fine is the direct result of misconduct by a crewmember. Even then, the captain usually pays the fine out of the ship's cash reserve and collects it from the crew member later (perhaps by reducing his pay).

Failure to Vacate

If a ship is ordered to vacate its berth at a starport and fails to do so on time, the starport authority will levy a fine. The standard fine is ₹1,000/hour.

Violation of Regulations

Any other violation of local, Republic, or Imperial regulations will likely lead to a fine. The amount varies, but typical fines are ₹500 or more per incident.

INTERSTELLAR TRADE

Trade in the Star Wars Universe

During the course of history, interstellar commerce is shaped by the Republic's liberal economic model. The Republic manages a vast economic system, based on a mature network of trade routes that has been stable for millennia. This has not always been so. In the beginning of the Galactic Republic, commerce was full of energy and very unstable due to its explosive growth and the vast regions of unexplored space. On the other hand, the Empire is an oppressive government, limiting free commerce. Adventuring merchants who wish to make profit in this environment need to understand how it works.

Trade Routes

Throughout the Old Republic era, commercial traffic tends to follow trade routes. A trade route is the sequence of hyperlanes and stopping places used for commercial transports. Trade routes contain navigation buoys and are frequently updated by the Interstellar Transit Authority. Using a trade route is the safest way of interstellar travel without colliding with a body in space, or some other phenomena such as a black hole.

Trade Route Types

There were about eight major trade routes in the Vordarian Beltway galaxy, with hundreds of secondary routes and thousands of minor ones. Scouting new hyperspace routes is an incredibly dangerous task for an explorer.

Major Routes

Major routes are the larger "mains", tying together important worlds that are located in clusters relatively close to each other. They carry tens or even hundreds of thousands f dtons of cargo per week. Any given world on a major route will usually see several super-freighters of 10,000+ dtons, and many freighters of 1,000+ dtons, each week. Free Traders and other small merchant ships will find little work along such routes, unless they can find small consignments of freight which have not been consolidated into large lots by the major shipping lines. The eight major trade routes are:

- Corellian Run
- Corellian Trade Spine
- Hydian Way
- Kessel Run
- Myto's Arrow
- Perlemian Trade Route
- Rimma Trade Route
- Sisar Run

Secondary Routes

Secondary routes are lesser "mains" making less profitable, but safe links. A minor route carries freight in the high thousands or low tens of thousands of dtons per week. A world on a secondary trade route will be visited by six to ten freighters of 1,000+ dtons, along with a dozen or more small ships of 100-400 dtons, each week.

Minor Routes

Minor routes are small tributaries connecting the most prosperous minor worlds into the trade network. A minor route carries freight in the high hundreds or low thousands of dtons per week. A world on a minor route will see up to about a dozen small merchant ships per week, all of them well under 1,000 dtons in size.

Frontier Worlds

Frontier worlds are those inhabited worlds that are not on the established trade network at all. The most populous frontier worlds may be visited by one to two small merchant ships per week. Others are served only by infrequent "packet" transports and tramp merchant ships, sometimes going for months without an interstellar visit. Free Traders sometimes find the greatest opportunities (and the greatest risks) by visiting worlds off the established trade routes.

Speculative Trade

Cautious merchants will tend to stay on the save trade routes, earning money by carrying freight and passengers at fixed rates. This enables them to minimize risk, because it's easy to predict how much freight and how many passengers will be available. On the other hand, this approach is unlikely to yield great profit.

Ambitious merchants will accept greater risk for the chance of greater profit, by engaging in speculative trade. Rather than signing contracts to carry someone else's goods, a merchant captain will buy goods using his own money, and then try to sell the goods elsewhere for a profit. If everything works well, he can make a real killing, if they don't; he may have to sell at a loss simply to keep operating.

Speculative trade is a very common practice during the Republic era's, where free markets are common, local economies are booming, and merchant captain only needs credits to invest.

During the Imperial era, all major trade routes were controlled by the Empire and more traders were forced to pay high fees or find new customers on other worlds. This resulted is more speculative trade but also in more smuggling.

Basic Trade System

The following system helps the GM and players quickly determine how much a small merchant ship will make by carrying freight and passengers. It assumes that the ship is going to stay on established trade routes; it will not be able to find significant freight or passengers otherwise. So long as that condition is met, however, the basic trade system is ideal for campaigns that feature trade only as a backdrop for other adventures.

Bilateral Trade Number (BTN)

The total amount of trade that takes place along a given trade route is reflected in the route's "size" (major, secondary, or minor). When a merchant ship needs to find freight or passengers for a specific destination, the GM must determine how much trade is taking place specifically between the current and destination ports. This can be done by computing the Bilateral Trade Number (BTN) for the two worlds.

To determine the BTN, begin by adding the World Trade Numbers (WTNs) for the two worlds, as determined during the world-design sequence (IW page 101). This gives the amount of trade that can be expected between them, based solely on the size of the world economics.

Next, examine the trade classification of the two worlds as generated in the world-design sequence. If one world is Agricultural (Ag) and the other is Extreme (Ex) or Non-Agricultural (Na), then increase the BTN by 0.5. Likewise, if one world is Industrial (In) and the other is Non-Industrial (Ni), then increase the BTN by 0.5. This adjustment accounts for the fact that worlds in this situation complement each other, they have more gain from trade than a more typical pair of worlds.

If the two worlds are under control of two different political entities, then decrease the BT by 1. Trade that must cross a political border is usually hindered. If the two political entities are at war with each other, then no legal trade is allowed.

Next, determine the distance between the two worlds along the trade route and refer to the Distance Modifier Table below. Decrease the BTN by the amount indicated for the distance between the two worlds. Worlds that are further apart undertake less direct trade. No Available Trade, indicates not that there will be no freight or passenger traffic between the two worlds, but there will be no such traffic available for small merchant ships to handle. Long-haul freight and passenger service s almost entirely run by the greater corporations, merchant guilds and trade federations.

The distance is only important when the maximum range of a ship's hyperdrive is known.

Distance/Max Jump Modifier Table

Distance/Max Jump	Distance Modifier
0	0
1-2	-0.5
3-5	-1
6-9	-1.5
10-19	-2
20 or more	No Available Trade

Finally, if one world of the pair has a much smaller economy than its partner, the economic model behind the WTNs and BTN breaks down somewhat. To correct for this, the final BTN may not be greater than twice the smaller WTN+1.

Once the BTN has been computed, the GM and players can determine how much freight and how many passengers are available for transport to the declared destination.

Basic Procedure

Once a merchant ship reaches port, it may declare its destination and begin searching for freight and passengers to carry there. The current port and the declared destination must be connected along the established trade routes, but they do not need to be a single jump apart. The BTN between the current and destination worlds must be at least 6.0, otherwise any traffic that may be available will be controlled by large shipping lines.

Freight

Beginning on the first full day after the ship lands, it may try to find freight that is intended for the destination port. Once per day, refer to the Trade Volumes Table below and make the roll for freight volume that is indicated for the BTN of the current and destination worlds. Halve the result (rounded down) if the ship is Republic/Rebel registered and the port is under Imperial control, or vice versa (and risking to become arrested). The final result gives the number of dtons of freight that are available that day.

Each lot of freight must be delivered within one day, plus 1 hour for every parsec of distance along the trade network between departure and destination ports. Unloading at the destination starport is usually sufficient for delivery (but see Special Handling above). Late delivery incurs a 10% penalty per day late.

The standard rate for freight shipping is ₹700 per dton per parsec along major or secondary routes, or ₹800 per dton per parsec along minor routes.

Trade Volume Table

BTN	Freight Volume Roll	Passenger Volume Roll
6	2d-10	None
6.5	2d-7	None
7	2d-2	1d-4
7.5	(2d-2) x 5	1d-2
8	(2d-2) x 5	1d-1
8.5+	(2d-2) x 10	2d-2

Passengers

Beginning on the first full day after the ship lands, it may solicit passengers who wish to travel to the destination port. Once per day, refer to the Trade Volumes Table above and make the roll for passenger volume that is indicated for the BTN of the current and destination worlds. The final result gives the number of potential passengers who present themselves that day.

To determine what level of service each potential passenger wants, begin with by rolling 1d with a maximum of the total number of potential passengers. This indicates the number of low and standard tickets that the ship can sell that day. At an Imperial port, all of these tickets will be for standard passage. In a Republic port, half (rounded up) of these tickets will be for low passage and the rest will be for standard passage. If any potential passengers are left, roll 1d again with a maximum of the remaining number of potential passengers. This indicates the number of first-class tickets that the ship can sell that day. Any potential passengers that remain will want luxury tickets. If the ship can't provide the level of service that a given potential passenger wants he will go elsewhere rather than settle for a different kind of ticket.

A passenger is expected to pay for his ticket in advance, either when making his travel reservations or when boarding the ship. On the other hand, once a passenger has made reservations to travel on a given ship to depart for his destination within one wee (7 days). He will also expect to arrive at his destination within one day, plus one hour for every parsec of distance along the trade routes between departure and destination ports.

A ship that fails to meet passengers' expectations about timelines and quality of service may be able to get away with it, at least for a while. At the GM's option, the ship's crew may acquire a negative Reputation, or angry passengers may lodge complaints with Republic or Imperial authorities.

The standard rates for passenger transport are ₹400 for a low ticket, ₹2,500 for a standard ticket, ₹3,500 for a first-class ticket, and ₹6,000 for a luxury ticket. Ticket prices are per jump rather than per parsec traveled.

Speculative Trade System

The following system can be used when a small merchant ship is trying to turn a profit through speculative trade, the art of buying cargo at a low price, in the hopes for selling it later for a high price. This system can be used whether the ship stays on established trade routes or not, and it can be used in conjunction with the basic trade system. The speculative trade system is useful for campaigns in which the GM and players are interested in following trade in some detail.

In outline, the speculative trade system is very basic: buy low and sell high. Merchants seek goods for sale (possibly on The market, in Imperial Space) and buy them with whatever resources are available. They carry these goods in their holds to subsequent destinations, seeking interested buyers. A Free Trader normally carries a number of different speculative cargoes, never knowing which will sell first, and fills his hold with freight as necessary. When a given lot of speculative cargo seems to have found a profitable market, it is sold. Ideally, the merchants bring in enough to pay for landing expenses, operating costs, a new load of goods, and a little profit. Unfortunately, they are sometimes forced to accept whatever they can to prevent a total loss.

A canny trader can maximize his profits by matching likely goods with receptive markets. This makes advance information about the region of space where he is trading a particularly valuable commodity.

Generally only one merchant or team of merchants per crew may search for goods or buyers, any more is counter-productive.

Finding Goods for Sale

Beginning on the first full day after the ship lands, a merchant crew may begin searching for speculative cargoes to buy. Each attempt takes five days, and is made using the best skills from among the merchant team. If an attempt fails, repeated attempts may be made at no penalty (unless a critical failure occurs; see below). Attempts to find goods to buy can be done ate the same time as any attempts to find buyers for goods already in the hold.

Roll versus Merchant or Streetwise, whichever is lower. Any penalty for lacking an appropriate Cultural Familiarity advantage applies, as does any penalty for not being a native speaker of the local language. Any applicable Reputation (good or bad) also modifies the effective skill. Modifiers: +1 if anyone on the team has Area Knowledge for the local planet at 12+, or +2 at 20+; -1 if the world is on a minor route, or -3 if on a major or secondary route.

A successful roll indicates that a lot of cargo has been located for purchase; critical success indicates one to three lots.

A critical failure results in the crew being shunned; no one from this ship will ever be able to contact the speculative cargo markets on this world again, until they make amends. On a Republic world, this means simply paying a fine for insider trading or other violations of local law. On an Imperial world, a critical failure means that the local leaders of The market have decided the crew cannot be trusted; such trust can probably be regained only through a difficult adventure…

Determine Available Goods

Once a lot of speculative cargo has been located, roll two dice, one at a time. Modifiers: on the first die, -1 if the world is Non-Industrial, and +1 if Industrial; on the second die, -1 if the world is Non-Agricultural, and +1 if Agricultural. Treat results less than 1 as 1, and greater than 6 as 6. Read the two numbers consecutively, as a two digit number from 11 to 66, and consult the Speculative Goods Table.

For each lot of cargo, roll the indicated number of dice to determine lot size in dtons. Multiply the lot size by the price per dton (₮/dton) to determine base price. If needed multiply lot size by density (tons/dtons) to determine total mass; multiply again by local gravity to determine weight.

Speculative Goods Table

Dice Roll	Commodity	Price (₮/dton)	Sale Price Modifiers	Lot Size (dtons)	Density (tons/dton)
11	Heavy Metals	20,000,000	Ex-3	1d	25
12	Industrial Crystals	2,000,000	In+3, Na-3	1d	10
13	Radio-actives	100,000	In+4, Na-3	1d	10
14	Petrochemical	15,000	In+3, Na-4	2dx5	7
15	Artwork, Handicrafts	10,000		2d	5
16	Wood, Wood Products	2,000	Ag-4, In+1, Ex+4	5dx10	5
21	Industrial Metals	75,000	Ex-2	2d	25
22	Ceramics, Glass	15,000		2d	10
23	Gemstones	10,000,000	In+4, Ni-2	1d	0.5
24	Spices	6,000	Ag-2, Ex+1, Na+2	1dx5	7
25	Alcoholic Beverages	7,500	Ag-3, In+1, Ni-1	2d	7
26	Fruits, Vegetables, Nuts	2,400	Ag-2, In+3, Ex+2, Na+2	4dx10	5
31	Special Minerals	750,000	In+1, Na-3	1d	10
32	Lanthanum	5,000,000	In+2, Na-3	1d	10
33	Polymers	12,000	In-2	3dx5	5
34	Light Metals	10,000		2dx5	25
35	Textiles	30,000	Ag-2, Ex+2, In-1	3dx5	4
36	Livestock	1,000	Ex+4, Ni-2	3dx5	1
41	Shelters	12,000	Ex+1, In-1, Na+2	3d	8
42	Computers	250,000	In-2	2d	5
43	Weapons, Ammunitions	120,000		1d	7
44	Pre-recorded Media	50,000	Ni+2	1d	2
45	Pharmaceuticals	120,000	Ag-1, In+3, Ni-3	1d	6
46	Grain, Flour, Baked Goods	5,000	Ag-2, Ex+2, Na+2	2dx51d	10
51	Protective Suits	400,000	Ag-4, ex+4, In-2, Ni+1	1d	2
52	Tools	20,000	In-1	1dx5	10
53	Manufactured Goods	50,000	In-1, Ni+1	3d	8
54	Toys, Games, Sporting Gear	50,000	Ni+3	2d	5
55	Entertainment Devices	50,000	Ni+3	1dx5	4
56	Meat, Fish	20,000	Ag-2, In+2, Ex+2, Na+2	1dx5	8
61	Precision Instruments	400,000	In-3, Ni+3	2d	7
62	Electronics, Electronic parts	50,000	In-1, Ni+1	1dx5	2
63	Ground Vehicles	40,000	In-2, Ni+2	3dx5	3
64	Grav Vehicles	250,000	In-2, Ni+2	1dx5	3
65	Grav Units, Gravitic parts	160,000	In-2, Ni+2	1dx5	4
66	Machinery, Mechanical Parts	50,000	In-1, Ni+1	4dx10	8

Determine Purchase Price

Once the nature of each lot of speculative goods is known, roll on the Actual Price Table to determine the actual purchase price. Subtract 2 if the world is Poor, add 4 if the world is Rich. Add or subtract the Sale Price Modifiers that apply to the world where the goods are being purchased as indicated for the specific commodity on the Speculative Goods Table. The result on the Actual Price Table gives the actual purchase price as given on the Speculative Goods Table.

One member of the merchant team may use Merchant skill to try to lower the actual purchase price, using a Quick Contest according to the rule on BS page 209. The result of the Quick Contest will add or subtract 10% from the base price of the goods. For example, if the initial roll on the Actual Price Table gives a result of 150%, a victory in the Quick Contest will lower the purchase price to 140% of base, while defeat raises it to 160% of base. Groups desiring more option may consult BS pages 560 to 562.

If the lot is larger than desired, breaking it up and buying only a portion requires a positive reaction roll from the seller. One member of the merchant team may attempt an Influence roll (BS page 359) instead; modifiers for Cultural Familiarity and language skill still apply.

Once goods are purchased, they are delivered at the ramp or docking bay outside the ship's cargo hatch. It is the crew's responsibility to load each lot into the hold, though at Class C or better starports they can hire stevedores. If desired, the crew may offer to come and pick up a cargo in return for a favorable Reaction modifier, but then they are responsible for paying (or evading) any outbound costumes and duties.

Actual Price Table

Roll	Actual Price (% of Base Price)
3 or less	30%
4	40%
5	50%
6	60%

7	70%
8	80%
9	90%
10	100%
11	100%
12	110%
13	120%
14	130%
15	140%
16	150%
17	160%
18 or more	170%

Finding Buyers

Beginning on the first full day after the ship lands, a merchant crew may begin searching for buyers for any speculative cargoes that are in the hold. Each attempt to find a buyer for any one lot takes five days, and is made using the best skills from among the merchant team. If an attempt fails, repeated attempts may usually be made at no penalty. If the ship has more than one lot of speculative cargo in the hold, the crew may search for buyers for each of them at the same time, and can also search for a lot of goods to purchase.

Attempts to find a buyer use the same skill roll as finding goods for sale; add an additional modifier equal to WTN-6 (round down). On a success, a buyer is found. On a critical failure, the crew will be shunned on that planet, with the same effects as a critical failure when searching for goods.

Determine Selling Price

Once a potential buyer has been found for a given lot of goods, the sale price must be determined. Use the same process as that used to determine purchase price. The Sale Price Modifiers that apply are the ones associated with the world where the goods are being sold. If a Quick Contest of Merchant skill is used to try to improve the same price, a victory will raise the price by 10%, while a defeat lowers it by 10%.

The sale price offered by a potential buyer doesn't have to be accepted, but refusal to sell counts as a failure to find a buyer. Another attempt must be made, taking five more days. Furthermore, the merchant team must make a Reaction Roll; on a Poor or worse reaction, the result is equivalent to a critical failure on the roll to find a buyer, and the crew is shunned.

The crew is responsible for unloading the goods, clearing them through inbound customs, and paying (or evading again) any duties owed on them. Goods are considered delivered when turned over to the buyer at his place of business or other specified destination.

INTERSTELLAR EXPLORATION

Before the Old Republic era, most of "known space" is not known to spacefaring beings, which are constantly visiting worlds and regions of space for the first time. At 25,000 BBY, the Rakata hyperdrive was adjusted by the Corellians. This allowed a faster means of travel and races could spread out and colonize other worlds. There are billions of systems that no being has ever seen, and worlds which can be colonized. Before that can happen, one must go out to explore and survey those worlds, breaking ground for the colonies to come.

Survey Operations

Survey operations involve a general evaluation and mapping of the worlds in a target star system. Many of the tasks involved in survey work require a shipboard survey module; standard ship's sensors will not do because they aren't properly configured for survey work.

Survey tasks normally involve using Electronics Operation (Sensors) skill, followed by a scientific skill to interpret the collected data. Make the Electronics Operation roll first. On a critical success, the follow-up scientific skill roll is made with a +3 bonus. On a success, the follow-up roll is made unmodified. On a failure, some of the collected data are incorrect, but a correct interpretation can be made with more difficulty; make the follow-up roll at a penalty equal to the amount by which the sensor roll was missed. On a critical failure, the data are obviously bad and the follow-up roll may not be made at all. The GM may wish to make either or both rolls for the players, to keep them in the dark as to whether they are succeeding or not.

System Direction

Survey operations in a new star system begin long before the survey ship first jumps into the system. The first step is to get an impression of the contents of the target star system. This is normally done from one or two parsecs' distance.

First, the survey ship attempts to locate planets in the target star system. This takes a day of observation from a survey module. Roll against Electronics Operation (Sensors). Modifiers: +1 if at a one-parsec distance, -1 at two parsecs, -2 at three parsecs, -3 at four or five parsecs, or -4 at six parsecs.

If the sensors roll succeeds, any large gas giants (Saturn- or Jupiter-sized) will be detected. Success by two or more will detect small (Uranus- or Neptune-sized) gas giants. On a critical success, large terrestrial planets (6,000+ miles in diameter) will be detected. Even on a successful skill roll, some planets may be concealed at the GM's discretion; perhaps they are behind the primary star or are presenting an unlighted face to the observer.

If any planets were detected, roll against Astronomy to produce a rough system map, at +4 if more than one planet was detected (GM's discretion). On a success, the astronomer can locate the ecliptic plane of the target system (i.e., the plane most of the planets will orbit in). He will also have a rough estimate of the orbit for each planet sighted.

Another task that is undertaken at this stage is to "listen" for signs of intelligent life. Detecting a civilization will take one day of observation; this can be done at the same time as the search for planets, but a different scientist must do the work. At interstellar ranges, only civilizations at TL7 and above can be detected using shipboard instruments.

Roll against Electronics Operation (Sensors) to detect civilizations, using the same modifiers for range as for detecting planets. On a success, the scientist will detect any population of at least 10 billion living at TL7, one billion at TL8, 100 million at TL9-10, or 30 million at TL11+. If the sensor roll is made by a significant margin, the scientist may detect smaller populations, down to one-tenth the size on a critical success. Also on a critical success, the process will gather 2d hours of language samples (see Linguistic Assessment below). Even if no detectable civilization is present, the GM should roll in case of a critical failure, in which case he may mislead the scientist into believing a civilization is present even if it isn't.

System Mapping

When the survey ship jumps into the target system, the crew may have only a rough idea of what planets are present and where they are. They must immediately make a map of the star system and establish their own location. Once that's done, a more detailed study of the system's world can be done.

First, the ship's exact location must be established. This task is usually undertaken by the ship's navigator, using the standard ship's sensors. Roll against Navigation (Space), with a +2 if a rough system map is already available (either from library data or

from astronomical observations at interstellar range). On a success, the ship's position has been established with enough accuracy to allow further survey operations to proceed normally. On a failure, the navigator was inaccurate and all subsequent system-mapping skill rolls will be at -1. On a critical failure, the inaccuracy is greater (penalty is -3). Any penalty will last until the first success in a system-mapping task (the error was noticed and corrected).

Next, any planets in the system must be located precisely. This is actually more time-consuming once the ship is inside the target system; from a few parsecs away, it's easy to know which way to point the telescope. From inside the target system, the whole sky needs to be searched.

To produce a workable system map requires 10 days of observations. Up to four astronomers per system module can work together and reduce this time. Roll against Electronics Operation (Sensors) to locate system objects, at +2 if a rough system map is already available. This mapping process will automatically detect all the gas giants planets present in the system. On anything but a critical failure, all the terrestrial planets will also be detected. On a success, all of the larger moons in the system will appear. On a critical success, smaller moons and planetoids will also be detected.

Once planets and other bodies have been detected, a follow-up Astronomy roll will produce a working map of the star system. On a success, gas giants and terrestrial planets will be immediately identifiable, and the GM may reveal the main world's specific planet type. Any unusual features of planetary orbits will also be known at this point. Finally, success will permit the ship's navigator to prepare jump parameters for return visits to the star system. So long as jump masking is not a factor, future jumps into the star system can be made directly to the 100-diameter limit of any desired body.

Finally, the ship will again search for evidence of intelligent life. Civilizations at TL5 and up can be detected at interplanetary ranges. Detection again requires one day of observations by a scientist who is not involved with the search for planets. Roll against Electronics operation (Sensors). On a success, the scientist will detect any population of at least 10 billion living at TL5, one million at TL6, 100,000 at TL7, 10,000 at TL8, 1,000 at TL9-10, or 300 at TL11+. Again, if the sensor roll is made by a significant margin, the scientist may detect smaller populations, down to 1/10 the size on a critical success, the process will gather 2d hours of language samples. The GM should always make this roll, even if no detectable civilization is present or detection is automatic.

Planetary Survey

Explorers don't usually examine every world in a target system closely. Any nearly-habitable planet is likely to get considerable attention. Standard procedure is to do an initial evaluation of the planet while still at some distance (four to five million miles), then move into close orbit for a detailed survey and mapping sweeps.

It takes very little time to discover a planet's general parameters: diameter, atmosphere, hydrographic coverage, and climate. A rough idea of the planet's destiny and surface gravity will also be possible. An hour's observation with a survey module will suffice. Make a roll against Electronic Operations (Sensors) to gather data, then against Geography (Physical) with the appropriate specialty (BS page 180) to interpret the results.

To map the surface of a terrestrial world and determine its density and composition, a survey ship takes up a close orbit and begins using its planetary-survey instruments. Multiple telescopes and other instruments are used in concert, with each survey specialist supporting the work of other members of the team.

The best orbit for surface mapping is some variation of the "ball-of-yarn" orbit. The survey ship orbits at a very high inclination to the planet's equator, actually passing over the north and south polar regions on each circuit. As the planet rotates, the ship finds itself always passing over new terrain, eventually scanning every portion of the planet's surface. If the planet is too small or its rotation is too slow, the ship may alter its trajectory slightly on each pass to get the same effect. Taking up an effective ball-of-yarn orbit requires a successful Piloting roll. The entire mapping process takes a number of hours equal to the diameter of the planet in thousands of miles, squared (minimum 2 hours).

To gather data for the survey, each specialist (up to four per survey module) must make an Electronics Operation (Sensors) roll. If at least one surveyor succeeds, a Cartography roll is needed to assemble the survey data into a working planetary map. Modifier: +2 for each surveyor after the first who succeeded in his sensors roll.

The completed survey map will display visual and thermal features of the surface, resolving features down about 100 feet across. If there is no reason to avoid using active sensors, the survey will also yield a synthetic-aperture radar map of the planet, including nearly exact elevations. Densitometer scans will give some idea of what lies under any oceans, giving a rough map of the seafloor. The GM may wish to simply share any planetary map he has drawn with the players at this point.

The orbital mapping survey is the last chance the exploration team has to detect intelligent life, short of actually landing on the planet and looking for citizens. Once the mapping sensors results are in, make another Cartography roll, at +2 for every surveyor after the first who succeeded. Success in this roll will detect any population of at least 10 million at TL0, one million at TL1-4, or 100,000 at TL5. Again, if the sensors roll is made by a significant margin, smaller populations can be detected, down to 1/10 the size for a critical success. Any TL6+ civilization that has thus far eluded detection is automatically located once close-orbit mapping results are available.

If intelligent life has been detected now or at any earlier point, a successful Cartography roll will locate any major population centers. Even cultures that lack cities will have regions of unusually dense population (hunting ranges or good agricultural land), and these can be placed on the map.

Exploration Operations

Once the initial survey of a new world has been completed, explorers can get down to business. Real understanding of any new world requires that explorers go down and get their hands dirty. After all, every new planet is a world, the end product of billions of years of isolated evolution, full of traits unique to itself.

Geological Survey

General information about planetary geological formations will be available due to the orbital mapping pass. More detailed maps of local terrain can be generated by low-altitude mapping flights. During these, a ship's small craft or air speeder pass over the terrain at a height of about one mile, using visible-light cameras, IR sensors, radar, and densitometer readings to build an extremely detailed map. Assume that one team (two to four explorers) can cover about 5,000 square miles in a day. The task requires a lot of routing Piloting and Electronic Operation (Sensors) use, but the GM may not want to bother with skill rolls unless unusual circumstances present themselves. To assemble the final detailed map of any given area, a Cartography roll is required.

The detailed terrain map will give some information about subsurface geological formations and ore deposits, but getting a complete picture will require on-site inspection. In a given region, a geologist will drill core samples in carefully chosen locations, and will also use seismometers and a portable densitometer. This process requires 1d days for an area of about 500 square miles. The geologist must succeed in skill rolls against Electronic Operation (Sensors) and Geology. On a success, the geologist will understand the broad outlines of local geological history, and will know whether there are any valuable mineral deposits in the area. Actually locating these deposits may take months or years of work, and may not be a task for the initial exploration team.

If the planet being explored has no significant local life, then geological survey may be sufficient to determine the planet's Resource Value Modifier. This will require the successful completion of 2d local area surveys (GM rolls).

Biological Survey

Meanwhile, if the planet is a Garden world, biologists will fan out to gather information about native life forms. Such a biological survey takes about 1d days per region and terrain type covered.

During the biological survey, the explorers will collect samples of plant life and soil for later analysis. They will also try to study at least 10-12 different animal species in each terrain type. Small animals can be captured for intensive study. Large creatures will be anesthetized or killed, so that gross anatomic studies can be done and tissue samples can be taken. The explorers will also try to make holographic records of as many species as possible, exhibiting normal behavior in their natural environment.

The biological survey will require a number of Biology rolls, possibly with various specialties (Botany to study plant samples, Zoology to study captured animals, Biochemistry or Microbiology to study soil samples, and so on). Photography skill will also be useful in taking holographs of creatures in their natural setting. Capturing or hunting animal specimens should be played out as a set of mini-adventurers, using as much detail as GM and players are comfortable with.

On a world with significant local life, both geological and biological surveys are needed to determine the planet's Resource Value Modifier. This will require the successful completion of 2d local geological survey and 2d local biological surveys.

Ecological Survey

The biological survey will yield enough information to get a broad view of a world's natural history. Major plant and animal orders will be understood, and the most prevalent large species will be identified. To get a real understanding of how local ecosystems work, however, a full ecological survey is necessary.

An ecological survey takes 2d years to complete, and is usually done after a full scientific colony is placed on the world. The surveyors must painstakingly identify local species down to the smallest animal and plant forms. Further, the team must observe how all of these species interact over several local years, to make sure that any seasonal changes are noticed and understood. The survey will involve many rolls against various Biology specialties.

Contact Procedures

Once explorers have determined that intelligent life is present, the question of contact arises. The Galactic Republic has developed contact protocols that all official expeditions are ready to implement. Unofficial expeditions may have developed their own procedures on the fly…

In general, explorers will avoid going into contact a new society "cold". If possible, the exploration team will study the natives for weeks or even months from hiding.

Linguistic Assessment

The most important pre-contact task is a study of the local languages. If the native society is at a low level of development (TL0-5), then samples of the language must be gathered via direct monitoring of conversations. This would most likely be done using stealth reconnaissance drones placed in inhabited areas. At TL6 and up, it becomes possible to gather samples by monitoring radio communications from orbit.

Probe droids are almost impossible for a low-tech society to detect in flight, but at higher tech levels the local sensor network begins to have a chance at detection. I can be difficult to deploy droids where they will have a good vantage point and yet will not be discovered accidentally. Use the appropriate Piloting skill to deliver a Probe droid undetected, at a -1 penalty for each native TL above 6. A failure indicates that the flight had to be aborted, while a critical failure indicates that the probe droid was lost or shot down. Once the droid has reached the target area, the pilot can use his Camouflage skill to find a good place from which it can eavesdrop.

Radio monitoring can be done without risk of detection. Use Electronics Operation (Communications) to tap into the local radio net using a ship's communicators. AT higher tech levels the signals themselves may become difficult to interpret. As analog signals give way to digital (late TL7), the eavesdroppers must first break the protocols that encode voice, video, or text data. This requires several hours' worth of samples and a Cryptography roll, at -2 for each native TL above 8.

Each flight of a probe droid can gather 1d-2 hours of useful language samples (minimum 0). Ship's communicators can gather one hour of useful samples for every two hours of monitoring. The GM should determine how many hours of samples will be needed before a working model of the language can be derived. If the language is related to a known language (as for a lost colony of some kind) then 2dx10 hours may be enough to "break" the new dialect. If the language is completely unknown, then at least (2d+8)x10 hours of samples will be needed, possibly more if the language has unusual syntax or is communicated in an unusual manner.

In any case, Linguistics rolls will be needed to analyze the samples properly, and to create a database for the new language. At this point, the database is still incomplete, and will not permit anyone to learn the language at a better than a Broken comprehension level.

Sociological Assessment

Once the local language has been "broken", explorers must make an initial estimate of local social, cultural, and political parameters. Again, this is based on information gatherer through stealth reconnaissance and radio monitoring. However, even if the language is beginning to be known, it will take considerably more work to get insight into local culture. The rules below assume that at least 200 hours of language samples have been gathered. If less than this is available when the explorers try to make a sociological assessment, apply a -1 penalty to each skill roll for every 10 full hours of deficit. Extra samples give a +1 bonus for every 100 hours of surplus. Video samples or probe droid photography count double if they show natives interacting socially.

Technology Level:

The easiest parameter to access from a distance is the level of technological development. The overall TL of a society should be obvious by the time the initial language database is complete, without any need for skill rolls.

Population:

The native population is also fairly easy to estimate by the time the initial language database has been completed. Make a roll against Geography (Political) to estimate the world's native population, and again to estimate the population of any specific area.

Political Structure:

During this phase, the team can determine the world's government type. Intercepted communications can give some idea as to who makes decisions, and how political power is implemented. Roll against Sociology to determine the local government type.

Specific Political Institutions:

The details of local politics and customs are not always as obvious as the overall structure. At this point, the explorers will be most interested in the specifics of local law. Soon they will be preparing

for actual contact, and they will want to know what might get them arrested! Roll against Anthropology to make a rough assessment of local political structures and laws.

Instead of resolving the sociological assessment purely with skill rolls, the GM may wish to game out the process in more detail. In this case, once the initial language database has been built, or even before, the GM may begin to provide clues to social parameters by describing the exploration team's observations.

For example, rather than calling for an Anthropology skill roll and telling the player "the society accepts dissent", the GM may describe a crowded city square, observed by a probe droid. Dress and appearance are diverse. Some of the natives are apparently putting on a political demonstration, with signs and chanted slogans, but although there are angry expressions no one is moving to stop it. Indeed, some natives in uniform are apparently protecting rather than arresting the dissidents. Of course, some of the explorers' observations can be misleading…

This treatment can give the layers more latitude to direct the investigation, perhaps using other skills to ferret out bits of evidence. Once the layers have drawn and stated their conclusions, the GM can make skill rolls, granting bonuses of the players have been perspective, or penalties if not.

Covert Contact

Once the linguistic and sociological assessments are finished, the commander of the exploration team may authorize covert contact. This is not intended to open communications between the team's government and the new culture. Instead, the explorers will be sent to gather information without revealing themselves to the natives.

Of course, the whole concept of covert contact implies that the explorers can be covert when they move among the natives. Surgical alteration and disguise can only go so far when dealing with an alien civilization. The Imperial Navy will rely more on the extensive use of probe droids or commandos, while the Republic will rely more on scientists. Current protocols call for Republic explorers to move directly to an overt contact mode.

Members of the "Alpha Team" assembled for a covert contact mission must be as familiar as possible with the native language and customs. At this point, they will speak the native language at a Broken level, but their understanding of local culture will be too incomplete to permit any level of Cultural Familiarity. This implies the expenditure of one character point and 200 hours of study per explorer.

If possible Alpha Team members are provided with clothing and personal equipment that will fit local styles. Money is often a problem, especially if the local technology can produce elaborate currency that is hard to counterfeit without close examination. Instead, the Alpha Team is provided with compact items that might be of value in trade. Precious metals are a common choice. High-technology goods may be carried, but only if they can be concealed very easily; covert-contact specialists often have high levels of the Holdout skill. The Alpha team may carry concealable weapons for self-defense.

An inhabited area is chosen for the mission, preferably a frontier or rural region that allows for an unobserved landing. Once the Alpha Team lands, it makes its way into contact with the local population. Naturally, the course of each covert contact mission should be played out as an adventure!

The goal of each covert-contact mission is to gather more detailed information about local language, culture, political structures, laws, and customs. The Alpha Team must decide what items or information later teams will need to better interact with the natives. They should obtain examples of local currency, identity documents, clothing, personal equipment, and so on. They can also obtain scrolls, books, newspapers, downloads from library computers, any kind of documentation that will improve the expedition's grasp of the local language and social situation. Naturally, all this will mean interacting with the local population, unless the team resorts to stealth and theft. Apply all penalties to social skills for lack of language skill or Cultural Familiarity!

The GM should decide in advance how many successful covert-contact missions will be required before this stage of the contact operation can be concluded. For a culture that isn't too alien to the explorer's experience, 1d+1 missions may suffice. For a complete alien culture, 2d or even 3d missions might be needed.

Once the requisite number of covert-contact missions has been completed, the exploration team may improve the language database so that members can buy up to an Accented comprehension level. Cultural Familiarity for the local culture may also be purchased at this time.

Overt Contact

Once covert contact is finished, or once the decision has been made to skip the covert contact step entirely, in the case of a truly alien culture, the exploration team can move to overt contact. The Galactic republic has no "non-interference" principle, and permits its explorers to make open contact even with low-technology societies. After all, the common wealth of the Galactic Republic is meant for all species, or in the case of the Empire, any alien can be oppressed and used as slaves, its planet mined and any opposition eliminated…

The "Beta Team" that engages in first overt contact is outfitted in a manner similar to the covert-contact Alpha Teams, although if higher levels of language skill and Cultural Familiarity are available, the Beta Team members must have invested in them. The exact procedure for overt contact is left up to the mission commander, since the circumstances are likely to vary widely.

Established protocols call for the first overt-contact mission to open communication with local political authorities. The existence of offworlders or Galactic Civilization is not to be revealed to the general populace until local authorities agree that this can be done. Even then, the announcement is left up to the local officials, with the contact team operating only in support.

The Beta Team should not discuss the details of advanced scientific or technological knowledge. High-technology items may be demonstrated as part of the process of proving the team's claims, but how devices work should be left to later discussions.

Similarly, the team should not discuss intergalactic politics or institutions. Beta Teams may admit to being from a starfaring civilization that is interested in continuing contact with the local society, but the details should be left vague if possible. The Team may promise that more information will be made available once a good working relationship seems likely.

Once local authorities are coping well with the implications of contact, the Beta Team should conclude an agreement with them, laying out how further contacts may proceed. This may require considerable negotiation. The explorers should gain free access to the local population, enough to complete in-depth linguistic and sociological surveys. This normally requires that the authorities cooperate and that the population be made aware of the explorers' presence. The relationship should be set up so that the existing social and political situation is left as intact as possible. In particular, the Beta Team must be careful not to become part of any local power struggle, withdrawing entirely if the appears necessary.

Once friendly overt contact has been made, other agencies will step in, especially from the Ministry of Trade and the Ministry of Culture. The exploration team's job is complete, and it will doubtless be assigned to other work…

STARSHIP DESIGN

The ship-design system presented here gives the GM and players all the tools necessary to create ships for the Star Wars setting. The system is modular, permitting ships to be assembled from standard-sized hulls and modules.

The design system involves a step-by-step procedure. Calculations are simple and can easily be done on scrap paper. A calculator is useful but not essential. Before beginning, refer to Units and Abbreviation for a list of terms and abbreviations used in this design system.

Step 1:

Determine the design concept.

Step 2:

Design the ship's hull.

Step 3:

Choose armor and surface features.

Step 4:

Evaluate hull design.

Step 5:

Install maneuver and hyperdrives.

Step 6:

Install bridge systems.

Step 7:

Install sensors.

Step 8:

Install offensive systems.

Step 9:

Install defensive systems

Step 10:

Select small craft.

Step 11:

Install power plant.

Step 12:

Install fuel tanks and fuel processing equipment.

Step 13:

Determine size and makeup of the crew.

Step 14:

Install quarters and miscellaneous systems.

Step 15:

Install special features and unique systems

Step 16:

Determine ship performance.

Step 17:

Finalize the design

As design choices are made, keep track of the number of internal spaces taken up by ship's systems, the ship's mass (in tons), its cost (in M₹), and the power required by ship's systems (in MW).

Units and Abbreviations

The following units and abbreviations will be used throughout the starship design process.

dDR:

A measure of spaceship Damage Resistance. One point of dDR equals DR 10.

dHP:

A measure of hull hit points. One point of dHP equals 10 hit points.

dton:

A "displacement ton", a measure of hull volume. One dton is equal to 500 cubic feet.

Gravity (G):

A measure of acceleration equivalent to that produced by the surface gravity of Coruscant. One G is equal to 33 feet per second per second.

ksf:

A measure of hull or turret surface area, equal to 1,000 square feet.

M₹:

A "megacredit" or one million Republic credits.

MW:

A megawatt, a unit of power production or consumption. Equal to 1,000 kilowatts (kW)

Space:

A unit of 500 cubic feet, a convenient measure of the internal volume of a hull, or of the size of a ship's systems. Often used interchangeable with dton (see above).

Ton:

A measure of mass or weight, equal to 2,000 pounds.

Step 1: Determine Design Concept

First, decide on the general concept and mission for the ship. Who is building it and for what purpose? Is it a starship, or a craft intended only for in-system travel? Is it a merchantman or a warship? Does it have specialized functions that most ships do not have?

Next, decide at what era the ship is being designed and built. From 25,000 BBY all Republic and Imperial ships are always built at TL11, but many systems are of lower TL. The following eras are available:

The Pre-Republic era	(2 million years BBY – 25,000 BBY)
The Old Republic era	25,000 BBY – 1,000 BBY
Fall of the Republic era	1,000 BBY – 32 BBY
Rise of the Empire era	32 BBY – 0 BBY
The Rebellion era	0 ABY – 5 ABY
The New Republic era	5 ABY – 25 ABY
The New Jedi Order era	25 ABY – 40 ABY
The Legacy era	40 ABY – 137 ABY

Generic Modifiers and Multipliers

In the steps given below, the mass and the space used by systems and components must be modified. This is because in later stages of the TL11, technologies become better than in the beginning

years of TL11. Because TL11 is spread over more than 25,000 years, there is only little improvement possible. The improvements which are easy to include in this ship design system is to alter the mass of the systems and reduce the space used. It will be noted whenever this modification should be applied.

Mass Multiplier:

Multiply the given mass by:
2.0tons during The Pre-Republic era
1.0tons during the Old Republic era
0.8tons during the Fall of the Republic era
0.6ton during the Rise of the Empire era
0.5tons during The Rebellion era
0.4tons during the New Republic era
0.3tons during The New Jedi Order era
0.2tons during The Legacy era

Space Multiplier:

Multiply the given space used by:
1 during The Pre-Republic era
0.5 during The Old Republic era
0.3 during the Fall of the Republic era
0.25 during the Rise of the Empire era
0.2 during The Rebellion era
0.15 during The New Republic era
0.1 during The New Jedi Order era
0.05 during The Legacy era

Step 2: Hull

A ship's hull is its frame, and also provides its basic infrastructure (decks, cables, stress bracing, and so on). The size of a hull is measured in dtons. To design the ship's hull, choose its size, shape, and degree of streamlining

Hull Size

Begin by selecting a hull size from those listed on the Hull Table. Note that the largest hulls are only available at higher TL/era. Based on the hull's size, record the hull's base surface area (in ksf), base cost (in M₮), and Size Modifier (SM).

The base surface area of each hull is the area of a sphere with the appropriate volume (assuming 500 cubic feet per dton of hull volume). Areas have been rounded off to three significant figures. Hull shapes that vary from a sphere will have more surface area to cover the same volume; this is implemented in later steps.

The base cost of any hull is equal to ₮50,000 per dton. This covers not only the cost of the hull itself, but also the cost of internal bracing, partitions, airlocks, power transmission infrastructure, artificial gravity, and other systems not explicitly described in the rest of the ship-design rules.

The Size Modifier for each hull size is assumed to incorporate the modifiers for hull shape from BS page 550, regardless of the actual shape of the hull. A spherical hull has the same cross-section from every direction, but gets the full +2 bonus to Size Modifier. A long, narrow hull will be larger in its longest dimension, but will have no bonus to Size Modifier. In any case, the total SM will be the same.

For GMs who want to use any hull size, calculate base area as follows:
r^3 = (500 x dtons) / (4/3 x π)
Ksf = (4 x π x r^2) / 1000

Hull Table

Hull Size (dtons)	TL Required	Base Area (ksf)	Base Cost (M₮)	SM
9	-	1.32	0.45	+5
10	-	1.41	0.5	+6
11	-	1.51	0.55	+6
12	-	1.60	0.6	+6
13	-	1.68	0.65	+6
14	-	1.75	0.7	+6
15	-	1.85	0.75	+6
20	-	2.24	1.0	+6
25	-	2.60	1.25	+6
30	-	2.94	1.5	+7
35	-	3.26	1.75	+7
40	-	3.56	2.0	+7
45	-	3.85	2.25	+7
50	-	4.13	2.5	+7
60	-	4.67	3.0	+7
80	-	5.66	4.0	+7
100	9	6.56	5.0	+8
200	9	10,4	10	+8
300	9	13.7	15	+9
400	9	16.5	20	+9
500	9	19.2	25	+9
600	9	21.7	30	+9
700	9	24.0	35	+9
800	9	26.3	40	+10
900	9	28.4	45	+10
1,000	The Pre-Republic era	30.5	50	+10
2,000	The Pre-Republic era	48.4	100	+10
3,000	The Old Republic era	63.4	150	+10
4,000	The Old Republic era	76.8	200	+11
5,000	The Old Republic era	89.1	250	+11
6,000	Fall of the Republic era	101	300	+11
7,000	Fall of the Republic era	111	350	+11
8,000	Fall of the Republic era	122	400	+11
9,000	Fall of the Republic era	132	450	+11
10,000	Rise of the Empire era	141	500	+12
20,000	Rise of the Empire era	224	1,000	+12
30,000	Rise of the Empire era	294	1,500	+13
40,000	The Rebellion era	356	2,000	+13
50,000	The Rebellion era	413	2,500	+13
75,000	The Rebellion era	542	3,750	+13
100,000	The Rebellion era	656	5,000	+14

Suggested Hull Sizes

A ship's classification depends on its function, not its size. Even so, naval experts usually classify spaceships according to hull size. Here are some suggested hull size ranges for various ship classes.

Ship Function

Ship Class	Hull Size Range (dtons)
Capital	
Light Carrier	500-2,000
Carrier	2,000-3,500
Heavy Carrier	3,500-5,000
Capital Carrier	5,000+
Corvette or Patrol Cruiser	400-1,000
Destroyer	1,000-2,000
Frigate	1,500-2,500
Light Cruiser	500-2,000
Cruiser	2,000-3,500
Attack Cruiser	3,500-5,000
Heavy Cruiser	5,000-10,000
Battle Cruiser	10,000-15,000
Dreadnought	15,000-30,000
Battle Ship	30,000+
Monitor	100,000+
Bomber	
Light Bomber	15-25
Bomber	25-35
Heavy Bomber	35-45
Fighter	
Fighter	10-15
Attack Fighter	15-25
Heavy Fighter	25-35
Civilian & Utility	
Escape Pod	5-10
Lifeboat	10-20
Launch, Gig, or Ship's Boat	20-30
Cutter	30-50
Shuttle	50-100
Scientific Scout	100-400
Courier, or Transport	100-400
Light Freighter	100-500
Freighter	500-5,000
Large Freighter	5,000-25,000
Super Freighter	25,000+

To help you determine what hull function to select, a brief description of each function is given below.

Capital Ships

Capital ships are the ships used by the military. These are armed, often with weapons not available to civilians.

- Monitor: Well, you can't talk about ships anymore with this size. Monitors are more like large space stations with engines. They are costly, slow and cumbersome but

they can mount a lot of firepower not available even on the largest battleships.

- Battleship: These are the biggest starships in existence. They are well armed, armored and shielded. The only purpose is to punish other ships. They are slow and cumbersome and therefore not well suited for escort or intercept missions.
- Dreadnought: Packing heavy armor but lacking the firepower of a battleship and the maneuverability of the cruiser. These ships are often used as shields for more precious ships until they jump into hyperspace.
- Cruiser: Cruisers are large combat vessels with multiple target response capability. Cruisers are well armed and well equipped. The largest cruisers are as well armed as battleships but have less armor for protection.
- Frigate: Frigates are the most versatile starships. Though a frigate is armed its main function lies elsewhere. It is quite capable of supporting a fleet with its facilities like medical support and sensor scanning.
- Destroyer: These fast warships provide multi-mission offensive and defensive capabilities, and can operate independently or as part of a carrier battle group or interplanetary action groups. Destroyers are small, heavily armed, shielded combat orientated ships. Because of their small size and limited operations theater, destroyers require regular re-supply and maintenance at a starbase. Destroyers tend to be inexpensive to produce, but draining in maintenance.
- Corvette: Corvettes or blockade Runners as they are called are fast lightly armed ships. These ships are often used for diplomatic mission, specialized cargo transfers or as personal ships or whenever there is need for speed with a bit of protection.
- Carrier: Carriers only took their place in the Navy when the Empire had to build a lot of cheap ships, capable of countering the Rebel threat of their hit-and-run attacks. Carriers lack proper armaments and tend to keep out of the fire zone. The Rebel Alliance already employed light carriers for several years with great success.

Bombers

Bombers are small crafts like fighters with the addition of an ordnance payload capability. It makes them slower and less maneuverable than fighters.

Fighters

Fighters are the superiority fighters. They are fast, light and maneuverable. Fighters armed with missiles are known as attack fighters.

Civilian & Utility Crafts

Many different types are known to be built by many different factories. Most civilian ships are unarmed and meant for work, pleasure, or research.

- Escape Pod: Small emergency pods to ensure safe evacuation. Escape pods have no hyperdrive and only limited food and oxygen supplies.
- Lifeboat: Larger than the escape pod. Some ship captains have their own lifeboat which has a hyperdrive.
- Launch, Gig, or Ship's Boat: A large, multi-person, but less luxurious lifeboat. Mostly used on commercial transports.
- Cutter: A utility craft used for many various engineering and space mining tasks.
- Shuttle: Shuttles are dedicated to deliver personnel. Shuttles come in all sizes, from small shuttles to deliver diplomatic personnel to large for carrying an invasion force.
- Scientific Scout: Deep space explorers will need specialized ships with the appropriate modules onboard (see Interstellar Exploration above).
- Courier or Transport: These are a hybrid between shuttles and light freighters. They are most commonly used as long range shuttles. The Empire converted harmless transports into assault transports which contained a small number of troops as a boarding party.

Configuration and Shape

Hulls come in different configurations as well as sizes. Each configuration defines the hull's shape and affects the layout of internal and external features. The available configurations are needle/wedge, flattened sphere, cylinder, close structure, sphere, and dispersed structure. Some configurations have more surface area than others, and some configurations are more likely to be sleek and streamlined.

Needle/Wedge:

A long, sleek shape with very clean lines. "Needle" hulls are very long and narrow, while "wedge" hulls are somewhat shorter and wider. Most Imperial warships are built on this shape.

Flattened Sphere:

A round, flat shape, reminiscent of the classic "flying saucer" configuration.

Cylinder

A long, rounded shape, suitable for ships that don't need the best atmospheric performance. Most Mon Calamari cruisers are built with this shape.

Close Structure:

A generic shape, generally cylindrical in structure but with various pods, nacelles, and other substructures attached. Many civilian and Old Republic ships are built with this shape (i.e., the Corellian Corvette).

Sphere:

A standardized spherical shape, with few or no attached substructures. The Yevethan Aramadia-class thrustships are built with this shape as are the command section of the Trade Federation's battleships.

Dispersed Structure:

A generic classification for ships built as open frameworks rather than compact hulls. Very few ship classes are built with this shape, although aliens using this configuration may still be encountered.

Hull Configuration Table

Configuration	Area Modifier	Cost Modifier	Turrets Modifier	Best Streamlining
Needle/Wedge	2.5	2.0	0.3	Airframe
Flattened Sphere	2.0	1.6	0.25	Airframe
Cylinder	1.5	1.2	0.3	Streamlined
Close Structure	1.2	1.0	0.25	Streamlined
Sphere	1.0	1.0	0.2	Streamlined
Dispersed Structure	2.0	1.0	0.2	Unstreamlined

Streamlining

Every hull has one of three levels of streamlining: unstreamlined, streamlined, or airframe.

Unstreamlined vessels may have dispersed structures, or they may have more standard hull shapes but with no concessions to airflow. An unstreamlined vessel must remain below supersonic speeds in any atmosphere denser than Trace or it risks destruction. This makes atmospheric landings and takeoffs very difficult and dangerous for such vessels. Meanwhile, unstreamlined vessels typically have no landing gear ort other facilities to relieve the stresses on the hull when set on the ground. Spaceports may have special docking clamps to support these ships. An unstreamlined ship may be able to land on a world once, but is likely to be unable to ever lift off again without repulsorlifts.

Streamlined vessels are generally cylindrical, spherical, or block-shaped. Sharp edges may have been rounded off, but the hull does

not generate lift and there are no aerodynamic control surfaces. A streamlined ship may skim gas-giant atmosphere for hydrogen fuel (IW page 192), but they must exercise caution when landing on or taking off from worlds with substantial atmospheres. However, they normally have retractable landing gear and are unlikely to be damaged by simply landing on a planetary surface.

Airframe vessel are sleek, usually needle-, wedge-, or disk-shaped. An airframe ship is designed for atmospheric performance and smooth airflow over the hull. It has full atmospheric maneuverability, and generates lift in any substantial atmosphere. Airframe ships may skim for fuel and can safely re-enter any atmosphere. An airframe hull is assumed to include retractable landing gear. Nubian ships, for example, are airframe ships.

Select a streamlining level, and make a note of the Area Modifier and Cost Modifier from the following table. The best level of streamlining that is available depends on the hull configuration, as given on the Hull Configuration Table.

Hull Streamlining Table

Streamlining	Area Modifier	Cost Modifier
Unstreamlined	0.0	0.0
Streamlined	0.2	0.2
Airframe	0.3	0.4

Finalizing Hull Design

Once the hull size, configuration, and degree of streamlining are determined, several attributes of the hull can be computed in turn.

Surface Area:

To determine the total surface area of the hull (in ksf), multiply the base surface area from the Hull Table by the sum of the Area Modifiers from the Hull Configuration Table and the Hull Streamlining Table.

Mass:

The hull's mass is computed by multiplying the total surface area (in ksf) by the generic mass multiplier.

Cost:

To determine the total cost of the hull (in M₮), multiply the base cost from the Hull Table by the sum of the Cost Modifiers from the Hull Configuration Table and the Hull Streamlining Table.

Maximum Number of Turrets:

The maximum number of turrets that can be placed on the ship's hull is based on the hull's base surface area multiplied by the Turrets Modifier from the Hull Configuration Table. Round down the result to the nearest integer. The degree of streamlining does not affect the number of turrets that can be mounted on a hull.

Step 3: Armor and Surface Features

Ships are armored to protect against micrometeors, cosmic radiation, and enemy weapons. Adding armor will make a ship more massive and therefore slower, but it will also make the ship more durable. Other surface features may make the ship harder to spot using active or passive sensors. These features do not take up internal hull volume, but do add mass and cost.

The mass and cost of these surface features depends on the total surface area of the hull (in ksf), as derived in Step 2.

Choose Armor dDR

Spaceship armor is rated in dDR (multiples of DR 10). An airframe or streamlined ship must have at least dDR1. An unstreamlined ship with a configuration other than Dispersed Structure may have any dDR. A ship with a Dispersed Structure hull must have dDR0.

Most civilian ships will have at least dDR 1, but ships likely to face enemy fire (warships, pirates, Republic Peacekeeper ships) are likely to be much better armored.

View ports have a standard dDR 1. View ports are made of transparisteel. View ports are not covered by the normal armor (count view ports as eyes or windows of a vehicle).

To determine how much armor a ship needs, review the weapon tables. Armor is considered Ablative and directional. The dDR is equal to all sides; Forward (F, or front), Aft (A, back), Starboard (S or left), Port (P or right), Dorsal (D or top), and Ventral (V or underside).

Armor Mass and Cost

Armor Mass:

Multiply the ship's hull area (in ksf) by the chosen dDR. Multiply the result by the generic mass multiplier. Hardened armor adds +20% to the mass per level of Hardened.

Armor Cost:

Multiply the Ablative armor's total mass (in tons) by M₮0.001, or Semi-Ablative armor's total mass (in tons by M₮0.012) to get armor cost. Hardened armor adds +20% to the cost per level multiplied by the level of hardened (i.e., a level 3 Hardened armor would cost an extra 20% x 3 x 3 = 180%).

Step 4: Evaluate Hull Design

So far, the design process has focused on the hull. Now the hull has been completely described, and the process is about to move to the task of allocating ship's systems to take up space within the hull. At this point, the hull should be evaluated to set the parameters for later stages in the process.

Hull Spaces

Hull spaces are a measure of usable internal hull volume. A ship, no matter what its degree of streamlining, begins with hull spaces equal to its hull size in dtons.

Record the number of available hull spaces. Beginning with the next step in the design process, ship's systems will be installed inside the hull. Each system will take up some number of hull spaces, if the total number of hull space is occupied by systems is no greater than the number of available spaces, the design will be legal.

Hull Mass and Estimated Mass

Compute the mass of the empty hull, and use this figure to estimate the final loaded mass of the completed ship. This estimate is useful when choosing drives and other equipment for the ship.

Hull Mass:

Add together hull mass, armor mass, and stealth mass, as determined in earlier steps. Record the total as the Hull Mass.

Estimated Mass

Record a working approximation of the ship's final loaded mass, useful when deciding what components (especially what maneuver drives) are to be placed in the hull. Estimated Mass can be ignored once the ship design is completed. The density of internal components and payload can vary widely, but for most ships a reasonable estimate is: Hull Mass + (3 x hull spaces).

Step 5: Drives

Every mobile ship needs a maneuver drive, or "M-drive", to propel it through space. Every starship needs a hyperdrive, or "H-

drive", to permit it to make hyperspace transitions from one star system to the next.

Maneuver Drive

A maneuver drive is a reactionless system that produces thrust using power and without needing to consume reaction mass. Maneuver drive systems are rated for thrust, measured in tons; the total thrust delivered by all M-drive systems on board is used later to determine the ship's maneuvering performance.

Maneuver drive systems are installed by the space. No matter what type of M-drive, one space of maneuver drive machinery has a mass of 4 tons, costs M₮1.0, uses 20 MW power, and provides 10 tons of thrust per MW. Half-space maneuver drive systems can be installed, taking up half the mass, requiring half the cost and power, and delivering half the thrust of a single space.

M-drive Mass:

Multiply the mass by the generic mass multiplier.

M-drive Space:

Multiply the space used by the generic space multiplier.

Decide on how many separate engines the spaces are allocated. Many engines will provide a higher sAccel but a limited MGLT.

Hyperdrive

The hyperdrive enables faster-than-light interstellar travel. Any ship size may have a hyperdrive installed if it fits.

Hyperdrives systems are installed by the space. A standard hyperdrive in any time uses one space of hyperdrive machinery has a mass of 4 tons, costs M₮4.0, and uses 20 MW per pc/hr of power. The hyperdrive's power requirement applies only when the ship is in hyperspace, jumps into hyperspace, and exits hyperspace. The designer may assume that the maneuver drives will be shut down while the hyperdrive is drawing power but most warships, pirate ships, smuggler ships, and the like will still draw power by the maneuver drives while engaging their hyperdrives.

Hyperdrive Mass:

Multiply the mass by the generic mass multiplier.

Hyperdrive Space:

To determine how many spaces of hyperdrive systems are required, refer to the Hyperdrives Table below. Add this number to the spaces needed for the H-drive chosen speed. Each available jump range has a specific requirement in spaces of hyperdrive systems, install exactly that many spaces per 100 dtons of ship hull size. A hyperdrive of a given range will only be available at a certain date (see Engine Class Availability Table above). Multiply to total space used by the generic space multiplier.

Some ships have external hyperdrives, like the Jedi Fighter in Episode II. These kinds of ships rely on a hyperdrive built into a separate hull. Treat this hull as another craft. Build a new ship using these rules but skip the unnecessary systems which are not needed.

Hyperdrives Range Table

Range (pc)	Spaces	Cost Modifier
100	1	x0.25
125	1	x0.5
150	2	x0.5
200	3	x0.75
225	4	x0.75
250	4	x1
275	4	x1.25
300	5	x1.25
325	5	x1.5
350	5	x1.75
375	5	x2
400	5	x2.25
425	5	x2.5
450	5	x2.75
475	6	x2.75
500	6	x3
525	6	x3.25
550	6	x3.5

Repulsorlift

The repulsorlift provides cost-effective planetary travel. Repulsorlifts only worked within a gravity well, as the technology required mass to push against. For a typical habitable planet such as Coruscant, "antigrav range" was approximately 1 mile. Repulsorlifts used minimal power and were reliable enough to be left on continuously. The further away a repulsor lift is from the mass it is pushing against, the power requirements become drastically higher.

Repulsorlift systems are installed by the space. No matter what era, one-tenth space of repulsorlift machinery has a mass of 0.1 tons, costs M₮1.0, uses 1 MW power, and provides 10 tons of upward thrust per MW times distance in yards. Half-space repulsorlift systems can be installed, taking up half the mass, requiring half the cost and power, and delivering half the thrust of a single space. The power requirement at heights below 1 yard is negligible.

Repulsorlifts could be assembled in arrays, clusters, or vanes studded with micro-coils of gravitic knots. These units were then mounted on a vehicle or spacecraft, usually on the underside. The many repulsorlifts needed for a large ship were typically powered by a dedicated "antigrav generator."

Ships as massive as the Clone Wars era Venator-class Star Destroyers and Lucrehulk-class Core Ships were only able to make planetfall with the aid of massive ventral repulsorlift suspensor units. In fact, the landing legs of a Core Ship could not long support the ship's immense weight without the aid of repulsorlifts.

Due to the high energy cost at high heights, many ships start their maneuver drives at the height in which the power requirement of the repulsor lift exceeds the power requirement of the maneuver drives (although for unstreamlined ships this may be risky).

Ships equipped with sufficient repulsor lifts do not stall within an atmosphere.

Repulsorlift Mass:

Multiply the mass by the generic mass multiplier.

Repulsorlift Space:

Multiply the space used by the generic space multiplier.

Step 6: Bridge

Every manned ship needs at least one bridge to serve as a command center for the ship. In this compartment, the ship's leading officers and crew work and manage ship's systems. Many ships have secondary control rooms as well. In particular, warships often have an emergency bridge in case the main bridge is damaged, or a "flag bridge" for the use of flag officers in command of whole squadrons.

Select at least one bridge system for the ship. A bridge is assumed to include the ship's main computers, workstations for the bridge crew, mechanical and electronic control for other ship's systems, communications equipment, image processing equipment for the ship's sensors, and so on.

Small Cockpit:

A small cockpit is a single-seat cockpit, typical of short-range, unarmed craft. It includes limited life support (three man-days at BBY dates, six man-days at ABY dates).

Large Cockpit:

A large cockpit is a twin-seat cockpit, typical of fighters and long-range small craft. It includes limited life support (six man-days at BBY dates, 12 man-days at ABY dates).

Huge Cockpit:

A huge cockpit is a tri-seat cockpit, typical of the larger fighters and bombers. A huge cockpit might also be a twin-seat cockpit with an extra bunk permitting one crewman to stretch out for rest periods. It includes limited life support (12 man-days at BBY dates, 24 man-days at ABY dates).

Small Bridge:

A small bridge is typical of small civilian starships like shuttles. It has three crew stations and enough room for the crew to get up and walk around. It includes limited life support (24 man-days at BBY dates, 48 man-days at ABY dates).

Standard Bridge:

A standard bridge is typical of small warships and most, larger civilian ships. It has five crew stations and plenty of walking-around room. It includes limited life support (40 man-days at BBY dates, 80 man-days at ABY dates).

Command Bridge:

A command bridge is usually found on large warships. It has 10 crew stations and plenty of walking-around room. It includes limited life support (80 man-days at BBY dates, 160 man-days at ABY dates).

For each bridge system type, the size of the ship's computer is given. Every ship is assumed to have three hardened computer systems of the same size, with two of them serving as backups. The complexity of the ship's computers is also noted.

Bridge Systems Table

System	Spaces	Mass (tons)	Cost (MŦ)	Computer	Complexity
Small Cockpit	0.5	3	0.25	Microcomputer	TL-5
Large Cockpit	0.75	4	0.75	Microframe	TL-4
Huge Cockpit	1	5	1	Microframe	TL-4
Small Bridge	1.5	8	0.5	Minicomputer	TL-5
Standard Bridge	2.5	12	1	Microframe	TL-4
Command Bridge	5	24	4	Mainframe	TL-3

Step 7: Sensors

Every ship needs sensor equipment in order to remain aware of its environment. Install at least one sensor system in each ship; multiple sensor systems can be installed as backups in case of battle damage. Most small civilian ships can get by with no more than a Model-1 sensor array; warships and freighters will have heavier sensor systems.

Sensor systems have a Scan rating, a general measurement of sophistication and power. The spaces, mass, and cost of a sensor system do not vary with TL. However, sensors built at a later date have greater power requirements and longer range. Apply the era level adjustment given in the table for each sensor system.

Sensor Systems Table

System	Spaces	Mass (tons)	Cost (MŦ)	Power (MW)	Scan
Model-0	0.5	6	2	1	12
Model-1	1	12	4	2	14
Model-2	1.5	18	6	3	15
Model-3	2	24	8	4	16
Model-4	3	36	12	6	17
Model-5	4	48	16	8	18
Model-6	6	72	24	12	19
Model-7	9	110	36	18	20
Model-8	14	170	56	28	21
Model-9	20	240	80	40	22
Era					
The Pre-Republic era	-	x2	-	-	-
The Old Republic era	x0.5	-	x1.5	x2	+1
Fall of the Republic era	x0.3	x0.8	x2	x3	+2
Rise of the Empire era	x0.25	x0.6	x3	x3	+3
The Rebellion era	x0.20	x0.5	x3.5	x4	+4
The New Republic era	x0.15	x0.4	x4	x4	+4
The New Jedi Order era	x0.1	x0.3	x4.5	x4	+4
The Legacy era	x0.05	x0.2	x5	x4	+4

Step 8: Offensive Systems

The Star wars universe is a dangerous place, and most ships mount some sort of armament.

Fixed Mounts

Any small craft (100 dtons or less) may install up to eight fixed mounts in the hull. Fixed mounts permit the installation of light weapons without the ability to rotate them to cover different field of fire. In order to aim a weapon in a fixed mount, the whole ship must be turned.

If the ship is not going to carry fixed mounts at first, stop after allocating hardpoints. Small craft may install only small energy weapons, repeater blaster cannons, or any type of projectile weapon launchers.

Weapons placed on a fixed mount take up no hull space beyond that used by the fixed mount. One weapon may be placed upon a fixed mount. Weapons placed on a fixed mount draw power and corbana-gas (in case of the blaster cannons) directly from the power plant.

Fixed Mount Table

System	Space	Mass (tons)	Cost (MŦ)	Power (MW)
Fixed Mount	0.25	0	0	0

Turrets

Turrets are rotating superstructures mounted on the hull, used to hold weapons. They have considerable flexibility in arc of fire, since they can rotate on the hull to aim in any direction. As long as the ship's hull or appendages aren't in the way, the turret can fire in any target, regardless of the ship's current attitude. Turret weapons are the universal tools of space combat which made its entry during the end of the Clone Wars. Even on large vessels, they fulfill valuable point-defense roles against missiles and small vessels.

The maximum number of turrets that can be installed depends on the area of the ship's hull, and is determined in Step 2. Turrets need not be installed when the ship is built. Instead, "hardpoints" up to the maximum number of allowed turrets can be designated as places for turrets to be installed later.

Turret armament need not be specified when a vessel is designed, as shipyards can leave turrets empty for the owner to customize. Warships built in peacetime may have empty turrets, or may mount only one or two rather than the full complement of weapons. Although empty or partially filled turrets cannot be used to store cargo, crews often find creative uses for the extra space, like illicit stills.

Weapons placed in turrets take up no hull space beyond that used by the turret.

Turret Mass:

Multiply the mass by 2.0 tons during The Pre-Republic era, 1.5 tons during the Old Republic era, 1.25 tons during the Fall of the Republic era, 1 ton during the Rise of the Empire era, 0.9 tons during The Rebellion era, 0.8 tons during the New Republic era, 0.7 tons during The New Jedi Order era, and 0.5 tons during The Legacy era.

Turrets Table

System	Space	Mass (tons)	Cost (MŦ)	Power (MW)
Small Turret	1	1	0.1	neg.
Medium Turret	2	1.5	0.2	neg.
Large Turret	3	2	0.4	neg.
Heavy Turret	6	4	1	1

Weapon Bays

Weapon bays are large spaces allocated for heavy weapons on the skin of the ship's hull. They are rarely found on even very large civilian craft, but they are quite common on medium and large warships until the Rise of The Empire. Bay weapons have limited arc of fire, requiring the ship to maneuver to face them toward the enemy. Bay weapons are larger versions of turret weapons systems but they are also weapons that can be loaded using shells or power packs and need not to be dependent on the ship's power and ammo.

As with turrets and fixed mounts, bay weapons need not be installed when the ship is built. Empty bays can be set aside at construction and filled later. Warships may use empty bays to store "deadfall ordnance" (i.e. missiles, bombs, and corbana shells). Empty bays can also be used to store cargo or small craft.

Empty weapon bays take up space in the hull (50 or 100 spaces, as appropriate) but have no mass, cost, or power requirement. Weapon bays take up hull area and displace turrets; a 50-dton bay displaces eight turrets, while a 100-dton bay displaces 10 turrets.

Spinal Mount

A spinal mount is a large weapon mount used only for massive beam weapons. In effect, the ship (or space station) is built around the weapon, which is fixed inside the ship's hull and is considered its main structural member. Spinal mounts have a limited arc of fire, so in order to aim a spinal mount weapon the whole ship must be turned.

Spinal mount weapons are almost never found in ships built at early TL11 or smaller than 30,000 dtons, and are never found in civilian ships. Most ship designs will not need to consider them. A ship may only include one spinal-mount weapon.

Only one spinal mount weapon can be installed in any ship. The weapon must be specified and installed at the design stage; a spinal mount forms an integral part of the ship's structure, and the ship cannot operate without the weapon in place. Like other weapon systems, spinal mounts take up hull area and displace turrets. Refer to the Spinal Mount Weapons Table, which gives turrets displaced for each weapon along with the other usual attributes.

The Empire used spinal mount weapons on the Prototype Death Star, Death Star I and II and later some axial super lasers (though less powerful) were built in the Eclipse-class Star Destroyers (Eclipse I and II), on Durga the Hutt's Darksaber battle station and on the ship of Booster Terrik.

Launcher

This is the basic launcher system for the popular proton torpedoes, concussion missiles, heavy missiles, and space bombs. It consists of a mechanical launch tube that ejects the projectile from the tube at the maximum speed available for the projectile. Once free of the tube, the torpedo operates on its own. The launchers itself a small compared to the storage room needed for the projectiles.

During the Galactic Civil War, the launcher were upgraded to an advanced version which was capable of ejecting advanced proton torpedoes and advanced concussion missiles while still being able to launch heavy missiles and space bombs.

Energy Weapons

Energy weapons are classified by its size and output. Size classifications are small, medium, large, and heavy. Output types are blaster, laser, ion, and turbolaser. A separate class super weapons is added to catch all other unorthodox energy weapons. In the Space Energy Weapons Table all stats are given. Weapons placed on fixed mounts or turrets do not occupy spaces.

Some abbreviations are used in this table: fm (fixed mount), st (small turret), mt (medium turret), lt (large turret), ht (heavy turret), b (bay), and sm (spinal mount).

Space based weapons differ from atmospheric based weapons in that they provide a larger output. The damage is given in D-scale dice. Multiply by 10 to get normal scale damage. Range is the half-damage and maximum range in space and atmospheres. If a space ship is equipped with atmospheric as well as space weapons than an "a" (atmospheric) or "s" (Space) may be added in front of the weapon abbreviation for your convenience.

Energy weapons can either user the ship's power or power packs. Blaster weapons can also either use the ship's corbana gas or shells. Weapons mounted on fixed mounts or light turrets always use the ship's resources.

Triple Blasters

The oldest and most venerable of blaster technology was the triple blaster. It worked by using three separate blasters connected to the same targeting system. By the Rise of the Empire, triple blasters had become exceedingly rare.

Small Blaster Cannon

The SBC is the smallest blaster available for starships. It provides low-yield firepower and is used mainly as a deterrent of defensive weapon or as the main weapon of small craft like fighters and bombers.

Medium Blaster Cannon

The MBC (by many simply called the BC) is a good compromise between firepower and cost. MBCs are most often used as small sized ships.

Large Blaster Cannon

This larger version of the BC provides added firepower through a larger energy output. It is mostly relegated to support or defensive fire.

Repeater Blaster Cannon

The RBC is a favored weapon by most vehicle crewmembers as it provides gatling strength firepower against targets. It is often found in a defensive role against infantry.

Gatling Blaster Cannon

The GBC is more expensive because it is multi-barreled. It provides an even faster ROF than the RBC with less chance of malfunction by overheating.

Small Laser Cannon

The SLC is the main weapon of choice for most small military crafts in space today. It provides a decent yield of damage, while remaining light and affordable enough.

Medium Laser Cannon

MLCs are the larger brothers of the SLC (found mostly in military vessels or on larger civilian ships) the MLC operates on a balanced design of good firepower and sensible energy consumption. Although it is a somewhat bulky weapon, its firepower compensates for its largish size.

Large Laser Cannon

The LLC are the top of the laser cannons family. They are considered heavy weapons and generate high amount of firepower. The LLC are found mostly on military ships as secondary weapons.

Gatling Laser Cannon

The GLC is better known by its more common name of "Quad Laser". That name comes from the fact that the GLC is equipped with 4 barrels, each able to fire 2 shots per second, giving the weapon its overall ROF of 8. The "Quad" is favored weapon

among civilian merchant ships, as it provides great firepower in both offensive and defensive roles, especially when used in anti-aircraft barrages.

Small Turbolaser Battery

The smallest of the three members of the turbolaser family, the STBL (often dubbed Killer Baby) provides great firepower (over twice that of the LLC) in both offensive and defensive roles. The STBL is the weapon of choice on many military patrol crafts such as Carrack Light Cruisers.

Medium Turbolaser Battery

The most common heavy weapon in space, the MTBL equips most military vessels as the main gun type. The MTBL is a powerful weapon, able to shoot down and destroy most types of aerospace fighters with a single salvo. Its heavier firepower also makes it the weapon of choice in such roles as naval warfare (heavy ship against heavy ship) and siege warfare.

Large Turbolaser Battery

The largest weapon available for naval ships, the LTBL is feared by most ship captains and pilots. Able to destroy many small ships with a single shot of its powerful barrels, the LTBL is found mostly on capital warships such as Mon Calamari cruisers and Imperial Star Destroyers.

Heavy Turbolaser Battery

This is the largest turbolaser available, the HTBL and can be found only on Starbases, and as planetary defenses. The HTBL is able to destroy medium sized capital ships with a single shot from its massive barrels. Because of their heavy weight, they perform poor as anti-aircraft guns.

Super Laser Mark I

The SL Mk 1 is the first super laser and could be found on the first Death Star. The SL Mk 1 is the only one which had the chance to destroy an entire planet. The Sl Mk 1 can only be used as a spinal mount weapon.

Super Laser Mark II

The SL Mk 2 could be found on the next two Death Stars of which one was destroyed during the battle of Endor. It has the same destructive power as the mark I but its firing rate is a little higher and the construction is lighter. Because of the reduced weight the weapon can be mounted on slight maneuverable mounts. The mounts can be directed against its opponents instead of turning the entire station.

Super Laser Mark III

A newer version of a weapon is normally more powerful, has greater range, or penetrates armor more quickly. None of these is true with the new SL Mk III, better known as the axial laser. This weapon can be found, mounted on the Eclipse-Class Star Destroyers.

Small Ion Cannon

The smallest EMP gun available on the ship's market, the SIC provides a good protection-to-cost ratio to its owner. Easy to maintain and not requiring any gunner (can be fired by a dedicated computer), it is a perfect buy for small operators or single-crew ships like the T-38s or the BTL-S3 Y-wing.

Medium Ion Cannon

A common design, the ion cannon is just a larger version of the LIC. It provides greater disabling power, but at a greater cost. It is mostly used aboard medium-sized ships or planetary patrol boats.

Large Ion Cannon

The LIC is a standard design for large capital ships. It is often used to disable other large capital ships, or even space stations.

Heavy Ion Cannon

The largest pulse weapon available on ships, the HIC is mostly used on space stations as a capture system, in conjuncture with tractor beams.

Space Weapons Table I: Placement

System	Spaces	Mass (tons)	Cost (MŦ)	Power (MW)	Corbana Gas (tons/shot)	Placement	Turrets Displacement
Blasters							
Triple Blasters	1	2	0.25	10	0.006	fm	-
Small Blaster Cannon	1	3	0.5	20	0.012	fm, st	-
Medium Blaster Cannon	2	6	1	40	0.018	fm, mt	-
Large Blaster Cannon	3	9	1.5	60	0.03	fm, lt, b	-
Repeater Blaster Cannon	1	4	0.75	20	0.012	fm, lt	-
Gatling Blaster Cannon	2	6	1	20	0.012	fm, mt	-
Lasers							
Small Laser Cannon	1	2	1	5	-	fm, st	-
Medium Laser Cannon	2	4	2	10	-	fm, mt	-
Large Laser Cannon	3	6	4	20	-	fm, lt, b	-
Gatling Laser Cannon	2	4	3	15	-	fm, mt	-
Turbolasers							
Small Turbolaser Battery	6	24	3	40	-	fm, st, b	-
Medium Turbolaser Battery	12	42	6	80	-	fm, mt, b	-
Large Turbolaser Battery	18	60	9	120	-	fm, lt, b	-
Heavy Turbolaser Battery	24	78	12	160	-	fm, ht, b	-
Ion							
Small Ion Cannon	1	2	3	20	-	fm, st	-
Medium Ion Cannon	2	4	6	40	-	fm, mt	-
Large Ion Cannon	3	6	9	60	-	fm, lt	-
Super Weapons							
Super Laser Mark I	4,000	20,000	80,000	8,000	-	sm	40
Super Laser Mark II	4,000	15,000	125,000	8,500	-	sm	40
Super Laser Mark III	1,000	5,000	6,000	5,000	-	sm	10
Launchers							
Basic Projectile Launcher	1	1	0.75	neg.	-	fm, st, mt, lt, b	-

Space Weapons Table II: Energy Weapons

TL	Weapon	Damage	Acc	Range	RoF	Shots	Rcl	LC	Notes
11	Triple Blasters	6d(3) burn, cr	10	500/1,500	3	-		4	[4, 5]
11	Small Blaster Cannon	6dx2(5) burn, cr	10	900/2,700	4	-	11	4	[4, 5]
11	Medium Blaster Cannon	6dx3(5) burn, cr	8	1,300/3,900	3	20(5)	1	4	[4, 5]
11	Large Blaster Cannon	6dx5(5) burn, cr	6	1,300/3,900	1	20(5)	1	3	[4, 5]
11	Repeater Blaster Cannon	6dx2(3) burn, cr	8	900/2,700	8	-	1	4	[4, 5]
11	Gatling Blaster Cannon	6dx2(3) burn, cr	7	900/2,700	10	100(5)	1	3	[4, 5]
9	Small Laser Cannon	6dx2(2) burn, imp	6	1,500/4,500	5	-	1	4	[3, 6]
10	Medium Laser Cannon	6dx3(2) burn, imp	5	1,800/5,400	4	20(2)	1	4	[3, 6]
11	Large Laser Cannon	6dx4(2) burn, imp	4	2,100/6,300	3	20(2)	1	3	[3, 6]

10	Gatling Laser Cannon	6dx2 burn, imp	4	1,500/4,500	12	100(2)	1	3	[3, 6]
11	Small Turbolaser Battery	8dx2(10) burn, imp	3	2,400/7,200	1	10(5)	2	2	[4, 6, 8]
11	Medium Turbolaser Battery	8dx3(10) burn, imp	2	2,700/8,100	1	10(5)	2	2	[4, 6, 8]
11	Large Turbolaser Battery	8dx4(10) burn, imp	1	3,000/9,000	1	10(5)	2	2	[4, 6, 8]
11	Heavy Turbolaser Battery SL	8dx5(10) burn, imp	0	3,300/9,900	1	10(5)	2	2	[4, 6, 8]
^	Super Laser Mark I	8dx1000(100) burn, imp	-5	360,000	1	1(25)	1	1	[4, 8]
^	Super Laser Mark II	8dx1000(100) burn, imp	0	360,000	1	1(20)	1	1	[4, 8]
^	Super Laser Mark III	8dx100(10) burn, imp	0	180,000	1	1(5)	1	1	[4, 8]
11	Small Ion Cannon	HT-5 aff	5	600/1,800	4	-	1	4	[2]
11	Medium Ion Cannon	HT-6 aff	4	900/2,700	3	25(2)	1	3	[2]
11	Large Ion Cannon	HT-7 aff	3	1,200/3,600	2	25(2)	1	2	[2]

Space Weapons Table III: Projectile Weapons

TL	Weapon	Damage	Mass	Acc	Range	Speed	Shots	Rcl	LC	Notes
9	Heavy Rocket	6dx6(10) cr, ex	1	3	1,800	12	1	1	1	
9	Space Bomb	8dx8(10) cr, ex	1.5	3	500	6	1	1	1	
10	Concussion Missile	6dx2(2) cr, ex	0.25	3	2,400	80	1	1	3	
11	Adv. Concussion Missile	6dx3(2) cr, ex	0.5	3	2,700	100	1	1	2	
11	Proton Torpedo	6dx2(5) cr, ex	0.25	3	3,000	144	1	1	2	
11	Adv. Proton Torpedo	6dx3(5) cr, ex	0.5	3	3,300	156	1	1	2	

Notes:

All Mounted weapons are powered by a power generator, either from the vehicle or ship, or from an independent power generator. See Heavy Weapons section for detailed rules.

[1] Weapons requires atmosphere to function. No effect in trace atmosphere or vacuum!

[2] The damage has the Surge modifier (BS page 105). As well, whether or not any damage penetrates, the target must make a HT roll at -4, plus half the DR on the location struck (due to armor divisor). On a failure, the electrical shock suns him. He may roll against HT every turn at the same penalty (but without DR bonus) to recover.

[3] Smoke, for, rain, cloud, etc. give the target additional DR equal to the visibility penalty. For instance, if rain gives a penalty of -1 per 100 yards, a laser firing through 2,000 yards of rain must penetrate an extra DR 20.

[4] Burn damage has the Surge damage modifier (BS page 105).

[5] If the weapon is used within an atmosphere, ignore the number of Shots. In space the weapon must be supplied by shells containing plasma in addition to power or taking plasma directly from the ship's fuel tanks.

[6] If the weapon is used in space, ignore the half-damage range.

[7] Planetary guns can only hit objects in space and have no half-damage range.

[8] Cannot aim at targets closer than a quarter of the maximum range.

Tractor Beam

A tractor beam is an invisible force beam that drags objects from place to place. Tractor beams are used for cargo handling, starport traffic control, and for capturing starships. Also known informally as grappling rays or magnetic beams, tractor beams are common armaments aboard military vessels.

A tractor beam itself usually cannot disable a ship, but it can reduce target maneuverability, increasing the likelihood of gunnery attacks connecting with vital systems. A ship attempting to break free of a tractor beam lock may suffer crippling engine damage due to system strain.

Imperial vessels such as Star Destroyers and the Death Star were equipped with powerful tractor beam projectors used to capture and reel in craft suspected of subversive affiliation.

Tractor beams use large amounts of power and are more common on larger ships than on smaller ones, though not unknown.

1 space has a mass of 1 ton multiplied by the generic mass multiplier, uses 10 ME of power, and costs M71. One space of tractor beam can reduce the maneuverability by 1 per 100 tons. A two space tractor beam can reduce the maneuverability of a 100ton starship by 2 or a 200ton starship by 1 and uses 20MW.

Effectively, by decreasing the maneuverability in this way, the acceleration is also decreased. As long as the ship remains at least more than half its acceleration, it has a chance to escape. The ones controlling the tractor beam may set dictate what to do with the acceleration "stolen" from its target.

Step 9: Defensive Systems

Shields

Some weapons might be used as defensive fire against small craft and missiles and armor protects the ship at any incoming attacks. Armor is sufficient in most cases as the primary defensive measure, it can be bulky and heavy which makes the ship slower and less maneuverable. Another option became available during the Great Hyperspace War. The first deflector shields only offered limited protection at a high cost of power but gradually the power usage dropped and shield became more resistant.

No matter what era or shield type, a deflector shield generator will use 1 MW per 1dDR per ksf. The total number of dDR is equal over the six sides of the hull (Forward (F, or front), Aft (A, back), Starboard (S or left), Port (P or right), Dorsal (D or top), and Ventral (V or underside).

Ships may have several shield settings. These settings allow the crew to fortify a certain part of the ship with the shield dDR taken from another part of the ship. The most common are:

- 1 setting: the ship has one shield covering the entire hull and equally dividing the dDR over all sides.
- 2 settings: the ship shield can be set to cover the entire hull or just the forward half or the aft half of the ship.
- 6 settings: the ship's shield can be set to cover the entire hull or just one out of six sides.

The recharge time is equal to 1dDR x ksf in seconds. Doubling this rate will result in doubling the mass of the shield generator and quadrupling the cost. The recharge rate limits to 1/10 of the total dDR thus it will take a minimum of 10 seconds for a depleted shield to fully recharge.

Particle Shield:

This type of shield was used to deflect space debris or physical object such as bombs, torpedoes and missiles. Particle shields have Limited Defenses against Physical attacks only, are Ablative and have the Force Field enhancement

Ray Shield:

Ray shields or energy shields was a type of deflector shield specifically designed o deflect energy weapons such as blasters, lasers and ion weapons. Ray shields have Limited Defenses against Energy attacks only, are Ablative and have the Force Field enhancement.

Shield Generator Spaces:

Multiply the ship's hull area (in ksf) by the chosen dDR by the generic space multiplier, multiplied by the chosen setting. Divide the result with 6.

Shield Generator Mass:

Multiply the ship's hull area (in ksf) by the chosen dDR (excluding the +20% for the Force Field enhancement). Multiply the result by the generic mass multiplier.

Shield Generator Cost:

Multiply the Ablative shield generator's total mass (in tons) by M₮0.01 multiplied by the available settings to get the deflector shield generator cost.

Countermeasures

Step 10: Small Craft

Ships often carry various vehicles and small craft, air/speeders, shuttles for the crew's use, light freighters to permit cargo offloading from unstreamlined ships, fighter squadrons, and so on. Any such vehicles or small craft should be selected at this point.

Small craft can be carried in several different ways.

Vehicles Bays

A vehicles bay is a small space recessed into the larger ship's hull, custom-designed to snugly hold a single, specific small craft. It cannot be used for any other type of vehicle. To access the small craft, crewmen use a hatch that directly connects the larger and smaller vehicles. Any maintenance to be performed on the small craft must be done from inside unless the two vehicles are in spacedock.

The total size of all small craft carried in vehicles bays cannot exceed 20% of the larger ship's hull size. For example, a 100-dton scout ship could carry two 10-dton lifeboats or a single 20-dton gig in vehicle bays, but no more.

Regardless of the size of the small craft, the equipment for a vehicle bay takes up one space, has a mass of 0.5 tons, has negligible cost, and uses no power. The vehicle bay must also be allocated one space for every dton of the small craft's size; this extra space has no mass, cost, or power requirement.

Hangar Bay

A hangar bay is a large space inside the ship in which a variety of smaller craft can be stored for use. Unlike a vehicle bay, a hangar bay is not specific to one class of small craft. Any small craft that does not exceed a specified size may use it, indeed, large hangar bays may provide sufficient space to store many small craft. Such large hangar bays have bay doors, and may include elevators or ramps to move the small craft into launch position.

There is no limit to the size of hangar bays within a large ship. When hangar bays are being designed, the capacity (in dtons) of the bay must be specified; the exact nature of small craft to be carried need not be. Decide whether the systems form one large hangar bay or several smaller ones.

Regardless of the size of any small craft to be stored within a hangar bay, the necessary equipment takes up 1.5 spaces, has a mass of one ton, has negligible cost, and uses negligible power. The hangar bay must then be allocated two spaces for every dton of capacity; this extra space has no mass, cost, or power requirement.

Hangar bays are normally sealed against vacuum, and can be provided with air pressure and life support while the ship is not engaged in launch or retrieval operations.

Launch Tubes

Ships that carry many similar small craft (such as carriers or "mother ships", which carry fighter squadrons) sometimes install launch tubes in order to launch the small craft as efficiently as possible. A launch tube is a low-powered mass driver, which uses electromagnetic induction to propel the launched craft quickly away from the larger ship's hull. There is usually a "reloading" mechanism, a set of elevators used to bring new craft into the launch tube very quickly.

If a ship is to launch small craft with a launch tube, begin by installing a hangar bay in which all of the carried small craft can be stored when not on flight operations. Then install a separate hangar bay just large enough to contain the largest craft to be accommodated by the launch facility. Finally, add one module of launch tube systems for every five dtons (or fraction thereof) of the largest craft to be accommodated. During and after The Rise of the Empire era, one module takes up two spaces, has a mass of 20 tons, cost M₮0.2, and uses 0.5 MW of power. Before The Rise of the Empire era, launch tubes are not available.

Step 11: Power

Power Plant

Before The Old Republic era, almost all starships use a fusion power plant design. Some isolated civilizations may even use the older fission power plant. With the invention of the Corfaize-Tibanna Gas Turbine (CTGT) or better known as the Corbana Gas turbines, most starships were equipped with the CTGT which provided cheap and safe power but uses large amounts of space.

A ship may have more than one separate power plant, to provide redundancy in case of systems failure or battle damage.

Total up all of the power (in MW) required to run all systems installed so far. For most ships, any remaining power requirements are trivial. The total power requirement must normally be met in full by installing power plant systems. The GM may choose to permit "underpowered" ships, but this adds extra complication as the crew must choose which systems to keep fully powered at any given time.

Since a ship's maneuver drive and weapons cannot be used in hyperspace, the hyperdrive's power requirement can be ignored unless it is greater than the sum of maneuver drive and weapon power requirements.

Select a power plant system from the following table. Power plants are also rated for output, giving the MW of power required for other ship's systems that can be satisfied by the power plant. They are also rated for efficiency, giving the time that the power plant can operate on one cubic feet of fuel.

Output, mass, and cost are per 1/100 of space of power plant.

Power Plant Mass.

Multiply the mass by the generic mass multiplier.

Power Plant Space:

Multiply the spaces used by the generic space multiplier.

Efficiency:

During the years, CTGT power plant became more efficient. The number represents the fuel used, in cubic feet, to get 1 MW for an entire hour. Multiply the efficiency from the table below with the following multiplier:
N.A. during The Pre-Galactic era (use the power plants given in IW page 195, which are powered by hydrogen fuel)
x1 during The Republic era
x0.75 during The Fall of the Republic era
x0.7 during the Rise of the Empire era
x0.6 during The Rebellion era

x0.55 during The New Republic era
x0.5 during The New Jedi Order era
x0.45 during The Legacy era

Power Plant Table

System	Mass	Cost	Output	Efficiency
CTGT	0.1	0.1	1	1

Batteries

Short range ships, ships which use low power most of the time but high power in certain circumstances (like combat) may have batteries installed in place of a power plant or as an extra power source. Batteries are rechargeable by either the on board power plant or via a connection to the mother ship when docked. Batteries use no power unless recharging. A battery is installed by the space. 1 space of batteries delivers 100MW of power, have a mass of 10tons, cost M₮5.

Battery Mass:

Multiply the mass by the generic mass multiplier.

Battery Space:

Multiply the spaces used by the generic space multiplier.

A battery pack can only be installed for one system. For example, a TIE Fighter has two laser cannons. Each of these laser cannons needs a separate battery.

Recharge Rate:

Batteries recharge rate is 1MW per second. This is taken from the power plant's capacity. A super charger may be installed on the battery. A supercharger takes no space, has no mass and doubles the cost of a battery and charges the battery with a rate 1 + 1% of the total power delivered by the power plant (round down).

Step 12: Fuel Tanks

Starships use power, provided by the power plant, which uses large quantities of corbana gas and some ships are equipped with blaster cannons which, when not using shells, also use large quantities of corbana gas with each shot. Much of a starship's volume will be devoted to the storage and processing of this fuel.

Fuel Tanks

Starships need fuel tanks to store corbana gas, which is used to feed the power plant and starship dependent blaster weapons. Ships without hyperdrives and blaster weapons do not need much fuel for their own operation, although "tankers" that provide fuel to other ships are possible.

Fuel tanks are installed by the space. No matter what the era, one space of fuel tanks has an empty mass of 0.025 tons, costs M₮0.02, holds 500 cubic feet of fuel, and uses no power. Half-space fuel tanks systems can be installed, with half the mass and cost, and storing half as much corbana gas.

A CTGT uses exactly 1 cubic feet of fuel per 1 hour to provide continually 1 MW of power during that hour.

A ship usually has at least enough fuel tanks to store the fuel necessary for one jump at its maximum range and one take off and landing on a planet. Ships may have extra fuel tanks.

Fuel Processors

Starships sometimes perform "wilderness refueling", refilling their fuel tanks from materials found on backwater worlds or out-of-the-way moons. The most common method is for a starship to skim the outer atmosphere of a gas giant planet, scooping up corfaize and tibanna gas. These gases cannot be found in many places. Corfaize and tibanna gasses that are skimmed must be processed and purified before it can safely be used as fuel.

Fuel processor systems are rated for the amount of unrefined fuel that they can process in one hour, measured in dtons.

Fuel processors are installed by the hull space. The statistics for each space of fuel processor depend on the era and are given in the following table. Half-space fuel processor systems can be installed, taking up half the mass, requiring half the cost and power, and processing half of the unrefined fuel of a single space.

Fuel Processor Mass:

Multiply the mass by the generic mass multiplier.

Fuel Processor Space:

Multiply the space used by the generic space multiplier.

Fuel Processor Table

Ship Build Era	Mass (tons)	Cost (M₮)	Power (MW)	Fuel Processed/Hour (dtons)
The Pre-Republic era	4	0.2	20	2.0
The Old Republic era	4	0.2	18	3.0
Fall of the Republic era	4	0.2	16	3.5
Rise of the Empire era	4	0.2	14	4.0
The Rebellion era	4	0.2	13	4.2
The New Republic era	4	0.2	12	4.4
The New Jedi Order era	4	0.2	11	4.7
The Legacy era	4	0.2	10	5.0

Step 13: Crew

Now that almost all of the ship's systems have been installed, consider how many crewmen will be needed to man them.

Typical crew requirements are given below, but these are averages; actual requirements can vary a great deal, and every individual ship may have a different crew roster. Military ships will have larger crews to allow for multiple shifts and to replace loses in combat. Transports often run with a bare minimum of crew to save money. A civilian yacht might not have any permanent crew, but when the yacht is in operation somebody needs to do each job. Ships with minimal crews call for talented people, since several jobs are doubled up.

In general, crew should have a skill level of at least 12 in the skill(s) appropriate for their positions. If the GM feels that a ship is under-crewed, he should assess penalties to appropriate skill rolls, especially in stressful situations when one crewman has to be in three places at once.

Crews, especially on large ships, are divided into sections; each section has a specific function and is usually commanded as a unit. For the purpose of these rules, we divided the various sections into core crew (the crewmen required to operate the ship's functions) and the support crew (the crewmen whose primary job is to support the core crew). The core crew includes the command section, the gunnery section, the flight section, the passenger service section, the cargo service section, the ship's troops, and the specialists. The support crew includes the maintenance section, the life support section, the medical section, and the general services section.

Before allocating the crew, decide how many passengers the ship can expect to carry; the size of several crew sections depends on the passenger capacity of the ship. Passengers can travel by low passage, standard passage, first-class passage, or luxury passage; although passenger accommodations can be shuffled from one trip to the next, the expected number of passengers in each class should be determined.

Aside from dividing crew into sections, the crew allocations listed here also classify crew into officers, petty officers, and crewmen. These terms are very specific to the Republic or Imperial navy, but every starship service tends to divide its crew in some fashion into "commanders", "experienced crewmen", and "ordinary

crewmen". In services other than the navy, feel free to apply different labels to each level of the crew as appropriate.

On many vessels, droids fulfill many tasks normally done by ordinary crewmen. Some affiliations even rely on a full occupation of droids instead of crewmembers of their own species. On small craft even the entire crew may consist solely of droids. Treat droids as crewmen with their own rank or specialty.

Command Section

The command section includes "bridge crew", the officers and support staff who coordinate all of the ship's activities.

Small craft usually run with only one to three crewmen in the cockpit. All of these crewmen are to be considered to be apart of the small craft's "command section".

Very small starships (100-200 dtons) often get by with as few as three crewmen in the command section; a commanding officer, a pilot who also serves as navigator, and an officer who runs sensors and communications systems.

Slightly larger vessels will usually split the available work among more officers. A five-man command section, typical for ships of 100-1,000 dtons size, would include: commanding officer, executive officer (who also serves as command pilot), navigator, sensor officer, and a communications officer.

Ships approaching 10,000 dtons in size will often have a 10-man command section: a commanding officer, an executive officer (command pilot), an additional pilot, two navigators, two sensor officers, two communications officers, and a computer officer.

On ships of 10,000 dtons or greater hull size, the command section often expands beyond the bridge, including more officers and a support staff that work elsewhere on the ship. The total number of personnel in the command section should amount to at least five per 1,000 dtons of ship.

On any starship, up to the first 10 members of the command section will all be officers. After that, about 50% of the section will be officers, 25% will be petty officers, and 25% will be ordinary crewmen.

Engineering Section

The engineering section includes technicians who operate the ship's drives and power plant. It also includes technicians who perform routine maintenance and repairs on the drives.

The engineering section requires one engineer for every five spaces of hyperdrive, maneuver drive, or power plant systems during any era for all known species and civilizations. The Bakuran and Shindaarni do not have the same taboo for automation and therefore only need one engineer for every 20 spaces. The number of engineers is rounded down, although ships of 200 dtons or more almost always have at least one engineer. Small craft don't normally carry an engineering section, relying instead on maintenance technicians carried by the parent ship.

The first two crewmen in the engineering section are always officers, the chief engineer and the second engineer, or "chief engineer's mate". After these two, the engineering section will have about 10% officers, 20% petty officers, and 70% ordinary crewmen.

Gunnery Section

The gunnery section includes not only the "gunners" who operate ship's weapons in combat, but also the fire-control and tactical specialists who coordinate weapon fire in accordance with orders from the ship's captain.

Spinal mount weapons need one gunnery crewman per 100 spaces taken up by the weapon (round to the nearest whole number). Bay weapons need at least two crewmen, and turret weapons need at least one crewman per turret.

Small craft don't normally carry a gunnery section. The gunnery functions are usually taken over by the pilot or another command crewmember.

The gunnery section will usually have about 10% officers, 30% petty officers, and 60% ordinary crewmen. On warships, there is usually at least one officer or petty officer to serve as a chief gunnery officer; if the gunnery section is large, there will be at least one petty officer per type of weapon on board.

Flight Section

The flight section includes pilots and crew for the ship's attached small craft, including personal vehicles, gigs, shuttles, fighters, and even subsidiary spaceships of 100 dtons or more. It also includes "flight control" officers, who coordinate the traffic of such smaller vehicles.

Each small craft needs its own pilot, as well as any other crew that is needed when the craft is in operation. Each craft also needs at least one technician to provide regular maintenance. If the ship has at least four small craft on board, then the launch facilities themselves (hangar bays, launch tubes, and so on) will need at least one crewman for every four small craft. Finally, if the ship has at least 10 small craft on board, then it needs at least one flight control crewman for every 10 small craft.

The pilot for each small craft of 10 dtons or more will be an officer, as will any flight control crewmen. After that, the flight section usually includes 10% officers, 30% petty officers, and 60% ordinary crewmen.

Passenger Service Section

The passenger service section includes crewmen whose primary job is to tend to the comfort and entertainment of passengers. Crewmen in the passenger service section are also called stewards.

Ships designed to carry passengers always require at least one crewman dedicated to passenger care. A ship needs one extra steward for every 50 low passengers, one for every 20 standard passengers, one for every 10 first-class passengers, and one for every two luxury passengers.

The passenger service section's first crewman is usually an officer called the chief steward; this officer often acts as the ship's day-to-day accounts and running the ship's store. After the chief steward, the passenger service section usually consists of 10% officers, 20% petty officers, and 70% ordinary crewmen.

Cargo Service Section

The cargo service section includes crewmen whose primary job is to handle cargo loading and unloading operations, and to monitor and care for a cargo when a ship is in transit. Cargo handlers are also called stevedores.

Even many ships that make a living carrying freight have no specific cargo service section. Such ships press other crew into service to help with cargo handling, or they rely on cargo handlers working at each port of call. The major exception is Rebel Alliance merchant vessel working inside Imperial territory; such ships cannot usually call on port stevedores, so they carry their own cargo-handling crew instead.

Any starship that carries cargo for pay must have at least one crewman dedicated to cargo handling. Small merchant ships will usually press other crewmen into service during cargo loading or unloading. Large merchant ships with at least 1,000 spaces of cargo storage are likely to have dedicated teams of stevedores (and appropriate cargo-handling equipment) for every 250 spaces of cargo.

The cargo service section is led by a crewman called cargomaster. This individual supervises loading and unloading operations, and double-checks the cargo manifest. If the cargomaster is the only stevedore on board, he is usually a petty officer reporting to the ship's purser. If there are multiple stevedores on board, then the cargo service section usually consists of 10% officers, 20% petty officers, and 70% ordinary crewmen.

Ship's Troops

Most ships of at least 1,000 dtons size have an armed contingent on board, the ship's troops. On a warship, these are marines or navy troopers; on a civilian ship, they are usually security forces organized in a paramilitary fashion. The ship's troops contingent varies in size from a single fire team up to a whole regiment. They often fill the role of security forces aboard their ship and take part in military exercises when required by the ship's commanding officer. They are also used for damage-control parties, for manning some ship's weapons, and for boarding actions.

Ship's troops contingent vary in size from about three per 1,000 dtons to three per 100 dtons. They are armed and organized according to the standards of the service from which they are drawn.

Specialists

Large ships, especially military vessels, will carry full-time officers and specialists for a variety of tasks: communications, sensors, landing teams, security staffs, science crew, and so on. Allocate as many specialists as appear to be needed to fit the ship's functions, considering all the crew that were assigned to other core-crew sections.

Total up all of the crewmen allocated thus far, these are the core crew.

Maintenance Section

The maintenance section includes technicians who perform generalized maintenance and damage control on all of the ship's systems (the drives, power plants, life support, and other systems as well).

The maintenance section includes one full-time mechanic if there are at least eight core crewmen on board; one more for every full 40 core crewmen or 400 dtons of ship, whichever is greater. Maintenance crewmen usually report to the chief engineer. The section normally consists of 10% officers, 20% petty officers, and 70% ordinary crewmen.

Life Support Section

The life support section includes technicians who specialize in performing maintenance and damage control on the ship's life support systems.

The life support section includes one full-time technician if there are at least 15 core crewmen and passengers. Life support technicians usually report to the chief engineer. The section normally consists of 10% officers, 20% petty officers, and 70% ordinary crewmen.

Medical Section

The medical section includes fully certified medical doctors, nurses, and medical technicians to care for crew and passengers.

The medical sections includes one full-time medic if there are at least 15 core crewmen and passengers on board; one more for every full 40 core crewmen and passengers. A ship should have at least one medic per sickbay system.

On a small ship, the first medic is usually a petty officer reporting to the ship's chief steward or directly to the captain. On a ship of 1,000 dtons size or larger, the first medic is usually an officer. A large medical section usually consists of about 20% officers, 30% petty officers, and 50% ordinary crewmen.

General Service Section

The general service section includes a number of different specialties, all of whom provide basic services to the crew and passengers. These run shops and storage, provide ship's security (especially if there are no ship's troops aboard), provide food service, handle cargo, and perform other operations.

All ships require service crewmen to take care of the crew's general needs, as well as to provide services that both crew and passengers share. Allow one such crewmen if there are at least 15 core crewmen and passengers on board; one more for every full 40 core crewmen and passengers. Increase the size of the general service section by 50% if there are no ship's troops on board, both to perform security duties and to reflect the fact that the ship's troops often act as supplementary service crew when not on combat duty.

The general service crew usually consists of about 10% officers, 20% petty officers, and 70% ordinary crewmen.

Step 14: Quarters & Miscellaneous

Once the crew size has been determined, quarters and other working spaces can be installed.

Quarters

Crew and passengers need quarters to live in during travel. Several classes of accommodation are available. The space taken up by these systems is only about 50% allocated to living space; the rest is taken up by common areas (corridors, galleys, lounges, and so on) and life support equipment.

Bunkrooms:

A bunkroom is a room with 10 bunk beds (each with a small locker), intercom, controls for light and temperature, and shared sanitary facilities. Bunkrooms are generally used only on warships, where space is at a premium. One bunkroom can accommodate up to 10 crewmen.

Stateroom:

A stateroom is a cabin capable of housing one or two people. It contains beds, chairs, desks, closets, and sanitary facilities. There is an intercom and controls for temperature.

Luxury Stateroom:

A luxury stateroom is a spacious cabin capable of housing one or two people in great comfort. Its fittings are similar to those of a standard stateroom, but are much more expensive and attractive.

Low Berth:

A low berth is a suspended-animation system, capable of housing up to two passengers for long periods of time without drawing on ship's supplies or life support. So long as the ship's power plant continues to operate, the low berth will maintain its occupant in good health. A low berth can be designated as an emergency low berth with the same volume, mass, and cost; an emergency low berth will carry four passengers, but it is too dangerous for routine passenger transport (see IW page 166).

Small Craft Seating:

A unit of small craft seating provides moderately comfortable seating for 12 passengers for a short period of time (up to 12 hours). It is normally installed only on small craft intended for short-term operations (orbital shuttles, for example).

A flag officer will normally have his own luxury stateroom. A ship's commanding officer normally has his own stateroom, as does any officer commanding the engineering, gunnery, or flight sections, or the ship's troops. Other officers and petty officers live two to the stateroom. Ordinary crewmen and ship's troops may share staterooms, although on warships (especially Imperial warships) they are often housed in bunkrooms. Each luxury passenger should have his own luxury stateroom, while standard and first-class passengers should have their own staterooms; couples or groups traveling together may share staterooms, but this should not be assumed when installing quarters.

Half-space versions of low berths or small craft seating may be installed, with half the mass, cost, power requirement, and capacity.

Quarters Table

System	Spaces	Mass (tons)	Cost (MŦ)	Power (MW)
Bunkroom	2	0.5	0.01	neg.
Stateroom	4	1	0.05	neg.
Luxury Stateroom	8	2	0.15	neg.
Low Berth	1	4	0.05	neg.
Small Craft Seating	1	1.5	0.01	neg.

Workshops

Many ships need built-in workshops to support the engineering and maintenance staff. Machine parts often need to be repaired or replaced, and if a needed component isn't immediately available it may need to be fabricated by hand.

Regardless of era, one workshop system takes up 2.5 spaces, has a mass of 15 tons, cost MŦ0.06, and uses negligible power. Workshops at an later era will have better equipment. Up to three personnel at a time can work in each workshop.

One workshop should be installed for every 60 full personnel in the engineering, maintenance, and life support sections. On exploration ships, especially those likely to be in unexplored space for long periods, this requirement is often exceeded.

If a workshop is available, any penalty for not having one is negated. A workshop also provides a +2 bonus to the user's skill on any task involving the diagnosis or repair of ship's systems.

Laboratories

Ships intended for exploration, survey, or other scientific work need laboratory space for the science specialists on board. Each laboratory system is dedicated to a single scientific skill and cannot be used to support other skills.

Regardless of era, one laboratory system takes up two spaces, has a mass of 10 tons, and costs MŦ1. Laboratories devoted to certain physical sciences (GM's discretion) use 0.3 MW of power each; other laboratories use negligible power. One scientist at a time can work in each laboratory. One laboratory should be installed for every science specialist in the crew, unless some of the scientists are working in a survey module (see below).

A laboratory gives a +2 skill bonus in any situation where the associated scientific skill is being used and lab equipment would be a benefit.

Survey Modules

Exploration and survey ships often carry specialized astronomical instruments and sensor arrays. These sensors are not useful for ship-combat situations and can't be used to target ship's weapons. Instead, they are used to detect astronomical object at multi-parsec distances, and to survey planetary surfaces in detail from orbit.

Regardless of era, one survey module takes up four spaces, has a mass of 12 tons, and uses negligible power. A survey module costs MŦ60 during the Old Republic era, MŦ15 during the New Republic and later and MŦ30 in between. At the GM's discretion, a survey module can count as laboratory space for skills like Astronomy, Cartography or Geology. It provides space for four scientists. A ship will rarely need more than one survey module, unless it is likely to have many survey specialists working at the same time.

For rules regarding the use of a survey module see Interstellar Exploration above.

Sickbays

Any ship carrying medical personnel may have sickbays where the sick and injured can be treated under controlled conditions. A sickbay includes medical beds with special instruments and storage for drugs and surgical equipment. A large sickbay can include a motion-controlled theater for surgical procedures.

Regardless of era, a sickbay system takes up one space, has a mass of one ton, costs MŦ0.2, and uses negligible power. One medical specialist at a time can work in each sickbay, and there is room for two patients per sickbay. Multiple sickbay systems can be combined into one larger medical facility (with a kolto-tank, up to 3960 BBY, or bacta-tank, from 4,000 BBY). One sickbay should be installed for every two people in the medical section. If there is only one medic on board, but that medic is an officer, he is usually given a sickbay to work in.

Cargo Space

Any leftover space in the ship may either be left as "empty space" or designated as a cargo hold. Each space of cargo hold has room for 500 cubic feet of cargo. Necessary cargo doors, ramps, tie-downs, and other equipment are included. Multiple spaces of cargo can either represent a single large hold or a number of smaller holds. Holds may be installed in half-space increments.

An empty cargo hold has no mass or cost.

Step 15: Special Features

Many ships appearing in the Star Wars movies, computer games and novels may have unique features not included in the ship design rules described here. Such features may include s-foils, ion engines, lack of artificial gravity, and so on. These special features will be added to this section when encountered during the ship design.

Cluster Engines

Maneuver drives can be clustered together and operate as if one engine. Thus not providing a multiplier for acceleration but also not providing a divider for max speed in space.

External Systems:

In order to conserve space on a ship, some systems may be placed outside of the ship's hull. Imperial Star Destroyers are known for their external shield generators, many Alliance starfighters have external maneuver drives, and the Millennium Falcon has external sensors, and so on. Although this saves space, the external systems can be targeted by enemy gunners within their arc of vision and only -6 to hit.

Inertial Dampeners:

Imperial cockpits lack inertial dampeners. This reduces the mass, cost and spaces used by 10%.

S-foils

S-foil motivators divide the wing into two separate wings. This was especially useful in combination with cluster engines. While the s-foils were closed, higher speeds were possible (although the acceleration was lower). When the s-foils were extended, the top speeds dropped but the maneuverability, as a direct effect of the increased acceleration, increased.

Vacuum Cockpit:

Imperial pilots always wear vacuum space suits. Their cockpit does not have life support. This reduces the price, mass and space with 10%.

Step 16: Performance

At this point, the ship design is complete and a number of important attributes can be determined.

Ship Mass

Total Empty Mass (EMass):

Add together the Hull Mass (from Step 4) and the mass of all installed systems. Do not include the mass of ammunition, fuel, or payload. The result is the ship's empty mass. Round the EMass to three significant figures.

Total Loaded Mass (LMass):

This is equal to the empty mass, plus these additions:

- The mass of cargo carried. Assume five tons per space of cargo hold; this figure allows for holds that are not fully packed, for container mass, and so on. A dense, heavy load may be as much as 25 tons per space.
- The mass of crew and passengers. Assume 0.1 ton per person. As a rule of thumb, this can be simplified to one ton per bunkroom, 0.2 tons per stateroom or luxury stateroom, 0.2 tons per space of low berths, 0.4 tons per space of emergency low berths, or 1.2 tons per space of small craft seating.
- The mass of corbana gas. This can be simplified to one ton per space of fuel tanks.
- The mass of ammunition. This can be simplified to 0.03 tons per blaster shell for medium blaster cannons, 0.05 tons for large blaster cannon, and 0.02 tons for gatling blaster cannons.
- The empty mass of any small craft or vehicles carried in vehicle bays or hangar bays.

Round the LMass to two significant figures.

Health

Starships don't all operate to the same standard. Some are built by skilled craftsmen applying the best tools and resources, while others are built in ramshackle civilian shipyards by contractors who are engaging in wholesale fraud and embezzlement. Even a well-constructed ship will end to decay over time as wear and tear accumulates.

A vessel's general condition is indicated by its HT attribute (see BS page 483). In the Star Wars universe, a vessel just out of the shipyard will have a HT of 8-12. he vast majority of new ships will have a HT of 10, while only the most exceptional ships will have HT as low as 8 or as high as 12 (indicating truly atrocious or remarkably sound workmanship, respectively).

A vessel's HT attribute declines by one level every 50 years. Once a ship's HT drops below 8, it is too unreliable for use and is normally scrapped. Thus a typical starship can expect to have a 150-year operating lifespan.

A spacecraft's purchase cost is naturally related to its workmanship and state of repair. The GM may choose to tie a ship's purchase cost to its HT attribute, permitting adventurers to buy old or ramshackle ships for a bargain price, or superbly built ships for a premium. A suggested scheme is as follows. Multiply the base cost for the ship (as given by the ship design sequence) by the Price Multiplier for its current HT score.

Ship HT and Cost Table

Vessel HT	Price Multiplier
12	5.0
11	2.0
10	1.0
9	0.5
8	0.1

Hit Points

The ship's hit points depend on its empty mass. Refer to the following formula and record the ship's hit points. Calculate dHP as 4 x (cube root of empty weight in lbs.)/10. Alternatively, you can use the Ship Hit Points Table (see IW page 200).

Other Attributes

Total Cost:

Add together the cost of all components to get the ship's final cost. Round off to two significant figures.

Size Modifier (SM):

As determined in Step 2.

ASig:

This is the ship's active sensor signature. It is equal to SM, minus (TL-4) if the ship has stealth.

Life Support Capacity:

This measures how many people can be supported by the ship's life support systems for long periods (assuming enough provisions are on hand). Capacity is equal to (2 x Luxury Staterooms) + (2 x Staterooms + (10 x Bunkrooms). Low berths yield no life support capacity. Bridge systems and small craft seating modules also yield no life support capacity, although they can provide life support for strictly limited periods.

Space Acceleration (sAccel):

This measures how rapidly the ship can accelerate (including its ability to decelerate and maneuver). A ship's sAccel in yards/second per second is equal to 11 multiplied by the number of engines or engine clusters multiplied with tons of thrust provided by its maneuver drive, divided by the ship's total loaded mass in tons. Round off to two significant figures.

GMs may wish to calculate multiple sAccel for ships whose mass can change rapidly (e.g., with empty vs. full fuel tanks, or with empty vs. full cargo holds).

Space Speed Limit (MGLT):

This measures how fast the ship can travel. A ship's MGLT in yards/second is equal to 220 multiplied by the tons of thrust provided by its maneuver drive, divided by the ship's total loaded mass in tons, and divided by the number of engines.

GMs may wish to calculate multiple MGLT for ships whose mass can change rapidly (e.g., with empty vs. full fuel tanks, or with empty vs. full cargo holds).

Some ships have special engines

Hyperjump Performance (Jump):

This is the ship's hyper speed, inaccuracy and jump range, and is determined by the size of its hyperdrive. Range is determined by space and date. Speed by power and date and inaccuracy by date.

Top Air Speed:

To compute a ship's top cruising speed in a substantial atmosphere, begin by calculating the ship's drag as equal to her surface area (measured in ksf) multiplied by the appropriate factor from the Drag Table.

The top air speed in a Standard atmosphere is equal to the square root of [15,000,000 x (Total thrust/Drag)]. A streamlined hull is restricted to 740 mph, while an unstreamlined hull is restricted to

600 mph. The top air speed caps at the maximum speed the engines can provide (if used at all in an atmosphere).

Flight Time:

This is the maximum flight time when using only power for the M-drives. Divide the maximum fuel tank capacity (in cubic feet) by the power usage of the power plant when only providing power for the M-drives.

Drag Table

Streamlining	Drag Factor
Airframe Hull	100
Streamlined Hull (per dton)	200
Unstreamlined Hull (per dton)	1,000
Fixed Mounts	+0.25
Light Turret	+1
Medium Turret	+2
Large Turret	+3
Heavy Turret	+6
External Systems (per space)	+1

Hoover Height:

Stall speed defines the maximum height at which a ship can hover or if the ship is incapable of hovering.

Hoover Height = 1 yard + (1 yard x upward thrust/LMass)

Maneuverability:

Maneuverability is dependent on the ship's size and acceleration. Divide the ship hull size in dton by the ship's size modifier. Deduct the result from the acceleration. Round down to the nearest integer. The result is the modifier to vehicular dodge, half the Piloting (Contragravity) or (High Performance Spacecraft) skill modified with the Maneuverability.

Note: when the starships become larger, the maneuverability will drop drastically. It is easier for a small fighter to dodge asteroids or even blaster bolts than for a battleship.

Step 17: Finalize Design

The ship design is now complete. A new ship is usually categorized by size and function ("heavy cruiser" or "tramp freighter"). The first ship of a new class usually gives its name to the class.

STARSHIP TEMPLATE

The following small craft and starship designs are seen in the six movies and are typical for those eras.

Ship Name

Hull:

Systems:

Statistics:

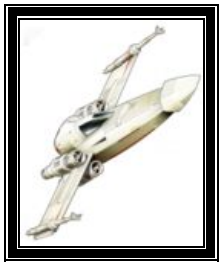
Crew:

Production:

Description:

FIGHTER/BOMBER

Z-95 Headhunter



Z-95Mk1

Hull:

14 dton Wedge Streamlined hull, dDR 10 armor

Systems:

2 external cluster fission drives (thrust 85tons), Repulsorlifts (upward thrust 85tons), Small Cockpit, Model-0 sensors (scan 14), 2 Fixed Mount, 2 Triple Blasters, Fuel Tanks 500 cubic feet, Cargo Hold 100 cubic feet

Statistics:

EMass 140.445tons, LMass 157.545tons, Cost M759.6738, SM+6, ASig +6, Hull dHP 26 (262 HP), Life Support 3 man-days, Space 66MGLT and 13MGLT/s, Top Air Speed 134.2-135.1mph, Max Flight Time 3h55m, Hoover Height at 4'9", Maneuverability +10

Crew:

Flight Section: 1 pilot

Production:

Manufacturer: Incom / Subpro, era Fall of the Republic era

Z-95C4d

Hull:

14dton Wedge Streamlined hull, dDR 10 armor

Systems:

2 external cluster fission drives (thrust 85tons), Repulsorlifts (upward thrust 150tons), Small Cockpit, Model-0 sensors (scan 14), 3 Fixed Mounts, 2 Triple blasters, 1 Space Bomb Launcher, Ordnance 2 Space Bombs, Fuel Tanks 500 cubic feet, Cargo Hold 100 cubic feet.

Statistics:

EMass 142.445tons, LMass 147.545tons, Cost M765.0238, SM +6, ASig +6, Hull DHP 26 (223 HP), Life Support 3 man-days, Space

63-65MGLT and 13MGLT/s, Top Air Speed 129.6-133.2mph, Max Flight Time 3h55m, Hoover Height at 6', maneuverability +10

Crew:

Flight Section: 1 pilot

Production:

Manufacturer: Incom / Subpro, era Fall of the Republic era

Z-95XT

Hull:

14 dton Wedge Streamlined hull, dDR 10 armor

Systems:

2 external cluster fission drives (thrust 85tons), Repulsorlifts (upward thrust 85tons), Large Cockpit, Model-0 sensors (scan 14), 2 Fixed Mount, 2 Triple Blasters, Fuel Tanks 500 cubic feet, Cargo Hold 100 cubic feet.

Statistics:

EMass 141.445tons, LMass 143.645tons s, Cost M760.1738, SM +6, ASig +6, Hull dHP 26 (263 HP), Life Support 6 man-days, Space 65-66MGLT and 13MGLT/s, Top Air Speed 133.1-134.1mph, Max Flight Time 3h55, Hoover Height at 4'9", Maneuverability +10

Crew:

Command Section: 1 officer (instructor)
Flight Section: 1 pilot (trainee)

Production:

Manufacturer: Incom / Subpro, era Fall of the Republic era

Z-95ER

Hull:

14 dton Wedge Streamlined hull, dDR 10 armor

Systems:

2 external cluster fission drives (thrust 90tons), Repulsorlifts (upward thrust 90tons), Small Cockpit, Model-0 sensors (scan 14), 2 Fixed Mount, 2 Triple Blasters, Fuel Tanks 2000 cubic feet, Cargo Hold 100 cubic feet.

Statistics:

EMass 143.685tons, LMass 145.785tons s, Cost M762.6338, SM +6, ASig +6, Hull dHP 27 (265 HP), Life Support 3 man-days, Space 67-68MGLT and 13MGLT/s, Top Air Speed 138.9-139.8mph, Max Flight Time 11h7, Hoover Height at 4'10", Maneuverability +10

Crew:

Command Section: 1 pilot

Production:

Manufacturer: Incom / Subpro, era Fall of the Republic era

Description:

The Z-95's endurance, adaptability, and large numbers have led to its continued use long after its initial production run had ceased. A multi-purpose starfighter, the Z-95 has spawned countless variants, with individual forces, governments, squadrons and owners adding and adapting components and systems.

Developed in a cooperative venture between Incom Industries (later the Incom Corporation) and the later defunct Subpro Corporation, the Z-95 is largely recognized as the premiere starfighter of its era, and the forerunner of the incredibly successful X-wing starfighter.

The Z-95 has changed throughout the years, eventually evolving into the T-65 Incom X-wing starfighter. The initial models resembled atmospheric craft rather than deep-space starfighters. Early production models were twin-tailed wedge-shaped craft with bubble-cockpits.

As the series progressed, the bubble-cockpit got smaller, with increased instrumentation compensating for reduced visibility. Subsequent models had swing-wings and forked tail with twin engines. These initial models (the Mark I, or Z95Mk1) were very maneuverable in an atmosphere. The basic frame was 11.8 meters long, and had weapons hardpoints located on wing and fuselage.

Incom added new Z-95s annually during the height of production. Among the most common variants were the Z-95C4d, a ground support bomber equipped with additional bomb-racks and ordnance hardpoints. The Z-95ER was an extended range model, with additional consumable tankages. The Z-95ML was a missile launch platform, with added missile racks and long-rage ordnance hardpoints. The Z-95XT was a two-person fighter used as a trainer. The Rebel Alliance used the XT as a training vessel as well as for ferrying runs in-system or between ships in the fleet.

These later era Z-95s had a basic configuration that strongly hinted at the T-65 X-wing that was to soon take the galaxy by storm. A thin pointed spaceframe rested between two large engine clusters, from which foils extended outward. The tips of the foils typically housed the primary weapons (usually blasters or laser weapons) while the fuselage provided a more stable platform for missile weapons. Later in the production run, the Z-95AF4 (Assault Fighter 4) featured twin engine clusters that split into a total of four engine thrusters, much like the modern X-wing. These later Headhunters also had the capability of splitting the foils into attack position, widening the coverage area off the wing-mounted weapons.

Each generation of Z-95 has increased in speed. Compared to today's fighters, Z-95 have low maneuverability. The Mark I, with its aerodynamic styling, offered a greater airspeed-to-space speed ration than later models.

Z-95s are typically not equipped with hyperdrive engines, though famed Republic (and later Alliance) tactician Adar Tallon developed a variant, the Z95t, which featured a hyperdrive, and increased maneuverability. Later Z-95s did feature an Incom Gbk-435 hyperdrive motivator, and a Narmox Zr-390 navcom system. Smuggler Alliance leader Mara Jade piloted a modified Z-95 with a hyperdrive before switching to larger, more practical craft.

The Z-95 is notorious for being able to take brutal punishment before falling apart, though as starfighter weapon technology has progressed, Headhunter pilots would rather trust their flying than their armor and shields. Z-95s have respectable armor plating, but their shielding tends to be very light. Near the end of the product line, Z-95s could boast a titanium alloy hull and Xolyyn shielding.

Weapon systems vary among the different models, but most Z-95s are equipped with two wing-mounted triple-blasters, which are fire-linked. Another common weapon system is a bank of concussion missiles. The dedicated missile platform Z-95s, of course, had increased payloads.

A common model featured twin Taim & Bak KX5 fire-linked laser cannons, and twin Krupx MG5 concussion missile launchers. These weapons are controlled through a Fabritech ANq 2.4 tracking computer and SI 5g8 "Quickscan" vector imaging system. Sensor systems include a Fabritech ANS-5c unit with long-range Phased Tachyon Detection Array #PA-9r and one short range Primary Threat Analysis Grid model #PG-7u.

CAPITAL SHIPS

CIVILIAN / UTILITY CRAFT

12. DROIDS

There are many variations of droids. Some resemble humanoid appearance while other tend have the looks of a box on legs. In this first sourcebook, a selection has been made to enter only those droids which can be seen in the six Star Wars movies.

Droid Classification

For millennia, droids have been classified according to their purpose, and these classifications provide droid manufacturers with guidelines for droid design (few have attempted to create true multipurpose droids). The five classifications of droids roughly correspond to their complexity.

First-Degree Droids

First-degree droids are the common laborers, cheap, predictable, and in most cases, disposable. They are mainly employed for carrying heavy loads or performing repetitive tasks. Typical examples include the ubiquitous ASP Series labor droid and the J9 worker drone.

Second-Degree Droids

Second-degree droids are effectively mobile computers. They are programmed to solve scientific problems quickly and accurate and put those solutions to effective use. These droids are often found in roles relating to physics, mathematics, and medicine. Examples include the 2-1B medical droid and the 1T-O interrogation droid.

Third-Degree Droids

Third-degree droids are often found in the engineering and technical science fields. Like second-degree droids, their main function is solving complex equations specifically related to their field. They're generally equipped with appendages and control ports to allow them to interact with other machines. Examples include the popular R2 Series astromech droids.

Fourth-Degree Droid

Fourth-degree droids are programmed to perform social services: translation, protocol, teaching, housekeeping, and secretarial work. Many are also programmed to act as controllers of complex system and are found in spaceports and emergency-services stations throughout the galaxy. The most widely recognized third-degree droids are the 3PO protocol droid and the M-TD Series translator droid.

Fifth-Degree Droid

Fifth-degree droids are nearly all employed in security or military applications. They are generally quick. Often strong, and not usually very intelligent, almost always requiring supervision for tasks outside their core programming (which rarely includes the usual prohibition on killing sentients). Classic examples include the Baktoid Combat Automata B1 battle droid, B2 super battle droid, and the E522 Series assassin droid.

Sixth-Degree Droid

Sixth-degree droids are fully aware AI units which think their mission through. They are mainly droids who haven't had their regularly memory sweep, are given a fully aware AI, or went berserk at some time. Examples are the droids IG-88 and 4-LOM which became fully aware and acted as real individuals.

Droid Designation

Droids often are programmed for specific tasks. A forth-degree droid can be designated for defense, offense or as a gladiator. These designations are very variable. The R1 to R7 Series could have a designation such as Navigations Astromech. Some droids may have multiple designations after a time of service (and without having a memory sweep). For example, R2-D2 has is originally an astromech droid but was also capable of damage control. In Episode VI, R2-D2 was even assigned to as servant to Jabba's sail barge. Below are some examples of designations within a classification:

First-Degree Droids:

- Decon droid
- Messenger droid
- Patrol droid

Second-Degree Droids:

- Interrogator droid
- Medical droid

Third-Degree Droids:

- Astromech
- Combat Communications Astromech
- Damage Control Astromech
- Engineering droid
- Navigations Astromech
- Security Droid

Fourth-Degree Droids:

- Communications droid
- Protocol droid
- Supervisor droid

Fifth-Degree Droids:

- Attack droid
- Battle droid
- Defense droid
- Gladiator droid
- Guard droid

Sixth-Degree Droids:

- Assassin droid
- Probe droid

Droid Template Format

The following is a sample of the format that was used in designing the templates for this book. Next to each heading is a short definition that describes what that heading includes. By following this format, you should be able to create your own droids with ease.

Secondary Characteristic Adjustment:

Some droids are stronger or weaker than human norm, while others are faster or keener. In the GURPS 4th Edition system, a droid's inherent strengths or weaknesses are shown by modifying the secondary attributes of the droid type. These modifications are only added once, during the character creation.

Attribute Adjustment:

Some droids are stronger or weaker than human norm, while others are smarter or dumber. In the GURPS 4th Edition system, a droid's inherent strengths or weaknesses are shown by modifying the attributes of the droid type. These modifications are only added once, during the character creation.

Origin:

The planet, system, corporation or facility the droid type originally was invented or manufactured. This does not mean that the character is activated on the same planet, system, corporation or facility that the type originates.

Tech Level:

The TL, or technological advancement of the droid type. This represents the technological advancements of the droid's components.

Classification:

The droid's classification as shown above.

Designation:

What is the droid's purpose (see above). Some droids may have more than one.

Droid Advantages:

These are the special abilities, which distinguish the character from other droid types.

Droid Disadvantages:

These are the "handicaps", which also distinguish the character from other droid types.

Free Skills:

Skills such as Area Knowledge and Binary language in that droids who grew up on their homeworld would receive. A character receives these skills at the highest free default level unless otherwise noted. These skills are free of cost and should not be added into the character's point total.

Several story factors must be considered when adding these free skills. The first thing to take into consideration is that many characters may have been created and activated away from their home factory. In this case, simply change the area knowledge to the area the character was assigned to.

Droid Programmed Skills and Droid Skill Bonuses:

Droids often have skills at which they excel. These skills will either be represented as Droid Skill Penalties or Bonuses, a +/- to a skill level, or they will receive a Droid Programmed Skill, a certain skill at a specified level. The character's total cost has been adjusted to reflect the presence of these skills.

Names:

The most common way the inventors named their droids (mostly reflecting the series and type), and also a few sample names.

Description:

This gives a description of the droid type and its history. Some descriptions cannot be tracked back in their character profile. If the player is experienced enough, he may take these descriptions as perk or quirks.

Notes:

The notes to the reader.

CP:

Point cost of the droid type to use during character creation. I have attempted to keep the point cost low, to allow versatility during character creation.

Meta-Trait Droid

All droids have the meta-trait Droid for -84 points. This means your body is completely mechanical, composed of non-living materials. This meta-trait includes:

Advantages [+135pts]

- Digital Mind [+5pts]
- Doesn't Breathe [+20pts]
- Doesn't Sleep [+20pts]
- Immunity To Metabolic Hazards [+30pts]
- Injury Tolerance (No Blood; Unliving) [+25pts]
- Pressure Support [+15pts]
- Sealed [+15pts]
- Vacuum Support [+5pts]

Disadvantages [-219pts]

- Cannot Learn [-30pts]
- Dependency – (Lubricants, Common; Weekly) [-20pts]
- Electrical [-20pts]
- Fragile (Explosive) [-15pts]
- Hidebound [-5]
- Low Empathy [-20pts]
- Maintenance (Electronics Repair, once per cycle) [-2pts]
- Maintenance (Mechanic Repair, once per cycle) [-2pts]
- No Sense of Smell and Taste [-10pts]
- Numb [-20pts]
- Reprogrammable [-10pts]
- Restricted Diet (Power Cell, Common) [-10pts]
- Restricted Vision (No Peripheral Vision) [-15pts]
- Social Stigma (Valuable Property) [-10pts]
- Unhealing (Total) [-30pts]

In the droid template, the above will be noted as an Advantage: Meta-Trait Droid [+135pts] and a Disadvantage: Meta-Trait Droid [-219pts].

Variable traits:

Droids, just as sentient species, vary from each other. Below are some dis.- advantages which are not uncommon to droids.

Advantages

- Ambidexterity – multi-armed droids only. [+5pts]
- Damage Resistance – droids can purchase any amount of DR available with the GM's approval.
- Extra Arms (BS page 53)
- Extra Legs (BS pages 54 & 55)
- Flight [+40pts]
- Modular Abilities (Computer Brain) (BS page 71)
- Payload (Cargo) - up to 5 levels (BS page 74)
- Reduced Consumption – up to 5 levels (BS page 80)

Disadvantages

- Cannot Float [0pts]
- No Legs (BS page 145)
- Sense of Duty – The owner or related to the owner (BS page 153)
- Slave Mentality – Mostly only for combat orientated droids [-40pts]

The following rules also apply:

- You have an eight-hour energy reserve and need refueling three times a day unless the droid has the advantage Reduced Consumption.
- You neither have nor can spend fatigue Points; see Machines and Fatigue (BS page 16)
- Your body does not age. Instead it wears out, with effects similar to aging.

Note that your Unhealing disadvantage means that the only way for you to regain lost HP is through repairs with Mechanic or Electronics Repair skill (as appropriate).

Playing an Droid

Playing a droid is a lot more complicated than just a compilation of traits written down on a character sheet. Some droids have such simple programs that these droids are not recommended as PCs. Some GM might even set a base droid CP limit. A good starting point is a base droid CP limit of half the total CP limit.

Create Your Own Droids

Below is given a blank sheet to make your own template of a droid. This is the same format with which this nook designed its droids.

DROID TEMPLATE

Droid Type

Attribute Adjustment:

Secondary Characteristic Adjustment:

Origin:

Tech Level:

Classification:

Designation:

Droid Advantages:

Droid Disadvantages:

Free Skills:

Programmed Skills and Droid Skill Bonuses:

Names:

Description:

Notes:

CP:

Type	CP
Attribute Adjustment Secondary Characteristic Adjustment Tech Level Droid Advantages Droid Disadvantages Programmed Skills and Droid Skill Bonuses	
TOTAL	

13. ALIEN SPECIES

There are roughly 5 millions forms of sentient beings in the Vordarian Beltway galaxy. These cannot be listed and described in this book (not even when adding a few supplements). In this first sourcebook, a selection has been made to enter only those species which can be seen in the six Star Wars movies. This only should describe over 220 different alien species.

Racial Template Format

The following is a sample of the format that was used in designing the templates for this book. Next to each heading is a short definition that describes what that heading includes. By following this format, you should be able to create your own alien races with ease.

Attribute Adjustment:

Some aliens are stronger or weaker than human norm, while others are smarter or dumber. In the GURPS 4th Edition system, a race's inherent strengths or weaknesses are shown by modifying the attributes of the race. These modifications are only added once, during the character creation. Example: A player wants to create an Arcona character. The Arcona get a +1 to HT. The player spends 10 points on HT, raising it to 11. Some GMs set limits on attributes during creation. If the limitation is +/- 2 than a Human would have attributes varying from 8 to 12. The Arcona would have a HT of 9 to 13.

Secondary Characteristic Adjustment:

Some aliens are stronger or weaker than human norm, while others are faster or keener. In the GURPS 4th Edition system, a race's inherent strengths or weaknesses are shown by modifying the secondary attributes of the race. These modifications are only added once, during the character creation. Example: A player wants to create an Anzati character. The Anzati get a +2 to Per. The player spends 10 points on Per, raising it to 12. Some GMs set limits on attributes during creation. If the limitation is +/- 2 than a human would have attributes varying from 8 to 12. The Anzati would have a Per of 10 to 12 (not counting in any other modifiers from e.g., IQ).

Note: The Size Modifier is based upon the average height of the species. Creating a character of a different height and gains another SM than normally, will also be reflected in the points cost of other attributes such as ST. Take this into consideration when altering the size while shifting into another SM.

Origin:

The planet or system the race originally hails from. This does not mean that the character has to be from the same planet or system that his or her race originates.

Tech Level:

The TL or technological advancement of the alien race. The TL of the Empire and the Rebel Alliance/New Republic is 11. Please note that this is the racial average. Spaceports, for example, would have a higher TL than the wilderness areas. Keep this in mind when creating characters, and adjust the point cost accordingly.

Racial Advantages:

These are the special abilities, which distinguish the character from other races.

Racial Disadvantages:

These are the "handicaps", which also distinguish the character from other races.

Free Skills:

Skills such as Area Knowledge and Native language that species who grew up on their homeworld would receive. A character receives these skills at the highest free default level unless otherwise noted. These skills are free of cost and should not be added into the character's point total.

Several story factors must be considered when adding these free skills. The first thing to take into consideration is that many characters may have been born and raised away from their home planet. In this case, simply change the area knowledge to the area the character grew up around.

Also if the character grew up away from his species he may not know his racial language. If this is the case simply replace the native language with the language the character grew up speaking.

Racially Learned Skills and Racial Skill Bonuses:

Alien races often have skills at which they excel. These skills will either be represented as Racial Skill Penalties or Bonuses, a +/- to a skill level, or they will receive a Racially Learned Skill, a certain skill at a specified level. The character's total cost has been adjusted to reflect the presence of these skills.

Please note that if the character was raised away from his race, that he or she may not have certain skills. Physical skills will never differ, but the character may not have skills that represent the character's culture.

This is also the area where suggested skills for the race will be listed. These skills will be listed in parenthesis.

Features/Taboos:

A "feature" is a not on how the race differs from humanity when that difference does not grant an advantage or a disadvantage. Features cost 0 points.

A "taboo trait" is an attribute level, advantage, disadvantage, or skill that is off limits to members of the race. This, too, is worth 0 points. Normally, only mundane traits are labeled "taboo", as exotic or supernatural traits require the GM's permission in any case.

Names:

The most common way the alien race names their characters, and also a few sample names.

Description:

A description of the alien race and their history. Some descriptions cannot be tracked back in their character profile. If the player is experienced enough, he may take these descriptions as perk or quirks.

Notes:

Notes to the reader.

CP:

Point cost of the alien race to use during character creation. I have attempted to keep the point cost low, to allow versatility during character creation.

Playing an Alien Species

Playing an alien species is a lot more complicated than just a compilation of traits written down on a character sheet. Some aliens are so strange to our human understanding and philosophy that these races are not recommended as PCs. Some GM might even set a base race CP limit. A good starting point is a base race CP limit of half the total CP limit.

Create Your Own Species

Below is given a blank sheet to make your own template of an alien species. This is the same format with which this nook designed its species.

GMs and players should feel free to create their own species or recreate a species listed in the Star Wars Databank or Wookieepedia. If you want to create a new species but are uncertain how to define its statistics, feel free to contact me or post on the Steve Jackson Games' forums.

ALIEN SPECIES TEMPLATE

Species Name

Attribute Adjustment:

Secondary Characteristic Adjustment:

Origin:

Tech Level:

Racial Advantages:

Racial Disadvantages:

Free Skills:

Racially Learned Skills and Racial Skill Bonuses:

Features/Taboos:

Names:

Description:

Notes:

CP:

Type	CP
Attribute Adjustment Secondary Characteristic Adjustment Tech Level Racial Advantages Racial Disadvantages Racially Learned Skills and Racial Bonuses	
TOTAL	

-A-

Abinyshi

Attribute Adjustment:
ST-1 [-10pts]

Secondary Characteristic Adjustment:
SM-1

Planet/System of Origin:
Inysh

Tech Level:
10 – Low TL-1 [-5pts]

Racial Advantages:
Striker (Tail, Crushing, Long +1, +100%, Cannot Parry, -40%) [+8pts]; Unfazeable [+15pts]

Racial Disadvantages:
Cold-Blooded [-5pts]

Free Skills:
Language (Abinysh, Native); Area Knowledge (Inysh)

Racially Learned Skills and Racial Skill Bonuses:
None

Features/Taboos:
None

Names:
Unknown

Description:
The Abinyshi are a short, relative slender, yellow-green reptilian species from Inysh. They possess two dark, pupil less eyes that are set close together. Their face has few features aside from a slight horizontal slit of a mouth; their nose and ears, while existent, are

very minute and barely noticeable. The species has a large tail that assists in balance and is used as an appendage and weapon.

A gentle people, the Abinyshi take a rather passive view of life. They prefer to let events flow around them rather than take an active role in changing their circumstances. This philosophy has had disastrous consequences for Inysh.

The Abinyshi have played a minor but constant role in galactic history for many centuries. They developed space travel at about the same time as the Humans, and though their techniques and technology never compared to that of the Corellians and Duros, they have long enjoyed the technology provided by their allies. Their small population limited their ability to colonize any territories outside their home system.

Their primary contributions have included culinary and academic developments; several fine restaurants serve Abinyshi cuisine and Abinyshi literature is still devoured by university students throughout the galaxy. The popularity of Abinyshi culture has waned greatly over the past few decades as the Abinyshi traveling the stars slowed to a trickle. Most people believe the Abinyshi destroyed themselves in a cataclysmic civil war.

In truth, the Empire nearly decimated Inysh and its people. Scouts and Mining Guild officials discovered that Inysh had massive kalonterium reserves. The Imperial mining efforts that followed all but destroyed the Inysh ecology, and devastated the indigenous flora and fauna.

Mining production slacked off considerably as alternative high-grade ores, like doonium and meleenium, became available in other systems. Eventually, the Imperial mining installations packed up and left the Abinyshi to suffer in their ruined world.

Years ago, Abinyshi traders and merchants were a relatively common sight in regional space lanes. Abinyshi now seldom leave their world; continued persecution by the Empire has prompted them to become rather reclusive. Those who do travel tend to stick to regions with relatively light Imperial presence (such as the Corporate Sector or the Periphery) and very rarely discuss anything pertaining to their origin. Individuals who come across an Abinyshi most often take the being to be just another reptilian alien.

Surprisingly, the Abinyshi have little to say, good or bad, about the Empire, though the Empire has given them plenty of reasons tom oppose it. Millennia ago, their culture learned to, live with all that the universe presented, and to simply let much of the galaxy's trivial concerns pass them by.

Note:

CP:

Type	CP
Attribute Adjustment	-10
Secondary Characteristic Adjustment	0
Tech Level	-5
Racial Advantages	+23
Racial Disadvantages	-5
Racially Learned Skills and Racial Bonuses	0
TOTAL	+3

Abyssin

Attribute Adjustment:

IQ-1 [-20pts]

Secondary Characteristic Adjustment:

None

Origin:

Byss

Tech Level:

9 – Low TL-2 [-10pts]

Racial Advantages:

Claws (Sharp) [+5pts]; Regeneration (Fast) [+50pts]; Rapid Healing [0pt]; Extended Lifespan [+6pts]

Racial Disadvantages:

Reputation-2 (Violent Race, Almost Everyone, x1, All the time, x1) [-10pts]; One Eye [-15pts]

Free Skills:

Language (Abyssin, Native); Area Knowledge (Byss)

Racially Learned Skills and Racial Skill Bonuses:

Survival (Desert) at Per [+2pts]; Brawling at DX [+1pt]

Features/Taboos:

None

Names:

The Abyssin favor a short, usually disyllabic, given name. Examples of names include Vormak, Myo, and Sadie.

Description:

The Abyssin are Humanoid Bipeds that have long limbs and well muscled bodies. They have greenish-tan skin and long arms that reach to the ground when they walk. Their hands end in sharp claws. Their upper and lower jaws protrude slightly, forcing their teeth to be visible unless the Abyssin makes a concentrated effort to keep his or her teeth from view. The most alien feature on the Abyssin is the single eye in the centre of their foreheads. The pupil of the eye is slit much like that of a reptile, and it has twin lenses and dual focal planes, which allows the Abyssin some measure of depth perception.

The Abyssin have incredible regenerative ability, and actually consume their own body mass and rebuild cells. An average Abyssin body cell is replaced every 80 hours. Many of the normal organs found in pairs in other races are singular in the Abyssin, but can be regenerated if injured.

The regenerative ability of the Abyssin has also greatly affected their culture. This means that most Abyssin will resort to violence first and worry about consequences later.

The Abyssin love violence and fighting and this approach to physical violence confuses many offworlders. In fact, many offworlders believe that they are a savage and brutal race. While the Abyssin love physical combat, they are slightly less pleased about blaster battles, and are even less pleased to be involved in a starship battle (after all, you cannot regenerate after a ship explodes and your atoms are scattered across space). This dislike of starship battles, has made some Abyssin severely disliking starships altogether.

It should be noted that the Abyssin themselves, do not think of their race as violent or savage. Even during the most violent "blooding", most of the Abyssin involved will be injured, not killed.

They are a nomadic race, with no substantial exports, and traders have relatively ignored the planet. The primary visitors to the

planet are slavers who come to export the Abyssin themselves. When two tribes of Abyssin meet, they will enter into a Trade (if water and food are plentiful, gaunt, weapons, or young are exchanged) or a Blooding (a fight for water rights).

Although Abyssin can live to be over 300 years in age, their ability to regenerate gradually decreases. Those Abyssin who can no longer regenerate themselves usually walk into the desert and die. Younger Abyssin ritually stone those that refuse to die.

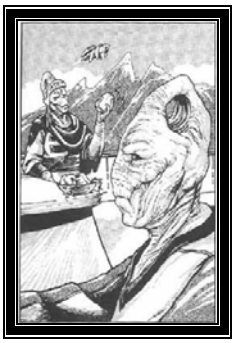
Notes:

An Abyssin can be seen in Episode IV - A New Hope in the cantina after Obi-Wan slices off Ponda's arm.

CP:

Type	CP
Attribute Adjustment	-20
Secondary Characteristic Adjustment	0
Tech Level	-10
Racial Advantages	+61
Racial Disadvantages	-27
Racially Learned Skills and Racial Bonuses	+3
TOTAL	+7

Adarian



Attribute Adjustment:

IQ+2 [+40pts]; HT-1 [-10pts]

Secondary Characteristic Adjustment:

None

Planet/System of Origin:

Adari

Tech Level:

11

Racial Advantages:

Acute Senses (Hearing+2, Vision+2) [+8pts]; Innate Attack (Long Call, 2d fat, 4 yards+100%, Malediction, +200%, Limited Use 3/day, -20%) [+56pts]

Racial Disadvantages:

Sense of Duty (Large Group - Higher Caste) [-10pts]; Indecisive [-10pts]; Stubbornness [-5pts]

Free Skills:

Language (Adarese, Native); Area Knowledge (Adari)

Racially Learned Skills and Racial Skill Bonuses:

Business Acumen+1 [+10pts]

Features/Taboos:

Hairless, elongated head with a hole.

Names:

Unknown

Description:

Adarians are best known for their mining and manufacturing operations, as well as a civilization that's never been blemished by civil strife. Adari, their homeworld, is run as though it was a corporation. Adarian society is divided into strict castes that determine what role each member will undertake, with the higher castes having absolute authority over the lower ones.

Adarians carefully weigh their options before reaching any decision, but once the decision is made, they are rarely moved to change their minds. Adarians implicitly trust judgment of those of higher status, and only the most flippant and rebellious Adarian would disregard orders or advice from a member of a higher caste. Adarians have keen minds for business and a natural drive to succeed. They devote considerable time and energy to ensure the prosperity of their business.

Adarians are hairless humanoids with elongated heads that have a hole, clear through from one side to the other. Adults stand about 5 foot 6 inches tall and come in a variety of vibrant skin colors (commonly blue or yellow). Members of the same caste tend to have a similar coloration.

Archaeologists believe that Adarians did not originate on Adari but rather migrated to the planet thousands of years before the Battle of Yavin. The planet is now the seat of the Adarian government, which operates like a corporation.

Long Call:

An Adarian can emit a subsonic call by inflating his throat pouch and vibrating the air-filled sack. This call can be heard up to 12 miles away by other Adarians.

Members of other species within 4 yards take 2d points of sonic (fatigue) damage, or half damage with a winning contest (Adarian's Will versus target's HT-1). If the target fails his save he's also stunned for 1 turn in addition to the damage taken. Other Adarians take no damage from a Long Call, but an Adarian can only use this ability 3 times per day without injuring himself. Each time he uses Long Call beyond 3 times per day, the Adarian takes 2d points of sonic (fatigue) damage (no save allowed), but is not stunned.

Note:

Adarese is a language that uses largely tonal inflections. Their rigid mouths make languages such as Basic difficult to speak without a heavy accent.

CP:

Type	CP
Attribute Adjustment	+30
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+64
Racial Disadvantages	-25
Racially Learned Skills and Racial Bonuses	+10
TOTAL	+79

Adnerem

Attribute Adjustment:

IQ+1 [+20pts]

Secondary Characteristic Adjustment:
SM+1

Planet/System of Origin:
Adner

Tech Level:
11

Racial Advantages:
Protected Sense (Vision+1) [+5pts]; High Manual Dexterity+1 [+5pts]; Subsonic Hearing [+5pts]

Racial Disadvantages:
Skinny [-5pts]; Fanaticism (Steris) [-15pts]; Uncongenial [0pts]

Free Skills:
Language (Adnerem); Area Knowledge (Adner)

Racially Learned Skills and Racial Skill Bonuses:
None

Features/Taboos:
None

Names:
Unknown

Description:
Adnerem are a tall, slender, dark-grey species dominant on the planet Adner. The Adnerem's head is triangular with a wide brain pan and narrowing face. At the top of the head is a fleshy-looking lump, which may appear to Humans to be a tumor. It is, in fact, a firm, hollow, echo chamber which functions as an ear. Adnerem are bald, except for a vestigial strip of hair at the lower back of the head. Female Adnerem often grow this small patch of hair long and decorate their braids with jewelry.

The Adnerem hand is four-digited and highly flexible, but lacks a true opposable thumb. Adnerem can grow exceptionally long and sturdy nails, and the wealthy and influential often grow their nails to extraordinary lengths as a sign of their idleness. Their eyelids are narrow to protect against the overall brightness of Adner's twin suns and the eyes are lightly colored, usually blue or green.

Adnerem are descended from a scavenger/ hunter precursor species. Their distant ancestors were semi-social and banded together in tribe packs of five to twenty. This has carried on to Adnerem today, influencing their modern temperament and culture. They remain omnivorous and opportunistic.

Outwardly calm and dispassionate, inwardly intense, the Adnerem are deeply devoted to systematic pragmatism. Each Adnerem increases his position in life by improving his steris (Adner's primary socio-economic family unit; plural steri). While some individual Adnerem work hard to increase the influence and wealth of their steris, most do so out of self-interest.

The Adnerem have no social classes and judge people for the power of their steris and the position they have earned in it, not for accidents of birth. Having no cultural concept of rank, they have difficulty in dealing with aliens who consider social position to be an important consideration.

Adnerem are fairly asocial and introverted, and spend a great deal of their private time alone. Social gatherings are very small, usually in groups of less than five. Adnerem in a group of more than ten members are almost always silent (public places are very quiet), but two interacting Adnerem can be as active as ten aliens, leading to the phrase "Two Adnerem are a party, four a dinner, and six a funeral."

Sometimes, a pair of Adnerem forms a close friendship, a non-sexual bonding called sterika. The two partners become very close and come to regard their pairing as an entity. There is no rational explanation for this behavior; it seems to be a spontaneous event that usually follows a period of individual or communal stress. Only about 10% of Adnerem are sterika, Adnerem do not usually form especially strong emotional attachments to individuals.

Adnerem steri occasionally engage in low-level raid-wars, usually when the goals of powerful steri clash or a coalition of lesser steri rise to challenge a dominant steris. A raid-war does not aim to annihilate the enemy (who may become a useful ally or tool in the future) it seeks simply to adjust the dynamic balance between steri. Most raid-wars are fast and conducted on a small scale.

For the most part, the Adnerem are a stay-at-home species, preferring to excel and compete amongst themselves. Offworld, they almost always travel with other steris members. Some steri have hired themselves out to corporations as management teams on small-to-medium sized projects.

The Adnerem do not trust the whims of the galactic economy and invest in maintaining their planetary self-sufficiency rather than making their economy dependent on foreign investment and imports. They have funded this course by investing and entertainment industries, both on-planet and off. Hundreds of thousands of tourists and thrill-seekers flock to the casinos, theme parks and pleasure houses of Adner, which after 2,000 years of practice, are very adept at thrilling and pampering the crowds. These entertainment facilities are run by large steri with Adnerem management and alien employees.

Note:

CP:

Type	CP
Attribute Adjustment	+20
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+15
Racial Disadvantages	-20
Racially Learned Skills and Racial Bonuses	0
TOTAL	+15

Advozsec

Attribute Adjustment:
IQ+1 [+10pts]

Secondary Characteristic Adjustment:
None

Origin:
Riflor

Tech Level:
11

Racial Advantages:

Dark Vision [+25pts]

Racial Disadvantages:

Pessimism [-10pts]

Free Skills:

Language (Advozsec, Native); Area Knowledge (Riflor)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

Horn

Names:

Unknown

Description:

The Advozsec race is characterized by their short stature, large black eyes, and enlarged cranium. Their skulls are punctuated by a short thick horn, which protrudes from the centre of their forehead. Their ears are pointed and their large eyes allow them to see in the murky light caused by Riflor's dense, ash-filled atmosphere.

Riflor's constant tectonic activity has instilled a sense of skepticism and pessimism in most of the Advozsec personalities. The race seems to be in a constant battle against the planet's condition and Advozsec cities are continually being rebuilt after natural disasters. The Advozsec are an herbivorous race, and their technological level mirrors much of the galaxies, although they tend to build it on a smaller, more transportable scale.

Notes:

A single member of the species is referred to as Advozse. Also, an Advozse can be seen in the cantina in Episode IV – A New Hope.

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+25
Racial Disadvantages	-10
Racially Learned Skills and Racial Bonuses	0
TOTAL	+25

Aganof

Attribute Adjustment:

None

Secondary Characteristic Adjustment:

SM+1

Planet/System of Origin:

Kuras III

Tech Level:

0 Low TL-11 [-55pts]

Racial Advantages:

360° Vision (Easy to Hit, -20%) [+20pts]; Extra Legs (7 or more, Cannot Kick, -50%) [+8pts]; Extra Mouths+3 [+15pts]; Tunneling [+30pts]; Vibration Sense [+10pts]

Racial Disadvantages:

Blindness [-50pts]; Cannot Speak (Mute) [-25pts]; Deafness [-20pts]; Dependency (Moisture, Very Common, Constantly, x5) [-25pts]; No Fine Manipulator [-30pts]; Pacifism (Total Nonviolence) [-30pts]; Space Sickness [-10pts];

Free Skills:

Language (Aganof, Native); Area Knowledge (Kuras III caves)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Unknown

Description:

The Aganof are a large, androgynous species native to the unexplored world of Kuras III in Elrood sector (they are not the only sentient species on the planet). They have approximately one dozen small appendages for movement (the exact number varies with the individual), with several touch-sensitive pairs of appendages running along their bodies. Their backs have heat-dissipating flaps and olfactory sensors on large flexible stalks. The flaps are also coated with a digestive acid that is used to break down foods; small mouths are nestled underneath the flaps. Each end of the body contains a long, jointed limb that ends in a shelled claw.

This species lives, works and breeds in the damp, cool caves of Kuras III. The Aganof must live in these caves; since only these locations provide enough moisture for them to survive (they absorb moisture through all of their appendages). They feed on vegetation, insects and a large variety of small herbivores. Aganof reproduce in their cool, dark caves of their world, they have both male and female characteristics and lay fertilized eggs.

The Aganof have only the senses of taste, smell and touch (touch is their primary sense). They communicate by creating vibrations with the shelled claw. The vibrations are modulated with a special organ within the claw called the "sender." The sender codes the vibrations into a sort of language that the other Aganof can understand.

Nearby Aganof can detect the vibrations and decipher their meaning (actual distance depends on many factors, including soil composition and competing vibrations). Like speech, this communication can be perceived by all who are within the reception distance.

Aganof language is icon-based; recipients get pictures in their minds instead of words. Thus, if an Aganof wanted to ask if a character was an "alien" who came from outer space, the character would get a picture of himself, falling from a cave in the ceiling to the ground (Aganof cannot conceive of the sky), plus the feeling that the pictures were interrogative.

The Aganof are an intelligent species, with a society and a culture. All the Aganof born in the same cave are essentially a tribal unit. The eldest Aganof is the adviser of the cave-fellows, and thus his opinion is given more weight than any others in the cave-unit. The Aganof tribes peacefully co-exist with one another, with intertribal meetings quite common (their purpose being to share stories, trade

knowledge and exchange tribe members for mating purposes). The Aganof have stories, songs and even a form of art involving the arranging of the dead and decomposing bodies of their departed fellows.

A favorite Aganof pastime is having philosophical debates and intellectual arguments. Among the issues debates are what lies above "the ground" (since their limited senses cannot detect very much about the world around them; the concept of space is completely alien to them).

Aganof are tranquil, calm and friendly. Their society is a peaceful one, and there is not even a word in their vocabulary for "war". They understand defense against predators, but not organized aggression and murder of other intelligent creatures. Conflict among members of their own species is almost unknown.

The Aganof have no idea there is a galactic civil war going on, and would have a very difficult time understanding the issues at stake. Both the concepts of outer space and warfare would have to be explained to them. Even if the Empire came to their world and enslaved them, they would have a difficult time distinguishing between the Empire and those who would fight it, possibly meaning that the Aganof would learn to fear and even attack all Humans and aliens from beyond their world…

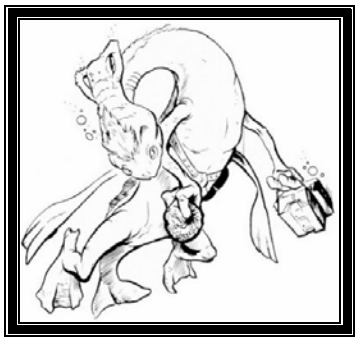
Note:

Aganof PCs are not recommended.

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	0
Tech Level	-55
Racial Advantages	+83
Racial Disadvantages	-190
Racially Learned Skills and Racial Bonuses	0
TOTAL	-162

Akwin



Attribute Adjustment:

ST+1 [+10pts]

Secondary Characteristic Adjustment:

None

Planet/System of Origin:

Lazerian IV

Tech Level:

11

Racial Advantages:

Acute Senses (Acute Hearing+1) [+2pts]; Acute Senses (Acute Vision+1, Underwater Only, -50%) [+1pt]; Amphibious [+10pts]; Doesn't Breathe (Gills) [+10pts]; Enhanced Move (Water+1' [+20pts]; Extra Arms (Flippers) [0pts]; Night Vision+2 (Underwater Only, -50%) [+1pt]; Pressure Support+2 [+10pts]; Speak Underwater [+5pts]

Racial Disadvantages:

Bad Sight (not in water, -80%) [-5pt]; Pacifism (Total Nonviolence) [-30pts]; Secret (Racial) [-5pts]; Dislike (Xenophobia) [-1pt]

Free Skills:

Language (Akwin); Area Knowledge (Lazerian IV)

Racially Learned Skills and Racial Skill Bonuses:

Swimming skill at HT+4 [+12pts]

Features/Taboos:

Tail

Names:

Unknown

Description:

The Akwin are an aquatic mammalian species native to Lazerian IV, a world claimed by Human colonists. Their bodies have six limbs. The first pair of limbs are regular arms located at the shoulders, which end in a pair of hands. The second pair of limbs also resembles arms, except that instead of hands, the arms have flippers. Akwin use this set of limbs to steer themselves through the water. The final set of limbs, located at the hips, are normal legs, which end in webbed feet. From the lower back of the Akwin, fins and a tail stick out. Their blue-green bodies are though and muscular, enabling them to withstand the pressure of the depths.

Akwin have elongated skulls, with a mouth, pair of eyes and two blowholes. Cilia grow from their heads and faces and could be mistaken for hair, with colors ranging from white and silver to green, blue, and black. Akwin also have gills on their necks, directly below the jaw.

Akwin are amphibious, but they have no real desire to spend much them on land. Their eyes are configured in such a way as to help them see in the dark depths of the ocean. Their hearing is also very acute. The Akwin diet consists of small sea creatures which they raise on "ranches," and many aquatic plants which hey grow on special underwater farms.

As a species, the Akwin are peaceful sea-dwellers who live in huge cities on the ocean floor. Each city exists as a separate city-state, ruled by a king or queen.

Technologically, the Akwin are on par with the Human Lazerians who dwell on the dry land, though the former have no interest in space travel. The Akwin have made tremendous strides in perfecting water-resistant technology. Although the Akwin love swimming, they have developed their own fast-moving craft so they can travel vast distances quickly. The Akwin even have their own ore mines and manufacturing plants, though they are careful not to take too much from them or damage the environment.

The Akwin enjoy music, coral-sculpting, and drama. They keep historical records of their people, who evolved from savage sea creatures tens of thousands of years ago. Communication between the Akwin is hand-led by either spoken word or limb gestures.

The Akwin do not encourage contact with the Lazerians. In the Akwin world view, the Lazerians live on land, the Akwin live in the sea and both are content. Akwin sea no reason to disrupt the situation. There is, in fact, a hint that the Akwin consider themselves to be superior to the Lazerians, after all, they can live on land or sea while the Lazerians are confined to the soil. This point of view has been reinforced in the Akwin's minds by the fact that, while the Akwin know much about the Lazerians, the Lazerians have yet to even establish the existence of the Akwin. There are stories and rumors of sea-folk, but most of these are dismissed as mirages, legends or the effect of too much drink. The Akwin are amazed at this short-sighted reaction. As a result, official Akwin policy is to perpetuate the Lazerian idea of myths, since in the Akwin mind, the Lazerians are clearly "not ready as a

species" to deal with the idea of sharing the planet with another advanced civilization.

It would probably alarm the Lazerians (and the Empire as well) if they knew just how much the Akwin know about the surface-dwellers. Thanks to scouting parties and monitoring routine planetary broadcasts, the Akwin have a full understanding of Lazerian culture and geography. The Akwin are not impressed, they see Lazerian society as stagnant and uninspired. The only way the Akwin would make their presence known were if the Lazerians dumped pollutants into the sea. Fortunately, the Lazerians are as proud of their environment as the Akwin, and take steps not to damage the ecosystem.

They tend to look down on races who cannot breath air and water, though this will not rule out communication and cooperation. They keep top themselves, and do not go out of their way to seek out alien contact. If the Akwin should meet an alien aquatic race, they would be more willing to make contact.

The Akwin are aware of the existence of the galactic civil war, thanks to their interception of transmissions from both sides. At this time, the Akwin consider the war the logical result f immature species. If a Quarren or a Mon Calamari were to approach the Akwin, this view could change in favor of the Alliance. Since the Lazerians are pro-Imperial, the consequences of this could be severe.

Note:

Akwin PCs are not recommended.

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+59
Racial Disadvantages	-41
Racially Learned Skills and Racial Bonuses	+12
TOTAL	+40

Aleena

Attribute Adjustment:

ST-2 [-20pts]

Secondary Characteristic Adjustment:

SM-1

Origin:

Aleen

Tech Level:

11

Racial Advantages:

None

Racial Disadvantages:

None

Free Skills:

Language (Aleen, Native); Area Knowledge (Aleen)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Ratts Tyerel

Description:

The Aleena are a short and stocky race averaging up to 1 yard in height. Although their height may be small, the transportation they use are mostly large and overpowered vehicles. The Aleena who are more closely to nature than technology tend to use the Can-cell animals (seen in Episode III on Kashyyyk).

Notes:

An Aleena can be seen in the Boonta Eve Race in Episode I – The Phantom Menace.

CP:

Type	CP
Attribute Adjustment	-20
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	0
Racial Disadvantages	0
Racially Learned Skills and Racial Bonuses	0
TOTAL	-20

Amanin

Attribute Adjustment:

ST+1 [+9pts]; HT+3 [+30pts]; IQ-1 [-10pts]

Secondary Characteristic Adjustment:

Basic Move -1 (Walking) [-5pts]; SM+1

Origin:

Maridun

Tech Level:

3 – Low TL-8 [-40pts]

Racial Advantages:

Brachiator [+5pts]; Enhanced Move x4 (Ground/Roll) [+20pts]; Infravision [+10pts]; Regrowth (+40pts]

Racial Disadvantages:

Odious Racial Habit-3 (Expel undigested material from their mouths) [-15pts]

Free Skills:

Language (Amanin, Native); Area Knowledge (Maridun); Camouflage

Racially Learned Skills and Racial Skill Bonuses:

Brawling at DX [+1pt]; Survival (Forest) at Per-1 [+1pt] (Also see Brachiator advantage for more free skills)

Features/Taboos:

Language (Amanin, Written)

Names:

Unknown

Description:

The Amanin are a race of tall, flat-bodied planarian that inhabit the forests and plains of the planet Maridun. The Amanin skin is wrinkly, moist, and sensitive to drying. The front of their bodies has deep yellow coloration, while the rear hood, which runs from the neck to the feet, is green. They also have a striped camouflage pattern along the sides of the body that enables them to both hide from predators in their environment, and hunt more effectively. The Amanin have small mouths, which function as both a way to eat, and a way to expel undigested material from their bodies. This process is very unsettling to the majority of other sentient species. Their mouth is also the location of their reproductive organs, and this makes it very difficult for other species to tell the difference between male and female Amanin. The Amanin bulbous eyes are a deep, dark red color, and they can see easily in dark conditions. They have extremely long arms that enable them to easily swing in the branches of the jungles on Maridun, and have enormous hands that are roughly half a yard long. Each hand sports long claws, which, combined with the hands' size, enable them to grasp and ensnare struggling prey. They have short legs, which hinder their walking movement severely, but their unusual body shape enables them to roll along the ground at great speeds, making them swift in their natural environment. They have the ability to regenerate lost limbs and organs, and their brains are actually a network of small bundles of nerves that, along with other vital organs, are distributed throughout their bodies. This combination makes the Amanin very difficult to kill.

The Amanin are forest dwelling creatures. They establish their homes in the high treetops of the forests on their planet. The majority of Amanin are slow to anger, but once their temper rises, the result is bloody. They tend to have good sense of humor, but most species tend to think it slightly morbid.

The leaders of the Amanin are shamans and lore keepers, and these leaders are charged with remembering the oral history of the past. The Amanin have a different perception of time, then the rest of the galaxy. They only see time as having two parts, a beginning and an ending. When an Amanin tries to convey time to other beings, they do it by relating it to past events. This can be incredibly aggravating to companions of an Amani (singular form of Amanin).

The Amanin society is set up in social groups that control small forests on Maridun. The forests are usually surrounded by vast grasslands. When a social group grows to large for the forest to support the Amanin society, the extra young adults travel into the grasslands, which are called Gruntak, to find another suitable forest to live in. An uninhabited forest is rare, and the group usually attempts to seize the forest from other Amanin holding it. The bloody battles are called Takitals, and they make up a large portion of the lore keepers tales.

They are a tribal people with a very primitive level of technology, and while most Amani are skeptical and fearful of high tech devices, their society is changing rapidly. When the Empire first discovered Maridun, the Amanin reacted well to their first contact with the offworlders. They were both curious and interested with the visitors. The Empire established a small mining facility on the planet and stationed a small force of Imperial Troopers on the planet, to protect the Imperial resources. The Amanin soon found them tricked by the Empire into selling their own people into slavery, and the once peaceful groups of Amanin became distrustful and fearful. During the Galactic Civil War, the Empire shifted its resources to other places, and soon the planet became inhabited by smugglers and other small groups of criminals, who took over the abandoned imperial facilities. The young Amanin, after hearing exciting stories of Amanin who left and returned, are leaving the forests and moving into the new spaceports. There have been accounts of some of them are returning to the forests with blasters and other technology, which they see as magic, and easily taking over the primitive tribes, who still live there. The majority of lore keepers is seeing these changes as signs of corruption and is trying to counter the events that have changed their world, but the Imperial presence on Maridun may have changed the Amanin society forever.

The Amanin can be found serving as laborers, mercenaries, bounty hunters, and scouts throughout the galaxy. Despite their large, unusual appearance and tendency to carry long, hand-held weapons, which are decorated with "trophies" of their past victories, they prefer to remain unnoticed in spaceport crowds.

Notes:

An Amanin can be seen in Jabba's Palace in Episode VI: return of the Jedi.

CP:

Type	CP
Attribute Adjustment	+29
Secondary Characteristic Adjustment	-5
Tech Level	-40
Racial Advantages	+75
Racial Disadvantages	-15
Racially Learned Skills and Racial Bonuses	+2
TOTAL	+46

Anomid

Attribute Adjustment:

ST-1 [-10pts]; DX-1 [-20pts]; IQ-1 [-20pts]

Secondary Characteristic Adjustment:

None

Planet/System of Origin:

Yablari system

Tech Level:

12 - High TL+1 [+5pts]

Racial Advantages:

Wealth (Wealthy) [+20pts]

Racial Disadvantages:

Cannot Speak (Mute) [-25pts]; Pacifism (Self Defense Only) [-15pts]

Free Skills:

Language (Anomid Sign Language, Native); Area Knowledge (Yablari)

Racially Learned Skills and Racial Skill Bonuses:

Anomid characters may pick two Mechanics [+10pts] each, and one engineer skill [+12pts]

Features/Taboos:

Language (Any, Spoken without Anomid Vocalizer Mask)

Names:

Unknown

Description: A humanoid alien race native to the Yablari system, the Anomid are born without vocal cords. This requires that the immature Anomid wear complex masks, which synthesize the sounds necessary for communication with others. These masks are very large, covering all but the Anomid's eyes and forehead. They dress in long, hooded robes made from pure dendrite. Most Anomids have pale, translucent skin and wide eyes, and their ears are large and leaf-like in shape. Anomids have six toes on each foot.

Their technology is fairly sophisticated, and the Anomid have become very wealthy selling it in the galaxy. A peaceful race, they supported the Old Republic for 15,000 years before the onset of the New Order. Their own political system was divided in its support during the Galactic Civil War, but they sided with the Empire in an effort to meet their homeworld's needs.

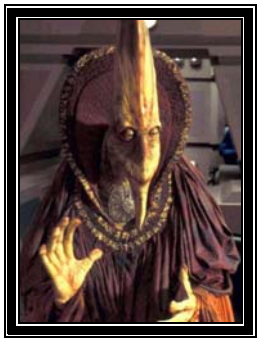
Note:

Anomid PC is not recommended.

CP:

Type	CP
Attribute Adjustment	-50
Secondary Characteristic Adjustment	0
Tech Level	+5
Racial Advantages	+20
Racial Disadvantages	-40
Racially Learned Skills and Racial Bonuses	+32
TOTAL	-33

Anx



Attribute Adjustment:

ST+2 [+16pts]; IQ-1 [-20pts]

Secondary Characteristic Adjustment:

SM+2

Planet/System of Origin:

Gravlex Mex

Tech Level:

11

Racial Advantages:

None

Racial Disadvantages:

Easy to Read (when fins are visible) [-10pts]; Fanaticism (Galactic Republic) [-15pts]; Phobias (Auto Phobia) [-15pts]

Free Skills:

Language (Anx, Native); Area Knowledge (Gravlex Mex)

Racially Learned Skills and Racial Skill Bonuses:

Language – Shusugant (Accented) [+4pts]; Physiology at IQ+4 [+20pts]

Features/Taboos:

None

Names:

Example of Anx names are Graxol Kelvyyn, Horox Ryyder, Theen Fida, and Drexol Ryyd.

Description:

The Anx are serene giants who assume many roles in the Republic. They are placid, sociable creatures noted for an almost-fanatical devotion to any larger group of which they consider themselves a part.

Thousands of years before the Republic encountered them, the Anx developed interstellar travel by hurling their ships into orbit with colossal cannons. Through this method, the Anx spread from Gravlex Mex (their homeworld) to neighboring systems in their corner of space. Unfortunately for them, they quickly encountered the Shusugant, a squat species of spacefaring warriors. Although the Shusugant managed to take over the Anx homeworld for a short time, the planet's gravity proved their undoing, bringing the conquest to a halt. Since then, Anx have become more cautious in their exploration and dealings with other species.

Anx possess an uncanny knowledge of anatomy, specially relating to nervous systems, muscles, and skeletal structures (even in creatures they have never encountered before). This knowledge makes the Anx devastating unarmed combatants, able to stop even a raging Wookiee with a well-placed blow to the right nerve center.

Anx are serene beings. They are highly sociable, giving to large families and complex clan structures. They fear isolation.

Anx average 4 yards tall and would seem taller if they didn't walk with their shoulders stooped and their long, crested heads held out in front of them. Their skin, and particularly the fins beneath their crests, change color to reflect their emotions. When traveling among aliens, Anx often wear scowled cloaks that hide their crests. Their slow, hunched way of walking, together with their small, close-set eyes, wrinkled faces, and pursed mouths can make them look parodies of old men. An Anx's large, muscular tail serves as a counterbalance for running.

Modified Skill:

Physiology – The Anx may use their knowledge to enhance damage with any unarmed Martial Arts skill. Add 1d to the damage dealt.

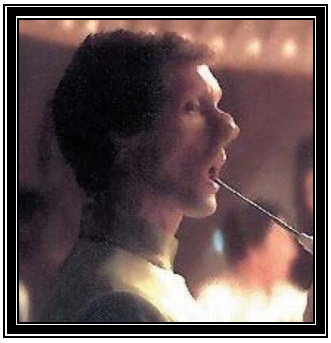
Note:

Anx are giants (size modifier +2; -20%). Anx PCs are not recommended

CP:

Type	CP
Attribute Adjustment	-4
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	0
Racial Disadvantages	-40
Racially Learned Skills and Racial Bonuses	+24
TOTAL	-20

Anzati



Attribute Adjustment:

ST+1 [+10pts]; DX+1 [+20pts]

Secondary Characteristic Adjustment:

Per+2 [+10pts]

Origin:

Anzat

Tech Level:

11

Racial Advantages:

Extended Lifespan 8 [+16pts]; Longevity [+2pts]; Proboscises (Special Attack, see below) [+5pts]

Racial Disadvantages:

Odious Racial Habit (drinks blood and feeds on brain "energy") [-15pts]

Free Skills:

Language (Anzati, Native); Area Knowledge (Choose one planet or system)

Racially Learned Skills and Racial Skill Bonuses:

All Anzati get the Force power Sense but not its associated talent and abilities [+10pts]

Features/Taboos:

None

Names:

The Anzati are so rare that there are rarely two of them in the same sector, let alone the same conversation. For this reason, Anzati rarely name their offspring. Often times though, due to their constant need for victims, Anzat will take human-like names in order to blend in with the surrounding populace. Examples of names include Anzat of Anzati, Dannik Jerriko, and Nikkos Tyris.

Description:

The Anzati are a race of humanoids, that closely resemble humans on the outside, but those who do not sense the danger that exist within these predatory creatures, will soon wish they had. Believed to be a myth to most of the galaxy, the Anzati are in fact real. Tall, gaunt and largely humanoid in appearance, except for the prehensile proboscises coiled in their cheek pockets. These proboscises are long tubular organs, which can extend out from their nostrils, to pierce the brains of Anzati's victim. The Anzati places his face close to his or her victim, and then the proboscises extend through the victim's nasal cavity, and burrow into the brain. The Anzati then "suck" out the brain and it's energies as "soup" or "luck".

Little is known of Anzat, the planet that these creatures hail from, and they don't appear to have any sort of biological rhythm. They simply exist, and when they require rest, they drop into a deep coma-like state. Anzati can live over a thousand years, and they most commonly find employment as bounty hunters or assassins.

Rules on Anzati Proboscises:

The Anzati proboscises are fairly useless in the average melee. For an Anzati to attack with the proboscises, they must somehow incapacitate the victim or attack while the victim is incapacitated. This can be done by knocking them unconscious, attacking them while sleeping, or restraining them in a way that the proboscises can reach into the victim's nostrils and pierce the brain.

For every minute the Anzati spends feeding on a victim, the victim loses 3 HT. If the victims HT ever drop below 0, he dies. If the attack is ceased before the victim is dead, the victim must somehow escape the Anzati in order to survive. For the next two days, he is physically, mentally, and spiritually exhausted suffering a -4 penalty to all his rolls (his "Luck" has been stolen). After that, he suffers a -2 penalty for the next week continuing to gain more strength back. For the final week, the character suffers a -1 penalty to all his rolls, until he regains his strength. Characters with any advantages of Luck, cannot use them during the recovery time.

The Anzati refer to this as stealing a victim's luck. This superstition probably exists, because of the fact that most victims don't survive for very long after this ordeal. The term probably originated from an Anzati who fed on low-lifes (bounty hunters, beggars, smugglers, and the like), a group of people who are always in the need of their wits, otherwise they would be found dead in a gutter. An Anzati attack causes physical and mental weakness that causes vulnerability in the victim. Rivals and enemies with vendettas probably took advantage of this weakness, attacking while the victim is not fully functional. This cycle repeated itself and the superstition is born.

The Anzati will avoid assaults on Jedi or other powerful Force-users. A Force-user who has control over his mind, able to block out unwanted probing of his thoughts and feelings, can block out the Anzati's form of receptive telepathy. The Anzati however is able to determine that the person is a Force-user and sense how powerful he is. Usually, the Anzati will come to the conclusion, that the risk involved is not worth the effort, and go and find easier prey. Many Anzati will stalk especially tasty looking prey for cycles, even years; just to feed on that person. After all, when you are able to live for thousands of years, what is a year or two.

Sense - The Anzati have focused this power to feed on their victims. The usage is very similar to the way Force-users use it, sensing strength in the Force, but with one important difference. Due to the thousand of years spent using this power, the Anzati have developed the ability to not only sense presence of the Force, but they can use it to determine the "life force or luck" of the target. Any target with the advantages Blessed and/or Luck will be considered tasty. Characters that are Cursed or have Unluckiness will be left alone.
Example: When Dannik Jerriko, an Anzati in the Mos Eisley cantina, first noticed Ben and Luke, he was able to sense that Ben was a Jedi master and that Luke was strong with the Force. He immediately decided that Ben was far too much trouble to feed on, and contemplated feeding on Luke. It was when he noticed Solo that he focused on him. His "luck" was strong and tasty, and then he followed him to docking bay 94, where Solo made his escape. Dannik could not let such a tasty morsel get away, and he knew that Solo was wanted by Jabba. So he went to Jabba's Palace to wait for him. After all, time is on his side.

Notes:

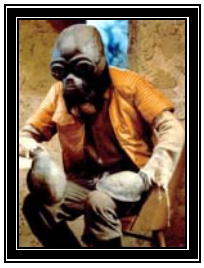
Anzati PCs are not recommended.

CP:

Type	CP
Attribute Adjustment	+30
Secondary Characteristic Adjustment	+10
Tech Level	0

Racial Advantages	+23
Racial Disadvantages	-15
Racially Learned Skills and Racial Bonuses	+10
TOTAL	+58

Aqualish



Origin:
Ando

Tech Level:
12 – High TL+1 [+5pts]

Features/Taboos:
Clawed or Webbed hands

Names:
The Aqualish favor two names (both given), usually disyllabic. Examples of names include Ponda Baba, Unda Lagor, and Calfta Bongi.

Description:
A walrus-faced race of bipeds from the planet Ando. The race is divided into two distinct sub-races of Aqualish society. The higher caste, the Aquala, has hands, which are articulated webs with opposable thumbs, and the lower caste, the Quara, has clawed hands. The distinction between the sub-races is greater than the slight physical differences between them. The Aquala, the web handed subspecies, hold governmental and commercial positions, and the Quara, the claw handed subspecies are usually left to become bounty hunters, smugglers, and other dregs of society. Both species are a belligerent and hotheaded, but they are technologically advanced race.

Both species are known throughout the galaxy for their bad temper and the ease they get into fights and into trouble.

The Aquala live in vast sailing ships and floating cities, while the Quara live on the planet's small islands. The two sub-races have a long history of civil war. The Aquala, who blamed the Quara for the declining harvests of fish, initiated the war. The bloody war between the subspecies was ended by an exploration starship. The starship landed on the surface of Ando, and unintentionally united the two feuding factions against the "trespassers". The crew was slaughtered, and the once non-technical Aqualish discovered how to fly the "alien" starship. Soon after, they learned how to build starships of their own, and the Aqualish took the stars. The old subspecies feud resurfaced, and the two factions took their age-old battle to Ando's sister planet, which ended in the planet's destruction.

When the Empire arrived to conquer the system, the war-loving Aqualish tried to overthrow the. The sheer might of the Empire battered the Aqualish into submission, but it instilled a deep bitterness in the Aqualish culture against offworlders.

Aquala

Attribute Adjustment:
ST+1 [+10pts]

Secondary Characteristic Adjustment:
None

Racial Advantages:
Amphibious [+10pts]; Doesn't Breathe (Gills, -50%) [+10pts]

Racial Disadvantages:
Bad Temper [-10pts]; Racial Reputation-2 (Bully, Almost Everyone, x1, Sometimes, x½) [-5pts], Bully [-10pts]

Free Skills:
Language (Aqualish, Native); Area Knowledge (Ando)

Racially Learned Skills and Racial Skill Bonuses:
Swimming skill at HT [+1pt]

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	0
Tech Level	+5
Racial Advantages	+20
Racial Disadvantages	-25
Racially Learned Skills and Racial Bonuses	+1
TOTAL	+11

Quara

Attribute Adjustment:
ST+1 [+10pts]

Secondary Characteristic Adjustment:
None

Racial Advantages:
Amphibious [+10pts]; Doesn't Breathe (Gills, -50%) [+10pts]

Racial Disadvantages:
Bad Temper [-10pts]; Reputation-2 (Bully (Almost Everyone, x1; Sometimes, x½) [-5pts], Bully [-10pts]

Free Skills:
Language (Aqualish, Native); Area Knowledge (Ando); Swimming

Racially Learned Skills and Racial Skill Bonuses:
None

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	0
Tech Level	+5
Racial Advantages	+20
Racial Disadvantages	-25
Racially Learned Skills and Racial Bonuses	0
TOTAL	+10

Aquar

Attribute Adjustment:

None

Planet/System of Origin:
Velusia

Tech Level:
7 – Low TL-4 [-20pts]

Racial Advantages:
Doesn't Breathe (Gills, -50%) [+10pts]

Racial Disadvantages:
None

Language and Other Free Skills:
Language (Basic, Native); Area Knowledge (Velusia)

Racially Learned Skills and Racial Skill Bonuses:
An Aquar receives Swimming at HT+4 [+12pts]

Features/Taboos:

None

Names:

Unknown

Description:
The Aquar are an offshoot of Humans who have evolved to their current state after thousands of years on Velusia. An Aquar appears roughly Human, with the following exceptions: The skin is blue to green and, on close inspection, covered with fine scales. The fingers and toes are partially webbed, and hair color tends to be green. An Aquar's eyes are large. The nose is flat with three horizontal slits for nostrils, similar in appearance to gills.

The Aquar used to inhabit the volcanic islands in loose tribes, but now most live in Mount Hollow, employed by NMC (Nexcor Mining Corporation) or providing support services to the corporation. Te recent generation of Aquar has been seduced by technology and shuns the simple customs of the species, much to the dismay of their elders.

Aquar wear plain, form-fitting clothes and are dedicated workers skilled in aquatic pursuits. Although unfamiliar with modern technology, they are quick to adapt it to their use. NMC is ruthlessly recruiting the Aquar into its ranks as employees. If the trend continues, the Aquar's primitive culture could be forgotten in a few generations.

Note:

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	-20
Tech Level	+10
Racial Advantages	0
Racial Disadvantages	0
Racially Learned Skills and Racial Bonuses	+12
TOTAL	+2

Arcona

Attribute Adjustment:

HT+1 [+10pts]

Secondary Characteristic Adjustment:

None

Origin:

Cona

Tech Level:

11

Racial Advantages:

Acute Senses (Hearing+2, Taste/Smell+2 [+8pts]; Claws (Talons) [+8pts]; Damage Resistance 1 (Tough Skin, -40%, Physical, -20%) [+2pts]

Racial Disadvantages:

Bad Sight (Near Sighted, Cannot be corrected) [-25pts]; Addiction (Salt, Cheap, Legal, Hallucinogenic, Lethal, Highly Addictive [-25pts]

Free Skills:

Language (Arcona, Native); Area Knowledge (Cona)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

The Arcona favor two names the first of which is a nest name, and are common among all males in the nest (the "nest" is the family unit in Arcona society). Female nest-members affix an "a" onto their names. E.g., Dutana Leara, of the Dutan Nest. The second name is s simple given name. Sometimes, especially if one of the names is very short, Arcona tend to run the two together, and write them with a hyphen. Examples of names include Terrafin Vegath Tist, Gezzov-tak, Dutan Kelliv, Dutan Lee, Dutana Leara, Hem Dazon, Kal Mpon, Kal Nkai, and Shlith-Dan.

Description:

Arcona are scale less, bipedal reptiles with triangular shaped heads and large, marble-like eyes. Between their eyes is a tiny bulbous knob that is used as a heat sensor and supplement to their eyesight. Their skin ranges in color from dark mahogany and gray to deep black, and bears a resemblance to fibrous wood. Arcona have sharp talons on their hands that enable them to dig through soil or other substances quickly. The Arcona do not dig or burrow very often, if ever. Scholars tend to believe that during the Arcona's evolution, they possibly made nests for their young by digging in the soil. Although this is just speculation, the fact remains that these talons can also be used in combat if necessary (both thr/imp and sw/cut damage).

The most peculiar thing about the Arcona is their susceptibility to becoming addicted to salt. This is caused by the absence of salt in their environment. A salt addicted Arcona can be determined by their glowing yellow eyes. This is a result of a chemical interaction between the salt and their optic nerves. This chemical interaction also causes the Arcona to hallucinate. Increased levels of salt also break down the pancreatic ability to convert ammonia into a water-conserving enzyme, and are thus deadly to the Arcona.

Arcona society is a very communal society based upon the percept that the rights of the whole group outweigh the rights of the individual. Primarily the "group" is the Arcona's family; also called a Grand Nest, although this can include any group that follows the rules of the society.

The Arcona's are farmers by nature, tilling Cona's rich tropical soil. They have also incorporated themselves in all sorts of galactic affairs and activities, although many prefer the comforts of spaceports, if they are not living on Cona.

Notes:

An Arcona can be seen in the Mos Eisley cantina in Episode IV: A New Hope.

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+18
Racial Disadvantages	-50
Racially Learned Skills and Racial Bonuses	0
TOTAL	-22

Arkanian

Attribute Adjustment:

DX-1 [-20pts]; IQ+1 [+20pts]; HT+1 [+10pts]

Secondary Characteristic Adjustment:

None

Origin:

Arkania

Tech Level:

11

Racial Advantages:

Wealth (Comfortable) [+10pts]; Claws (Blunt) [+3pts]

Racial Disadvantages:

Reputation-1 (Mad Scientist, Almost Everyone, x1, All the time, x1) [-5pts]; Overconfidence [-5pts]

Free Skills:

Language (Arkanian, Native); Area Knowledge (Arkania)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Examples names are Dolvan Genarik, Jaro Salaban, Kalor Nelprin, Marael Korvota, and Sulan Bek.

Description:

At one time, Arkania was an important part of the Sith Empire. The world was one of the main repositories of that long-lost civilization's historical records. Arkania is known for its elaborate constructed trade cities and rich gem mines. A number of highly sought-after stones can only be found on this world. The Arkanians are known for zealous exploration of the galaxy, innovations in micro circuitry, and contributions to medical technology. Arkanian scientists have long been expert practitioners of genetic manipulation, displaying a particular fascination with the genetic make-up of species other than their own. Some of the results of their research have led to great advances in medical techniques, while others are considered among the greatest atrocities the galaxy has ever known.

The combination of vast wealth generated by huge gem mines and near-boundless arrogance has led the Arkanian scientific community to launch research projects on a scale matched only by such Imperial endeavors as the Death Star and the Emperor's hidden stronghold in the Deep Core. The most elaborate Arkanian scientific projects take generations to unfold, often resulting in the total reshaping of entire planets and species.

While Arkanian interaction with the galaxy at large has been characterized by the actions of their scientists, many Arkanians are horrified and greatly embarrassed by the excesses individuals have perpetrated in the name of science. The most conscientious Arkanians are allies of the Jedi order. In fact, one of the most famous Jedi Academies in history stood on Arkania.

Arkanians exhibit a distinctive arrogance. They consider themselves the pinnacle of evolution, an attitude that has remained with them throughout millennia of interacting with the rest of the galaxy. Their representatives in the Galactic Senate were among the most vocal prior to the rise of the Empire, but after Emperor Palpatine's defeat, their belief kept them from joining the New Republic.

Arkanians are a robust near-Human species with solid white eyes and clawed four-fingered hands.

Their homeworld Arkania is a frigid, inhospitable world located in the Perave system in the colonies region.

Notes:

Many Arkanian personal shield deflectors can be obtained in the game Knight of the Old Republic.

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+13
Racial Disadvantages	-10
Racially Learned Skills and Racial Bonuses	0
TOTAL	+13

Ayrou

Attribute Adjustment:

HT-1 [-10pts]

Secondary Characteristic Adjustment:

Will+1 [+5pts]; SM+1

Origin:

Maya Kovel

Tech Level:

11

Racial Advantages:

Appearance+1 (Attractive) [+4pts]; Reputation+1 (Trustworthy, Almost Everyone, x1, All The Time, x1) [+5pts]; Flexibility (Double-Jointed) [+15pts]; Rapier Wit [+5pts]

Racial Disadvantages:

Curious [-5pts]; Skinny [-5pts]

Free Skills:

Language (Ayrou, Native); Area Knowledge (Maya Kovel)

Racially Learned Skills and Racial Skill Bonuses:

An Ayrou receives Fast Talk at IQ+1 [+4pts]

Features/Taboos:

None

Names:

Typical names are: Chee'ad, Tircee, Noreekee, Kuusa, and Tessyn.

Description:

The Ayrou are willowy humanoids from the planet Maya Kovel, a windswept Outer Rim world with a thin acrid atmosphere, in the Moddell Sector. They evolved from a birdlike species yet are incapable of flight.

The Ayrou were one of the first sentient species in the Moddell Sector to master space flight. They have a baffling cultural paradigm that lets distinguished members of the species debate a cultural or religious topic for generations, and then abruptly commit to a single sociological custom or path. The Ayrou also possess a hoarding instinct that compels them to gather up anything they can find on the off chance that it can be used in the future. The impulse to collect things is easily mistaken for greed, but Ayrou are not usually covetous and regard their gathering nature as simple "practical".

Ayrou are strong-willed individualists, wily negotiators, and tireless collectors, for information about anything and everything. Despite their relentless drive, they Ayrou are a peaceful species. They regard haggling and dealing as an art form and think combat is the refuge of juveniles, the feeble-minded, and others who can't succeed using their wits.

A typical Ayrou is tall and thin, standing almost 7 feet tall but weighing only 135 lbs. The Ayrou are an attractive species, with milky white skin and long, lean limbs.

Ayrou have flat facial features, with wide-spaced eyes that are typically ruby red, sapphire blue or emerald green. Instead of hair, Ayrou have a beautiful plumage of feathers in a dazzling array of colors. An Ayrou's plumage reflects his or her health, social status, and attractiveness. Consequently, Ayrou are constantly preening and checking their appearance.

Ayrou have four tapered fingers on each hand and are triple-jointed, allowing them to bend their limbs at incredible angles.

Notes:

CP:

Type	CP
Attribute Adjustment	-10
Secondary Characteristic Adjustment	+5
Tech Level	0
Racial Advantages	+29
Racial Disadvantages	-10
Racially Learned Skills and Racial Bonuses	+4
TOTAL	+18

-B-

Balosar

Attribute Adjustment:

DX+1 [+20pts]; HT-1 [-10pts]

Secondary Characteristic Adjustment:

Will-1 [-5pts]

Origin:

Balosar

Tech Level:

11

Racial Advantages:

Acute Sense (Acute Hearing+4, Antennapalps are sensitive to sound when they are extended) [+8pts]; Resistant (Poison, Very Common, Immunity x⅓) [+5pts]

Racial Disadvantages:

Appearance-2 (Unattractive) [-4pts]

Free Skills:

Language (Balosar, Native); Area Knowledge (Balosar)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Example names are Vaya Bar'jaraka, Nina Dar'Eboros, Elan Sleazebaggano, and Zirk Mer'darro.

Description:

Balosar are humanoids with a shady reputation throughout the Core Worlds. They can easily pass for human (when their antennapalps are retracted) and tend to live among the lowest echelons of society, preying on the vices of the weak-willed or impoverished.

Relief agencies have been trying to end the vicious circle of poverty, pollution, and corruption on Balosar for years, but the planet's government offers little assistance. Offworld corporations regularly line Balosar bureaucrats' pockets with credits in exchange for state-owned real estate on which they build sweatshop factories. Balosar offers no shortage of manual labor.

Balosars are often weak-willed and self-absorbed. Many suffer from severe depression and feel like they're trapped; others grudgingly accept their lot in life with a sarcastic grin. A Balosar's

moral and ethical outlook is often skewed by hard life experiences, and many have trouble distinguishing between right or wrong.

A Balosar has coarse hair, a frail-looking frame, and retractable antennapalps atop their head. The average Balosar stands about 5'2" tall, and most have sickly complexions from a lack of sunlight and clean air.

Notes:

A Balosar can be seen in Episode II: Attack of the Clones in the bar where one tries to sell some death sticks to Obi-Wan.

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	-5
Tech Level	0
Racial Advantages	+13
Racial Disadvantages	-4
Racially Learned Skills and Racial Bonuses	0
TOTAL	+14

Barabel

Attribute Adjustment:

ST+1 [+9pts]; DX+1 [+20pts]; IQ-1 [-20pts]; HT+1 [+10pts]

Secondary Characteristic Adjustment:

SM+1

Planet/System of Origin:

Barab I

Tech Level:

10 – Low TL-1 [-5pts]

Racial Advantages:

Damage Resistance (Scales, Physical 2, -20%, Energy 1, -20%) [+12pts]; Infravision [+10pts]; Radiation Tolerance /5 [+10pts]; Teeth (Sharp) [+1pts]

Racial Disadvantages:

Sense of Duty (Loyalty to Jedi, Large group) (-5pts]; Reputation–4 (Savage Warriors and Accomplished Hunters, Almost Everyone, x1, Sometimes, x½) [-10pts]

Free Skills:

Language (Barabel, Native); Area Knowledge (Barab I)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

Tail

Names:

The Barabel favor one name (given). Examples of names include Shahtul, Vangar, Baraduk, Shallamar, and Tibor.

Description:

The Barabel are a race of bipedal reptiles that inhabit the dark, humid world of Barab I. They are covered head to tail with horny, black scales made of keratin that functions as a natural armor, and their mouths are filled with sharp, needle like teeth reaching lengths of 2 inches or more. They are natural hunters, well adapted at finding prey in the harsh environment on their world. The Barabel's eyes enable them to see in the infrared spectrum, giving them an advantage over their prey, and unlike some aggressive species, they temper their aggressive behavior with intelligence, cunning, and cooperation that is often necessary to achieve a goal. They also have a natural resistance to radiation, which they most likely developed due to the close proximity of the Barab system's red dwarf star.

The Barab are extremely loyal to their families, and often show surprising amounts of affection for their young. Outside of that group all other creatures and offworlders are met with aggression. As mentioned before, that unlike other aggressive species, the Barabel temper that aggression with intelligence. When the Imperials first settled on the planet, many big game hunters flocked there to bring home a Barabel head for mounting on their wall. This enraged the Barabel leaders and they retaliated. The Imperial governor at the time noticed their cunning and intelligence, and began shipping Barabel off world for use as shockboxers, mercenaries, and commandos.

Barabels have a reputation as fierce warriors and competent hunters, and many Barabel left to pursue careers as bounty hunters. The race is well feared, and those who are familiar with the race tend to stay clear of them.

Strangely enough, the savage Barabels have a deep respect for Jedi Knights, even though they have little aptitude for sensing the Force. They will almost always yield to the commands of a Jedi, and a few Barabel have tried to emulate their beliefs despite their lack of being able to sense the Force.

Note:

CP:

Type	CP
Attribute Adjustment	+19
Secondary Characteristic Adjustment	0
Tech Level	-5
Racial Advantages	+33
Racial Disadvantages	-15
Racially Learned Skills and Racial Bonuses	0
TOTAL	32

Baragwin

Attribute Adjustment:

DX-1 [-20pts]; IQ+1 [+20pts]; HT+1 [+10pts]

Secondary Characteristic Adjustment:

Basic Move -1 [-5pts]

Origin:

Unknown

Tech Level:

Racial Advantages:

Acute Senses (Acute Taste and Smell+4) [+8pts]; Damage Resistance 1 (Though Skin, -40%, Physical, -20%) [+2pts]; Discriminatory Smell [+15pts]

Racial Disadvantages:

Ham-Fisted-3 [-5pts]

Free Skills:

Language (Any, Native); Area Knowledge (Planet that the character resides on)

Racially Learned Skills and Racial Skill Bonuses:

One Mechanic Skill at IQ [+2pts]; Engineer (Small Arms) at IQ-1 [+2pts]; Language (Local Tongue, Accented) [+4pts]

Features/Taboos:

None

Names:

The Baragwin favor two names. The first is a given name. The second is the name of the homeworld or culture that they belong to. Since the Baragwin species has been widely spread across the galaxy, this can say a lot about an individual. Examples of names are Hermi Odle, Dagel Igara, Idalli Kodrue, and Digo Fadani.

Description:

The origin of Baragwin space travel technology is lost to legend and speculation. In fact, the Baragwin had ancient colonies on so many worlds when other species reached them that no one knows their planet of origin, including the Baragwin themselves.

The one unifying factor among the far-flung Baragwin is their talent for weapons design and manufacture. Baragwin weapons manufacturers are particularly renowned for creating blasters and other high-tech weaponry tailored to the needs of alien species that lack the appendages for which most such weapons are designed. Most weapon design firms have counted Baragwin among their employees since their founding. However, Baragwin can be found in any type of occupation, virtually anywhere in the galaxy.

Despite their alien appearance, the Baragwin remain on good terms with the Empire through most of the Rebellion Era. The Empire wanted to tap their extensive talent for designing weaponry, and the Baragwin appreciated the handsome sums of money they were paid by the Imperial military or by mega-corporations with Imperial backing. It wasn't until Intelligence Director Isard released the Krytos virus, a deadly, artificially created disease that targeted every species but baseline Humans, during the New Republic's liberation of Coruscant that most Baragwin put their support behind the freedom fighters. The disease hit Coruscant's Baragwin population particularly hard.

The Baragwin have a fine sense of smell and can often identify a being's mood by its scent

Baragwin personalities are as varied as Humans. If anything, Baragwin are underestimated due to their shuffling gait and ponderous way of carrying themselves. They are, in fact, highly intelligent but rarely take steps to correct the misperceptions ignorant beings may have about them, and it often lets them identify potential foes.

As being with a highly malleable society, Baragwin tend to be open-minded and accepting of others who visit their communities. However, they are also quick to defend themselves and usually do so with great skill.

The Baragwins are hunchbacked, humanoid saurians with massive heads nearly as wide as their shoulders and three digits on each massive hand. Their skin is though, wrinkled, and ranges in color from drab green to dark olive. Their nostrils are broad and frequently seen to twitch.

Notes:

Hermie Odle, a member of Jabba the Hutt's court was a Baragwin

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	-5
Tech Level	0
Racial Advantages	+24
Racial Disadvantages	-5
Racially Learned Skills and Racial Bonuses	+8
TOTAL	32

Bartokk

Attribute Adjustment:

ST+1 [+10pts]; IQ-3 [-60pts]; HT+1 [+10pts]

Secondary Characteristic Adjustment:

None

Planet/System of Origin:

An unnamed, rocky world located in the Outer Rim. Only members of the species know its location. For gaming references we call this planet Bartokk.

Tech Level:

9 – Low TL-2 [-10pts]

Racial Advantages:

Damage Resistance 2 (Though Skin, -40%, Physical, -20%) [+4pts]; Claws (Sharp) [+5pts]; Extra Arms+2 [+20pts]; Regeneration (Fast) [+50pts]; Regrowth [+40pts]; Racial Memory M+15pts]

Racial Disadvantages:

Reaction-2 (Almost Everyone but your own race, x1, Occasionally, x⅓) [-7pts];

Free Skills:

Area Knowledge (Bartokk); Bartokk are capable of speech but have no spoken or written language of their own.

Racially Learned Skills and Racial Skill Bonuses:

Bartokk receive the Climb Skill at DX+2 [+8 pts]

Features/Taboos:

None

Names:

Bartokk traditionally don't have names, for they see little need to recognize individuals or their achievements. Bartokk who are ostracized and forced to abandon their kin sometimes take simple names, such as Krekk, Lufkk, or simply "Bartokk".

Description:

Bartokk are a mysterious insectoid species known for their deadly assassin guilds. They have a collective hive mind that allows them to act in concert and share knowledge. Their body parts, when severed, continue to function through this same link.

Bartokk possess exceptional regenerative abilities and can regrow lost body parts in just a few days. If a Bartokk's brain is split in two, each half grows into a full-sized brain and regenerates any missing body parts, creating twins.

Low-level radiation on the Bartokk' homeworld sometimes causes minor mutations in the species. These mutations might seem trivial to non-Bartokk (a slightly deformed carapace or extra digits on one claw) but cause the malformed Bartokk to be severed from the hive mind and ostracized. These Bartokk outcasts either perish in the planet's harsh wilderness or leave the homeworld to find kinship elsewhere.

Although technologically primitive and unsophisticated, Bartokk enjoy acquiring and adapting technology and weaponry for their own use.

Individual Bartokk are barely sentient. When they form large groups, their intellect increases exponentially, making them formidable opponents in numbers.

A Bartokk resembles a bipedal insectoid with a thick carapace, a small head, large multifaceted eyes, and four arms tipped with razor-sharp claws.

Note:

Bartokk PCs are not recommended.

CP:

Type	CP
Attribute Adjustment	-40
Secondary Characteristic Adjustment	0
Tech Level	-10
Racial Advantages	+134
Racial Disadvantages	-7
Racially Learned Skills and Racial Bonuses	+8
TOTAL	85

Berrite

Attribute Adjustment:

DX-2 [-24pts]; IQ-2 [-40pts]

Secondary Characteristic Adjustment:

None

Planet/System of Origin:

Berri

Tech Level:

11

Racial Advantages:

Claws (Sharp, Leg-Claws) [+5pts]; Extra Legs+2 [+5pts]; Sonar [+20pts]

Racial Disadvantages:

Bad Sight [-10pts]; Hard of Hearing [-10pts]; No Fine Manipulator [-30pts]; Very Fat [-5pts]

Free Skills:

Language (Berrite, Native); Area Knowledge (Berrite)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Description:

The Berrites are a race of slug-like centaurians, the Berrites have a short stature and sluggish appearance. Their thick bodies are covered in heavy wrinkles of skin, and are supported by four stout legs and wide, three-clawed feet. Their upper torsos are humanoid, with two arms than end in spade-like hands. They have small, deep-set eyes and an open mouth, with five breather tubes along each side of their face.

They have developed geothermal energy sources, and have developed huge factories around this readily available power source. They have learned to cultivate their aspect of dullness when engaged with other races, for it allows them to scan their immediate surroundings with ultrasonic waves. This causes unknowing adversaries to underestimate the Berrite abilities while allowing the Berrite to gain a measure of defense.

Berrites are hermaphroditic, and have problems under-standing the male/female differences.

Note:

CP:

Type	CP
Attribute Adjustment	-64
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+30
Racial Disadvantages	-55
Racially Learned Skills and Racial Bonuses	0
TOTAL	-89

Besalisk

Attribute Adjustment:

ST+1 [+10pts]; DX-1 [-20pts]; HT-1 [-10pts]

Secondary Characteristic Adjustment:

None

Origin:

Ojom

Tech Level:

11

Racial Advantages:

Extra Arms+2 [+20pts]

Racial Disadvantages:

Appearance-1 (Sweating) [-5pts]

Free Skills:

Language (Besalisk, Native); Area Knowledge (Ojom); Area Knowledge (Ojom's Spaceports)

Racially Learned Skills and Racial Skill Bonuses:

Besalisks acquire the Swimming Skill at HT+2 [+4pts] and Survival (Arctic) at Per+4 [+16pts]

Features/Taboos:

None

Names:

Examples of Besalisk names are Lexia Trexor, Taster Dannex, Dexter Jettster, Rysken Mokksi, and Henk Zessek

Description:

Besalisks evolved from large flightless avian, though they are often mistaken for reptilian species. They are bulky, fleshy beings able to survive for long periods without food or water. During the reign of the Galactic Empire, Besalisks narrowly avoided enslavement by calling in favors with various influential underworld connections. Many are still working off their freedom, especially those Besalisks foolish or desperate enough to seek aid from the Hutts.

Besalisks have never sought official representation in the Republic Senate and generally seem content to go about their business and leave galactic affairs to politicians and bureaucrats of other species.

Communities on their homeworld are sparsely populated, and few Offworld colonies of Besalisks exist in any era.

Although Besalisks have contributed little to the galaxy in terms of resources and technology, they integrate easily into almost any civilized society and have no trouble using what other species have to offer.

Besalisks are seen as gluttonous, an unfair characterization considering their bodies store water for days and food for over a week. Another false assumption is that they are nervous or in poor shape because they sweat profusely. In truth, they're simply accustomed to much cooler temperatures than most other species. Besalisks are sociable, gregarious, and keen-witted.

Besalisks are stocky humanoids with thick arms, a bony headcrest surrounded on either side by short feathers, and a wide mouth with a large elastic sack dangling from it.

Male Besalisks have four arms, while female Besalisks can have as many as eight arms.

Food Stores:

Besalisks can go without food for 8 days. They can go without water for 3 days (see Starvation & Dehydration on page 426 of the GURPS 4th Edition Basic Set).

Notes:

A Besalisk can be seen in Episode II: Attack of the Clones when Obi-Wan turns to Dexter Jettster for some information.

CP:

Type	CP
Attribute Adjustment	-20
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+20
Racial Disadvantages	-5
Racially Learned Skills and Racial Bonuses	+20
TOTAL	+15

Bimm

Attribute Adjustment:

ST-2 [-20pts]

Secondary Characteristic Adjustment:

SM-1

Planet/System of Origin:

Bimmisaari

Tech Level:

11

Racial Advantages:

Voice [+10pts]

Racial Disadvantages:

None

Free Skills:

Language (Bimm, Native); Area Knowledge (Bimmisaari)

Racially Learned Skills and Racial Skill Bonuses:

The near-Human Bimm get the Literature at IQ [+4pts] and Public Speaking at IQ+1 [+4pts]. Because of their haggling, the furred Bimm get the merchant skill at IQ+2 [+8pts]

Features/Taboos:

None

Names:

The Bimm favor two names, one of which they receive at birth, normally followed by a second name chosen in honor of a favorite ancestor or epic hero from a cherished ballad or story. Examples of names are Rycar Ryjerd, Jarel Rulinam, Roki Morjara, and Rav Mjalu.

Description:

The planet Bimmisaari is home to two distinct sapient species. They each refer to themselves as Bimms, and so do the rest of the peoples of the galaxy. Although they are not cross-fertile, the two species are both mild-tempered and peaceful and have coexisted for nearly all their recorded history.

Xenobiologists believe that the near-Humans landed on Bimmisaari millennia ago under unknown circumstances and adopted Bimm society as their own, but they have no genetic relationship to any other fauna on the planet. The furred humanoid species is thought to have evolved naturally on the planet.

Bimms dwell side-by-side in picturesque cities that dot their homeworld, surrounded by thick forests. Alien visitors to these

town (or Bimm enclaves on other worlds) are always treated as honored guests.

Both species of Bimms are mild-mannered and cordial. The near-Human Bimms greatly value storytelling, particularly tales of heroic adventures. Far all their love of heroics, they favor scholarly and artistic pursuits, preferring to record or invent tales and ballads of heroic deeds rather than perform them. Nonetheless, it is not unheard of for a Bimm to join a group of adventurers to witness true-to-life heroics for use in creative works.

The furry, humanoid Bimms are born merchants, hagglers, and shoppers. They love "the art of the deal" and do not consider a day complete if they haven't engaged in a spirited round of haggling or found a good deal at a wholesaler or market outlet. They consider fair dealing a point of honor, and stealing and shoplifting is viewed as a crime on the magnitude of murder.

All Bimms hold Jedi in especially high regard.

The first and most commonly encountered Bimms are near-Humans of short stature that roughly resemble Human children in physical build, although males can grow (and take pride in) thick, full beards).

The second species of Bimms are also small beings, with females slightly taller than males on average. They are floppy-eared humanoids covered in short fur that ranges in color from tan to deep black. Their faces feature elongated muzzles and tiny black eyes. They have three long fingers and an opposable thumb on each hand. They favor the color yellow, and are often clad in shades of that color.

Note:

You can read about Bimms in the Thrawn Trilogy where Han, Luke and Leia are ambushed by Noghri commandoes on Bimmisaari.

CP:

Type	CP
Attribute Adjustment	-20
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+10
Racial Disadvantages	0
Racially Learned Skills and Racial Bonuses	+8
TOTAL	-2

Bith

Attribute Adjustment:

ST-1 [-10pts]; IQ+3 [+60pts]; HT-2 [-20pts]

Secondary Characteristic Adjustment:

Per+1 [+5pts]

Origin:

Clak'dor VII

Tech Level:

11

Racial Advantages:

Acute Senses (Acute Taste and Smell+1) [+2pts]; Doesn't Sleep [+20pts]; Fearlessness+5 [+10pts]; Microscopic Vision+3 [+15pts]; High manual Dexterity+1 [+5pts]

Racial Disadvantages:

Bad Sight (Nearsighted, Cannot be fixed) [-25pts]

Free Skills:

Language (Bith, Native); Area Knowledge (Clak'dor VII); See the advantage of High Manual Dexterity (see BS page 59).

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

The Bith favor a name followed by a shorter, often apostrophe family name. Examples of names include Da'n, Doikk Na'ts, Ichabel Go'nt, Tedn Dahai, Herian I'ngre, Angor Farn, Barquin D'an, Brin Da'p, Nalan Cheel, and Nara Deega.

Description:

The Bith are a highly passive race of biped humanoids with pale skin, long splayed fingers, and large skulls. They have huge black eyes, with no eyelids. Their lack of eyelids is because Bith have evolved past the need for sleep. Their large eyes allow them to see in minute detail, but they are incredibly near-sighted. Both the thumb and their pinky finger on each and are opposable, and this enables the Bith to excel at skills that require the use of manual dexterity, such as pick pocketing, surgery, musical instruments, and fine tool operation. Their basic intelligence is unequalled, and they excel at abstract thinking, although they lack certain instinctual emotions like fear and passion. The Biths' mechanical abilities are sought throughout the galaxy, and they can be seen employed by the Empire, various private corporations, and the Alliance/Republic.

The Bith's ancestral origins are still a mystery to many. The reason it still remains a mystery is mostly because of the fact that their bodies contain no residual traces of any former life from that they have evolved from. This may have been caused by the way the race procreates. Bith mating is not a passionate experience, and has been fine tuned to a science over the years. Because of this, the Bith have lost their ability to procreate sexually. When a Bith wishes to procreate, he or she will bring their genetic material to a computer mating service, located on their home planet of Clak'dor VII, for analysis to find prospective mates. Once a mate is chosen, Bith children are then created from the genetic material, which is combined, fertilized, and incubated for a year. After the year is up, one of the parents will pick up the child and then raise it.

The Bith are native to the planet Clak'dor VII, in the Mayagil system. They quickly developed advanced technology, and unfortunately for the Bith, among the advancements included the development of biological and chemical warfare weapons. Soon a war broke out between the city-states of Nozho and Weogar, based on the patent rights of to a new stardrive engine. In the war the use of these potent weapons of mass destruction, destroyed their once beautiful planet, and left the Bith with two choices remaining bound on the dead planet or travel to the stars. The survivors of the war built hermetically sealed cities, although they soon realized that it would be better if they expanded to the stars. This whole experience has had a tremendous effect on the Bith. They have developed a very passive attitude toward the rest of the galaxy, and developed a great deal of tolerance as well.

The chemical warfare between the two city-states occurred just before the Galactic Civil War. Just after the ecological ruin of the planet, the Empire offered and provided the Bith with great amount of aid to assist the Bith in recovering their world from its ecological ruin (unlike Honoghr, the homeworld of the Noghri where the Empire did everything possible to keep that planet in

shambles). In return the Bith worked hard to propagate the ideals of the Empire, providing support for the computer programming and reviewing the designs of all new Imperial equipment for the Imperial military.

Notes:

Many Biths can be seen in the Star Wars movies, mostly as entertainers.

CP:

Type	CP
Attribute Adjustment	+30
Secondary Characteristic Adjustment	+5
Tech Level	0
Racial Advantages	+52
Racial Disadvantages	-25
Racially Learned Skills and Racial Bonuses	0
TOTAL	+62

Blood Carver

Attribute Adjustment:

DX+1 [+20pts]; IQ-1 [-20pts]

Planet/System of Origin:

Batorine

Tech Level:

11

Racial Advantages:

Flexibility (Double-Jointed) [+15pts]; Claws (Sharp) [+5pts]

Racial Disadvantages:

Reputation -2 (Wealthy characters, Large Class of People, x½) [–5pts]

Free Skills:

Language (Batorese, Native), a language that uses sounds as well as scent and skin coloration to a lesser degree. It is difficult for others, including protocol droids, to understand Batorese and impossible for others to speak it; Area Knowledge (Batorine)

Racially Learned Skills and Racial Skill Bonuses:

Stealth Skill at DX [+2pts]

Features/Taboos:

None

Names:

Examples are Ke Daiv, Pa Gara, Mu Fiev, and Va Tosh.

Description:

Blood Carvers originated on Batorine, a temperate world located in the Colonies region. Although many tribes of Blood Carvers relocated to Coruscant when their homeworld was attacked, Batorine is still home to many Blood Carver fiefdoms.

Blood carvers joined the Republic 110 years before the Battle of Yavin and live up to their odd moniker in two ways. They are renowned for their masterful sculptures carved from bright red blood wood. They are also skilled assassins, though they rarely mutilate their victims. In that sense, "Blood Carver" is more of metaphor.

Blood Carvers are proud warriors with strong ties to their tribal leaders. They find flattery and exorbitant wealth disdainful. Among tribal ranks, obsequiousness and greed are punishable by anything from a simple beating to exile.

Blood Carvers are triple-jointed humanoids with iridescent gold skin, wide beaklike noses, and beady black eyes. They typically wear close-fitting clothing that allows them to move quietly, and they sport tribal tattoos along the ridge of their nose flaps.

Note:

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+20
Racial Disadvantages	-5
Racially Learned Skills and Racial Bonuses	+2
TOTAL	17

Bothan

Attribute Adjustment:

DX+1 [+20pts]; HT-1 [-10pts]

Secondary Characteristic Adjustment:

None

Origin:

Bothawui

Tech Level:

11

Racial Advantages:

None

Racial Disadvantages:

Reputation-2 (Untrustworthy Opportunist, Almost Everyone, x1, Sometimes, x½) (-5pts]; Easy to Read (changes in Fur) [-10pts]

Free Skills:

Language (Bothan, Native); Area Knowledge (Bothawui)

Racially Learned Skills and Racial Skill Bonuses:

Diplomacy skill at IQ [+4pts]; Electronics Operation (Communication) at IQ [+2pts]; Surveillance at IQ [+2pts]

Features/Taboos:

None

Names:

The Bothan favors a given name followed by a family name with the final suffix as a clan nobility symbol (the suffix "lya" indicates the clan Alya, arguable the most powerful clan). Lack of this suffix signifies dishonor. In extreme cases, a Bothan may have even his family name removed, becoming a complete exile from Bothan society.

Examples of names include Borsk Fey'lya, Tav Breil'lya, Koth melan, Peshk Vri'syk, Asyr Sei'lar, Eurrsk Thri'ag, Girov Dza'tey, Velst Naro, Bem Lyu'kji, Kursk Mal'ia, Staarn, Ceok Orou'cya, Askar Rayl'skar, Morst Tayl'skar, Escra Plo'kre, Karka Kre'fey, Laryn Kre'fey, Lisak Dan'kre, and Tereb Ab'lon.

Description:

The Bothans are a humanoid race that hails from the planet Bothawui and several other colonies throughout the galaxy. They are furry, bipedal creatures, and are known as masters of brokering information. The Bothan spy network based on Bothawui rivals the best that the Old Republic, the Empire, and even the New Republic could create.

The reason for this advanced spy network is partly due to the peculiar cultural evolution of their species. Bothawui, the Bothans has many predators, but it has no indigenous draft animals. This caused the Bothan foot soldiers, early in their history, to carry the necessary equipment, and heavy armaments into battle. The Bothans soon grew disgusted with the inefficient methods of combat and they began to learn how to attack opponents using subterfuge and through political means. Through the years of evolution they became masters of gathering intelligence and using it for political gain.

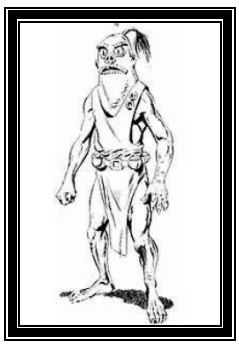
Assassination is rare is Bothan society, as a Bothan statesman will most likely resign when allies began to desert him and/or an embarrassing scandal is revealed. Many other races in the galaxy view the Bothan as untrustworthy opportunist, and refer to their political methods as "the Bothan Way".

Notes:

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	0
Racial Disadvantages	-15
Racially Learned Skills and Racial Bonuses	+8
TOTAL	+3

Brubb



Attribute Adjustment:

ST+1 [+10pts]; IQ-1 [-20pts]; HT+1 [+10pts]

Secondary Characteristic Adjustment:

None

Planet/System of Origin:

Baros

Tech Level:

5 - Low TL-6 [-30pts]

Racial Advantages:

Chameleon+2 [+10pts]; Damage Resistance 2 (Tough Skin, -40%, Physical, -20%) (+4pts]; Enhanced Defenses (Dodge+1) [+15pts]

Racial Disadvantages:

Hard of Hearing [-10pts]; Cold-Blooded [-5pts]

Free Skills:

Language (Brubb, Native); Area Knowledge (Baros)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Unknown

Description:

The Brubb are a green-grey skinned reptilian race native to the planet Baros. They are vaguely humanoid in appearance. Their faces are flat and conical, and dominated by bony ridges around their eyes. A topknot of hair sprouts from the head of the males, while the females are hairless. Their noses are used only for breathing, as their sense of smell is found in their forked tongues. They are herbivorous in nature. Females lay a single egg every Barosian year, and very often die during childbirth; so much of Brubb society is dominate by males. Brubbs are virtually deaf, which is probably genetic but is an excellent adaptation to the harsh winds on Baros. Brubbs are intensely social creatures, and organize themselves into groups known as habas. They were subjugated by Thrawn, during his reign of terror.

The Brubb homeworld, Baros, is a low-tech world with little to promise Brubb society. Any able-bodied Brubb will work hard to get off world to make their fortune. Brubbs are often employed as mercenaries and hired guns.

Note:

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	0
Tech Level	-30
Racial Advantages	+31
Racial Disadvantages	-15
Racially Learned Skills and Racial Bonuses	0
TOTAL	-14

-C-

Caamasi

Attribute Adjustment:

ST-1 [-10pts]; IQ+2 [+40pts]; HT-1 (-10pts]

Secondary Characteristic Adjustment:

None

Planet/System of Origin:

Caamas

Tech Level:

11

Racial Advantages:

Reputation+1 (Artistic, wise, and peaceful) [+5pts]; Racial Memory (Active) [+40pts]; Eidetic Memory [+5pts]

Racial Disadvantages:

Pacifism (Total Nonviolence) [-30pts]

Free Skills:

Language (Caamasi, Native); Area Knowledge (Caamas)

Racially Learned Skills and Racial Skill Bonuses:

A Caamasi get one Artist skill at IQ [+4pts] and Diplomacy at IQ-1 [+2pts]

Features/Taboos:

None

Names:

Examples of names are Elegos A'kla, Ylenic It'kla, Releqy, Tegas Sulkec, and Megli Likarin.

Description:

Other cultures view the Caamasi as artistic, wise, and peaceful. On many worlds, the word for "friend from afar" or "trusted stranger" is "caamasi." Among their own people, the Caamasi have a legend that says that when the Jedi Order first formed millennia ago, Jedi came to Caamasi to learn how to use the Force ethically. Even if this story is not true, the gentle manner and moral strength of the Caamasi make it easy to believe.

During the height of the Old Republic, Caamasi Jedi were uncommon. Shortly after the Clone Wars, their homeworld of Caamas was devastated by an orbital bombardment ordered by the Emperor. The planet's vegetation and animal life, including most Caamasi, died within a day, leaving a dead world. The few hundred thousand Caamasi who roamed the galaxy afterward had been elsewhere at the time, or had miraculously survived the bombardment. By the time of the New Jedi Order Era, most Caamasi hail from the planet Kerilt, though there was once a considerable colony on Alderaan. The Alderaanian Caamasi also met their end by way of the Emperor's whim.

Caamasi display a unique ability to share memories, which they call memnii, A Caamasi can effectively record a memory in her mind so that it is never forgotten. Experiencing memnii is as vivid as participating in the events in question. Using a sort of telepathy, a Caamasi can share memnii with another Caamasi, or in some cases, a Jedi or other Force user. Caamasi sometimes intermarry between clans specifically to share memnii with their entire culture. The desire to spread memnii results from a need to never forget the wisdom of their ancestors or the beauty of Caamas. As a result, Caamasi are just as likely to store and share very unpleasant memnii such as vivid memories of brutal battles and cruel tortures, as well as experiences as sweet and loving as the births of their children or the honor and wisdom of revered ancestors.

Caamasi are thoughtful, contemplative pacifists. They enjoy exploration, artistic pursuits, and conversation. They are generous, considerate, and slow to pass judgment.

Caamasi have tall, lean bodies covered with golden down. Regal rings of purplish fur surround their eyes, while stripes of purple fur extend around to the backs of their heads and shoulders. Caamasi have long, delicate, three-fingered hands.

Note:

CP:

Type	CP
Attribute Adjustment	+20
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+50
Racial Disadvantages	-30
Racially Learned Skills and Racial Bonuses	+6
TOTAL	+46

Caarite

Attribute Adjustment:

HT-1 [-10pts]

Secondary Characteristic Adjustment:

SM-1

Planet/System of Origin:

Caarimon

Tech Level:

10 – Low TL-1 [-5pts]

Racial Advantages:

Charisma+2 [+10pts]

Racial Disadvantages:

Reputation-2 (Opportunist, Almost Everyone, x1, Sometimes, x½) [-5pts]; Selfish (-5pts]

Free Skills:

Language (Caarimala, Native); Area Knowledge (Caarimon)

Racially Learned Skills and Racial Skill Bonuses:

Acting skill at IQ [+2pts]; Merchant skill at IQ+1 [+4pts]; Survival (Jungle) at Per-1 [+1pts]

Features/Taboos:

None

Names:

Some examples are Velin Wir, Thurm Loogg, Belrem Mar, Fiana Jor, and Zoda Brell

Description:

Caarites are sly, ingratiating beings whose friendly demeanors overshadow their penchant for crooked dealings. While they suffer from a rather poor reputation, it is difficult for anyone around a Caarite for an extended time to believe it capable of anything truly malicious. They wear broad grins, bearing a double row of wide, flat, white teeth. Taking advantage of their frail, friendly appearance, they seize the upper hand in negotiations, exuding an almost childlike charm when dealing directly with large groups of individuals.

Caarites are friendly, entertaining, and opportunistic. They desire to get the better of their rivals by any means necessary and demonstrate few scruples at the bargaining table.

Caarites stand little over 1 yard tall, with features that are vaguely porcine. They have slightly elongated snouts turned delicately upward at their tips. Their broad, open faces make their open smiles look even friendlier. Their flesh is pale pink, and their bodies are hairless.

Note:

The temperature comfort zone falls between 50° and 105°F (10° – 40.5°C)

CP:

Type	CP
Attribute Adjustment	-10
Secondary Characteristic Adjustment	0
Tech Level	-5
Racial Advantages	+10
Racial Disadvantages	-10
Racially Learned Skills and Racial Bonuses	+7
TOTAL	-8

Cathar

Attribute Adjustment:

ST+1 [+10pts]; DX+1 [+20pts]; IQ-1 [-20pts]

Secondary Characteristic Adjustment:

None

Origin:

Cathar

Tech Level:

11

Racial Advantages:

Acute Senses (Acute Hearing+2, Acute taste and Smell+1) [+6pts]; Catfall (+10pts]; Claws (Sharp) [+5pts]; Teeth (Sharp) [+1pt]

Racial Disadvantages:

Impulsiveness [-10pts]; Berserk [-10pts]; Sleepy (½ of the time) [-8pts]

Free Skills:

Language (Catharese, Native); Area Knowledge (Cathar)

Racially Learned Skills and Racial Skill Bonuses:

Stealth skill at DX+1 [+4pts]

Features/Taboos:

Tail

Names:

Crado, Elashi, Feeth, Juhani, Larducias, Manshara, Nodon, Nonak, Stragos, Sylvar, and Tinisho.

Description:

The Cathars are an ancient, socially advanced species of bipedal feline humanoids from a planet of the same name. Cathar itself is a large world of numerous ecological niches, including rough uplands with gigantic insect predators.

The Cathar species dwells in large, living city-trees. Each tree is artistically carved with friezes showing the triumphant history of the Cathar and their heroes. Cathar use the wide grasslands known as the Vast Veldt as a place of solitude.

Two of the greatest Cathar heroes, the female Sylvar and her mate Crado, were powerful Jedi Knights. Four thousand years before the Galactic Civil War, Crado fell to the Dark Side under the tutelage of Exar Kun. He was destroyed in an explosion after trying to activate an ancient Sith superweapon for his master. Sylvar, angry over the death of her mate, almost fell to the dark side herself before regaining the Jedi path. Both are remembered on Cathar itself in meticulously carved works of tree-art.

Cathars are proud, passionate beings with strong morals and equally strong ties to tradition and family. They also form strong friendships and unshakable loyalties. Cathar generally hate as fiercely as they love. Although even-tempered, they are often quick to act. Their ferocity in battle is both legendary and terrifying.

Cathars have leonine features and flowing manes, with males' manes generally larger than those of females. Male Cathars have short beards and two tusks jutting from the lower jaw, while females merely have impressive fangs along the upper jaw.

Notes:

A Cathay may be encountered and taken into your group in Knights of the Old Republic.

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+22
Racial Disadvantages	-28
Racially Learned Skills and Racial Bonuses	+4
TOTAL	+8

Celegian

Attribute Adjustment:

DX-1 [-12pts]; IQ+1 [+20pts]

Secondary Characteristic Adjustment:

SM+1

Planet/System of Origin:

Celegia

Tech Level:

11

Racial Advantages:

Extended Lifespan+3 [+6pts]; Flight (Costs Fatigue, -10%) [+36pts]; Telecommunication (Telesend, Telepathic Brainwaves) [+30pts]; Vibration Sense (Universal, +50%) [+15pts]

Racial Disadvantages:

No Fine Manipulators [-30pts]; No Legs (Arial/Aquatic) [0pts]; Cannot Speak (Mute) [-25pts]; Blindness [-50pts]; Deafness [-30pts]; Cowardice [-10pts]; Dependency (Cyanogen gas, Very Common, Constantly, x5) [-25pts]

Free Skills:

Celegians communicate using a sophisticated form of telepathy. They possess no spoken or written language. Area Knowledge - Celegia

Racially Learned Skills and Racial Skill Bonuses:

Mathematics – Cryptology at IQ+2 [+12pts]

Features/Taboos:

None

Names:

Unknown

Description:

Celegians are an ancient species known for their great intellect and wisdom. Evolved from ocean-dwelling invertebrates, the Celegians' ancestors eventually adapted to living on land. The atmosphere of their homeworld is rich in cyanogen gas, which is poisonous to most sentient beings. Conversely, oxygen is lethal to Celegians.

To move their massive jellyfish like bodies, Celegians evolved a natural form of locomotion similar to a repulsorlift generator. Their soft fleshy bodies, writhing masses of tentacles, and dependence on life-support chambers result in Celegians looking as if they constantly float in water.

Celegians are wise, thoughtful beings who search for logical solutions to problems. They enjoy contemplating riddles, puzzles, and paradoxes. Celegians rarely put themselves in harm's way and avoid conflict wherever possible.

A Celegian's body resembles a brain-like organism with a mass of tentacles floating beneath it. The brain averages 4 feet in diameter, and the tentacles vary in length from 6 feet tot 8 feet. Away from their homeworld, Celegians are always encountered within some sort of mobile life-support chamber, usually made of transparisteel.

Note:

Celegian PCs are not recommended.

CP:

Type	CP
Attribute Adjustment	+8
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+87
Racial Disadvantages	-170
Racially Learned Skills and Racial Bonuses	+12
TOTAL	-63

Cerean

Attribute Adjustment:

IQ+1 [+20pts]

Secondary Characteristic Adjustment:

None

Origin:

Cerea

Tech Level:

11

Racial Advantages:

Combat Reflexes [+15pts]; Common Sense [+10pts]

Racial Disadvantages:

Pacifism (Self-Defense Only) [-15pts]

Free Skills:

Language (Cerean, Native); Area Knowledge (Cerea)

Racially Learned Skills and Racial Skill Bonuses:

Mathematical – Cryptology skill at IQ+3 [+16pts]; Meditation at Will-1 [+2pts]. A Cerean Force-user studies both the Light Side and the Dark Side of the Force. The number of Light Side Force abilities and Dark Side Force abilities must be in balance.

Features/Taboos:

None

Names:

Examples of names are Ki-Adi Mundi, So Leet, Sylvn, Ti-Dal, Maj-Odo, Skeel, Kordren, and Bin-Garda

Description:

Cereans are a sophisticated and cultured humanoid species that originated on Cerea, a world on the fringes of known space. Their elongated heads distinguish them from most other humanoids species.

Cereans established contact with the rest of the galaxy shortly before the Galactic Republic was transformed into the Empire. The Cereans swiftly gained galactic fame as expert astrogators, cryptographers, and economists. Few patterns or trends, no matter how convoluted or obscure, escape the notice of a Cerean.

The Cerean homeworld is largely an unspoiled paradise. Cerean society is matriarchal, and the Cerean culture's traditional values emphasize living in harmony with nature and minimizing any impact on the environment from technology.

The peaceful philosophies of the Jedi appeal to Cereans and those who long for adventure find the tents and ways of the Jedi order very alluring.

Cereans tend to be calm, rational, and extremely logical.
Cereans have a similar build to humans. Their elongated craniums house complex binary brains that enable them to process information and solve problems rapidly. Cereans also have two hearts beating in their chests.

Notes:

A Cerean can be seen in Episodes I to III.

CP:

Type	CP
Attribute Adjustment	+20
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+25
Racial Disadvantages	-15
Racially Learned Skills and Racial Bonuses	+18
TOTAL	+48

Chadra-Fan

Attribute Adjustment:

ST-2 [-20pts]; DX+1 [+20pts]; HT-1 [-10pts]

Secondary Characteristic Adjustment:

SM-1

Origin:

Chad IV

Tech Level:

11

Racial Advantages:

Acute Senses (Acute Taste and Smell+3) [+6pts]; Dark Vision [+25pts]; Discriminatory Smell [+15pts]

Racial Disadvantages:

Phobia (Thallassophobia) [-10pts]

Free Skills:

Language (Chadra-Fan, Native); Area Knowledge (Chad IV)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

There are many different standards for naming on Chad IV. Often males are given two names, while some groups only give them one. Females almost always have only one given name. In one particular group, the first letter of both names (usually separated from the main body by an apostrophe) indicates a social position or occupation ("T" indicates an engineer, for instance).

Example of names include Tachak Tandar, Yarbolk Yemm, Kabe, Chan, Fandar, Fugo, Tutti Snibit, and Trubor.

Description:

the fourth planet revolving around a blue white star in the Chad system are a species of aliens known as Chadra-Fan. The Chadra-Fan are a race of humanoids with mouse-like faces, large ears, flat noses with four nostrils and seven senses (touch, sight, dark vision, hearing, taste, smell and chemoreceptive smell). Because the Chadra-Fan have two senses of smell, they rely on their sense of smell heavily. The largest of their four nostrils detects water-soluble odors, while the inner two nostrils contain specialized chemoreceptors.

The Chadra-Fan have suffered greatly from the large number of tidal waves that have torn their society apart over the millennia. This has instilled an innate fear of drowning in the Chadra-Fan. Even just the threat of drowning causes them to go into shock. Despite this, the Chadra-Fan are good-natured beings, who will pursue any sort of action if they believe it will give them enjoyment. They seem to like almost every being they encounter, and they love to tinker with technological things. Any technological device left within reach of the Chadra-Fan has the potential to be disassembled and then reconstructed, usually resulting in a bizarre malfunction. Many droids, who have had the unfortunate circumstance of making the acquaintance of the Chadra-Fan, tend to have a pathological fear of them because of this bizarre trait.

They live in a clan-based society in which inter-clan marriages are welcomed. The wedded individual is then accepted into the smaller clan, increasing the clan's size and strength.

Notes:

A Chadra-Fan can be seen in the Mos Eisley Cantina in Episode IV – A New Hope.

CP:

Type	CP
Attribute Adjustment	-10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+46
Racial Disadvantages	-10
Racially Learned Skills and Racial Bonuses	0
TOTAL	+26

Chagrian

Attribute Adjustment:
None

Secondary Characteristic Adjustment:
Per+1 [+5pts]

Origin:
Champala in the Chagria system

Tech Level:
11

Racial Advantages:
Radiation Tolerance /100 [+30pts]

Racial Disadvantages:
No Sense of Taste [-5pts]

Free Skills:
Language (Chagri, Native); Area Knowledge (Champala)

Racially Learned Skills and Racial Skill Bonuses:
Chagrian get one Law skill at IQ [+4pts]

Features/Taboos:
Horns; Lethorn

Names:
Example names are Mas Amedda, Belar Tasseva, Myn Seda, Shiran Vallendri, and Ketrias Gorran.

Description:
The Chagrians are a species of well muscled humanoids and are characterized by their unique skull-structure. The average Chagrian is tall, with pale, bluish skin. Their faces are quite fierce in appearance, although they can be very loyal and trustworthy. Two large horns sprout out from the skull. The bone structure, which supports them, gives the Chagrian an enlarged forehead. In addition to these horns, a pair of thick, pointed lobes, known as lethorn, emerges from the males' jowls and drapes across their chest. Their enlarged head is padded by layers of tissue while their blue skin protects against harmful radiation.

Chagrians are born with a weak sense of taste and lose it completely shortly after becoming adults. They do not celebrate eating the way many other species do. Indeed, they view it as a necessary nuisance; food is fuel for the body, nothing more. Modern Chagrian adults consume nutrient capsules to avoid wasting time eating. When traveling the galaxy, they carry nutritional analyzers to scan unfamiliar food and determine its nutritional worth.

Chagrians are law-abiding and even tempered. The species has always known abundance, so greed and avarice are uncommon traits among them. Chagrians prefer to live in cosmopolitan areas, where they can interact with other people and species.

Notes:
A Chagrian can be seen at the Galactic Senate in the first three episodes.

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	+5
Tech Level	0
Racial Advantages	+30
Racial Disadvantages	-5
Racially Learned Skills and Racial Bonuses	+4
TOTAL	+34

Charon

Attribute Adjustment:
ST+1 [+10pts]; IQ+1 [+20pts]

Secondary Characteristic Adjustment:
HP+1 [+2pts]

Planet/System of Origin:
Otherspace

Tech Level:
10 – Low TL-1 [-5pts]

Racial Advantages:
Damage Resistance 2 (Carapace, Physical, -20%) [+8 pts]; Extra Arms+2 [+20pts]; Extra Legs+2 [+5pts]; Claws (Blunt) [+3pts]; Binding 1 (Web, Engulfing, +60%, Sticky, +20%, Only Damaged by Burning and Cutting, +20%) [+4pts]

Racial Disadvantages:
Appearance (Monstrous) [-20pts]. Bloodlust [-10pts] and Fanaticism (Prophet of the Void) [-15pts] or Enemy (Cult of Death) [-25pts]

Free Skills:
Language (Charon, Native); Area Knowledge (Otherspace)

Racially Learned Skills and Racial Skill Bonuses:
None

Features/Taboos:
None

Names:
Charons who serve the Prophet of the Void do not have personal names. The Charon belonging to the Cult of Light sometimes adopt names, usually after meeting other species in the known galaxy; possible Charon names include Fa'chak, H'zish, Ry'shyrr, and Tin'soth.

Description:
Most Charons are dangerous, single-minded sentients bent on killing every other being they encounter. The species comes from a dimension known as otherspace, a region beyond the confines of the known galaxy, but the name of the Charon homeworld and its

location are mysteries yet to be unsolved by others who have encountered them.

The proximity of the Charon homeworld to a black hole gave birth to a ruling death cult that believes the mission of the Charon should be to destroy all life. The death cult seeks to cast every living thing "into the Void of Death." A figure known as the Prophet of the Void leads this cult and thus governs Charon society.

Until the rise of the New Jedi Order, Charon were confined to otherspace, where they annihilated all other sentient species they'd encountered. The secret to hyperdrive technology continued to elude the death cult; however, so most Charon ships were incapable of leaving otherspace.

Shortly after the Battle of Endor, a Charon splinter faction called the Cult of Light succeeded in constructing their first hyperdrive. Each new hyperdrive built gives hope to hundreds of Charon eager to find new life in another galaxy. Led by a figured called the Illuminated One, the Cult of Light does not believe in the eradication of all sentient life, but rather seeks peaceful contact with other species willing to share new technology. The Cult of Light also seeks uninhabited worlds to colonize.

By the time Coruscant falls to the Yuuzhan Vong, the Prophet of the Void has learned about the Cult of Light and begun hunting down suspected members of the splinter faction. Meanwhile, the Cult of Light struggles to build more hyperdrives while keeping the new technology out of the death cult's clutches.

Charon bioscientists construct ships, weapons, and devices from living matter using similar techniques as the Yuuzhan Vong, although the two species have yet to encounter one another.

Charons who serve the Prophet of the Void believe in entropy, and they strive relentlessly to destroy all life. Charons who follow the Illuminated One desire to escape otherspace and build a new and thriving society somewhere in the known galaxy. All Charon, regardless of allegiance, pursue their desires with single-minded determination if not ruthlessness.

Although they prefer bioorganic technology, they do not shun or despise devices of mechanical nature.

A Charon possesses both humanoid and arachnid qualities. A Charon has four arms and four legs, giant slit-pupil eyes, and a large trailing abdomen capable of spinning webs. A thick, mottled carapace encases its body.

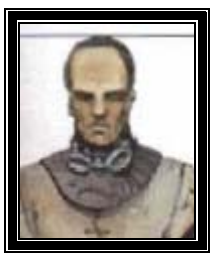
Note:

Charon PCs are not recommended. Possible Charon PCs only appear after the Battle of Endor and follow the Illuminated One.

CP:

Type	CP
Attribute Adjustment	+30
Secondary Characteristic Adjustment	+2
Tech Level	-5
Racial Advantages	+40
Racial Disadvantages	-45
Racially Learned Skills and Racial Bonuses	0
TOTAL	+22

Chev



Attribute Adjustment:

None

Secondary Characteristic Adjustment:

None

Origin:

Vinsoth

Tech Level:

10 – Low TL-1 [-5pts]

Racial Advantages:

None

Racial Disadvantages:

Social Stigma (Subjugated to Chevin) [-20pts]

Free Skills:

Language (Chev, Native); Area Knowledge (Vinsoth)

Racially Learned Skills and Racial Skill Bonuses:

Chevs acquire four land-based survival skills at Per [+8pts] and Language (Chevin, Accented) [+4pts]

Features/Taboos:

None

Names:

Examples names are Afrec, Amencia, Brophar, Inchef, Percifel, Sajan, Varel, and Zethan.

Description:

The Chevs are a near-Human species native to the world of Vinsoth, where they live in small farming and manufacturing communities scattered across the planet's surface. With the exception of a few bands of rebels that hide in the world's mountains, all Chevs are slaves of the Chevin, the pachydermoid species with whom they share the world. The Chev villages are all surrounded by mine fields and fences intended to protect the Chevs from predators and banish any thought of escape.

Millennia ago, the Chevs lived in grand cities, but the more aggressive Chevin shattered their peaceful civilization. Chev communities exist primarily to supply food and manufactured goods for their nomadic masters, although they are permitted to trade goods between villages. They have a rich culture, filled with folklore, a wide range of musical, dramatic, and artistic forms of expression, and religious traditions. The Chevin have never made any effort to discourage the Chevs from practicing their cultural rites within the boundaries of their settlements, as the overlords find the activities interesting to watch and believe it helps increase the productivity of the slaves. Also, aspect of Chev religious beliefs exist that the Chevin find suits their purposes, such as ancient myths describing how the Chevs would be enslaved as punishment for their pride in their great cities. Other beliefs are less appreciated by the Chevin, such as the tales that some day the Chevs will be delivered from their bondage and rise to rule all space, but the Chevin are willing to take the bad with the good. Further, a number of Chevin masters have discovered Offworld markets for the more impressive Chev artistic works. Some Chevin have even managed to sell Chev theater troops at "group rates."

Unlike many other slave populations, the Chev are well educated and as informed about the galaxy at large as their Chevin masters, perhaps even more so. The Chevin have always taken good relatively good care of the Chevs because they believe healthy, bright, and happy slaves are more efficient than starved, illiterate, and rebellious ones. The Chevin pass virtually every bit of knowledge they gain about the galaxy at large including technology, with the exception of repulsorlifts, comlinks, and weaponry, to their slaves.

One drawback to the Chevin's permissive attitudes toward Chev culture, at least from the point of view of oppressive slave masters, is that they remain unaware of high-tech rebel movements within Chev villages. Like the Chevin, the Chevs take quickly to advanced technology and secretly build communication devices, jamming devices, sensors and weapons from parts stolen from farming equipment or Chevin communities. Although the seeds of rebellion are first planted during the time of The Old Republic, it isn't until The New Jedi order era, that organized offworlders begin helping the Chevs expand their network of rebels.

All Chevs encountered off Vinsoth are either current or former slaves. When the Old republic contacted the Chevin, they almost instantly started exporting their slave population, either to other slavers or to Chevin colonies Offworld. Most Chevs prefer to remain low-key and avoid political entanglements for fear of being recaptured by wandering Chevin.

The Chevs are not a broken people, despite their apparent subservience to the Chevin. Their passive, compliant behavior belies a sly craftiness and firm resolve. Centuries of slavery have made the Chevs protective of their cultural heritage as well as forced them to become highly adaptive. Chevs know that they will overthrow their masters some day, but until that day comes, they remain patient and guarded.

Chev skin color ranges from pale white to slate gray, with hair colors displaying similar variances (rare Chevs have wheat-colored hair). They have sloping foreheads with pronounced brows and large, black eyes that appear lidless. (They do in fact have transparent membranes that can cover the eyes to protect and clean tem.)

Chevs usually dress in simple, sturdy garments but wear whatever style of clothing seems most practical for their line of work.

Notes:

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	0
Tech Level	-5
Racial Advantages	0
Racial Disadvantages	-20
Racially Learned Skills and Racial Bonuses	+12
TOTAL	-13

Chevin

Attribute Adjustment:

ST+1 [+10pts]; DX-1 [-20pts]; HT+1 [+10pts]

Secondary Characteristic Adjustment:

Will-1 [-5pts]

Origin:

Vinsoth

Tech Level:

10 - Low TL-1 [-5pts]

Racial Advantages:

Damage Reduction 1 (Thick Skin, -40%, Physical, -20%) (+2pts]; Reputation+1 (Criminals, Almost Everyone, x1, All the time, x1) [+5pts]; Extended Lifespan+1 [+2pts]

Racial Disadvantages:

Reputation-1 (Non-criminals, Almost Everyone, x1, Al the time, x1) [-5pts]; Code of Honor (Professional) [-5pts]

Free Skills:

Language (Chevin, Native); Area Knowledge (Vinsoth)

Racially Learned Skills and Racial Skill Bonuses:

Chevin acquire the Merchant (Illegal Goods) at IQ [+2pts]

Features/Taboos:

None

Names:

The Chevin are given a single name at birth. However, many Chevin will take on the name of another person as a surname over the course of their lives, in honor of that being. This tradition dictates that only one honorary name may be added, and it is considered very disrespectful to change it once it is taken. Examples of names include Ephant Mon, Goorin, Hagalor, Negna Mundro, Osman, and Pedna Scotian.

Description:

The Chevin are a migratory pachydermoid species native to the planet Vinsoth. Chevin society remains primitive to galactic standards. Before the Old Republic scouts and merchants made contact with them, the Chevin lived in nomadic warrior clans. The pachydermoids took what they needed to survive from settlements of Chev, a sapient near-Human species of farmers who have been under Chevin domination for the entire recorded histories of both species. When visitors to Vinsoth introduced advanced technology to the world, the Chevin adapted it to their society rather than confirming to what the visitors claimed was a better way to live. The Chevin also discovered the lucrative slave trade, and they started rounding up Chev and selling them to interested offworlders.

Chev slaves and foodstuff are the most common exports from Vinsoth,. To obviate unrest among the Chev slaves, Chevin take relatively good care of them and allow the Chev to preserve their cultural heritage.

Not surprisingly, the Chevin have carved niche for themselves in the galactic criminal underworld, becoming known to the galaxy at large as species of smugglers, gun-runners, profiteers, gamblers, slavers and blackmailers. Indeed most Chevin that interact with the galaxy at large are involved in one or more of the above "professions."

Most Chevin are simple creatures interested only in acquiring money, power, and status. They use intrigue, manipulation of beings in places of authority, careful investment, and outright theft. They tend to stay clear of direct involvement with specific political factions or power groups, attempting all the time to deal with all who can pay for their services.

While law-abiding beings try to avoid dealing with Chevin for fear of falling victim to some criminal scheme, more risk-prone individuals and criminals eagerly seek them out because Chevin are, in fact, honest in their business dealings in the underworld. A Chevin never double-crosses a business partner and expects to be dealt with honesty in return.

Chevin walk on two thick legs and have massive bodies that are as wide as they are tall. Their powerful arms end in large, three-fingered hands. Their heads rest on curved necks that angle toward the ground and their heavily lidded eyes appear to be solid black and pupil less.

Notes:

A Chevin can be seen in Jabba's Palace in Episode VI Return of the Jedi.

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	-5
Tech Level	-5
Racial Advantages	+9
Racial Disadvantages	-10
Racially Learned Skills and Racial Bonuses	+2
TOTAL	-9

Chiss

Attribute Adjustment:

IQ+1 [+20pts]

Secondary Characteristic Adjustment:

None

Origin:

Csilla

Tech Level:

11

Racial Advantages:

None

Racial Disadvantages:

Pacifism (Self-Defense Only) [-15pts]; Overconfidence [-5pts]

Free Skills:

Language (Cheunh, Native); Area Knowledge (Csilla)

Racially Learned Skills and Racial Skill Bonuses:

Tactics skill and Strategy skill at IQ [+8pts]

Features/Taboos:

None

Names:

Chiss have long three-part names, which they abbreviate when dealing with non-Chiss. Case in point, the Chiss named Mitth'raw'nuruodo is better known as Thrawn. Other abbreviated names: Dreel, Prakk, Karyce, Lev, Sorn, Szardra, Voss, and Zilvad.

Description:

The Chiss are a near-Human species hailing from the planet Csilla in the Unknown Regions. Their existence was a mystery to the galaxy at large until some five years after the battle of Endor when Grand Admiral Thrawn, a Chiss, rallied the scattered Imperial forces and almost destroyed the New Republic. Even then, Thrawn's species remained virtually unknown until a decade later.

The Chiss control over two dozen star systems from the Chiss homeworld. New republic scientists (and many Chiss historians) believe that the species is descended from a very old Human colony, perhaps even predating the founding of the Old Republic.

The Chiss species has a rigid, disciplined society that xenosociologists attribute to the cold climate of their homeworld. They do not show signs of decadent or greedy behavior, so most relate Chiss colonial expansion to a desire to impose order onto chaotic nearby star systems. Chiss society is controlled by four ruling "families", not true biological groups, but effectively four separate branches of government. The Csapla clan dictates colonial issues, natural resources, and agriculture; the Nuruodo family (the clan of the famed Grand Admiral Thrawn) controls the military and foreign affairs; the Inrokini handle industry, the sciences, communication, and non-military technology; and the Sabosen clan oversees justice, public health, and education.

Chiss codes of conduct forbid them to strike first (Thrawn violated this code by executing a preemptive strike against the Outbound Flight project, a Jedi expedition launched just before the fall of the Old Republic. His exile eventually brought him to the attention of the Emperor.) Once attacked, the Chiss do not rest until the attackers are destroyed or completely subjugated. The Ssi-Ruuk Imperium was all but destroyed by Chiss fleets after the reptilian conquerors assaulted outlying Chiss colonies for example.

Chiss who have dealt with the Empire or the New Republic have almost universally been operatives of the Nuruodo family.

As a species, the Chiss are disciplined, cold, and arrogant. They strive to gain the advantage in any tactical or social situation. Chiss who consort with non-Chiss never completely shake their xenophobic instincts. Around non-Chiss and other potential enemies, a Chiss remains pensive and aloof, constantly plotting tactics to ensure victory in a possible confrontation. After suffering a defeat or setback, a Chiss often contemplates what might be done differently to ensure victory next time.

Chiss display a great deal of interest in the arts and sciences of other cultures. They study the culture of a potential enemy the way a biologist would observe the behavior of a dangerous insect, with detachment and extreme caution.

The Chiss have blue skin and glowing red eyes, the shades of which grow darker depending on the level of oxygen in the atmosphere they breathe. The higher the level of oxygen, the more intense the color of a Chiss' eyes and skin. Their hair is usually black, although in some rare cases it turns gray with age. This is particularly common among females and it signifies some whose children will have great impact on Chiss society.

Male and female Chiss tend to be more powerfully built than baseline Humans, but otherwise they exhibit the same variances that exist between humanoid sexes.

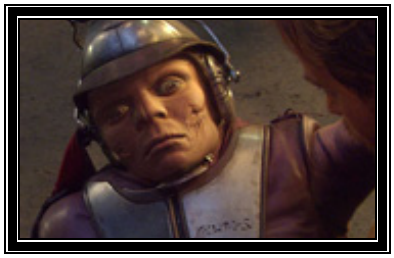
Notes:

None

CP:

Type	CP
Attribute Adjustment	+20
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	0
Racial Disadvantages	-20
Racially Learned Skills and Racial Bonuses	+8
TOTAL	+8

Clawdite



Attribute Adjustment:

ST-1 [-10pts]

Secondary Characteristic Adjustment:

None

Origin:

Zolan

Tech Level:

11

Racial Advantages:

Radiation Tolerance /2 [+5pts]; Shapeshifting[1] (Morph, Cosmetic, -50%, Mass Conservation, -20%, Retains Shape, -20%) [90% of CP+100]

Racial Disadvantages:

Loner [-5pts]; Maintenance (1 person, daily, x1) [-10pts]; Selfish [-5pts]; Social Stigma (Minority Group) [-10pts]

Free Skills:

Language (Clawdite, Native), the spoken language consists of hissing sibilants punctuated by guttural croaks; Area Knowledge (Any one planet but Zolan)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Example names are: Zam Wessel, Eru Massest, Pritt Kesso, Pessk Maseel, and Zapes Orn.

Description:

Clawdites are genetic variants of Zolanders, a species from the Mid Rim planet Zolan. Hundreds of generations ago, radiation bombarded the planet and exposed the Zolanders to a skin-eating contagion. Many Zolanders fled the planet and received genetic reconstruction that not only healed their wounds but also gave them their shapeshifting abilities. Upon the return, however, they were shunned and feared by those who had remained behind. The shapeshifters, resentful of Zolanders for centuries of institutional persecution, adopted a new species name: Clawdites.

Clawdites have limited shape shifting abilities that allow them to change their true reptilian appearance. In their natural form, Clawdites are indistinguishable from Zolanders except under genetic examination. Their skin-changing abilities vary from individual to individual and can be improved with practice.

Shapeshifting Clawdites must treat their yellow to green skin with special oils to prevent splitting. A talented shape shifter can assume the appearance of any medium-sized humanoid species of similar mass and posture, though the epidermis cannot duplicate the features of a specific individual. The wrinkles skin of a Weequay is an easy match, but no Clawdite can assume the posture of a Dug or generate extra flesh needed to create an Ithorian hammerhead. Clothes and jewelry can also be mimicked, provided they lie close to the skin.

Clawdites are quiet loners who avoid others except when it serves to advance their own agendas. Clawdites view the universe with detached pragmatism. Driven by self-interest and wary of betrayal, they do not form friendships easily and have trouble understanding the concepts of loyalty and devotion.

Notes:

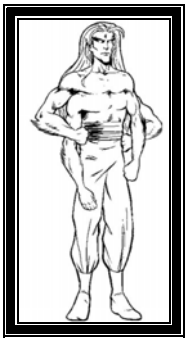
A Clawdite can be seen in Episode II Attack of the Clones as the female bounty hunter who tried to assassinate senator Amidala.

CP:

Type	CP
Attribute Adjustment	-10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages[1]	+5
Racial Disadvantages	-30
Racially Learned Skills and Racial Bonuses	0
TOTAL	-35

[1] Cost of Morph is not included. The CP cost of Morph is calculated after the CP of the character is known (see BS 84 & 85).

Codru-Ji



Attribute Adjustment:

None

Secondary Characteristic Adjustment:

None

Planet/System of Origin:

Munto Codru

Tech Level:

3 Low TL-8 [-40pts]

Racial Advantages:

Extra Arms+2 [+20pts]; Ambidexterity [+5pts]

Racial Disadvantages:

None

Free Skills:

Language (Codruese, Native), a language of snarls, throaty barks, and other canine noises mixed with a complex vocabulary and many strange idioms; Area Knowledge (Munto Codru)

Racially Learned Skills and Racial Skill Bonuses:

Codru-Ji acquire the Climbing skill at DX [+2pts]

Features/Taboos:

None

Names:

Wyrwulves are given short, affectionate names (such as Hrika and Lirri) until they transform into young adult Codru-Ji, when they inherit their real names (such as Adaavi, Deceven, jorrdu, Ketanna, Merasska, Raiko, Veesani, and Zallfric).

Description:

Codru-Ji enjoy their isolation from the rest of the galaxy, and their enclosed society doesn't easily welcome members of other species. The Codru-Ji have been approached to join the Republic on more than one occasion and have always declined. They are not xenophobic, but they protect their way of life as fiercely as they guard their young. Their peculiar customs include ritual kidnappings, the consequences of which seldom amount more than intense negotiations, after which the victim is returned unharmed. Outsiders among the Codru-Ji are cautioned never to travel alone.

Codru-Ji adults have six limbs: four arms and two legs. Their children resemble six legged, 1-meter long canines (called Wyrwulves) until puberty, at which time they cocoon and emerge after a few weeks as fully developed Codru-Ji. Codru-Ji adults sleep standing up.

Despite their similarities to many other species, Codru-Ji find it difficult to integrate into the "galactic scene." They find it difficult to adapt to other species' customs, and they are wary of outsiders, especially any who seem to have a hidden agenda.

Codru-Ji are humanoids with four arms and long, pointed ears. Codru-Ji adults stand about 5 foot 4 tall. Barely resembling their parents, Codru-Ji children are often mistaken for pets by uninformed beings.

Note:

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	0
Tech Level	-40
Racial Advantages	+25
Racial Disadvantages	0
Racially Learned Skills and Racial Bonuses	+2
TOTAL	-13

Colicoid

Attribute Adjustment:

DX+1 [+20pts]; IQ+1 [+20pts]

Secondary Characteristic Adjustment:

Will-1 [-5pts]; SM+1

Planet/System of Origin:

Colla IV

Tech Level:

11

Racial Advantages:

Damage Resistance 2 (Armored Carapaces, Physical, -20%) [+8pts]; Extra Legs +2 (+5pts]; Extra Attack (Tail) [+25pts]; Striker (Tail, Piercing, Cannot Parry, -40%, Limited Arc, -40%) [+1pts]; Acute Senses (Acute Smell+2, Acute Vision +2) [+8pts]; Mind Shield+1 [+4pts]

Racial Disadvantages:

Callous [-5pts]; Greed [-15pts]; Reputation-2 (Cannibalism, Almost Everyone, x1, All the time, x1) [-10pts]; Reputation-2 (Ruthless, Almost Everyone, x1, All the time, x1) [-10pts]; Short Lifespan-1 [-10pts]

Free Skills:

Language (Colicoid, Native), the Colicoid language involves clicks and humming noises from their antennae and jointing legs, which is difficult to interpret and impossible for other species to reproduce. Colicoids often converse in their own language while in the presence of other species, few would be pleased to hear what schemes and plots the Colicoids discuss right in front of them. Colicoids do not have a written language of their own and must use Basic; Area Knowledge (Colla IV)

Racially Learned Skills and Racial Skill Bonuses:

Colicoids get one Merchant skill at IQ [+2pts]

Features/Taboos:

None

Names:

Example names are: Bzhat, G'zharp, Kyrrik, J'kilkrizt, T'karzhk, and Ytil.

Description:

Colicoids are an insectoid species native to Colla IV. In battle, Colicoids curl up into a protective ball, then unfurl suddenly, catching their prey off guard. Their alien, insectoid minds give them a natural defense against the Force skill Mind Trick.

Colicoids are highly intelligent, emotionless, and cannibalistic (particularly when food is scarce). Long ago, they transferred their ruthlessness to commerce, making them brutally efficient at business. Despite the Colicoid's successful commercial ventures and their strict business protocols, enough visitors to the Colla system have been murdered and consumed by the Colicoids that Colla IV has spent years in diplomatic disputes. Many diplomats consider an assignment to Colla IV a death sentence.

Colicoids are responsible for designing the Trade Federation's murderous Droidekas-destroyer droids fashioned to resemble their creators.

Colicoids possess a ruthless cunning that serves them well on the battlefield and at the negotiating table. They are vicious, calculating creatures driven by greed, and they show little regard for others.

Colicoids are tall, insectoid beings with multiple appendages, chitinous bodies, and powerful stinging tails. Their flat heads have multi-faceted eyes that give them superior vision, and their long antennae provide acute sense of smell.

Note:

Colicoids PCs are not recommended.

CP:

Type	CP
Attribute Adjustment	+40
Secondary Characteristic Adjustment	-5
Tech Level	0
Racial Advantages	+51
Racial Disadvantages	-50
Racially Learned Skills and Racial Bonuses	+2
TOTAL	+38

Cragmoloid

Attribute Adjustment:

ST+2 [+16pts]; DX-1 [-20pts]; IQ-1 [-20pts]

Secondary Characteristic Adjustment:

Per+1 [+5pts]; SM+2

Planet/System of Origin:

Ankus

Tech Level:

11

Racial Advantages:

Damage Resistance (Thick Skin, -40%, Physical, -20%) [+4pts]; Extra Attack (Gore Attack) [+25pts]; Striker (Tusks, Blunt, Cannot Parry, -40%) [+3pts]; Lifting ST+2 [+6pts]

Racial Disadvantages:

Truthfulness [-5pts]; Intolerance (Dishonorable People) [-5pts]; Pacifism (Self-Defense Only) [-15pts]

Free Skills:

Language (Cragii, Native); Area Knowledge (Ankus)

Racially Learned Skills and Racial Skill Bonuses:

Cragmoloid get the Intimidation skill at Will [+2pts]. Size and ST modifiers are not included and must be added.

Features/Taboos:

None

Names:

Example names are: Akoom, Darak, Ormoj, Rooty, Urum, and Vuula.

Description:

A little-known species hailing from the plains of Ankus, Cragmoloids are a rare race. During the Rebellion era, most Cragmoloids seen are in imperial work camps. A few joined the rebellion, hoping to liberate their people. Despite their prodigious strength, few become mercenaries, as they find gratuitous violence distasteful

Massively built and extremely powerful, Cragmoloids are physically intimidating, cumbersome, and irritable, but keenly aware of their surroundings

An extremely proud and clan-orientated people, Cragmoloids sink into deep despair if separated from home, family, and friends. They are quick to anger and have a strong dislike for dishonesty and subterfuge. They prefer to be direct in their response to problems and think that those who resort to "tricks" are dishonorable

Cragmoloids resemble 10 feet tall anthropomorphic elephants with tusks and thick leathery hides. They have tiny red, beady eyes.

Note:

Cragmoloid PC is not recommended.

CP:

Type	CP
Attribute Adjustment	-24
Secondary Characteristic Adjustment	+5
Tech Level	0
Racial Advantages	+38
Racial Disadvantages	-25
Racially Learned Skills and Racial Bonuses	+2
TOTAL	-4

-D-

Dantari

Attribute Adjustment:

ST+1 [+10pts]; IQ-1 [-20pts]

Secondary Characteristic Adjustment:

None

Planet/System of Origin:

Dantooine

Tech Level:

0 Low TL-11 [-55pts]

Racial Advantages:

None

Racial Disadvantages:

None

Free Skills:

Language (Dantari, Native), Dantari have a spoken language as well as a crude written language known by a learned few; Area Knowledge (Dantooine)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Example names are: Dayan, Esada, Jendar, Norr, Norra, Tuber, and Uladi.

Description:

The primitive natives of Dantooine are called Dantari, tribal humanoids that lead a nomadic life along the ocean coasts of the planet. The Dantari fashion simple clothing from the skins of local animals (e.g., Cathounds) and crude weapons out of sticks and stones.

The Dantari are so few that the New Republic, like the Empire and the Old Republic before it, considers Dantooine an uninhabited world, though Dantooine has been colonized at least three times in the past. Master Jè-Di settled there 25,000 years before the Battle of Yavin, Master Vodo-Siosk Baas was last known to live in the Jedi enclave on Dantooine just before it was destroyed 21,000 years later, and refugees from the volcanic world of Eol Sha made a new home on Dantooine seven years after the Battle of Endor. In between, before the battle of Yavin, Dantooine served as a base for the rebel Alliance.

The settlers from Eol Sha met an unfortunate end, utterly wiped out by Admiral Daala, the Imperial commander in charge of the Maw Cluster installation near Kessel. Curiously, the arrival of Daala's forces was an event of unprecedented awe to the primitive Dantari, who began incorporating Imperial symbology into their belief systems. The Dantari tattooed themselves with crude images of Imperial crests, AT-ATs, blaster rifles, and in case of the truly brave, full-body depictions of stormtrooper armor. The best warriors have weapons fashioned from bits of metal scavenged from damaged Imperial vehicles, or perhaps from the ruins of the Eol Sha colony.

As primitives, Dantari are unskilled with technological items.
Dantari are a peaceful, highly adaptive nomadic people. Though primitive and isolated, they are curious about technology and other wonders. Dantari revere the stars and show a keen interest in anyone who claims to come from them. They are neither cruel nor vindictive, although they are capable and tenacious warriors in battle.

The Dantari resemble hulking Humans dressed in primitive garb. They typically have tanned, leathery skin and dark hair.

Note:

CP:

Type	CP
Attribute Adjustment	-10
Secondary Characteristic Adjustment	0
Tech Level	-55
Racial Advantages	0
Racial Disadvantages	0
Racially Learned Skills and Racial Bonuses	0
TOTAL	-65

Dashade

Attribute Adjustment:

DX+1 [+20pts]

Secondary Characteristic Adjustment:

Will-1 [-5pts]

Planet/System of Origin:

Urkupp

Tech Level:

11

Racial Advantages:

Reputation +5 (Power groups, x⅔, Occasionally, x⅓) [+3pts]; Radiation Tolerance /2 [+5pts]; Force Static (Resistible, -50% [+15pts]; Heat Dissipation+1 [+21pts]

Racial Disadvantages:

Reputation -5 (Commoners, x⅔, Occasionally, x⅓) [-3pts]; Overconfidence [-5pts]

Free Skills:

Language (Dashadi, Native); Area Knowledge (Urkupp or any other planet where they live on)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Examples of names are: Alaris, Koth, Ket Maliss, Tel Sorath, Nos Kellex, and Tessem Kel.

Description:

The Dashade were renowned and feared as deadly mercenaries and assassins. The name "Shadow Killer," an honorary title given to the most accomplished Dashade killers, was spoken only in whispers and sent involuntary shivers through those who heard the words. At the height of the Sith War, however, the species was all but wiped out when the Cron Cluster Explosion destroyed their home star system.

The Dashade originated on Urkupp in the harsh glare of the Cron Cluster's multiple suns. Many of Urkupp's lifeforms adapted to the extreme heat conditions by developing a curious ability to absorb the heat and then dissipate it gradually. When enough beings were gathered in one location, they ended up creating weather systems that led to cooler conditions.

The sparse resources on their world led to the rise of warlords and a religion built around the notion that the righteous and virtuous are blessed with strength and power by the unseen forces that govern the universe. When the species developed rudimentary spacefaring capabilities and encountered the Sith and the Jedi, their religious beliefs deepened. The Dashade discovered that they had partial immunity to the much-vaunted Force abilities of both cultures. Consequently, Dashade became valued hirelings by both sides of the conflict.
The Sith and a number of other cultures that inhabited star systems near the Cron Cluster used Dashade mercenaries as bodyguards and assassins. The Jedi and official Republic institutions hired Dashade as combat prowess and Force resistance as a means to show Padawans (and even over-confident Jedi Knights) the danger of relying to heavily on their Force abilities in combat.

With the destruction of Urkupp, it is widely believed that the Dashade were rendered extinct. It is known, however, that at least one of the royal families of the Falleen put a number of their Dashade retainers into cryogenic suspension, preserving their prowess and unique abilities for use by future generations of Falleen leaders. New Republic historians sifting through secret Imperial databases have learned that a number of early assaults on Jedi strongholds during the Rebellion era may have involved Dashade mercenaries. Many reports indicate that aliens of an unknown species resistant to Force abilities spearheaded the attacks.

The number of Dashade that survived the destruction of Urkupp is unknown, but a growing number of New Republic analysts suspect the Dashade may have established one or more colonies beyond the Cron Cluster before the disaster that destroyed their homeworld. Considering the harsh nature of their planet of origin, it is conceivable that one or more colonies of Dashade are shriving in star systems that the rest of the galaxy has written off as impossible to colonize.

Dashade are secretive, menacing beings who believe they are physically and mentally superior to most, if not all, other sentient lifeforms in the galaxy. Dashade hired as mercenaries and assassins remain loyal to their employees only so long as they profit from the relationship and are allowed to demonstrate their combat prowess.

The Dashade are hairless humanoids with high foreheads, beady eyes, and lamprey-like mouths. Adults of the species stand between 5 foot 8 and 7 foot tall, with no difference in height between males and females. Their skin colors are olive green, dark gray, or black, and they have orange, red, or black eyes.

Note:

CP:

Type	CP
Attribute Adjustment	+20
Secondary Characteristic Adjustment	-5
Tech Level	0
Racial Advantages	+44
Racial Disadvantages	-8
Racially Learned Skills and Racial Bonuses	0
TOTAL	+51

Defel

Attribute Adjustment:

ST+1 [+10pts]; DX+1 [+20pts]; HT+1 [+10pts]

Secondary Characteristic Adjustment:

None

Origin:

AfEl

Tech Level:

11

Racial Advantages:

Acute Senses (Acute Hearing+2, Acute Taste +2 and Smell+2 (+12pts]; Claws (Sharp) [+5pts]; Obscure (Normal Vision+10 (Always On, -50%, Personal, Defensive, +50%) [+20pts]; Ultravision [0pts]

Racial Disadvantages:

Overconfidence [-5pts]; Reputation-1 (Considered a Myth (Almost Everyone, x1, All the time, x1) [-5pts]; Code of Honor (Always Follows His Word) [-5pts]

Free Skills:

Language (Defel, Native); Area Knowledge (AfEl)

Racially Learned Skills and Racial Skill Bonuses:

Blind Fighting skill at Per-1 [+4pts]; Stealth skill at DX-1 [+1pt]

Features/Taboos:

None

Names:

The Defel favor short single names, frequently containing an apostrophe. Examples of names include Kl'aal, Defeen, Vex, Dourlas, Freel, Glasfir'a'lik, Gr'vesh, Morr, Yarchur, and Zomil.

Description:

The Defel come from AfEl high gravity world that orbits an ultraviolet supergiant star known as Ka'Dedus. AfEl has no ozone layer and ultraviolet light passes freely to the surface while other gasses in the atmosphere block out other wavelengths of light. Every lifeform on AfEl, having evolved in the alien environment, can only see in the ultraviolet spectrum, and the Defel are no exception. Some of the predatory lifeforms, including the Defel, have also adjusted to the high amounts of ultraviolet light in another fashion. They absorb the light around them, and can only be seen clearly in ultraviolet light.

In normal light, the Defel appear to be nothing but bipedal shadows, with red colored eyes and long white fangs. However, if viewed in ultraviolet light, the Defel take on a much different appearance. Under ultraviolet light, the Defel are stocky, furry, and range in color from brilliant yellow to crystalline azure. They have long, yellowed, sharp claws and their noses a lime green color.

The majority of Defel live under the surface of their home planet, and they are considered supernatural, even mythological creatures, to most of the galaxy. Defel society is based on honor and cooperation. If you give your word to a Defel, you should keep your word, or he will mark you as traitorous, and a betrayed, angry Defel is the last thing most people want.

They are also somewhat overconfident with the fact that they remain unnoticed when sneaking about, and it is because of this overconfidence, that they often ignore surveillance equipment and characters that might have special perception abilities that can detect the skulking Defel.

Notes:

A Defel can be seen in the Mos Eisley Cantina in Episode IV: A New Hope.
Defel PCs are not recommended.

CP:

Type	CP
Attributes	+40
Secondary Characteristics	0
Tech Level	0
Racial Advantages	+37
Racial Disadvantages	-15
Racially Learned Skills and Racial Bonuses	+5
TOTAL	+67

Devaronian

Attribute Adjustment:

None

Secondary Characteristic Adjustment:

None

Origin:

Davaron

Tech Level:

11

Racial Advantages:

Teeth (Sharp Teeth) [+1pt]; Striker (Horns, Males Only, -20%, Clumsy -3, -60%, Limited Arc, -40%) [+1pts]

Racial Disadvantages:

Compulsive Behavior (Devaronian Wanderlust, Males Only, -20%) [-4pts]; Reputation-1 (Aggressive, Females only, -20%, Almost Everyone, x1, All the time, x1) (-4pts]; Increased Consumption [-10)

Free Skills:

Language (Devaronian, Native); Area Knowledge (Devaron)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

The Devaronian first name is an ordinary given name, the surname is the name of the city in which they were born. The Devish, a sub-species of the Devaronian, have names that are in the form of Name'from'City, where the middle name is a simple preposition (as, from, for, of with). Traditionally, both races of Devaronians also choose for themselves less formal nicknames for use in everyday speech (which translate into anything from Cold Food to Moonlight). A few examples of names include Kardue'sai'Malloc (nicknamed Labria), Mlar'nkai'Kambric, Dmaynel Kiph, Elassar Targon, Kapp Dendo, Jubal, Trynic, Ulicx Vinaq, Vilmarh Grahrk, and Lak Jit.

Description:

Devaronian are mammalian, biped race and hail from the planet Devaron. The species is one of the most unusual species in the galaxy, primarily because the males and females of the race differ so drastically. The males have red tinted skin and are completely hairless. They also have short horns on their heads, which they take great pride in and groom quite regularly. The females, however, are covered in a mat of fur that ranges in color from white to dark brown and they are without horns.

The two genders differ more than just in appearance. The males of the species are docile and non-aggressive. When a male Devaronian begins going through puberty, he begins to feel drawn to explore. This "wanderlust" leads the males to live exciting lives full of action and adventure, and this makes them unreliable and undependable.

Devaronian males are commonly seen sights in almost every spaceport. There they can be found in nearly every line of work possible. Devaronian males usually don't stay in one spaceport for very long, because it is in their nature to roam and wander. They send as much money back to their families on Devaron, but they seldom return.

Females, however, are incredibly aggressive by nature and tend to dominate their culture. They are very reliable, and the majority of them are not at all interested in adventure and traveling the stars. They would prefer to stay at home and let the affairs and comforts of the galaxy come to them. Females rarely leave the comforts of home.

The Devaronian race is believed to have descended from a race of primates, which reside in the mountains on Devaron. It is also believed that their horns were an evolutionary mutation that enabled them to fend off predatory birds that soar in the sky of Devaron. Devaronians are primarily carnivores and have an incredible metabolism. They also were one of the first races to develop a stardrive and learn the secrets of space travel.

Notes:

A Devaronian can be seen in the Mos Eisley cantina in Episode IV – A New Hope.

CP:

Type	CP
Attributes	0
Secondary Characteristics	0
Tech Level	0
Racial Advantages	+2
Racial Disadvantages	-13
Racially Learned Skills and Racial Bonuses	0
TOTAL	-11

Devlikk

Attribute Adjustment:

DX+1 [+20pts]

Secondary Characteristic Adjustment:

None

Origin:

Ord Radama

Tech Level:

11

Racial Advantages:

Claws (Sharp) [+5pts]

Racial Disadvantages:

On The Edge [-15pts]; Short Lifespan 3 [-30pts]

Free Skills:

Language (Devlikk, Native); Area Knowledge (Ord Radama)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

An example is Wan Sandage.

Description:

The Devlikk are a species of heart-shaped, green-skinned aliens whose average lifespan is around 10 standard years. It is because of this age that they are thrill seekers by nature.

Notes:

A Devlikk can be seen at the Boonta Eve the podrace in Episode I: The Phantom Menace.

CP:

Type	CP
Attribute Adjustment	+20
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+5
Racial Disadvantages	-45
Racially Learned Skills and Racial Bonuses	0
TOTAL	-20

Draethos

Attribute Adjustment:

IQ+1 [+20pts]

Secondary Characteristic Adjustment:

None

Planet/System of Origin:

Thosa

Tech Level:

11

Racial Advantages:

Extended Lifespan 3 [+6pts]; Damage Resistance 2 (Tough Skin, -40%, Physical, -20%) [+4pts]; Night Vision+1 [+1pt]; Telecommunication (Telesend, Telepathic Brainwaves) [+30pts]; Fit [+5pts]

Racial Disadvantages:

Compulsive Behavior (Learning, Exiled Draethos) [-15pts]

Free Skills:

Language (Draethos, Native), their spoken language sounds like a flurry of cacophonous clicks and sighs; Area Knowledge (Thosa)

Racially Learned Skills and Racial Skill Bonuses:

Exiled Draethos get one or more IQ-based skills worth of 15 points.

Features/Taboos:

None

Names:

Examples of names are Odan-Urr, Omal-Zan, Uval-Nor, Shal-Orl, and Tyan-Ruu.

Description:

Draethos are roughly humanoid beings who live nearly 800 years. Although they are reputed to be fierce and unrepentant warriors, Draethos at large have failed to live up to this reputation. In fact, Draethos encountered away from their homeworld are pacifistic and highly intelligent, if socially inept and shy. In fact, Draethos who choose not to follow the warrior's path are exiled from their homeworld and forced to live on desolate planets or among aliens.

Exiled Draethos feel compelled to learn as much as possible, becoming experts on several topics by early adulthood. These Draethos are so enthralled with learning that they rarely pause to apply what they learn. Unlike other species obsessed with knowledge, Draethos seldom appreciate a good debate, even if it's in their field of expertise. Their love of knowledge accompanies a fear of missing an important detail while debating or a failure to put into words what they know explicitly to be true. Older Draethos usually overcome this fear.

Exiled Draethos are highly intelligent but socially awkward. They have trouble grasping the complex customs of other species and thus tend to keep to themselves. They generally avoid conflict and strife.

Draethos living on the homeworld are either haughty, spoiled aristocrats or fierce, aggressive warriors eager to demonstrate their combat prowess. Fortunately for the rest of the galaxy, they keep to themselves and spend most of their energies honing their skills and hunting other fierce predators on their own planet.

Draethos are slender, tightly muscled humanoids that average 5 foot 10 tall. Their coarse, scaly skin ranges in color from violet to mauve to gray. Their eyes are black, pupil less, and set into the sides of their sloped head. They have webbed hands, and their lipless mouths give the illusion of a large overbite.

Note:

CP:

Type	CP
Attribute Adjustment	+20
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+46
Racial Disadvantages	(-15)
Racially Learned Skills and Racial Bonuses	(+15)
TOTAL	+66

Drall

Attribute Adjustment:

ST-1 [-10pts]; DX-1 [-20pts]; IQ+1 [+20pts]

Secondary Characteristic Adjustment:

SM-1

Planet/System of Origin:

Drall

Tech Level:

10 – Low TL-1 [-5pts]

Racial Advantages:

Claws (Sharp) [+5pts]

Racial Disadvantages:

Truthfulness [-5pts]

Free Skills:

Language (Drallish, Native); Area Knowledge (Drall)

Racially Learned Skills and Racial Skill Bonuses:

A Drall get the Science! skill at IQ [+24pts]. This is a wildcard skill (see BS page 175)

Features/Taboos:

None

Names:

Examples of names are Driggs, Ebrihim, Garth, Gredda, Hedreg, Marcha, and Norghar.

Description:

The Drall are mild-mannered, short humanoids. As a species, they are methodical researchers, careful observers, and considered among the best theoretical thinkers in the galaxy. Although well-versed in virtually every widely used technology in the galaxy, and often numbered among scientists who are on the cutting edge in a number of fields, Drall are primarily interested in abstract concepts and accumulating knowledge for the sake of knowledge. Therefore, despite the advanced nature of their scholarly pursuits, the world of Drall trails behind the rest of the galaxy in technological achievement, and the Drall themselves usually implement technology developed by others.. For example, despite their having been part of the galactic community for over twenty millennia, the Drall still rely exclusively on spacefaring technology built by the Corellians.

Drall society is a clan-based combination of a matriarchy and a meritocracy. No elected or direct hereditary leaders exist on the Drall homeworld. Instead, each family heeds a "Duchess," a female Drall who is deemed the most fit to lead. Once appointed, the Duchess becomes the owner of all the family's property, and she holds the position for life or until she steps down and passes the title and property along to a suitable heir. Most of the Drall clans follow the overall direction set by the Duchess of the most prosperous and powerful of all the clans.

Family life is also the most commonly discussed topic among Drall, exchanging gossip about one's family is a perfectly acceptable form of small talk. Drall find it surprising that other species may consider probing questions about family affairs an invasion of privacy; although once this is spelled out to them they quickly take steps to avoid offense.

Most Drall who venture from their homeworld work for mega-corporations as researchers or medical specialists, one of Drall's main exports, aside from scientific knowledge, is processed medicinal herbs, although a few make good livings as information brokers.

Drall take pride in being viewed as well mannered and considerate. They are also intelligent, reasonable, and difficult to anger. Drall are scrupulously honest in their business dealings, and if they promise to perform a task for a certain payment, they always do so to the best of their ability. They expect other to behave in a similar fashion.

Drall have short muzzles and almond-shaped black eyes. Their bodies are covered in fur that ranges from brown and black to reddish-gray. They have short limbs and clawed hands and feet. They tend not to wear clothing, although both males and females often wear elaborate necklaces, headdresses, and other types of jewelry. Adult Drall stand between 3 feet and 5 feet tall, with most females being taller and more solidly built than the males.

Note:

CP:

Type	CP
Attribute Adjustment	-10
Secondary Characteristic Adjustment	0
Tech Level	-5
Racial Advantages	+5
Racial Disadvantages	-5
Racially Learned Skills and Racial Bonuses	+24
TOTAL	+9

Dressellian

Attribute Adjustment:

ST+1 [+10pts]; DX+1 [+20pts]

Secondary Characteristic Adjustment:

None

Origin:

Dressel

Tech Level:

5 (11) – Low TL-6 [-30pts] The Dressellian were supported by the Bothan during the Galactic Civil War. After the conflict, the Dressellians were accepted into the New republic. Despite this fact, the planet's inhabitants are still quite primitive, and many of the Dressellians would still have the Low TL disadvantage. If you wish to play a character without the disadvantage, buy off the disadvantage at character creation or one level at a time during gameplay.

Racial Advantages:

Fearlessness+2 [+4pts]

Racial Disadvantages:

Bad temper [-10pts]

Free Skills:

Language (Dressellese, Native); Area Knowledge (Dressel)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

The Dressellian favor one name, given, traditionally derived from those of close relatives or friends. Examples of names include Dreefa, Errillan, Leerayem, Orrimaarko, Parskeer, Pyrron Nox, Reeft, and Tremorra.

Description:

Two hundred years before the Battle of Yavin, Dressellians were simple hunters foraging for food in the wild. Two centuries later, they'd evolved into a burgeoning industrial-level society with a loose coalition government. The Empire gave a choice: slavery or death. To the Empire's surprise, many Dressellians chose death,

albeit in combat. The Bothans supplied the Dressellian resistance with weapons, and sheer defiance and tenacity allowed the "primitive alien scum" to drive back the Imperial invaders of their world.

Dressellians joined with the Rebel Alliance shortly before the Battle of Endor, and since then members of the species have been spotted in every corner of the civilized galaxy. Dressel joined the New Republic shortly after the Empire's defeat, although it usually takes some coaxing by the Bothans to get them to care about matters affecting the galaxy at large.

The Yuuzhan Vong invasion has stoked the Dressellian passion for freedom. Dressellians everywhere, from lone tramp freighter pilots to the stalwart defenders of Dressel, oppose these galactic oppressors at every turn by helping to evacuate or defend Republic colonies.

Dressellians are fiercely independent loners by nature. Their early encounters with other species (such as the Humans of the Galactic Empire) have made a lasting impression, and they are generally wary of "outlanders." Most Dressellians have a high regard for Bothans, however, given the two species' shared history of peace. Although self-serving and quick to anger, Dressellians are loyal to others who have aided them and asked for nothing in return.

Dressellians have elongated hairless heads, wrinkled flesh, and wiry bodies. The wrinkled skin has earned them the callous nickname "prune face," to which all Dressellians take offense.

Notes:

Dressellian commandos can be seen on the flagship Home One in Episode VI: Return of the Jedi.

CP:

Type	CP
Attribute Adjustment	+30
Secondary Characteristic Adjustment	0
Tech Level	-30
Racial Advantages	+4
Racial Disadvantages	-10
Racially Learned Skills and Racial Bonuses	0
TOTAL	-6

Dug

Attribute Adjustment:

ST+1 [+10pts]; DX+2 [+40pts]; IQ-1 [-20pts]

Secondary Characteristic Adjustment:

SM-1

Origin:

Malastare

Tech Level:

10 – Low TL-1 [-5pts]

Racial Advantages:

Brachiator [+5pts]; Extra Limbs (Foot Manipulators, -30%) [+14pts]; Improved G-Tolerance [+10pts]

Racial Disadvantages:

Bully [-10pts]; Bad Temper [-10pts]; Selfish [-5pts]; Social Stigma (Inferior Race) [-5pts]

Free Skills:

Language (Dug, Native); Few Dugs bother to learn Basic, and those who do can speak it only with minor difficulty. They rarely do so, however, hoping instead to force others to acknowledge Dug society by making them learn their native language; Area Knowledge (Malastare)

Racially Learned Skills and Racial Skill Bonuses:

See Brachiator advantage for more free skills.

Features/Taboos:

None

Names:

Examples of names include Drodwa, Flugo, Gorlok, Langro Dis, Luvagwa, Pugwis, Rewulga, Sebulba, and Sloor.

Description:

Dugs are a species of small arboreal creatures with a well-deserved reputation for unnecessary brutality and extreme mean-spiritedness. Evolving in the tops of trees on their high-gravity world of Malastare (1.7G) has made them both agile and strong. Few Dugs have any desire to leave Malastare, preferring instead to remain on their home planet, where they struggle to keep control of their native lands on the world's western continent.

Dugs view themselves as embattled warriors, always fighting for what is rightfully theirs, but always being beaten back by just everyone else in the galaxy. Their first contact with aliens occurred when the Gran established a colony on Malastare, triggering a long and brutal war. The Republic settled the dispute in favor of the Gran, pushing the Dugs to the political and economic fringes of their own world. This was but the first in a long string of clashes with aliens. The Dugs responded by pitying themselves, yet in return, the rest of the galaxy just felt more disgust and disappointment. Knowing that no one else wants to have anything to do with them, the Dugs have developed an openly self-congratulatory culture. Every Dug claims ancestry that includes legendary heroes and patriots.

Dugs are adversarial, derogatory, selfish, bullying, and temperamental, especially around aliens. Even within their own society they tend to push around others they regard as weaklings while deferring to their obvious betters.

Dugs possess four strong, spidery limbs, ear fins, and an unusual posture that helps them swing through the trees of their homeworld. They use their upper limbs as legs and their lower limbs as arms. Male Dugs have loose flaps of skin around their necks that inflate during mating calls. Dug males and females are the same size, roughly 3 foot 2 tall.

Notes:

A Dug named Sebulba can be seen in Episode I: The Phantom Menace.

CP:

Type	CP
Attribute Adjustment	+30
Secondary Characteristic Adjustment	0
Tech Level	-5
Racial Advantages	+29
Racial Disadvantages	-30
Racially Learned Skills and Racial Bonuses	0
TOTAL	+24

Duinuogwuin

Attribute Adjustment:

ST+7 [+28pts]; IQ+3 [+60pts]; HT+7 [+70pts]

Secondary Characteristic Adjustment:

SM+6

Planet/System of Origin:

The location of the Duinuogwuin homeworld remains a mystery, except perhaps to the oldest Star Dragons. Members of the species are known to inhabit inhospitable planetoids as well as hospitable worlds such as Barab I, Cona, and Iego. For gaming purposes the home planet of the Duinuogwuin is called Duinuogwuin.

Tech Level:

11

Racial Advantages:

Extended Lifespan+6 [+12pts]; Damage Resistance 14 (Scales, Physical & Energy, -10%) (+63pts]; Flight (Spaceflight, +50%, Wings, -25%) [+50pts]; Extra Attack (Jaws) [+25pts]; Striker (Jaws, Piercing, Limited Arc, -40%) [+3pts]; Claws (Long Talons) [+11pts]; Innate Attack (Burning+3 [+15pts]; Vacuum Support [+5pts]; Sealed [+15pts]; Temperature Tolerance [+35pts]; Radiation Tolerance /100 [+30pts]; Doesn't Eat & Drink [+20pts]; Doesn't Breathe [+20pts]; Extra Legs +6 [+10pts]

Racial Disadvantages:

Secret (Home planet) [-5pts], Genetic Flaw [-10pts]

Free Skills:

Language (Duinuogwuin, Native), a language of hissing sibilants and guttural growls that other species can't duplicate with their puny vocal cords; Area Knowledge (Duinuogwuin)

Racially Learned Skills and Racial Skill Bonuses:

Navigation (Hyperspace) skill at IQ+4 [+16pts]

Features/Taboos:

None

Names:

Example names are Ir'cara'shuhl, Shalyx'har'zan, Vir'anax'sath, Zephata'ru'tor' and Flax'Supt'ai.

Description:

Often called "Star Dragons," the Duinuogwuin are enormous serpentine multipeds with gossamer wings. Most Star Dragons encountered in the galaxy average 30 feet long, although specimens ten times that size have been encountered.

On any world except those with extremely low gravity, it would prove impossible for the delicate wings of the Duinuogwuin to take the strain of lifting their massive bodies against the pull of gravity; therefore, it seems likely that their bodies conceal some organ that functions as a repulsorlift mechanism. Since Xenobiologists have never had the occasion to study Duinuogwuin anatomy, this theory is purely hypothetical.

Duinuogwuin have the ability to fly through space. In order to brave the vacuum without protective equipment, Star Dragons can recycle water and oxygen as well as hermetically seal their bodies against the loss of these necessities. Their self-sufficient physiology also allows them to survive in harsh planetary environments.

Duinuogwuin can exhale superheated gases capable of scorching or melting anything short of plastisteel. The ability to generate such heat suggests the Duinuogwuin have some method of generating immense amounts of energy, possibly some sort of organic cold fusion.

When two Star Dragons mate, the chance is great that the offspring will be non-intelligent. Such creatures become raving monsters that the parent must either destroy or isolate. This assumed genetic flaw may account for the number of Duinuogwuin scientists interested in undoing the species' hereditary infirmity through the study of nuclear physics and biological genetics.

The Duinuogwuin are intelligent, wise, and noble isolationists who prize their solitude and privacy, although they enjoy each other's company immensely. Although they loathe violence, Star Dragons do not shirk from punishing the deserving. Because they live a long time, Star Dragons are rarely startled or surprised by the actions of others.

Star Dragons are secretive about their pasts, and they treat inquiries into their nature and physiologies with polite indifference at best. Due to the cosmic nature of their contemplations, many Duinuogwuin tend to be absent-minded and pre-occupied.

Star Dragons are covered with large scales that give them a reptilian appearance, yet their floppy ears are distinctly mammalian, their sharply keeled sternums and overdeveloped pectoral muscles are avian, and their segmented bodies are arthropodal. Duinuogwuin have one pair of legs per body segment, while their diaphanous, gossamer wings are attached to the upper portion of each segment (the wingspan usually being one-and-a-half times their length). A Duinuogwuin holds the body segment closest to its head erect, and the legs on this segment have evolved for use as arms and hands.

The scales on a Star Dragon's face are so fine that they resemble pebbly skin, and the irises of a Star Dragon's eyes sparkle as though covered with glitter, while the shapes of the pupils are irregular and vary with the Duinuogwuin's mood. The Star Dragon's scales are basically gray, although this coloration varies greatly within that tone, from dirty white to silver to pale blue to black.

Note:

Duinuogwuin PCs are not recommended.

CP:

Type	CP
Attribute Adjustment	+158
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+314
Racial Disadvantages	-15
Racially Learned Skills and Racial Bonuses	+16
TOTAL	+473

Duro

Attribute Adjustment:

ST-1 [-10pts]

Secondary Characteristic Adjustment:

None

Origin:

Duro

Tech Level:

11

Racial Advantages:

None

Racial Disadvantages:

None

Free Skills:

Language (Durose, Native); Area Knowledge (Duro or Duro space stations)

Racially Learned Skills and Racial Skill Bonuses:

Navigation (Hyperspace) skill at IQ [+2pts]; Piloting (Low- or High-Performance Spacecraft) at DX-1 [+1pt] (see BS page 214 for this DX-/IQ-based skill).

Features/Taboos:

None

Names:

The Duros favor one name or a given name followed by a surname. In most cases, surnames are only adopted when the given name is a common one. Examples of names include Ellor, Ellors Madak, Krudar, Lai Nootka, Areta Bell, Baniss Keeg, Bringe, Phobos, Chachi, Kir Vantai, Chidee, Croig, Dassid, Dustangle, Oso Nim, Dustini, Geneer, Hav, Leslomy Tacema, Hes Glillto, Jiuk'chtna, Jivis, Kadlo, Monnda Tebbo, Ohwun DeMaal, Rana, Toryn,, Dorai, Klis Joo, and Jenssar SoBilles.

Description:

The Duros are tall, hairless humanoids from the Duro system. During the Old republic era, the planet Duro became more and more polluted until it reached a point at which it could not support life anymore. The Duros build automated farms and the population was steadily moved to the 20 orbiting space stations.

The Duros were one of the first species to become a major influence in the Galactic republic, and in the past, many respected scholars credited the Duros with creating the first hyperdrive. Although this theory fell into disfavor as the Empire's Human-centered philosophies took hold in academic circles, one cannot deny that the Duros have been traveling among the stars for at least as long as Humans.

The Duros seem to have a natural affinity for space travel. Many of them possess an innate grasp of the mathematical underpinnings of astrogational computations, and many tales are swapped in cantinas about Duros astrogators calculating the coordinates for supposedly impossible jumps in their heads. Although not as numerous as Humans, the Duros are almost as omnipresent; all but the smallest settlements in known space feature Duros populations.

The Duros species has existed on other worlds in isolation from the rest of their kind, evolving in slightly different directions from the baseline species. The most populous and well-known near-Duros species are the Neimoidians, a people rarely encountered during the rebellion era.

A Duros tends to be intense and adventurous, always seeking to learn what's at the end of the next hyperspace jump. They are proud, self-sufficient, fun-loving people who also have a tendency toward gregariousness.

Duros have large eyes and wide, lipless mouths which dominate their nose less faces. Their skin color ranges from blue-gray to deep azure. A Duros skin color can change to green when he's feeling sick.

Notes:

Many Duros can be seen in the Mos Eisley cantina in Episode IV – A New Hope.

CP:

Type	CP
Attribute Adjustment	-10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	0
Racial Disadvantages	0
Racially Learned Skills and Racial Bonuses	+3
TOTAL	-7

-E-

Ebranite

Attribute Adjustment:

ST-1 [+10pts]; DX+1 [+20pts]

Secondary Characteristic Adjustment:

None

Planet/System of Origin:

Ebra

Tech Level:

0 – Low TL-11 [-55pts]

Racial Advantages:

Extra Arms+4 [+40pts]; Brachiator [+5pts]

Racial Disadvantages:

Bad Temper [-10pts]; Sense of Duty (Small Group , family, clan) (-5pts]; Phobias (Technophobia) [-5pts or -15pts when TL comes above 4]

Free Skills:

Language (Ebranese, Native) A language of honks, growls, and moans. Written Ebranese uses a primitive pictographic representation of past events; Area Knowledge (Ebra)

Racially Learned Skills and Racial Skill Bonuses:

None

Names:

Boda Etaan, Groex Gal, Eretha Narra, Rith Tar'rak, Erox Vor'an.

Description:

Ebranites are six-armed humanoids skilled at climbing. They dwell in the great canyons and cavern networks of their homeworld and use clubs, bows and slings to hunt for food.

Ebranite families unite as clans called thildas, each one consisting of 20 to 30 families that work together and protect one another. All Ebranites have their clan's insignia tattooed on the uppermost left arm at birth, and they remain loyal to their respective thildas until death. A council, or ghantar, leads each thildas. The clan leader, or fyaban, is typically an Ebranite elder.

Ebranites were all but ignored by the Old Republic. When the Empire seized control of Ebra, Imperial taskmasters put the primitive Ebranites to work in oil mines. A few escaped and joined the Rebel Alliance. The Imperial occupation has taught the average Ebranite to be wary of outlanders and suspicious of outlander technology.

Ebranites are fiercely loyal to their family and their clan, in that order. Their general mistrust of technology can be overcome with time. Since the Battle of Endor, more Ebranites have learned to overcome their reservations concerning outlanders, and those whose families were annihilated under Imperial rule have made new lives for themselves within the greater galactic society.

Ebranites are generally resourceful, tenacious, and quick to anger.

Ebranites have six strong arms, each ending in a six-fingered hand. They have broad, flat feet, a tapered, hairless head with no visible ears, and pupil less eyes. Ebranite adult stand about 4.8 feet tall.

Ebra, the second planet of the Douse system (located in the Mid Rim), is a covered in towering mountains separated by sheer canyons. The Ebranites are perfectly suited to moving around this terrain and have created settlements in caves set into the canyon walls.

Note:

CP:

Type	CP
Attribute Adjustment	+30
Secondary Characteristic Adjustment	0
Tech Level	-55
Racial Advantages	+45
Racial Disadvantages	-20
Racially Learned Skills and Racial Bonuses	0
TOTAL	0

Elom

Attribute Adjustment:

ST+1 [+10pts]; DX-1 [-20pts]; IQ+1 [+20pts]

Secondary Characteristic Adjustment:

SM-1

Origin:

Elom

Tech Level:

0 Low TL-11 [-55pts]

Racial Advantages:

Claws (Sharp) [+5pts]; Damage Resistance 2 (Tough Skin, -40%, Physical, -20%) [+4pts]; Night Vision 1 [+1pt]

Racial Disadvantages:

Fat [-3pts]; Gullibility [-10pts]; Pacifism (Self-Defense Only) [-15pts]; Day Blindness [-10pts]

Free Skills:

Language (Elom, Native), the structure of the Elom mouth makes it difficult for them to speak any other language and can only learn them up to Broken and it tike twice as long to learn a new language; Area Knowledge (Elom)

Racially Learned Skills and Racial Skill Bonuses:

Survival (Arctic) skill at Per-1 [+1pt]; Language (Elomin, Accented) [+4pts]

Features/Taboos:

None

Names:

Unknown

Description:

Eloms dwell deep beneath the Surface of a world with the same name. Despite their savage and fearsome appearance, they are an easygoing, pacifistic species of strict herbivores.

The existence of the Eloms remained unknown even after the Old Republic made contact with a more technologically advanced species (the Elomin) living on the surface. The Eloms were believed to have died out when the environment of the world turned to permanent drought. The Elomin discovered the underground communities of Eloms during a mining accident. Initially, the Elomin viewed the Eloms as easily trainable beasts and used them as cheap slave labor in their mines, but when Old Republic xenosociologists studied the Eloms, it became apparent they were sentient.

Over the objections of the Elomin, the Old Republic enforced treaties that gave the Eloms territorial rights to both the underground tunnels and the lands above them. Elomin resentment soon passed, however, in the face of the open-armed acceptance they enjoyed from the peaceful, unsophisticated Eloms. Further, the Eloms had no interest in becoming involved with the Offworld business dealings of the Elomin, but were content with living as they had for countless centuries. For the most part, the Elomin were more than happy to leave the Eloms to their caves.

The attitudes of many Eloms changed slightly when the Empire revoked all treaties established by the Old Republic on Elom and enslaved the Elomin to mine lommite. Young Eloms in particular were disturbed by the Imperial troops' mistreatment of their neighbors, so they started to fight to free their world. Initially, the Eloms merely liberated a few Elomin from isolated mine shafts, but after the Rebel Alliance sent commandos to help the Eloms, entire slave camps vanished into the Elom cities hidden at the centre of deep labyrinths.

Following the creation of the New Republic, a number of young Eloms left their underground lives to seek their fortune on their homeworld's surface or even among the stars.

Eloms are ambitious and highly intelligent, but they often underestimate the capacity for evil that exists in other species. They are frequently manipulated into becoming involved with illegal activities. Eloms are generous, easygoing, quick to forgive, and eager to learn useful skills and trades.

Eloms are stocky mammalian bipeds with oily fur and layers of fat designed to capture moisture. Their hands and feet have hooked claws that are optimal for digging, and they have prehensile toes on each foot. Their small, round eyes are sensitive to bright light and are set at the far extremes of a wide face dominated by two rock-hard, sharp tusks and thick jowls that the Elom use to store excess food. They are sturdy beings that average 4.9 feet tall as adults.

Notes:

An Elom can be seen in Jabba's Palace in Episode VI – Return of the Jedi.
Elom PCs are not recommended.

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	0
Tech Level	-55
Racial Advantages	+12
Racial Disadvantages	-38
Racially Learned Skills and Racial Bonuses	+1
TOTAL	-70

Elomin

Attribute Adjustment:

ST-1 [-10pts]

Secondary Characteristic Adjustment:

None

Origin:

Elom

Tech Level:

11

Racial Advantages:

None

Racial Disadvantages:

Phobias (Xenophobia) [-15pts]

Free Skills:

Language (Elomin, Native); Area Knowledge (Elom)

Racially Learned Skills and Racial Skill Bonuses:

Mathematics (Statistics) skill at IQ+2 [+12pts]

Features/Taboos:

None

Names:

The Elomin favor a single given name, sometimes followed by one or two additional names. These added surnames denote rank and social stature, and are only adopted by prestigious individuals. Examples of names include Brafid, Rennimdius B'thog Indriummsegh, Verrinnefra B'thog Indriummsegh, Monjai, Notoganarech, Rattagegach, Theosidicc Sirrap Treblif, and Laerron Woern.

Description:

For several centuries, the galaxy believed the Elomin were the only sentient on the frigid desert world Elom. When the Old Republic first visited Elom a century before the Rise of the Empire, the Elomin were divided into separate political nations, used internal combustion engines and slugthrowing weaponry, and were barely able to launch satellites into orbit. Blasters, repulsorlifts, and starships were beyond anything the Elomin had ever imagined. They took quickly to the advanced technology the first-contact specialists chose to share with them. By the time the Galactic Civil War erupted, the Elomin were active participants in the galactic economy.

The world of Elom is rich in deposits of lommite, a mineral used in the fabrication of transparisteel. Lommite became a sought-after commodity, and the Elomin were canny enough to enter into mining agreements with off-world shipbuilders that would not damage the environment of their world.

Culturally, the Elomin try to discover or create order in all things. They view the universe as a logical organized puzzle and endeavor to find the pieces and bring them to their logical places. When confronted with something that doesn't fit into the pattern they have defined, they may try to redefine the pattern but are just as likely to attempt to ignore the discordant details. Such was the case when the Elomin first discovered the existence of the underground-dwelling Eloms, another sentient species native to their world. The Elomin first denied the existence of the Eloms and then later denied they were sentient. It wasn't until the Old Republic granted the Eloms all the rights of sentients under its laws and the Eloms helped the Elomin resist imperial oppression during the Rebellion era that they fully acknowledged the existence and independence of their neighbors.

Elomin have difficulties relating to other species, which they view as perpetrators of chaos. They excel as pilots, navigators, and theoretical thinkers as long as they can operate independently or with other Elomin. They got along well the Woostoids and other species that value logic and order as much as they do, but Elomin consider dealing with Humans and other illogical beings an exercise in frustration.

The Elomin are slender humanoids with four hornlike protrusions on the top of their heads and large ears that taper to points. Skin colors range from bright red to deep black, and their seemingly pupil less eyes are usually bright blue or red.

Notes:

As of five years after the Battle of Endor, Elomin were active members of the New Republic military, with Elomin in charge of task forces. One particular Elomin task force was destroyed by Grand Admiral Thrawn near the Obroa-Skai system. Thrawn took advantage of the species' dislike of disorder to disorient them with an otherwise simple Marg Sabl closure maneuver.

CP:

Type	CP
Attribute Adjustment	-10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	0
Racial Disadvantages	-15
Racially Learned Skills and Racial Bonuses	+12
TOTAL	-13

Em'liy

Attribute Adjustment:

HT+1 [+10pts]

Secondary Characteristic Adjustment:

None

Planet/System of Origin:

Shalyvane

Tech Level:

10 Low TL-1 [-5pts]

Racial Advantages:

Fearlessness+1 [+2pts]; Modular Abilities (Spirit of Battle, 4 slots with 7 points, Physical, +100%, Limited Use, -40%, Temporary Disadvantage, -60%) [+41pts]; Protected Sense (Protected Vision and Hearing +1) [+10pts]

Racial Disadvantages:

Code of Honor (Warriors Code) [-10)

Free Skills:

Language (Em'liy, Native); Area Knowledge (Shalyvane)

Racially Learned Skills and Racial Skill Bonuses:

Survival (Desert) skill at Per-1 [+1pt]; Stealth skill at DX-1 [+1pt]

Features/Taboos:

None

Names:

Example names are Evir'zan, Jelevos, Ji'kata, Karien, Neth, Shanzar, and Tez'ra.

Description:

Imperial forces drove the Em'liy, the dominant species of Shalyvane, from their cities. A disgraced people with no home and no resources to rebuild cities, the Em'liy felt undeserving of a name and simply called themselves "Nomads." Maligned and homeless for years, the Em'liy evolved into a hardy and tenacious people who have only recently begun to rebuild their capital city and explore the galaxy.

Angered Em'liy are dangerous foes and loyal friends. They are not easily impressed; those who impress them have allies for life. Entire wars have ended because one Em'liy general sufficiently impressed another in the course of battle. Since their fall from grace, however, much of their arrogance has left them, replaced with feelings of loss and restlessness. The Em'liy are deadly warriors, with a ferocity in battle unmatched by many warriors species. Observers have labeled this ferocity "berserker" behavior, though this is not entirely accurate. Warring Em'liy give themselves over completely to a fight, letting the course of battle define their actions and thoughts. They control their own action, but the Spirit of Battle helps refine that control.

Em'liy are born survivors, raised to hunt for every morsel of food and fight for every drop of water. They take nothing for granted and tend to possess a fatalistic approach toward life. They expect no favors and express only contempt for the lazy, spoiled, or domineering.

The Em'liy have muscular bodies with skin that ranges from yellow-tan to orange to blue. They wear their fine dark hair in long topknots to show caste status and inspire fear in enemies. The number of topknots varies from none to three, depending on caste. Otherwise, their bodies are hairless.

They have a distinct lack of facial features; their smooth, noseless, and earless faces show little in the way of sensory organs. They have small, round eyes with no lids or lashes, and their thin mouth openings are nearly lipless. A thin, gas-permeable layer of skin covers their auditory and olfactory organs to protect them from the hot sun, harsh wind, and sandstorms of their homeworld.

Spirit of Battle:

Once per day, by focusing on his or her mind on combat, an Em'liy can enter the Spirit of Battle. In this state, the Em'liy temporarily gains +2 ST, Enhanced Dodge +1, +2 Will, and +2 FP.

The Spirit of battle lasts for a number of turns equal to 5 + the Em'liy's HT score. An Em'liy can end the Spirit of Battle at any time voluntarily (as a free maneuver). Upon ending the Spirit of Battle, the Em'liy becomes fatigued (-2 ST, -2 DX, can't run, charge of make all-out attacks) for a number of turns equal to the time spent in the sprit of battle or the rest of the combat encounter, whichever is longer.

While in the Spirit of Battle, an Em'liy cannot use skills or abilities that require patience or concentration.

Note:

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	0
Tech Level	-5
Racial Advantages	+53
Racial Disadvantages	-10
Racially Learned Skills and Racial Bonuses	+2
TOTAL	+50

Etti

Attribute Adjustment:

ST-1 [-10pts]

Secondary Characteristic Adjustment:

None

Planet/System of Origin:

Etti IV

Tech Level:

Racial Advantages:

Appearance (Attractive) [+4pts]; Fashion Sense [+5pts]

Racial Disadvantages:

Likes (Luxury) [-1pt]; Skinny [-5pts]

Free Skills:

Language (Etti, Native); Area Knowledge (Etti IV)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Unknown

Description:

The Etti were a near-Human species native to the Galactic Core. They fled persecution in the Core and settled on Etti IV in AR 5,000.

The Etti are a race which concern itself only with outward appearance and the acquisition of greater luxury. Etti, while genetically Human, tend to have lighter, less muscular physique than the Human norm, possibly as a result of generations of pampered living. Their flesh is relatively soft and pale, and their hair is among the most finely textured in their region. Etti often have aquiline features, giving them a haughty look of superiority.

Note:

The Etti come from Shadows of the Empire, a d6 scenario from WEG.

CP:

Type	CP
Attribute Adjustment	-10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+9
Racial Disadvantages	-6
Racially Learned Skills and Racial Bonuses	0
TOTAL	-7

Ewok

Attribute Adjustment:

ST-2 [-20pts]; DX+1 [+20pts]; IQ-1 [-20pts]; HT-1 [-10pts]

Secondary Characteristic Adjustment:

Basic Move-1 [-5pts]; SM-2

Origin:

Forest moon of Endor

Tech Level:

3 (4) Low TL-8 [-40pts]

Racial Advantages:

Acute Sense (Acute Smell+3) [+6pts]; Chameleon 1 [+5pts]; Discriminatory Smell [+15pts]; Damage Resistance 1 (Fur, Physical, -20%, Flexible, -20%) [+4pts]

Racial Disadvantages:

Curious [-5pts]

Free Skills:

Language (Ewokese, Native) they have no written form of their language; Area Knowledge (Forest Moon of Endor); Piloting – Ewok Glider at DX-2 [0pts].

Racially Learned Skills and Racial Skill Bonuses:

Survival (Forest) skill at Per [+2pts]; Tracking skill at Per [+2pts]

Features/Taboos:

None

Names:

The Ewoks have a single given name. These names often have religious or tribal significance, and they are almost composed of two syllables (like much of the Ewok language). The warriors of a certain Ewok tribe have names followed by the honorific Warrick, perhaps in honor of the legendary Ewok warrior by that name. A tribe's foremost warrior has the additional "W." placed between their given name and the Warrick appellation. Examples of names include Arbo, Asha, Weechee, Bozzie, Wicket W. Warrick, Latara, Chirpa, Deej, Graak, Ebab, Erpham Warrick, Grael, Gwig, Kaink, Wiley, Kamida, Pondo, Widdle, Kazak, Zephee, Keoulkeech, Logray, Kneesaa, Bandi, Leeni, lumat, Mookiee, Malani, Nippet, Salina, Norky, Paploo, Ra-Lee, Ponto, Romba, Shodu, Teebo, Tippet, Batcheela, Warok, Warwick, Willy, Winda, Chukha-Trok, and Zarak.

Description:

Ewoks are intelligent omnivores native to one of the moons orbiting Endor. Before the Battle of Endor, their existence was almost entirely unknown except among a handful of Imperial scouts and xenobiologists.

Ewoks are organized in tree-dwelling tribes. Tribal occupations are gender-based. Males hunt, forage, and make weapons, while females raise young and handle other domestic tasks. Ewok culture revolves around complex animistic beliefs involving the giant trees of the forest moon. The forests of Endor loom as large in their tales as they do in their lives.

Although technologically primitive, Ewoks are clever, inquisitive, and inventive. They are experts at creating tools, traps, and other contraptions using wood, cloth, vines and stones. When first introduced to machines, they are skittish and wary, but Ewok curiosity soon overcomes fear, leading to wild and inventive experimentation. Ewoks can eventually learn to operate any item of technology.

Ewoks tend to be curious, superstitious, and courageous, though they can be fearful around things that are strange and new.

Ewoks are furry bipeds that average about 3 feet tall. Their thick fur varies widely in color and pattern. They often wear hoods, decorative feathers, and animal bones.

Notes:

Ewoks can be seen in Episode VI - Return of The Jedi and in The Ewok Adventures –Caravan of Courage/ The Battle for Endor.

CP:

Type	CP
Attribute Adjustment	-30

Secondary Characteristic Adjustment	-5
Tech Level	-40
Racial Advantages	+30
Racial Disadvantages	-5
Racially Learned Skills and Racial Bonuses	+4

TOTAL	-46

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Falleen

Attribute Adjustment:

IQ+1[(+20pts]; HT+1[(+10pts]

Secondary Characteristic Adjustment:

None

Origin:

Falleen

Tech Level:

11

Racial Advantages:

Charisma+1 [+5pts]; Breath Holding+1 [+2pts]; Amphibious [+10pts], Affliction+1 (Pheromones, Appearance Reaction+1, Area Effect 4 yards, +100%, Emanation, -20%, Sense-Based – Smell, +150%) [+17pts]; Appearance (Attractive) [+4pts]

Racial Disadvantages:

Cold-Blooded (<50°) [-5pts]; Intolerance (All but Falleen) [-10pts]

Free Skills:

Language (Falleen, Native); Area Knowledge (Falleen)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

The Falleen favor one name (given). Examples of names include Xizor, Xzuhal, Miaxi, Haxim, Azool, and Savan.

Description:

The Falleen are a species of reptilian humanoids from the Mid Rim system of the same name. They are widely regarded as one of the most aesthetically pleasing species of the galaxy, with an exotic appearance and powerful pheromone-creating abilities. While their pheromones are to attract suitable mates, they also have a pronounced effect on other humanoid species, leading many to describe Falleen as irresistible.

The Falleen are not commonly encountered off their homeworld. Although a small stellar-class spaceport exists on their world and they are technically capable of mastering space travel, they have never felt the urge to do so. They are content to manage their own affairs and focus on their own world and culture, which they believe is inherently superior to everything else the galaxy has to offer. Many young Falleen nobles leave to spend their adolescent years touring the galaxy, for the most part finding nothing but confirmation of their innate superiority. A few, however, choose to remain among the stars, and during the Rebellion era, many of them join the Rebels.

In the early days of the Empire, an Imperial biological weapons facility on Falleen accidentally released a deadly plague. Fortunately for the planet, Darth Vader was able to prevent the spread of the biological agent by bombarding the city that was home to the facility. Over 200,000 Falleen were killed, but the planet survived. Still, many Falleen harbor lingering resentment toward Humans and Imperials in particular.

Falleen commoners encountered offworld are almost always part of an entourage led by a Falleen noble or diplomat.

After the Yuuzhan Vong invaded the galaxy, the Falleen were forced to flee the alien invaders, who subjugated their homeworld shortly after the Battle of Fondor.

Falleen are well mannered, self-assured, and driven to succeed. Even at the worst, they possess undeniable and unshakable charisma. Sometimes their sense of superiority makes them arrogant and seductive, but Falleen can also be sensitive and compassionate.

Their lithe bodies are covered with scales that are typically deep green or gray-green, but the color fluctuates toward red or orange when they release their pheromones. Male and female Falleen are almost identical physically, except that the spiny ridge that runs down the back of the males is more pronounced than the one that runs down the backs of the females.

Notes:

Encountering a member Falleen race is very rare and highly unlikely. The race is so rare that the GM may want to disallow PCs to play them. Of course this is always the GM's option.

CP:

Type	CP
Attribute Adjustment	+30
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+38
Racial Disadvantages	-15
Racially Learned Skills and Racial Bonuses	0
TOTAL	+53

Farghul

Attribute Adjustment:

ST-1 [-10pts]; DX+1 [+20pts]; HT-1 [-10pts]

Secondary Characteristic Adjustment:

None

Planet/System of Origin:

Farrfin

Tech Level:

11

Racial Advantages:

Fashion Sense [+5pts]; Charisma+1 [+5pts]; Teeth (Fangs) [+2pts]; Claws (Sharp) [+5pts]; Extra Attack (Tail) [+25pts]; Binding (Tail+5, No Parry, -5%, Melee Attack 1-4, -15%) [+8pts]; Rapier Wit [+5pts]

Racial Disadvantages:

Pacifism (Self-Defense Only) [-15pts]

Free Skills:

Language (Farghul, Native); Area Knowledge (Farrfin)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Breela, Crelfax, Delfas, Lyrrin, Pashira, Rish, Shanifer, Terasa, and Terath.

Description:

The Farghul are feline humanoids from the world of Farrfin. The Farghul are very conscious of their appearance and they are never seen in public without wearing the highest quality of clothing they can afford, not to mention the latest fashions. When visiting other worlds, they always consult clothing stores so they can be appropriately attired. When on Farrfin, they usually wear elaborate decorated cloaks, skirts, or pants; tunics, shirts, and blouses are not part of traditional Farghul dress. Elaborate jewelry, however, is essential.

The Farghul prefer to rely on cunning and trickery rather than direct confrontation and force. Something has gone wrong somewhere along the way if a Farghul ends up in a fight, and it takes a lot of provocation to cause one to lose his or her good humor. A Farghul tries talk and bribery before resorting to violence.

The only authority that a Farghul respects is that of the Jedi, and they tend to be downright terrified of them. Farrfin has been a haven for rogues and scoundrels since the felinoids first contacted the Old Republic. When the Jedi Council spearheaded a Republic-sponsored effort to clean out a number of smuggling and pirate bases that were choking trade in surrounding star systems, the display of force rocked Farghul culture to its core and left a deep scar on the collective psyche of the playful beings. They have been suspicious of Offworld governments ever since, and they were particularly distrustful of the Empire. However, they keep their dislike hidden behind smiling, respectful facades. Following the fall of the Empire, Farrfin joined the New Republic, but the world almost instantly became a hotbed of corruption and petty confidence schemes.

The Farghul in general have playful and mischievous personalities. They delight in puns, plays-on-words, slight-of-hand tricks, and intellectual puzzles. They are good-natured, boisterous, and always ready with a wide smile and a terrible joke. Rigged games of chance are favorite pastimes among the Farghul, and if someone ever sees through such a con, they willingly return any money gained and cheerfully explain how they fixed the game. As such, they have a reputation as a species of unrepentant con-artists and thieves, and as far as adventuring Farghul are concerned, this is not far from the truth.

Farghul bodies are covered in medium-length, tawny fur, and they have pronounced muzzles, sharp fangs, and long prehensile tails. Their hands that feature stubby fingers with retractable, sharp claws.

Note:

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+55
Racial Disadvantages	-15
Racially Learned Skills and Racial Bonuses	0
TOTAL	+40

Feeorin

Attribute Adjustment:

ST+1 [+9pts]; HT+1 [+10pts]

Secondary Characteristic Adjustment:

SM+1

Planet/System of Origin:

Unknown

Tech Level:

11

Racial Advantages:

Unaging (Up to 400 years) [+15pts]; Night Vision 2 [+2pts]; Fit (Very Fit) [+15pts]; Less Sleep [+2pts]

Racial Disadvantages:

Reputation -2 (Brutal & Dangerous, Almost Everyone, x1, All the time, x1) [-10pts]

Free Skills:

Language (Feeorin, Native)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Bral, Crayl, Dod, Dreyla, Kren, Nor, Nym, Pryn, Sayla, and Zun.

Description:

Feeorins are hulking, powerful humanoids found in small colonies on scattered Outer Rim worlds. They are strong and able to perform strenuous activities for prolonged periods without rest.

Their planet of origin remains a mystery, but it is believed that Feeorin colonists abandoned the world eons ago following a radical climate change. The colony transports spread out to the far reaches of the galaxy in search of habitable planets. The Feeorins who survived the search founded settlements on other worlds, where they were usually viewed as raiders or scavengers. Often hunted and eradicated by the native species, the Feeorin population dwindled. By the end of the Rebellion era, fewer than one million Feeorins still survive.

Fortunately, Feeorins are an extremely long-lived species. Their metabolisms are also unique, because a Feeorin does not "age" as normal species do. Instead of a slow degradation until death, Feeorins seem to grow stronger and more powerful until the day they die, sometime between the ages of 300 and 400 years old. Death from "old age" happens without any warning, they simply drop dead.

Ike Humans, Feeorins display a wide array of personalities, although many Feeorin explorers and spacers are considered gruff and self-serving. Feeorins are sometimes quick to anger and impersonal, rarely going out of their way to make friends or acquaintances. They have a reputation of being brutal and dangerous.

Feeorins are well-muscled humanoids who average over 7 feet tall. They come in many hues, from coal black to pale white, but green, yellow, and blue are the most common skin colors. They have bright red eyes and half-meter-long tendrils that cascade from the sides and back of their head.

Note:

CP:

Type	CP
Attribute Adjustment	+19
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+34
Racial Disadvantages	-10
Racially Learned Skills and Racial Bonuses	0
TOTAL	+43

Fia

Attribute Adjustment:

ST-1 [-10pts]; DX+1 [+20pts]

Secondary Characteristic Adjustment:

SM-1

Planet/System of Origin:

Galantos

Tech Level:

11

Racial Advantages:

Perfect Balance [+15pts]; Terrain Adaptation (Gelatinous Surface) [+5pts]

Racial Disadvantages:

None

Free Skills:

Language (Fian, Native); Area Knowledge (Galantos)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Jobath Knox, and Brabe

Description:

Fia are a rare sight in the galaxy. Quick to run and slow to anger, they are friendly among their own kind but wary of outsiders. This squat, compact species enjoys a greater resistance to injury and disease than most. Fia encountered away from Galantos are more outgoing, but they long for the strange beauty of their rolling, gelatinous homepools.

The Fia have evolved to move about on the glutinous, oscillating surface of their organic pools. They are squat, bottom-heavy species with paddle-shaped feet. Fia have a keen sense of balance, and the species has evolved a vital immunity to motion sickness. Fia do not feel comfortable on solid ground; they associate a rigid motionless surface, particularly the dead wastelands outside their gelatin seas, with death itself.

The habitable areas of Galantos are few, even for the Fia. The Fian population has remained sparse, so as not to overtax their environment. Half a million Fia live on the planet, with perhaps ten thousand found elsewhere in the Farlax sector. Almost no Fia live in the greater galaxy outside the core.

A Fian hermit would be a shocking sight to his fellows. For this reason, the number of communities on the planet is low, and many gelatin seas are uninhabited. The smallest villages are clusters of fiber-and-stone houses surrounded by rings of thorny arbu trees, which protect the inhabitants from skree-skaters and other predators. The largest cities such as Gal'fian'deprisi, are modern constructions that incorporate ferrocrete and transparisteel. All Fian structures are engineered to move in concert with the rolling surface beneath them and can withstand all but the most violent "gelquakes." The Fia get much of their building material from mines in the outlying wastelands.

Fian culture is organized around seventeen Gods of Age, from Hus'yoyu (birth to age six) to Erio'anum (age ninety-seven to death). As a Fia ages, he or she worships a new god each time a life stage has expired. Often, this change in worship results in significant behavioral changes. A Fia who was shy and studious may turn gregarious or seductive upon reaching a milestone birthday.

Note:

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+20
Racial Disadvantages	0
Racially Learned Skills and Racial Bonuses	0
TOTAL	+30

Filordus

Attribute Adjustment:

ST-1 [-10pts]; DX-1 [-20pts]; HT+1 [+10pts]

Secondary Characteristic Adjustment:

Basic Move+2 [+10pts]; SM-1

Planet/System of Origin:

Filordis

Tech Level:

11

Racial Advantages:

Extra Arms+2 (Foot manipulators) [+14pts];

Racial Disadvantages:

Uncontrollable Appetite (Consumables) [-15pts]; Unfit [-5pts]; Temporary Disadvantage (Unfit, Basic Move, Extra Arms (-19% of 19) [-4pts]

Free Skills:

Language Filordian, Native); Area Knowledge (Filordis)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Anazzar, Birkalz, Dreevan, Furran, Grizztil, Hizkal, Nirzu, Nuri Gneppe, Surlan, and Zebbil.

Description:

Filordi (singular: Filordus) care about two things: making their homeworld less hostile, and getting away from it. Some Filordi prefer to make what they can of their homeworld; thus they have begun terraforming in earnest.

Hardy and intelligent, Filordi adapt quickly to circumstances. They are driven to succeed but seem incapable of planning for long-term success. In this way, they are a shortsighted species. To survive, they consume every bit of any resource that comes their way. Frequently the best way to defeat them is to give them what they want, and then leave before they change their mind.

Filordi are asexual and reproduce while dying. A week after its "parent" has died an infant Filordi crawls from the corpse.
Most Filordi are persistent, resourceful, creative, and ruthlessly opportunistic.

Filordi stand 4.8 feet tall on average and have six limbs. Two arms hang from a Filordus' shoulders. Long, spindly front legs grow from its abdominal area. Shorter stubby back legs extend from its hindquarters. Both legs have pincer toes and flat feet, the pincers face rearward on the front legs and forward on the back legs. In a brawl, a Filordus usually crouches on its hind legs, fighting with its arms and pincers. Filordi can rise on their haunches and walk in bipedal fashion, but this is very tiring.

Their faces are humanoid. Their large ears can fold down over their eyes to protect them from wind and rain. Their bodies are covered in light-colored short hair, sometimes marked with blue stripes.

Note:

CP:

Type	CP
Attribute Adjustment	-20
Secondary Characteristic Adjustment	+10
Tech Level	0
Racial Advantages	+14
Racial Disadvantages	-24
Racially Learned Skills and Racial Bonuses	0
TOTAL	-20

Frozian

Attribute Adjustment:

None

Secondary Characteristic Adjustment:

Will+1 [+5pts]; SM+1

Planet/System of Origin:

Froz

Tech Level:

11

Racial Advantages:

Peripheral Vision [+15pts]; Flexibility (Double Jointed) [+15pts]; Fur (Very Thin Fur) [+1pt]; Longevity [+2pts]; Cultural Adaptability (Xeno Adaptability, Only after Imperial rule) [+20pts]

Racial Disadvantages:

Honesty [-10pts]; Manic Depressive, Only after Imperial rule) [-20pts]; Selfless [-5pts]; Truthfulness [-5pts]

Free Skills:

Language (Frozian, Native); Area Knowledge (Froz or whatever planet they live on)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Carlisgontoris, Micamberlecto, Rocatrinicel, and Scorylance.
Description:

Frozians are mammalian humanoids who originated on the planet Froz. Like the Duros, the Frozians were early supporters of the Rebel Alliance. However, the Moff who governed their sector ruled with a heavy hand, ordering an attack on Froz to discourage insurrection in other systems. Star Destroyers reduced the beautiful low-gravity world of trees and oceans to a nearly lifeless globe.

Remaining Frozians immediately joined the Rebel Alliance and devoted their lives to overthrowing the Empire. However, it soon became apparent that their entire species had been doomed to extinction. Deprived of their homeworld's light gravity and distinctive flora, the Frozians have become infertile. The generation of last, with the species expected to die out in roughly one hundred standard years (unless scientists can find a way to recreate Froz's unique environment).

What Frozians remain usually have no contact with each other. They have integrated themselves into other societies and are resigned to their fate.

Frozians are honest and diligent, taking pride in their work. They uphold the virtues and laws of the culture into which they've integrated. They are strong-willed and show genuine concern for those around them, often making extra effort to care for those that they perceive as needy. When not actively engaged in helping themselves or others, Frozians are often depressed and, despite their best intentions, tend to ruin the mood of those around them as well.

Frozians are tall, thin humanoids with multiple joints in their arms and legs. This gives them a curious, loping gait when they walk. Their bodies are covered by short fur that ranges from sandy brown to chestnut. They have large brown eyes that are set on either side of a pronounced muzzle, giving the species excellent peripheral vision. From their muzzles grow thick whiskers that the Frozians twitch in elaborate gestures to emphasize their emotions.

Adult Frozians stand 9 feet tall, on average, with males and females having comparable builds.

Note:

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	+5
Tech Level	0
Racial Advantages	+33(+53)
Racial Disadvantages	-20(-40)
Racially Learned Skills and Racial Bonuses	0
TOTAL	+18

-G-

Gados

Attribute Adjustment:

DX+2 [+40pts]; HT-2 [-20pts]

Secondary Characteristic Adjustment:

HP-4 [-8pts]

Planet/System of Origin:

Abregado-rae

Tech Level:

11

Racial Advantages:

Flexibility (Double Jointed, No Erotic Art) [+15pts]; Perfect Balance [+15pts]

Racial Disadvantages:

None

Free Skills:

Language (Basic, Native); Area Knowledge (Abrogado-rae)

Racially Learned Skills and Racial Skill Bonuses:

Acrobatics skill at DX+1 [+4pts]

Features/Taboos:

None

Names:

Example of a name is Trarr.

Description:

As a rule, the Gados are an agreeable lot. Most are friendly towards strangers and tolerant of odd quirks. Their limberness and agility help make up for their fragile physiques. Gados aliens can somersault almost indefinitely, rolling rapidly into a room to surprise their foes.

Their internal organs are laid out in long ribbons running the length of their bodies. For this reason, every part of a Gados' body is a critical part; a blaster bolt in the foot is as life threatening as a shot to the chest. A Gados who has to amputate any part of his body will almost certainly die.

Most people are unfamiliar with the Gados species, except for those who remember the Alsakan Circo-Menagerie from their childhoods. Leaping Tee, a Gados family of tumblers and acrobats, still performs with the Alsakan show at sold-out venous across the galaxy.

Not all Gados are as agile as the members of the Tee family, but compared to most species, their bodies are impossible supple. Their skeletons are composed of small knots of bone connected by ligaments and muscle. Gados seem to be wound up like springs, and are capable of prodigious leaps.

The Gados are an extremely adaptable people. Since Abregado-rae's first colonization, they have welcomed offworlders with open arms. The accepting nature of the planet's natives cemented Abregado-rae's reputation as a smuggler's heaven, until the unfortunate rise of the Tundei regime. Basic has all but replaced the ancient Gados tongue as the official language. If the species' adaptability has a downside, it is that the Gados have almost no sense of species history. There is no Gados cuisine, no Gados art, and no Gados culture. Almost everything in a modern Abregado-rae city has been imported from somewhere else. The feeling that they lost their heritage long ago induces a deep melancholy in many Gados.

Note:

CP:

Type	CP
Attribute Adjustment	+20
Secondary Characteristic Adjustment	-8
Tech Level	0
Racial Advantages	+30
Racial Disadvantages	0
Racially Learned Skills and Racial Bonuses	+4
TOTAL	+46

Gammorean

Attribute Adjustment:

ST+2 [+20pts]; IQ-3 [-60pts]

Secondary Characteristic Adjustment:

None

Origin:

Gamorr

Tech Level:

3 Low TL-8 [-40pts]

Racial Advantages:

Dark Vision [+25pts]; Combat Reflexes [+15pts]; Damage Resistance 2 (Tough Skin, -40%, Physical, -20%) [+4pts]; Striker (Horns, Piercing, Limited Arc, -40%) [+3pts]; Striker (Tusks, Crushing, Cannot Parry, -40%, Limited Arc -40%) [1pt]

Racial Disadvantages:

Short Lifespan 1 [-10pts]; Bloodlust [-10pts]; Reputation-4 (Violent, Almost Everyone, x1 All the time, x1) (-20pts]; Intolerance–5 (Ranged Weapons and droids) [-10pts]

Free Skills:

Language (Gamorrean, Native), can't speak any other language but can learn to understand them; Area Knowledge (Gamorr)

Racially Learned Skills and Racial Skill Bonuses:

Brawling skill at DX+2 [+4pts]; Melee Weapon (Arg'garok) at DX+2 [+8pts] or Melee Weapon (Thogk) at DX+2 [+8pts]

Features/Taboos:

None

Names:

Gamorreans favor one given name, usually limited to one or two syllables (though the rare educated Gamorreans sometimes change their name to longer, less grunt-like versions). Examples include Gartogg, Rogua, Ortugg, Venorra, Xob, Steef, Gorge, Greel, Grefnakk, Gundruk, Kufbrug, Lugh, Bullyak, Ugbuzz, Draughckt, Tolra, Tront, Warlug, Fruck, Gakfedd, Krok, Ugnmush, Mugshub, Snogrutt, Snorg, Voort, Gorrt, Ithmir, Jos, Kinfarg, Jubnuk, Klagg, and Tarkil Hroka.

Description:

Gamorreans are green-skinned, porcine creatures from the Outer Rim world of Gamorr. Their tendency toward violence has made them valued bodyguards and enforcers fro crime lords across the galaxy. Gamorreans are known for their great strength and martial prowess. They prefer to use large melee weapons in combat, often carrying big swords (Thogk) and axes (arg'garok). Most Gamorreans believe ranged weapons of any sort are the tools of cowards.

Gamorrean civilization is geared toward preparing and carrying out the never-ending wars between their clans. Males on Gamorr devote most of their time to warfare, while the females farm, hunt, weave, and manufacture weapons. The hatred between clans is so strong that even Gamorreans who leave their homeworld, either as slaves or to seek their fortune, carry their clan allegiances with them. Anyone who hires Gamorrean enforcers is wise to inquire about their clan backgrounds first; or otherwise, the Gamorreans are likely to spend more time fighting each other than tending their duties.

Gamorreans are generally viewed as mindless brutes with primitive social values. The Gamorreans, however, don't care what others think of them as long as they are paid for their work and afforded plenty of opportunity to bash, hack, and slash.

Gamorreans are brutish, violent, and proud. They respect physical prowess and have no problem facing death against a worthy foe. They do display fear in the face of obviously superior opponents, considering such a display to be prudent and even rational.

Gamorreans have thick green skin covering powerful muscles. Close-set eyes, a thick snout, tusks, and small horns give them a distinctive look.

Notes:

Gamorreans can be seen at Jabba's Palace in Episode VI – Return of the Jedi. Gamorrean PCs are not recommended.

CP:

Type	CP
Attribute Adjustment	-40
Secondary Characteristic Adjustment	0
Tech Level	-40
Racial Advantages	+48
Racial Disadvantages	-50
Racially Learned Skills and Racial Bonuses	+12
TOTAL	-70

Gand

Attribute Adjustment:

None

Secondary Characteristic Adjustment:

None

Planet/System of Origin:

Gand

Tech Level:

11

Racial Advantages:

Damage Resistance 2 (Exoskeleton, /Physical, -20%, Can't wear armor, -40%) [+4pts]

Racial Disadvantages:

Dependency (Ammonia, Very Common, Constantly, x5) [-25pts]; Selfless [-5pts]

Free Skills:

Language (Gand, Native), Gand are incapable of speaking Basic, although a few have appropriate vocal cords and mouths. Most Gand rely on translator droids of various kinds to be understood; Area Knowledge (Gand)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

After a Gand does something of merit, he is given a first name. A Gand who is well known among his kind earns a second name that appears before his first. Typical Gand names include: Ooryl Qrygg, R'kayza, Syron Aalun, Ussar Vlee, Venlyss Pnoor, Vviir Wiamdi, Vytor Shrike, Zuckuss, and Zukvir.

Description:

The Gand are stocky, three-fingered humanoids from the Outer Rim world of the same name. Many xenobiologists speculate that the Gand evolved from insects, but the Gand have repeatedly made it clear that they will not allow themselves to be studied.

Gand culture remains shrouded in mystery to most non-Gand. So far, xenobiologists have identified nearly a dozen different subspecies of Gand living on their ammonia-shrouded world, but it remains unclear how they interact with each other and how the social structure works. It is known that Gand must literally earn a name for themselves; most Gand refer to themselves in third person until they have performed a number of important deeds that relate to their profession. Depending on a Gand's level of self-worth (which he continually redefines in his subconscious), he uses his first name, last name, or simply "Gand." Only the most accomplished Gand who have completed a special ceremony on their homeworld use personal pronouns such as "I" and "me."

Thanks to their insectoid heritage, most Gand do not breathe like most other species do. They produce gases by ingesting food and expel waste gases through their exoskeleton. When they travel off their homeworld, most Gand wear a breathing apparatus that supplies them with ammonia in specifically regulated amounts.

Because of the self-deprecating nature of Gand society, where the whole is promoted over the individual, Gand are almost invariable soft-spoken and polite. Even the most accomplished Gand warrior downplays his achievements when discussing them and responds with humility when praised.

The Gand have three fingers on each hand and stand 5.3 feet tall on average. Their bodies are covered by durable exoskeletons that vary in color from green to gray to brown.

Note:

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	0
Tech Level	+4
Racial Advantages	-30
Racial Disadvantages	0
Racially Learned Skills and Racial Bonuses	
TOTAL	-26

Geonosian

Origin:

Geonosis

Tech Level:

11

Features/Taboos:

None

Names:

Examples of names are: Deetle, Eorlax, Hadiss, Krylla, Lysslo, Mazzag, Poggle, Qorn, Sollas, and Vikkal.

Description:

The Geonosians are a caste-dominated species from the world of Geonosis, in the system of the same name. They dwell in a spectacular architectural realm carved from the soaring, rocky spires that dot the planet's landscape. They are somewhat resistant tot eh radiation that occasionally showers their world, though Geonosians actually live underground to escape the phenomenon.

Geonosians are born into specific castes divided along the lines of their physical attributes, and though most Geonosians are content to remain within their caste until they die, some develop ambition. The life of a low-ranking Geonosian worker is ordinarily one of ongoing toil, laboring to fulfill the whims of a Geonosian aristocracy that sometimes makes spectacular demands. The society allows Geonosians from lower castes to escape from the drudgery through gladiatorial combat.
Geonosians relish battle and public executions. Anyone the Geonosians capture is sent to the arena, to provide amusement for the masses. There, the hapless individual either faces some savage beast or fights to the death against another sentient being. A Geonosian from a low caste who volunteers for these battles can, if he survives, achieve some measure of status by distinguishing himself in the arena, if only in the form of fame, fortune, and the right to be recognized by aristocrats (though still not treated quite as an equal). Most who survive long enough to amass any amount of real wealth or prestige use it to buy their way off Geonosis, never to return.

Despite their proximity to the Corellian Run trade route, Geonosians receive few visitors. They might get none at all if their droid factories weren't among the finest and most productive in the galaxy.

Geonosians tend to be contemptuous of other species, although the lucky few who escape the toil of their caste-driven society quickly learn to be more tolerant. Geonosian aristocrats are manipulative, domineering, and ambitious. They constantly strive to improve their standing and holdings while conspiring to eliminate or ruin their rivals. Geonosian warriors are highly competitive and eager to prove themselves.

Geonosians come in two varieties: aristocrats (leaders) and warriors (drones). Both varieties are physically strong and covered with bony ridges that protect arms, legs, and vital organs. They walk on two legs, and most Geonosians have rapidly fluttering wings sprouting from their bony shoulder blades.

Note:

Geonosians can be seen in Episode 2: Attack of the Clones and in Episode III – Revenge of the Sith.

Aristocrat

Attribute Adjustment:

DX+1 [+20pts]; HT-1 [-10pts]

Secondary Characteristic Adjustment:

None

Racial Advantages:

Damage Resistance 1 (Thick Skin, -40%, Physical, -20%) [+2pts]; Radiation Tolerance /2 [+5pts]; Dark Vision (Color Vision) [+30pts]; Wealth (Wealthy) [+20pts]; Status+1 (see Wealth and Status, page 26) [0pts]; Flight (Winged, -25%, Gliding, -50%) [+10pts]

Racial Disadvantages:

Greed [-15pts]; Intolerance (Other Species) [-2pt]; Jealousy-2 [-10pts]; Megalomania [-10pts]

Free Skills:

Language (Geonosian, Native); Area Knowledge (Geonosis)

Racially Learned Skills and Racial Skill Bonuses:

None

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+67
Racial Disadvantages	-37
Racially Learned Skills and Racial Bonuses	0
TOTAL	+40

Warrior

Attribute Adjustment:

ST+1 [+10pts]; IQ-1 [-20pts]

Secondary Characteristic Adjustment:

None

Racial Advantages:

Damage Resistance 1 (Thick Skin, -40%, Physical, -20%) (+2pts]; Radiation Tolerance /2 [+5pts]; Dark Vision (Color Vision) [+30pts]; Flight (Winged, -25%, Gliding, -50%) [+10pts]

Racial Disadvantages:

Wealth (Poor) [-15pts]; Status-1 [-5pts]; Intolerance (Other Species) [-1pt]

Free Skills:

Language (Geonosian, Native); Area Knowledge (Geonosis)

Racially Learned Skills and Racial Skill Bonuses:

None

CP:

Type	CP
Attribute Adjustment	-10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+47
Racial Disadvantages	-21
Racially Learned Skills and Racial Bonuses	0
TOTAL	+16

Gran

Attribute Adjustment:

IQ-1 [-20pts]

Secondary Characteristic Adjustment:

None

Origin:

Kinyen

Tech Level:

11

Racial Advantages:

Infravision (3 eyes on stalks, -20%) [+8pts]

Racial Disadvantages:

Pacifism (Self Defense Only) [-15pts]

Free Skills:

Language (Gran, Native); Area Knowledge (Kinyen)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

The Gran favor to short, often monosyllabic names. Gran encountered offworld often times hyphenate their names or take completely different names all together. This usually denoted being in exile, either literal or personal, and is usually an early sign of Gran separation syndrome. A few examples of names include Ree-Yees, Vee Naaq, Boe Vixe, Cera Vixe, Rae Vixe, Aks Moe, Mawhonic, Baskol Yearsim, and Ainlee Teem.

Description:

A race of three-eyed humanoids native to the planet Kinyen. Their eyes are set out away from their heads on thick stalks, and they have large ears. Their eyes are adapted for seeing the visible spectrum as well as the infrared spectrum. They evolved from an herbivorous species, and have two stomachs to digest their food. The females have three breasts, which they use to suckle their young. In general, Gran are peaceful and hospitable, and no violent conflicts have been noted in their 10,000-year history.

They are strongly attached to their families and their race in general; all Gran mate for life, with the survivor usually dying of a broken heart shortly after its mate's death. Their infrared sight allows the Gran to detect their companion's emotional state. The Gran race was hesitant to join the galactic community of the Old Republic, fearing that huge distances would dilute their cultural bond, but in the end they did join. After the birth of the New Order, the Gran organized peaceful protests against Palpatine's rule. However, the Empire quickly subjugated them. On their own, the Gran developed space travel, and have developed a healthy trade route with the Herglics.

Notes:

Gran can be seen at the Boonta Eve race and at the Republic Senate in Episode I – The Phantom Menace and in the game Dark Force II - Jedi Knight.

CP:

Type	CP
Attribute Adjustment	-20
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+8
Racial Disadvantages	-15
Racially Learned Skills and Racial Bonuses	0
TOTAL	-27

Gungan

Attribute Adjustment:

Ankura HT+2 (+20pts]; Otolla DX+1 (+20pts]

Secondary Characteristic Adjustment:

None

Origin:

Naboo

Tech Level:

11

Racial Advantages:

Acute Senses (Acute Hearing+3) [+6pts]; Amphibious [+10pts]; Doesn't Breathe (Gills, -50%) [+10pts]

Racial Disadvantages:

Sense of Duty (To Honor a life debt) [-10pts]; Social Stigma (Many other races consider the Gungans to be Buffoons) [-5pts]

Free Skills:

Language (Gungan, Native); Area Knowledge (Naboo)

Racially Learned Skills and Racial Skill Bonuses:

Swimming skill at HT+1 [+2pts]

Features/Taboos:

None

Names:

The Gungans favor a given name, usually one word, but sometimes two or three. Examples of names include Tarpals, Nass, Ceel, Jar Jar Binks, Been, and Teers.

Description:

This species of humanoids amphibians was naïve to the planet Naboo. There are two distinct races of Gungans: the Ankura and the Otolla. The average Otolla Gungan has a tall, muscular body with long arm and short legs, and can exists on either lad or in the water. Their heads are crowned with a pair of large frills that can be extended when frightened. Their eyes sit atop short, thick stalks. The Ankura Gungans grow incredibly large, to the point where their immense weight begins to compact their skeletons, and their eyes are hooded with heavy brows instead of sitting atop short stalks. Ankura Gungans also have green skin, where the Otolla Gungans have reddish skin.

During much of their existence on Naboo, the Gungans took great pains to avoid contact with their human neighbors, and even built huge underwater cities to escape contact. However, fringe elements of both species realized that they couldn't survive without the other, and specialized trading relationships were set up. While either government did not officially recognize these relationships, they were vital to the survival of each species.

The Gungan, like the Wookiee race, have a distinct concept of the life debt. Any Gungan who is saved by another being must submit to the life debt or be punished by their Gods. Despite their amphibious appearance, Gungans are quite technologically advanced. Their immense bubble cities are found in the depths of Naboo's seas, and are made of groupings of round force fields. The fields are permeable only to slow-moving objects, and can be penetrated by a Gungan walking through them. However, the force fields hold back the incredible pressures of the water that surrounds them. The Gungans also had an advanced shielding technology, which they applied to small, hand-held shields as well as huge hemispheres that protected an entire army. Like the bubble fields, these shields were only permeable by slow-moving objects, and they absorbed energy like a sponge.

Notes:

Previous to Episode I, the race is very suspicious of outsiders and dislikes other "superior" races. This is represented as a Racial Quirk: Dislikes Outsiders.

Jar Jar Binks excluded, Gungans can be seen in Episode I – The Phantom Menace.

CP:

Type	CP
Attribute Adjustment	+20
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+26
Racial Disadvantages	-15
Racially Learned Skills and Racial Bonuses	+2
TOTAL	+33

-H-

H'nemthe

Attribute Adjustment:

None

Secondary Characteristic Adjustment:

None

Origin:

H'nemthe

Tech Level:

11

Racial Advantages:

Empathy [+5pts]; Infravision [+10pts]; Striker (Female tongue, Cutting; Accessibility - Only H'nemthe males, -30%; Limited Arc, -40%; Limited Usage – Only after mating, -40%; Cannot Parry, -40%) (+0pts]

Racial Disadvantages:

Reputation-4 (Females eviscerate the males after mating (Almost Everyone, x1, Sometimes, x½) [-10pts]

Free Skills:

Language(H'nemthean, Native); Area Knowledge (H'nemthe)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Examples are Garriel, H'rassh, Liakkor, S'basso, Vir'roc, and Vishki.

Description:

H'nemthe are a deeply passionate and spiritual people. Male H'nemthe compromise 95% of the species population: whether this is due to a species-wide genetic defect is unknown. After a H'nemthe couple conceive, the female eviscerates the male with the razor-sharp tongue.

Because their head cones can be used to detect heat differences in their environment and emotional differences in other creatures, H'nemthe are efficient hunters.

H'nemthe males are timid beings who spend most of their adult lives searching for true love. They also believe that death is an important part of life, and that one's own death paves the way for future generations. H'nemthe females lead a sheltered life until they begin to mate, and consequently they tend to be naïve about matters outside the home.

An H'nemthe has blue-gray skin, a double set of cheekbones, a gently curved nose, three fingers on each hand, and a head crowned with four short cones.

H'nemthe is an Outer Rim world with three moons. The moons' collective gravitational force creates unsettled weather conditions across the entire planet. Scientists believe that the H'nemthe evolved their heat-sensing cones to help them forage for food in the inclement weather.

Notes:

An H'nemthe can be seen at the Mos Eisley cantina in Episode IV – A New Hope.

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+15
Racial Disadvantages	-10
Racially Learned Skills and Racial Bonuses	0
TOTAL	+5

Herglic

Attribute Adjustment:

ST+1[+9pts]; HT+2 [+20pts]

Secondary Characteristic Adjustment:

SM+1

Planet/System of Origin:

Giju

Tech Level:

11

Racial Advantages:

Damage Resistance 2 (Thick Skin, -40%, Physical, -20%) [+4pts];

Racial Disadvantages:

Fat [-3pts]; Compulsive Behavior (Gambling) [-5pts]; Curious [-5pts]; Duty (Family) [-2pts]; Reputation-2 ((Former) Imperial Supporter) (Almost Everyone, x1, All the time, x1) [-10pts]

Free Skills:

Language (Herglic, Native); Area Knowledge (Giju)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Unknown

Description:

Herglics are large bipeds, which Xenobiologists believe may be related to or evolved from aquatic mammals. They are about the same size as humans in height but are extremely wide due to the layers of protective blubber that lies underneath the Herglic's skin.

They have smooth, rubbery, hairless skin that ranges in color from pale blue to dull black. Although the Herglics still breath through blowholes, that are located on the tops of their heads, the Herglics have lost every other trait that points to the possible water based origin of the species.

It has been documented, that the Herglics were first exploring their system and neighboring systems around the same time that the Corellians were first exploring theirs. The Herglics soon met other space faring races, and because of their steady temperament and naturally inquisitive personalities, they were accepted with open arms into the galactic community and the Old Republic. Their angular freighters soon became a common sight in spaceports of the Old Republic, and Herglic communities began to form in various locations around the Galaxy.

When Palpatine made his rise to power, the Herglic suffered dearly. The newly formed Empire seized control of Herglic manufacturing centers and starship construction sites. Although, the Herglic desperately fought back against the Empire, the result was an endless slaughter of the Herglic troops. The Herglic government decided that it was utile to fight back against such a superior enemy, and they submitted to the Emperor's forces. Because they openly joined the Empire, the Herglic soon found that the galactic community distrusted them. Many people believe that even after the end of the New Order that the neutral Herglics are still working with Imperial forces. While individually this may be true, but as a whole the Herglic race just wants to prosper and holds no allegiance to the fallen Empire.

The majority of Herglics hail from trading families and guilds. They tend to have strong work ethic and are extremely loyal to their families. They have an innate curiosity concerning Sabacc and other games of chance. Once a Herglic is introduced to a new game he will feverishly spend the majority of his free time, and money trying to develop a system that will make him rich.

Herglics can be seen throughout the galaxy, but they are more likely seen on technologically advanced worlds.

Note:

The negative Reputation applies only to Imperial or post Imperial settings.

CP:

Type	CP
Attribute Adjustment	+29
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+4
Racial Disadvantages	-27
Racially Learned Skills and Racial Bonuses	0
TOTAL	+6

Ho'Din

Attribute Adjustment:

ST+1 [+9pts]; DX-1 [-20pts]

Secondary Characteristic Adjustment:

SM+1

Origin:

Moltok

Tech Level:

11

Racial Advantages:

Reputation+1 (Gentle, Almost Everyone, x1, All the time, x1) [+5pts]

Racial Disadvantages:

Cold-Blooded [-10pts]; Dislikes (Industrialization) [-1pt]

Free Skills:

Language (Ho'Din, Native), a language that has many hisses and croaks. The written language uses characters derived from the shapes of different plants native to Moltok. The Ho'Din vocabulary includes thousands of plant-based metaphors and idioms; Area Knowledge (Moltok)

Racially Learned Skills and Racial Skill Bonuses:

Climbing skill at DX [+2pts]; Survival (Jungle and Volcanic) at Per [+4pts]

Features/Taboos:

None

Names:

Examples of names are Baji, Ism Oolos, Kutu, Par'tah, Plett, Spero and Usta.

Description:

Ho'Din means "walking flower" in the native language of this gentle species. Although Ho'Din religion claims that the species descended from plant life, the Ho'Din actually evolved from reptiles. Nevertheless, Ho'Din are thought to believe that those who strive to preserve nature in life ill be reborn as plants after death.

Three hundred years before the Battle of Yavin, the Ho'Din entered an industrial age, clearing entire forests to make room for factories and cities. The damage to their homeworld's ecosystem unleashed a deadly parasite that nearly wiped out the species. The Ho'Din have since returned to their roots, as it were, having learned to live in harmony with their forests and draw sustenance and shelter from nature itself. The old factories and cities now stand as crumbling testaments to their early folly.

The Ho'Din show little interest in galactic affairs and for the most part keep to themselves. The Ho'Din use their botanical skills to conduct natural medicines, some of which have cured plagues on distant worlds.

Ho'Din are self-conscious and vain. Their concern with beauty is usually centered either on their personal appearance or that of their floral and arboreal creations. They do not take insults or criticism well and use modern technological devices only when necessary.

Ho'Din are slender humanoids with brightly colored scales, a crown of snakelike stalks for hair, large black eyes, and naturally webbed fingers and toes with suction cups. Their anemone hair can sense even the slightest variation or change in temperature. The average Ho'Din stand about 9 feet tall.

Their homeworld Moltok, a world of rain forests and volcanoes, is located in the Outer Rim. Technology is closely monitored and restricted on Moltok, for fear that it might somehow be used to harm the planet's delicate ecosystem.

Notes:

The quirk Dislikes – Industrialization only applies after the parasitic plague.

CP:

Type	CP
Attribute Adjustment	-11
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+5
Racial Disadvantages	-11
Racially Learned Skills and Racial Bonuses	+6
TOTAL	-11

Houk

Attribute Adjustment:

ST+2 [+20pts]; DX-1 [-20pts]; HT+1 [+10pts]; IQ-1 [-20pts]

Secondary Characteristic Adjustment:

None

Origin:

Lijuter

Tech Level:

11

Racial Advantages:

Damage Resistance 2 (Thick Skin, -40%, Physical, -20%) (+4pts]; Reputation+1 (Bully, Criminals, x½, Al the Time, x1) (+2pts]

Racial Disadvantages:

Bad Temper [-10pts]; Bully [-10pts]; No Sense of Humor [-10pts]; Reputation-2 (Untrustworthy, Almost Everyone, x1, All the time, x1) [-10pts]; Reputation-1 (Bully, Almost Everyone but Criminals, x⅔) [-3pts]

Free Skills:

Language (Houk, Native); Area Knowledge (Lijuter)

Racially Learned Skills and Racial Skill Bonuses:

Intimidation skill at Will [+2pts]

Features/Taboos:

None

Names:

Examples names are Gorb Drig, Egome Fass, Agamor Krin, Vlorg Nat, Roath Vogog and Krelba Voss.

Description:

Houk have well-earned reputations as bullies, cheaters, and backstabbers. They are often compared to Wookiees because of their great strength and violent disposition, although Wookiees are usually more agreeable and trustworthy.

The Houk acquired hyperdrive technology several thousand years before the Battle of Yavin and spread across the galaxy, seeding many planets with small colonies. During the Rebellion era, Imperial agents captured and experimented on hundreds of Houk colonists, hoping to create strong yet obedient slaves. The Houk did not submit easily, and most of them were never seen again. At least one Houk survived the ordeal, only to betray his Imperial overlords by joining the Rebel Alliance. Such treachery gave rise to the proverb, "Once a Houk, always a Houk."

Houk are humorless, short tempered beings who use their strength to antagonize weaker beings. Their propensity for deceit and skullduggery is matched only by the Hutts. These qualities are reflected both in their combat techniques and their political dealings. Although Houk descend from a culture were violence, corruption, and treachery are rampant, a few are actually hard workers who have learned to get along with others.

Houk are hulking bipeds with thick skin (usually dark blue or violet), hairless heads marked with bony ridges and a pronounced brow, flabby jowls, beady yellow eyes, and no visible ears or nose. The average Houk stands about 7 feet 2 tall.

Lijuter, is an arid and inhospitable planet in the Reibrin system, located in the Outer Rim. A number of space stations orbit Lijuter and its two moons, many of them serving as Offworld settlements for Houk and various unscrupulous traders and sordid passers-by.

Notes:

Houk may add a maximum of +4 due to their ST and +1 for their Reputation as Bully to their Intimidation skill

CP:

Type	CP
Attribute Adjustment	-10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+6
Racial Disadvantages	-33
Racially Learned Skills and Racial Bonuses	+2
TOTAL	-35

Hutt

Attribute Adjustment:

ST+2 [+16pts]; DX-3 [-60pts]; IQ+2 [40pts]; HT+2 [+20pts]

Secondary Characteristic Adjustment:

Will+1 [+5pts]; SM+2

Origin:

Varl, later on Nal Hutta

Tech Level:

11

Racial Advantages:

Reduced Consumption 2 (Cast iron Stomach, -50%) [+2pts]; Damage Resistance 1 (Thick Skin, -40%, Physical, -20%) [+2pts]; Dark Vision [+25pts]; Extended Lifespan 3 [+6pts]; Longevity [+2pts]; Force Static (Resistible, -50%) [+15pts]

Racial Disadvantages:

Cold-Blooded (<50°) [-5pts]; Gluttony [-5pts]; Greed [-15pts]; Intolerance-1 (All other races) [-1pt]; Megalomania [-10pts]; No Legs (Semi Aquatic, Slithers) [0pts]; Overconfidence [-5pts]; Sense of Duty (Clan) [-10pts]; Very Fat [-5pts]; Vow (Never kill the messenger from other Hutts, Major) [-10pts]

Free Skills:

Language (Huttese, Native), they consider their own language superior to Basic and usually demand that lesser beings address them in their native tongue; Area Knowledge (Varl or Nal Hutta or Nar Shaddaa)

Racially Learned Skills and Racial Skill Bonuses:

Intimidation skill at Will+1 [+4pts]; Leadership skill at IQ [+2pts]; Persuade skill at Will-1 [+2pts]

Features/Taboos:

None

Names:

Examples names are Borga, Churabba, Dalla, Durga, Gardulla, Grelb, Grondo, Issualla, Jabba, Krova, Mardoc, Mika, Nalluda, Popara, Shala, Yarella, Zonnos, and Zordo.

Description:

Hutts are long-lived gastropods who occupy a region known as Hutt Space. They are powerful, ruthless beings who continually seek to expand the boundaries of their dominion and the holdings of their individual clans or kajidies. Their appetite for power is as insatiable as their appetite for food.

Hutts are often found at the centre of business and criminal enterprises. Legality (or lack thereof) does not affect whether a Hutt will pursue a venture. All that matters is how much of a benefit, and a profit, one can get from it.

Like worms, Hutts are hermaphroditic, with both male and female reproductive organs. Hutts bear their young one at a time and nourish them for a time in a brood pouch. Their large lungs enable them to stay underwater for hours at a time. Xenobiologists often classify Hutts as gastropods because of their slug like appearance and movements.

A council of elders oversees Hutt Space. Comprised of Hutts representing the oldest and most influential kajidies, they decide the fate of everyone who lives in Hutt Space, and all other Hutts are answerable to them.

Most Hutts are vicious megalomaniacs who consider their kind to be beyond morality as perceived by lesser beings. They have a talent for manipulating other beings and enjoy accumulating and exerting power over others. A Hutt's strongest loyalty is always his kajidie, without which a Hutt is nothing but a lowly commoner.

A Hutt is an immense, slug like creature with a thick body, muscular tail, and small arms protruding from its upper body. A Hutt's bulbous head features catlike eyes, wide nostrils, and a broad lipless mouth. An adult Hutt averages 13 feet long and weighs 1,500 kilograms.

Hutts evolved on the temperate forest world of Varl. When a natural calamity left Varl a blasted wasteland, the Hutts fled and adopted a new homeworld: Nal Hutta, in the Y'Toub system on the border of the Mid Rim and Outer Rim. The Hutts have spent centuries polluting and ruining Nal Hutta's ecosystem, as well as that of Nar Shaddaa, a heavily industrialized moon orbiting Nal Hutta.

Notes:

Hutts can be seen in Episodes I, IV and VI.
Hutt PCs are not recommended.

CP:

Type	CP
Attribute Adjustment	+16
Secondary Characteristic Adjustment	+5
Tech Level	0
Racial Advantages	+52
Racial Disadvantages	-66
Racially Learned Skills and Racial Bonuses	+8
TOTAL	+15

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Iktotchi

Attribute Adjustment:

DX-1 [-20pts]

Secondary Characteristic Adjustment:

None

Origin:

The moon Iktotchon orbiting Iktotch

Tech Level:

11

Racial Advantages:

Damage Resistance 1 (Thick Skin, -40%, Physical, -20%) (+2pts]; Force Sensitive [+5pts]; Farseeing (Precognition, Costs Fatigue, -5%; Preparation Required, -20%; Uncontrollable, -10%; Unreliable, -80%) [1pt]

Racial Disadvantages:

Secret (Doombringer, Utter Rejection by Non-Force users) [-10pts]

Free Skills:

Language (Iktotchese, Native); Area Knowledge (Iktotchon)

Racially Learned Skills and Racial Skill Bonuses:

Iktotchi character gain either the Crewman skill at IQ+2 [+4pts] or Engineer at IQ [+4pts] or Pilot (High Performance Spacecraft) at DX+1 [+4pts]

Features/Taboos:

None

Names:

Example names are Arctan, Vleese, Daedar Xiese, Liiren Baelar, Niira Korl, Saesee Tiin, and Seer Vanee.

Description:

Iktotch, a remote star system in the Expansion Region, has a single planetary body capable of supporting life, a moon orbiting a lifeless mass of rock on the system's edge. Here, the Iktotchi arose as the sole intelligent life in a desolate system, yet from their earliest civilization they had legends of some day being part of a great galactic civilization that spanned the stars.

Iktotchi are renowned across the galaxy as excellent pilots, with a reputation as mechanics and engineers not far behind. This was not the only thing the Iktotchi are known for, however. When Republic scouts first discovered their civilization roughly 3,500 years ago, they were both surprised and unnerved that the entire population had been prepared for their arrival for several weeks. In fact, when the scout ship first entered orbit around the moon, they thought they had found an unreported Republic settlement, a giant version of the Galactic Republic seal, visible from space to the naked eye, had been carved into a high plateau on the world's largest continent. Iktotchi leaders were assembled there, eager to make contact with the great civilization of the stars.

Galactic Republic xenobiologists soon learned that the Iktotchi possessed limited natural precognition, manifested through dreams or visions. This inborn talent particularly fascinated the Jedi, and a Jedi temple was one of the first permanent offworld settlements to be established on Iktotchon. They discovered that Iktotchi trained as Jedi were particularly adept with Sense powers, and Iktotchi precognitive abilities could actually be enhanced with Force training.

As the Iktotchi became integrated into the galactic society around them, it became clear that their affinity for flight extended into space vehicles. Despite this, they didn't fit comfortably into the vast cultural tapestry they had dreamt of for so long. They found that they were distrusted by many, as Iktotchi were rumored to be everything from telepaths to dangerous doombringers that foresaw evil and then worked to bring it about. Iktotchi soon began to deny any extrasensory abilities, mostly true, since their precognitive powers are severely limited when away from Iktotchon, and they gradually gained acceptance as the bizarre circumstances surrounding the initial contact with the Iktotchi faded with the passage of time. Iktotchi skill with spacecraft became so well known that everyone from pirates to system defense forces were willing to pay top credits for even green Iktotchi pilots and engineers.

As the Emperor rose to power, Iktotchi diplomats worked feverishly to prevent the galaxy from embarking on the dark path that would lead it to the Clone Wars: they had seen the carnage in their dreams. Iktotchi Jedi posed a threat to the Emperor's plans, and they were among the first targets during the Jedi Purge.

Shortly before the Emperor's New Order seized power, most Iktotchi withdrew from all but the most distant Outer Rim worlds, retreating to their home star system and constructing orbital colonies to handle the influx of people. Their precognitive abilities had warned them that dire fates awaited them if they attempted to live under the Emperor's regime. The Emperor seemed content to allow the Iktotchi to withdraw and ordered a blockade of their system. He didn't even bother to appoint a planetary governor, and the Iktotchi knew that isolation would be the only way their people would survive. Nonetheless, several of them did steal past the blockade to join the Rebel Alliance.

When the Empire fell, the Iktotchi became eager participants in the founding of the New Republic. Curiously, the Yuuzhan Vong invasion took the Iktotchi by as much surprise as the rest of the galaxy's population. Not only were these extra-galactic invaders invisible to the Jedi, but also they were shielded from the vision of the Iktotchi.

Iktotchi are sensitive beings who hide their deep emotions behind façade of quiet stoicism. They respect diversity and adapt quickly to other species easily.

Iktotchi can be somewhat impatient with species that aren't precognitive. Culturally, they are also concerned about frightening other beings, they have no desire to be reviled by galactic society or abused by those who might use their precognitive abilities for ill, so their natural gift sometimes seem more like a curse.

The Iktotchi have tough hairless skin that protects them from the fierce winds of their homeworld. Both males and females have downward-curving horns, although the horns of males are somewhat larger. Their hands are broad, and have thick fingers.

Notes:

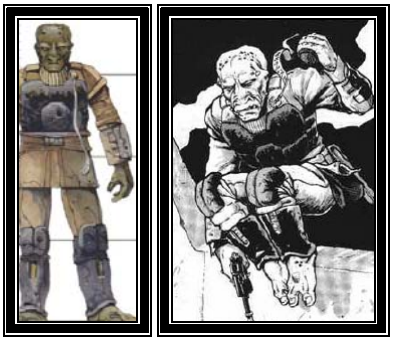
The limitation Uncontrollable for the Force Power Farseeing is deleted as soon as the character has both bought at least one Sense Talent and the appropriate Force Training – Attuned.

An Iktotchi Jedi Master can be seen in Episodes I, II, and III.

CP:

Type	CP
Attribute Adjustment	-20
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+8
Racial Disadvantages	-10
Racially Learned Skills and Racial Bonuses	+4
TOTAL	-18

Iotran



Attribute Adjustment:

HT+1 [+10pts]; IQ-1 [-20pts]

Secondary Characteristic Adjustment:

None

Origin:

Iotra

Tech Level:

10 – Low TL-1 [-5pts]

Racial Advantages:

Allies (IPF, Almost all of the time, x3, Power 100%, Size of Group 11-20, x8) [+120pts]; Rank (Military) [0pts];

Racial Disadvantages:

Duty (IPF, Almost all the time, Extremely Hazardous) (-20pts]; Fanaticism (Military Hierarchy) [-15pts]; Intolerance (Non-Militaristic Civilizations) [-5pts]; Reputation-1 (Militaristic, Everyone but Iotrans, x⅔) [-3pts]

Free Skills:

Language (Tranese, Native), a rich language that has simple, precise sentence constructions and words. Most Iotrans find Basic inelegant and convoluted; Area Knowledge (Iotra)

Racially Learned Skills and Racial Skill Bonuses:

Soldier skill at IQ+1 [+4pts]; Tactics skill at IQ-1 [+2pts]

Features/Taboos:

None

Names:

Example names are: Terika Etan, Mirip Pag, Dira Shal, Rodick Tag, Anvon Trig, and Rova Zad.

Description:

Iotrans are atheistic sentients who live and thrive within a strict military hierarchy. The Iotran people follow clear, codified laws that set the boundaries for conduct within their society. Iotrans strive for order and civility and believe in the maxim "might makes right." They abhor dissidence and lost considerable respect among non-Iotran cultures by showing open contempt for the Rebel Alliance and refusing to stand with the Alliance against the Empire.

Since the early days of the Republic, Iotrans have maintained an immense standing army bolstered by hyperdrive-capable starships and blaster weapons. The army patrols the Iotran Expanse and has proven an effective deterrent against invasion, as Iotrans have never been involved in any military engagement larger than a border skirmish.

From youth, Iotrans are trained to prepare for conflict. By law, they must serve six standard years in the military, and of course, most of them consider it a privilege and honor to do so.

Iotrans respect military might and little else. They fervently believe that order and stability are the building blocks of a thriving society. Iotrans have little to no respect for other cultures and their laws. They also have no sense of fair play, seeking victory in every conflict by the most expedient means.

Iotrans are not technically minded, but they make good use of technology acquired from other species.

An Iotran has smooth, dark skin and a broad, flat nose. Distinctive spots adorn the top of an Iotran's distinctive skull, which features a pair of knobby protrusions that jut out between the eyes and ears. An Iotran has birdlike feet and hands with three fingers and a thumb. An Iotran adult typically wears militaristic or utilitarian clothing.

Iotra is an industrial planet in the Outer Rim system of the same name. The Iotran Peacekeeping Force (IPF) rules Iotra through a joint Council of eight top-ranking military leaders.

Notes:

Iotran PC is not recommended. A character playing an Iotran PC should be considered an outcast and thus has no Allies and Rank and no Duty and Fanaticism.

CP:

Type	CP
Attribute Adjustment	-10
Secondary Characteristic Adjustment	0
Tech Level	-5
Racial Advantages	+120
Racial Disadvantages	-43
Racially Learned Skills and Racial Bonuses	+6
TOTAL	+68

Ishi Tib

Attribute Adjustment:

DX-1 [-20pts]; IQ+2 [+40pts]

Secondary Characteristic Adjustment:

None

Origin:

Tibrin

Tech Level:

11

Racial Advantages:

Amphibious [+10pts]; Doesn't Breathe (Gills, -50%) [+10pts]; Speak Underwater [+5pts]; Striker (Beak, Piercing, Limited Arc – Straight Ahead, -40%) [+3pts]

Racial Disadvantages:

Berserk (Only when taken damage, -50%) [-5pts]; Dependency (Brin, Saltwater solution, Very Common, Daily, x3) [-15pts]; Obsession (Environmentalist, Resist quite rarely) [-20pts]

Free Skills:

Language (Tibranese, Native); Area Knowledge (Tibrin)

Racially Learned Skills and Racial Skill Bonuses:

Swimming skill at HT +2 [+4pts]

Features/Taboos:

None

Names:

Example names are Jund Voon, Koth-Morr, Kenjil Mang, Sciltra Rega, Harc Seff, Thillis-Brn, Shasa Tiel, and Troc Slatter.

Description:

Ishi Tib are amphibian humanoids who live in large communal families called schools. Each school ranges in size from a few hundred members to more than ten thousand individuals. Ishi Tib mate only to reproduce, and the entire school assumes responsibility for the welfare of Ishi Tib hatchlings, which never learn the identities of their parents. The needs of the school always come before the needs of the individual.

Ishi Tib live in ornate cities built upon carefully cultivated coral reefs. They are fervent eco-preservationists, unwilling to compromise when ecological balance is at stake. Although Ishi Tib have little desire to leave their homeworld, they are sometimes lured Offworld by corporations in need of highly organized managers and environmentally sensitive urban planners. The Rebel Alliance also put their keen minds to use planning raids against the Empire, and several Ishi Tib tactical experts were present during the critical briefing before the Battle of Endor.
Ishi Tib must routinely immerse themselves in a brim solution similar to the oceans of Tibrin, or they will die of dehydration.

Ishi Tib are patient, meticulous, highly organized perfectionists. They are quick to correct the errors of other school members, and most are strident defenders of the natural environment.

Ishi Tib have green skin. Their four-pointed, star-shaped face features a pair of lidless yellow eyes on short stalks and a sharp, hooked beak. Their lungs can breathe air or water.

Their homeworld Tibrin is located in the Mid Rim and is a world of shallow oceans dotted with developed coral reefs and sandbars that serve as Ishi Tib centers of commerce. Technology is carefully tested before it can be implemented on Tibrin to prevent pollution. Structures are often made of coral and other organic materials, and beasts perform many tasks usually performed by machines.

Notes:

CP:

Type	CP
Attribute Adjustment	+20

Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+28
Racial Disadvantages	-40
Racially Learned Skills and Racial Bonuses	+4
TOTAL	+12

Issori

Attribute Adjustment:

None

Secondary Characteristic Adjustment:

None

Origin:

Issor

Tech Level:

11

Racial Advantages:

Amphibious [+10pts]

Racial Disadvantages:

Reputation-1 (Rambunctious and Disreputable, Almost Everyone but Issorians, ⅔, Occasionally, x⅓) [-1pt]

Free Skills:

Language (Issorian, Native); Area Knowledge (Issor)

Racially Learned Skills and Racial Skill Bonuses:

Swimming at HT+1 [+2pts]

Features/Taboos:

None

Names:

Unknown

Description:

The Issori are tall, pale-skinned bipeds with webbed ands and feet; they are hairless except for their heads. The Issori face is covered with wrinkles, usually the result of loose skin, evolution, or old age. Some, however, serve a purpose, like the wrinkles between the eyes and mouth. These function as olfactory organs, equally effective in and out of water.

The Issori have dwelled on the scarce land of Issor for untold millennia. The early Issori cities were mostly primitive ports where each settlement could trade extensively with others. Eventually, the Issori discovered the aquatic Odenji, their cousin species. They were thrilled to find new beings to interact, trade, and dwell with them. The Issori gladly shared their (then) feudal-level technology with the Odenji, and soon the two species were living and working together in large numbers.

The Issori and Odenji made scientific progress like never before, and within a few centuries they found themselves with information-level technology. They immediately began a space program and a search for intelligent life. After many years, and after colonizing the other planets of the system (and establishing their dominance over the Humans of Trulalis), the Issori and Odenji received a response to their galactic search when a Corellian scout team came to visit the planet. Despite their surprise at finding other beings in the galaxy, the species joined the galactic community.

Several centuries ago, the Odenji entered a species-wide sadness known as the melanncho. The Issori tried to help the Odenji through this troubling period but were ultimately unsuccessful. As an unfortunate result of the melanncho, the Issori are far more widespread than their cousin species today.

The Issori are governed by a bicameral legislature consisting of the Tribe of Issori and the Tribe of Odenji. Members of both houses are elected by their respective species to serve for life, and their laws affect the entire system.

The Issori have merged their own space-level technological achievements with those brought to their planet by others. They have an active export market for their quality industrial products, and are always on the lookout for more. They import several billion computers and droids a year.

Many believe the Issori to be a rambunctious and disreputable group, but this is not true; there are Issori of every conceivable temperament. The myth has been perpetuated through the exploits of more famous Issori, many of whom are smugglers and pirates.

Notes:

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+10
Racial Disadvantages	-1
Racially Learned Skills and Racial Bonuses	+2
TOTAL	+11

Ithorian

Attribute Adjustment:

DX-1 [-20pts]; IQ+1 [+20pts]

Secondary Characteristic Adjustment:

None

Origin:

Ithor in the Ottega system or any herd ship

Tech Level:

11

Racial Advantages:

Affliction (Sound Attack, Jet, Sense-Based – Hearing, +150%, Symptoms – Stunning & Deafness, +20%, Costs Fatigue, -10%)

[+26pts]; Penetrating Voice [+1pt]; Reputation+2 (Pacifists, Almost Everyone, x1, All the time, x1) [+10pts]

Racial Disadvantages:

Pacifism (Self Defense) [-15pts]

Free Skills:

Language (Stereophonic Ithorese, Native); Area Knowledge (Ithor or any herd ship)

Racially Learned Skills and Racial Skill Bonuses:

Expert (Ecology) skill at IQ [+4pts]; Farming skill at IQ [+2pts]; Gardening at IQ+1 [+2pts]

Features/Taboos:

None

Names:

Examples names are Chandra Hobat, Deneb Both, Erd Lumas, Fandomar, Momaw Nadon, Oraltor, Phontos, Tendau Bendon, Thulls, Tol Ado, Tomla El, Whuvumm, Worlohp, and Umwaw Moolis.

Description:

Ithorians are tall humanoids whose distinctive appearance leads many other species to refer to them colloquially as "Hammerheads". Peaceful and gentle, Ithorians are widely recognized as talented artists, brilliant agricultural engineers, and skilled diplomats.

Ithorians are perhaps the greatest ecologists in the galaxy. They have a technologically advanced society but have devoted much of their effort to preserving the natural beauty of their homeworld's tropical jungles. They live in what they refer to as "herds", dwelling in floating cities that hover above the surface of their planet, where they continually strive to maintain the ecological balance in what they reverently refer to as "Mother Jungle".

Ithorians developed space travel early in their civilization. They travel through hyperspace in massive "herd ships", which are masterpieces of environmental engineering. Each ship carries within it a perfect replica of their native jungle. Ithorian herd ships are familiar sights from one end of the galaxy to the other. Many planetary populations look forward to trading for whatever exotic wares the Ithorians bring from distant planets.

Ithorians tend to be calm, peaceful, tranquil, and gentle.

Ithorians are humanoid, ranging in height from 6 feet to 7 feet 8 tall, with long necks that curl forward and end in dome-shaped heads. They have two mouths, one on each side of their neck, producing a stereo effect when they talk and can even be used an deafening attack.

Their homeworld Ithor is a jungle planet located in the Mid Rim. The Yuuzhan Vong ravage Ithor during the New Jedi Order era and render it uninhabitable.

Notes:

An Ithorian can be seen at the Mos Eisley cantina in Episode IV – A New Hope.

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+37
Racial Disadvantages	-15
Racially Learned Skills and Racial Bonuses	+8
TOTAL	+30

-J-

Jawa

Attribute Adjustment:

ST-2 [-20pts]; DX+1 [+20pts]

Secondary Characteristic Adjustment:

Will-1 [-5pts]; SM-2

Origin:

Tatooine

Tech Level:

10 Low TL-1 [-5pts]

Racial Advantages:

Night Vision [+1pt]

Racial Disadvantages:

Cowardice [-10pts]; Odious Racial Habits (Odor) [-5pts]; Reputation-1 (Thieves and Swindlers, Almost Everyone but Tusken, x⅔, All the time, x1) [-3pts]

Free Skills:

Language (Jawa, Native); Area Knowledge (Tatooine)

Racially Learned Skills and Racial Skill Bonuses:

Language (Jawa Trade Language, spoken Native) [+3pts]; Scrounging skill at Per+2 [+4pts]

Features/Taboos:

None

Names:

Jawas favor a given name followed by a clan name. A few examples are Aved Luun, Dathcha, Eet Ptaa, Jek Nkik, Ik'tal, Het Nkik, Hrar Kkak, Rkik Dnec, and Tteel Kkak.

Description:

Jawas are intelligent scavengers of short stature. Found in seemingly every dark nook and cranny of Tatooine, Jawas survive by scrounging for scrap, which forms the basis of their economy, and hiding from the planet's terrible predators.

Although not advanced technologically, Jawas have a gift for discovering unusual ways to make things work, at least for a little while. Through most people despise Jawas for their underhanded practices (and unpleasant odor), they also realize that Jawas occasionally lay their hands on priceless treasures.

Jawas prowl the deserts and rocky basins of their homeworld in enormous tracked vehicles called sandcrawlers. These vehicles also contain workshops and storage chambers cluttered with treasure or junk, depending on how one views scrap.

Jawas are opportunistic and cowardly. They have a well-deserved reputation as thieves and swindlers, although they would hardly consider these words insults. Jawas are proud of their ability to acquire what others obviously no longer need and sell things that require frequent maintenance and costly replacement parts.

Jawas stand 3 feet tall, on average. They wear dark-hooded robes that cover all but their glowing eyes. Xenobiologists speculate that Jawas evolved from cave-dwelling rodents and few other species that have dwelt with Jawas would disagree.

Notes:

Jawas can be seen in Episodes I, II, IV and VI.

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	-5
Tech Level	-5
Racial Advantages	+1
Racial Disadvantages	-23
Racially Learned Skills and Racial Bonuses	+7
TOTAL	-25

Jenet

Attribute Adjustment:

ST-1 [-10pts]; DX+1 [+20pts]; IQ+1 [+20pts]

Secondary Characteristic Adjustment:

Basic Move+1 [+5pts]

Origin:

Garban

Tech Level:

11

Racial Advantages:

Eidetic Memory [+5pts]; Night Vision [+1pt]

Racial Disadvantages:

Odious Racial Habit (Tactless) [-10pts]; Reaction-2 (Petulant & Insufferable, Almost Everyone, x1, All the time, x1) [-10pts]

Free Skills:

Language (Jenet, spoken Native); Area Knowledge (Garban)

Racially Learned Skills and Racial Skill Bonuses:

Climbing skill at DX+1 [+4pts]; and the Swimming skill at HT [+1pt]

Features/Taboos:

None

Names:

A Jenet's name is more than a simple moniker. The name is an official recounting of everything the Jenet has ever achieved, and two witnesses are required whenever it is used or "amended".

Description:

Jenets are quarrelsome scavengers who evolved from rodents. Thousands of years before the Battle of Yavin, Jenets eradicated all of their natural predators and quickly overpopulated their homeworld. They used their own hyperdrives to colonize the six other worlds in the Tau Sakar system and have since spread throughout the galaxy, building colonies on far-flung worlds whose isolation cooped with the species' alarming rate of reproduction has created vast, inbred populations. As Jenets prefer to dwell among their own kind, they have never fully integrated into the greater galactic society or sought to join the Republic.

During the Rebellion era, the Empire enslaved the Jenets and took advantage of the species' high reproduction rate, assigning them to dangerous tasks. The Empire went as far as to selectively breed the Jenets in an attempt to make them less intelligent and more compliant and pacifistic. The effects of Imperial experimentation continue to haunt the Jenets for generations afterward.

Jenet society is run like a corporation and has a hopelessly tangled and complex bureaucracy. The Jenets rely on their incredible memories to avoid the common bureaucratic pitfalls, which explain the society's lack of written records. They prefer to live in underground warrens and aren't fond of tall buildings.

Many species find Jenets petulant and insufferable. They are tactless, barely able to contain themselves when faced with ignorance or lies, and obsessed with trivial details. Jenet think nothing of berating someone they've never met for a distant acquaintance's transgression.

Jenets are 4 foot 9 tall humanoids with pale pink skin, beady red eyes, tufts of white fur, and stiff whiskers.

Garban is a temperate world in the Outer Rim's Tau Sakar system. The Jenet's primarily live in vast subterranean warrens deep below the planet's surface.

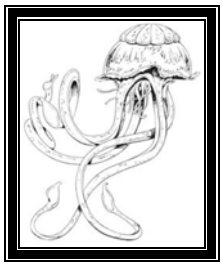
Notes:

CP:

Type	CP
Attribute Adjustment	+30
Secondary Characteristic Adjustment	+5
Tech Level	0
Racial Advantages	+6
Racial Disadvantages	-20
Racially Learned Skills and Racial Bonuses	+5
TOTAL	+26

-K-

Kalduu



Attribute Adjustment:

ST-2 [-12pts]; IQ+2 [+40pts]

Secondary Characteristic Adjustment:

SM-2

Origin:

Ropagi II

Tech Level:

0 – Low TL-11 [-55pts]

Racial Advantages:

Extended Lifespan 2 [+4pts]; Extra Arms+2 (Extra-Flexible, +50%, No Physical Attack, -50%) [+20pts]; Flight (Low Ceiling 10 foot, -20%) [+32pts]; Telecommunication (Telesend, Telepathic Brainwaves) [+30pts];

Racial Disadvantages:

No Fine Manipulators [-30pts]; No Legs (Arial) [0pts]; Dependency (Carbon dioxide, Very Common, Constantly, x5) [-25pts]

Free Skills:

Area Knowledge (Ropagi II)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Unknown

Description:

The Kalduu are native to Ropagi II. They have transparent, hemispherical bodies and four tentacles streaming from underneath. They float on air and often travel in groups of three, moving in complete silence. Kalduu eat airborne bacteria as well as germs and viruses from their hosts, and breathe in carbon dioxide and exhale oxygen. Lacking vocal chords, the Kalduu communicate by telepathy. Reproduction is done by fission. The average Kalduu lives for about 500 years.

Kalduu harness their mental powers by placing their tentacles on the temples and back of the neck of the recipient. They can then manifest their mental partner. They can also form a group of mind if two or more of the creatures are within 60 yards of one another. This benefit extends to their hosts as well. A group mind shares their thoughts in seconds, no words or gestures need be included.

The near human Ropagu and the Kalduu are longstanding friends, enjoying a symbiotic relationship in which the Ropagu gain the benefit of the Kalduu intellect and medical services, and the Kalduu consumes the harmful viruses in the Ropagu's bodies (this is done when they use their tentacles to physically contact others).

An average adult Kalduu is about 3 foot tall.

Notes:

Kalduu PCs are not recommended.

CP:

Type	CP
Attribute Adjustment	+28
Secondary Characteristic Adjustment	0
Tech Level	-55
Racial Advantages	+82
Racial Disadvantages	-55
Racially Learned Skills and Racial Bonuses	0
TOTAL	0

Kaminoan

Attribute Adjustment:

HT+1 [+10pts]

Secondary Characteristic Adjustment:

SM+1

Origin:

Kamino

Tech Level:

11

Racial Advantages:

Reputation+1 (Cloners, Large class of people - Traders, x½, Occasionally, x⅓) [+1pt]; Voice [+10pts]

Racial Disadvantages:

Dislikes (Physical Imperfection) [-1pt]; Skinny [-5pts];

Free Skills:

Language (Kaminoan, Native); Are Knowledge (Kamino)

Racially Learned Skills and Racial Skill Bonuses:

Survival (Open Ocean) skill at Per [+2pts]; one other Survival skill at Per-1 [+1pt]

Features/Taboos:

Long neck

Names:

Examples of names are Aya Lim, Lama Su, Maru Lan, Tau Shel, Taga Sai, Seva Ke, and Taun We.

Description:

Not all Kaminoans are clone technicians, but Kaminoans are known, among those who still remember them as cloners. Long ago, to better survive rising sea levels at the end of a planetary ice age, the Kaminoans used cloning technology to ensure the continuance of their species, weeding out physical weaknesses and enabling them to survive with less. Consequently, Kaminoans are somewhat hardier, but even genetic engineering has only taken them so far.

Kaminoans have no respect for weakness and tend to think of identifiable weak persons as beneath their notice. They do not bear

such individuals any animosity; to the Kaminoans, such people should simply be culled from the "herd", and they find it vaguely disturbing that other cannot seem to grasp this fact.

Although Kaminoans are all created from nearly identical genetic stock, there is still considerable variation. The cloning process does not create perfect adult duplicates, but rather children who fall into a given set of genetic parameters. These Kaminoan children then grow and develop along defined guidelines, but are still free to pursue any career that interests them, provided the Kaminoan community approves.

Kaminoans are outwardly polite, yet behind this lurks an intolerance of physical imperfection. They present an aspect of quiet curiosity and aloofness, but are generally pleasant and approachable. Their voices are as soft and soothing as their manner.

Kaminoans are slim, bipedal beings with pale skin and dark eyes. They stand 7 foot to 9 foot tall and are thin to the point of being gaunt. They have long graceful necks and slender fingers. Their mouths are somewhat smaller than those of Humans, but seem smaller yet because of their large eyes. Female Kaminoans are bald, while most males posses a small headcrest.

Kamino is a stormy ocean world located on the edge of Wild Space.

Notes:

Kaminoans can be seen in Episode II: Attack of the Clones.

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+11
Racial Disadvantages	-6
Racially Learned Skills and Racial Bonuses	+3
TOTAL	+18

Kel Dor

Attribute Adjustment:

DX+1 [+20pts]; IQ+1 [+20pts]; HT-1 [-10pts]

Secondary Characteristic Adjustment:

None

Origin:

Dorin

Tech Level:

11

Racial Advantages:

None

Racial Disadvantages:

Code of Honor (Gentlemen's, Minor) [-5pts]; Dependency (Dorin Atmosphere, Rare, Constantly, x5) [-150pts]

Free Skills:

Language (Kel Dor, Native); Area Knowledge (Dorin)

Racially Learned Skills and Racial Skill Bonuses:

Mechanic (Breath Masks and Goggles) at IQ [+4pts]

Features/Taboos:

None

Names:

Example names are Dom Tlo, Eorin Zal, Plo Koon, Roor Trevol, Torin Dol, Xol Kenyak, and Yem Nemnin.

Description:

The Kel Dor evolved on Dorin, a world with an atmosphere consisting mostly of helium and a gas that is unique to that world. Common atmospheres, such as those consisting mostly of oxygen, nitrogen, or carbon dioxide, are often deadly to Kel Dor; at their mildest, they cause severe irritation of the Kel Dor's eyes and air passages. Conversely, Dorin's atmosphere is toxic to most beings and plant life that isn't native to the planet.

Kel Dor who live under alien skies refurbish their dwellings with materials adapted from the species spacefaring technology, outfitting the structures with airlocks and large canisters of atmosphere from their homeworld that last anywhere from three cycles to a year.

When outside their dwellings on an alien world, Kel Dor must wear breath masks and protective eyewear. They can neither see nor breathe without these devices. Most Kel Dor breath masks include vocoders that amplify the wearer's speech; while their vocal cords function normally in their native atmosphere, Kel Dor must shout to produce sound in more typical environments.

The Kel Dor are kind-hearted and even-tempered, and the average Kel Dor never ignores or refuses another being in need. At the same time, Kel Dor believe in quick, simple justice and aren't averse to taking the law into their own hands.

Their skin ranges in color from peach to deep red. Most have black eyes; though a few are born with silver irises that some believe mark them as strong in the Force.

Notes:

Kel Dor can be seen in Episodes I to III.
Kel Dor PCs are not recommended.

CP:

Type	CP
Attribute Adjustment	+30
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	0
Racial Disadvantages	-155
Racially Learned Skills and Racial Bonuses	+4
TOTAL	-121

Kerestian

Attribute Adjustment:

ST+1 [+9pts]; DX+1 [+20pts]; IQ-1 (-20pts]

Secondary Characteristic Adjustment:

SM+1

Origin:

Kerest

Tech Level:

11

Racial Advantages:

None

Racial Disadvantages:

Bloodlust (After 1,000 BBY) [-10pts]

Free Skills:

Language (Kerestese, Native); Area Knowledge (Kerest)

Racially Learned Skills and Racial Skill Bonuses:

Kerestians get one land-based survival skill at Per [+2pts] and the Thrown Weapon (Darkstick) skill at DX-1 [+2pts]

Features/Taboos:

None

Names:

Examples of names are Anzella, Galasett, Meergolo, Milacass, Ossune, Sallabas, and Andov Syn.

Description:

Kerestians have a reputation across the galaxy as relentless hunters. The species developed atomic power and sublight drives but never perfected hyperdrive technology.

More than a millennium before the Battle of Yavin, the Kerestian sun entered an unusual cycle of activity that caused temperatures on Kerest, the Kerestian homeworld, to plummet. Only a thin ribbon of land near the planet's equator remained untouched by glaciers. Several groups of Kerestians evacuated the system in sublight vessels, searching for a new home. Those who remained reverted to barbarism and began hunting one another for food and sport. A few escaped the frigid wastelands of Kerest aboard the vessels of visiting explorers. During the Rebellion era, a few Kerestian hunters even found their way into the service of the Empire and the Rebel Alliance.

The Kerestians who fled their homeworld aboard sublight vessels entered suspended animation. Unable to enter hyperspace, many of these ships fell prey to the ship wide malfunctions and deep-space collisions, but at least one of these "lost" colonies of Kerestians has been found adrift and revived. Unlike their barbaric descendants, these Kerestians are civilized, highly disciplined, and articulate.

Kerestians from present-day Kerest are brutal, uncivilized beings who do whatever is required to survive. They live for the hunt and slay anyone who stands in their way. In sharp contrast, "lost" Kerestians are civilized and compassionate beings who are saddened by the near-destruction and regression of their society.

Kerestians are tall, broad-shouldered humanoids with pale skin, slit-pupilled eyes (usually emerald-green), and twin manes of long, thick hair. Other notable facial features include a series of air holes running along each cheekbone, a single nostril that joins with the mouth, and low featureless ear holes. Kerestians stand about 6 foot 11 tall.

Notes:

The template given here is assumed to be for the barbaric Kerestian. They are the ones who are likely venture away from their society. If you play a Kerestian of the "lost" colonies, just ignore the Bloodlust disadvantage.

CP:

Type	CP
Attribute Adjustment	+9
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	0
Racial Disadvantages	-10(0)
Racially Learned Skills and Racial Bonuses	+4
TOTAL	+3(+13)

Khil

Attribute Adjustment:

IQ-1 [-20pts]; HT-1 [-10pts]

Secondary Characteristic Adjustment:

None

Origin:

Belnar

Tech Level:

11

Racial Advantages:

Doesn't Breathe (Oxygen Combustion, Filter air through hullepi) [+10pts]; Voice (Only on Aliens, -30%) [+7pts]

Racial Disadvantages:

Attentative [-1pts]

Free Skills:

Language (Khilese, Native), Khil produce the language by breathing through hullepi of different lengths, and so far no other species has been able to reproduce it; Area Knowledge (Belnar)

Racially Learned Skills and Racial Skill Bonuses:

Musical Instrument skills at IQ-1 [+2pts]; Singing skill at HT+1 [+2pts]

Features/Taboos:

None

Names:

Examples of names are Geld Bernar, Greldo Farnor, Tarlo Ganar, and Revel Mallinor.

Description:

Members of the Old Republic for as long as anyone cares to remember, the Khil consider themselves true citizens of the galaxy. This technologically advanced species inhabits countless worlds, and their metropolitan cities attest to their willingness to live in harmony with other peaceful sentients.

Formerly staunch supporters of Palpatine's New Order, the Khil quickly changed their tune when the true nature and purpose of his regime became obvious. The Khil were subtle in their opposition, careful not to drawn attention to their behind-the-scenes support for of Rebel operations. The Khil hid Rebel operatives in their cities, smuggled weapons and supplies to Rebel troops aboard their ships, and planted false information about Rebel activities to misdirect Imperial investigators.

After the fall of the Empire, the Khil reasserted their interest in galactic peace by being among the first species to join the New Republic. Their willingness to make sacrifices and take high risks will undoubtedly be put to the test once more as the Yuuzhan Vong conquer more of the galaxy.

Khil are bright, dedicated workers who loathe unfinished tasks. They become quite frustrated when others impede their progress or waste their time. They respect the rights of other peace-loving species but can be devious and vindictive when crossed. They view music as one of the highest art forms, and many Khil achieve fame as musicians.

Khil are hairless humanoids with ghastly-colored skin and a mass of fleshy strands instead of a mouth, Khil vary in height from 4 feet to 7 feet tall. They filter air through their facial strands (called hullepi).

The Khil evolved on the Colonies world of Belnar, but they have spread throughout the galaxy. They prefer worlds with a mixture of dank, marshy climates and wide open spaces.

Notes:

CP:

Type	CP
Attribute Adjustment	-30
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+17
Racial Disadvantages	-1
Racially Learned Skills and Racial Bonuses	+4
TOTAL	-10

Khommite

Attribute Adjustment:

IQ+1 [+20pts]; HT+1 [+10pts]

Secondary Characteristic Adjustment:

None

Origin:

Khomm

Tech Level:

11

Racial Advantages:

None

Racial Disadvantages:

Social Stigma (Clone, Only on Aliens, -30%) [-4pts]

Free Skills:

Language (Basic, Native); Area Knowledge (Khomm)

Racially Learned Skills and Racial Skill Bonuses:

Khommites can have any skill useable in a profession up to 4 points.

Features/Taboos:

None

Names:

Khommites have a predefined name followed by a number. The number reflects the number of predecessors (e.g., Brell 142 had 142 predecessors, Brell and 141 clones of Brell). Examples are Brell 142, Dorsk 81, Edor 76, Kaell 116, Kiros 65, Rosk 102, Sestra 49, and Telsa 89.

Description:

Khommites are a species of clones created from a race that stopped developing over a thousand years ago. At that time, the Khommites believed that their civilization had reached its apex, and no further improvement was possible. Rather than risk the degeneration of their supposedly perfect culture, they decided to ensure nothing ever changed. Cloning eventually replaced live births entirely. Since the existing balance of professions was considered ideal, each clone would take over the duties of its predecessor.

Absolute conformity resulted. Cities were laid out on grids, and buildings were built in boxlike shapes. If something began to suffer the ravages of wear and tear, it was replaced with a perfect replica. Creativity and free thought became undesirable, and eventually foreign.

The highly organized way of life on Khomm changed when a Khommite named Dorsk 81 discovered he was capable of sensing the Force. When he left his world to study at Master Skywalker's academy, other Khommites considered him a borderline lunatic. They fully expected him to eventually return to his old duties, but Dorsk 81 had other plans. The Khommite homeworld was later attacked by a fleet of powerful Imperial ships and suffered massive destruction. After such a powerful blow to their carefully ordered society, many Khommites reconsidered the benefits of pure conformity without innovation. Since then, a few have left Khomm to follow the example of Dorsk 81.

Among Khommites, conformity is more important than creativity. Consequently, Khommites are usually intelligent yet narrow-minded; most of them are set in their ways and not very innovative or imaginative.

Khommites are a hairless species of near-Humans. Small ridges run across the top of a Khommite's head.

Their homeworld Khomm is a pale green planet in the Deep Core.

Notes:

Khommites PCs appear seldom. Force-users are so rare that the GM might forbid them to be played by players.

CP:

Type	CP
Attribute Adjustment	+30
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	0
Racial Disadvantages	-4
Racially Learned Skills and Racial Bonuses	+4
TOTAL	+30

Kian'thar

Attribute Adjustment:

DX-1 [-20pts]; IQ-1 [-20pts]; HT-1 [+10pts]

Secondary Characteristic Adjustment:

Will+1 [+5pts]

Origin:

Shaum Hii

Tech Level:

7 – Low TL-4 [-20pts]

Racial Advantages:

Amphibious [+10pts]; Damage Resistance 1 (Scaly Hides, Physical, -20%) (+4pts]; Doesn't Breathe (Gills, -50%) [+10pts]; Empathy [+15pts]; Talent (Animal Friend) [+5pts]; Nictitating Membrane [+1pt]

Racial Disadvantages:

Reputation–2 (People are wary of their Empathic ability, Almost Everyone, x1, Sometimes, x½) [-5pts]

Free Skills:

Language (Kian'thar, Native); Area Knowledge (Shaum Hii)

Racially Learned Skills and Racial Skill Bonuses:

Swimming skill at HT+3 [+8pts]; see Talent (Animal Friend) for more skills (BS page 90).

Features/Taboos:

None

Names:

Example names are Khral'Nas, Kreetáh, Lileag'Mak, Uiegis'Nevz, and Ttul'Thar.

Description:

The Kian'thar are reptilian humanoids who evolved inn the dark swamps of Shaum Hii. At some point in their evolution, they moved out of the swamps and onto the shores. Kian'thar use beasts for transportation and labor, commonly riding large flying creatures known as bentails. Most make their living breeding large aquatic herd animas called derlac.

Kian'thar congregate in small villages built over shallow water. Shistavanen explorers made first contact with the species three centuries before the Battle of Yavin. This encounter with offworlders split the Kian'thar into two factions: the Lith'lon (or Preservers) and the Lilun (or Progressives). The Lith'lon prefer not to deal with offworlders, while the Lilun seek to join the greater galactic community. Although they have different opinions concerning the future of the Kian'thar species, the two factions do not feud.

More than two million Kian'thar have left their homeworld since the species' first contact with the Shistavanens, seeking fortune among the stars.

Kian'thar are natural empaths who are prone to wanderlust and flights of fancy, the same qualities that spurred their ancestors to leave the marshes and assume a more nomadic lifestyle. Kian'thar are also hard workers, accustomed to few technological advances. Although they have mood swings, most Kian'thar prefer to resolve disputes peacefully rather than settle them through violence.

Kian'thar have large heads, deep-set glassy eyes, olfactory organs consisting of two dangling tendrils, and shifting keratin plates protecting their necks. Their bodies are covered with fine scales.

The homeworld Shaum Hii, located in the Outer Rim's Tragan Cluster, has vast bodies of water dotted with marshy swamplands. The Kian'thar live in small villages of modest buildings lashed together and suspended over the marshy shores.

Notes:

CP:

Type	CP
Attribute Adjustment	-30
Secondary Characteristic Adjustment	+5
Tech Level	-20
Racial Advantages	+45
Racial Disadvantages	-5
Racially Learned Skills and Racial Bonuses	+8
TOTAL	+3

Kitonak

Attribute Adjustment:

DX-1 [-20pts]; HT+1 [+10pts]

Secondary Characteristic Adjustment:

Will+1 [+5pts]; SM-1

Origin:

Kirdo III

Tech Level:

1 – Low TL-10 [-50pts]

Racial Advantages:

Damage Resistance 2 (Thick Leather Skin, -40%, Physical, -20%) (+4pts]; Doesn't Breathe (Oxygen Storage, 25 times as long as

usual) [+10pts]; Eidetic Memory [+5pts]; Fearlessness [+2pts]; Indomitable [+15pts]; Talent (Musical Ability) [+5pts];

Racial Disadvantages:

Decreased Time Rate [-100pts]; Overweight [-1pt]

Free Skills:

Language (Kitonese, spoken Native); Area Knowledge (Kirdo III)

Racially Learned Skills and Racial Skill Bonuses:

See Talent (Musical Ability) (BS, page 90) for more skills.

Features/Taboos:

None

Names:

Example of names are Anarin, Enkor, Gorlak, Nert, Norzek, Rufar, Runk, Snit, Terno, and Werg.

Description:

The Kitonak are simple, primitive beings who have developed no technology beyond the most basic tools and have no written language. On their homeworld, they are organized into small tribes that survive by hunting migrating herds of chooba.

The Kitonak society's most advanced achievement is music, which plays a central role in their culture. Young Kitonak are educated through epic songs that pass knowledge from generation to generation.

Kitonak who are encountered off their homeworld are usually freed slaves. When the species' homeworld was first discovered by scouts a few decades prior to the rise of the Empire, a number of enterprising slave traders thought the Kitonak's unique musical performances would make them interesting additions to the households of wealthy crime lords and shady senators. However, the unwillingness of the Kitonak to adhere to anyone's pace but their own (even in the face of threats of violence or death) led to their execution, abandonment, or release. Some masters attempted to recoup the purchase price of their useless slaves by making the Kitonak pay for their freedom. Most of these Kitonak found work as musicians, and the merging of galactic popular music and the music of Kitonak society led to the rise of several innovative music styles during the turbulent Rebellion era.

A number of Kitonak were recruited as spies for the Rebel Alliance during the Galactic Civil War. Their species are almost tailor-made for the job; they come from a tradition of oral histories, so they have sharp memories, they do not get bored just observing and waiting for something to happen, and most non-Kitonak have a hard time telling whether a Kitonak is awake or sleeping.

Kitonak are beings of exceptional patience. They do everything with slow deliberation, including breathing and eating. Every decision is weighed with great care, even if it's something as trivial as which one of two seemingly identical packages of dried rations to purchase. They are so methodical and slow moving that many other species become annoyed with them and attempt to rush them. When others try to rush them, Kitonak slow down even more out of protest.

Kitonak have a well-deserved reputation for being insanely brave, once they get around to confronting danger. They are steadfast in the face of any opposition. The only things they are truly afraid of are quicksand and caves, quicksand because it represents a slow and painful death for a Kitonak who only has to breathe every few hours and caves because Kitonak legends claim they are gateways to the Realm of the Dead.

Kitonak are humanoids with sturdy legs and thick arms that end in pudgy fingers. Their eyes, ears, mouth, and other bodily orifices are all nearly invisible within the folds of their tough, leathery hides. Kitonak possess an extra set of lungs that enable them to store oxygen for up to 4 hours. An adult Kitonak stands 3 feet 3 to 5 feet tall.

Their homeworld is Kirdo III, an arid planet in the Outer Rime. Winds whip sand clouds across the planet's surface at speeds that often exceed 275 miles per hour.

Notes:

Kitonak can be seen at Jabba's Pace in Episode VI – Return of the Jedi.

CP:

Type	CP
Attribute Adjustment	-10
Secondary Characteristic Adjustment	+5
Tech Level	-50
Racial Advantages	+41
Racial Disadvantages	-101
Racially Learned Skills and Racial Bonuses	0
TOTAL	-115

Klatooinian

Attribute Adjustment:

DX+1 [+20pts]; HT+1 [+10pts]; IQ-2 [-40pts]

Secondary Characteristic Adjustment:

Will+2 [+10pts]

Origin:

Klatooine

Tech Level:

11

Racial Advantages:

None

Racial Disadvantages:

Social Stigma (Subjugated, Hutts) [-20pts]; Code of Honor (Klatooinian Code, Patience, Strength, Respect for elders) [-10pts]

Free Skills:

Language (Huttese, Native), the original Klatooinian language exists only in ancient texts and is known to but a few Klatooinians; Area Knowledge (Klatooine)

Racially Learned Skills and Racial Skill Bonuses:

Beam Weapon (Blaster Pistol and Blaster Rifle) at DX+2 [+8pts]; Melee Weapon (Vibro-weapons of choice) for [+12pts]

Features/Taboos:

None

Names:

The Klatooinians favor a brief given name, which is sometimes followed by a title. Barada is a very common name for a Klatooinian male, in honor of the historical figure Barada M'Begg. A few examples of names include Barada, Bekure, Chokk, Drekk, Jarakar, Kuuvat, Massa, Rokar, and Sovara.

Description:

Klatooinians are tall humanoids who hail from a harsh desert world in an isolated corner of Hutt Space.

Traditionally, Klatooinians value stability and respect the wishes of those generations that went before them. This attitude has resulted in the Klatooinians serving the Hutts as willing slaves since before the rise of the Old Republic, due to an agreement made by their ancient forebears. However, as the New Order replaced the Republic and civil war broke out across the galaxy, the desire for change seized many young Klatooinians. More of them refused enslavement by the Hutts, and these malcontents eventually found their way into the ranks of either criminal organizations or the Rebel Alliance. Klatooinian revolutionaries also began to secretly study the ancient, forgotten Klatooinian language with the help of a few weathered, fragile texts that ha escaped destruction.

While the Klatooinians are aware of advanced technology and most are trained in the use of blaster weapons so they can effectively serve their Hutt masters as guards or combat troops, many of them prefer the simpler, low-tech lifestyle that is prevalent on their homeworld. It is far more common for a Klatooinian to wield a sword and slugthrower than with a vibro-blade and blaster.

Klatooinians are best known for their fierce determination and loyalty. Although not terribly bright, they make stalwart companions and are not easily offended or discouraged.

Klatooinians have coarse skin that ranges from olive green to dark brown. They have flat, vaguely canine muzzles and dark eyes set beneath pronounced browns.

Their homeworld Klatooine is a desert world located in the Outer Rim.

Notes:

Klatooinian mercenaries can be seen in Episode VI – Return of the Jedi.
The template given is for a Klatooinian during the 25,000 years of subjugation. After that period, disregard the disadvantage Social Stigma and replace all Beam Weapon skills with Slugthrower skills and Vibro-Weapon Skills with non-powered melee weapon skills.

CP:

Type	CP
Attribute Adjustment	-10
Secondary Characteristic Adjustment	+10
Tech Level	0
Racial Advantages	0
Racial Disadvantages	-30
Racially Learned Skills and Racial Bonuses	+20
TOTAL	-10

Koorivar

Attribute Adjustment:

IQ+1 [+20pts]; HT-1 [-10pts]

Secondary Characteristic Adjustment:

Will+1 [+5pts]

Origin:

Kooriva

Tech Level:

11

Racial Advantages:

Longevity [+2pts]; Talent (Business Acumen) [+10pts]; Rank (Merchant) [0pts]; Striker (Horn, Crushing, Cannot Parry, -40%, Limited Arc, -40%, Weak, -50%) [+1pts]; Wealth (Comfortable) [+10pts]

Racial Disadvantages:

Cowardice [-10pts]; Reputation-1 (Shady Arms Dealers, All Traders, x½, Occasionally, x⅓) [+1pt]

Free Skills:

Language (Koorivar, Native), combines whispers and soft sibilants with gentle hand gestures; Area Knowledge (Kooriva)

Racially Learned Skills and Racial Skill Bonuses:

Body Language skill at Per [+2pts]; see Talent (Business Acumen) (BS page 90) for details.

Features/Taboos:

None

Names:

Example names are Passel Argente, Shand Essil, Terrem Jesond, Denaria Kee, Menas Neyrr, and Easo Vantara.

Description:

Thousands of years before the Battle of Naboo, the Koorivar (who were at that time known by another name) migrated from their home system, with its unstable star, to the more habitable Kooriva system. After "leasing" the fifth planet in the system from the Republic for centuries, the species adopted the planet's name (Kooriva) and petitioned the Galactic Senate for sole proprietorship of the Kooriva system. The Senate rejected the proposition. The Koorivar became wandering merchants and eventually gained enough influence to reverse the Senate's decision.

Armed with keen mind for business, Koorivar merchants wandered from planet to planet, buying low in one system and selling high in another. Unlike many other species, they boldly traveled to the farthest corners of the galaxy in pursuit of lucrative business opportunities. Many influential Koorivar became notorious arms dealers, selling weapons to opposing sides of various planetary conflicts. Despite efforts to conceal their involvement, the Koorivar's willingness to sell weapons to anyone stained their reputation as legitimate merchants. When the Koorivar government stepped in to protect their more unscrupulous merchants from the Republic investigators, the Senate enforced economic sanctions against the Kooriva system. Republic ships blockaded the Kooriva system, and the local government was forced to pay a hefty tax for every transport approaching or leaving Kooriva.

The Koorivar government eventually conceded to the Republic's trade laws and bureaucracy, allowing the Senate to lift the blockade and sanctions against Kooriva. The experience has taught gun-shy Koorivar merchants to either legitimize their business dealings or use extreme measures to hide their illegal trade enterprises.

Koorivar are astute, opportunistic, and cautious beings. They prefer not to put themselves in harm's way and always try to bargain or trick their way out of a though predicament before resorting to violence.

Their skin varies in hue from rich magenta and mauve to dark green and black, and their eyes are a sickly shade of yellow.

Banded ridges cover a Koorivar's forehead and extended down the bridge of the nose. A brightly colored, almost leaf-like spiraling horn rises from the top of a Koorivar's head.

Their homeworld Kooriva is a tropical Inner Rim world with vast oceans and sprawling rain forests.

Notes:

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	+5
Tech Level	0
Racial Advantages	+23
Racial Disadvantages	-11
Racially Learned Skills and Racial Bonuses	+2
TOTAL	+29

Krevaaki

Attribute Adjustment:

IQ+1 [+20pts]

Secondary Characteristic Adjustment:

Will+1 [+5pts]

Origin:

Krevas

Tech Level:

11

Racial Advantages:

Damage Resistance 2 (Shell, Torso only, -10%) [+9pts]; Extra Legs+4 [+10pts]; Flexibility [+5pts]; Longevity [+2pts]

Racial Disadvantages:

Appearance (Hideous) [-20pts]; Pacifism (Self-Defense Only) [-15pts]; Selfless [-5pts]

Free Skills:

Language (Kreva, Native); Area Knowledge (Krevas)

Racially Learned Skills and Racial Skill Bonuses:

Hidden Lore (Jedi Lore) skill at IQ-1 [+1pts]

Features/Taboos:

None

Names:

Examples of names are Chal-Vosa, Craasadi, Jol Kion-Tas, Visto Skaasad, and Vodo-Siosk Baas.

Description:

Krevaaki are an ancient spacefaring species that evolved from shallow-water crustaceans. In infancy and early childhood, they use all their tentacles for a multitude of tasks, such a crawling, climbing, and manipulating objects. By young adulthood, Krevaaki stand upright on six of their tentacles and use the other two as hands. Older Krevaaki learn to favor certain tentacles for certain tasks. An adult Krevaaki is unable to use its lower tentacles for little more than moving or grasping large object.

Other species' xenophobia has taken its toll on Krevaaki society, which prompts many spacefaring Krevaaki to cloak their tentacled lower bodies.

Krevaaki are wise, spiritual beings with a deep understanding of the Force. Through meditation, they learn to refocus their negative emotions and are rarely moved to anger or violence. They prefer to resolve conflicts peacefully, and without drawing too much attention to themselves. They seek wisdom through exploration and show little interest in money, glory, or personal power.

An adult Krevaaki has eight segmented tentacles, some with protrusions that work like opposable thumbs. The red protective shell that encases a Krevaaki's soft, supple body is segmented to permit maximum flexibility. Sprouting from the underside of the Krevaaki's head, below its glistening black eyes, are six green-black feelers with olfactory nodes. Krevaaki don't have noses, so they rely on their feelers to detect scents.

Their homeworld Krevas is a swampy world located in the Outer Rim.

Notes:

CP:

Type	CP
Attribute Adjustment	+20
Secondary Characteristic Adjustment	+5
Tech Level	0
Racial Advantages	+26
Racial Disadvantages	-40
Racially Learned Skills and Racial Bonuses	+1
TOTAL	+12

Krish

Attribute Adjustment:

ST+1 [+10pts]; IQ-1 [-20pts]

Secondary Characteristic Adjustment:

Will-1 [-5pts]; HP+1 [+2pts]

Origin:

Sanza

Tech Level:

11

Racial Advantages:

Fearlessness [+2pts]; Teeth [+1pt]

Racial Disadvantages:

Code of Honor (Challenge) [-1pts]; Likes (Games & Gambling) [-1pt]; On The Edge [-15pts]; Reputation-1 (Selfish Gamblers,

Almost Everyone, x1, Occasional, x⅓) [-1pt]; Sadism [-15pts]; Selfish [-5pts]

Free Skills:

Language (Krish, Native); Area Knowledge (Sanza)

Racially Learned Skills and Racial Skill Bonuses:

Games skill at IQ+3 [+8pts]

Features/Taboos:

None

Names:

Examples of names are Endelor Darvat, Gamgalon, Tyro Viveca, and Ligg Panat.

Description:

Krish love games. Their economy and culture are based on gaming, gambling, and rigorous sports. The higher the stakes are, the more intriguing the game is.

Krish unabashedly scour the galaxy in search of danger, excitement, and new distractions. They like to incite conflict, take risks, and gamble with the lives of others. Such pursuits have led many Krish to become pirates, gamblers, mercenaries, and bounty hunters.

The Krish evolved from mammalian jungle predators. Although they enjoy being part of the galactic community, the species has contributed precious little to its advancement. The Krish allow their preoccupation with various cultural pastimes to interfere with their work, and they allow self-interest to rule their lives. Krish officials are often corrupt, treating politics as any other game and a means to gain personal prestige and power.

Krish look for ways to focus their natural aggression. They love to play games and solve convoluted puzzles, and they watch just about every sport in the galaxy. Highly competitive, they prefer a challenge to "an easy kill" (a common Krish metaphor for any sort of mismatch). For instance, a Krish bounty hunter will give weak quarry every conceivable advantage to keep the hunt challenging.

Krish are cunning, fearless, unscrupulous, and easily goaded. They smile in the face of adversity and look down on weaker beings with dull amusement. Altruists, they are not.

Krish have muscular bodies, flat noses, stringy black hair, and wide mouths filled with rows of small, pointy teeth. Krish grin widely even when only mildly amused.

Their homeworld Sanza is a temperate Mid Rim world. Any habitable land that is not needed to grow food, manufacture necessary goods, or otherwise support the indigenous population plays host to arenas, race tracks, casinos, and other entertainment-driven enterprises.

Notes:

Krish PCs are not recommended.

CP:

Type	CP
Attribute Adjustment	-10
Secondary Characteristic Adjustment	-3
Tech Level	0
Racial Advantages	+3
Racial Disadvantages	-38
Racially Learned Skills and Racial Bonuses	+8
TOTAL	-40

Kubaz

Attribute Adjustment:

ST-1 [-10pts]; DX+1 [+20pts]; HT-1 [-10pts]

Secondary Characteristic Adjustment:

None

Origin:

Kubindi

Tech Level:

10 – Low TL-1 [-5pts]

Racial Advantages:

None

Racial Disadvantages:

Honesty [-10pts]; Intolerance (Sentient Insectoids) [-5pts]; Susceptible-1 (Red Wavelengths of Light, Very Common, Results in Blindness) [-4pts]

Free Skills:

Language (Kubazi, Native); Area Knowledge (Kubindi)

Racially Learned Skills and Racial Skill Bonuses:

Kubaz get one Current Affairs skill of choice at IQ+2 [+4pts]

Features/Taboos:

None

Names:

The Kubaz favor one given name followed by family name, depending on place of origin and upbringing. A few examples of names are Garindan, Lorindan, Shuzz, Tavvar Va'ran, Taratan, Thwim, Totolaya, and Zubindi Ebsuk.

Description:

The Kubaz are an intellectual species that places great importance on tact and decorum. Kubaz value art, music, and other forms of sophisticated entertainment, and they place great emphasis on traditions and the safekeeping of family. Off their homeworld, their love of decorum is often frustrated by the fact that they feed almost exclusively on insects. They do not recognize insectoids beings, including sentient insectoids, as anything but food sources.

Kubaz are rarely encountered away from their homeworld, since they have not developed interstellar travel and must rely on other species to transport them. The Republic discouraged the Kubaz from developing hyperdrive technology until they learned to recognize the rights of sentient insectoids. The Empire maintained this policy, but the Kubaz grew increasingly eager to extend their knowledge of the galaxy during the Rebellion era and committed greater resources toward developing or acquiring hyperdrive technology. Meanwhile, the Empire used its vast intelligence resources to thwart the Kubaz society's development efforts as part of its strategy to isolate alien species from Humans. Through propaganda, the Empire convinced the Kubaz that the Rebels were

sabotaging their scientific efforts, leading many Kubaz to regard the Empire as their friend and ally.

Kubaz are social beings who like to know everything that's happening around them. They are honest, forthright, persistent, and tenacious in their dealings with other species, sometimes to a fault. Due to their interest in art and information gathering, Kubaz occasionally become embroiled in shady operations such as art smuggling and spying. Like their mistreatment of insectoid beings, the Kubaz do not view such pursuits as unlawful or immoral.

The Kubaz have rough-textured green-black skin and bristly hair that grows from the top of their heads. Their eyes are very sensitive to red wavelengths of light; when away from their homeworld, they must wear protective lenses. The most striking feature of a Kubaz's face is its short prehensile trunk.

Their homeworld Kubindi is a planet in the Ku'Bakai system, located in the Outer Rim.

Notes:

A Kubaz can be seen in Episode IV – A New Hope were Garindan leads the Imperial Troops to docking 94 in Mos Eisley.

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	0
Tech Level	-5
Racial Advantages	0
Racial Disadvantages	-19
Racially Learned Skills and Racial Bonuses	+4
TOTAL	-20

Kushiban

Attribute Adjustment:

ST-4 [-40pts]; DX+2 [+40pts]

Secondary Characteristic Adjustment:

SM-3

Origin:

Kushibah

Tech Level:

1 – Low TL-10 [-50pts]

Racial Advantages:

Danger Sense [+15pts]; Fur (0pts]; Longevity [+2pts]; Peripheral Vision [+15pts]; Pitiable [+5pts]

Racial Disadvantages:

Easy To Read [-10pts]; Semi-Upright [-5pts]

Free Skills:

Language (Kushiban, Native); Area Knowledge (Kushibah)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

Tail

Names:

Examples of names are Asani, Cerlyk, Ikrit, Mabbik, Mirax, Pritsi, Sibble, Tieko, and Widdimur.

Description:

Kushiban are often mistaken for pets or vermin, when in fact they are an intelligent race with a complex, peaceful society.

Kushibans have little need for tools or technology on their homeworld, where they manage to live in almost complete harmony with their natural environment. Although preyed upon by large predators, Kushibans typically use fire to keep them at bay. As herbivores, they do not need tools for hunting or preparing food. As they eat most of their food uncooked, they have little use for cooking utensils or similar items. When Kushibans need shelter from the elements, simple caves or three hollows suffice. Consequently, Kushibans have little value to a spacefaring economy and little desire to leave their homeworld.

Kushibans have a unique method of expressing their feelings: Their normally white fur changes color with their emotional state. This "mood fur" can go completely black when the creature is in deep despair.

Kushibans are generous, gentle beings with a playful (usually wry) sense of humor. However, they can be vindictive and downright vicious when angered or betrayed. They have a low tolerance for bullies, simpletons, and misanthropes.

Kushibans are 2 feet long lagomorphic creatures with soft white fur, floppy ears, front paws that can be used as hands, small keen noses, and large, innocent-looking eyes. They can move as either quadrupeds or bipeds, though they must drop to all fours to charge or run.

Their homeworld Kushibah is a lush and unindustrialized planet in the Outer Rim.

Notes:

Kushiban PCs are not recommended.

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	0
Tech Level	-50
Racial Advantages	+37
Racial Disadvantages	-15
Racially Learned Skills and Racial Bonuses	0
TOTAL	-72

-L-

Lannik

Attribute Adjustment:
DX+1 [+20pts]

Secondary Characteristic Adjustment:
SM -1

Origin:
Lannik

Tech Level:
10 – Low TL-1 [-5pts]

Racial Advantages:
Fearlessness [+4pts]

Racial Disadvantages:
None

Free Skills:
Language (Lannik, Native); Area Knowledge (Lannik)

Racially Learned Skills and Racial Skill Bonuses:
None

Features/Taboos:
None

Names:
Examples of names are D'lassik Elipor, Even Piell, Finux Zug, Meeda Odd, Rçardo Soofle, and Tivec Nuin.

Description:
The Lannik are a race of short humanoids native to the planet Lannik. Despite their size, Lannik are fierce warriors with skills honed from a dangerous world full of natural predators and a long history of warfare. They are stronger and quicker than their size would suggest, making them dangerous combatants.

Lannik were just taking their first small steps into space when Duros and Human explorers discovered them. The Republic soon accepted the Lannik as members, resulting in a massive influx of new trade and technology into the Lannik culture. Various political factions on Lannik had different ideas about what comprised a reasonable trade for the new technologies and often argued bitterly over deals made by other groups of Lannik. This caused a serious social upheaval from which the Lannik never quite recovered. After several pirate organizations saw the divisive political situation as an ideal opportunity for making contacts, the Lannik homeworld harbored safe havens and black markets through which illegal goods could be sold. In an effort to counteract this social upheaval, many Core World governments tried to limit the amount of technology sold to the less advanced Lannik. Of course, this strengthened the impact of black market technology used by criminals and pirates to buy influence there.

Eventually, Corellian diplomats offered to draw up agreements with the Lannik planetary government to strengthen legitimate technological ties to the Core Worlds. Various pirate-supported Lannik terrorist factions did their best to prevent the agreement from going into effect. The most powerful of these organizations, The Red Iaro, caused problems for the Lannik High Court for years. After the Empire's anti-alien policies came into play, both legitimate and criminal organizations reduced the flow of technology to Lannik, relegating it to the position of a galactic backwater. Having never colonized other planets, the Lannik remained isolated. Since then, they have rarely been seen of their homeworld.

Though often hotheaded and temperamental, Lannik tend forward a fearlessness that enables them to think clearly at all times, even when faced with extremely dangerous situations.

Adult Lannik stand 3 feet 11 to 4 feet 3 tall and weigh between 70 and 90 pounds. Lannik coloration ranges from dark red and orange to purple and dark blue, with hair, eyes, and skin of similar hue. They have large, pointed ears capable of rotating to pick up distant or feint sounds. Because they have few facial expressions, Lannik often seem grim or angry to those unfamiliar with them.

Their homeworld Lannik is located in the Mid Rim.

Notes:
A Jedi Lannik can be seen in Episode I – The Phantom Menace.

CP:

Type	CP
Attribute Adjustment	+20
Secondary Characteristic Adjustment	0
Tech Level	-5
Racial Advantages	+4
Racial Disadvantages	0
Racially Learned Skills and Racial Bonuses	0
TOTAL	+19

Lepi

Attribute Adjustment:
ST-1 [-10pts]; DX+1 [+20pts]

Secondary Characteristic Adjustment:
None

Origin:
Coachelle Prime

Tech Level:
11

Racial Advantages:
Acute Senses (Acute Hearing+1) [+2pts]; Fur (0pts]

Racial Disadvantages:
Code of Honor (Family) [-5pts]; Gregarious [-10pts]

Free Skills:
Language (Lepese, Native); Area Knowledge (Coachelle Prime)

Racially Learned Skills and Racial Skill Bonuses:

Jumping skill at DX+4 [+12pts]

Features/Taboos:

None

Names:

Examples of names are Augdon, Gagen, Javilla, Jaxxon, Lupher, Maximont, Nevlin, Roonis, Saper, and Zylo.

Description:

The Lepi are an omnivorous humanoid species resembling anthropomorphic rabbis. They posses a heightened metabolism such that they are always in motion, giving some an air of fidgetiness.

Lepi developed and pursued stellar travel in response to overcrowding on their homeworld of Coachelle Prime, though the Coachelle system seems to have provided enough space for the species. They live in vast warrens beneath the surface of their homeworld and have colonized all the planets of their system, including much of the asteroid belt.

The Lepi enjoy a high reproductive rate. A mother Lepi will have up to three dozen offspring in her life span, and the Lepi mature sexually at the age of 10 standard years.

Lepi are proud and closely tied to their large families. They are quick-witted, gregarious, and often quite humorous, but they anger easily and do not abide insults to their families or to their species.

Lepi are bipedal lagomorphs with large incisors, long ears, lanky frames, and big feet. Lepi are covered in short fur that varies in color from green to dark blue.

Their homeworld Coachelle Prime is located in the Mid Rim system of Coachelle.

Notes:

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+2
Racial Disadvantages	-15
Racially Learned Skills and Racial Bonuses	+12
TOTAL	+9

-M-

Meerian

Attribute Adjustment:

DX-1 [-20pts]; HT+1 [+10pts]

Secondary Characteristic Adjustment:

SM-1

Origin:

Bandomeer

Tech Level:

10 Low TL-1 [-5pts]

Racial Advantages:

Filter Lungs [+5pts]

Racial Disadvantages:

None

Free Skills:

Language (Meerian, Native); Area Knowledge (Bandomeer)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Examples of names are GanFel, GilVog, HerZan, JegLor, LirTan, RonTha, SonTag, VeerTa, And WinLos.

Description:

Meerians are small, wiry humanoids who move in a slow, deliberate manner. Their short stature and relative strength make them excellent miners. When Republic survey teams learned that the Meerians' homeworld, Bandomeer, was rich with minerals, their discovery prompted hundreds of mining companies to begin pillaging the planet's resources. The Meerians, primitive by galactic standards, had little sway with the Republic and their mining consortiums. Despite the Republic Senate's recognition of the Meerians as the rightful owners of Bandomeer, the Meerians have earned nothing more than the right to help with the strip-mining and share the profits. Meerians continue to have little say in what happens to their world.

Hundreds of generations of mining on Bandomeer have forced the Meerians to adapt to the constant smog and particulate matter permeating the atmosphere. Their lungs and nose filter out the most harmful chemicals and toxins, allowing them to move around in areas where breath masks are normally required. Despite their resilience, Meerians want nothing more than to make Bandomeer a more hospitable home. They want to reduce the amount of mining and repair the damaged ecosphere, but to date their efforts have met with little success.

Meerians prefers to speak eye-to-eye and use comfortable seats with repulsorlifts when conversing with taller species. They believe that speaking eye-to-eye is one way to insure that all participants in a conversation regard one another as equals.

Meerians are agreeable, optimistic, and sympathetic to the needs of others. They can see and appreciate opposing sides of an argument, which often makes it hard for Meerians to reach a decision or consensus without much debate or equivocation.

The apathy of the mining corporations has introduced an "Every Meerian for himself" mentality into Meerian society, an attitude unknown to previous generations. Several Meerians who have embraced this philosophy have taken their earnings and left Bandomeer, setting their sights on the stars.

Meerians have metallic hair, with pale silver and lustrous gold being the most prominent colors. Meerians lack pupils, and their eyes also retain a metallic hue, often matching the color of their hair. Skin tone is pale, due to the lack of sunlight that makes it through the polluted sky of Bandomeer. Adult Meerians stand 3.9 to 5.3 feet tall.

Notes:

CP:

Type	CP
Attribute Adjustment	-10
Secondary Characteristic Adjustment	0
Tech Level	-5
Racial Advantages	+5
Racial Disadvantages	0
Racially Learned Skills and Racial Bonuses	0
TOTAL	-10

Menahuun

Attribute Adjustment:

ST-1 [-10pts]; DX+1 [+20pts]; HT-1 [-10pts]

Secondary Characteristic Adjustment:

Will+1 [+5pts]; SM-1

Origin:

Lamaredd

Tech Level:

3 – Low TL-8 [-40pts]

Racial Advantages:

Acute Senses (Acute Vision+1) [+2pts]; Fur [0pts]; Long Arms (SM+1) [0pts]

Racial Disadvantages:

Bowlegged [0pts]; Code of Honor (Settle Conflicts by Force) [-5pts]; No Sense of Smell [-1pt]

Free Skills:

Language (Menahu, Native); Area Knowledge (Lamaredd)

Racially Learned Skills and Racial Skill Bonuses:

Climbing skill at DX [+2pts]; Running skill at HT [+2pts]

Features/Taboos:

None

Names:

Examples of names are Chylla, Eeytch, Henecho, Keychu, Suka, Teetch, T'kol, and Uucheyek.

Description:

Long thought extinct by Republic xenoscientists, the native sentient species on Lamaredd (which they call "Great Menahua") is very much alive. After five centuries in exile, these once-peaceful beings have evolved into a competitive tribal society.

Thr Menahuun sense of smell is poor, so vision is important to survival. Their physical morphology is most accurately described as "lemuroid", with long arms that nearly reach the ground when they stand upright. Males and females show typical mammalian sexual dimorphism, although both genders rarely wear more than a simple loincloth. Most also carry leather pouches filled with rations, tools, and a simple knife.

The Menahuun were discovered when a rough settlement was created from hold of a crashed starship on the planet Lamaredd. This settlement called Bartyn's Landing, grew and prospered, but it came into conflict with the Menahuun due to the colony's brutal suppression of the natives. Menahuun who were not hunted and killed for sport retreated into the wilderness. The Menahuun hid for several decades, stealing weapons and other bits of technology, waiting for their chance to take back their ancestral home.

Menahuun are brave and cunning, capable of setting complex traps. They regard other sentient species visiting Lamaredd as unwanted trespassers and have taken a liking to resolve conflicts by force, either through duels or all-out war.

The typical Menahuun stands 4 feet tall on wire legs made for running and climbing. Like many arboreal mammals, the Menahuun have feet with opposable digits. Large black eyes give the Menahuun keen vision. Menahuun are covered with short, wiry fur ranging in color from rust to olive green.

Their homeworld Lamaredd is a largely untamed world in the Lamaro system in the Outer Rim.

Notes:

CP:

Type	CP
Attribute Adjustment	
Secondary Characteristic Adjustment	
Tech Level	
Racial Advantages	
Racial Disadvantages	
Racially Learned Skills and Racial Bonuses	
TOTAL	

Meri

Attribute Adjustment:

ST+1 [+10pts]

Secondary Characteristic Adjustment:

Basic Move+1 [+5pts]

Origin:

Merisee

Tech Level:

11

Racial Advantages:

High Manual Dexterity+1 [+5pts]

Racial Disadvantages:

None

Free Skills:

Language (Merisian, Native)

Racially Learned Skills and Racial Skill Bonuses:

Meteorology/TL11 at IQ+1 [+4pts]

Features/Taboos:

None

Names:

Honn Dangel

Description:

The Meris are denizens of Merisee in the Elrood sector. A Meris is humanoid, with dark-blue skin, a pronounced eyebrow ridge and a conical ridge on the top of the head. The webbed hands have both an opposable thumb and end finger, giving them greater dexterity. Inward-spiraling cartilage leads to the ear canal and several thick folds of skin drape around the neck. Meris move with a fluid grace and have amazing coordination.

The Meris share their homeworld with another species called the Teltiors. Separated by vast and violent seas, the two species grew without any knowledge of the other, and when contact came, it resulted in a bloody conflict lasting hundreds of years.

While once a true race of warriors, the Meris have learned how to peacefully coexist with the Teltiors. Many Meris have applied their intelligence to farming and healing, but there are many others who have gone into varied fields, such as starship engineering, business, soldiering, and numerous other common occupations. Merisee is a major agricultural producer for the Elrood sector.

The Meris are a friendly people, but do not blindly trust those who haven't proven themselves worthy. Like most other species, Meris have a wide range of personalities and behaviors, some are extremely peaceful, while other are quick to anger and fight. The Meris are a hard-working people, many of them whom spend time in quiet contemplation playing mental exercise games like holochess.

Notes:

None

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	+5
Tech Level	0
Racial Advantages	+5
Racial Disadvantages	0
Racially Learned Skills and Racial Bonuses	+4
TOTAL	+24

Miraluka

Attribute Adjustment:

None

Secondary Characteristic Adjustment:

None

Origin:

Alpheridies

Tech Level:

11

Racial Advantages:

Force Perception [+15pts]; Force Sensitive [+5pts]; Injury Tolerance (No Eyes) [+5pts]

Racial Disadvantages:

Attentive [-1pt]; Selfless [-5pts]; Unnatural Features (Eyeless sockets [0pts]

Free Skills:

Language (Mirakulese, Native); Area Knowledge (Alpheridies)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

No eyes

Names:

Examples of names are Damaya Guru, Eloun Kooladi, Embrul Joff, Jerec, Shoaneb Culu, and Zebron Tadro.

Description:

To all outward appearances, Miraluka appear Human. Their speech could be of any region from Coruscant to the Outer Rim. Only one aspect distinguishes them from Humans: All Miraluka are born without eyes. Although they are not entirely concerned with appearing Human, they refer not to draw attention to themselves when traveling.

Millennia of evolution robbed the Miraluka of sight but granted them the ability to "see" through the Force. Rarely is an entire species sensitive to the ebb and flow of the Force, but Miraluka are clearly an exception.

The Miraluka species epitomizes the pure power of the Force. Not surprisingly, many Miraluka have been drawn to the teachings and traditions of the Jedi Order. Miraluka Jedi fought during the Sith War and helped to shape the Jedi Order in the years and centuries to follow. In the dying days of the Old Republic, the Jedi Order included not only Miraluka Jedi but also scores of Miraluka commoners with little or no formal training, most of them in administrative or teaching positions.

When the Empire arose from the ashes of the Old Republic, the Miraluka suffered tremendously. The Jedi Purge wiped out thousands of Miraluka and forced countless others into hiding. Some Miraluka were inspired to join the Rebel Alliance. A troubled few were pressed into service as pawns and spies for the Empire and either fell to the Dark Side or destroyed themselves.

By the time of The New Jedi Order, the Miraluka have only begun to rejoin galactic society, although the threat of the Yuuzhan Vong forces many to travel incognito.

Miraluka have no interest in personal gain or glory. They are thoughtful, pensive, and deliberate. Once they commit to a plan or course of action, they are rarely moved to change their mind.

In almost every aspect they look like Humans except they have nearly featureless eye sockets. They tend to cover their eyeless visages with decorative cloth.

Their homeworld Alpheridies is a planet in the Abron system, which lies on the spinward edge of the Expansion Region.

Notes:

Jerec in Dark Forces II – Jedi Knight, is a Miraluka.

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+25
Racial Disadvantages	-6
Racially Learned Skills and Racial Bonuses	0
TOTAL	+19

Mon Calamari

Attribute Adjustment:

DX-1 [-20pts]; IQ+1 [+20pts]

Secondary Characteristic Adjustment:

Will+1 [+5pts]

Origin:

Mon Calamari

Tech Level:

11

Racial Advantages:

Amphibious [+10pts]; Doesn't Breathe (Gills, -50%) [+10pts]; Nictitating Membrane [+1pt]; Peripheral Vision (Easy To Hit, -20%) [+12pts]; Pressure Support [+10pts]; Reputation+1 (Starship Designer, Almost Everyone, x1, All the time, x1) [+5pts]; Speak Underwater {+5pts]

Racial Disadvantages:

Dependency (Moist, Very Common, Daily, x3, Only in arid or non-moist environments, +30%) [-10pts]

Free Skills:

Language (Mon Calamarian, Native); Area Knowledge (Calamari)

Racially Learned Skills and Racial Skill Bonuses:

Engineer (Starships/TL11) skill at IQ-1 [+2pts]; Language (Quarrenese, Broken) [+2pts]

Features/Taboos:

None

Names:

Mon Calamari always favor one name (except for rare cases, where descendants of renowned explorers or travelers will take on a distinctive second name for honor and clarity). A few examples include Ackbar, Akanseh, Arboga, Bant, Basz Maliyu, Cilghal, Elphel, Ibtisam, Jesmin, Jhermiti, Kalbrac, Legassi, Odanni, Onoma, Oro, Perit, Ragab, Rekara, Rekush, Rutralli Optor, Sesfan, Shenir Rix, Tekba, Toklar, Tralphka, Tuz, and Zgorth'sth.

Description:

The Mon Calamari are land-dwellers who share their Outer Rim homeworld with the Quarren. They tend to be soft-spoken but vigorously defend causes that inspire them. Mon Calamari believe sentient beings should struggle to make order out of chaos, while attending to the greater good whenever possible.

Their ancestors have been explorers from the species' earliest recorded history. They always dreamed of traveling to the stars. When they finally achieved their dream, they were delighted to find they weren't alone in the galaxy. Delight turned to disappointment when the corrupt forces that gripped the Galactic Republic in its later years devastated their homeworld. Mon Calamari suffered under great oppression when the Empire was formed; thus, it was one of the first alien civilizations to declare support for the Rebel Alliance.

Mon Calamari are widely recognized for their keen analytical and organizational abilities. The Mon Calamari have developed a reputation as being among the foremost ship designers in the galaxy.

The Mon Calamari embody idealism and daring, often attaching themselves to causes that seem hopeless or lost right from the start. They are creative and inquisitive, concealing great spirit and enthusiasm behind a quiet, orderly exterior.

They smell of salt and the sea, with high-domed heads, large eyes, and smooth, mottled skin.

Their homeworld, Mon Calamari, is a watery, technological planet in the Outer Rim.

Notes:

Mon Calamari can be seen in Episode VI – Return of the Jedi on the Mon Calamari cruiser, Home One.

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	+5
Tech Level	0
Racial Advantages	+53
Racial Disadvantages	-10
Racially Learned Skills and Racial Bonuses	+4
TOTAL	+52

Morseerian

Attribute Adjustment:

None

Secondary Characteristic Adjustment:

None

Origin:

Morseeria

Tech Level:

11

Racial Advantages:

Extra Arms+2 [+20pts]

Racial Disadvantages:

Dependency (Methane-rich Atmosphere, Rare, Constantly, x5) [-150pts]; Secret (Morseerian Home System, Possible Death) [-30pts]

Free Skills:

Language (Morseerian, Native); Area Knowledge (Morseeria)

Racially Learned Skills and Racial Skill Bonuses:

Environment Suit/TL11 skill at DX [+2pts]

Features/Taboos:

None

Names:

Examples of names are Bargeth Relb, Flyrl Sacorbel, Myor Devker, Nabrun Leids, Nilek Rillion, and Shalthan Leeru.

Description:

A four-armed, two-legged species that can survive only in methane-rich atmospheres, the Morseerians are among the most secretive beings in the galaxy. Few non-Morseerians have seen one without an environmental suit.

Despite having lived on the fringes of galactic civilization for nearly twelve thousand years, the Morseerians have kept hidden the whereabouts and name of their homeworld, guarding this information with their lives. In fact, "Morseerian" might not be the true name of their species. The name is derived from one of their known colonies.

Morseerians are a rare sight, as they seldom travel farther Coreward than the Expansion Region. Those who do ply the space lanes do so in oval starships of their own design (ranging in size from shuttlecraft to bulk freighters manufactured by other species. Their craft do not support anything but methane atmospheres.

Morseerians pursue trade and tend to deal only with merchants they have had luck with in the past. Despite their retiring nature, Morseerians maintain excellent relations with Squib merchants and prefer dealing with them above all other species.

Aside from their trading expeditions, the Morseerians rarely interact with the galaxy at large. Although they supplied information on Imperial fleet movements and troop deployments to Rebel spies during the Galactic Civil War, it is acknowledged by all that they did so only because the Emperor's operatives had taken strides toward locating their home system. Rumors persist that Morseerian Force adepts exist, but there are no documented clashes or exchanges between Jedi and Morseerians, nor are there any records of Morseerians among the ranks of the Jedi.

Morseerians are quiet and secretive, communicating only with those who have something useful to offer them. Though peaceful, they respond swiftly to any threat, real or perceived.

Morseerians are four-armed humanoids with elongated, pickle-shaped heads. Their environmental suits conceal their translucent skin, through which one can vaguely discern pulsing veins and internal organs.

Morseerians have large, black, pupil less eyes, a tiny nose, and a narrow triangular mouth. Males and females stand between 4 feet 8 and 5 feet 4 tall, and both genders have builds reminiscent of baseline Human teenagers.

Their homeworld is unknown but is purported to lie somewhere in the Outer Rim. For gaming purposes the system is called Morseeria.

Notes:

Morseerian PCs are not recommended.

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+20
Racial Disadvantages	-180
Racially Learned Skills and Racial Bonuses	+2
TOTAL	-158

Mrlssi

Attribute Adjustment:

ST-2 [-20pts]; IQ+2 [+40pts]; HT-1 [-10pts]

Secondary Characteristic Adjustment:

Will+1 [+5pts]; SM-2

Origin:

The beautiful world of Mrlsst is located in the Colonies region.

Tech Level:

11

Racial Advantages:

Acute Senses (Acute Vision+8) [+16pts]; Claws (Sharp) [+5pts]; Gadgeteer [+25pts]

Racial Disadvantages:

No Sense of Humor (Only on other species, -30%) [-7pts]; Restricted Vision (Tunnel Vision) [-30pts]

Free Skills:

Language (Mrlsstese, Native), their high piping voices grate on some species, while other find them charming; Area Knowledge (Mrlsst)

Racially Learned Skills and Racial Skill Bonuses:

Mrlssi may choose any Repair and/or Engineer skill for a total of [+8pts]

Features/Taboos:

None

Names:

Examples of names are Crlisst Herssek, Kepor Dagwa, Krssibel Waray, Pagda Luwa, and Virssl Jasst.

Description:

When Old Republic scouts first surveyed the planet Mrlsst and established a peaceful contact with the Mrlssi over seven millennia ago, the species had not developed space travel. They took quickly t the advanced technology, however. Using ships and computers given to them by the Old Republic, they developed their own starship designs and computer technology. By the time the Old Republic gave way to the Empire, Mrlssi were widely regarded as some of the best starship designers and computer software engineers in the galaxy. They proved particularly adept at reverse-

engineering the products of other companies, finding flaws, and producing their own superior versions.

Knowledge is very important to the Mrlssi. They view physical possessions as transitory and fleeting, while knowledge is both permanent and empowering. Education is the hub of Mrlssi culture, and Mrlsst is home to some of the galaxy's most renowned universities and technical schools. Student of many different species attend the expensive universities taught by brilliant Mrlssi scholars.

Mrlssi are thoughtful, curious beings who enjoy friendly debates and fidgeting with gadgets. While Mrlssi consider themselves great humorists, their humor is very dry to other species. In fact, many non-Mrlssi have a difficult time telling whether a Mrlssi is joking or not.

Mrlssi are short, flightless, avian humanoids with blue to green skin, vestigial wings, and feathers. Young Mrlssi have brown or gray feathers, but as they age the plumage brightens and becomes more colorful. Large eyes give the Mrlssi extremely sharp vision, and their three-fingered hands have sharp claws. Adult Mrlssi stand between 1 foot 6 and 4 feet 3 tall.

Notes:

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	+5
Tech Level	0
Racial Advantages	+46
Racial Disadvantages	-37
Racially Learned Skills and Racial Bonuses	+8
TOTAL	+32

Muun

Attribute Adjustment:

ST-1 [-9pts]; IQ+2 [+40pts]

Secondary Characteristic Adjustment:

SM+1

Origin:

Muunilinst

Tech Level:

11

Racial Advantages:

Lightning Calculator [+2pts]; Social Regard (Respected) [+5pts]; Talent (Business Acumen or Mathematical Ability) [+10pts]

Racial Disadvantages:

Cowardice (Careful) [-1pt]; Fearfulness [-2pts]; Greed [-15pts]; Homesick [-1pt]; Skinny [-5pts]

Free Skills:

Language (Muun, Native), it consists of two sounds, "eh" and "um", combined at varying pitches, frequencies, and orders to create a language similar to the Binary droid language. Written Muun is a mathematical language and simple shorthand for spoken Muun; Area Knowledge (Muunilinst)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Examples of names are Ta'hat Gar, San Hill, Marhu Koss, Emont O'ode, and Vedo Sillib.

Description:

Muunilinst, the Muun homeworld, has bee the financial center of the galaxy for millennia. When the galactic civilization realized a need for standard currency, the Muuns were a natural choice to spearhead its distribution and handling. Muunilinst is well defended and easily reached by Republic warships. The Muuns, for the most part, take their responsibility in stride.

After their joining with count Dooku and the Separatists and, the defeat against the Grand Army of the Republic, they were put of commission; resulting in a wide spread inflation of the Republic credit. Quickly after the inflation, the Imperials conceded that no species was better equipped to oversee the galactic economy, and they were unwilling to risk further inflation. Imperial administrators were tasked with monitoring the Muuns to ensure that Imperial credits would not find their way into Rebel Alliance coffers. Only when the New Republic had been founded, the monetary system and the InterGalactic Banking clan were fully reinstalled.

Muuns are generally greedy both in business and personal life. They rarely overextend themselves, preferring calculated risks over rash actions. They are extraordinarily adept at mathematics, able to calculate statistics, odds, and intricate formulas quickly and with little effort.

Muuns rarely roam the galaxy in search of trouble. When encountered away from Muunilinst, they are often on business of one kind or another and usually eager to return home. Young, adventurous Muuns (by Muun standards, at least) generally regret their decision to leave home immediately after their first failure. They quickly become homesick and put all their energy into finding a way back to Muunilinst.

The average Muun stands about 6 foot 2 tall and has an elongated, almost featureless head and rail-thin body.

The Muun homeworld Muunilinst, is a temperate Outer Rim planet. A series of orbital defense platforms protect the planet from attack. Muunilinst guards an undisclosed cache of precious metals (contained within secretly located vaults) used to back the Republic, Imperial, and New republic credit.

Notes:

Muun can be seen in Episode II – Attack of the Clones and in Episode II – Revenge of the Sith as the Banking Clan who have allies with Count Dooku and the Separatists.

CP:

Type	CP
Attribute Adjustment	+31
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+17
Racial Disadvantages	-24
Racially Learned Skills and Racial Bonuses	0
TOTAL	+24

Myneyrshi

Attribute Adjustment:
IQ-1 [-20pts]

Secondary Characteristic Adjustment:
None

Origin:
Wayland

Tech Level:
2 – Low TL-9 [-45pts]

Racial Advantages:
Damage Resistance 2 (Crystalline Skin, -40%, Can't wear armor, -40%, Hardened+2, +40%) [+6pts]; Extra Arms+2 [+20pts]

Racial Disadvantages:
Dislikes (Humans) [-1pt]; Phobia (Technophobia) [-15pts]

Free Skills:
Language (Myneyrsh, spoken Native); Area Knowledge (Wayland)

Racially Learned Skills and Racial Skill Bonuses:
None

Features/Taboos:
None

Names:
Example names are Chyresh, Eychani, Orychee, and Panaysha.

Description:
The Myneyrshi are four-armed natives of Wayland. Before the Empire conquered their world and turned it into a secret storehouse for the Emperor, the Myneyrshi were constantly at war with another of Wayland's sentient species, the Psadans. The Myneyrshi and Psadans joined forces to drive the Imperials from their world, but they failed. The Empire conquered the planet, enslaved its indigenous population, and put the Myneyrshi and their allies to work building an immense complex beneath Mount Tantiss. The Imperial occupation of Wayland ended soon after the Battle of Endor.

Most Myneyrshi view technology as an unwelcome reminder of their Imperil conquerors and prefer the use of simple weapons and tools. Although peace treaties with other indigenous species of Wayland persist for years after the Empire departure, Myneyrshi remain wary of their alien neighbors.

The Yuuzhan Vong conquer Wayland during The New Jedi Order era, and although thousands flee and escape with their lives, the primitive Myneyrshi refuse to leave and are either exterminated or driven deep into the jungles. With so few tribes remaining, the future of the species is uncertain.

Myneyrshi are obstinate beings, especially when dealing with Humans and other offworlders. Their experience with the Imperial occupation of Wayland and their enslavement has soured them toward Humans and technology. Myneyrshi consider anything technological in nature an "item of shame" and avoid even being near it when possible.

Myneyrshi have expressed no desire to leave their homeworld. Their isolation, their dislike for technology, and their unpleasant encounters with the Empire and Yuuzhan Vong discourage them from roaming the galaxy. Although the odds are remote, a Myneyrshi forcibly displaced from Wayland might find a life of adventure among the stars and learn to overcome his natural distrust of technology and more technologically advanced species.

Thin of build, Myneyrshi have two upper torsos (one atop the other), four arms, long pointy ears, and a short trunk instead of a nose. Their entire bodies are covered in a smooth layer of blue crystalline flesh.

Their homeworld Wayland is a remote and unremarkable jungle world in the Outer Rim.

Notes:

CP:

Type	CP
Attribute Adjustment	-20
Secondary Characteristic Adjustment	0
Tech Level	-45
Racial Advantages	+26
Racial Disadvantages	-16
Racially Learned Skills and Racial Bonuses	0
TOTAL	-55

-N-

Nagai

Attribute Adjustment:
DX+1 [+20pts]; HT-1 [-10pts]

Secondary Characteristic Adjustment:
None

Origin:
Nagi

Tech Level:
11

Racial Advantages:

Charisma [+5pts]; Combat Reflexes [+15pts]; Voice [+10pts]

Racial Disadvantages:

Code of Honor (Nagai) [-5pts]; Social Stigma (Subjugated, Tof) [-20pts]

Free Skills:

Language (Nagaian, Native); Area Knowledge (Nagi)

Racially Learned Skills and Racial Skill Bonuses:

The Nagai may learn any vibro-weapon skill for a total of [+2pts]

Features/Taboos:

None

Names:

Examples of names are Den Siva, Harmon Sho, Hol B'shaki, Krai H'voc, Lusubrin T'shkali, Mendo, Nir Kento, Ozrei, Rei, Sin Shai, Tai, and Taru.

Description:

The Nagai are mysterious, knife-wielding warriors with unshakable charisma and strict code of honor. Early encounters with the Nagai prompted other species to mistake them for galactic invaders. In time, it was revealed that the Nagai were not on a mission of conquest, but rather escape. They had declared war on the Tofs, a nigh-indomitable extragalactic species that had oppressed them. After centuries of bloodshed, it took an alliance with the New Republic and the Empire for the Nagai to defeat the Tofs and bring peace to the galaxy.

Two overriding factors determine the temperament of the Nagai: the demands of honor and fear of their "Old Enemy", the Tofs. The Nagai have few sympathies aside from familial ties. They have already braved the worst hardships under the Tofs, so they fear little else, nor do they let concern for others take precedence over their drive for personal freedom.

Nagai are intense, focused, and disciplined warriors. They are known to kill without hesitation if it suits them, particularly if honor demands it. If there is no honor in killing, or if their foe is weak, they take no pleasure from the victory.

Some Nagai display bizarre, some would say cruel, sense of humor borne from year of adversity. Even this is sometimes used as a weapon to throw an enemy off-balance long enough for the Nagai to strike.

Nagai are gaunt humanoids. Their straight black hair and pale white skin reinforce the image of the Nagai as handsome but emaciated specters. The Nagai are aware of the effect o their appearance has on other humanoids and exploit it, letting others see them as weak until the time is right to reveal their true skills. Naga clothing and hairstyles are diverse, revealing the species' penchant for individualistic expression.

Their homeworld, Nagi, is a world located in the Unknown Regions on the fringe of the galaxy. Few non-Nagai know its exact location.

Notes:

During the Tof oppression (from 296 BBY) both disadvantages apply. After the Tof oppression only the Code of Honor – Nagai applies. Before the Tof oppression none of the disadvantages listed here apply.

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+30
Racial Disadvantages	-25
Racially Learned Skills and Racial Bonuses	+2
TOTAL	+17

Nautolan

Attribute Adjustment:

IQ-1 [-20pts]; HT+1 [+10pts]

Secondary Characteristic Adjustment:

None

Origin:

Glee Anselm

Tech Level:

11

Racial Advantages:

Amphibious [+10pts]; Damage Resistance 1 (Rubbery hides, -40%) [+3pts]; Discriminatory Smell (Pheromones, Underwater only, -50%) [+7pts]; Empathy (Pheromones, Underwater only, -50%) [+7pts]; Night Vision [+1pt]; Speak Underwater [+5pts]

Racial Disadvantages:

None

Free Skills:

Language (Nautula, Native, underwater only); Area Knowledge (Glee Anselm)

Racially Learned Skills and Racial Skill Bonuses:

Language (Anselmian or Basic at Native) [+6pts]; the Swimming skill at HT+2 [+4pts]

Features/Taboos:

None

Names:

Examples of names are Garn, Hiskar Dorset, Kit Fisto, Ploss Niklos, Renko Losa, and Setel Yast.

Description:

Although amphibious, Nautolans feel more at home in the water than on the land. Their head tendrils, which serve as major sensory organs, barely function out of water. In water, Nautolans can sense odors through their tendrils. The average Nautolan can tell the emotional state of another being based entirely on the changes in pheromones. This acuity lends to the complexity of their language. Their ability to communicate is keyed to the perception of pheromonal signatures: without it, their spoken words lose a great deal of meaning.

Nautolans have coexisted relatively peacefully with their land-dwelling neighbors, the Anselmi, for several millennia. Conflicts between the species have usually been brief, though sometimes quite bloody. The Nautolans and the Anselmi fought brief wars over fishing rights, sub-aquatic development, and even waste disposal. Whenever space seems at a premium, Anselmi tend to encroach upon Nautolan territories. Being physically superior, Nautolans push back most incursions long enough for attrition to

render the problem moot. The Republic has stepped in multiple times to settle disputes, but it might be only a matter of time before the two native species of Glee Anselm conclude that they have irreconcilable differences.

Nautolans reflect the moods of those around them. When confronted by anger and violence, they respond in kind. When approached in a calm, civilized manner, they seem helpful and polite.

Nautolans are amphibious humanoids with mottled green skin and shark-like eyes. Instead of hair, a Nautolan sports a crown of long green tendrils. The Nautolan skeletal structure is reinforced with extra cartilage that makes the species exceptionally resilient.

Their homeworld Glee Anselm is a planet of vast swamps, lakes, and seas and is located in the Mid Rim.

Notes:

A Jedi Nautolan can be seen in Episodes I to III.

CP:

Type	CP
Attribute Adjustment	-10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+32
Racial Disadvantages	0
Racially Learned Skills and Racial Bonuses	+10
TOTAL	+32

Nazzar

Attribute Adjustment:

ST+1 [+9pts]; DX+1 [+20pts]

Secondary Characteristic Adjustment:

Will-1 [-5pts]; SM+1

Origin:

Nazzri

Tech Level:

11

Racial Advantages:

Fur [0pts]; Longevity [+2pts]

Racial Disadvantages:

Fanaticism (Teachings of Ulizra) [-15pts]; Phobia (Xenophobia) [-15pts]; Reputation-2 (Teachings of Ulizra, Almost Everyone but own race, x1, All the Time, x1) [-10pts]

Free Skills:

Language (Nazzar, Native); Area Knowledge (Nazzri)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Example names are Brryg Tallak, Drrn Rogar, Orri Toq, Srrn Kanas, and Vrrk Jikat.

Description:

The Nazzar are a bipedal species native to the planet Nazzri. Although Nazzar tend to be physically agile and powerful, the species has a long history of contemplation and philosophy. They also tend to be xenophobic, making them uncommon off their homeworld.

The Nazzri system was accepted into the Old Republic early in galactic history but had very little contact beyond maintaining a senatorial presence and sending official communications. The Nazzar government spread to cover three nearby systems, then gradually shifted from a pure monarchy to religious oligarchy. Throughout the last five era of play, the Nazzar government supports strict adherence to the tenets of the fourteen sect of Ulizra, their state religion. These tents include the concepts that outsiders are likely to taint Nazzar culture, that all philosophic systems in disagreement with Ulizra must be destroyed, and that a group is always of greater importance than an individual. These beliefs make it difficult for other species to open trade relations with the Nazzar, or even for the Nazzar to retain cordial relations with most other species. Although it I legal for outsiders to stay in the Nazzar systems, they generally find their welcome less than friendly.

Nazzar encountered off their homeworld generally fall into one of two categories: outcasts who have rejected the teachings of Ulizra and preachers who seek to bring their philosophical truths to new people. Nazzar outcasts find new organizations to follow, and many have become fanatical followers of fringe groups. Nazzar preachers find little acceptance for Ulizra outside their home systems and soon give up their missions. Very rarely, a citizen in good standing with the Nazzar religion might leave the planet on a bogeri, a kind of self-imposed exile taken to seek spiritual truth. The length of a bogeri depends on how long it takes the seeker to find the truth he lacked at home. Many Nazzar on these journeys discover the galaxy far too interesting a place to ever return home.

When Palpatine came to power, most Nazzar simply returned to their home systems and ignored the galaxy at large. This attitude persists into The New Jedi Order era. Nazzri has yet to accept invitations to become part of the New Republic. If the Yuuzhan Vong threat passes Nazzri, the Nazzar may well continue to ignore the events of the universe around them.

Nazzar are noble but distant beings. They are deeply spiritual and intolerant of beliefs that don't mesh with their own. Some Nazzar who leave their homeworld can overcome their natural prejudice and mild xenophobia by forming friendships with other species of the galaxy. These Nazzar make trusty and stalwart companions.

Nazzar stand over 6 feet 6 tall on average. Their dark skin is covered with thin fur ranging from light gray to dark blue. Their elongated heads have distinctly equine facial features.

Their homeworld, Nazzri, is a temperate and verdant world in the Mid Rim.

Notes:

CP:

Type	CP
Attribute Adjustment	+29
Secondary Characteristic Adjustment	+5
Tech Level	0
Racial Advantages	+2
Racial Disadvantages	-40
Racially Learned Skills and Racial Bonuses	
TOTAL	-4

Neimoidian

Attribute Adjustment:

ST-1 [-10pts]; IQ+1 [+20pts]

Secondary Characteristic Adjustment:

Will+1 [+5pts]

Origin:

Neimoidia

Tech Level:

11

Racial Advantages:

Fashion Sense [+5pts]; Higher Purpose (Acquire Wealth an Power) [+5pts]; Talent (Business Acumen+1) [+10pts]; Wealthy [+20pts]

Racial Disadvantages:

Cowardice [-10pts]; Fearfulness-1 [-2pts]; Greed [-15pts]; Reputation-1 (Shrewd and Deceitful, Almost Everyone but own race, x1, All the time, x1) [-5pts]; Skinny [-5pts]

Free Skills:

Language (Neimoidian, Native); Area Knowledge (Neimoidia); also see the advantage Talent (Business Acumen) for more skills (see BS page 90).

Racially Learned Skills and Racial Skill Bonuses:

Language (Pak Mak, Native, gesturer/nonverbal, -50%) [+3pts]; Language (Galactic Basic, Accented) [+4pts]

Features/Taboos:

None

Names:

Example names are Daultay Dofine, Hath Monchat, Jumel Arrant, Kund Ekorr, Lott Dod, Lufa Danak, Nute Gunray, Rune Haako, and Tey How.

Description:

The Neimoidians are the dominant sapient species in a handful of planetary systems within the same sector as their homeworld Neimoidia. The Neimoidia system itself is scarcely populated, since Neimoidians in general prefer to live offworld. Clothing represents status in Neimoidian society, which is why most Neimoidians traveling abroad favor long robes of rich fabrics with elaborated collars, hats, and cloaks.

Neimoidians have two primary motivations: to control their surroundings at all times and to acquire as much wealth and power as they can. The latter goal might seem a logical means of attaining the former, but to a Neimoidian, the pursuit of wealth and power is an end unto itself. Such traits gave rise to the Trade Federation, one of the most powerful and influential economic forces in the Galactic Republic. Not all Neimoidians serve the Trade Federation, but few independent Neimoidians get by without maintaining strong ties to the Trade Federation and its members.

Neimoidians constantly exploit weaknesses in others, friends and enemies alike. Extortion and manipulation are perfectly acceptable practices, particularly when directed at other species. Most Neimoidians take strides to hide their actions behind veils of legality or other "good faith efforts", if only to minimize personal liability and avoid embarrassment. Neimoidians loathe to be held accountable for the result of a failed scheme.

Neimoidians are greedy, crafty, and cowardly. They detest combat and prefer to let others fight for them. A Neimoidian's first recourse when cornered by danger is to bargain for his life. If that fails, the Neimoidian will usually plead for it.

Neimoidians are slight of build. Their skin ranges from mottled green to gray, and their vaguely reptilian faces are flat and elongated. They have red eyes, thick lips, and no noses.

Their homeworld, Neimoidia, is a small and humid world located in the Colonies Region.

Notes:

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	+5
Tech Level	0
Racial Advantages	+40
Racial Disadvantages	-37
Racially Learned Skills and Racial Bonuses	+7
TOTAL	+25

Neti

Attribute Adjustment:

DX-2 {-40pts]; IQ+1 [+20pts]; HT+1 {+10pts]

Secondary Characteristic Adjustment:

Will+1 [+5pts]; SM+2

Origin:

Ryyk or Myrkr

Tech Level:

11

Racial Advantages:

Damage Resistance 1 (Tough Skin, -40%, Physical, -20%) [+2pts]; Doesn't Breathe (Oxygen Absorption, -25%) [+15pts]; Doesn't Eat [+10pts]; Extended Lifespan+6 [+12pts]; Force Sensitive [+5pts]; Growth+2 [+20pts]; Reduced Consumption+3 [+6pts]; Shrinking+2 [+10pts]

Racial Disadvantages:

Dependency (Very Common, Daily, x3) [-15pts]

Free Skills:

Language (Neti, Native), the Neti language uses a combination of verbal and gesture elements, making it difficult to learn. Other

species cannot comprehend this language better than Broken; Area Knowledge (Ryyk or Myrkr)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Example of names are Frond Dra-Ioor, Od Bnar, Shal Koom, and Tuwan Urlu.

Description:

The Neti are a species of sentient plants first encountered on the planet Ryyk (some call them Ryyk because of this planet's name). Roughly 4,000 BBY, a supernova destroyed the planet. Neti are known to have survived the destruction of their homeworld and now await discovery in remote locations.

As plants, Neti survive through photosynthesis, though they also need some water. Neti are extremely long lived, with an average life span of several thousand years. A Neti reproduces by creating a few seeds, but this occurs only once every few centuries. Seeds often sit for over a thousand years before germinating.

Neti are also capable of changing their size at will. A skilled Neti can morph its shape to a roughly humanoid sized form, a squat quadrupedal shape, or a solid treelike mass anywhere from 6 feet to 30 feet tall. They are capable of maintaining these forms even when asleep or knocked unconscious.

Some scientists suggest that the planet Myrkr is the true homeworld of the Neti. Although Master Ood Bnar himself was native to Ryyk, it is also possible that the Neti moved from Myrkr to Ryyk at some point in the ancient past. Despite the best efforts of Jedi scholars, the galaxy at large might never determine the true origins of the Neti species.

Neti are deep thinkers and natural explorers, eager to unravel the secrets of the Force and the galaxy around them. They bond quickly with those who share similar interests.

Neti are sentient plants with tough gray skin similar to plant bark, thin branching arms, and thick body trunks. Neti foliage tends to be brown or black and grows on the upper parts of a Neti's body. Neti also sport a crown of black-green vegetable "fur" resembling hair. Root-like appendages serve as feet. When resting, an adult Neti generally appears as a 15 feet tall tree.

Their homeworld Ryyk is a planet in the Mid Rim. A supernova destroyed the world not long before the Sith War. Most Neti encountered since then hail from the planet Myrkr in the Inner Rim.

Notes:

Neti PCs are not recommended.

CP:

Type	CP
Attribute Adjustment	-10
Secondary Characteristic Adjustment	+5
Tech Level	0
Racial Advantages	+80
Racial Disadvantages	-15
Racially Learned Skills and Racial Bonuses	0
TOTAL	+90

Nikto

Origin:

Kintan

Tech Level:

11

Features/Taboos:

None

Description:

The Nikto evolved on Kintan, a harsh planet located deep within Hutt Space. Mutations triggered by the planet's radioactive atmosphere have bred five different (but genetically compatible) Nikto subspecies, each one adapted to a specific environmental niche.

Nikto have a limited range of facial expression simply because they lack the musculature. Their "stating" eyes and seemingly blank expression often lead others to underestimate Nikto intelligence. Life on Kintan and the casual brutality of their Hutt overlords have made the Nikto cunning combatants.

The Nikto have never developed hyperdrive technology but are found throughout the galaxy as slaves of the Hutts. For the most part, Nikto are content with a life of servitude, preferring slavery to a life of toil and hardship on their homeworld. When two Nikto of different subspecies interbreed (a frequent occurrence since the Hutts enslaved the species), the children adopt the species traits of either parent.

Nikto lack charisma and would rather follow orders than give them. What they lack in free will they make up for in single-mindedness and tenacity. They also adapt quickly to their environment.

All Nikto are reptilian humanoids with leathery skin, sometimes covered in spikes or horns. All five subspecies have deep black eyes, sometimes covered with protective membranes.

Their homeworld Kintan is a radioactive planet located in the Outer Rim.

Racial Advantages:

Damage Resistance 2 (Tough Skin, -40%, Physical, -20%) [+4pts]; Single-Minded [+5pts]

Racial Disadvantages:

Social Stigma (Subjugated) [-20pts]

Free Skills:

Language (Nikto, Native); Area Knowledge (Kintan or any Hutt occupied world)

Racially Learned Skills and Racial Skill Bonuses:

Language (Huttese, Native) [+6pts]

Names:

Example names are Calliose, D'we'mouk, Ga'p'tashi, Giran, Ma'w'wshiye, Nour'we'sha, Nysad, Po'me'nuk, Tu'rse'yulr, Vedain, Vizam, Way'w'nok, and Wumdi.

Esral'sa'Nikto (Mountain Nikto)

The blue-gray mountain Nikto have nose flaps through which they filter grit, dust, or dangerous fumes. Fins protrude from their cheeks and serve as their primary hearing organs. These fins also aid in temperature control, cooling the Nikto in summer and flattening against the head to warm the Nikto in winter. Symmetrical neck cavities serve a similar purpose. The claws of a mountain Nikto are short and blunt, more suited to climbing rocks than trees.

Attribute Adjustment:

ST+1 [+10pts]

Secondary Characteristic Adjustment:

Will-1 [-5pts]

Racial Advantages:

Claws (Blunt) [+3pts]; Filter Lungs [+5pts]

Racial Disadvantages:

None

Racially Learned Skills and Racial Skill Bonuses:

Climbing at DX [+2pts]; Survival (Mountain) at Per [+2pts]

CP: Esral'sa'Nikto

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	-5
Tech Level	0
Racial Advantages	+17
Racial Disadvantages	-20
Racially Learned Skills and Racial Bonuses	+10
TOTAL	+12

Gluss'sa'Nikto (Pale Nikto)

The pale Nikto range in color from white to gray, which helps them survive on the bleached, rocky shores of the Gluss'elts Archipelago on Kintan. The pale Nikto have a ridge of small horns surrounding the eyes, as well as small fins similar to the large fins of the mountain Nikto. Pale Nikto make excellent sailors.

Attribute Adjustment:

ST+1 [+10pts]; IQ-1 [-20pts]; +1 HT [+10pts]

Secondary Characteristic Adjustment:

Will-1 [-5pts]

Racial Advantages:

Breath-Holding+1 [+2pts]

Racial Disadvantages:

None

Racially Learned Skills and Racial Skill Bonuses:

Survival (Island/Beach) at Per [+2pts]

CP: Gluss'sa'Nikto

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	-5
Tech Level	0
Racial Advantages	+11
Racial Disadvantages	-20
Racially Learned Skills and Racial Bonuses	+8
TOTAL	-6

Kadas'sa'Nikto (Green Nikto)

The Kadas'sa'Nikto are more commonly called green Nikto. They have scaly green hides, prominent brow ridges, and small horns surrounding the eyes. They lack the nose flaps present in other races, evolving in the trees of Kintan's dangerous forests alleviated the need to filter dust, while increasing the importance of the olfactory sense for hunting and survival. The green Nikto have visible, sensitive noses and claws suited for tree climbing.

Attribute Adjustment:

ST+1 [+10pts]; IQ-1 [-20pts]

Secondary Characteristic Adjustment:

None

Racial Advantages:

Acute Hearing+2 [+4pts]; Acute Taste and Smell (Smell+2) [+4pts]; Claws (Sharp) [+5pts]

Racial Disadvantages:

None

Racially Learned Skills and Racial Skill Bonuses:

Climbing at DX [+2pts]; Survival (Woodland) at Per [+2pts]

CP: Kadas'sa'Nikto

Type	CP
Attribute Adjustment	-10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+22
Racial Disadvantages	-20
Racially Learned Skills and Racial Bonuses	+10
TOTAL	+2

Kajain'sa'Nikto (Red Nikto)

The red Nikto are the most common Nikto subspecies. They have crimson skin and are at home in scorching desserts. Small horns jut from their brow and chin, while their nasal passages are protected by a thin permeable "nose flap" that keeps out dust and desert grit. They gain extra oxygen and conserve moisture with the breathing tubes on their cheeks. Red Nikto can survive for up to a week without water.

Attribute Adjustment:

IQ-1 [-20pts]; +1 HT [+10pts]

Secondary Characteristic Adjustment:

None

Racial Advantages:

Reduced Consumption 3 (water only, -50%) [+3pts]

Racial Disadvantages:

None

Racially Learned Skills and Racial Skill Bonuses:

Survival (Desert) at Per [+2pts]

CP: Kajain'sa'Nikto

Type	CP
Attribute Adjustment	-10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+12
Racial Disadvantages	-20
Racially Learned Skills and Racial Bonuses	+8
TOTAL	-10

M'shento'su'Nikto (Southern Nikto)

The southern Nikto have white, yellow, or orange skin. They lack the facial horns, ridges, and fins common to other Nikto subspecies. Instead, southern Nikto have evolved long, prominent breathing tubes on the back of their head. These tubes allow them to sense ultrasonic vibrations.

Force users are more common among the southern Nikto than any other Nikto subspecies.

Attribute Adjustment:

DX+1 [+20pts]; IQ-1 [-20pts]

Secondary Characteristic Adjustment:

None

Racial Advantages:

Acute Hearing+2 [+4pts]; Vibration Sense [+10pts]

Racial Disadvantages:

None

Racially Learned Skills and Racial Skill Bonuses:

Survival (Swamp & Jungle) at Per [+4pts]

CP: M'shento'su'Nikto

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+23
Racial Disadvantages	-20
Racially Learned Skills and Racial Bonuses	+10
TOTAL	+13

Nimbanel

Attribute Adjustment:

IQ+1 [+20pts]

Secondary Characteristic Adjustment:

Will-1 [-5pts]

Origin:

Nimban

Tech Level:

11

Racial Advantages:

Language Talent [+10pts]

Racial Disadvantages:

Reputation-1 (Bureaucrats, Almost Everyone but own race, x1, All the time, x1) [-5pts]; Social Stigma (Subjugated) [-20pts]; Proud (Intelligence, efficiency, and work ethics) [0pts]

Free Skills:

Language (Nimbanese, Native); Area Knowledge (Nimban)

Racially Learned Skills and Racial Skill Bonuses:

Language (Basic & Huttese, Native) [+8pts]; Administration at IQ+1 [+4pts]; Computer Operation/TL11 at IQ [+1pt]

Features/Taboos:

None

Names:

Examples of names are Alee Aroval, Beels Lebeleb, Gallo Memm, Lhojugg, Mosep Binneed, Nirbella Tanless, Pok Nar-Ten, Prenlarr Brelm, and Sarab Mullo.

Description:

Nimbanels (or Nimbanese) are a species of warm-blooded humanoid reptiles known for their adoration of complex mathematics and intricate bureaucracies. They use figures to willfully convolute and obscure meaning. They prefer to resolve conflict by befuddling their opponents with official procedures, puzzling rules, and administrative blockades.

Nimbanels put their organizational talents to work serving major business concerns like the Hutt clans, Corporate Sector executives, and the Bureau of Ships and Services. Through the Hutts, any Nimbanels have secured prominent administrative positions in the galaxy and preserved their way of life.

Although most Nimbanels serve the Hutts as willing slaves, a few Nimbanels are free to make their own way n the galaxy, often after years of dedicated service to their masters. They build large networks of business contacts and quickly earn reputations as fussy entrepreneurs obsessed with form and procedure, but they invariably get the job done in an efficient manner, even if they inconvenience others along the way.

Nimbanels take great pride in their intelligence, efficiency, and work ethics. Nimbanels naturally follow procedure and are not intimidated or discouraged by complex bureaucracies. They can be heartless, implacable, and mischievous, turning down even the most basic request if bureaucratic procedure isn't followed to the letter.

Nimbanels are reptilian humanoids with bald heads, pale skin, round dark eyes, and snouts framed by tufts of cheek hair.

Their homeworld Nimban is a planet in the Outer Rim.

Notes:

CP:

Type	CP
Attribute Adjustment	+20
Secondary Characteristic Adjustment	-5
Tech Level	0
Racial Advantages	+10
Racial Disadvantages	-25
Racially Learned Skills and Racial Bonuses	+13
TOTAL	+13

Noehon

Attribute Adjustment:

DX+1 [+20pts]; IQ-1 [-20pts]

Secondary Characteristic Adjustment:

SM-1

Origin:

Noe'ha'on

Tech Level:

11

Racial Advantages:

Ambidexterity [+5pts]; Extra Arms+2 [+20pts]

Racial Disadvantages:

Cannot Speak [-15pts]; Limited Linguist [-10pts]; Short Lifespan 1 [-10pts]

Free Skills:

Language (Noehonese, Native) (incorporates scent with mandible clicks and shrill sounds, spoken only); Area Knowledge (Noe'ha'on)

Racially Learned Skills and Racial Skill Bonuses:

Climbing at DX+1 [+4pts]

Features/Taboos:

None

Names:

Examples of names are Gi'kha, Hark'r, Ki'nakra, Ri'zat, Tir'uh, and Zak'r.

Description:

Noehons are diminutive arboreal insectoids prone to infighting. Instead of a unified government, they live in isolated communities called welds. A Noehon weld can have anywhere from a few hundred to up to 10,000 members. A dominant male Noehon rules the weld by driving off adolescent male Noehons when they "come of age" and trading superfluous adolescent females to other welds for valued goods, technology, or precious baubles. A few welds will steal another's adolescent females instead of trading for them, particularly if the weld is small, poorly defended, or otherwise vulnerable.

Visiting spacefaring merchants introduced blasters and vibro weapons to the industrialized Noehon culture, turning tribal rivalries into all-out "weld wars" that continue until one side is annihilated. Although the Noehons never developed space flight, their planet receives plenty of visitors who are more than happy to transport Noehons offworld for a "fair price", which has enabled the highly adaptive species to colonize other worlds across the galaxy.

When the dominant male of a weld grows too feeble to rule by force, a younger male rival kills him and usurps control of the weld. Most visitors know better than to stand between an ambitious Noehon and his "destiny".

Male and female Noehons raised in a weld are usually abusive and combative. They sheepishly placate their superiors and are unnecessarily cruel to their inferiors and underlings. Noehons raised outside a weld are more even-tempered and better equipped to function socially within the greater galactic community.

Noehons are fastidious and orderly beings. They use every resource at their disposal and never discard something that might be useful later.

Most Noehons encountered in galactic society are slaves, descendants of slaves, or slavers. They gravitate toward practices that reinforce a strict hierarchy, such as law, accounting, and organized crime. No Noehon to date has opted to learn (or possessed the aptitude to learn) the ways of the Jedi.

Noehons resemble bipedal insects with enormous multifaceted eyes, large mandibles, four arms, and a soft carapace covered in short bristles. The average Noehon stands about 3 feet 7 tall. Glands on either side of their mouths produce a musky secretion used to mark territory, possessions, and even subordinates. Every Noehon exudes a distinctive musk.

Their homeworld Noe'ha'on is a jungle world located in the Expansion Region

Notes:

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+25
Racial Disadvantages	-35
Racially Learned Skills and Racial Bonuses	+4
TOTAL	-6

Noghri

Attribute Adjustment:

DX+1 [+20pts]

Secondary Characteristic Adjustment:

SM-1

Origin:

Honoghr

Tech Level:

TL 3 – Low TL-8

Racial Advantages:

Claws (Sharp) [+5pts]; Combat Reflexes [+15pts]; Discriminatory Smell [+15pts]; Reputation+1 (Natural-born hunter, Criminals and Imperial Agents, x½, Occasionally, x⅓) [+1pts]; Teeth (Sharp) [+1pt]

Racial Disadvantages:

Code of Honor (Battle Honor) [-10pts]; Reputation (Aggressive, Almost Everyone, x1, Occasionally, x⅓) [-1pts]; Duty (Serve Lord Vader, either Extremely Hazardous, Quite often) [-15pts] and Social Stigma (Subjugated) [-20pts] or Vow (Protect Legacy of Vader, Great Vow) [-15pts] and Secret (Republic Agent, Imprisonment) [-20pts]; Sense of Duty (Clan, Small Group) [-5pts]; No Sense of Humor [-10pts]; Bowlegged [0pts]

Free Skills:

Language (Honoghran, Native) sometimes called Noghrese; Area Knowledge (Honoghr)

Racially Learned Skills and Racial Skill Bonuses:

Language (Basic, Native) [+6pts]; Brawling at DX [+1pt]; Farming TL3 at IQ-1 [+1pt]; Fast-Draw (Knife) at DX+2 [+4pts]; Holdout at IQ+1 [+4pts]; Melee Weapon (Knife) at DX+2 [+4pts]; Observation at Per [+2pts]; Stealth at DX [+2pts]; Tracking at Per+1 [+4pts]

Features/Taboos:

None

Names:

Examples of names are Cakhmain clan Eikh'mir, Ekhrikhor clan Bakh'tor, Khabarakh clan Kihm'bar, Ovkhevarn clan Bakh'tor, Ruhk clan Baikh'vair, and Sikhisakh clan Tlakh'sar.

Description:

The Noghri are a small, compact humanoid species native to the isolated Outer Rim planet of Honoghr. Natural-born hunters, they prefer to use primitive weapons, usually killing their victims up close.

The Noghri culture is built around clans (among them Kihm'bar, Bakh'tor, Eikh'mir, and Hakh'khar) with a long history of bloody rivalry. By the time of the Clone Wars, the clans had put aside their differences and learned to coexist, unaware of other intelligent species in the galaxy. A space battle in orbit over their world led a starship crash that contaminated the planet with toxic chemicals. The Noghri faced famine and extinction when a black-garbed visitor from the stars arrived: Darth Vader. He promised to save their dying homeworld; in return, the Noghri pledged to serve him.

The Noghri served Vader as his secret assassins for decades Five years after Vader's death, one of them recognized Leia Organa-Solo as Darth Vader's daughter. They turned from serving Grand Admiral Thrawn to serving "Lady Vader". Several clans of Noghri remain dedicated to the protection of Leia and her family well into The New Jedi Order era.

The Noghri rarely travel the galaxy alone. During the Galactic Civil War, they are always found in the company of Darth Vader's agents or (briefly) with the forces of Grand Admiral Thrawn. Later, they can be found in the company of New Republic agent, as well as the allies, friends, and relatives of Leia Organa-Solo.

Noghri are fierce, dedicated warriors who place the honor of their clans and the safety of their charges above all. For a relative primitive species, they are shrewd, quick to adapt, and mindful of customs and rituals. They do not grasp the concept of humor well and are not particularly sociable.

Noghri are small, compact humanoids. A typical Noghri has gray skin, beady black eyes set deep within bony sockets, claws, and fangs. Adult Noghri average 4 feet tall.

Notes:

CP:

Type	CP
Attribute Adjustment	+20
Secondary Characteristic Adjustment	0
Tech Level	-40
Racial Advantages	+37
Racial Disadvantages	-61
Racially Learned Skills and Racial Bonuses	+28
TOTAL	-16

Nosaurian

Attribute Adjustment:

DX+1 [+20pts]

Secondary Characteristic Adjustment:

SM-1

Origin:

New Plympto

Tech Level:

11

Racial Advantages:

Damage Resistance 1 (Tough Skin, -40%, Physical, -20%) [+2pts]; Striker (Horns, Piercing, Cannot Parry, -40%, Limited Arc – Front, -40%) [+1pt]

Racial Disadvantages:

Chummy (Gregarious, Except Humans, +10%) [-11pts]; Colorblindness [-10pts]; Cold-Blooded [-5pts]; Intolerance (Humans) [-5pts]; Odious Racial Habit (Braying) [-1pt]; Proud (Ancient Customs) [-1pt]

Free Skills:

Language (Nosaurian, Native); Area Knowledge (New Plympto)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Example Names are Fefar Blackeye, Clegg Holdfast, Churra Leafhorn, and Moco Minkfruit.

Description:

Nosaurians are a bipedal reptilian species known for their animosity toward Humans. The Empire's subjugation and repression of the Nosaurians contributed greatly to this hatred.

Although they've endured their share of hardship, Nosaurians are mindful and proud of their ancient customs; for example, when the sun dips below the horizon on New Plympto, they bray at the top of their lungs to "sing it down". Nosaurians who are indoors can sense when the sun is setting, and some Nosaurians even perform this strange ritual on other worlds, braying at inopportune times for reason most other species cannot phantom.

Nosaurians have black-and-white vision, a trait that is lately debilitating. They also have the curious ability to phosphorize the lining of their mouths, a trait that supports one theory that Nosaurians evolved from insect-eating reptiles that used such traits to attract small insects and other prey.

The New Republic helped New Plympto recover from the hard years under Imperial occupation, but it would not right the wrongs inflicted upon the Nosaurians by their Imperial overlords, nor could the New Republic defend the Nosaurians against Yuuzhan Vong invaders during The New Jedi Order era. When the Yuuzhan Vong assaulted New Plympto, they dealt horrible losses to the Nosaurians. Frustrated by Nosaurians reprisals, the Yuuzhan Vong later unleashed a life-consuming virus upon the world, rendering it uninhabitable and forcing the New Republic to impose a strict quarantine. Luckily, most Nosaurians managed to flee their homeworld before destruction.

Nosaurians are gregarious and even-tempered by nature. However, the perceived injustices inflicted upon the species by Humans in power have left most Nosaurians embittered and angry. The Yuuzhan Vong's merciless assault of New Plympto has

only increased the Nosaurians' descent into a kind of disgusted fatalism.

Nosaurians stand between 3 foot 11 and 4 foot 11 tall. They have four nimble fingers on each hand and posses three-toed, birdlike feet. They have thick skin ranging from light green to black. Their most striking feature is the ridge of horns sprouting from their foreheads like a savage headdress. The horns are sharp enough to gore opponents.

Their homeworld New Plympto is a temperate planet in the Core Worlds region.

Notes:

A Nosaurian can be seen at the podraces in Episode I.

CP:

Type	CP
Attribute Adjustment	+20
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+3
Racial Disadvantages	-22
Racially Learned Skills and Racial Bonuses	0
TOTAL	+1

Nuknog

Attribute Adjustment:

DX+1 [+20pts]; IQ-1 [-20pts]

Secondary Characteristic Adjustment:

Per+1 [+5pts]; Will-1 [-5pts]; SM-2

Origin:

Sump

Tech Level:

10 – Low TL-1 [-5pts]

Racial Advantages:

None

Racial Disadvantages:

Bad Temper [-10pts]; Berserk [-10pts]; Cold-Blooded [-5pts]; Intolerance (Other Species, Only after being freed) [-10pts]; Short Lifespan+1 (Only on Sump) [-10pts]; Slave Mentality (Only after 1,000 BBY) [-40 pts]; Social Stigma (Subjugated, Only between 1,000 BBY and being freed) [-20pts]; Wealth (Poor) [-15pts]

Free Skills:

Language (Nuknog, Native); Area Knowledge (Sump)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

Long neck

Names:

Examples of names are: Vek Bolko, Buhar Lod, Po Nulnik, Skoo Runkin, Ark Roose, and Noop Warko.

Description:

Nuknog are diminutive humanoids with small brains and short tempers. Nearly 1,000 BBY, Nuknog leaders "sold" their homeworld to a consortium of unscrupulous mining corporations in exchange for jobs, food, and modest accommodations.

The Nuknog worked in mines and processing factories, performing tasks deemed too dangerous for offworld personnel. They received no money for their work, ate leftovers, and slept in tight, prefabricated military barracks. Shoddy equipment and mining accidents claimed countless Nuknog lives, and all that time the Nuknog had no sense that the corporations were exploiting and mistreating them.

The Nuknog remained the unknowing slaves of one corporation or another for centuries as mining contracts changed hands. It wasn't until a pair of Jedi came to the planet in search of a wanted criminal that the mistreatment of the Nuknog caught the attention of the greater galactic community. The Republic Senate ordered the mining corporations to terminate all operations on the Nuknog homeworld and repay several centuries' worth of lost wages. The corporations dissolved amid the controversy, leaving the Nuknog with empty mines, empty factories, and empty stomachs. Sympathy for the Nuknog ran high. Republic relief workers delivered emergency food supplies to the starving Nuknog and offered to help rebuild the planet's devastated agricultural industry. Thinking that the Republic, like the mining corporations, might be manipulating them in some fashion, the Nuknog took the free food but blamed the Republic for depriving them of the only life they knew. Their leaders demanded that the Republic provide the Nuknog with food and supplies in perpetuity. When it became clear that the Nuknog were unwilling to help themselves, all sympathy for the species evaporated.

With the rise of the Separatists and the events leading up to the Clone Was, the Republic faced political turmoil on many fronts. The plight of the Nuknog no longer captured the interest of the Senate or the galaxy at large. The Nuknog now had another reason to resent the Republic.

The Nuknog change very little after the Clone Wars and the fall of the Old Republic. The average life expectancy of a Nuknog is nearly doubled if it makes its home offworld, a luxury few Nuknog can afford. That said, a few Nuknog have successfully bought passage on passing ships, usually by selling themselves into slavery.

Nuknog are short-tempered, petty, easily manipulated beings who rarely see the big picture. They resent most other beings in the galaxy and blame the most convenient scapegoat for their problems. The bravest Nuknog actually have the will and drive to rise above their meager lives, and they are rare indeed.

A Nuknog is a bipedal, reptilian humanoid with a long, skinny neck, bulbous snout, stocky legs, and a bumpy ridge along the centerline of the skull. The average Nuknog stand approximately 4 feet tall.

Their homeworld Sump is a humid, dilapidated Outer Rim world few care to visit. Pollution from offworld mining interests has contaminated the ecosystem, creating vast, toxic marshes incapable of sustaining life. Somehow, the Nuknog manage to survive, though barely.

Notes:

Nuknog PCs are not recommended.
A Nuknog can be seen at the podraces in Episode I.
Some Disadvantages do not always apply; resulting in a total of Disadvantages of either -40pts, -90pts, -100pts, or -120pts.

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	0
Tech Level	-5
Racial Advantages	0
Racial Disadvantages	-40
Racially Learned Skills and Racial Bonuses	0
TOTAL	-45

Odenji

Attribute Adjustment:

None

Secondary Characteristic Adjustment:

None

Origin:

Issor

Tech Level:

11

Racial Advantages:

Amphibious [+10pts]; Doesn't Breathe (Gills, -50%) {+10pts]; Nictitating Membrane+1 [+1pt]; Pitiable [+5pts]; Speak Underwater [+5pts]

Racial Disadvantages:

Chronic Depression [-15pts]; Dislikes (either land-dwelling Odenji or underwater Odenji) [-1pt]

Free Skills:

Language (Issorian, Native); Area Knowledge (Issor)

Racially Learned Skills and Racial Skill Bonuses:

Swimming at HT+2 [+4pts]

Features/Taboos:

None

Names:

Unknown

Description:

The Odenji of Issor are medium-sized bipeds with smooth, hairless heads, and large, webbed hands and feet. Odenji skin color ranges from dark brown to tan. Members of the species have gills on the sides of their necks so they can breath freely in and out of water. Where the Issori have olfactory wrinkles, the Odenji have four horizontal flaps of skin that serve the same purpose: facilitating the sense of smell.

The Odenji are a sad and pitiable species. After the melanncho, very few Odenji publicly express joy, pleasure or humor. This sadness manifests itself through the Odenji's apathetic attitude and unwillingness to assume positions of leadership.

The Odenji developed as a nomadic, underwater society that existed until the Odenji and Issori met for the first time. The Issori somehow persuaded the Odenji that life on the Issori surface was better than underwater, and the Odenji eventually relocated their entire culture to the land.

Forming a new Issori-Odenji government, the two species made rapid technological progress. Eventually, as the result of an Issori-Odenji experiment, Issor made contact with a space-faring culture, the Corellians. The Issorians gained access to considerably more advanced technology.

Several centuries ago, the Odenji entered into a period known as the melanncho. During this time, the amount of violent crime increased and depression among the species was at an all-time high. Eventually the period passed, but today many Odenji experience personal melanncho. Odenji do not intentionally try to be sad; most Odenji want very much to be happy and experience joy like members of other species. Unfortunately, they are unable to bring themselves to a happy emotional plateau.

No cause has been discovered for this strange, species-wide sadness, though several theories exist. Some scientists hypothesize that the melanncho was caused by a virus or strain of bacteria, one to which the Issori were immune. Imperial scientists, on the other hand, insist that the melanncho is simply a genetic dysfunction and that the Odenji would have eventually become extinct from it had they not had access to "human" medicine. A theory gaining much support among the Odenji themselves is that the melanncho, both species-wide and personal, is the result of the migration of the Odenji from their aquatic home to the land above. Many Odenji who believe this theory have created underwater communities, much to the dismay of their land dwelling brethren.

The Odenji have access to the space-level technology they developed with the Issori and offworlders. They allow the Issori to handle most of Issor's trade, but do help produce goods for sale. The groups of Odenji returning to the ocean shun this technology and have returned to the feudal devices used by their ancestors before leaving the oceans.

Notes:

Odenji PCs are not recommended.

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+31
Racial Disadvantages	-16
Racially Learned Skills and Racial Bonuses	+4
TOTAL	+19

Omwati

Attribute Adjustment:

ST-1 [-10pts]; IQ+1 [+20pts]

Secondary Characteristic Adjustment:

Will+1 [+5pts]

Origin:

Omwat

Tech Level:

9 – Low TL-2 (Before Imperial subjugation)[-10pts]
10 – Low TL-1 (During Imperial subjugation) [-5pts]
11 (After the Battle of Endor)

Racial Advantages:

Talent (Artificer+1) [+10pts]; Talent (Mathematical Ability+1) [+10pts]

Racial Disadvantages:

Skinny [-5pts]

Free Skills:

Language (Omwatese, Native); Area Knowledge (Omwat)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Examples of names are Giraal, Helix Lur, Orthan, Pillik, Xel Tanni, Qwi Xux, and Zalir.

Description:

The Omwati are a willowy humanoid species from the Outer Rim world of Omwat. They developed their own culture and technology, believing they were the only sentient beings in the galaxy. They unified early in their history under a single world government, thus managing to avoid the devastating wars that plague many worlds on the verge of becoming spacefaring societies. They enjoyed a nearly uninterrupted development of philosophy, arts, medicine, and mathematical theories. Their manufacturing, irrigation, mining, and construction methods are quite advanced, although their overall technology level lags far behind what's considered the galactic standard. Their unique honeycomb-like cities are spread across the planet, yet their environment remains almost as clean as that found on unsettled worlds. The Omwati managed to do what few species have accomplished, a balance between production needs of a technologically advanced society and sound stewardship of their world's resources.

The first Old Republic ship to visit Omwat was a Victory-class Star Destroyer commanded by future Grand Moff Wilhuff Tarkin. Omwati society, after some initial shock, welcomed the visitors. Tarkin and his team left technological, cultural, and historical data behind for the Omwati to study and departed with a promise of other ships to come. Tarkin did not inform the Omwati that their world must have been visited by ancient ships of the early Republic, since their kind did indeed exist elsewhere in the universe; in fact, a small community thrived on Coruscant.

More than a decade passed before Tarkin would return to Omwat. Always a forward-looking man, he had decided to keep the native society on Omwat a secret among himself and his fellow mission commanders, hoping some day that could be his personal think tank. When The Emperor gave Tarkin dominion over the Outer Rim Territories, the Grand Moff felt the time had come to exploit the Omwati.

While imperial diplomats kept the people of Omwat enthralled with tales of galactic society (never mentioning their cousins elsewhere in the galaxy). Tarkin supervised the construction of an orbital education facility. Once it was complete, the imperials revealed their true nature. The Omwati would conduct planetwide intelligence and aptitude tests and surrender those children who score the highest, they were told; resistance would result in the destruction of their cities from orbit. The Omwati reluctantly agreed. They surrendered hundreds of Omwati children, never hearing from them again.

When Tarkin and many of his closest associates were killed in the destruction of the Death Star, the orbital facility at Omwat was abandoned. In the meantime, the Omwati had been secretly developing craft capable of breaking free from the gravitational pull of their world and managed to reach the satellite. They did not recover the lost children, but they found technology that helped them greatly advance their first hyperdrive-capable vessel roughly ten years after the Battle of Endor. This development was spurred by the desire to find the children who had become lost among the stars. The Omwati did not want to believe the satellite's data that implied all but then were dead.

Omwati explorers were eventually contacted by New Republic diplomats, but only after these Omwati terrorized a number off small Outer Rim colonies and refueling posts, and another of the Empire's atrocities became fully documented. The offworld Omwati welcomed their "primitive" cousins with open arms.

Omwati are gracious, intelligent, and wise. They mind the lessons of the past when looking toward the future, and they demonstrate keen problem-solving skills. An Omwati values family above friendship and friendship above everything else.

Omwati skin features a bluish tint, and the most common eye colors are shades of blue. The colors of their gossamer hair range from copper to pearly white. Omwati have willowy, almost frail-looking physiques.

Their homeworld Omwat is an orange-green planet of savannas and mountains located in the Outer Rim

Notes:

Omwati PCs can be encountered any time when they originate from Coruscant. During the Imperial era, Omwati can be encountered as Imperial operatives. After the Battle of Endor, Omwati PCs may originate from Omwat.

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	+5
Tech Level	0
Racial Advantages	+20
Racial Disadvantages	-5
Racially Learned Skills and Racial Bonuses	0
TOTAL	+30

Ortolan

Attribute Adjustment:

DX-1 [-20pts]; HT+1 [+10pts]

Secondary Characteristic Adjustment:

SM-2

Origin:

Orto

Tech Level:

10 – Low TL-1 [-5pts]

Racial Advantages:

Damage Resistance+1 (Tough Skin, -40%, Physical, -20%) [+2pts]; Discriminatory Smell [+15pts]; Fur [0pts]; Reduced Consumption 2

(Cast iron Stomach, -50%) [+2pts]; Subsonic Hearing {+5pts]; Ultrahearing [+5pts]

Racial Disadvantages:

Dislikes (Bright Light) [-1pt]; Gluttony (Resist quite rarely, x2) [-10pts]; Overweight [-1pt]; Reputation-1 (Dimwitted, Almost everyone, x1, all the time, x1) [-5pts]

Free Skills:

Language (Ortolan, Native); Area Knowledge (Orto)

Racially Learned Skills and Racial Skill Bonuses:

Language (Basic, Native) [+6pts]; Survival (Arctic) at Per [+2pts]

Features/Taboos:

None

Names:

Examples of names are Bedo, Eembek, Miebat, Nabkess, Ooben, Rebo, Ruznee, and Ydde.

Description:

Ortolans are solidly built, squat humanoids from the frigid world of Orto. Food is the most important part of an Ortolan's life because it is so scarce on their world. To survive the harsh conditions of their homeworld, Ortolans rely on a heavy layer of blubber (insulation from the cold and an energy supply in times when food becomes scarce) and highly developed senses of smell and hearing that allow them to find food or track prey over large distances. They are almost manic about always having food in their stomach and gorge themselves at every opportunity.

Orto is a world rich in minerals and the Ortolans, while not technologically advanced by galactic standards, are very efficient miners. The Ortolan economy is barter-based, so manufacturing companies that can bring the most food or highly exotic imported foods to Orto can receive low-cost raw materials. During the Rebellion era, the Ortolans were more or less left alone by the Empire, although the Empire did impose regulations limiting their ability to travel from their homeworld. As long as the Ortolans traded their ore to the "right" manufacturers (like TaggeCo and SoroSuub), the Empire remained indifferent to the little humanoids. The Ortolans traded with both the Alliance and the Empire during that time, and the Galactic Civil War filled many bellies on Orto.

Ortolans are generally happy if they are well fed. They also take great joy in music of all sorts, as their highly developed sense of hearing can pick up sounds that even few other beings can hear, making every live performance or different recording of even the most familiar tunes a new experience for an Ortolan.

Many beings consider Ortolans dimwitted because they are often willing to work for nothing more than a meal. However, more than one high-ranking Imperial officer or snobbish noble have found valuable military secrets or art objects missing after a "stupid" Ortolan musician and his band played for nothing but a meal at his ball.

Ortolans have floppy ears, beady black eyes, long trunk-like noses, and small mouths. Each hand ends in four stubby fingers tipped with suction pads, and their short legs have poorly articulated joints that cause them to waddle when they walk. A thick, baggy hide covered with short, velvet-like blue fur hangs off their chubby bodies. Ortolan adults stand around 4 foot 1 in height.

Their homeworld Orto is a frozen wasteland located in the Outer Rim. The planet has a short and unpredictable growing season, and famines are common.

Notes:

An Ortolan can be seen at Jabba's Palace in Episode VI.

CP:

Type	CP
Attribute Adjustment	-10
Secondary Characteristic Adjustment	0
Tech Level	-5
Racial Advantages	+29
Racial Disadvantages	-17
Racially Learned Skills and Racial Bonuses	+8
TOTAL	+5

-P-

Pacithhip

Attribute Adjustment:

ST+1 [+10pts]; DX-1 [-20pts]

Secondary Characteristic Adjustment:

None

Origin:

Shimia

Tech Level:

10 – Low TL-1 [-5pts]

Racial Advantages:

360° Vision [+25pts]; Cultural Adaptability (Xeno-Adaptability) [+20pts]; Damage Resistance+2 (Thick Skin, -40%, Physical, -20%) [+2pts]; Striker (Tusks, Piercing, Limited Arc Front, -40%) [+3pts]

Racial Disadvantages:

Sense of Duty (Authority) [-15pts]

Free Skills:

Language (Shimiese, Native); Area Knowledge (Shimia)

Racially Learned Skills and Racial Skill Bonuses:

Language (Basic, Native) [+6pts]

Features/Taboos:

None

Names:

Examples of names are Aruka, Gepto, Hukudi, Ketwol, Ossom Okwar, Runkara, and Sossil Wekwa.

Description:

Pacithhip are humanoid pachyderms whose society is split into three castes: the scholar caste, the warrior caste, and the farmer caste. The shape of a Pacithhip's tusks determines which caste it belongs to. The tusks do not achieve their final size and shape until adulthood, and which point there's no disputing whether the Pacithhip will be a scholar, warrior, or farmer. Scholars interpret

the law and educate the young. Warriors enforce the law and defend Pacithhip communities. Farmers traditionally provide food and clothing, but their role has expanded to include the manufacture of vehicles, droids, and weapons.

When imperial scouts first arrived on the Pacithhip homeworld, the Pacithhips hadn't yet developed hyperdrive technology, fusion power, or repulsorlift technology. Pacithhips had just mastered fossil fuels and precision machinery on their own and were easily subjugated by the Empire. After the Battle of Endor, Pacithhips took over the deserted Imperial facilities on their homeworld and began to import standard technology. Shortly after the formation of the New Republic, Pacithhips were common sights throughout the galaxy.

Rational and tolerant beings by nature, Pacithhips tend to accept the way things are and rarely question authority. The average Pacithhip heeds the teaching of the scholar caste, which emphasizes fairness and equality. Pacithhips enjoy dealing with members of other species and quickly adapt to varying climates and customs.

Pacithhips possess elephantine features, including a long trunk and thin, elegant tusks. Wrinkled gray skin covers the Pacithhip's plump humanoid frame, and a bony ridge protects the back of the skull. A Pacithhip's eyes are situated on the sides of the head, granting a 360-degree vision. The average Pacithhip stands 4 foot 11 tall.

Their homeworld Shimia is a temperate Outer Rim world located near the Corellian Run. The world has grass-covered plains bordered by mountain ranges that plunge into the sea.

Pacithhips who don't fancy their society's caste system are apt to leave Shimia and settle elsewhere. Their willingness to explore the galaxy does not brand hem as malcontents, for the most part; modern Pacithhip society encourages individuals to "find their own paths". Pacithhip traders are common along the Corellian Run.

Notes:

A Pacithhip can be seen in the Cantina in Episode IV.

CP:

Type	CP
Attribute Adjustment	-10
Secondary Characteristic Adjustment	0
Tech Level	-5
Racial Advantages	+50
Racial Disadvantages	-15
Racially Learned Skills and Racial Bonuses	+6
TOTAL	+26

Pa'lowick

Attribute Adjustment:

ST-1 [-10pts]; DX+1 [+20pts]

Secondary Characteristic Adjustment:

Wis+1 [+5pts]

Origin:

Lowick

Tech Level:

6 – Low TL-5 [-25pts]

Racial Advantages:

Amphibious [+10pts]; Breath-Holding+1 [+2pts]; Striker (Tusks, Piercing, Cannot Parry, -40%, Limited Arc Front, -40%) [+1pts]

Racial Disadvantages:

Proud (Pa'lowick Traditions) [-1pt]

Free Skills:

Language (Lowickese, Native); Area Knowledge (Lowick)

Racially Learned Skills and Racial Skill Bonuses:

Swimming at HT+1 [+2pts]

Features/Taboos:

None

Names:

Examples of names are Larisell Chatrunis, Aneeda Desha, Meep Erdles, Sal Orbego, Sy Snootles, and Roopak Weelak.

Description:

A mining expedition discovered the Pa'lowick homeworld about ten years before the Battle of Endor, making Pa'lowicks one of the newer species to join the galactic society. Though technologically primitive, Pa'lowicks have a sophisticated and highly adaptive feudal society (ruled by noble families). They welcome contact with other species and enjoy trading foodstuffs and primitive wares for useful technological devices they cannot build themselves.

Regular trade with other species has done little to change the way Pa'lowicks live. Although they like to collect high-tech items, most are content to "nest" on their homeworld, enjoying the simple life of farming, fishing, hunting, and storytelling. Aside from their rich culture, Pa'lowicks have little to offer the galaxy at large, a trait that most likely spared them from Imperial enslavement.

Pa'lowick nobles periodically entertain the notion of joining the New Republic, but the New Republic has done little to entice them. The New Republic's interest has had little impact on Pa'lowick society, as most Pa'lowicks could care less about event shaping the galactic community.

Pa'lowicks are natural scavengers who exhibit incredible patience. They display ritualistic tendencies, rarely changing the way they do things. Pa'lowicks strive to preserve the traditions of the past while embracing technology that is useful. Singing and storytelling are among a Pa'lowick's favorite pastimes.

A Pa'lowick has a round torso, long spindly arms and legs, mottled skin (usually yellow, green, and brown), and two mouths: one at the end of a long snout, the other located below the base of the snout. Two sharp tusks jut upward from the Pa'lowick's lower mouth, which completely grows over at middle age. The average stands about 5 foot 3 tall.

Their homeworld Lowick is a swampy planet in the Outer Rim.

Pa'lowicks rarely leave Lowick; those who are dazzled by traders' tales about the rest of the galaxy. Once they're offworld for a few weeks, they often run out of credits and end up as vagabonds, criminals, or slaves.

Notes:

A Pa'lowick can be seen at Jabba's Palace in Episode VI.

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	+5

Tech Level	-25
Racial Advantages	+13
Racial Disadvantages	-1
Racially Learned Skills and Racial Bonuses	+2
TOTAL	+4

Phindian

Attribute Adjustment:

IQ+1 [+20pts]

Secondary Characteristic Adjustment:

None

Origin:

Phindar

Tech Level:

12 – High TL+1 [+5pts]

Racial Advantages:

Arm DX+1 (Both Arms, Long+1, +100%) [+32pts]

Racial Disadvantages:

Reputation-1 (Contrary, Almost everyone but own race, x1, Almost all the time, x1) [-5pts]

Free Skills:

Language (Phindian, Native); Area Knowledge (Phindar)

Racially Learned Skills and Racial Skill Bonuses:

Language (Basic, Native) [+6pts]

Features/Taboos:

None

Names:

Examples of names are Banikou, Guerra Derida, Paxxi Derida, Gerpha, Hem, Karke, Meerka, and Teeyr Verke.

Description:

Phindians are technologically advanced sentients known for creating a variety of technical wonders, including devices capable of erasing one's memory.

Before the rise of the Empire, a criminal organization called the Syndicat ruled the Phindian homeworld. The Phindian leaders of the Syndicat used their control over the distribution of food and other provisions to keep the general population in line. Any who resisted the Syndicat had their memories erased and were exiled to other worlds. The Jedi helped the Phindian population overthrow the Syndicat and install a democratic government, which remained in place until the formation of the Emperor's New Order. Despite a handful of Phindian uprisings (all of which the Imperials easily quelled), the Phindian homeworld remained under Imperial rule until shortly after the Battle of Endor. Within a year of their liberation, the Phindian people joined the New Republic and have remained members ever since.

Phindians show great affection for family and friends, but strangers find them aloof and contrary. Though perceptive and astute, they can be cantankerous and somewhat sarcastic beings prone to melancholy and exaggeration. Dealing with them can be exasperating. For their part, Phindians like to tinker with technological devices, often preferring the company of such things above the company of other sentients.

Phindians are thin, mournful-looking beings with dark skin that sometimes exhibits white splotches. White circles surround their yellow or gold eyes. Phindians have long, flexible arms that hang below their knees. They prefer to wear simple, practical outfits with little adornment.

Their homeworld Phindar is a temperate Outer Rim planet.

Notes:

CP:

Type	CP
Attribute Adjustment	+20
Secondary Characteristic Adjustment	0
Tech Level	+5
Racial Advantages	+32
Racial Disadvantages	-5
Racially Learned Skills and Racial Bonuses	+6
TOTAL	+58

Pho Ph'eahian

Attribute Adjustment:

IQ+1 [+20pts]

Secondary Characteristic Adjustment:

Will-1 [-5pts]

Origin:

Pho Ph'eah

Tech Level:

11

Racial Advantages:

Extra Arms+2 [+20pts]; Temperature Tolerance+4 (Cold, -50%) [+2pts]

Racial Disadvantages:

Delusions (Sacred manifestations of the spirit) [-5pts]; Odious Racial Habit (Ritual cleaning) [-5pts]

Free Skills:

Language (Pho Ph'eahese, Native); Area Knowledge (Pho Ph'eah)

Racially Learned Skills and Racial Skill Bonuses:

Survival at Per+1 (Mountain) [+4pts]

Features/Taboos:

None

Names:

Examples of names are Cho'ree, Darshev, Fe'heon, Garv, Le'shar, Lo'pho'r, Rova, Shev, Veerzan, and Vo'ray.

Description:

Pho Ph'eahians are rarely seen away from their homeworld, Pho Ph'eah. They bear a passing resemblance to Chadra-Fan, although their greater size, blue fur, and extra set of limbs quickly set them apart. Pho Ph'eahians inhabit the mountainous regions of their homeworld. Their four arms are ideal for scaling rocky crags, and their thick fur enables them to withstand cool temperatures.

When the Old Republic first made contact with the Pho Ph'eahians more than a thousand years before the Battle of Yavin, the species had already developed nuclear fusion, repulsorlift technology, and spaceships with sublight drives. By dismantling and rebuilding hyperdrive-capable starships given to them by the Republic, the technically minded Pho Ph'eahians were able to build their own hyperdrive technology, making a few refinements along the way. Since harnessing the means to leave their home star system, Pho Ph'eahians have been encountered in every corner the civilized galaxy. Corporations and spaceports, particularly in the Corporate Sector, frequently employ Pho Ph'eahians as engineers.

Most Pho Ph'eahians are outgoing and cheerful. They enjoy being the center of attention. They view their bodies as "sacred manifestations of the spirit" and clean themselves religiously to ensure that stains on their bodies do not become stains on their souls. Aside from their cheery dispositions and obsession with cleanliness, Pho Ph'eahians are best known for their technical skills.

Pho Ph'eahians are a bipedal, four-armed humanoid species with bright blue fur and large fanlike ears. The average Pho Ph'eahian stands about 5 foot 7 tall.

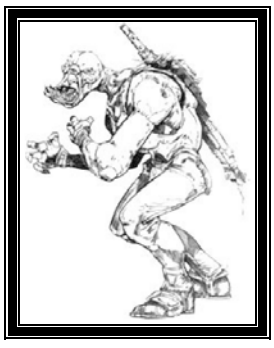
Their homeworld Pho Ph'eah is an Outer Rim world near the Corporate Sector. The planet's distant elliptical orbit keeps it far from its native sun most of the time. During these "dark" periods, the sun appears as a distant speck in Pho Ph'eah's sky, and the Pho Ph'eahians must rely on their thermal layer of fur to keep them warm.

Notes:

CP:

Type	CP
Attribute Adjustment	+20
Secondary Characteristic Adjustment	-5
Tech Level	0
Racial Advantages	+22
Racial Disadvantages	-10
Racially Learned Skills and Racial Bonuses	+4
TOTAL	+31

Poss'Nomin



Attribute Adjustment:

None

Secondary Characteristic Adjustment:

SM+1

Origin:

Illareen

Tech Level:

11

Racial Advantages:

Peripheral Vision (Large, -20%) [+12pts]; Teeth [0pts]

Racial Disadvantages:

Bowlegged [0pt]; Overweight (Heavy Bones) [-1pt]

Free Skills:

Language (Illarese, Native); Area Knowledge (Illareen)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Unknown

Description:

Somewhat larger than an average human (averaging about 6 foot 3), the Poss'Nomin, native to Illareen, have a thick build that is due more their sizable bone structure than muscular build. Their skin is almost uniformly red, though some races have black or brown-spotted forearms. They have wide faces with angular cheek bones rimmed with cartilage knobs, and a broad, flat nose. They have great, shovel-like jaws filled with a mixture of flat and sharp teeth that betray their omnivorous nature.

Certainly the most striking aspect of the Poss'Nomin's physical appearance is his three eyes; they are positioned next to one another horizontally, giving him a wide arc of vision. The large eyes are orange except for the iris, which ranges from dark blue to yellow. Each eye has two fleshy eyelids; the outer one is used primarily when sleeping.

The Poss'Nomin evolved along the eastern shores of Vhin, an island continent in the northern hemisphere of Illareen. The area was rich in resources, but due to sudden and intense climate changes, possibly the result of a solar flare, that took place within the span of a few centuries, the place became an uninhabitable wasteland.

Having few options, the Poss'Nomin left the shores for better lands beyond. They quickly spread throughout the continent, eventually building boats that could take them to new regions. Civilizations blossomed throughout the world and society prospered.

Within a few millennia, several powerful nations had emerged, each with differing priorities and forms of government. Conflicts began that soon led to a war on a global scale, something the Poss'Nomin had never before experienced.

It was during this period, scarcely a century ago, that Illareen was discovered by a party of spice traders. As the planet was previously unexplored, the traders decided to investigate. What they found was a fully developed species engaged in massive global warfare.

The Poss'Nomin immediately ceased their fighting in order to comprehend the nature of their visitors. Less than a decade after their initial contact with outsiders, the warring nations put aside their grievances and united in an effort to adopt the galaxy's more

advanced technology and become part of the galactic community. Today approximately one-third of the population has adopted galactic-standard technology.

Since they were discovered, many Poss'Nomin have taken to the stars, in search of the adventures and riches to be found within the rest of the galaxy. Many have traveled to the uncharted regions at the edge of the galaxy and even beyond.

Notes:

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+12
Racial Disadvantages	-1
Racially Learned Skills and Racial Bonuses	0
TOTAL	+11

Psadan

Attribute Adjustment:

ST+1 [+10pts]; DX-1 [-20pts]; IQ-2 [-40pts]; HT+2 [+20pts]

Secondary Characteristic Adjustment:

None

Origin:

Wayland

Tech Level:

2 – Low TL-9 [-45pts]

Racial Advantages:

Damage Reduction+4/+2 (Shell, Back, -40%/Tough Skin, -40%, Physical, -20%) [+10pts]; Mind Shield+5 (Force,-10%) [+18pts]

Racial Disadvantages:

Overweight [-1pt]; Vow (Nature Religion) [-1pt]

Free Skills:

Language (Psadan, Spoken Native); Area Knowledge (Wayland)

Racially Learned Skills and Racial Skill Bonuses:

Language (Myneyrshi, Spoken Accented) [+2pts]

Features/Taboos:

None

Names:

Examples of names are Ba'han, Da'yid, Lupec, Parla, Rhev, Rsidd, Sinni, Sy'nir, and Yaodi.

Description:

The Psadans are natives of Wayland, an unremarkable Outer Rim world that achieved some infamy when Emperor Palpatine selected it as the location for his secret base and depository.

Before the Empire's arrival, the Psadans were constantly at war with Wayland's other indigenous sentient species, the Myneyrshi. In an effort to resist Imperial enslavement, the Psadans and Myneyrshi joined forces to repel the Empire. Unfortunately, they were unsuccessful and ultimately subjugated. Captured Psadans were put to work, carving out the Emperor's secret base under Mount Tantiss. Few Psadans possessed the brains or will to resist their imperial oppressors. A few Psadans eluded capture and enslavement by retreating into the depths of Wayland's jungles, but they were ill equipped to mount any further resistance.

After the fall of the Empire and the destruction of the Emperor's base beneath Mount Tantiss, the Psadans and Myneyrshi enjoyed a short period of peace. When the Yuuzhan Vong arrived and constructed a base on Wayland, the Psadans and Myneyrshi attempted to drive off the extragalactic invaders; again, their efforts met with failure. The Yuuzhan Vong set about ridding the planet of the Psadans and Myneyrsh "vermin". Although a few Psadans were evacuated aboard Republic ships, most of the species refused to leave. Like the Myneyrshi, the future of the Psadan species remains uncertain.

Psadans are nature worshippers who enjoy hunting. Their religion dictates that no part of a slaughtered creature can go to waste. Their low intelligence makes them obstinate and often eager to fight. Despite being somewhat feeble-minded, Psadans have a high resistance to telepathic manipulation.

Psadans have large flat faces, short stocky legs, and rock-hard scales. Their backs are covered with a shell of thick armored plates, and they frequently adorn their bodies with skins and bones from creatures they've hunted. The average Psadan stands about 4 foot 11 tall.

Their homeworld Wayland is a remote jungle world in the Outer Rim.

Notes:

CP:

Type	CP
Attribute Adjustment	-30
Secondary Characteristic Adjustment	+15
Tech Level	-45
Racial Advantages	+28
Racial Disadvantages	-2
Racially Learned Skills and Racial Bonuses	+2
TOTAL	-32

-Q-

Qiraash

Attribute Adjustment:
IQ+1 [+20pts]

Secondary Characteristic Adjustment:
None

Origin:
Unknown

Tech Level:
11

Racial Advantages:
Farseeing [+17pts]; Force Sensitive [+5pts]

Racial Disadvantages:
None

Free Skills:
Language (Basic, Native); Area Knowledge (any one planet)

Racially Learned Skills and Racial Skill Bonuses:
None

Features/Taboos:
None

Names:
Leesub Sirln.

Description:
The Qiraash were pale-skinned near-Humans with large craniums. They may have had some level of natural precognition.

It has been theorized that Aurra Sing was a Qiraash, though she lacks the enlarged cranium and Human-sized fingers.

Notes:
Leesub Sirln can be seen at the Cantina in Episode IV.

CP:

Type	CP
Attribute Adjustment	+20
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+17
Racial Disadvantages	0
Racially Learned Skills and Racial Bonuses	0
TOTAL	+37

Quarren

Attribute Adjustment:
HT+1 [+10pts]

Secondary Characteristic Adjustment:
Will-1 [-5pts]

Origin:
Mon Calamari

Tech Level:
11

Racial Advantages:
Amphibious [+10pts]; Damage Resistance+1 (Tough Skin, -40%, Physical, -20%) [+2pts]; Doesn't Breathe (Gills, -50%) [+10pts]; Nictitating Membrance+1 [+1pt]; Night Vision+4 [+4pt]; Pressure Support 2 [+10pts]; Speak Underwater [+5pts]

Racial Disadvantages:
Dependency (Moist, Very Common, Daily, x3, Only in arid or non-moist environments, +30%) [-10pts]; Dislike (Idealists) [-1pt]; Dislike (Optimists) [-1]

Free Skills:
Language (Quarrenese, Native); Area Knowledge (Mon Calamari)

Racially Learned Skills and Racial Skill Bonuses:
Language (Basic, Broken) [+2]; Language Mon Calamarian, Accented) [+4pts]; Swimming at HT+1 [+2pts]

Features/Taboos:
None

Names:
Examples of names are Kelmut Woig, Kruluk, Lyyr Zartoe, Moren Chonk, Nollo Kanx, Notha Dab, Nrin Vakil, Salin Glek, Seggor Tels, Tessek, Thulwuk Thur, Triogor Sllus, Tsillin Wel, Vekker, Vuhig Worrik, Walif Merv, Wheade Daud, and Borun Call.

Description:
The Quarren are highly resilient, adaptive humanoids who hail from the distant Outer Rim world of Mon Calamari, sharing the world with the sentient humanoid species of the same name. The Mon Calamari live on the surface of the world, while the Quarren dwell in the oxygen-filled cities in the deep recesses of the oceans.

The Quarren were bemused by the Mon Calamari desire to explore, deeming them foolish for engaging in such behavior. Very few Quarren journeyed off Mon Calamari during the waning years of the Old Republic. The Quarren attitude toward exploration was confirmed when the Mon Calamari's venture ultimately resulted in Imperial forces invading Mon Calamari and enslaving both populations. Early attempts to resist domination resulted in the Empire destroying entire cities, causing many Quarren to flee their homeworld and others to flee even deeper into the oceans.

Offworld, Quarren generally stay clear of becoming entangled with the Empire or the Rebellion. They instead become involved with shadowy occupations, working with pirates, smugglers, slavers, and independent spy networks. Many of these Quarren blame both the Empire and the Rebels (even more than the Mon Calamari, whom they just see as foolish) for the devastation visited upon their homeworld. They try to get some measure of revenge without bringing further harm to their world or themselves.

Practical and conservative, Quarren tend to hate change and distrust anyone who displays overt optimism and idealism.

The Quarren have heads that resemble four-tentacle squids, hence the name "squid-head" that followed them to other worlds. They have leathery skin and suction-cupped fingers. Their eyes are typically bright blue or turquoise.

Their homeworld Mon Calamari is a watery, technological planet located in the Outer Rim.

Notes:

Quarren can be seen from Episodes I to III at the Republic Senate.

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	-5
Tech Level	0
Racial Advantages	+42
Racial Disadvantages	-12
Racially Learned Skills and Racial Bonuses	+8
TOTAL	+43

Quermian

Attribute Adjustment:

ST-1 [-9pts]; DX+1 [+20pts]; HT-1 [-10pts]; IQ+1 [+20pts]

Secondary Characteristic Adjustment:

Will+1 [+5pts]; SM+1

Origin:

Quermia

Tech Level:

11

Racial Advantages:

Claws (Blunt) [+3pts]; Compartmentalized Mind 1 [+50pts]; Extra Arms+2 (No physical attack) [+10pts]; Telecommunication (Biological, Racial, -10%, Sense Based – Vision, -20%) [+7pts]

Racial Disadvantages:

Broad-Minded [-1pt]; Pacifism (Self-Defense Only) [-15pts]; Skinny [-5pts]; Vow (Keep racial telecommunication a secret) [-1]

Free Skills:

Language (Quermian, Native); Area Knowledge (Quermia)

Racially Learned Skills and Racial Skill Bonuses:

Language (Basic, Native) [+6pts]

Features/Taboos:

None

Names:

Examples of names are Yrrani Basa, Ayra Foon, Naaz Hola, Yarael Poof, and Tyan Maereth.

Description:

The Quermians are an offshoot of the Xexto species from Troiken. Almost seventeen thousand years ago, rogue Arkanian scientists moved their primitive forebears to the Quermia system. Arkanians terraformed the new Quermian homeworld into a bucolic splendor. The Arkanians then conducted a variety of genetic manipulations upon the transplanted Xexto and watched how they evolved. Within a few generations, the Arkanians moved on to other experiments, leaving the Quermians to their own evolution.

Over the following then thousand years, the Quermians developed a highly advanced society on their garden world. With no dangerous predators, plenty of rich soil, and warm seas providing potable water full of vital minerals and nutrients, the gangly invertebrates nearly achieved paradise. By the time Old Republic scouts arrived in the star system, the Quermians had settled other nearby worlds and were on the verge of exploring the galaxy at large. They welcomed the strange visitors from the stars. Within a few decades, they were active participants in the galactic community.

Quermians are famous for their apparent telepathic ability. Quermians can communicate nonverbally by locking eyes with one another. Quermians deny they have telepathy, claiming that they are merely highly attuned to each other's body language. Xenobiologists doubt this claim, pointing to highly unusual activity in arts of Quermia brains, but so far no hard scientific evidence has been provided to confirm or deny psychic powers on the part of all Quermians.

Quermian society encourages advanced and complicated philosophical contemplation. Their species includes some of the galaxy's greatest thinkers. During the Rebellion era, however, the Emperor's New Order forced Quermian teachers and philosophers from their positions at universities across the galaxy. During the Jedi Purge, most with drew to their home system. Many of their number were prominent Jedi, but even non-Jedi Quermians fell victim to mob violence. New Order fanatics claimed that all Quermians were Jedi, and that they beamed evil thoughts into other beings' minds using their telepathic powers. Shortly before the Yuuzhan Vong invasion, the Quermian planetary government began taking steps to rejoin the galactic community.

Quermians are a gentle, unassuming people. They embrace reason, shun violence, and enjoy interacting with members of other species and cultures.

Quermians have four arms, two clawed feet, and small bodies. The hands of one set arms contain olfactory glands. Their heads sway almost hypnotically at the end of a long neck. Deeply set small eyes rest above a lipless mouth that seems permanently set in bemused smile. The Quermian brain is split between the head and chest cavity. Skin color ranges from ashen white to dark gray. Adults of the species stand about 6 foot 3 tall, with no differences between males and females.

Their homeworld is the beautiful Outer Rim planet of Quermia.

Notes:

A Quermian can be seen at the Jedi Council in the first three episodes.

CP:

Type	CP
Attribute Adjustment	+21
Secondary Characteristic Adjustment	-5
Tech Level	0
Racial Advantages	+70
Racial Disadvantages	-22
Racially Learned Skills and Racial Bonuses	+6
TOTAL	+70

Quockran

Attribute Adjustment:

ST+1 [+9pts]; DX-2 [-40pts]; IQ+2 [40pts]; HT+2 [+20pts]

Secondary Characteristic Adjustment:

SM+1

Origin:

Quockra-4

Tech Level:

11

Racial Advantages:

Injury Tolerance (No Vitals) [+5pts]; Teeth (Sharp) [+1pt]

Racial Disadvantages:

Dependency (Moist, Very Common, Daily, x3, Only in arid or non-moist environments, +30%) [-10pts]; No Legs (Slithers) [0pts]; Phobia (Xenophobia, Resist quite rarely, x2) [-30pts]

Free Skills:

Language (Quockrese, Native); Area Knowledge (Quockra-4)

Racially Learned Skills and Racial Skill Bonuses:

Engineer/TL11 (Robotics) at IQ-1 or Mechanics/TL11 (Robotics) at IQ [+2pts]

Features/Taboos:

None

Names:

Unknown

Description:

The affairs of Quackra-4 seem to be populated and managed entirely by various types of alien droids. Many of the droids are Imperial manufacture, but some are of unknown design. Some of the Imperial models can speak with the visitors, but will not be able to tell them much about the world except that they really don't like it much. The other droids speak machine languages. In reality, the droids are merely the servants of the true masters of Quockra-4, enormous black-skinned slug-like creatures which live deep underground.

At one time, when the world had more moisture, the Quockrans lived on the surface. Then the climate changed becoming hotter and drier, and the delicate-skinned beings were forced to move underground. They only emerge on the surface at night, when the air is cool and damp.

Naturally xenophobic, the Quockrans intensely dislike dealing with aliens. They are completely indifferent to the affairs of the galaxy, and will not, in any imaginable circumstances, get involved in alien politics (e.g., the Rebellion). Their most basic desire is to be left alone. It was this desire to avoid dealing with outsiders that moved the Quockrans to engineer an entire society of droids to liaison with other species.

Notes:

CP:

Type	CP
Attribute Adjustment	+29
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+6
Racial Disadvantages	-40
Racially Learned Skills and Racial Bonuses	+2
TOTAL	-3

Qwohog

Attribute Adjustment:

DX+1 [+20pts]

Secondary Characteristic Adjustment:

Will-1 [-5pts]; SM-1

Origin:

Hirsi

Tech Level:

11

Racial Advantages:

Amphibious [+10pts]; Damage Resistance+2 (Scales) [+10pts]; Doesn't Breathe (Gills, -50%) [+10pts]; Nictitating Membrane+2 [+2pts]; Speak Underwater [+5pts]

Racial Disadvantages:

Disturbing Voice () [-10pts]; Weakness (Salt water, 1d per minute) [-20pts]

Free Skills:

Language (Qwohog, Native); Area Knowledge (Hirsi)

Racially Learned Skills and Racial Skill Bonuses:

Language (Basic, Native) [+6pts]; Swimming at HT+2 [+4pts]

Features/Taboos:

None

Names:

Examples of names are Ceyluun, Eelid, Falor, Indeeri, Jebel, Kei No Kay, K'zk, Melleod, Nemedor, Pol, Saryana, and Zaami.

Description:

Qwohog, or "Wavedancers", are small, lithe, amphibian humanoids who normally dwell in freshwater streams, rivers, and lakes, although they are equally comfortable on land. Rebel Alliance scouts discovered these graceful swimmers while exploring the Qwohog homeworld for valuable crystal deposits, and in short order the Qwohog communities opened trade negotiations with the offworld visitors. Imperial spies learned of the Rebel' discovery and seized control of the planet's crystal-mining operations. The Qwohog offered no resistance, glumly allowing the Empire to plunder and ravage their world.

Whet eh Imperials finally with drew after the Battle of Endor, Rebel scouts returned to assess the damage, protect the Qwohog homeworld from further aggression, and determine the fate of several Rebel agents stranded on the planet during the Imperial occupation. The Rebel Alliance established a permanent base on the planet, and since then thousands of Qwohog have found their way offworld aboard Alliance ships. Qwohog leaders orchestrated the colonization of other inhabitable worlds to insure the continuation of the species. During the New Jedi Order era, thriving Qwohog colonies exist throughout the galaxy.

Although technologically primitive, the Qwohog quickly assimilated galactic technology into their society and are quite comfortable trading with peaceful yet technologically advanced offworlders. The Qwohog offer food, durable plant-based textiles, shells, natural healing balms, and other medicinal products. On their homeworld, the Qwohog wear light garments made from native plants. Offworld Wavedancers substitute garb made from other plants or manufactured by local companies.

Qwohog physiology is attuned to fresh water, and Wavedancers cannot exist in salt water for long before the water's salinity bums their gill slits and damage their lungs.

They converse by sending sound waves through the water, but on land they rely on a unique sign language or vocalizer masks (similar to those used by the Anomids) that transform sound waves and subtle jaw movement into words.

Qwohog work and play hard, dividing their energies equally between survival and pleasure. Although Wavedancers draw strength and inspiration from their communities, many are lured from their homeworld by a sense of wanderlust and a desire to explore the unknown. Although very trusting and eager to make friends, a Qwohog can display startling ferocity when wronged.

Qwohog have smooth skin, scales instead of hair, black eyes, and a slim yet muscular frame. Raised silvery scales grow atop their heads and ring heir wrists, waists, and ankles. Rows of gill slits under their arms circulate water through their lung cavities; out of water, the gill slits are nearly undetectable.

Qwohog do not have noses and detect scents with a ridge of sensitive skin above their mouths. Their ears are long and pointed, and leaders often decorate their ears with shell fragments to show their station within the Wavedancer community.

The average Qwohog adult stands 3 foot 11 tall.

Their homeworld Hirsi is an Outer Rim planet covered mostly by freshwater lakes. What little land there is on Hirsi has small deposits of rare rudic crystals, which are prized for their use in sensor devices.

Notes:

Qwohog use sound waves to communicate underwater. In air, these sound waves can only be heard out to a range of 4 yards, and various devices are needed to translate the sound waves to words. The Qwohog also use sign language to communicate out of the water over a distance. This native sign language has been replaced by Basic but is still part of the Qwohog heritage.

CP:

Type	CP
Attribute Adjustment	+20
Secondary Characteristic Adjustment	-5
Tech Level	0
Racial Advantages	+37
Racial Disadvantages	-30
Racially Learned Skills and Racial Bonuses	+10
TOTAL	+32

-R-

Rakata

Attribute Adjustment:

DX+1 [+20pts; IQ+1 [+20pts]

Secondary Characteristic Adjustment:

SM+1

Origin:

Lehon

Tech Level:

TL 3 – Low TL-8 [-40pts]

Racial Advantages:

360° Vision (Easy to hit, -20%) [+20pts]; Amphibious [+10pts]; Claws [0pts]

Racial Disadvantages:

Mundane Background (Force-related skills, advantages, and disadvantages) [-10pts]; Reputation-3 (Abrasive nature, Almost everyone but own clan, x⅔, All the time, x1) [-10pts]

Free Skills:

Language (Rakatan, Native); Area Knowledge (Lehon)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Unknown.

Description:

The Rakata (also known as the Builders) were a roughly humanoid species with distinctive amphibian features. They were a

scientifically advanced people that developed early in galactic history. Long term use of the Dark Side of the Force corrupted their society and turned them into a race of merciless warriors. The Rakata used their potent Force-powered technologies to conquer and enslave every other species they came across throughout the known galaxy. During the reign of their Infinity Empire, they were characterized by their cruelty, savagery, and arrogance. They were known to strip entire planets of their resources, terraform worlds to fit their own shifting needs, kill entire slave workforces, and to eat and defile the bodies of slain enemies.

The Rakata were the original creators of the first hyperdrive engines. The Corellians, Duros, and various other civilizations adopted and modified it for their own needs after the fall of the Infinity Empire.

The Rakata were believed to have inadvertently seeded swaths of the galaxy with sentient life by transporting slave species to new worlds.

The Rakata are a Force Sensitive species until they were struck by a galactic plague. A mysterious mutation in the plague had caused to strip the builders of their powers. As the Force users were culled from the overall population at an ever increasing rate, the Rakata lost their ability to manipulate their own technology. Soon, they were forced to rely on inferior devices that were not dependent on the Force. Sensing weakness, slave species rebelled in large-scale insurrections on many member worlds and stemmed the total collapse of the Infinity Empire in 25,200 BBY

The Rakata have a large, almost cone shaped head, and their eyes are placed on short stalks on the side of their head granting them an exceptionally wide field of vision. They retain vestigial claws that they do not use in combat. They are tall (averaging about 6 foot 3) and thin, but contain strong wiry muscles. As a race they are very intelligent and nimble, but due to their odd look and abrasive nature, other races find them difficult to get along with.

Their homeworld Lehon (also called Rakata Prime) is located in the Rakata system which is protected by a disruptor field operated from the summit of a temple on the surface of Lehon. It was originally constructed to protect the Star Forge, but it was now used to protect the Rakata themselves.

Notes:

The Rakata can be seen in Knights of the Old Republic I and II. Rakata characters before the galactic plague are at TL11 [0pts], are Force Sensitive [+5pts] and don't have the Mundane Background disadvantage but have Overconfidence [-5pts] and are Callous [-5pts]. This totals the CP to +55 points.

CP:

Type	CP
Attribute Adjustment	+40
Secondary Characteristic Adjustment	0
Tech Level	-40
Racial Advantages	+30
Racial Disadvantages	-20
Racially Learned Skills and Racial Bonuses	0
TOTAL	+10

Ranat

Attribute Adjustment:

DX+1 [+20pts]; IQ-4 [-80pts]; HT+1 [+10pts]

Secondary Characteristic Adjustment:

SM-2

Origin:

Rydar II or Aralia

Tech Level:

TL 3 – Low TL-8 [-40pts]

Racial Advantages:

Acute Senses+3 (Taste and Smell) [+12pts]; Claws [0pts]; Dark Vision [+25pts]; Flexibility [+5pts]; Fur [0pts]; Resistant (Diseases, Occasional) [+10pts]; Teeth (Sharp) [+1pt]; Tunneling [+30pts]

Racial Disadvantages:

Bloodlust [-10pts]; Bowlegged [-1pt]; Odious Racial Habit (Gnaw constantly) [-5pts]; Overconfidence [-5pts]; Reputaion-1 (Vile and savage, Almost everyone except own race, x1, All the time, x1) [-5pts]; Reputation-4 (Human enmity, Humans only, x½, All the time, x1) [-10pts]; Sadism [-15pts]; Selfish [-5pts]; Semi-Upright [-5pts]; Short Lifespan 1 [-10pts]; Social Stigma (Minority Group) [-10pts]

Free Skills:

Language (Ranat, Native); Area Knowledge (Rydar II or Aralia)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

Tail

Names:

Examples of names are Engal Jeers, Kleef, Marbor, Nastra Paffik, Reegesk, Targan, Veerz, and Nevar Yalnal.

Description:

Ranats, or Con Queecon in their own language, were long regarded as mindless animals. The discovery that they have a language forced New Republic xenobiologists to concede their semi-sentient status. However, due to the Ranats' taste for the flesh of Human infants, most other species still regard them as vile, savage creatures. It does not help that Ranats are bellicose and arrogant, in their language, "con queecon" translates to "the conquerors".

Human settlers nearly exterminated the Ranats on their homeworld, slaughtering them in retaliation for the deaths of so many Human children. Three Ranats escaped aboard a merchant ship by killing its crew. The ship didn't get far, crash-landing on the nearby planet Aralia, which the Ranats adopted as their new homeworld. Despite their limited gene pool, the Ranats procreated at a phenomenal rate, giving rise to a new colony. Ranats born with pronounced genetic defects provided nourishment for healthier specimens. Within decades of arriving on Aralia, the Ranats reasserted themselves as an enduring species (to many Humans' chagrin). After several severe incidents on Aralia, the Empire attempted to take control of the Ranat problem once and for all. The Empire hired "pest controller", but environmentalists challenged the Empire's decision and pointed out that they were violating Imperial Laws against harming a sentient race. The Empire's Bureaucrats soon found a way around the problem; they added the Ranats to the list of semi-intelligent species. This meant that the Ranats could hold no rights to property, and could be killed in self-defense. The Ranats were never completely wiped out. The New Republic never changed the Ranats semi-intelligent status, primarily because no one has ever opposed it.

Ranats dwell in sprawling subterranean warrens, using their incisors and claws to carve tunnels and dens. Because their incisors grow as much as one centimeter per hour, Ranats gnaw constantly to wear them down.

Ranats are selfish, aggressive, foul-tempered, obstinate, and treacherous beings who take whatever measure they feel are necessary to insure their own survival. They are ferocious when cornered and threatened. Although primitive and crude by galactic standards, they like to board technological items and various trinkets of personal value.

A Ranat is a 1-yard-tall, thin, dirty, rodent-like creature with sharp incisors and a long, whip-like tail. A Ranat's short, durable claws, while not terribly effective in combat, allow it to burrow easily through soft dirt and clay. Its fur-covered body is flexible, enabling to slip through narrow openings.

A Ranat's claws are prehensile, with opposable digits that allow it to grasp items with ease.

Their homeworld was the Outer Rim planet of Rydar II (until the Rise of the Empire era). After Human colonists exterminate the Ranats on Rydar II, Ranat survivors adopt the Outer Rim jungle world of Aralia as their new homeworld.

Notes:

Ranat Force users are unheard of.
A Ranat can be seen at the Mos Eisley Cantina in Episode IV.

CP:

Type	CP
Attribute Adjustment	-50
Secondary Characteristic Adjustment	0
Tech Level	-40
Racial Advantages	+83
Racial Disadvantages	-81
Racially Learned Skills and Racial Bonuses	0
TOTAL	-88

Ranth

Attribute Adjustment:

DX+1 [+20pts]; IQ-1 [-20pts]

Secondary Characteristic Adjustment:

Will-1 [-5pts]

Origin:

Caraaz

Features/Taboos:

None

Names:

Examples of names are Foreez Ch'zori, Eshee Desat, Evasta Foosher, Feychar Paska, Jaastal Rasheer, and Tir'arr Zur.

Description:

The Ranth are predatory hunters who dwell on the frigid dark side of a tidally locked world, where the planet's two large moons provide the only natural illumination. The Ranth have learned to track time by studying the path of these two satellites.

Sometime in their distant past, the primitive Ranth split into two distinct societies. The first group formed permanent communities atop the planet's great drifting glaciers, slowly advancing toward a sophisticated industrial civilization with a formal government, an interest in galactic affairs, and cavernous ice cities displaying wondrous architectures. The second group remained nomadic and savage by comparison. Roaming in small tribes, these Ranth lack the technology of their more settled counterparts, relying on tireless beasts of burden and their keen predatory instincts to survive. For the most par, the civilized Ranth and nomadic Ranth avoid one another, as almost every encounter between the two ends in violence and bloodshed.

Both civilized and nomadic Ranth maintain strong family ties, as each family carries forward its own traditions, history, and set of values (often dictated by the family's elder). Civilized Ranth have extensive contact with the rest of the galaxy, adapting to the latest trends. Savage Ranth wear fur and leather garments made from the hides of slain beasts, tend to fear offworlders, and work to undermine the civilized Ranth society.

The Empire occupied the Ranth homeworld for a time. Imperial agents searching for secret Rebel bases encountered the Ranth instead. The civilized Ranth accepted Imperial rule without a struggle, benefiting from the introduction of new technology and regarding the Empire as a symbol of great achievement and promise. The nomadic Ranth were far less enamored with the Empire. They attacked imperial patrols and mining stations before vanishing into the icy wastelands. Unable to track the savage Ranth, the Imperials turned to the civilized Ranth for assistance. The city-dwellers followed the directive without question, leading to many open conflicts among the civilized and primitive Ranth.

Imperial engineers changed the face of the Ranth homeworld with strip-mining, construction, and pollution. With the Empire's defeat, the civilized Ranth took control of the abandoned Imperial mining installations and processing facilities. Since then, conditions on the planet have deteriorated. Mining facilities have become makeshift cities overpopulated with Ranth that had enjoyed unfettered protection from predators under Imperial rule. The resulting population explosion has left these Ranth impoverished.

The nomadic Ranth continue to mount attacks against the civilized Ranth communities. Meanwhile, the civilized Ranth strive to push their primitive brethren deeper into the icy wastelands, where they can pose no threat. Neither society shows any signs of changing its ways.

Since the Empire's defeat, many civilized Ranth have left their homeworld and joined the greater galactic community. They usually find work as wilderness guides on other arctic planets as well as mercenaries, bodyguards, and bounty hunters. The few nomadic Ranth encountered away from Caraaz are slaves relocated by Imperial forces during the rebellion era.

Ranth have short tempers but rarely hold grudges. Civilized Ranth vent their anger in harmless yet flamboyant displays before putting the incident behind them. Savage Ranth unleash their anger in wild fits, demonstrations of physical prowess, and monetary acts of violence. Civilized Ranth are more perceptive, introspective, and apathetic than their nomadic cousins. Nomadic Ranth are resolute, passionate, and calculating.

A Ranth has shimmering pale blue fur, sharp claws and fangs, dark eyes, and a bushy tail. A typical Ranth adult stands about 5 foot 5 tall.

Their homeworld Caraaz, located in the Outer Rim, is a tide-locked planet that always has one side facing the sun and the other trapped in perpetual night. The sunlit side is blazingly hot and incapable of supporting life.

Notes:

Civilized Ranth

Tech Level:

11

Racial Advantages:

Claws (Sharp) [+5pts]; Temperature Tolerance+4 (Cold, -50%) [+2pts]; Terrain Adaptation (Ice and Snow) [+10pts]

Racial Disadvantages:

Bad Temper [-10pts]; Intolerance-3 (Nomadic Ranth) [-5pts];

Free Skills:

Language (Ranth, Native); Area Knowledge (Caraaz Ice Cities)

Racially Learned Skills and Racial Skill Bonuses:

None

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	-5
Tech Level	0
Racial Advantages	+17
Racial Disadvantages	-15
Racially Learned Skills and Racial Bonuses	0
TOTAL	-3

Nomadic Ranth

Tech Level:

3 – Low TL-8 [-40pts]

Racial Advantages:

Claws (Sharp) [+5pts]; Combat reflexes [+15pts]; Temperature Tolerance+4 (Cold, -50%) [+2pts]; Terrain Adaptation (Ice and Snow) [+10pts]

Racial Disadvantages:

Bad Temper [-10pts]; Intolerance-3 (Civilized Ranth) [-5pts];

Free Skills:

Language (Ranth, Native); Area Knowledge (Caraaz Wastelands)

Racially Learned Skills and Racial Skill Bonuses:

Survival (Arctic) at Per+2 [+8pts]

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	-5
Tech Level	-40
Racial Advantages	+32
Racial Disadvantages	-15
Racially Learned Skills and Racial Bonuses	+8
TOTAL	-20

Rodian

Attribute Adjustment:

None

Secondary Characteristic Adjustment:

Will-1 [-5pts]; Per+1 [+5pts]

Origin:

Rodia

Tech Level:

11

Racial Advantages:

Combat Reflexes [+15pts]; Enhanced Tracking+1 [+5pts]; High Manual Dexterity+1 [+5pts]

Racial Disadvantages:

Bad Smell [-10pts]; Obsession (Violence) [-5pts]; Reputation-2 (Violent hunters, Almost Everyone but own race, x1, Sometimes, x½) [-5pts]

Free Skills:

Language (Rodese, Native); Area Knowledge (Rodia)

Racially Learned Skills and Racial Skill Bonuses:

Language (Basic or Huttese, Broken) [+2pts]; Tracking at PER [+2pts]

Features/Taboos:

None

Names:

Examples of names are Andoomi Hui, Avaro Sookcool, Beedo, Chido, Clezo, Drooto Sploonore, Doda, Gorak Khzam, Greedo, Greeata, Griv, Gulek Lohn, Keerig, Kelko, Koobis Nu, Loa Tibeeme, Malo, Meris Gen, Navik, Ne'chak, Neela, Neesh, Pqweeduk, Revidjasa, Skee, Slerog Fenn, Teeko, Treetot, Tulagn, and Wald.

Description:

Rodians hail from the Tyrius star system in the Mid Rim, and their culture places great emphasis on hunting and tracking.

The Rodian homeworld is humid and choked with heavy rain forests teeming with dangerous lifeforms. The Rodians evolved into brutal hunters and killers to survive. As their technology became more advanced, they started exterminating other lifeforms on their world at an increasing pace. If a Republic scout vessel hadn't reached Rodia when it did, the world's ecosystem might well have been damaged beyond repair, and the Rodians would have died out. Instead, they joined the Galactic Republic, fascinated by the powerful ships that let them travel to the stars and the mighty energy weapons used by the aliens they found there.

Rodian culture is built almost entirely around the concept of "the hunt". Their art glorifies violence and the act of stalking prey. The more intelligent and dangerous a hunter's prey, the more honorable the hunt is. Rodians have numerous annual festivals that exist solely to honor such activities. Since joining the rest of the galaxy's spacefaring species, the Rodians have come to view bounty hunting as the most honorable profession in existence. Many of them have found great success in this field.

Rodians tend to be violent, tenacious, and dedicated.

Rodians have multifaceted eyes that range in color from light blue to pitch black, a tapered snout, and skin that is universally deep green. A typical Rodian has a prominent ridge of spines running along the back of his skull. His fingers are long and flexible, and end in suction cubs. The average Rodian stands 3 foot 3 tall.

Their homeworld Rodia is an industrial Mid Rim planet choked with heavy rain forests.

Notes:

The Rodian Greedo can be seen fighting with Anakin in Mos Espa in Episode I and at the Mos Eisley Cantina in Episode IV.

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+25
Racial Disadvantages	-20
Racially Learned Skills and Racial Bonuses	+4
TOTAL	+9

Ropagu

Attribute Adjustment:

ST-1 [-10pts]

Secondary Characteristic Adjustment:

HP-2 [-4pts]

Origin:

Ropagi II

Tech Level:

11

Racial Advantages:

Reputation+1 (Well paying employer All Mercenaries, x½, Occasionally, x⅓) [+1pts]

Racial Disadvantages:

Cowardice (Resist Quite Rarely, x2) [-20pts]; Intolerance-1 (Alien Species) [-5pts]; Secret (Fear of Violence, Serious Embarrassment) [-5pts]

Free Skills:

Language (Ropagese, Native); Area Knowledge (Ropagi II); Cultural Familiarity (Ropagu)

Racially Learned Skills and Racial Skill Bonuses:

Diplomacy at IQ+2 [+12pts]

Features/Taboos:

None

Names:

Unknown

Description:

The Ropagu are a frail people, tall and thin, thanks to the light gravity of their homeworld Ropagi II. The average Ropagu is 5 foot 11 tall, of relatively delicate frame, wispy dark hair, pink eyes, and pale skin. Many of the men sport mustaches or beards, a badge of honor in the Ropagu society. Ropagu move with a catlike grace, and they talk in deliberate, measured tones.

The Ropagu carry no weapons and only allow their mercenary forces to go armed. Ropagu would much rather talk out any differences with an enemy than fight with him. But the pacifistic attitude of the Ropagu is not as noble as it at first might seem. Long ago, the Ropagu realized that they simply had no talent for fighting. Hence, they developed a fear of violence based on enlightened self-interest. The Ropagu thinkers took this fear and elevated it to an ideal, to make it sound less like cowardice and more like the attainment of an evolutionary plateau.

The Ropagu hire extensive muscle from offworld for all the thankless tasks such as freighter escort, Offworlder's Quarter security and starport security. The Ropagu pay well, either in credits or services rendered (such as computer and droid repair, overhaul, etc.). They don't enjoy mixing with foreigners, however, and restrict outsiders' movements to the city off Offworlder's Quarter.

The importation of firearms and other weapons of destruction are absolutely forbidden by Ropagu law. Anyone caught smuggling weapons anywhere on the planet, including the Offworlder's Quarter, is imprisoned for a minimum of two-years.

The near-Humans of Ropagi II share an unusual symbiotic relationship with domestic aliens known as the Kalduu.

Notes:

Ropagu PCs are not recommended.

CP:

Type	CP
Attribute Adjustment	-10
Secondary Characteristic Adjustment	-4
Tech Level	0
Racial Advantages	+1
Racial Disadvantages	-30
Racially Learned Skills and Racial Bonuses	+12
TOTAL	-31

Ruurian

Origin:

Ruuria

Tech Level:

11

Features/Taboos:

None

Names:

Examples Names are Amisus, Reeor Bufaali, Laalu Daorjay, Vobaa Eelunri, Bivikorn Phaanan, Skynx, and Tuur Raarbossi.

Description:

Ruurians are small caterpillar-like species known in the Corporate Sector for their scholarly achievements and their linguistic ability. They hatch from eggs as larvae and immediately enter the work force, caring for their elders, manufacturing goods, and running Ruuria's government. After years spent as a larva, a Ruurian enters the pupa stage, emerging from its chrysalis as a butterfly-like chroma-wing. Chroma-wings are concerned only with mating, eating, and sleeping, leaving societal matters to the younger generation.

Due to their high intelligence and natural talent for learning languages, Ruurian larvae find work throughout the galaxy as diplomats and instructors. Many Ruurians demonstrate impressive artistic skills as well, becoming renowned musicians, architects, and designers.

Larval Ruurians are the most commonly encountered members of their species. They are sensitive, thoughtful, and responsible beings. Chroma-wings lose much of their intellectual acuity, are generally shy or aloof, and grow increasingly lazy over time, as all of their needs are seen to by their larval offspring.

Ruurians are arthropodal beings with long tubular bodies, red multifaceted eyes, feathery antennae, and fur marked with re-brown rings. The average Ruurian larva stands about 3 foot 7 tall. Ruurian chroma-wings also have bright, colorful wings.

Their homeworld Ruuria is a warm, humid jungle world near the Corporate Sector. It boasts some of the finest institutes of higher learning, which specializes in intellectual sciences such as mathematics, physics, and philosophy.

Notes:

Chroma-wing PCs are not recommended.
When a Larva is middle aged (about 35 years) the profile is replaced with the Chroma-wing template.

Larva

Attribute Adjustment:

ST-1 (-10pts); IQ+2 [+40pts]; HT-1 [-10pts]

Secondary Characteristic Adjustment:

SM-1

Racial Advantages:

Extra Arms+8 (Short, -50%) [+40pts]; Extra Legs +4 [+10pts]; Language Talent [+10pts]; Talent (Mathematical Ability+1 or Musical Ability+2) [+10pts]

Racial Disadvantages:

Duty (Caring the Elders, Almost all the time, Nonhazardous) [-10pts]; Short Lifespan-1 [-10pts]

Free Skills:

Language (Ruurese, Native); Area Knowledge (Ruuria)

Racially Learned Skills and Racial Skill Bonuses:

None

CP:

Type	CP
Attribute Adjustment	+20
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+70
Racial Disadvantages	-20
Racially Learned Skills and Racial Bonuses	0
TOTAL	+70

Chroma-wing

Attribute Adjustment:

ST-1 [-10pts]; HT-1 [-10pts}

Secondary Characteristic Adjustment:

SM-1

Racial Advantages:

Appearance (Beautiful/Handsome) [+12pts]; Flight (Winged, -25%) [+30pts]; Independent Income (Cared by Larva) [+1pt}

Racial Disadvantages:

Absent Mindedness [-15pts]; Fragile (Brittle, Wings only, x⅔) [-10pts]; Gluttony [-5pts]; Hidebound [-5pts]; Laziness [-10pts]; Lecherousness [-15pts]; Short Lifespan-1 [-10pts]; Sleepy (half of the time) [-8pts]

Free Skills:

Language (Ruurese, Native); Area Knowledge (Ruuria)

Racially Learned Skills and Racial Skill Bonuses:

Skills learned as Larva.

CP:

Type	CP
Attribute Adjustment	-20
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+43
Racial Disadvantages	-78
Racially Learned Skills and Racial Bonuses	0
TOTAL	-55

Rybet

Origin:

Unknown

Tech Level:

11

Features/Taboos:

None

Names:

Examples names are Rilba Brink, Moruth Doole, Brilf Greepto, Gribbet, and Brayg Krenimee.

Description:

A species of galactic nomads who only interact with others of their kind to mate, Rybets claim to have evolved on Varl, the now devastated, some say legendary, homeworld of the Hutts. Despite this proclamation, the species' planet of origin remains uncertain. Much of the species' history was lost during the Clone Wars, but the Rybets claim that a war between their species and the Hutts nearly destroyed Varl and that, given time, the Rybets will rise again to destroy their old enemies (a threat that amuses the Hutts). The Hutts hold fast to their beliefs that they were the sole beings to survive the mysterious destruction that was visited upon the Ardos system long before the dawn of recorded history.
Most scholars side with the Huts, although no one can offer a better explanation for the origin of the Rybets. Whatever the truth, strong hatred exists between Rybets and Hutts.

Rybets are encountered along heavily traveled space lanes in the Mid and Outer Rim Territories. They shun planet life, preferring to live aboard starships, orbital facilities, or starports. A few work as transport pilots, starship mechanics, and spaceport engineers; many earn a living by operating tramp freighters and hauling small cargoes and contraband. Rybets have a knack for ending up on the wrong side of the law, and experienced spacefarers who rely on privately owned ships for travel hesitate to travel on Rybet-operated freighters and transports, for the risk of never reaching their destination is too great.

Xenobiologists estimate that fewer than one billion Rybets live in the galaxy. Some attribute the species' relative scarcity on their solitary nature and the lack of any established Rybet settlement. Also to blame is the species' gender opposition: Rybet males inexplicably detest Rybet females. (The reverse is true of the female of the species.) Only an overwhelming compulsion to reproduce can overcome the males' fear and loathing of Rybet females. Rybets feel a drive to reproduce every 10 years of their adult lives.

Females lay a clutch of between three and eight eggs. A Rybet couple stays together for a year or two, typically slaving their ships together and each taking part in the early rearing of the children. Eventually, however, they start to grate on each other's nerves; if the male doesn't leave of his own accord, he often ends up dead or maimed. Rybet children mature swiftly. By the age of five, they are ready to attempt to make their way in the galaxy. A Rybet mother who slays the father typically sells his ship, giving her young the proceeds with which to start their lives, if not, they must figure out how to make it on their own after their mother tosses them off her ship.

Rybet are sly, astute, impertinent opportunists. They are well adapted for life in space, prefer a nomadic lifestyle, and would rather live in a starship's gloomy cargo hold than the most opulent palace on any world. They don't like to stay in one place for long, and their grasp of morals and ethics is questionable at best.

The Rybet are short, squat humanoids with rough-textured green skin and four long fingers and toes that end in vestigial suction cups. Skin colors range from bright green to deep olive, with faint ochre stripes along their cheeks. Their eyes are bulbous and lantern-like, with upper and lower eyelids that close across the center of the eye. Adult males stand between 3 foot 11 and 4 foot 11, while females stand between 4 foot 11 and 6 foot 3.

Notes:

Most other species find the notion of a Rybet Jedi laughable, and no Rybet has yet found the Jedi way of life alluring.

Females

Attribute Adjustment:

ST+1 [+10pts]; -1 DX [-20pts];

Secondary Characteristic Adjustment:

None

Racial Advantages:

Amphibious [+10pts]; Doesn't Breathe (Gills, -50%) [+10pts]; Early Maturation 2 [opts]

Racial Disadvantages:

Intolerance-5 (Opposite Sex, except once every ten years) [-10pts]; Reputation-2 (sly, astute, impertinent opportunists, Spacefarers, x½, All the time, x1) [-5pts]; Selfish [-5pts]

Free Skills:

Language (Rybese, Native); Area Knowledge (One starship, orbital starbase or starport)

Racially Learned Skills and Racial Skill Bonuses:

Crewman/TL11 (Spacer) at IQ+1 [+2pts]

CP:

Type	CP
Attribute Adjustment	-10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+20
Racial Disadvantages	-20
Racially Learned Skills and Racial Bonuses	+2
TOTAL	+8

Males

Attribute Adjustment:

ST-1 [-10pts]; +1 DX [+20pts];

Secondary Characteristic Adjustment:

SM-1

Racial Advantages:

Amphibious [+10pts]; Doesn't Breathe (Gills, -50%) [+10pts]; Early Maturation 2 [0pts]

Racial Disadvantages:

Intolerance-5 (Opposite Sex, except once every ten years) [-10pts]; Reputation-2 (sly, astute, impertinent opportunists, Spacefarers, x½, All the time, x1) [-5pts]; Selfish [-5pts]

Free Skills:

Language (Rybese, Native); Area Knowledge (One starship, orbital starbase or starport)

Racially Learned Skills and Racial Skill Bonuses:

Crewman/TL11 (Spacer) at IQ+1 [+2pts]

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+20
Racial Disadvantages	-20
Racially Learned Skills and Racial Bonuses	+2
TOTAL	+12

Ryn

Attribute Adjustment:

None

Secondary Characteristic Adjustment:

None

Origin:

Somewhere in the Core Worlds region

Tech Level:

11

Racial Advantages:

Extra Arms (Tail, Extra Flexible, +50%, No Physical Attack, -50%, Weak STx½, -50%) [+5pts]; Talent (Musical Ability+1) [+5pts]; Teeth (Musical Beak) [+1pt]

Racial Disadvantages:

Odious Racial Habit-1 (Body odor) [-5pts]; Reputation-1 (thieves and confidence tricksters, Almost everyone but own race, x1, All the time, x1) [-5pt]

Free Skills:

Language (Ryn, Native); Area Knowledge (Anyone planet)

Racially Learned Skills and Racial Skill Bonuses:

Language (Basic, Accented) [+4pts]; Musical Instrument (Flute) at IQ-2 [+1pt]

Features/Taboos:

None

Names:

Example names are Clarani, Doumar, Droma, Gaph, Keizpol, Melisma, Mezza, Neldor, Ormarda, Reznim, Romany, R'vanna, Spaha, and Shimor.

Description:

The Ryns are a species of interstellar vagabonds who wander the galaxy as spacehands, merchants, construction workers, pilots, and scouts. Known for their exhilarating music and transience, Ryn posses a certain gypsy-like quality.

The Ryn have been spacefarers for so long that they have forgotten where they originated. Not even the great libraries of Obroa-skai or Woostri can confirm their distant origin. Theories about why the Ryn spread across the galaxy are abundant, and the Ryn themselves have two contra dictionary legends regarding their past. One says that the Ryn were once fierce warriors who were set against a long-forgotten Inner Rim threat. Another professes that the Ryn people volunteered ten thousand of their musicians and entertainers to a nearby world whose culture lacked poets and artists. The single largest concentration of Ryn during the New Jedi Order era lies in a remote corner of the Corporate Sector.

Universally reviled and distrusted, Ryn have a reputation as thieves and confidence tricksters, and their personal philosophy about doing whatever it takes to survive only strengthens that reputation. The Yuuzhan Vong invasion of the galaxy during the New Jedi Order era creates millions of refugees in the Tingel Arm of the galaxy. During this difficult time, the Ryn are ostracized and invariably relegated to the worst parts of the refugee camps. Because of their superstitions regarding personal hygiene, or more accurately lack of thereof, the characteristic odor of the Ryn means that the "worst part" of a refugee camp is somewhere near the communal latrines.

Ryn are flamboyant, gregarious, self-sufficient, and driven. They work hard, often seeking employment as entertainers, tradesfolk, mechanics, and spacehands. They love secrets and have come to expect little from other species: hence, they are instinctively wary of any non-Ryn who offers them aid.

Ryn have sharp features, slender tails, and skin toes ranging from light purple to deep blue-black. Their bodies are covered with smoky-hued fuzz ranging in color from light brown to snow-white. Ryn tend to have brown or blue eyes, although a few have green or amber eyes. Their chitinous beaks are perforated and extend down past their thin-lipped mouths. Male Ryn cultivate large, snow-white mustaches to match their unkempt shock-white hair.

Ryn adults stand about 5 foot 5 tall.

Notes:

Ryn Force users are known to exist, but Ryn have yet to embrace any Jedi tradition.

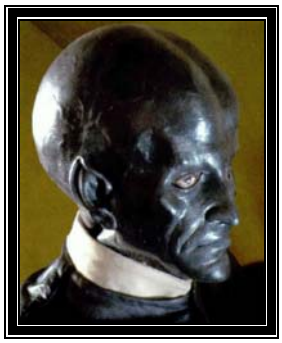
Musical Beak: A Ryn can play his or her perforated beak like a musical instrument. For the most part, Ryn only play their beaks to amuse children, but some Ryn become so good at it that they can imitate the Binary language spoken by many droids with a successful Musical Instrument (Flute) skill check. Unless the Ryn has the Language (Binary, Spoken) skill, he cannot communicate with a droid in this fashion.

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+11
Racial Disadvantages	-10
Racially Learned Skills and Racial Bonuses	+5
TOTAL	+6

-S-

Sakiyan



Attribute Adjustment:

None

Secondary Characteristic Adjustment:

Per+2 [+10]; SM+1

Origin:

Saki

Tech Level:

11

Racial Advantages:

Dark Vision [+25pts]

Racial Disadvantages:

Careful [-1pt]; Chauvinistic (Other species) [-1pt]; Dislikes (To be proven wrong) [-1pt]; No Sense of Humor [-10pts]

Free Skills:

Language (Sakiyan, Native); Area Knowledge (Saki)

Racially Learned Skills and Racial Skill Bonuses:

Engineer/TL11 (Repulsorlift Vehicles at IQ-1 or Mechanic/TL11 (Repulsorlift Vehicles) at IQ [+2pts]

Features/Taboos:

None

Names:

Example names are Ejaf Ya-Drun, Johr Penyk, Djas Puhr, Kol Rzad, Tudan Sal, Moja Skunax, and Vihn Thas.

Description:

Sakiyans rarely venture far from their home system, showing little interest in traveling or trading with the galaxy at large.

During the days of the Old Republic, there was some dispute among xenobiologists as to whether Sakiyans should be classified as a near-Human species. The unusual structure of their brain led Imperial xenobiologists to conclude that they were a distinctly alien species.

The highly evolved Sakiyan brain is nearly twice the size of the average Human brain. While the Bith brain remains one of the most advanced among the common alien species, the parts of the Sakiyan brain that process sensory input are superior even to the Bith. These keen senses helped primitive Sakiyans survive against the fierce predators of their homeworld, but even as the species developed the intellect to use tools and construct weapons and shelters, they retained their sharp senses. In fact, Sakiyans possess what other species consider nigh-supernatural perception.

A series of offworld invasions punctuate Sakiyan history, during which the culture survived by maintaining a constant state of vigilance. Evacuation plans are meticulously prepared and constantly revised. Most Sakiyan communities have multiple plans for evacuation in case of invasion and war. Further, every household and government agency relies on lightweight repulsorlift platforms to quickly transport people, resources and supplies to safe havens. Once mobile, Sakiyan troops then conduct a constant series of hit-and-run attacks against enemies until their invaders withdraw from the conquered lands. Sakiyan colonies carry with them the tradition of defense and mobility, resisting domination by the Sith, the forces of the Tion Hegemony, and other oppression in recent centuries, they have fallen under the economic control of the Hutts but have averted outright enslavement by keeping the "slugs" at arm's length in every place except Saki's major trade centers.

The ties between the Sakiyans and the Hutts are primarily forged around repulsorlift technology. Sakiyans quickly adopted and improved repulsorlift technology introduced to them by Old Republic scouts. Over the centuries, thy have adapted the technology to their needs, focusing primarily on making the motivator smaller and more efficient. The Hutts are particularly fond of Sakiyan repulsorlift technology, as it allows them to construct smaller and more elegant repulsor sleds.

Thanks to its location near the heart of Hutt Space, the Sakiyan homeworld escaped tyranny of the Empire, although many Sakiyan technicians were forced to relocate to Imperial research installations, where they contributed to the development of a new generation of Imperial repulsortanks. The Saki system also escaped the notice of the Yuuzhan Vong as they pressed into Hutt Space, at least during the first advance. The Sakiyan leadership remains concerned that their traditional method of dealing with alien invasions may not work if the war fleets of the Yuuzhan Vong strike against their home. While they generally ignored Hapan and New Republic political overtures before the appearance of the Yuuzhan Vong (directing them instead to the Hutts), the Sakiyan have shown an interest in helping the Hapes Consortium and New Republic mount a counter-offensive.

Sakiyans are cautious in their dealings with other species and usually place the interest of themselves and their communities above others. They don't like to be proven wrong and have poor sense of humor.

Sakiyans are hairless, and their skin color ranges from jet-black to deep purple and crimson. (A pale-skinned subspecies also exists, but Sakiyan society normally treats them as outcasts.) The have large craniums and pupils that contract into slits instead of points. Adults stand around 6 foot 1 tall.

The Sakiyan homeworld is the tropical world of Saki, located near the astrographical center of Hutt Space in the Outer Rim.

Notes:

A Sakiyan named Djas Puhr can be seen sitting with Muftak the Talz and several other aliens in the cantina in Episode IV: A New Hope.

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	+10
Tech Level	0
Racial Advantages	+25
Racial Disadvantages	-13
Racially Learned Skills and Racial Bonuses	+2
TOTAL	+24

Sanyassan

Attribute Adjustment:

ST+1 [+9pts]; DX-1 [-20pts]; IQ-1 [-20pts]; HT+1 [+10pts]

Secondary Characteristic Adjustment:

SM+1

Origin:

Sanyassa IV

Tech Level:

10 – Low TL-1 [-5pts]

Racial Advantages:

Damage Resistance+1(Tough Skin, -40%, Physical, -20%) [+2pts]

Racial Disadvantages:

Bad Temper (Resist quite rarely, x2) [-20pts]; Reputation-1 (Aggressive warriors & brawlers, Almost everyone but own race, x1, All the time, x1) [-5pts]

Free Skills:

Language (Sanyassan, Native); Area knowledge (Sanyassa IV)

Racially Learned Skills and Racial Skill Bonuses:

Language (Basic, Broken) [+2pts]; Intimidate at Will [+2pts]; Survival at Per (Choose one land-dweller specialization) [+2pts]

Features/Taboos:

None

Names:

Examples names are Dranjat, Jorat, Krenna, Kresho, Luryk, Maygo, S'Zingo, Terak, Terakaya, Urkreg, Vortek, and Zaykul.

Description:

These barbaric space marauders have been pests in the outer part of the Moddell Sector for as long as anyone can remember. The homeworld is host to billion surly Sanyassans, most of whom crave getting to the stars.

Most species known the Sanyassans as aggressive warriors and brawlers, famed for their strength and temper and lack of deep thought. Their history hints at eras in which Sanyassan society was much more advanced than the might-make-right kleptocracy found on their homeworld during the time of the Old Republic, the Rebellion, and the New Republic. Although technologically primitive by galactic standards, the warlike species stole the secrets of space flight and are taking to the stars with expansionist zeal. Sanyassan hunting parties like to prey upon the peaceful inhabitants of Endor's forest moon, and Ewoks shudder at the horrible tales of the "demons from the dark star".

Sanyassans ruthlessly prowl the Moddell Sector in their scavenged ships, attacking anyone who crosses their path and stealing whatever new technology they can salvage from razed colonies and the wrecks of enemy ships. Other species take advantage of the Sanyassans' vicious nature, arming them with the latest weapons and employing them as thugs, bodyguards, and shock troops.

Brutal and unforgiving, Sanyassans are calculating predators and ruthless scavengers who respect only strength and steal whatever they can't make.

Sanyassans have leathery skin the color of clay. They stand about 6 foot 8 tall with powerfully built frames. Their primate faces can best be described as "skull-like", with their skin pulled tautly over their bones. Sanyassans have deep set eyes, crowned with jutting eyebrows and a relatively small mouth with extremely thin lips. They have high foreheads, and straggly manes of black hair fall on their shoulders.

The Sanyassan homeworld is the gloomy, stormy world of Sanyassa IV, located in the Outer Rim.

Notes:

Sanyassan marauders can be seen on Endor in "Ewoks: The Battle for Endor".

CP:

Type	CP
Attribute Adjustment	-21
Secondary Characteristic Adjustment	0
Tech Level	-5
Racial Advantages	+2
Racial Disadvantages	-25
Racially Learned Skills and Racial Bonuses	+6
TOTAL	-43

Sarkan

Attribute Adjustment:

ST+1 [+9pts]

Secondary Characteristic Adjustment:

SM+1

Origin:

Sarka

Tech Level:

11

Racial Advantages:

Claws (Sharp Claws) [+5pts]; Damage Resistance+2 (Though Skin, -40%, Physical, -20%) [+4pts]; Night Vision 1 [+1pt]; Striker (Tail, crushing, Long+1, +100%, Cannot Parry, -40%, Limited Arc – Back, -40%) [+6pts]

Racial Disadvantages:

Code of Honor (Sarkan Code of Conduct) [-15pts]; Cold Blooded [-5pts]; Proud [-1pt]; Likes (Travel in groups of three) [-1pt]; Likes (Wear highly adorned outfits) [-1pt]

Free Skills:

Language (Sarkese, Native); Area Knowledge (Sarka)

Racially Learned Skills and Racial Skill Bonuses:

Brawling at DX+1 [+2pts]

Features/Taboos:

None

Names:

Example names are B'neer, Demesk, Fisuran, Ganis, Jilieren, Melas, Siran, Sonus, Tybellor, and U'vala.

Description:

Sarkans do not typically leave their homeworld. When they must travel the galaxy, they usually do so in groups of at least three, a holdover from a time when their society was heavily dominated by a caste structure. Solitary Sarkans are usually outcasts who have committed a grave offense on their homeworld.

Sarkan technology is equal to the galactic norm, but the species never developed its own space travel. Outsiders find Sarkans difficult to interact with on a business or diplomatic level, as their intricate culture focuses on rigid, arcane codes of conduct that visiting aliens are expected to know. Those who violate Sarkan codes of conduct are dismissed as barbarians and removed from the presence of high-ranking Sarkans by efficient bodyguards. In addition to using their thick tails for added balance and stability, Sarkans trained in native martial arts traditions learn to use them as weapons.

During the reign of the Empire, the Sarkans begrudgingly allowed Humans and representatives from companies that were known to have the Emperor's favor to insult them by not adhering to the proper rituals. However, as soon as word of the Emperor's death reached their ears, they return to their traditional ways, as one startled SoroSuub broker discovered when the Sarkans suddenly demanded a formal greeting in their native tongue. SoroSuub has been trying to reestablish trade relations with Sarka ever since.

Nova rubies are among the most common gemstones on Sarka, but they appear on no other world and remain a valuable commodity in most of the settled galaxy. Sarkans have used the nova rubies to become fabulously wealthy, and while some of the galaxy's most luxurious resorts and spaceports lie on Sarka, the natives find the "foolish aliens" who covet the useless glowing stones amusing.

Proud and aloof, Sarkans value ritual and protocol and have little patience for those who demonstrate an ignorance of Sarkan customs and culture. They consider even innocent comparisons to other cultures an insult. Most Sarkans are condescending, uptight, and difficult to please, but they can also be gracious and helpful to individuals who earn their respect or friendship.

Sarkans are tall reptiles with green scaly hides, yellow eyes with slit pupils, and thick tails. They have tapered snouts, and their mouths are filled with razor-sharp fangs. They often decorate their claws with multicolored varnish and clan symbols. They favor brightly colored, baggy clothing frequently decorated with gemstones. Males and females both stand around 2 foot 9 tall as adults.

The Sarkan homeworld is the gem-rich planet of Sarka, located in the Mid Rim.

Notes:

A Sarkan PC is not recommended.

CP:

Type	CP
Attribute Adjustment	+9
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+16
Racial Disadvantages	-23
Racially Learned Skills and Racial Bonuses	+2
TOTAL	+4

Saurin

Attribute Adjustment:

ST+1 [+9pts]; IQ-1 [-20pts]

Secondary Characteristic Adjustment:

SM+1

Origin:

Durkteel

Tech Level:

11

Racial Advantages:

Claws (Talons) [+8pts]; Damage Resistance+12 (Tough Hide, -40%, Physical, -20%) [+4pts]

Racial Disadvantages:

Cold Blooded [-5pts]

Free Skills:

Language (Dosh, Native); Area Knowledge (Durkteel)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Example names are Gauron Nas Tal, Hrchek Kal Fas, and Sai'torr Kal Fas.

Description:

They were a reptilian subspecies of Trandoshan that evolved along a separate lineage from their ancestors, notably different in their physiology for featuring translucent eyes, and having adapted five-fingered hands, with shorter fingers than their genetic cousins. Their skin color has green and brown blends. An average adult Saurin stands about 6 foot 6 tall.

It is unknown if Saurins carried the Trandoshan ability to regenerate lost limbs, or held any of the basic beliefs, such as scoring kills to appease the deity The Scorekeeper.

The Saurin homeworld is the planet Durkteel located in the Mid Rim. In 22 BBY the Saurins allowed a RRM (Refugee Relief Movement) settlement on their planet.

Notes:

Two Saurins can be seen in the Mos Eisley Cantina in Star Wars Episode IV: A New Hope.

CP:

Type	CP
Attribute Adjustment	-11

Secondary Characteristic Adjustment	-0
Tech Level	0
Racial Advantages	+12
Racial Disadvantages	-5
Racially Learned Skills and Racial Bonuses	0
TOTAL	-4

Sauvax

Attribute Adjustment:

ST+1 [+10pts]; DX-1 [-12pts]; HT+1 [+10pts]

Secondary Characteristic Adjustment:

None

Origin:

Leritor

Tech Level:

3 – Low TL-8 [-40pts]

Racial Advantages:

360° Vision (Easy to hit, -20%) [+20pts]; Acute Senses (Acute Hearing+2, Antennae) [+4pts]; Amphibious [+10pts]; Claws (Long Talons, Crushing) [+11pts]; Damage Resistance+4 (Carapace, Can't wear armor, -40%) [+12pts]; Doesn't Breathe (Oxygen Absorption, -25%) [+15pts]; Extra Legs 6 [+10pts]

Racial Disadvantages:

No Fine Manipulators [-30pts]; Likes (Own dwellings and tools) [-1pt]

Free Skills:

Language (Sauvax, Native); Area Knowledge (Leritor)

Racially Learned Skills and Racial Skill Bonuses:

Survival (Island/Beach, Bank, Reef, and Salt-water Sea) at Per-1 [+4pts]; Swim at HT+1 [+2pts]

Features/Taboos:

None

Names:

Examples of names are Chuuvus, Gurruul, Juucsuur, Xruuvum, Muurbux, Tchuul, Uukk, and Vrujuun.

Description:

The Sauvax are amphibious crustaceans who inhabit the coastal regions of Leritor, growing and hunting food and building villages along the crags, tidal pools, and beaches. On land, they propel themselves on six spindly, segmental legs; in water, they swim using their underbelly bristles and twin, rudder-like tails.

Sauvax fashion their own dwellings and tools for daily life, though their civilization is quite primitive. They most commonly carry a multipurpose spear (called a gruush in their won language). They use it to hunt fish in the waters of the continental shelf and cultivate various crops of seaweed and slime in tidal pools. Sauvax live in tribal villages called kuuvan (a term that also means "tribe"), consisting if structures made from stone and buttressed with sand and deadwood. Outsiders understand little of their society and culture since settlers rarely encounter them.

Most offworlders who encounter Sauvax view them as brusque, pushy, and intent on pursuing their business with minimal fuss. Sauvax generally keep to themselves but can be fierce when threatened.

A flexible, chitinous shell covers the bulk of a Sauvax's head and torso. Their extruding eyes allow for greater visibility, and two delicate antennae augment their senses. Their bulky arms seem awkward above ground and serve as formidable weapons, on each hand, two massive digits (one opposed) form an oversized pincer claw, while three smaller digits (one opposed) enable finer manipulation. Adult Sauvax stand about 5 foot 5 tall.

The Sauvax homeworld Leritor is a mineral-rich but otherwise unremarkable planet located near Bothan space in the Mid Rim.

Notes:

No Sauvax Force-users have ever been encountered.

CP:

Type	CP
Attribute Adjustment	+8
Secondary Characteristic Adjustment	0
Tech Level	-40
Racial Advantages	+82
Racial Disadvantages	-31
Racially Learned Skills and Racial Bonuses	+6
TOTAL	+25

Sedrian

Attribute Adjustment:

ST+2 [+16pts]

Secondary Characteristic Adjustment:

SM+2

Origin:

Sedri

Tech Level:

11

Racial Advantages:

Amphibious [+10pts]; Detect (Electric fields, Occasional) [+10pts]; Doesn't Breathe (Gills, -50%) [+10pts]; Extra Legs 4 (Cannot Kick, -50%) [+3pts]; Nictitating Membrane 1 [+1pt]; Pressure Support 1 [+5pts]; Speak Underwater [+5pts]

Racial Disadvantages:

Addiction (Golden Sun, Cheap, Totally Addictive, Legal, Psychological – Bad Temper) [-10pts]; No Legs (Semi-Aquatic) [0pts]

Free Skills:

Language (Sedrian, Native); Area Knowledge (Sedri)

Racially Learned Skills and Racial Skill Bonuses:
Swim at HT+1 [+2pts]

Features/Taboos:
None

Names:
Unknown

Description:
Sedrian society was based on the worship of the Golden Sun, a communal Force-sensitive intelligence living in a coral reef. Golden Sun was kept in a dome in the Sedrian capital city of Fitsay, where it provided source of energy for the Sedrians' early industrial technology. All Sedrian technology was based on energy from the Golden Sun, even their medical science was limited to laving the sick or injured in the Golden Sun's cavern so the Golden Sun could use Force Healing on them. The High Priests of Golden Sun was the ruler of Sedri. Ironically, though the Sedrians worshipped Golden Sun, they did not realize it was an intelligent living being.

Few Sedrians were found away from Sedri, primarily because separation from the Golden Sun made them agitated, anxious, and sometimes violent. Those who were found offworld were usually slaves. Some of these Sedrians worked as underwater researchers or explorers. Among the exceptions was the Shahlik family, who maintained the Imperial aquaria on Kailor V. This family, however, had lived away from Sedri for several generations.

After a Rebel Alliance group helped the Sedrians drive an Imperial garrison away from Sedri, the Sedrians became supporters of the Alliance, and later the New Republic. SedriMotors manufactured the Amphibion aquatic assault vessels used by the New Republic during the Battle of Mon Calamari in 10 ABY.

The Sedrians were aquatic mammals about 9 foot 10 long, covered in sleek yellow, brown, or gray fur. They had two arms with web-fingered hands, a pair of stabilizing fins at their hips, and legs were joined together into a pair of tail flukes. The whiskers on their head could detect movement or changing electric fields underwater. Unlike most aquatic mammals, Sedrians have both gills and lungs.

The Sedrian homeworld Sedri is an oceanic planet.

Notes:
A Sedrian PC is not recommended.

CP:

Type	CP
Attribute Adjustment	+16
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+44
Racial Disadvantages	-10
Racially Learned Skills and Racial Bonuses	+2
TOTAL	+52

Seikoshan

Attribute Adjustment:
ST+2 [+18pts]

Secondary Characteristic Adjustment:
SM+1

Origin:
Seikosha

Tech Level:
4 – Low TL-7 [-35pts]

Racial Advantages:
None

Racial Disadvantages:
None

Free Skills:
Language (Seikoshan, Native); Area Knowledge (Seikosha)

Racially Learned Skills and Racial Skill Bonuses:
Stranglestick skill at DX [+2pts]

Features/Taboos:
None

Names:
Unknown

Description:
The Seikoshans were sapient indigenous to Seikosha, a planet in the Breago system which remained neutral in the Galactic Civil War. They were very tall humanoids, standing 8 foot 2 tall, with pale green skin and unblinking red eyes. They were hairless but for a small amount of black hair on the top of their heads and had shallow crenellations from the bridge of their nose to their cranium.

They generally wear homespun cloth tunics and breeches, and carry their belongings in large backpacks.

They are generally even tempered, but a handful of rebel Seikoshans despise the despoilment of their planet and the mistreatment of their fellow Seikoshans by the new crime lords. These rebels are willing to embrace unfamiliar technologies and violent methods to remove unwelcome visitors.

Their homeworld Seikosha is an undeveloped jungle in the Breago system located in the Borderland region.

Notes:
This species is taken from the WEG book titled "The politics of Contraband". As soon as I have a copy of this book this species will be described in more detail.

CP:

Type	CP
Attribute Adjustment	+18
Secondary Characteristic Adjustment	0
Tech Level	-35
Racial Advantages	0
Racial Disadvantages	0
Racially Learned Skills and Racial Bonuses	+2
TOTAL	-15

Sekct

Attribute Adjustment:

IQ-1 [-20pts]

Secondary Characteristic Adjustment:

SM-2

Origin:

Marca

Tech Level:

0 – Low TL-11 [-55pts]

Racial Advantages:

Amphibious [+10pts]; Arm DX+1 [+16pts]; High Manual Dexterity+1 [+5pts]; Teeth (Sharp) [+1pt]

Racial Disadvantages:

Code of Honor (Sekct Code of Honor) [-15pts]; Cold-Blooded [-10pts]; Bowlegged [-1pt]

Free Skills:

Language (Sekctese, Native); Area Knowledge (Marca)

Racially Learned Skills and Racial Skill Bonuses:

Stealth at DX-1 [+1pts]; One land-based and one water-based Survival skill at Per [+4pts]; Swimming at HT+1 [+2pts]; Tracking at Per [+2pts]

Features/Taboos:

None

Names:

Unknown

Description:

The only sentient life forms native to Marca, are a species of reptilian bipeds who call themselves the Sekct. They are small creatures, standing about one yard in height. They look like small, smooth-skinned lizards. Their eyes are large, and set into the front of the skull to provide stereoscopic vision. The have no external ears.

They walk upright on their hind legs, using their long tails for balance. Their forelimbs have two major joints, both of which are double-jointed, and are tipped with hands each with six slender fingers and an opposable thumb. These fingers are very dexterous, and suitable for delicate manipulation.

Sekct are amphibious, and equally at home on land or in the water. Their hind feet are webbed, allowing them to swim rapidly. Sekct range in color from dark, muddy brown to a light-tan. In general, the color of their skin lightens as they age, although the rate of change varies from individual to individual.

The small bipeds are fully parthenogenesis; that is all Sekct are female. Every two years, a sexually mature Sekct lays a leathery egg, from which hatches a single offspring. Theoretically, this offspring should be genetically identical to its parent; such is the nature of parthenogenesis. In the case of the Sekct, however, their genetic code is so susceptible to change that random mutations virtually ensure that each offspring is different from its parent. This susceptibility carries with it a high cost, only one egg in two ever hatches, and the Sekct are very sensitive to influences from the outside environment. Common environmental byproducts of industrialization would definitely threaten their ecology.

Sekct are sentient, but fairly primitive. They operate in hunter-gatherer bands of between 20 and 40 individuals. Each such band is led by a chief, referred to by the Sekct as "She-Who-Speaks". The chief is traditionally the strongest member of the band, although in some bands this is changing and the chief is the wisest Sekct. The Sekct are skillful hunters.

Despite their small size, Sekct are exceptionally strong. They are also highly skilled with the weapons they make from the bones of mosrk'teck and thunder lizards.

The creatures have no conception of writing or any mechanical device more sophisticated than a spear or club. They do have a highly developed oral tradition, and many Sekct ceremonies involve hearing the "Ancient Words", a form of epic poem, recited by She-Who-Speaks. The Ancient Words take many hours to recite in their entirety. Their native tongue is complex. Sekct have learned some Basic fro Humans over the years, but have an imperfect grasp of the language because they tend to translate it into a form more akin to their own tongue.

The Sekct have a well-developed code of honor, and believe in fairness of all things. To break an oath or an assumed obligation is the worst of all sins, punishable by expulsion and complete ostracism. Ostracized Sekct usually end up killing themselves within a couple of days.

Notes:

None

CP:

Type	CP
Attribute Adjustment	-20
Secondary Characteristic Adjustment	0
Tech Level	-55
Racial Advantages	+32
Racial Disadvantages	-26
Racially Learned Skills and Racial Bonuses	+9
TOTAL	-60

Selonian

Attribute Adjustment:

DX+1 [+20pts]

Secondary Characteristic Adjustment:

Will-1 [-5pts]; Basic Move+1 [+5pts]; SM+1

Origin:

Selonia

Tech Level:

11

Racial Advantages:

Claws (Sharp) [+5pts]; Dark Vision [+25pts]

Racial Disadvantages:

No Sense of Humor [-10pts]; Obsession (Safety of Selonian Den) [-10pts]; Phobias (Agoraphobia) [-10pts]; Sexless (Sterile Females only) [0pts]; Truthfulness (Resist quite rarely, x2) [-10pts]

Free Skills:

Language (Selonian, Native); Area Knowledge (Selonia)

Racially Learned Skills and Racial Skill Bonuses:

Swimming at HT+1 [+2pts]

Features/Taboos:

Tail

Names:

Examples names are Cavisek, Chertyl, Ruluwoot, Dracmus, Kleyvits, Maronea, Salculd, and Vissica.

Description:

The Selonians are sentient mammals native to the Corellian system. Their society is organized around "dens". Each den lives in an underground commune that consists of one fertile female, called the Queen, a few fertile males, and a large number of sterile females. Within the den exists sub-groups called "septs", offspring fathered by the same fertile male, and each sept is usually trained to perform specific tasks and jobs. A Queen can be pregnant up to five times each year, each time giving birth to five or more children. Sterile females fill most roles in Selonian society, while the Queens and males are kept safely in the dens. Selonian "cities" are actually collections of several dens, each of which primarily specializes in a skill or craft. These dens aid and support each other through a complicated system of bartering and favor exchanges.

Selonians are primarily concerned with the safety of their dens and their people as a whole. Almost without fail, they believe that the needs of the group are more important than the desires of an individual, and every action they take is intended to further the goals of their den or the welfare of their species in general.

Despite their seemingly primitive society, Selonian technology is on par with the galactic standard; their dens are linked through computer networks and rapid transit systems, and their industrial production capacity helps feed the ravenous Corellian Engineering Shipyards with high-tech components. Selonians have also long been masters of their own starship technology, building vessels that carry them throughout the Corellian star system. They do not build hyperdrive-equipped ships since they do not, as a people have much interest in venturing beyond the Corellian system.

Their lack of interest in the galaxy at large, and the policy of only sending carefully trained Selonians to interact with other species, kept the Selonians mostly safe from Imperial domination. They were swept up in power struggles that followed the collapse of Imperial rule in the Corellian system and faced the very real possibility that their world would be destroyed. This has caused the Selonians to withdraw from most interactions with other cultures even within the Corellian system. However, the shock so unsettled Selonian society that some rare Selonians are trying to change their culture so they can deal more honestly with other species.

Most Selonians prefer to remain on their homeworld and don't care to interact with other species. Select sterile Selonian females are trained to interact with Humans and other aliens. They master mannerisms and attitudes that put the selected alien race at ease. While this causes many to view Selonians as friendly, outgoing, and charitable, the reality is that most of them have no interest beyond the good of their den. They have deep psychological need to reach a consensus.

Comfortable walking on two legs or four, Selonians are slender beings with bodies longer than those of a baseline Human but with arms and legs that are shorter. They have retractable claws on their paw-like hands. Their thick tails improve their balance when walking upright, and their narrow faces are tipped with bristly whiskers. They have sleek black or brown fur, and while they do not typically wear clothes on their homeworld, they wear appropriate uniforms or other outfits when working or visiting elsewhere. Adults stand about 6 foot 7 tall, with females being the larger of the sexes.

Their homeworld Selonia is a temperate world located in the Core Worlds region. The planet's surface consists of thousand islands separated by innumerable seas, inlets, and bays.

Notes:

None

CP:

Type	CP
Attribute Adjustment	+20
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+30
Racial Disadvantages	-40
Racially Learned Skills and Racial Bonuses	+2
TOTAL	+12

Selkath

Attribute Adjustment:

None

Secondary Characteristic Adjustment:

None

Origin:

Manaan

Tech Level:

11

Racial Advantages:

Amphibious [+10pts]; Claws (Sharp, Follow Up - Damage +1 Toxic, 0%, Cyclic – 10 seconds needs antidote, +50%) [+10pts]; Doesn't Breathe (Gills) [+10pts]; Pressure Support 2 [+10pts]; Speak Underwater [+5pts]

Racial Disadvantages:

Intolerance-1 (Other Species) [-5pts]; Vow (Great Vow never to use claws in an attack) [-15pts]; Vulnerability (Progenitor's sonic wailing, Rare, x2FP, Will-check when FP=0 or go insane) [-10pts]; Likes (Neutrality) [-1pt]

Free Skills:

Language (Selkath, Native); Area Knowledge (Manaan)

Racially Learned Skills and Racial Skill Bonuses:

Survival (Open Ocean) at PER [+2pts]; Swimming at HT+1 [+2pts]

Features/Taboos:

None

Names:

Examples of names are Bwa'lass, Duula, Jhose, Kota, Naleshekan, Qual, Shaelas, Shasa, and Shelkar.

Description:

The Selkath are an aquatic sentient species, native to the ocean-covered planet of Manaan. Since Manaan was the only natural occurring source of kolto, the Selkath had great diplomatic sway during the Sith Civil War. At that time, they generally held tightly to their neutrality; however, a few farsighted Selkath would occasionally break their neutrality in secret, and arrange deals to help their preferred side. Eventually, the kolto market disappeared and the galaxy abandoned the Selkath. It was not until the Rise of the Galactic Empire that the Selkath would have interaction with the galaxy again. After the fall of the Empire, the Selkath abandoned their neutrality and joined the New Republic.

As an aquatic species, the Selkath are very good swimmers. While their young need water to survive, once they mature they are able to breathe air. They resemble anthropomorphic sting rays and have blue- or green-colored skin, which is patterned for underwater camouflage. Their mouths are bracketed by cephalic lobes which presumably direct plankton into their mouths. They tend to stroke these during conversation, something similar to what Humans do with facial hair, such as mustaches. An average adult Selkath stands around 5 foot 3 tall.

All members of the Selkath race have retractable venom-tipped claws. Similar to Wookiees, the use of these claws in any form of combat or attack was considered dishonorable and a sign of madness; to do this was to give in to animal instincts unbecoming of a sentient species. When the Progenitor drove the Selkath at the Hrakert rift station insane, they used their claws to strike down Republic technicians.

A large female firaxan shark known as the Progenitor was seen as something of a deity to the Selkath, and she was believed to be their evolutionary ancestor. If that is true, than the smaller firaxa sharks are a non-sentient species related to the Selkath.

Notes:

Young Selkath must replace the Advantage Amphibious for the Disadvantage Aquatic and Doesn't Breathe becomes a 0-point Advantage.

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+45
Racial Disadvantages	-31
Racially Learned Skills and Racial Bonuses	+4
TOTAL	+18

Shawda Ubb

Attribute Adjustment:

ST-4 [-80pts]; HT-2 [-20pts]

Secondary Characteristic Adjustment:

SM-4

Origin:

Manpha

Tech Level:

11

Racial Advantages:

Amphibious [+10pts]; Innate Attack (Spitting Acid, 1d cor, Cyclic – 10 seconds or clean with water, +50%, Side Effect – Incapacitation HT-1, Limit Use – 1/day, -40%, Reduced Range - /10, -100%) [+2pts]; Reduced Consumption 1 [+2pts]; Terrain Adaptation (Swamp) [0pts]

Racial Disadvantages:

Dwarfism (Included in SM) [-1pt]

Free Skills:

Language (Shawda Ubb, Native); Area Knowledge (Manpha)

Racially Learned Skills and Racial Skill Bonuses:

Survival (Swamp) at PER+1 [+4pts]

Features/Taboos:

None

Names:

Example of a name: Rappertunie.

Description:

Shawda Ubb are diminutive amphibians from Manpha, a small, wet world located on the Corellian Trade Route in the Outer Rim Territories. The only 18 inch tall frog-like aliens have long, gangly limbs and wide-splayed fingers. Their rubbery skin is mottled greenish-gray, except on their pot-bellies, where it lightens to a subdued lime-green. Well-defined ridges run across the forehead, keeping Manpha's constant rains out of their eyes. The females lay one to three eggs a year, usually only one egg "quickens" and hatches.

Shawda Ubb feel most comfortable in small communities where everyone knows everyone. Hundreds of thousands of small towns and villages dot the marshlands and swamps of Manpha's single continent. Life is simple in these communities; the Shawda Ubb do not evidence much interest in adopting the technological trappings of a more advanced culture, though they have the means and capital to do so.

There are exceptions. Many of these small communities engage in cottage-industry oil-refining, pumping the rich petroleum that bubbles up out of the swamps into barrels. They sell their oil to the national oil companies based in the capital city of Shanpan. There, factories process the oil into high-grade plastics for export. A large network of orbital transports and shuttles has sprung up to service these numerous community oil cooperatives. Shanpan hosts the only spaceport on the planet.

Shawda Ubb subsist on swamp grasses and raw fish. Industries have grown up all around transporting foodstuffs from [place to place (particularly to Shanpan), but they do not take well to cooked or processed food.

Notes:

One of the members in The Max Rebo Band in Episode VI – Return of the Jedi Special Edition, was a Shawda Ubb named Rapotwanalantonee (but uses the stage name Rappertunie).

CP:

Type	CP
Attribute Adjustment	-100
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+14
Racial Disadvantages	-1
Racially Learned Skills and Racial Bonuses	+4
TOTAL	-83

Shistavanen

Attribute Adjustment:

DX+1 [+20pts]; IQ-1 [-20pts]

Secondary Characteristic Adjustment:

PER+2 [+10pts]

Origin:

Uvena Prime

Tech Level:

11

Racial Advantages:

Combat Reflexes [+15pts]; Night Vision [+9pts]; Reputation+1 (Shistavanen behavior, Almost everyone but own race, x1, All the time, x1) (+5pts); Teeth (Sharp) [+1pt]; Fur [+1pt]

Racial Disadvantages:

Bad Temper (Resist quite often) [-10pts]; Bully (Resist quite rarely, x2) [-20pts]; Frightens Animals [-10pts]; Phobia (Xenophobia, Resist quite often) [-15pts]; Bowlegged (-1pt)

Free Skills:

Language (Shistavanen, Native); Area Knowledge (Uvena Prime)

Racially Learned Skills and Racial Skill Bonuses:

Intimidation at Will (+ Reputation) [+2pts]; Shadowing at IQ [+2pts]; Stealth at DX [+2pts]; Tracking at PER [+2pts]

Features/Taboos:

None

Names:

Example names are Mar Balayan, Mal Biron, Kal Lup, Tar Lup, Shaalir Resh, Sirul Rosk, Riv Shiel, Caet Shrovl, and Lak Sivrak.

Description:

The Shistavanens are xenophobic humanoid canines from the Uvena star system. They make excellent hunters and can track prey through crowded urban streets or desolate plains alike. They are agile and have high developed senses, including the ability to see in near-total darkness.

As a species, Shistavanen are isolationists who do not want outsiders involved in their affairs. While they do not forbid aliens from coming to the Uvena system to set up trading ventures, they unapologetically favor their own kind in law and trade. While this caused some friction with the Empire while the Emperor's New Order was at its height, the Shistavanen talent for stalking prey was more valuable to the Intelligence branch than the desire of the Empire's political arm to make an example of a rather obscure world. Denying Shistavanens the opportunity to openly ply their trade was satisfaction enough for the Empire.

Shistavanens are aggressive and forthright. They prefer the company of their own kind to other species and are known (and often feared) for their surly demeanor, domineering behavior, and ill temperament. Some Shistavanens are more outgoing and sociable, although few are capable of shedding all of their cultural prejudices.

Adult Shistavanen stand around 5 foot 3 tall, and males tend to be taller and more powerfully built than females. Their bodies are covered with thick brown or black fur, their ears are set high on their heads, and they have pronounced snouts with large fangs.

The Shistavanen homeworld Uvena Prime is one of several habitable worlds in the Uvena system (located in the Outer Rim Territories).

Notes:

A Shistavanen can be seen at the Mos Eisley Cantina in Episode I: A New Hope.

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	+10
Tech Level	0
Racial Advantages	+31
Racial Disadvantages	-56
Racially Learned Skills and Racial Bonuses	+8
TOTAL	-7

Siniteen

Attribute Adjustment:

ST-1 [-10pts]; IQ+3 [+60pts]

Secondary Characteristic Adjustment:

None

Origin:

Unknown

Tech Level:

11

Racial Advantages:

Lightning Calculator (Intuitive Mathematician) [+5pts]; Talent (Mathematical Ability+2) [+20pts]

Racial Disadvantages:

Dislike (wearing helmets) [-1pt]

Free Skills:

Language (Siniteen, Native); Area Knowledge (Any one planet)

Racially Learned Skills and Racial Skill Bonuses:

See Mathematical Ability.

Features/Taboos:

None

Names:

Unknown

Description:

Siniteen are hyper-intelligent humanoids. The Siniteen are characterized by their huge crania, which are ridged and convoluted as if their brains were directly under their skin. They have incredible mental abilities, and can process huge calculations in their heads. They are capable of calculating hyperspace jumps without any help of a navigation computer.

Notes:

A Siniteen, nicknamed "Brainiac" by BoShek, can be seen in the Mos Eisley Cantina in Episode I: A New Hope and in the Star Wars Holiday Special.

CP:

Type	CP
Attribute Adjustment	+50
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+25
Racial Disadvantages	0
Racially Learned Skills and Racial Bonuses	0
TOTAL	+75

Skakoan

Attribute Adjustment:

DX-1 [-20pts]; IQ+1 [+20pts]

Secondary Characteristic Adjustment:

Origin:

Skako

Tech Level:

11

Racial Advantages:

Pressure Support (x10) [0pts]

Racial Disadvantages:

Dependency (Methane, Very Common, Constantly, x5) [-25pts]; Intolerance-1 (Humans) [-5pts]; No Sense of Humor [-10pts]; Reputation-1 (Xenophobes, Almost everyone but own race, x1, All the time, x1) [-5pts]; Reputation (Heartless Automatons, Almost everyone but own race, x1, All the time, x1) [-5pts]; Secret (Concealing Skakoan pressure suit – appearance; voice; emotions) [-5pts]; Selfish (Resist quite often) [-5pts]; Skinny [-5pts]

Free Skills:

Language (Skako, Native); Area Knowledge (Skako)

Racially Learned Skills and Racial Skill Bonuses:

Environment Suit/TL11 (Skakoan Pressure Suit) at DX+1 [+4pts]

Features/Taboos:

None

Names:

Example names are Zona Dreon, Pel Karmek, Girt Marko, Oma Meng, Vol Meybor, Madeca Rex, Wat Tambor, Gegon Valt, and Taron Von.

Description:

Skakoans are a technologically advanced species that specializes in microelectronics, starship engineering, and cutting-edge manufacturing techniques.

During the times of the Old Republic, Skakoans were among the most influential species in the Techno Union, a galaxy-spanning consortium of mega-corporations with representation in the Galactic Senate. Despite the misgivings of other high-ranking members of the Techno Union, Skakoan foreman Wat Tambor pledged to support The Separatists under Count Dooku. The Senate responded by expelling their Techno Union representatives. This contributed to the Skakoan homeworld breaking away from the Republic and joining the Separatist Movement.

The Skakoans were central to the Techno Union's success throughout the Clone Wars. However, the days of the Techno Union were numbered. From the ashes of the Old Republic emerged the Empire and with it, the Emperor's New Order. Gluttonous, self-serving bureaucracies like the Techno Union, the Commerce Guild, and the Trade Federation had outlived their usefulness, and their non-Human overseers were not to be trusted under the new regime. Humans forcibly displaced the Techno Union's Skakoan membership. The Skakoan people could do nothing except withdraw to their homeworld and watch helplessly as the Empire dismantled the Techno Union and placed its constituent companies (among them Baktoid Armor Workshop, Hoersch-Kessel Driveworks Inc., and Balmorran Arms) under Imperial supervision.

The fall of the Empire and the birth of the New Republic failed to overcome the Skakoans' growing sense of isolation. Their dislike for humanity clouded their infrequent dealings with the New Republic, and they are less inclined to share their technological advances. During The New Jedi Order era, the Skakoans are viewed by most other species as secretive, manipulative xenophobes best left to their own devices.

Skakoans are cool, calculating, and humorless beings with a strong sense of self-preservation. Few have the courage to leave their homeworld. They rely on logic to solve problems, regardless of whether they are plotting a galactic war or designing an efficient hyperdrive. Skakoans are usually encountered wearing their pressure suits, which they use to hide their emotions, leading many other species to presume that Skakoans are heartless automatons; in truth, they posses a full range of emotions.

Visitors are generally not welcome on the Skakoan homeworld; consequently, non-Skakoans have yet to learn what a Skakoan looks like beneath the full-body pressure suit. Without the pressure suit, a Skakoan resembles a gaunt Human with folds of sickly gray-white skin draped over a narrow, skeletal frame. A Skakoan's leering visage features dark, sunken eyes, a flat nose, and a toothless, slit-like mouth set in a perpetual frown.

Skakoans are deadly afraid of suffering a horrible death by asphyxiation or explosive decompression. They rarely leave Skako for this reason. When they do, they always wear pressure suits that fully conceal their features and use vocalizers that distort their voices. These synthesized vocalizers deliberately distort their wearer's speech patterns, adding to the species mystique.

An average Skakoan adult stands 5 foot 9 tall.

The Skakoan homeworld Skako is located in the Core Worlds region. Skako is a planetwide metropolis comparable to Coruscant in scale and population, but without the charm or aesthetically pleasing architecture. Species accustomed to standard atmospheric pressure can only withstand the dense pressure of Skako's atmosphere for a short time before suffering permanent injury. The same holds true for Skakoans who find themselves on standard-pressure worlds without a special pressure suit to protect them.

Notes:

Skakoverbal is a complex machine language similar to Bocce, with traces of Binary. Skakoform, the written language of the Skakoan people, is often mistaken for technical schematics or circuit diagrams.

Skakoans can be seen in Episode II en III as representatives of the Techno Union at the Separatist Movement.

No Skakoan Force-users are known.

Before the end of the Clone Wars, the Disadvantages Intolerance (Humans) and Reputation (Xenophobes) should not be counted towards the Racial Template CP.

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	0
Racial Disadvantages	-65
Racially Learned Skills and Racial Bonuses	+4
TOTAL	-61

Skrilling

Attribute Adjustment:

ST+1 [+10pts]; DX-1 [-20pts]; IQ-1 [-20pts]

Secondary Characteristic Adjustment:

Will+1 [+5pts]

Origin:

Agriworld-2079

Tech Level:

11

Racial Advantages:

Affliction (Nauseating Vomit, Retching, +50%, Contact Agent, -30%, Melee Attack, -30%, Preparation Required – 1 minute, -20%) [+7pts]; Longevity [+2pts]; Pitiable [+5pts]; Reduced Consumption 4 (Cast Iron Stomach, -50%) [+4pts]; Single-Minded [+5pts]; Teeth (Sharp) [+1pt]; Voice (Whining) [+10pts]

Racial Disadvantages:

Greed (Resist quite often, x1) [-15pts]; Obsession [-5pts]; Pacifism (Self-Defense Only) [-15pts]; Status-1 (Beggar) [-5pts]

Free Skills:

Language (Skrilling, Native); Area Knowledge (Agriworld-2079)

Racially Learned Skills and Racial Skill Bonuses:

Fast-Talk at IQ+2 [+8pts]

Features/Taboos:

Head-crest

Names:

Examples of names are Vigik Ome, Doke Gerkin, Morgot, Peerce, Piret Mubikai, Threx Qaspi, Yettel Sarn, and Pote Snitkin.

Description:

The Skrillings are a species of galactic scavengers. When a species called the M'shinni colonized the Skrilling homeworld, the Skrillings were little more than primitive nomadic herders. The M'shinni fenced in the Skrilling herds, claimed their land, and left the primitive, peaceful aliens to figure out how to survive. Within a few generations, the Skrillings had integrated themselves into M'shinni colonies on the world as a permanent beggar class. From here, they expanded into the rest of the galaxy.

Many species view Skrillings as disgusting annoyances. They devour uncooked, spoiled meat that would make other beings deathly ill, and they have elevated whining to an art form. When a Skrilling sets his heart on something, he or she continually asks for it, continually rephrasing the question. Various strategies for sharing the object or achieving whatever goal the Skrilling has in mind are suggested, and small gifts or favor are offered as a form of exchange. If the possessor of an object relocates, the Skrilling sometimes even shows up again, even in a different star system. A Skrilling usually gets what he or she wants; they are experts at finding a person's "soft spot". Most Skrillings are bright enough, however, to know when someone they are pestering has been pushed to the point where he or she is about to get violent. In such cases, they give up their desire, at least temporarily.

The Skrillings can be found throughout the settled galaxy, traveling in spacecraft cobbled together from various derelicts. They have an innate ability to show up on planets where a battle has been fought and well-aged (and unclaimed) corpses can be found, along with equipment that can be repaired and resold. This tendency has given rise to saying that an enemy will soon be "Skrilling fodder".

Skrillings often lurk on the fringes of violent criminal organizations or live near the torture chambers of unscrupulous despots, anywhere a steady supply of dead bodies and other carrion can be found. During the Galactic Civil War, however, many Skrillings also served as valuable spies for the Rebel Alliance, due to their ability to uncover information.

Slow-witted yet persistent, Skrillings are sulky, greedy scavengers with no grasp of cultural etiquette. They tend to be followers rather than leaders.

Skrillings are stocky humanoids with wrinkled gray skin, stubby fingers, and small deep-set eyes. Instead of a nose or nostrils, they sport a set of eight breathing tubes. Their mouths have multiple rows of needle-sharp teeth. A bony crest adorns the top of a Skrillings bald head, extending from the forehead to the nape of the neck, Skrilling newborns use their head-crest to saw through the shell of the birth-eggs; the crest serves no other function. Adult Skrillings stand about 5 foot 7 tall.

The Skrilling homeworld, Agriworld-2079, is located on the spinward edge of the Mid Rim.

Notes:

A Skrilling can be seen at Jabba's Palace in Episode VI: Return of the Jedi.

CP:

Type	CP
Attribute Adjustment	-30
Secondary Characteristic Adjustment	+5
Tech Level	0

Racial Advantages	+34
Racial Disadvantages	-40
Racially Learned Skills and Racial Bonuses	+8
TOTAL	-23

S'kytri

Attribute Adjustment:

ST+1 [+9pts]; HT-1 [-10pts]

Secondary Characteristic Adjustment:

Will+2 [+10pts]; SM+1

Origin:

Skye

Tech Level:

11

Racial Advantages:

Flight (Cannot Hoover, -15%, Winged, -25%) [+24pts]

Racial Disadvantages:

Overconfidence (Resist quite rarely, x2) [-10pts]; Pacifism (Self-Defense Only) [-15pts]; Skinny [-5pts]; Likes (Skye Culture) [-1pt]; Proud [-1pt]

Free Skills:

Language (S'kytric, Native); Area Knowledge (Skye)

Racially Learned Skills and Racial Skill Bonuses:

Language (Basic, Native) [+6pts]

Features/Taboos:

None

Names:

Examples of names are Aragh, Daltrid, Deverén, Kailél, Kharys, Klarymére, Nebaél, Rordys, Shelryn, and Thyswar.

Description:

The winged S'kytri hail from Skye, a planet the Empire designated as Marat V. In their native tongue, "S'kytri" means "the Windborn".

The enlightened beliefs of the Jedi appealed to Klarymére, the S'kytri Patriarch. His unswerving loyalty to the Jedi during the Clone Wars condemned the S'kytri to Imperial slavery following the Jedi Purge. The Empire conquered their world, and the S'kytri spent long years in unwilling servitude to Majestrix Kharys, a sadistic S'kytri chosen by Darth Vader to enforce Imperial doctrine.

The fall of the Galactic Empire bought the restoration of S'kytri independence and the return of the patriarchy. Years of economic hardship spawned a growing counterculture of rebellious and wayward young S'kytri, despite clan elders espousing a return to tradition. Since the Battle of Endor and the formation of the New Republic, the S'kytri leaders have politely refused all overtures by offworlders to join the greater galactic community.

S'kytri seem more interested in protecting and nurturing their homeworld by treating it as a living, breathing entity. They are also afraid of losing their culture. Most S'kytri have little use for technology, although contact with the rest of the galaxy has prompted some S'kytri to reluctantly adopt technology designed to ease the quality of life.

Although a mammalian species, S'kytri hatch from eggs. Clothing is unimportant to S'kytri, for too much material creates unwanted wind resistance during flight. Males wear anklets bearing the insignia of their clans, and both genders wear slight, closefitting coverings.

Proud, independent, and headstrong, S'kytri take great stock in tradition and "old world" values. They deplore violence but fight ably and courageously when threatened. They see themselves as inherently superior to species that are incapable of natural flight. Young adult S'kytri tend to be especially arrogant, defiant, and rebellious.

S'kytri have thin, muscular physique and attractive, chiseled features. Feathered wings grow from their shoulder blades. Although physically strong, S'kytri have hollow bones and are much lighter than they seem at a glance. Adults average 6 foot 10 tall, and S'kytri under 6 foot tall are considered "short" by the species standards.

Male S'kytri have pale blue skin, while females usually have light green skin. Less than one percent of the population is born with reversed pigmentation; the S'kytri treat these hatchlings as abominations of nature and destroy them. Hair color ranges from deep maroon to dusty yellow to moon-white.

Their homeworld Skye is a mountainous and temperate world located in the Marat system (in the Outer Rim Territories).

Notes:

None

CP:

Type	CP
Attribute Adjustment	-1
Secondary Characteristic Adjustment	+10
Tech Level	0
Racial Advantages	+24
Racial Disadvantages	-32
Racially Learned Skills and Racial Bonuses	+6
TOTAL	+7

Sludir

Attribute Adjustment:

ST+1 [+9]; IQ-1 [-20pts]; HT+1 [+10pts]

Secondary Characteristic Adjustment:

Basic Move+1 [+5pts]; SM+1

Origin:

Sluudren

Tech Level:

11

Racial Advantages:

Damage Resistance+1 (Hard Shell, Can't wear armor, -40%, Directional – Back, -40%, Hardened+1, +20%) [+2pts]; Extra Legs (6 Legs) [+10pts]; Fearlessness+2 [+4pts];

Racial Disadvantages:

Code of Honor (Battle Honor) [-10p]; Social Stigma (Subjugated, Only during the Rise of the Empire era) [-20pts]; Dislikes (Technophobia) [-1pt]

Free Skills:

Language (Sludese, spoken Native); Area Knowledge (Sluudren)

Racially Learned Skills and Racial Skill Bonuses:

Intimidation at Will [+2pts]; Melee (Any) [+8pts]

Features/Taboos:

None

Names:

Examples of names are Chyanlev, Dukarz, Jyzatch, Kaylorz, Omze, Opolzur, Quintik Kahr, Ryzrytch, Shume, Webyllus, and Zanjast Rahm.

Description:

The fierce Sludir evolved from a primitive tribal society to an intricate feudal caste society of rulers, warriors, artisans, and workers. In addition to learning the traditions and ways of their particular caste-clans, Sludir children were taught to respect the code of battle. Combat became the true test of a Sludir's character. Hiding and retreating were the tactics of a coward; a Sludir who resorted to such tactics would not only dishonor himself but his clan as well.

Sludir civilization remained unchallenged until a few years before the Galactic Civil War, when offworld slavers began capturing bands of Sludir warriors and selling them as gladiators. When Imperial scouts arrived on the Sludir homeworld, slavery had already weakened the Sludir caste structure. The Empire declared the Sludir a "legitimate slave species" and destroyed the remnants of their intricate feudal caste society by exporting Sludir warriors, artisans, and workers to Imperial work camps throughout the galaxy.

A handful of enslaved Sludir escaped their captors and joined the Rebel Alliance. Many more joined criminal organizations, where their physical prowess made them excellent enforces, pirates, bodyguards, and (ironically) slavers. Regardless of allegiance, most Sludir resorted to violence and conflict to attain higher standing in whatever organization or society that would accept them.

The Sludir regained control of their homeworld after the Empire's fall. A new planetary government emerged. , made up of a loose alliance of shady Sludir of varying dispositions, from genteel smugglers to vicious crime lords. Many liberated Sludir slaves returned to their homeworld, hoping to reunite with their clans or find others who respected their code of battle honor. Those appalled with the new state of the Sludir homeworld drifted to various corners of the galaxy in search of status, glory, or death by combat.

Although they are not techno-phobic, Sludir seldom embrace advanced technologies such as space travel and blasters, preferring hand-to-hand combat and intimidation to settle disputes.

Sludir are direct and blunt. To them, physical strength and combat prowess bring power and prestige. Other than their sense of battle honor, they have little regard to etiquette and protocol, and acts of subterfuge appall them. They believe they deserve anything they can take by force.

Sludir have six legs and a humanoid torso. Hard shell-like plates protect their back and flanks. A Sludir's head consists mostly of a thick snout with four nostrils and a large, toothy sneer. Their thick manes are worn in different styles. A Sludir adult stands about 5 foot 9 tall and measures about 7 foot 7 long.

The Sludir homeworld Sluudren is a rugged and isolated world in the Outer Rim Territories.

Notes:

The CP is -1 during the Rise of the Empire era only.

CP:

Type	CP
Attribute Adjustment	-1
Secondary Characteristic Adjustment	+5
Tech Level	0
Racial Advantages	+16
Racial Disadvantages	-11
Racially Learned Skills and Racial Bonuses	+10
TOTAL	+19

Sluissi

Attribute Adjustment:

DX-1 [-20pts]; IQ+1 [+20pts]

Secondary Characteristic Adjustment:

Origin:

Sluiss Van

Tech Level:

11

Racial Advantages:

Acute Senses (Acute Smell+2) [+4pts]; Claim to Hospitality (Any spacedock and starship) [+10pts]; Flexibility (Double-Jointed) [+15pts]; Reputation+2 (Starship Mechanics, Large Class of people – Starship captains, x½, All the time, x1) [+5pts]

Racial Disadvantages:

Cold-Blooded [-5pts]; Indecisive (Your spacecraft mechanics, x½, Resist quite rarely, x2) [-10pts]; No Legs (Slithers) [0pts]; Reputation-1 (Slow, Everyone but own race, x1, All the time, x1) [-5pts]; Likes (Gadgets) [-1pt]

Free Skills:

Language (Sluissese, Native); Area Knowledge (Sluiss Van)

Racially Learned Skills and Racial Skill Bonuses:

Mechanic/TL11 (Low- and/or High Performance Spacecraft) at IQ+2 [+8pts]

Features/Taboos:

None

Names:

Examples of names are Sirlahn Alsek, Ten Dome, Vsil Ejahsa, Lisahn L'sehl, Sekae N'sehnor, Mektiss Risohr, Hass Sonax, and Seeles Uslopos.

Description:

The Sluissi have been active participants in galactic society since the early days of the Old Republic. When first encountered by Human and Duros explorers, the Sluissi were just starting to explore nearby star systems with their own faster-than-light technology, and they eagerly embraced the concept of a greater galactic union. They constructed large shipyards throughout the Sluiss Van system and other nearby worlds where they had established colonies to spur further interaction with alien star travelers. The Sluissi quickly became known as the best starship maintenance people in the galaxy.

The Sluissi run efficient, respectable starship repair, and construction yards, where ship captains and corporate interests can find the finest repairs, upgrades, and custom starship modifications that money can buy. However, the Sluissi are also extremely methodical and often painfully slow about their work. To them, starship construction is an art form. Most clients are willing to be patient, because Sluissi technicians can make improvements upon or keep in operation vessels that most other mechanics have already declared lost causes. Even the Empire recognized that it was in its best interest not to rush the Sluissi technical crews at Sluiss Van.

Sluissi are patient, sociable, and easygoing beings. Industrious and calm under pressure, they love to thinker with gadgets whether or not their specialty is starship engineering and repair. This makes them popular crewmembers on virtually any spacefaring vessel.

A Sluissi's upper torso sports two arms and four-fingered hands. The bottom half of their bodies are serpentine, long and heavily muscled. Their bodies are covered in fine scales that range in color from light brown to deep green, although rare Sluissi may have scales of other colors. They have round black eyes and a swooping hood-like fold of skin on the backs of their heads. They have forked tongues, which, as with many reptilian species, aid their sense of smell. Adults stand about 5 foot 7 tall.

Their homeworld Sluiss Van, a rocky industrial planet, is located in the Outer Rim Territories.

Notes:

None

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+34
Racial Disadvantages	-21
Racially Learned Skills and Racial Bonuses	+8
TOTAL	+21

Snivvian

Attribute Adjustment:

None

Secondary Characteristic Adjustment:

SM-1

Origin:

Cadomai Prime

Tech Level:

11

Racial Advantages:

Damage Resistance+2 (Tough Skin, -40%, Physical, -20%) [+4pts]; Longevity+1 [+2pts]; Reputation+2 (Artist, Everybody, x1, All the time, x1) [+10pts]; Talent (Gifted Artist+1) [+10pts]; Temperature Tolerance+6 (Cold, -50%) [+3pts]

Racial Disadvantages:

None

Free Skills:

Language (Snivvian, Native); Area Knowledge (Cadomai Prime)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Examples of names are Bakken, Dezzen, Dezindna, Elinzelor, Geezum, Nejet, Prinzan, Rachalt Hyst, Rincholar, Seerna, Snaggletooth, Takeel, Thasca Knarr, Wiorkettle, Zereldspidar, and Zutton.

Description:

Snivvians evolved on a chilly planet with long winters, causing them to evolve thick skin that provides resistance to extreme cold temperatures. However, the climate on their homeworld proved so harsh that Snivvians spent months of their time in the subterranean homes. They developed their fine artistic sensibilities as a way to pass the time, and although their advanced technology has long since liberated them from the need to hibernate during the harshest seasons, many Snivvians still feel a biological compulsion to remain in their homes for several months during a year. They spend this time creating their fine literature and other works of art. The species has produced many brilliant artists and writers whose work appeals to an amazingly broad range of species and cultures.

The Snivvians have undergone tremendous hardships. Early Snivvian civilizations were destroyed by brilliant psychotics and sociopaths who arose whenever a set of twin males was born. Invariably on of the twins would grow to become a charismatic despot who inspired the worst in Snivvian society, building a decadent dynasty by breaking the backs of his followers, and ultimately destroying himself and much of Snivvian society in violent wars. It was never known which of the twins would turn out to be the "evil" one, and the gentle Snivvians could rarely bring themselves to eliminate an innocent child despite fears that one twin might bring doom to millions. Instead, Snivvian society attempted to incarnate the twins until one demonstrated sociopathic tendencies, but a few managed to fool the system.

Eventually, the Snivvians used genetic engineering to prevent male twins from being born. Snivvian culture stabilized, but no sooner did they develop the capacity to travel interstellar distances before they fell victim to the brutal Thalassians who sold them as slaves or skinned them to make clothing of their tough skins. The Old Republic discovered this barbaric practice and stepped in to save the Snivvians before their culture was annihilated.

Since the days of the Old Republic, the Snivvians have established colonies throughout the galaxy. Their reputation as writers and artists continues to grow, and several of the most popular playwrights and holovid scripters are Snivvian. Snivvian artists have been killed in the prime of their careers while working as bounty hunters, or in other dangerous professions, for the express purpose of gaining insight into character for their masterwork.

While Snivvian society survived Imperial rule, the limitations that the Empire placed on the Snivvians' ability to travel freely and their genetic engineering programs increased the likelihood that male twins would be born. Some fear that another Snivvian destroyer might "come of age" in the period of the New Jedi Order. In fact, at least one Snivvian literary work, written by an anonymous author, claims to be the chronicle of the rise to power of a murderous Snivvian who intends to "create a sculpture of burned bodies and twisted metal that reaches from one end of the galaxy to the other". It was published shortly before the first Yuuzhan Vong invaders arrived in the galaxy. Many Snivvians accept the work's claim of truth and believe that one of their number is allied with the extra galactic invaders.

As a species, Snivvians are gentle and insightful. They like to examine things others take for granted, searching for symbolic subtext in everyday things and occurrences. Snivvians have many "masterful" works of art in various states of completion; works they believe will be their legacy to the galaxy when they pass on. Naturally, the level of true artistic talent is as varied among Snivvians as it is among other species, Snivvians are fond of saying: "There is no greater love than a master's for his masterpiece."

Not all Snivvians are dedicated to artistic pursuits. Such exceptions have actually brought down Snivvian civilizations over the millennia.

Snivvians are short, stocky humanoids, standing about 4 foot 8 tall as adults, with though skin and sparse hair. Their faces are dominated by protruding snouts and pronounced canines.

Their homeworld Cadomai Prime is a cold world located in the Outer Rim Territories near the Corporate Sector.

Notes:

A Snivvian can be seen at Jabba's sail barge in Episode VI – Return of the Jedi.

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+29
Racial Disadvantages	0
Racially Learned Skills and Racial Bonuses	0
TOTAL	+29

Spiner

Attribute Adjustment:

DX+1 [+20pts]

Secondary Characteristic Adjustment:

Will-1 [-5pts]; SM+1

Origin:

Worxer

Tech Level:

9 – Low TL-2 [-10pts]

Racial Advantages:

Claws (Blunt) [+3pts]; Innate Attack (Spines, Impaling, Rate of Fire 1x10, +100%, Reduce Range /10, -30%, Limited Use - Once per day, -40%, Inaccurate-3, -15%) [+9pts]

Racial Disadvantages:

Berserk (Resist quite often, x1) [-10pts]; Reputation-1 (Violent Tendencies, Almost Everyone but own race, x1, Occasionally, x⅓) [-2pt]; Bowlegged [-1]; Sexless [0pts]

Free Skills:

Language (Worxi, Native, before 232 BBY) or Language Galactic Basic, Native, after 232 BBY); Area Knowledge (Worxer or any other planet)

Racially Learned Skills and Racial Skill Bonuses:

None, but many learn the skill Innate Attack (Projectile) and do not require a free hand (see BS page 201).

Features/Taboos:

Bird-like feet

Names:

Examples names are Briss, Devik, Fifter, Firril, Hedji, Jerrid, Meejen, Prikler, Toira, and Yaff.

Description:

A humanoid species with the ability to shoot quills from their backs and arms at opponents, the Spiners have been driven into virtual extinction by natural disaster and their own violent tendencies.

Spiners evolved on a world hidden deep within the stellar cloud drifts of the Elrood sector. Their homeworld exploded when its star went supernova at 232 BBY, roughly 200 years before the Rise of the Empire. Old Republic scientists discovered the imminent disaster in progress but could not rescue more than a few thousand individuals. These Spiners were quickly absorbed into galactic society. Little of their own culture survived, since their traditions were mostly incompatible with the alien societies they settled near or within, and Spiner technology (with the exception of certain geothermal energy management techniques) had been well below galactic standard.

It is widely believed that the surviving population of Spiners is too small for the species to avoid extinction. The future of the species is further endangered by the little-known fact that genetic flaws prevents Spiners from reproducing anywhere other than on their homeworld. The surviving population is gradually becoming sterile for a lack of nutrients found exclusively in their home sector of Elrood. However, interested historians have pointed out that some "lost" Spiner colonies may exist within the Elrood sector. Records of their existence may have been lost with the destruction of their homeworld and the Rise of the Empire.

Spiners are laconic beings who generally keep their thoughts to themselves. Although loyal to their friends and honorable in their dealings, they often come across to strangers as terse, reserved, and introvert.

Spiners are muscular beings covered in soft brown fur. Their faces feature a short snout and deep-set, small black eyes. Their backs are covered with rigid spines that they can raise or lower by

tightening their upper body muscles. Further, Spiners with the appropriate martial training can fire their spines as ranged weapons in combat. Males and females are roughly identical build, with both genders sanding about 6 foot 3 tall.

Their homeworld Worxer, also called Yablon, was a planet in the Degan Gas Clouds of the Elrood Sector in the Outer Rim.

Notes:

None

CP:

Type	CP
Attribute Adjustment	+20
Secondary Characteristic Adjustment	-5
Tech Level	-10
Racial Advantages	+12
Racial Disadvantages	-13
Racially Learned Skills and Racial Bonuses	0
TOTAL	+4

Squib

Attribute Adjustment:

ST-1 [-10pts]; DX+1 [+20pts]

Secondary Characteristic Adjustment:

Will-1 [-5pts]; SM-1

Origin:

Skorr II

Tech Level:

11

Racial Advantages:

Acute Senses (Acute Hearing+4) [+8pts]; Fearlessness+2 [+4pts]; Reputation+2 (Honest traders, Merchants, x½, All the time, x1) [+5pts]; Talent (Business Acumen+1) [+10pts]; Fur [+1pt];

Racial Disadvantages:

Curious (Resist quite rarely, x2) [-10pts]; Intolerance-1 (Liars and dishonest traders) [-1pt]; Overconfidence (Spies and master merchant, Resist quite rarely, x2) [-10pts]; Reputation-2 (Eager, obnoxious, frustrating laborers, Corporations & Governments, x½, All the time, x1) [-5pts]; Vow (Don't share secret data) [-5pts]; Likes (Strange gadgets) [-1pt]

Free Skills:

Language (Squibbian, Native); Area Knowledge (Korr II)

Racially Learned Skills and Racial Skill Bonuses:

Language (Galactic Basic, Broken) [+2pts]; Diplomacy at IQ [+4pts]

Features/Taboos:

None

Names:

Examples of names are Eebareebaveebeedee (Eebaree), Galaneever-marmalios (Galan), Meelawindemort (Meela), Sleerinwilpher-remalior (Wilpher), Spilferithimus-narlamos (Spilfer).

Description:

Squibs are short, overcurious, and overconfident mammalian humanoids with uncanny knack for popping up where least expected. They always stick their noses where they definitely do not belong, regardless of any danger involved. Anything portable that catches a Squib's eye is handles, examined, and rubbed against his or her fur. If he or she is fascinated enough by the item, a Squib attempts to bargain for possession of it. Few Squibs take "no" for an answer and always assume they just haven't hit on the right price.

Early Squibs were fearless nomads who wandered from one part of their homeworld to another in search of life's necessities, following their strong instincts of curiosity and acquisitiveness. Some Squibs eventually settled in small villages, substituting the excitement of nomadic life for the thrill of bartering for goods from far-off lands. Other Squibs continued to live as wandering merchants, constantly moving from village to village.

The first offworlder to visit the Squib homeworld was beset by eager, curious natives. In what might be the greatest piece of haggling in the last millennia, the Squib traded mineral rights in the frozen wastelands of their world for the secret of starship technology. The Squibs now roam the galaxy in reclamation ships and small freighters, acting as galactic garbage collectors by using tractor beams to salvage treasures other species consider junk. They refurbish, repackage, and resell the cast-offs, supplying cheap goods to distant settlements.

The history of Squib interaction with the general galactic community is a comedy of manners and errors. From the Old Republic, through the Empire, and into The New Jedi Order era, every corporation and government has viewed the Squibs as eager, obnoxious, and frustrating laborers. The Squibs, however, view themselves as spies and master merchants, continually informing the Squib Merchandising Consortium fleet of business opportunities. Hundreds of security reviews have been triggered over the ages when supposedly top-secret installations suddenly found themselves beset by Squib trading and reclamation vessels. Invariably, however, Squibs do not share any secret data they uncover with other groups; they are not interested in warfare or politics, only commerce. They are always careful about protecting their markets, as both Alliance and Imperial spies learned during the Galactic Civil War when they tried to trail Squib vessels to each other's secret bases; few such efforts were successful.

Despite security breaches that surround them, the Squibs are usually well received wherever they appear. Although their personalities are often abrasive, they are sincerely amicable. Further, Squibs are more interested in acquiring fancy baubles and curious technology they haven't seen before (working or not) than with monetary value, so those who do business with Squibs often feel like hey are getting the better part of the bargain. The Squibs, of course, believe they are suckering all comers. Nonetheless, they are typically honest in their business dealings and Squibs hold liars and dishonest traders in low esteem.

Squibs are curious, fearless, and honest in their dealings with other species. They are not easily put off or discouraged and are quick to make amends when they have committed some real or perceived offense. They tend to babble, and the only time a Squib communicates with absolute clarity is when he or she is engaged in haggling. Therefore, the easiest way to get information from a Squib is to engage him or her in a round of negotiations.

Squibs are covered in fur that ranges in color from deep red to silvery blue. Thy have short muzzles that end in a black nose, and their tufted ears rise well above their heads. Their ears can adjust to point in different directions to help detect even the faintest sounds. Their overly large eyes range in color from brilliant yellow to dark red. Squibs have, to a greater or lesser degree, adopted the

humanoid habit of wearing clothes and are almost universally fond of footwear. Adult Squibs stand about 3 foot 1 tall.

Before the Rise of the Empire, a popular series of children's stories featured a Squib Jedi who, according to rumor, was based on a real-life Jedi Knight with a strong roguish streak. Squib Jedi did exist, but they were very rare. Squib Force users are found on Skorr II, however.

Their homeworld Skorr II is a pleasant world in the Squab system (located in the Outer Rim Territories).

Notes:

None

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	-5
Tech Level	0
Racial Advantages	+28
Racial Disadvantages	-32
Racially Learned Skills and Racial Bonuses	+6
TOTAL	+7

Ssi-Ruu

Attribute Adjustment:

ST+1 [+9pts]

Secondary Characteristic Adjustment:

Will-1 [-5pts]; SM+1

Origin:

Lwhekk

Tech Level:

11

Racial Advantages:

Claws (Sharp Claws) [+5pts]; Damage Resistance+2 (Scales, Can't wear armor, -40%) [+6pts]; Discriminatory Smell [+15pts]; Empathy (Olfactory smell) [+15pts]; Nictitating Membrane+1 [+1pt]; Striker (Tail, Crushing, Cannot parry, -40%, Limited arc, -40%) [+1pt]; Teeth (Sharp beak) [+1pt]

Racial Disadvantages:

Bad Sight (Nearsighted) [-25pts]; Fanaticism (Ssi-Ruuvi Empire) [-15pts]; Intolerance-3 (Aliens) [-10pts]; Mundane Background [-10pts]; Overconfidence (Resist occasionally, x1) [-5pts]; Phobias (Dying on unconsecrated ground, Resist quite rarely, x2) [-20pts]

Free Skills:

Language (Ssi-Ruuvi, Native); Area Knowledge (Lwhekk)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Example names are Firwirrung, Ivpikkis, Kirrsirri, Shreeftut, Sh'tk'ith, and Skuwkrith.

Description:

The Ssi-Ruuk are warm-blooded reptilian humanoids who command a stellar empire in the Unknown Regions, well beyond the edges of explored space.

Before the Rebellion era, the existence of the Ssi-Ruuk was unknown to the general galactic population. An escalating war with the competing empire of the Chiss forced the Ssi-Ruuk to look toward the galactic Core for "recruits" for their space fleet. The Ssi-Ruuvi forces consisted mostly of self-propelled battle droids powered by the life energies and enslaved consciousness of captured humanoids subjected to a process of "entechment".

The Ssi-Ruuk attacked and subjected the citizens of a number of isolated Outer Rim settlements before clashing directly with the Empire's fleet. Rather than bringing the full might of the Imperial Navy to bear on the Ssi-Ruuk invaders, the Emperor negotiated a secret treaty with them. Using prisoners and slaves as some of the raw materials for battle droids appealed to the Emperor; in exchange for data on the Ssi-Ruuk entechment process Palpatine secretly ceded a number of Outer Rim systems to the Ssi-Ruuk to do with as they pleased.

One of these star systems was Bakura, a small colony that had been settled by a Human religious fringe group centuries before. While the Emperor saw no value to it, its governor had at his disposal forces that were skilled enough to repel the initial Ssi-Ruuvi strike. The governor sent a desperate message to Imperial Center, notifying them of the unidentified invading force and asking for reinforcements. The message went unanswered by the governor's Imperial masters, but the Alliance intercepted the message and dispatched a task force to help shortly after the Battle of Endor. This represented the first time the factions in the Galactic Civil War would have to declare a temporary truce to deal with an outside threat.

After successfully defeating the Ssi-Ruuvi armada at Bakura, the Alliance mounted an offensive against the Ssi-Ruuk Empire. This led to on-again, off-again diplomatic talks with the Ssi-Ruuk, who lacked the resources to wage war on two fronts. Diplomatic talks with the Ssi-Ruuk continue well into The New Jedi Order era, but they have not completely eliminated border skirmishes. Relations with the Ssi-Ruuk remain tense.

Ssi-Ruuk society is split into strict castes. The color of a Ssi-Ruu's scales usually dictates his or her caste; for example, russet-colored Ssi-Ruuk represent the military caste, gold-scaled Ssi-Ruuk from the religious caste, and sapphire-blue Ssi-Ruuk represent the noble caste. Back-scaled Ssi-Ruuk are usually trained as assassins, while brown-scaled Ssi-Ruuk have no caste whatsoever and are treated as outcastes.

Like many reptilian beings, the Ssi-Ruuk have poor vision but an excellent sense of smell. Their olfactory sense is so fine that they can even ascertain another being's emotional state with a flick of their black tongues.

The Ssi-Ruuk consider themselves physically, mentally, and spiritually superior to all other species, which they regard as cattle. Most Ssi-Ruuk dedicate their lives toward preserving and expanding their empire and subjugating lesser species.

The Ssi-Ruuk avoid direct combat when away from their homeworld. An intensely spiritual people, they believe that if they die away from their home soil, their spirit becomes lost and forever wanders the darkness of space; few Ssi-Ruuk can think of anything more horrifying.

Adult Ssi-Ruuk stand about 6 foot 6 tall. They walk on two powerful hind legs, with balance aided by a muscular tail, and have two upper limbs that each feature three prehensile claws.

They have beaked muzzles with large teeth. Their eyes are large and solid black, with triple eyelids.

The bodies of adult Ssi-Ruuk are covered in shining scales that range in color from dark brown to brilliant turquoise.

No Force-users exist among the Ssi-Ruuk, nor is it possible for them to be Force-Sensitive. The Ssi-Ruuk are a species blind to the Force.

Their homeworld Lwhekk is a planet located in the Unknown Regions.

Notes:

Ssi-Ruuk PCs are not recommended.

CP:

Type	CP
Attribute Adjustment	+9
Secondary Characteristic Adjustment	-5
Tech Level	0
Racial Advantages	+44
Racial Disadvantages	-85
Racially Learned Skills and Racial Bonuses	0
TOTAL	-37

Sullustan

Attribute Adjustment:

DX+1 [+20pts]; HT-1 [-10pts]

Secondary Characteristic Adjustment:

None

Origin:

Sullust

Tech Level:

11

Racial Advantages:

Absolute Direction (3D Spatial Sense) [+10pts]; Acute Senses (Acute Hearing+2, Easy to hit, -20%) [+3pts]; Night Vision+5 (Easy to hit, -20%) [+4pts]

Racial Disadvantages:

Gregarious (Resist quite often, x1) [-10pts]; Curious (Resist quite rarely, x2) [-10pts]; Pacifism (Reluctant Killer) [-5pts]; Xenophilia (Resist quite often, x1) [-10pts]; Likes (Practical Jokes) [-1pt]

Free Skills:

Language (Sullustese, Native); Area Knowledge (Sullust)

Racially Learned Skills and Racial Skill Bonuses:

Climbing at DX+1 [+4pts]

Features/Taboos:

None

Names:

Examples of names are Aril Nunb, Aubro Ahntanda, Babalabbet Swoont, Bolabo Hujaan, Byun Tenab, Dlir Nep, Hiem Bryl, Huego Eib, Jub Vengu, Kalian Kol, Kyun Squnn, Lyat Tsayv, Lytos Urtell, Mian Hoob, Miim Te'Suub, Mowa Gundeeb, Nien Nunb, Nooni Dalvo, Nuutu Plunb, Rani Quanic, Riin Raas, Sassan Sareeta, Sian Tevv, Syub Snunb, and Voos.

Description:

To survive the natural perils of their harsh, volcanic homeworld, the Sullustans evolved in the planet's numerous caves. They prefer to dwell underground, constructing highly advanced cities of such great beauty that wealthy sightseers come from all over the galaxy to visit them. They have natural inclinations toward astrogation and piloting. It is said that once a Sullustan has traveled a path, he or she never forgets it, even in hyperspace.

This friendly, gregarious species enjoys interacting with unique, unusual, and interesting beings. When Old Republic scouts first visited their homeworld, the Sullustans embraced the notions of space travel and a galaxy wide civilization wholeheartedly. The Sullustan manufacturing company SoroSuub quickly became one of he first non-Human-owned interstellar corporations. It remains one of the largest manufacturing conglomerates in the galaxy, even in the time of the New Republic. The company is so powerful that it has become the official government of Sullust. More than half of the planet's population is on its payroll. SoroSuub retained its independence by walking a careful balancing act between the Empire and the Alliance during the Galactic Civil War.

Sullustans tend to be pragmatic, pleasant, and fond of practical jokes. Sullustan adventurers enjoy exploring the galaxy, conducting business, and pulling pranks to se how others react. They are inquisitive and love to discover things through personal experience. At time they can even be a bit reckless.

Sullustans are humanoids with large round eyes, big ears, and jowls. Many Sullustans, after the age of 30 standard years, begin to experience corneal defects, and must be fitted with special visors. The average Sullustan stands about 5 foot 3 tall. Though some Sullustans hear the call of the Force, few attempt to follow its path.

Their homeworld Sullust is a volcanic technological world located in the Outer Rim Territories.

Notes:

At the age of 30, a Sullustan must make a HT roll to determine whether his sight is deteriorating or not. If the test is failed he will acquire the following disadvantage: Bad Sight (Farsighted or Nearsighted, Mitigator, -60%) [-15pts]. A second failure means the Sullustan is both Farsighted and Nearsighted for a total of [-30pts].

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+17
Racial Disadvantages	-36
Racially Learned Skills and Racial Bonuses	+4
TOTAL	-5

Sunesi

Attribute Adjustment:

ST-1 [-10pts]; HT-1 [-10pts]

Secondary Characteristic Adjustment:

HP-1 [-2pts]

Origin:

Monor II

Tech Level:

11

Racial Advantages:

Acute Senses (Acute Hearing+2) [+4pts]; Affliction+1 (Ultra high frequency noise, Disadvantage - Deafness, Malediction – Will versus PER, +100%, Sense Based – Hearing, -20%, Dissipation, -50%) [+3pts]; Protected Sense (Protected Hearing) [+5pts]; Resistance (Rare - Cirrifog crystals) [+5pts]; Ultrasonic Speech [+10pts]

Racial Disadvantages:

None

Free Skills:

Language (Sunesise, Native); Area Knowledge (Monor II)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Examples of names are Agapos the Eight, Agapos the Ninth, Agapos the Tenth, Aquinos, Gnosos, Hoil, Nee, and possibly Rur.

Description:

The natives of Monor II are called the Sunesis, which in their language means "pilgrims". They are a unique alien species which passes through two distinct physiological stages, the juvenile stage and the adult.

This metamorphosis from juvenile stage to adult Sunesi has predisposed these aliens to concepts of life after death. They view their role in the galaxy as to fulfill a destiny before they are uprooted, changed and set along a new path.

To outsiders, Sunesis in the juvenile phase seem to be little more than mindless beasts on the verge of sentience. They are covered in black fur, and have primitive eyes and ear holes with no flaps in their head region. The juvenile's primary function is eating, and they are ravenous creatures. Monor II is covered with lush, succulent plant growth, and the Sunesi juveniles drink nectar and sap from many species of long stringy plants. To tap into these nutritious plants, juveniles have long curling feeding tubeless they thrust through drilling mouthparts. These specially shaped mouths do not allow formation of speech; however, juveniles are intelligent, particularly during the layer years in their state.

When juveniles approach adulthood, they enter a metamorphosis stage. Just before late-juveniles enter the change, they begin to excrete a cirrifog-derived "sweat" that hardens like plaster. When they awake from metamorphosis, they must escape the hardened shells on their own, typically without adult assistance.

In the adult phase, Sunesi have hairless, turquoise skin and a vaguely amphibian, yet pleasing appearance. Silvery ridges show through the skin where bone is present just beneath the surface, and muscles are attached to the sides of bony ridges. Their foreheads sport two melon-like cranial lobes which allow them to communicate using ultrasound; it also gives the local Imperials cause to call Sunesi adults "lumpheads". Sunesis have large, round, dark eyes framed by brow crests, and their ears are round and can swivel. They clothe their slender bodies in long-sleeved tunics. Adult Sunesis stand about 5 foot 11 tall.

Notes:

The template given here are for adult Sunesis only.

CP:

Type	CP
Attribute Adjustment	-20
Secondary Characteristic Adjustment	-2
Tech Level	0
Racial Advantages	+27
Racial Disadvantages	0
Racially Learned Skills and Racial Bonuses	0
TOTAL	-5

Svivreni

Attribute Adjustment:

HT+1 [+10pts]

Secondary Characteristic Adjustment:

Will+1 [+5pts]; Basic Move -2 [-10pts]; SM-2

Origin:

Svivren

Tech Level:

11

Racial Advantages:

Reputation+1 (Mining & metallurgic industries, Almost everyone, x1, All the time, x1) [+5pts]; Fur [+1pt]

Racial Disadvantages:

Reputation-2 (Svivreni Codes, Criminals, x½, All the time, x1) [-5pts]; Stubbornness [-5pts]

Free Skills:

Language (Svivreni, Native); Area Knowledge (Svivren)

Racially Learned Skills and Racial Skill Bonuses:

Metallurgy/TL11 at IQ [+2pts]

Features/Taboos:

None

Names:

Examples of names are Kitalic, Nirasic, Mihalik, and Casin Mak.

Description:

The Svivreni are a well-regarded equinoid species known for their work in the mining and metallurgic industries. Though officially nonaligned during the Empire's reign, many individual Svivreni have assisted the Rebellion, and later the New Republic and Galactic Alliance. Most work in the private sector.

If asked to sum up the Svivreni in one word, a being would be hard-pressed to offer anything other than "stubborn". Svivreni are nearly impossible to sway once they have made a decision. This trait bodes trouble for the Imperial forces under command of

Grand Admiral Thrawn who, approximately five years after the Battle of Endor, attempt to move on the Svivreni homeworld and are met with stiff resistance.
Though short (usually less than 3 foot tall), Svivreni are heavily muscled and exceptionally resilient. Svivreni possess four-digit hands and cloven hooves, as well as hick heads with broad snouts, large eyes, and prick ears. Their bodies are almost completely covered in thick hair. Svivreni custom dictates that adults do not cut their hair, long hair among their kind is believed to be an indication of intelligence and fertility (older Svivreni males often have hair below their waists). Svivreni traditionally wear sleeveless tunics and work trousers that are covered with pouches and pockets for carrying the various tools used in the course of a day's labor.

Their homeworld Svivren is a dangerous, mountain-studded Outer Rim world not far from Andalasa. Imperial forces moved on Svivren during the Thrawn crisis but were repelled. Svivren is known for its harsh laws: Weapons are not allowed on-world, aside from those carried by the heavily armed security troops. Violence on Svivren results in the immediate execution of the perpetrator. These Svivreni codes are criticized by groups throughout the galaxy, but crime on Svivren does remain low. Smugglers and other such scoundrels and rogues generally avoid the world.

Notes:

None

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	-5
Tech Level	0
Racial Advantages	+6
Racial Disadvantages	-10
Racially Learned Skills and Racial Bonuses	+2
TOTAL	+3

Swokes Swokes

Attribute Adjustment:

ST+1 [+10pts]; DX-1 [-20pts]; IQ-1 [-20pts]; HT+1 [+10pts]

Secondary Characteristic Adjustment:

None

Origin:

Makem Te

Tech Level:

10 – Low TL-1 [-5pts]

Racial Advantages:

Damage Resistance+1 (Though Skin, -40%, Physical, -20%) [+2pts]; High Pain Threshold [+10pts]; Regrowth [+40pts]; Striker (Horns, Crushing, Cannot parry, -40%) [+3pts]; Teeth (Fangs) [+2pts]

Racial Disadvantages:

Bully (Resist quite often, x1) [-10pts]; Reputation-1 (Contemptible tyrants, Almost Everyone but own race, x1, All the time, x1) [-5pts]

Free Skills:

Language (Swoken, Native); Area Knowledge (Makem Te)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Example names are Chako Chako, Gragra, Kruke Kruke, Machug, Sorpaat, and Wruuta Wruuta.

Description:

Swokes Swokes seem like a throwback to a more primitive form of life. Although their society remains underdeveloped by galactic standards, they can easily hold their own against better-equipped enemies due to their unique physiology. Their simple bodies lack all but most critical pain receptors, and they can regenerate lost limbs. These features make them nearly unstoppable in a fight.

Swokes Swokes are properly recognized as ruthless bullies and contemptible tyrants who crave some combination of wealth, fame, and power. Most members of the species are devoutly religious and, as such, wear small pouches that contain dried remains of their dead ancestors, usually fingers, gallstones, or teeth.

Swokes Swokes are bulky bipeds with nightmarish, fanged, horned heads, lidless eyes, and rubbery skin that vary in hue from green-gray to glistening off-white. They stand about 5 foot 7 tall.

Their homeworld Makem Te is located in the Outer Rim.

Notes:

A Swokes Swokes can be seen in Mos Espa in Episode I; A Phantom Menace.

CP:

Type	CP
Attribute Adjustment	-20
Secondary Characteristic Adjustment	0
Tech Level	-5
Racial Advantages	+57
Racial Disadvantages	-15
Racially Learned Skills and Racial Bonuses	0
TOTAL	+17

-T-

Talz

Attribute Adjustment:

ST+1 [+9pts]; IQ-1 [-20pts]; HT+1 [+10pts]

Secondary Characteristic Adjustment:

Will-1 [-5pts]; SM+1

Origin:

Alzoc III

Tech Level:

2 – Low TL-9 [-45pts]

Racial Advantages:

Claws (Talons) [+8pts]; Night Vision 9 [+9pts]; Protected Sense (Vision) [+5pts]; Temperature Tolerance+4 (Cold, Fur) [+4pts]

Racial Disadvantages:

Mundane Background [-10pts]; Short Liferspan_1 [-10pts]; Social Stigma (Subjugated, Before 5 ABY) [-20pts]

Free Skills:

Language (Talz, Native, Talz lack the vocal apparatus to speak any language other than their own); Area Knowledge (Alzoc III)

Racially Learned Skills and Racial Skill Bonuses:

Survival (Arctic) at PER+2 [+8pts]

Features/Taboos:

None

Names:

Examples names are Arvot, Bama Vook, Caldera Righim, Chup-Chup, Druffin, Forfur, Gar, Harra, Korl, Muftak, Reyf, Rugg, Toffik, Veefa, and Voruf.

Description:

The Talz are a culturally and technologically primitive species, and most Talz are unaware that a vast galactic civilization exists beyond their world.

New Order was putting an end to the Old Republic. The Empire recognized they had discovered a ready-made slave labor force to extract the mineral wealth of Alzoc III. Talz recount the day when "rocks fell from the sky" and strange beings stepped out of them and forced them to give up their normal routines to "create caves". Throughout the Rebellion era, the Talz lived in the hope that some day the strange beings would leave so life could return to normal.

The New Order didn't log the existences of the Talz, not wanting to be burdened by the Senate regulations regarding the treatment and handling primitive sentients. Even after the Empire was firmly entrenched, they kept the mines on Alzoc III and the enslaved Talz a secret. During this period, the Talz were rarely encountered away from Alzoc III, and those who were tended to be in the service of Imperial officers. A few Talz left their homeworld and escaped Imperial custody through various means, but those who strayed too far from loosely controlled systems on the far fringes of the Outer Rim were usually captured and sent back to their homeworld.

The fall of the Empire spelled freedom for the Talz on Alzoc III. Mining on the planet continues under New Republic supervision, allowing the Talz to meet and trade with other species. Continued contacts with the greater galactic community has allowed more Talz to find their way offworld and to other systems.

A Talz's four eyes are perhaps his or her most remarkable features. One pair of eyes is adapted to see clearly in light so intense it would burn the comeas of most other beings, while the other pair is adapted to see in near total darkness. Consequently, a Talz can see in virtually any lighting condition and cannot blinded by bright flashes. Talz stand an average of 6 foot 7 tall and are completely covered I thick, shaggy white fur, with oversized hands and sharp talons. Their furry faces are set with four black eyes and a proboscis through which they speak and feed.

Talz are gentle, kind-hearted beings who are slow to anger. No Talz Force users are known to exist.

Their homeworld Alzoc III is a frigid world located in the Outer Rim system of Alzoc.

Notes:

A Talz, Muftak, can be seen at the Mos Eisley Cantina in Episode IV: A New Hope.

CP:

Type	CP
Attribute Adjustment	-1
Secondary Characteristic Adjustment	-5
Tech Level	-45
Racial Advantages	+26
Racial Disadvantages	-40
Racially Learned Skills and Racial Bonuses	+8
TOTAL	-57

Tarasin

Attribute Adjustment:

ST-1 [-10pts]; IQ+1 [+20pts]

Secondary Characteristic Adjustment:

None

Origin:

Cularin

Tech Level:

11

Racial Advantages:

Chameleon+1 [+5pts]; Damage Resistance+1 (Scales, Physical, -20%) [+4pts]; Force Sensitive [+5pts]; Sense Life [+11pts]

Racial Disadvantages:

Cold-Blooded [-5pts]; Secret (Force Sensitive, During Imperial Reign, Possible Death) [-30pts]; Social Stigma (Minority Group,

Before the New Jedi Order era) [-10pts]; Vow (Live harmoniously with the land) (-5pts)

Free Skills:

Language (Tarasinese, Native); Area Knowledge (Culanin)

Racially Learned Skills and Racial Skill Bonuses:

Sign Language (Silent Communication, Broken) [+1pt]; Survival (Jungle) at PER+1 [+4pts]

Features/Taboos:

None

Names:

Example names are Cryalira, Dariana, Fissona, Meirana, Missira, Neliosa, Viransa, and Zyalana.

Description:

The Tarasin are a tribal species of omnivorous reptilian humanoids native to Culanin, a predominantly tropical world in the Expansion Region. They inhabit the planet's sprawling jungles and rain forests.

Although the Tarasin enjoyed peaceful first contact with Human explorers during the time of the Old Republic, their dealings with offworlders soured when trading companies began plundering Culanin's natural resources, uprooting entire forests. The Tarasin, sensitive to the Force, believed in living harmoniously with the land, rather than exploiting its bounty as the newcomers did. They fought back with surprising ferocity. A treaty helped avert further bloodshed. A friendship, stained at first, grew as the Tarasin and the outsiders got to know each other and started to pursue their known agendas.

As more alien species arrived on Culanin, the Tarasin worried more about the future of their home. The offworlders built their cities on platforms that rose above the forest canopies, preserving the natural environment while giving the visitors a place to call home. However, the Tarasin denied certain companies access to the planet's resources and were particularly protective of the ch'hala trees that were sacred to their religion. Words escalated into violence. The trading companies decided to send armed troops down with their workers and droids to avid losing valuable equipment. Tarasin reprisals were swift and deadly. The Tarasin tribes demonstrated that they could use the technology of their alien adversaries, and their natural abilities with the Force made them devastating in combat.

The Jedi refused to intervene in the Tarasin Revolt. The Trade Federation, holding major interests on Culanin, sent war droids to secure their operations and protect their crews. The droids interpreted their orders loosely and decimated the nearby Tarasin tribes in a brutal raid. This outrage prompted a series of bloody counterattacks. Ultimately, the Jedi Order felt compelled to intervene and sent two Jedi consulars to negotiate a new treaty. The Tarasin refused to give in to outsider demands and after six months of tense negotiations, all sides agreed to an accord called the Culanin Compact, sharply curtailing the outsiders' ability to harm the planet. For their part, the Tarasin struggled to work with the offworlders, allowing them to harvest limited resources while protecting the planet's ecological balance.

Later years saw many conflicts among the various trading companies and cartels for control of Culanin's resources, but few of these conflicts involved or affected the Tarasin directly.

During the Rebellion era, the Empire seized control of all mining operations on Culanin, but the Imperials did nothing to invite conflict with the Tarasin. The planet had little to offer, and the Imperials regarded the Tarasin as a primitive, backward species with little potential. The Tarasin hid their mastery of the Force, and unsubstantiated rumors persisted that at least a handful of Jedi took refuge among the Tarasin after escaping the Jedi Purge.

The fall of the Empire spelled the return of the trading cartels, but the New Republic was quick to reinstate the Culanin Compact, ensuring that these companies would not despoil the planet. The Tarasin enjoyed their diplomatic dealings with the New Republic, and a few Force-strong Tarasin have even expressed interest in joining the New Jedi Order to help repel the Yuuzhan Vong.

Most Tarasin dwell in tribal villages. Their tribes called irstats, are small (between thirty and fifty members each) and led by a chieftain (called the Irstat-Kes); usually the second oldest female in the tribe. They refer to the eldest female in the irstat simply as "Mother", holding her up as a model of perfection.

Tarasin are calm, communal, and curious. They fiercely protect their world and its resources, rarely getting violently angry unless their world or their tribes are threatened. Most Tarasin adventurers are curious about offworlders and new traditions. Force using Tarasin often serve as religious leaders.

The average Tarasin stands about 5 foot 3 tall and has a body covered with translucent scales. The skin beneath the scales changes color, reflecting the Tarasin emotional state and enabling it to better camouflage itself. A multi-colored "fan" of thin, scaly flesh spreads out around the Tarasin's head when it is frightened or angered.

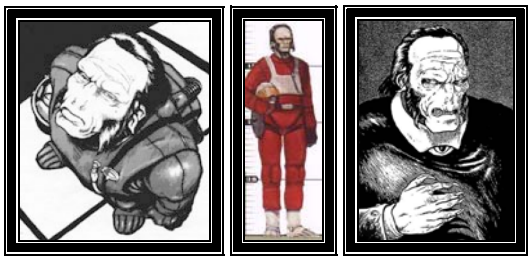
Notes:

None

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+25
Racial Disadvantages	-50
Racially Learned Skills and Racial Bonuses	+5
TOTAL	-10

Tarro



Attribute Adjustment:

ST+1 [+9pts]

Secondary Characteristic Adjustment:

Will-1 [-5pts]; SM+1

Origin:

Tililix

Tech Level:

11

Racial Advantages:

Claws (Sharp) [+5pts]; Teeth (Sharp) [+1pt]

Racial Disadvantages:

Loner (Resist quite rarely, x2) [-10pts]; Stubbornness [-5pts]

Free Skills:

Language (Tarrese, Native, similar to Galactic Basic); Area Knowledge (Tililix or any other planet after the Til destruction)

Racially Learned Skills and Racial Skill Bonuses:

Language (Basic, Accented) [+4pts]; Intimidation at Will [+2pts]

Features/Taboos:

None

Names:

Examples of names are Paraster Daskalion, Kassar Kosciusko, Masakayan, Qatak Qantaras, Terrant Skayanestro, and Ruskor Votaran.

Description:

Tarro are a tall, technologically advanced humanoid species on the verge of extinction. Nearly a century before the Battle of Yavin, the Tarro homeworld was destroyed when its sun exploded with little warning. Taro survivors living in other systems speculated that a Tarro-built superweapon may have caused the catastrophe, although the truth might never be known.

Only a few hundred Tarro survived the destruction of their home system, and they quickly scattered among the stars. A few joined the ranks of the Rebel Alliance; others sought out reported "lost colonies" of Tarro in the Unknown Regions.

The Tarro are a stubborn, independent species. They have little patience for others and are obstinate and abrupt even with others of their own species. Despite their self-centered attitude, they have a knack for making it clear that if you're not with them, you're in the way. Some Tarro have purportedly learned to overcome their "loner" attitude.

Humanoid, with a large forehead, a thick brow, flat nose, and a broad mouth filled with sharp teeth, the average Tarro stands about 6 foot 2 tall. A Tarro has seven fingers on each hand that end in sharp claws.

Their homeworld, Tililix was a technologically advanced world deep within the Unknown Regions. Fewer than five hundred Tarro reportedly escaped the destruction of Til, their sun, setting the species on the brink of extinction. No new Tarro homeworld has been adopted, as the remaining members of the species have no desire to get involved what would surely become a bureaucratic process.

Notes:

Tarro PCs are not recommended.

CP:

Type	CP
Attribute Adjustment	+9
Secondary Characteristic Adjustment	-5
Tech Level	0
Racial Advantages	+6
Racial Disadvantages	-15
Racially Learned Skills and Racial Bonuses	+2
TOTAL	-3

Tchuukthai

Attribute Adjustment:

ST+2 [+10pts]; DX-2 [-24pts]

Secondary Characteristic Adjustment:

SM+1

Origin:

Ambria

Tech Level:

0 Low TL-11 [-55pts]

Racial Advantages:

Extended Lifespan 1 [+2pts]; Claws (Blunt Claws) [+5pts]; Teeth (Fangs) [+2pts]; Damage Resistance 1 (Tough Skin, -40%, Physical, -20%) [+2pts]; Damage Resistance 4 (Armor Plating, Hardened+3, +60%, Physical, -20%, Can't Wear Armor, -40%, Torso and Head only, -10%) [+10pts]

Racial Disadvantages:

No Fine Manipulators [-30pts]; Secret (Serious Embarrassment) [-5pts]; Reputation-4 (Monstrous, other species only, -30%) [-14pts]; Horizontal [-10pts]

Language and other Free Skills:

Language (Tchuukthese, Native); Area Knowledge (Ambria)

Racially Learned Skills and Racial Skill Bonuses:

Intimidation skill at Will [+2pts]

Features/Taboos:

None

Names:

Example names are Bval, Drol, Gaarx, Huun, Nrak, Thon, Tkur, and Zvod.

Description:

For centuries, the Tchuukthai were considered little more than beasts. Their brutish appearance and vocabulary of grunts and growls helped perpetuate that myth, a misperception the Tchuukthai were more than happy to see thrive. Over several centuries, Tchuukthai were discovered more than once. Most times, explorers avoided contact with these seemingly dangerous creatures. The few who couldn't resist the urge to learn more about them were met with vicious snarls and displays of ferocity.

Their true intelligence remained a secret until a Jedi Master encountered them. The Jedi, whose name is lost in antiquity, explained much about the galaxy to a Tchuukthai he'd befriended. The Tchuukthai's interest was piqued, but he was wary of leaving his home and fearful that his people would be exploited if their true nature were known. The Jedi gave his word that he would protect their secret and offered to train the Tchuukthai in the ways of the Force. This Tchuukthai later became Jedi Master Thon of Ambria.

For thousands of years, Master Thon was the only Tchuukthai who had ventured into the galaxy. Only the Jedi knew his true nature. Since that time, other Tchuukthai might have ventured beyond their home system, perhaps even as pets or zoological exhibits. During the time of the New Republic, their existence is still considered a rumor across most of the galaxy.

Tchuukthai are contemplative, free thinking, secretive, and slow to anger. Some prefer to be left alone, while others seem genuinely interested in meeting new species. Depending on their general demeanor, Tchuukthai are either annoyed or amused by other species' reactions to their appearance and size. They disdain conflict but fight fiercely when sufficiently provoked.

Tchuukthai are hulking, quadrupedal brutes, with thick leathery skin, wide-set eyes, flaring nostrils, and sharp fangs. Bristling fur covers their chin, ankles and wrists, and armor plating protects their head, joints, and vital organs. An adult Tchuukthai stands 7

feet tall at the shoulder or 9 feet tall when standing upright on his or her hind legs. Tchuukthai who consorts with other species typically don clothing; others do not.

Notes:

Tchuukthai PCs are not recommended.

CP:

Type	CP
Attribute Adjustment	-14
Secondary Characteristic Adjustment	0
Tech Level	-55
Racial Advantages	+21
Racial Disadvantages	-59
Racially Learned Skills and Racial Bonuses	+2
TOTAL	-105

Teek

Attribute Adjustment:

ST-3 [-30pts]; +5 DX [+100pts]; IQ-1 [-20pts]; HT-2 [-20pts]

Secondary Characteristic Adjustment:

SM-8

Origin:

Forest moon of Endor

Tech Level:

3 – Low TL-8 [-40pts]

Racial Advantages:

Enhanced Move+4 (Costs Fatigue, -10%) [+72pts]; High Manual Dexterity+4 [+20pts]; Teeth (Sharp) [+1pt]; Fur [0pts]

Racial Disadvantages:

Code of Honor (Teek Trading) [-5pts]; Curious (Resist quite often, x1) [-5pts]; Kleptomania (Resist quite often, x1) [-15pts]; Odious Racial Habit (Annoying speech) [-5pts]; Short Lifespan 4 [-40pts]; Bowlegged [-1pt]

Free Skills:

Language (Teek, Native); Area Knowledge (Forest moon of Endor)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Example names are Teek and Yeep.

Description:

Teeks are rodent-like, simian creatures that inhabit the forest moon of Endor. They have long, pointy ears and short, white fur. They have a set of buckteeth that makes them look unintelligent, and they're hands are amazingly quick and agile. They're language consists of undecipherable chattering noises, that many consider very annoying. An average adult Teek stands about 3 foot 1 tall.

On Endor, the Teeks fulfill the Scavenger niche in the ecological system, and they are packrats by nature. Although the Teeks are accomplished thieves, they do not consider themselves dishonest. When a Teek takes an item he will replace it with an item of equal value. Although what a Teek will consider "an equal value", will often differ from that of the object's original owner. Visitors to Endor, who have the misfortune of encountering the race, might find items such as hydrospanners and scanners missing, only to be replaced with nuts and beetle sells. Teeks wear rudimentary clothing with many pouches and pockets filled with items they have managed to collect.

The Teeks main defense is the short bursts of incredible speed, hat they use for fleeing from their enemies and victims of their thievery. Although many find their encounter with the creatures frightfully annoying, Teeks are generally good natured and well-meaning creatures.

Notes:

A Teek can be seen in the TV movie: Ewoks – The battle for Endor.

CP:

Type	CP
Attribute Adjustment	+30
Secondary Characteristic Adjustment	0
Tech Level	-40
Racial Advantages	+93
Racial Disadvantages	-71
Racially Learned Skills and Racial Bonuses	0
TOTAL	+12

Teltior

Attribute Adjustment:

ST+1 [+9pts]

Secondary Characteristic Adjustment:

SM+1

Origin:

Merisee

Tech Level:

11

Racial Advantages:

High Manual Dexterity+2 [+10pts]

Racial Disadvantages:

Dislike (Con men of their own species) [-1pt]

Free Skills:

Language (Teltiorese, Native); Area Knowledge (Merisee)

Racially Learned Skills and Racial Skill Bonuses:

Language (Galactic Basic or Merisian, Accented) [+4pts]

Features/Taboos:

None

Names:

Ceeva

Description:

The Teltiors are a tall humanoid race native to Merisee in the Elrood sector. They share their world with the Meris. The Teltiors have pale-blue to dark-blue or black skin. They have a prominent vestigial tail and three-fingered hands. The three fingers have highly flexible joints, giving the Teltiors much greater manual dexterity than many other species. Teltiors traditionally wear their hair in long ponytails down the back, although many females shave their heads for convenience. The average Teltior stands about 6 foot 2 tall.

The Teltiors have shown a greater willingness to spread from their homeworld than the Meris, and many have found great success as traders and merchants. Although the Teltiors don't like to publicly speak of this, there are also many quite successful Teltior con men, including the infamous Ceeva, who bluffed her way into a high-stakes sabacc game with only 500 credits to her name. She managed to win the entire Unnipar system from Archduke Monlo of the Dentamma Nebula.

Notes:

None

CP:

Type	CP
Attribute Adjustment	+9
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+10
Racial Disadvantages	-1
Racially Learned Skills and Racial Bonuses	+4
TOTAL	+22

Temolak

Attribute Adjustment:

ST+1 [+9pts]; IQ+1 [+20pts]

Secondary Characteristic Adjustment:

Will-1 [-5pts]; SM+1

Origin:

Zirulast

Tech Level:

11

Racial Advantages:

Damage Resistance+1 (Tough Skin, -40%, Physical only, -20%) [+2pts]

Racial Disadvantages:

Broad-Minded [-1pt]; Likes (Discarded technological gadgets) [-1pt]

Free Skills:

Language (Temolish, Native); Area Knowledge (Zirulast or TSC assigned territory)

Racially Learned Skills and Racial Skill Bonuses:

Electronics Repair/TL11 at IQ+1 [+2]; Mechanic/TL11 at IQ [+2]

Features/Taboos:

None

Names:

Example names are Chaiza, Durakas, Eskavon, Kurun, Luzura, Orborus, Shalunas, Unkave, Zanvost, and Zardanka.

Description:

Temolaks are brawny yet timid galactic scavengers who scour the galaxy in search of derelict vessels and other detritus that can be rebuilt or recast into useful gear and sold to underdeveloped worlds. Members of the species seldom interact with technologically advanced societies; Temolaks prefer to deal with primitives who value the relatively low-tech amenities they can provide.

Temolak salvagers patrol the galaxy in cramped transports built from scrap. A Temolak salvage crew considers a derelict ship a treasure trove, stripping the vessel of everything right down the wires and deck plates. Although generally nonviolent, Temolaks fiercely defend their salvage rights and protect their own interests, and many space pirates know better than to challenge a Temolak salvage crew for ownership of a drifting space hulk of questionable worth.

Temolaks often "colonize" abandoned space stations, using these ramshackle facilities as trading outposts and warehouses. Spacefaring Temolaks rarely return to their backwater homeworld except to sell their wares.

In the days of the Old Republic, competition among Temolak salvage crews sometimes led to bloody conflict. These skirmishes were clearly counterproductive and heralded the formation of the Temolak Salvage Consortium. The TSC assigned a territory to each salvage crew, thereby eliminating competition. When the Empire took power, many Temolaks left the consortium and retreated to the farthest corners of the Outer Rim, hoping to sidestep strict Imperial salvage laws imposed on the TSC. Several of these crews did remarkably well for themselves, while other simply perished.

Over the millennia, Temolaks have evolved redundant internal organs (an extra heart, an extra liver, an extra set of lungs, and a third kidney) to help them survive the rigors of their homeworld and life among the stars. As they have evolved physically, so too have the Temolaks advanced technologically. Two thousand years before the Battle of Yavin, when their homeworld's water supply evaporated, the Temolaks built orbital ships capable of extracting water from the world's icy rings. Since then, they have built their own sublight drives and acquired hyperspace technology.

In spite of their brutish appearance, Temolaks are crafty, timid scavengers. Quiet and unassuming, they don't call too much attention to their activities. They like to collect things: discarded technological items are particularly valuable, even if the items aren't immediately useful or functional. Living among the stars has taught them how to subsist on the scraps left behind by other species, and they are known for turning bits of useless garbage into practical tools. Although resourceful, they are easily swayed and far too trusting of strangers.

Temolaks are muscular, heavy-set humanoids with clay-colored skin, scrunched faces, fanlike ridges along the chin, and small curved horns protruding from the cheekbones. Heir teeth are long

and crooked, and their large nostrils flare when they speak. An adult Temolak stands about 6 foot 4 tall.

Their homeworld Zirulast is a dusty an dry world orbiting a white dwarf star of the same name in the Expansion Region. Rings of ice particles encircle the planet.

Notes:

None.

CP:

Type	CP
Attribute Adjustment	+29
Secondary Characteristic Adjustment	-5
Tech Level	0
Racial Advantages	+2
Racial Disadvantages	-2
Racially Learned Skills and Racial Bonuses	+4
TOTAL	+28

Thakwaash

Attribute Adjustment:

ST+2 [+16pts]; DX-1 [-20pts]

Secondary Characteristic Adjustment:

Will-1 [-5pts]; SM+2

Origin:

Thakwaa

Tech Level:

10 – Low TL-1 [-5pts]

Racial Advantages:

Damage Resistance+1 (Fur, Flexible, -20%, Physical, -20%) [+3pts]

Racial Disadvantages:

Split Personality (Resist quite often, Skills may be altered) [-15pts]

Free Skills:

Language (Thakwaese, Native); Area Knowledge (Thakwaa)

Racially Learned Skills and Racial Skill Bonuses:

Up to 15 CP may be spend on skills which change with each personality.

Features/Taboos:

None

Names:

Example names are Aythar Desh, Hohass Ekwesh, Shakwa Rehakas, Jiva Shelani, and Wec Taskelor.

Description:

Thakwaash are large humanoids who possess great strength. The entire species suffer from (or perhaps benefits from) a multiple personality disorder. Thakwaash have several "minds", each one specializing in a different area of expertise. A fair amount of research has gone into understanding these personalities, but how many personalities one Thakwaash can manifest and how they develop remains a mystery. Most Thakwaash tend to switch back and forth between them often. The average Thakwaash has relatively good control over most of its personalities. Other species find the Thakwaash hard to deal with at first, until they start treating the Thakwaash's minds almost as distinct individuals. Like most multiple personality disorders, one personality usually does not know what the Thakwaash's other personalities have done.

Before the Battle of Endor, there are no known accounts of Thakwaash in the galaxy. Although the species may have found a way offworld before then, they hadn't acquired hyperdrive technology until after the Empire's defeat.

Thakwaash average 9 foot 10 tall and possess long manes, large, dark eyes, flaring nostrils, and soft, felty ears. Their bodies are covered in short fur, usually a shade lighter than their manes.

Their homeworld Thakwaa is a temperate Outer Rim planet dominated by grassy plains. Until the end of the Galactic Civil War, it was an isolated world that attracted little Imperial attention. One popular theory states the Empire gave up the though of enslaving the Thakwaash because of their size, strength, and unpredictable attitudes, not because the planet was worthless.

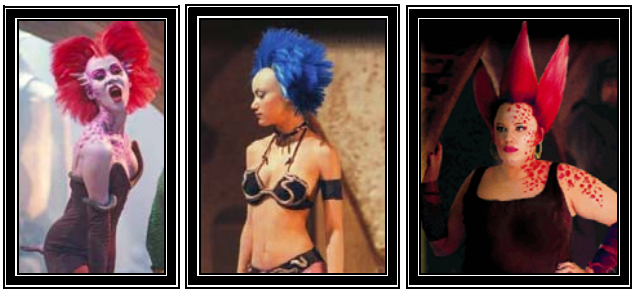
Notes:

Thakwaash pc's are not recommended.

CP:

Type	CP
Attribute Adjustment	-4
Secondary Characteristic Adjustment	-5
Tech Level	-5
Racial Advantages	+3
Racial Disadvantages	-15
Racially Learned Skills and Racial Bonuses	+15
TOTAL	-11

Theelin



Attribute Adjustment:

None

Secondary Characteristic Adjustment:

None

Origin:

Theelin – Unknown; half-Theelin any if Humans or near-Humans present.

Tech Level:

11

Racial Advantages:

Fashion Sense [+5pts]; Talent (Musical Ability+2) [+10pts]

Racial Disadvantages:

Unnatural Features (The Old Republic era+1, Fall of the Republic era+2, Rise of the Empire era+3, The Rebellion era+4, The New Republic era+5, see BS page 22) [-1pt/level]

Free Skills:

Language (Theelinese, Native); Area Knowledge (Any one planet)

Racially Learned Skills and Racial Skill Bonuses:

Language (Galactic Basic for Theelin, Native or any other Human or near Human language for half-Theelin, Native) [+6pts]

Features/Taboos:

Varies

Names:

Examples names are Diva Arroquitas, Diva Funquita, Diva Shaliqua, Rystáll Sant, and Shug Ninx.

Description:

The Theelin were a species of near-Humans notable for their artistic talent, their colorful appearance, and their unfortunate history.

Theelin performers and artists created many of the Galactic Republic's greatest work of arts. The Theelin Divas, an all-female religious order, were recognized by many scholars of music as the greatest singers in the galaxy.

Unfortunately for the Theelin, a series of mutations arose among their species during the last years of the Galactic Republic. These mutations led to genetic incompatibilities within their species, making it impossible to produce offspring. Even attempts to continue their species by cross-breeding with Humans and other near-Humans could not stop the Theelin slide towards extinction, due to the high infant mortality rates such couplings suffered from. They inevitably dwindled in number, only a few million Theelin and part-Theelin remained by the time the Republic fell, and pure Theelin were extinct by 10 ABY. Some of their greatest works were produced in these years, however, as an epitaph for a dying people.

Because of the rarity of the Theelin, many female Theelin and part-Theelin were named "Diva" at birth, in hopes that they would develop the musical talent necessary to continue the traditions of the Diva order. Their rarity also led a Hutt named Ingoda to collect Theelin and part-Theelin slaves. Diva Funquita and the half-Human Diva Shaliqua were two of his slaves.

The original appearance of the Theelin is uncertain, as almost all known "Theelin" were not full-blooded specimens, but hybrids. It is possible that some aspects of these individuals' appearances were not from their Theelin genes, but from other Human or near-Human ancestors, the differences could also be related to the very mutations that were plaguing the species. Most, however, had vividly colored hair and pale skin, sometimes with purple or reddish tones and often mottled with colorful spots. While Rystáll Sant, a Human/Theelin hybrid who was part of the Max Rebo Band, had six small horns on the sides of her head, these were absent fro other known Theelin, except Diva Arroquitas. Sant also had unusually-shaped feet, an attribute she shared with Diva Shaliqua. Similarly, the half-Human outlaw tech Shug Ninx had three-fingered hands, while other people of Theelin blood had standard Human-like five-fingered hands. An average Theelin stands about 5 foot 7 tall.

Notes:

In any other era except The New Republic, deduct points as appropriate for the Unnatural Features disadvantage.

CP:

Type	CP
Attribute Adjustment	0
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+15
Racial Disadvantages	-5
Racially Learned Skills and Racial Bonuses	+6
TOTAL	+16

Thisspiasian

Attribute Adjustment:

ST+1 [+10pts]

Secondary Characteristic Adjustment:

Will-1 [-5pts]

Origin:

Thisspias

Tech Level:

11

Racial Advantages:

Claws (Sharp) [+5pts]; Constriction Attack (Tail) [+15pts]; Damage Resistance+1 (Scales, Lower body only, -20%, Physical, -20%, Can't wear armor, -40%) [+1pt]

Racial Disadvantages:

No Legs (Slithers) [0pts]; Personality Change (Missed meditation) [0pts]

Free Skills:

Language (Thisspiasian, Native); Area Knowledge (Thisspias)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Example names are Dal Jassano, Oppo Rancisis, Kenko Sarapas, and Tersis Shandadi.

Description:

An ancient warrior species, Thisspiasians resemble humanoids except for their serpentine lower bodies. The species eagerly joined the Old Republic, and Thisspiasian warriors were instrumental in helping the fledgling Republic overcome many internal and external threats.

A single hereditary monarch rules the Thisspiasian homeworld, although an elected parliament deals with most matters of state. Many Thisspiasians consider the monarchy decadent and bound by archaic customs, although the monarchy has taken periodic strides to catch up with the changing views and times.

A Thisspiasian named Oppo Rancisis inherited the position of monarch but later relinquished the title in favor of staying with the Jedi Order. During the Clone Wars, Rancisis attempted to

persuade the ruling monarch to take stand against Count Dooku and the Separatists. After losing to Rancisis in a trial of unarmed combat, the Thisspiasian monarch grudgingly allowed Thisspiasian warriors to aid the Republic in several critical battles.

When the Republic gave way to the Empire, the Imperials bombarded the Thisspiasian homeworld and enslaved the survivors. An over-zealous Imperial governor seeking to impress the Emperor executed the Thisspiasian monarch and enslaved the crown prince. The Thisspiasians were furious and rebelled, but their initial counterattacks proved futile. It wasn't until Rebel spies infiltrated the governor's ranks and rescued the Thisspiasian heir that his people regained hope. The humiliated governor threatened to annihilate the Thisspiasian; ironically, the Emperor sent one of his agent, an Emperor's Hand, to "deal with the embarrassment", eliminating the witless governor and enforcing a planetwide quarantine and Imperial rule until shortly after the death of the Emperor.

Following the Battle of Endor, the Thisspiasian crown prince returned home only to discover his subjects engaged in heated debates about whether to restore or replace the monarchy. After a brief yet bloody civil war, the Thisspiasian crown prince claimed his rightful title and took the first steps toward joining the New Republic. Despondent Thisspiasians who survived Imperial domination remark that the monarchy has changed precious little in the intervening years: It remains decadent and politically anachronistic.

Although they can function adequately with as few as 2 standard hours of sleep per day, Thisspiasians typically spend 5 – 6 standard hours per day in a trancelike state akin to sleep.

Thisspiasians strive to submerge their raging passions and emotions beneath a sea of calm using various meditative techniques. They typically meditate before or after a brief period of rest.

Other species frequently mistake the Thisspiasians' even-tempered façade for a species trait. In truth, Thisspiasians who do not meditate for 5 or 6 hours per standard day are moody and prone to express their emotions in jarring ways, for example, bursting into tears when distressed or flying into a rage when angered.

A Thisspiasian's humanoid upper body is covered in long flowing hair. The scales that adorn a Thisspiasian's serpentine lower body come in varied hues, often matching the hair of the upper body. Thisspiasians typically coil their tails beneath their torsos when resting or meditating. A coiled Thisspiasian stands about 4 foot 11 tall.

Their homeworld Thisspias is a temperate and rocky world located in the Expansion Region.

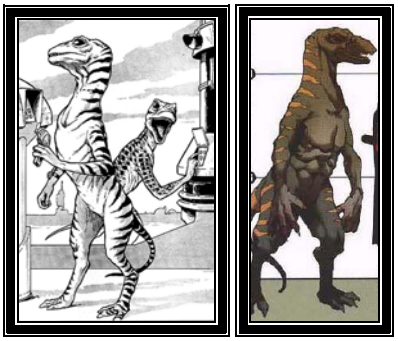
Notes:

None

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	-5
Tech Level	0
Racial Advantages	+21
Racial Disadvantages	0
Racially Learned Skills and Racial Bonuses	0
TOTAL	+26

Tiss'shar



Attribute Adjustment:

IQ+1 [+20pts]

Secondary Characteristic Adjustment:

Will-1 [-5pts]

Origin:

Tiss'sharl

Tech Level:

11

Racial Advantages:

Damage Resistance+1 (Scales, Cannot wear armor, -40%) [+3pts]; Night Vision+2 [+2pts]; Reputation (Cunning assassins, Criminals, x½, All the time, x1) [+3pts]; Teeth (Sharp) [+1pt]

Racial Disadvantages:

Code of Honor (Professional) [-5pts]; Repuation-1 (Resourceful entrepreneurs, Almost everyone but own race, x1, All the time, x1) [-5pts]

Free Skills:

Language (Tiss'shar, Native); Area Knowledge (Tiss'sharl)

Racially Learned Skills and Racial Skill Bonuses:

Orl-ar: Acrobatics at DX [+4pts]
Isk-ar: Mechanic/TL11 at IQ+1 [+4pts]
Ask-ar: Sleight of Hand at DX [+4pts]
Kal-ar: Enthrallment (Persuade) at Will [+4pts]
Nil-ar: Stealth at DX+1 [+4pts]
Sil-ar: Diplomacy at IQ [+4pts]

Features/Taboos:

Tail

Names:

Example names are Abin-Ral-Xufush, Heth-Lis-Fel, Kal-Tan-Shi, Lur-Sha-Han, San-Kur-Lor, and Uul-Rha-Shan.

Description:

Tiss'shar are bipedal reptilians who evolved from a predatory animal species native to their homeworld. At first glance, one would never suspect that the Tiss'shar were anything more than fierce beasts. Their appearance belies a keen intellect, but not all Tiss'shar have allowed modern civilization to dull their predatory instincts. While Tiss'shar are known across the galaxy as resourceful entrepreneurs, the species also leads the field in expert assassins.

Tiss'shar corporations are among the galaxy's leading developers of technology, producing hyperdrives, droids, and all types of modern weaponry. Tiss'shar traders ply all of the major space routes, and Tiss'shar corporations aggressively search for new business opportunities and contracts throughout the know galaxy.

Tiss'shar who do not share in the love of financial gain through legitimate and shady business enterprises seek their fortunes as corporate or freelance assassins. Even the most cold-blooded Tiss'shar assassin still treats his work as a business and understands the importance of honoring a contract.

Tiss'shar are efficient, shrewd beings who focus on success. Whether their goals lie in business, sports, recreation, or combat, they like getting their way and deal with obstacles in a detached, calculating manner. Tiss'shar do not always resort to overt physical actions to solve disputes. They prefer subterfuge.

Slender therapods, Tiss'shar are distinguished by their long necks, tooth-filled maws, dark glassy eyes, colorful scales, and short tails. The average Tiss'shar adult stands 5 foot 5 tall.

Six subspecies of Tiss'shar exist, differentiated by the colors and patterns adorning their scales. The sil-ar have diamond-shaped markings on the backs of their heads. The kal-ar have thin, concentric bands that begin at the base of the jaw and travel all the way to their toes. The ask-ar have red mask-like markings on their faces. The orl-ar have deep green scales with jagged yellow-orange stripes. The black-scaled nil-ar have thin red bands encircling their eyes, wrists, ankles, and tails. The ghostly isk-ar are albinos with translucent white scales and no discernable markings.

Their homeworld Tiss'sharl is a temperate Outer Rim world dominated by humid jungles across its equatorial region. The Tiss'sharl League that governs Tiss'sharl is made up of the world's most profitable business leaders (both native and foreign). Each corporation sees to its own employees needs, providing food, shelter, health, education, and security.

Notes:

None

CP:

Type	CP
Attribute Adjustment	+20
Secondary Characteristic Adjustment	-5
Tech Level	0
Racial Advantages	+9
Racial Disadvantages	-10
Racially Learned Skills and Racial Bonuses	+4
TOTAL	+18

Togorian

Attribute Adjustment:

ST+2 [+18pts]; DX-1 [-20pts]; IQ-1 [-20pts]; HT+1 [+10pts]

Secondary Characteristic Adjustment:

Will -1 [-5pts]; SM+1

Origin:

Togoria

Tech Level:

10 – Low TL-1 [-5pts]

Racial Advantages:

Claws (Sharp) [+5pts]; Fearlessness+4 [+8pts]; Night Vision+3 [+3pts]; Teeth (Sharp) [+1pt]; Fur [+1pt]

Racial Disadvantages:

Bad Temper (Resist quite rarely, x2) [-20pts]; Bloodlust (Resist quite rarely x2) [-20pts]; Intolerance-3 (Non-Togorian) [-10pts]; Reputation-2 (Ruthless Pirates, Almost everyone but own species, x1, All the time, x1) [-10pts]

Free Skills:

Language (Togorian, Native); Area Knowledge (Togoria)

Racially Learned Skills and Racial Skill Bonuses:

Language (Basic, Accented, Understand only) [+3pts]; Intimidation at Will+1 (see BS page 202 for more modifiers) [+4pts]; Melee Weapon (Broadsword or Vibro-sword) at DX+1 [average] [+4pts]

Features/Taboos:

None

Names:

Example names are Dankin, Dh'rang, H'sishi, Keta, Luurr, Mrrov, Muuurgh, Qrrulla, Rrowv, Ruukas, Sarrah, and Seendar.

Description:

Enormous carnivores built for combat. Togorians are predatory, fearless warriors known to the galaxy at large as ruthless pirates. They prowl the shipping lanes and hyperspace routes in ragtag fleets, looking for easy plunder. They usually stick to the less-traveled routes, although a particularly successful pirate fleet will boldly attack major thoroughfares.

The Republic has launched major campaigns to eradicate the Togorian threat, with mixed success. More than once, the Republic believed it had eliminated a Togorian pirate fleet, only to see the pirates resurface days or weeks later at full strength. Because they lack the necessary skills to maintain their own ships, Togorians will often keep slaves who possess such talents.

The leader of a Togorian warband is determined by "survival of the fittest". The captain of a ship must be the largest and most aggressive crewmember, willing to crush opposition without hesitation. While Togorians have little honor, they prefer to fight each other in face-to-face melee combat. This "courtesy" does not extent to non-Togorians, who face all manner of brutality and treachery when attacked by Togorian pirates.

Togorian males and females rarely interact with one another, with encounters between genders occurring only a few days each standard year. Males prefer a nomadic way of life, wandering the plains of Togoria on domesticated flying lizards called mosgoths. The females spend their time in the cities, tending domesticated animals and maintaining their society's solar-based technology.

Brutal, short-tempered, and treacherous, male Togorians respect only the strength of their betters. Like gladiators, they savor any chance to face a worthy foe in melee combat, especially members of other powerful species (like Wookiees). Female Togorians are no less vicious and domineering, but they are less inclined to wander the stars in active pursuit of conflict.

Togorians ousted from his warband or exiled form Togoria for some offense will sometimes wander the galaxy in search of adventure of infamy. Such Togorians typically find work as criminals, enforcers, or arena gladiators on backwater worlds. A solitary Togorian might grudgingly join a non-Togorian pirate band but won't be satisfied until he's killed the captain and taken charge of the operation.

Togorian Force users are rare and usually mistrusted and despised by other members of the species.

Muscular bipeds, Togorians stand 8 foot 2 tall on average. Thick fur covers their bodies and is usually jet-black o striped black and orange. Their large hands have retractable razor-sharp claws, and their jade green eyes are capable of discerning prey even in poor light.

Their homeworld Togoria is a temperate Mid Rim world of sprawling savannas, great canyons (many containing isolated cities), and dense forests.

Notes:

Togorian PCs are not recommended.

CP:

Type	CP
Attribute Adjustment	-12
Secondary Characteristic Adjustment	-5
Tech Level	-5
Racial Advantages	+18
Racial Disadvantages	-60
Racially Learned Skills and Racial Bonuses	+11
TOTAL	-53

Togruta

Attribute Adjustment:

DX+1 [+20pts]; HT-1 [-10pts]

Secondary Characteristic Adjustment:

PER+1 [+5pts]; Will+1 [+5pts]

Origin:

Shili

Tech Level:

11

Racial Advantages:

Claim to Hospitality (Togruta species) [+5pts]; Scanning Sense (Sonar) [+20pts]; Striker (Horns, Crushing, Cannot Parry, -40%, Limited Arc, -40%) [+1pts]; Teeth (Sharp) [+1pt]

Racial Disadvantages:

Reputation (Poisonous, Almost everybody but own race, x1, All the time, x1) [-5pts]; Attentive [-1pt]

Free Skills:

Language (Togruti, Native); Area Knowledge (Shili)

Racially Learned Skills and Racial Skill Bonuses:

Stealth at DX+1 [+4pts]

Features/Taboos:

Head-tails

Names:

Example names are Ashla, Creev Zrgaat, Dyani Zaan, Jir Taalan, Qusak Laal, Shaak Ti, and Vilka Searis.

Description:

Evolved from pack creatures, Togrutas are effective hunters and work well in large groups. Togruta society considers overt independence a sign of mild deviance and consequently discourages individuality. Paradoxically, Togrutas who rise to positions of prominence generally do so by judiciously exercising their individualism. Outsiders see this as a sign of the ongoing social evolution of the Togruta people.

All Togrutas are marked by colorful skin patterns, a holdover from their days as dangerous, stalking predators. The wild scrublands of their homeworld are covered with yard-high turu-grass, which is red on one side and white on the other. Primitive Togrutas would slink through the turu-grass using their highly developed sense of space and distance to encircle unsuspecting herbivores.

Togrutas are commonly (and mistakenly) believed to be venomous, another holdover from their primitive ancestors. In truth, Togrutas are not poisonous, and they have no idea how that rumor arose. Their eating habits might have something to do with it: Togrutas enjoy devouring thimiars, small rodents native to Shili, using their sharp incisors to quickly and painlessly kill their meals before partaking. To a non-Togruta, the little creature's death throes could appear as though it had been poisoned by the Togruta's bite. In reality, these are just postmortem muscle spasms.

As noted above, Togruta society discourages independence, and yet many Togrutas have gained power and prestige through individuality. Strong-willed Togrutas who exhibit too much independence find life on Shili constricting and leave their homeworld to "hunt among the stars". Togrutas are social, forthright, perceptive, and attentive.

Striped, curved horns rise from the top of a Togruta's head. A pair of darker-striped head-tails (similar to Twi'lek lekku) frame an oval face set with black, penetrating eyes and grayish lips. A Togruta's face features elaborate red and white patterns. Vertical red and white stripes adorn the Togruta's chest, back arms, and legs. Togruta adults stand about 5 foot 7 tall.

The Togruta homeworld Shili is a temperate wilderness planet located in the Expansion Region. The Togrutas live in small communities hidden beneath the forest canopies or tucked away in hidden valleys.

Notes:

Shaak Ti, a Jedi, can be seen in Episodes I to III.

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	+10
Tech Level	0
Racial Advantages	+27
Racial Disadvantages	-6
Racially Learned Skills and Racial Bonuses	+4
TOTAL	+45

Toong

Attribute Adjustment:

DX+2 [+40pts]; HT-1 [-10pts]

Secondary Characteristic Adjustment:

Will-1 [-5pts]

Origin:

Toong'1

Tech Level:

11

Racial Advantages:

Combat Reflexes [+15pts]; Payload 1 (Yowled cheeks) [+1pt]; Peripheral Vision [+15pts]

Racial Disadvantages:

Reputation-1 (Cowardice, Everybody but own race, x1, All the time, x1) [-5pts]; Stress Atavism (Moderate) [-15pts]; Stuttering (Alien contact, -10%) [-9pts]

Free Skills:

Language (Toongese, Native); Area Knowledge (Toong'1, before 32 BBY or Tund 32 BBY and later)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Example names are Ben Quadrinaros, Derble Fonkin, Glef Wonkitz, Hyke Waulkon, and Tigona Minamore.

Description:

When Old Republic Scouts first made contact with the Toong, the species was in the early stages of exploring their solar system. The appearance of alien beings in ships with technology beyond anything the Toong had imagined threw their planet into chaos. The revelation triggered a war between many of their homeworld's nations. Covert observation of the species by first-contact specialists assigned to the scouting mission indicated that the Toong were a peaceful and outgoing species, so the panic and violence that followed first contact came as a complete shock to the scouts. It took weeks to reestablish contact with the Toong, and only then did Republic diplomats and scouts realize they had overlooked something: Although highly evolved mentally, the Toong species retains a keen fight-or flight instinct that frequently manifest as acute social anxiety. The sudden appearance of strange beings from the stars caused mass panic. A tremendous effort on the part of the first-contact team and Jedi consulars hastily dispatched from Coruscant prevented massive warfare that would have destroyed Toong society.

Once the Toong became comfortable with the idea of being part of a great galactic community, they united under a single planetary government and joined the Old Republic. They took quickly to the more advanced technology; within a few centuries after contact, Toong bases and settlements could be found throughout the Toong'1 system.

The Toong reluctantly expanded beyond their own star system, giving rise to scattered colonies throughout the galaxy. These colonies are typically organized around mining of farming efforts, and the Toong colonists enjoy minimal contact with other sentient species. A few rare Toong work outside the Toong'1 system or its colonies as accountants, mechanics, or even scouts an bounty hunters, but more often than not, they gravitate to positions where they don't have to interact with others.

Visitors to Toong'1 are often surprised to learn that rocket-jumping, Podracing, and aircar demolition derbies are favorite pastimes among the Toong. Further, many raiders who felt Toong ships or communities would be easy targets for piracy realized Toong fight back if forced into a corner by excessive demands or obvious threats to their livelihood.

Toong exhibit extreme nervousness in social situations. They invariably give in whenever challenged vocally or physically, particularly when facing non-Toong. A typical Toong feels safe only with his or her immediate family. This has caused most other species to view the Toong as cowards, but they do not fear combat and other dangerous situations. Rather, they dread face-to-face interaction with other beings.

The Toong have long thin legs, no neck, and bulbous bodies. Their eyes are set high on their slightly pointed heads, allowing for excellent peripheral vision, and their yowled cheeks can expand to store food (a legacy from the hairless rodents from which the species evolved). Adult Toong stand around 6 foot tall.

Their homeworld Toong'1 is located in the Outer Rim Territories. Shortly before the Battle of Naboo, the Toong are forced to the nearby world of Tund after Toong'1 is devastated by comet impacts.

Notes:

Ben Quadrinaros can be seen during the Podrace on Tatooine in Episode I – The Phantom Menace.
Hits to the Neck are applied as if hit the Face (see BS page 552)

CP:

Type	CP
Attribute Adjustment	+30
Secondary Characteristic Adjustment	-5
Tech Level	0
Racial Advantages	+31
Racial Disadvantages	-29
Racially Learned Skills and Racial Bonuses	0
TOTAL	+27

Toydarian

Attribute Adjustment:

ST-2 [-20pts]; DX+2 [+40pts]; HT-1 [-10pts]

Secondary Characteristic Adjustment:

SM-1

Origin:

Toydaria

Tech Level:

11

Racial Advantages:

Flight (Lighter than air Lift, -10%, Small Wings, -10%, Costs Fatigue, -10%) [+28pts]; Mind Shield+5 (Force, -10%) [+18]; Rapier Wit [+5pts]

Racial Disadvantages:

Compulsive Behavior (Gambling, Resist quite often) [-5pts]

Free Skills:

Language (Toydarian, Native); Area Knowledge (Toydaria)

Racially Learned Skills and Racial Skill Bonuses:

Language (Galactic Basic or Huttese, Accented) [+4pts]

Features/Taboos:

None

Names:

Example names are Creducio, Farex, Gelt, Jink, Kelgwa, Oparro, Pwigiri, Quant, Rovello, Rylkra, Tigbwi, Tyra, Watto, and Zerpo.

Description:

The Toydarian homeworld is mostly covered with nutrient-rich muck lakes that support a number of dangerous predators. The Toydarians' ancestors survived by flying over the muck and living on relatively safe algae mats. While they appear pudgy, the Toydarians are actually some of the lightest sentient beings in the galaxy; their body tissues are spongy and filled with gas, making their pot bellies function like helium balloons.

Toydarian newborns emerge from their mothers' wombs fully developed, resembling miniature versions of their parents, and they are able to fly from birth. The species prefers to fly everywhere, something that requires a great deal of energy, so they are constantly eating. The sky of Toydaria is filled with buzzing Toydarians, so starship traffic to and from the world's single spaceport is strictly regulated to specific times of the day. Airspeeders are prohibited due to the world's heavy "air traffic". The Toydarian government built a light rail system to ferry offworlders from city to city.

While Toydarians have incorporated some galactic-level technology into their daily lives, they prefer to dwell in small villages that are far below the galactic standard technology. Like many other worlds within Hutt Space, Toydaria remained nearly untouched by Imperial rule. Food shortages would frequently trigger skirmishes among rival communities, but overall, Toydarians lead a quiet, airborne existence, their daily routines broken only with the occasional visiting merchant. Toydaria remains a sleepy corner of the galaxy well into The New Jedi Order era.

The Toydarian brain, though no more complex than a Human or near-Human brain, possesses an unusual structure that resists mental domination through the Force. No Toydarian Force users are known to exist.

Shrewd bargainers, Toydarians like to socialize and strike deals. The best of them is proud, loyal, and business-savvy; the worst of them is greedy, deceitful, and sycophantic. Toydarians like to gamble, and more daring Toydarian traders will make difficult business decisions based on the roll of a chance cube.

A Toydarian is a short, potbellied humanoid with large eyes, a broad mouth flanked by small tusks, thin arms, and spindly legs that end in webbed feet. Skin tones range from blue to green to pink. Small, rapidly fluttering wings sprout from the Toydarian's back. Toydarian males often grow sparse beards. Adults stand around 4 foot tall.

The murky Mid Rim world of Toydaria is located within the borders of Hutt Space.

Notes:

Watto can be seen at Mos Espa in Episodes I and II.

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+51
Racial Disadvantages	-5
Racially Learned Skills and Racial Bonuses	+4
TOTAL	+60

Trandoshan

Attribute Adjustment:

ST+1 [+10pts]; DX-1 [-20pts]

Secondary Characteristic Adjustment:

None

Origin:

Trandosha

Tech Level:

11

Racial Advantages:

Claws (Sharp) [+5pts]; Damage Resistance+1 (Scales, Physical only, -20%) [+4pts]; Infravision [+10pts]; Regrowth (9 years or younger) [+40pts]

Racial Disadvantages:

Berserk (Resist quite often) [-10pts]; Cold-Blooded [-5pts]; Intolerance-3 (Wookiees) [-5pts]; Selfish (Resist quite often) [-5pts]; Short Lifespan 1 [-10pts]; Social Stigma (Imperial supporters, Minority Group, see description) [-10pts]; Likes (Hunting) [-1pt]

Free Skills:

Language (Dosh, Native); Area Knowledge (Trandosha)

Racially Learned Skills and Racial Skill Bonuses:

Survival (Desert) at PER [+2pts]; Tracking at PER [+2pts]

Features/Taboos:

None

Names:

Example names are Bossk, Corrsk, Cradossk, Dussk, Fusset, Grulluss, Juuus, Kallukoras, Krussk, Nakaron, Portha, Reosss, Ssung, Traggissk, Tusserk, Yarroq, and Yavassk.

Description:

Trandoshans are strong, reptilian, warlike humanoids from an arid world that orbits the same star as the lush Wookiee homeworld. Bad blood exists between the two species for many reasons. In the centuries before the foundation of the Galactic Empire, the Trandoshans tried to colonize regions of the Wookiee homeworld and were driven back following numerous bloody skirmishes. The influx of tourists from other systems also worried the Wookiees, who started realizing the negative impact on their planet's delicate ecosystem. They created laws restricting the number of tourists allowed to visit their homeworld, which greatly reduced the number of tourists to the system and infuriated Trandoshans eager to profit from the tourist trade.

Trandoshans raided the Wookiee homeworld, attempting to plunder its natural resources. The Wookiees brought the matter to the Senate, but that did not discourage the Trandoshans. Terrible battles raged on both worlds until, finally, the Senate ruled in favor of the Wookiees and put an end to the Trandoshan raids.

When Emperor Palpatine came to power and began seeking inexpensive alternatives to more traditional workforces, the Trandoshans seized the opportunity to take their revenge on the Wookiees. They reached an agreement with the Emperor and began delivering regular shipments of Wookiee slaves in exchange for various concessions, including economic sanctions against the Wookiee homeworld.

After the fall of the Empire, the New Republic Senate demanded an immediate Trandoshan withdrawal from the Wookiee homeworld, upon threat of economic sanctions and military reprisals. The Trandoshan grudgingly complied, although their poor treatment of the Wookiees and their willingness to support the Empire casts a dark cloud over the species that persists well into The New Jedi Order era.

Trandoshans value hunting above all else and worship a female deity who rewards Trandoshans based on their success or failure in the hunt. Young Trandoshans hatch from eggs and have the ability to regenerate lost limbs. Trandoshans lose their regenerative ability once they become young adults.

Trandoshans have supersensitive eyes that can see into the infrared range. They also shed their skin several times in the span of their lives. They have a difficult time manipulating delicate objects with their relatively clumsy clawed hands.

Trandoshans refer to themselves as "T'doshok".

Trandoshans are aggressive, selfish, and vindictive beings. Violent, brutal, and driven, they love to compete, but can show compassion and mercy when the situation warrants. They like to collect trophies from various successful hunts and the generally value credits more than friendship, although a Trandoshan will pledge his life to protect another being who has saved him from certain death.

Trandoshans despise Wookiees above all other species and will not work alongside them except under the most extraordinary circumstances.

Trandoshans stand about 5 foot 11 tall. Their scaly hides offer additional defense against attacks and range in color from sandy brown to glossy green.

Trandosha (also called Hsskor or Dosha) is an arid planet located in the Mid Rim. The planet orbits the same sun as Kashyyyk, the Wookiee homeworld.

Notes:

The feared bounty hunter Bossk can be seen on the SSD Executor in Episode IV – The Empire Strikes Back.
The advantage Regrowth [+40pts] and the disadvantage Social Stigma [-10pts] should be deducted if not appropriate.

CP:

Type	CP
Attribute Adjustment	-10
Secondary Characteristic Adjustment	0
Tech Level	0
Racial Advantages	+59
Racial Disadvantages	-46
Racially Learned Skills and Racial Bonuses	+4
TOTAL	+7

Trianii

Attribute Adjustment:

Male: ST-1 [-10pts]; IQ+1 [+20pts]
Female: ST+1 [+10pts]

Secondary Characteristic Adjustment:

Will+1 [+5pts]

Origin:

Trian

Tech Level:

11

Racial Advantages:

Claws (Sharp) [+5pts]; Extra Attack (Tail) [+25pts]; Binding (Tail+5, No Parry, -5%, Melee Attack 1-4, -15%) [+8pts]; Fur [+1]

Racial Disadvantages:

Curious (Resist quite often) [-5pt]; Intollerance-3 (Corporate Sector) [-5pts]

Free Skills:

Language (Trianii, Native); Area Knowledge (Trian)

Racially Learned Skills and Racial Skill Bonuses:

Acrobatics at DX-1 [+2pts]; Climbing at DX [+2pts]

Features/Taboos:

None

Names:

Example names are Atuarre, Duarrid, Keeheen, Pakka, Reakhas, Shearran, and Tuunac.

Description:

A technologically advanced and intrepid species, the Trianii fiercely oppose any incursion into their territory. The Corporate Sector Authority once tried to occupy Trianii-controlled space and received a convincing show of Trianii determination and forbearance. The invaders were quickly driven back to Corporate Sector space. Unlike many other sophisticated species, the Trianii have no desire to join the New Republic. They simply prefer to be left alone.

Trianii females are larger and stronger than their male counterparts. Consequently, the Trianii have a matriarchal society ruled by tribunals of females called yu'nar. To avoid a bloody holy war, Trianii religious code deemed acceptable to all. Spirituality infuses every element of Trianii society, from art to industry to commerce.

Trianii are fiercely independent, adventurous, and deeply spiritual. Most members of the species adhere to the moral codes of Trian's official religion, as well as their family's traditional religion. Trianii are curious by nature, preferring to explore

uncharted regions of space instead of joining galactic society. When encountered away from Trianii space, they are often mistaken for Cathar and Togorians.

Humanoid, slender, with short colorful fur, feline facial features, sharp claws, and a prehensile tail, the average Trianii stands about 6 foot tall. Trianii fur comes in a variety of colors and patterns.

Trian lies on the outskirts of the Corporate Sector in the Outer Rim. It acts as a trading hub and central government for over a half dozen outlying Trianii colonies.

Notes:

CP:

Type	CP
Attribute Adjustment	+10
Secondary Characteristic Adjustment	+5
Tech Level	0
Racial Advantages	+39
Racial Disadvantages	-10
Racially Learned Skills and Racial Bonuses	+4
TOTAL	+48

-U-

Unknown Tridactyl Species

Attribute Adjustment:

ST-3 [-20pts]; IQ+1 [+20pts]

Secondary Characteristic Adjustment:

Will+2 [+10pts]; Per+2 [+10pts]; SM-1

Origin:

Unknown

Tech Level:

11

Racial Advantages:

Force Sensitive [+5pts]; Extended Lifespan +4 [+8pts]

Racial Disadvantages:

None

Free Skills:

Language (Basic, Native); Area Knowledge (Any one planet)

Racially Learned Skills and Racial Skill Bonuses:

Not known. They are not so open minded and do not show their qualities to others.

Features/Taboos:

None

Names:

Examples are Bontu Sitmus, Minch, Yaddle, Yoda D'Kana, Seville Demetris D'Kana, and Vandar Tokare.

Description:

These small, wise creatures originate from an unknown world. Not much is known of them but the ones who travel into the galaxy are known to be all Force-sensitive. The two best known Jedi are Bontu Sitmus and his apprentice Yoda D'Kana.

They are short creatures and have a greenish or orange tanned skin. They have pointy ears and on each hand they have three fingers. Their feet have three frontal toes and two rear toes each. Their bodies look very fragile and weak, but this is well compensated by their wisdom and their connection to the Force. Their sharp teeth point to a carnivorous diet

Notes:

These Jedi can be seen in each Episode except Episode IV.

CP:

Type	CP
Attribute Adjustment	-0
Secondary Characteristic Adjustment	+20
Tech Level	0
Racial Advantages	+13
Racial Disadvantages	0
Racially Learned Skills and Racial Bonuses	0
TOTAL	+33

Yuuzhan Vong

Attribute Adjustment:

ST+1 [+10pts]; HT+1 [+10pts]

Secondary Characteristic Adjustment:

Will-1 [-5pts]

Origin:

Unknown

Tech Level:

TL 11 – High TL+1 [+5pts]

Racial Advantages:

Fearlessness+2 [+4pts]; Force Static [+30pts]; Hard To Subdue (Energy Weapons) [+8pts]

Racial Disadvantages:

Fanaticism (Yun-Yammka) (-15pts]; Intolerance (Shamed Ones) [-10pts]; Phobias (Technophobia) [-15pts]; Sadism [-15pts]; Sense of Duty (Supreme Overlord) [-2pts]

Free Skills:

Language (Yuuzhan Vong, Native), few learn to speak other languages, instead relying on tizowyrms, small creatures that crawl into the user's ear, to translate for them; Area Knowledge (One Worldship)

Racially Learned Skills and Racial Skill Bonuses:

None

Features/Taboos:

None

Names:

Example of names are Nom Anor, Dooje Brolo, Malik Carr, Yomin Carr, Chine-kal, Nas Choka, Da'Gara, Elan, Kae Kwaad, Mezhan Kwaad, Kahlee Lah, Qurang Lah, Tsavong Lah, Ma'Shraid, Vua Rapuung, Sheedao Shai, Taan, Tu Shoold, and Nen Yim.

Description:

Conquerors from beyond the galactic rim, the Yuuzhan Vong are organized, bloodthirsty warriors driven by religious fervor. To the inhabitants of the galaxy who have encountered them, the ritually scarred and disfigured Yuuzhan Vong are terrifying invaders with strange customs and technology. Their planet of origin is still a mystery, but their culture of violent expansion clearly that their homeworld or system, or perhaps even galaxy, has become too small.

Yuuzhan Vong weapons, equipment, tools, and clothing are genetically engineered and adapted lifeforms. Using dovin basals, living gravity-well projectors, Yuuzhan Vong ships literally pull themselves through space. The gravitic energy of a dovin basal can also shut down the shields of a spacecraft, or, as the Yuuzhan Vong have demonstrated, pull moons out of their orbit onto their parent planet.

The Yuuzhan Vong enslave or destroy lesser species. Most other species are bravely worthy as slaves, and those with the courage to fight for their freedom are granted a swift, clean death. The Yuuzhan Vong's sense of superiority derives from their worship of Yun-Yammka, the Slayer (their god of war). In observance of Yun-Yammka's imperatives, the Yuuzhan Vong spread across the stars, destroying worlds and subjugating other species. As their forefront is the Praetorite Vong, the vanguard force charged with establishing a staging ground in the galaxy.

Yuuzhan Vong society is split into castes commanded by a Supreme Overlord. The Supreme Overlord commands the Yuuzhan Vong with all the authority of a god, which he may one day become if his victories make him legendary. Most Yuuzhan Vong believe that the gods speak with the Supreme Overlord directly, imparting their will. The rest of the Yuuzhan Vong exist only to obey. The castes include the shapers, priests, warriors, intendants, and workers. Although most Yuuzhan Vong are born into their castes, on rare occasions some have improved their station through marriage. More commonly, failed members of the priest and warrior castes can sometimes be found among the intendant and worker castes.

The shapers create virtually everything the Yuuzhan Vong use, from clothing to worldships. A strict set of protocols governs the way shapers create new things, and deviating from those protocols is heresy.

Priests are responsible for communicating the will of the gods and often provide council to the Supreme Overlord and warriors.

The warriors are the most commonly encountered caste outside of Yuuzhan Vong society. They are fierce combatants who fight to the death with zealous fervor. The highest warrior rank is Warmaster, followed by supreme commander, commander, subcommander, subaltern, and warrior.

Intendants tend many of the shaper's creations and are responsible for maintaining supply lines during the invasion. Intendants also undertake less savory tasks involving deception and subterfuge, skills frowned upon by warriors.

The workers perform the most menial tasks, such as harvesting equipment and tending to "shaped" creatures. The worker castes include those who were born as workers, those who failed in other castes, enslaved beings, and Shamed Ones (Yuuzhan Vong whose bodies have rejected living implants or who are deformed in some way). Unlike the higher castes, life-long workers tend to bear no ritual scars or tattoos.

Yuuzhan Vong who aren't confined to the worker caste sacrifice body parts to bring themselves closer to perfection (and thus closer to their gods). As their status improves, so do they "improve" themselves. A shaper might be given a fine manipulation appendage in place of a hand, for example. Warriors who sacrifice limbs and organs are given the chance to replace them with superior parts, assuming they can take these parts from a defeated foe. An ambitious warrior may challenge another of higher station to claim such rewards, although the risk of failure is usually death.

For millennia, different faction of Yuuzhan Vong fought one another to determine which faction would rule supreme. The ultimate conflict between the two greatest clans, known as the Cremlevian War, left the Yuuzhan Vong's galaxy uninhabitable. Only their bioengineered worldships remained, and they, too, began too sicken and die. Heeding the prophecies of the gods, the Supreme Overlord sent long-range scout ships to find a new galaxy the Yuuzhan Vong could call their own.

A short while after the formation of the New Republic, Yuuzhan Vong scouts laid the groundwork for a full-scale invasion of the Vordarian Beltway galaxy. Twenty-five years later, the first wave of an all-out assault swept in and quickly devastated everything that stood in its way. Their zealous fervor, bizarre living weapons, and seeming invisible to the Force caught the New Republic and the New Jedi Order by surprise.

The Yuuzhan Vong have torn a ragged path into the heart of the New Republic, pressing all the way to Coruscant. Throughout the invasion corridor, many planets and countless innocent beings have been sacrificed, all for the greater glory of their gods.

Fearless, cruel, and ambitious, the Yuuzhan Vong believe that pain is the most important sensation in life and death. To die honorably in the service of their gods is a Yuuzhan Vong's greatest aspiration. They find the use of "dead" machines repugnant and consider beings who use them infidels. All other beings are weak, and those who cannot serve as slaves are destroyed. Yuuzhan Vong hate the "Jeedai" above all other, and defeating a Jedi in combat can bring a Yuuzhan Vong warrior great honor. Blasphemy against the gods is the most heinous crime a Yuuzhan Vong can commit and is punishable by a swift and ignoble death.

Yuuzhan Vong have sloping foreheads, pale skin (often scared and tattooed), and dark, coarse hair. High-ranking Yuuzhan Vong often sacrifice parts of their bodies to honor their gods, then replace them with new improved ones.

Yuuzhan Vong originated on an unknown planet far outside the known galaxy. During The New Jedi Order era, they live in enormous bioengineered worldships.

Notes:

Shamed Ones are the only members of Yuuzhan Vong society who might consider forsaking their gods by joining forces with non-Yuuzhan Vong characters, although such aberrant representatives of the species are usually hunted down and killed once identified.

Yuuzhan Vong have no connection to the Force and there cannot take Force advantages, Force Powers, and Force skills.

CP:

Type	CP
Attribute Adjustment	+20

Secondary Characteristic Adjustment	-5
Tech Level	+5
Racial Advantages	+42
Racial Disadvantages	-57
Racially Learned Skills and Racial Bonuses	0

TOTAL	+5

13. CREATURES

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By Dark Lord Azagthoth

STAR WARS
DARK LORD AZAGTHOTH

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